



U.S. Department of Transportation
**National Highway Traffic Safety
Administration**



May 30, 2024

VIA EMAIL

John Maddox
Senior Director, Safety Policy & Strategy
Zoox, Inc.
1149 Chess Drive
Foster City, CA 94404

Subject: Information Request ID PE24015-1

Dear Mr. Maddox:

This letter is to inform you that the Office of Defects Investigation (ODI) of the National Highway Traffic Safety Administration (NHTSA) has opened a Preliminary Evaluation (PE24015) to investigate incidents of Automated Driving System (ADS) equipped vehicles operated by Zoox, Inc. (Zoox) unexpectedly braking and potentially contributing to rear-end collisions. To assist us at this stage of the investigation, ODI is requesting additional information concerning the behavior of the ADS and braking.

This Office has received two (2) relevant reports from Zoox, submitted under Standing General Order 2021-01 (SGO), of Zoox ADS-equipped vehicles engaging in unexpected braking in the moments before collisions. In both incidents, the braking is in response to another road user whose leading edge is not located ahead of the subject vehicle's leading edge at the time the braking is initiated. ODI is concerned that vehicles exhibiting unexpected rapid braking may increase the risk of crash, property damage, and injury. This risk is particularly acute to road users behind the Zoox vehicles who are unable to reasonably anticipate or react to the unexpected sudden braking.

This information request is being sent to Zoox to gather information in support of ODI's analysis. Therefore, ODI is requesting certain information concerning the Zoox ADS and the operation of Zoox's ADS-equipped passenger vehicles.

Unless otherwise stated in the text, the following definitions apply to these information requests:

- **Subject Vehicles:** all passenger vehicles equipped with an Automated Driving System (ADS) that are or have been operated by Zoox in the United States, including, but not limited to, current U.S. territories and possessions.

- **Subject System**: the suite of software, hardware, data, and any other related systems on or off the vehicle that contributes to the operation of the Automated Driving System (ADS) of the subject vehicles.
- **Subject Incident**: incidents in which a Zoox ADS-equipped vehicle operating on a public roadway was commanded by the ADS to rapidly reduce speed in response to another road user whose leading edge was not located ahead of the subject vehicle's leading edge at the time braking was initiated, which resulted in contact with another road user.
- **Operational Design Domain (ODD)**: operating conditions under which a given driving automation system or feature thereof is specifically designed to function, including, but not limited to, environmental, geographical, and time-of-day restrictions, and/or the requisite presence or absence of certain traffic or roadway characteristics.
- **ADS Operators**: any individuals who, either remotely or while occupying a subject vehicle, perform or are intended to perform supervision of the subject system.
- **Passengers**: occupants of the subject vehicles who are not intended to perform driving tasks or supervision of the subject system.
- **Zoox**: Zoox, Inc., all of its past and present officers and employees, whether assigned to its principal offices or any of its field or other locations, including all of its divisions, subsidiaries (whether or not incorporated) and affiliated enterprises and all of their headquarters, regional, zone and other offices and their employees, and all agents, contractors, consultants, attorneys and law firms and other persons engaged directly or indirectly (e.g., employee of a consultant) by or under the control of Zoox (including all business units and persons previously referred to), who are or were involved in any way as of May 21, 2014, with any of the following related to the subject system:
 - a. Design, engineering, analysis, modification or production (e.g., quality control);
 - b. Testing, assessment or evaluation;
 - c. Consideration, or recognition of potential or actual defects, reporting, record-keeping and information management, (e.g., complaints, field reports, warranty information, part sales), analysis, claims, lawsuits or arbitrations; or
 - d. Communication to, from or intended for zone representatives, fleets, dealers, or other field locations, including but not limited to people who have the capacity to obtain information from dealers.
- **Document**: "Document(s)" is used in the broadest sense of the word and shall mean all original written, printed, typed, recorded, or graphic matter whatsoever, however produced or reproduced, of every kind, nature, and description, and all non-identical copies of both sides thereof, including, but not limited to, papers, letters, memoranda, correspondence, communications, electronic mail (e-mail) messages (existing in hard copy and/or in electronic storage), faxes, mailgrams, telegrams, cables, telex messages, notes, annotations, working papers, drafts, minutes, records, audio and video recordings, data, databases, other information bases, summaries, charts, tables, graphics, other visual

