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# Public Transit and Shared Mobility COVID-19 Recovery: Policy Options and Research Needs

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## Background

The COVID-19 global pandemic has upended travel and triggered a crisis for public transit and shared mobility services. Since mid-March 2020, public transit ridership for many agencies has fallen by over 60 percent compared to 2019 (APTA, 2020a). In New York City, the Metropolitan Transportation Authority reported that ridership had dropped in mid-March of 2020 by about 50 percent on buses, 60 percent on subways, and up to 90 percent on commuter rail, compared to the same time period in 2019 (Goldbaum, 2020). Meanwhile, Bay Area Rapid Transit (BART) in the San Francisco Bay Area experienced ridership drops of over 90 percent compared to similar time periods in 2019 (Bay Area Rapid Transit, 2020). These impacts are not isolated to urban areas. Many small public transit agencies in rural areas also experienced major declines in ridership (APTA, 2020b). Transportation network companies (TNCs), such as Lyft and Uber, also reported ridership drops in Summer 2020 ranging from 54 to 75 percent compared to the prior year (Rana, 2020). Other forms of shared mobility, such as carsharing, bikesharing, and scooter sharing, have seen mixed changes in ridership, depending on the geography and trip purpose (Bliss, 2020; Wilson, 2020). In contrast, delivery services — driven by growth in e-commerce — are becoming profitable for the first time (Efrati, 2020).

While the COVID-19 crisis has devastated many public transit and shared mobility services, it has also exposed underlying issues in how these services are provided to society. As ridership drops and revenues decline, many public and private providers may respond by cutting service or reducing vehicle maintenance to save costs. As a result, those who depend on public transit and shared mobility services, particularly those without access to private automobiles, will experience further loss of their mobility. These transportation shifts will be further influenced by changing work-from-home policies (e.g., telework). While uncertainty remains, work-from-home will likely alter public transit and shared mobility needs and patterns, necessitating different services, operation plans, and business structures.

Short-term fixes, while critical, will not address issues related to who has access to transportation, poor-quality service, and social equity. To facilitate the recovery of both public transit and shared mobility services in the short-term and improve mobility for society over the longer term, researchers at the University of California Institute of Transportation Studies (UC ITS) and the Transportation Research Board's (TRB) Executive Committee conducted a multi-phase scenario planning exercise based on the Delphi method (Delbecq et al., 1975) from June to September 2020, drawing on 36 experts from across the United States, representing:

- Public transit of various sizes and modal mixes;
- Non-governmental organizations (NGOs);
- Academia and research institutes;
- Transportation consulting and futurists;
- Local, state, and federal governmental agencies; and
- Private transportation, sustainable design, and shared mobility companies.

Together, the experts developed a series of policy options based on possible future scenarios across three timeframes — within 12 months, one to three years, and four to six years — to assist in addressing the short-term challenges and eventual business recovery of public transit and shared mobility services along with longer-term improvements to these industries to increase mobility for all, particularly those in marginalized communities. For each timeframe, the experts chose two key factors that would drive changes in transportation depending on how likely they were to occur and employed these assumptions to frame the individual scenarios they considered. These framing assumptions are provided in Table 1.

**Table 1: Framing Assumptions Guiding Futures Scenario Development**

Timeframe	Level of Optimism	Framing Assumptions
Within 12 Months	Less Optimistic	<ul style="list-style-type: none"> <li>Public Transit Demand Remains Depressed</li> <li>New Funding Sources are Secured</li> </ul>
	More Optimistic	<ul style="list-style-type: none"> <li>Return to Pre-COVID-19 Public Transit Demand</li> <li>New Funding Sources are Secured</li> </ul>
One to Three Years	Less Optimistic	<ul style="list-style-type: none"> <li>Lack of Political Will to Fund and Support Change</li> <li>Slow Economic Recovery</li> </ul>
	More Optimistic	<ul style="list-style-type: none"> <li>Political Will to Fund and Support Change</li> <li>Slow Economic Recovery</li> </ul>
Four to Six Years	Less Optimistic	<ul style="list-style-type: none"> <li>Limited Focus on Sustainability</li> <li>Gradual Evolution in Business Models*</li> </ul>
	More Optimistic	<ul style="list-style-type: none"> <li>Greater Focus on Sustainability</li> <li>Innovative New Business Models**</li> </ul>

\*Gradual evolution in business models refers to incremental developments, such as public-private partnerships among public transit, local/regional governments, and shared mobility operators (e.g., the US Department of Transportation’s Mobility on Demand (MOD) Sandbox initiative).

