INFORMATION PAPER ON

MAJOR EXPANSION AND CAPABILITY BUILDING WITHOUT HAMPERING THE OPERATIONS AND SAFETY AT RAJIV GANDHI INTERNATIONAL AIRPORT HYDERABAD

GMR Group

Airports Energy Transportation Urban Infra Services Sports Foundation

www.gmrgroup.in

HYD RAJIV GANDHI INTERNATIONAL AIRPORT

GMR AERO ENTERPRISE

EXPERIENCE EPIC EVERYDAY

SUMMARY

This paper presents Capability Building Journey of GMR Hyderabad International Airport to cater post Covid traffic recovery and accommodate execution of works as per 34 MPPA design without compromising safety and hampering Operational efficiency.

By mid-2030s no fewer than 200,000 flights per day are expected to take off and land all over the world. with twice as much traffic today ! Source ICAO study

INTRODUCTION

GMR Rajiv Gandhi International Airport Hyderabad INDIA has recently completed major expansion phase wherein multiple activities are taken up to enhance Airspace & Runway capacity and simultaneously Apron and terminal building expansion was taken up to cater 34MPPA traffic, to ensure all critical works channeled through change management and get completed within timelines without operational impact. The Meticulous technical analysis of GHIAL not only able to get all regulatory approvals but also involved prime stakeholder and service partners for implementing state of art changes for safe transition to complete desired expansion and capacity building works unhampered.

Case study on Major Expansion and capability building without hampering the Operations at Rajiv Gandhi International Airport Hyderabad INDIA

1. How Phase wise expansion works help in maintaining highest safety and minimum operational impact.

2. How effective change management process helped in phase wise execution and commissioning of new Facilities at GHIAL RGIA Hyderabad.

Project Background

Building Infrastructure in Compliance to 34 MPPA.

Enhancing professional Efficiency of Pilots, ATCOs

Making RGIA Airspace and Ground safer for efficient , orderly and safe operations

- Project executed in phased manner to meet the operational requirements'
- Commissioning of 2500 mts parallel taxiway B for reducing taxiing delays and holding
- Commissioning of 04 new RETs for capacity enhancement of main Runway
- Publication of Electronic Terrain and Obstacle Data (eTOD) of RGIA
- Required Navigation Performance procedures(RNP Y) on Secondary Runway which will enhance Airspace utilization, reduce visibility Minima, save fuel and reduce carbon foot prints
- Commissioning of Parking Stand at North West Apron and Remote south East Apron and North East apron.
- Re-Declaring Main Runway capacity as 42 ATM/hr and Secondary Runway capacity 30 ATM/hr
- Re Habilitation of Main RWY & SRY RWY to curtail technical breakdown of pavement

Diagnostic Journey

Plan

- Supporting Futuristic 80MPPA Passenger Handling Capacity of RGIA.
- Capacity Enhancement for main runway & Secondary Runway
- Paving way for Additional Air Traffic Routes Due to Airspace enhancement
- Flight Operations during bad weather conditions
- To minimize the Taxiing Delays

Do

- Approval for Design Concept of proposed facilities from regulatory Authorities
- Phase wise expansion works with minimum operational impact.
- Interactive terrain and obstacle data in digital format
- ROT Data Analysis
- precise digital on board reference to Pilot
- Less Flying Time
- Easy RWY identification from the Air

Check

- Verification & Validation of data acquired
- Compliance to DGCA
- Compliance to ICAO

Act

- Regular Meetings (FOPC, WCC) for updating the stakeholders regarding the facilities
- NOTAM, AIP Publications
- Change Management (Phase wise approval for commissioning of new facilities)

ICAO SMS framework…..

Safety Policy & Objectives

- Management commitment & responsibility
- Safety accountabilities
- Appointment of key safety personnel
- Coordination of emergency response planning
- SMS documentation

Safety Risk Management

- Hazard Identification
- Risk assessment and mitigation

Safety Assurance

- Safety performance monitoring & measurement
- The management of change
- Continuous improvement of the SMS

