



METROPOLITAN
TRANSPORTATION
COMMISSION

Agenda Item 5
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Memorandum

TO: Bay Area Partnership Board

DATE: September 21, 2018

FR: Rick Ramacier, Chair, Partnership Board

RE: Mobility as a Service

Mobility as a Service (MaaS) is emerging in Europe as a platform to integrate trip planning and payment while personalizing the mobility experience. MaaS offers an environment for public and private partnerships to create an open transportation ecosystem for data and services. MaaS objectives focus on personalizing mobility with an improved quality of service as compared to the single-occupant vehicle. MaaS may be leveraged as a unique tool to understand and change travel behavior to achieve mode shift with the goal to reduce traffic congestion.

In the past, transportation has focused on individual modes (e.g, transit, walking, biking) and whether they are public or private. In the future, transportation needs to be redefined into mobility and seamless journeys. A journey is made up of multimodal trips using different modes to your destination. Recognizing that mobility represents an individual's travel preferences, MaaS supports each person's ability to make the trip or journey that works best for them. The transportation system will need to address redefining mobility to account for new travel behaviors, integrating technology-enabled transportation, and incorporating incentives or rewards.

Throughout the Bay Area, there is increasing interest to explore MaaS concepts and funding opportunities. This interest is coupled with the infusion of private mobility options and creating a balanced transportation ecosystem leveraging the use of existing public transportation. MaaS will require collaboration and partnerships across the entire Bay Area working together to prepare for the future and redefine mobility.

At your September meeting, staff will present a presentation highlighting MaaS, examples of MaaS, and initiatives in the Bay Area.

Rick Ramacier

Attachments:

- Attachment A: MaaS Working Group Background Information
- Attachment B: San Francisco Guiding Principles for Emerging Mobility Services and Technologies

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MaaS Working Group

Background Information

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This document provides context, examples and a catalogue of local efforts related to MaaS to assist in discussions for developing a Bay Area program.

MAAS DEFINITION AND VMT REDUCTION POTENTIAL

Mobility as a Service (MaaS) refers to a customer-centric, on-demand multi-modal transportation program, allowing users to plan and pay for trips on a per-use or subscription basis through a single interface. Collectively, a trip planner and a transportation wallet (payment mechanism) are intended to provide a value proposition competitive with personal car ownership.

The primary customer benefits include:

- Simplified planning and paying for trips across multiple operators, public or private,
- Access to the latest technology,
- Incentives designed to reward certain types of traveler behavior,
- Discounts available for certain types of travelers, and
- User-centric transportation service without the need to own a car.

The approach to MaaS relies on two interconnected trends. The first is the spread of smartphones, which both generate the data required to manage a system that combines a wide variety of public and private transport options, and allow services to be offered via an app. The second is the sharing economy, with businesses making it possible to rent fixed assets when they are not being used, or to provide access to a fleet of scooters, bikes or cars.¹ MaaS can capitalize on this growing trend and push usership instead of ownership ever more mainstream to achieve the Bay Area’s congestion and greenhouse gas reduction goals.

Examples (not an exhaustive list)

Several ongoing and planned MaaS pilots can provide preliminary results and guidance.

¹ The Economist. It Starts with a Single App. 2016. Retrieved from <https://www.economist.com/international/2016/09/29/it-starts-with-a-single-app>.

International Efforts

- **Whim App, Helsinki, Finland.** The Whim app offers three different bulk packages covering public transit, taxis and rental cars, each featuring varying degrees of limited or unlimited trips. The most expansive package, “Whim Unlimited,” costs 500 Euros per month (~\$575.00) and offers unlimited rides on all modes, and taxi rides under 5km (3.1 miles). This price point was designed to be approximately equal to average car ownership costs in Helsinki.²
- **Hannovermobil, Germany.** Under this program, subscribers pay a monthly fee (slightly more than a standard transit pass) to access public transit, carshare, long-distance rail and discounted taxi rides.³
- **The SMILE Project, Vienna, Austria.** The platform provides information, booking, payment to bring together fourteen Austrian mobility partners, from public transport companies to sharing providers, taxis and parking garages.⁴
- **Velo, Mulhouse, France.** Integrated payment platform that bills the user at the end of the month depending on the services used, with a cap on the amount charged. Bi-lingual video [here](#).

