Federal Aviation Administration

Runway Status Lights at Phoenix Sky Harbor International Airport

Background

Runway safety is a top priority at both the Federal Aviation Administration (FAA) and the National Transportation Safety Board (NTSB). Reducing runway incursions is a major component of the effort to improve runway safety for the benefit of all air travelers.

Runway Status Lights (RWSL) is an innovative new system designed to provide direct indication to pilots and vehicle operators that it is unsafe to enter a runway or begin a takeoff. The RWSL system enhances runway safety without affecting airport capacity.

What It Does

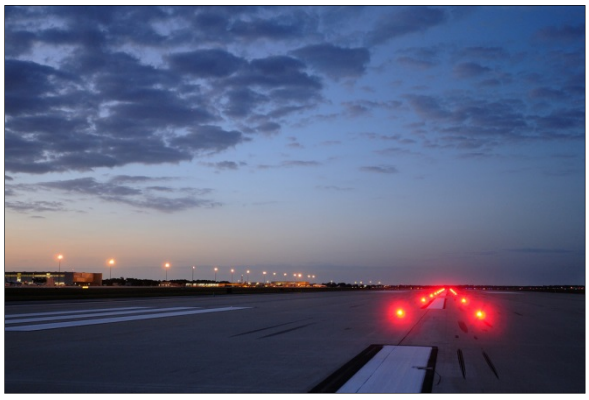
RWSL tells pilots and vehicle operators to stop when runways are not safe. Embedded in the pavement of runways and taxiways, the lights turn red when other traffic makes it dangerous to enter, cross, or begin a takeoff. The lights indicate runway status only – they do not indicate clearance. Pilots must still receive clearances, as they do today, for any operation on runways.

On taxiways, Runway Entrance Lights (RELs) show that a runway is not safe to enter or cross. On runways, Takeoff Hold Lights (THLs) show pilots in position for takeoff that the runway is not safe for departure. The lights provide direct, immediate alerts, and require no input from controllers.

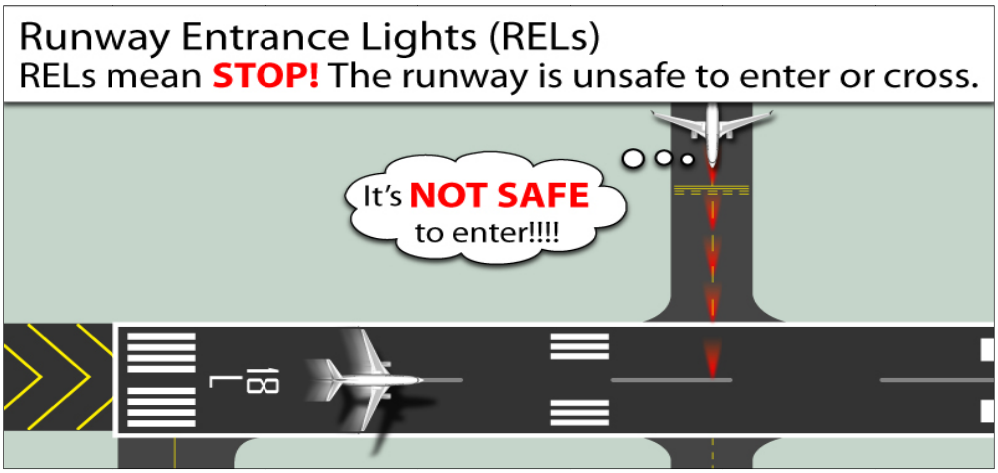
How It Works

The system uses the airport's surface surveillance system to determine where aircraft and vehicles are, and where they will be in time. The lights are fully automated and fine-tuned for safety and efficiency.