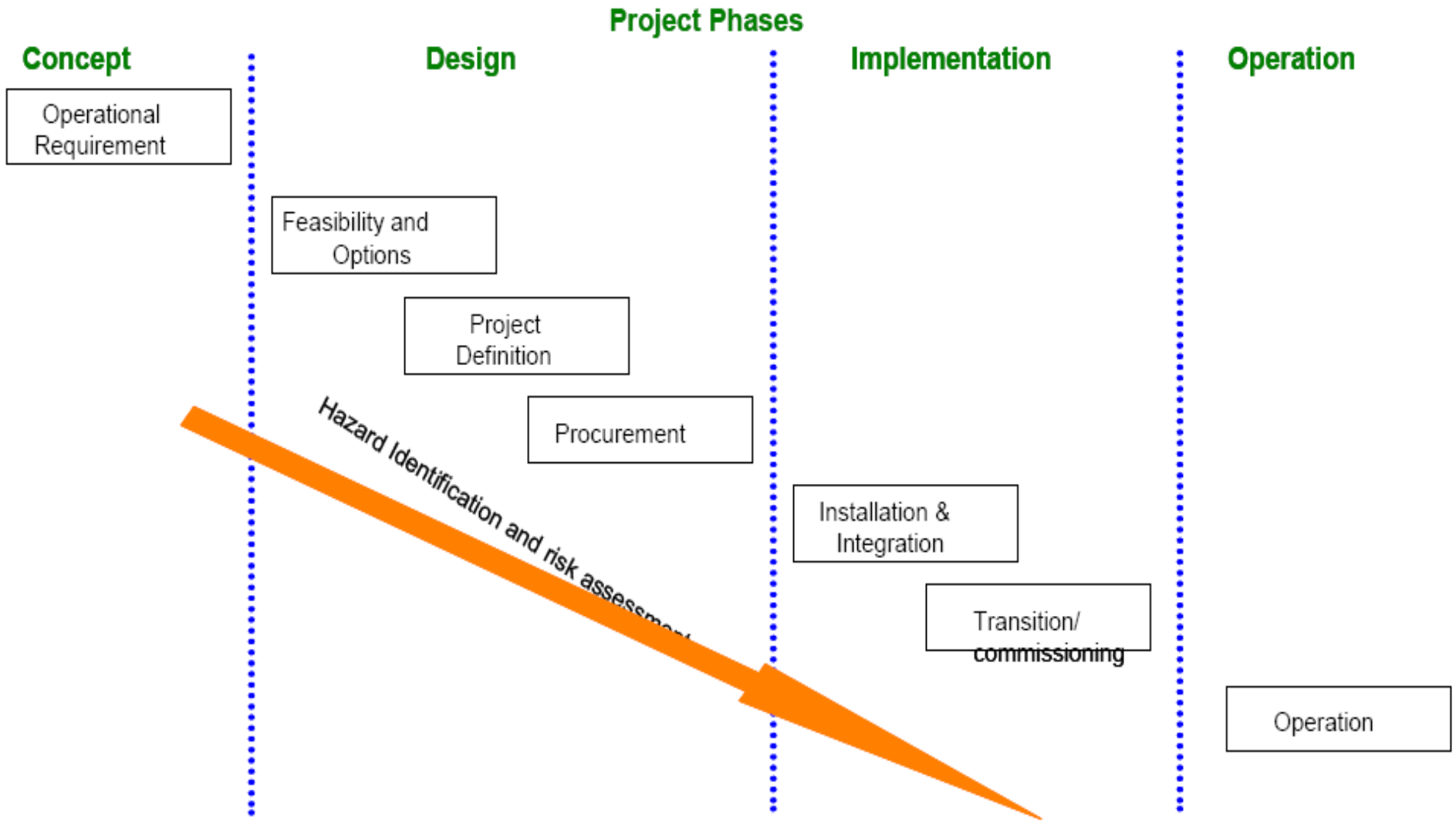
Safety Promotion

- Training & education
- Safety communication

Regulatory Framework in India

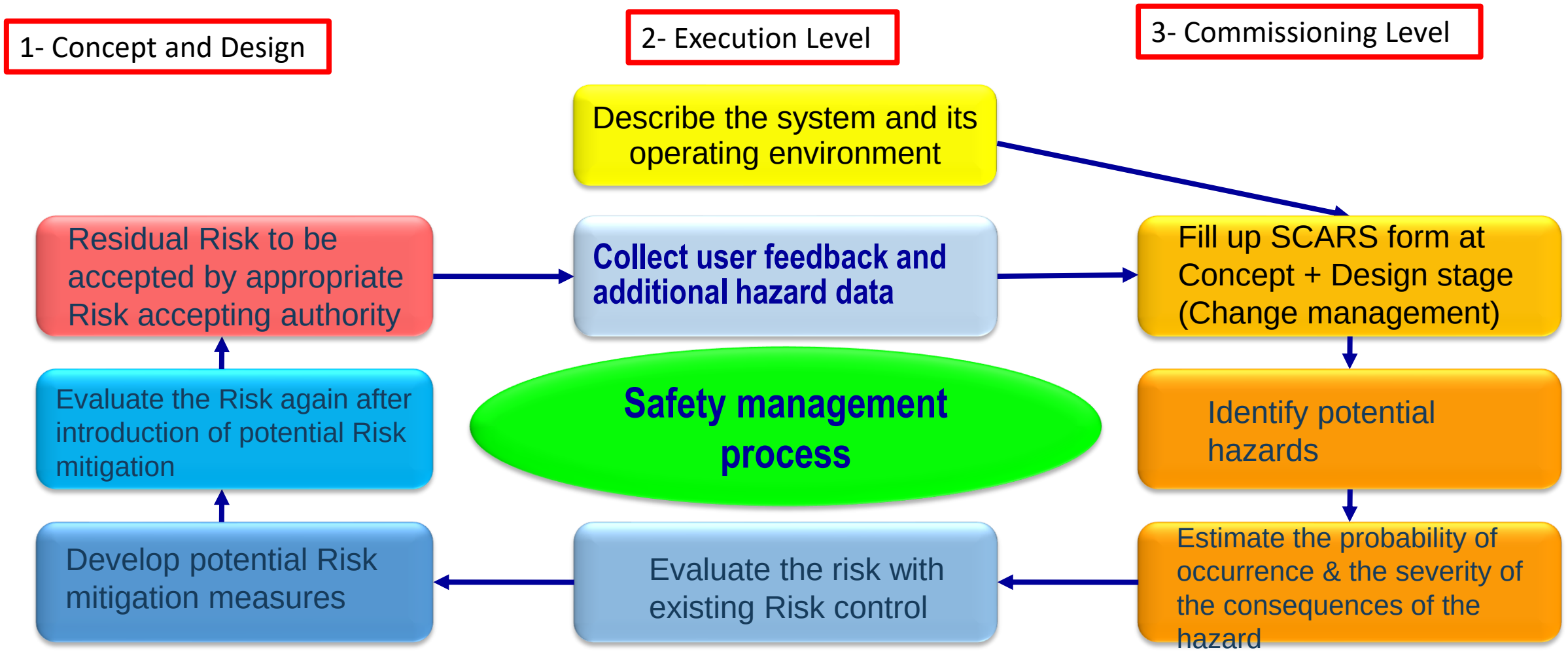
- **As per DGCA Circular AD AC 1/2012**, stages at which safety assessments needs to be conducted and communicated to DGCA are:
  - **Stage I** Concept / Design
  - **Stage II** Execution (WIP)
  - **Stage III** Commissioning (before operation)
  - **For small projects, it is acceptable to submit stages I and II together** (but separate HAZLOG should be provided.) However safety assessment of stage III should be separate. (Refer para 6.4.3 of ASA Circular 01/2014.)

Management of Change



Methodology for safety assessment

There are **Nine steps** involved in carrying out a safety assessment and preparing a safety case for a proposed new changes



Safety Assessment Group and stakeholder Involvement

- Brainstorming involving all stakeholders.
- Initiated by the process owner / Project Manager.
- Facilitated by Safety Expert.
- Identification of hazards, assessing and classifying risks, suggesting controls.
- Civil Aviation Requirements compliance check list
- Job specific Standard Operating procedures
