Interstate Transit Research Symposium 2020
Speaker, Panelist, and Moderator Biographies

Learning from the Past to Finance Transit in the Future

Martin Wachs, Distinguished Professor Emeritus, University of California

The COVID pandemic made the financial fragility of America's public transit systems obvious, though most of the financial challenges facing transit existed prior to the recent emergency. Services desperately needed by some communities were difficult to provide because of the ways in which transit was funded and financed. Transit services will continue to change dramatically as demand patterns and technology change. The recent emergency highlights two principles that should guide financing transit in the future. First, transit should be financed by multiple diverse revenue streams, including fares and complementary taxes and fees that reflect the benefits that transit delivers. The transit agencies that fared best during the recent emergency are those having multiple and diverse financial bases well matched to their operating environments. Second, transit pricing, fares, and taxes should be designed to produce more than money. Revenue instruments also should be designed to achieve policy objectives like increasing transit's market share, better serving transit dependent populations, reducing traffic congestion, and promoting urban development objectives.

Asha Weinstein Agrawal, Professor, San José State University

The COVID-19 pandemic has exacerbated the budget crisis for public transit operators, creating an urgent need -- but also an opportunity -- to rethink what tax and fee revenues can supplement revenue from fares. The presentation begins with a brief overview of the different funding sources that currently support public transit in California, from fares to local, state, and federal tax and fee revenue. This overview is followed by a proposed framework to evaluate different revenue options: revenue potential, administrative feasibility, transportation system performance impacts, impact on non-transportation public priorities, equity, and political feasibility. The presentation next explores different tax and fee options from the perspective of two of those criteria: political feasibility and equity. Evidence from ballot measures and public opinion surveys offers insight into the public's willingness to pay for transit, and different equity concepts are applied to key tax and fee options. The presentation concludes by reflecting on the potential for public transit to rely more heavily on revenue generated by road users, such as toll revenue, gas taxes, and mileage fees.

Public Transit, Access, and Racial Inequality

Evelyn Blumenberg, Professor, UCLA Luskin School of Public Affairs

Access to opportunities such as jobs, schools, or services are shaped, at least in part, by travel mode. The vast majority of all US households—even low-income households—have at least one automobile. In most cities and neighborhoods within them, cars provide greater access to opportunities within a reasonable travel time than other modes. However, the percentage of households without cars is significantly higher among low-income and non-white households, potentially putting them at a significant access disadvantage. This talk will focus generally on the relationship between mode and accessibility and, more specifically, on the role of public transit in addressing access and racial inequality.

Kari Watkins Edison, Associate Professor, Georgia Tech and Director, T-SCORE University Transportation Center

For almost a decade, transit ridership in the United States has been on the decline. As ridership declines, agencies lose fare revenue and often reduce service to meet budgets, resulting in further ridership losses. These pre-COVID declines in transit ridership were already worrisome because traditional factors that explain ridership such as service levels, population and employment were trending in positive directions. Through multiple studies, including a system-level, multi-city analysis, we have established the sensitivity of transit ridership to changes in multiple variables (service miles, fares, population, income, teleworking, and ridehailing usage). The goal of our new USDOT Center, T-SCORE, is to move beyond defining the problem of ridership decline and to develop strategies for achieving sustainable and resilient transit into the next decade or more.

Micromobility for Smart Cities: Planning, Design, and Operations

Xilei Zhao, Assistant Professor, University of Florida

In 2019, micromobility, i.e., the small, lightweight vehicles such as dockless e-scooters, emerged on the urban streets of dozens of cities almost overnight. These devices are flexible, convenient, fun to use, and especially attractive for serving short-distance trips. To study micromobility, we have developed a package of algorithms to infer trips from the raw General Bikeshare Feed Specification (GBFS) data. We then used the inferred trips to analyze trip origins and destinations for shared e-scooter use at the street-segment level, where we found preliminary evidence to suggest that e-scooters are complementing public transit. Lastly, we conducted an exploratory spatial analysis to investigate if e-scooters fill transit service gaps before and during COVID-19.

