



# Aviation Investigation Final Report

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<b>Location:</b>	Las Vegas, Nevada	<b>Accident Number:</b>	WPR23LA041
<b>Date &amp; Time:</b>	November 18, 2022, 10:27 Local	<b>Registration:</b>	N88E (A1); N4050P (A2)
<b>Aircraft:</b>	Cessna 172M (A1); ROBINSON HELICOPTER R44 (A2)	<b>Aircraft Damage:</b>	Substantial (A1); Minor (A2)
<b>Defining Event:</b>	Midair collision	<b>Injuries:</b>	2 None (A1); 1 None (A2)
<b>Flight Conducted Under:</b>	Part 91: General aviation - Instructional (A1); Part 91: General aviation - Instructional (A2)		

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## Analysis

The student pilot in the helicopter was conducting his first solo flight in the airport traffic pattern at a towered airport. The student pilot was cleared by the local LC2 controller (controller) to depart from taxiway Papa, which parallels the north side of runway 30R, and to fly the taxiway Papa option, which was a closed traffic pattern to the taxiway. After several successful full-stop landings to taxiway Papa, the controller instructed the accident helicopter to, when able, make a right turn on taxiway Kilo, and that landing on the east ramp was at the pilot's own risk. However, the helicopter pilot reported that he mistakenly flew an approach to runway 30R, rather than taxiway Papa; he then terminated the approach in a hover over the runway. Video surveillance footage shows that the nose of the helicopter was oriented in the landing direction; the student pilot reported being unaware that an airplane was on approach to land on the runway. The airplane then collided with the aft section of the skids and the helicopter pitched up, rotated left about 90° and landed upright on the runway.

The accident airplane was on a right downwind to land on runway 30R when the controller advised the pilot of the helicopter traffic operating on taxiway Papa. The airplane pilot stated that she made visual contact with the helicopter and that it appeared to be operating on taxiway Papa. During the turn onto the base leg for runway 30R, the right wing blocked the instructor's view of the runway and she lost sight of the helicopter. The instructor stated that as they turned onto final approach, she was assisting the student in maintaining airspeed and the glide slope while managing the flap setting. She stated that a moment later, while approaching the runway threshold, she saw the helicopter and it appeared to be hovering over runway 30R, about 100-300 ft past the runway numbers, and not on taxiway Papa. The instructor recalled that it was too late to abort the landing by the time she realized the helicopter's position, and elected to touch down underneath the helicopter. The airplane's left wing collided with the skids of the helicopter, the fuselage rotated left, and the wing struck the ground, sustaining substantial

damage to the spar.

After hearing the helicopter's call sign to acknowledge the instruction, the controller repeated the instruction and "observed [the] helicopter hovering over Taxiway Papa very slowly drifting towards a right turn on Kilo." After walking across the tower to view an aircraft entering the pattern, she returned to observe that the Cessna had, "cranked the wheels all the way to the left to avoid the helicopter." At that time, the helicopter landed on the runway, right in front of the Cessna, and the airplane "tipped on the wing, and for a minute, it looked like it would go upside-down" before turning upright again.

The student pilot's mistaken approach to runway 30R, rather than the taxiway where he was cleared to land (and where he had conducted previous full-stop landings), put him directly in the path of, and facing away from, the approaching airplane.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The student helicopter pilot's failure to follow the tower controller's landing instructions, which resulted in a midair collision.

### Findings

<b>Personnel issues (A1)</b>	Incorrect action performance - Pilot of other aircraft
<b>Personnel issues (A1)</b>	Lack of action - ATC personnel
<b>Personnel issues (A2)</b>	Incorrect action performance - Student/instructed pilot

# Factual Information

## History of Flight

<b>Landing-flare/touchdown (A1)</b>	Midair collision (Defining event)
<b>Maneuvering-hover (A2)</b>	Midair collision
<b>Maneuvering-hover (A2)</b>	Wrong surface or wrong airport

On November 18, 2022, about 1027 Pacific standard time, a Cessna 172M, N88E, and a Robinson R44, N4050P, collided over runway 30R at North Las Vegas Airport (VGT), Las Vegas, Nevada. The flight instructor and student pilot on board the Cessna and the student pilot on board the Robinson were not injured. Both aircraft were operated under the provisions of Title 14 Code of Federal Regulations Part 91 as instructional flights.

There were two helicopters, a Cessna airplane, and a Diamond airplane operating in the airport’s right-hand traffic pattern at the time of the accident. One helicopter, which was alternating turns in the taxiway pattern with the accident helicopter, was waiting on the east ramp for their turn in the pattern. The two airplanes were using right traffic for runway 30R. Taxiway Papa parallels the north side of runway 30R; both runway 30R and taxiway Papa were under control of the LC2 controller at the time of the accident.