- NOTAM & Publication of AIP Supplements
- Ground trials, familiarization and Briefing
- User feedback
- Periodical review

Capacity Enhancement Initiatives

HIRO-High Intensity Runway Operations

FOPC-Flight Operations Performance Committee

- **A Committee involving chief pilots of Airlines, Air Traffic Controllers, Aerodrome operator in which the Runway Occupancy Time performance of the airlines is been discussed.**

1. **Consistency in performance to maintain ADA,AA and DD separation**
2. **Vacation via preferred RET**
3. **Provide expected vacation RET prior to landing clearance**
4. **ROT analysis for DROT (including line-up time) indicates higher at intersection departure compared to full-length departures**
5. **Pilots to be encouraged to use preferred RETs as per NOTAM Published**
6. **Management of holding points (to be carried forward to HIRO WG)**
7. **Monitoring progress on 160kts to 5DME for all aircraft types during all times of the day (carried forward from May FOPC/to be discussed in HIRO WG)**

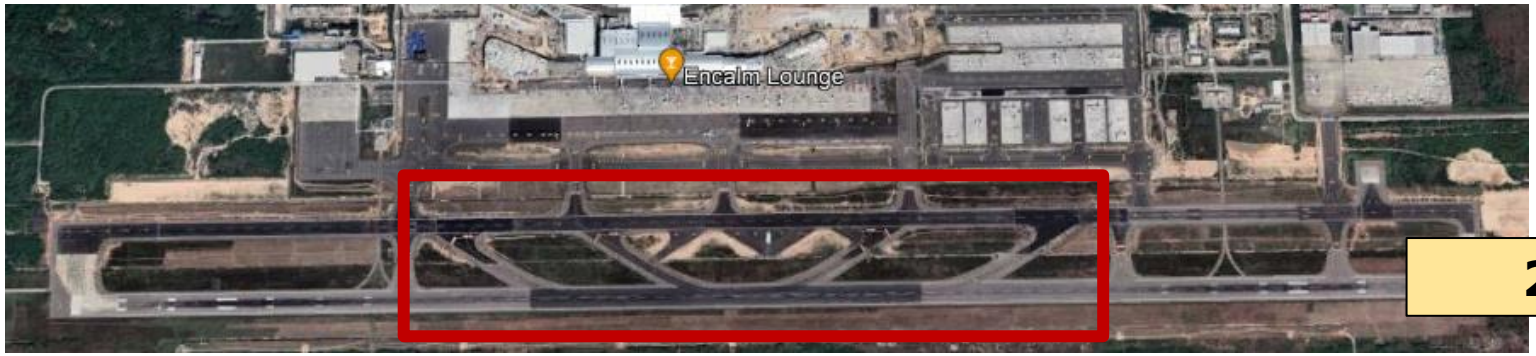
Commissioning of 2500 mts. parallel Taxiway B for reducing taxiing delays and holding

