

# Surface Safety

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FAA/MOIE

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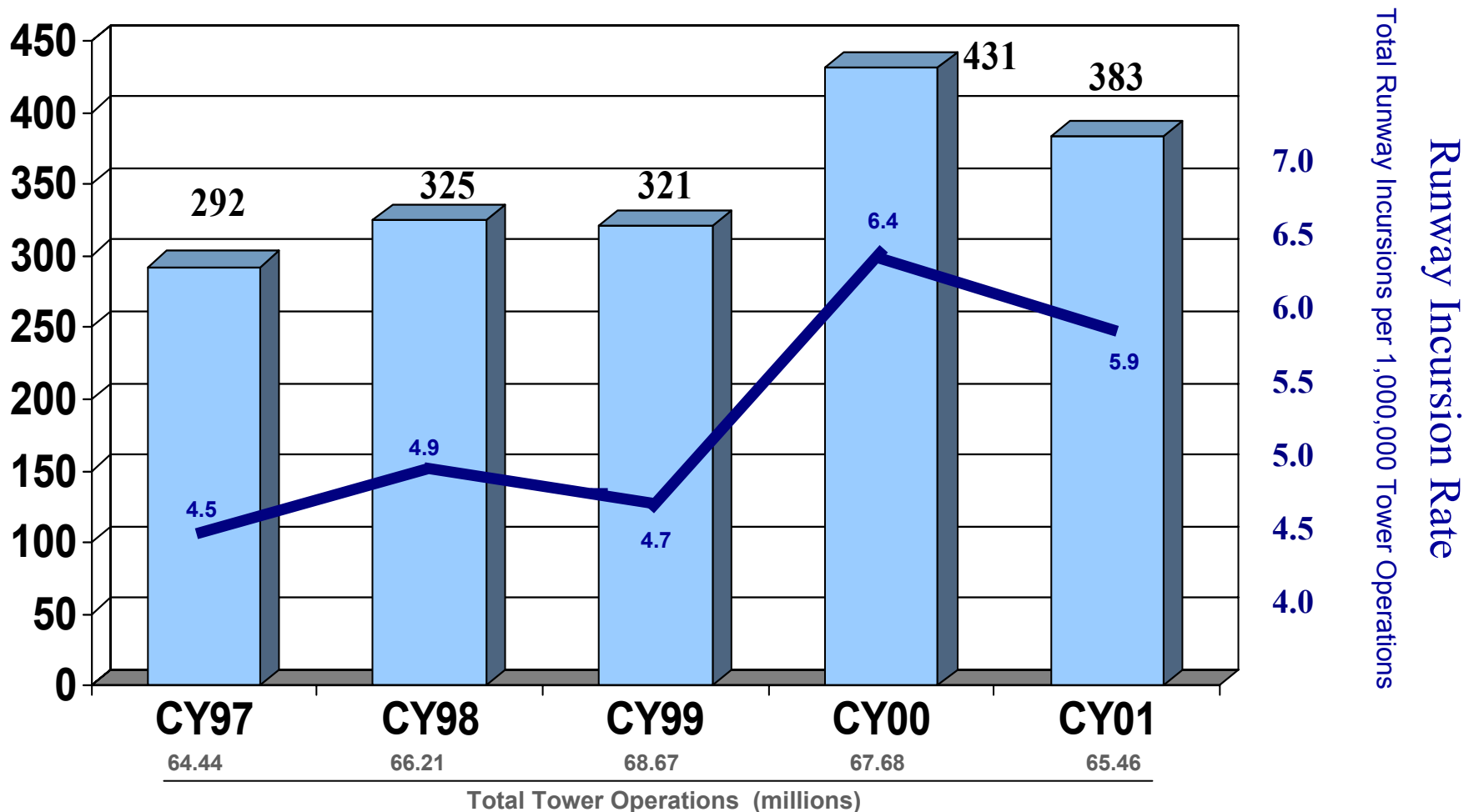
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# Problem

- **Develop a quantitative understanding of the capacity impacts of NTSB recommendations for changes to three ATC procedures**
- **Formulate a metric to assess relative safety improvement of proposed procedure changes and the capacity impact**
- **Explore alternative procedure changes, if necessary, to increase safety while maintaining needed airport capacity**
- **Generalize the process to evaluate future proposed procedure modifications**

