Airport Pavement Technology & Safety Issues: An International Perspective

VI ALACPA Airport Pavements Seminar & IV FAA Workshop
October 26, 2009 Sao Paulo

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Agenda

• International Industry: Update and Trends
• Safety: International Perspective
• Technology: International Perspective
• Challenges and Collaboration

International Industry - Update

• Perfect Storm hits the Industry
  – Fuel prices spike
  – Worldwide economic crisis
  – Environmental pressures

• New traffic patterns: Changing of the Guard?
  – New regions, new players
  – Legacy airlines: alliances and consolidation
  – Retreat to the Hub: consolidation of route networks

• New Aircraft, New Technologies

Impact of the recession – Is it ending?

ACI: Quarterly Traffic Bulletin Q2 2009
### Passenger Traffic – the Americas Hit Hard

- **ACI: Quarterly Traffic Bulletin Q2 2009**

### Cargo Traffic – Even Worse

- **ACI: Quarterly Traffic Bulletin Q2 2009**

### Top 30 Airports: China & Middle East Growing

- **ACI: Quarterly Traffic Bulletin Q2 2009**

### 30 Airports with Largest Declines

- **ACI: Quarterly Traffic Bulletin Q2 2009**

#### Only Two Airports in the Americas

#### Sixteen Airports in the Americas
China and India Traffic Recovering Fastest

Large Hub Operations are less affected

Civil Aviation Industry – Traffic Trends

- Aircraft orders down globally
- Industry Restructuring
- But Middle East keeps buying
- Constraints to Future Growth: Fuel, Environment, Resources …

New Equipment, Systems and Procedures

A 380

ICAO Code 4F Impacts on Airports: widening taxiways, relocation of infringing obstacles, relocation of runway stop bars, modification of jet blast fences, modification of aircraft loading bridges, fixed ground power …

Next Gen Impacts on Airports: reduce spacing and separation requirements, better manage flows into and out of busy metropolitan airspace, to provide maximum use of the highest demand airports …

Equals more and heavier traffic!
Safety: International Perspectives

Skies are getting safer...

But some areas still have challenges...

Safety Inspection Regimes – More and Stricter

- IATA
  - IOSA: International Operational Safety Audits
  - Airport Inspections

- FAA
  - International Aviation Safety Assessment Program
  - Technical assistance missions

- Manufacturers
  - Boeing
  - Airbus

- Others
  - IFALPA
  - CANSO
  - ACI

- European Union:
  - “Black List” – a temporary measure
  - European Aviation Safety Agency
  - Institutional Strengthening – China, India

European Aviation Safety Agency
Annual Safety Review 2008
Safety Inspection Regimes: ICAO

• Universal Safety Oversight Audit Program (USOAP): 161/190 published on line (http://www.icao.int/fsix/auditRep1.cfm)
• Aerodrome Certification: Still a work in progress

• Beyond USOAP: Integrated Safety Data Collection and Analysis System

Technology: International Perspectives

Technological Imperatives

CHEAPER
- Cost Effective Pavements
  - Long Lasting Value
  - Easy to Construct
  - Inexpensive to Maintain
  - Environmentally Sound

FASTER
- Functional Pavements
  - Adequate ride
  - Meet new equipment requirements
  - Minimal operational impact

BETTER
- Safe Pavements
  - Operating surfaces
  - Proper bearing strength
  - Geometric layout

SAFER

Making it Better AND Cheaper

- Pavement Design:
  - Performance vs. prescriptive specifications
  - Superpave vs. Marshall
- Materials –
  - Sustainable base courses (RAP)
  - Rubblization specifications
Making it Safer

- Airside Geometry
  - RESA
  - Restraint Systems

- Runway Surface Characteristics
  - Textures: Mega, Macro, Micro
  - Retexturing equipment

- Construction Safety Plan
  - Hub activity – at night, partial closures
  - Laser survey/verification

Making it Faster

- Runway Inspections – Automation
  - FOD Radar
  - Laser Detection
  - GPS/GIS Applications

Challenges

- Short Term: Worldwide Economic Recession
  - Dealing with new players and new regions
  - Keeping safety inspection regimes funded
  - Implementing SMS and certifying airports

- Mid Term: Dealing with Consolidation and Competition
  - Hub activity – impact on maintenance activities
  - Adapting to new equipment and systems

- Long Term: Who knows?

The need for collaboration: Pilot’s Perspective
Pilot's Perspective: Pavement Composition Change

It looked okay on the drawing!

Pilot's Perspective: Main Gear Tracks Across Island

Follow the leader!

One “High Tech Solution …

Green Pavement

Obrigado

O enfoque 5 “A”:
Autoridade
Aeroporto
Linha Aérea
Avião
Aeronavegação

Só trabalhando juntos, podemos assegurar a Segurança Operacional dos Pavimentos Aeroportuários!