- Less Traffic congestion on main apron
- Capacity Enhancement for Secondary RWY
- Efficient Traffic flow & Control

Jan 2019

Jan 2020

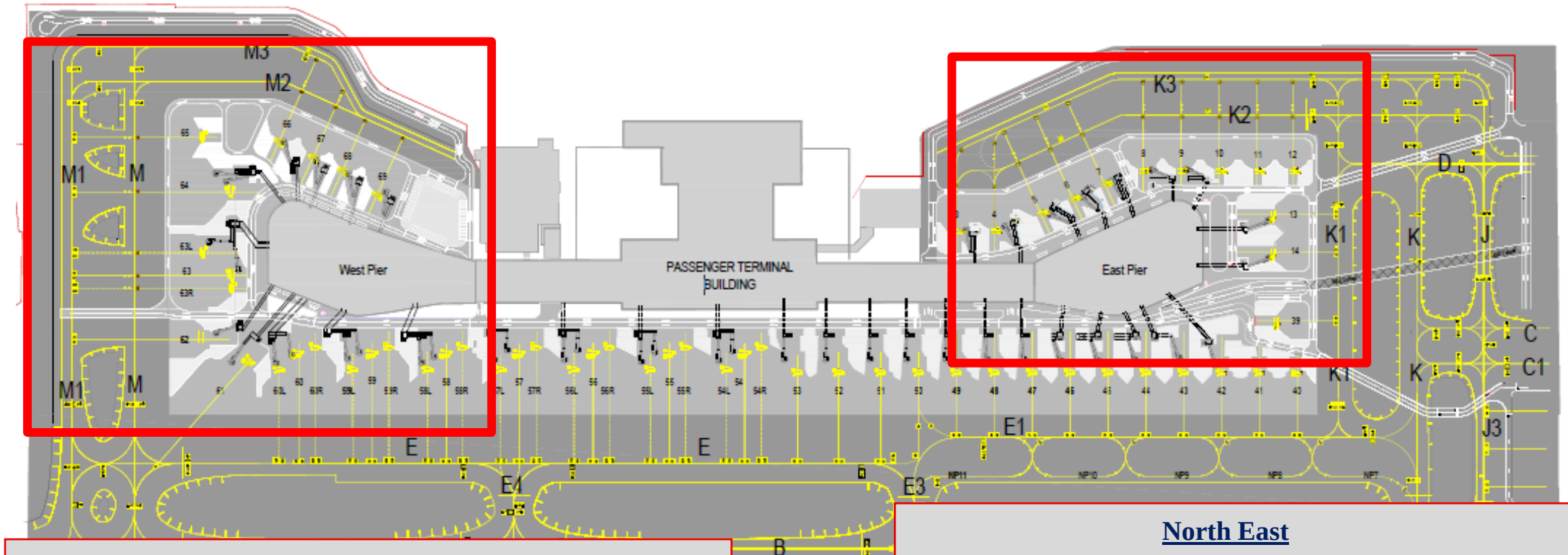
Commissioning of 04 new RETs for capacity enhancement of main Runway



2020

July 2021

Commissioning of Parking Stand at North East apron, North West Apron and Remote Apron



