



Airport Markings and Lighting

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Outline of this Presentation

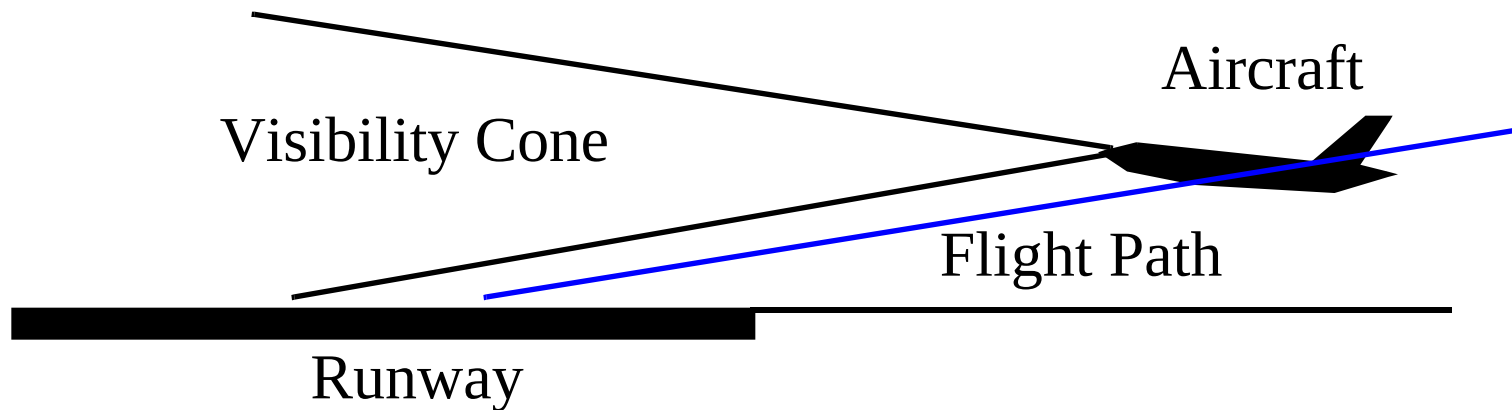


- A human factors problem
- How important are markings
- Why standardized markings
- Various marking schemes
- Lights
- Approach light types
- Signage

A Human Factors Problem



- Cockpit visibility is an issue during approach and landing operations
- Aircraft usually fly a 3 degree approach slope but the actual fuselage deck angle might be 7-10 degrees with the horizontal



Aircraft Approach Attitude



Consider the aircraft attitude during the landing roll on why markings are important



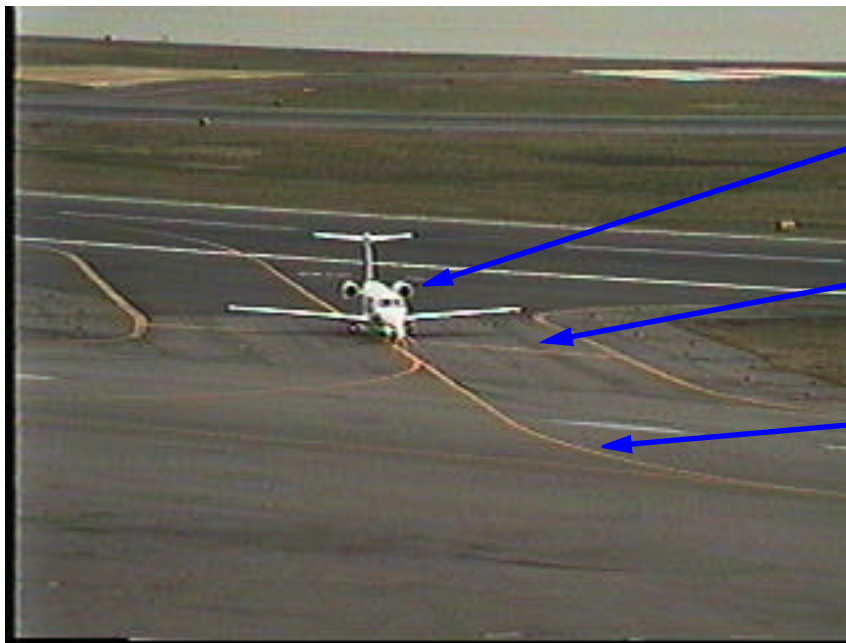
B727-200
Flare

Touchdown
Markings

Taxiway Markings



Taxiway markings provide guidance during good and bad weather conditions (note the yellow markings)



