

## Critical Design Checklist

1. Runways	
	<p>Which runways are in use?</p> <ul style="list-style-type: none"> <li>• What are the primary and secondary Runways in Use in main and adjacent Terminal Areas?</li> <li>• Is the mode of operation of the existing runways likely to change prior to the implementation of the existing project?</li> <li>• Are additional runways likely to be in use prior to the implementation of the existing project? If so, in what mode?</li> <li>• When was the mode of use for the runways implemented?</li> <li>• Have other modes of use been considered – and discounted? If so, why?</li> </ul>
2. Traffic Types and Distribution	
	<p>What is the quantity of the traffic in terms of Arrival, Departure and Transit Traffic in combination with different traffic types?</p> <ul style="list-style-type: none"> <li>• What is the geographic distribution of the traffic (in %)?</li> <li>• What is the time distribution of the traffic (seasonal / daily)?</li> <li>• What is the ratio between Arriving and Departing traffic during peak hours?</li> <li>• What is the ratio between IFR/VFR, Military/Civil?</li> <li>• Do recreational-type flying activities take place in the Terminal Airspace?</li> <li>• For Items 1-5 on left, does the future traffic samples deliver the same results as the existing traffic sample used?</li> </ul>
	<p>What are the traffic mix in categories (H/M/L) and Navigation Capabilities (Conventional / NAV)?</p> <ul style="list-style-type: none"> <li>• Does the future traffic sample deliver the same results as the existing traffic sample used?</li> </ul>
3. Terminal Airspace	
	<p>What are the lateral dimensions of the Terminal Airspace?</p> <ul style="list-style-type: none"> <li>• Are all IFR flight paths contained inside controlled airspace</li> </ul>
	<p>What are the Airspace Classifications in, and if deemed of interest, outside the Terminal Airspace?</p> <ul style="list-style-type: none"> <li>• Does the airspace classification meet current operational requirements?</li> <li>• Is there a high incidence of unauthorised penetrations of the Terminal Airspace? If so, why?</li> </ul>
	<p>What is the Transition Altitude in the Terminal Airspace?</p> <ul style="list-style-type: none"> <li>• Is the Transition Altitude too low or too high?</li> </ul>
	<p>Are there Airspace Reservations (military / VFR corridors / recreational flying)?</p> <ul style="list-style-type: none"> <li>• Are all of these Reserved Airspaces used? If so, what frequency?</li> <li>• <b>Is the location of the reserved airspace efficient? (Limitation to ANSP, distance to travel to/from)</b></li> </ul>
	<p>Are there Airspace Restrictions that impact on the Terminal Airspace?</p> <ul style="list-style-type: none"> <li>• Is each of these Airspace Restrictions still valid?</li> </ul>
	<p>Are there Holding Areas and is there a Minimum Safe Altitude?</p> <ul style="list-style-type: none"> <li>• What are the minimum holding levels of each hold?</li> <li>• What is the maximum holding levels of each hold?</li> </ul>

