



**WITNESS GROUP
SUMMARY OF INTERVIEWS**

Mountain View, CA

HWY18FH011
(31 Pages)



**NATIONAL TRANSPORTATION SAFETY BOARD
OFFICE OF HIGHWAY SAFETY
WASHINGTON, D.C.**

**WITNESS GROUP
SUMMARY OF INTERVIEWS**

A. CRASH INFORMATION

Location: US 101 southbound at SH 85, Mountain View, California
Vehicle 1: 2017 Tesla Model X P100D electric vehicle
Vehicle 2: 2010 Mazda 3 passenger vehicle
Vehicle 3: 2017 Audi A4
Date: March 23, 2018
Time: Approximately 9:27 a.m. Pacific daylight savings time
NTSB #: **HWY18FH011**

B. WITNESS GROUP

Donald F. Karol, National Resource Specialist, Group Chairman
NTSB Office of Highway Safety
490 L'Enfant Plaza East, S.W., Washington, DC 20594

Thomas Barth, Investigator-in-Charge
NTSB Office of Highway Safety
490 L'Enfant Plaza East, S.W., Washington, DC 20594

California Highway Patrol
355 Convention Way
Redwood City, CA 94063
(Witness statements in collision report #9330-2018-00839)

C. CRASH SUMMARY

For a summary of the crash, refer to the *Crash Summary Report* in the docket for this investigation.

D. DETAILS OF THE WITNESS GROUP INVESTIGATION

Witness Group activities focused on interviewing non-first responder witnesses regarding observations of the crash, post-crash extrication of the Tesla Model X driver, and propagation of the vehicle fire. Interviews were also completed with Sunnyvale Tesla service center personnel who performed maintenance on the Tesla and co-workers of the Tesla driver. Some of the statements included in this report were extracted from the California Highway Patrol report of investigation, report #9330-2018-00839. The following sections include:

- Section E: Interviews with other drivers involved in the crash
- Section F: Interviews with witnesses who observed the crash
- Section G: Interviews with witnesses who stopped after the crash
- Section H: Interviews with witnesses who performed maintenance on the Tesla
- Section I: Interviews with witnesses who worked with the Tesla driver
- Section J: Interviews with family members of the Tesla driver
- Section K: Interview with friend of the Tesla driver
- Section L: Docket material

E. INTERVIEWS WITH OTHER DRIVERS INVOLVED IN THE CRASH

Mr. E. Wong



The following telephonic interview notes were prepared by NTSB investigator Tom Barth. The interview was completed on March 29, 2018.

He was going to work, his regular route. He was driving a white Mazda 3. He was in the 2nd lane from the left, following the Tesla. He thought everything seemed fine. He did not see any sporadic movements. As the lane split off he noticed the Tesla veering left and thought that maybe the driver was just not paying attention and was going to exit a bit late. However, the Tesla just gradually continued to the left and drove straight into the barrier. He did not recall any brake lights.

He did not recall how long he had been following the Tesla. He was asked about the crash sequence and remembered that he maintained his speed almost until impact, as he did not realize the Tesla was going to crash. He remembers a collision, and felt like the cars were hitting

each other, and then remembers putting on the brakes and coming to a stop in the 5th lane from the left.

He didn't think he performed any steering maneuvers and did not recall exactly what he hit, or how the vehicles moved. He said it happened really fast and knows his vehicle must have been pushed to the right for him to end up where he did.

He did not recall anything about the Audi or any other vehicles in the crash. He said that after he stopped, he checked himself over, and then checked for traffic and got out of his car. He said that he had no visible injuries but felt like he had a stiff back and neck. He's made an appointment to see a chiropractor and is considering being checked out by a doctor.

He got out of his car and called 911. He described what happened to the operator. He saw the Tesla start to have a small fire at the front passenger side. Some other bystanders had a fire extinguisher and applied it to the fire, which seemed to work for a bit, but then it would come back. They continued with the extinguisher until it was empty. When the fire was still not out, they decided that they had to pull the driver out. There were about 3 people there and were trying to get the driver's seatbelt off. Something was stuck, so they pulled off his jacket and shirt to release him.

He was still on the phone with 911, but when they needed help to lift the driver out, he hung up and helped lift him out of the vehicle. He did not recall if there was a fire. They moved him about 100 feet away and put him on the shoulder of the road. Someone had medical experience and told them that he needed to be put on his side. He was bleeding from the mouth and they did not want him to choke.

He looked back at the car. He said that the fire started slow but soon the interior was fully engulfed in flames. He heard popping sounds and occasionally saw battery cells explode out of the battery and shoot off into the air. A fire truck arrived, and they started putting water on the fire. He said that it worked pretty fast - not really sure how fast, but the flames were out. Soon after the first truck, another fire engine arrived, and FF went over to help the driver.

He waited for the police, and one eventually came up and asked him some questions and had him describe what happened, and what he remembered about how the crash occurred. His car was loaded onto a tow truck, and he went into the truck to ride with the car. But then he was told that the CHP had decided to change the investigation of the case, and his car was off-loaded and put onto a different tow truck. He was told that it would be impounded and that they did not know how long it would take. He and the Audi driver were driven by a police officer to a local café. He called the police and they told him they don't know how long his car will be impounded, but that he can get any personal items out of it, if needed.

He was asked if he knew what he hit, and if it was just other vehicles or also a road barrier. He did not recall. He was asked about this area of the roadway. He said that he could see how it might be confusing, but since he drives it nearly every day, it doesn't seem like there are any issues with it.

Ms. Jumana Amin Muwafi



The following telephonic interview notes were prepared by NTSB investigator Don Karol. The interview was completed on March 29, 2018.

- I am the owner and driver of a 2017 Audi A4 which was involved in the crash.
- I was traveling in the left most carpool lane to continue on US 101. Before the interchange a new carpool lane opens to the left. I was driving in the second lane from the left.
- The carpool lane on the far left allows people who want to exit onto the 85 HOV lane.
- Just before the 85 flyover I look over and I saw a blue Tesla in that gore point median lane.
- “So in my head, I’m screaming, Oh my god, why is he in that lane. If he’s in that lane he is going to crash.”
- The Tesla is heading directly towards the barrier and all of this is happening in about two to three seconds.
- Right in front of me I see him crash. I knew he was going to crash because he was in a lane that was not really a lane.
- He crashes and then the car flies over to the right. It seemed like it went about 3 lanes over and that is when the Mazda hit it.
- The car then went back spinning to the left in my direction.
- Pieces of the car were flying everywhere so I started braking trying to figure out what was going on.
- I braked very, very hard but at the last second the car came in front of me.
- I hit the Tesla with the right front corner of my car. I couldn’t stop fully, but I did not hit the car at full speed.
- I didn’t have any passengers in my car and was wearing my seatbelt.
- I don’t know where the white Mazda was located before the crash.
- The traffic was not very congested, and I was driving with the flow. At 9:30 a.m. there usually is more traffic but on this day, it was light.
- I don’t remember my exact speed because I wasn’t looking at my speedometer.
- The first time I remembered seeing the blue Tesla was only seconds before it crashed.