Cessna 650

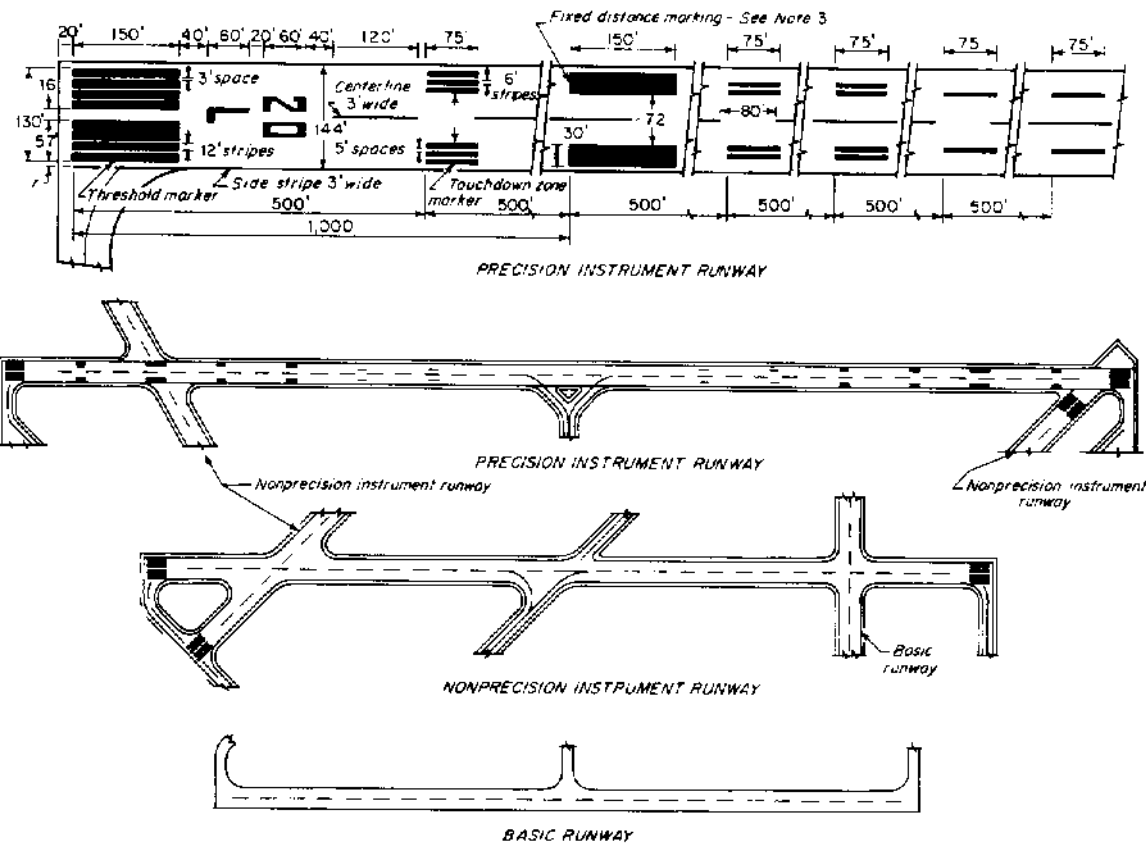
Holding Line
Marks

Taxiway Centerline
Markings

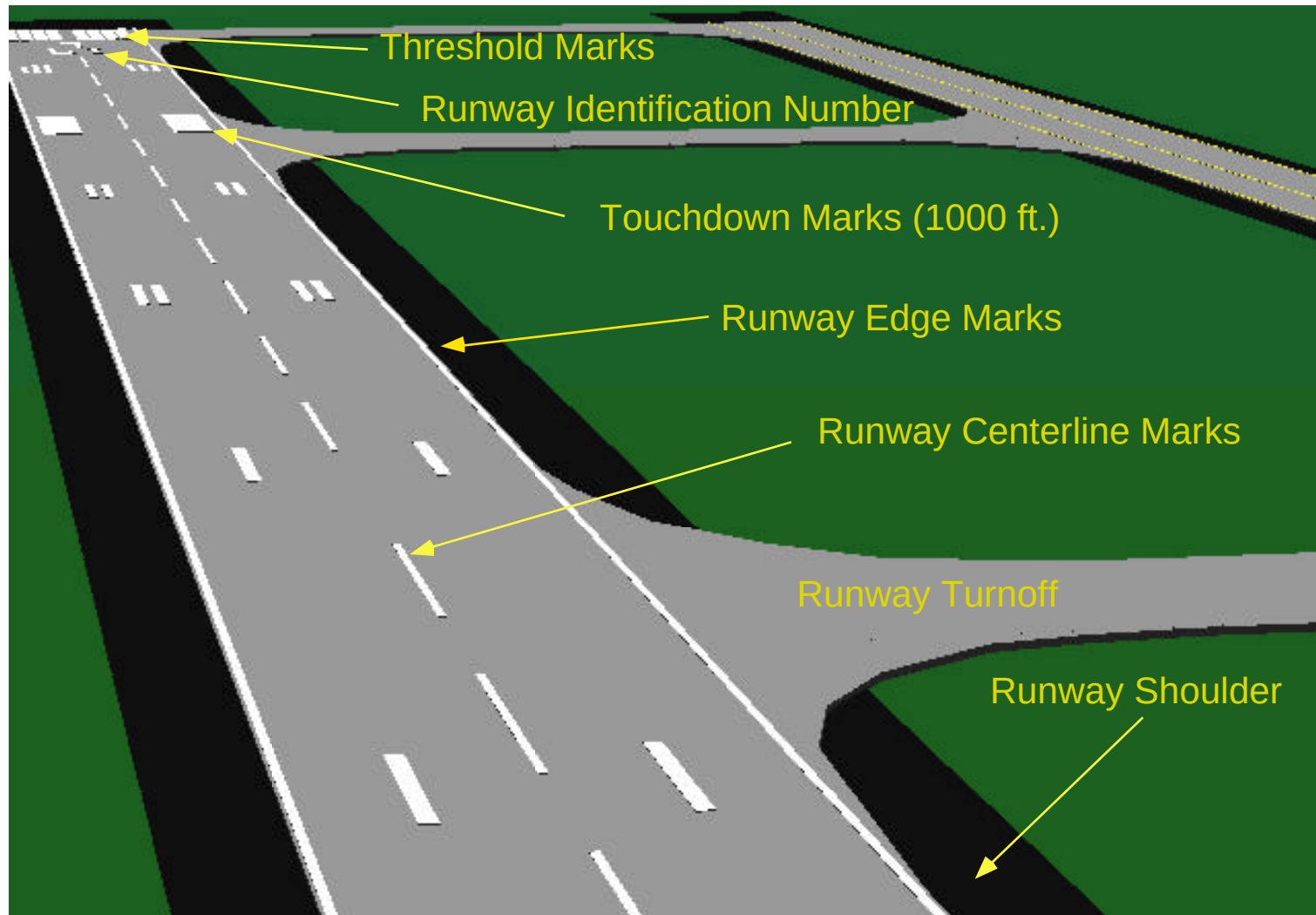
Runway Markings (FAA)