\*\*New business models reflect innovative (previously untested) approaches to public transport provision through partnerships between the public and private sectors. These new models: 1) embody a synergistic relationship among public transit, local/regional governments, and shared mobility operators; 2) reflect federal funding flexibility; and 3) prioritize social equity and accessibility for marginalized communities.

## Policy Priorities for Each Stage of Recovery

Based on the scenarios generated and their eventual likelihood, the experts recommended the following policy options for each timeframe.

**Within 12 Months – Declare a State of Emergency:** While some additional short-term funding is assumed for this timeframe, public transit demand may or may not return to pre-COVID-19 levels within 12 months. In light of this, public transit operators should take immediate and rapid actions to ensure essential travel and longer-term public transit sustainability. Policy- and decision-makers (e.g., public transit officials, shared mobility leaders, regulators, legislators) should consider declaring a “state of emergency” (similar to actions taken in New York City following the September 11th terrorist attacks) to: 1) integrate public health goals into transportation (e.g., minimizing virus exposure); 2) refocus

attention on customer experience; 3) restore trust in the public transit system; 4) build public-private partnerships (PPPs) (e.g., between private shared mobility operators and public transit agencies) and new funding structures; 5) address barriers to flexibility of using public transit assets and offering innovative services; 6) start initiating systemic social change in transportation (e.g., mobility as a right); and 7) construct coalitions and convene key organizations to combat the crisis.

**One to Three Years – Emphasize Systemic Change:** Over the next one to three years, the most important factor is whether or not a political consensus can be developed to significantly increase public transit funding during an expected slow economic recovery. Once public transit and shared mobility services are stabilized, policy- and decision-makers should: 1) enact new funding and pricing mechanisms (e.g., road pricing, value capture); 2) employ a customer-centric approach to transportation; 3) create new public transit business structures; 4) engage with employers during recovery; 5) incorporate environmental and social equity in all future plans, actions, and policies; and 6) integrate transportation policies into non-transportation (e.g., climate, housing, public health, etc.) legislation.

**Four to Six Years – Build a Mobility Ecosystem Around Public Transit:** In the longer term, the future of public transit and shared mobility will depend on whether they can develop new business models that reflect a significant commitment to sustainable practices. If the groundwork is in place from the previous timeframes, an innovative mobility ecosystem, meshing public transit and shared mobility services, can begin to provide transportation for all, especially marginalized communities. Combining public transit and mobility services, either through PPPs or a public agency mobility program, will offer expanded and flexible services for more people in more geographies and times of day. Public- and private-sector operators will have the opportunity to: 1) create a connected shared mobility ecosystem (e.g., via microtransit, micromobility, and TNCs) that complements public transit; 2) deploy fare payment technology and mobility on demand (MOD) and mobility as a service (MaaS) platforms; 3) emphasize electric vehicle (EV) technology and social equity-based programs to reduce greenhouse gas emissions (GHGs) and localized pollution (e.g., EV subsidies and charging infrastructure in marginalized communities); 4) address labor concerns with automated transit and shared mobility vehicles; and 5) augment resources to retain, retrain, and restructure the public transit and shared mobility workforce to become more multimodal and mobility focused.

## Cross-Cutting Policy Recommendations Across all Stages of Recovery

The experts also developed cross-cutting policy options spanning multiple timeframes, along with supportive research recommendations. These policy options fall into two areas: 1) public transit operator actions and 2) broader policy strategies across key actors to guide public transit and shared mobility. Each area is discussed below.

### Public Transit Operator Actions

Public transit operator actions are categorized into four key areas: 1) planning and operations, 2) customer focus, 3) innovation and technology, and 4) workforce development. These actions are presented below in a brief summary and in Table 2 based on timeframe.

**Innovation and Technology:** Public transit operators should employ innovative technology to offer complementary services among public and private operators. This could be accomplished through: 1) pilot projects; 2) partnerships with shared mobility operators; and 3) MOD/MaaS platforms to fill service gaps, increase mobility options, integrate fare payment across modes and agencies, conduct real-time sensing (e.g., for real-time information via signs/applications), and

build social equity in the availability and frequency of service for public transit-dependent and marginalized populations. Regulatory flexibility in enabling pilot projects, partnerships, new business models, and technology is needed to guide and spur innovation.

