



**San Francisco
County Transportation
Authority**



Testimony Of

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Regarding

**Pricing and Technology Strategies to Address Congestion on
and Financing of America's Roads**

Before The

United States House of Representatives

Subcommittee on Highways and Transit

Committee on Transportation and Infrastructure

September 11, 2019



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INTRODUCTION

Chair Norton, Ranking Member Davis, and Members of the Subcommittee, thank you for the opportunity to provide the San Francisco County Transportation Authority and Intelligent Transportation Society of America's (ITS America) perspectives on "Pricing and Technology Strategies to Address Congestion on and Financing of America's Roads."

My name is Tilly Chang, and I am Executive Director of the San Francisco County Transportation Authority (SFCTA). As Congestion Management Agency and transportation sales tax administrator for San Francisco, the Transportation Authority collaborates with public agencies, community groups, and the private sector to improve transportation options for residents, local and regional commuters, and visitors. Our mission is to make travel safer, healthier, and easier for all.

Our agency's Board of Commissioners are the eleven members of the Board of Supervisors of the City and County of San Francisco. As the designated Congestion Management Agency (CMA) for San Francisco under state law, we have a wide range of responsibilities, including prioritizing state and federal transportation funds for San Francisco, preparing the long-range Countywide Transportation Plan, and developing a computerized travel demand forecasting model and supporting databases.

Before becoming SFTCA's Executive Director in 2013, I served as the Transportation Authority's Deputy Director for Planning and held posts with the World Bank, Metropolitan Transportation Commission (MTC), and a technology startup. I serve on the boards of the California Transportation Foundation, San Francisco Bay Area Planning and Urban Research Association, and the University of California Transportation Centers.

I also serve on the ITS America Advocacy Trust, which is the association's principal policymaking group, where I most recently advised on the association's Fixing America's Surface Transportation (FAST) Act reauthorization platform: *Moving People, Data, and Freight: Safer. Greener. Smarter*. ITS America's vision is "A better future transformed by intelligent mobility – one that is safer, greener, and smarter." Our mission is to advance the research and deployment of intelligent transportation technologies and solutions to save lives, improve mobility, promote sustainability, and increase efficiency and productivity. Our focus is policy that accelerates seamless mobility technology, connected and automated vehicle technologies, and smart infrastructure; policy that breathes new life into our transportation infrastructure by expanding investments in technologies that support smart communities; and policy that encourages new models and modes of transportation, including micro-transit, rideshare, carshare, bikeshare, micro-mobility, and unmanned systems. Investments in these new modes should also address issues of transportation equity so everyone gains access to mobility and opportunity.

ITS America recognizes that only with investment certainty will cities, metropolitan areas, and states see and benefit from transformational deployment of intelligent transportation technologies that will define the way people, goods, services, and information move in the 21st century. To that end, ITS America's *Moving People, Data, and Freight: Safer. Greener. Smarter*. FAST Act reauthorization platform supports maintaining federal programs that allow state, metropolitan areas, and city congestion pricing strategies.



The following sections of my testimony are real-world pricing and technology use cases in the San Francisco Metropolitan Area. Following the use cases are ITS America's FAST Act reauthorization priorities that bridge new and exciting infrastructure technologies and new modes of mobility that we see across the country with the utmost importance of this Congress to make urgent investments to bring our nation's transit, roads, bridges, and rail infrastructure to a state of good repair and to integrate technology in order to maximize infrastructure and mobility efficiencies and safety through a timely reauthorization.

**PRICING AND TECHNOLOGY STRATEGIES:
REDUCE TRAFFIC, IMPROVE PUBLIC HEALTH, AND INCREASE EQUITY**

Congestion in San Francisco has reached record levels: whether on Muni buses or in private cars, commuters average 5-10 mph on our city streets during peak periods.¹ Rising population and job growth—combined with a growing presence of ride-hail vehicles—has resulted in clogged streets, particularly in our downtown, South of Market and Eastern neighborhoods. We are studying congestion pricing implementation options because this strategy has the potential to dramatically reduce traffic, improve public health and increase equitable access for our community.