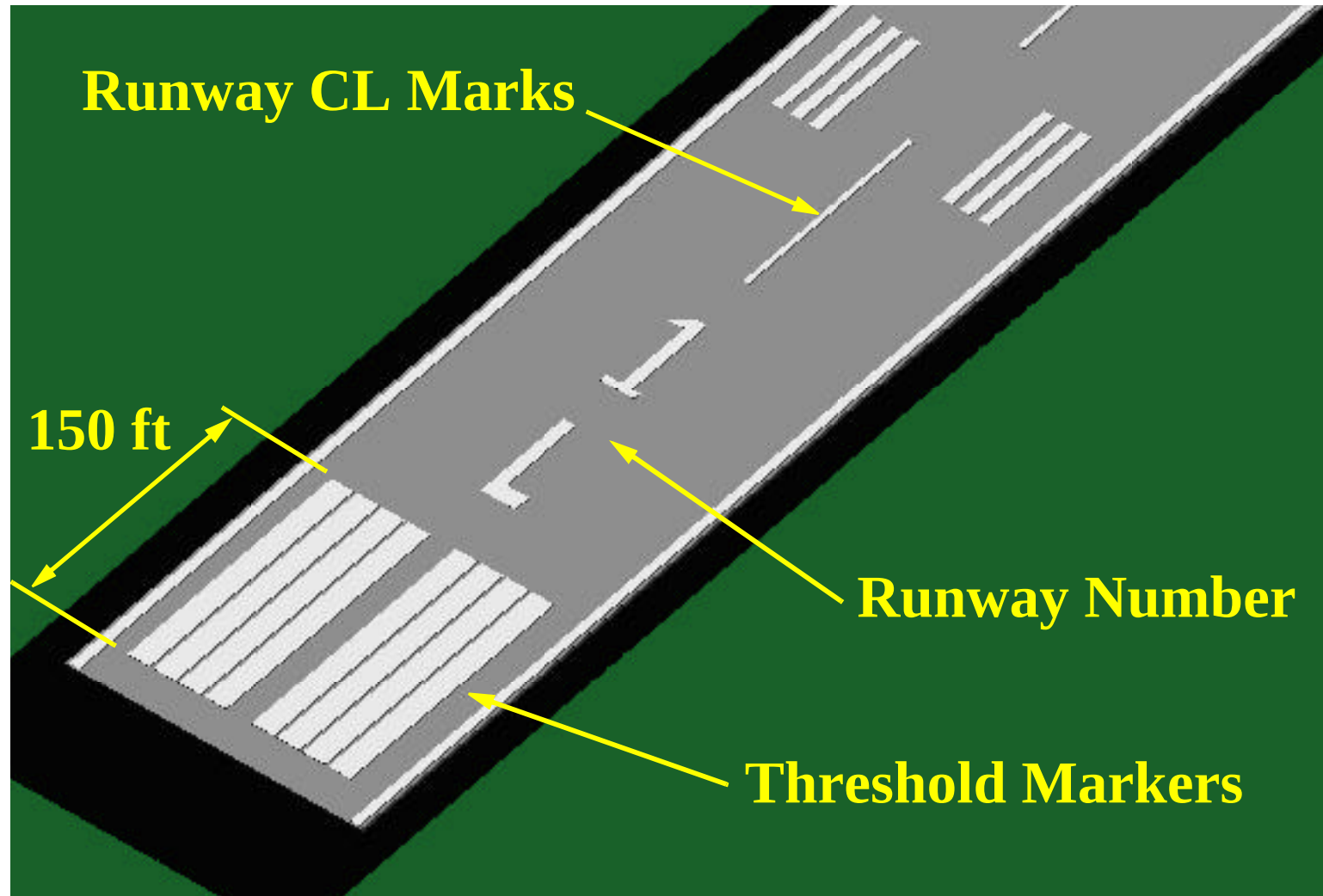
There are three basic runway marking arrangements



