

# Briefing on Runway Incursions

October 11, 2001

# Outline

- Background
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- Findings
  - Trends
  - High risk airports
  - Contributing Factors
- Recommendations
- Specific Initiatives
- Incursion Prevention Action Team (IPAT)

# Background

- 1999 – TC and NC noted an increase in runway incursions;
- TC commissioned study to identify causal factors and make recommendations; and
- NC commissioned parallel study at sites with ATS facilities.

# Methodology

- Risk Assessment and Safety Studies Branch of SPSC
- Refine definition of Runway Incursion
- Participated in NC-organized stakeholder meetings at sites across Canada
- RI occurrence data extracted from NC, TC and TSB sources and analyzed using “Weighted Aggregate Risk” formula
- Literature search
- Participated on “expert panel” – preventive strategies

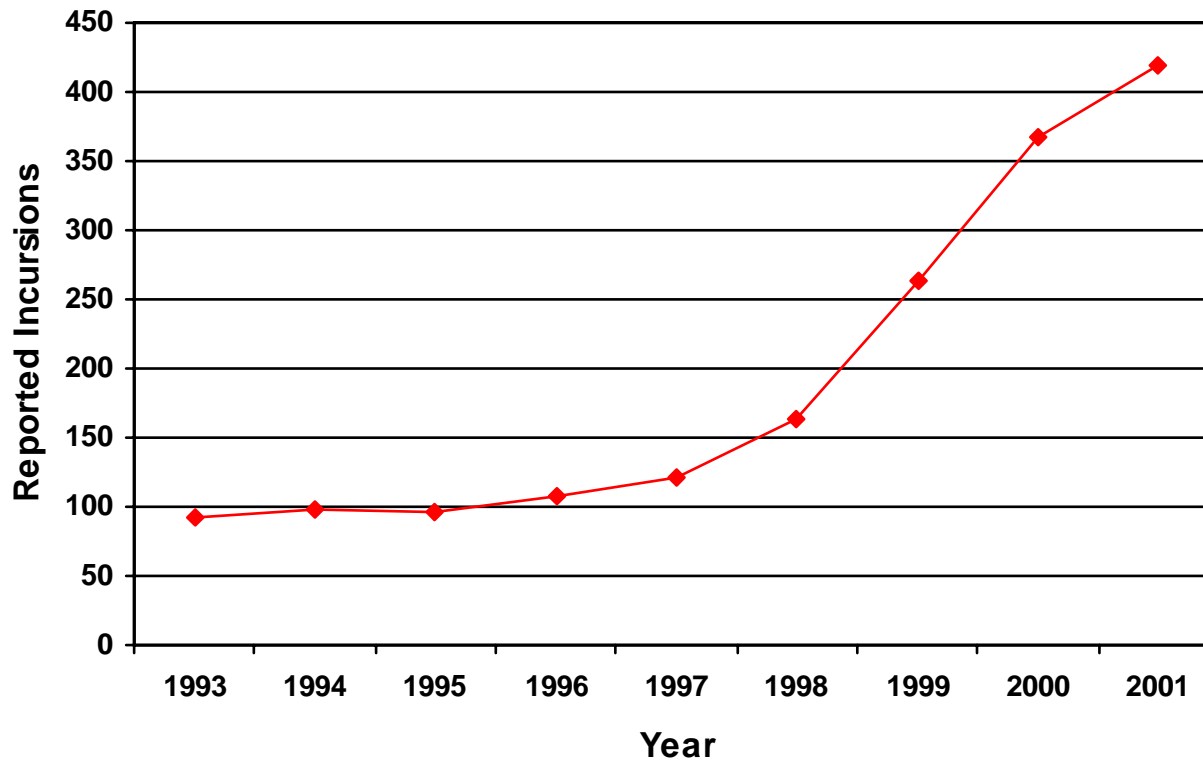
# Definition

Any occurrence at an aerodrome involving the unauthorized or unplanned presence of:

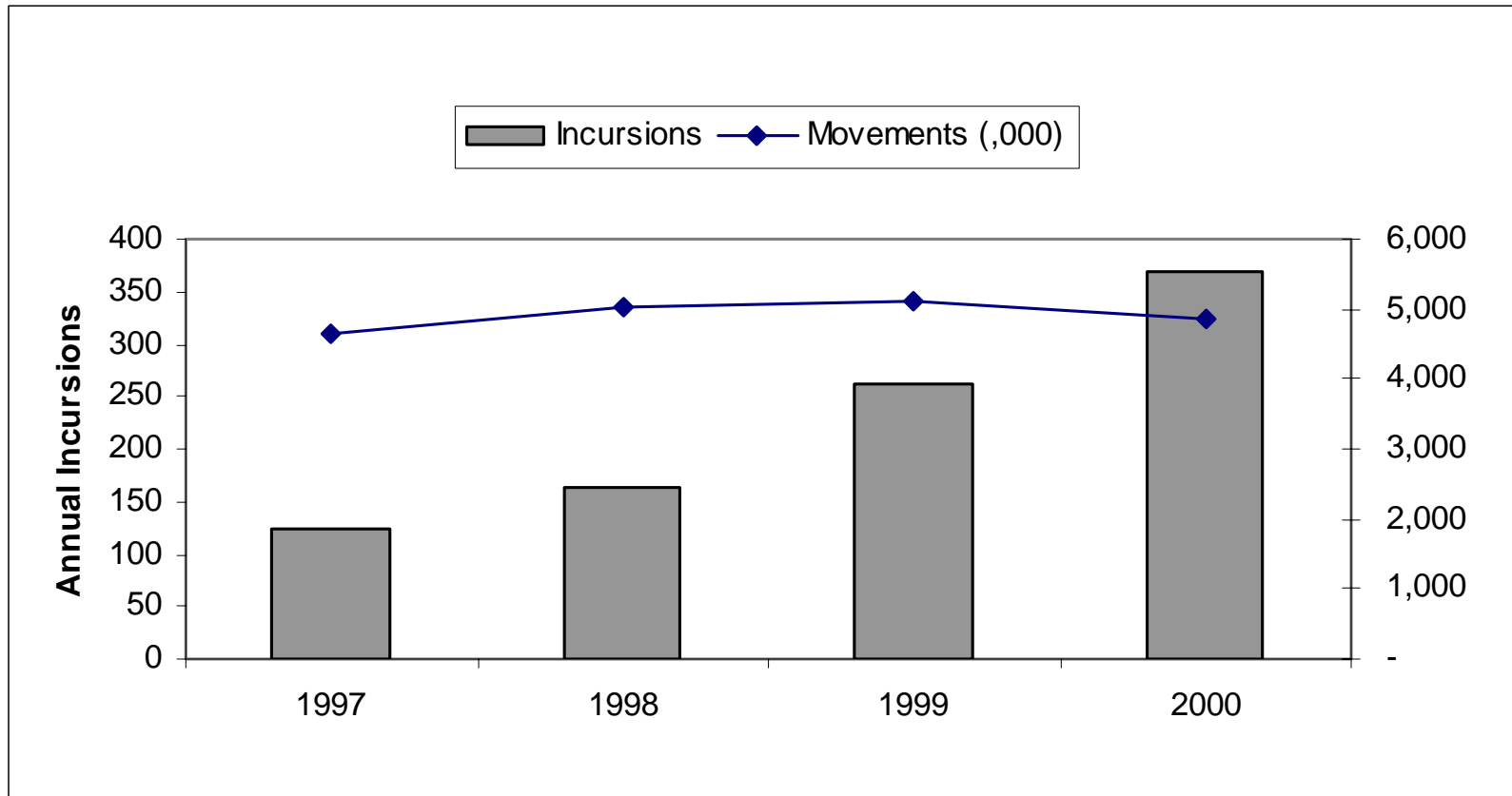
- Aircraft;
- Vehicle; or
- Person

on the protected area of a surface designated for aircraft landings or departures”.