Increasing Independence in a Rural Community

Ann Guerra, Executive Director, Connecting Point

What does travel training look like in a rural community? Our program is relatively new and currently challenged by the pandemic. Our community has long had sidewalks and curb cuts only in the very small downtown areas. In the last few years, the two towns, Grass Valley and Nevada City, that make up the "urban" core of Western Nevada County have greatly expanded sidewalk connections and accessible features, creating new fixed route transit opportunities for people with disabilities. Our community has a large proportion of seniors, and senior women in particular, have been attracted to using the bus system for their needs. Connecting Point has a 211 program which gives us easy outreach opportunities to our target groups. Our program works in close coordination with our transit services system and when social distancing is not a concern, we look forward to returning to serving individuals and also providing travel training to groups.

Overview of Hydrogen-Powered Railway Motive Power Vehicles (Hydrail)

Dr. Andreas Hoffrichter, Deutsche Bahn Consulting

Railways are an efficient mode of transportation with low environmental impact. The two primary incumbent motive power options are electric, where power is supplied through wayside infrastructure, and diesel-electric where electricity is generated on-board through combustion of diesel, the latter dominant in North America. Diesel combustion leads to emissions that impact air quality and contribute to climate change. Alternatives to diesel and wayside electrification are required for rail to retain its environmental advantage and remain competitive. Hydrogen-powered motive power vehicles (hydrail) avoid harmful exhaust emissions, do not rely on continuous wayside power infrastructure, and offer attractive operational attributes, such as significant range and comparatively short refueling times. An overview of hydrogen and its application to the railway sector will be provided in this contribution, covering the rationale for the energy carrier hydrogen, possible production pathways, high-level powertrain concept, and examples hydrail applications.

City of Gainesville Transit Autonomous Vehicle (AV) Pilot Project

Jesus Gomez, Transit Director of the City of Gainesville Regional Transit System (RTS)

The City of Gainesville (COG) partnered with the FDOT and the University of Florida (UF) for Transit Autonomous Vehicle (AV) pilot project. Project began in April 2018 with Transdev and Easy Mile vehicle operating 8-10 hours per day in a mixed environment traffic consisting of other vehicles, pedestrians, and bicyclists. Project consists in 4 phases: Phase 1 (Current Operation): The first phase of operation provides service within the downtown area of Gainesville for 1.2 miles. Phase 2 (In planning): Extension crossing a signalized intersection. The vehicles will employ Dedicated Short-Range Communication (DSRC) technology along with other sensors to

communicate with the signalized intersection. Phase 3: Extension to 1.5 miles in one direction serving a public park and crossing additional signalized intersections. Phase 4: The final phase of the project is to operate the vehicles as an on-demand service within a specific geo-fenced area. Phase 1 Lessons learned will be presented.

Open Source Software in Public Transportation

Sean Barbeau, Center for Urban Transportation Research

The public transportation industry increasingly uses software to support mobility services. This presentation provides a review of how open source software (OSS) in the transit industry has evolved into production deployments at transit agencies, in particular looking at the OneBusAway, OpenTripPlanner, and TheTransitClock open-source projects. OSS offers several potential benefits, including avoiding vendor lock-in, avoidance of proprietary software licensing and subscription costs, collaboration and resource-sharing with other agencies, and a greater control and faster response with respect to strategic software development priorities. Suggested strategies include working with multiple stakeholders, developing a governance and funding structure, and leveraging widely used and tested guidance and templates to address OSS procurement, legal, licensing, governance, and financing.

Marcy Jaffe, Transnnovation

Many agencies find that when they build and manage their trip plan data in-house, they are prepared during pandemic disruptions to keep the data up-to-date. Trip plan data is also known as General Transit Feed Specification (GTFS). With accurate data, riders make fewer calls to customer service asking about minor and important service adjustments. This session will offer a walk-through on National Rural Transit Assistance Programs GTFS Builder using MS Excel and Google Earth to output full-function GTFS. We will share agencies who include "GTFS-Flex-lite" to help riders discover on-demand services within the current, less flexible, GTFS mandates. Our toolkit comes with hands-on, one-on-one technical assistance at no cost to local agencies (populations under 50,000). Please visit nationalrtap.org and our support center to learn more about GTFS Builder and bring your questions to our session.