displays, photographs, statements, interviews, opinions, reports, newspaper articles, studies, analyses, evaluations, interpretations, contracts, agreements, jottings, agendas, bulletins, notices, announcements, instructions, blueprints, drawings, as-builts, changes, manuals, publications, work schedules, journals, statistical data, desk, portable and computer calendars, appointment books, diaries, travel reports, lists, tabulations, computer printouts, data processing program libraries, data processing inputs and outputs, microfilms, microfiches, statements for services, resolutions, financial statements, governmental records, business records, personnel records, work orders, pleadings, discovery in any form, affidavits, motions, responses to discovery, all transcripts, administrative filings and all mechanical, magnetic, photographic and electronic records or recordings of any kind, including any storage media associated with computers, including, but not limited to, information on hard drives, floppy disks, backup tapes, and zip drives, electronic communications, including but not limited to, the Internet and shall include any drafts or revisions pertaining to any of the foregoing, all other things similar to any of the foregoing, however denominated by Zoxx, any other data compilations from which information can be obtained, translated if necessary, into a usable form and any other documents. For purposes of this request, any document which contains any note, comment, addition, deletion, insertion, annotation, or otherwise comprises a non-identical copy of another document shall be treated as a separate document subject to production. In all cases where original and any non-identical copies are not available, "document(s)" also means any identical copies of the original and all non-identical copies thereof. Any document, record, graph, chart, film or photograph originally produced in color must be provided in color. Furnish all documents whether verified by Zoxx or not. If a document is not in the English language, provide both the original document and an English translation of the document.

- **Other Terms:** To the extent that they are used in these information requests, the terms "claim," "consumer complaint," "dealer field report," "field report," "fire," "fleet," "good will," "make," "model," "model year," "notice," "property damage," "property damage claim," "rollover," "type," "warranty," "warranty adjustment," and "warranty claim," whether used in singular or in plural form, have the same meaning as found in 49 C.F.R. § 579.4.

For my staff to evaluate the issue for a potential safety defect, certain information is required. Pursuant to 49 U.S.C. § 30166, please provide numbered responses to the following information requests. Insofar as Zoxx has previously provided a document to ODI, Zoxx may produce it again or identify the document, the document submission to ODI in which it was included, and the precise location in that submission where the document is located. When documents are produced, the documents shall be produced in an identified, organized manner that corresponds with the organization of this information request letter (including all individual requests and subparts). When documents are produced and the documents would not, standing alone, be self-explanatory, the production of documents shall be supplemented and accompanied by explanation.

Please repeat the applicable request verbatim above each response. After Zoox's response to each request, identify the source of the information and indicate the last date the information was gathered.

1. List all states and jurisdictions in the United States in which Zoox operates or has operated the subject vehicles on public roadways and provide the total number of subject vehicles that are or have been operated within each jurisdiction on public roadways.
2. For each subject vehicle operated on public roadways in the United States to date by Zoox, state the following:
 - a. Vehicle identification number (17-character VIN);
 - b. ADS version equipped on the subject vehicle when first operated on public roads;
 - c. Date of initial operation on public roadways (MM/DD/YYYY);
 - d. The state(s) and jurisdiction(s) in the United States where the vehicle and system have been operated (postal abbreviation);
 - e. By each discrete geographical ODD, number of miles driven on public roadways with the ADS engaged from June 1, 2021, through May 31, 2024, by month and year:
 - i) in total;
 - ii) with onboard human supervision (regardless of whether or not passengers were present);
 - iii) without onboard human supervision (regardless of whether or not passengers were present);
 - iv) with passengers and with onboard human supervision; and
 - v) with passengers and without onboard human supervision.
 - f. By each discrete geographical ODD, number of ADS-commanded braking events that resulted in a peak deceleration magnitude exceeding 0.4g (3.924 m/s²) while operating on public roadways from June 1, 2021, through May 31, 2024, by month and year:
 - i) in total;
 - ii) with onboard human supervision (regardless of whether or not passengers were present);
 - iii) without onboard human supervision (regardless of whether or not passengers were present);
 - iv) with passengers and with onboard human supervision; and
 - v) with passengers and without onboard human supervision.
 - g. By each discrete geographical ODD, number of subject incidents from January 1, 2023, through May 31, 2024, by month and year:
 - i) in total;
 - ii) with onboard human supervision (regardless of whether or not passengers were present);
 - iii) without onboard human supervision (regardless of whether or not passengers were present);
 - iv) with passengers and with onboard human supervision; and
 - v) with passengers and without onboard human supervision.