- I was looking ahead, and the Tesla caught my eye. I thought to myself, why is the driver in that area. He was driving in the wrong lane and he is just driving straight.
- There was no moving right or left – it was straight.
- I am not very good estimating distances ahead. I told the CHP that the Tesla was about 3 to 4 cars ahead, but after thinking further I know it was about 10 cars ahead in traffic.
- The Tesla was in the area between two solid white lines - part of the gore area. From the time the Tesla caught my attention it was about 2 to 3 seconds before it crashed.
- I did not see the car swerve in either direction. I cannot recall if the brake lights came on or not.
- From my perspective, it was difficult to see if the car was slowing down before it hit the barrier.
- It seemed like there was no deceleration of the car. It impacted at full speed.
- After the accident I saw that the Tesla's whole windshield had come off and landed next to my car on the highway.
- When I crashed into the Tesla at the end it didn't move very much at all.
- After the crash happened, I saw smoke coming out of the front of the car. I was afraid there was going to be a fire, so I tried to reverse my car. My car wouldn't move.
- I jumped out of the car and a motorcyclist stopped and asked if I was O.K. I told the motorcyclist I was O.K. but told him to go check on the driver of the Tesla to see if he needed help.
- The motorcyclist and two other men who had stopped started running to the car with fire extinguishers.
- I then walked over onto the left side of the median, the 85 side, to see what was going on.
- I saw that people were trying to extract the driver out of the car.
- The men had carried the driver out of the car and put him over on the ground.
- I walked back over towards my car and then I asked the motorcyclist if the driver of the Tesla was going to be O.K. He said that he was breathing but is badly injured.
- The motorcyclist then told me to move away because the car was going to blow up.
- I started moving away and then shortly later the car burst into a big fire.
- Another bystander stopped to see if I was O.K. He checked my head, neck and ran his hand down my vertebrae to see if I was O.K.
- The man told me everything was fine but told me to wait until the paramedics arrived to check further.
- By the time the paramedics came I was hyperventilating from shock. I couldn't feel my hands because they were numb. I was shaking and cold.
- The paramedics said the symptoms were normal for someone hyperventilating and they told me to try and slow down my breathing. The paramedics also wrapped me with a blanket.
- They took my vitals inside the ambulance, but I decided not to get transported to the hospital. The paramedics told me that they didn't see anything externally wrong.
- Since I didn't feel any significant injury I decided to go home.

- I went to urgent care near my home. I don't feel pain from the crash, but I still have some dizziness and lightheadedness. The lightheadedness started on the Tuesday after the accident.
- I did inhale some of the smoke. There was also a thin film of white dust on my phone from the fire.
- I don't remember sun glare being a problem at the time of the crash. I wasn't wearing sunglasses.
- The highway is a little confusing in the area. When I speak with my colleagues and friends they all mention how difficult the area is.
- The new lane opens up to the left and then that lane ends up ending suddenly ending. People end up getting caught in that lane all the time.
- It is not straightforward and it is confusing.

F. INTERVIEWS WITH WITNESSES WHO OBSERVED THE CRASH

Mr. Raja Karkutla

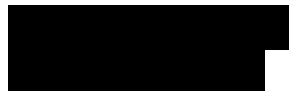


The following telephonic interview notes were prepared by NTSB investigator Don Karol. The interview was completed on March 27, 2018.

- It was a very "brutal and fierce" collision so my memory may be a little vague.
- I was driving in the second lane from the right. The rightmost lane was an exit lane. The car I was driving in was a black Acura TLX.
- I saw a blue Tesla in the leftmost lane (that continues onto 101) and it didn't look like he was doing anything crazy. He wasn't swerving. He was going straight. There was a lane to the left that continues onto highway 85.
- I didn't notice the Tesla until after the "fork" in the road. I don't know what lane he was in initially. It's possible he was driving up the middle of the fork, but it looked like he was traveling in a lane.
- I was behind the Tesla about four car lengths back. I saw it by looking diagonally to the left.
- I am not sure how many lanes over the Tesla was from me, but it seemed fairly far off.
- It didn't seem like there were many cars around it.
- The one critical thing I saw was that the Tesla was going in the left lane and it seemed like it was moving fine. It was going straight with no abrupt turns.
- Suddenly, the car hit the median. It was unexpected because it looked like the car was traveling fine in the lane.
- The car spun, and I saw that about half of the vehicle was gone.
- I was shocked and didn't know what to do, so I called 911.

- I was going at about the speed limit maybe about 65 to 70. The Tesla was going maybe 5 to 10 miles faster. No more than 75. Not very fast.
- I never saw any brake lights or turn signal.
- After it hit the barrier it immediately spun around and then it came into the second lane from the left.
- When I saw the car, it was split in half.
- Then I saw a little bit of fire come out in the front and then it subsided.
- My first thought was that the driver had to be gone.
- I didn't see any other cars hit the Tesla from my diagonal view.
- I passed it as it was spinning.
- I looked in my rearview mirror and saw other cars had stopped.

Mr. David Conklin



The following telephonic interview notes were prepared by NTSB investigator Don Karol. The interview was completed on March 29, 2018.

- I was about 3 cars behind the impact. I was driving a bronze Range Rover Sport.
- I was traveling in lane number 2. Lane number 1 exited onto 85.
- I was going southbound at regular freeway speeds and I just noticed some commotion up ahead.
- I saw an “explosion of car parts flying in the air.” Fenders, bumpers, parts of wheels were flying in the air.
- I slammed on my brakes like everyone ahead of me.
- After that initial explosion of parts I saw another car involved in this accident move toward the right side of the freeway.
- After the cars cleared off in front of me I saw the blue Tesla smashed against the freeway divider. There was also another white car that was smashed into it.
- I immediately called 911. There was a man who had parked on the right shoulder of the freeway and he had a fire extinguisher. He was driving a work truck. It was like a pickup truck with a box on it.
- The man from the work truck got over to the blue Tesla but didn't start using the extinguisher immediately because there was no fire at that point.
- Traffic was flowing at a minimum of 50 mph. It was close to 9:30 a.m. and there was still a heavy flow of traffic on the road, but it was moving good.
- I was further back than the beginning of the gore point when I saw the explosion of car parts.
- There were at least three cars in front of me who were not involved in this accident.

- I just saw the aftermath of the impact. Everyone was just slamming on their brakes and swerving.
- I didn't see where the Tesla was coming from.
- As part of the impact there was a car swerving off to the right.
- I didn't see what any of the drivers looked like.
- I swerved right of the crash and slowed down. That is when I called 911.

Ms. Jessica Jamie Winkler



Ms. Winkler was contacted at the collision scene and interviewed by the CHP. Ms. Winkler provided the following statement to Officer Romo, ID 21636:

Ms. Winkler was traveling on southbound US-101 in the #3 lane, approximately 3 car lengths behind the Tesla. She observed the Tesla collide with the barrier but did not observe any movements prior to the collision. After the initial collision, Ms. Winkler observed the Mazda collide with the Tesla; the Mazda veered to the right and became disabled. Ms. Winkler then observed the Audi collide with the rear of the Tesla but related it appeared to be a minor impact.

