PRELIMINARY REPORT

HIGHWAY

Electric Vehicle Run-Off-Road Crash and Postcrash Fire

(HWY21FH011)

The information in this report is preliminary and will be supplemented or corrected during the course of the investigation.

About 8:55 p.m. eastern daylight time on Monday, September 13, 2021, a 2021 Tesla Model 3 Long Range Dual Motor electric car traveling north on Alhambra Circle in Coral Gables, Miami-Dade County, Florida, accelerated through an intersection, left the roadway, crashed into two trees, and caught fire. Alhambra Circle is a residential street with a 30-mph speed limit. As the car approached the signal-light-controlled intersection with Coral Way, it passed another car and accelerated as it neared the yellow signal light at the intersection. The car continued north through the intersection, traveled about 140 feet, and departed the roadway. The left front of the car struck a tree, after which it rotated 90 degrees counterclockwise. It then continued north another 42 feet until the passenger side collided with a second tree (figure 1).

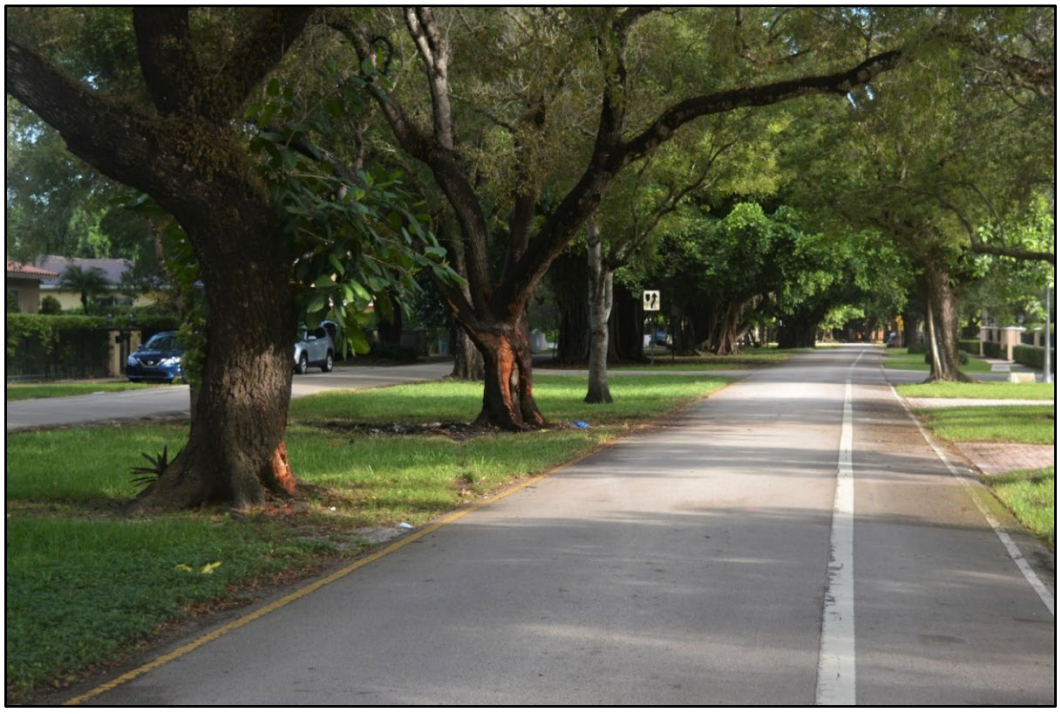

Figure 1. Alhambra Circle looking north from Coral Way intersection, with two trees hit by car visible on left. (Source: Coral Gables Police Department)

After the second impact, the car rotated 180 degrees clockwise and came to rest near the second tree. A postcrash fire engulfed the vehicle. Firefighters faced challenges in extinguishing

the fire and reported that the vehicle's batteries reignited at least once. The car was occupied by a 20-year-old driver and a 19-year-old passenger. As a result of the crash and fire, both occupants were fatally injured.

The crash damaged the car's high-voltage lithium-ion battery case, which is where the fire started. The fire destroyed much of the vehicle's interior (figure 2), including the infotainment console, which contained the car's onboard data storage device. The vehicle's event data recorder (EDR), which records and stores data associated with vehicle speed, acceleration, seat belt status, and airbag deployment, was recovered but had sustained fire damage. The EDR was taken to the National Transportation Safety Board (NTSB) Recorder Laboratory, where the damaged data chip was repaired and installed into an exemplar EDR so that the data could be retrieved. The process yielded about 5 seconds of precrash and crash data. Preliminary evaluation of the data indicated that application of the accelerator pedal ranged from 0 to 100 percent, the service brake remained off, and the maximum recorded vehicle speed was 90 mph.[1]

Figure 2. Impact damage to passenger side and fire damage to vehicle interior.

The NTSB continues to collect data to analyze the crash dynamics, the circumstances of the crash, factors associated with the roadway, survivability, and the postcrash fire. All aspects of the crash remain under investigation as the NTSB determines the probable cause, with the intent of issuing safety recommendations to prevent similar crashes in the future. The NTSB is working alongside the Coral Gables Police Department, which is conducting a separate, parallel investigation.

[1] Possible values of the service brake are "on" (brake pedal applied) and "off" (brake pedal not applied). Vehicle speed was calculated using four-wheel speed signals and inertial acceleration measurements.