



January 25, 2023

California Public Utilities Commission
Consumer Protection & Enforcement Division
505 Van Ness Avenue
San Francisco, CA 94102

Via electronic mail only
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Re: Protest of Cruise LLC Tier 2 Advice Letter (0002)

Dear Consumer Protection & Enforcement Division,

On November 5, 2021, Cruise filed a Tier 3 advice letter (the **Initial Advice Letter**) seeking authority to deploy 30 Cruise AVs to offer commercial Autonomous Vehicle Passenger Service (**AVPS**) in San Francisco. After considering comments submitted by the San Francisco Municipal Transportation Agency, the San Francisco County Transportation Authority (collectively **San Francisco**), and others, the Commission approved the Initial Advice Letter by Resolution TL-19137 (the **Initial Approval**) and issued it on June 6, 2022. The Initial Approval authorized Cruise to provide commercial services using 30 Cruise AVs between the hours of 10 pm and 6 am in a confined area of San Francisco that the Commission described as excluding the City's downtown core.

By submission of a Tier 2 Advice Letter on December 16, 2022 (the **Expansion Advice Letter**), Cruise seeks Commission approval to offer commercial AVPS throughout "the entire 7x7 of San Francisco," with a fleet starting with 100 Cruise AVs and growing thereafter at the sole discretion of Cruise. The geographic area approved by the California DMV excludes all limited access freeways, several major arterials, and

¹ On January 4, 2023, by email to the service lists of R.12-12-011, R.19-02-012, and R.21-11-014, CPED issued an extension of the time for protest and response to the Cruise Expansion Advice Letter to 5 pm on January 25, 2023. As required by the definition of a Protest in General Order 96-B, Section 3.11, this protest was sent to Prashanthi.raman@getcruise.com and Aichi.daniel@getcruise.com on the day it was submitted to CPED.



all streets on Treasure Island but includes all of the dense downtown core.² Cruise proposes to offer service 24 hours a day, 7 days a week—thus incorporating the city's peak weekday travel hours of 7-10 AM and 4-7 PM. Cruise thus seeks authority to make the most consequential decisions about future expansion of commercial service at its own discretion without input from the Commission, the City, or the public.

San Francisco is excited about the potential that automated driving could expand the menu of transportation choices available in the city. We hope emerging driving automation technology will contribute to improving street safety and enhancing equitable and accessible mobility for a wide population. But in the months since the Initial Approval, Cruise AVs have made unplanned and unexpected stops in travel lanes where they obstruct traffic and transit service, and intruding into active emergency response scenes, including fire suppression scenes, creating additional hazardous conditions. If the Commission approves sweeping authorizations for both Waymo and Cruise, the hazards and network impacts caused by planned and unplanned AV stops that obstruct traffic could soon affect a large percentage of all San Francisco travelers. Preventing and mitigating travel lane AV failures calls for continuous collaboration between industry and all levels of government. Collaboration is all the more important as California continues its leadership in addressing the traffic safety, equity, climate management and economic recovery policy issues raised by automated driving.

San Francisco appreciates the wisdom that both Cruise and the Commission demonstrated in seeking and approving initial authority for commercial deployment using only a small fleet of Cruise AVs operating only at night.³ We also appreciate the limited speed proposed for Cruise AV operations and the exclusion of some arterial streets. However, these limitations do not address the fundamental problems for the general public raised by Cruise AV performance since the Initial Approval. In light of the record since the Initial Approval, San Francisco recommends that further restraint and demonstrated improved performance, rather than rapid expansion of geographic area and service hours at Cruise's discretion, offer the best path toward public confidence in

² See pp.2-3 of the Cruise Expansion Advice Letter and pp. 40-41 of the accompanying Cruise Passenger Safety Plan. We note that DMV approval of this Operational Design Domain is included as Attachment 2 to the Expansion Advice Letter. The approval of the identified ODD takes place in a process involving no public participation, and the approval itself does not include a map of the approved ODD.

³ See Initial Resolution, p. 12-13



driving automation and industry success. While San Francisco does not categorically oppose incremental expansions of Cruise commercial deployment under the terms described below, **San Francisco submits this protest under Section 7.4.2 of General Order 96-B** on grounds the relief requested in the Expansion Advice Letter—including broad expansion of geographic area and service hours—is unreasonable in light of the Cruise AV performance record discussed in detail below and the following additional circumstances:⁴

- 1) **Incrementalism.** San Francisco appreciates the Commission’s effort to build a path from testing to commercial deployment of AVPS that provides for incremental review. No one anticipated the kind of street obstructions that members of the public have reported to 9-1-1 in the months since the Commission authorized Cruise to offer limited driverless commercial services. Cruise and Waymo now both seek broad approval to provide almost unlimited commercial operations in San Francisco. Cruise AV performance must improve before the Commission authorizes expansion of Cruise commercial operations. Further, while the Commission should consider each of these Advice Letters on their own merits, it should also be mindful of the cumulative effects on the City’s transportation network if these problems in Cruise operations continue and are replicated by similar problems from Waymo. We urge the Commission to understand recent road and transit blockages as a message to proceed with caution and to continue its incremental approach to approving driverless AVPS expansion.
- 2) **Transparency.** Cruise and Waymo have both sought confidential treatment of basic operational data about AV driving and have submitted reports to the Commission in redacted form. Since 2020, the Commission has issued numerous decisions and rulings that reflect California’s strong public policy favoring public access to documents and data that inform the public about both the performance of regulated transportation providers and the performance of the Commission itself as regulator. Yet Cruise seeks broad Commission approval and thereafter exclusive authority to make independent judgments about the readiness of its systems for driverless operation while obscuring operational and performance data from the public, including during both pilot testing and commercial deployment.

