

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE
STATE OF CALIFORNIA**

Order Instituting Rulemaking on Regulations
Relating to Passenger Carriers, Ridesharing, And
New On-Line-Enabled Transportation Services

R.12-12-011
(Filed May 31, 2023)

**SAN FRANCISCO'S COMMENTS ON THE DRAFT RESOLUTION APPROVING AUTHORIZATION FOR
CRUISE LLC'S EXPANDED SERVICE IN AUTONOMOUS VEHICLE PASSENGER SERVICE PHASE I
DRIVERLESS DEPLOYMENT PROGRAM**

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Dated: May 31, 2023

I. INTRODUCTION AND EXECUTIVE SUMMARY

The California Public Utilities Commission’s Draft Resolution TL-19145 (Draft Resolution) would approve the Cruise LLC Advice Letter (the “Expansion Advice Letter”) seeking to expand commercial Autonomous Vehicle (AV) Passenger Service in San Francisco throughout the City—including its downtown core, 24 hours a day, 7 days a week—including peak travel hours, with a fleet whose size Cruise LLC (Cruise) maintains will start at 100 vehicles and grow in the sole discretion of Cruise. These comments on Draft Resolution TL-19145 are submitted on behalf of the San Francisco Municipal Transportation Agency (SFMTA), the San Francisco County Transportation Authority (SFCTA), and the San Francisco Planning Department (Planning) (collectively San Francisco).

San Francisco shares the California Public Utilities Commission’s (the “Commission” or “CPUC”) hope that automated driving may at some point improve street safety and offer other benefits to San Francisco travelers. The Draft Resolution shows that the Consumer Protection and Enforcement Division (CPED) also shares San Francisco’s concerns about impacts of driverless Cruise AV operations on first responder safety and performance, transit safety and performance, road safety and travel delay, the effects of these driverless readiness performance problems as driverless operations scale up, and the failure of existing reporting requirements to adequately assess and address these concerns.¹ Specifically, the Draft Resolution states:

- “[I]mproper interactions with first responders, including the incidents . . . where driverless AVs have . . . interfered with active emergency scenes, *are hazardous for first responders as well as those experiencing or in proximity to the emergency, and they bring the AV and its passengers unnecessarily close to potentially dangerous situations.*” (emphasis added);²
- “Unplanned stops in unsafe locations create hazards for passengers and other road users, block the flow of traffic, and interfere with public transit These types of incidents are

¹ See San Francisco Protest of Cruise LLC Tier 2 Advice Letter 0002, filed January 25, 2023 . See also San Francisco Comments on Cruise Application for Driverless Deployment Permit – Tier 3 Advice Letter, filed November 29, 2021, for reference to comments on initial advice letter.

² Draft Resolution at p. 12.

particularly concerning if they occur in proximity to . . . San Francisco’s 400+ passive at-grade light rail crossings.”³

- “We also express our continued concerns about the safety of AV passenger pickup and drop-off operations as discussed previously in TL-19137.”⁴
- “We share stakeholders’ concerns that the current AV Deployment reporting requirements may not give us sufficient information to evaluate potential passenger safety issues”⁵

Yet the Draft Resolution approves the Expansion Advice Letter with no changes or new limitations. In the time since San Francisco filed its January 25, 2023 Protest of Cruise LLC Advice Letter, injury crashes involving Cruise AVs have continued, new hazards from driverless AV operations in San Francisco have been reported, and the number of general public complaints about Cruise AV operations has increased significantly. Yet the Draft Resolution concludes that the Commission is encouraged by the Cruise safety record.⁶ This conclusion lacks foundation. Nevertheless, the Draft Resolution rejects the San Francisco Protest *and adopts no conditions of approval that would address any of the concerns that San Francisco and the CPUC share.*

The Draft Resolution proposes approval of the Expansion Advice Letter based only on the fact that Cruise has submitted a Passenger Safety Plan that is complete and seems reasonable to the CPUC under the existing Deployment Decision — a decision that the Commission adopted long before there were any driverless AV operations on San Francisco streets and before the driverless readiness problems the City has documented were apparent⁷. Since that time, the Cruise AV has committed numerous violations that would preclude any teenager from getting a California Driver’s License⁸.

³ *Ibid.*

⁴ *Id.* at p. 13.

⁵ *Ibid.*

⁶ *Id.* at pp. 11, 13.

⁷ *Id.* at p. 9 (See discussion of Standard of Review).

⁸ Cruise may test more than one software version with its San Francisco fleet, but generally Cruise AVs use the same Automated Driving System (ADS). Cruise asserts that the driving ability of each Cruise AV builds on the learning achieved by all vehicles in the fleet. There is another side to this logic:

Pointing to DMV approvals, the Draft Resolution suggests that the Commission lacks power to address the hazards that arise from the current driverless performance level and instead notes the need for further rulemaking.⁹ San Francisco agrees that prompt additional rulemaking by both the California DMV and the CPUC is essential and that the Commission needs a policy making process that is more responsive to demonstrated driverless performance that, in addition to its potential, continues to present hazards to the public. Since the release of the Draft Resolution on May 25, 2023, the Assigned Commissioner released a Ruling on Development of New Data Reporting Requirements for Autonomous Vehicles Driverless Deployment Program (New Data Reporting Rulemaking).¹⁰

San Francisco applauds this action; however, given the demonstrated driverless Cruise AV performance problems that are well documented, *it is unreasonable for the Commission to approve Cruise and/or Waymo Advice Letters before adopting expanded reporting requirements and minimum performance standards.* This approach is backwards and is inconsistent with the Commission's power and duty to protect not only passenger safety but the safety of the general public.¹¹

Under these circumstances, San Francisco urges the Commission to either defer consideration of the Cruise Expansion Advice Letter until after adopting new rules in the New

the weaknesses of any one Cruise AV may be reflected in the entire fleet. Thus, each CVC violation or driving error could be thought of as, for example, 200 violations or errors if other Cruise AVs would have made the same error. To learn from the experience of the whole fleet expands the capability of any one vehicle. In other words, all violations committed by a Cruise AV can be attributed to one single driver.

⁹ Decision Authorizing Deployment of Phase I Drivered and Driverless Autonomous Vehicle Passenger Service (Deployment Decision) at p. 30; Draft Resolution at pp. 12-13, Finding Paragraph 13 at p. 17.

¹⁰ See New Data Reporting Rulemaking filed May 25, 2023. San Francisco notes that the scope of the New Data Reporting Rulemaking is more narrow than appeared to be contemplated in the Deployment Decision as amended (p. 75) and in the Initial Approval to Cruise approved by Resolution TL -19137 (p. 14). San Francisco urges the Commission to move forward with rulemaking on additional questions such as whether to revise program goals and establish targets and whether there is need for other changes to the AV pilot and Phase 1 Deployment programs.

