



Emily Frascaroli, Global Director
Automotive Safety Office
Sustainability, Environment, & Safety Engineering

Fairlane Plaza South, Suite 400
330 Town Center Drive
Dearborn, MI 48126-2738

September 21, 2022

Ann Carlson
Acting Administrator
National Highway Traffic Safety Administration
1200 New Jersey Avenue S.E., West Building
Washington D.C. 20590-0001

RE: Ford Motor Company-Receipt of Petition for Temporary Exemption From Various Requirements of the Federal Motor Vehicle Safety Standards for an Automated Driving System-Equipped Vehicle (Docket No. NHTSA-2022-0066)

Dear Acting Administrator Carlson:

Ford Motor Company (Ford), a domestic manufacturer and importer of motor vehicles with offices at One American Road, Dearborn, Michigan 48126-2798, submits the following response to the National Highway Traffic Safety Administration's ("NHTSA") *Notice of receipt of petition for temporary exemption; request for public comment*, regarding Docket No. NHTSA-2022-0066.¹

Ford appreciates NHTSA's consideration of the exemption petition and the effort put into the thoughts and perspectives contained within the notice. Given that the 49 C.F.R. Part 555 temporary exemption process is the only current means by which Ford can deploy a non-conforming automated driving system ("ADS")-equipped vehicle for commercial purposes, Ford thanks NHTSA for evaluating how this process can best be used to realize the benefits of autonomous vehicles ("AVs"). As Ford and others in the industry seek to deliver on the potential safety benefits and transformative nature of this technology, these initial deployments will provide critical learnings for industry, government, and the public that will in turn accelerate progress toward the next phase of our country's transportation system. For these reasons, Ford urges NHTSA to grant its petition.

Ford is a member of both the Alliance for Automotive Innovation ("Innovators") and the Autonomous Vehicle Industry Association ("AVIA") and participated in the development of their respective responses to the request for comments. The responses herein supplement those provided by the Innovators and AVIA.

¹ Ford Motor Company-Receipt of Petition for Temporary Exemption From Various Requirements of the Federal Motor Vehicle Safety Standards for an Automated Driving System-Equipped Vehicle:
<https://www.govinfo.gov/content/pkg/FR-2022-07-21/pdf/2022-15556.pdf>

Ford's Purpose and AV Exemption Request

Ford Motor Company was built on the belief that freedom of movement drives human progress, and it is that belief that has always fueled the passion to create great cars and trucks. That same belief drives our purpose to help build a better world, where every person is free to move and pursue their dreams.

Ford is investing in an autonomous future and working to provide mobility solutions for transportation challenges affecting diverse communities across the country and around the world. As autonomous vehicles scale and the technology matures, the potential benefits include a reduction in crashes resulting from distracted driving and human error, expanded mobility options, and more efficient transportation. In pursuit of these benefits, Ford has continued its efforts to safely develop and introduce SAE Level 4²-capable ADS-equipped vehicles for commercial applications and mobility services. Ford appreciates NHTSA's and the U.S. Department of Transportation's ("USDOT") continued leadership and efforts to promote the safe testing and deployment of AVs.

Safety is paramount for the future of transportation as a whole, with preliminary estimates from NHTSA's May 17, 2022 report indicating traffic fatalities reached a 16-year high in 2021.³ AVs are expected to be a key component of that future state, ideally reducing the impacts of human error and driver distraction during the driving task and making the roads safer for all. While the industry ultimately targets SAE Level 5 automated technology that can address all roadway situations and operate anywhere, there are opportunities for safe deployments of SAE Level 4 ADS-equipped vehicles with restricted operational design domains (ODDs) on the roads today. The chance to expand these early deployments and obtain a greater understanding of how these vehicles can serve the transportation system should not be delayed in the interim.

Ford believes the first implementation of this technology will be AVs employed to transport passengers and goods through a Transportation-as-a-Service ("TaaS") model. Ford, along with Argo AI, is actively testing ADS-equipped vehicles with safety drivers in multiple pilot cities, in part to build trust by making the public more familiar with ADS-equipped vehicles. In addition to building trust through these deployments, Ford's ability to assess the competency of these ADS-equipped vehicles improves with increased exposure to the design intended ODD. Current AV testing and pilot locations, along with other details, are provided through Argo AI on the AV TEST platform⁴ launched by the agency.

NHTSA has long recognized that vehicles with unconventional designs (e.g., lack of traditional driver controls) may necessitate exemptions from certain Federal Motor Vehicle Safety Standards (FMVSS) to enable vehicle deployment. To enable safe, driverless deployments, the ADS must be capable of completing the entire driving task without the need for controls and displays that are normally required for a human driver. Ford therefore asks that NHTSA continue the work initiated with the *Removing Regulatory Barriers for Automated Driving Systems* ANPRM⁵ to remove the regulatory barriers for ADS-

² Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles J3016_202104: https://www.sae.org/standards/content/j3016_202104

³ Newly Released Estimates Show Traffic Fatalities Reached a 16-Year High in 2021: <https://www.nhtsa.gov/press-releases/early-estimate-2021-traffic-fatalities#:~:text=Preliminary%20data%20reported%20by%20the,from%201.34%20fatalities%20in%202020>.