⁴ See General Order 96-B, Section 7.4.2 (6)



- 3) **Inadequate Reporting and Monitoring.** The Commission’s existing data collection requirements do not seek information about the unplanned and unexpected Cruise AV stops that have obstructed San Francisco streets and transit service. Given the new facts discussed in detail below, the Commission should seek and require public disclosure of data documenting the frequency and impact of these events. While the Commission has not set any specific benchmarks for required AVPS performance, where events illustrate significant performance problems, San Francisco urges the Commission to collect performance data about those problems and use that data to support transparent evaluation of the immediate impacts of Cruise AVs on the safety and operations of streets and transit.

San Francisco recommends that the results of that limited initial deployment call for further restraint and incremental expansion outside the downtown core and peak travel hours (weekdays, 7-10 AM and 4-7 PM) until Cruise demonstrates that they can operate in the most demanding circumstances without compromising safety, equity, accessibility and street capacity. A series of limited deployments with incremental expansions—rather than unlimited authorizations—offer the best path toward public confidence in driving automation and industry success in San Francisco and beyond. San Francisco thus requests that CPED include the following measures and limitations in its disposition of the Expansion Advice Letter⁵

- 1) **Collect New Data to Support Incremental Expansion Evaluation:** As a condition of approval for any commercial AVPS deployment, new driverless readiness data collection should be required consistent with those recommended in Section 2 below. Driverless readiness data collection should support effective, reliable, timely, and transparent analysis of the immediate effects of AVPS operations on the San Francisco transportation network and transit services before the Commission approves any Cruise expansion beyond the Initial Approval;
- 2) **Transparent Data Collection:** Require AVPS permittees to submit, at a minimum, the newly required data and permit-by-permit VMT⁵ starting from the date of the Initial Approval on a public basis without requests for confidential treatment as a condition of approval of any Tier 2 or Tier 3 AVPS deployment Advice Letter and provide at least 30 days of opportunity for public review and analysis of that data before approving any expansion of

⁵ To the extent CPED believes any of these actions exceed staff authority under the Deployment Decisions or other applicable authorities, San Francisco urges staff to refer the Expansion Advice Letter to the full Commission.



- commercial service. As of now, where Cruise AVs make unplanned stops obstructing streets and transit, there is no way to identify whether the Cruise AV is operating under a pilot permit or a deployment permit. The Commission should make it clear which permit each specific AV is operating under; and
- 3) **Protect Downtown Core and Peak Travel Hours via Incremental Expansion:**⁶ Authorize delivery of commercial AVPS on San Francisco’s dense downtown core streets and during the City’s peak transit and travel hours (weekdays, 7-10 AM and 4-7 PM) only after an AVPS provider has demonstrated that they can operate a such volume of commercial AVPS on San Francisco streets over a period of at least several months without significant interruption of street operations and transit services;
 - 4) **Fleet Size Increments:** Limit expansion of fleet size to increments, such as 100, 200, 400 (with further increments to be considered in later workshops and rules) to ensure that new impacts that may appear as services scale do not compromise San Francisco’s transportation network. This is particularly important given that two companies both propose to offer service in San Francisco.

Alternate Protest Grounds and Path to Approval: If the Commission believes that adopting new data reporting requirements to support analysis that may limit the scope for approval of Advice Letters exceeds the proper use of the Advice letter process, San Francisco protests on the alternate ground that the relief requested in the advice letter is inappropriate for the advice letter process because it requires approval based on issues that were not contemplated in the Deployment Decisions.⁷ We call on the Commission to instead address these recommendations by moving promptly to workshops and further rulemaking to establish new driverless readiness metrics addressing AVs blocking travel lanes—industry conditions that have arisen since Commission approval of Decision 20-11-046 (as modified by Decision 21-05-017)

⁶ San Francisco defines Peak Travel Hours to include weekday hours between 7 and 10 AM and between 4 and 7 PM. For purposes of AVPS permitting, San Francisco recommends that the Commission define the downtown core as reflected in the boundaries of “Northeast San Francisco” in Exhibit A, an area in which transit density, communities of concern and overall traffic congestion are all high. However, the more acute concerns could be addressed by protecting the smaller area identified in Exhibit A. We note that under the Initial Approval, Cruise has already deployed service in a portion of the downtown core under either definition illustrated in Exhibit A. By this Protest, San Francisco addresses only new authorizations and expansion beyond the Initial Approval. San Francisco is not asking the Commission to revoke any portion of the Initial Approval.

⁷ See General Order 96-B, Section 7.4.2 (5)



(together, the **Deployment Decisions**). Any such rulemaking should precede approval of additional AVPS deployments or expansions.

Workshops and Rulemaking: Even if the Commission develops measures to guide incremental expansion through the permit condition approach recommended above, San Francisco urges CPED to promptly schedule workshops and initiate a subsequent phase of the proceeding (as contemplated by the Deployment Decision and Cruise Resolution) to address industry developments since approval of the Deployment Decisions. San Francisco recommends prompt additional consideration of a broader range of data collection and disclosure issues, as well as disability access issues, including especially wheelchair accessible service.