Ms. Winkler parked her vehicle south of the collision scene and exited her vehicle to provide assistance. She observed passing motorists attempt to remove the Tesla driver through the front of his vehicle. She saw a passing motorist remove the Tesla driver's seatbelt and lay him down on the roadway. Ms. Winkler used the driver's shirt and placed it under his head. Emergency personnel arrived shortly thereafter.

Mr. Gilberto Castro



Mr. Castro was contacted via telephone on March 30, 2018, by CHP Officer Garcia, ID 21616. Mr. Castro provided the following statement:

Mr. Castro was traveling northbound on US-101 when he heard a loud impact on the southbound side of US-101, which attracted his attention. As the debris settled, he observed flames emitting from the Tesla and the entire front end of the vehicle was detached. He also saw that the driver of the Tesla was unconscious and still seat belted to the driver seat. Mr. Castro immediately dialed 911 as he drove past the collision scene.

Mr. Jeremy Lyon



Mr. Lyon was contacted via telephone on March 30, 2018, by CHP Officer Garcia, ID 21616. Mr. Lyon provided the following statement:

Mr. Lyon was traveling northbound on SR-85 and exiting at Shoreline Boulevard adjacent to the collision scene. He heard what sounded like a loud impact and observed a vehicle on the southbound side that had been involved in a collision. Mr. Lyon also observed smoke emitting from the vehicle.

Mr. Jeffrey P. Lanza



Mr. Lanza provided photographs from his dashcam taken during his commute on March 22, 2018, at about 5:44 p.m. depicting the state of the crash attenuator prior to the traffic collision. Mr. Lanza also provided a digital video from his forward and rear facing camera on his Tesla which taken on March 23, 2018, about the time of the crash.

Mr. Joseph E. Caceres



Mr. Caceres provided a digital video from his dashcam taken during his commute to work on southbound US-101 on March 23, 2018. The video depicts the state of the crash cushion about 80 minutes prior to the Tesla crash.

G. INTERVIEW WITH WITNESS WHO STOPPED AFTER THE CRASH

Mr. Shane Engelman



The following telephonic interview notes were prepared by NTSB investigator Don Karol. The interview was completed on March 27, 2018.

- I remember very vividly what happened.
- I ride a motorcycle (2017 Harley Davidson Roadster) and I always stop when I see an accident.
- The left two lanes are carpool lanes and it is common that cars will cross over the gore area, so they don't end up accidentally taking the SH 85 lane. It's quite a confusing area because it is a left exit.
- I'm careful driving through that area because there are so many gore cutters. It's like they are trying to kill me on my bike.
- I was about 100 to 200 yards back when I suddenly saw some light smoke ahead like someone had screeched their tires.
- I decided to drive up to see what was going on. I parked near the median wall just north of where the Tesla was located.
- I believe I arrived almost immediately after the accident happened, but I did not see what caused the crash.
- I saw a woman pacing like she didn't know what was going on and may have been screaming.
- The woman had a phone in her hand, so I asked if anyone had called 911. She couldn't give me an intelligible answer and was hysterical. I made sure she was O.K. It didn't appear like the woman had any visible injuries.
- The woman had been driving the car which was resting alongside the rear left of the Tesla. Later the woman asked if the driver was O.K. and I told her that he was breathing.
- Initially I couldn't tell the extent of the crash because the blue Tesla was facing at an angle away from me.
- I noticed that the front of the car was missing and there were two other men running up toward the car with fire extinguishers. The men were coming from the right shoulder area.
- I looked into the car and saw a man sitting in the driver's seat completely intact. He initially didn't look alive. I am an Air Force Veteran, former law enforcement officer, and I have some EMT training. This guy did not look alive.
- I felt for a pulse and I saw some bubbles coming out of his nose and a little bit of blood. The man was definitely breathing.
- Once I saw him I looked down to the left toward the center of the vehicle and the battery bank was emitting flames. At this point it wasn't a full conflagration it was just shooting out some flames.
- The flames were shooting forward out from the damaged battery pack toward the barrier. I tried not to look directly at the flames. The flame size initially was probably a little less than a foot.

- One of the guys with the fire extinguisher was trying to put the flames out. The fire extinguisher would smother it, but the flames would come back. After each douse with the fire extinguisher the flames would come back a few seconds later.
- There were three of us total. Two men with fire extinguishers and me.
- I reached over the man and unbuckled his seat belt. I moved the seat belt out of the way and then we tried to figure out how we were going to get him out of there.
- It was difficult because there was broken glass everywhere. His leg seemed to be resting on a sliced piece of metal. I didn't look for injuries on the leg because there was more pressing issues to deal with.
- I was worried about possible neck injuries and was hesitant to move him but the fire was the biggest concern.
- He was either going to burn alive or have more serious neck injuries.
- The other guys were worried about the car exploding but I don't know if they recognized it was an electric car.
- We moved as fast as we could to get the driver out. I went in between the front seats and I was facing what would have been the front windshield location. The driver was positioned to my left in the seat.
- I tried to pick him up. I was going to get his upper body and they were going to get his middle and lower body.
- The driver's jacket was sliding up and I wasn't able to get a good grip, so I removed his sweatshirt. I noticed that the driver had some bruising in his mid-abdomen area where his ribs were located. We knew we had to be very careful when we moved him.
- Once I removed the sweatshirt, we were able to get a much better grip on his upper body.
- I picked him up and we moved him out of the vehicle.
- The driver was heavy, so we had to stop for a while. We lowered him down and then picked him back up.
- Then we moved him farther away because we had no idea what was going to happen with the car. He was laid down on his back in the median shoulder area about 100 feet south of where the Tesla was located.
- The driver was still breathing, and bubbling was coming out of his nose.
- Another man came up and took over care of the driver. He seemed like he had EMT training. He recommended we roll him onto his side so that he wouldn't suffocate. At the same time an alarming amount of blood started coming out of his mouth.
- After caring for the man, I thought it would be important to record the evidence at the scene in its undisturbed state.
- I took some video of the scene before most of the fire and emergency responders arrived. I didn't know who to send it to so I sent it to NBC news. One video was about 34 seconds long with me doing a 180 degree walk around of the scene. The video was taken about 9:34 a.m. and the time stamp on the recording should be accurate.
- I also took a couple still photos. One when the first responders arrived, and they had not started to treat the fire.

- It seemed like it took a very long time for the fire department to arrive. I was concerned that whoever had called the crash into 911 had not given the correct location.
- When the firefighters arrived, they looked confused. They didn't start treating the fire immediately. They also didn't treat the injured driver immediately. I yelled for paramedics, but I didn't get an immediate response.
- They seemed to be able to get the fire out effectively by spraying what appeared to be soapy water on it.
- I remained on scene until the entire fire was out and the driver had been placed on a litter carry and transported from the scene.
- I was dismissed by the highway patrol. I did not provide a statement to the CHP until mid-afternoon on Saturday, March 24th.

