Waymo LLC
1600 Amphitheatre Parkway
Mountain View, CA 94043

September 3, 2019

California Public Utilities Commission
505 Van Ness Ave.
San Francisco, CA 94102

Re: Anonymized Drivered Autonomous Vehicle Passenger Service Data (TCP0038152-A)

Dear Mr. Kasmar,

Pursuant to the California Public Utilities Commission's ("Commission") decision in Rulemaking 12-12-011,[1] Waymo LLC ("Waymo") submits herewith its Drivered Autonomous Vehicle ("AV") Passenger Service Pilot Program data for the third quarter reporting period. Waymo notes that while the third quarter reporting period covers the period May 1 through July 31, Waymo received its authority to operate in the Drivered AV Pilot only as of July 2, 2019. As such, the attached report covers drivered AV passenger rides beginning on July 2nd, and ending on July 31st.

Sincerely,

Kevin Vosen
Secretary
Waymo LLC
1600 Amphitheatre Parkway
Mountain View CA 94043

[1] Decision ("D.")18-05-043, p. 42; see also, Ordering Paragraph 4, pp. 57-59.

I. Background on Waymo Autonomous Vehicle TCP Pilot Passenger Service

Waymo, formerly known as the Google Self-Driving Car Project, is a self-driving technology company with a mission to make it safe and easy for people and things to get around. We're committed to developing fully self-driving vehicles because we believe that this is safer and better for everyone.

Annually, traffic collisions kill over 37,000 people a year in the U.S. and that number is rising. In the U.S., 94% of crashes involve human error or choice, and this is one area where we believe we can apply technology to help reduce this high percentage. Fully self-driving cars could also help people who can't drive—whether they're elderly, blind, or disabled—to get around and participate more actively in community life.

On December 5, 2018, after nearly a decade of developing this technology and self-driving more than 10 million miles on public roads, 10 billion miles of simulated driving, and tens of thousands of comprehensive tests, Waymo introduced its commercial self-driving service, Waymo One, in Metro Phoenix. Waymo One now has over a thousand riders.

On July 2, 2019, Waymo was granted a permit from the California Public Utilities Commission (the "Commission") to conduct a "Drivered AV Passenger Service" pilot and provide passenger service in test AVs with a Waymo-trained driver in the driver's seat of each vehicle. Waymo's Commission permit expands its authority to offer rides to members of the public. At present, Waymo's pilot program allows guests of Waymo employees to take rides within our geofenced South Bay territory, which currently includes Mountain View, Palo Alto, Sunnyvale, Cupertino, Los Altos, and Los Altos Hills. Each of the vehicles is a part of Waymo's broader California autonomous vehicle test fleet under Permit Number 003 of the DMV's Autonomous Vehicle Testing (AVT) program, since the effective date of the DMV's original autonomous vehicle testing regulations on September 16, 2014. Between pilot rides, Waymo is continuously testing on public roads in California to extend our vehicle's capabilities, try out new driving skills, and introduce new vehicle platforms and hardware.

Waymo submits this quarterly report in accordance with Decision ("D.") 18-05-043[1] and in furtherance of the Commission's objective to examine full deployment of paid AV passenger service in California.

II. Waymo Drivered Autonomous Vehicle Pilot July 2, 2019 to July 31, 2019 Quarterly Data Report

Waymo's first quarterly data report includes trips completed between the dates of July 2, 2019 and July 31, 2019. During this time period, Waymo provided two types of rides to the members of the public:

1. Point-to point rides starting and ending within Waymo's operating territory in the South Bay, hailed through the Waymo app[2] by employees, contractors, or agents of Waymo, Alphabet, or Alphabet affiliate companies, who had the option to include guest passengers on these rides.

   For these types of rides, during the reporting period, Waymo vehicles:
   - Transported 6,266 passengers on 4,678 trips
   - Traveled 59,886 miles

[1] Decision 18-05-043 at 22–27 (June 6, 2018).
[2] A total of 54 vehicles were hailed during the reporting period.