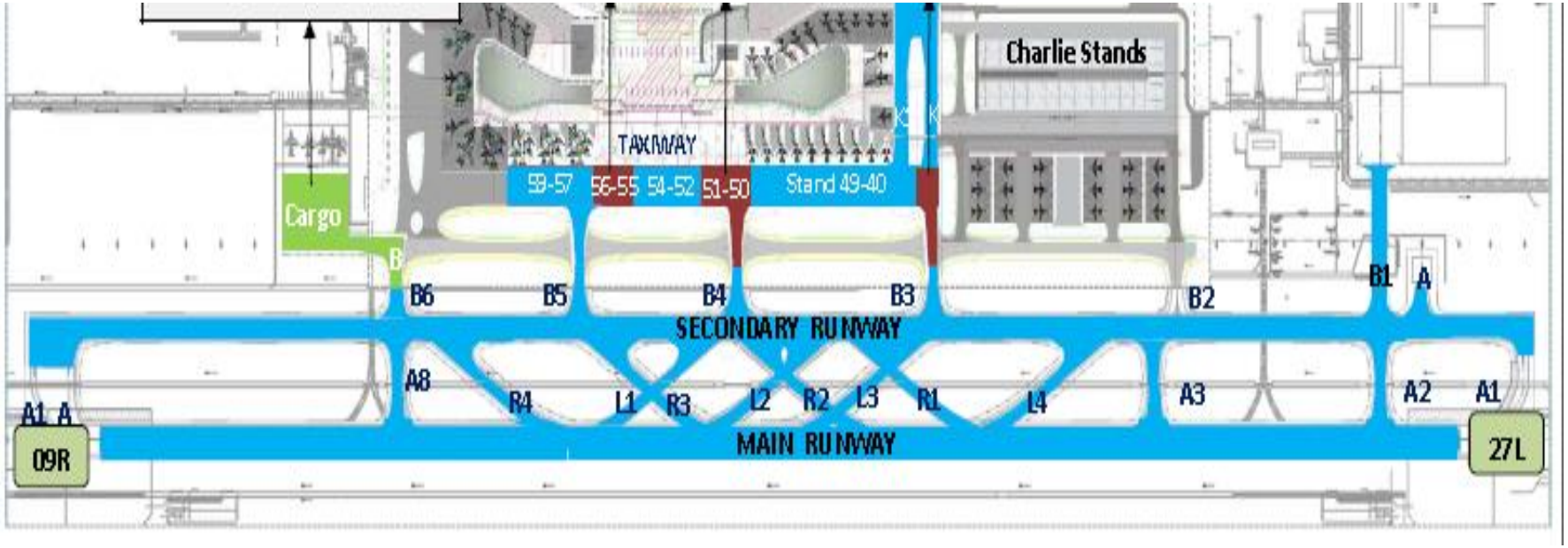
North West

- 8 Contact and 1 Remote Stands
- TXL M2, M3.
- Stands: 63R,63L, 63, 64 65,66,67,68,69
- Bridge Mounted Equipment (PCA , GPU)
- Advanced VDGS
- Fueling Pits

North East

- Stands 3-14, 39 (9 Contact Stands, 3 Remote stands)
- 3-9, 13,14 (PBB), Remote (10-12)
- TXL K2, K3.
- Bridge Mounted Equipment (PCA , GPU)
- Advanced VDGS
- Fueling Pits

Pavement Re-habilitation works of RWY and TWY to curtail technical breakdown of pavement



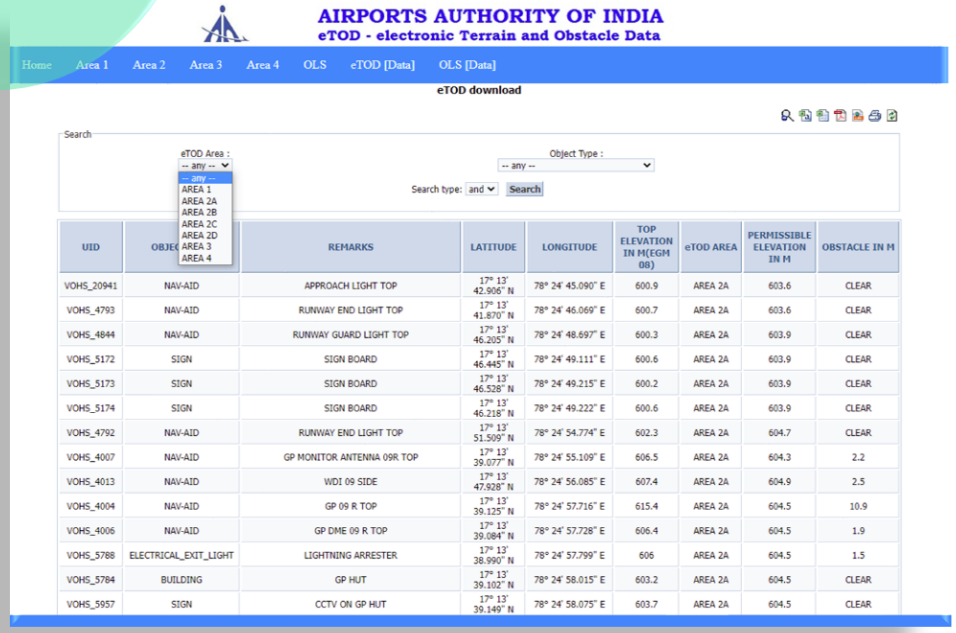
Total - 7,02,872 Sq.Mts. Pavement Re-habilation work completed

1. Completion of RWY & TWY pavement Rehabilitation.
2. Stakeholder involvement & Regulatory approval.
3. Procedural control to cater operational and safety challenges during closure of affected portion.