Runway Markings



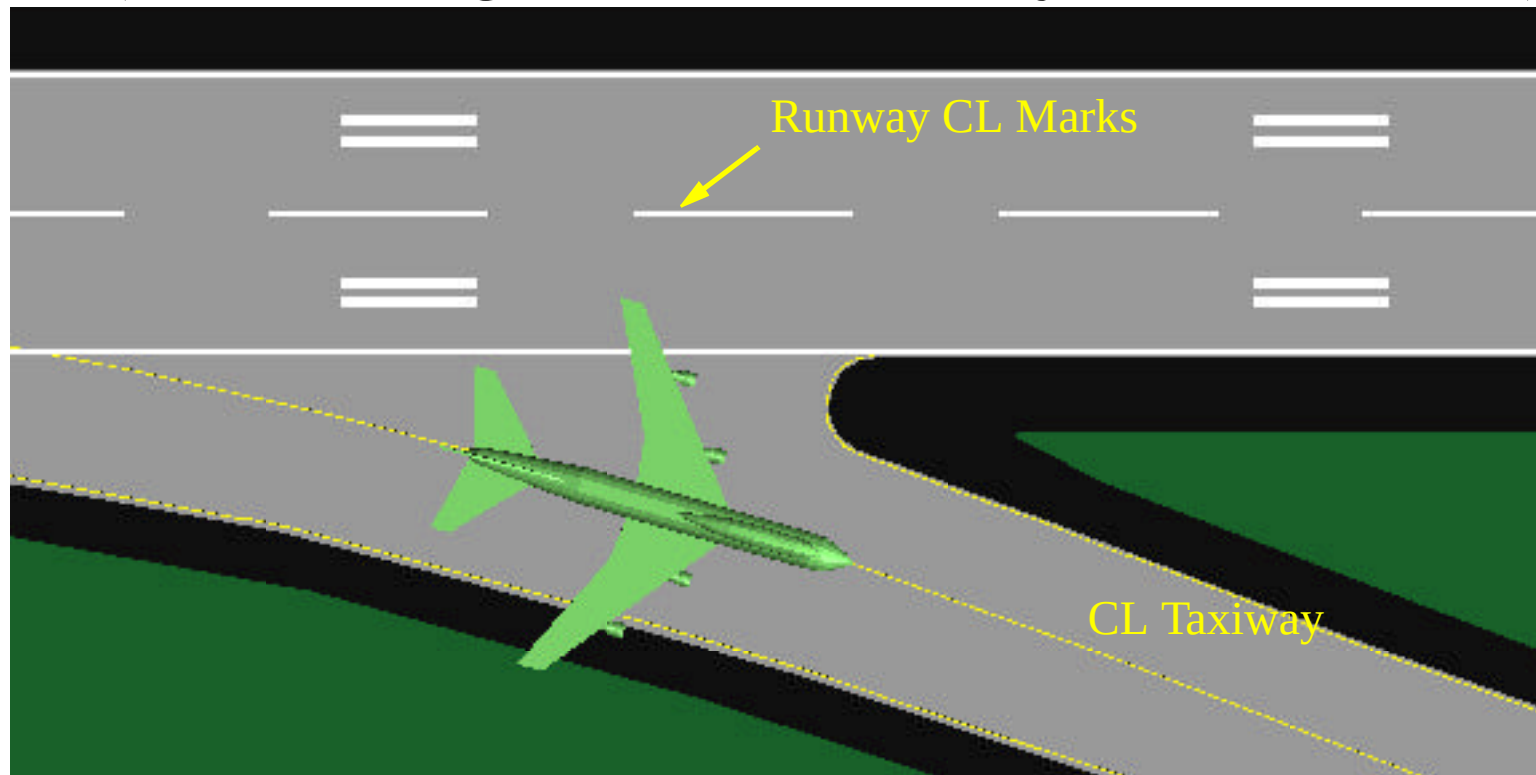
Runway Threshold Markings



More Runway/HS Exit Markings