H. INTERVIEWS WITH WITNESSES WHO PERFORMED MAINTENANCE ON THE TESLA MODEL X

Ms. Jennifer Peterson



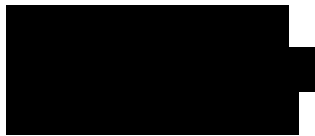
The following telephonic interview notes were prepared by NTSB investigator Don Karol. The interview was completed on April 3, 2018. Participating in the interview was Mr. Ryan McCarthy, Managing Counsel, employed by Tesla.

- I am a service manager at Tesla service facility located at 750 E. El Camino Real, Sunnyvale, CA 94087.
- I have worked at Tesla for 7 months. Responsible for making sure the service center in Sunnyvale has what it needs to function each day, take care of customers, and supervise a team of about 50 employees.
- There is also has an associate service manager (Mr. Frank Hernandez – worked at Tesla for about 3 months). Direct employees are about 33 employees and the associate manager covers the remainder of the employees.
- The service center handles about 27 appointments a day. We also allow for walk-ins, but it must be a safety related concern.
- Mr. Walter Huang scheduled an appointment in advance of his visit and came into the service center on March 6th at about 10:30 a.m.
- Maintenance records have brief descriptions but there are also hand-written notes with each service visit. No other records exist with more details of the consumer complaint. They only maintain a service order and a traveler (handwritten notes).
- The center only has maintenance records on file for 3 visits: November 1st, 2017 – vehicle delivery. November 24, 2017 – service at Tesla facility in Santa Clara, CA and March 6th – Falcon doors and navigation/GPS problems.

- I don't speak with all customers and I did not have any direct contact with Mr. Huang.
- A service advisor typically works at the facility and interacts with the customers. They greet them and listen to the concerns for the appointment. The service advisor is usually the first person who will interact with the customer.
- I don't have any visibility on what version of firmware came with the car.
- I sometime have to push firmware updates over the air but it depends situationally.
- Regarding the service on November 24th in Santa Clara. I don't know what work was completed other than what is written on the service order.
- All the maintenance records from different service centers are all maintained on a central database.
- Notes on the service order were written by Mr. John Polstra (John P.) on the form.
- The other name of the form is signed "Joshy Pooy." His actual name is Joshua Gamboa.
- Joshua Gamboa worked on the Falcon Wing door repair.
- John Polstra is a service advisor who addressed the navigation/GPS concern. John Polstra actually spoke with Ms. Petersen and remembered checking in Mr. Huang when he brought the car in for service.
- For the Falcon door repairs the technicians replaced the cladding sensors.
- If there is a concern that that the service center is unable to duplicate, they ask the customer to perform a bug report. It involves holding down the voice activation button on the steering wheel. Say "bug report" and whatever the issue is. That will capture the moment in time. The service center can then pull logs based upon time and date. Ms. Petersen advised it is not possible to look up all "bug reports" based upon the vehicle's VIN or identification.
- I don't know the level of knowledge most Tesla operators have regarding filling out "bug reports."
- I am not sure on how to look up historical bug reports.
- The service center only looks up time of bug reports. I don't know how to get them via a search based on a vehicle.
- Ms. Petersen was asked if the complaint issued by Mr. Huang regarding the navigation system and cruise control is a common complaint. Response: I have definitely seen navigation and GPS concerns in the past, but they are usually different.
- She was asked about the duplication process to remedy a customer's complaint. Response: It depends upon the request. Sometimes they will take a drive around the block.
- I know that the only information John Polstra wrote down about the navigation complaint is all that he remembers.
- I don't recall if this was a test drive situation or not. Mr. Polstra likely asked the customer what date and time the problem happened, so he could pull the logs.
- John Polstra signed off on the form and would have been the only technician who would have worked on the complaint.
- I don't know whether the customer went out with John Polstra or whether John Polstra looked at the navigation problem himself.

- If there is not a time stamp, then it is not something they are going to look at. That conversation would have gone on with the customer before he left the lot.
- Ms. Petersen was asked about the written complaint on the form which said the “cruise control did not function.” She was asked how it impacts other autopilot features.
- Autopilot is a suite of features which includes TACC, Autosteer, and lane assist etc.
- Autosteer requires that cruise control be enabled for autosteer to be on. You can’t have autosteer without TACC but you can have it the other way around.
- I don’t know how the cruise control not functioning impacts other features.
- Tesla service just addresses the component system which is the cause for the complaint.
- I don’t know if a malfunctioning cruise control would cause an autopilot ECU to be replaced.
- If a customer had complained of a specific time and location there was a problem the service technician would have written it on the traveler log.
- I know Mr. Polstra remembers interacting with the driver but he doesn’t remember any specifics about the navigation complaint.
- I am not sure if a test drive was done and John Polstra doesn’t remember if a test drive was completed or not.
- I advised Ms. Petersen that the service order has an odometer in and a odometer out that accounts for 14 miles. What accounts for this mileage? Question: It seems like it was driven for 14 miles for some reason?
- Oh, those 14 miles are put on after our test drive after we have made the repairs to make sure the car is functioning.
- We typically put on at least a few miles while we are quality checking a vehicle.
- Whoever did the repairs would take the car for a test drive. In this case it would be Josh Gamboa.
- “John Polstra didn’t do any repairs, he is the service advisor.”
- When questioned further she said: “John Polstra did work on the navigation problems”
- Body repairs were completed by Chilton Auto Body in Sunnyvale, CA
- Can’t remember anything else that would be helpful in our investigation.

Mr. John Polstra



The following telephonic interview notes were prepared by NTSB investigator Don Karol. The interview was completed on April 5, 2018. Participating in the interview was Mr. Ryan McCarthy, Managing Counsel, employed by Tesla.

- I am a service advisor at the Tesla Sunnyvale Service Center.
- I have worked at the Sunnyvale Service Center since in opened in October 2013.

- My job responsibilities include interacting with the customer, documenting their concern, and passing on work to service technicians. It also includes following up with customer's as necessary.
- I complete some diagnostic work as well. A lot of information can be diagnosed by looking through vehicle logs and other data sources.
- Tesla provides some training in diagnostics. I have also been a service technician for about 25 years in addition to being a service advisor at Tesla.
- My prior service technician work prior to coming to Tesla was working for European Auto Works. Mostly German cars like Mercedes, BMW, etc.
- Work is divided at service center sometimes by expertise. There are some technicians capable of doing diagnostic work while others may not be. There are other technicians which may focus solely on mechanical repairs.
- When cars come in the service advisor determines the best area to accomplish the required repairs.
- I interact with about 30 to 40 customers per day.
- If about 30 cars are brought in on a day, about 2 to 3 may be Model 3 vehicles because they are relatively new. Maybe about 5 to 10 Model X, and probably about 20 Model S because there are so many of them on the road.
- I recall interacting with Mr. Huang. I am referring to the traveler with my written notes to help refresh my memory. Mr. Huang's major concern was his Falcon doors. The Falcon doors opened and hit a metal piece attached to the garage door.
- The Falcon door complaint caused the paint to be scratched. Mr. Huang was asking lots of questions; how could this happen. "It's a new car."
- I explained to Mr. Huang that there are sensors on the door, but he needed to be careful that there was nothing in the way of the door when he tried to open it.
- Mr. Huang was upset that car did not detect what was above the door.
- I found out that there was actually a faulty sensor on the door which may or may not have contributed to the doors hitting.
- The service center agreed to fix the sensor and have the car painted and cared for. The repair was basically a small scratch – not even a dent.
- The service was called in advance of Mr. Huang's appointment. The night before Karin Nayler (whose name is listed as the service advisor on the service order) would have started the repair order process.
- When Mr. Huang arrived in the driveway of the service center, I was the one who personally interacted with the driver.
- The vehicle was sent out for sublet first to the body shop before repairs were made on the door. They had the body work done at Chilton Auto Body located at 3242 De La Cruz Boulevard in Santa Clara (located about 5 miles away).
- A service assistant would have transported the vehicle to the body shop. I don't know who would have drove it to the body shop because it is not something that is usually tracked.