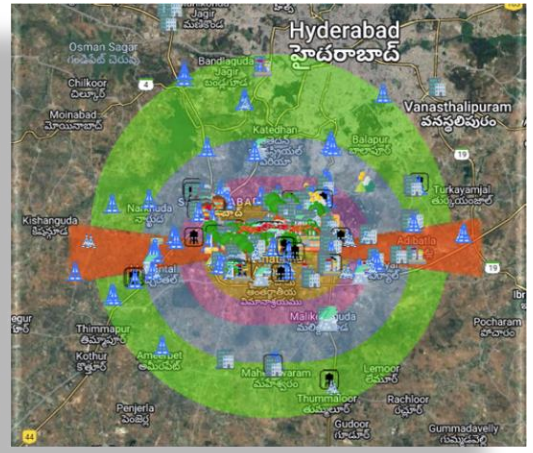
WHO ALL ARE IMPACTED ??		
Aerodrome Operator	Airlines GHA Passengers	AAI-ATC CISF

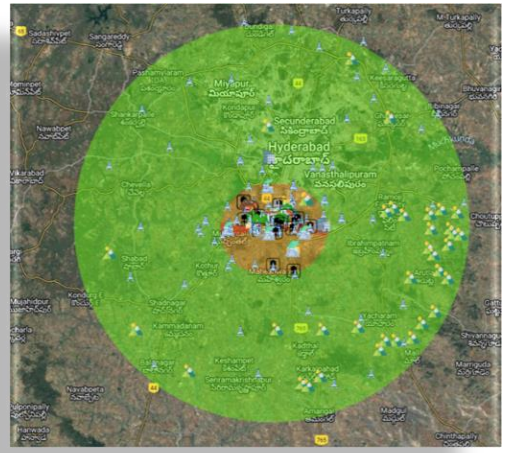
Publication of Electronic Terrain and Obstacle Data (eTOD)of RGIA

eTOD Download Portal

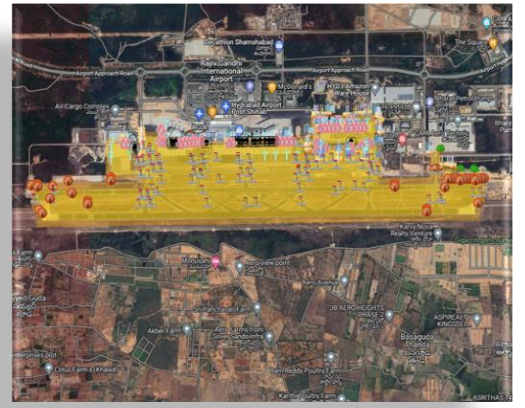


UID	OBJECT	REMARKS	LATITUDE	LONGITUDE	TOP ELEVATION IN M(EGM 08)	eTOD AREA	PERMISSIBLE ELEVATION IN M	OBSTACLE IN M
VOHS_20941	NAV-AID	APPROACH LIGHT TOP	17° 13' 42.906" N	78° 24' 45.090" E	600.9	AREA 2A	603.6	CLEAR
VOHS_4793	NAV-AID	RUNWAY END LIGHT TOP	17° 13' 41.870" N	78° 24' 46.069" E	600.7	AREA 2A	603.6	CLEAR
VOHS_4844	NAV-AID	RUNWAY GUARD LIGHT TOP	17° 13' 46.205" N	78° 24' 48.697" E	600.3	AREA 2A	603.9	CLEAR
VOHS_5172	SIGN	SIGN BOARD	17° 13' 46.445" N	78° 24' 49.111" E	600.6	AREA 2A	603.9	CLEAR
VOHS_5173	SIGN	SIGN BOARD	17° 13' 46.528" N	78° 24' 49.215" E	600.2	AREA 2A	603.9	CLEAR
VOHS_5174	SIGN	SIGN BOARD	17° 13' 46.218" N	78° 24' 49.222" E	600.6	AREA 2A	603.9	CLEAR
VOHS_4792	NAV-AID	RUNWAY END LIGHT TOP	17° 13' 51.509" N	78° 24' 54.774" E	602.3	AREA 2A	604.7	CLEAR
VOHS_4007	NAV-AID	GP MONITOR ANTENNA 09R TOP	17° 13' 39.077" N	78° 24' 55.109" E	606.5	AREA 2A	604.3	2.2
VOHS_4013	NAV-AID	WDI 09 SIDE	17° 13' 47.928" N	78° 24' 56.085" E	607.4	AREA 2A	604.9	2.5
VOHS_4004	NAV-AID	GP 09 R TOP	17° 13' 39.125" N	78° 24' 57.716" E	615.4	AREA 2A	604.5	10.9
VOHS_4006	NAV-AID	GP DME 09 R TOP	17° 13' 39.084" N	78° 24' 57.728" E	606.4	AREA 2A	604.5	1.9
VOHS_5788	ELECTRICAL_EXIT_LIGHT	LIGHTNING ARRESTER	17° 13' 38.990" N	78° 24' 57.799" E	606	AREA 2A	604.5	1.5
VOHS_5784	BUILDING	GP HUT	17° 13' 39.102" N	78° 24' 58.015" E	603.2	AREA 2A	604.5	CLEAR
VOHS_5957	SIGN	CCTV ON GP HUT	17° 13' 39.149" N	78° 24' 58.075" E	603.7	AREA 2A	604.5	CLEAR