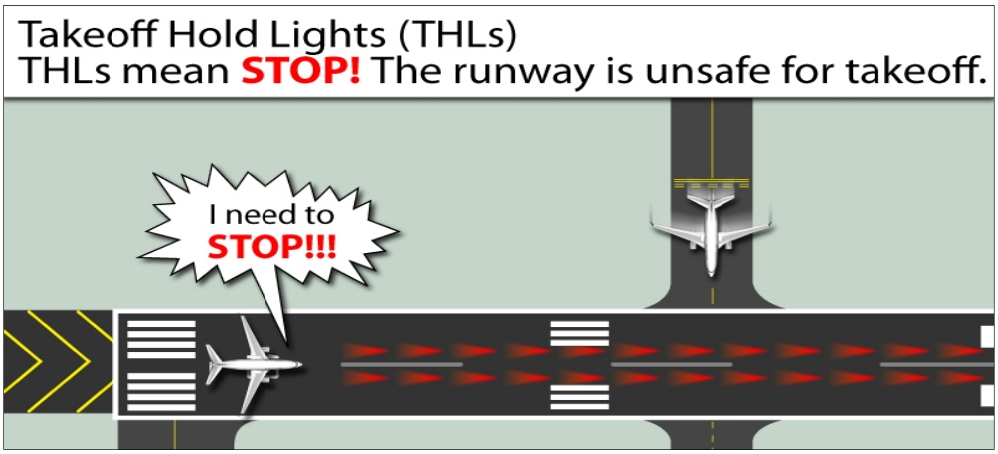
RWSL is also important for ground vehicles and the lights work exactly the same way as they do for pilots by helping drivers avoid entering or crossing runways when traffic makes it unsafe. Ground vehicle operators must still receive clearances, as they do today, for any operation on runways.



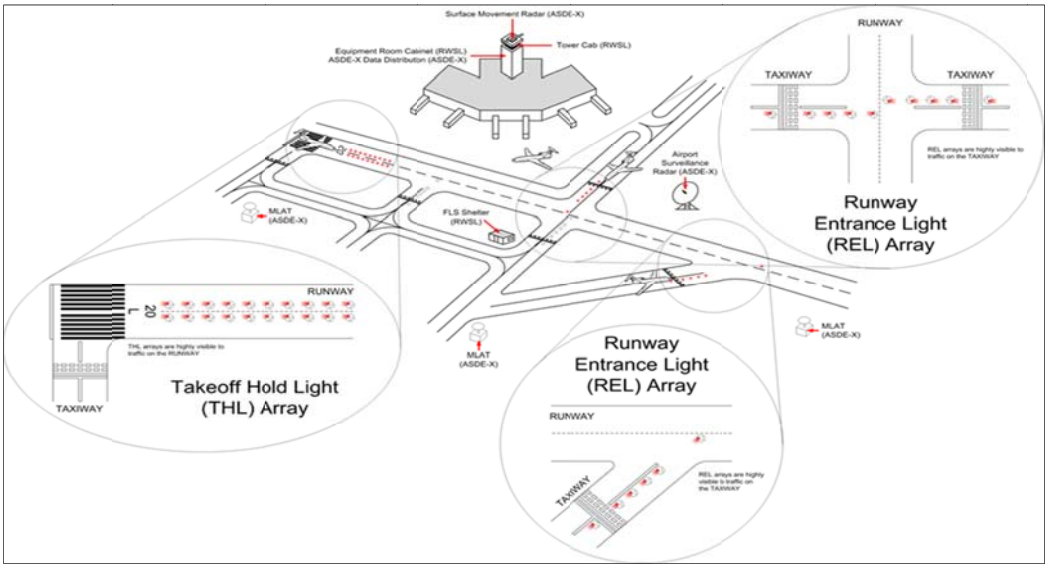
Above: on the left, RELs indicate that it is unsafe to enter an active runway. On the right, THLs show that it is unsafe to begin a takeoff.



Above: the lights indicate the presence of an airplane on an active runway.