3. For each subject incident that occurred during the period from January 1, 2023, through May 31, 2024, state the following information:
 - a. Zoox's file number or other identifier used;
 - b. The identification number for any related incident report submitted in response to Standing General Order 2021-01;
 - c. Vehicle identification number (17-character VIN);
 - d. Vehicle's ADS version at the time of the incident;
 - e. Incident date (MM/DD/YYYY) and local time;
 - f. Report date (MM/DD/YYYY);
 - g. Incident location (GPS coordinates);
 - h. Whether the subject vehicle was operating with or without onboard human supervision;
 - i. Whether a potential or actual collision was detected by the subject vehicle or subject system;
 - j. Whether a collision was verified;
 - k. Whether property damage is alleged;
 - l. Number of alleged injuries, if any;
 - m. Number of alleged fatalities, if any;
 - n. Peak magnitude of the subject vehicle's deceleration; and
 - o. Speed of the subject vehicle at the time braking was initiated.

4. For each incident within the scope of your response to Request No. 3, provide a summary description of the incident and identify causal and contributing factors, material underlying facts, as well as Zoox's assessment of the incident, with a summary of the significant underlying facts and evidence. This summary shall include but not be limited to:
 - a. How Zoox initially learned of the incident;
 - b. Number of passengers, if any;
 - c. Relative position and trajectory of any other road user that contributed to the incident;
 - d. Whether the subject vehicle and subject systems were operating within the specified ODD;
 - e. Whether the subject vehicle or any subject system was operating in a degraded state;
 - f. Cause(s) of any subject system disengagement, exit of the specified ODD, or degraded state(s);
 - g. Whether the subject system was returned to operation immediately;
 - h. If applicable, how the subject vehicle was removed from the scene of the incident;
 - i. whether, following the incident, the subject vehicle or any subject system was grounded from operation on public roadways;
 - j. Reason(s) for any grounding from operation on public roadways;
 - k. Any action(s) taken to return the subject vehicle or subject system to operation on public roadways; and
 - l. Any resulting actions taken that affected other subject vehicles or subject systems.

5. Separately, for each incident within the scope of your response to Request No. 3, provide a detailed timeline of events, beginning 30 seconds prior to the incident with time references for each entry, to include but not be limited to:

- a. The initiation of any turn, lane change, or lane merge by the subject vehicle and the completion of any such maneuver;
 - b. Any failure of the subject system;
 - c. Any visual or audible signal indicating a failure of the subject system provided to any onboard or remote ADS operator, including a description of each signal and how it was provided or displayed;
 - d. Any application of the service brakes on the subject vehicle by the subject systems, or by any onboard or remote ADS operator;
 - e. Any vehicle control commands or inputs by any onboard or remote ADS operator;
 - f. Any detection of a collision with another road user or structure (even if it was later verified that a collision did not occur);
 - g. Any activation of hazard lights;
 - h. Any initiation of communications between the subject vehicle, any onboard personnel, any passengers, any remote ADS operator, and/or local law enforcement;
 - i. The dispatch of any personnel to the incident location by or on behalf of Zoox;
 - j. The arrival of any personnel at the incident location dispatched by or on behalf of Zoox;
 - k. Any restoration of the subject system to operation; and
 - l. Any removal of the subject vehicle from the incident location such as by manual driving or towing.
6. Beginning 30 seconds prior to each incident, produce copies of all videos, graphical renderings of measured trajectories and predicted paths for each road user that influenced the subject system's decision to brake, the confidence or other statistical measures of the path predictions, event data recorder (EDR) or crash data recorder (CDR) data, and all relevant data logs with legends for interpretation related to each incident within the scope of Request No. 3. Describe in detail the search methods and search criteria used by Zoox to identify the incidents in response to Request No. 3.
7. Describe all assessments, analyses, tests, test results, studies, surveys, simulations, investigations, inquiries and/or evaluations (collectively, "actions") that relate to, or may relate to, the subject incidents that have been conducted, are being conducted, are planned, or are being planned by, or for, Zoox. For each such action, provide the following information:
- a. Action title or identifier;
 - b. The actual or planned start date;
 - c. The actual or expected end date;
 - d. Zoox's file number(s) or other identifier(s) used for any item(s) within the scope of your response to Request No. 3 related to this action;
 - e. Summary of the subject and objective of the action;
 - f. Engineering group(s)/supplier(s) responsible for designing and for conducting the action;
 - g. A description and values of all measures, metrics and criteria used to assess the safety, reliability, and prediction performance of the subject vehicles and subject systems, individually and in aggregate, operating with and without onboard human

- supervision; and
- h. A summary of the findings and/or conclusions resulting from the action.