¹¹ See PUC §§ 5351, 5352(a) et seq.

Data Reporting Rulemaking or develop a factual record to properly assess the benefits and risks of unlimited expansion given current performance levels following and subject to environmental review of its New Data Rulemaking decision under the California Environmental Quality Act (Public Resources Code Section 21000 et seq., “CEQA”), as required by law. Alternatively, as presented in greater detail in Section III, the Commission should modify the Draft Resolution: 1) to approve only limited expansion of commercial service with limits that reflect service hours, geographic service area, and fleet size as recommended in the San Francisco Protest; 2) to require Cruise, through permit terms, to submit additional data to facilitate evaluation of transit impacts, emergency response impacts, roadway hazards, network efficiency, and crashes as recommended in the San Francisco Protest until the Commission completes the New Data Reporting Rulemaking; and 3) to provide for gradual release of expansion limitations, once environmental review under CEQA is complete, where data submitted either under permit conditions or under future rulemaking decisions demonstrates improved performance in relation to the impacts identified above, as recommended in the San Francisco Protest.

II. APPROVING THE DRAFT RESOLUTION AS WRITTEN WOULD FAIL TO ADDRESS THE SAFETY HAZARDS DOCUMENTED IN DEMONSTRATED DRIVERLESS AV PERFORMANCE IN SAN FRANCISCO, WOULD BE INCONSISTENT WITH THE COMMISSION’S DUTY TO PROTECT PUBLIC SAFETY, AND WOULD FIRST REQUIRE REVIEW OF THE POTENTIAL ENVIRONMENTAL IMPACTS.

The Draft Resolution “encourage[s] Cruise to be thoughtful in how it chooses to operate and proactive in its engagement with local stakeholders.”¹² It further states that the Commission will monitor Cruise operations and has authority to modify any permit it issues.¹³ The Commission does not fulfill its obligation to protect public safety by simply encouraging its permittees proposals. Rather, where material, factual issues related to public safety are raised,

¹² Draft Resolution at p. 14.

¹³ *Ibid.* (citing PUC § 5381).

an advice letter should not be approved until those issues are addressed.¹⁴ Additionally, the Draft Resolution is also a “project” under CEQA, and is tantamount to Phase II of the Deployment Programs that Decision (D.).20-11-046 (as modified by D.21-05-017) anticipated and requires environmental review.¹⁵

The Draft Resolution states that Commission staff has only evaluated the content of Cruise’s Passenger Safety Plan for its completeness relative to the minimum requirements set forth in the Deployment Decision as well the reasonableness of the strategies described in protecting passenger safety in the context of the proposed service. But even if this is the standard of review contemplated in the Deployment Decision¹⁶, it is unreasonable to apply this standard of review to approve the Cruise Expansion Advice Letter, exactly as submitted, under the circumstances of the hazards San Francisco has documented from demonstrated driverless performance of the Cruise AV in San Francisco. This action ignores the mandates of the Charter Party Carriers’ Act and constitutes an abuse of the Commission’s discretion because it ignores the Act’s mandate that the Commission consider public safety. As it stands, the current record

¹⁴ General Order 96-B, 7.5.1 (“If the Industry Division, after considering the additional information, determines that material factual issues remain, the Industry Division will reject the advice letter without prejudice.”)

¹⁵ When the Commission considered its Deployment Decision, San Francisco argued that it was a “project” under CEQA, and that the Commission needed to study its direct and reasonably foreseeable indirect environmental impacts before approving the Deployment Decision. (See Pub. Resources Code § 21065 (defining “project” as a discretionary action of a public agency that has the potential of causing either a direct or reasonably foreseeable indirect physical change in the environment).) The Commission disagreed and adopted a phased approach, under which Phase I allowed for data collection to evaluate Deployment Programs. Phase II was to be initiated “no later than three years from the date of initiating Phase I, which will occur upon approval of the first amended drivered AV deployment permit or approval of the first advice letter authorizing driverless AV deployment, whichever is first. Parties may raise the applicability of CEQA at that time.” Order Modifying Certain Holdings of Decision 20-11-046 and Denying Rehearing of the Decision, As Modified D.21-05-017 at p. 5; Deployment Decision Ordering Paragraph 21. San Francisco maintains that the Deployment Decision was a “project” under CEQA and that environmental review was necessary. For the reasons explained below, San Francisco argues now that the Draft Resolution is also a “project” under CEQA. Therefore, environmental review is necessary now, prior to the Commission’s approval of the Draft Resolution.

¹⁶ Deployment Decision Ordering Paragraphs at pp. 122-143.

is inadequate and presents material issues that the Commission must address before approving the Expansion Advice Letter.

The Commission has recognized the importance of developing a proper record that addresses material issues related to the Expansion Advice Letter. In D.11-11-019, the Commission vacated Resolution E-4243, authorizing an electric utility to construct a sub transmission line in Ventura County. The Commission determined that rehearing was warranted in part because several material issues were not discussed in the ultimate resolution, including fire hazard risks.¹⁷ The Commission recognized that it was necessary to develop a proper record before reaching conclusions as to the potential impacts of the line.¹⁸ The Commission further acknowledged that the informal methods of gathering information used in the advice letter process proceeding interfered with the proper development of the record.¹⁹ Under this precedent, approval of the Draft Resolution would be improper.

A. The Commission has both jurisdiction and a duty to Address the Hazards Raised by San Francisco

Pointing to the DMV permitting process for authorizing automated driving on public roads, the Draft Resolution attempts to deflect rather than exercise the Commission's duty to protect public safety.²⁰ The Passenger Charter-Party Carriers' Act expressly vests the CPUC with concurrent jurisdiction over public safety.²¹ The Commission itself has acknowledged this responsibility and its broad mandate to protect public safety.²² The Commission should not rely on DMV acquiescence as a basis for inaction. Specifically, the Commission cannot rely on the DMV approval of Cruise LLC's operational design domain (ODD) to justify foregoing limits on

¹⁷ D.11-11-019 at pp. 9-12.

¹⁸ *Id.* at p. 13.

¹⁹ *Id.* at p. 2.

²⁰ Deployment Decision at p. 30; Draft Resolution at p 12.

²¹ Draft Resolution at pp. 8-9.

²² *Id.* at pp. 1, 8-9, 11, 12, 15.

Cruise deployment. The Commission may narrow the Cruise ODD when Cruise LLC seeks to operate as a charter-party carrier. The DMV approval of the Cruise ODD sets a ceiling on Cruise driverless commercial deployment; it does not set a floor.

