





Integration of Support Facilities in the Master Planning Process

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Master Plan Goals & Objectives

- Provide future Support Facilities based on the aviation forecast projections (20 yrs.).
- Requirements based on peak hour demand for passengers, aircraft operations, cargo tonnage and ultimate airfield geometry.
- **✓**
- Provide a balance in capacity between other airfield functional areas (terminal, airfield, landside, etc.).
- Provide for flexibility and expandability to meet changing demand levels.
- Determine the appropriate facility location on the airport.
- Incorporate future technologies and trends.





Major Airport Support Facilities

- Airport Maintenance
- Administration Offices
- Flight Catering
- Aircraft Maintenance
- Rescue & Fire Fighting
- Fuel Farm / Distribution
 System

- Air Cargo / Freight Forwarders
- Ground Service Equipment Staging & Storage
- Airport Data Centre
- Waste Consolidation Centre
- Police / Security







Airport Facility Adjacency Matrix

X = Facility adjacency is recommended

O = Access connection is recommended (taxiway or roadway), but facility adjacency is not necessary

N = Adjacency is NOT desired

AS = Air Side

LS = Land Side

A/L = Air Side / Land Side boundary

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Airport Facility Adjacency Matrix

X = Facility adjacency is recommended

O = Access connection is recommended (taxiway or roadway), but facility adjacency is not necessary

N = Adjacency is NOT desired

AS = Air Side

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Location	Airport Facility	Runways	Taxiways	Gated Aircraft Parking Positions	nactive Aircraft Stands	General Aviation Hangars	Govemment/Protocol Terminal	Terminal	On Airport Automated People Mover	Curbfront	Main Access Roadway	Secondary Access Roadway	Passenger Metro Station	Auto Parking Garage/Ground Transportation Center	Economy Auto Parking Lot	Air Traffic Control Tower/TRACON/SENEAM	Crash Fire and Rescue Stations	Crash Fire and Rescue Training	Fuel Storage	Flight Kitchen	Ground Service Equipment Storage	Ground Service Equipment Maintenance	Airline Maintenance	Cargo	Multimodal Cargo Facility
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Comprehensive On-Airport Land Use Plan

- On-Airport Land Use Plan based on the following key factors:
 - Airfield layout (runways, taxiways, and aprons)
 - Terminal and aircraft gate areas
 - Support facility requirements (5, 10, 15 and 20 years)
 - Proposed facility site locations (based on adjacency matrix)
 - Airport property boundary (consider potential land acquisition)
- Provide for future expansion capability beyond the forecast period.
- Provide for flexibility if the demand levels change.
- Provide for long-term site location if possible (meet life-cycle and cost-benefit).







Land Use Opportunities

Typical Land Use Categories:

- 1. Airfield
- 2. Terminal Area / Support
- Cargo
- 4. Airport / Airline Support
- General Aviation
- 6. Military Area
- 7. Ground Access & Parking
- 8. Commercial Development
- Environmental







What is the Future of Air Traffic Control?

- Will there be the need for a physical Air Traffic Control Tower?
- Will all air and ground traffic be controlled and monitored via a "Virtual Tower" in the future?
- Use of cameras and thermal sensors to see if animals stray onto the runway.
- Infrared cameras can supplement images in rain, fog and snow.
- Need to provide the flexibility for future new technologies!



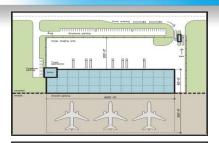


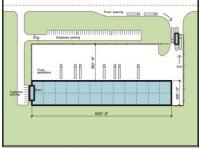


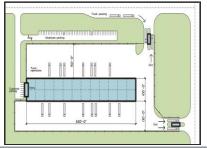


Air Cargo

- Understanding the type of cargo companies operating at the airport and their inter-relationships.
 - **Integrated Carriers** transport freight from door-to-door using their own fleet of aircraft and trucks.
 - **Freight Forwarders** act as brokers that link shippers with freight carriers; they coordinate the shipment of freight, but do not transport it.
 - All Cargo Operators sell space to freight forwarders or individual companies and ship the air cargo on their aircraft.
 - **Combined Carriers** carry both passengers and freight on a single aircraft, typically with a reconfigured cabin.
 - Belly Freight Carriers carry cargo in the baggage compartment or belly of a passenger aircraft.









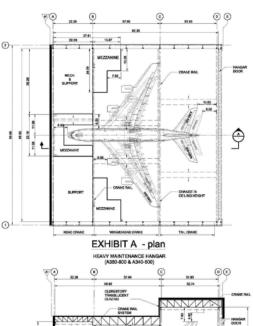


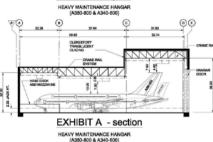


Aircraft Maintenance

- Provide for maintenance activities, including A, B, C and D Checks
- Each check is performed at specific intervals and requires special equipment and facilities, such as:
 - Maintenance Hangars
 - Wash Bays
 - Paint Hangars
 - Calibration Pad
 - **Ground Run-up Enclosure**
 - Apron



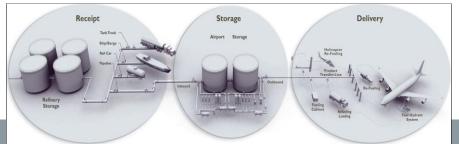






Aircraft Fueling System

- <u>Fuel Receipt Area</u> where incoming fuel is metered, filtered, tested and combined into a manifold to feed the fuel farm (usually off-airport).
- <u>Fuel Farm Area</u> where fuel is stored and the hydrant depot is located (usually on-airport).
- <u>Into-Plane Services Depot</u> provides staging for hydrant vehicles as well as operational management and welfare facilities.
- <u>Hydrant Fueling System</u> trend to be at larger airports with fuel pits located under the aircraft wings and fueled via a fuel dispenser vehicle.





Facilities Implementation Plan

- Provides guidance on how to implement the findings and recommendations of the Master Planning effort.
- The facilities Implementation Plan needs to consider all of the airport's planned capital projects (even those not associated with the Master Plan).
 - 5-year Capital Improvement Program
 - Annual Maintenance Programs
 - Safety / Security Programs
 - Environmental / Sustainability Programs
- It must balance:
 - Airport funding constraints
 - Project sequencing limitations
 - Environmental processing / permitting requirements
 - Agency and tenant approvals
 - Tenant leases
 - Airport's financial plan (How much can the airport afford on an annual bases?)

ICAO LIMA UNITING AVIATION

NO COUNTRY LEFT BEHIND







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THANK YOU