- The navigation system complaint would have been handled first because any diagnosis that is necessary always comes first. This permits the ordering of parts if the diagnosis shows additional maintenance is needed.
- There wouldn't be anything the body shop could have done that would have impacted the functionality of the Tesla's systems.
- I would have been the one to diagnosis the complaint. I recognize my handwriting that reads: "Issue with GPS/Navigation causing cruise control to not function and alert "maps not loaded" to appear.
- I do not recall from memory what I did to address this complaint. I can only go off what is written down on the traveler.
- "It was about a month ago" so I can't remember any details. I remember the Falcon Doors because that was by far the customer's biggest complaint.
- I don't remember speaking about GPS or Navigation with the customer.
- Mr. Polstra was asked about the general process to diagnose the problem which was written on the service order (not specifically about interactions with Mr. Huang since he didn't remember).
- The issue of GPS/Navigation which is on the form is typed in. So when the customer called in he must have said he had problems with GPS or Navigation. As the service advisor I would have asked more probing questions about what was going on with the car. To diagnose it I would have written down what the customer told me. (In this case – "causing cruise control to not function and alert "maps not loaded" to appear.")
- I usually ask when and where the problem occurs and I always like to get the date and time stamps from the customer.
- "Since I didn't write any dates and times down, he obviously didn't provide any of that information."
- Mr. Polstra referred to the traveler and noted that he wrote down for the customer to perform a "bug report" if it happens again because it will help identify more information.
- A "bug report" would help diagnose the problem and a phone call follow-up within 1 to 2 days would help.
- I can work with any information regarding date and time even if it is not that specific. Sometimes just knowing what day the problem occurred can help diagnose a problem.
- Specific information can be extracted. Logs on a vehicle usually go back about 30 days.
- The logs will depict any fault codes and what the car sees.
- The way I was able to diagnose the Falcon doors was that the customer complained that the problem happened on March 2nd. The logs showed that there was in fact a fault code recorded and showing that the capacitor sensor was not reading.
- Looking at the traveler, Mr. Polstra said it doesn't appear as if Mr. Huang provided much useful information to search through the log for all possible fault codes that may be related to the cruise control.
- Because there was not much information recorded on the traveler the customer did not provide specific information regarding the problem.

- If Mr. Huang had provided information that he was experiencing problems on a specific roadway and time then that information would have been written down.
- I have seen similar complaints on other vehicles. There are times when a car is unable to load the maps inside the vehicle. When that type of problem occurs, the system would store a fault code in the vehicle logs.
- Looking at the handwritten notes, the fact that there is nothing written down about finding a “maps not loading” problem in the log means that there must not have been anything in the logs.
- Mr. Polstra clarified that he does not recall what happened with Mr. Huang. He was just providing information regarding what he normally does with this type of complaint.
- When doing a vehicle log or data check they can use a program called “garage” which allows the ability to connect live with a vehicle. The “garage” function will show what active fault codes exist but also provides faults going back about two weeks. The “garage” check provides a high-level overview of what is going on with a car.
- A more involved process involves pulling the logs which allows the technician to go back about 30 days.
- The logs themselves are a huge amount of information if you don’t have any date and time stamp to look for. You could spend days going through the logs without finding anything.
- The vehicle logs are the same as the car logs and contain the same information such as speed and vehicle performance.
- When I wrote “unable to duplicate” it would have meant that I was unable to find any fault codes and in the lot the navigation system would have been functioning properly.
- Many times, we will take the car out to see if the navigation system is operating properly but without identifying the fault it is difficult to identify the problem.
- I don’t remember whether we took the car out for a test drive or not.
- In order to file a “bug report” you push the voice command in the car. The voice command will allow you to play music or make a call. To file a “bug report” you just hit the voice command and say, “bug report.” Once it is displayed, the dash will say “thank you for your feedback.”
- Since the logs are a tremendous amount of data, the “bug report” will pinpoint a place in the log for follow-up.
- Most customers probably do not know how to file a “bug report.”
- There is a different level of logs where information is stored in. There are the car logs and the system logs which run the main computer of the vehicle.
- The information from the “bug reports” cannot be accessed by the service technicians.
- For “bug reports” the technician needs to contact the engineers.
- Unable to go in remotely and pull logs.
- Technicians can abstract the information by connecting their laptops to the vehicle and can extract a “bug report.”
- Only some technicians are skilled in the process. Out of the 22 technicians there are probably two or three to get the information.

- When a customer states they filed a “bug report” the service center generally contacts the engineers and provides the approx. date/time and VIN number.
- I don’t recall whether the driver reported ever making a “bug report.”

Mr. Joshua Gamboa



The following telephonic interview notes were prepared by NTSB investigator Don Karol. The interview was completed on April 5, 2018. Participating in the interview was Mr. Ryan McCarthy, Managing Counsel, employed by Tesla.

- I work at the Sunnyvale Tesla and my job description is a service technician.
- My nickname is Johsy Poo. I sign service orders and travelers with this nickname.
- I have worked at the Tesla service center for about 1 ½ years.
- I work primarily on mechanical issues, not electrical.
- I do not diagnose. I only replace parts.
- At the service center there is a technician in the driveway who would have been John Polstra for this maintenance visit.
- As a service technician I usually work on 7 to 10 vehicles a day. The work day is usually about 8 to 10 hours.
- I work on all vehicles but most of the cars that come in are Model S and Model X.
- I work on a lot of cars a day but I vaguely remember working on the blue Model X.
- Mr. Gamboa referred to a copy of the service order to refresh his memory of the maintenance performed between March 6th to March 12th
- The traveler form has handwritten notes about the service performed by the technician. The service order contains information that is typed into the computer.
- I only worked on the Falcon door which was contacting the overhead garage door.
- On the traveler a complaint has items listed in categories. For the Falcon doors the “FL” category stands for “fast lane.”
- A category “C1” means that diagnostics is required. Which applies to the GPS/navigation complaint.
- The body shop work was done prior to the car coming to the technician.
- I replaced the passenger side capacitor sensor and cladding on the door.
- I also checked the tire pressure on the car.
- I was not involved in bringing the car to the body shop.
- I am unsure who would have brought the car to the body shop. I don’t know what body shop the service center uses.
- I did not deal with the complaint dealing with the GPS/navigation system.
- I never had any interaction dealing with the driver.