**Planning and Operations:** Public transit agencies should focus on planning and operational reforms to better serve marginalized populations and build social equity into transportation services. Key actions include: 1) developing more frequent service and stabilizing funding sources; 2) managing passenger capacity on public transit vehicles to comply with social distancing restrictions (e.g., see Matherly et al., 2020 for examples); 3) identifying new mechanisms for generating revenue; and 4) bringing vehicles and infrastructure up to good repair. Agencies should also consider adopting a multimodal approach toward transportation infrastructure and services (e.g., agencies facilitating access across multiple modes), along with land-use policies to increase affordable and dense housing.

**Customer Focus:** Public transit agencies should adopt a customer-centric business approach that ensures safe, healthy, and high-quality service focused on connecting and moving people, which increases social equity and addresses the needs of public transit-dependent and marginalized communities. Such an approach also will engage communities and continue to build support for public transit as an essential right.

**Workforce Development:** Early actions should identify and meet critical needs for public transit workers to ensure their safety throughout the COVID-19 recovery (e.g., supplying personal protective equipment, moving riders away from drivers). Longer-term policy options and strategies could include building training programs to retain and add new drivers and workers, while considering the future effects of automation. The industry should consider restructuring public transit agencies to be more flexible, adaptive, and multimodal.

**Table 2: Public Transit Operator Actions for COVID-19 Recovery Across Timeframes**

Public Transit Operator Actions	Action	12 Months	1 to 3 Years	4 to 6 Years
	Deploy more sensing, fare media integration, and contactless options	●		
	Employ technology to address public transit crowding (e.g., automated passenger counting systems)	●		
	Focus more on microtransit by metropolitan planning organizations (MPOs), reflecting a spectrum of service needs and right-sized vehicles and services	●	●	
	Explore new ideas (e.g., Concept of Operations), employ a ground-up strategy for Federal Transit Administration (FTA) funding, and carefully educate/familiarize the FTA about new ideas/approaches	●	●	
	Deploy technology-driven road pricing along with flexible allocation of curb space for different uses including deliveries, TNCs, and active transportation		●	
	Integrate EVs into public transit and shared mobility companies		●	●
<b>Innovation and Technology</b>	Employ automated vehicles (AVs) in public transit and shared mobility companies and work on addressing AV barriers (e.g., labor, retraining)		●	●
	Leverage data, fares, scheduling, and service integration technologies to create multi-agency coordination for travel across a region		●	●
	Relax federal, state, and local regulations that inhibit the testing of new technology and innovative approaches	●	●	●
	Deploy more MOD/MaaS options, including integrated payment	●	●	●
	Employ partnerships to fill service gaps (e.g., microtransit partnerships with Via; TNCs partnerships for paratransit, late-night service, and low-ridership routes) or create more agency-operated MOD services (e.g., turnkey contracts)	●	●	●
	Employ pilot projects to test new ideas (openness to entrepreneurialism)	●	●	●
	Build dashboards and real-time sensing and tracking of assets, services, and operations to increase reliability	●	●	●

Public Transit Operator Actions	Action	12 Months	1 to 3 Years	4 to 6 Years
	Prioritize services for people who are public transit dependent	●		
	Use reduced travel demand as an opportunity to bring infrastructure and vehicles up to state of good repair	●		
	Focus on cash flow management and funding stabilization when demand is down	●	●	
	Carefully manage capacity restrictions, weighing both virus transmission and ridership/revenue	●	●	
	Rely on turn-key contractors and lessons learned from other MOD PPPs to speed up partnerships, meeting shifting travel demand more quickly	●	●	
	Begin exploring alternative and/or flexible funding mechanisms for transportation (e.g., property tax, carbon market mechanisms, road user charge, revenue bonds, etc.)		●	
Planning and Operations	Expand services to core and choice riders, respectively		●	●
	Leverage zoning and development mechanisms to increase affordable and dense housing near public transit		●	●
	Expand infrastructure changes (e.g., slow streets, bike lane construction) to provide multimodal access and a high-level of service to micromobility and walking		●	●
	Do more with fewer resources, which could be accomplished via more efficient operations and maintenance practices (while still ensuring safety)	●	●	●
	Build socially and racially equitable services and fare collection policies	●	●	●
	Increase job and service access for low-income, essential worker, transit-dependent, and marginalized populations via public transit and shared mobility services	●	●	●
	Require social equity in service and operations to overcome structural racism (e.g., walking while Black, predictive policing, racially motivated fare enforcement)	●	●	●