Given our city's long-standing Transit First Policy, San Francisco has deployed multiple transit, bicycling and pedestrian improvement strategies, and paired these with land use, parking and managed lanes initiatives, to tackle congestion. However, with the addition of 80,000 residents² and over 150,000 jobs³ since 2010, and the rise of transportation network companies (TNCs), San Francisco is experiencing significant levels of congestion on our roadways. In a typical year, San Francisco commuters are estimated to spend 116 hours (or almost 3 work weeks) stuck in traffic.⁴

Apart from the economic cost of this congestion, we are concerned about the safety, public health and equity impacts of gridlock. On average, a Muni bus travels at one half to two-thirds the speed and reliability of private vehicles on our downtown streets, while carrying 40 times more people of lower than average incomes. High volumes of vehicles also contribute to San Francisco's record high numbers of severe and fatal crashes involving pedestrians and cyclists (here San Francisco's troubling trends mirror national ones⁵), which our Vision Zero policy seeks to eradicate.⁶ And, in addition to generating heavy loads of particulate emissions affecting

¹SFCTA, 2017 Congestion Management Program, https://www.sfcta.org/sites/default/files/2019-03/CMP_2017_12.05.17.pdf

² <https://sf.curbed.com/2018/3/26/17165370/san-francisco-population-2017-census-increase>

³ https://www.sfcta.org/sites/default/files/2019-05/TNCs_Congestion_Report_181015_Finals.pdf

⁴ <http://inrix.com/scorecard/>

⁵ <https://www.nytimes.com/2019/03/07/us/pedestrian-deaths.html?auth=login-email&login=email&module=inline>, "An estimated 6,227 pedestrians were killed in traffic in 2018, according to the study from the Governors Highway Safety Association, a projection based on data from the first half of the year. That figure represents a striking rise from a decade earlier, when 4,109 pedestrians were killed in traffic."

⁶ <https://www.visionzerosf.org/>



freeway adjacent neighborhoods, rising vehicle use and congestion makes the transportation sector the largest component of greenhouse gas emissions in our city and state. In San Francisco, due to the clean profile of our stationary sources energy use, the transportation sector accounts for 46% of greenhouse gas emissions.⁷

For this reason, with the help of Federal, state and regional funding partners, we are investing heavily in rail expansion for Bay Area Rapid Transit (BART), our local Muni, and Caltrain, and adding signal priority and dedicated lanes for buses and bicycles. We are emphasizing safer streets in pursuit of our Vision Zero goals and changing land use polices to reduce parking requirements and vehicle miles traveled (VMT). But as I noted in a news article earlier this year, all of this has not been enough.⁸ Hundreds of thousands of commuters, on Muni buses and in cars, experience gridlocked conditions on typical weekday peak periods in our city's core.

While a significant portion of this chronic on-street congestion in San Francisco is due to economic growth, a comparable contributor is the rise of ridehail trips by transportation network companies (TNCs). In our 2017 report "TNCs Today," we estimate that on an average weekday, about 170,000 ridehail trips operate on our streets, accounting for about 1 in 4 trips downtown and 15% of intra-city (local) daily trips, citywide.⁹ Our TNCs and Congestion report subsequently estimated that about 50% of the rise of congestion in San Francisco between 2010 and 2016 was due to the growth of ridehail services and that TNC trips account for 25% of total 2016 citywide congestion.¹⁰ Recently released trip figures from Uber and Lyft themselves indicate that San Francisco TNC trip activity exceeds our 2017 estimates, likely due to the addition of two years of trip growth and the inclusion of all San Francisco trips, including regional trips with one trip end outside of San Francisco.¹¹ The benefits of ridehail are numerous in many areas, but for San Francisco, the impacts are great as well, in terms of induced traffic, conflicts with pedestrians, bus and bicycle lanes, and erosion of public transit ridership.¹²

With limited ability for San Francisco to regulate ridehail companies (due to California Public Utilities Commission exclusive regulatory jurisdiction), recent local plans, studies¹³ and task forces¹⁴ in San Francisco have recommended strategies like congestion pricing and a per-ride tax to manage demand and generate congestion relief funds to offset the impact of these services. San Francisco is currently pursuing both congestion pricing (on all peak area motorists) and a per-trip tax measure (citywide). Because our workforce is highly regional, we have requested

⁷ SF Department of the Environment, San Francisco Climate Action Plans 2014-2017

⁸ <https://www.nytimes.com/2019/04/01/nyregion/new-york-congestion-pricing.html>, "Everyone agrees there's a [congestion] problem. There are multiple views of the solution. But frankly, we've tried a lot of them and they're not enough."

⁹ SFCTA, TNCs Today, 2017, <https://www.sfcta.org/projects/tncs-today>

¹⁰ SFCTA, TNCs and Congestion, 2018, <https://www.sfcta.org/projects/tncs-and-congestion>

¹¹ <https://www.citylab.com/transportation/2019/08/uber-lyft-traffic-congestion-ride-hailing-cities-drivers-vmt/595393/>

¹² Regina R. Clewlow and Gouri Shankar Mishra, "Disruptive Transportation: The Adoption, Utilization, and Impacts of Ride-Hailing in the United States", UC Davis, October 2017.

