

AV Adoption in Cities: San Francisco

MIT Mobility Forum



San Francisco
County Transportation
Authority

October 10, 2025

San Francisco's AV Experience

SFCTA is county **Congestion Management Agency** for SF:

- SF transportation agencies adopted New Mobility Principles in 2018. **North star: SF Transit First Policy**
- Our goal is to **shape AV technology and policy to help us meet citywide goals**: safety, climate, equitable access and shared economic prosperity
- Our AV experience includes:
 - Studied TNC impacts on travel demand, congestion, transit use and safety > this led to passage of SF's TNC tax in 2019 which applies to AVs
 - Coordinate with SFMTA/1st responders to engage with AV providers during testing and deployment
 - Provide AV policy input to regulators, legislators and participate in industry associations, research programs and a network of cities/states
 - Piloted AV Shuttle "The Loop" service on Treasure Island
 - Issued report on a Conceptual Safety-focused AV Permitting Framework



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Early Deployment (2023)

BIZ & TECH

Waymo gets green light for robot cars in California; no humans needed

Business

Cruise's robotaxi revolution is hitting the gas in San Francisco

With self-driving taxis on the cusp of going mainstream, The Standard reports from the back seat of a Cruise car named Funnel Cake.

SAN FRANCISCO

Cruise cars cause traffic jam in San Francisco's North Beach neighborhood

The incident comes on the heels of a California Public Utilities Commission ruling this week, giving robotaxis the green light to expand services in San Francisco.

Cruise will comply with DMV request to cut fleet in half following crash with SF fire truck

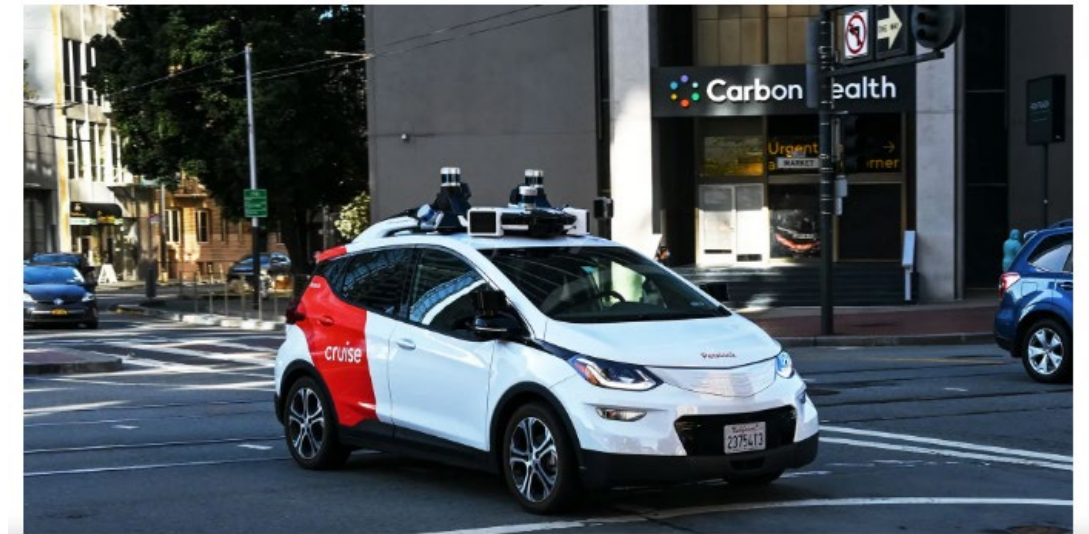
By Zak Sos, Aja Seldon and Andre Torrez | Updated August 18, 2023 10:07pm PDT | San Francisco | KTVU FOX 2 |