The Draft Resolution also errs in its conclusion that the Expansion Advice Letter satisfies Deployment Decision requirements. Resolution TL-19137, which approved the Initial Application for Phase 1 Driverless Deployment notes that General Order 157-E Part 1.06 requires Cruise LLC to comply with the California Vehicle Code (CVC). It encourages local authorities to report safety incidents to CPED and the DMV, and it counts CPUC authority to suspend or revoke an AV permit at any time.²³ Yet the Draft Resolution takes no account of these reports. The San Francisco Protest noted numerous incidents where Cruise AVs failed to comply with provisions of the CVC. San Francisco has informed CPED and DMV staff of further incidents, and these comments advise the Commission of still others. Yet the Draft Resolution proposes to approve virtually unlimited expansion. The Declaration of Shawn McCormick, Director of Parking Enforcement and Traffic at the SFMTA, attached to these comments as Exhibit A, identifies both moving violations and parking violations that are reflected in incidents reported in the San Francisco Protest, in these comments, and in numerous discussions with Commission staff.

These violations, show that the Cruise AV is currently a developmental technology that is not yet ready for unconstrained commercial deployment. As noted in the Draft Resolution, the Cruise Expansion Advice Letter states that “local officials have the authority to cite AVs if they observe any non-moving violations.”²⁴ The critical omission is that California law *provides no mechanism for state or local law enforcement officials to issue citations for moving violations to automated vehicles*. Moving violations that would prevent a human applicant from obtaining a license to drive have no apparent consequence for Cruise LLC. And state law provides no

²³ Resolution Approving Cruise LLC’s Application for Phase I Driverless Autonomous Vehicle Passenger Service Deployment Program, Resolution TL-19137 (Resolution TL-19137) at p. 18.

²⁴ Draft Resolution at p. 8.

mechanism for moving violations committed by AVs to offer a path toward revocation of the privilege to drive on public roads. Under these circumstances, the Draft Resolution's unlimited approval of the Expansion Advice Letter abrogates Commission responsibility to protect public safety.

B. The Hazards Documented in the San Francisco Protests Have Continued and Increased Since December 2022 and Reported Incidents Reflect many New Hazards as Driverless Operations Have Expanded in 2023; Additional Fact finding is Thus Necessary Before Approval of the Expansion Advice Letter

Cruise states that it has driven over 1 million driverless miles in San Francisco. As documented in the San Francisco protest filed January 25, 2023, these miles included dozens—perhaps hundreds or thousands—of incidents in which driverless AVs were reported to:

- drive erratically,
- make planned & unplanned stops in travel lanes that block traffic and interfere with transit service, and
- interfere with emergency response operations and posed grave hazards to first responders.

The continuation and increased frequency of incidents affecting the San Francisco Fire



Department (SFFD) emergency response operations is of grave concern. For example, as shown below, on January 23, 2023, after a driverless Cruise AV drove into a fire scene, a firefighter was only able to make the Cruise AV stop by banging on its hood and smashing the vehicle's window as seen in the image below.

Exhibit C provides a summary of 18 incidents in which written reports submitted by San Francisco Fire Department staff document driverless AVs that have interfered with SFFD emergency response operations and put firefighters and members of the public at unnecessary and greater risk than they already faced because of underlying emergencies.²⁵ These driverless AVs interfere with fundamental City operations like emergency response, utility operations, and transit. Cruise vehicles fail to navigate routine occurrences on urban roadways, such as emergency or construction lane closures and to respond appropriately to workers directing traffic in those situations.²⁶ Most of the 18 reported incidents involving Fire Department operations have involved Cruise AVs, with the most recent Cruise AV incident occurring on May 8, 2023.

In addition to the incident types reported in the San Francisco Protest, since its filing, members of the public, City employees, media and social media²⁷ have also reported new kinds of incidents and hazards caused by driverless AVs, including:

- intrusions into construction zones marked with cones and signs in which City employees are working in and under city streets;²⁸

²⁵ Leaders of the San Francisco Fire Department report that these incidents reflect a subset of such incidents.

²⁶ The CPUC acknowledged that concerns around AV's ability to interpret hand signals was serious. See Deployment Decision at p. 23.

²⁷The Commission's current data collection policies would not capture the majority of these events and the Commission learns about these incidents through discussions with San Francisco and other third party sources.

²⁸For example, at 4:42 a.m. on 3/22/23 near Clay and Polk streets, Muni reported to the Department of Emergency Management that a driverless Cruise AV entered a coned off construction zone.

- intrusions into crime scenes and scenes with downed power lines and other hazards marked with caution tape;²⁹
- crashes involving non-AVs where AV driving was a contributing factor;³⁰
- obstructions caused by driverless AV challenges with interpreting and responding to direction given by human traffic control officers;³¹
- minimal risk condition failures in travel lanes that trap drivers of other vehicles parked at the curb and prevent them from leaving the curb.³²

For example, on the evening of March 21, 2023, two driverless Cruise AVs were unable to detect road closure tape and drove through a closed lane, where one became entangled in Muni power lines downed by a storm at the intersection of Leavenworth Street and Clay Street.



²⁹ For example, around 9:49 p.m. on 5/19/23, a driverless Cruise AV drove through police tape and into an active crime scene.

³⁰For example, on 3/10/23 near Shrader and Oak streets two personal vehicles were involved in a collision trying to pass a disabled driverless Cruise AV.
<https://www.youtube.com/watch?v=7qJ1bCd7xXU&feature=youtu.be> at 17:33.

³¹ For example, around 1:05 p.m. on 3/11/23, a PCO tried to stop a driverless Cruise AV by standing in front of it.

³² For example, at 9:41 p.m. on 3/14/23 at 530 14th St, a caller reported to DEM that three Cruise AVs were blocking their driveway.

For example, on March 23, 2023, Cruise driverless car rear ended a Muni bus at 1439 Haight Street – leading to a recall of 300 Cruise vehicles.



For example, on May 19, 2023, a Cruise driverless vehicle drove through police tape at an active crime scene.

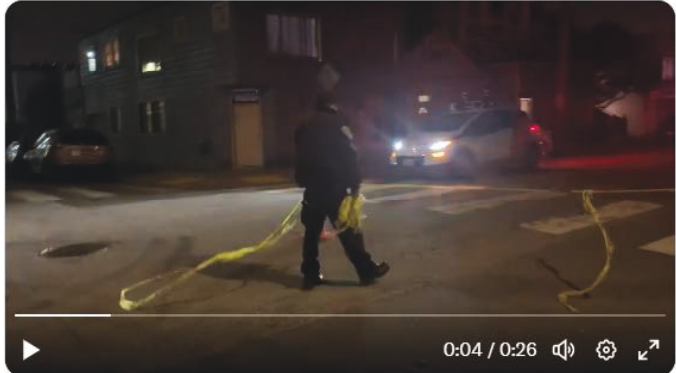
Elissa Harrington @EHarringtonTV · May 19
An autonomous vehicle just drove through police tape at a crime scene in San Francisco. 😬 Now a bunch of cars are driving through the area that was supposed to be sealed off.



