



## Memorandum

### AGENDA ITEM 10

**DATE:** November 13, 2020

**TO:** Transportation Authority Board

**FROM:** Hugh Louch, Deputy Director for Planning and  
Joe Castiglione, Deputy Director for Technology, Data and Analysis

**SUBJECT:** 11/17/20 Board Meeting: DMV Driverless Vehicle Testing Permit for Cruise in San Francisco and Update on Proposed California Public Utilities Commission Ruling on the Deployment of Drivered and Driverless Autonomous Vehicle Passenger Service

**RECOMMENDATION** ☒ Information ☐ Action

None. This is an information item.

### SUMMARY

The California Department of Motor Vehicles (DMV) regulates the safe operation of autonomous vehicles (AV) and issues permits that authorize the testing and deployment of AVs on public roads with and without safety drivers. The California Public Utilities Commission (the Commission) regulates the testing and deployment of AV passenger services, where the applicant has received the appropriate underlying driving permit from the DMV. On October 15, 2020 the DMV granted a permit to Cruise, LLC to test driverless AVs within the limits of the City and County of San Francisco. The permit allows Cruise to test up to five vehicles on San Francisco streets with a speed up to 30 MPH in all conditions except heavy fog or heavy rain, both day and night. Also in October, the Commission released a Proposed Decision that would authorize the deployment of commercial AV Passenger Service with and without a safety driver for passenger service. The Proposed Decision follows a roughly year-long rule-making process, in which both the Transportation Authority and the San Francisco Municipal Transportation Agency (SFMTA) have participated. Both agencies also have commented on the current Proposed Decision, which will be heard by the Commission in the coming weeks. If adopted, AV providers in California would be able to apply for permits to provide passenger service with or without a safety driver and collect rider fees for these services.

- ☐ Fund Allocation
- ☐ Fund Programming
- ☒ Policy/Legislation
- ☐ Plan/Study
- ☐ Capital Project Oversight/Delivery
- ☐ Budget/Finance
- ☐ Contract/Agreement
- ☐ Other:



## **BACKGROUND**

AVs have been being tested on California roads since 2014 under the DMV's Autonomous Vehicle Tester Program. This program, which authorizes manufacturers to test AVs with a trained human safety driver, has 59 permit holders in the state. Companies are not required to inform the City if they are testing with a safety driver, but at least Aurora, Cruise, Waymo, Uber, Lyft, and Zoox are testing, or have tested, in San Francisco.

In 2018, the DMV established the Autonomous Vehicle Driverless Tester Program for manufacturers to test AVs without a safety driver. Since the establishment of the Autonomous Vehicles Driverless Tester Program, five companies have received approval for driverless testing in California –AutoX Technologies Inc., Cruise LLC., Nuro Inc., Waymo LLC., and Zoox Inc. Only one company, Cruise, has received a permit for driverless testing in San Francisco.

In 2018, the Commission authorized two pilot programs for Autonomous Vehicles Passenger Service: Drivered AV Passenger Service and Driverless AV Passenger Service. The Drivered AV Passenger Service Pilot program allows testing of passenger service to members of the public with a driver behind the wheel. The Driverless AV Passenger Service Program allows for passenger service to be offered to members of the public without a driver in the vehicle, but with a communications link between passengers and remote operators. Under these programs, operators are required to submit quarterly reports and data to the Commission that include incidents and passenger miles traveled; test AVs that are zero-emission vehicles; and apply passenger safety protocols and other elements of passenger safety and consumer protection. There are seven approved operators under these programs: Zoox Inc., Auto X Technologies, Inc., Pony.ai, Inc., Aurora Innovation, Inc., Cruise LLC, Waymo LLC, Voyage Auto, Inc. These pilots do not allow fees to be collected for passenger service.

In December 2019, the Commission released an order instituting rulemaking for driverless AV passenger service and asked for feedback on several questions related to driverless passenger service. The SFMTA and the Transportation Authority filed joint responses to this request for comments in January, February, and March 2020. In October 2020, the Commission released a Proposed Decision that would establish the ground rules for commercial deployment of AV Passenger Service. The Proposed Decision would allow fares to be collected, allow shared rides, establish data and reporting requirements, establish a process that allows for public input, and identifies high level goals addressing passenger safety, improving transportation options for all, and reducing greenhouse gas emissions and air pollutants. The SFMTA and the Transportation Authority submitted comments on the Proposed Decision on November 5, and replied to comments on November 9, 2020. The Commission may consider approving the Proposed Decision on November 19, 2020.