U.S. Efforts

- **TAPForce, LA Metro, Los Angeles, CA.** LA Metro is building a cloud, account-based system to integrate its existing transit fare payment system (TAP, Transit Access Program) with other public and private transportation services to create a one-stop-shop for service payment and sign-up. By adding funds to the “TAP Wallet,” customers will be able to use their TAP cards, (and soon the TAP mobile app), to pay for bike-share, parking, toll lanes, carshare, electric vehicle charging stations, ridehailing services, and micro-transit in addition to all transit services. The system facilitates administration of discounts and incentives across modes. The system is planned for launch in fall 2018. Video description [here](#).
- **Lyft pilot with TAM.** Lyft’s new app version integrates directly with public transit to provide late-night service, fill first-mile and last-mile gaps, provide access to transportation deserts and deliver on-demand paratransit solutions. The first two integrations with the app are with the Transportation Authority of Marin and Big Blue Bus (Santa Monica).⁵
- **ConnectStar, Houston District of Texas Department of Transportation (TxDOT).** This program’s goal is to use a third-party platform, Metropia, which provides a one-stop-shop for multi-modal planning and payment.⁶ The region plans to implement dynamic pricing strategies to manage traffic demand. This pilot further embodies MaaS by creating user-customized features such as suggested routes and targeted deals.

² MaaS Global. Mobility as a Service – the End of Car Ownership? Retrieved from <http://fossilfritt-sverige.se/wp-content/uploads/2017/09/mobility-as-a-service.pdf>.

³ UITP. Hannover’s Legacy Platform Offers Clues for the Integrated Platform of Tomorrow. Retrieved from <http://www.uitp.org/news/hannover%E2%80%99s-legacy-platform-offers-clues-integrated-platform-tomorrow>.

⁴ SMILE. The Future of Mobility. Retrieved from http://smile-einfachmobil.at/pilotbetrieb_mobile.html

⁵ Metro. Lyft app upgrade improves shared rides, integrates with cities, transit. June 2018. Retrieved from: http://www.metro-magazine.com/technology/news/730044/lyft-app-upgrade-improves-shared-rides-integrates-with-cities-transit??utm_source=email&utm_medium=newsletter&utm_campaign=20180607-NL-MET-Express-BOBCD180601005&omdt=NL-MET-Express&omid=1004461182.

⁶ Federal Highway Administration. USDOT Announces \$8.9 Million Grant for ConnectSmart in Houston. 2016. Retrieved from: https://www.fhwa.dot.gov/pressroom/fhwa1651_houston.cfm.

- **Minnesota Department of Transportation (MnDOT).** MnDOT is developing a MaaS platform to serve as a revenue collection mechanism as an alternative to the gas tax, with app development being funded through a FHWA grant to find fuel-tax funding alternatives.⁷
- **Valley Metro Rail in Phoenix, Arizona.** Valley Metro was awarded a Mobility on Demand Sandbox grant to develop a MaaS platform that expands an existing transit app to include real-time information, singular accounts for public and private modes (e.g. Uber, Lyft, Grid Bike Share, Zipcar), and trip planning features, such as showing users the cost of fuel saved, amount of CO₂ saved from using sustainable modes of travel, as well as travel time.⁸

VMT Reduction Potential

The research suggests VMT can be reduced with a MaaS platform's trip planning tools, integrated payment and interoperability between services. The ability to link any shared transportation service (bike, scooter, transit, ridehail, AV and other future options) into a single-payment experience can encourage users to shift from owning and using vehicles to consuming a variety of modes on a per-use basis.