9:39 PM · May 19, 2023 · 76.1K Views

Elissa Harrington @EHarringtonTV

Here it comes again. This time police put out big orange cones and removed the tape as the driverless car tried to exit the scene 🤖
[#SanFrancisco](#)



0:04 / 0:26

As of the filing of the San Francisco Protest, the large majority of Reported Incidents involved Cruise AVs. But in early 2023, Waymo increased driverless operations. Since that time, Waymo vehicles have also been involved in numerous Reported Incidents. Table 1 identifies the number of Reported Incidents on a monthly basis in 2023 arising from driverless operations of both Cruise and Waymo. We present them together because the Commission’s actions on Draft Resolution TL-19145 (Cruise LLC) and Draft Resolution TL-19144 (Waymo) must account for the cumulative effect of the safety hazards generated by the driverless operations of both companies in San Francisco. Table 1 also includes driverless AV Reported Incidents that could not be attributed to one company or the other. On a month-to-month basis, driverless AV Reported Incidents have been rapidly increasing.

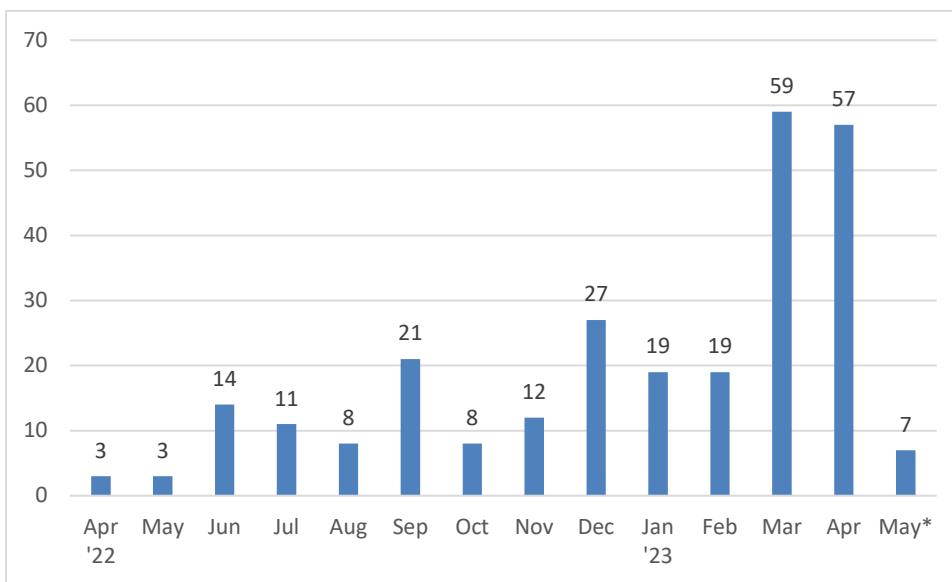
Table 1: Cruise and Waymo Driverless AV Incidents Reported in 2023

Month	Cruise	Waymo	Reported Incidents
Jan	19	5	24
Feb	19	10	29
Mar	59	34	93
Apr	57	30	87
May*	7	3	10

*** May represents an incomplete record**

When we look only at Reported Incidents that involve driverless Cruise AVs since Cruise LLC received its Driverless Deployment Permit in June 2022, Reported Incidents have increased from 101 over the last 7 months of 2022 (an average of over 14 Reported Incidents/month), to 154 over the first 4 months of 2023 (an average of over 38 Reported Incidents/month). In March and April of 2023, there were 59 and 57 Cruise Reported Incidents per month, respectively—or almost two every day.

Table 2: Cruise Incident Reports



* May represents an incomplete record

The San Francisco Protest asked the Commission to authorize only incremental commercial service expansion and specifically sought protection from driverless AV incidents during peak travel hours. Table 3 identifies the distribution of Reported Incidents involving Cruise AVs by time of day. Cruise Reported incidents are heavily concentrated in evening and early morning hours when Cruise AVs offer commercial passenger service under Cruise LLC's Phase I Driverless Autonomous Vehicle Passenger Service Deployment Permit pursuant to Resolution TL 19137 (Initial Approval). We cannot determine whether this concentration suggests that Cruise AV driverless operations are experiencing greatest challenges when providing commercial passenger service, or whether this reflects challenges when operating in the dark. Nor can we assess whether the concentration simply reflects the time distribution of driverless Cruise AV vehicle miles traveled. However, the existing time distribution supports and elevates the need for great caution before the Commission approves commercial service in the City's peak travel hours. A rapid increase in Reported Incidents during these hours could have dramatic negative effects on the ability of members of the public to travel around the City when they most need to do so.

Table 3: Cruise Reported Incidents by Time of Day

Time Period	Count of Incidents	% of Total
Early AM 12:00AM-6:59AM	44	19%
AM Peak 7:00AM-9:59AM	8	3%
Midday 10:00AM-3:59PM	16	7%
PM Peak 4:00PM-6:59PM	20	9%
Evening 7:00PM-11:59PM	143	62%
Total	231	100%

*** Note: not all incidents recorded included the time**

San Francisco thus reiterates our request that the Commission authorize Cruise LLC to expand driverless expansion in an incremental manner that protects peak travel hours.

It is possible that some aspects of Cruise AV driverless performance are improving. However, on the whole, based solely on Reported Incidents rather than the kind of systematic data that San Francisco has urged the Commission to collect, it appears that the negative effects of driverless Cruise AV operations in San Francisco are escalating. As discussed in the San Francisco Protest, the number of Reported Incidents is almost certainly a small minority of the total universe of incidents occurring because most affected individuals are unlikely to report these incidents. Under these circumstances, the Draft Resolution’s unlimited approval of the Expansion Advice Letter abrogates Commission responsibility to protect public safety.

C. The Draft Resolution’s Conclusion that Cruise Has a Good Safety Record Lacks Foundation

The Draft Resolution states, “the Commission is encouraged by the safety record in passenger service to date. Cruise has reported just 5 collisions under its Driverless Deployment permit since receiving its permit in June 2022, none of which have resulted in injuries.”³³ The

³³ Draft Resolution, at p. 11.

Resolution subsequently references this information to assert, “Available data show *Cruise has maintained a good safety record.* (emphasis added)”³⁴

The Commission has access to information that is not available to San Francisco or other parties. The Initial Commercial Deployment Approval, Commission TL-19137, stated that the Commission “must rigorously evaluate potential safety risks and appropriately acknowledge any limitations to such an analysis”³⁵ The Draft Resolution does not reflect rigorous safety analysis: it does not identify the five crashes referred to, does not normalize the crash data in relation to vehicle miles traveled, and does not explain why it is reasonable to describe those crashes as demonstrating a good safety record.