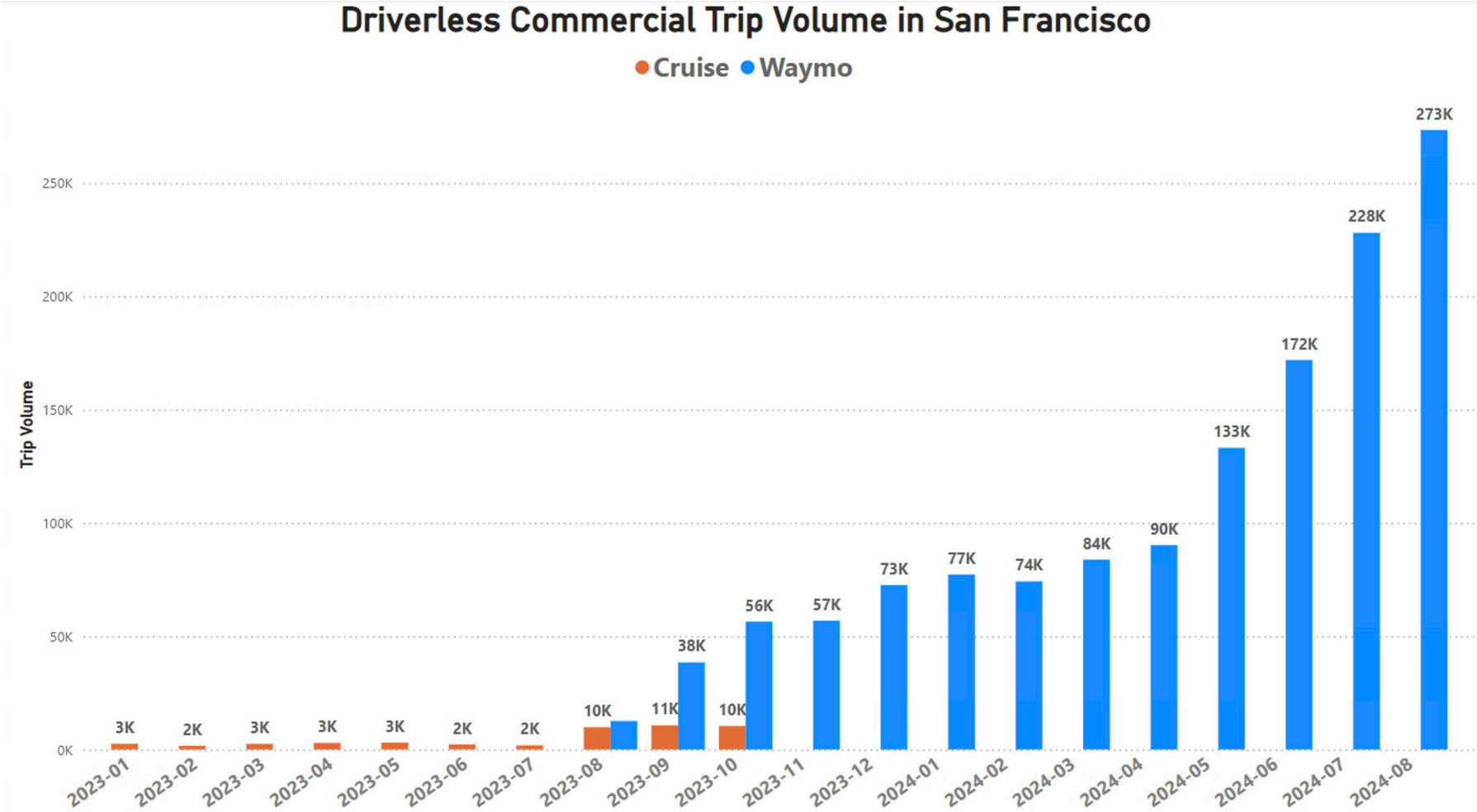
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GM's Cruise Loses Its Self-Driving License in San Francisco After a Robotaxi Dragged a Person

The California DMV says the company's autonomous taxis are "not safe" and that Cruise "misrepresented" safety information about its self-driving vehicle technology.



Driverless Operations in SF 2023-2024



Source:
CPUC 2023-2024
AV data

Recent Developments

U.S. & WORLD // CALIFORNIA

Waymo expands its driverless robotaxi service in the Bay Area and Los Angeles

News

Waymo and rideshare cars will soon be rolling down Market Street again

Starting Tuesday, passengers will be able to hail rides on the thoroughfare for the first time in years.

TECH

Waymo wins approval to pick up passengers at SFO, its robotaxis will start with human drivers



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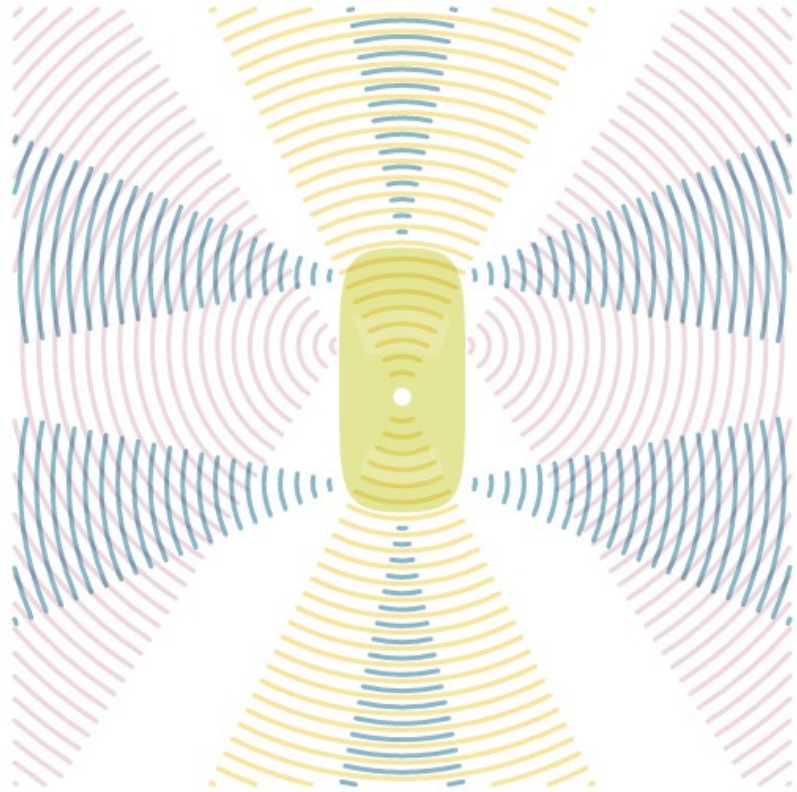
Zoox to offer driverless rides in its new robotaxis, but only in this part of San Francisco

By **Chase DiFelicianantonio**, Staff Writer

Oct 30, 2024

 Gift Article





Conceptual Safety-Focused AV Permitting Framework

Toward an Incremental, Performance-based and Transparent Permitting Approach



Final Report: September 2025

- SF Board of Supervisors adopted Policy Resolution on AVs and requested AV Permitting Study in late 2023
- SFCTA's recently adopted study proposes a conceptual safety-focused permitting framework that:
 - Supports incremental, performance-based AV deployments
 - Aims to mitigate public exposure to risk
 - Strengthens transparency and accountability