- Results from Whim's first year of operation, 2016, show the following shifts in trip mode share among users: **private car use dropped from 40 percent to 20 percent, public transit rose from 48 percent to 74 percent** and taxis from three percent to five percent.⁹ At least 6,000 users were registered a few weeks after Whim's launch, equating to approximately one percent of Helsinki's population.
- Hannovermobil saw **50 percent of users give up car ownership**, but was very limited in scope (1,300 users).^{10, 11, 12}
- The SMILE Project found **48 percent of the respondents used public transportation more often and 21 percent reduced the use of their private cars.** Smile also encouraged intermodality with 26 percent combining car and public transportation more often and 26 percent combining bike and public transportation more often.¹³ Total usage is a few thousand individuals.¹⁴

POLICY AND PLANNING CONTEXT

Several regional policy and planning directives support the development of a MaaS program.

Horizon and Plan Bay Area 2050

The policies and investments defined in the region's next long-range transportation plan, Plan Bay Area 2050, are intended to help the region meet its GHG reduction targets and support the following *Guiding Principles*:

⁷ Dawid, I. 2016. Over \$14 Million Awarded to Eight Projects to Find Alternatives to Gas Taxes. Planetizen. Retrieved from <https://www.planetizen.com/node/88420/over-14-million-awarded-eight-projects-find-alternatives-gas-taxes>.

⁸ Federal Transit Administration. Mobility on Demand (MOD) Sandbox Summary - Valley Metro Rail, Inc. Retrieved from <https://www.transit.dot.gov/sites/fta.dot.gov/files/FTA%20MOD%20Project%20Description%20-%20Valley%20Metro.pdf>.

⁹ MaaS Global. Mobility as a Service - The End of Car Ownership? Retrieved from <http://fossilfritt-sverige.se/wp-content/uploads/2017/09/mobility-as-a-service.pdf>.

¹⁰ UITP. Hannover's Legacy Platform Offers Clues For the Integrated Platform of Tomorrow. Retrieved from <http://www.uitp.org/news/hannover%E2%80%99s-legacy-platform-offers-clues-integrated-platform-tomorrow>.

¹¹ GVH. Being completely mobile and saving costs at the same time. Retrieved from <https://www.gvh.de/en/mobilitaetsshop/produktuebersicht/hannovermobil/>.

¹² Kamargianni, M. et al. 2016. A critical Review of New Mobility Services for Urban Transport. UCL Energy Institute, University College London. Retrieved from https://ac.els-cdn.com/S2352146516302836/1-s2.0-S2352146516302836-main.pdf?_tid=78f8787f-0db9-487e-8e10-8dca3df057e2&acdnat=1524782931_582af28c22507d7e2bd3ce94171cd6b1.

¹³ The Future of Mobility. Smile Einfach Mobil. Retrieved from http://smile-einfachmobil.at/index_en.html.

¹⁴ SMILE. The Future of Mobility. Retrieved from http://smile-einfachmobil.at/pilotbetrieb_mobile.html.

- **Affordable:** All Bay Area residents and workers have sufficient housing options they can afford—households are economically secure.
- **Connected:** An expanded, well-functioning transportation system connects the Bay Area—fast, frequent and efficient intercity trips are complemented by a suite of local transportation options, connecting communities and creating a cohesive region.
- **Diverse:** Bay Area residents support an inclusive region where people from all backgrounds, abilities and ages can remain in place—with access to the region’s assets and resources.
- **Healthy:** The region’s natural resources, open space, clean water and clean air are conserved—the region actively reduces its environmental footprint and protects residents from environmental impacts.
- **Vibrant:** The Bay Area is an innovation leader, creating quality job opportunities for all and ample fiscal resources for communities.

To develop Plan Bay Area 2050, MTC and ABAG have launched “Horizon,” a comprehensive Bay Area planning effort looking at the transportation, housing, economic development, resilience and emerging technologies. As part of Horizon, MTC staff are writing a series of Perspective Papers. Perspective Paper #2, identifies strategies with the most potential to reduce future VMT. MaaS has been identified as one of these strategies. The vision for 2050 is that all transportation, regardless of mode or roadway used, can be consumed on a per-use basis, with pricing schemes supporting active or multi-passenger options.

