

Driverless AV Experience in San Francisco

Jean Paul Velez
Principal Transportation Planner, Technology Policy



San Francisco
County Transportation
Authority

SFCTA Community Advisory Committee — Agenda Item 10

September 6, 2023

Principles for Emerging Mobility Services and Technologies



SAFETY



TRANSIT



SUSTAINABILITY



COLLABORATION



EQUITABLE ACCESS



LABOR



CONGESTION



FINANCIAL IMPACT



ACCOUNTABILITY



DISABLED ACCESS



Equity



Economic Vitality



Environmental Sustainability








Safety and Livability



Accountability and Engagement

AV Regulatory Framework

Federal		California		Local
 <ul style="list-style-type: none"> Emphasis: Vehicle equipment Establishes vehicle safety standards Monitors and enforces vehicle safety issues and defects 		 <ul style="list-style-type: none"> Emphasis: Driver Permits drivers and vehicles to operate in CA roadways 		 <ul style="list-style-type: none"> Emphasis: Commercial service passenger safety Permits commercial passenger services
				  <ul style="list-style-type: none"> No authority over AVs specifically SFMTA regulates use of ROW in SF SFCTA sets congestion management policy
GAPS	In AV case, the vehicle equipment <i>is</i> the driver	Road safety performance of commercial services	Transportation system impacts on SF streets	

Current context for AVPS

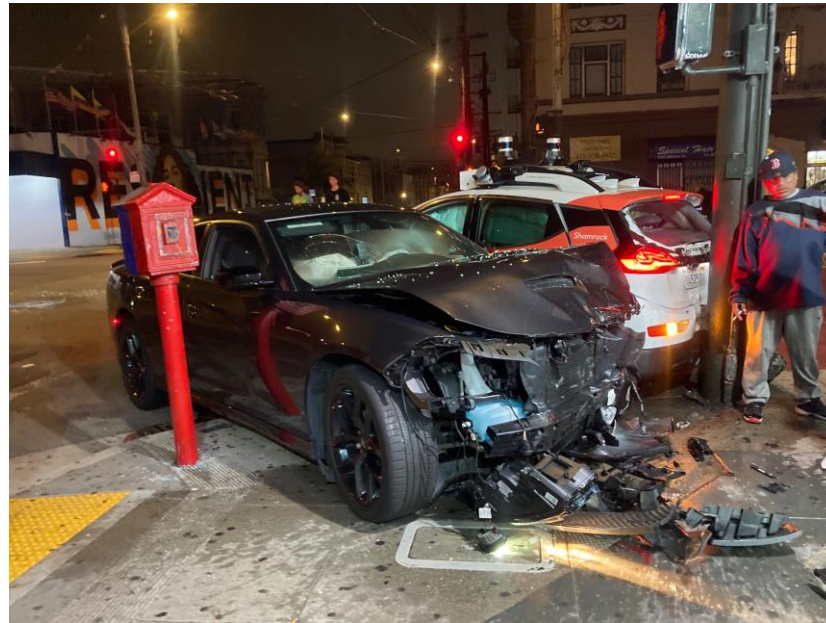
- AVPS = Autonomous Vehicle Passenger Services
- AVPS companies testing in SF for last 5 years, most prominently Cruise and Waymo - first with safety driver, and then in fully driverless mode
- **August 10:** The CPUC granted full approval to Cruise and Waymo to offer driverless commercial passenger service throughout all SF, 24/7, with no fleet restrictions
- **August 16:** SF filed Motion to Stay of CPUC's approval of commercial operations in SF for Cruise and Waymo
- **August 18:** Following various malfunctions and safety incidents, the DMV requests Cruise to cut their fleet in half pending further investigation