- I believe that the work done by John Polstra to address the GPS/navigation system was done before the Falcon doors.
- I have never personally dealt with any GPS/navigation concerns in the past.
- I do not perform maintenance or repairs on the autopilot system.
- I am not familiar with the “bug report” process. The service advisor generally handles.
- As a technician I am a parts replacer. A service advisor speaks with the customers.
- I did not take the car out for a test drive.
- I do not handle software related issues related to Autopilot. I only handle parts replacement.

I. INTERVIEWS WITH WITNESSES WHO WORKED WITH TESLA DRIVER

Mr. Norman Wang



The following telephonic interview notes were prepared by NTSB investigator Don Karol. The interview was completed on March 30, 2018. Participating in the interview as Ms. Roslyn Quinn a legal specialist employed by Apple.

- I am a Software Engineer Manager and the direct supervisor of Wei Lun Huang.
- Wei Lun Huang is his legal name. He goes by the name of Walter Huang.
- Walter Huang is a software engineer at Apple.
- Walter is new to Apple. His starting date at Apple was November 13th, 2017. I was the person who hired Walter to work for Apple.
- Walter worked previously at Electronic Arts (EA) – Redwood Shores. He was at EA for about 13 years before he made the switch to Apple.
- He left EA because of a reorganization. He received a good separation package when he left which he used to purchase the Tesla Model X.
- Walter kept a routine schedule because everyone on the project team had families.
- Walter has a wife and two kids, girl (about 7), boy (about 4).
- Wife stays at home with the kids.
- He never discussed being tired at work. The project he was working on didn't require anyone to stay late at work. It was a regular work schedule.
- Walter usually comes in about 9:30 a.m. – 10:00 a.m. because he likes to go to the gym in the morning. He also likes to go to the gym at lunch sometimes. He leaves about 5:30 p.m. to 6:00 p.m. at night regularly.
- He usually had lunch around 12:30 to 12:45.
- I am unaware of him having any health issues. He is one of the strongest members on the team. “He can probably knock me out with one punch.” He usually talks about going to the gym and bench pressing about 340 pounds. He is like “Superman” on the team.

- Walter didn't take any sick days. Only days off were a couple times when kids were sick.
- He appears to be very healthy and very strong.
- Walter was in the office on Monday, March 19th. He was sending e-mails Monday evening about 9:40 p.m. about an upcoming conference in San Francisco later in the week.
- Walter was also in the office on Tuesday, March 20th.
- On Wednesday, March 21st, I attended a conference in San Francisco that Walter also attended. Walter was only in San Francisco for about half a day from noon until about 7 to 8ish. There was an industry mixer where he met some of his friends.
- I received an e-mail from him on Wednesday night at 10:27 p.m. on March 21st about some of the friends he had met. I am unsure if this was after he had wrapped up or when he got home. The e-mail said sent from iPhone but most e-mails were sent that way.
- I was not in the office on Thursday, March 22nd because I attended the conference for another day. I received a couple text messages during the day on Thursday from Walter following up on a possible referral of friends for job openings at Apple.
- I believe Walter was in at work on Thursday. There was a text message sent about 7:20 p.m. at night. I am unsure if this text was sent from work or from home.
- I have driven in the Tesla with Walter about 3 to 4 times making local trips. Usually 3 to 4 miles to other Apple locations in Sunnyvale and Cupertino.
- I don't remember driving with Walter while autopilot was activated but he did talk about autopilot a lot.
- Walter purchased the car about December 2017 and he had actually had DMV appointment scheduled for the Wednesday after the crash to get his license plates.
- Walter spoke about two major things when he discussed the Tesla. One item he always spoke about was autopilot. Since we are software engineers we like to solve problems. So solving problems like having the car drive itself really interested him. He always spoke about what type of "convenience" the car provided. What type of "performance" it had during commute hours.
- The second issue he brought to everyone was the door sensors on the car broke about two to three weeks ago. He had to send his car in for repair because of the door sensors. When the door raised up the sensors didn't detect the garage door and it caused damage (scratched the paint.) The dealer had to give him a loner car so they could fix the paint and perform body work.
- He discussed how really convenient autopilot was – especially during commute hours. Walter would say the frequency of use of autopilot was very high. "It would go to a full stop, follow traffic really well. You still have to pay attention but less of the stress."
- Walter never mentioned having problems with the autopilot.
- I can't confirm either way if Walter made phone calls or sent e-mails to work on his way to work. I don't know Walter's driving habits. My only experience with Walter was during the short local trips between office buildings.
- Walter's route of travel would have been to stay straight on US 101 and not take State Highway 85

- There are other employees who have electric cars at work. But the Tesla battery is so big that he doesn't have to recharge it at work.
- There is a co-worker on a peer team who has the same make and model of Tesla X and Walter would share information with her.
- The co-worker, Helen Ma, also spoke about her car was hitting the garage beams with the Falcon doors.
- Many people would eat in the cafeteria and I once overheard conversations about the Tesla Model X between Walter and Helen Ma (software engineer).
- Walter works closest with two other engineers, Mr. David Addey and Mr. David Liu.
- Two Apple iPhones owned by Walter are in Apple's possession. I retrieved the phones from the family. Phones have not been wiped and are being held.
- The personal phone which was not damaged is an iPhone 10. The cell phone number for the phone is [REDACTED] Walter uses his own cell service.
- The other model is an iPhone 8. There is no cell service attached to this phone. Used for work issues. Phone is heavily damaged.
- There is a very open work environment to encourage discussion and collaboration among team. He often would talk to the team about the Tesla.

Mr. David Addey



The following telephonic interview notes were prepared by NTSB investigator Don Karol. The interview was completed on April 4, 2018. Participating in the interview was Ms. Roslyn Quinn a legal specialist employed by Apple.

- I am a software engineer at Apple and have been at the company for about 4 ½ years.
- I have known Walter since the second week of January when we both joined a 3-person team working on the same project. I worked closely in the office with him on projects.
- I had no social interaction with Walter outside of the workplace.
- I did not interact with Walter on March 22nd or March 23rd because I was at meetings at other parts of the Apple campus. I may have seen him on March 22nd, but only briefly.
- Walter's work schedule would be to arrive at about 9:30 a.m. and he would usually leave sometime after me at about 5:00 p.m.
- I did not usually communicate much with Walter via e-mail. We would usually chat using an Apple team messaging application.
- Walter was out of the office on Wednesday at a conference.
- I do not recall specific interactions with Walter on Monday, March 19th or Tuesday, March 20th but believe that Walter was working in the office that day.
- Walter would normally bring his own lunch to work and would often work out at the gym during lunch.

- Most conversations and interactions were professional and we did not speak too much about personal matters.
- Walter never spoke about any health problems and I did not pick up on anything that would indicate he was having any health problems.
- I can't remember Walter taking many sick days.
- I never noticed Walter appearing tired or complaining about being fatigued at work.
- I have never driven with Walter in his Tesla Model X.
- The Model X was his prized possession and he "loved the car."
- About 3 to 4 weeks before the accident Walter took the car in for service and he was saddened when the dealership gave him a Ford to drive as a loaner car.
- I vaguely remember Walter having problems with the doors on the car.
- I don't remember Walter mentioning having problems with the autopilot on the vehicle.
- Walter seemed very dedicated to his family, but I don't know much more about any issues at home.
- I enjoyed working with Walter. He was forthright in his opinions and would tell me when I was wrong. That usually resulted in constructive improvements in the software being developed.