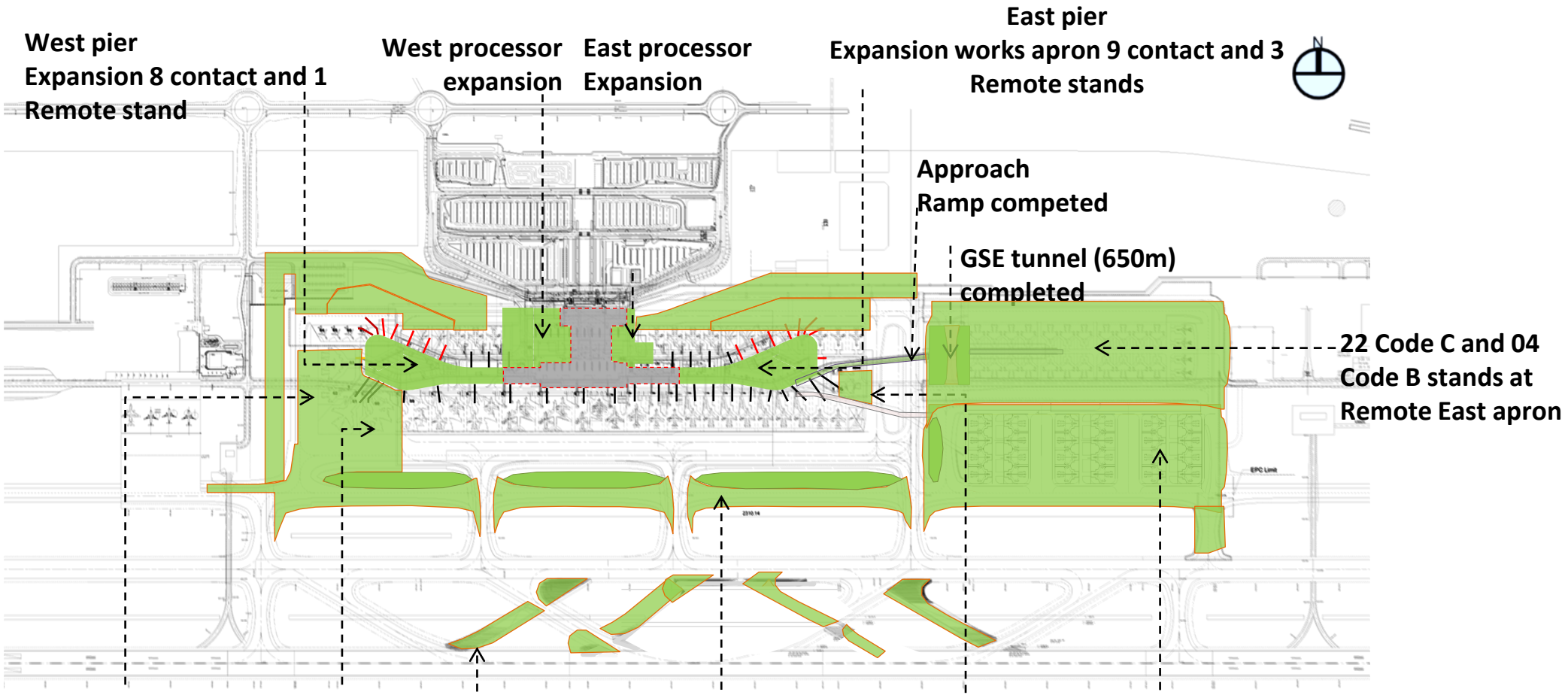




Area wise Published eTOD RGIA



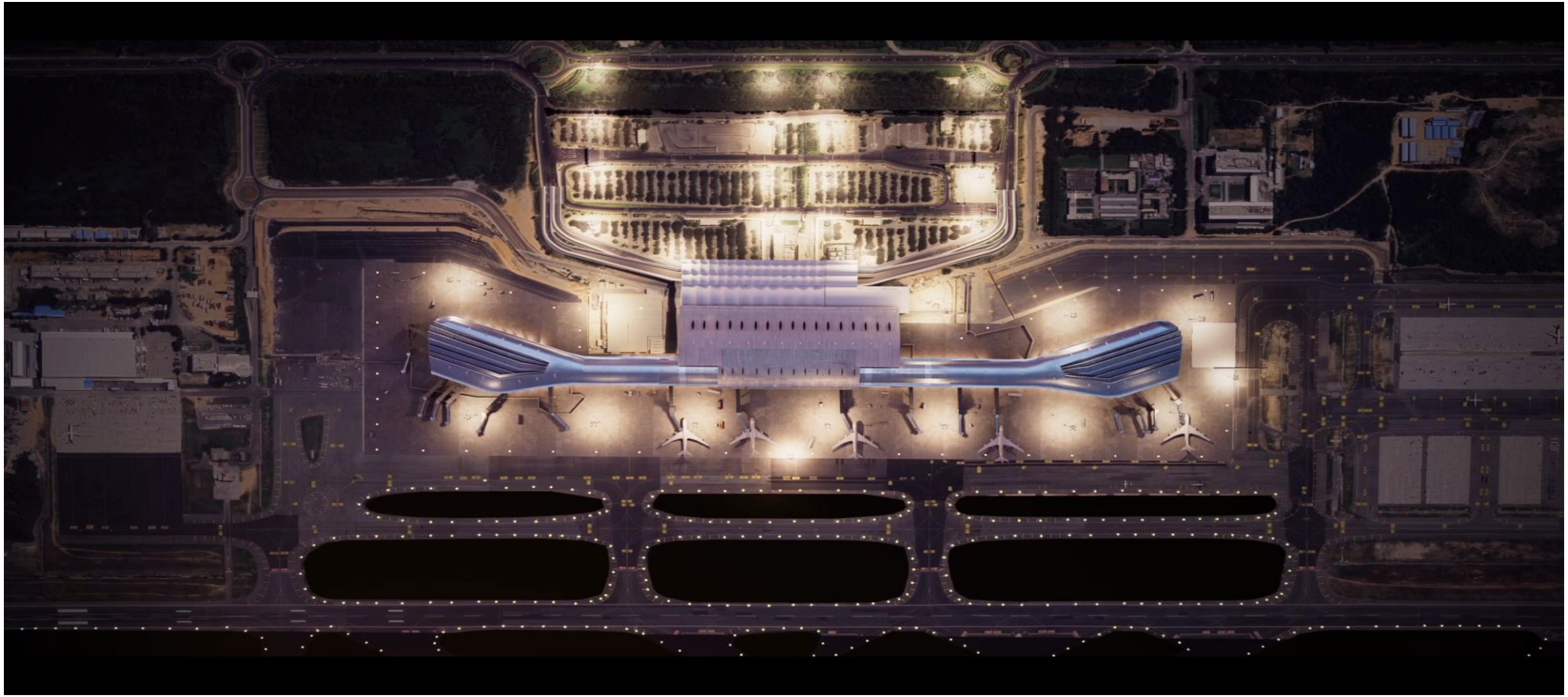
New Facilities/Infrastructure added to build 34 MPPA capacity



Holding Gains

Passenger Capacity	Currently at 25mppa with an ultimate design capacity of 40mppa Integrated Terminals for International and Arrivals
Total Built-up Area (Sq. m)	T Shaped Building with 8 levels, 2 piers measuring 1072m in length, area covered is 370,989 Sq. m LEED Silver Certified
No of Check-in Counters	92 ABD counters & 8 SBDs
No of Immigration counters	20 counters Will be increased to 68 in phased manner.
No of Stands/ Passenger Boarding Bridges	93 + with 44 Contact & 49 remote Stands Excluding 2 Code-F stands
No of Baggage Claim belts	8 Baggage Claim Belts with a total running length of 420 meters with 5 for Domestic & 3 for International
Car Parking Capacity	3,200 Nos.

Experience EPIC Everyday



Infrastructure Development

In continuation of emerging capacity constraints worldwide, infrastructure development comes into play. However, expanding or upgrading airport infrastructure requires substantial investments and coordination among multiple stakeholders. Challenges include securing funding, obtaining necessary permits and approvals, and minimizing disruptions to ongoing operations during construction.

As you know, it is extremely costly to build extensions and it takes a long time, which more than often leads to reduced capacity caused by the fact, that parts of the airport are a construction site. Furthermore, there are many uncertainties associated with infrastructure development. These can include: Have the calculations been done correctly regarding future needs? Has the extension been designed correctly in terms of flows and the number of new passengers? etc.

At GHIAL RGIA we specialize in optimum utilization of existing capacity and plan costly construction projects without hampering safety and operations.

Members are requested to

a) Note the information contained in this paper; and

b) Discuss any relevant matters as appropriate.

JOURNEY OF EXCELLENCE CONTINUES……

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Thank you