



National Transportation Safety Board

Highway Accident Brief

Passenger car and multiple pedestrian collision

Accident Number:	HWY16FH002
Accident Type:	Passenger car and multiple pedestrian collision
Location:	Main Street at Hall of Fame Avenue, Stillwater, Payne County, Oklahoma
Date and Time:	Saturday, October 24, 2015, about 10:31 a.m.
Vehicles:	2014 Hyundai Elantra
Fatalities:	4
Injuries:	54

Crash Description

On Saturday, October 24, 2015, about 10:31 a.m., a 2014 Hyundai Elantra passenger car operated by a 25-year-old female driver was traveling southbound on Main Street heading toward Hall of Fame Avenue in Stillwater, Payne County, Oklahoma. Traffic in this area was restricted at the time for a homecoming parade that was in progress for Oklahoma State University (OSU). A police motorcycle was stopped in the roadway, partially blocking the southbound lanes of Main Street, while its operator spoke to a person at the roadside. The emergency lights on the motorcycle were not illuminated. The Hyundai struck portable barricades and the motorcycle; it then continued into Hall of Fame Avenue, where it struck a crowd of parade spectators. (See figure 1.) As a result of the crash, 4 parade spectators died and 54 received injuries of varying degrees.

Injuries

The Stillwater Police Department (SPD) collected information on the accident driver and 58 crash victims.¹ Complete medical records were not obtained for the victims, and the injury severity was estimated based on the SPD information. The injuries are reported in table 1.

¹ Due to the scale of the crash, there may have been victims who were injured but who were not identified by police. The numbers of victims in this report are based on those identified by the SPD.

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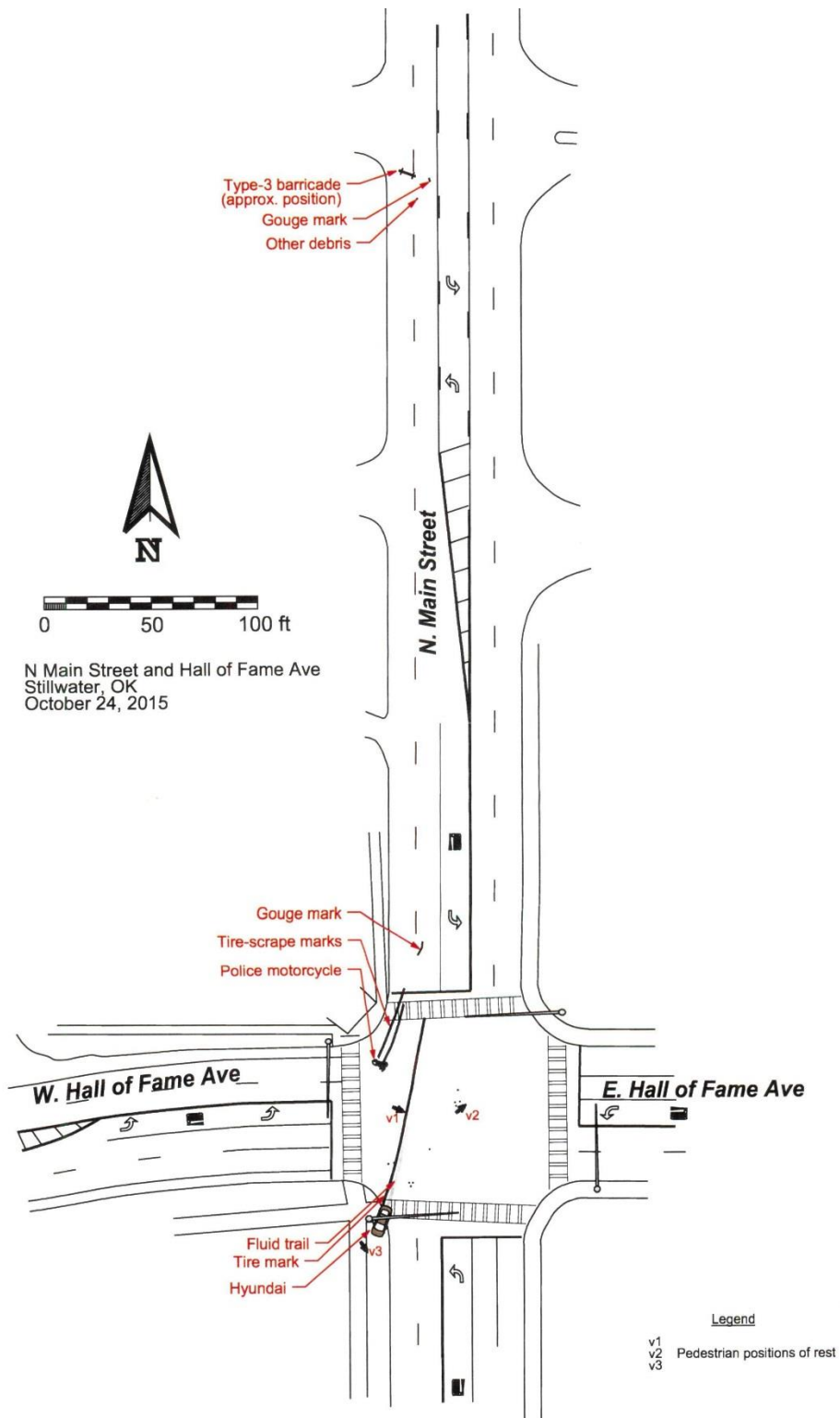


