

Reducing the Potential for Vehicle/Pedestrian Deviations (V/PD) and Runway Incursions



Federal Aviation
Administration



Office of Airport
Safety and
Standards

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PURPOSE

The purpose of this PowerPoint is to emphasize the importance of taking all possible measures to prevent runway incursions by pedestrians and ground vehicles. Airport operators and vehicle operators both have a responsibility to ensure that pedestrian and vehicle operations on the movement area are conducted as safely as possible to reduce the potential for collisions with aircraft.

Definition of a Surface Incident

Any event where unauthorized movement by an aircraft, *vehicle, or pedestrian* occurs on the Movement Area that affects or could affect the safety of flight.

Definition of a Runway Incursion

Any occurrence at an airport, *with an operating control tower*, involving:

–an aircraft

–a vehicle

–a person

–or an object

...on the ground that creates a collision hazard or results in loss of separation with an aircraft taking off, intending to take off, landing, or intending to land.



Loss of separation occurs when an aircraft on final approach is within 1 mile of the landing threshold.

Vehicle/Pedestrian Deviations (V/PPD)



Holding Point

Crossing the holding position marking without ATCT authorization is a vehicle or pedestrian deviation.

Vehicle/Pedestrian Deviations (V/PD)



Driving or walking on an active taxiway without ATCT authorization is also a vehicle or pedestrian deviation.

Vehicle/Pedestrian Deviations (V/PD)



A vehicle or pedestrian on a runway or past a holding position without ATC clearance, while an aircraft is taking off, landing or within 1 mile final, is a runway incursion in addition to being a V/PD.

Vehicle/Pedestrian Deviations (V/PD)

What happens when a V/PD occurs.

- 1. The ATCT completes FAA Form 8020-24, *Preliminary V/PD Deviation Report*.**
- 2. FAA Airports Division issues a Letter of Investigation to the airport operator.**
- 3. The airport operator investigates the incident, initiates corrective actions as appropriate, and sends a report to the FAA Airports Division.**
- 4. The FAA Airports Division also investigates the incident, reviews the airport's ground vehicle program and incident report on the V/PD.**
- 5. The Airport Certification Inspector determines appropriate action and issues a closeout letter, Warning Letter, Letter of Correction, or initiates civil penalty action as a result of the FAA's investigation.**
- 6. The Airport Certification Inspector completes FAA Form 8020-25, *Investigation of V/PD Report*.**

Pedestrian and Ground Vehicle Operations



Probable speeding and lack of attention by the operator of this FBO vehicle resulted in a collision with a taxiing Cessna. This accident occurred on the apron at night

Pedestrian and Ground Vehicle Operations



The establishment of procedures for safe pedestrian/ground vehicle operations, enforcement of those procedures and implementing comprehensive training programs will reduce the potential for V/PDs and vehicle/aircraft collisions.

Pedestrian and Ground Vehicle Operations



The establishment of a comprehensive pedestrian/ground vehicle training program is required at airports certificated under Title 14 CFR Part 139. It is highly recommended that General Aviation airports with an ATCT also establish a pedestrian/ground vehicle training program if not already accomplished.

Airport Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



**Limit access to movement areas and safety areas to only the pedestrians and vehicles which are necessary for airport operations and maintenance.
At Part 139 airports this action is required by Part 139.329(a).**

Airport Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



Limit the number of airport tenant personnel authorized to operate a vehicle on the movement area to only those that have a definite need. Tenant personnel who may have a need to occasionally drive on the movement area would be better off being escorted by an authorized vehicle operator. Personnel who do not regularly drive on the movement area are not going to be as proficient as regular drivers.

Airport Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



Personnel who only operate on the movement area during seasonal times of the year, should receive recurrent training just prior to that seasonal period.

Airport Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



Require vehicle operators to use existing service roads rather than crossing a runway. In many situations, service roads around runway ends add quite a bit of travel time for airport personnel. This situation sometimes results in airport personnel taking shortcuts across the airfield as a matter of convenience. Airport management must be constantly on the lookout for this activity and continually emphasize the use of service roads.

Airport Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



Airport operators should construct perimeter and service roads around runway ends where feasible. Some roads may be eligible for AIP funding.

Airport Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



Airport operators should construct access roads to NAVAIDS, wind cones and other equipment from taxiways where feasible to eliminate vehicle access from runways. It may be possible for these roads to be included in AIP projects as runway incursion prevention measures.

Airport Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



Service roads that enter runways should have signs installed at the boundary of the runway safety area to help prevent inadvertent entry on an active runway.

Airport Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



Service roads along approach lights that enter runway ends should also have signs installed at the boundary of the runway safety area, which is typically 1000 feet from the threshold at commercial service airports.

Airport Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



Keep gates closed and locked to prevent inadvertent entry onto the Air Operations Area (AOA) by unauthorized vehicles.

Airport Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



Vehicles authorized to operate on the movement area should be equipped with beacons/flashing lights and personnel should be required to use the beacons/flashing lights when operating on the AOA. Headlights should also be on when operating on the AOA for improved visibility to pilots.

Airport Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



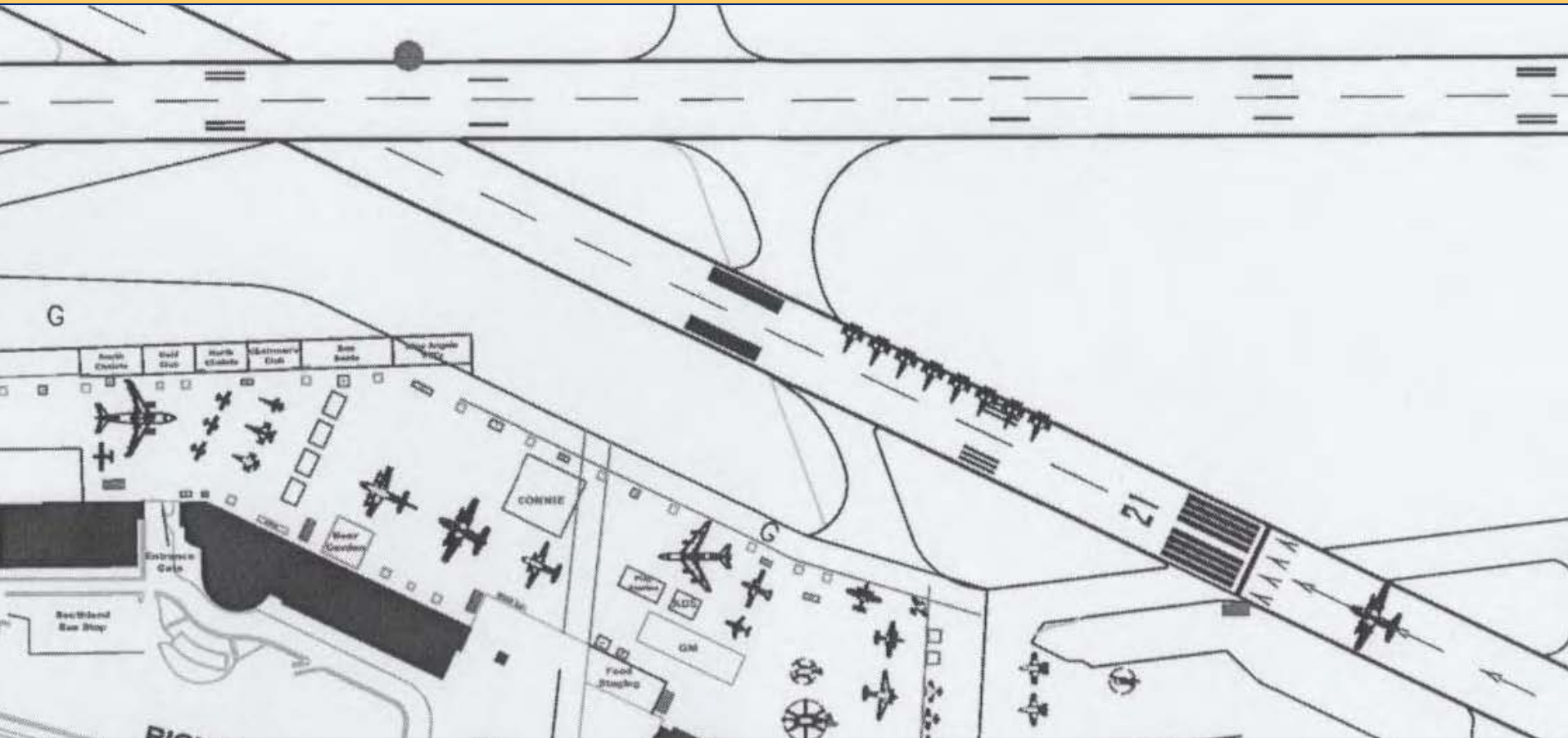
On construction projects, install signs to prevent inadvertent entry onto active portions of the movement area by construction vehicles and pedestrians.

Airport Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



On construction projects along runway safety areas, install signs or barricades to prevent inadvertent entry into the safety area.

Airport Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



Airshows provide a much higher risk of pedestrian and ground vehicle deviations where aircraft are parked on closed portions of the movement area and airshow related activities occur on the movement area. Airport operators should implement extra measures to prevent V/PDs during airshows and closely monitor airshow activities adjacent to and on the movement area. These measures should be addressed in the Airshow Ground Operations Plan submitted to the FAA.

Vehicle Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



Pay attention and be alert while driving on the movement area.

Vehicle Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



When driving on the movement area during inclement weather, use extra caution due to reduced visibility and less visible markings and signs.

Vehicle Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



Reduce distractions. Keep conversations with passengers to an absolute minimum. Avoid talking on the cell phone while on the movement area.

Vehicle Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



Use headsets while operating loud equipment so as to better hear ATC communications.

Vehicle Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



Airport maintenance and operations vehicles should have an outside speaker for times when personnel are outside the vehicle.

Vehicle Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



Be on the lookout for unknown vehicles on the AOA and challenge any unauthorized vehicles.

Vehicle Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



**Be 100 % sure that the ATCT clearance onto the runway was for you.
Question any clearance that does not appear to be correct.**

Vehicle Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



Be aware of which runways are being used. Always check for aircraft before proceeding onto a runway.

Vehicle Operator Actions to Reduce the Potential for Pedestrian and Ground Vehicle Deviations



Conduct runway inspections towards the direction of aircraft landing or taking off as much as possible. Vehicle operators are much more likely to see an aircraft landing or taking off if they are driving towards the runway being used.



March 2003 - Taiwan. A TransAsia Airbus landed on Runway 36 at Tainan Airport and hit a maintenance vehicle on the runway. There were no injuries to the passengers and crew. The flight was late and ATC cleared the aircraft to land on the runway shortly after it was closed for maintenance activity.



The maintenance vehicle was traveling in the direction of landing traffic and the two occupants in the vehicle failed to see the landing airliner.



Two other vehicles were also on the runway traveling towards the landing traffic and veered off the runway to avoid a collision with the aircraft.



The two people in the maintenance vehicle were injured but survived.

