

FORD MOTOR COMPANY (FORD) RESPONSE TO PE24-012 Request 17Request 17

Furnish Ford's assessment of the performance of the subject system in the subject crashes, including:

- a. The causal or contributory factor(s);
- b. The failure mechanism(s), if any;
- c. The failure mode(s), if any; and
- d. The risk to motor vehicle safety that they pose.

In addition to responses to each subsection of the above request, provide copies of all documents that Ford used to form all portions of its assessment, regardless of whether the documents are in interim, draft, or final form.

Subject System: All hardware, software, data, and any other related systems that contribute to the performance of any partial driving automation feature that offers lane and speed maintenance equipped on any Ford or Lincoln vehicle, including but not limited to BlueCruise.

Subject Crashes: Incidents in which any subject or peer vehicle experiences a crash, regardless of fault/cause, in the United States (including any of its territories) with the subject system actually or allegedly engaged at any time during the period beginning 30 seconds immediately prior to the commencement of the crash.

Answer:

In the following response, Ford has interpreted the term "failure" in Request 17 as consistent with the definition of "system failure" in SAE J3016:¹

A malfunction in a driving automation system and/or other vehicle system that prevents the driving automation system from reliably performing its portion of the [dynamic driving task] on a sustained basis, including the complete [dynamic driving task], that it would otherwise perform.

SAE J3016 at ¶ 3.17.

Consistent with the definition of subject crashes, Ford has included in its response incidents in which there was an allegation that a subject system was engaged "at any time during the period beginning 30 seconds immediately prior to the commencement of the crash." By including these incidents, Ford is not confirming or agreeing with the allegation that the subject system was engaged during this period.

For those incidents involving a vehicle not equipped with BlueCruise where the subject system was the actual or reported combination of Adaptive Cruise Control (ACC) and Lane Centering Assist (LCA), Ford has no practical means of confirming whether the subject system was in fact engaged short of gaining physical access to the subject vehicle (which typically requires consent from the vehicle owner, a search warrant or other legal authority) and downloading

¹ SAE International Recommended Practice, Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles, SAE Standard J3016_202104, Revised April 2021, Issued January 2014 ("SAE J3016").

event data recorder (EDR) data from various modules. Even with this access, the data may have been destroyed during the crash, overwritten after the crash, or otherwise be unavailable.

For those incidents where the subject system was actual or reported use of BlueCruise, Ford may be able to use connected vehicle data to help determine whether the subject system was engaged. Data collection is intended to occur regardless of the feature status and regardless of whether the vehicle is in a hands-free zone (a "Blue Zone") on all BlueCruise equipped vehicles where the customer has given consent and where the vehicle has functional connectivity to be able to receive the request and transmit a response. To positively confirm or refute an allegation of engagement, however, Ford needs to gain physical access to the vehicle and download EDR data from various modules. Even with this access, the data may have been destroyed during the crash, overwritten after the crash, or otherwise be unavailable.

BlueCruise is a safe Level 2 driving assistance feature when used responsibly and consistent with the written instructions and warnings provided by Ford in the vehicle owner's manual and the visual and audible alerts provided to the driver by the vehicle. The careful, deliberate process through which Ford developed and validated BlueCruise before it was released speaks volumes about Ford's commitment to delivering a safe product for its customers. Ford released BlueCruise after extensive development and validation. Robust internal and external requirements, regulations, and engineering processes were all considered and applied where applicable. In developing BlueCruise, Ford utilized its Global Product Development System deliverables and sign-off of structured validation. Before releasing BlueCruise, Ford also completed over one million miles of North American roadways driving and used this unstructured testing in a further attempt to identify real world edges cases.

Since BlueCruise was first introduced in 2020, Ford customers in North America have driven over 224 million miles with BlueCruise engaged. Despite this extensive use, Ford is aware of only two incidents involving BlueCruise that involved injuries or fatalities. In one of these incidents (SGO Report 502-7268), the driver ignored repeated visual and audible alerts to "watch the road" and decided instead to continue driving while distracted or inattentive, with their eyes focused away from the road. In the other incident (SGO Report 502-7426), the driver chose to ignore these same alerts and continue to drive while distracted, inattentive, and/or impaired, while apparently focusing their attention on an electronic device rather than the road ahead.

A Level 2 driver assistance system like BlueCruise has a clearly defined role -- when engaged, it must perform part of the dynamic driving task by executing both the lateral and longitudinal vehicle motion control subtasks, and it must disengage immediately upon the driver's request. SAE J3016 at Table 2. BlueCruise performs each of these tasks safely and effectively. The driver operating a vehicle with BlueCruise engaged likewise has a clearly defined role and specific responsibilities -- they must, "at all times":

- Supervise the driving automation system and intervene as necessary to maintain operation of the vehicle;
- Determine whether/when engagement or disengagement of the driving automation system is appropriate; and
- Immediately perform the entire dynamic driving task whenever required or desired.

SAE J3016 at Table 2. Put simply, the BlueCruise driver must remain engaged with the driving task, keep their eyes on the road ahead, and always be prepared to intervene and resume control of the vehicle.

Consistent with these clearly defined roles and responsibilities, Ford carefully and thoughtfully designed and developed BlueCruise with unique features and cutting-edge technology to help keep drivers attentive and alert while engaged in hands-free driving and to help prevent misuse or abuse of the feature. For example, Ford designed BlueCruise to be functional only in its intended operating domain (currently, pre-selected limited access highways) to avoid improper use on unapproved roads. Ford also developed a graphic interface that “clearly conveys when hands-free driving is permissible.” *Ford’s BlueCruise Remains CR’s Top-Rated Active Driving Assistance System*, CONSUMER REPORTS (Oct. 17, 2023). Each time a driver initially engages BlueCruise after a key cycle, they are immediately provided with a message stating “BlueCruise ON, Watch the Road, Be Prepared to Resume Control.” This message remains prominently displayed for the driver on the instrument cluster for 10 seconds unless the driver acknowledges it by pressing “ok.”

Even more importantly, Ford designed BlueCruise with a driver-facing infrared camera that tracks the driver’s eye gaze and head position to help drivers remain alert and fulfill their driving responsibilities. With the aid of this camera, BlueCruise provides visual and audible alerts for the driver to “watch the road” if it detects that the driver is looking away from the road ahead for an extended period. If the driver fails to return their focus to the road ahead, BlueCruise initiates an escalating mitigation strategy that culminates with a slowly moving or stopped vehicle that stays in the lane of travel. When BlueCruise is engaged, it also prompts the driver, in advance of challenging scenarios such as tight curves, to place their hands back on the steering wheel and be ready to steer if needed. As noted by Consumer Reports, Ford’s inclusion of this camera-based driver monitoring system places “Ford’s BlueCruise . . . far above the competition when it comes to keeping the driver engaged.” CONSUMER REPORTS (Oct. 17, 2023).