Available at: **sfcta.org/policies/av**

Conceptual AV Permitting Framework

Operating constraints by deployment stage

	TESTING (WITH DRIVER)	DRIVERLESS PILOT	DRIVERLESS COMMERCIAL		
			1	2	3
Fleet size (per 250k population)	100	50	100	500	1000
Hours of operation	24/7	Evening	Evening	Midday/ Evening	24/7
Geography	Few or no limitations	Low density residential	Low density residential	All but downtown core	Few or no limitations
Speeds (mph)	< 65	< 25	< 25	< 35	< 65
Road types	freeways, arterials, locals	arterials, locals	arterials, locals	arterials, locals	freeways, arterials, locals
Weather	All	fair, up to minor rain/fog	fair, up to minor rain/fog	fair, up to minor rain/fog	All

Conceptual AV Permitting Framework

Example performance standards

	TESTING (WITH DRIVER)	DRIVERLESS PILOT	DRIVERLESS COMMERCIAL			NOTES/ JUSTIFICATION
			1	2	3	
Minimum VMT (cumulative)		2 million	1 million	2 million	5 million	
Property damage only (PDO) collisions rate	132	132	132	132	132	2022 PDO collision rate
Injury rate	75	75	75	75	75	2022 injury rate
Fatality rate	1.33	1.33	1.33	1.33	1.33	2022 fatality rate
1st Responder obstruction rate	0	7,000	3,000	400	200	Equivalent to ~1 event per week
Disengagement rate	No limit	500,000	n/a	n/a	n/a	Equivalent to ~10 events per day
Unplanned stops > 2 minutes rate	n/a	500,000	167,000	25,000	12,500	Equivalent to ~10 events per day
Unplanned stops > 15 minutes rate	n/a	50,000	17,000	2,500	1,300	Equivalent to ~1 event per day
Vehicle retrieval rate	n/a	7,000	3,000	400	200	Equivalent to ~1 event per week

*Rates are per 100M VMT

*PDO, injury, and fatality rates are national averages from NHTSA

*Column values are thresholds for entering and maintaining a phase

*Rates are evaluated cumulatively including all VMT and all events

*Disengagements only used to graduate from testing with driver to driverless pilot



SF AV Resources

- San Francisco Prop D Ridehail Tax (2019)
 - 3.25% fee on solo TNC/AV trips originating in SF (1.5% for shared rides and EVs)
 - Funds Muni transit operations and street safety projects
- Treasure Island “Loop” AV Shuttle Pilot (2024)
 - visit www.ti-loop.org for Evaluation Report
- State Legislation (2024)
 - AB1777 - AV emergency response, enforcement (passed)
 - AB3061 - AV passenger services data reporting (vetoed)
- SFCTA AV webpage - www.sfcta.org/policies/av
 - Input to federal, state regulators
 - Transportation Authority Board Hearings on AVs
 - Conceptual Safety-focused AV Permitting Framework Study
 - Forthcoming San Francisco AV Portal at www.sfcta.org

SFCTA AV Initiatives

Advance AV permitting framework

- Active participation in CA rulemaking and federal legislative initiatives with a focus on safety assurance, reporting
- Engagement with leading standards bodies (e.g., SAE) and associations (ITS America)
- Partnership with UCLA on New Mobility and AVs

Develop new analysis tools and inclusive services

- Engage with other cities, states, countries, industry, academia
- Promote data sharing specifications, e.g. on Market St, SFO
- Pilot V2X safety solutions, research AV vs Human driving
- Advance inclusive access policies and participation (e.g. CA's Access for All program, workforce programs)

Open call for collaboration and engagement to mature AV sector policies, practices together.

Thank you.

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sfcta.org/stay-connected



TRANSPORTATION PUBLIC WORKS

AVs in Austin – The Wild West

Rachel Castignoli | Senior Consultant



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AV Safety Working Group



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Austin-Bergstrom
International Airport

The City has been proactive by establishing the AV Safety Working Group to:

- Prepare and train for incidents,
- Facilitate communication,
- Collect data and standardize documentation.