Review of Holding Position Signs and Markings

Types of Holding Position Signs

B1 15R - 33L

Holding position sign
on Taxiway B1

15R - 33L

Holding position sign
on a runway

ILS

ILS/POFZ holding position
signs

15R CAT II/III

Holding position sign for CAT
II/III operations at some airports

14 - APCH

Runway approach surface
holding position sign

F

Land and Hold Short Operations
(LAHSO) holding position sign
on a runway for a Taxiway
intersection

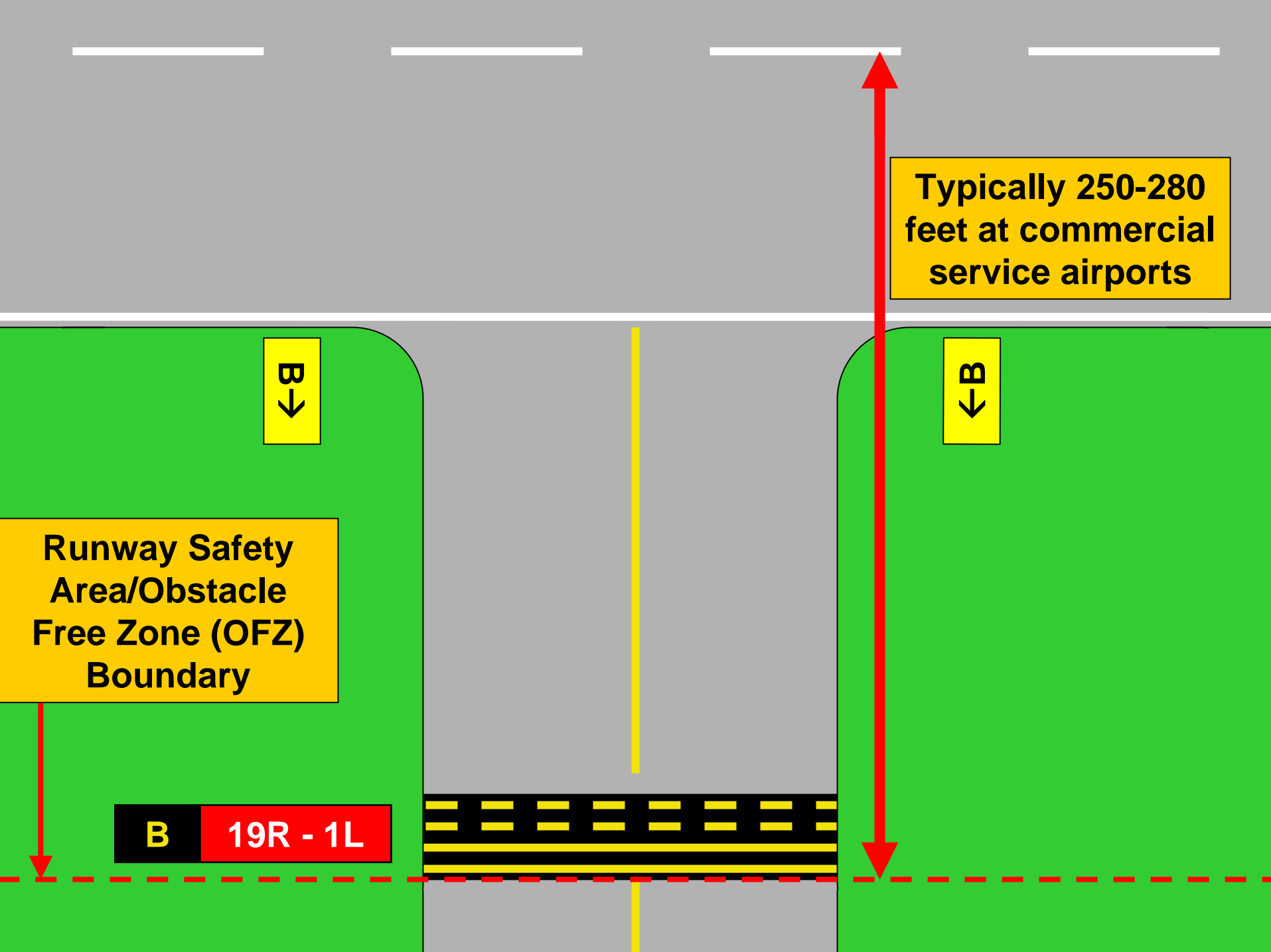
← Runway 32R

Runway 14L →

C1 32R - 14L



Runway designations on holding position signs are arranged in the direction of the takeoff ends.



Typically 250-280 feet at commercial service airports

B →

← B

Runway Safety Area/Obstacle Free Zone (OFZ) Boundary

B 19R - 1L

Review of Holding Position Signs

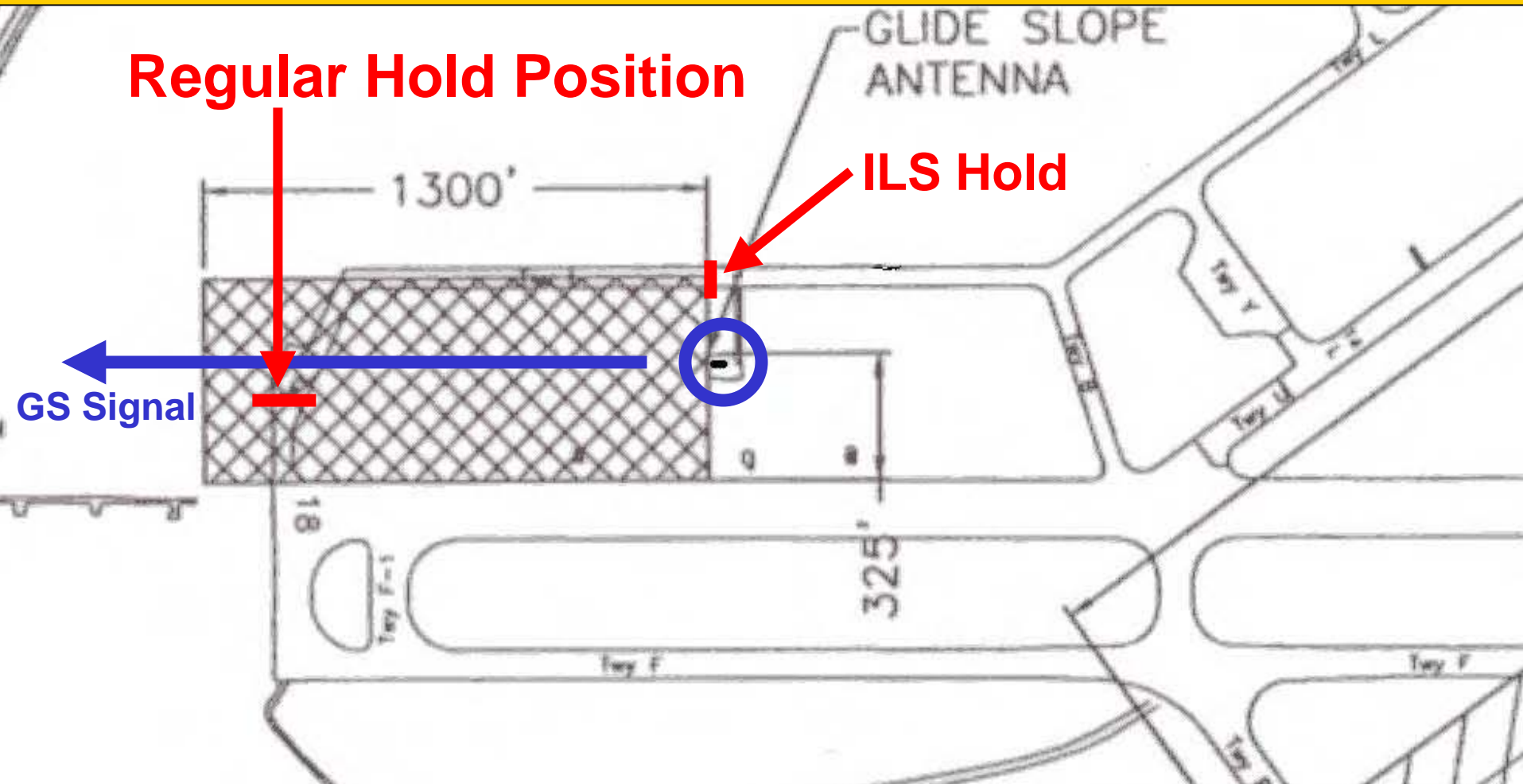
ILS Holding Position Signs



Hold at ILS hold position during IFR conditions when less than 800' ceiling or less than 2 miles visibility.

Review of Holding Position Signs

Typical ILS Glide Slope Critical Area



Aircraft or vehicles entering a ILS glide slope critical area, when an aircraft is on final approach during IFR weather, can distort the signal and could cause an accident.

Review of Holding Position Signs

ILS Glide Slope



ILS holding positions are installed at the boundary of an ILS critical area that extends onto taxiway pavement.

Review of Holding Position Signs

ILS Critical Area Boundary Sign

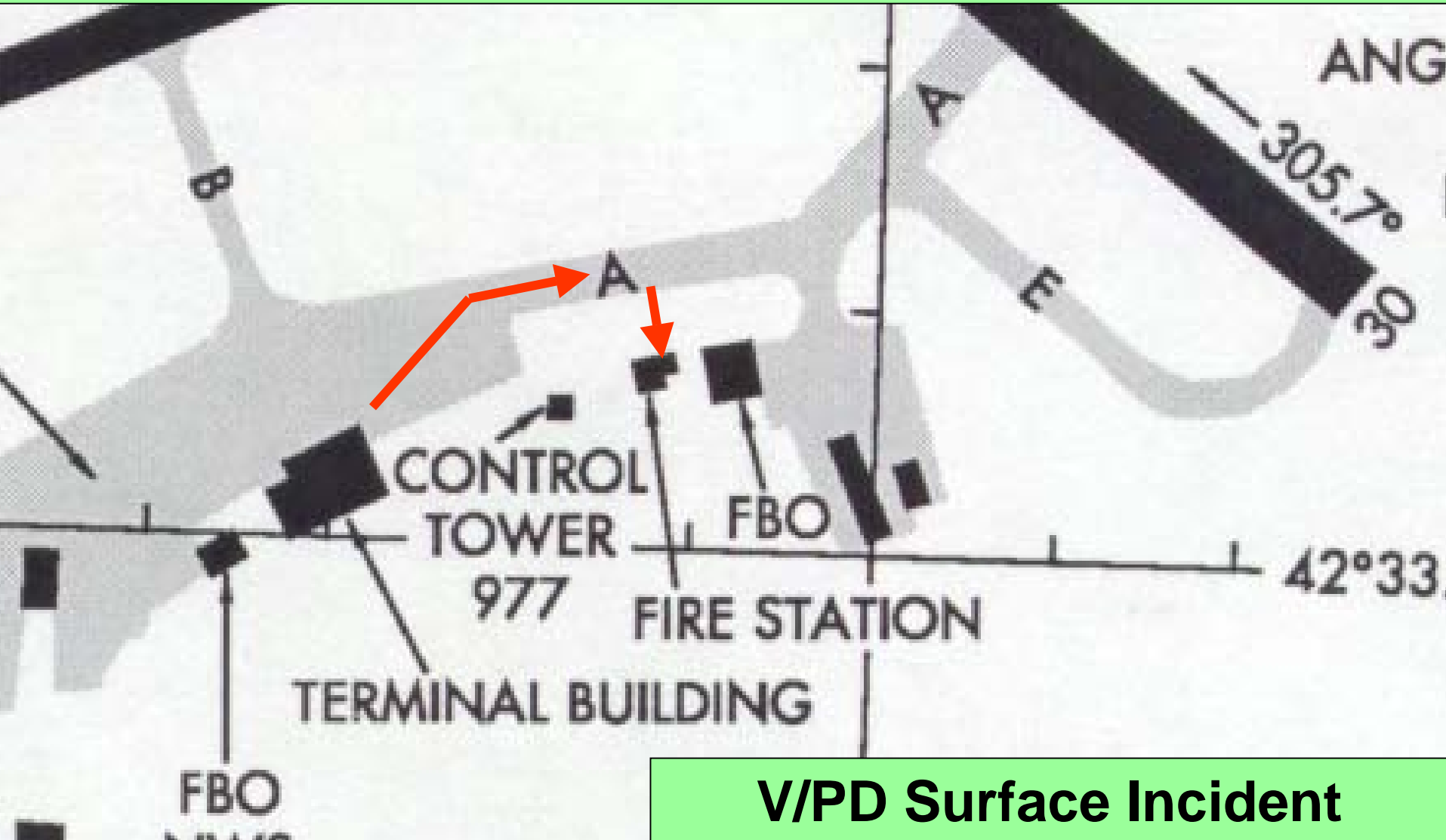


Only used at towered airports at some locations to help pilots/vehicle operators determine where to report clear of the ILS critical area when requested by ATC. This sign supplements the ILS holding position marking when it is not clearly visible during snow and ice conditions.