Ford also includes extensive information, instructions, and warnings in the vehicle owner’s manual to help ensure that operators understand their role and responsibilities when driving with BlueCruise engaged. Additional information, warnings, and instructions are provided regarding other features such as Adaptive Cruise Control (ACC), Lane Centering Assist (LCA), and Forward Collision Warning (FCW). With respect to BlueCruise, much of this information and many of the instructions and warnings specifically address the driver’s responsibility to stay alert and attentive and always being prepared to resume control of the vehicle:

 **WARNING:** You are responsible for keeping your eyes on the road at all times. The system is designed to be an aid and does not relieve you of your responsibility to drive with due care and attention. Failure to follow this instruction could result in the loss of control of your vehicle, personal injury or death.

 **WARNING:** You are responsible for controlling your vehicle at all times. The system is designed to be an aid and does not relieve you of your responsibility to drive with due care and attention. Failure to follow this instruction could result in the loss of control of your vehicle, personal injury or death.



BlueCruise - Vehicles With: Hands Free Driving

WHAT IS BLUECRUISE

BlueCruise keeps your vehicle centered in the lane and offers a hands-free driving mode in certain situations when using adaptive cruise control.

HOW DOES BLUECRUISE WORK

BlueCruise uses cameras to monitor your vehicle position within a lane and applies steering support to keep your vehicle centered in the lane.

Using the cameras and location information, BlueCruise allows you to remove your hands from the steering wheel and offers a hands-free driving mode in certain areas.

When active, BlueCruise uses a driver facing camera and infrared lighting to monitor your eyes and head position to detect if you are distracted. If the system determines you are distracted, it alerts you to return your eyes back to the road.



A Camera and lighting areas.

Note: When BlueCruise is active, in certain crash or near crash-like situations, such as an air bag deployment or hitting a road obstacle, camera data may record through the vehicle event data recorder. See **Event Data** (page 22).

Note: No data records under normal driving conditions.

BLUECRUISE PRECAUTIONS

WARNING: You are responsible for keeping your eyes on the road at all times. The system is designed to be an aid and does not relieve you of your responsibility to drive with due care and attention. Failure to follow this instruction could result in the loss of control of your vehicle, personal injury or death.

WARNING: You are responsible for controlling your vehicle at all times. The system is designed to be an aid and does not relieve you of your responsibility to drive with due care and attention. Failure to follow this instruction could result in the loss of control of your vehicle, personal injury or death.

WARNING: Obstructions to the driver facing camera or infrared lighting could prevent the system from properly operating. Keep the camera and lighting areas free from obstruction. Failure to follow this instruction could result in the loss of control of your vehicle, personal injury or death.

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2022 Mustang Mach-E (CICW) Canada/United States of America, en/USA, Edition date: 2023/09, First Printing

BlueCruise - Vehicles With: Hands Free Driving

WARNING: Do not use the system if any changes or modifications to the steering wheel have been made. Any changes or modifications to the steering wheel could affect the functionality or performance of the system. Failure to follow this instruction could result in the loss of control of your vehicle, personal injury or death.

WARNING: The system may not function if the sensor is blocked.

WARNING: Pay close attention to changing road conditions such as entering or leaving a highway, on roads with intersections or roundabouts, roads without visible lanes of travel, roads that are winding, slippery, unpaved, or steep slopes.

WARNING: The system is not a crash warning or avoidance system.

WARNING: Large contrasts in outside lighting can limit sensor performance.

WARNING: The system attempts to keep your vehicle in the center of the lane as well as maintain speed and gap control. The system may not be able to perform these tasks in all situations. Do not use the system in complex or uncertain driving conditions. Failure to follow this instruction could result in the loss of control of your vehicle, personal injury or death.

WARNING: Your vehicle could drift out of the lane of travel. Always be prepared to manually steer your vehicle. Failure to follow this instruction could result in the loss of control of your vehicle, personal injury or death.

WARNING: The system will not operate if the sensor cannot track the road lane markings.

BLUECRUISEREQUIREMENTS

BlueCruise only activates when all of the following occur:

- BlueCruise is enabled in your information and entertainment screen. See **BlueCruise Settings** (page 237).
- Adaptive cruise control is on.
- The system detects both lane markings.
- Your hands are on the steering wheel.
- Your eyes are on the road.

Note: For hands-free mode to work, your vehicle must be on certain limited access divided freeways.

Note: The system may require updated software for hands-free mode. See **Vehicle System Updates** (page 367).

BLUECRUISE LIMITATIONS

Any of the following conditions could result in BlueCruise not correctly operating:

- You do not have your vehicle centered in the lane.
- The lane is too narrow or too wide.
- The system does not detect at least one lane marking or when lanes merge or split.
- You are applying a low amount of steering input.
- You are using the system in areas under construction.
- If you make any aftermarket modifications to the steering system.
- You are using a spare tire.

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2022 Mustang Mach-E (CICW) Canada/United States of America, en/USA, Edition date: 2023/09, First Printing

Separate from the owner's manual, Ford provides its customers with a wide variety of videos and instructional information through its website, social media, and other channels. Much of this information is being produced in response to Requests 12 and 13.

Ford has identified the following subject crashes and provides below its assessment of the crashes and the performance of the subject system in the subject crashes.

A. SGO Report 502-7268

Incident Date: Feb. 24, 2024

Location: San Antonio, Texas

Subject Vehicle: 2022 Ford Mustang Mach-E

1. Summary of the Subject Crash

Investigation into this subject crash continues, and this response is based on information currently in Ford's possession.

This incident involved a high-speed, night-time, rear-end collision between the subject vehicle, which was being operated in BlueCruise hands free mode and traveling at a speed of more than 70mph, and a stationary, dull black 1999 Honda CRV, which lacked any vehicle lights and was disabled in same lane of travel as the subject vehicle. Based

upon available information, it appears that the driver of the subject vehicle was inattentive and/or distracted and ignored multiple alerts, instructions, and warnings from the vehicle and in the owner's manual to remain alert, keep their eyes on the road, and always be prepared to resume control of the vehicle while operating in BlueCruise hands free mode.