2. Educational demonstrations that start and end at the same location with the intention of demonstrating some of the technical capabilities of our vehicles. These rides are provided to pre-registered members of the public by Waymo and are not passenger-hailed.[3]

   For these types of rides, during the reporting period, Waymo vehicles:
   - Transported 33 passengers on 12 trips
   - Traveled 31 miles

This first Waymo quarterly data report is split into two sections, which include: (1) a description of the methodology Waymo used to collect and report the eight required data element categories; and (2) an appendix with disaggregated anonymized data provided in an electronic and sortable spreadsheet format, provided in tables with separately labeled columns that identify the data reported in each column.

III. Quarterly Data Reporting Methodology

D.18-05-043 requires that companies participating in the pilot program, "submit to the Commission quarterly reports of anonymized data about the operation of their vehicles providing Drivered AV Passenger Service."

Below, Waymo describes the methodology it used to collect and report its pilot data for each of the eight required reporting elements:

A. *Total quarterly vehicle miles traveled during passenger service by all vehicles in the entity's list of AV equipment, provided per-vehicle*

In accordance with D.18-05-43, Waymo's Drivered AV pilot data was "collected and reported only when the vehicle is in AV passenger service, as opposed to being used for other testing purposes. "Passenger service is defined as the period of time during which the entity is providing passenger service consistent with the terms and conditions of its TCP permit allowing it to participate in these pilot programs, including when the app is on and the vehicle is available for passengers to reserve using the app." All Waymo vehicles registered for the pilot are registered in the California DMV's Autonomous Vehicle Tester program. Between trips conducted for purposes of the pilot, each vehicle continued self-driving testing without passengers on public roads.

B. *Total quarterly vehicle miles traveled during passenger service that are served by electric vehicles or other vehicles not using an internal combustion engine, provided per-vehicle*

All of the vehicles in Waymo's pilot fleet in California are plug-in hybrid electric Chrysler Pacificas, manufactured by Fiat Chrysler Automobiles, which use an internal combustion engine. Accordingly, during the reporting period, Waymo had no "vehicles miles traveled during passenger services that were served by electric vehicles or other vehicles not using an internal combustion engine."

Waymo is currently testing our self-driving technology on fully-electric Jaguar I-Pace vehicles without internal combustion engines, which will be included in subsequent reports once they are added to the pilot fleet.

[3] One additional vehicle was used exclusively for educational demonstrations during the reporting period.

C. *Total quarterly vehicle miles traveled during passenger service, from the vehicle's starting location when it first accepted a trip request to the pickup point for each requested trip, expressed in miles and provided per-vehicle*

When a participant in the pilot requests a trip through the app, Waymo's system matches the individual with the nearest hailable vehicle that is able to complete the trip to the requested destination within the geofenced territory. That vehicle is diverted from its standard testing objectives to complete the requested trip.

The number of miles reported in this category is not representative of a commercial ride hailing service when fully deployed.[4] Waymo does not allocate vehicle availability for the pilot program solely based on demand. Doing so today would constrain Waymo's testing under the DMV program.

D. Amount of time each vehicle waits between ending one passenger trip and initiating the next passenger trip, expressed as both a daily average and a monthly total in hours or fraction of hours for each vehicle (idling or dwell time)

Consistent with D.18-05-43, the Appendix includes the time information required for this data category. However, the vehicles hailed during the reporting period did not "idle" or "dwell" after ending a ride, as defined by the Commission for purposes of this pilot.[5] As noted above, between pilot rides, Waymo is continuously testing on public roads in California to extend our vehicle's capabilities, try out new driving skills, and introduce new vehicle platforms and hardware. Furthermore, the number of miles reported in this category is not representative of a commercial ride hailing service when fully deployed.

For ease of reference, the monthly total, and daily *average* dwell times for the month of July are reflected in rows 5 and 6 of Appendix Tab "Per-Vehicle Data", respectively. The per-day idling or dwell times for the month of July appear just below row 6.

E. *Vehicle occupancy (total number of passengers) in each vehicle for each trip*

Vehicle passengers are counted as individuals who are not Waymo-trained drivers. Passengers include:

- Waymo employees, contractors, or agents.
- Alphabet employees, contractors, or agents.
- Alphabet affiliate company employees, contractors, or agents.
- Members of the public.

Each trip is marked with a unique Trip ID, which is a timestamp in microseconds from when a trip was created. Each Trip ID is listed in the appendix for each vehicle's passenger trips conducted via the app and is associated with the passenger count for that respective trip.