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PUBLIC WORKS

Data for Geofences

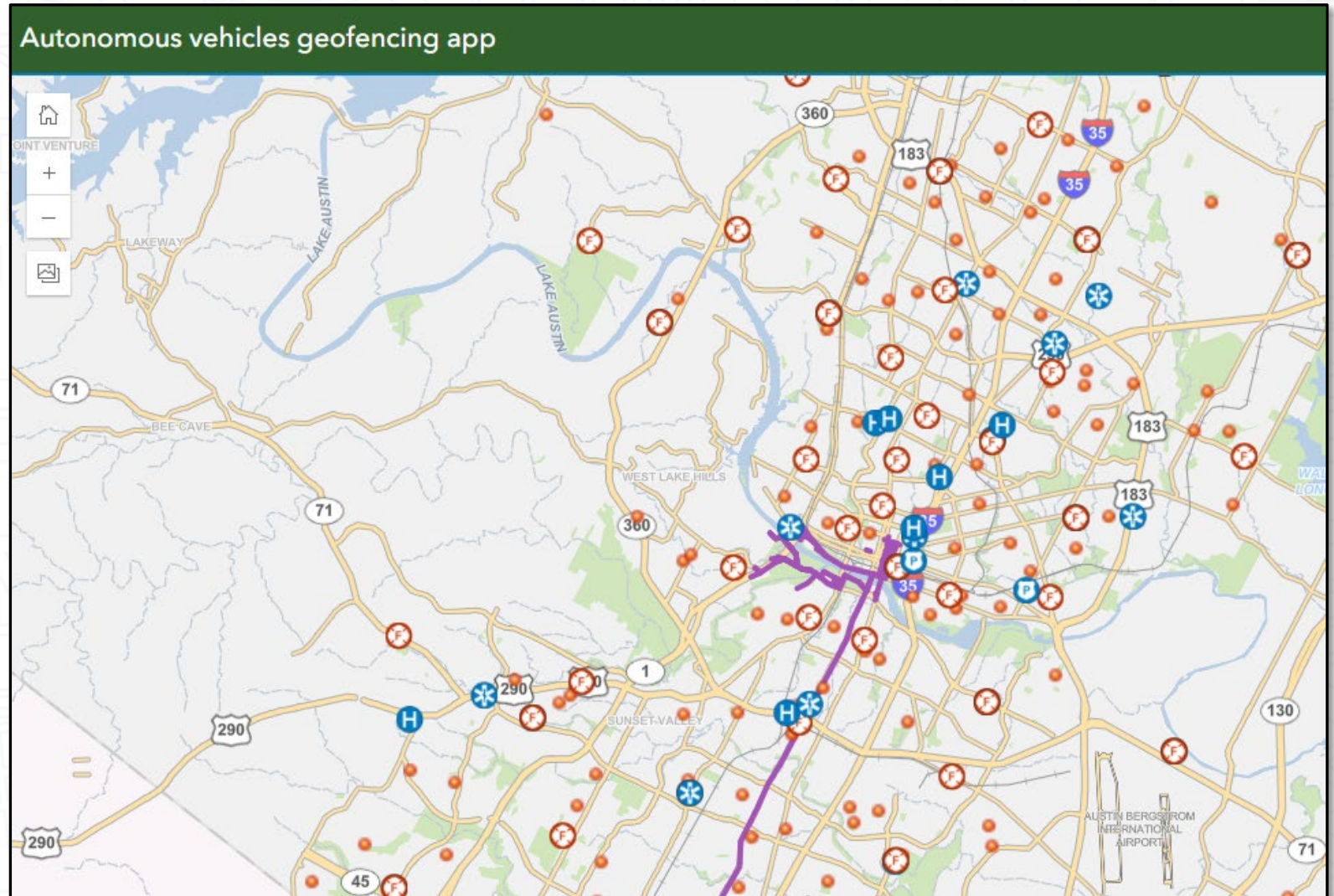
Infrastructure & Events

- Hospitals
- Fire Stations
- EMS Stations
- Police Stations
- Special Events
- Schools & School Zones

Emergencies

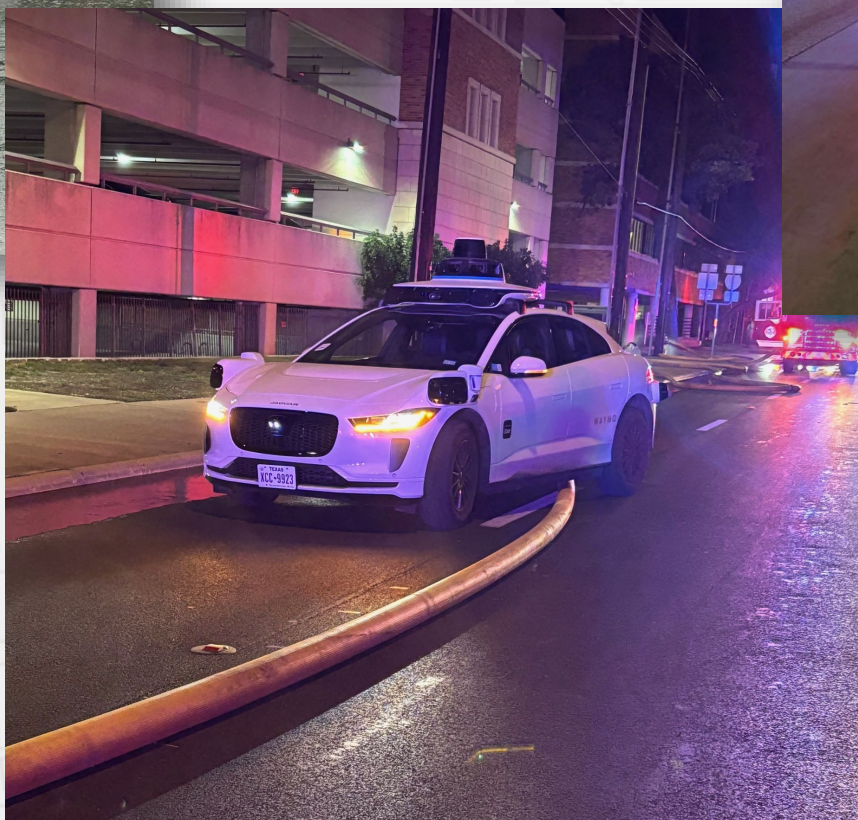
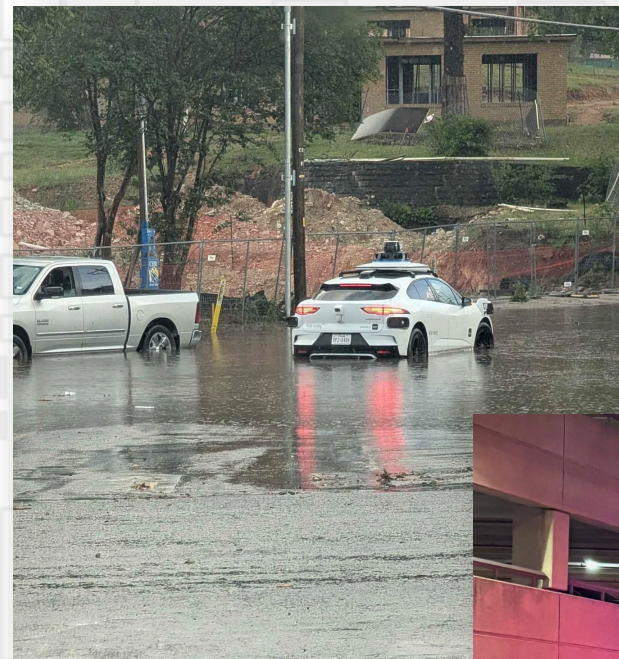
An email is **automatically** sent from our Computer-Aided Dispatch system.