CURRENT ACTIVITIES

This section lists a number of local and regional activities related to, or that can be integrated with MaaS.

MTC Programs

Current Clipper® System (C1)

Purpose:

- Clipper® is the Bay Area’s all-in-one transit-fare payment card. Clipper (formerly TransLink) was developed from the late 1990s to the early 2000s to provide a universal transit fare payment card for users of the Bay Area’s 22 transit operators. The contract with Cubic Transportation Systems – Clipper’s hardware and software provider – will expire in 2019, thus MTC has undertaken an effort to procure a replacement system, C2, described below.

Scope:

- The Clipper smart card system can hold cash value, transit passes, parking value or any combination, and has been deployed on 22 of the Bay Area’s transit operators. Find the list on the [Clipper card website](#).

Potential Near-Term Enhancements:

- Because the Clipper card system was designed as a card-based system – essentially a sophisticated gift card system – the concept of a user account was not core to the system’s development. However, due to the account-like functionality of the clippercard.com website, a few near-term enhancements could be made with the current Clipper system to support a MaaS experience for Clipper card holders:
 - o Expose APIs between the website and Pivotal, Cubic’s CRM database, to exchange account information between Clipper and an approved private mobility company¹⁵

¹⁵ A proto-version of this concept has been piloted with Ford Go Bike. In 2018, 34% of Ford GoBike trips used Clipper as a membership identifier to unlock a bicycle (the two other options are mobile app and station bike code)

- Track and exchange specific types of user data. For instance, it might be possible to reveal the last transit trip taken to the 3rd party or to record a 3rd party's user trip records via the Clipper issuer database

C2

Purpose:

- The Next Generation of Clipper Fare Payment System (C2) will replace the existing smart card payment system with an account-based system for the region. The contract with Cubic for the current system will expire in 2019, however a series of contract extensions has been approved through 2024.

Scope:

- Key features of the C2 system will include:
 - An account-based back office
 - A C2 mobile app for users
 - Application Programming Interfaces (APIs) to enable 3rd party payment
 - Other enhancements on the current payment experience

Progress to date:

- The region is currently evaluating proposals for the C2 System Integrator contract; this is the contractor that will replace Cubic's equivalent scope of responsibilities for the C1 system. The region anticipates announcing the award for the C2 System Integrator contract by September 2018.

How C2 differs from Maas:

- While an account-based system, C2 is still at its core a transit fare payment system. Thus, C2 will provide an account and payment experience primarily for the region's transit system. However the C2 APIs will allow for extensions of the payment experience to other approved mobility service providers.

Salesforce

Purpose:

- MTC is currently procuring a bench of qualified firms to implement Salesforce, a customer relationship management (CRM) system. The intent is for Salesforce to provide the public facing website, and the backend database and customer service interfaces, to support several possible projects.

Scope:

- MTC initially expects to design and develop an online application for transit riders to apply for and manage means-based Clipper cards. This initial framework in Salesforce could later be expanded to a MaaS "One Account" solution, which would provide:
 - A new website and mobile app serving as the home for travelers to learn about and register for the program, take advantage of available discounts and incentives, and manage their account and mobility memberships.
 - Direct connections to mobility services through application programming interfaces (API) to allow travelers to register for different mobility memberships, add money to their account, and move funds between services.
 - Customer service and program management interfaces to enable MTC and partner agencies to administer discounts, rewards, and promotions; run analytics and evaluate the performance of different strategies; and provide support and assistance to registered account holders.

Progress to Date:

- MTC expects to have this bench of qualified firms in place by early 2019.

511 Traveler Information

Purpose:

- 511 was developed with the mission to provide comprehensive, accurate, reliable and useful multimodal travel information to meet the needs of Bay Area travelers.