Figure 1. Scene diagram of the crash site at Main Street and Hall of Fame Avenue intersection.

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Table 1. Injuries.

	Fatal ^a	Serious	Minor	None	TOTAL
Hyundai driver	--	--	--	1	1
Pedestrian victims	4	15	39	--	58
TOTAL	4	15	39	1	59

^a Although 49 *Code of Federal Regulations* Part 830 pertains to the reporting of aircraft accidents and incidents to the NTSB, section 830.2 defines fatal injury as “any injury which results in death within 30 days of the accident” and serious injury as “any injury which (1) requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received; (2) results in a fracture of any bone (except simple fractures of fingers, toes, or nose); (3) causes severe hemorrhages, nerve, or tendon damage; (4) involves any internal organ; or (5) involves second- or third-degree burns, or any burn affecting more than 5 percent of the body surface.”

The victims ranged in age from 1 to 66 years old. The fatalities consisted of a 2-year-old male, a 23-year-old female, a 65-year-old male, and a 65-year-old female.²

Roadway Information

The crash occurred on Main Street at its intersection with Hall of Fame Avenue. At this location, Main Street is a four-lane roadway with two lanes of travel in the north- and southbound directions. The through lanes at the intersection are separated by a left-turn lane, and the edge of the roadway is bordered by raised concrete curbs. The posted speed limit for traffic in both directions is 35 mph. The roadway surface is asphalt; at the time of the crash, the pavement was dry. When the crash occurred, large numbers of pedestrian parade spectators were standing along the edge of the roadway at the southwest corner of the intersection.

Parade Protection and Planning

The Stillwater Office of Emergency Management (OEM) conducted oversight and safety planning for the homecoming weekend events. An Incident Action Plan (IAC), prepared by the Stillwater OEM, the SPD, and the Stillwater Fire Department (SFD), established the command structure and responsibilities for the weekend. The IAC focused on a homecoming event that had taken place the previous day, and it included the National Incident Management System forms for the Incident Command Structure.

The OSU Alumni Association; the city of Stillwater (including the OEM, SPD, and SFD); and the Stillwater Department of Transportation (SDOT) cooperatively carried out the parade route planning and execution. The OSU Alumni Association submitted special event forms to SDOT requesting temporary street closures and traffic controls. The OSU Alumni Association coordinated with SDOT to establish the parade route along Main Street, starting at Ninth Street and continuing north to Hall of Fame Avenue. A parade route map identified road closure locations

² Refer to the Factual Report of Investigation for more information, available in the accident docket.