Public Transit Operator Actions	Action	12 Months	1 to 3 Years	4 to 6 Years
	Identify public transit-dependent communities and workers and provide quality service to these riders	●		
	Promote an attitude of “public transit is here for you” through campaigns	●		
	Deploy public campaigns around safety of public transit, public health, etc.	●	●	
	Increase availability and wide distribution of micromobility options for connection to and from public transit	●	●	
	Increase customer engagement to provide rapid and useful feedback to improve the system	●	●	
	Provide a rating system for every trip on public transit as a low-cost, crowdsourced improvement mechanism		●	
	Convey importance of fare collection through campaigns and education to reduce fare avoidance		●	
	Augment quality service for dependent riders by renewing service quality for core riders and choice riders		●	●
Customer Focus	Change the narrative that public transit is an important service to public transit is an essential right and essential to society (campaign)		●	●
	Build longer-term and sustainable transportation demand management (also known as TDM) strategies for employers and their employees		●	●
	Provide quality service to connect and move people, not just vehicles	●	●	●
	Plan for the entire end-to-end trip, not just in-transit portion of trips	●	●	●
	Tailor services for essential workers (e.g., more frequent headways, longer service hours)	●	●	●
	Support more comprehensive transportation service by redistributing current funding to public transit-dependent and marginalized communities	●	●	●
	Alter fare structures to allow for free or means-based fares for riders, particularly for marginalized populations (e.g., Black, Indigenous, and people of color communities; low-income households)	●	●	●

Public Transit Operator Actions	Action	12 Months	1 to 3 Years	4 to 6 Years
	Develop COVID-19 training programs and address notable impacts on the workforce from COVID-19, especially related to public health and safety	●		
	Determine how to combat the depletion of the public transit workforce as a result of COVID-19 and retirements	●	●	
	Provide an infusion of funding and start restructuring public transit agencies to grow the profession		●	
Workforce Development	Create a recruitment campaign to encourage people to think about mobility as a career		●	●
	Implement internal agency change by shifting internal funds to address climate change and restructuring agencies to focus on multimodality		●	●
	Consider how to implement automation into public transit and address workforce needs and development based on federal labor regulations and retraining		●	●
	Work closely with unions to address a range of concerns, including reduced workforce, training, and automation	●	●	●
	Identify the transportation needs of essential workers, including public transit operators	●	●	●

## Broader Policy Strategies

Along with public transit operator actions, the experts developed four broader policy strategies that include both public transit and shared mobility operators across the three timeframes: 1) immediate policy actions across actors; 2) alignment of public transit services with broader societal objectives (e.g., environment, social equity, resilience); 3) federal transportation spending reforms through the Congressional reauthorization process;<sup>1</sup> and 4) finance and subsidies (Table 3).

<sup>1</sup> Federal transportation spending (e.g., surface transportation) is governed by authorization bills over a set period. The current Fixing America's Surface Transportation (FAST) Act was enacted in 2015 for five years and was extended one year through fiscal year 2021.

**Table 3: Broader Policy Strategies for Public Transit and Shared Mobility Across Timeframes**

Broader Policy Strategies	Action	12 Months	1 to 3 Years	4 to 6 Years
Immediate Policy Actions Across Actors	Declare a state of emergency, setting the stage for structural change and federal transportation spending reauthorization	•		
	Allow waivers to procurement rules (e.g., Buy American Rules)	•		
	Repurpose existing vehicles – even partial fleets – for new services (e.g., goods delivery, medical transportation)	•	•	
	Make space grabs (e.g., dedicate more traffic lanes for public transit during the COVID-19 recovery)	•	•	•
	Develop partnership requirements to ensure that all partners and partnerships* are supporting sustainable transportation goals	•	•	•
	Integrate social equity (e.g., assistance for essential workers, programs for marginalized communities) immediately across modes	•	•	•
Alignment of Societal Objectives	Create more targeted, scaled services (e.g., on-demand mobility, high-frequency service) by clearly defining service needs and goals**	•	•	•
	Take advantage and expand upon environmental streamlining policies (e.g., SB 743 in California) to increase the speed of environmental reviews without compromising environmental needs, mitigation, and goals	•	•	•
	Adopt new metrics and measures for public transit performance that place more focus on social equity, safety, and environmental outcomes at the local, regional, state, and federal levels	•	•	•
	Implement policies to ensure coordinated rather than competing services, including ensuring more flexibility at the local level	•	•	•
	Focus on reducing reliance on autos as a single mode, for example through road pricing in large, more urbanized areas		•	•
	Build a complementary system of shared mobility and public transit that improves access to jobs and services		•	•