⁴ AV TEST Initiative: <https://www.nhtsa.gov/automated-vehicle-test-tracking-tool>

⁵ Removing Regulatory Barriers for Vehicles With Automated Driving Systems: <https://www.federalregister.gov/documents/2019/05/28/2019-11032/removing-regulatory-barriers-for-vehicles-with-automated-driving-systems>

equipped vehicles without manual controls. Ford further encourages NHTSA to continue progressing pending AV-related rulemakings, such as the pre-rulemaking efforts on the *Considerations for Telltales, Indicators and Warnings in Vehicles Equipped With Automated Driving Systems*.⁶

Ford appreciates NHTSA's recent *Notice Regarding the Applicability of NHTSA FMVSS Test Procedures to Certifying Manufacturers* (Google reinterpretation)⁷ and the Final Rule for *Occupant Protection for Vehicles With Automated Driving Systems*,⁸ which have provided needed clarity and addressed some of the compliance barriers. Even with the added perspective of this recent NHTSA guidance and rulemaking, there are still marked differences in the approaches amongst AV manufacturers and developers regarding regulatory compliance and the need for exemptions.^{9 10 11} Ford therefore encourages NHTSA to continue to clarify the barriers for varying AV designs and the compliance pathways for ADS-equipped vehicles through published guidance and additional rulemaking.

In the interim, Part 555 exemptions are necessary to provide relief from current compliance barriers that require human-based driver controls and information. These exemptions enable an AV to be designed in a way that minimizes the potential for human occupant error and interference in the automated driving task. As outlined in the Ford petition, the Ford ADS replaces the need for a human driver and ensures the safety intent and vehicle-level performance of the exempted regulations are satisfied.

Ford's Response to NHTSA's Request for Comment

In 2021, NHTSA issued Standing General Order (SGO) 2021-01 - *Incident Reporting for Automated Driving Systems (ADS) and Level 2 Advanced driver Assistance Systems (ADAS)* in July of 2021.¹² When the SGO was issued, NHTSA noted that its crash-reporting requirements "will enable NHTSA to collect information necessary for the agency to play its role in keeping Americans safe on the roadways, even as the technology deployed on the nation's roads continues to evolve."¹³ With the SGO, NHTSA has a means of gathering information from both exempted vehicles and non-exempt vehicles, which provides the agency

⁶ Considerations for Telltales, Indicators and Warnings in Vehicles Equipped With Automated Driving Systems: <https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=202204&RIN=2127-AM07>

⁷ Notice Regarding the Applicability of NHTSA FMVSS Test Procedures to Certifying Manufacturers: <https://www.federalregister.gov/documents/2020/12/21/2020-28107/notice-regarding-the-applicability-of-nhtsa-fmvss-test-procedures-to-certifying-manufacturers>

⁸ Occupant Protection for Vehicles With Automated Driving Systems – Final Rule: <https://www.govinfo.gov/content/pkg/FR-2022-03-30/pdf/2022-05426.pdf>

⁹ Zoox: The next step on our journey to public roads: <https://zoox.com/journal/self-certification/>

¹⁰ General Motors-Receipt of Petition for Temporary Exemption From Various Requirements of the Federal Motor Vehicle Safety Standards for an Automated Driving System-Equipped Vehicle: <https://www.federalregister.gov/documents/2022/07/21/2022-15557/general-motors-receipt-of-petition-for-temporary-exemption-from-various-requirements-of-the-federal>

¹¹ Ford Motor Company-Receipt of Petition for Temporary Exemption From Various Requirements of the Federal Motor Vehicle Safety Standards for an Automated Driving System-Equipped Vehicle: <https://www.federalregister.gov/documents/2022/07/21/2022-15556/ford-motor-company-receipt-of-petition-for-temporary-exemption-from-various-requirements-of-the>

¹² Standing General Order on Crash Reporting: <https://www.nhtsa.gov/laws-regulations/standing-general-order-crash-reporting>

¹³ NHTSA Orders Crash Reporting for Vehicles Equipped with Advanced Driver Assistance Systems and Automated Driving Systems: <https://www.nhtsa.gov/press-releases/nhtsa-orders-crash-reporting-vehicles-equipped-advanced-driver-assistance-systems>

with a more comprehensive assessment of the entire AV industry rather than only the limited few manufacturers and developers that seek exemptions. Because incidents of interest must already be reported per the SGO, Ford believes that these existing SGO crash-reporting requirements, together with NHTSA's statutory defect investigation authority under 49 U.S.C. 30166, provide the agency with the information and authority it needs to provide appropriate oversight over vehicles for which the exemption is being requested, without introducing unnecessary burden on Ford or the agency. To the extent NHTSA is inclined to include similar crash reporting requirements in a grant of the petition, Ford suggests that these requirements should mirror the SGO crash reporting requirements and explicitly provide that a report filed under the SGO satisfies these requirements to avoid potentially confusing, duplicative reporting requirements