Our expectation is an exclusion zone of 1,000 feet for one hour.



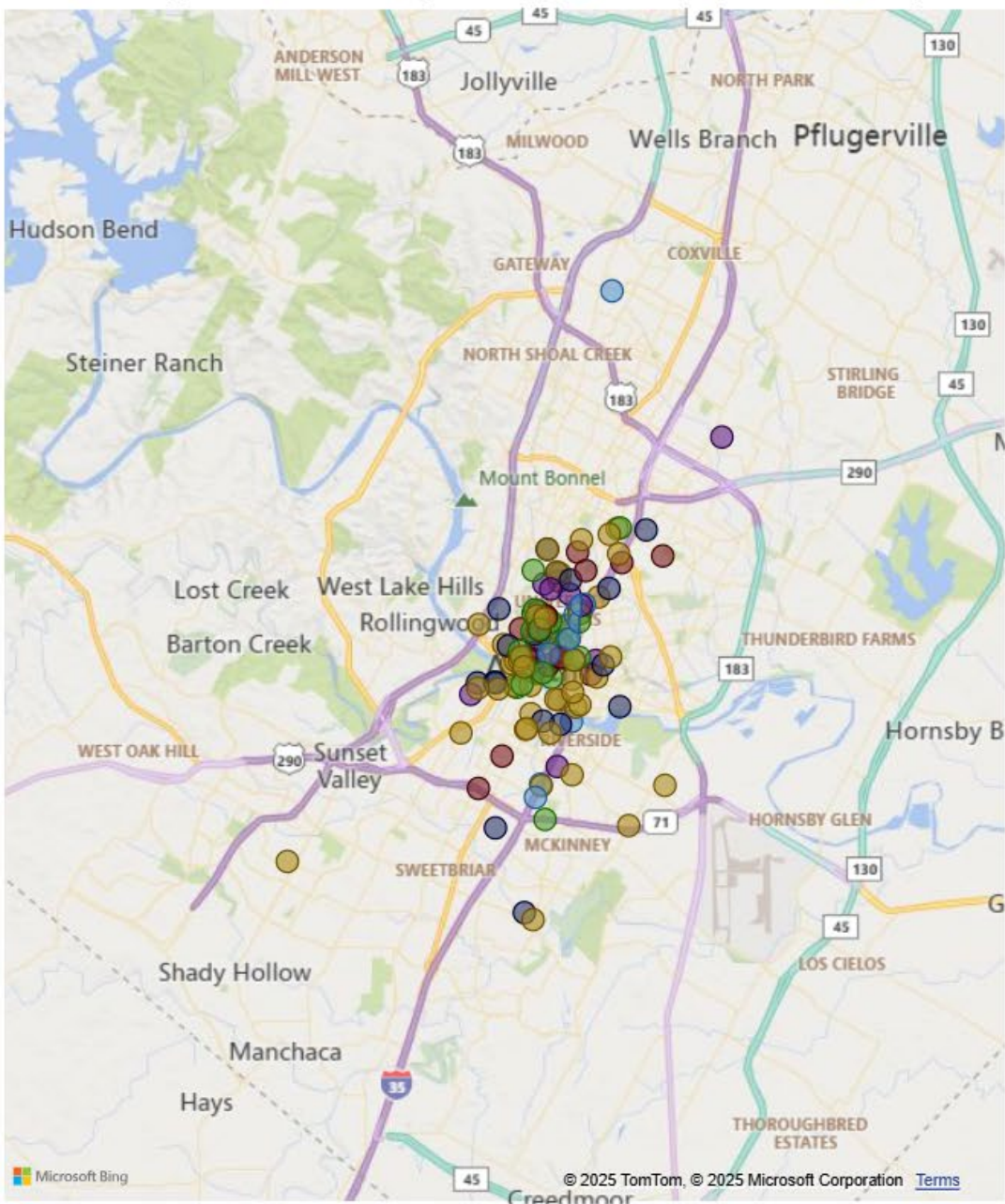
From -AFD -1Alarm /BOXL- Structure Fire | RAP -00-2202 @2425 E Riverside Dr , AUSTIN | XStreets:WILLOW CREEK DR TO RIVERSIDE TRN/E RIVERSIDE | On -AT FCOM S| Time:20:08:38| Inc#23163009 | For - FTAC201,BAT04,ENG06,ENG22,ENG07,LAD22 Lat: 30235340 Lon: 97724702

