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Airport Planning Manual

Update of PART 1 MASTER PLANNING Doc 9184
Section 2 – Airside Development

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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

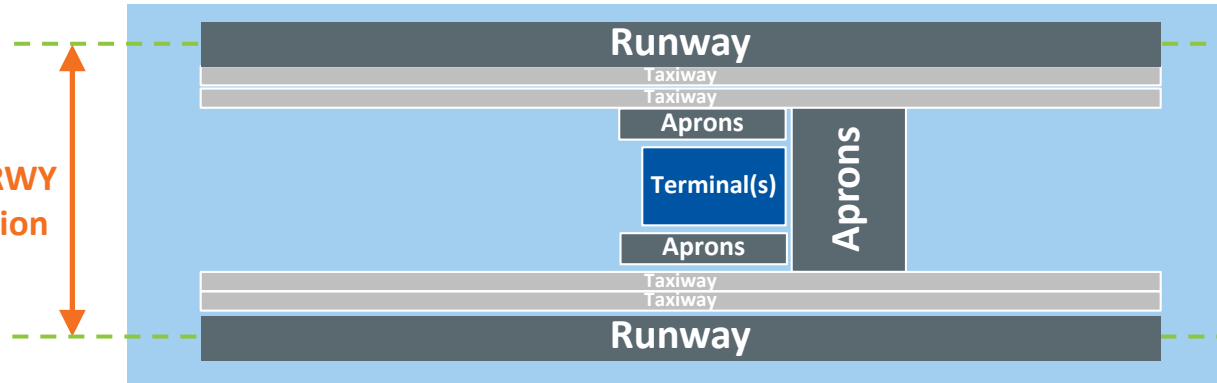
simulation



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

RWY-RWY
separation





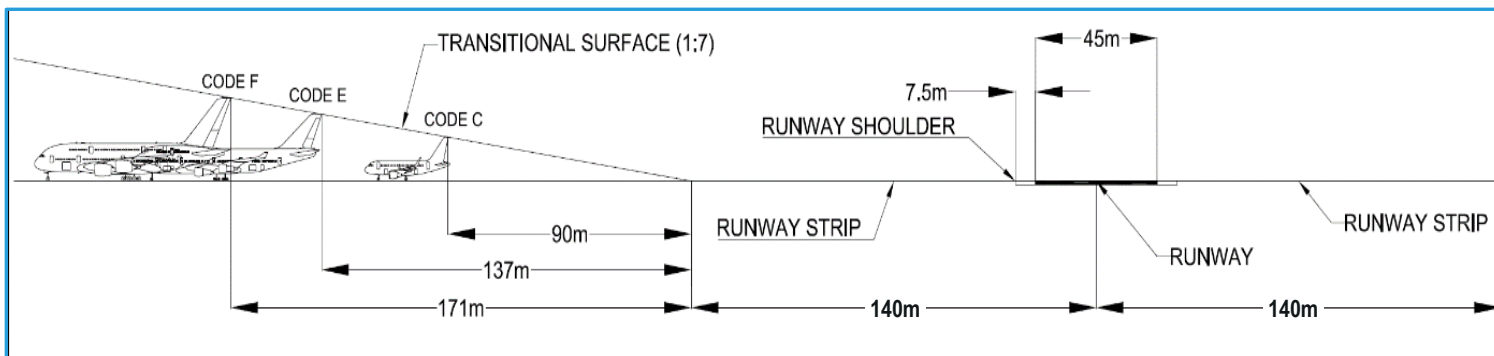
Chapter 6 – Runways (cont.)

- 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-manoeuving)
- 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



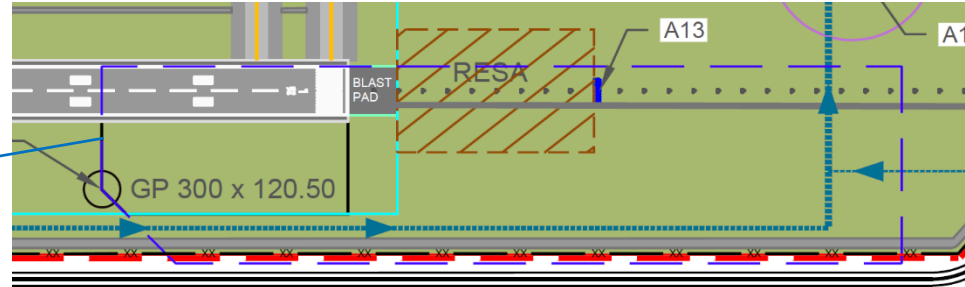
Chapter 8 – Navigational Aids (cont.)

- 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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