	<ul style="list-style-type: none"> <li>• Are the holding areas located where they are most needed?</li> <li>• What factors have determined these minimum and maximum holding levels? Are these reasons still valid?</li> <li>• Would the holding patterns be better placed inside (or outside) the Terminal Airspace?</li> </ul>
	Are there Approach procedures published and to what extent are they used?
	<ul style="list-style-type: none"> <li>• To what extent are Approach Procedures used?</li> <li>• Why are some Approach Procedures not used?</li> </ul>
	Are there Departure and Arrival procedures published?
	<ul style="list-style-type: none"> <li>• Do all SIDs have a common initial published level restriction? <ul style="list-style-type: none"> <li>○ Are difficulties created by different initial level restrictions?</li> </ul> </li> <li>• Does the initial published level restriction coincide with the Transition Altitude? <ul style="list-style-type: none"> <li>○ If Yes, is there a high incidence of Level Busts?</li> </ul> </li> <li>• Why are some SID/STARs not used?</li> <li>• <b>Can unused SID/STARs be removed? Are they contingency procedures?</b></li> <li>• Do SID/STARs cover all requirements e.g. sufficiently service major traffic flows?</li> </ul>
	Are there Radar Vectoring Patterns & MRVA? Defined and/or published?
	<ul style="list-style-type: none"> <li>• Is the MRVA chart complex?</li> <li>• Can MRVA be depicted on the radar display?</li> <li>• Does the MRVA chart need updating?</li> <li>• Can it be simplified?</li> </ul>
<b>4. Traffic Management</b>	
	How is the airspace surrounding the TMA organised? Are there adjacent ACC sectors, ACC sectors above and/or adjacent Terminal Airspace(s) and what is their relationship with the TMA?
	<ul style="list-style-type: none"> <li>• Are the crossing points of routes too close to any of the sector boundaries?</li> <li>• Does traffic transit unnecessarily through too many sectors?</li> </ul>
	How is the Arrival Traffic managed?
	<ul style="list-style-type: none"> <li>• To what extent are existing STARs/Holds used?</li> <li>• To what extent are existing CDOs used?</li> <li>• Are transfer of control arrangements between adjacent sectors and the Terminal Airspace generally similar? (i.e. does transfer generally occur at a level, or a point?)</li> <li>• Where transfer of control arrangements are affected with an adjacent State, is this covered by an Inter-Centre Letter of Agreement?</li> <li>• Are there incidents of Level busts?</li> <li>• To what extent to Low Visibility procedures impact upon the runway acceptance rate?</li> <li>• Why are some STARs or CDOs not used?</li> <li>• Can transfer of control arrangements be standardised?</li> </ul>

	<p>How is the Departure Traffic managed?</p> <ul style="list-style-type: none"> <li>• To what extent are SIDs used?</li> <li>• Are there many 'special' SIDs e.g. for use by low performance aircraft or for use in particular circumstances?</li> <li>• Are transfer of control arrangements between Terminal Airspace and adjacent sectors generally similar? (i.e. does transfer generally occur at a level, or at a point?)</li> <li>• Where transfer of control arrangements are affected with an adjacent State, is this covered by an Inter-centre Letter of Agreement?</li> <li>• Are there incidents of Level busts?</li> <li>• <b>Is CCO enabled? Are climb profiles as efficient as possible? Are the know Level off points?</b></li> <li>• Why are some SIDs not used?</li> <li>• Can transfer of control arrangements be standardised?</li> </ul>
	<p>How is the Transit Traffic managed?</p> <ul style="list-style-type: none"> <li>• Do transit flights in the TMA operate on published ATS routes?</li> <li>• Where transfer of control arrangements are affected with an adjacent State, is this covered by an Inter-centre Letter of Agreement?</li> <li>• Why are some published ATS routes in the TMA not used?</li> </ul>
	<p>If applicable, how are Military, VFR and Recreational Traffic managed?</p> <ul style="list-style-type: none"> <li>• Are parts of the Terminal Airspace 'switched on' (and off) to accommodate the requirements of the different users?</li> <li>• Are there frequent unauthorised airspace penetrations of Terminal Airspace? Transfer procedures and LoAs?</li> <li>• Does the airspace classification outside the Terminal Airspace affect the incidents of unauthorised airspace penetrations?</li> </ul>
<p><b>5. Technical Support Infrastructure</b></p>	
	<p>What are the System Capabilities and Availability for: Radar Data Processing, Flight Data Processing and HMI?</p> <ul style="list-style-type: none"> <li>• What is the Availability and coverage of the Radar system?</li> <li>• What is the Availability of the Flight Data Processing system?</li> <li>• What is the availability of the HMI?</li> <li>• Are outages frequent? Is this due to maintenance or technical difficulties?</li> <li>• Does the system provide consistent and easy, manageable environmental data?</li> <li>• Does the system provide timely and accurate flight plan distribution?</li> <li>• Does the system provide for tools for sectorisation management?</li> <li>• Does the system provide for automatic co-ordination?</li> <li>• Does the system provide for Code / Callsign correlation?</li> <li>• Do maintenance slots affect traffic management?</li> <li>• Is there a need to change the maintenance slots?</li> <li>• Does the system have a fallback capability?</li> </ul>

