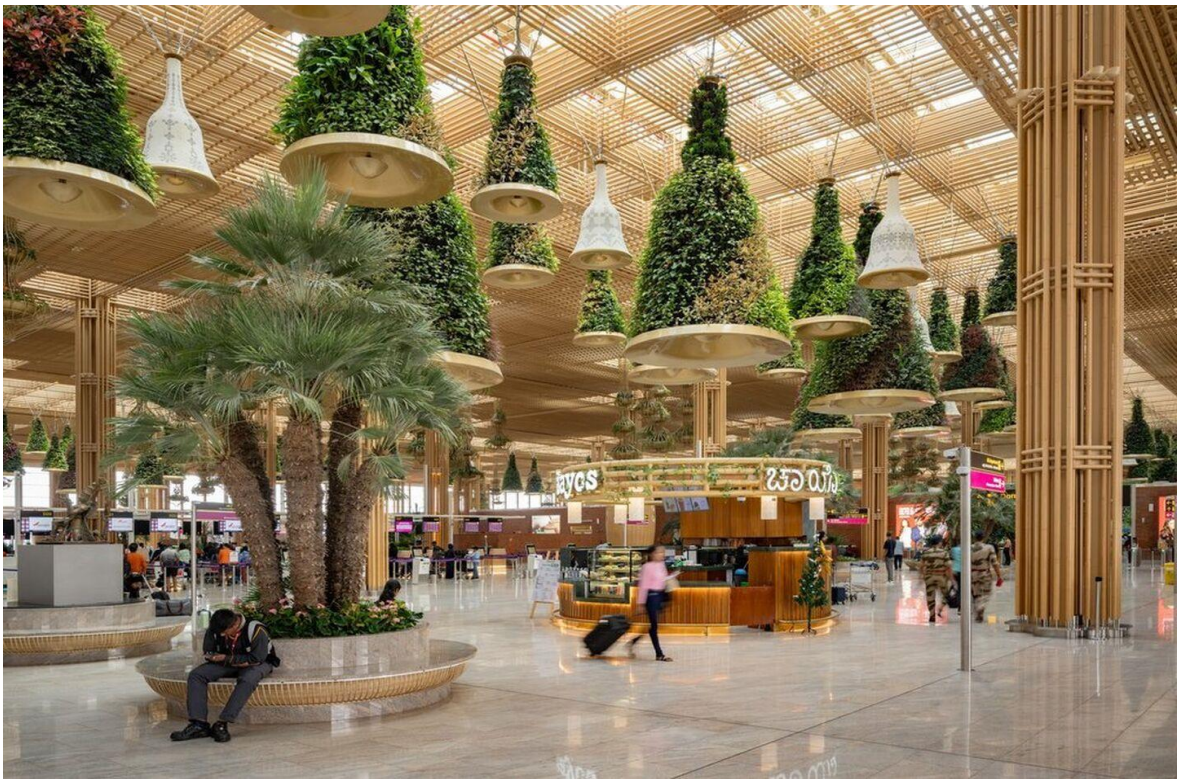

FINAL REPORT ON

ANALYSIS OF CAPITAL EXPENDITURE OF KEMPEGOWDA INTERNATIONAL AIRPORT, BENGALURU FOURTH CONTROL PERIOD (2026 – 2031)

Prepared for
Airports Economic Regulatory Authority (AERA)

MECON LIMITED
(A Govt. of India Enterprise)
NEW DELHI- 110092

JUNE 2026

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EXECUTIVE SUMMARY

MECON was appointed by the Airports Economic Regulatory Authority (AERA) to undertake the study and evaluation of the Capital Expenditure (CAPEX) Plan proposed by Bangalore International Airport Limited for the development, expansion and upgradation of Kempegowda International Airport Bengaluru during the Fourth Control Period (FY 2026–31).

*The airport is projected to witness substantial traffic growth, with annual passenger traffic increasing from 41.8 million passengers in FY 2025 to 71.8 million passengers by FY 2031. To accommodate this growth, BIAL has proposed significant expansion of Terminal 2 (T2), increasing its built-up area from **255,645 sqm to 526,732 sqm** and enhancing terminal capacity from **25 MPPA to 45 MPPA**. During the review, MECON assessed the proposed expansion area and determined the net admissible increase to be **243,855 sqm** against the claimed **271,087 sqm**.*

*The proposed development programme comprises **31 major packages** including **nine airside packages, eight terminal packages, ten landside packages and four utility packages**. Each package was examined for necessity, timing, scope and capacity justification against projected traffic demand and operational requirements.*

The essentiality as reviewed in this report for airside, terminal and landside works is tabulated below:

AIRSIDE WORKS:

SL. No.	PROJECT NAME	MECON OBSERVATION
A.1	*West Cross Field Taxiway*	*Essential*
A.2	*Airfield works (Taxiway extension, Isolation Bay etc.)*	*Essential*
A.3	*T2 Apron (9 +4 Stands)*	*Essential*
A.4	*T2 Phase 2 Apron (40 Stands)*	*Essential*
A.5	*Taxiway connector to SE Parcel*	*Essential*
A.6	*T2 Phase 2 West Apron (18 Stands)*	*Deferred*
A.7	*Cargo West Apron (12 Stands)*	*Essential*
A.8	*North Airside Perimeter Wall & Road*	*Partially Essential*
A.9	*Extension of Taxiway B9 & Associated Works*	*Essential*