Scope:

- 511 provides on the phone, 511, and on the web, 511.org, up-to-the-minute Bay Area traffic, transit, carpool, bicycling, and parking information.
- It is free and available 24 hours a day, 7 days a week from anywhere in the nine-county Bay Area.
- The following information is available by mode:
 - o Transit: schedules, routes for more than 30 transit providers in the Bay Area, interactive Trip Planner to get detailed maps and step-by-step instructions, and real-time transit Departure Times.
 - o Carpool & Vanpool: 511 RideMatch Service, carpool matching app, vanpool resources, location of carpool lanes and park & ride lots throughout the region.
 - o Driving: interactive map with incidents and construction details, congestion levels, Caltrans message signs, and live traffic cameras.
 - o Biking: maps, safety tips, tips for taking bikes on transit, and 511 Trip Planner to find paths and bike lanes throughout the Bay Area.

Upcoming Changes:

- During fiscal year 2019, 511 is transitioning to a data-centric program where focus is on data collection and processing, and on providing the private sector with the data they need for dissemination to the public via their traveler information applications.

Local Agency MaaS Efforts

Agency	Description of Effort
In Development	
BART	<ul style="list-style-type: none"> - Contractor is HaCon - Phase 1: Bike, Bikeshare, Walk, Transit, Uber/Lyft <ul style="list-style-type: none"> o Point A to Point B planning o Real time info o Not BART specific - Phase 2: Carpool Apps, Carshare, Scooter <ul style="list-style-type: none"> o Single Sign On App o Parking Permits – daily, monthly, carpool o BART Perks
SamTrans, Caltrain	<ul style="list-style-type: none"> - Contractor is HaCon - Mobile ticketing + limited multi-agency trip planning - Caltrain, VTA, AC Transit & BART - Why develop the app? <ul style="list-style-type: none"> o Believes customers expect a local agency app o Concern Google doesn't update data frequently enough
Applied for Grant Funding to Develop a Platform	
CCTA	<ul style="list-style-type: none"> - Submitted a 2018 Advanced Transportation and Congestion Management Technologies Deployment program (ATCMTD) Grant application for a Contra Costa specific MaaS pilot/prototype

Agency	Description of Effort
Palo Alto - MOD Sandbox Grant	<ul style="list-style-type: none"> - Received a MOD Sandbox Grant in 2017 for a MaaS platform - Seeking additional grant support from National Science Foundation - South Bay focus - Goal – to build an employer user base sparked by trip reduction requirements
Concept	
SCTA and TAM	<ul style="list-style-type: none"> - Have released an RFI for Bike Share and a Maas like service to support first/last mile services to/from SMART
TIMMA	<ul style="list-style-type: none"> - Would like to <ul style="list-style-type: none"> o Create a platform to support Treasure Island
CalSTA	<ul style="list-style-type: none"> - Would like to <ul style="list-style-type: none"> o Create a statewide platform to support high speed rail

Clipper Executive Board Meeting, June 4th, 2018

- Carol Kuester provided a background presentation on MaaS. A few points representing the discussion are provided below and the staff memo can be found [here](#):
 - o Travel is regional and needs coordination – different agencies are not aware of each other’s efforts. Additionally, multiple efforts are not good use of public resources and can be confusing to our customers
 - o A MaaS program needs to:
 - Be customizable for personal perspective
 - Leverage existing FasTrak & Clipper accounts/account holder information
 - Provide an equity component
 - o There is potential to build economies of scale to communicate and leverage local behavior change incentives. There needs to be more regional leadership/advocacy to encourage behavior change
 - o Regional leadership is needed to bring in private sector partners

REGIONAL HISTORICAL EXPERIENCE

Some lessons learned from MTC’s experience with 511 since 2002 are helpful to keep in mind as the region considers its vision for MaaS in the Bay Area. The 511 Multi-modal Trip Planner (MMTP) and Enhanced Trip Planner (ETP) allowed users to choose between the following modes: 1) driving only; 2) driving to a public transit station/stop, parking and then taking transit the remainder of trip; and 3) taking public transit only. The MMTP remained in beta until 511 launched the NextGen 511.org which uses the Google trip planner. 511 is currently phasing out the trip planner.