Pedestrian and Ground Vehicle Deviations

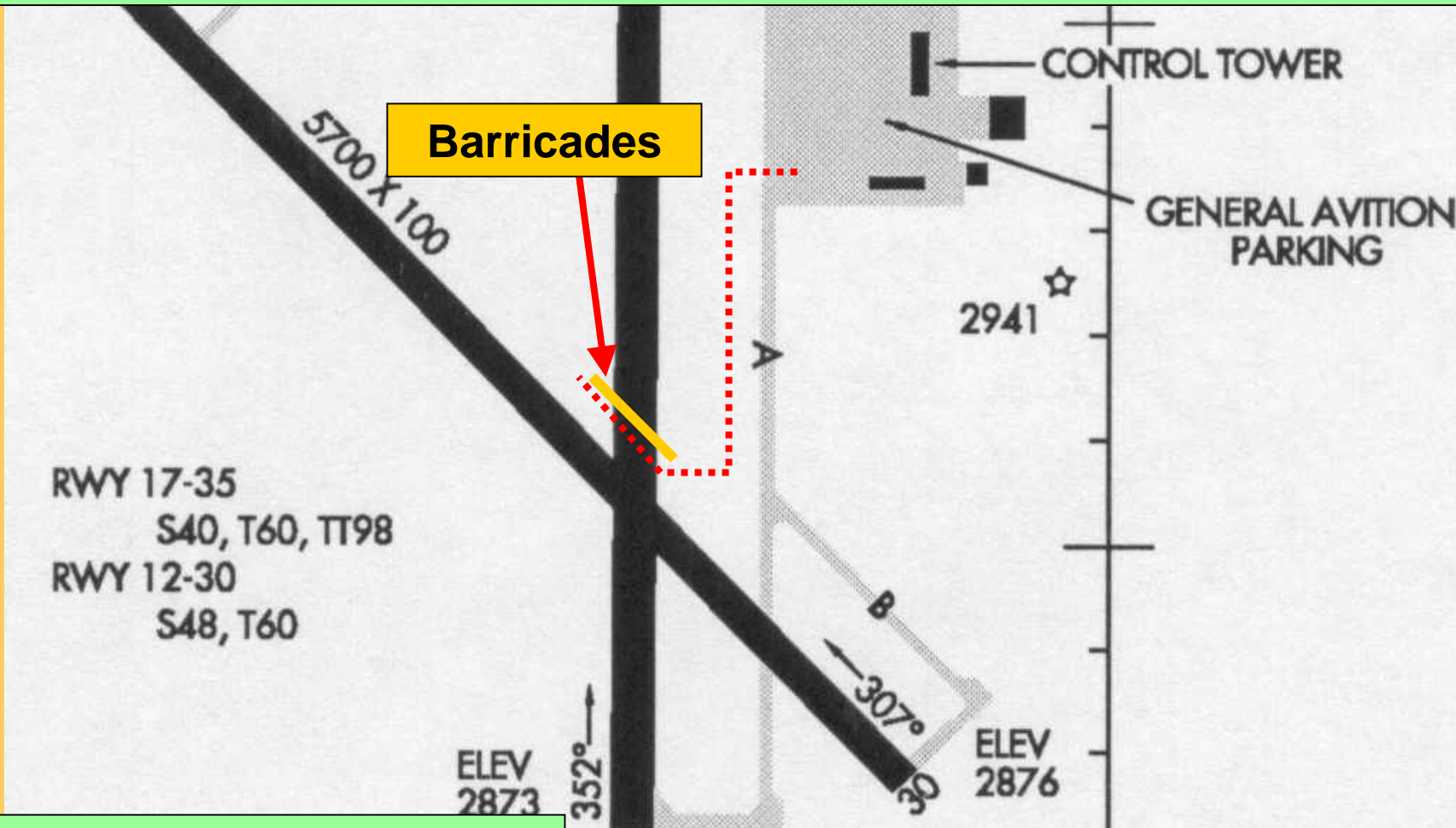
The remaining slides depict examples of vehicle and pedestrian deviations that have occurred in the past few years.

Vehicle Deviation - Taxiway An airline tug and mobile stair vehicle entered Taxiway Alpha from the apron without ATCT clearance. The vehicles proceeded eastbound on Taxiway Alpha a short distance and exited at the Fire Station to pick up a handicap lift device being stored there. The tug operator stated that she did not know that she could not drive on the taxiway without ATCT clearance and had not received any training on where she could operate a vehicle.



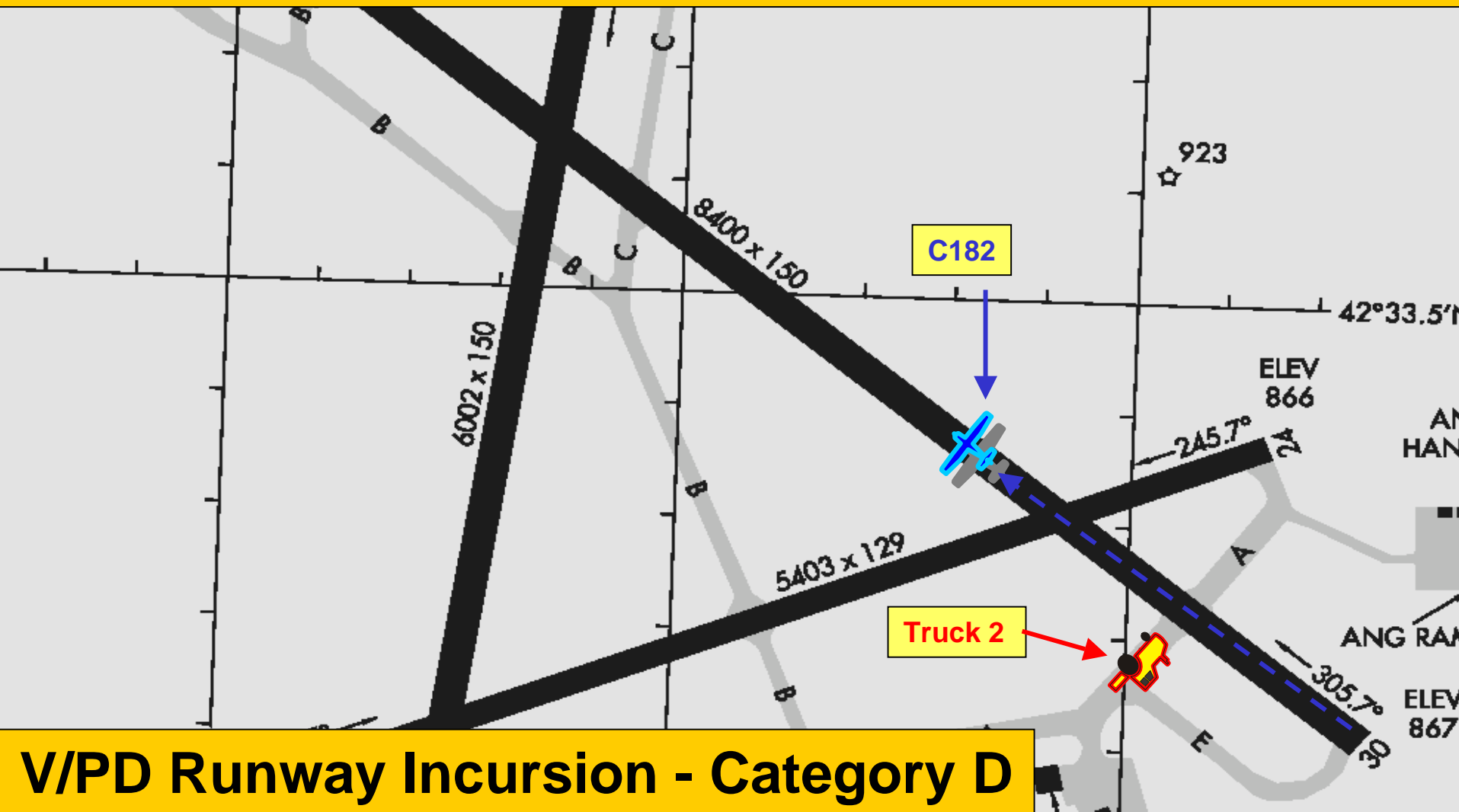
V/PD Surface Incident

Vehicle Deviation – Runway Safety Area The controller observed a black Chevy SUV proceed across the apron onto the grass infield. The vehicle then drove towards the construction area and proceeded across a closed Runway 17-35 on the 12-30 movement side of the barricades without ATCT clearance. The vehicle was an AF vehicle from another airport that was not equipped with a radio. FAA issued a Letter of Correction to the airport for the AF employee not complying with the ACM concerning training and radio equipped vehicles.

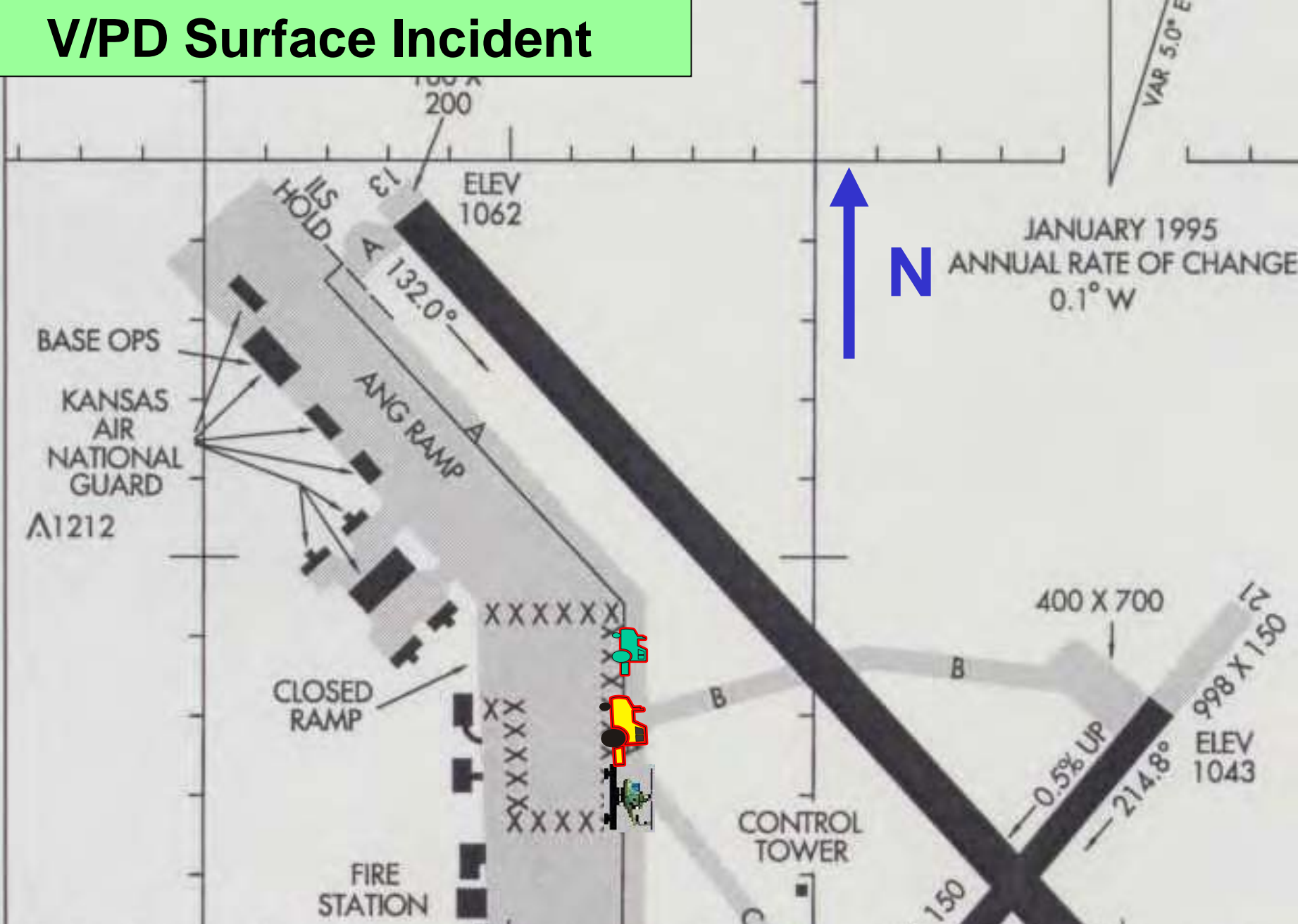


V/PD Surface Incident

Vehicle Deviation – Holdline Violation Airport maintenance Truck 2 was instructed and read back hold short of Runway 30 at Taxiway A. Truck 2 stopped at the holdline and observed a snow bank along the edge of the taxiway that he wanted to remove. The driver turned the vehicle sharply to avoid crossing the holdline and misjudged the location of the holdline, inadvertently crossing the holdline. ATCT observed Truck 2 crossing the holdline and instructed Truck 2 to back up over the hold short line. As Truck 2 was backing up, a Cessna C182, on departure Runway 30, passed abeam Taxiway A.