Data from the Mach-E involved in the San Antonio crash shows the driver received repeated warnings to "watch the road" in the 30 seconds prior to the crash and that he nonetheless was looking away from the road for at least 4 of the 5 seconds immediately preceding the crash. These data are reflected in the following chronology:

9:47:52 pm	Eyes off road and not on cluster
9:47:57	Visual and audible eyes off alert given 29 seconds prior to EDR trigger
9:48:01	Eyes returned to the road clearing the alert
9:48:02 - 9:48:12	No Carmon triggers received - eyes did not leave the road for >5 seconds
9:48:13	Eyes off road and not on cluster
9:48:18	Visual and Audible eyes off alert given 8 seconds prior to EDR trigger
9:48:20	Eyes returned to the road clearing the warning
9:48:21 - 9:48:26	EDR data available – eyes off road for at least 4 of 5 seconds
9:48:26	Collision trigger occurs

Ford is also informed that a third vehicle, which was traveling between the subject vehicle and the Honda CRV at some point before the collision, may have created a late reveal scenario that effectively concealed the unlit, dull black Honda CRV from the subject vehicle driver and vehicle sensors for some time before the collision.

The driver of the Honda CRV died following the crash. The driver of the subject vehicle incurred minor injuries.

2. *The Subject System*

The subject vehicle was equipped with BlueCruise, which was engaged in hands free mode at the time of the incident.

3. *Ford's Assessment of the Subject System in the Subject Crash*

Based on currently available information, Ford's assessment of this subject crash is that the primary cause was the inattention and/or distraction of the driver of the subject vehicle and their failure to remain alert, keep their eyes on the road, and always be prepared to resume control of the vehicle while operating in BlueCruise hands free mode. While using a Level 2 system like BlueCruise, the driver is responsible, "at all times," for "supervis[ing] the driving automation system and interven[ing] as necessary to maintain operation of the vehicle." SAE J3016 at Table 2. Despite repeated alerts in the 30 seconds leading up to the crash, the driver of the subject vehicle failed to perform this necessary task and was driving while inattentive and/or distracted. Under these

circumstances, Ford's assessment is that the subject system performed as designed and that there was no failure of the subject system in the subject crash.

- a. The causal or contributory factors
Driver inattention or distraction
Potential late reveal scenario
Disabled, unlit vehicle on roadway in path of travel
Ambient lighting conditions
- b. The failure mechanism(s), if any
Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.
- c. The failure mode(s) if any
Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.
- d. The risk to motor vehicle safety that [the failure mode(s)] pose
Not applicable. Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder **SGO Report 502-7268**.

B. SGO Report 502-7426

Incident Date: March 3, 2024

Location: Philadelphia, Pennsylvania

Subject Vehicle: 2022 Ford Mustang Mach-E

1. *Summary of the Subject Crash*

Investigation into this subject crash continues, and this response is based on information currently in Ford's possession.

This subject crash involved a high-speed, night-time, rear-end collision between the subject vehicle, which was being operated in BlueCruise hands free mode and traveling at a speed of more than 70mph in a construction zone (where the speed limit was 45mph), and a stationary 2012 Hyundai Elantra, which may have lacked vehicle lights and was stopped partially in the same lane of travel. The initial collision between the subject vehicle and the Hyundai Elantra pushed the Hyundai Elantra into a 2006 Toyota Prius, which was disabled in the roadway in front of the Hyundai Elantra.

Based upon available information, it appears that the driver of the subject vehicle was inattentive, and/or distracted, and/or impaired and likely was viewing some type of electronic device before and at the time of the crash. Data from the subject vehicle shows that the driver received a warning to "watch the road" 26 seconds before the crash. An image retrieved from the vehicle shows that they may have been attempting to

defeat the functionality of the BlueCruise driver facing camera by holding an electronic device (possibly a cell phone) directly in front of them and above the steering wheel shortly before and at the time of the crash. This would have created the false impression that their eyes and attention were focused on the road when in fact their attention was focused on the device. In doing so, the driver ignored multiple instructions and warnings from the vehicle and in the owner's manual to remain alert, keep her eyes on the road, and always be prepared to resume control of the vehicle while operating in BlueCruise hands free mode. In addition, the driver also was traveling through the construction zone at a speed at least 25mph more than the posted speed limit.

The driver also appears to have been intentionally abusing the BlueCruise system by holding a device above the steering wheel in a manner that purposefully prevented the driver facing camera from determining that their eyes were focused on the device rather than the road ahead. These actions suggest that the driver was aware of their responsibility to stay alert and remain focused on the road ahead, but made the decision, not just to drive while potentially impaired, not just to drive through a construction zone at more than 30mph above the speed limit, but also to intentionally abuse the BlueCruise system and ignore their responsibility, thereby putting themselves and others at significant risk.

Ford is informed that, following the crash, the driver of the subject vehicle admitted to consuming alcoholic beverages prior to driving and consented to a Preliminary Breath Test, which was positive for the presence of alcohol. Ford is also informed that there is a pending criminal investigation regarding the driver relating to charges of homicide by vehicle while driving under influence.

The driver of the Hyundai Elantra and driver of the Toyota Prius, both of whom had exited or were exiting their vehicles, were both fatally injured. The driver of the subject vehicle incurred minor injuries.

2. The Subject System

The subject vehicle was equipped with BlueCruise, which was engaged in hands free mode at the time of the incident.

3. Ford's Assessment of the Subject System in the Subject Crash

Based on currently available information, Ford's assessment of this subject crash is that the primary cause(s) were the driver's intentional abuse of the system, the driver's inattention and/or distraction and/or potential impairment, the excessive speed of the subject vehicle and the driver's failure to remain alert, keep their eyes on the road, and always be prepared to resume control of the vehicle while operating in BlueCruise hands free mode. While using a Level 2 system like BlueCruise, the driver is responsible, "at all times," for "supervis[ing] the driving automation system and interven[ing] as necessary to maintain operation of the vehicle." SAE J3016 at Table 2. Despite alerts, the driver of the subject vehicle failed to perform this necessary task and was driving while inattentive, distracted, and/or impaired and at an excessive speed. Under these circumstances, Ford's assessment is that the subject system performed as designed and that there was no failure of the subject system in the subject crash.

- a. The causal or contributory factors
Driver inattention or distraction
Potential driver impairment
Potential intentional driver abuse of BlueCruise driver monitoring system
Excessive speed
Fully stopped, potentially unlit vehicle partially in path of travel on curved roadway
- b. The failure mechanism(s), if any
Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.
- c. The failure mode(s) if any
Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.
- d. The risk to motor vehicle safety that [the failure mode(s)] pose
Not applicable. Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder **SGO Report 502-7426**.

C. SGO Report 502-1470

Incident Date: Sept. 14, 2021

Location: Forsyth, Georgia

Subject Vehicle: 2021 Ford F-150

1. *Summary of the Subject Crash*

The son of the driver of the subject vehicle (who was not in the subject vehicle when the incident occurred) reported that the vehicle was being operated at 75-80mph in "self-driving mode" when the steering wheel locked, causing the driver to lose control of the vehicle and crash into an exit sign on the interstate. The driver's son reported that the vehicle then accelerated uncontrollably for 260 yards and crashed into a tree where it came to a stop.