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and staging areas for the parade vehicles. This map included the locations of the road closures, but it did not detail closure signage, barricades, or temporary traffic controls (TTC).

The city of Stillwater provided information for the road closure used on southbound Main Street (the route traveled by the Hyundai). The southbound lanes of Main Street were closed by the placement of a single Type-3 TTC barricade in the outside lane and a Type-1 TTC barricade in the inside lane that were in accordance with specifications in the *Manual on Uniform Traffic Control Devices (MUTCD)*.³ However, other aspects of the road closure at southbound Main Street, such as advance warnings and designation of the appropriate travel path, did not conform to all *MUTCD* provisions.⁴

Driver Information

Licensing, Medical, Cell Phone, and Toxicological Information

The driver of the Hyundai was a 25-year-old female. At the time of the crash, she held an Oklahoma regular class D driver's license and had no history of traffic violations or accidents.⁵ Medical records indicated that she had no history of physical conditions that might have influenced her performance during the crash. In the section for self-reported medical history on the accident driver's 2007 license application, she did not disclose any medical conditions affecting her ability to operate a motor vehicle safely.

Mental health records obtained during the investigation show that, in May 2012, the accident driver was involuntarily committed for mental health treatment. She was subsequently diagnosed with schizoaffective disorder, bipolar-type.⁶ In 2012, the accident driver had been enrolled in an outpatient treatment program, but when the crash occurred in October 2015, she was not being actively treated for schizoaffective disorder and was not taking any prescription medications related to the disorder.

Under Oklahoma law, the Medical Advisory Committee (MAC) of the Oklahoma Department of Public Safety regulates medically at-risk drivers, including drivers who have been diagnosed with a mental health disorder. Oklahoma does not require physicians to report to the MAC patients with medical conditions or functional impairments that may affect their ability to drive. However, physicians may voluntarily report any patient that they believe is incapable of operating a motor vehicle. A physician who reports a driver in good faith has full immunity in doing so. Any verifiable source, including police officers, coworkers, or family members, can notify the MAC of an at-risk driver; however, such reports cannot be made anonymously. The

³ (a) The Factual Report of Investigation contains details of the TTCs at this location and is available in the accident docket. (b) The *MUTCD* provides standards and guidance for implementing temporary road closures.

⁴ The TTCs' incomplete conformity with *MUTCD* specifications was not a factor in this crash because the accident driver continued driving despite her collision with the portable barricades on Main Street; she was apparently oblivious to the TTCs.

⁵ An Oklahoma regular class D license permits the holder to operate cars, vans, trucks under 26,001 pounds gross vehicle weight rating, recreational vehicles, and firetrucks.

⁶ Schizoaffective disorder is a condition in which a person experiences symptoms such as hallucinations or delusions, along with mania or depression. These symptoms may be intermittent.

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MAC may evaluate a driver based on a self-report, made in the driver's initial license application, that the driver has been diagnosed with or treated for any of the identified medical conditions.⁷

NTSB investigators performed a forensic examination of the accident driver's cell phone. The data indicated that the driver was not using the cell phone immediately before the crash.

Following the crash, Stillwater police investigators obtained a sample of the driver's blood for toxicological analysis. The sample was divided and analyzed by both the Oklahoma State Bureau of Investigation and the Civil Aerospace Medical Institute. The results of toxicological tests for the presence of alcohol and impairing drugs were negative.⁸