¹³ SFCTA, Emerging Mobility Evaluation Report, 2018, https://www.sfcta.org/sites/default/files/2019-03/Emerging%20Mobility%20Studies_11.pdf

¹⁴ San Francisco Transportation 2045 Task Force Report, 2018, https://www.sfcta.org/sites/default/files/2019-03/T2045%20TF%20Report%20for%20TA%20Board_v2.pdf



and received funding and technical support for our congestion pricing study from the Metropolitan Transportation Commission, our regional MPO (metropolitan planning organization). The ridehail industry also is generally supportive of area-based congestion pricing as a congestion reduction strategy, provided all vehicle trips are priced.¹⁵

Some experts believe the popularity of ridehail services are a precursor of what the future may bring with automated vehicles (AV).¹⁶ Deployed ideally, AVs will result in safety, mobility, economic, and environmental benefits. For example, if deployed as shared, electric, and affordable fleet-based services, AVs should dramatically increase safety, increase the accessibility and efficiency of our transportation system and reduce demand for parking and road space. On the other hand, the ease, comfort and convenience of AVs could induce greater private vehicle travel demand and associated vehicle miles of travel (VMT), exacerbating congestion, hindering transit performance, and widening equity disparities. This risk presages the need to explore management strategies like de-congestion pricing and the prioritization of street space for sustainable modes.¹⁷ To avoid further gridlock, SFCTA is investing in dedicated infrastructure for walking, bicycling, transit and carpooling and studying the best way to implement congestion pricing.¹⁸

In this way, San Francisco is joining cities around the United States and the world that are looking to transportation demand management, pricing and incentives to help reach safety, climate, access, equity and Transit First goals.¹⁹ In the United States, multiple cities are also examining potential applications of area-based congestion pricing.

PRICING AND TECHNOLOGY STRATEGIES: CONGESTION PRICING AND REWARDS – SAN FRANCISCO’S EXPERIENCE

What is congestion pricing? Congestion pricing is a way to manage demand for driving by charging motorists a fee to drive in the most congested locations at the most congested times of day (typically AM and PM peak). It is one of the most cost-effective tools in our congestion management toolbox. Industry best practice is to evaluate congestion pricing carefully and inclusively, typically packaging the pricing with incentives/rewards, discount and exemption policies, and multimodal improvements funded by the pricing program itself.

Below is a summary of key San Francisco pricing-related programs and initiatives:

1. **SFMTA SFpark Program** - In the late 2000’s, during the Bush Administration and under U.S. Secretary of Transportation Mary Peters, SFCTA, the MTC and our sister agency the San Francisco Municipal Transportation Agency (SFMTA) applied for and

¹⁵ <https://www.vox.com/the-goods/2019/8/6/20757593/uber-lyft-traffic-congestion-pricing>

¹⁶ There are a large number of unknowns about how AVs will impact the transportation system. As such, cities and states should retain existing roles and responsibilities with respect to the operation of AVs or vehicles equipped with automated driving systems to shape and manage a range of possible AV futures.

¹⁷ <https://www.weforum.org/agenda/2019/07/autonomous-vehicles-driverless-cars-public-transport>

¹⁸ <https://www.sfcta.org/policies/transit-first-policy>

¹⁹ <https://www.sfcta.org/policies/pricing-incentives>



received a Federal Urban Partnership Program grant.²⁰ This grant allowed SFMTA to develop and test its *SFpark* parking management system at 7,000 metered spaces and 12,250 spaces in city-owned parking garages.²¹ The *SFpark* pilot collected and distributed real-time information about available parking so that drivers can quickly find open spaces. To help achieve the ideal level of parking availability, *SFpark* periodically adjusts meter and garage pricing up and down to match demand. Demand-responsive pricing encourages drivers to park in underused areas and garages, reducing demand in overused areas. Through *SFpark*, real-time data and demand-responsive pricing work together to readjust parking patterns in the city so that parking is easier to find. As a federally-funded demonstration of a new approach to managing parking, the *SFpark* project collected an unprecedented data set to enable a thorough evaluation of its effectiveness.²² A main finding of the evaluation was that, even as the economy, population, and overall parking demand grew, parking availability improved dramatically in *SFpark* pilot areas. The target parking availability (60-80% occupancy) increased by 31 percent in pilot areas, compared to a 6 percent increase in control areas. Federal funding through the Department of Transportation's Urban Partnership Program paid for 80 percent of the *SFpark* project.