# Findings



# Findings (cont'd)



# High Risk Airports

- Calgary
- Boundary Bay
- Edmonton City Centre
- Montreal - Dorval
- Toronto LBPIA,  
Buttonville and Winnipeg
- Hamilton
- Kitchener
- Quebec City
- Ottawa and Edmonton  
Intn'l



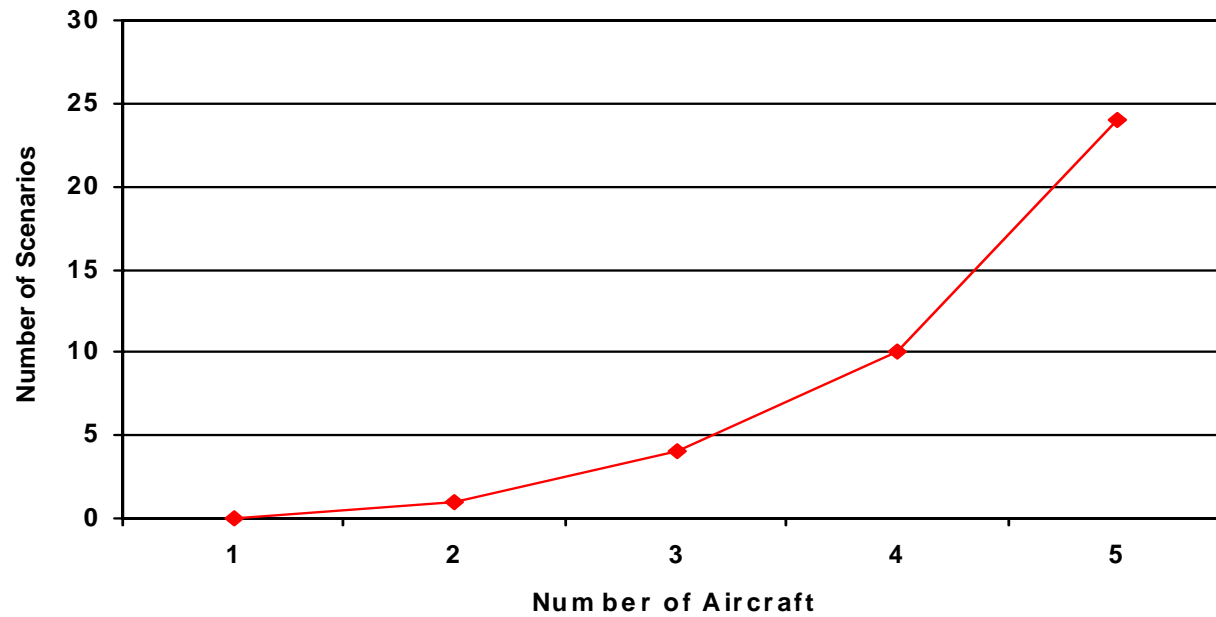
# Conclusions

- Study team unable to find any single factor or combination of factors that have changed so radically as to account for such an increase in incursions since 1996