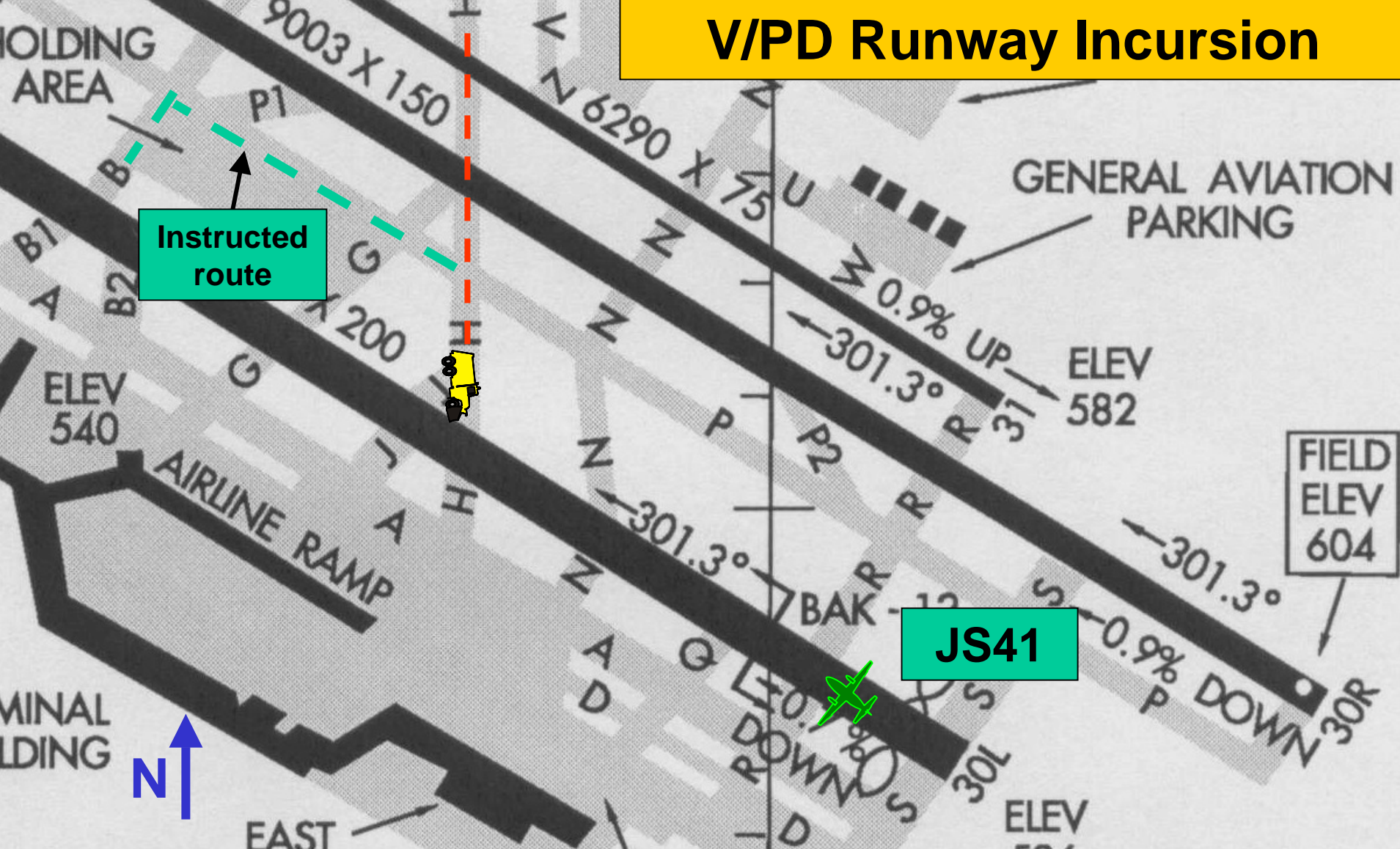


V/PD Surface Incident



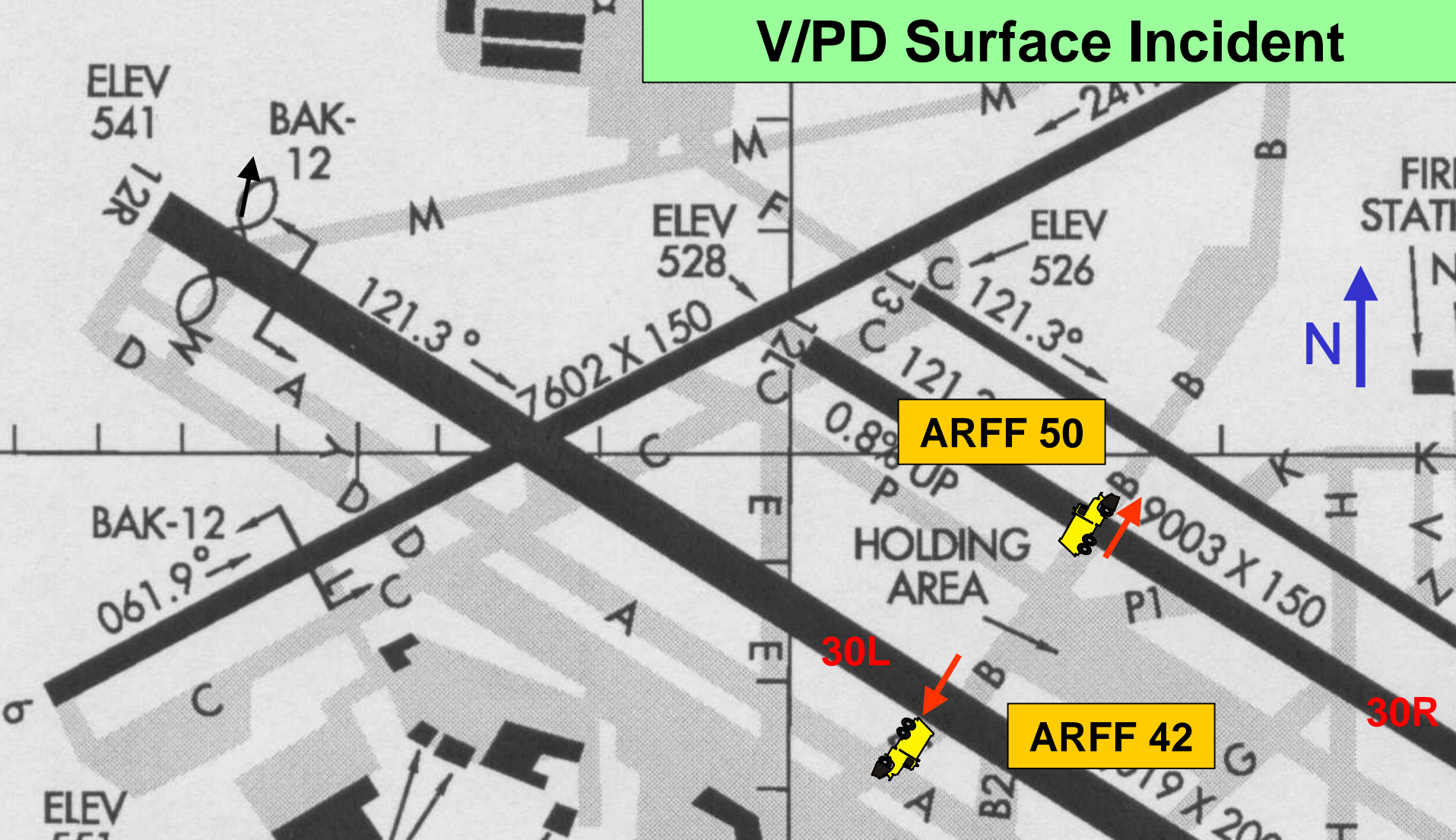
Vehicle Deviation - Taxiway A golf cart and tug towing a UH-60 Blackhawk helicopter entered Taxiway Alpha in front of the tower and proceeded north without ATCT clearance.

V/FPD Runway Incursion



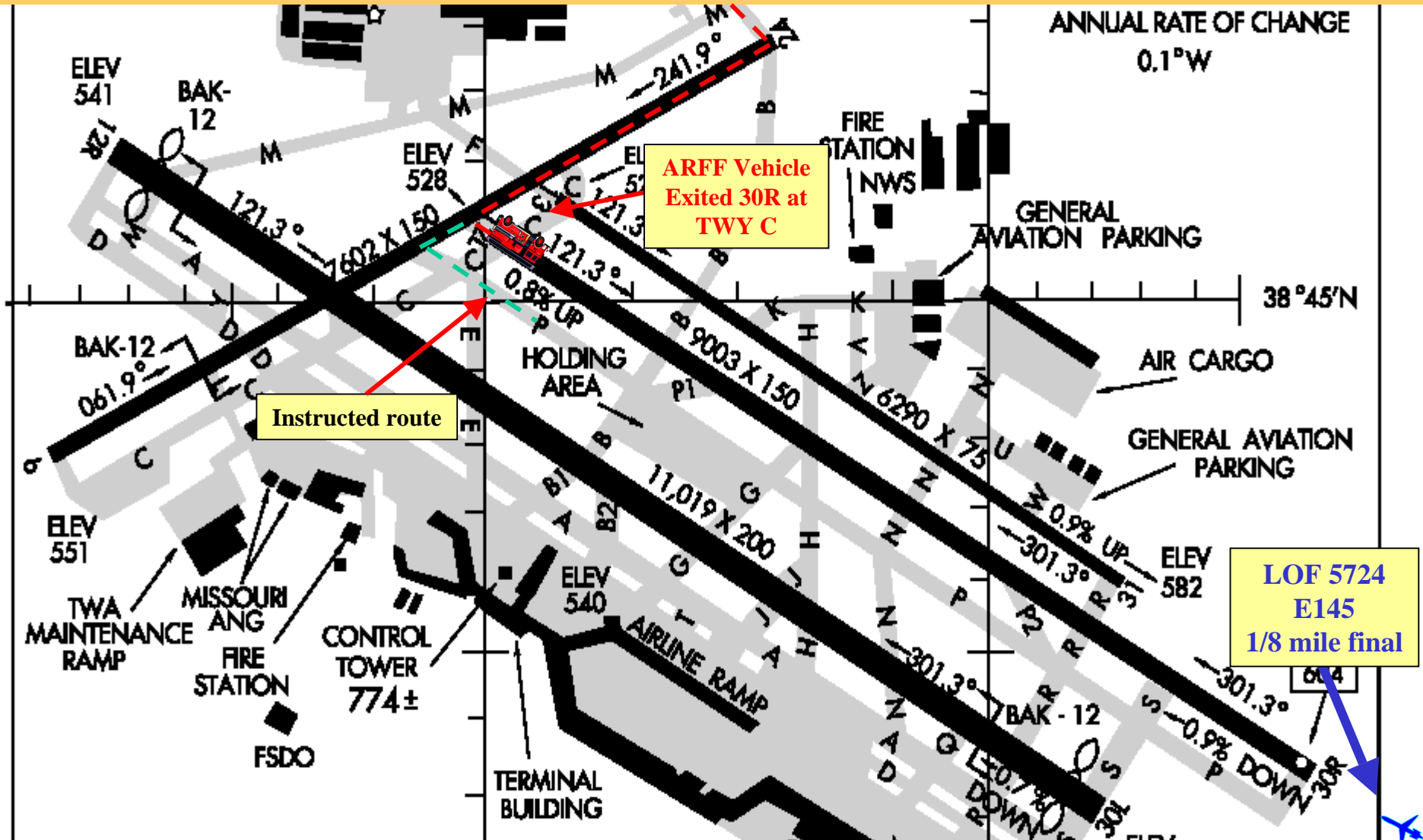
Vehicle Deviation – Holdline Violation Ground Control instructed Truck 46 (ARFF Vehicle) to cross 30R, turn right on Papa and hold short 30L on Taxiway Bravo. Truck 46 crossed 30R but failed to turn right on Papa and crossed the hold short line for Runway 30L at Hotel. A Jetstream 41 cleared for take-off 30L rolled about 2,400 feet and turned off at Romeo after Local Control cancelled take-off clearance.