Broader Policy Strategies	Action	12 Months	1 to 3 Years	4 to 6 Years
Federal Transportation Spending Reauthorization	Begin leveling the playing field across modes through more funding for public transit and shared mobility and increased flexibility to spend federal funds based on local needs	●	●	
	Fundamentally restructure future federal transportation spending around providing mobility (as opposed to infrastructure), emphasizing public transit as a backbone	●	●	●
	Develop a Traveler's Bill of Rights, <sup>***</sup> growing the discussion of transportation toward people and flexible approaches (e.g., leveraging assets in new ways to fulfill basic transportation needs)		●	●
	Increase flexibility in funding formulas and allocation to allow local, regional, and state governments to institute innovative and creative projects and services		●	●
	Embed transportation funding and policies in non-transportation bills (e.g., climate, housing, public health, etc.)		●	●
	Explore US Department of Transportation becoming a Federal Mobility Administration with a holistic view toward mobility and funding			●
Finances and Subsidies	Reallocate resources to support sustainable transit modes and better serve historically marginalized communities	●	●	●
	Provide enough funding and human resources for public transit to serve as a social service	●	●	●
	Stabilize funding streams for essential transportation (e.g., rides to wellness checks, rides to education and work)	●	●	●
	Address social equity by providing fare subsidies for people that cannot afford them with linkages to MOD/MaaS and mobility wallets for managing customer incentives/subsidies and transportation payments		●	●
	Promote road and congestion pricing (e.g., tolling, vehicle miles traveled fees) to fund transportation and invest in mobility		●	●
	Explore and implement alternative funding structures that price transportation externalities (e.g., carbon tax, road user charge, congestion pricing, etc.)		●	●

\*Partnerships could be among public transit operators, local/regional governments, and shared mobility companies.

\*\*Goals, such as accessibility, environment, social equity, resilience, should be developed through a conversation among agencies, companies, other key stakeholders, and the public.

\*\*\*This may include a provision related to a universal basic travel program, which would either dedicate a fixed total of funds to households for transportation and/or make public transit free.

## Targeted Research Needs to Support Recovery

The experts also developed a list of multiple research needs to inform and guide policy options to achieve COVID-19 recovery and longer-term sustainability and resilience for public transit and shared mobility services. Research topics and needs include:

- Evaluating travel behavior impacts resulting from work-from-home and telework;
- Understanding the effect of changes to TDM, parking policies, and employer-provided transportation options (e.g., shuttles) on public transit and shared mobility services;
- Modeling a wide range of scenarios for public transit and shared mobility;
- Identifying and evaluating regulatory inconsistencies across local, state, and federal levels;
- Identifying and assessing opportunities to remove regulatory restrictions on using spending and assets;
- Considering a sliding scale for federal requirements on public transit funding (e.g., federal procurement, safety, and asset management requirements), which reflects the actual proportion of federal funding received for these initiatives;
- Analyzing a range of different funding mechanisms for public transit (e.g., value capture, new business models for Wi-Fi access through buses, goods delivery via transit vehicles, etc.);
- Evaluating means to provide alternative transportation services to low-income and marginalized areas that cannot be well served by traditional public transit (e.g., microtransit, TNCs, and the application of public transit services to secure food for youth and older adults);
- Examining racial and social equity issues with regard to current fare payment and enforcement policies;
- Developing new fare structures based on financial sustainability goals;
- Encouraging innovation and technology through pilot programs/evaluation;
- Evaluating mechanisms to develop successful PPPs;
- Understanding institutional barriers to developing a multimodal transportation ecosystem;
- Investigating opportunities and policy options to build affordable housing in public transit rich places;

- Studying and testing new data standards and metrics to better measure outcomes in achieving key equity, environmental, resilience, and accessibility goals;
- Evaluating how changes in land use and density, resulting from COVID-19, will impact trip patterns and public transit ridership levels; and
- Evaluating behavioral changes in e-commerce and the impact on goods movement and curb management (e.g., how to manage space at curbs for deliveries and other uses).

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