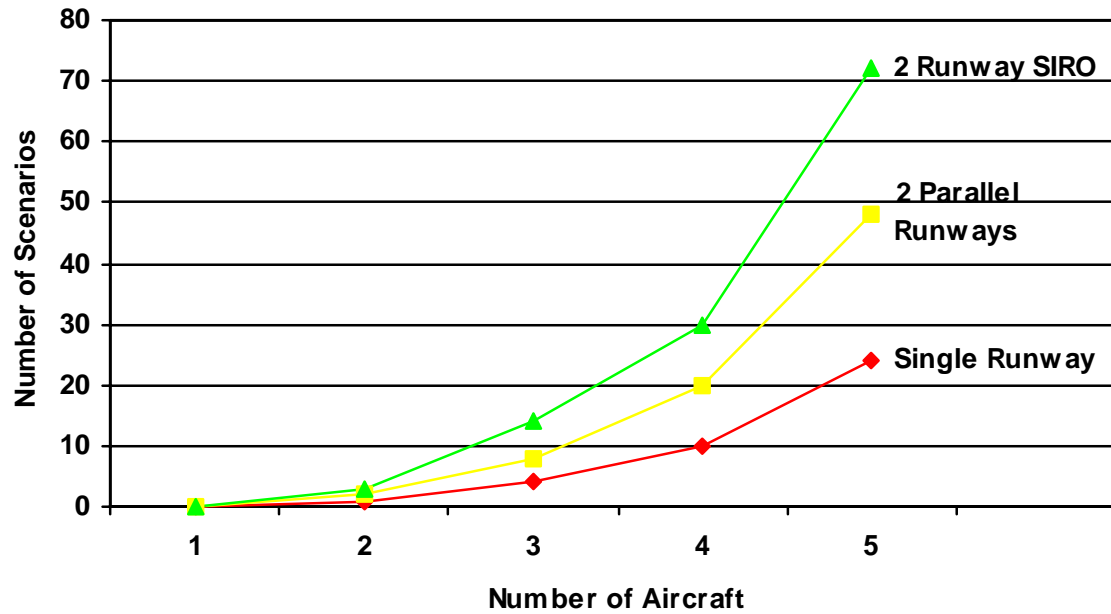
# Contributing Factors

- Traffic Volume
- Capacity-enhancing Procedures
- Airport Layouts
- Complexity
- Human Factors