Lessons learned:

- Marketing and advertising are needed to let residents know of the tool
- Government agencies may not be equipped to deliver user-end applications because of lengthy processes, lack of right skills, etc.
- One contractor should be responsible for the entire system. Having multiple contractors created issues with: 1) contractors not taking responsibility for data, 2) a feature not working, and/or 3) coordination with other contractors, etc. An alternative approach would be to bring the core system (data collection and dissemination) in-house and depend on private sector to deliver applications.
- The number of transportation agencies in the Bay Area adds complexity to developing a regional service that is comprehensive and easy for travelers to use.

LITERATURE REVIEW

This section provides approaches and perspectives from a variety of sources.

As a Service – New Business Model for all Industries

Traditionally, transportation has primarily been an asset-oriented industry, in which a person buys, owns and drives a personal car. This convention is starting to shift to a service or pay-per-use model, across a number of business sectors, not just transportation.

The benefits of shifting from ownership of assets (be it cars or data servers), to using services (ridehailing and cloud computing), are lower costs and better access to up-to-date technology, maintained by service providers that can leverage economies of scale.¹⁶ Services and technology are available on an as-needed and/or subscription based model, and flexibility is at the core of the service provider proposition.¹⁷ The industry term for this approach is “as a service.”

Companies like Volvo see the future being more about selling consumers mobility instead of one car. BMW and Ford, for example, are gearing up to sell transportation as a service where consumers can rent free-floating cars, hail a car with a driver or order a car without a driver. The belief by most car companies is that people will increasingly want to consume transportation differently at different times, and they want to have access to all options through a single smartphone app.¹⁸

Arguments for Government Involvement in MaaS

Several reports make the following points in favor of government involvement in developing MaaS services in collaboration with the private sector:

- To ensure that public transit does not lose relevance
 - Public transportation is critical to the functioning of the Bay Area economy and its continued growth but could be sidelined in a commercial MaaS platform if developers favor their own solutions¹⁹
- To meet climate and livability goals
 - A privately-provided MaaS platform does not necessarily incentivize users to make choices that support public sector pollution or traffic reduction goals. With public sector involvement, incentives can be provided for using sustainable modes²⁰
- To provide equal access
 - Emerging mobility services are not mandated to provide services to everyone, and have tended to target specific demographics, usually the most profitable part of the market. The public sector has to shape MaaS in order to achieve goals of accessibility and equity²¹
- To deliver new types of transit service and customer experience²²

¹⁶ ZDNet. XaaS: Why 'Everything' is Now a Service. 2017. Retrieved from <https://www.zdnet.com/article/xaas-why-everything-is-now-a-service/>.

¹⁷ Phil Fersht. The Ten Tenets Driving the As-a-Service Economy. 2014. Retrieved from https://www.horsesforsources.com/as-a-service-economy_100614/

¹⁸ Forbes. Volvo Projects 33% Of Global Sales Will Be Autonomous by 2025. June 2018.

<https://www.forbes.com/sites/davidkiley5/2018/06/07/volvo-projects-33-of-global-sales-will-be-autonomous-by-2025/#39a980143df7>.

¹⁹ SPUR. *Why We Can't Leave Transportation Apps to the Private Sector*. Retrieved from <https://www.spur.org/news/2018-04-25/why-we-can-t-leave-transportation-apps-private-sector>.

²⁰ Ibid.

²¹ Ibid.

²² TransitCenter. *Private Mobility, Public Interest*. <http://transitcenter.org/wp-content/uploads/2016/10/TC-Private-Mobility-Public-Interest-20160909.pdf> (accessed June 2018).

- Involvement in MaaS allows government agencies access to data that offers insights into travel patterns. This data, combined with emerging mobility services allow for greater transportation efficiency by creating opportunities for more flexible planning by public agencies. If agencies can reduce the cost of providing equivalent or better service in inefficient transit markets, they can reallocate savings to improve service elsewhere
- Provide a better customer experience by coordinating transit agencies and their mobility apps efforts. A fragmented approach erodes the customer experience and pooling funds could lead to a better, fully functioning product for the region. At the moment, three transportation agencies are about to, or in the process of developing MaaS services.