Additional investigation shows that the subject vehicle was traveling at 77mph with some form of cruise control engaged (either basic or adaptive cruise control) in the right lane of a six-lane, divided highway. The driver was unbelted, with a chime defeat device latched into the buckle of the driver's seatbelt. The lane in which the subject vehicle was traveling terminated at an exit ramp. Warnings that the lane was going to end were provided as early as 2000 feet (over 600 yards) in advance, and signs were posted cautioning drivers to reduce speed to 20mph on the exit ramp. For unknown reasons, the driver did not follow the lane onto the exit ramp and instead continued traveling

straight off the road. Ford understands that the vehicle struck the exit sign and then continued off-road and struck a stump and then a tree.
The driver of the subject vehicle was fatally injured in the crash.

2. *The Subject System*

Ford records show that the subject vehicle was not equipped with the operating system necessary to make BlueCruise functional. The subject vehicle was equipped with both ACC and LCA. Ford has confirmed that the subject vehicle was being operated with some form of cruise control engaged when the incident occurred. Ford has not been able to confirm whether LCA was engaged at the time of (or within 30 seconds before) the accident.

3. *Ford's Assessment of the Subject System in the Subject Crash*

Ford understands the reported reference to "self-driving mode" to be a reference to BlueCruise. The subject vehicle was not equipped with functional BlueCruise.

To the extent "self-driving mode" refers to the combination of ACC and LCA, Ford states that this incident is currently the subject of litigation, and discovery is continuing. Based on the available information (and if ACC and LCA were both engaged), Ford's assessment of this incident is that the subject system performed as designed and that there was no failure of the subject system in the subject crash.

a. The causal or contributory factors

Excessive speed

Failure to maintain control of the subject vehicle while entering the exit ramp

Potential driver inattention or sleeping

Potential driver medical issue – history of head trauma and concussions

b. The failure mechanism(s), if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

c. The failure mode(s) if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

d. The risk to motor vehicle safety that [the failure mode(s)] pose

Not applicable. Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder **SGO Report 502-1470**.

D. SGO Report 502-1763**Incident Date: Nov. 18, 2021****Location: Memphis, Michigan****Subject Vehicle: 2021 Ford Bronco Sport***1. Summary of the Subject Crash*

The driver of the subject vehicle reported that, while driving with ACC and LCA engaged, they became distracted while attempting to retrieve a dropped item. The driver further reported that they failed to negotiate a curve and left the paved road surface. There were no reported injuries.

2. The Subject System

The subject vehicle was equipped with both ACC and LCA. Ford has not been able to confirm whether both features were engaged at the time of (or during the 30 seconds before) this incident.

3. Ford's Assessment of the Subject System in the Subject Crash

Based on currently available information, Ford's assessment of this subject crash is that the driver of the subject vehicle was distracted while attempting to retrieve a dropped item. While reaching down and attempting to retrieve this item, the driver likely provided manual input to the steering wheel. If LCA was engaged, this manual input would have overridden any active steering input from LCA, likely causing the vehicle to travel off the roadway. Under these circumstances (and if ACC and LCA were both engaged), Ford's assessment is that the subject system performed as designed and that there was no failure of the subject system in the subject crash.

a. The causal or contributory factors

Driver distraction or inattention while retrieving dropped item.
Inadvertent manual steering input by the driver

b. The failure mechanism(s), if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

c. The failure mode(s) if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

d. The risk to motor vehicle safety that [the failure modes(s)] pose

Not applicable. Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

4. Documents

Copies of all documents that Ford used to form its assessment are included in Folder **SGO Report 502-1763**.

E. SGO Report 502-2354**Incident Date: Feb. 18, 2022****Location: Middleburg, Florida****Subject Vehicle: 2020 Ford Escape***1. Summary of the Subject Crash*

The driver of the subject vehicle reported that they were approaching an intersection with both ACC and LCA engaged. The driver further reported that, as they were approaching the intersection, a vehicle in front of the subject vehicle swerved into the left lane to avoid a semi-truck that was stopped at the intersection. The driver reported that forward crash warnings activated in the subject vehicle, that they tried to swerve to the left to avoid the semi-truck, but that the Escape hit the semi-truck from behind. There were no reported injuries.

2. The Subject System

The subject vehicle was equipped with both ACC and LCA. Ford has not been able to confirm whether both features were engaged at the time of (or during the 30 seconds before) this incident.

3. Ford's Assessment of the Subject System in the Subject Crash

Based on currently available information, Ford's assessment is that the circumstances described by the consumer reflect a late reveal scenario in which the stopped semi-truck was effectively concealed from the driver of and the sensors supporting the driver assist features on the subject vehicle until shortly before the collision. Under these circumstances (and if ACC and LCA were both engaged), Ford's assessment is that the subject system performed as designed and that there was no failure of the subject system in the subject crash.

a. The causal or contributory factors

Late reveal scenario

Potential driver distraction

Potential failure to maintain adequate stopping distance

b. The failure mechanism(s), if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

c. The failure mode(s) if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

d. The risk to motor vehicle safety that [the failure mode(s)] pose

Not applicable. Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder **SGO Report 502-2354**.

F. SGO Report 502-2581

Incident Date: Nov. 29, 2021

Location: Airmont, New York

Subject Vehicle: 2021 Ford F-150

1. *Summary of the Subject Crash*

The driver of the subject vehicle reported that, while driving with ACC and LCA engaged, the steering wheel turned as a result of the lane departure warning, and that the vehicle ran into a pole. There were no reported injuries.

2. *The Subject System*

The subject vehicle was equipped with ACC and LCA. Ford has not been able to confirm whether both features were engaged at the time of (or during the 30 seconds before) this incident.

3. *Ford's Assessment of the Subject System in the Subject Crash*

Based on currently available information, Ford's assessment is that, if LCA was engaged when the incident occurred, the system would not have provided a lane departure warning. If LCA was engaged prior to the incident occurring and a lane line terminated, LCA would have shut off and the driver would have received a warning to put their hands on the steering wheel prior to the incident. It is also possible that the driver had turned LCA off, which would cause the control button to default to Lane Keeping Aid (LKA) rather than LCA. Under any of these possible circumstances, Ford's assessment is that LCA was not engaged at the time of the incident and that there was no failure of the subject system in the subject crash.

a. The causal or contributory factors

Potential driver inattention

Potential driver failure to maintain control of the vehicle

Potential over-correction by driver in response to lane departure warning

b. The failure mechanism(s), if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

c. The failure mode(s) if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

d. The risk to motor vehicle safety that [the failure mode(s)] pose

Not applicable. Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder **SGO Report 502-2581**.