Commendation: Developing automated driving technology that seeks to meet and exceed the driving performance of good human drivers is a fantastic technical challenge, and we appreciate the achievements that Cruise and others have made to date. In addition to general admiration for the purpose and intent of this effort, San Francisco commends the following specific features reflected in Cruise Advice Letter:

- Cruise has informed us of its work to develop a wheelchair accessible version of its purpose-built AV, the Origin. This work could open an important new mobility choice for people who use motorized wheelchairs. Because the development time for this wheelchair accessible AV is unknown, San Francisco hopes to see Cruise provide comparable service to these users in the short term, even if it must be provided with non-AV wheelchair accessible vehicles operated by human drivers.



Discussion & Recommendations

Section 1: New Information About Hazards & Network Impacts Caused by Planned & Unplanned AV Stops Obstructing Travel Lanes Calls for New Driverless Readiness Data Collection and Further Incremental Approvals for Commercial AVPS at This Time.

Section 2: Additional Data Collection is Necessary to Inform Incremental Deployment Improvements

Section 3: CPED Should Promptly Convene Workshops to Address Recent Industry Developments, Consider Further Data Collection and Disclosure and Address Disability Access Issues

Section 1: New Information About Hazards & Network Impacts Caused by Planned & Unplanned AV Stops Obstructing Travel Lanes Calls for New Driverless Readiness Data Collection and Further Incremental Approvals for Commercial AVPS at This Time.

Unplanned Cruise AV Stops Obstructing Travel Lanes:⁸

Starting in late May 2022, long after the Commission adopted Decision 20-11-046 (as it was modified by Decision 21-05-017 in November, 2020) (together, **the Deployment Decisions**) managers in the City's Department of Emergency Management began to notice a number of 9-1-1 calls from people who witnessed or were affected by driverless AVs obstructing travel lanes. Sometimes these AVs caused extended traffic impacts. Callers complained of erratic driving (including signaling in one direction while moving in the other direction) and evasive maneuvers required by other road users such as driving on a sidewalk to get around a blockage caused by a disabled AV. The duration of reported unplanned AV stops obstructing travel lanes appeared to range

⁸ By the term "Unplanned AV Stops Obstructing Travel Lanes," San Francisco intends to incorporate both minimal risk condition incidents that occur in travel lanes and vehicle retrieval events where field staff are dispatched to retrieve an AV with human drivers. The fact that an automated driving system is designed to default to a minimal risk condition does not make an individual instance of this function a planned AV stop. Further, we are concerned with impacts on the transportation network and transit services. San Francisco is not seeking to collect data on incidents in which AVs achieve a minimal risk condition or must be retrieved by human drivers from private property or where an AV is parked at a curb.



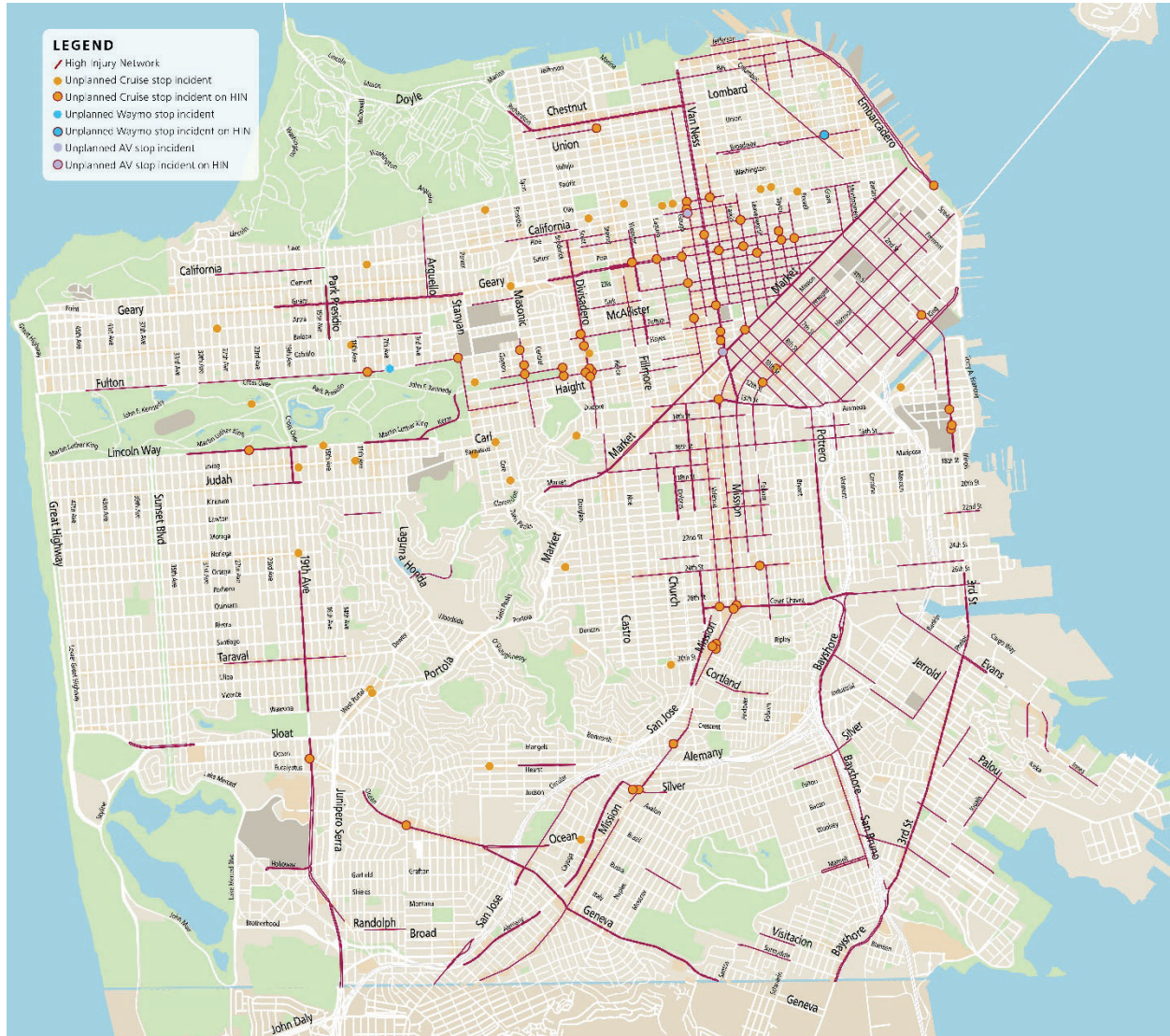
from minutes (extending through multiple traffic light cycles) to hours. In fifteen per cent of reported cases, multiple Cruise AVs were observed in clusters that obstructed multiple travel lanes and directions of travel. Some incidents directly interfered with transit operations or emergency responder operations. Additional incidents were posted on social media or reported by the media. Most reported incidents occurred between 10 pm and 6 pm when the Cruise commercial fleet is operating. We assume the number of reported incidents is only a portion of the total incidents because they occurred when fewer travelers are on the streets to observe them.