The Cessna had completed 3 approaches to runway 30R, including one full-stop and two touch-and-go landings, and the accident helicopter had completed 4 full-stop landings to taxiway Papa before the accident. (See Figure 1.)

[For Figure 1, I suggest using high-res version of Fig. 4 from ATC Factual Report]

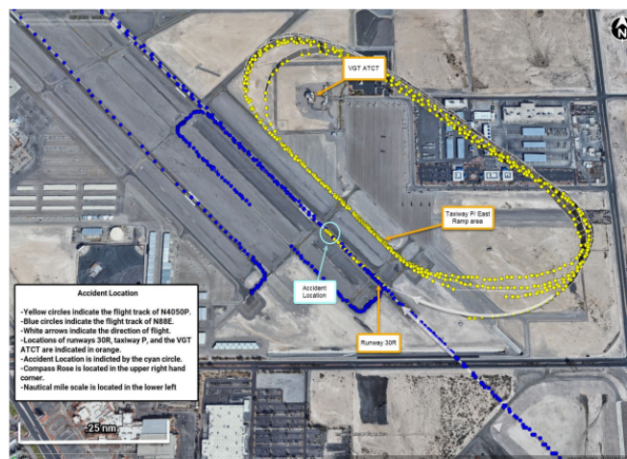


Figure 4. Graphic depicts the flight tracks of N4050P and N88E, and the accident location.

At 10:24, the tower controller cleared the Cessna for the option to land on runway 30R; the pilot read back the instructions.

At 10:25, the controller cleared the accident helicopter for takeoff from taxiway Papa, and subsequently cleared the student pilot for the option back to taxiway Papa; the pilot acknowledged the instructions.

At 10:26, the controller advised the Cessna that there was helicopter traffic in a close right base for taxiway Papa, and the pilot replied that they were looking for the helicopter.

At 10:27, the controller instructed the accident helicopter to, when able, make a right turn on taxiway Kilo, and that landing on the east ramp was at the pilot's own risk. (See Figure 2.) The pilot responded by stating "Las Vegas tower, five zero papa." The controller again instructed the helicopter pilot to make a right turn onto taxiway Kilo. The pilot did not acknowledge the instruction.



Figure 2. View of initial point of impact in relation to Taxiway Papa, Taxiway Kilo, the East Ramp, and ATC.

The student pilot in the accident helicopter, who was conducting a solo instructional flight, reported that he had departed from taxiway Papa, flew the right-hand traffic pattern, and was instructed by the controller to fly his approach to taxiway Papa. However, he reported that he mistakenly flew his approach to runway 30R and terminated the approach in a hover over the runway. Video surveillance footage shows that the nose of the helicopter was oriented in the landing direction; the student pilot reported being unaware that an airplane was on approach to land on the runway. The airplane collided with the aft section of the skids and the helicopter pitched up, rotated left about 90° and landed upright on the runway.

The instructor in the Cessna stated that, when they were on the downwind leg of the traffic pattern, she had brief visual contact with the helicopter, which appeared to be operating on taxiway Papa. During the turn onto the base leg, the right wing blocked the instructor's view of the runway. The instructor stated that as they turned onto the final approach she was assisting the student in maintaining airspeed and the glideslope while managing the flap setting. She stated that a moment later she saw the helicopter and it appeared to be hovering over runway 30R, about 100-300 ft past the runway numbers, and not on taxiway Papa. The instructor in the Cessna recalled that it was too late to abort the landing and elected to touch down underneath the helicopter. The airplane's left wing collided with the skids of the helicopter, the fuselage rotated left, and the wing struck the ground, causing substantial damage to the spar. Subsequently the right wing struck the runway surface before the airplane came to an abrupt stop.

The controller stated that, after instructing the helicopter to turn right onto taxiway Kilo, "I didn't hear a readback at the time," but that she "thought that perhaps it was a critical stage of flight for him." After hearing the helicopter's call sign to acknowledge the instruction, she repeated the instruction and "observed [the] helicopter hovering over Taxiway Papa very slowly drifting towards a right turn on Kilo." She continued,

At the time, I had to walk across the tower to find my remaining aircraft in the pattern to make sure that the pattern entry was complete, and I observed the aircraft, the Diamond Star, entering the pattern. And I turned around to walk across the tower to observe my helicopter, and at that time, I saw a helicopter. It appeared that he made, instead of a right turn into the ramp, he made a left turn and was entering the runway.

She then watched as the Cessna "cranked the wheels all the way to the left to avoid the helicopter." At that time, the helicopter landed on the runway, right in front of the Cessna, and the airplane "tipped on the wing, and for a minute, it looked like it would go upside-down" before turning upright again.