Driver's Activities on the Day of the Crash

On the morning of the crash, the accident driver went to work at a Stillwater restaurant. An assistant manager stated that the accident driver reported about 8:45 a.m. As the restaurant staff began preparing to open for business, the manager noticed that the accident driver seemed "out of sorts," distant, and distracted. The manager stated that this condition was unusual, as the accident driver was typically a hard worker. At 10:00 a.m., the manager noticed that the driver had left the restaurant. The manager later learned that she had left the restaurant to move her car to another parking area. When she returned about 10:10 a.m., the manager noticed that the driver seemed emotionally distraught. When the manager questioned her about her absence, the driver stated "I think I need to go home." When asked how long she would be gone from the restaurant, the driver responded "Forever." The manager interpreted the driver's response to mean that she was resigning her position; the driver had recently made a similar statement of resignation but had soon afterwards withdrawn it and resumed her duties. According to this manager, who was the last person known to have had contact with the accident driver before the crash, about 10:20 a.m., the driver, without notice, stopped working and ran from the restaurant. After this, the driver evidently went to her car and began to drive. The manager told investigators that the driver had seemed emotionally upset during their final interaction.

The crash site was not along the driver's normal driving route to her home. The crash occurred approximately 0.7 mile away from the restaurant. Video footage recorded by a parade observer indicates that the driver faced a red traffic signal on Main Street during her approach to the crash site.

⁷ The Oklahoma driver's license application asks applicants to indicate if they have any of the following medical conditions: diabetes, epilepsy, blackouts, fainting spells, heart disease, current mental health disorder, amputation, paralysis, multiple sclerosis, muscular dystrophy, cerebral palsy, Parkinson's, or loss of memory.

⁸ The accident driver tested negative for ethyl alcohol, cocaine, benzoylcegonine, methamphetamine, MDMA, phencyclidine, benzodiazepines, carisoprodol, meprobamate, barbiturates, cannabinoids, methadone, oxycodone, oxymorphone, tramadol, zolpidem, opiates, antidepressants, and antihistamines.

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As the accident driver approached the crash site, her vehicle struck the portable road barricades used to block the roadway for the parade. After colliding with the barricades, she continued traveling straight ahead for approximately 300 feet and struck a police motorcycle stopped in the roadway. As evidenced by the compression of the front suspension and the sliding of the left front tire, the accident driver applied the vehicle's brakes only after striking the police motorcycle. Her vehicle continued onto Hall of Fame Avenue, where it struck a crowd of parade spectators, fatally injuring 4 and seriously injuring 15. The vehicle came to rest straddling the raised concrete curb at the southwest corner of the intersection.

Vehicle Information

Damage

The vehicle involved in this crash was a 2014 Hyundai Elantra. Postcrash examination revealed that the most severely damaged part of the car was its front. The hood was crushed in several areas. The bumper and grill sustained significant damage, and portions of the grill and the outer plastic cover of the front bumper were fractured or missing. The structural portion of the right front corner of the bumper was displaced upwards about 5 inches and aft about 2 inches. Portions of both headlights were fractured or missing.

The windshield glass was in place but fractured, and several areas showed depressions, cracks, punctures, and separations. Large areas of glass were separated from the windshield frame on both the lower right corner and left side.

The right front tire was deflated, and the right wheel was displaced aft into the fender well. The right and left front fenders were damaged, and both outside mirrors were displaced. Both sides of the car had areas of minor damage. (See figure 2 for images of damage to the Hyundai.)



Figure 2. Postcrash views of the front (left) and driver's side front of the Hyundai (right).

No significant damage was noted on the back half of the car. The interior of the Hyundai had no obvious crash-related damage.

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Airbag Control Module Data

The Oklahoma Highway Patrol (OHP) conducted a download of data from the airbag control module (ACM) of the 2014 Hyundai.⁹

The ACM data indicated that 5 seconds prior to its impact with the police motorcycle, the Hyundai's speed was 54 mph; at the time of impact, its speed was 59 mph. In the 5 seconds of data that preceded the collision with the motorcycle, the engine throttle position was recorded as 35–37 percent; the engine speed increased from 1900 rpm to 2400 rpm; there was no brake application or steering input; and the driver's seat belt was buckled.

Emergency Response

The first 911 call was received at 10:31 a.m. local time. The 911 call center dispatched the SPD and the SFD, and it forwarded the call to the Payne County Sheriff's Office, the OHP, and LifeNet Emergency Medical Services. Police were already on scene as part of parade control, and officers were in the immediate vicinity of the crash.