Beyond the traditional safety elements in the agency's request for comment, NHTSA's notice requested commentary on the agency's broad authority and the use of Part 555 exemptions to leverage learnings on ADS-equipped vehicles. The inquiries included questions regarding overall safety of the transportation system and other elements such as technological innovation, transportation accessibility and equity, economic impacts, and environmental effects. As described above, ADS-equipped vehicles are expected to be transformational for the transportation system as they reach scale, and the technology continues to mature. In these early stages however, the public interest may be best served by enabling AV developers to learn how to integrate novel AVs into the transportation system while maturing and enhancing their ADS capabilities. Requiring significant reporting on the many diverse effects of the exemption before the necessary learnings take place may introduce additional challenges that stifle the development of these vehicles and shift the focus from the efforts to deliver the near-term safety benefits of the technology.

Currently, Ford's hybrid-electric vehicle (HEV) platform provides needed flexibility in Ford's goal of continuous, rapid improvement of the ADS technologies while also enabling broader deployment across geographic and socio-economic ODDs. Ford does not anticipate long-term usage of the HEV platform for level 4+ ADS deployments. In fact, as referenced in the 2022 Ford Integrated Sustainability and Financial Report,¹⁴ Ford has an aspirational target where 50% of Ford Global sales will be Electric Vehicles (EV) by 2030. In addition, Ford has joined the RouteZero initiative to work towards 100% zero-emission cars and vans globally by 2040, and by 2035 in leading markets such as the US.¹⁵ In addition to significant battery electric investments in manufacturing facilities in Kentucky and the Blue Oval City in Tennessee,¹⁶ Ford has also invested over \$500 Million in the U.S. to train skilled technicians to service connected, electric zero-emission vehicles.

Ford believes that further development and evaluation of SAE Level 4 ADS-equipped vehicles through the granting of exemptions is a key component to expanding mobility options and promoting a society where Diversity, Equity, and Inclusion (DEI) are valued. Ford is "committed to building an equitable future: Access to mobility is a fundamental necessity and human right for all people – regardless of age, ability, race,

¹⁴ 2022 Ford Integrated Sustainability and Financial Report:

<https://corporate.ford.com/content/dam/corporate/us/en-us/documents/reports/integrated-sustainability-and-financial-report-summary-2022.pdf>

¹⁵ Ford Statements on Signing the Ambitions RouteZero Initiative at COP26:

<https://media.ford.com/content/fordmedia/feu/en/news/2021/11/10/ford-statements-on-signing-the-ambitious-routezero-initiative-at.html>

¹⁶ Ford to Lead America's Shift to Electric Vehicles With New Mega Campus in Tennessee and Twin Battery Plants in Kentucky; \$11.4b Investment to Create 11,000 Jobs and Power New Lineup of Advanced EVs:

<https://media.ford.com/content/fordmedia/fna/us/en/news/2021/09/27/ford-to-lead-americas-shift-to-electric-vehicles.html>

gender or economic status. Building on Henry Ford's original vision of providing affordable transportation for everyone, today we continue to aspire to make people's lives better by improving mobility and accessibility for all in an equitable way by partnering and working closely with cities and government agencies; incorporating equitable mobility in our own products and services; and most importantly being an advocate."¹⁷ Ford supports encouraging communities to invest more in underserved areas so that ADS-equipped vehicles are better able to assist and address the needs of those that are disadvantaged. Ford also believes that learnings from the early deployments proposed by Ford and others in the industry will further these goals by identifying unexpected issues and informing long-term solutions to help ensure that the benefits of this technology are available to and realized by all.

Seeking NHTSA's Approval of the Petition

Ford's primary focus is on the safety of our customers and the quality of our products. NHTSA's exemption petition notice, thoughtful generation of comments and questions, and anticipated grant of the petition serve as important steps toward the deployment of this technology. Continuing to move this technology forward in a deliberate and safe manner supports the transformation of the transportation system to improve safety for all Americans.

Ford thanks NHTSA for its consideration of its petition and the opportunity to provide comments on the questions that were raised within the notice. Ford looks forward to collaborating with the agency to realize the safety and societal benefits of this technology. If there are questions regarding these comments, please contact Anthony Smith (email: asmit685@ford.com or phone: 313-845-2408).

Sincerely,



Emily Frascaroli

¹⁷ Page 20, Transportation Equity: Ford's Response to USDOT's Request for Transportation Equity Data Perspectives:
https://d2msbjewvfmcd5.cloudfront.net/Ford+Response_USDOT+Transportation+Equity+Data+RFI_vPosted+072621.pdf