In the absence of any such analysis supporting the Draft Resolution, the SFCTA has conducted two preliminary analyses of Cruise AV crashes based solely on the limited information currently available to the public from Cruise’s data reporting to the Commission as a condition of its Deployment permit, augmented by data reported to the California Department of Motor Vehicles,³⁶ and the National Highway Traffic Safety Administration.³⁷ The first preliminary analysis, based on Commission Deployment permit data for the period from June 2022 through February 2023 notes that the five collisions the Commission relies on correspond to a very small fraction of Cruise driverless operations in San Francisco. The collision rate from that small fraction of Cruise driverless operations appears to exceed the

³⁴ *Id.* at p. 13.

³⁵ Resolution TL-19137 at p. 12.

³⁶ www.dmv.ca.gov/portal/vehicle-industry-services/autonomous-vehicles/disengagement-reports/

³⁷ www.nhtsa.gov/laws-regulations/standing-general-order-crash-reporting

collision rate for human drivers. The second preliminary analysis, which focuses on the subset of collisions that *result in human injuries* in relation to driverless operations under *all* permits in San Francisco, the Cruise AV injury collision rate from June 2022 through November 2022 (the most recent date for which Cruise’s DMV permit data is available) also appears to be much higher than average human drivers. ³⁸

A careful review of publicly available data reported by Cruise to the Commission (as required by the Commission’s Pilot and Deployment programs) as well as the most recent data reported by Cruise to the California Department of Motor Vehicles (under its Autonomous Vehicle Tester (AVT) program and AVT Driverless program) reveals that, as shown in Table 4, Cruise reported only 87,283 vehicles miles traveled (VMT) to the Commission under its CPUC Deployment Permit. As shown in Table 4, this appears to represent a maximum of 10% of Cruise VMT in California between the Initial Commercial Deployment Approval in June 2022 and February, 2023. The vast majority of Cruise VMT has occurred under DMV permits, for which we only have data through November 2022, meaning the true share of Cruise VMT occurring under the Commission’s Deployment Permit is even lower than 10%.

According to the U.S. Department of Transportation, the average American drives 13,476 miles per year³⁸. If Cruise AVs was involved in five collisions in just the 87,283 VMT reported to the Commission, this means that, on average, Cruise had a collision every 17,546 miles. This would be the equivalent of the average American driver having almost one collision per year. This is hard to describe as a “good safety record.”

³⁸US DOT Average Annual Miles per Driver by Age Group
<https://www.fhwa.dot.gov/ohim/onh00/bar8.htm>

Table 4. Cruise Vehicle Miles Traveled by Permit Type

	VMT	% VMT
Cruise VMT Reported Under DMV Drivered Test Permit*	364,337	41.6%
Cruise VMT Reported Under DMV Driverless Test Permit*	372,544	42.6%
Cruise VMT Reported Under CPUC Driverless Pilot Permit**	50,765	5.8%
Cruise VMT Reported Under CPUC Driverless Deployment Permit**	87,283	10.0%
Total	874,929	100.0%

*Cruise VMT Reported to the DMV under its Drivered and Driverless Test Permits is for the period June 2022 – November 2022

**Cruise VMT Reported to the CPUC under its Pilot and Deployment Permits is for the period June 2022 – February 2023. Note that CPUC Deployment permit data does not appear to distinguish between Drivered and Driverless data.

Reasonable minds may differ about how to evaluate the injury crashes arising from automated driving, but looking beyond the 87,283 miles of driving Cruise has reported under its CPUC Initial Deployment Permit brings many other collisions into view, including injury collisions. Cruise has reported to the National Highway Traffic Safety Administration at least twenty-five (25) collisions when operating in “autonomous mode” since receiving its Driverless Deployment permit in June 2022. At least five (5) of these incidents have resulted in injuries. In all these incidents, the automated driving system was engaged.³⁹ The most recent occurred in March, 2023.

³⁹ www.nhtsa.gov/laws-regulations/standing-general-order-crash-reporting. See Report ID 30412-5101, Report ID 30412-3748, Report ID 30412-3084, Report ID 30412-3806, and Report ID 30412-3281. All Cruise AV crash descriptions in DMV and National Highway Traffic Safety Administration (NHTSA) public reports are prepared by the operator, in this case, Cruise. It is common for Cruise and others to attribute crashes between automated drivers and other road users to the other party. However, as NHTSA has noted in <https://static.nhtsa.gov/odi/inv/2022/INOA-PE22014-4871.PDF>, many crashes involving, for example, AVs hit from behind, appear to have been triggered by sudden and unnecessary stops by the AV.

The Commission describes Cruise as having a “good” safety record” without defining any method for distinguishing a good safety record from a poor one. In simple terms, Cruise claims that its driving will be safer than human driving. NHTSA reports motor vehicle injury rates in its “Overview of Motor Vehicle Traffic Crashes in 2021” report.⁴⁰ One of the key metrics in this report is the “Injury Rate per 100 million VMT”, and it is reasonable to compare the Cruise AV injury collision rate to the national average for human drivers. In 2021, NHTSA reports the average national injury rate was 80 injuries per 100 million VMT.

Based again on the most recent Cruise AV VMT data available to the public, Table 5 shows the Cruise AV Injury Collision Rate per 100 million VMT. VMT is based on the combined total of all VMT reported to both the Commission and the DMV. This likely overstates VMT, as some VMT reported to the CPUC may already be included in DMV data. Reducing VMT to avoid double counting would result in a higher apparent injury collision rate, so the analysis below views the data in the light most favorable to Cruise LLC. Injury crashes are derived from the Cruise LLC reports to NHTSA under the Standing General Order issued in early 2021. These reports have been scrupulously cleaned to remove all duplicate records, as well as to only include actual vehicle crashes and to eliminate non-crash events such as flat tires. In many cases there is more than one injury associated with a single injury crash. Higher numbers of injuries per crash would result in a higher injury rate. Again, by capturing only a single injury per injury crash, the analysis views the data in the light most favorable to Cruise. Finally, all Cruise crashes in California reported to NHTSA occurred in San Francisco. Based on these data,

⁴⁰ <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813435>

Cruise’s injury crash rate is estimated to have been 506 injury crashes per 100 million VMT between June and November, 2022—approximately 6.3 times the 2021 national average.

