Executive Summary

At 19:14 on March 11, 2024, a tourist bus operated by Long Lai Transportation Ltd. carrying students from Kang Chiao International School, crashed into the tunnel wall at 2K+370 on the northbound side of Wenshan Tunnel of the Xinyi Expressway in Taipei City and overturned. As a result of the crash, 2 occupants sustained serious injuries and 22 had minor injuries.

In accordance with the Transportation Occurrence Investigation Act, the Taiwan Transportation Safety Board (TTSB) is the independent transportation occurrence investigation agency responsible for conducting the investigation. The investigation team also included members from the Highway Bureau of the Ministry of Transportation and Communications (MOTC), the Public Works Department of the Taipei City Government, Long Lai Transportation Ltd., and Kang Chiao International School.

The draft of this investigation report was completed in May 2025. In accordance with the relevant procedures, it was revised after preliminary review at the 76th Board Meeting of the TTSB on June 13, 2025, and then sent to relevant agencies (institutions) for their opinions. The investigation report was published after review and approval by the 77th Board Meeting on July 11, 2025.

After comprehensive investigation and analysis of the factual data, a total of 11 findings and 10 transportation safety recommendations were obtained.

I. Investigation Findings

Findings Related to Probable Causes

1. After entering the Wenshan Tunnel, the occurrence vehicle continued to accelerate beyond the speed limit. Upon feeling the rear of the vehicle sway, the driver used the main brake and exhaust brake to slow down on the slippery road with low skid resistance. He also performed four steering operations within 6 seconds, and the steering angle of the vehicle increased each time, causing the vehicle to lose stability and control, ultimately crashing into the tunnel wall and overturning.

Findings Related to Risks

1. The paved surface of the northbound middle lane in Wenshan Tunnel has suffered "polishing" damage due to long-term friction from wheels. Since the tunnel opened in 2005, no road surface maintenance work has been carried out, resulting in reduced skid resistance. This increased the potential risk of vehicles skidding and losing control.
2. The inspection records from the outsourced contractor commissioned by the Public Works Department of the Taipei City Government did not document the "polishing" damage on the northbound road of Wenshan Tunnel. Additionally, cracks on the rigid pavement were incorrectly classified as "fatigue cracking", a type of damage typically associated with flexible pavement.
3. Before driving, the occurrence driver did not instruct all passengers to fasten their seat belts. As a result, at least 17 passengers who were not wearing seat belts sustained injuries due to collisions or being crushed against each other during the vehicle rollover.

Other Findings

1. There were no abnormalities in the tires, steering system, or braking system of the occurrence vehicle. The occurrence driver held a valid driving license issued by the Highway Bureau, and his past violations were not directly related to the occurrence. There was no evidence suggesting that alcohol or drugs were involved in this occurrence.
2. This occurrence shares similarities with another accident involving a Kang Chiao after-school student bus that occurred on May 21, 2024. In both cases, the vehicles were traveling in the middle lane under rainy conditions on wet roads with low skid resistance. After braking, both vehicles were subjected to excessive steering maneuvers, resulting in the vehicles tilting and veering out of their lanes.
3. The maximum average speed of the occurrence vehicle while traveling in Wenshan Tunnel was approximately 74.7 km/h, which is lower than the critical speed for hydroplaning (96 km/h). Moreover, the occurrence vehicle and the vehicle involved in the other occurrence on the same road segment traveled 1.04 kilometers and 1.415 kilometers, respectively, from the Wenshan Tunnel entrance to the point of the accident. As there was no water ponding observed on the road surface, hydroplaning is unlikely to have been a contributing factor in either accident.
4. After the occurrence, the occurrence driver failed to confirm the number of students on board and failed to guide the students to a safe place for assembly, which created the potential risk of secondary injuries.
5. Long Lai’s road traffic accident handling procedures lack content on the emergency evacuation and assembly of passengers, and are not

incorporated into the emergency escape procedures in the Kang Chiao Commuter Bus Management Manual.

6. Some students at Kang Chiao did not participate in the safety evacuation drills at the beginning of each semester, resulting in them being unfamiliar with emergency escape methods and the use of vehicle safety equipment.

7. Long Lai did not truthfully report alcohol testing results; Kang Chiao did not verify the cloud management platform information; the assessors of the motor vehicles supervisory authority failed to notice that the company used inappropriate documents to record alcohol tests, which led to the failure to implement the alcohol testing management mechanism.

II. Safety Recommendations

To Long Lai Transportation Ltd.

1. Strengthen driver training on the correct use of the braking system on slippery roads to reduce the risk of vehicle control loss in emergency situations.

2. Strengthen and implement the requirement for drivers to use audio and video, signs, and other effective methods to require passengers to fasten their seat belts before driving, thereby reducing the severity of injuries due to occurrences.

3. Revise the road traffic accident handling procedure and strengthen the emergency escape procedures for passengers (including Kang Chiao students). Plan and organize relevant education and training.

To Kang Chiao International School

1. Strengthen the safety management mechanism for student commuter buses, such as implementing alcohol testing before driving for drivers, conducting and maintaining proper documentation of medical checks and alcohol testing records, establishing effective procedures to ensure students fasten their seat belts, and improving emergency evacuation protocols and safety evacuation drills in the event of an accident, in order to safeguard the operational safety of student commuter buses.

To Taipei City Government

1. Revise the urban road maintenance manual to incorporate inspection and maintenance standards for rigid pavements, and implement verification procedures for inspection operations.

To New Taipei City Government

1. Supervise Kang Chiao International School to strengthen and effectively implement measures related to pre-departure alcohol testing for student commuter bus drivers, seat belt usage, emergency evacuation procedures, and safety evacuation drills, in order to ensure the safety of passengers on student commuter buses.

To the National Land Management Agency, MOI

1. Research and formulate skid resistance design and maintenance mechanisms for rigid pavements on urban roadways for reference by local government road management and maintenance agencies.

To the Highway Bureau, MOTC

1. Assist transportation operators in using appropriate forms for records, and ensure compliance with Article 19 of the Regulations for Automobile Transportation Operators during safety audits, which requires tourist bus drivers to complete an alcohol test before driving.
2. Provide guidance to tourist bus operators on strengthening their road traffic accident handling procedures, incorporating passenger emergency escape procedures, and strengthening driver-related education and training.

To the Ministry of Transportation and Communications

1. Research and formulate skid resistance design and maintenance management mechanisms for rigid pavements on national and provincial highways, and provide reference for other roadway authorities at all levels in developing their mechanisms.