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The Master Planning Manual (Doc 9184)

Document Structure of Section 2 - Airside Development:

- Runways
- Taxiways
- Aprons
- Navaids

Chapter 6
Chapter 7
Chapter 8
Same Key Principles In New Edition (Section 2)

• Master plan is essential to direct long-term airport development, with airside planning being an integral part of it.
• Expandability of key airside elements and flexibility underpin planning and design process.
• Master plan guides gradual capacity increases, which can be optimised through precise planning.
Main Changes Proposed in New Edition (Section 2)

- ICAO Annex 14, Aerodrome Design Manual (Doc 9157) + other documents underwent several major updates in last decades effects on Master Planning Manual had to be incorporated
- Focus on airport capacity
- Aircraft performance (not just characteristics)
- Aircraft stand flexibility
Chapter 6 – Runways

• Adequacy of runway provision
  – Length – design aircraft, routes, fuel optimisation of RWY length/ land use
  – Capacity – ATM/h, role of supporting taxiway network, ways to assess capacity

rule of thumb  analytical  simulation
Chapter 6 – Runways (cont.)

- Inclusion of Code F criteria
- Parallel runway separation new minima
  - Minimum: 1,035m for independent operations
  - Doesn’t leave sufficient space for midfield terminal
Chapter 6 – Runways (cont.)

• Displaced thresholds
  – Positive impact on land use (inset approach lights)
  – Reduced noise impact (inhabited areas overflown higher)
Chapter 6 – Runways (cont.)

- Inclusion of Obstacle Limitation Surfaces
  - Emphasising strong relationship with runways
  - Effect on airport development, apron location etc.
Chapter 6 - Taxiways

- **Runway – taxiway system**
  - Taxiways vital in supporting runway and hence overall ATM capacity
  - Efficient TWYs minimise delays on the ground reducing emissions supporting on-time airline operations
Chapter 6 – Taxiways (cont.)

- Taxiway types
  - Parallel Taxiways
  - Rapid Exit Taxiways (role, better explanations)
  - Runway Access Taxiways
  - Around-end Taxiways (to avoid RWY crossings)

All to support maximum utilisation of main airport asset – the runway(s)
Chapter 7 - Aprons

- Covering:
  - Aircraft stands
  - Taxilanes
  - Airside roads
  - Ground Service Equipment (GSE) areas
Chapter 7 – Aprons (cont.)

- Aircraft stands
  - Stand demand
  - Contact vs. Remote
  - Active (operational) vs. Non-active (non-operational/ Remain-Over-Night)
  - Multi-Aircraft Ramp System (MARS)
Chapter 7 – Aprons (cont.)

- Apron concepts
  - Depending on terminal configuration (pier, satellite, linear (apron-terminal relationship)
  - Taxi-in/ push out vs. taxi-in/ taxi-out (self-maneouvring)

- Other aprons
  - Cargo
  - Helicopter
  - VVIP
  - GA
  - De-icing etc.
Chapter 7 – Aprons (cont.)

• Terminal interface
  – Fixed Link Bridges/ nodes
  – Passenger Boarding Bridges

• Airside roads
  – Head-of-stand roads
  – Back-of stand (tail-of-stand) roads

• GSE areas
  – Requirements
  – On-apron areas vs. off-apron areas
Chapter 8 – Navigational Aids

• Relationship between aircraft operations, visual/radio navaids, and air traffic control facilities at airports better explained

• Modern navaids mentioned
  – Physical requirements
  – To be taken into account for facility/ layout planning
Chapter 8 – Navigational Aids (cont.)

- Types of approaches (different physical requirements)
  - Visual
  - Non-precision instrument
  - Precision instrument (CAT I, CAT II, CAT III a-c)
Chapter 8 – Navigational Aids (cont.)

- ILS-restricted areas
  - Localizer
  - Glidepath antennas
- ATC tower
  - Height
  - Line-of-sight, angle
Summary

• Section 2 Airside Development has been updated to reflect:
  – Current legislation
  – Modern aircraft models
  – Industry best practice
• Some calculations/ rules of thumb still to be completed
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