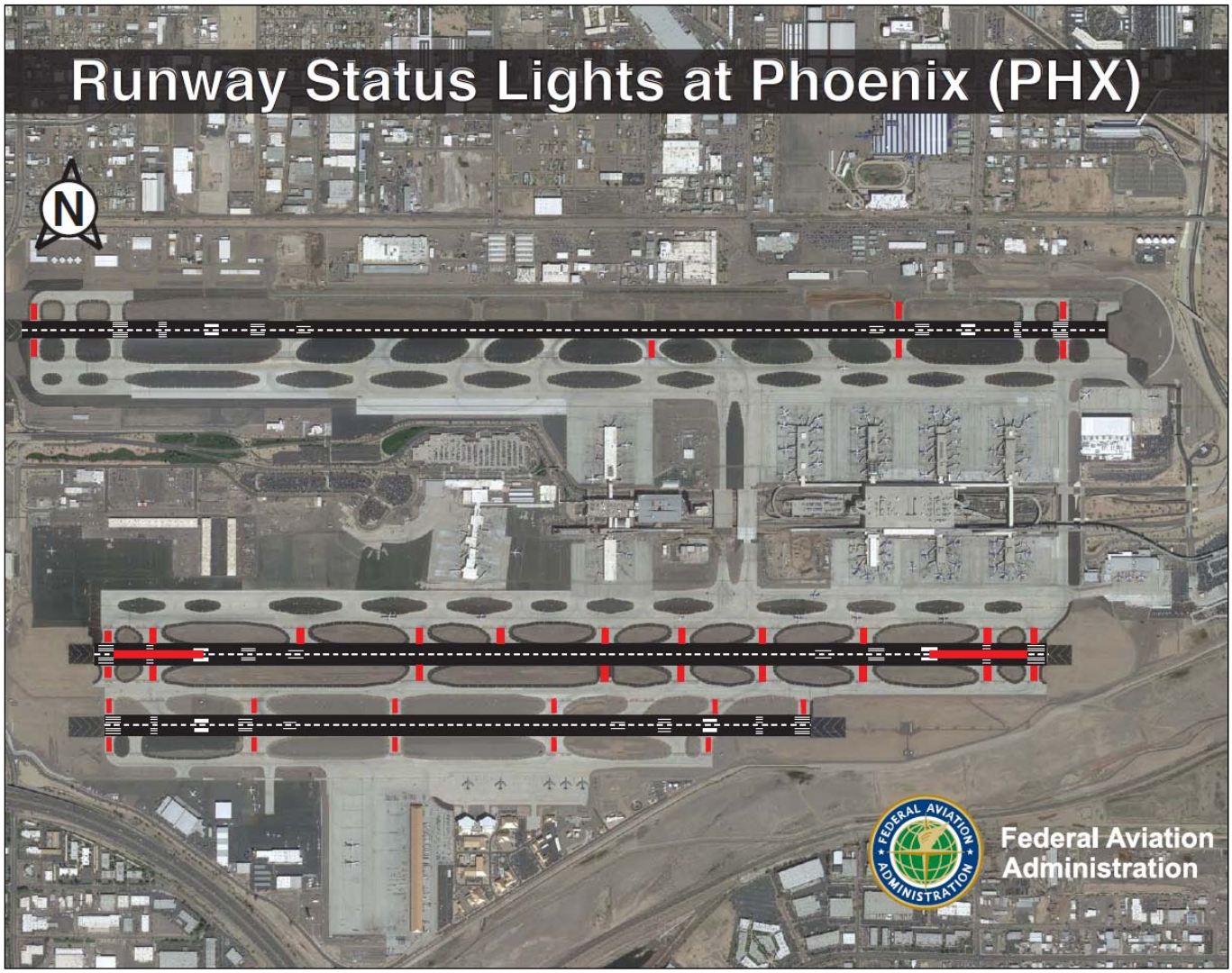
Above: the lights indicate that it is unsafe to begin a takeoff.



Above: an illustration of how the overall system functions.

Phoenix Sky Harbor International Airport

The RWSL system at Phoenix Sky Harbor International Airport (PHX) became operational in August 2013. It is composed of two Takeoff Hold Light (THL) and 38 Runway Entrance Light (REL) arrays.



Above: a diagram of the two THL and 38 REL arrays at PHX.

For information, visit the website: http://www.faa.gov/air_traffic/technology/rwsl/.