Table 5. Cruise Injury Crash Rate

Period	June 2022 – Nov 2022
Total VMT reported under DMV permits	736,881
Total VMT reported under CPUC permits	53,096
Total VMT	789,976
Total Cruise crashes in autonomous mode	11
Total Cruise crashes in autonomous mode with Injuries	4
VMT per crash	71,816
VMT per injury crash	197,494
Injury crashes per 100 million VMT (Cruise)	506
Injuries per 100 million VMT (National Average)	80
Cruise Injury Rate / National Injury Rate	6.3

Notes: VMT from Cruise’s California DMV Drivered Test Permit data, Cruise’s California DMV Driverless Test Permit Data, Cruise’s CPUC Pilot Permit data and Cruise’s CPUC Deployment permit data. Injury crashes derived from NHTSA ADS Incident Report Data. All data is for the period June 2022-November 2022, which is the period for which both DMV permit data and CPUC permit data are available.

While San Francisco hopes that automated driving will at some point be safer than human driving, at a minimum, based on collision records available to the public, within the complex driving environment of San Francisco city streets, we must conclude that the technology is still under development and has not reached this goal. It is possible that more recent Cruise AV driving would show better performance in terms of injury collisions per 100 million miles of VMT. However, it appears unlikely that even significant improvement in injury crashes would support a conclusion that Cruise driving performance to date demonstrates “a good safety record.” Unlimited approval of the Expansion Advice Letter abrogates Commission responsibility to protect public safety. If the Commission is to make any reliance on the Cruise AV injury collision information, we urge the Commission to seek expert assistance to expand on

the SFCTA’s preliminary findings. A more thorough analysis should benefit from all the data available to the Commission and should be made available to the public.

D. Approval of the Draft Resolution is a Discretionary Action with reasonably foreseeable environmental impacts and is thus Improper Under the California Environmental Quality Act.

Commission approval of the Draft Resolution would be a reflection of Commission judgment and deliberation; it is a discretionary action under CEQA. (Publ. Resources Code § 21065.) Here, because the Commission would be taking a discretionary action capable of causing reasonably foreseeable environmental impacts, the Commission must conduct an environmental review of Cruise’s proposed expansion. The following is a non-exhaustive discussion of the potential physical environmental impacts that must be analyzed pursuant to CEQA prior to the Commission making this discretionary decision.

CEQA recognizes that “vehicle miles traveled is the most appropriate measure of transportation impacts.” (CEQA Guidelines § 15064.3.) While San Francisco appreciates that the proposed Cruise AVs are zero emission vehicles, its sole VMT impact would have an adverse impact on the State’s Climate Change and Equity goals as stated in the California Air Resources Board’s 2022 Scoping Plan for Achieving Carbon Neutrality (Scoping Plan)⁴¹. The Scoping Plan recognizes the need for stringent VMT reductions to meet the state’s climate action goals (i.e., reducing VMT by 25% below 2019 levels by 2030 and 30% below 2019 levels by 2045). Further, the Scoping Plan’s Sustainable and Equitable Communities policy framework⁴² calls for the prevention of “uncontrolled growth of autonomous vehicle VMT,” as it is projected to be one the primary sources of VMT growth in California in the next 25 years.

⁴¹ California Air Resources Board. *2022 Scoping Plan for Achieving Carbon Neutrality*. December 2022. Available at <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf>, accessed May 2023.

⁴² Appendix E of the 2022 Scoping Plan for Achieving Carbon Neutrality.

AVs that operate as ride-hailing fleets, such as the Cruise AV, are likely to have similar impacts on VMT as the ride-hailing transportation network companies (TNCs). Research indicates TNC services can induce vehicle trips by 43 percent to 61 percent as they shift people from transit, bicycling, or walking, or by taking a trip they would otherwise not make at all.⁴³ This increases VMT and greenhouse gases even if the vehicles themselves are zero emission.⁴⁴ A recent analysis of an electric charging project for an AV ride-hailing fleet in San Francisco found that the project could generate approximately 8.4 million to 9.8 million new VMT due to induced trips from its AVs.⁴⁵

The VMT reductions in the Scoping Plan are tied to greenhouse gas emission goals, but the Scoping Plan acknowledges that:

“Transforming the transportation sector goes beyond phasing out combustion technology and producing cleaner fuels. Managing total demand for transportation energy by reducing the miles people need to drive on a daily basis is also critical as the state aims for a sustainable transportation sector in a carbon neutral economy. Though GHG emissions are declining due to cleaner vehicles and fuels, rising VMT can offset the effective benefits of adopted regulations.”

Again, although Cruise has committed to using zero emission vehicles for its AV passenger service, the VMT generated by approval of the Draft Resolution could also result in potential environmental impacts related to air quality. Vehicles generate particulate matter

⁴³SFCTA. *TNCs & Congestion, Final Report*. October 2018, Available at https://www.sfcta.org/sites/default/files/2019-05/TNCs_Congestion_Report_181015_Finals.pdf, accessed October 2022.

⁴⁴ San Francisco Planning Department. *TNCs and Land Use Planning*. June 2022. Available at https://sfplanning.org/sites/default/files/documents/citywide/TNCs-land-use/TNC_Land_Use_Study_2022.pdf, accessed May 2023.

⁴⁵ San Francisco Planning Department. *640-800 Cesar Chavez Street Project Transportation Coordination Memo*. January 28, 2022. Available at <https://citypln-m-extnl.sfgov.org/External/link.ashx?Action=Download&ObjectVersion=-1&vault={A4A7DACD-B0DC-4322-BD29-F6F07103C6E0}&objectGUID={79CACAE5-61D3-4513-BC3B-A4FBDC9FB863}&fileGUID={9D108BBB-025C-492A-BE56-8949985D89B7}>, accessed May 2023.

from brake wear, tire wear, clutch wear, and road dust resuspension, which is not regulated. These sources of pollution are becoming increasingly important as exhaust emissions decrease over time through increasingly stringent exhaust regulations and vehicle turnover. These unregulated emissions would also result in inequitable impacts, as the average number of vehicles on roadways located within environmental justice communities¹⁷⁴⁶ tends to be higher compared to communities with a low environmental justice burden.¹⁸⁴⁷ In addition, it is unclear if other vehicles used in the service of Cruise's operation of AV passenger service (e.g., cars used for mapping or to pick up stranded AVs) are also zero emission vehicles. Information on the operations of these other types of vehicles and whether they are zero emission or combustion engine vehicles is essential to understanding the full scope of the VMT associated with Cruise's operations and related impacts.