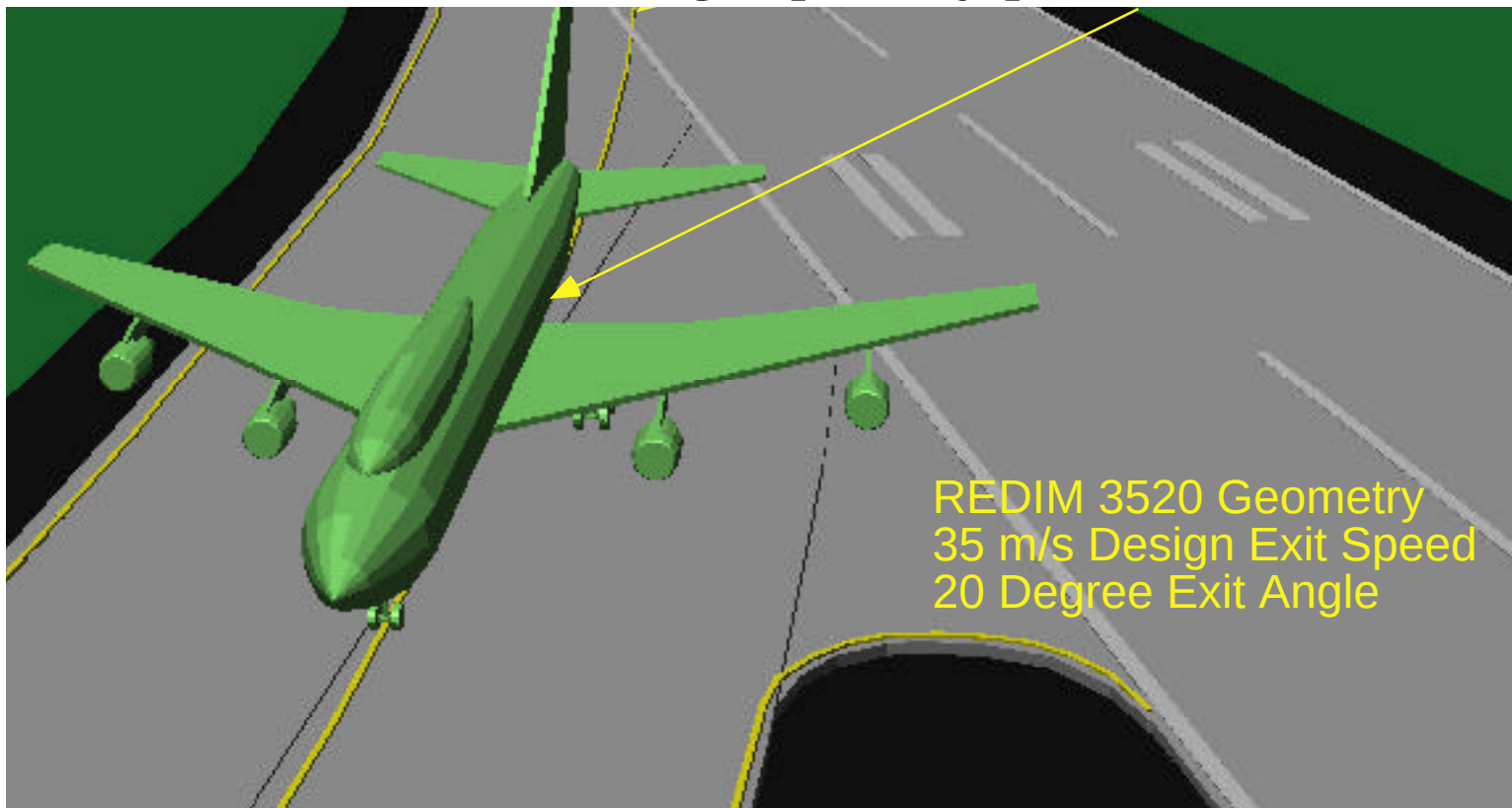
Precision runways require 5 types of markings (centerline, edge, touchdown, runway ID, and threshold)