G. SGO Report 502-2582

Incident Date: Jan. 15, 2022

Location: Paradise Valley, Arizona

Subject Vehicle: 2020 Ford Escape

1. *Summary of the Subject Crash*

The driver of the subject vehicle reported that the “lane avoidance system malfunctioned, and the vehicle whipped to the right and went off the road.” The police report regarding this incident states that, while turning through an intersection, the vehicle drifted left and impacted the center median, then swerved to the right impacting another vehicle, and then then continued off the roadway and hit a rock. There were no reported injuries.

2. *The Subject System*

The subject vehicle was equipped with both ACC and LCA. Ford has not been able to confirm whether both features were engaged at the time of (or during the 30 seconds before) this incident.

3. *Ford's Assessment of the Subject System in the Subject Crash*

Based on currently available information, Ford's assessment of the subject crash is that the driver of the subject vehicle failed to maintain control of the vehicle in a left-hand turn being executed with manual steering input. This manual steering would have over-ridden any active steering input from LCA, if it was engaged. The driver hit a center median and then swerved to the right and crashed into another vehicle before leaving the roadway and hitting a rock. Under these circumstances (and if ACC and LCA were both engaged), Ford's assessment is that the subject system performed as designed and that there was no failure of the subject system.

a. The causal or contributory factors

Driver steering error

Driver failure to maintain control of vehicle

Potential driver inattention or distraction

Potential over-correction by driver in response to initial collision with center median

b. The failure mechanism(s), if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

c. The failure mode(s) if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

- d. The risk to motor vehicle safety that [the failure mode(s)] pose
Not applicable. Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder **SGO Report 502-2582**.

H. SGO Report 502-3744

Incident Date: Aug. 27, 2022

Location: Bloomington, Minnesota

Subject Vehicle: 2022 Ford Expedition

1. *Summary of the Subject Crash*

The driver of the subject vehicle reported that they were traveling on a highway with ACC and LCA engaged, that they applied the brakes and came to a complete stop, and that they were hit from behind by another vehicle. There were no reported injuries.

2. *The Subject System*

The subject vehicle was equipped with both ACC and LCA. Ford has not been able to confirm whether both features were engaged at the time of (or during the 30 seconds before) this incident.

3. *Ford's Assessment of the Subject System in the Subject Crash*

Based on currently available information, the driver of the second vehicle was inattentive and failed to maintain an adequate stopping distance behind the subject vehicle. Under these circumstances (and if ACC and LCA were both engaged), Ford's assessment is that the subject system performed as designed and that there was no failure of the subject system in the subject crash.

a. The causal or contributory factors

Inattentive driving by the driver of the second vehicle

Failure to maintain adequate stopping distance by the driver of the second vehicle

b. The failure mechanism(s), if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

c. The failure mode(s) if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

d. The risk to motor vehicle safety that [the failure mode(s)] pose

Not applicable. Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder **SGO Report 502-3744**.

I. **SGO Report 502-3906**

Incident Date: Sept. 17, 2022

Location: Portland, Michigan

Subject Vehicle: 2021 Ford Edge

1. *Summary of the Subject Crash*

The driver of the subject vehicle reported that, while traveling with ACC and LCA engaged, they reached toward the center console and inadvertently pulled the steering wheel to the right. The driver further reported that the vehicle crossed the lane line and impacted a barrier adjacent to the shoulder of the road. There were no reported injuries.

2. *The Subject System*

The subject vehicle was equipped with both ACC and LCA. Ford has not been able to confirm whether both features were engaged at the time of (or during the 30 seconds before) this incident.

3. *Ford's Assessment of the Subject System in the Subject Crash*

Based on currently available information, Ford's assessment is that the driver of the subject vehicle likely inadvertently input manual steering control when they reached for the center console. The driver's manual input overrides any lateral control from LCA. Under these circumstances (and if ACC and LCA were both engaged), Ford's assessment is that the subject system performed as designed and that there was no failure of the subject system in the subject crash.

a. The causal or contributory factors

Driver inattention

Inadvertent manual steering input by the driver

b. The failure mechanism(s), if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

c. The failure mode(s) if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

d. The risk to motor vehicle safety that [the failure mode(s)] pose

Not applicable. Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder **SGO Report 502-3906**.

J. SGO Report 502-5810

Incident Date: June 18, 2023

Location: Crothersville, Indiana

Subject Vehicle: 2021 Ford Edge

1. *Summary of the Subject Crash*

The driver of the subject vehicle reported that they were driving in a construction zone with both ACC and LCA engaged. The driver further reported that they reacted to a lane split, hit a construction barrel, and collided with the end of a road guardrail. The driver was treated for minor injuries.

2. *The Subject System*

The subject vehicle was equipped with both ACC and LCA. Ford has not been able to confirm whether both features were engaged at the time of (or during the 30 seconds before) this incident.

3. *Ford's Assessment of the Subject System in the Subject Crash*

Based on currently available information, Ford's assessment is that the driver of the subject vehicle, while driving in a construction zone, reacted to a lane split by providing manual steering input and lost control of the vehicle. This manual steering input would have overridden any active steering input from LCA. Under these circumstances (and if ACC and LCA were both engaged), Ford's assessment is that the subject system performed as designed and that there was no failure of the subject system in the subject crash.

a. The causal or contributory factors

Failure to maintain control of the vehicle
Potential driver distraction or inattention

b. The failure mechanism(s), if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

c. The failure mode(s) if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

d. The risk to motor vehicle safety that [the failure mode(s)] pose

Not applicable. Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder **SGO Report 502-5810**.

K. SGO Report 502-6362

Date of Incident: Sept. 21, 2023

Location: Westland, Michigan

Subject Vehicle: 2022 Ford F-150

1. *Summary of the Subject Crash*

The driver of the subject vehicle reported that they were driving a Ford developmental vehicle with an L2 hands-on system engaged, that they failed to stop at a traffic light, and that they collided with another vehicle in the intersection. There were no reported injuries.

2. *The Subject System*

The subject vehicle was a Ford development vehicle with a (non-BlueCruise) L2 ADAS hands-on system that was engaged at the time of this incident. The L2 ADAS hands-on system was not designed to identify, read, or react to traffic lights.

3. *Ford's Assessment of the Subject System in the Subject Crash*

Based on currently available information, Ford's assessment of this subject crash is that the driver of the subject vehicle failed to stop at a traffic light and collided with another vehicle. Under these circumstances, Ford's assessment is that the subject system performed as designed and that there was no failure of the subject system in the subject crash.

a. The causal or contributory factors

Driver inattention

Failure to stop at a traffic light

b. The failure mechanism(s), if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

c. The failure mode(s) if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

d. The risk to motor vehicle safety that [the failure mode(s)] pose

Not applicable. Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder **SGO Report 502-6362**.