Open Innovation Call for Public-Private Partnership²³

TransLink in Vancouver region recently released an open innovation call seeking partners to improve mobility in the region. TransLink established the goals, criteria and eligibility for submissions, including specifying the following:

1. Seamless and efficient door-to-door mobility. “Does your idea improve the ease, efficiency and flow of people and goods across the region and across different modes?”
2. Safe, healthy, clean and compact communities. “Does your idea improve public safety, promote active transportation modes such as walking and biking, improve air quality and reduce greenhouse gas emissions and support compact communities?”
3. Affordable and equitable access for all. “Does your idea make mobility options more affordable for all residents, or ensure that disadvantaged groups have equal or improved access?”

Example Principles for Integrated Mobility²⁴

The Greater Washington Partnership is a civic alliance of CEOs in the region, from Baltimore to Richmond. It authored a background document on MaaS to coordinate the Baltimore, Washington, and Richmond separate efforts on mobility ticketing, arguing that the benefits to customer mobility would be greater if the agencies integrated their payment systems with one another, and brought in private services. The document proposes the principles below to guide regional mobility decisions.

1. Put the user experience at the center of ticketing and trip planning investments.
2. Build capacity for interoperability and new functionality in planning and ticketing systems for public and private mobility services.
3. Ensure that new mobile ticketing systems equitably empower all consumers.
4. Leverage new ticketing systems to learn, experiment, and transform the travel experience.
5. Build a flexible mobility network that embraces pilots and open data.

MAAS ALLIANCE

The Mobility as a Service (MaaS) [Alliance](#) is a public-private partnership creating the foundations for a common approach to MaaS, unlocking the economies of scale needed for successful implementation and adoption of MaaS in Europe and beyond. The main goal is to facilitate a single, open market and full deployment of MaaS services. The organization may be a resource for the development of a Bay Area program.

²³ TransLink. Open Innovation Call. https://www.translink.ca/-/media/Documents/plans_and_projects/translink_tomorrow/translink_tomorrow_open_innovation_call.pdf?la=en&hash=69AFB6CE3C8954D38A5AB842614B21F97FCAFC67 (accessed June 2018).

²⁴ Greater Washington Partnership. Unlocking the Promise of Integrated Mobility in the Capital Region. July 2018. Retrieved from: http://www.greaterwashingtonpartnership.com/wp-content/uploads/2018/05/201807_GWP_Issue-Brief_Integrated-Mobility.pdf.

The MaaS Alliance has been teaming up with partners throughout the world to promote cooperation on MaaS on a global level. Meetings have been held with stakeholders from the US, China and Japan. The organization's partnership with CCTA was initiated at the [Redefining Mobility Summit](#) held in April 2018 in San Ramon, where representatives of CCTA and MaaS Alliance met and discussed the common interests of both parties.

Guiding Principles for Emerging Mobility Services and Technologies

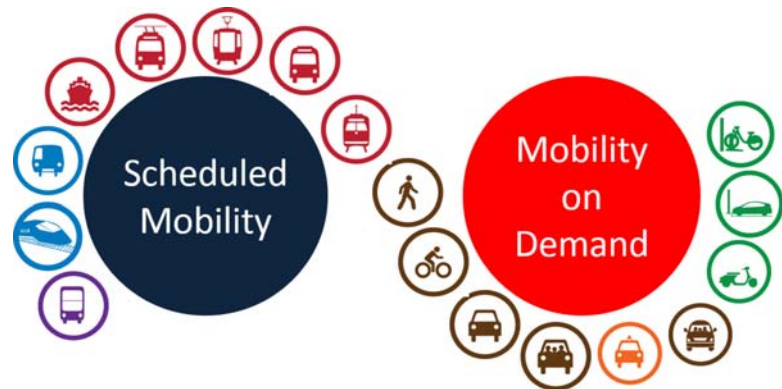
What Are the Guiding Principles for Emerging Mobility Services and Technologies?