### Flight instructor Information (A1)

<b>Certificate:</b>	Commercial; Flight instructor	<b>Age:</b>	27,Female
<b>Airplane Rating(s):</b>	Single-engine sea; Multi-engine land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane single-engine; Instrument airplane	<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	Class 1	<b>Last FAA Medical Exam:</b>	October 18, 2022
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	November 17, 2022
<b>Flight Time:</b>	(Estimated) 340.9 hours (Total, all aircraft), 36.9 hours (Total, this make and model), 245.9 hours (Pilot In Command, all aircraft), 86.6 hours (Last 90 days, all aircraft), 33.7 hours (Last 30 days, all aircraft), 2.1 hours (Last 24 hours, all aircraft)		



## Student pilot Information (A1)

<b>Certificate:</b>	Student	<b>Age:</b>	38, Female
<b>Airplane Rating(s):</b>	None	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	None	<b>Last FAA Medical Exam:</b>	
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	(Estimated) 22 hours (Total, all aircraft), 22 hours (Total, this make and model), 1 hours (Last 24 hours, all aircraft)		

## Student pilot Information (A2)

<b>Certificate:</b>	Student	<b>Age:</b>	33, Male
<b>Airplane Rating(s):</b>	None	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	Class 2 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	January 27, 2022
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	(Estimated) 60 hours (Total, all aircraft), 28 hours (Total, this make and model), 7 hours (Pilot In Command, all aircraft), 23 hours (Last 90 days, all aircraft), 17 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information (A1)

<b>Aircraft Make:</b>	Cessna	<b>Registration:</b>	N88E
<b>Model/Series:</b>	172M	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1973	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	17261476
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	October 25, 2022 100 hour	<b>Certified Max Gross Wt.:</b>	2300 lbs
<b>Time Since Last Inspection:</b>	73.1 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	7098.8 Hrs at time of accident	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	C126 installed, not activated	<b>Engine Model/Series:</b>	O-320-E2D
<b>Registered Owner:</b>	702 HELICOPTER INC	<b>Rated Power:</b>	180 Horsepower
<b>Operator:</b>	702 HELICOPTER INC	<b>Operating Certificate(s) Held:</b>	Pilot school (141)

## Aircraft and Owner/Operator Information (A2)

<b>Aircraft Make:</b>	ROBINSON HELICOPTER	<b>Registration:</b>	N4050P
<b>Model/Series:</b>	R44	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>	2020	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	30061
<b>Landing Gear Type:</b>	None; Skid	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	November 4, 2022 100 hour	<b>Certified Max Gross Wt.:</b>	2200 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	2562.6 Hrs	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	C126 installed, not activated	<b>Engine Model/Series:</b>	O-540-F1B5
<b>Registered Owner:</b>	SOUTHERN UTAH UNIVERSITY	<b>Rated Power:</b>	260 Horsepower
<b>Operator:</b>	SOUTHERN UTAH UNIVERSITY	<b>Operating Certificate(s) Held:</b>	Pilot school (141)

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KVGT,2190 ft msl	<b>Distance from Accident Site:</b>	0 Nautical Miles
<b>Observation Time:</b>	17:53 Local	<b>Direction from Accident Site:</b>	15°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.1 inches Hg	<b>Temperature/Dew Point:</b>	10°C / -8°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Las Vegas, NV (A1); Las Vegas, NV (A2)	<b>Type of Flight Plan Filed:</b>	None (A1); None (A2)
<b>Destination:</b>	Las Vegas, NV (A1); Las Vegas, NV (A2)	<b>Type of Clearance:</b>	VFR (A1); VFR (A2)
<b>Departure Time:</b>		<b>Type of Airspace:</b>	Class D (A1); Class D (A2)

## Airport Information

<b>Airport:</b>	NORTH LAS VEGAS VGT	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	2205 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	30R	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	4199 ft / 75 ft	<b>VFR Approach/Landing:</b>	Full stop;Traffic pattern

## Wreckage and Impact Information (A1)

<b>Crew Injuries:</b>	2 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	N/A	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>		<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 None	<b>Latitude, Longitude:</b>	36.210703,-115.19444(est)



## Wreckage and Impact Information (A2)

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Minor
<b>Passenger Injuries:</b>	N/A	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>		<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	36.210703,-115.19444(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Hicks, Michael
<b>Additional Participating Persons:</b>	Richard Ramirez; FAA; Las Vegas, NV
<b>Original Publish Date:</b>	December 5, 2024
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class 3</a>
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.ntsb.gov/Docket?ProjectID=106336">https://data.ntsb.gov/Docket?ProjectID=106336</a>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

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” (Title 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 (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).