Approval of the Draft Resolution could also lead to potential environmental impacts related transit delay. As stated above, AVs that operate as ride hailing fleets would induce new vehicle trips, which could then lead to increased congestion and delays for transit. The Draft Resolution states: "The operational issues raised by San Francisco are concerning to the Commission given the wide range of potential impacts to passengers and the public. Unplanned stops in unsafe locations create hazards for passengers and other road users, block the flow of traffic, and interfere with public transit until the vehicle(s) can be remotely moved or manually retrieved." In addition, finding 15 in the Draft Resolution states that Cruise vehicles can "create

⁴⁶ Environmental justice communities are areas of San Francisco that have higher pollution and are predominately low-income.

⁴⁷ San Francisco Planning Department. Environmental Justice Informational Analysis for the Housing Element 2022 Update. December 7, 2022.

hazards for passengers and the public”. This finding, along with the additional evidence provided in these comments and raised in the San Francisco Protest, indicate that approval of the Draft Resolution could lead to potentially hazardous conditions and public transit delays – issues addressed under CEQA in Checklist Question XVIII(a)⁴⁸.

The Commission must conduct CEQA review prior to taking a discretionary action capable of causing physical environmental effects, such as approval of Cruise’s proposed expansion. A CEQA analysis at this stage and at this level is also good government. CEQA analysis would allow for a comprehensive assessment of the physical environmental impacts of the Deployment Programs statewide, consistent with the Commission’s decision that statewide deployment is appropriate. It may also identify potential options for mitigating impacts through program rules or subsequent permit conditions that align with the four goals established in D.20-11-046 (as modified by D.21-05-017). Mitigation options could include:

- Disincentives for zero occupancy VMT and incentives for shared rides;
- Maintaining regulations on the geography, time period, amount, and fleet size of autonomous vehicle passenger transportation service deployment based on data collected as a result of D. 20-11-046; and
- Zero emission vehicle requirements for all vehicles uses in the operations and support of Cruise’s AV passenger service.

Finally, as noted above, the Commission’s modification of Decision 20-11-046 and denial of a rehearing of the decision created a phased approach to the AV Deployment Programs.²⁰⁴⁹

⁴⁸ The San Francisco Planning Department's Transportation Impact Analysis Guidelines uses significance criteria to facilitate the transportation analysis and address the Appendix G checklist. To address conflicts with the City's Vision Zero and Transit First policies, the guidelines address if a project would result in potentially hazardous conditions or substantial transit delay.

⁴⁹ California Public Utilities Commission. Order Modifying Certain Holdings of Decision 20-11-046 and Denying Rehearing of the Decision, as Modified. May 6, 2021.

Authorizing Cruise vehicles to operate in San Francisco without geographic or time limits is tantamount to Phase II of the Deployment Programs. Given the breadth and timing of Cruise’s proposal, it is unclear when and under what criteria the Commission would initiate Phase II, if not now.⁵⁰ Accordingly, the Commission must conduct the required environmental review at this time, or risk improperly piecemealing its own approval of the project. A “project” under CEQA refers to the *entire* activity, even if subject to several discretionary approvals. (CEQA Guidelines § 15378(a), (c).) CEQA prohibits agencies from submerging environmental considerations by chopping a large project into many little ones—each with a minimal potential impact on the environment—which cumulatively may have disastrous consequences. (*Bozung v. Local Agency Formation Com.* (1975) 13 Cal.3d 263, 283–284.) Where, as here, a project will be approved or implemented in phases, a lead agency should prepare a single environmental document for the phased project. (CEQA Guidelines § 15165.)

III. CONCLUSION: REQUESTED RELIEF

Given the demonstrated performance of Cruise AVs on San Francisco streets in the months since the Initial Approval and the hazards they have created for San Francisco travelers, San Francisco urges the Commission to defer consideration of the Draft Resolution and the Cruise Expansion Advice Letter. The Commission should first proceed promptly to adopt new rules under the New Data Reporting Rulemaking and to allow the development of the factual performance record to support future consideration of the Draft Resolution, following and

⁵⁰ From the Deployment Decision, the Commission is also deferring: establishing goals (p. 26), defining accessibility (p. 39), setting uniform equity targets (p. 42), goals related to city operations and planning or congestion, traffic, curb use, and public transit (p. 48), equity targets (p. 51), data related to wheelchair accessible vehicles (p. 65), and revision of current goals (p. 93).

subject to review as required by CEQA. Ignoring Cruise’s true performance is unreasonable, unsupported by the evidence in the record, and constitutes an abuse of discretion.

In the alternative, while the New Data Reporting Rulemaking is pending, the Commission should modify the Draft Resolution to approve expansion of commercial service only within service limits recommended in the San Francisco Protest. In addition, the Commission should adopt interim reporting requirements as permit conditions as recommended in the San Francisco Protest. Finally, as recommended in the San Francisco Protest, the Commission should identify a mechanism for gradual lifting of the Service Limitations where justified by Cruise LLC submission of additional Tier 2 Advice Letters demonstrating improved performance in relation to the key performance issues discussed in the San Francisco Protest, subject to a 30-day public comment opportunity and compliance with CEQA.

Dated: May 31, 2023

Respectfully submitted,

DAVID CHIU
City Attorney
MISHA TSUKERMAN
Deputy City Attorney

By: /s/Misha Tsukerman
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TRANSPORTATION AUTHORITY, SAN FRANCISCO
COUNTY TRANSPORTATION AUTHORITY, AND THE
SAN FRANCISCO PLANNING DEPARTMENT

Exhibit A: Declaration of Shawn McCormick, Director of Parking Enforcement and Traffic, SFMTA

Exhibit B: Map of AV incidents in SF

Exhibit C: Summary of San Francisco Fire Department Unusual Occurrence Reports Involving Driverless AVs

EXHIBIT A

Exhibit A: Declaration of Shawn McCormick

1. I, Shawn McCormick, am the Director of Parking Enforcement and Traffic at the San Francisco Municipal Transportation Agency (SFMTA). I have held this position for six years.
2. My responsibilities include daily enforcement deployment and general operations, budget development and purchasing oversight, personnel management, and serving as the primary spokesperson for the Parking Enforcement Unit among internal and external stakeholders. Additionally, I help plan for, coordinate and execute special events (e.g., parades, street fairs, sporting events) in partnership with other SFMTA Divisions and City Departments.
3. I have worked at the SFMTA for six years and I have spent twenty-four years interpreting and enforcing provisions of the California Vehicle Code and twenty-four interpreting and enforcing provisions of the San Francisco Transportation Code.
4. I am responsible for training Parking Control Officers (PCOs) and spend roughly 15-20 hours in the field per week and am responsible for 326 PCOs.
5. I have personally observed driverless autonomous vehicles (AVs) operating in many areas of the City, and I have personally witnessed many incidents where driverless AVs have encountered driving challenges that they could not promptly overcome. These have included incidents that are easy for human drivers to master, such as navigating a traffic detour due to a street closure.
6. I have reviewed video footage and photographs that show AVs operated by Cruise LLC and Waymo LLC violating the California Vehicle Code. While still photos do not always provide clear indication of what preceded the events portrayed, my interpretation of still photos and videos is informed by my extensive and detailed knowledge of San Francisco streets.
7. These violations include: (1) Section 22500(a), stopping in an intersection; (2) Section 22500(m), stopping in a transit lane; and (4) Section 22521, stopping on a rail track.
8. I have personally issued citations for violations of Vehicle Code 22500(h) for double parking and Transportation Code 7.2.70 for obstructing traffic.
9. PCOs have issued citations for violations of Vehicle Code 22500(a), stopping in an intersection; Vehicle Code 22500 (b), stopping in a crosswalk; 22500(h), double parking; CVC 22500(i), stopping in a bus stop, and other local ordinances including Transportation Code 7.2.70 Obstructing Traffic, Transportation Code 7.2.40/41 No Stopping or No Parking under my supervision.