2. **2010 Congestion Pricing Feasibility Study** - In 2007, after visiting officials in Stockholm and seeing the success of their cordon pricing system, our agency received a federal Value Pricing Pilot Program grant to study downtown cordon pricing in San Francisco. The \$1 million VPPP grant was key to our ability to conduct inclusive community outreach and thorough technical studies on potential pricing program designs. The San Francisco Mobility Access and Pricing study found that an area-pricing program would be feasible and effective and recommended a "northeast cordon" pilot, with peak period charges of \$3/crossing and a series of discounts for residents of the zone and low-income motorists. This program was estimated to reduce peak period vehicle trips by 12%, increase bus speeds by 20-25%, generate net \$80M/year in revenues toward funding a multi-modal package of transit, bicycling and mobility improvements, and ultimately to reduce daily emissions by about 16%.²³
3. **2011 Treasure Island Development and Transportation Improvement Plan** – In 2011, San Francisco approved a large multi-use development on Treasure Island that includes congestion pricing as a way to manage demand for driving and fund robust investment in bus, ferry and non-motorized infrastructure across the Island. Following passage of state legislative authority to implement congestion pricing on the Island, SFCTA (acting as the Treasure Island Mobility Management Agency) became the administrator of the transportation program in 2014 and continues to develop the toll system and transit service and affordability program, as well as to lead a Federally-funded (2016 ACTMTD grant, awarded to SFMTA) on-Island tolling system and Autonomous Vehicle Shuttle pilot project.²⁴

²⁰ <https://ops.fhwa.dot.gov/congestionpricing/agreements/docs/termsheetsanfran.htm>

²¹ <https://www.sfmta.com/projects/sfspark-pilot-program>

²² <https://www.sfmta.com/getting-around/drive-park/demand-responsive-pricing/sfspark-evaluation>

²³ SFCTA, Mobility Access and Pricing Study, 2010, <https://www.sfcta.org/projects/downtown-congestion-pricing>

²⁴ <https://www.sfcta.org/projects/treasure-island-transportation-program>



4. **2017 BART Perks Rewards Program and Pilot** – BART Perks was a six-month federally-funded (VPPP) test program led by SFCTA in partnership with BART to explore the use of incentives and rewards to reduce crowding on BART. The goal of the program was to see if small incentives could effectively encourage people to ride outside of the morning rush. The pilot found that incentives can successfully shift the travel behavior of BART riders. Evaluation studies found that of the 2,600 Perks participants who had traveled during the peak hour each day before the program, an average of 250 Perks participants each weekday (about 10%) shifted their ride to either before or after the peak morning rush hour. That amounts to the equivalent of two full BART cars being freed up each weekday morning during BART's busiest hour.²⁵
5. **2017-2019 Managed Lanes Studies (ongoing)** - Like other counties and regions, we are also leading express lane studies for US101-I-280 within San Francisco, in partnership with Caltrans and MTC.²⁶ Express lanes are a system of freeway lane management that aims to improve reliability and efficiency (people throughput) of regional highways by allowing transit and carpool trips to use the lane for free, and solo travelers to use the lane for a fee. The fee level is typically dynamically set to maintain reliable travel times and reliability of the lane. Net revenues may be invested in public transit services in the corridor (regional and local public bus services). Our board has asked that equity analyses and transit service planning be integrated into our managed lanes studies to ensure a comprehensive and equitable approach, going forward.
6. **2019 Congestion Pricing Update** - Finally, we are currently updating our prior study of cordon pricing for the northeast quadrant of San Francisco. We believe a program that utilizes pricing and incentives can greatly improve system efficiency (person/goods movement), effectiveness (improving reliability, travel times, travel options) and equity (reducing emissions, increasing public health, advancing equity). Two new aspects to this study compared with the prior 2010 study will be how to address TNCs and new mobility modes and how to bring incentives and rewards into the program design. While other cities are looking to congestion pricing to raise revenue as well as to manage demand, we remain focused on reducing private vehicle demand, with net revenue - which can fund increased transit service and bicycle/pedestrian and circulation improvements as well as equity investments - as an important, but secondary, objective.