V/PD Surface Incident



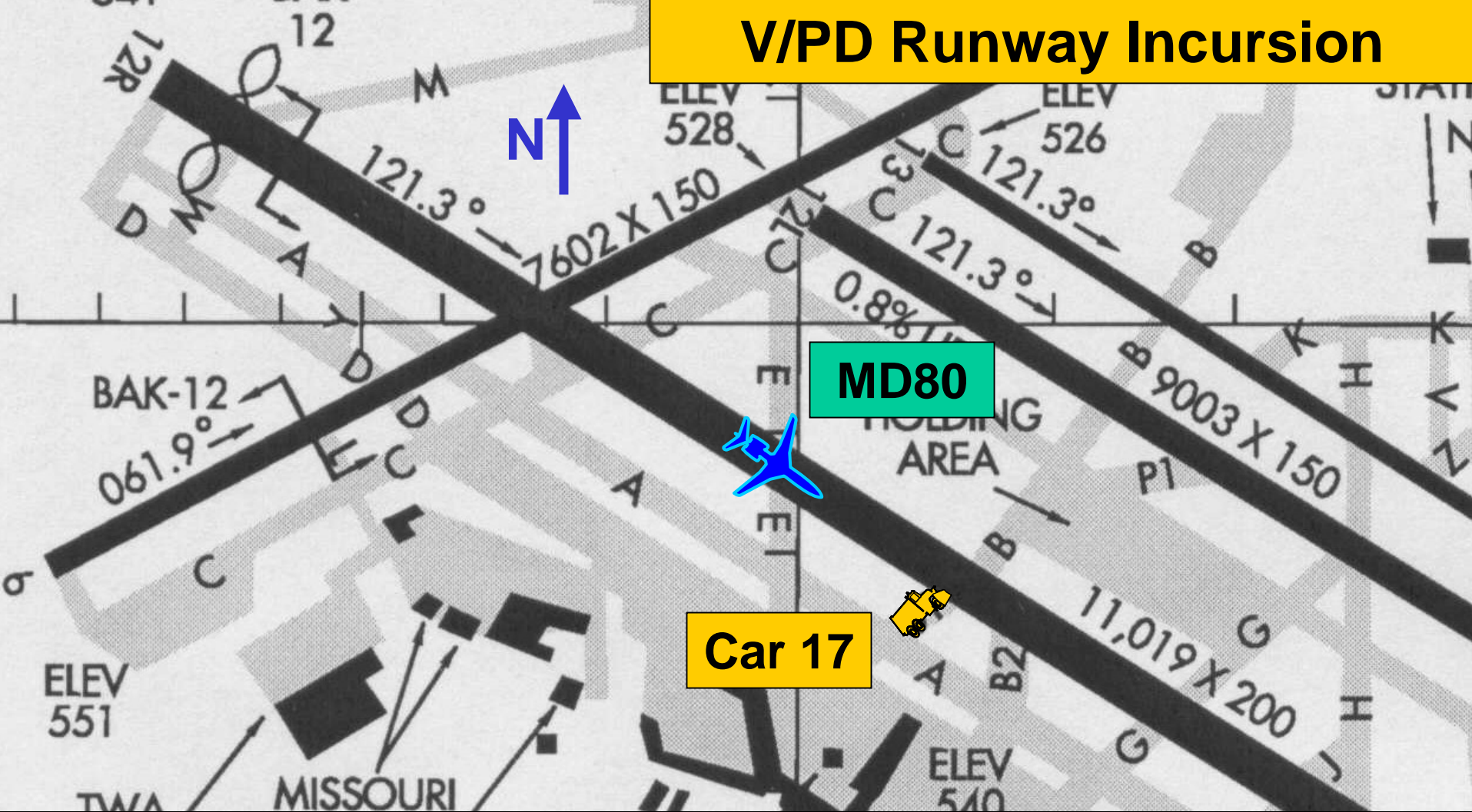
Vehicle Deviation - Runway GC instructed southbound ARFF 42 to hold short 30R at Bravo. ARFF 50 requested to drive from south side to Main Fire House. GC instructed northbound ARFF 50 to cross 30L and hold short 30R at Bravo. GC instructed ARFF 42 to cross 30R. GC then instructed ARFF 42 to cross 30L and 24 to Field Maintenance. ARFF 50 was then observed crossing 30R without ATCT clearance. ARFF 50 was then observed stopping in the middle of 30R and backing up. A C-501 on 1 ½ mile final was sent around.

V/PD Runway Incursion



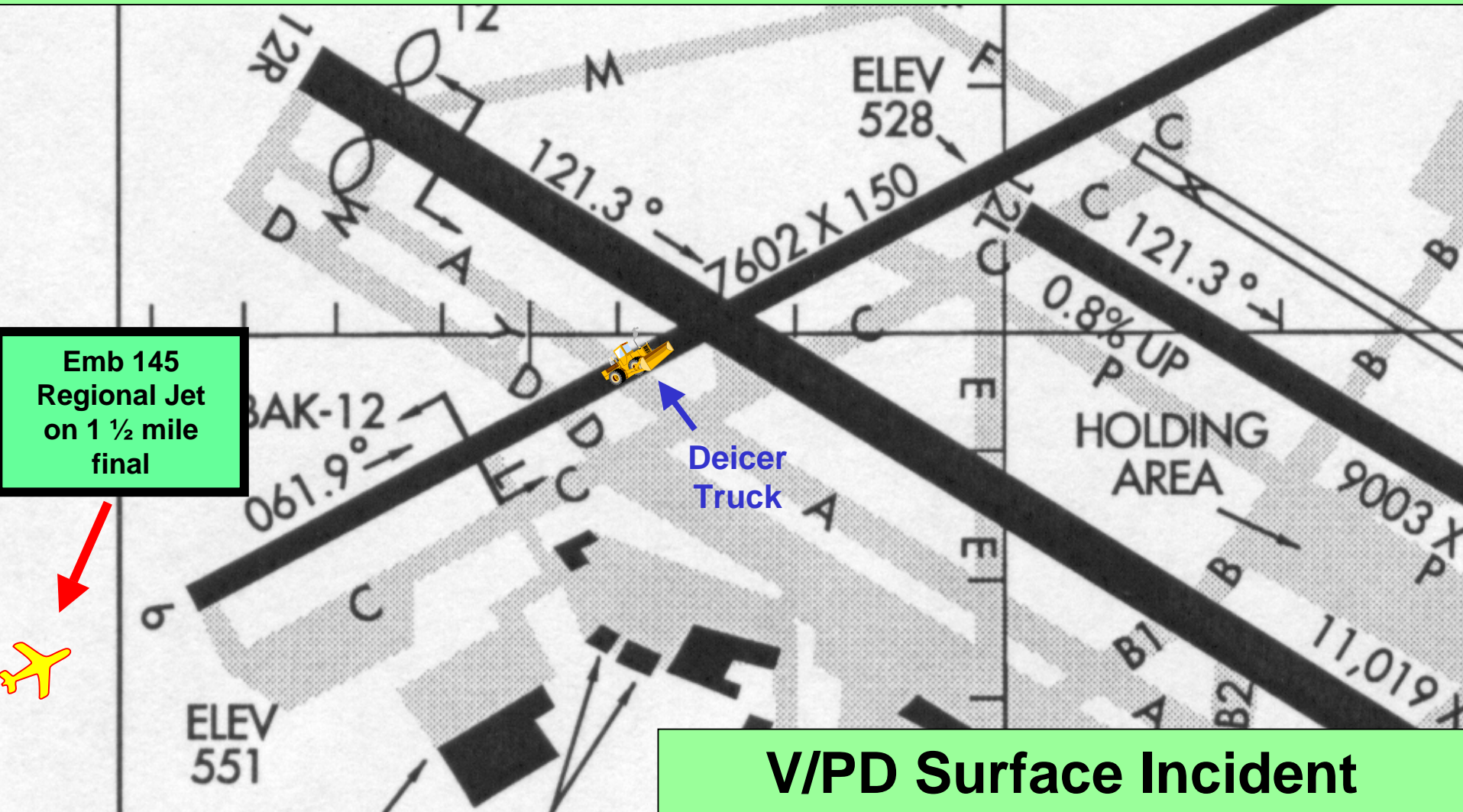
Vehicle Deviation - Runway ARFF 45 was cleared on Rwy 24 and instructed to exit Taxiway Papa. ARFF 45 instead exited onto the departure end of Rwy 30R while E-145 regional jet was on short final. The E-145 was sent around.

V/PD Runway Incursion



Vehicle Deviation – Holdline Violation. ATC cleared AAL MD80 for takeoff Rwy 12R. GC instructed Car 17 (Ops Vehicle) to hold short Runway 12R at Taxiway B1. Car 17 incorrectly read back hold short Rwy 12L at Twy Bravo. GC immediately corrected Car 17 with no response. GC instructed Car 17 to stop, while Car 17 reported “crossing 12R at Bravo One”. GC yelled at Car 17 a second time to STOP. Car 17 was then observed braking to a stop past the holdline but short of the runway edge as AAL MD80 was accelerating on takeoff at the Echo intersection. AAL MD80 was still on the ground when he passed B1.

Vehicle Deviation - Runway A deicer truck entered Rwy 6 without clearance and requested to cross 12R. An Emb 145 RJ on 1 ½ mile final was sent around. The deicer truck driver had contacted Operations and was told that Rwy 6 was closed for snow removal. Operations had just faxed NOTAM to ATCT. Operations failed to coordinate the runway closure with ATC and several aircraft were lined up for Rwy 6 when the NOTAM was faxed to ATCT. Deicer truck driver failed to obtain initial approval from ATCT prior to operating on any movement area, as required in Letter of Agreement and Airport Certification Manual.