# Background

Runway Incursions are Extremely Rare, Potentially Catastrophic Events



# Objective

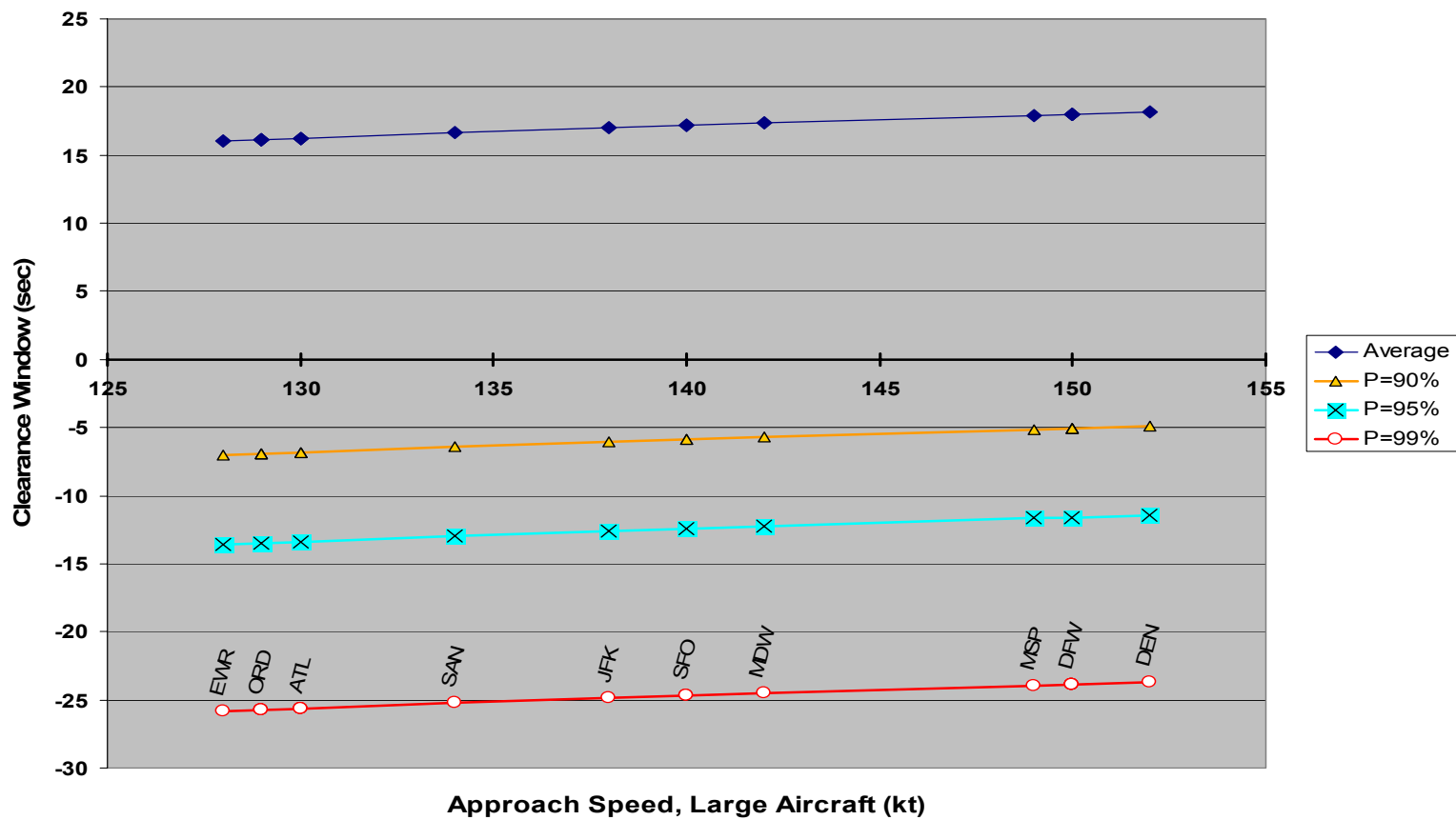
- **Create a rigorous, repeatable process for evaluating proposed changes to air traffic control procedures affecting surface operations**
- **Apply this process to three proposed procedure changes recommended by the National Transportation Safety Board and other safety organizations (Multiple Landing Clearances, Taxi Into Position and Hold and Taxi To)**