Unexpected and unplanned stops obstructing travel lanes create hazards. They can cause other vehicles to make dangerous abrupt lane changes, brake or accelerate rapidly, or veer into bike lanes or crosswalks. They can cause rear end collisions. The impact of each incident varies because all streets are not equal. Small residential streets may serve only dozens of travelers in an hour while others serve thousands or tens of thousands in an hour. Incidents on even small streets can have large impacts where they affect emergency responder operations. Some streets are used more heavily by vulnerable road users and transit riders. Unfortunately, as illustrated in Figure 1, the Cruise AV incidents reported by the public have been concentrated on streets critical to the function of the City's transportation network. Figure 1 below illustrates that of the 92 unique incidents reported to the City between May 29, and December 31, 2022:

- 88% occurred on streets on which Muni buses, light rail vehicles, and streetcars provide transit service;
- 19% occurred in intersections
- 60% occurred on the San Francisco bike network, and
- 70 % occurred on the City's High Injury Network—the 12% of San Francisco streets that account for more than 68% of severe or fatal injury crashes.

Multiple incidents were reported at four locations (Franklin & California, Divisadero & Oak, Mission & 29th Street, Cesar Chavez & Mission) each of which includes at least one if not two major arterial streets.

Figure 1: Unplanned AV Stops Reported to City, [May 29, 2022 through December 31, 2022]



The large majority of unplanned travel lane AV stops reported through December 2022 involved Cruise AVs rather than Waymo vehicles. However, because the Commission does not currently collect data on these incidents, and they are not reported to the City, it is not possible to fully understand their frequency or overall effects. The low rate of complaints involving Waymo vehicles may reflect a lower volume of Waymo driverless vehicle miles traveled (VMT) rather than superior Waymo performance—or could reflect both VMT and performance differences. While the



absence of comprehensive data makes it difficult to discern meaningful trends, when viewed from a monthly perspective, unique incidents reported in December 2022 were the highest since the Initial Approval.⁹ Cruise suggests that these unplanned stops are an appropriate and safe response; however, an AV stop that avoids an imminent crash does not demonstrate safe performance if the operation of the AV in its environment created the underlying risk of crash. Given the current level of operations, if the Commission authorizes both Cruise and Waymo to increase driverless operations, the impact of incidents like these is likely to expand.

Cruise AV Unplanned Stops Affecting Transit Service¹⁰

Public transit is the most efficient motorized form of transportation. Multiple generations of federal, state and local taxpayers and transit riders have dedicated funding to build, expand and maintain the seventh largest public transit system in the nation. This system is essential to the economic vitality of the City, essential to the city's climate action and air quality goals, and essential to the city's equity goals. With one of the cleanest public transit fleets in the nation, Muni plays an especially critical role in offering freedom of movement to people who do not own cars while making very minimal contributions to the air quality problems that undermine human health. Muni is essential to reducing economic and health disparities among San Francisco residents. The Muni's rail and bus operations, which serve hundreds of thousands of users every day, operate mostly in a mixed road environment in which they must compete with other motor vehicles for space. This mixed traffic poses continuous challenges to reliable transit operations, and survey responses show that reliability is the characteristic that most affects travelers' use of transit.

There are three ways that motor vehicle incidents blocking roads affect transit riders. First, they directly affect riders on transit vehicles immediately involved in an

⁹ A new kind of incident was first reported in December. On three occasions, Cruise or OnStar alerted 9-1-1 dispatchers to situations in which a passenger was unresponsive to communications from remote customer support. Because of the potential for this situation to reflect a serious medical emergency, DEM dispatched both San Francisco Police and San Francisco Fire Department resources. This response saves lives when people are experiencing a medical emergency. Yet in these three new cases, first responders found only sleeping passengers in Cruise AVs who needed no medical attention. Taxpayer funded emergency response resources used for non-emergencies undermine their availability to members of the public in true need

¹⁰ The SFMTA asked Cruise to meet with Agency staff to discuss the incidents illustrated in the figures below and to discuss steps that Cruise and/or the City could take to prevent these incidents and minimize their impact on transit riders and the traveling public. While Cruise previously met with SFMTA and other city staff to discuss incidents affecting Police and Fire operations, Cruise declined to meet with the SFMTA to discuss these incidents in detail.



incident ("Passenger Impact"). Second, they directly affect downstream riders who are waiting for the affected transit vehicle or subsequent vehicles ("Waiting Passenger Impact"). Third, they cause both long headways (time between transit vehicles on a route) and bunching (vehicles following each other too closely) that directly undermine riders' ability to reach their destination on time ("Systemwide Impact"). A case study of Market Street Subway performance found that one 15-minute delay can cause 2.5 hours of residual congestion or 10 train-hours of delay.