Transportation options in San Francisco are significantly different today than they were just a few years ago. A variety of mobility services and technologies have emerged, from mobile applications that connect passengers with on demand service, shared ride van services, shared scooter services, to automated vehicles that are currently being tested on our City streets. These new mobility services present both opportunities and challenges to the safe and efficient movement of people and goods in San Francisco, which is mandated by City Charter in the Transit-First Policy.



With the goals of providing for safe, reliable, sustainable and equitable transportation choices now and in the future, San Francisco's transportation agencies have established the following Guiding Principles for Management of Emerging Mobility Services and Technologies.

These Guiding Principles will provide a consistent policy framework to evaluate new mobility services and will be taken into consideration in all San Francisco Municipal Transportation Agency (SFMTA) and San Francisco County Transportation Authority (SFCTA) decisions, policies and actions regarding Emerging Mobility Services and Technologies.



How the Guiding Principles Will Be Used

The SFCTA and SFMTA will use these Guiding Principles to shape our approach to Emerging Mobility Services and Technologies. For the SFMTA, these Guiding Principles will serve as a framework for the consistent application of policies and programs. The SFCTA will use these Guiding Principles to evaluate these services and technologies; identify ways to meet city goals, and shape future areas of studies, policies and programs. Every Guiding Principle may not be relevant to every consideration associated with Emerging Mobility Services and Technologies, and in some cases a service may not meet all of the principles consistently. SFMTA and SFCTA Directors and staff will consider whether a service or technology is consistent with the Guiding Principles, on balance. If a service provider or technology does not support these Guiding Principles, SFMTA and SFCTA will work with the service provider to meet the principles, or may choose to limit their access to City resources.

Guiding Principles for Management of Emerging Mobility Services and Technologies

- Safety:** Emerging Mobility Services and Technologies must be consistent with the City and County of San Francisco's goal for achieving Vision Zero, reducing conflicts, and ensuring public safety and security.
- Transit:** Emerging Mobility Services and Technologies must support, rather than compete with public transit services, must account for the operational needs of public transit and encourage use of high-occupancy modes.
- Equitable Access:** Emerging Mobility Services and Technologies must promote equitable access to services. All people, regardless of age, race, color, gender, sexual orientation and identity, national origin, religion, or any other protected category, should benefit from Emerging Mobility Services and Technologies, and groups who have historically lacked access to mobility benefits must be prioritized and should benefit most.
- Disabled Access:** Emerging Mobility Services and Technologies must be inclusive of persons with disabilities. Those who require accessible vehicles, physical access points, services, and technologies are entitled to receive the same or comparable level of access as persons without disabilities.
- Sustainability:** Emerging Mobility Services and Technologies must support sustainability, including helping to meet the city's greenhouse gas (GHG) emissions reduction goals and supporting efforts to increase the resiliency of the transportation system.
- Congestion:** Emerging Mobility Services and Technologies must consider the effects on traffic congestion, including the resulting impacts on road safety, modal choices, emergency vehicle response time, transit performance and reliability.
- Accountability:** Emerging Mobility Services and Technologies providers must share relevant data so that the City and the public can effectively evaluate the services' benefits to and impacts on the transportation system and determine whether the services reflect the goals of San Francisco.
- Labor:** Emerging Mobility Services and Technologies must ensure fairness in pay and labor policies and practices. Emerging Mobility Services and Technologies should support San Francisco's local hire principles, promote equitable job training opportunities, and maximize procurement of goods and services from disadvantaged business enterprises.
- Financial Impact:** Emerging Mobility Services and Technologies must promote a positive financial impact on the City's infrastructure investments and delivery of publicly-provided transportation services.
- Collaboration:** Emerging Mobility Services and Technology providers and the City must engage and collaborate with each other and the community to improve the city and its transportation system.