For each action identified, provide copies of all documents related to the action, regardless of whether the documents are in interim, draft, or final form. Organize the documents chronologically by action.

8. Describe all modifications or changes made by, or on behalf of, Zoox in the design of the subject system, from initial date of operation on public roads, which relate to, or may relate to, the subject incidents. For each such modification or change, provide the following information:
- a. The date or approximate date on which the modification or change was incorporated into one or more vehicles in operation;
 - b. A detailed description of the modification or change;
 - c. The reason(s) for the modification or change;
 - d. The version of the subject system prior to modification;
 - e. The version of the modified subject system;
 - f. Whether the original unmodified subject system was withdrawn from operation, and if so, when; and
 - g. Whether the modified component can be interchanged with earlier versions.

Also, provide the above information for any modification or change that Zoox is aware of which may be incorporated into vehicles in operation within 120 days of any response to this request.

9. Describe each discrete geographical ODD(s) of the subject systems and all modifications or changes to each ODD and operational jurisdiction of the subject vehicles, from June 1, 2021 to date. Provide separately for vehicles operating with and without onboard human supervision. For each such modification or change, provide the following information:
- a. The date or approximate date on which the modification or change was incorporated into vehicles in operation;
 - b. A detailed description of the modification or change; and
 - c. The reason(s) for the modification or change.

Also, provide the above information for any ODD changes that Zoox is aware of which may be incorporated into vehicles in operation within the 120 days of any response to this request.

10. Describe and produce documents related to any policies, practices, processes, procedures, or safeguards (collectively, “actions”) which Zoox employs that are intended to identify, characterize, reduce, or mitigate the safety risks to passengers and other road users associated with risks arising from the subject incidents. This request includes any actions pertaining to the conditions under which subject vehicles are operated with and without onboard ADS operators.

11. Describe the subject system's design as it relates to:
 - a. Vehicle braking capabilities within the subject system's ODD(s) to include but not be limited to:
 - i) Minimum stopping distance from maximum operational speed;
 - ii) Maximum braking deceleration rate the ADS is capable of applying;
 - iii) Maximum braking deceleration rate of the vehicle;
 - iv) Any differences in (i), (ii), or (iii) for operations involving passengers.
 - b. Responding to a subject vehicle being approached, overtaken, or passed by another road user; and
 - c. Responding to fallback, minimal risk conditions, and failure mitigation strategies.

12. Describe and provide depictions of any labels on the exterior of the subject vehicles intended to notify other road users that the vehicle is an ADS-equipped vehicle or is operating with the ADS engaged.

13. Furnish Zoox's assessment of the subject incidents in the subject vehicles, including but not limited to:
 - a. The causal or contributory factor(s);
 - b. How braking performance in the subject incidents avoids and/or mitigates the severity of collisions; and
 - c. What warnings, if any, persons both inside and outside the vehicle would have that the subject incidents were occurring.

Legal Authority for This Request

This letter is being sent to Zoox pursuant to 49 U.S.C. § 30166, which authorizes NHTSA to conduct any investigation that may be necessary to enforce Chapter 301 of Title 49 and to request reports. It constitutes a new request for information.

Civil Penalties

Zoox's failure to respond promptly and fully to this letter could subject Zoox to civil penalties pursuant to 49 U.S.C. § 30165 or lead to an action for injunctive relief pursuant to 49 U.S.C. § 30163. (Other remedies and sanctions are available as well.) The Vehicle Safety Act, 49 U.S.C. § 30165(a)(3), provides for civil penalties of up to \$27,168 per violation per day, with a maximum of \$135,828,178 for a related series of daily violations, for failing or refusing to perform an act required under 49 U.S.C. § 30166. *See* 49 C.F.R. § 578.6(a)(3). This includes failing to respond completely, accurately, or in a timely manner to ODI information requests.