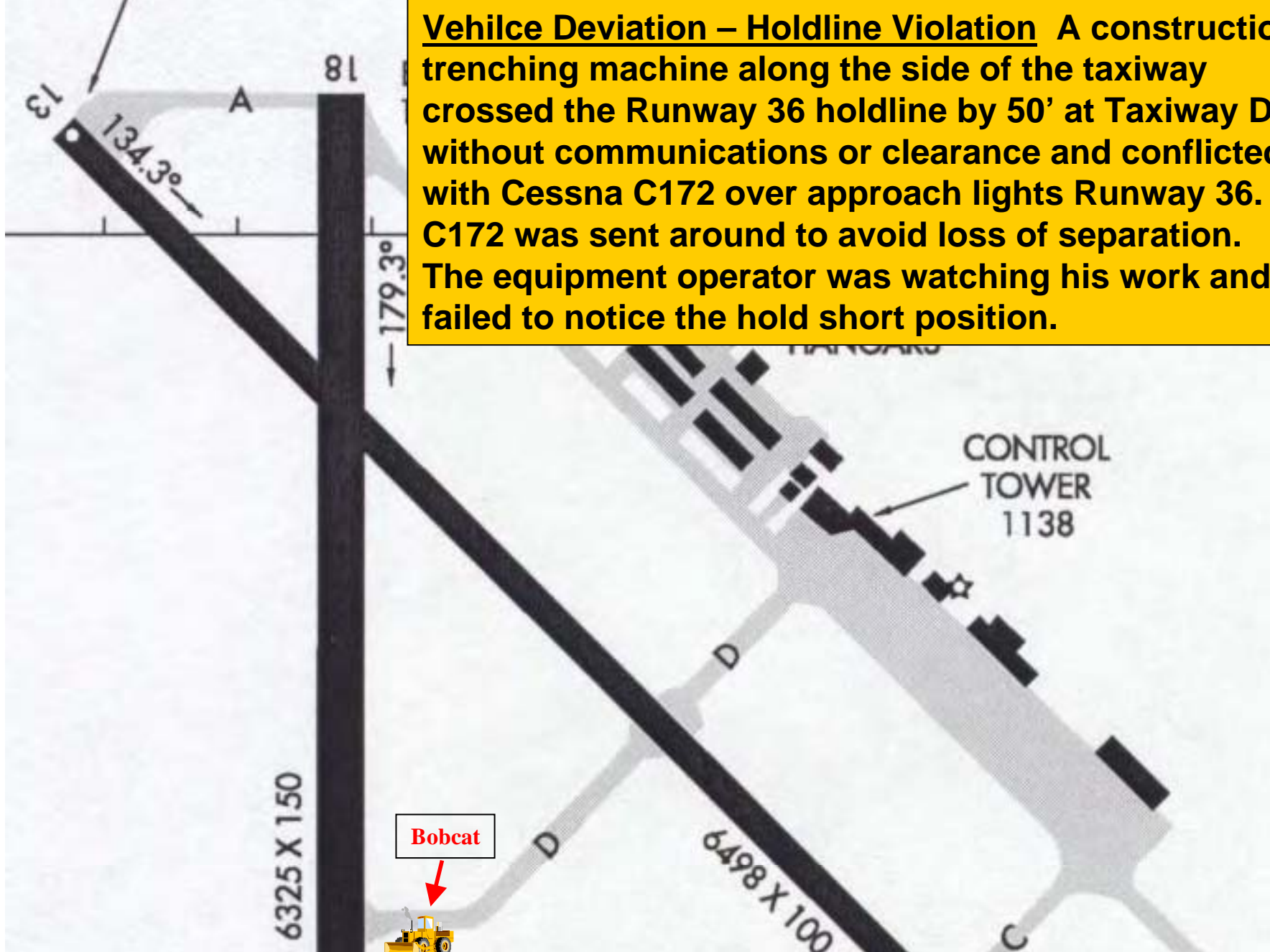


Emb 145
Regional Jet
on 1 ½ mile
final

Deicer
Truck

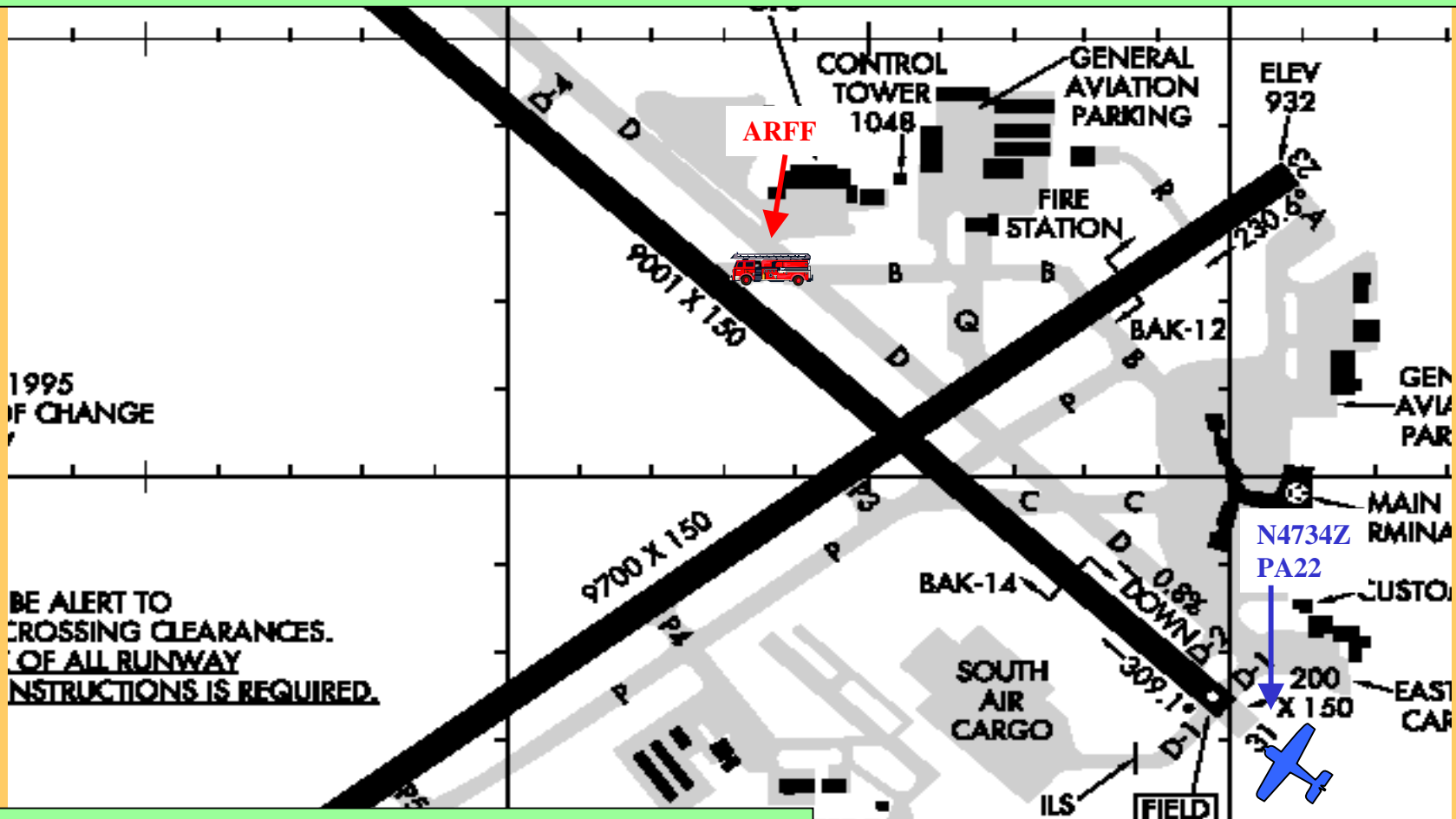
V/PD Surface Incident

Vehicle Deviation – Holdline Violation A construction trenching machine along the side of the taxiway crossed the Runway 36 holdline by 50' at Taxiway D without communications or clearance and conflicted with Cessna C172 over approach lights Runway 36. C172 was sent around to avoid loss of separation. The equipment operator was watching his work and failed to notice the hold short position.



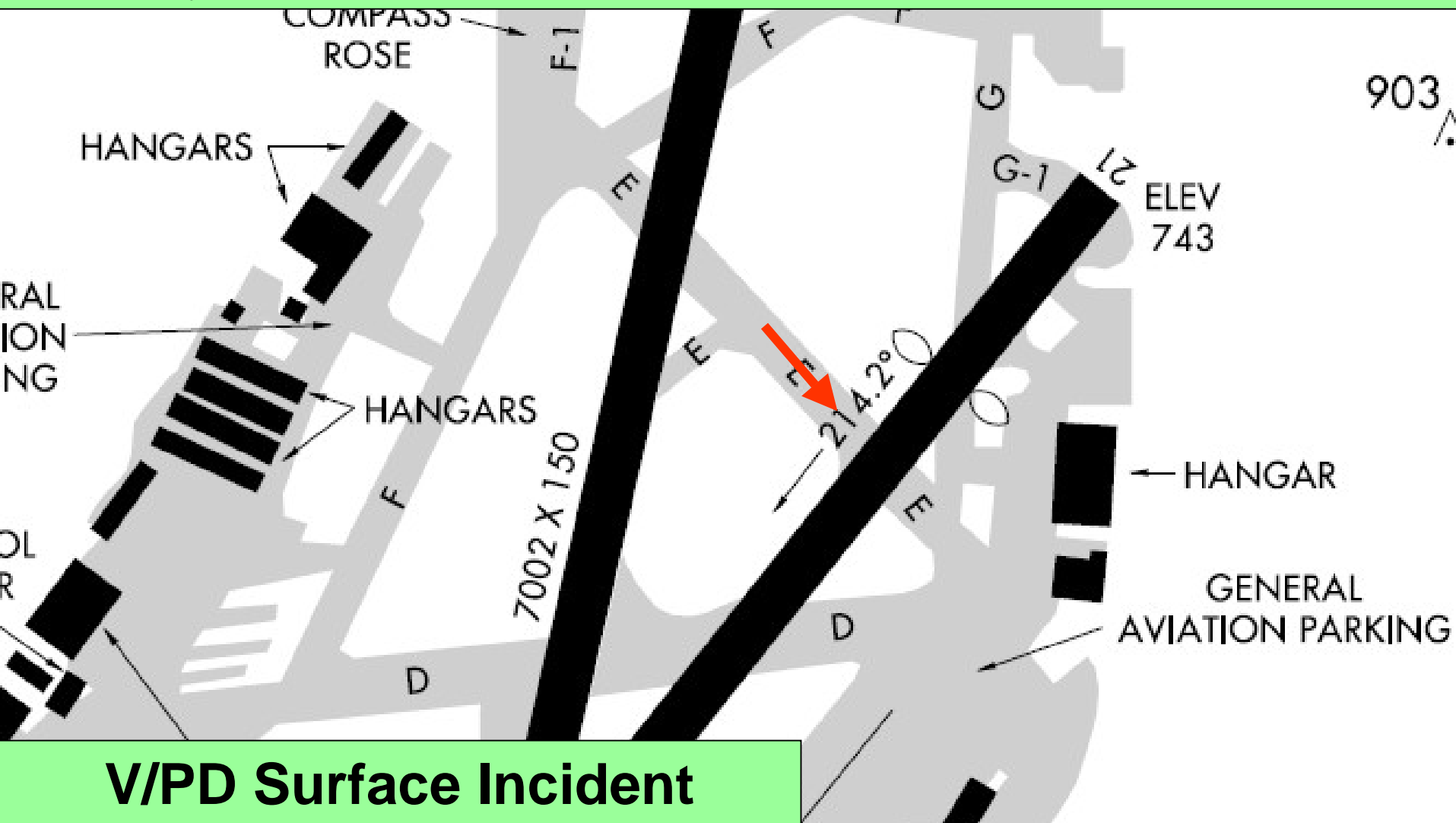
V/PD Runway Incursion

Vehicle Deviation – Holdline Violation An ARFF vehicle, crossed hold line on Taxiway B for Runway 31, but did not enter the runway. Piper PA22, on 1/8 mile final to Runway 31 was sent around. The ARFF vehicle crossed the holdline while turning around on the taxiway to escort a Falcon that had just landed with an emergency. Operations reopened the runway but did not inform ARFF.