The SPD was the primary responding law enforcement agency and it had primary jurisdiction, but it was assisted by other agencies. An SPD lieutenant was the parade supervisor, and he was riding in a police car at the end of the parade. After the crash, he became the initial Incident Commander. The sheriff's office had several vehicles and horse-mounted officers in the parade, as well as an all-terrain vehicle. All these resources assisted with the response in various roles, such as providing crowd control, attending to victims, and helping to set up a helicopter landing zone. The OHP also had troopers in the area for the event; they helped with the response.

The SFD dispatched three units to the scene—a battalion chief vehicle, a rescue vehicle, and a ladder truck. While these units were en route, two other SFD units that were in the parade, a fire truck and a tanker truck, were activated. A LifeNet medic was put in charge of triage, and another was the transport officer. The triage area was set up in the middle of the intersection of Hall of Fame Avenue and Main Street at 10:33 a.m., and patients were placed on tarps. Three different air ambulance services were used to transport seven patients from the scene.

Stillwater Medical Center (SMC) is the level 1 trauma center in Stillwater. Patients were transported to SMC as well as to the OSU Medical Center, Children's Hospital in Tulsa, St. John's Medical Center in Tulsa, Mercy Hospital in Tulsa, and Perry Memorial Hospital in Perry. SMC had a policy in place that, in the event of an emergency, allowed licensed independent practitioners to provide disaster assistance at SMC. In this case, qualified medical volunteers assisted in the treatment and care of victims at SMC.

⁹ The ACM was a part of the supplemental restraint system, and it recorded several seconds of pre- and postcollision data. The factors recorded by the ACM included vehicle speed, engine speed, brake application, throttle position, seat belt use, steering input, and airbag performance.

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Behavioral Interpretation of Driver's Actions

The NTSB examined how the accident driver's emotional state may have influenced her driving performance during the crash. According to the driver's restaurant coworkers, when she reported to work on the morning of the crash, she seemed emotionally distracted and had difficulty performing job-related tasks that she normally did well. When confronted by her manager about her behavior, the driver became emotionally distressed, made reference to quitting her job, and ran to her car. Given that the crash occurred only about 10 minutes after the driver left her job, she was most likely still experiencing emotional distress when the crash occurred.

As the accident driver approached the crash site, she struck portable road barricades used to block the roadway for the parade. The impact with the barricades was significant enough to displace them from their original positions and to damage the Hyundai's left rearview mirror. Even so, after colliding with the barricades, the driver continued traveling approximately 300 feet along a straight section of roadway and struck a stopped police motorcycle. After she struck the barricades, there was sufficient time and distance for the driver to have halted her vehicle before striking the motorcycle. Yet, according to crash data recorded by the accident vehicle, 5 seconds prior to impact with the motorcycle, the Hyundai's speed was 54 mph; at impact, it had accelerated to 59 mph. Despite the driver's having a clear line of sight and sufficient distance to stop, no braking or steering input was recorded prior to the impact with the motorcycle. The driver did not stop for the red traffic light as she approached the crash area, and she did nothing after striking the portable barricades to avoid the collision with the motorcycle. These failures to act in response to the traffic signal and a crash event suggest the driver was disengaged from the driving task.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the Stillwater, Oklahoma, crash was the failure, due to emotional distress, of the accident driver to comply with portable traffic barricades used to block the roadway, so that she continued driving into a parade area restricted to pedestrian traffic, where her vehicle collided with a group of parade spectators.

For more details about this accident, visit <http://dms.nts.gov/pubdms/> and search for NTSB accident ID HWY16FH002.

Issued: September 27, 2016

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, "accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties . . . and are not conducted for the purpose of determining the rights or liabilities of any person." 49 *Code of Federal Regulations*, Section 831.4. Assignment of fault or legal liability is not relevant to the NTSB's statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report. 49 *United States Code*, Section 1154(b).