In recent months, Cruise AVs have been involved in several incidents that undermine Muni transit reliability. As with other AV incidents obstructing travel lanes, those known to the City are likely a subset of those that have occurred. We provide images and analysis below for three incidents that occurred in late 2022 to illustrate a larger phenomenon.

The photo in Figure 2 below was posted on social media and records an incident that took place on September 23, 2022, at 9:07 pm at southbound Mission Street just north of 29th Street in a busy neighborhood commercial district. The image illustrates that two Cruise AVs are stopped in the red southbound transit only lane; two Cruise AVs are stopped in the southbound lane to the left of the transit only lane; and one Cruise AV is stopped across the double yellow center line in the opposing northbound travel lane. In some cases, transit buses can move around a disabled Cruise AV. In this case, there was no possibility for the bus to maneuver around the five disabled Cruise AVs. The southbound Muni bus operating on one of the SFMTA's equity priority transit lines¹¹ was delayed for at least 13 minutes. This incident affected two transit routes and had a Passenger Impact for 45 riders. If this incident had occurred in the daytime, it would have affected three transit routes and, based on historic travel patterns and transit data, would have caused a Passenger Impact for approximately 100 riders.¹² These figures do not capture the Intending Passenger Impact or System-wide Impact, which could cover approximately eight miles of transit lines for at least an hour. These lines currently carry 63,400 riders a day. A delay occurring during peak travel hours could impact roughly 6000 riders. This incident occurred at one of the locations where

¹¹ Equity Priority Transit Routes are listed in Table 1 (page 8) of the [Muni Service Equity Strategy FY 2021-2022](#)

¹² This incident appears to reflect violations of the California Vehicle Code ("CVC") prohibitions on driving in transit only lanes unless it is to make a turn (CVC 21655.1), attempting to pass on the opposite side of the road within 100 feet of an intersection (CVC 21752(d)) and stopping in a transit lane (CVC 22500).



multiple incidents were reported between June and December 2022 of Cruise AV unplanned stops obstructing transit vehicles.

Figure 2: Southbound Mission Street north of 29th Street



The photo in Figure 3 below was reported by KRON 4 and illustrates an incident that occurred on September 22, 2022 at 10:10 pm on eastbound O'Farrell Street approaching the intersection with northbound Franklin Street. The blockage incident had a duration of approximately 21 minutes and had Passenger Impact on 19 travelers. The Muni bus affected was taken out of service and returned to the yard, causing additional Waiting Passenger Impact and Systemwide Impact.¹³ The lines on this street carry 33,000 riders per day. If it occurred in peak hours, approximately 3,000 riders could have been delayed.

¹³ Unlike the incident represented in Figure 2, the SFMTA is aware of no legitimate reason the Cruise AV would have to make the illustrated incursion into the red transit only lane, because no right turn is possible at this intersection with one-way northbound Franklin Street.



Figure 3: eastbound O'Farrell Street west of northbound Franklin.



The photo in Figure 4 below was posted on social media and illustrates a near-miss collision that occurred on September 30, 2022 at the intersection of Carl and Cole streets. This incident in which a northbound Cruise AV had a near miss with a westbound N Judah light rail vehicle, had a Passenger Impact on 140 N Judah riders. The Cruise AV came to rest in a location that blocked both eastbound and westbound light rail tracks for



approximately 7 minutes.¹⁴ If a human driver had made an error like the one reflected here, it likely would have caused minimal Passenger Impact, Waiting Passenger Impact and Systemwide Impact because the driver would likely have backed up to allow the rail vehicle to proceed. While only one Muni light rail vehicle was directly affected by this late-night incident, if it had occurred during the day, it could have affected four bus and rail transit routes; SFMTA projects it would have caused Passenger Impact for 180 riders. Because the headways between N-Judah trains are much shorter during daytime service, it would have had additional Waiting Passenger Impact and Systemwide Impact. These lines carry 27,000 daily riders, so at peak roughly 2,700 riders could have been delayed, and there would have been a service gap in the Market Street Subway between Van Ness and Embarcadero stations.

Figure 4: Intersection of Cole and Carl Streets



Subsequent to the incidents described above, there have been at least three additional incidents in which Cruise AVs on rail right of way have blocked rail cars for periods ranging from 9 minutes to 18 minutes. San Francisco remains concerned that

¹⁴ The CVC prohibits stopping on a rail track (CVC 22521) and within intersections (CVC 2500(a)). Additionally, because the train was to right of the Cruise AV, the AV likely should have yielded the right of way to the train under CVC 21800.



expansion of commercial service to the City's peak travel hours could have Systemwide Effects that impact a large population. Expansion of commercial service into Northeast San Francisco or the Downtown Core, with its freeway entrance and exit ramps, could have regional impacts.