HS Exit Markings



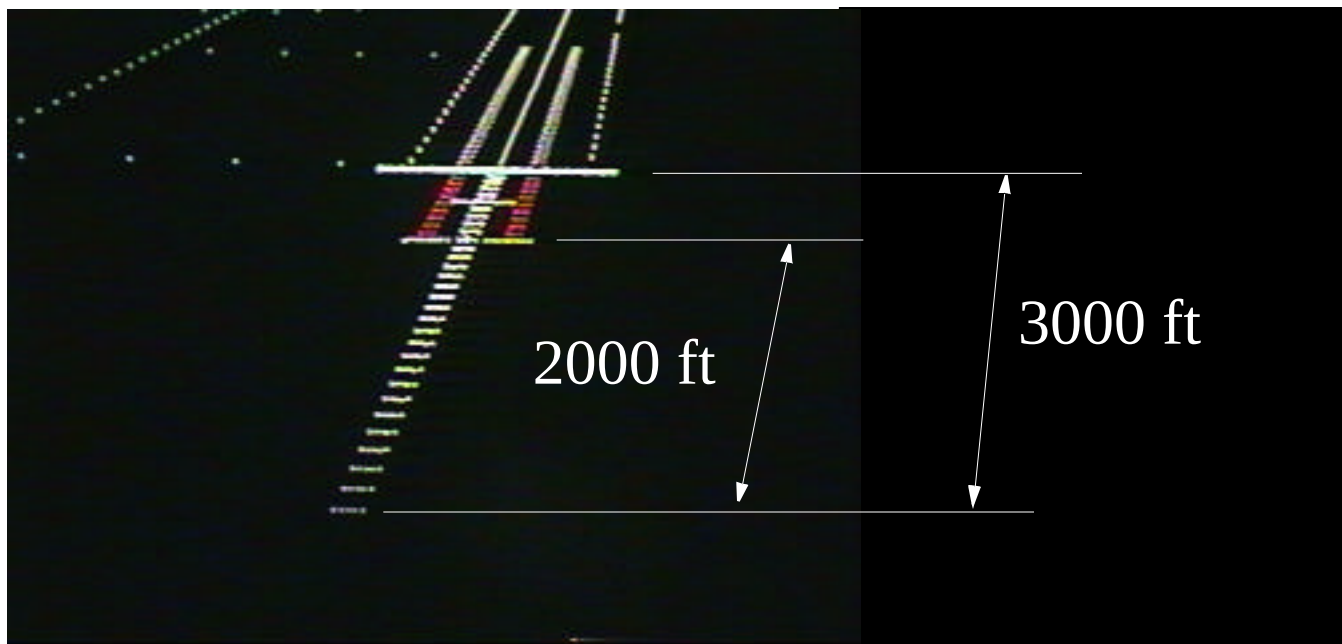
HS exits deserve special attention because they are seldom used at the design speed by pilots



Typical Approach Lights



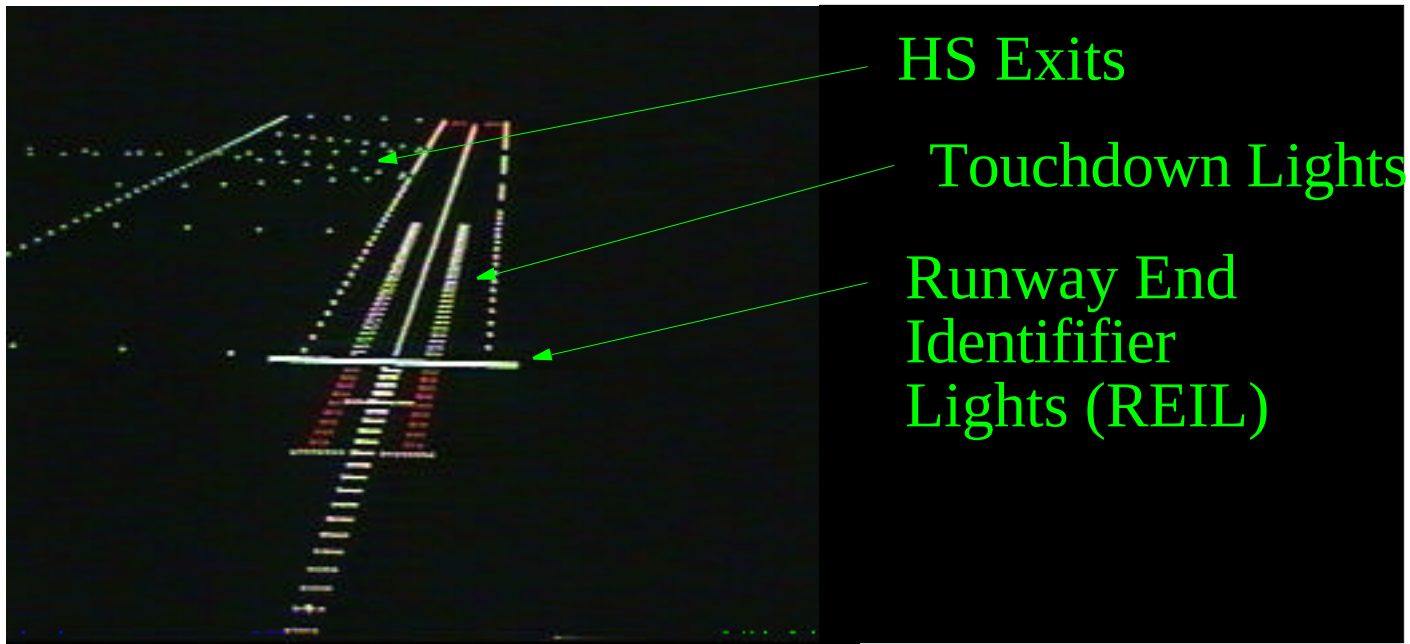
The approach lights provide roll guidance during landing (very important during low visibility operations)