# Traffic Volume $\nu$ RI Potential



# Capacity-enhancing Procedures v RI Potential



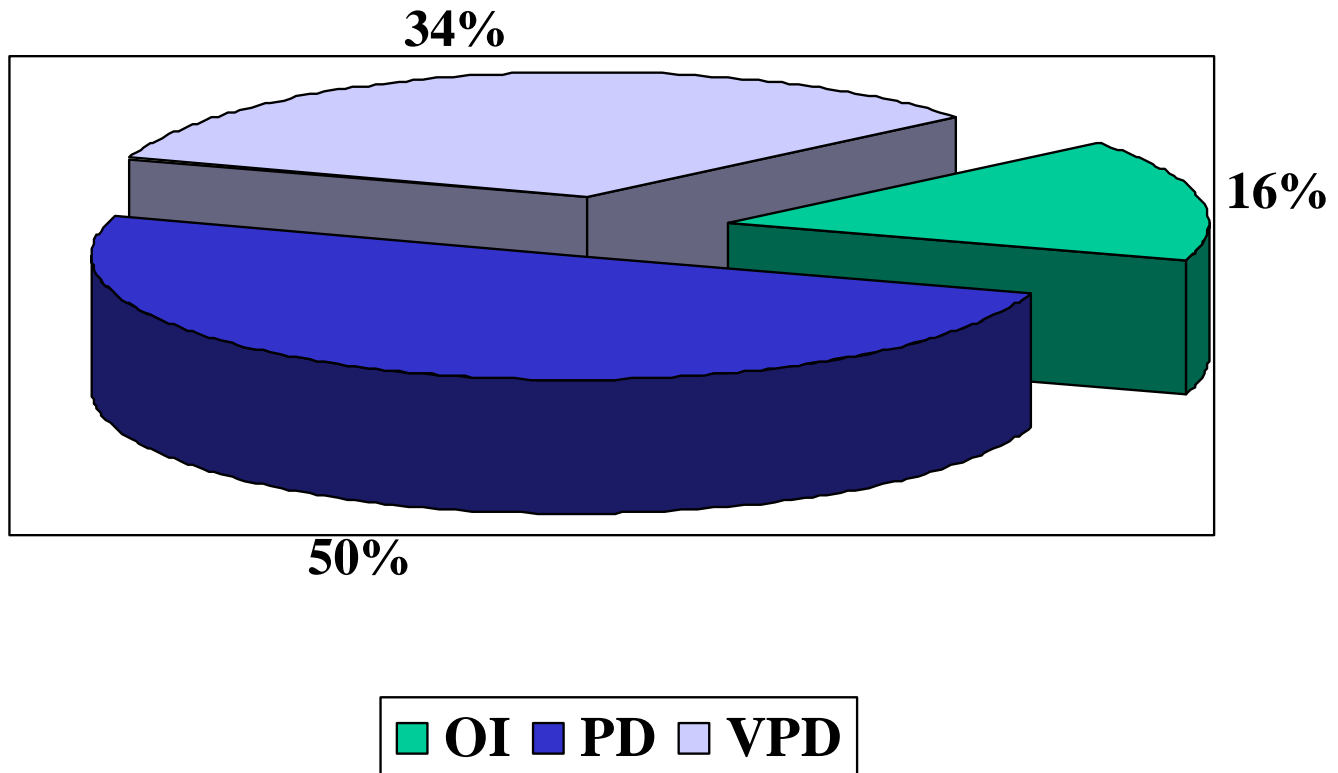
# Airport Layouts

- Inconsistent standards
- Ground movement safety systems
- Standard Taxi routes and improved access to airport diagrams

# Complexity

- Combined influence of traffic volume, capacity-enhancing procedures, airport layouts is greater than the sum of its constituent parts
- Second order effects – reduced visibility, unfamiliarity, momentary distraction – could produce final link leading to an accident

# Human Factors



# Recommendations

- 23 Recommendations
  - Regulatory initiatives
  - Further evaluation and research
  - Awareness and education



# Regulatory initiatives

- Aerodrome signage, lighting and marking
- Procedures for access and control of vehicles at airports
- Visibility of hold lines
- Land and Hold Short Operations (LAHSO)
- Training standards for pilots of air operators

# Further evaluation and research

- Better monitoring;
- Enhanced collection/analysis of incursion data;
- Investigate all incursions; and
- Develop preventive measures based on analysis.

# Calgary International and Edmonton City Centre Airports

- Team set up in June 2001 to study incursion risk and assess the adequacy of current and future preventative measures.

# Calgary International Airport

- New airport diagrams published in the Canada Air Pilot;
- Signage for one-way taxiways were improved; and
- A study of taxiways is in progress under the Development and Construction Plan of the airport.

# Edmonton City Centre Airport

- Guard lights and new, high visibility signs installed in Spring 2001;
- Fence erected around a building identified as source of pedestrian incursions;
- Apron reconfiguration and reconstruction to limit aircraft incursion on the east side of the airport is now complete;
- Review of maintenance vehicle operations on the airport was carried out resulting in an amendment to AOM;
- Designated field working areas established identifying the precise work areas to NAV CANADA and to the equipment operators; and
- Incursion awareness notices were posted at FBO.

# Awareness and Education

- Articles in aviation safety periodicals
- Posters (in production);
- Presentations at Regional Aviation Safety Councils;
- Other promotional items (e.g.: pamphlets, video, etc.); and
- An Aerodrome Safety Circular on runway incursion initiatives will be released shortly.

# NAVCANADA Initiatives

- Amended procedures for controller/pilot/ground vehicle communications;
- Installation of Converging Runway Display Aid (CRDA) equipment at Calgary; and
- Installation of Airport surface Detection Equipment (ASDE) at airports such as Toronto.

# Incursion Prevention Action Team (IPAT)

- Formed in April 2001, IPAT mandate to oversee the implementation of recommendations from both TC and NC reports;
- Met 6 times so far; last meeting held on 26 September; and
- Annual report will be produced and submitted to NCAMX at end of fiscal year.