Issues

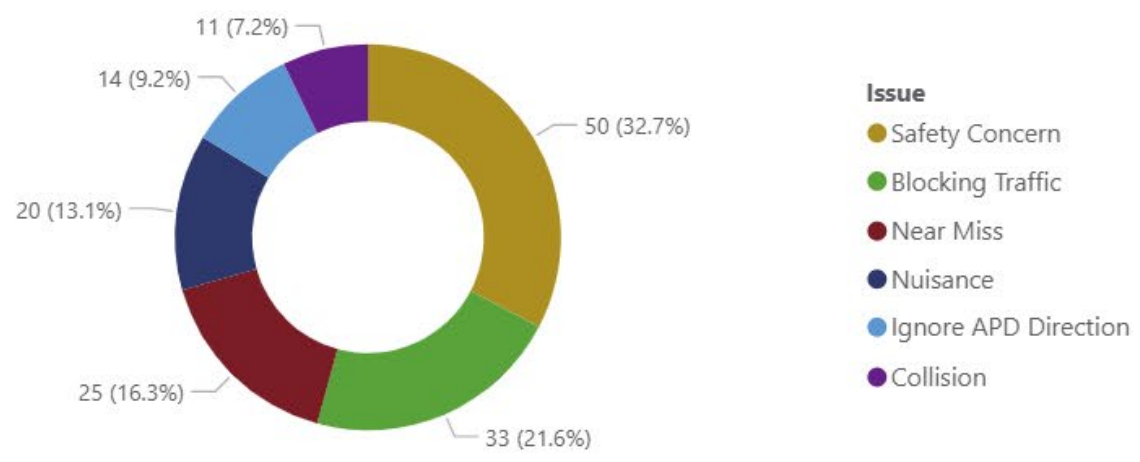


Incident Date and AV Company by Location and Issue

Issue ● Blocking Traffic ● Collision ● Ignore APD ... ● Near Miss ● Nuisance ● Safety Con...



Incidents by Type



How We Use This Data

- Provide ongoing feedback to AV companies.
- Figure out where issues are occurring, and if there's a pattern.
- Determine appropriate infrastructure improvements.
- Collaborate with AV companies to resolve concerns.
- Share with Federal and State agencies.



Collaboration



- Annual AV Stakeholder meeting with AV petting zoo.
- Working with transit, schools, and universities on sharing procedures and information.
- Communicating with State and Federal partners.
- Participating in SAE and peer exchanges with other cities.



Thank You



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<https://www.austintexas.gov/page/autonomous-vehicles>



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DISTRICT DEPARTMENT OF TRANSPORTATION

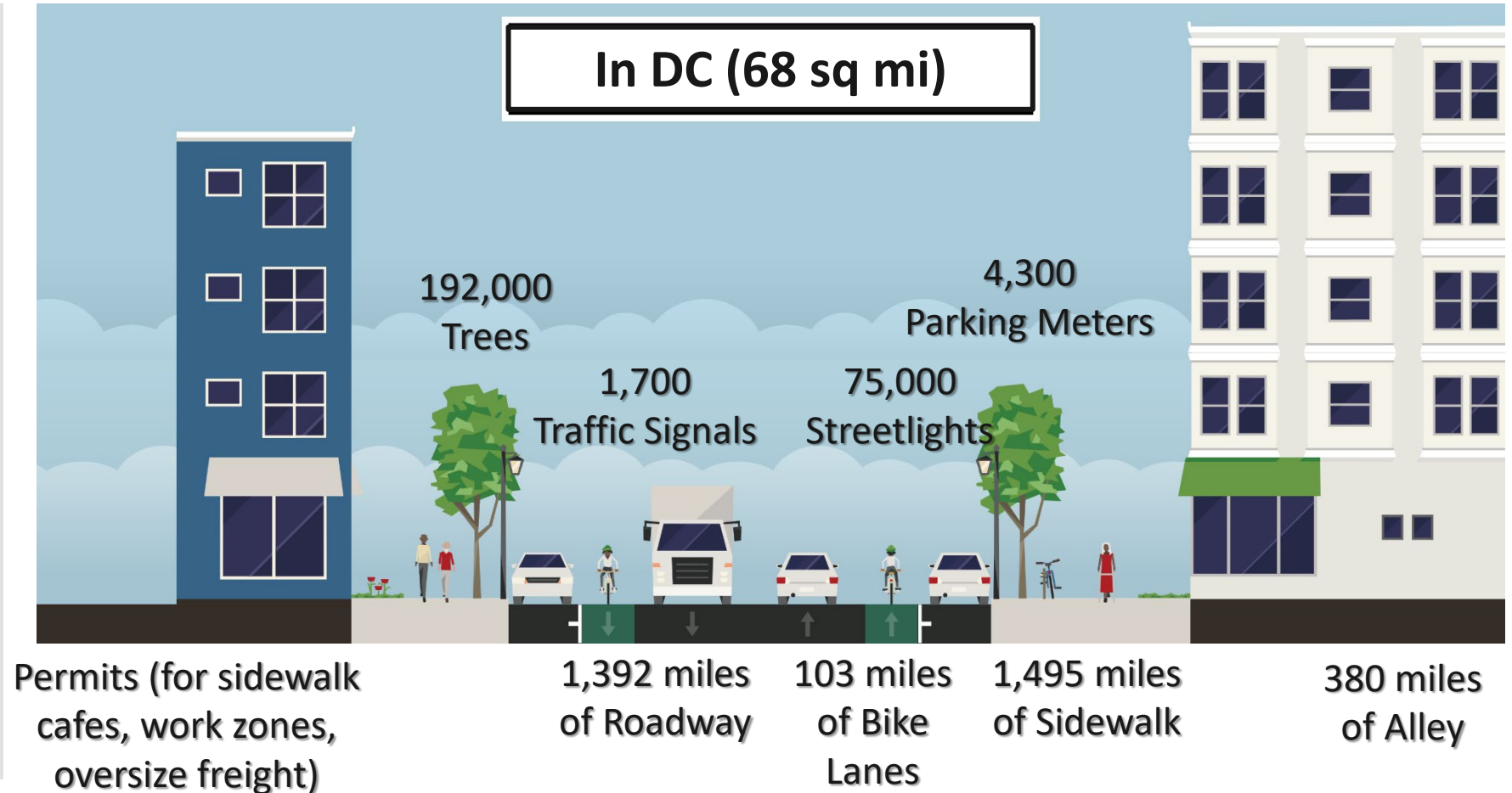
When Your City is Sort of a State: AVs in DC