Sample View from the Cockpit



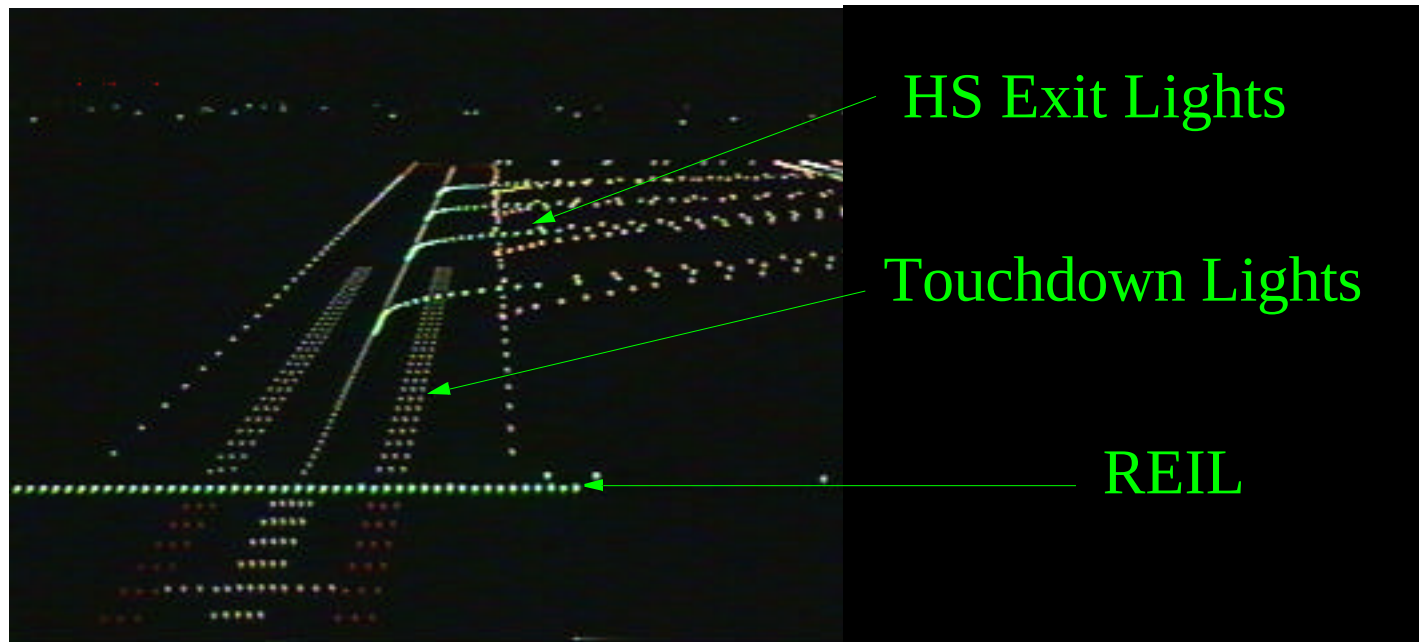
Another sample of precision approach lights as viewed from 1000 ft (note the color of these lights)



Detail of High Speed Exit Lights



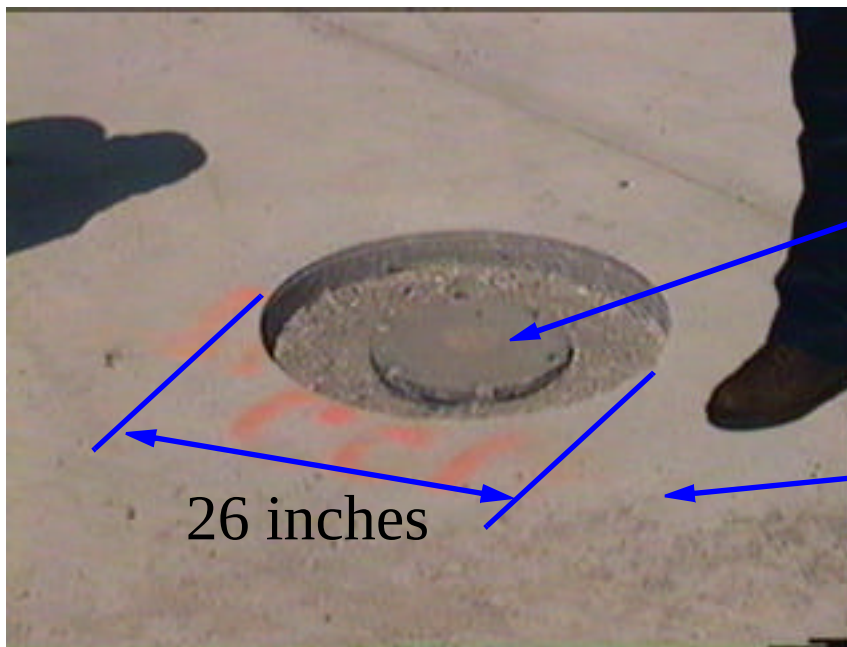
HS exit lights are shown in more detail in this figure