L. SGO Report 502-6643**Incident Date: Sept. 24, 2023****Location: Lincoln, California****Subject Vehicle: 2022 Ford F-150****1. *Summary of the Subject Crash***

The driver of the subject vehicle reported to NHTSA that they were involved in a three-car collision. The driver further reported that, while driving with ACC and LCA engaged, they struck another vehicle from behind and that the vehicle they struck was pushed forward and then struck another vehicle in front of it. The customer also called the Ford Customer Relations Center regarding this incident, but the notes from that call reflect that the driver made no reference to ACC and LCA and instead reported that the pre-collision assist (PCA) system did not perform correctly. There were no reported injuries.

2. *The Subject System*

The subject vehicle was equipped with both ACC and LCA. Ford has not been granted access to the vehicle and has not been able to confirm whether both features were engaged at the time of (or during the 30 seconds before) this incident.

3. *Ford's Assessment of the Subject System in the Subject Crash*

Based on currently available information, Ford's assessment is that the driver reported that they struck a second vehicle from behind and the vehicle they struck was pushed forward into a third vehicle. If, as the driver reported to NHTSA, ACC was engaged at the time of the incident, that feature would have provided some deceleration prior to the collision with the second vehicle. The driver reported no such deceleration, which may suggest that ACC was not engaged. Under these circumstances (and if ACC and LCA were both engaged), Ford has inadequate information to determine whether there was a failure of the subject system in the subject crash.

a. The causal or contributory factors

Potential driver inattention or distraction

Potential excessive speed

Potential failure to maintain adequate stopping distance

b. The failure mechanism(s), if any

Ford has inadequate information to determine whether there was a failure of the subject system in the subject crash.

c. The failure mode(s) if any

Ford has inadequate information to determine whether there was a failure of the subject system in the subject crash.

d. The risk to motor vehicle safety that [the failure mode(s)] pose

Not applicable. Ford has inadequate information to determine whether there was a failure of the subject system in the subject crash.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder **SGO Report 502-6643**.

M. SGO Report 502-6772

Incident Date: Dec. 3, 2023

Location: Flint, Michigan

Subject Vehicle: 2021 Ford F-150

1. *Summary of the Subject Crash*

The driver of the subject vehicle reported that, while traveling with ACC and LCA engaged, a second vehicle spun out of control and into their lane, impacting the driver's side of the subject vehicle. The impact caused the subject vehicle to spin out of control and impact a guardrail. There were no reported injuries.

2. *The Subject System*

The subject vehicle was equipped with both ACC and LCA, and the driver reported that both features were engaged when the incident occurred. Ford has not been able to confirm whether both features were engaged at the time of (or during the 30 seconds before) this incident.

3. *Ford's Assessment of the Subject System in the Subject Crash*

Based on all available information, Ford's assessment of this subject crash is that a second vehicle spun out of control and impacted the subject vehicle, which in turn caused the subject vehicle to spin out of control and impact a guardrail. Under these circumstances (and if ACC and LCA were both engaged), Ford's assessment is that there was no failure of the subject system in the subject crash.

a. The causal or contributory factors

Second vehicle driver failure to maintain control

Second vehicle driver failure to properly check before changing lanes

Potential second vehicle driver inattention or distraction

b. The failure mechanism(s), if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

c. The failure mode(s) if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

d. The risk to motor vehicle safety that [the failure mode(s)] pose

Not applicable. Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder **SGO Report 502-6772**.

N. SGO Report 502-6852

Incident Date: Dec. 10, 2023

Location: Highland Park, Michigan

Subject Vehicle: 2023 Ford Mach-E

1. *Summary of the Subject Crash*

The driver of the subject vehicle reported that, while driving with BlueCruise engaged, they ran over road debris, which caused a flat tire and damage to the vehicle. There were no reported injuries.

2. *The Subject System*

The subject vehicle was equipped with BlueCruise, and the driver reported that this feature was engaged in hands free mode when the incident occurred. Ford has not been able to confirm whether the feature was engaged at the time of (or during the 30 seconds before) this incident.

3. *Ford's Assessment of the Subject System in the Subject Crash*

Based on currently available information, Ford's assessment of this subject crash is that the subject vehicle ran over road debris, which caused a flat tire and damage to the vehicle. Under these circumstances (and if BlueCruise was engaged), Ford's assessment is that the subject system performed as designed and that there was no failure of the subject system.

a. The causal or contributory factors

Road debris

Potential driver distraction or inattention

b. The failure mechanism(s), if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

c. The failure mode(s) if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

d. The risk to motor vehicle safety that [the failure mode(s)] pose

Not applicable. Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder **SGO Report 502-6852**.

O. SGO Report 502-7055**Incident Date: Unknown****Location: San Diego, California****Subject Vehicle: 2022 Ford F-150****1. Summary of the Subject Crash**

The driver of the subject vehicle reported that they were involved in a crash while driving with ACC and LCA engaged. Ford contacted the driver of the subject vehicle, but they were unable to provide any additional information regarding this incident. There were no reported injuries.

2. The Subject System

The subject vehicle was equipped with both ACC and LCA, and the driver reported that both features were engaged when the incident occurred. Ford has not been able to confirm whether both features were engaged at the time of (or during the 30 seconds before) this incident.

3. *Ford's Assessment of the Subject System in the Subject Crash*

Based on the limited information reported by the customer (and if both ACC and LCA were engaged), Ford has inadequate information to provide an assessment of the subject system in the subject crash and determine whether there was any failure.

a. The causal or contributory factors

Unknown

b. The failure mechanism(s), if any

Ford has inadequate information to determine whether there was a failure of the subject system in the subject crash.

c. The failure mode(s) if any

Ford has inadequate information to determine whether there was a failure of the subject system in the subject crash.

d. The risk to motor vehicle safety that [the failure mode(s)] pose

Not applicable. Ford has inadequate information to determine whether there was a failure of the subject system in the subject crash.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder **SGO Report 502-7055**.

P. SGO Report 502-7195**Incident Date: Feb. 3, 2024****Location: Orlando, Florida****Subject Vehicle: 2023 Ford F-150**

1. *Summary of the Subject Crash*

The driver of the subject vehicle reported that, while driving with ACC and LCA engaged, the left front tire of the subject vehicle separated from the axle. The driver further reported that this caused them to lose control of the vehicle and that it impacted a guardrail. There were no reported injuries. Based on Ford's inspection of the vehicle and accident scene, Ford believes that the tire/wheel separation occurred because of the collision with the guardrail.