	What are the System Capabilities and Availability for Voice Communication System i.e. Radio and Phone?
	<ul style="list-style-type: none"> <li>• What are the Radio Facilities and what is the coverage?</li> <li>• Are downtimes frequent? Is this due to maintenance or technical difficulties?</li> </ul>
	What are the System Capabilities and Availability for Navigation and Landing Aids?
	<ul style="list-style-type: none"> <li>• What is the primary navigation infrastructure? <ul style="list-style-type: none"> <li>◦ If GNSS, what frequency of loss of signal?</li> </ul> </li> <li>• What are the Availability of navigation and landing aids and coverage: DME/DME, VOR/DME and ILS Categories?</li> <li>• Are downtimes frequent? Is this due to maintenance or technical difficulties?</li> </ul>
<b>6. Weather and Terrain</b>	
	What does the terrain in and surrounding the TMA look like?
	<ul style="list-style-type: none"> <li>• Is the obstacle catalogue up to date?</li> </ul>
	What are the weather patterns / thunderstorm activities?
	<ul style="list-style-type: none"> <li>• Are the weather trends described?</li> <li>• How many days are spent in LVO?</li> <li>• What is the capacity drop when running LVPs?</li> </ul>
	What is the impact of low pressure on FL availability in Terminal Airspace (Transition Level)?
	<ul style="list-style-type: none"> <li>• Does low pressure occur more frequently than in the past</li> <li>• Is this a trend?</li> </ul>
<b>7. Environmental Constraints</b>	
	Are there Environmental Constraints in terms of noise restrictions (time, location, level)
	<ul style="list-style-type: none"> <li>• Are there noise curfews?</li> <li>• Are there noise sensitive areas that require conditions for overflight?</li> <li>• Are there limitations on holding areas and lowest available holding level due to environmental requirements such as visual intrusion?</li> <li>• Are noise curfews still valid?</li> <li>• Are there noise respite routes?</li> <li>• Does the airport exercise any form of noise and/or visual intrusion 'balancing'? If so, what frequency and what acceptance?</li> <li>• Are CCOs and CDOs, if applied, effective?</li> </ul>
<b>8. Specific Questions relating to published regulatory material</b>	
	ICAO
	<ul style="list-style-type: none"> <li>• Has ICAO been notified of any non-compliance with SARPs where required by the Chicago Convention?</li> <li>• Are the procedures designed in accordance with PANS OPS and/or with ICAO Doc 9905?</li> <li>• Have the procedures been validated in accordance with ICAO Doc 9906?</li> <li>• Has the navigation infrastructure been inspected in accordance with ICAO Doc 8071?</li> </ul>

	AIS
	<ul style="list-style-type: none"> <li>• Have any inconsistencies/errors been found in AIP / Supplements to AIP e.g. outdated material, incorrect co-ordinates? If so list.</li> <li>• <b>Has the State made it clear in the AIP which is the primary and reversionary navigation infrastructure? (Section 4.3)</b></li> </ul>
	LoAs
	<ul style="list-style-type: none"> <li>• Have any errors been detected in LoAs? If so, list.</li> <li>• <b>Do the LoAs reflect current practices?</b></li> <li>• Do all parties to LoAs have the same version of the LoA? If not, note this.</li> </ul>
	Local ATC Instructions
	<ul style="list-style-type: none"> <li>• Have any inconsistencies / errors been detected in the instructions? If so, list</li> <li>• <b>If appropriate, do the controllers know who can/cannot accept a 'special' RNP AR APCH?</b></li> </ul>

**OUTSTANDING ACTIONS/ISSUES**

Action	Due Date	Responsible