

Runway Incursion

A *Runway Incursion* is defined as any occurrence at an airport involving an aircraft, vehicle, person or object on the ground that creates a collision hazard or results in a loss of separation with an aircraft taking off, intending to take off, landing, or intending to land.

Surface Incident

A *Surface Incident* is defined as any event where unauthorized or unapproved movement occurs within the movement area or an occurrence in the movement area associated with the operation of an aircraft that affects or could affect the safety of flight. Surface incidents result from Pilot Deviations (PDs), Vehicle/Pedestrian Deviations (VPDs), or Operational Error/Deviations (OEs/ODs).

Differences between a runway incursion and a surface incident are: A Runway Incursion occurs on a runway. A Surface Incident may occur on a runway or a taxiway. A Runway Incursion has to have a collision hazard or a loss of separation. The FAA categorizes Runway Incursions in four categories depending on the potential for collision. These categories are:

- A Separation decreases and participants take extreme action to narrowly avoid a collision.
- B Separation decreases and there is a significant potential for collision.
- C Separation decreases but there is ample time and distance to avoid a potential collision.
- D Little or no chance of collision but meets the definition of a runway incursion.

When defining a runway incursion it is recognized that a wide range of variables dramatically impact the relative severity of a runway incursion. Of these many variables, five key parameters were selected to add dimension to the evaluation of relative severity. The five operational dimensions are interdependent; for example, aircraft speed will affect available reaction time. These five operational dimensions (listed below) formed the basis for developing the runway incursion categories that capture the spectrum of severity.

Operational Dimensions Affecting Runway Incursion Severity

Operational Dimensions	Description
Available Reaction Time	Available Reaction Time considers how much time the pilot, controllers, and/or vehicle operators had to react to the situation based on aircraft type, phase of flight, and separation distance.
Evasive or Corrective Action	Evasive or Corrective Action considers the need for and type of evasive or corrective maneuvers required to avoid a runway collision by pilots and/or air traffic controllers.
Environmental Conditions	Environmental Conditions considers visibility, surface conditions, and light conditions.
Speed of Aircraft and/or Vehicle	Speed of Aircraft and/or Vehicle – speed as a function of aircraft type and phase of flight (taxi, takeoff, landing)
Proximity of Aircraft and/or Vehicle	Proximity of Aircraft and/or Vehicle, or their separation distance from one another.

Increasing Severity 

Category D	Category C	Category B	Category A
<p>Little or no chance of collision but meets the definition of a runway incursion</p>	<p>Separation decreases but there is ample time and distance to avoid a potential collision</p>	<p>Separation decreases and there is a significant potential for collision</p>	<p>Separation decreases and participants take extreme action to narrowly avoid a collision</p>
<p>Available Reaction Time: Not a factor; adequate time to consider multiple alternatives</p>	<p>Available Reaction Time: Adequate; sufficient time to smoothly execute an unplanned action</p>	<p>Available Reaction Time: Minimal. Barely adequate to take an emergency action</p>	<p>Available Reaction Time: None. Instantaneous reaction was required</p>
<p>Need for Evasive/Corrective Action: Evasive/Corrective action not necessary</p>	<p>Need for Evasive/Corrective Action: Advisable. Definitive action was taken (or could have been taken)</p>	<p>Need for Evasive/Corrective Action: Essential. Time-critical action required (or should have been taken) to ensure safety</p>	<p>Need for Evasive/Corrective Action: Critical. Radical evasive action was the only reason that a collision was avoided</p>
<p>Environmental Conditions: Good. Played no role in the event</p>	<p>Environmental Conditions: Fair. Minimal influence on operational performance</p>	<p>Environmental Conditions: Marginal. Likely a factor but not overridingly important</p>	<p>Environmental Conditions: Poor. Definitely a factor</p>
<p>Aircraft / Vehicle Speed: Slow. Aircraft were traveling slowly; speed not a factor</p>	<p>Aircraft/Vehicle Speed: Moderate. Aircraft/vehicle were moving fast enough to be of concern; speed was not a significant factor</p>	<p>Aircraft/Vehicle Speed: High. Potential for significant damage and injury</p>	<p>Aircraft/Vehicle Speed: Extreme. One or both aircraft/vehicle traveling at a speed sufficient to reduce pilot or ATC reaction time. Potential to cause catastrophic damage/loss of life in the event of a collision.</p>
<p>Proximity of Aircraft/ Vehicle: Close. Aircraft/vehicle did not approach one another</p>	<p>Proximity of Aircraft/ Vehicle: Close. Aircraft/ vehicle approached one another at a low/moderate rate of speed</p>	<p>Proximity of Aircraft/ Vehicle: Very Close. Aircraft/ vehicle approached one another at a high rate of speed</p>	<p>Proximity of Aircraft/ Vehicle: Near-Miss. Aircraft/ vehicle traveling at high speed narrowly missing one another</p>