## **DISCUSSION**

The California DMV Autonomous Vehicle Tester Program was established in 2014 to gather information about the efficiency and limitations of AVs.



As noted above, the DMV began the Autonomous Vehicle Driverless Tester Program in 2018. There are five approved operators—Autox Technologies Inc., Cruise LLC., Nuro Inc., Waymo LLC., and Zoox Inc. Permit approval for the Autonomous Vehicle Driverless Tester Program requires that manufacturers meet the following requirements:

1. Vehicles have been tested under controlled conditions that simulate the planned area of operation
2. Notify local governments of planned testing in the area including roads, days, times, and number and type of vehicles
3. Information to law enforcement and other first responders on how to interact with test vehicles
4. Vehicles have 2-way communication link between occupants and remote operator, that is trained on technology being tested
5. Continuous monitoring of the status of the test vehicle
6. Reporting for collisions within 10 days and disengagements from autonomous driving mode by the start of each calendar year
7. Evidence of insurance or bond equal to \$5 million
8. Certify that vehicles are capable of operating without a driver, meet Federal Motor Vehicle Safety Standards or have an exemption under the National Highway Traffic Safety Administration, and is an SAE Level 4 or 5 vehicle

**Cruise Driverless Testing and Operational Design Domain (ODD).** On October 15, 2020, Cruise LLC. (Cruise) received a permit from the DMV to test up to five driverless vehicles within San Francisco under the Driverless Vehicle Tester Program. In the program application, Cruise has outlined that all vehicles will be fully electric, will operate day and night, and will not operate during periods of heavy fog or rain or on streets with posted speeds above 30 mph. The geographic area includes the entire City and County of San Francisco. Cruise now has three permits from the state: a DMV permit to test driverless vehicles with a safety driver behind the wheel, a DMV permit to test a driverless vehicle without a safety driver, and a permit from the Commission to transport members of the public with a safety driver behind the wheel.

In early November, following some outreach to city officials, local first responders and some neighborhood groups, Cruise began testing vehicles during limited hours with one vehicle at night in one neighborhood. The SFMTA and Transportation Authority are interested in monitoring and providing input on Cruise's local testing plans, and in tracking safety data as well as obtaining information about any incidents.

Cruise vehicles use a Level 4 Automated Driving System (ADS). A level 4 ADS means that a vehicle can perform all driving functions without human assistance under the conditions



within the operational design domain, whereby a remote operator is able to take over control of the vehicle if necessary.

**Commission Proposed Decision Authorizing Deployment of Drivered and Driverless Autonomous Vehicle Passenger Service.** In 2019 and early 2020, the Commission asked for responses to a set of questions to guide the Proposed Decision to develop a CPUC Drivered and Driverless Passenger Service Deployment permit. The questions covered the topics of next steps for Regulatory Framework, goals for the program, operator data, definitions for service components, permits, passenger safety, driver regulations, and vehicle requirements. The SFMTA and the Transportation Authority provided responses to each question. A summary of Commission rulemaking and our responses is provided in Attachment 1.

The Commission released a Proposed Decision on October 15, 2020 that would set the initial parameters for issuing permits for commercial deployment of Drivered and Driverless AV Passenger Service. The Commission's Proposed Decision for driverless AV passenger service considered responses to questions and data from the seven approved vendors under the existing AV Drivered and Driverless Pilot Programs. Program data covers 600,000 driving miles over a year and three quarters worth of testing by permit holders. We note that this threshold is quite low as 600,000 miles is less than the number of miles driven by Transportation Network Companies (TNCs) only on San Francisco streets on a single pre-COVID Saturday. For context, almost 350 billion miles are driven on California roadways annually. Key elements of the Proposed Decision are summarized below:

**Service.** The Commission's decision would require the operator of any driverless passenger service to obtain relevant DMV permits, allow for monetary compensation for all rides, and allow for shared rides and fare splitting for all trips through the Driverless AV Passenger Service program. The ruling would also require authorization from the Commission and airports for airport operations. Note that there are no stated limits on the number of AVs that permit-holders could deploy on San Francisco streets.