PRICING AND TECHNOLOGY STRATEGIES: MAKING SURE PRICING PROGRAMS ARE FAIR

One concern that our SFCTA Board and members of the public express is whether the use of price to manage transportation demand is fair. An important consideration is to consider the status quo. Inequities have long been ingrained in our transportation system, as noted in the 2019 TransForm report 'Pricing Roads, Advancing Equity.' Vulnerable communities—which include low-income households, people of color, and those disadvantaged due to ability, age, or other

²⁵SFCTA, Evaluation Findings from the BART Perks Program, 2018, <https://www.sfcta.org/projects/bart-perks-test-program>

²⁶SFCTA, Freeway Corridor Management Study Phase 2 Final Report, 2018, <https://www.sfcta.org/projects/101280-carpool-and-express-lane-project>



factors—have long borne the brunt of negative transportation impacts while paying a proportionally larger share of their income to get where they need to go – especially if they are automobile dependent - the report states.

With careful design and inclusive public involvement, we believe transportation pricing can make San Francisco’s transportation system more equitable.²⁷ At the request of our Board, our Downtown Congestion Pricing Update study will begin with data collection and analysis to better understand who is driving in the peak (our 2010 study estimated that less than 5% of peak period motorists had annual incomes below \$50,000/household), designing for equitable impacts, and involving communities of concern and stakeholder who are most impacted by vehicle congestion from the start.

A best practice for ensuring an equitable pricing program is to combine a fee with subsidies, discounts, and/or incentives that specifically help disadvantaged travelers. Another common practice is to use pricing revenues to pay for more sustainable transportation modes such as transit, walking, and biking. A few examples include:

- Targeted Re-investment of Fees: Prioritize revenue from congestion fees for services and improvements benefitting low-income travelers and affected neighborhoods such as increased bus service, lighting, and safer streets.
- Subsidies: People with low incomes receive a subsidy to offset the costs of a pricing system. For example, Los Angeles Metro’s Low-Income Assistance Plan for the region’s express lanes provides \$25 in toll credits and waives monthly fees for low-income customers.
- Discounts: People with low incomes, disabilities or clean air vehicles pay a discounted rate.
- Incentives: People with low incomes accrue credits after taking a certain number of trips on transit and can use those credits to pay for pricing fees, transit, or other services like bikeshare.

SAN FRANCISCO PRICING AND TECHNOLOGY STRATEGIES: WHO IS LEADING AND WHO’S INVOLVED?

SFCTA is the County Congestion Management Agency for San Francisco and is leading several of the aforementioned pricing and demand management studies and projects, in partnership with local, regional and, in some cases, state agencies. With regional commuters comprising 60% of our workforce, it is critical to ensure coordination with other agencies and adjacent communities.

- Downtown Congestion Pricing Study Update- SFCTA is leading the study in collaboration with key partners City and County of San Francisco (CCSF) /SFMTA and MTC and involvement of several regional and state agencies including Caltrans. State legislative authority is required to implement the project.
- Treasure Island Transportation Improvement Program - SFCTA acting as the Treasure Island Mobility Management Agency (TIMMA) is implementing the Treasure Island

²⁷Assistant Professor Michael Manville, UCLA and 100 Hours Campaign “Is congestion pricing fair to the poor?”, 2017,
<https://medium.com/100-hours/is-congestion-pricing-fair-to-the-poor-62e281924ca3>



mobility management and congestion pricing program, in partnership with the Treasure Island Development Authority.

- US101/I-280 Managed Lanes – SFCTA is leading the San Francisco network study, in coordination with Caltrans (freeway owner), MTC (Regional network planning lead) and San Mateo and Santa Clara counties (US101 corridor partners).

PRICING AND TECHNOLOGY STRATEGIES: TECHNOLOGY IN CONGESTION PRICING/CONGESTION MANAGEMENT

Technology innovation is enabling rapid and robust congestion management solutions that were previously out of reach in terms of cost or otherwise infeasible. New solutions bring the possibility and promise of expanding mobility choices and filling access gaps. We at SFCTA are particularly excited about first/last mile services to complement mainline transit networks, and highly customer-oriented integrated payment and trip planning/booking systems known as Mobility as a Service (MaaS). We are also preparing to test autonomous shuttles on Treasure Island.

Technology is not a silver bullet, though, and some new services have the potential to hinder rather than help cities' abilities to reach their goals. Successful transitions require the public sector to have clear goals, willingness to engage/pilot, capacity to regulate and lead initiatives, and strong ground rules and research/transparency at this early stage to inform policy. San Francisco transportation agencies (SFCTA, SFMTA) have invested in staff, research and tools to help manage this transition and our policy boards have adopted 10 Emerging Mobility Services and Technology goals and objectives to anchor our city's new mobility policy framework and preliminary sector evaluation.²⁸ These are informing implementation policies, permit systems and pilots.