**8/11 Ten vehicle platoon
traffic obstruction**
North Beach



**8/17 Crash with Fire Truck
responding to emergency**
@ Turk x Polk

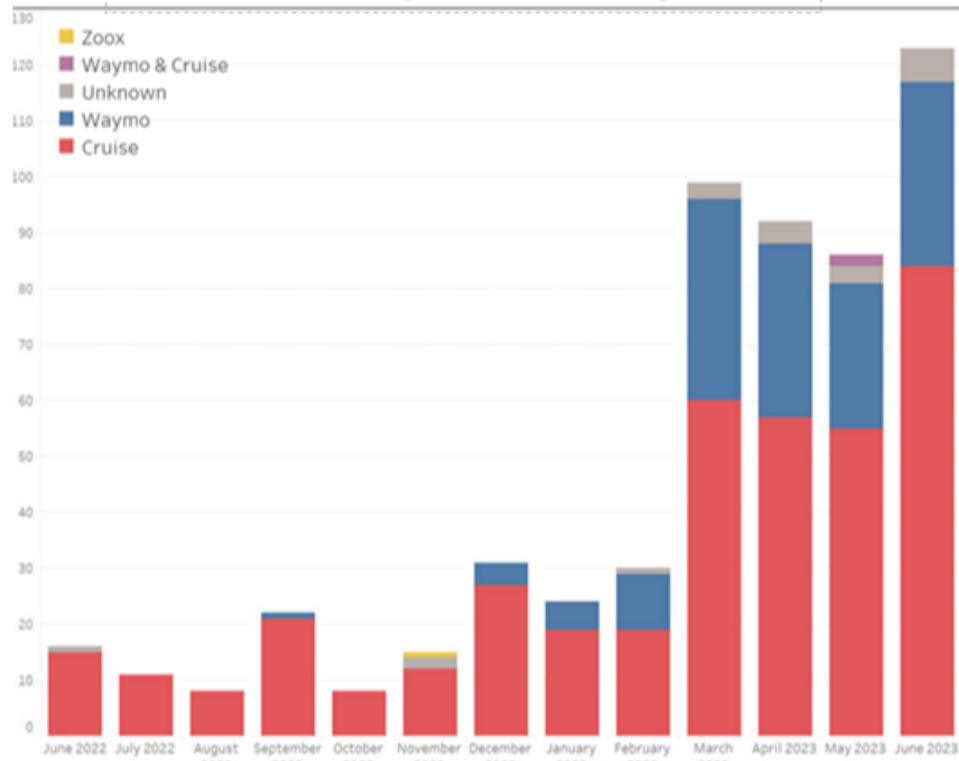


8/17 Crash with private car
@ 26th x Mission

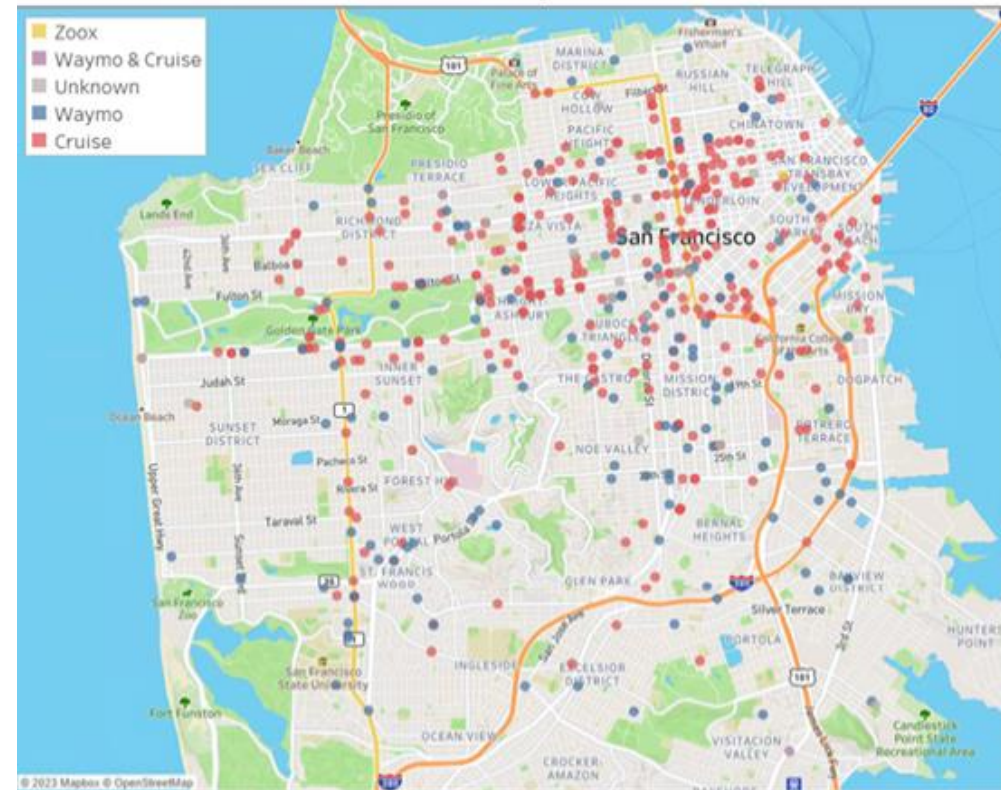
Driverless AV VMT in SF:

- Cruise/Waymo - 3M/1M miles driven in SF (SF: 6M VMT **per day**)
- 600+ traffic/transit/emergency interference incidents

AV Incidents Reported to SF by Month



Known Locations of Reported AV Incidents



Driverless AV Incidents with Fire Department



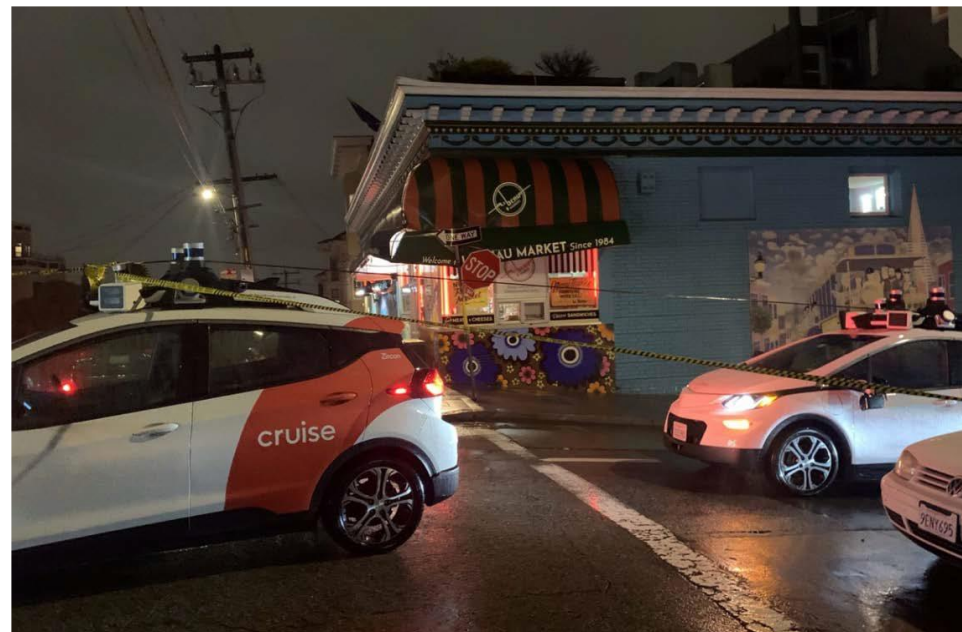
**Blocking fire trucks
responding to emergencies**



Intrusion into active fire scenes



**Driving over charged
hoses**



**Intrusion into areas
marked with caution
tape**

Incidents with Bus & Rail Transit



Rear-end crash with Muni bus



Near-miss collision & repeated track encroachments on Muni light rail



Encroachment into transit lanes interrupting service

Other incidents

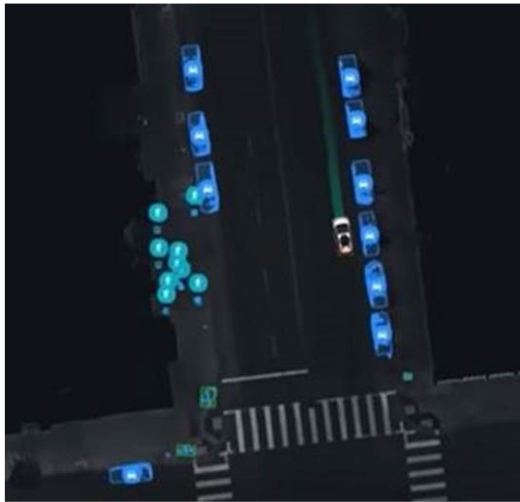
Violating CVC & creating traffic hazards