2. *The Subject System*

The subject vehicle was equipped with both ACC and LCA. Ford has confirmed that some form of cruise control (either standard or ACC) was engaged at the time of the incident but has not been able to confirm whether LCA was also engaged at that time.

3. *Ford's Assessment of the Subject System in the Subject Crash*

Based on the limited information currently available, Ford's assessment of this subject crash is that tire or wheel separation did not cause the collision but instead resulted from the collision with the guardrail. Based on this same limited information (and if both ACC and LCA were engaged), Ford is unable to determine whether there was any failure of the subject system.

a. The causal or contributory factors

Potential driver distraction or inattention

b. The failure mechanism(s), if any

Based on the limited information currently available, Ford is unable to determine whether there was any failure.

c. The failure mode(s) if any

Based on the limited information currently available, Ford is unable to determine whether there was any failure.

d. The risk to motor vehicle safety that [the failure mode(s)] pose

Not applicable. Based on the limited information currently available, Ford is unable to determine whether there was any failure.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder **SGO Report 502-7195**.

Q. SGO Report 502-7283

Incident Date: Feb. 28, 2024

Location: Libertyville Township, Illinois

Subject Vehicle: 2021 Ford Escape

1. *Summary of the Subject Crash*

The driver of the subject vehicle reported that, while driving with ACC and LCA engaged, another vehicle in an adjacent lane abruptly cut into the lane occupied by the subject

vehicle and collided with the subject vehicle. The driver further reported that the impact caused the subject vehicle to veer off the roadway and collide with the center median barrier. There were no reported injuries.

2. *The Subject System*

The subject vehicle was equipped with both ACC and LCA, and the driver reported that both features were engaged when the incident occurred. Ford has not been able to confirm whether both features were engaged at the time of (or during the 30 seconds before) this incident.

3. *Ford's Assessment of the Subject System in the Subject Crash*

Based on currently available information, Ford's assessment of this subject crash is that the driver of the subject vehicle lost control when another vehicle abruptly cut into their lane and struck the subject vehicle. Under these circumstances (and if ACC and LCA were both engaged), Ford's assessment is that the subject system performed as designed and there was no failure of the subject system in the subject crash.

a. The causal or contributory factors

Second vehicle driver distraction or inattention

Potential subject vehicle driver distraction or inattention

b. The failure mechanism(s), if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

c. The failure mode(s) if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

d. The risk to motor vehicle safety that [the failure mode(s)] pose

Not applicable. Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder **SGO Report 502-7283**.

R. SGO Report 502-8024

Incident Date: May 26, 2024

Location: Kissimmee, Florida

Subject Vehicle: 2022 Ford F-150

1. *Summary of the Subject Crash*

The driver of the subject vehicle reported that they were driving with BlueCruise engaged in hands free mode and that the vehicle veered to the right and collided with a guardrail. The police report stated that the subject vehicle initially collided with the left rear of semi-truck in the adjacent lane before veering to the right and striking the

guardrail. Connected vehicle data from the subject vehicle indicates that BlueCruise was engaged prior to the incident but not within the 30 seconds immediately prior to the incident. There were no reported injuries.

2. *The Subject System*

The subject vehicle was equipped with BlueCruise. The driver reported that they were driving with BlueCruise engaged at the time of the incident. Connected vehicle data from the subject vehicle indicates that BlueCruise was engaged prior to the incident but not within the 30 seconds immediately prior to the incident.

3. *Ford's Assessment of the Subject System in the Subject Crash*

Based on currently available information, Ford's assessment of the subject crash is that BlueCruise was not engaged during this incident, either when the subject vehicle collided with the semi-truck or when it subsequently left the road. Under these circumstances, Ford's assessment is that there was no failure of the subject system.

a. The causal or contributory factors

Potential driver (both subject vehicle and semi-truck) distraction or inattention
Failure to maintain control of vehicle (both subject vehicle and semi-truck)

b. The failure mechanism(s), if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

c. The failure mode(s) if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

d. The risk to motor vehicle safety that [the failure mode(s)] pose

Not applicable. Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder **SGO Report 502-8024**.

S. Incident Not Reported Under SGO

Incident Date: August 23, 2023

Location: Corona, California

Subject Vehicle: 2022 Ford F-150 Lightning

Ford Case No. D223742

1. *Summary of the Subject Crash*

The driver of the subject vehicle reported that, while operating in BlueCruise hands free mode, the vehicle traveled into another lane and the vehicle hit some cones. There were no reported injuries.

2. *The Subject System*

The subject vehicle was equipped with BlueCruise. The driver reported that they were driving with BlueCruise engaged at the time of the incident. Ford has not been able to confirm whether BlueCruise was engaged at the time of (or during the 30 seconds before) this incident.

3. *Ford's Assessment of the Subject System in the Subject Crash*

Based on the limited information currently available (and if BlueCruise was engaged), Ford is unable to provide an assessment of the subject system in the subject crash and determine whether there was any failure.

a. The causal or contributory factors

Potential driver distraction or inattention

Potential inadvertent manual steering input

b. The failure mechanism(s), if any

Ford has inadequate information to determine whether there was a failure of the subject system in the subject crash.

c. The failure mode(s) if any

Ford has inadequate information to determine whether there was a failure of the subject system in the subject crash.

d. The risk to motor vehicle safety that [the failure mode(s)] pose

Not applicable. Ford has inadequate information to determine whether there was a failure of the subject system in the subject crash.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder **Ford Case No. D223742**.

T. Incident Not Reported Under SGO

Incident Date: March 4, 2024

Location: San Diego County, California

Subject Vehicle: 2024 Lincoln Nautilus

Ford Case No. D231183

1. *Summary of the Subject Crash*

The driver of the subject vehicle reported that, while driving on a highway, they set the cruise control at 30mph on an off-ramp, that they received a message to put hands on the steering wheel while turning onto another highway. The driver further reported that the vehicle then accelerated on its own, went off the road into the gravel and swerved, and that the vehicle then initiated braking "by itself." There were no reported injuries.

2. *The Subject System*

The subject vehicle was equipped with ACC and LCA. The driver reported that both systems were engaged at the time of the incident. Ford has not been able to confirm

whether both features were engaged at the time of (or during the 30 seconds before) this incident.

3. *Ford's Assessment of the Subject System in the Subject Crash*

Based on the limited information currently available (and if both ACC and LCA were engaged), Ford is unable to provide an assessment of the subject system in the subject crash and determine whether there was any failure.

a. The causal or contributory factors

Potential driver distraction or inattention

Potential pedal misapplication

b. The failure mechanism(s), if any

Ford has inadequate information to determine whether there was a failure of the subject system in the subject crash.

c. The failure mode(s) if any

Ford has inadequate information to determine whether there was a failure of the subject system in the subject crash.

d. The risk to motor vehicle safety that [the failure mode(s)] pose

Not applicable. Ford has inadequate information to determine whether there was a failure of the subject system in the subject crash.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder **Ford Case No. D231183**.