In addition to congestion pricing, we are interested in safety, customer focused, mobility on demand, and system efficiency-oriented innovations including:

1. Inter-operability and standardization
2. Curb management solutions
3. Integrated payments (Mobile Wallet)
4. Trip planning/booking apps
5. Modernization and enhancement of public transit
6. Shared, Electric, Automated shuttles for first/last mile public transit access
7. Bicycle and micromobility infrastructure
8. Strong data transparency, community-based pilots and data-driven research

The recent Senate Environment and Public Works Committee proposal for reauthorization of the FAST Act proposes to continue a federal commitment to support innovative approaches to solve pressing congestion and mobility challenges. The proposal included a new \$40 million discretionary congestion relief program to fund integrated congestion management, pricing strategies, operation of mobility services, incentives programs to carpool or shift travel to non-peak periods, as well as other innovative solutions. This program could provide opportunities for regions and jurisdictions like San Francisco to pilot cost-effective near-term demand management strategies and document results for federal program evaluation and dissemination.

²⁸SFCTA, Emerging Mobility Evaluation Report, 2018, <https://www.sfcta.org/policies/emerging-mobility>



In fact, given the growing number of cities that are studying this strategy, an even larger program may be desirable. The following federal programs have provided valuable funding and technical support to San Francisco pricing studies and pilots:

- FHWA Value Pricing Pilot Program, which provided incentives in support of congestion pricing programs. San Francisco has been fortunate to receive several VPPP grants including a 2007 grant for our congestion pricing feasibility study (Mobility Access and Pricing Study), multiple innovative parking program grants through the UPA (2008, 2011, 2012), priced electric-assist bicycle sharing (2011), BART Perks (completed 2018) and the Treasure Island Mobility Management study (2012).
- FHWA Urban Partnership Agreement/Congestion Reduction Demonstration Program (2007-2009) which funded \$80 million of pricing projects that focused on the 4 Ts:
 - Tolling or other pricing
 - Transit
 - Telecommuting, including additional TDM strategies
 - Technology

San Francisco received a UPA grant to support SFpark variable pricing program among other activities.

One of the most important components of the UPA program was the inclusion of bus and bus facilities grants to help ensure adequate transit capacity to support demand mode shifts for pricing projects. A successful congestion pricing program must provide increased transit service on Day 1, and these grants provide critical capacity to handle mode shifts from private car travel to public transportation on Day 1 of a pricing pilot.

PRICING AND TECHNOLOGY STRATEGIES: ADVANCING THE NEXT GENERATION OF MOBILITY

Rapid technological change is transforming the options for travel, and the federal government can play a key role supporting efforts to help fund, research, test and evaluate new mobility deployments. The next federal transportation bill could advance study and experimentation using new mobility technology by sustaining and expanding initiatives established by the FAST Act:

- The FHWA Advanced Transportation and Congestion Management Technologies Deployment program funds competitive grants to pilot large scale installation and operation of advanced transportation technologies to improve safety, efficiency, system performance, and cost effectiveness. San Francisco (SFMTA) received \$10.9 million under this program to advance congestion pricing, carpooling and ridesharing, smart connected traffic signals, and dynamic curb management. The SFCTA received a portion of these funds to install tolling equipment and pilot an automated shuttle service for Treasure Island and Yerba Buena Island in support of the Treasure Island Transportation Improvement Program.
- The FTA Integrated Mobility Innovation program funds projects that demonstrate innovative and effective practices, partnerships, and technologies to enhance public transportation effectiveness, increase efficiency, expand quality, promote safety, and improve the traveler experience. It includes the Mobility on Demand Sandbox Project



program for local jurisdictions to pilot new mobility concepts and solutions in real time, including bike- and car-sharing systems, demand-responsive bus services, and projects that provide travelers with flexible and convenient transportation options.

- The FHWA Surface Transportation System Funding Alternatives program funds grants to test new ways to finance highway and bridge projects, with the 2018 round supporting an exploration of how California’s Road Usage Charge program could connect with emerging technologies and services, specifically TNCs and autonomous vehicles. As a self-help county, we are interested in studying congestion pricing as a way to supplement federal aid revenues, under this program.

Public sector agencies need this type of funding to support piloting and evaluation of new mobility services and technologies that provide both opportunities and challenges. Federal support for public involvement, research, analysis, and demonstration pilots are essential to ensure that states, regions and localities can develop policies for integrating new mobility services into our existing transportation systems effectively.