Emergency Responder Incidents

In San Francisco comments on the Draft CPUC Resolution to approve the Cruise initial advice letter, San Francisco informed the Commission of an incident on April 5, 2022 when a Cruise AV stopped in a travel lane created an obstruction for a San Francisco Fire Department vehicle on its way to a 3 alarm fire. The Fire Department has an additional operational concern about Cruise AV driving around fire apparatus. On June 12, 2022, a Cruise AV ran over a fire hose that was in use at an active fire scene. Section 21708 of the California Vehicle Code provides that "No person shall drive or propel any vehicle or conveyance upon, over, or across, or in any manner damage any fire hose or chemical hose used by or under the supervision and control of any organized fire department"

" Driving over a fire hose that is in use can seriously injure firefighters. On January 21, 2023, a similar incident occurred. San Francisco Fire Department Staff were on duty at the scene of a fire on Hayes Street near the intersection with Divisadero Street. This location is within the initially approved commercial operations area. The Cruise AV entered the area of active firefighting and approached fire hoses on the ground. Firefighters on the scene made efforts to prevent the Cruise AV from driving over their hoses and were not able to do so until they shattered a front window of the Cruise AV. It is essential that AVs be able to recognize active fire scenes and avoid all firefighting apparatus – including, as required by the California Vehicle Code, fire hoses.

San Francisco Conclusion After Review of New Information

In conclusion, an effective and reliable public transit system is essential to San Francisco's livability, vitality, climate impacts and economic recovery. Cruise offers exciting innovation that may at some point expand the choices for San Francisco travelers, however, those expanded choices for some should not come at the expense of public transit. Nor should they be allowed to negatively affect the City's emergency response services. Based on the existing level of impact of Cruise AV on the City's transportation and transit network, San Francisco cannot recommend further commercial expansion at this time.



Under the circumstances, the Commission should promptly collect data measuring the frequency and severity of road impacts (lanes affected and duration of impact). Because public transit offers the most efficient motorized mode of transportation from both a space and energy perspective, it is important to assess transit impacts. The Commission should seek San Francisco assistance in measuring these effects, because analysis requires detailed understanding of San Francisco transit and street operations. Many transit routes travel through Northeast San Francisco and the Downtown Core, and obstructions there have an outsized impact on both vehicle traffic and transit in this area. No AVPS provider should be authorized to deploy commercial services on densely traveled streets in the downtown core or during peak travel hours (weekdays 7-10 AM and 4-7 PM) before demonstrating low rates of unplanned stops that obstruct travel lanes and transit operations, as well as fast retrieval times if needed, because unplanned stops in these locations and hours will have outsized effects on the City's transportation network that are directly correlated with the scale of those incidents.

Planned Stops for Passenger Pick Up and Drop Off (PUDO).

In Decision 20-11-046 (as modified by Decision 21-05-017) (together, the **Deployment Decisions**) the Commission required AVPS permittees to report trip data that includes the location of stops to pick up and drop off of passengers. These requirements were identified as serving equity goals and environmental goals. Thereafter, in Resolution TL-19137 approving the first Advice Letter authorizing Cruise to provide commercial AV Passenger Services in California, the Commission acknowledged that "passenger pickup and drop-off is a critical nexus of many of the safety and accessibility issues applicable to AV operations."¹⁵ The Commission further recognized "the broader safety concerns inherent to in-lane pickup and drop off operations" and that it is "challenging to quantify the associated safety risk to passengers and to other road users." The Commission noted that nonetheless, rigorous evaluation is necessary. Finally, the Commission recognized that near miss events represent a substantial risk to all road users.¹⁶

¹⁵ Resolution TL19137, p. 11.

¹⁶ *Id.* at p. 12



The City agrees with the Commission both that data collection to assess safety hazards arising from PUDO operations is difficult and that rigorous evaluation is necessary. Resolution TL-19137 notes that CPED “will collaborate with stakeholders to develop the categorization of incidents and complaints,” including data related to pickup and drop-off. We are not aware of any workshop or other context in which CPED discussed these issues with stakeholders, but CPED did adopt data reporting requirements for AV deployment that appear intended to inform the Commission about hazards created by travel lane PUDO stops. San Francisco considers the currently required data collection extremely unlikely to accomplish the difficult task of quantifying the safety of permittee PUDO operations or the risks to passengers and other road users caused by those operations.¹⁷ While reporting requirements should capture incidents where the AV is involved in a collision, collisions caused by an AV partially or fully blocking a travel lane, intersection, or bike lane will not always include that AV. For example, where an AV is stopped in a bicycle lane to pick up a passenger and a bicyclist must either wait for the AV or merge into the travel lane to go around the AV, the cyclist may be hit by a vehicle in the travel lane. These incidents would not be captured by the existing data requirements. We recommend an alternative approach in Section 2 below and urge CPED to revise or add to PUDO related data collection before approving Waymo or Cruise Advice Letters so that information about both planned and unplanned stops blocking travel lanes can inform incremental approval authorizations.

Section 2: Additional Data Collection is Necessary to Inform Incremental Deployment Approvals.