Mr. David Liu



The following telephonic interview notes were prepared by NTSB investigator Don Karol. The interview was completed on April 4, 2018. Participating in the interview was Ms. Roslyn Quinn a legal specialist employed by Apple.

- I am assigned as a software engineer and I have worked for Apple for a little over 4 years.
- I have known Walter since about November 2017.
- I primarily worked with Walter at work with no after work interactions.
- Walter was at the Game Developer Conference (GDC) in San Francisco on Wednesday. It is a weeklong conference in which game developers interact for a week to showcase their new developments.
- My last interaction with Walter was on Thursday, March 22nd.
- Thursday, March 22nd was like most other work days. Walter would arrive at about 9:30 a.m. and would leave around 4:30 p.m. to 5:00 p.m.
- A few weeks before the crash Walter was sick where he developed a cough which he caught from his child. He took some sick days off to work from home to care for his child.
- By Monday, March 19th, Walter was no longer coughing and said he was feeling much better.

- On Monday and Tuesday Walter worked the same general work day, leaving about 4:30 p.m. – 5:00 p.m.
- Walter appeared to be in good health. He would always go the gym around lunch time.
- It was unusual for Walter ever to take a sick day.
- Walter joined the team about a week prior to me and we spent some time early on learning about each other. At that time, Walter mentioned he just purchased a Tesla Model X which is what he always wanted. He bought it with part of the separation package he got from his former employer.
- In December 2017, Walter, Mr. Wang and I all went out for lunch and drove in the Model X. It was only a short trip on local roads. This was my only experience driving in the car.
- Earlier in March, Walter had to take his car in for service. He arrived at work much later than his normal arrival time – maybe about 11:00 a.m. He was frustrated by the fact that a car sensor for the door was not cooperating. He mentioned he had a Ford as his rental and talked about how much he missed his Model X.
- That was his only mention about any service completed on his car. He didn't mention any other problems with the car other than the doors.
- He also didn't mention anything about problems with the navigation or GPS system.
- He only talked about problems with the doors not opening properly in the garage and hitting.
- He never complained about being tired at work. He always seemed relaxed and happy. It was just a joy to work with him.
- There were never any complaints about any problems with being tired, his health, or his family.
- I didn't receive any afterhours e-mails or texts from Walter in the weeks before the crash.
- Walter was very relaxed. He always did the job and did it well. There were never any complaints. He was always very happy.
- It was a fun and good experience working with him.
- I don't know any other co-workers who could provide any more detailed information about Walter.

Ms. Helen Ma



The following telephonic interview notes were prepared by NTSB investigator Don Karol. The interview was completed on April 4, 2018. Participating in the interview was Ms. Roslyn Quinn a legal specialist employed by Apple.

- I am a senior software engineer and started to work at Apple about a year ago.
- I am also an owner of a Tesla Model X.
- I did not have any real interactions with Walter. He was on a separate team of developers.

- I did not have any direct conversations with Walter about his ownership of a Tesla Model X.
- I wasn't aware that Walter owned a Model X until after the accident.
- I did have conversations in a group setting (lunch) about my ownership of a Tesla. I have had issues with my Falcon doors hitting inside of the garage but my conversations with Walter were never one on one. Only in a group setting.
- I don't remember ever hearing Walter say during one of the group lunch conversations of ever having any problems with his Tesla.
- I own a 2016 Tesla Model X.
- I have experienced problems with the Falcon doors.
- With my car, there were a couple times I had to grab the wheel from the autopilot because it looked like it was heading for an exit. I couldn't tell if it would have corrected itself. I didn't want to take a chance. It happened about 2 to 3 times.
- I never filed a "bug report" online for my Model X.
- I have never had any issues with my navigation or GPS system.

J. INTERVIEWS WITH FAMILY MEMBERS OF THE TESLA DRIVER

Mrs. Sz Huang / Mr. William Huang



The following information was obtained from the wife of the Tesla driver, Mrs. Sz Huang, and the driver's brother Mr. William Huang, on March 26, 2018 and on March 29, 2018:

On Monday, March 26, 2018 at 11:00 a.m., CHP MAIT Sergeant Clarke, ID 17610, responded to the Huang address in Foster City to contact the Tesla driver's next of kin. Upon arrival, Sergeant Clarke contacted the driver's brother Mr. William Huang, his wife Mrs. Sz Huang, and his father. Sergeant Clarke advised the family of the status of the CHP investigation and requested Mrs. Huang provide consent to conduct a search of the electronic data on the Tesla. A formal interview was not completed at that time, but the family related several items of note.

The family, with Mr. William Huang acting as the spokesperson, said that his brother had experienced issues with the autopilot steering system at the location of the collision. Seven out of ten times he drove past the location in the left lane, the Tesla would steer left toward the gore point area and he would have to manually take control to stay within the left lane. It happened so often the driver told his brother and his wife about the problem. One time, when the Tesla driver and his wife were traveling to the South Bay, he attempted to show her how the vehicle drove to the left as they passed the collision location, but on that day, the vehicle maintained its lane. On March 6, 2018, the Tesla driver took the vehicle to the dealership in Sunnyvale for an issue with

the door and advised the service technician of the problem with steering into the gore point. Mr. William Huang provided Sergeant Clarke with the invoice from that service. Mrs. Huang gave Sergeant Clarke consent to search the electronic data in the Tesla. Sergeant Clarke advised the family to contact him with any additional information.

On March 29, 2018, about 1000 hours, CHP Officer Garcia, ID 21616, met with the Tesla driver's wife and brother. Mr. William Huang assisted with English/Mandarin translation when necessary. Mrs. Huang described her husband as a positive person who was outgoing and exercised regularly. She advised her husband did not take any medications, nor did he smoke. Her husband did not wear corrective lenses as he had a LASIK procedure completed about two years earlier. She further described her husband's driving as "safe."

Her husband usually left his residence between 8:40 a.m. and 9:00 a.m. to drop off his kids at their pre-school in Foster City before traveling to work. His normal route to work was southbound US-101 and he was familiar with this route. In the area of the collision, her husband would utilize the appropriate lane to continue southbound on US-101, as he knew the #1 lane transitioned to the southbound SR-85 HOV transition. Mrs. Huang related there was no reason for her husband to travel on SR-85. She added that the Tesla was equipped with an HOV sticker on the rear bumper which permitted HOV lane driving.

Her husband purchased the vehicle in October 2017 and took delivery in Fremont, California in November 2017. Mrs. Huang said her husband did a lot of research on the Tesla Model X prior to buying it. She recalled the salesperson informing them that the "autopilot" was not "fully" autopilot yet because of the "government" and that the driver's hands needed to be on the wheel when using the feature. Mrs. Huang doesn't know if her husband attended any classes to become more familiar with the car's operation but knows that her husband watched YouTube videos on the autopilot feature. Additionally, her husband belonged to a Facebook Group called "Tesla Model X Owner's Club."