The number of passengers per trip ranged from one to four.

[4] Opening Comments of Waymo LLC, at 10, ("...tracking miles traveled from the vehicle's starting location to a pickup point (deadhead miles) would not appear to provide any valuable data as the utilization of vehicles for testing purposes will be vastly different and may not accurately reflect the efficiencies that can be gained through a more expansive fleet during full deployment.")

[5] In D.18-05-043, the Commission attempted to refine the definition of "passenger service" so as to exclude time spent "[t]esting the vehicle without passengers." D.18-05-043, at 40-41. However, the definition still expressly includes "when the app is on and the vehicle is available for passengers to reserve using the app," which results in time spent testing without passengers being attributed to "idling" or "dwell time" in this report.

F. Accessible Rides

Our app and service includes accessibility features, which we are continuing to grow and improve in consultation with the disability community. For example, earlier this year we conducted user testing in metro Phoenix with members of the Foundation for Blind Children, building on recent user studies we conducted in Phoenix and Mountain View late last year. Our current feature set is a starting point for continued research and development. We look forward to continuing to partner with accessibility organizations as we expand and improve our offerings.

Waymo has developed a number of features that are available to pilot participants. At this time, only Waymo and Alphabet employees, contractors, and agents may hail rides. To do so, they use an accessible app designed for use with Android TalkBack and iOS VoiceOver. The app also includes wayfinding features, including in-app navigation to the vehicle through Google Maps and an in-app button that enables the user to honk the vehicle's horn from nearby when the vehicle is ready for boarding.

Other accessibility features available to pilot participants include:

1. In-vehicle audio cues describing vehicle maneuvers (*e.g.*, "turning left onto Shoreline Boulevard") to keep blind and low-vision riders informed on their journey. These audio cues supplement default audio cues provided in the vehicle and give blind and low-vision riders access to information that is also displayed on the second-row video screens. Riders may turn on these in-vehicle audio cues feature in the app.
2. A setting that, when activated, prevents the vehicle from considering a pick up or drop off point on the opposite side of the street from the rider's selected location.
3. The option to communicate with our Rider Support team through text in the app, instead of, or in addition to, communicating through the in-vehicle audio system.
4. In-vehicle displays show text to accompany standard in-vehicle audio announcements (*e.g.*, the vehicle will announce when the vehicle is approaching the rider's destination, and that message will also appear on the in-vehicle video displays).
5. The ride buttons in our self-driving vehicles have Braille labels. These buttons allow riders to start the ride, pull over the vehicle, or call to speak to a member of our rider support team who can provide further assistance and information. These commands can also be made through the app.

Pilot program participants with access to the Waymo app may activate these accessibility features, and we encourage all of our employees and agents to test them and provide feedback. Many pilot participants chose to activate one or more of these features. For 929 rides, riders had activated the honk button, additional in-vehicle audio cues, or the setting that disallows pick-up or drop-off on the opposite side of the street.

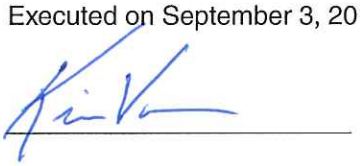
In this limited pilot, we're also testing the best ways to balance providing the data about accessible rides the Commission seeks with the privacy of our riders. At this time, Waymo does not require riders to indicate whether they have a disability. We therefore cannot delineate precisely how many of these rides served an individual who needed accommodation for a disability. However, in the spirit of providing more information to the Commission, we did send a broad notice to employees, inviting them, if they choose, to voluntarily report the number of rides they took in the reporting period with an accessibility feature enabled that provided an accommodation for a disability. In response to this notice, we learned of 38 rides provided to riders who self-reported use of the accessibility feature to accommodate a

disability. These rides were counted as “accessible rides” in Waymo’s pilot data. No “accessible rides” requested during the reporting period were “unfulfilled because of a lack of accessible vehicles” or “declined by the driver.”

VERIFICATION

I am the Chief Legal Officer and Secretary of Waymo LLC, and am authorized to make this verification on its behalf. The statements in the foregoing document are true of my own knowledge, except as to the matters that are therein stated on information and belief, and as to those matters I believe them to be true. I declare under penalty of perjury that the foregoing is true and correct.

Executed on September 3, 2019, at Mountain View, California.



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