ITS AMERICA’S FAST ACT REAUTHORIZATION PLATFORM MOVING PEOPLE, DATA, AND FREIGHT

Given the title and focus of the hearing is “Pricing and Technology Strategies to Address Congestion on and Financing of America’s Roads,” and with Congress increasingly focused on the reauthorization of the FAST Act, the balance of my written testimony encompasses ITS America’s FAST Act Reauthorization Platform: Moving People, Data, and Freight. Moving People, Data, and Freight.

Increase Investment in Research and Deployment of Intelligent Transportation Technologies: Intelligent transportation technologies advance transportation safety and mobility, reduce congestion, improve air quality, and enhance American productivity by integrating advanced technologies into transportation infrastructure, operations, and vehicles. The Moving People, Data, and Freight investment policy supports the solvency of the Highway Trust Fund; the transition to a long-term and sustainable revenue source for transportation; and a national VMT pilot. In connection with a national VMT pilot, the platform recommends that large freight shippers participate and examines whether fleet telematics can be used as a method of data collection.

The platform supports increased funding for research, development, and demonstration of Intelligent Transportation Systems (ITS) technology; maintaining federal programs that allow state, metropolitan areas, and city congestion pricing strategies; and increased funding for ITS programs to streamline the movement of goods beginning at ports and continuing through the multimodal supply chain, including freight ITS and digital infrastructure systems.

ITS America strongly supports the Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) program. San Francisco was fortunate to receive one of the first set of grants for testing autonomous shuttles and implementing congestion pricing on Treasure Island.



The ITSA platform supports increasing the funding and federal share to 80%. Moving People, Data, and Freight recommends increasing the federal share to 100% for safety critical connected vehicle technologies including Vehicle-to-Vehicle (V2V), Vehicle-to-Infrastructure (V2I), and Vehicle-to-Pedestrian (V2P) under ATCMTD. ITS America supports policy that makes V2P technologies an eligible activity under ATCMTD. Moving People, Data, and Freight recommends authorizing and dedicating separate funding for ATCMTD. Under the FAST Act, the ATCMTD program has been funded through a set-aside from the Highway Research and Development, Technology and Innovation Deployment and Intelligent Transportation System Research programs, which has resulted in a reduction of transportation research and development that has historically propelled United States leadership in areas such as connected and automated vehicle development and the emerging area of artificial intelligence in mobility management.

Safeguard Transportation Infrastructure from Cybersecurity Threats: As vehicles and infrastructure become more connected, our nation’s transportation system faces increasing cybersecurity risks. Given the ability to cause loss of life and inflict significant economic damage in a highly visible manner, cybersecurity attacks directed at those producing or operating technologies travelling over or connected to U.S. roadways will intensify. ITS America supports policy that would provide states and localities funding and technical assistance under federal-aid highway programs, federal public transportation programs, and ATCMTD to safeguard critical transportation systems that are more reliant than ever on connectivity to communicate and exchange data from cybersecurity threats.

Grow Investments in Vehicle-to-Pedestrian Technologies: The U.S. Department of Transportation is working with industry, safety, and public sector stakeholders to develop and evaluate cooperative technologies, equipment, and applications known as Connected Vehicle (CV) technologies that operate in the 5.9 GHz band, inclusive of V2V (vehicle to vehicle), V2I (vehicle to infrastructure), and V2P (vehicle to pedestrian)– collectively referred to as Vehicle-to-Everything (V2X). This includes all V2X technologies – Dedicated Short Range Communications (DSRC) as well as Cellular vehicle-to-everything (C-V2X) – because these technologies can be configured to enable real-time crash-avoidance alerts and warnings, offering a significant opportunity to transform transportation safety.

As mentioned earlier, we are seeing record crashes involving pedestrians in San Francisco and nationally. Pedestrian deaths increased by an estimated 4 percent and “pedalcyclist“ deaths increased by an estimated 10 percent in 2018, according to NHTSA’s preliminary statistics. V2X will enable deployment of safety solutions to protect vulnerable users of the system. By allowing vehicles to communicate with these users through sensors or vehicle-to-device communication, we can significantly reduce the number of people killed on our roadways. V2P encompasses a broad set of road users - people walking, children being pushed in strollers, people using wheelchairs or other mobility devices, passengers embarking and disembarking buses and trains, and people riding bicycles and scooters. ITS America recommends expanding eligibility under the Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) program to include V2P technologies.