MIT Mobility Forum

October 10, 2025

DDOT: A Unique DOT

- State & Local DOT in one
- Design, construct, and maintain multimodal system
- But we don't do:
 - Most transit
 - For-hire vehicle regulation



Where DC Wants to Be: Autonomous Vehicles Principles Statement

Principles for AV deployment in the District:

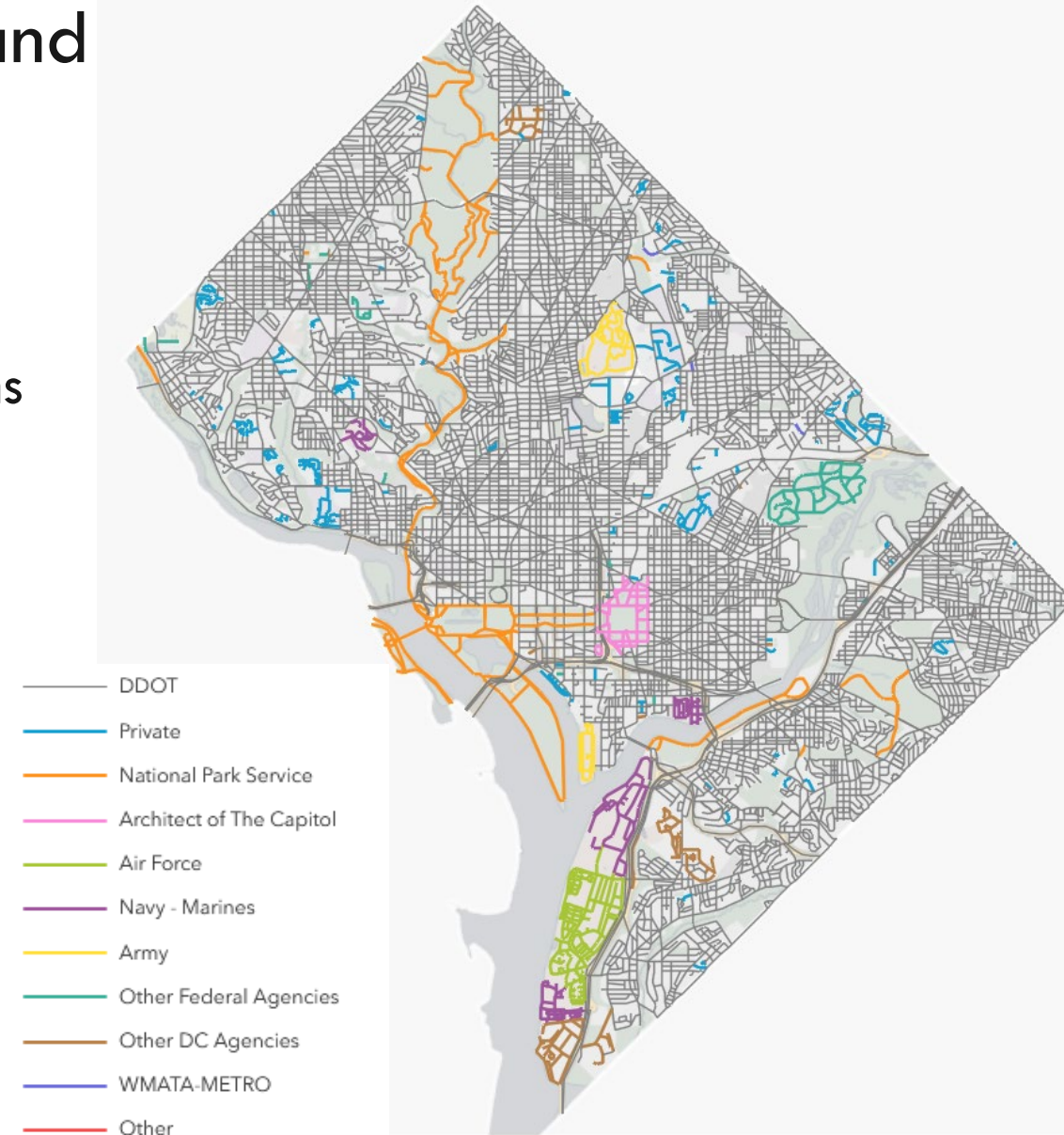
- 1. Safety:** Reduce driver, passenger, and pedestrian injuries and fatalities, and protect consumer data
- 2. Equity:** Improve access across geographies and populations, improve accessibility (also consider built environment change impacts, job loss)
- 3. Efficiency:** reduce the inefficiencies and negative externalities of congestion, reduce costs, reduce pollution, improve movement
- 4. Sustainability:** improve environmental impacts, be financially sustainable, adapt to changes (including long term infrastructure needs)