# Activities

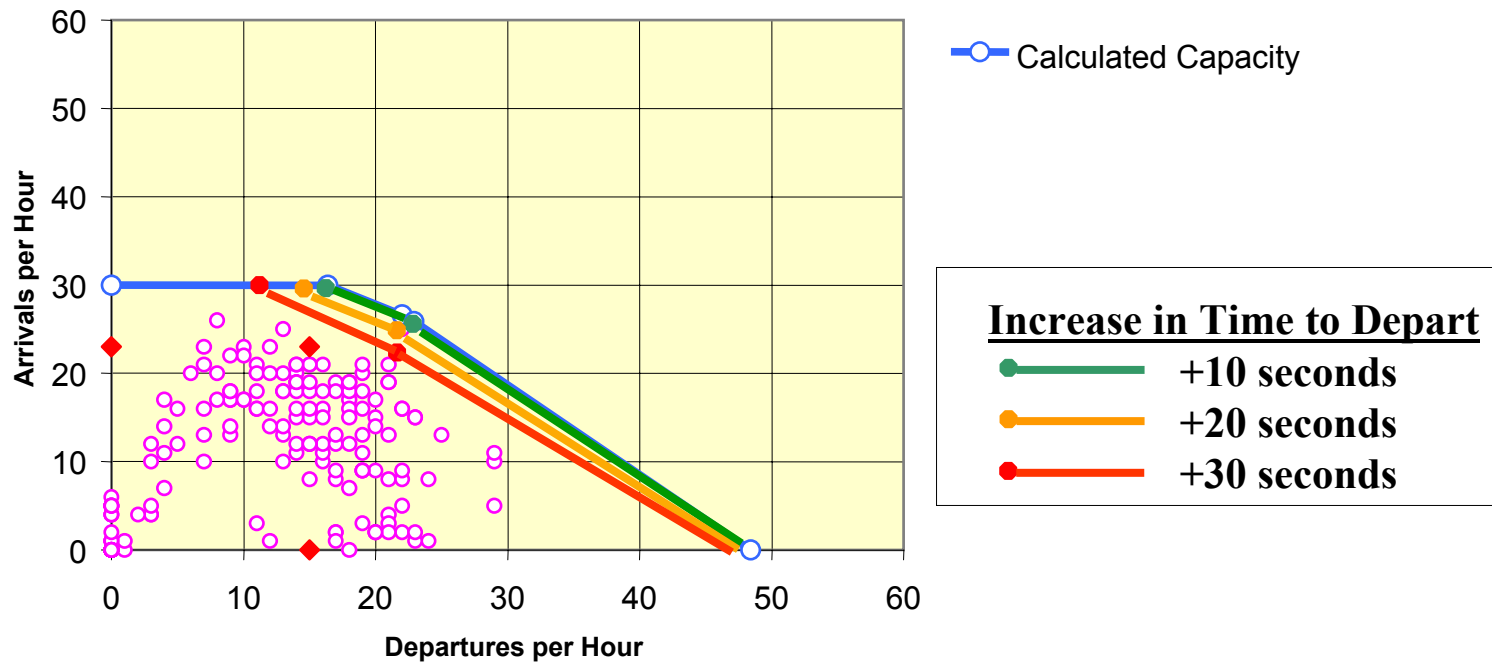
- **Define a metric that demonstrates the relationship between capacity and surface safety. Consider factors such as rate of runway incursions; number of accidents, fatalities and injuries; property losses; and airport capacity.**
- **Analyze procedure execution in detail and identify potential hazards. Analyze actual risk experience based on the identified reports.**
- **Model capacity impact of existing procedures and recommended changes. Conduct Human in the Loop simulations to determine impact of recommended changes.**

# Highlight: Multiple Landing Clearances -- Time available to issue landing clearance with proposed change

IMC, 1000 ft AGL



# Highlight: No Taxi into Position and Hold -- Impact of potential increase in time to depart on San Diego<sup>1,2</sup> capacity



- Arrivals and departures on same runway
- 1 Less than visual conditions
- 2 No impact at San Diego; other airports adversely impacted

# Impacts

- **Establish a relationship between surface safety and airport capacity**
  - Obtain buy-in for process
  - Clarify tradeoff
- **Initiate dialogue on best practices in managing both safety improvement and airport capacity**

# Future Plans- HITL Simulation at NASA- Ames to Obtain Controller Response