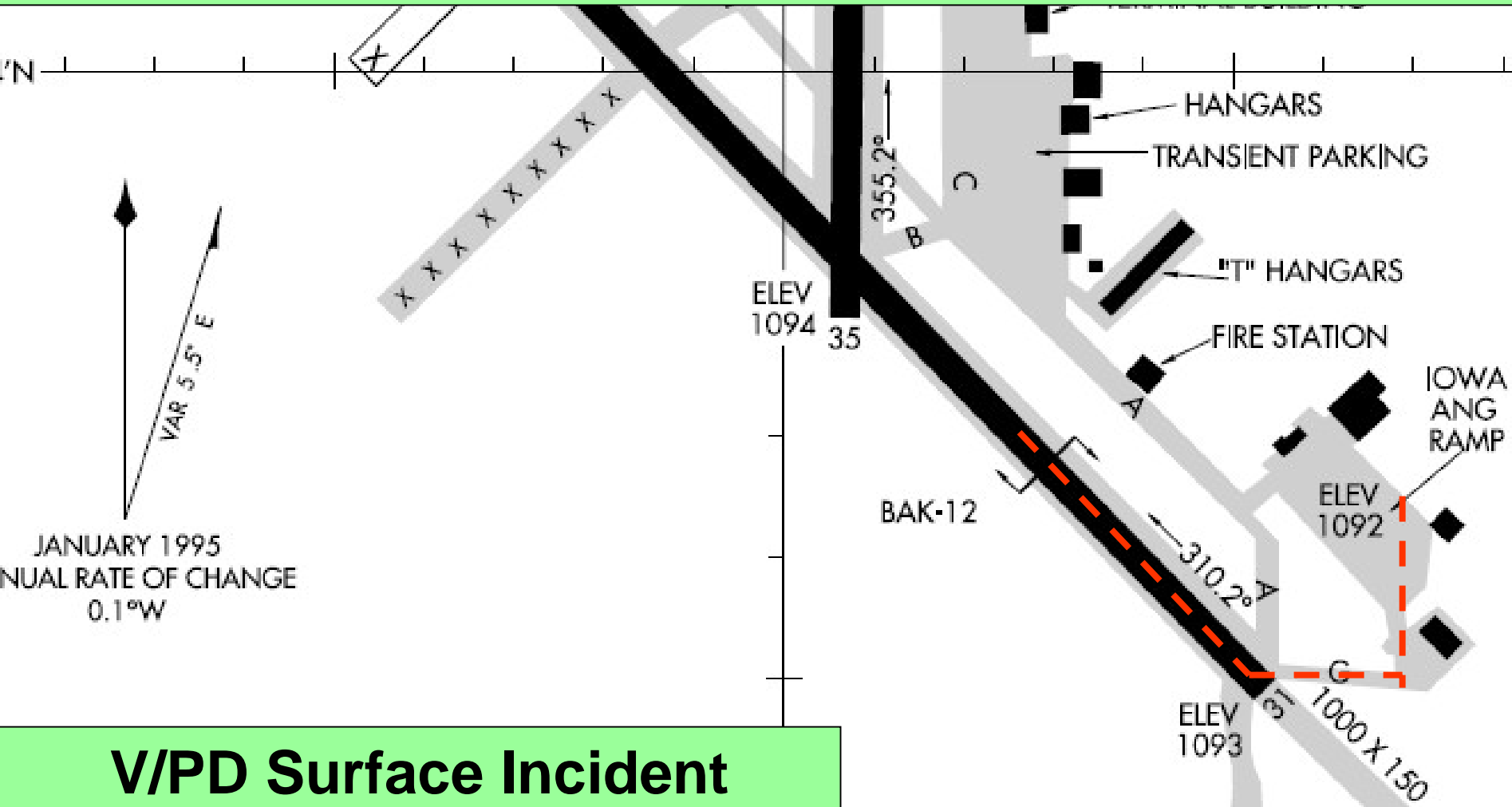
V/PD Surface Incident

Vehicle Deviation – Holdline Violation A convoy of construction vehicles eastbound on Taxiway Echo were observed approaching the Runway 3-21 hold position faster than normal. When the first construction vehicle crossed the holdline, the takeoff clearance for an aircraft on Rwy 3 was cancelled. The construction vehicles turned around just past the holdline to unload barricades to place on the holdline. The vehicle drivers were not properly trained.



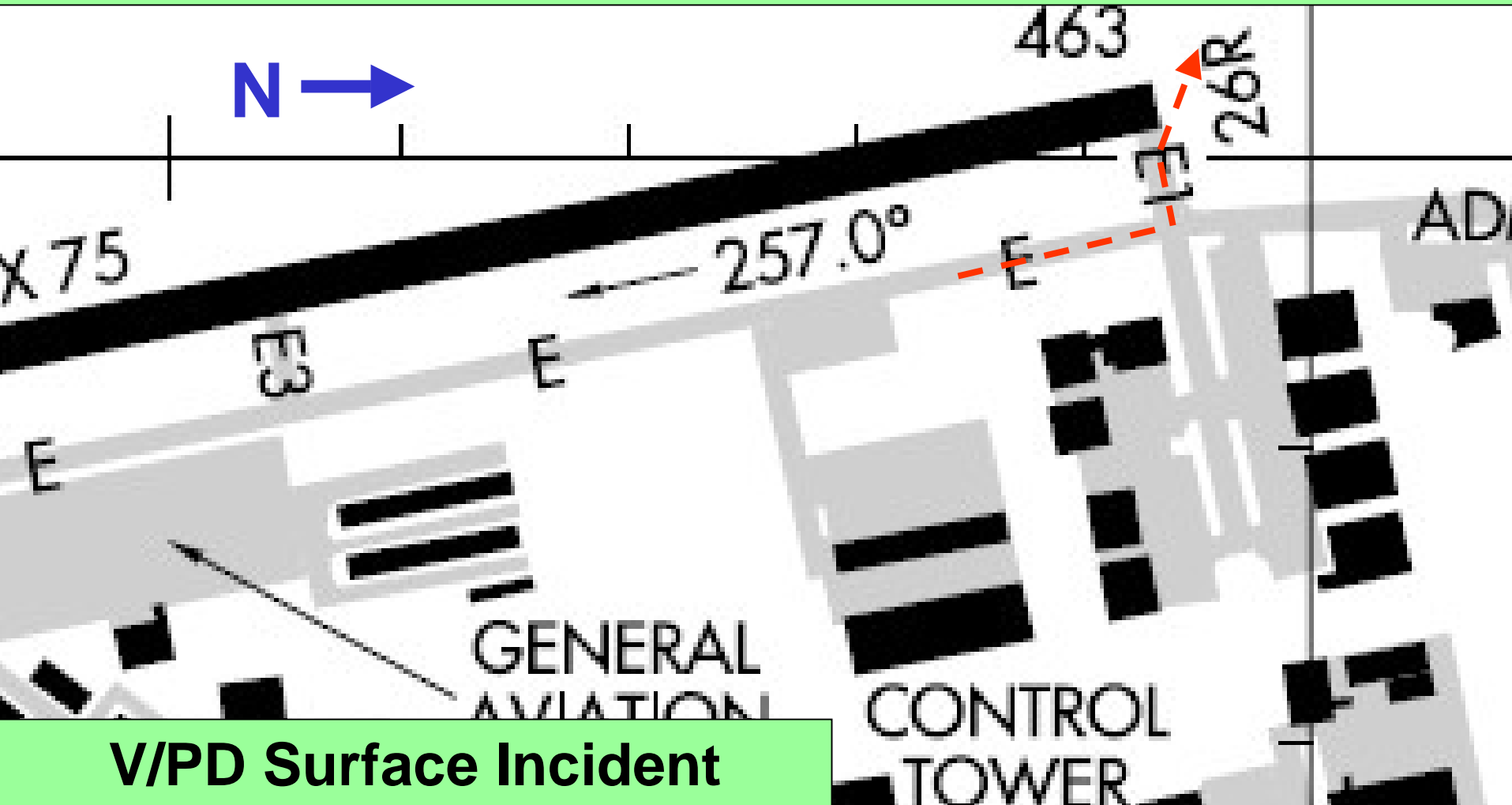
V/VPD Surface Incident

Vehicle & Pedestrian Deviation - Runway The mother of a ANG recruit drove onto the base to pick up her son. After entering the gate she became disoriented and entered the apron. She was not stopped by ANG personnel because she was driving a vehicle similar to the Airport Operations Director. She then drove out onto the taxiway and proceeded north on Rwy 31 where she was observed by ATCT. While driving back on the runway, her son had ran out onto the runway to flag her down and was picked up by the mother. They were then escorted off the movement area by security personnel.



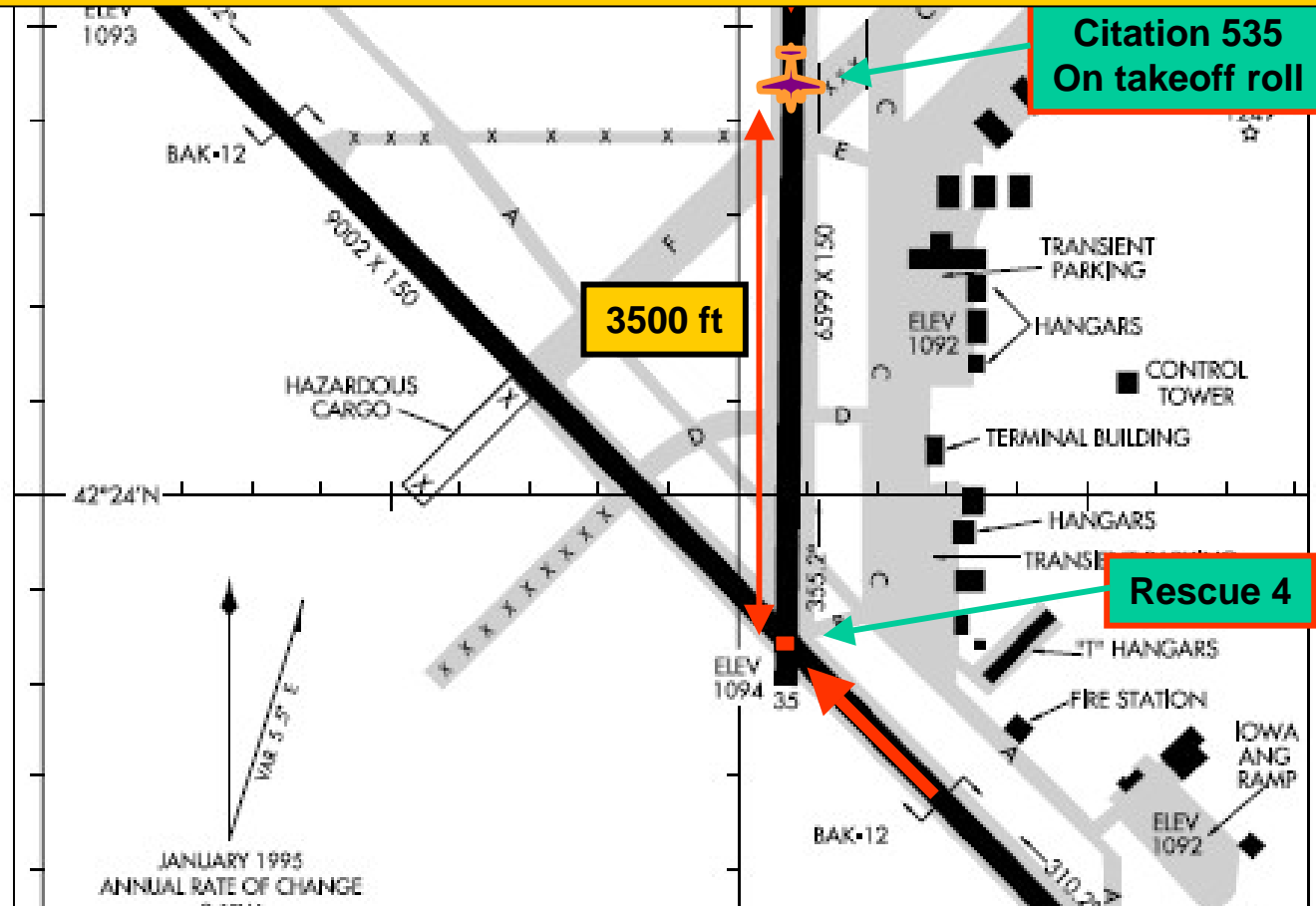
V/PD Surface Incident

Vehicle Deviation – Holdline/Safety Area Violation A backhoe operator was left alone at a construction site east of Runway 26R. He as instructed to wait for an escort but became impatient and drove north on Echo, west on E1 across the 26R holdline and out into the safety area at the 26R approach without ATCT clearance. This was the route he took on a previous project when 26R was closed. The backhoe operator was barred from further work at the airport. An aircraft was on 1½ final for Runway 26R, however, no loss of separation occurred.