Intrusions into work zones endangering workers



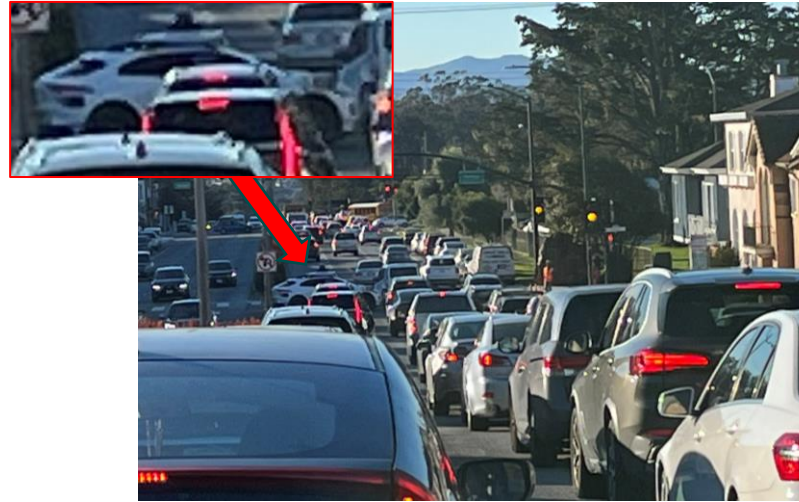
Challenges operating in fog



Unsafe pick-up/drop-off in travel lanes



Unsafe stops in pedestrian crosswalks



AV failures at peak travel hours leading to traffic jams



Waymo dog fatality

Chronology of Events

- Sept '22: SF files letter to NHTSA documenting Cruise's driverless performance and impacts (Cruise Origin Exemption process)
- Dec '22: SF Board of Supervisors AV Policy resolution, signed by Mayor Breed
- Dec '22: Cruise and Waymo submit applications to the CPUC for full driverless commercial operations in SF
- Jan '23: SF input to DMV AV regulations public workshop
- Feb-May '23: SF input to CPUC's assessment of Cruise and Waymo applications for full driverless commercial operations in SF
- June '23: SF input to CPUC AV data reporting rulemaking
- July '23: SF input to DMV AV regulations public workshop
- Aug 7 '23: SF input to CPUC hearing on AV emergency response obstructions
- Aug 10 '23: CPUC approval of Cruise and Waymo full driverless commercial operations in SF
- Aug 16 '23: SF files Motion to Stay of CPUC approval of Cruise and Waymo full driverless commercial operations in SF
- Aug 17 '23: SF files update letter to NHTSA documenting Cruise's driverless performance and impacts (Cruise Origin Exemption process)
- Aug 18 '23: DMV requests to Cruise to reduce SF operating fleet in half
- Aug 28 '23: Letter from Assembly Committee on Communications & Conveyance Chair to DMV and CPUC requesting clarification on inter agency coordination and processes

SF's Proposed Approach for Deployment & Regulation of AVs

- AV operations demonstrate CA's great success in setting up conditions for industry growth and technology development
- Time to leverage that success and incorporate real-world experience into more mature regulatory framework:
 - Expanded and transparent data reporting
 - Performance benchmarks: competency and impact KPIs
 - Incremental stage-gates for expansion of permitted activities
- Need for updates to state traffic and vehicle codes

Treasure Island AV Shuttle Pilot: the "Loop"

- Operates entirely on public roads 7 days / week, 9 am - 6 pm
- Fully electric, free autonomous shuttle with attendant on board
- Fixed route, wheelchair accessible



Thank you.

Jean Paul Velez

jean.paul.velez@sfcta.org

415-593-1668 office



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