U. Incident Not Reported Under SGO

Incident Date: March 6, 2024

Location: Charlotte, North Carolina

Subject Vehicle: 2023 Lincoln Navigator

Ford Case No. D232344

1. *Summary of the Subject Crash*

The driver of the subject vehicle reported that, while driving with BlueCruise engaged, the vehicle veered out of the lane it was in and hit dividers on the highway. The driver further reported that it was possible that the incident was caused by human error and not the vehicle. No injuries were reported. Further investigation revealed that, shortly before the incident, the driver experienced an issue with the navigation screen on the vehicle and was distracted. The driver received a "watch the road" alert from the vehicle shortly before the incident. There were no reported injuries.

2. *The Subject System*

The subject vehicle was equipped with BlueCruise. The driver reported that they were driving with BlueCruise engaged at the time of the incident. Ford has not been able to

confirm whether BlueCruise was engaged at the time of (or during the 30 seconds before) this incident.

3. *Ford's Assessment of the Subject System in the Subject Crash*

Based on the limited information currently available (and if BlueCruise was engaged), Ford is unable to provide an assessment of the subject system in the subject crash and determine whether there was any failure.

a. The causal or contributory factors

Potential driver distraction or inattention

Potential inadvertent manual steering input

b. The failure mechanism(s), if any

Ford has inadequate information to determine whether there was a failure of the subject system in the subject crash.

c. The failure mode(s) if any

Ford has inadequate information to determine whether there was a failure of the subject system in the subject crash.

d. The risk to motor vehicle safety that [the failure mode(s)] pose

Not applicable. Ford has inadequate information to determine whether there was a failure of the subject system in the subject crash.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder **Ford Case No. D232344**.

V. Incident Not Reported Under SGO

Incident Date: May 10, 2023

Location: Inver Grove Heights, Minnesota

Subject Vehicle: 2020 Lincoln Nautilus

Ford Case No. D226498

1. *Summary of the Subject Crash*

The driver of the subject vehicle reported that they were in a fast-food drive-through line "with Auto Pilot on when the vehicle started to accelerate." The subject vehicle went over a curb and was hit "head on" by another vehicle. There were no reported injuries. Ford has reviewed images of the likely restaurant drive-through lane and confirmed the lack of lane lines and curvature involved in the path of travel.

2. *The Subject System*

Ford understands the driver's report that they had Auto Pilot on to be a reference to BlueCruise. The subject vehicle was not equipped with BlueCruise. The vehicle was equipped with ACC and LCA. Ford has not been able to confirm whether both features were engaged at the time of (or during the 30 seconds before) this incident.

3. *Ford's Assessment of the Subject System in the Subject Crash*

Based on available information, Ford's assessment of this incident is that the driver was in a drive-through lane at a fast-food restaurant and reported inadvertent acceleration of the subject vehicle. The subject vehicle was not equipped with BlueCruise and, in any event, BlueCruise is only operational in designated Blue Zones on limited access highways. To the extent that the driver was referring to ACC and LCA, Ford's assessment is that LCA (if it was previously engaged) would have cancelled due to the lack of lane lines and curvature involved in the drive-through lane. Under these circumstances, Ford's assessment is that LCA could not have been engaged (and there was therefore no subject system engaged) at the time of the incident and that there was no failure of the subject system in the subject crash.

a. The causal or contributory factors

Potential driver inattention or distraction
Potential pedal misapplication

b. The failure mechanism(s), if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

c. The failure mode(s) if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

d. The risk to motor vehicle safety that [the failure mode(s)] pose

Not applicable. Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder **Ford Case No. D226498**.

W. Incident Not Reported Under SGO

Incident Date: May 17, 2023

Location: Charlotte, North Carolina

Subject Vehicle: 2021 Ford Mustang Mach-E

Ford Case No. D221315

1. *Summary of the Subject Crash*

The driver of the subject vehicle reported that they were driving the subject vehicle on an interstate highway in a lane immediately to the right of a toll lane. Ford understands "toll lane" to refer to a far-left express or HOV lane separated from other lanes to the right by rubber or plastic pylons or delineators. The driver further reported that, approximately 5 minutes after engaging BlueCruise in hands free mode, the vehicle veered to the left and began hitting the pylons or delineators that separated the toll lane. There were no reported injuries.

Further investigation based on connected vehicle data from the subject vehicle shows that BlueCruise likely was engaged in hands free mode shortly before the incident. The connected vehicle data also shows that, approximately 8 minutes into the highway trip, the BlueCruise system transitioned from hands free mode to "off/deny" status, which means that either the feature is turned off or canceled by the driver or the system by itself determined that BlueCruise needed to be turned off. The connected data shows that, at the same BlueCruise transitioned to off/deny status, ACC also was canceled. BlueCruise cannot operate without ACC being engaged.

When the system determines by itself that BlueCruise needs to be canceled, the connected data will also show various warnings and driver alerts (visual and audible) that accompany this cancelation. In this case, the connected data show no such warnings or alerts. The lack of these warnings and alerts, together with the fact that ACC was canceled at the same time, suggests that the driver (intentionally or unintentionally) manually canceled BlueCruise by pressing the ACC button on the steering wheel. If the system had cancelled BlueCruise by itself, it would not also have cancelled ACC.

2. *The Subject System*

The subject vehicle was equipped with BlueCruise. Connected Blue Zone data indicate that BlueCruise likely was engaged in hands free mode shortly before the incident. These same data indicate that BlueCruise had been manually cancelled by the driver approximately 7 minutes into the drive, likely shortly before the incident described by the driver.

3. *Ford's Assessment of the Subject System in the Subject Crash*

Based on the limited information currently available, Ford's assessment of the subject incident is that the driver of the subject vehicle manually cancelled BlueCruise shortly before the incident by pressing the ACC button on the steering wheel. Under these circumstances, Ford's assessment is that there was no failure of the subject system in the subject incident.

a. The causal or contributory factors

Potential driver inattention or distraction

Potential driver inadvertent cancellation of BlueCruise

Potential inadvertent manual steering input

b. The failure mechanism(s), if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

c. The failure mode(s) if any

Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

d. The risk to motor vehicle safety that [the failure mode(s)] pose

Not applicable. Based on available information, Ford's assessment of this incident is that there was no failure of the subject system.

4. *Documents*

Copies of all documents that Ford used to form its assessment are included in Folder
Ford Case No. D221315.

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