Expand Investment in Advanced Mobility Improvements: ITS America supports expanding eligibility under highway programs to include advanced mobility safety improvements including data infrastructure and analysis, smart mobility improvements such as



smart truck parking, smart work zones, smart pavements, predictive analytics platform, and build out of electric vehicle charging stations, hydrogen fueling infrastructure, natural gas fueling infrastructure, and other alternative fuels.

Plan for Transformative Transportation Technologies: States, providers of public transportation and Metropolitan Planning Organizations (MPOs) are expanding beyond traditional long-range scenario planning, which holds fixed certain transportation and land use assumptions, to consider big questions facing the transportation system including whether connected and automated vehicles will increase the vehicle capacity of existing highway lanes; how automation and active transportation connections might help solve the first mile/last mile transit challenge, what roadway investments could incentivize the shift to connected and automated vehicles, how to make sure the entire transportation system is working together, and how to expedite technology safety benefits. Increased funding and flexibility will help planners analyze project performance across a range of different futures, including ensuring all modes of transportation work in concert, which will lead to more informed project prioritization that maximizes the benefits of connected and automated technologies.

The Metropolitan Transportation Commission (MTC), the metropolitan planning organization for the San Francisco Bay Area, has undertaken Horizon, a new effort to plan for, and help shape, a range of possible connected and automated vehicle futures. By expanding beyond traditional long-range scenario planning, which holds fixed certain transportation and land use assumptions, Horizon will help inform big questions facing the transportation industry, such as:

- Will connected and automated vehicles substantially increase the vehicle capacity of existing highway lanes? If so, does it make sense to add additional physical capacity today?
- How might automation help solve the first mile/last-mile transit challenge, reducing barriers to transit ridership? What type of investments are needed to get us there?
- What roadway investments could incentivize the shift to connected and automated vehicles and expedite short-term safety benefits?

Ultimately, this effort could help planners analyze project performance across a range of different futures and lead to more informed project prioritization. Though the benefits may be significant, this planning effort requires substantial time and resources. Additional federal planning funds and flexibility to experiment with innovative initiatives like Horizon could support transportation planners in efforts to maximize the benefits of connected and automated technologies.

Establish a Mobility on Demand (MOD) Program for the New World of Mobility: In the 21st century, mobility is less about moving vehicles and more about moving people, data and freight. Long-existing silos among cities, states, counties, road and transit agencies are disappearing; and private mobility service providers barely existed a decade ago. More choices exist now, but for people to fully realize the benefits of this new world of mobility, it must be easier to choose which option best meets their needs. This also means services that are accessible for every traveler and in all communities and neighborhoods.



In cities, MOD offers convenient, affordable, and, in the case of bikeshare, rideshare or micromobility services, more sustainable alternatives to driving within congested environments. For suburban areas, MOD offers first mile/last mile accessibility to transit, as well as more dynamic on-demand services to get around town. While often seen as an urban/metro transportation solution, MOD deployed in rural areas also provides first mile/last mile (though more like first/last 50 miles) connections to transit, intercity bus and rail transport, and essential air service airports. Rideshare and ride sourcing is providing support for seniors to access social and health services. Micromobility services offer options to travel in town. MOD include bikeshare and scooter share deployments on college campuses. New and improved MOD transit and paratransit services also can benefit rural communities.

Moving People, Data, and Freight supports establishing MOD program that encourages flexibility within federal transportation programs to meet changing mobility needs including partnerships with companies offering shared-use trips (car, bicycle, new mobility modes), data management, and other technology companies for first mile/last mile services, the integration of mobility services and technologies, and new fare technologies. ITS America supports the integration of MOD programs with public transportation that fosters the efficient use of capacity, enhances management of new modes of mobility, and promotes the creation of innovative planning tools.

Please read ITS America's full FAST Act reauthorization at www.itsa.org.

CONCLUSION

In conclusion, the transportation sector in San Francisco and communities across the nation are undergoing historic transformations with the promise of greatly boosting the safety, access, equity, and sustainability of our transportation system. We in San Francisco believe that strong federal policy and funding support can help states, regions and localities explore cost-effective congestion reduction solutions like congestion pricing and rewards, as well as bolster road user fee initiatives like mileage- based Road User Charge programs that build upon our primary but declining transportation funding mechanism: the gas tax. With San Francisco's Transit First, Vision Zero, Climate and Equity goals serving as our durable North Star, we remain optimistic that aspirational but achievable policies are within reach with effective federal, state, local and private sector partnerships.

Thank you again for the opportunity to testify today, and I am happy to answer any questions you may have.



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