The CPUC collects data quarterly on AV passenger service authorized under its pilot and deployment permits. The pilot data is narrowly focused, aggregate, and contains no geographic information.¹⁸ The deployment data is broader in scope, contains detailed trip level information, and includes information on vehicle charging

¹⁷ Pickup and drop off in relation to travel lanes and the curb is reflected only in the incidents-complaints dictionary. See CPUC AV Deployment Data Template and Dictionary 20221012 at Incidents-Complaints Dictionary Page. Microsoft Excel file. Accessed at <https://www.cpuc.ca.gov/regulatory-services/licensing/transportation-licensing-and-analysis-branch/autonomous-vehicle-programs/quarterly-reporting>

¹⁸ See Deployment Decisions at Conclusions of Law Paragraphs 5(k), 5(m), 7(m), 7(o), 13, and 14; Ordering Paragraphs 5(k), 5(m), 7(m), 7(o), and 14; CPUC AV Deployment Data Template and Dictionary 20221012 at Trip-Level Data Dictionary Page. Microsoft Excel file. Accessed at <https://www.cpuc.ca.gov/regulatory-services/licensing/transportation-licensing-and-analysis-branch/autonomous-vehicle-programs/quarterly-reporting>.



and public safety incidents. Under the Commission's Deployment Decisions and previous Testing Decisions the Commission receives no data that documents planned or unplanned stops obstructing travel lanes at all. While San Francisco believes the Commission should adopt a wide range of driverless readiness metrics for evaluating permit requests, we focus here on issues that address recent problems that initial AVPS deployments have caused with San Francisco street operations. San Francisco distinguishes readiness metrics from impact metrics that address issues that may reasonably evolve over time. These include, for example, metrics identifying the occupancy of AVPS trips, deadheading miles, and their related congestion and energy effects.

To assess how unexpected and unplanned stops obstructing travel lanes impact the transportation network it is critical to know the location and duration of each unplanned stop. San Francisco also recommends using a metric that assesses the rate at which these unplanned stops occur. Given the importance of transit in meeting state climate and equity goals, special consideration should be given to obstructions impacting transit operations.

For purposes of assessing whether and how well AVs approach the curb for passenger pick up and drop off, San Francisco recommends a metric that identifies the distribution of these planned stops in terms of the vehicle distance from the curb. Distance from the curb alone does not directly measure whether any particular stop is safe or lawful; however, distributional data on distance from the curb for all PUDO stops may document the overall success of an AVPS provider in the many skills required to identify and maneuver into available curb spaces on San Francisco streets. Stakeholders should discuss how such a metric should capture PUDO stops made in off street locations such as driveways and parking lots, and the metric could also be refined to focus on the high-volume travel streets where planned stops have the greatest impact on road safety and capacity.

San Francisco recommends that the Commission adopt the following readiness metrics as a condition of approval of AVPS deployment permits:

- Unplanned AV stops (including minimal risk condition and vehicle retrieval events) obstructing travel lanes in relation to driverless vehicle miles traveled;
- Total lane minutes of obstruction from driverless failures obstructing travel lanes in relation to driverless VMT;



- Distribution of passenger pick up and drop off stops by distance from the curb; and
- Distribution of passenger pick up and drop off stops by dwell time.

Accordingly, applicants for Phase 1 Driverless Deployment permits should be required to submit the following information for all driverless operations under any CPUC permit. Monthly data reporting would best balance the public interest in understanding basic readiness information when it is relevant to Commission decisions with industry desires to expand quickly:

- All driverless vehicle miles traveled (VMT) for each permit;
- Location and duration of unplanned AV stops (including minimal risk condition (MRC) and vehicle retrieval events (VRE)) obstructing travel lanes by vehicle and underlying permit; and
- Passenger pick up stops by location, distance from the curb and dwell time for all passenger stops.

Both Cruise and Waymo have sought confidential treatment of most detailed deployment data currently required and have redacted it from their public filings. This includes the VMT information that would provide context for rates of unexpected and unplanned AV stops obstructing travel lanes. For example, Cruise has redacted data showing VMT of its deployment operations and even high level location information, such as information at the zip code or census tract level. As a result, the public has no access to information about either driving achievement or driving problems arising from operations to date that could support public input on either Tier 2 or Tier 3 advice letters. None of San Francisco's newly recommended data fields raise any privacy issues. Although the metrics may reflect on permittee performance in ways that applicants find uncomfortable, none of these data fields call for information that can be legitimately described as protected trade secrets. Thus, the Commission should require applicants to submit this data in public form without opportunity for claims of confidential treatment.

Section 3: CPED Should Promptly Convene Workshops to Address Recent Industry Developments, Consider Further Data Collection and Disclosure and Address Disability Access Issues

If CPED believes new data collection on the safety and congestion issues raised by planned and unplanned stops obstructing travel lanes cannot be addressed via new



permit conditions in the Advice Letter process, San Francisco urges CPED to exercise the authority delegated by TL-19137¹⁹ to promptly convene the workshop contemplated by that resolution to address these proposals—before approving the Cruise advice letter—and exercise the authority delegated to establish data reporting requirements consistent with that resolution.

In addition, the Deployment Decision stated that CPED would hold a workshop to evaluate the status of the Phase 1 AV deployment operations within a year of issuance of the decision and authorized CPED to adjust the timing of the workshop as necessary to ensure there is a meaningful amount of data to discuss. Among other things, the workshop was intended to address the quality and quantity of data gathered to date, whether and how to revise the data collection requirements, and whether to revise the program goals and establish targets or make any other changes to the AV pilot or Phase 1 deployment programs.²⁰ More than one year has now elapsed since the Commission approved this language, and if there is not sufficient data to discuss, that itself warrants prompt convening of a workshop.

In addition to the recommendations addressed in Section 2, San Francisco notes a need to improve data collection related to trips delivered to people who use wheelchairs. At this time, WAV trip requests and the number of trips delivered in conventional wheelchair accessible vehicles are not captured in quantitative AVPS deployment reporting. These are only a few of many issues about implementation of the Commission’s goal to “expand the benefits of AV technologies to all Californians, including people with disabilities”²¹ that warrants further discussion at this time.