If Zoox cannot respond to any specific request or subpart(s) thereof, please state the reason why it is unable to do so. If on the basis of attorney-client, attorney work product, or other privilege, Zoox does not submit one or more requested documents or items of information in response to

this information request, Zoox must provide a privilege log identifying each document or item withheld, and stating the date, subject or title, the name and position of the person(s) from, and the person(s) to whom it was sent, and the name and position of any other recipient (to include all carbon copies or blind carbon copies), the nature of that information or material, and the basis for the claim of privilege and why that privilege applies.

Submission Instructions

If Zoox's response contains any information that you claim is confidential business information, Zoox must submit a request for confidential treatment directly to NHTSA's Office of the Chief Counsel by following the instructions in Enclosure 1, Information for Requests for Confidential Treatment. Please see Enclosure 1 for additional instructions on submitting a request for confidential treatment that is compliant with 49 C.F.R. Part 512 (specifically, a request for confidential treatment must include the four required parts that are discussed in enclosure 1).

In addition, if your response to this letter contains non-confidential information, you must request a secure electronic file transfer link from Paul Parker at paul.parker@dot.gov. This secure electronic file transfer link is only for your non-confidential response to this letter. Do not submit any information that you claim is confidential business information with your non-confidential submission. Please refer to PE240015 in Zoox's response to this letter and in a request for confidential treatment that Zoox may submit.

Due Date

Zoox's response to this letter must be submitted to this office by **July 12, 2024**. If Zoox finds that it is unable to provide all of the information requested within the time allotted, Zoox must request an extension from me at (202) 366-5864 no later than five business days before the response due date. If Zoox is unable to provide all of the information requested by the original deadline, it must submit a partial response by the original deadline with whatever information Zoox then has available, even if an extension has been granted.

If you have any technical questions concerning this matter, please call Paul Parker of my staff at (202) 366-6572.

Sincerely,

Scott Simmons

Scott Simmons, Chief
Advanced and Emerging Technologies Division
Office of Defects Investigation

Enclosure 1, Information for Requests for Confidential Treatment.

ENCLOSURE 1 – INFORMATION FOR REQUESTS FOR CONFIDENTIAL TREATMENT

If you believe that your response contains any material that you claim is confidential business information, submit these materials to NHTSA’s Office of the Chief Counsel in accordance with 49 C.F.R. Part 512. **All requests for confidential treatment must be submitted directly to the Office of the Chief Counsel. Upon request, ODI will provide you with a secure file transfer link for your submission to the Office of the Chief Counsel.**

Requests for confidential treatment are governed by Part 512. A current version of this regulation is available on the internet at <http://www.ecfr.gov> by selecting Title 49 “Transportation,” selecting “Parts 500 – 599” and then selecting Part 512 “Confidential Business Information.”

How to request confidential treatment:

NHTSA is currently treating electronic submission as an acceptable method for submitting confidential business information to the agency under Part 512. If you claim that any of the information or documents provided in your response constitutes confidential business information within the meaning of 5 U.S.C. § 552(b)(4), or are protected from disclosure pursuant to 18 U.S.C. § 1905, you must request a secure file transfer link from the ODI contact listed in your Information Request. ODI will copy a representative from the Office of the Chief Counsel on the secure file transfer link for your request for confidential treatment. You must submit supporting information together with the materials that are the subject of the confidentiality request, in accordance with Part 512, to the Office of the Chief Counsel. Do not send a hardcopy of a request for confidential treatment to NHTSA’s headquarters.

Your request must include a request letter that contains supporting information, pursuant to Part 512.8. Your request must also include a certificate, pursuant to Part 512.4(b) and Part 512, Appendix A.

You are required to submit one unredacted “confidential version” of the information for which you are seeking confidential treatment. Pursuant to Part 512.6, the words “ENTIRE PAGE CONFIDENTIAL BUSINESS INFORMATION” or “CONFIDENTIAL BUSINESS INFORMATION CONTAINED WITHIN BRACKETS” (as applicable) must appear at the top of each page containing information claimed to be confidential. In the latter situation, where not all information on the page is claimed to be confidential, identify each item of information for which confidentiality is requested within brackets: “[].”

You are also required to submit one redacted “public version” of the information for which you are seeking confidential treatment. Pursuant to Part 512.5(a)(2), the redacted “public version” should include redactions of any information for which you are seeking confidential treatment (i.e., the only information that should be unredacted is information for which you are **not** seeking confidential treatment).

For questions about a request for confidential treatment, please contact Dan Rabinovitz in the Office of the Chief Counsel at Daniel.Rabinovitz@dot.gov or (202)366-8534.