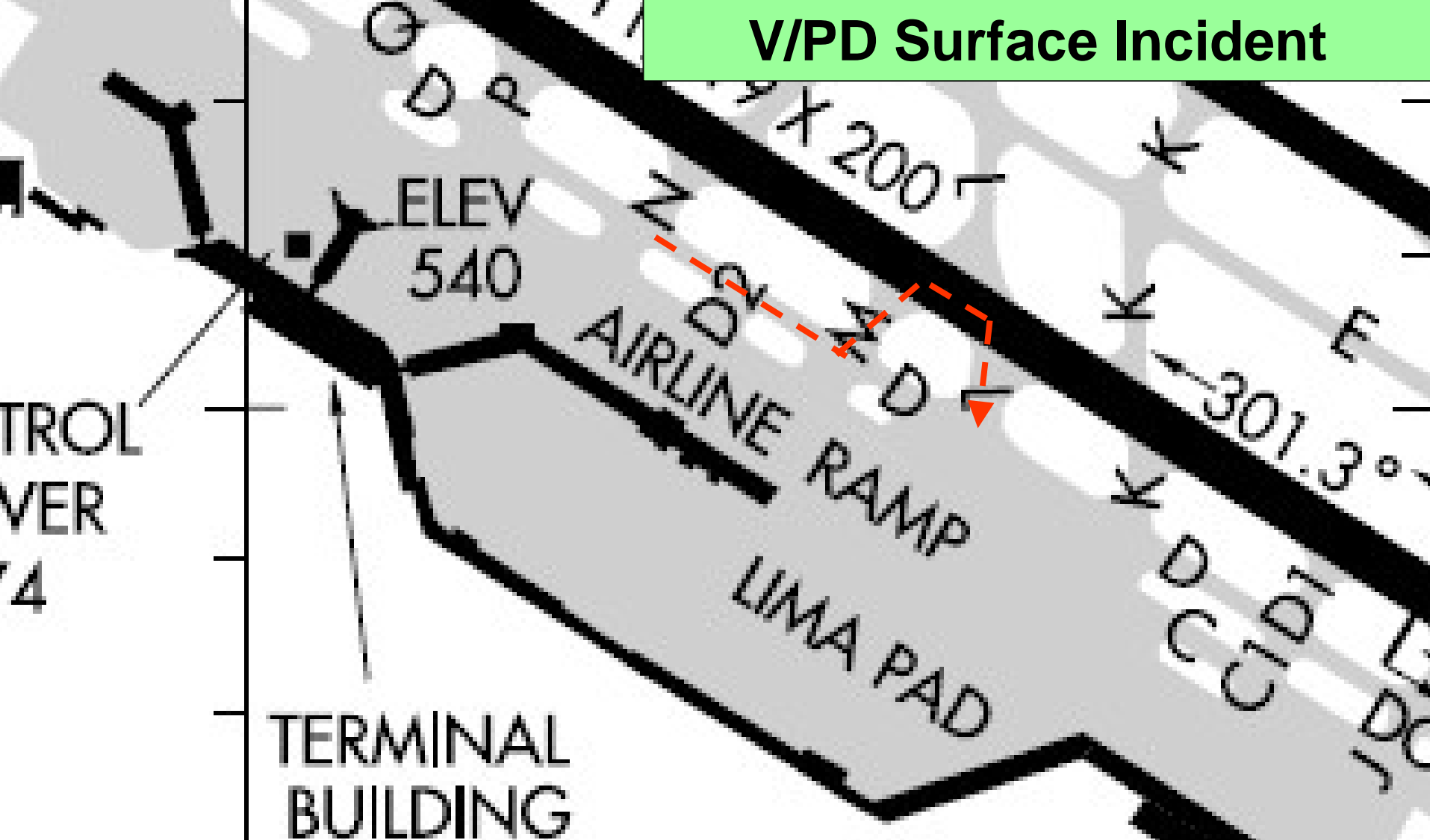
V/PD Surface Incident

Vehicle Deviation - Runway ATC issued takeoff clearance to C-525 on Rwy 17. Rescue 4 requested clearance north on Rwy 31 and was instructed to proceed on Rwy 31, hold short Rwy 35. Rescue 4 read back hold short instructions. As Rescue 4 approached 35, ATC reissued hold short of 35 but the driver did not reply and entered Rwy 35. ATC instructed Rescue 4 to exit the runway immediately. Rescue 4 saw the LAHSO holdline on the other side of the intersection and mistook that for the hold position for 35.



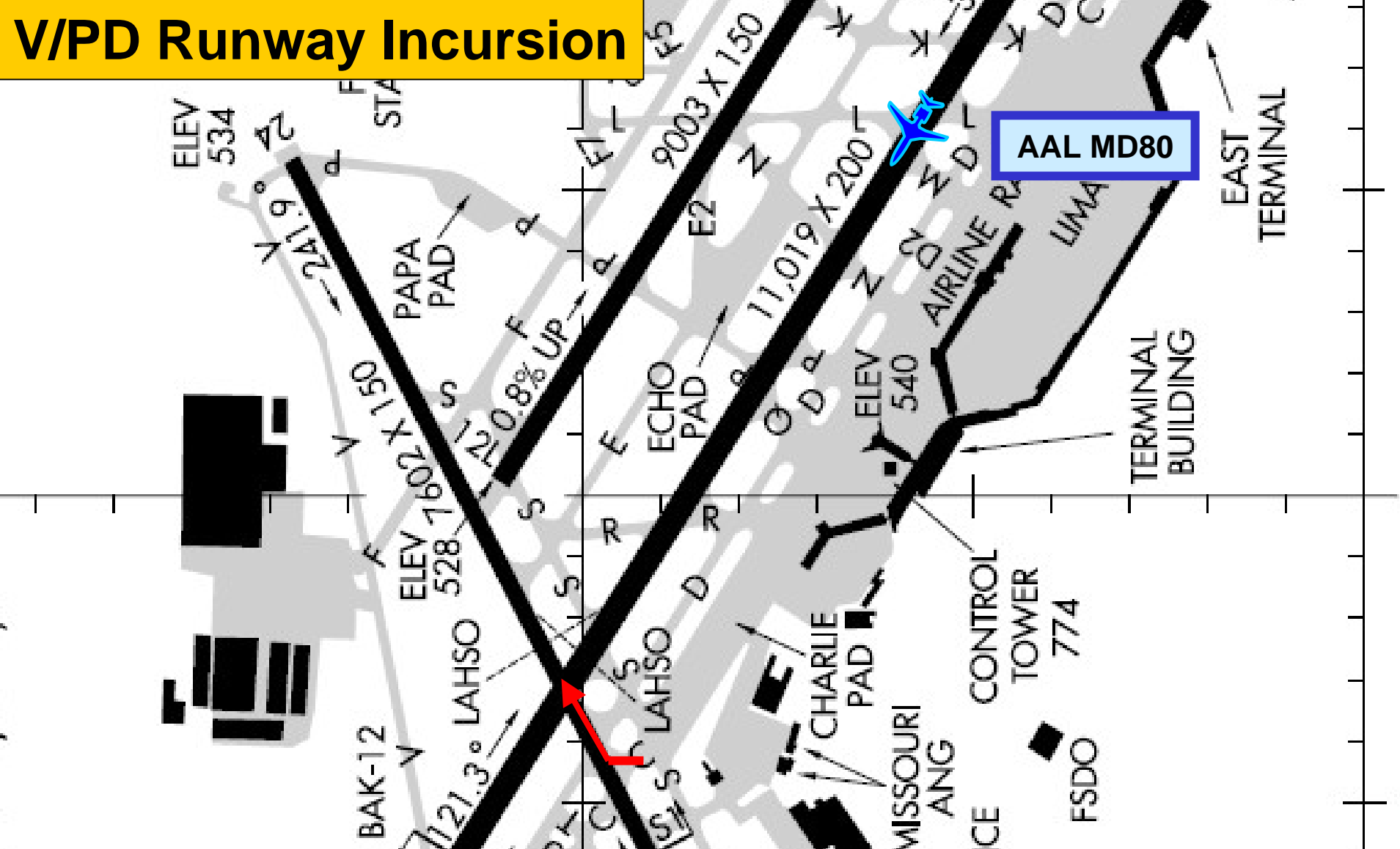
V/PD Runway Incursion – Category D

V/PD Surface Incident



Vehicle Deviation - Runway A pilot reported a baggage truck on Taxiway Delta. The baggage truck was observed turning onto Taxiway Mike and then drove out onto Runway 30L. Airport Operations was cleared onto Runway 30L to escort the vehicle off the runway on Taxiway Lima. The baggage truck was driven by an airline employee who stated that she was lost. No loss of separation occurred.

V/PD Runway Incursion



Vehicle Deviation – Runway GC instructed Truck 169 (maintenance vehicle), on Runway 6, to hold short 30L and Truck 169 read back the hold short instruction. AAL MD80 was cleared for take-off 30L. GC observed Truck 169 about to cross 30L and instructed Truck 169 to hold short but the vehicle proceeded onto 30L, chasing a blowing box. AAL MD80 rotated at the Lima intersection as Truck 169 entered Runway 30L. (5,300' separation)

V/VPD Surface Incident

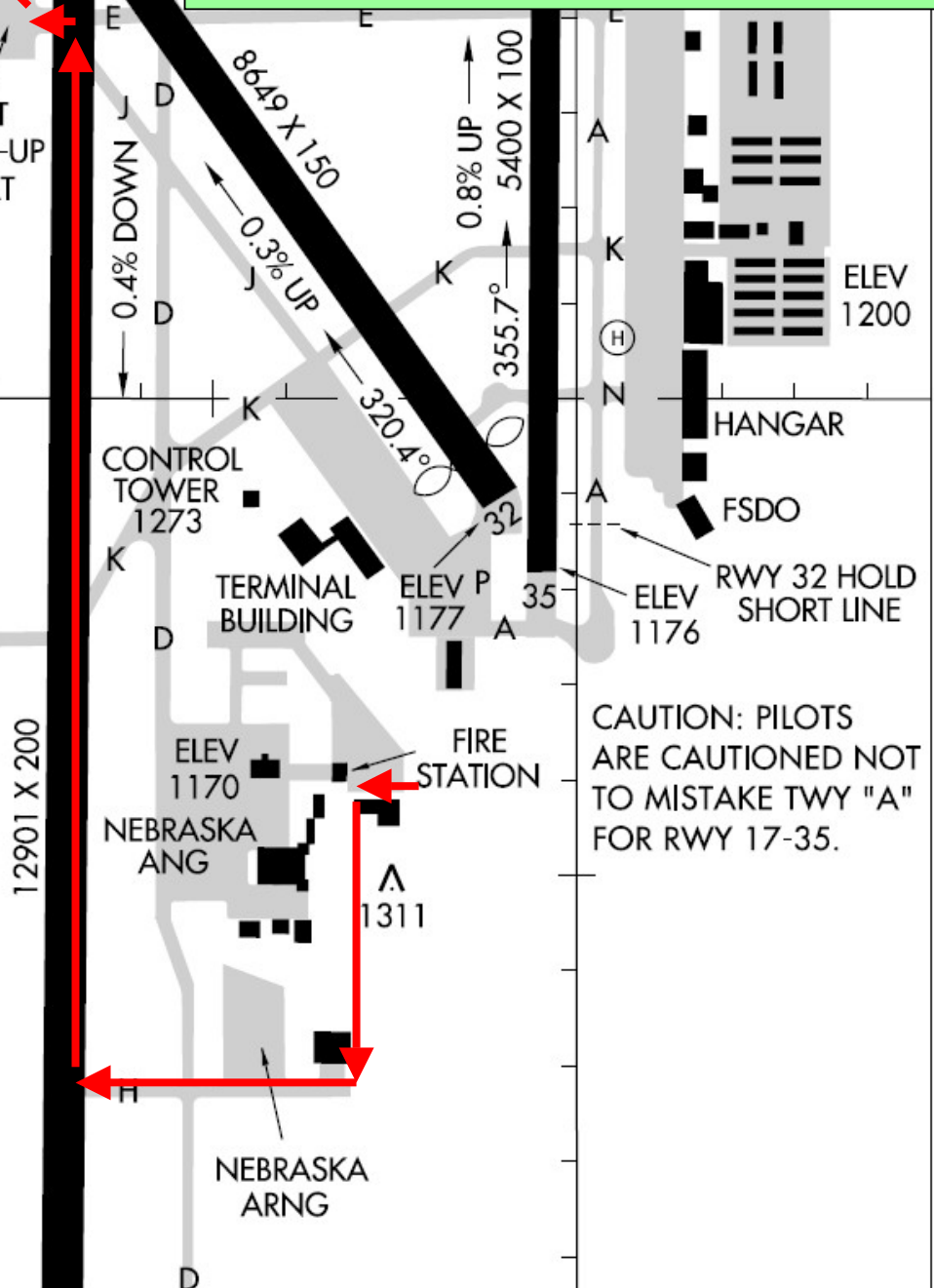
JANUARY 2005
ANNUAL RATE OF CHANGE
0.1° W



40°51' N

Pedestrian Deviation – Taxiways/Runway

A bicyclist entered the AOA through the ANG main gate. The gate guard yelled at the bicyclist to stop but he was wearing earphones and didn't hear. The bicyclist continued west and south through the ANG area, west on Hotel, north on Rwy 36. ATCT spotted the bicyclist northbound on Rwy 36. The bicyclist exited Rwy 36 westbound on Taxiway Echo and was apprehended by the Airport Police on Twy Juliet. The bicyclist was looking for a way to a church on the west side of the airport.



CAUTION: PILOTS
ARE CAUTIONED NOT
TO MISTAKE TWY "A"
FOR RWY 17-35.

NC-2, 07 JUN 2007 to 05 JUL 2007