Placement of Runway Touchdown Lights



Runway lights are flushed on runways to avoid damage to the aircraft landing gear



Mounting
Support

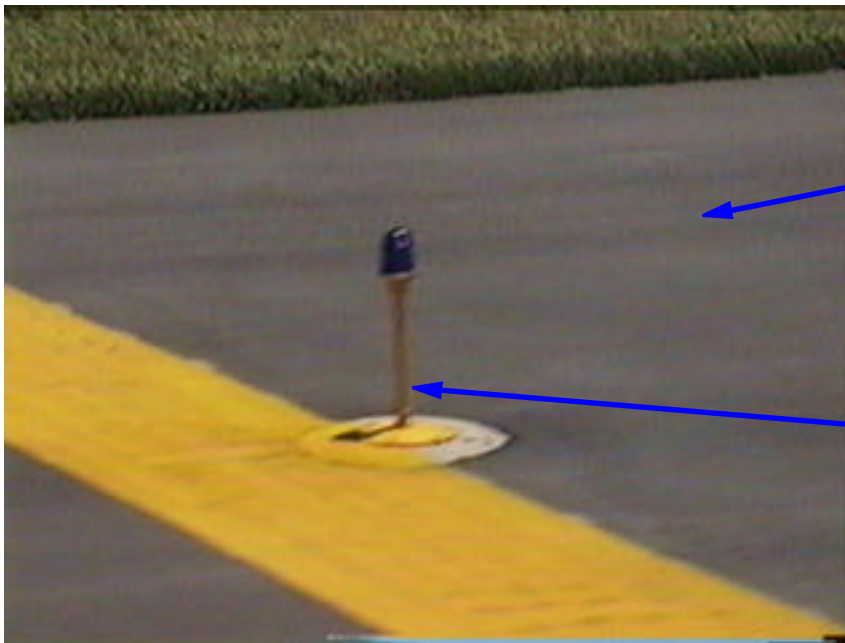
17" inch
PCC
Runway

26 inches

Runway Light Fixtures (RLF)



RLF are frangible structures located near the runway or taxiway shoulders



Shoulder

Light Fixture

Apron Lights



Apron areas need to be properly lighted to help pilots guide aircraft under adverse weather conditions



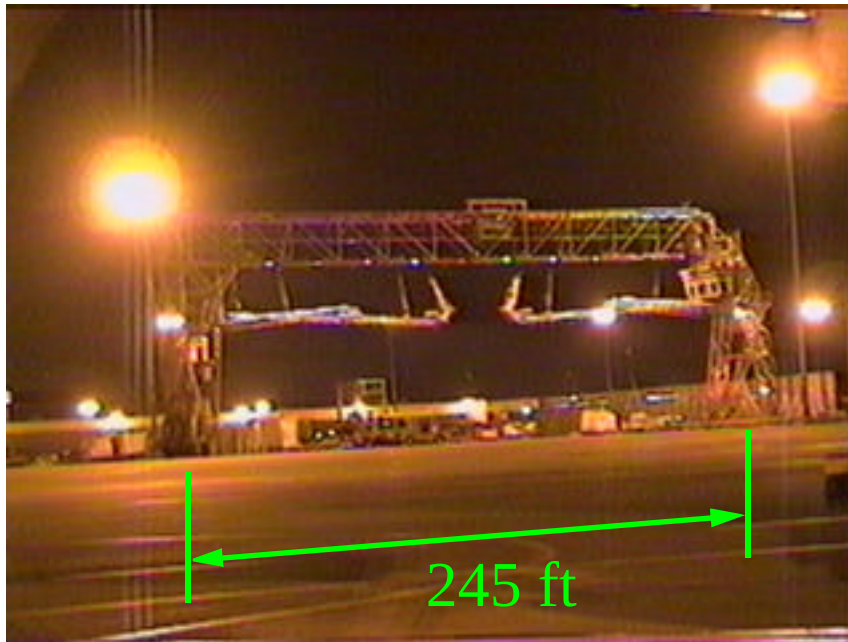
UPS Boeing 747

PW JT9D-7R
Engine

Apron Lights (Deicing Crane)



Deicing sections near runways or aprons have to be properly lighted to avoid ground collisions



Adjustable Deicing
Crane at UPS
Facility

Airport Signs



Airport signs are very important to provide guidance on runways, taxiways and apron areas



36 inches

Runway Length Markers



Remaining runway markers are very critical to pilots during takeoff roll maneuvers



In this case the remaining runway is 6,000 ft long