The DC Government should embody the following attributes:

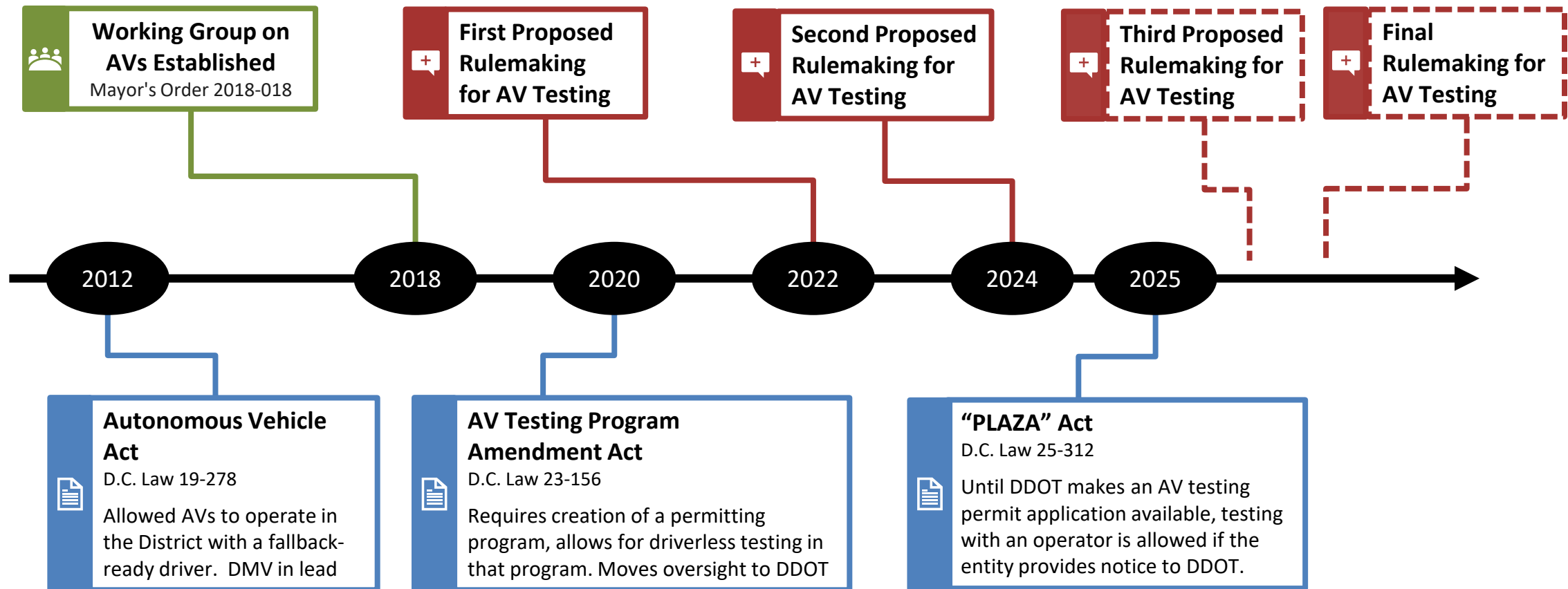
- *Adaptability*
- *Transparency and Privacy*
- *Comprehensiveness*
- *Alignment*

What's Hard?: Unique Challenges and Considerations for DC

- High profile/visibility to federal government
- Unique heightened operational considerations
 - Security concerns
 - Special events
 - Unannounced motorcades
 - Data/Security/Espionage
 - Multiple overlapping enforcement agencies
- Central city to a tri-state region



What Exists: Timeline of Legislation & Regulation



Where We Are: Activity to Date

Ford/Argo: 2018-2022 in partnership with DC gov, sustained testing operations

Uber: 2020 for mapping, briefly

Optimus Ride: 2020-2021 in Navy Yard area – food delivery at first, then passenger service

Cruise: 2023 for data collection

Nuro: 2024 for data collection

Waymo: 2024 “road trip,” 2025 returned indefinitely for mapping and testing

Zoox: 2025 for mapping and testing



Where We're Headed

DDOT's Plans

- Testing Permits
 - For all L3-L5 vehicles
 - Data reporting (crashes + activity)
- AV Monitoring Zone Pilot
 - More systemic monitoring of how they are operating
- Deployment Report
 - Recommendations for legislation and regulation
 - Focus on policy levers to achieve our desired outcomes

Industry's Plans



March 25, 2025 Waymo announced they “will be ready for riders in the nation’s capital on the Waymo One app in 2026.”



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