10. I have personally observed AVs owned by Cruise LLC and Waymo LLC obstruction traffic in numerous instances.
11. The PCOs I supervise are civil enforcement staff and are not authorized to issue citations for "moving violations" under the California Vehicle Code except when authorized by provisions of the California Vehicle Code related to red light cameras or other similar programs.
12. General, citations for moving violations may only be issued by sworn peace officers who personally witness the violation.
13. Utilizing my familiarity with the California Vehicle Code, I have observed AVs owned by Cruise and Waymo committing a moving violation under Section 21367, disobeying instructions of a person directing traffic, or failing to comply with traffic control devices provided, for regulation of traffic that would endanger the safety of street construction workers.
14. I have personally witnessed AVs owned by Cruise and Waymo have difficulty with taking direction from officers engaged in traffic control.

Shawn McCormick

Shawn McCormick
SFMTA Director of Parking Enforcement and Traffic
May 31, 2023

EXHIBIT B

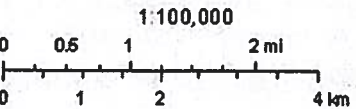
Exhibit B: Map of AV Incidents in San Francisco
 All Observed AV Incidents



6/30/2023

- AV Incidents - Unknown
- ◆ AV Incidents - Cruise
- AV Incidents - Waymo
- ◆ AV Incidents - Zoo

World Hillshade



Esri, NASA, NOAA, USGS, FEMA, California State Parks, Esri, HERE, DeLorme, GeoGraph, GeoTechnology, Inc, METANASA, USGS, Bureau of Land Management, EPA, NPS, USDA

EXHIBIT C

Exhibit C: Summary of San Francisco Fire Department Unusual Occurrence Reports Involving Driverless AVs

From April 2022 through May 9, 2023, SF fire personnel have submitted 18 Unusual Occurrence Reports that document incidents with driverless AVs. These include numerous incidents where driverless AVs have impeded the emergency response by fire personnel resulting in potential injury or damage to fire personnel and equipment. Incidents like these may undermine the effectiveness of SFFD emergency response efforts to save human lives.

	AV Company Involved	Incident Date	Incident Time Reported	Reported Location	Description
1	Cruise	4/5/2022	4:06 AM	17th St	A driverless Cruise AV stopped in a position which blocked a fire truck responding to an active fire from passing a stopped Recology truck, delaying fire response.
2	Unknown	6/12/2022	11:50 PM	Funston Ave & Anza St	A driverless AV drove over charged hose lines creating a potential hazard for fire personnel and property.
3	Cruise	1/22/2023		1310 Hayes St	A driverless AV drove towards an active fire scene moving towards hoses and did not stop until fire personnel broke the window.
4	Cruise	1/24/2023		Laguna & Hayes Street	A driverless Cruise AV entered active fire scene separating the fire crew from the engine and stopping on a hose line and was unable to move for 5 minutes.
5	Cruise	3/11/2023	10:05 PM	800 Geary St	Two driverless Cruise AVS blocking travel lanes and red painted bus only lane and did not respond to the fire trucks bell or horn.
6	Cruise	3/21/2023	9:56 PM	Clay between Polk and Jones	Two driverless Cruise AVs entangled in Muni wires taken down by storm that were marked by caution tape and caution sandwich boards causing potential physical damage to the wires.
7	Waymo	3/21/2023		706 Missouri	Two driverless Waymo AVs entered area marked by caution tape where fire personnel were clearing a downed tree.
8	Cruise	4/14/2023		Fire Station 14 (551 26th Ave)	A Cruise driverless AV entered a fire training site marked by traffic cones and monitored by safety personnel requiring remote operator assistance to clear the site.
9	Cruise	4/16/2023	11:53 PM	2488 Geary Blvd	A Cruise driverless AV blocked a fire engine responding to a call and creating an obstacle for the water supply line.

	AV Company Involved	Incident Date	Incident Time Reported	Reported Location	Description
10	Cruise	4/18/2023		1597 Howard St	A Cruise driverless AV stopped in an active fire scene for approximately 10 minutes before driving away.
11	Cruise	4/20/2023	3:30 PM	3249 Sacramento St	A Cruise driverless AV entered an active fire scene stopping only when fire personnel placed a chock block in front of its tires. Incident took 8-10 minutes before the remote operator could clear the AV from the scene.
12	Waymo	4/25/2023	10:25 AM	Chenery St & Roanoke St	A Waymo driverless AV stopped on a one way road blocking fire response requiring the fire vehicle to back up and proceed to the call on another street.
13	Cruise	4/25/2023	9:53 PM	Polk St & Geary St	A Cruise driverless AV failed to stop with other traffic as a fire truck with lights and siren active approached the intersection.
14	Cruise	4/26/2023	6:08 PM	2396 Pine Street	A Cruise driverless AV stopped within 6 feet of a fire engine making it difficult for fire personnel to access equipment from the back of the truck and impeding the position of a second fire engine that was behind the AV.
15	Cruise	4/26/2023		1425 Fillmore	A Cruise driverless AV with three passengers attempted to drive between two fire vehicles responding to a building alarm potentially blocking hose leads and access to equipment in the fire trucks.
16	Waymo	5/3/2023	1:29 AM	162 Tioga Rd	Fire personnel response required to awaken a passenger in a Waymo driverless AV stopped in a location that blocked a narrow street.
	Cruise	5/8/2023		1060 Bush	A Cruise driverless AV pulled up directly behind a fire vehicle responding to a building alarm. Stopped for 20 minutes before moving around the vehicle and leaving the scene.
17					
18	Waymo	5/9/2023	11:13 AM	Fire station near Webster (1301 Turk St)	A Waymo driverless AV approached the rear of a fire vehicle with lights operating blocking the fire vehicle from backing into the station.