Mrs. Huang related her husband always used the vehicle's "autopilot" feature when traveling to work. She also said her husband did not use his cellphone when on "autopilot." According to Mrs. Huang, the car emitted an audible sound if the driver didn't have their hands on the wheel when in "autopilot" mode. Mrs. Huang and her husband took a recent trip to Los Angeles in the Tesla and utilized the "autopilot" feature while on Interstate 5.

Mrs. Huang said her husband recently experienced a "navigational error" while driving the Tesla and the vehicle stopped on the right shoulder of US-101. Her husband called Tesla and they repaired the issue wirelessly. Recently her husband took the Tesla to the dealer to have its "falcon door" repaired, as its sensor didn't detect the open garage door above it and damaged the Tesla's door; the damage was covered by Tesla. Mrs. Huang added that her husband complained

about navigational issues and possibly “autopilot” issues the Tesla previously had near the scene of the collision. Mrs. Huang related the Tesla would veer to the left when approaching the SR-85 HOV transition ramp, requiring her husband to manually apply steering input to the right to maintain the vehicle in its proper route. Mrs. Huang said her husband told her that this malfunction occurred approximately seven out of ten times. When asked to clarify, Mrs. Huang could not recall whether the Tesla malfunctioned seven times or malfunctioned three times.

On March 23, 2018, Mr. Huang drove his two children in the Tesla from their residence in Foster City to their preschool in Foster City. Afterwards, he departed to his place of employment in Sunnyvale.

NTSB Investigator Karol contacted Mr. William Huang on March 28, 2018, to obtain background information regarding the Tesla driver. Mr. Huang provided information regarding problems his brother had experienced with the “autopilot” (similar to the information provided above) but asked that the family be contacted later to schedule an interview. When the family was contacted at the beginning of April 2018, Mr. William Huang advised that the family had retained the law firm of Minami Tamaki LLP to handle all questions related to the crash. On April 19 and 20, NTSB Investigator Karol contacted attorney Mark Fong (Minami Tamaki LLP) to schedule an interview with the family. Additionally, a letter was sent to Mr. Fong with a list of questions the NTSB would like answered by the family.¹ On March 20, 2019, a letter was sent from the law firm of Minami Tamaki LLP with the answers to the questions.²

NTSB Investigator Karol asked a few follow-up questions of Mrs. Sz Huang through her attorney Mark Fong. Mrs. Huang was asked if she knew the PIN number for her husband’s cell phone devices and any information she may have regarding his use of game applications (specifically the game “Three Kingdoms.”) On May 14, 2018, NTSB received information that Mrs. Huang did not know the PIN number for the cell phone.³ Although she knew her husband loved to play games on his phone – he never did so while driving. Mrs. Huang did not recognize the game “Three Kingdoms” as something her husband was interested in.

¹ See Witness Group Attachment 1 – Request for Information from Family

² See Witness Group Attachment 2 – Family Response to Request for Information

³ See Witness Group Attachment 3 - E-mail from Family Attorney

K. INTERVIEW WITH A FRIEND OF THE TESLA DRIVER

Mr. Chien-yu (Hans) Ting



The following telephonic interview notes were prepared by NTSB investigator Don Karol. The interview was completed on June 6, 2019:

- I have been friends with Walter and his wife since about 2016 when I first moved to the Bay Area.
- I met Walter through my wife who knew him from college.
- My wife and I, and Walter and his wife, got together quite often and would frequently participate in a 4-person group chat using Apple iMessage service.
- We usually chat every week or every other week.
- Last time I met up with Walter was about a month before the accident because we were away on a ski trip.
- I own a 2018 Tesla Model X P100D which I purchased at the end of 2017 about the same time that Walter purchased his Tesla. Walter's car was a 2017 model because he purchased an inventory car.
- Walter and I took a trip over Christmas to Los Angeles driving both of our Teslas.
- Walter was a great person and in great health.
- Walter would normally work regular hours.
- The last time he communicated with Walter was via text message on Monday, March 19th about 5 days before the crash.
- A few days before the March 19th text message, a new firmware update (2018.14) was made available by Tesla and installed on his car. He asked Walter what he thought of Autopilot on his car since the update.
- Hans Ting advised that before the update the car on Autopilot was much jerkier and would swerve back and forth in wider traffic lanes. Since the update the car was much less jerky.
- Walter responded to the text that he didn't notice a difference and mentioned that it almost made him hit the dividing island again saying that it occurred each time at the 85 separation.
- Hans Ting was asked to provide a screenshot of the Apple iMessage between him and Walter discussing the Autopilot performance. He provided the following screenshot:



An interpretation of the response (Chinese) to Hans Ting from Walter Huang in regard to: “Do you feel AP (Autopilot) is better?” is:

沒捏我覺得差不多 (Walter Huang)

Nope, I feel almost the same

早上又差點帶我去撞分隔島(Walter Huang)

Almost led me to hit the median again this morning

我有感覺噠 (Hans Ting)

I can feel it

每次 85 岔開那邊 (Walter Huang)

Each time at the 85 separation

喔那個很難 (Hans Ting)

Oh, that is very difficult

他就會開去兩線中間 (Walter Huang)

It would drive me towards the middle of the two lines

- Hans Ting advised that he did not have any further written communications with Walter Huang about problems he experienced with Autopilot.
- He added that all his iMessages are stored on the cloud and are retrievable.
- He said that Walter Huang loved his Tesla in general. He remembered him bringing in the Tesla to fix the Falcon wing doors which hit the garage door when he opened them.

When Mr. Ting was asked about his own personal experience owning and driving the Tesla Model X he relayed the following information:

- It is relatively common that you sometimes need to take over control of the vehicle from Autopilot.
- He said that the car will send alerts all the time if the hands do not detect steering torque. He added that many times the car will send alerts even when his hands are on the steering wheel. He further added that it was a hardware problem because the sensors are not capable of detecting touch, only torque. When the car provides alerts to him, he gives a little twist of the steering wheel.
- Sometimes he would receive Autopilot chimes while driving but usually the screen will blink when hands are not on the wheel. Most of the time it is obvious, but it depends where your eyes are. Sometimes you don't notice it until you get the chime.
- He speculated that he thought most people likely kept hands on the steering wheel unless they know it is a very safe road – one that you drive every day. He said occasionally he would take his hands off the steering wheel on roads he was familiar with.
- Hans advised he would change his TACC (traffic aware cruise control) settings from time to time. Usually he would use the closest setting of 1 on open freeways and the maximum setting of 7 at highway speeds.
- He did not have much experience driving through the area where his friend crashed.

- He said that when he did drive through the area, he noticed that the roadway markings were lacking there.

L. DOCKET MATERIAL

The following Attachments are included in the docket for this investigation:

LIST OF ATTACHMENTS

Witness Group Attachment #1 – Request for Information from Family

Witness Group Attachment #2 – Family Response to Request for Information

Witness Group Attachment #3 – E-mail from Family Attorney

END OF REPORT

Donald F. Karol

Senior Highway Accident Investigator, National Resource Specialist