We encourage CPED to convene a workshop to discuss ways the Commission can avoid a situation in which its authorizations to deploy commercial AVPS without WAV service not only fail to serve people who need WAV service but also undermine WAV services provided by taxi and TNC competitors that, to varying degrees, do provide such services. WAV users who were excluded from the ability to use TNC services for many years should not face the same exclusion from the benefits of automated vehicle passenger services. Nor should they face the even worse situation of having inaccessible AV passenger services drive accessible alternatives out of the market.

¹⁹ Resolution TL19137, p. 14.

²⁰ Deployment Decisions at p. 75, Conclusions of Law Paragraph 11, Ordering Paragraph 12.

²¹ Deployment Decisions at p. 39.



San Francisco
County Transportation
Authority



Sincerely,

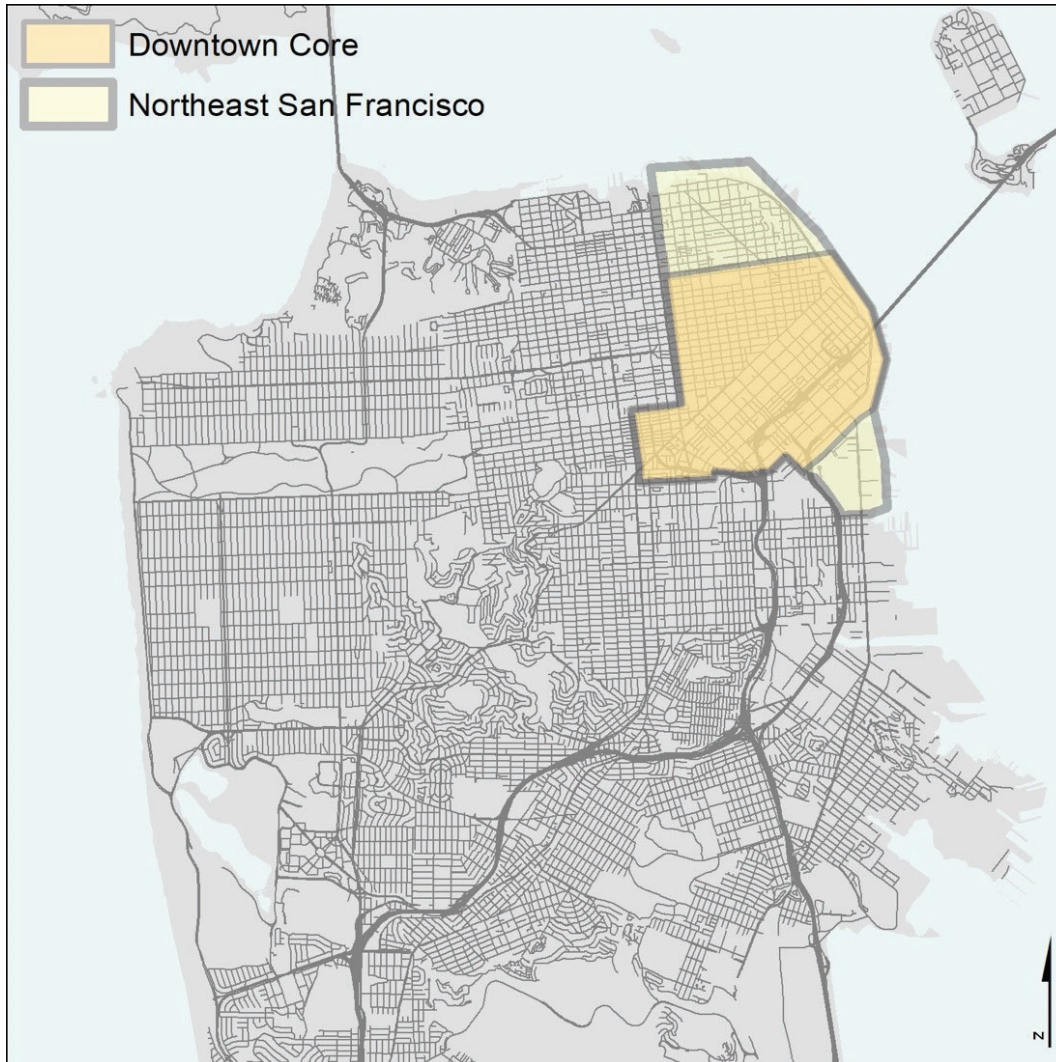
Jeffrey Tumlin
Director of Transportation
San Francisco Municipal Transportation
Agency

Tilly Chang
Executive Director
San Francisco County Transportation
Authority

Nicole Bohn
Director
Mayor's Office on Disability



EXHIBIT A: San Francisco Downtown Core



From a transportation perspective, the downtown core road network refers to a concentration of streets and freeway on- and off-ramps of critical importance to the efficient functioning of the city's overall transportation network. Its boundaries are Broadway to the north, Van Ness, Fulton and Laguna to the west, and 14th, Division and Mission Creek to the South.

The importance of these roads can be summarized by four factors:

- High concentration of the high priority network to the city's Transit First policy, namely, high priority transit services, and high priority active transportation facilities.
- High concentration of the Vision Zero High Injury Network, meaning, roads in San Francisco with the highest concentration of injury collisions.



- High concentration of congested streets, i.e. streets where the average speed achieved is below a Level of Service D.
- High concentration of Equity Priority Communities, such as households with low incomes and people of color.

The map above also shows an extended area in the northeast quadrant of San Francisco which reflects a broader area of concentration of these priority considerations and the city's long-standing Transit First investment and policy focus. The western boundary continues along Van Ness, and the southern boundary continue along 7th and Mariposa.