**Deployment Goals.** The Proposed Decision by the Commission establishes four goals for the driverless AV Passenger Service program: protect passenger safety, expand benefits of AV technology to all communities, improve transportation options for all, particularly for disadvantaged communities and low-income communities, and reduce greenhouse gas emissions, criteria air pollutants, and toxic air contaminants, particularly in disadvantaged communities. The ruling defers setting a goal of street safety to the DMV permitting process and does not include goals related to city operations, planning, congestion, curb use, and transit, but does establish data requirements to inform these areas.

**Data and Reporting.** The Commission establishes requirements for specific data reporting and data management. Reporting is required on a quarterly basis, with a long list of specific datasets to be included in submitted reports. The required data includes aggregated and anonymized trip start/end location and times, vehicle miles traveled, safety incidents, WAV (Wheelchair Accessible Vehicle) service, fuel types, and customer feedback. It is assumed that



all data shared through the reporting requirements would be public, however a process is included to ensure data privacy when providers demonstrate legitimate trade secret or privacy concerns.

**Public Process.** The Proposed Decision establishes a process that permits public review and comment on applications and requires full Commission approval of each application for authority to offer Autonomous Vehicle Passenger Services (AVPS).

**SFMTA/Transportation Authority Comments on the Commission's Proposed Decision.** The SFMTA and Transportation Authority submitted comments and replied to comments on November 4th and 9th respectively, on the Proposed Decision. These comments and reply comments applauded the establishment of public goals to guide the AV Passenger Service programs and urged the following changes:

- Include a goal to ensure AV passenger services will provide equivalent services to people with disabilities, including wheelchair users
- Retain the Commission's proposed data reporting requirements, and amend the application and data reporting to allow effective assessment of permit holder performance in relation to the Commission's goals
- Document how the Commission's decision is supported by appropriate environmental review under the California Environmental Quality Act
- Retain the process that allows for public input

Our comments also stressed the importance of an incremental rollout of AV Passenger Service to allow time to assess the potential impacts of this new service. The Proposed Decision in its current form would allow for virtually unlimited deployment of AV Passenger Service on public roads. Under the Proposed Decision, service by a permittee could only be revoked if the DMV finds any act or omission of the manufacturer or one of its agents, employees, contractors or designees which the DMV finds makes the conduct of autonomous vehicle testing on public roads by the manufacturer an unreasonable risk to the public.

## **FINANCIAL IMPACT**

None. This is an information item.

## **CAC POSITION**

The CAC will be briefed on this information item at an upcoming meeting.

## **SUPPLEMENTAL MATERIALS**

- Attachment 1 – Summary of Commission Rulemaking Questions and SFMTA/SFCTA Comments (2019, 2020)



**Attachment 1.  
Summary of Commission Rulemaking Questions and  
SFMTA/SFCTA Comments (2019, 2020)**

<b>Commission Question Area</b>	<b>Summary of SFMTA / SFCTA Comments</b>
<b>Goals</b> (safety, accessibility, equity/environment justice, congestion, climate)	Goals should be adopted to guide the development of AV Passenger Service, should align with existing State policies and goals as they relate to street and passenger safety, disability access, equity, congestion, and climate. The goals should be supported by a plan for how the permit holder will meet those goals. We suggested a detailed set of goals and metrics to be adopted by CPUC.
<b>Data</b> (reporting, availability/sharing)	Require detailed reporting as necessary to demonstrate performance in relation to the adopted goals. Make reporting public, the presumption should be that data should be available to the public unless companies can demonstrate why it is private, not the other way around.
<b>Public Agency Collaboration</b>	Support fare collection if AV providers partner with public agencies to test passenger service that demonstrates progress towards the Commission's goals.
<b>Definitions</b> (AVs, remote operators, personal vehicles)	Definitions should be consistent with precedent (e.g., AVs, accessibility per ADA).
<b>Permits</b> (new category designation, requirements, TNCs and AVs)	Create new regulatory category for AV Passenger Service, distinct from rules governing TNC services, given the unique nature of passenger services provided without a driver.
<b>Passenger Safety</b> (transport of minors, ride-splitting, communications links)	Require development of Passenger Safety Plans and allow for ride-sharing (including splitting of fares).
<b>Drivers</b> (Charter Party Carrier rules, use of contractors)	No modifications to existing rules are recommended.
<b>Vehicles</b> (insurance, inspections)	Develop inspection processes and plan that are specific to AVs – current rules are insufficient.