TERMINAL WORKS:

SL. No.	PROJECT NAME	MECON OBSERVATION
B.1	*T1 Upgrade*	*Essential*
B.2	*T2 Enhancement*	*Essential*
B.3	*T2 Phase 2*	*Essential (Area Rationalized)*
B.4	*T1/T2 Connectivity - Pier Expansion*	*Essential (Area Rationalized)*
B.5	*GA Terminal*	*Not Considered*
B.6	*Airport Staff Parking & Cafeteria*	*Essential*
B.7	*Contingency Facility*	*Essential*
B.8	*New Air Traffic Control Tower (ATCT)*	*Essential*

LANDSIDE WORKS:

SL. No.	PROJECT NAME	MECON OBSERVATION
C.1	*Eastern Connectivity Tunnel (ECT)*	*Essential*
C.2.A	*Airport Terminal Metro Station (ATMS)*	*Essential*
C.2.B	*KIA West Metro Station (KWMS)*	*Not Considered*
C.4	*T1 to T2 & Metro Connector (walkway)*	*Partially Essential*
C.5	*North West Road Expansion (2+2 Lane)*	*Essential*
C.6	*Cargo Avenue (NCR) expansion (2+2 Lane)*	*Essential*
C.7	*T1 & T2 Arrival and Dep Recirculation Roads*	*Partially Essential*
C.10	*MAR Recirculation Link*	*Partially Essential*
C.11	*MAR-SWR Interchange Upgrade*	*Not Considered*
C.12	*North Boundary Road (Landside North East Road)*	*Deferred*

CAPEX ANALYSIS:

The capital expenditure review was conducted with due diligence relying on documentary evidence, market data, normative approach, industrial practices, CPWD/KPTCL/KPWD publications, indices issued by government and discussions with concerned. Through rigorous validation, claimed costs were rationalized across multiple heads to ensure only

admissible and optimal expenditures. The cost, aligned with market benchmarks and financial prudence now stands at ***INR 13,598 Crore*** *against the claimed* ***INR 18,635 Crore.***

The summary of claimed cost and reviewed cost is summarized below:

Description	Claimed by BIAL, INR Crore	Assessed by MECON, INR Crore
Airside Works	*3,021*	*2,289*
Terminal Works	*5,928*	*4,756*
Landside Works	*2,511*	*1,662*
Others	*729*	*573*
Total Hard Cost	***12,190***	***9,280***
Indexation, GST @ 14% (net of ITC), Cess @ 1%, Soft Cost and IDC	*6,445*	*4,318*
Grand Total	***18,635***	***13,598***

1.0 INTRODUCTION

1.1 Background

Kempegowda International Airport, Bengaluru (KIAB/BLR) is one of the major airports notified by Airports Economic Regulatory Authority of India ("AERA" or the "Authority") under the provisions of the AERA Act 2008. It was formed as a joint venture of private and public sector agencies in order to develop and operate the airport. The Karnataka State Industrial and Infrastructure Development Corporation (KSIIDC), a public sector undertaking of the Government of Karnataka (GoK) and Airports Authority of India (AAI), a Government of India (GoI) undertaking, together hold 26% equity and the strategic joint venture partners hold the remaining 74%.

The airport is being managed by Bangalore International Airport Limited (BIAL), a Limited Company incorporated under the provisions of the Companies Act, 1956. The main objectives of BIAL are to operate, maintain, develop, design, construct, upgrade, modernize and manage airport and other activities envisaged and permitted in and under the Concession Agreement (CA).

The current shareholding pattern of BIAL as per there Multi Year Tariff Proposal (MYTP) for fourth control period is tabulated below:

Shareholder	Percentage (%)
FIH Mauritius Investment Limited	30.36%
Anchorage Infrastructure Investments & Holdings Limited	43.64%
Airport Authority of India – (GoI)	13.00%
Karnataka State Industrial Infrastructure Development Corporation Limited (GoK)	13.00%
Total	**100 %**

The GoI signed a concession agreement (CA) with BIAL on 5th July 2004. The CA defined the terms and conditions under which BIAL, as a private company, is entitled to build and run the airport. The term of the concession is for a period of 30 years from the Airport Opening Date, i.e., 24th May 2008, which has been further extended by 30 years until 23rd May, 2068 as per the order of Ministry of Civil Aviation (MoCA), GoI dated 01st July 2021.

As per 4th Control period (CP) MYTP, BIAL shall, in consideration for the grant of concession by GoI, pay to GoI a fee amounting to four percent (4%) of the gross revenue annually.

The details of current Airport Infrastructure are as follows:

1. Airside details:

Particulars	Details
No. of Runways	2 (two parallel runways)
Dimension of each runway	North Runway – 4000m x 45m + 7.5m Shoulder each side
	South Runway – 4000m x 45m + 15m Shoulder each side
Orientation of each runway	09L/27R and 09R/27L
No. of parallel taxiways	4 (2 full-length and 2 partial-length, which will be extended in the Fourth CP)
Dimension of parallel taxiway	TWY A: 4000m x 25m + 10.5m Shoulder each side
	TWY H: 4000m x 23m + 10.5m Shoulder each side
	TWY B: 1300m x 23m + 10.5m Shoulder each side
	TWY G: 2000m x 23m + 10.5m Shoulder each side

2. Terminal Building Details (T1 and T2):

Terminal -wise details	Terminal 1		Terminal 2	
	Dom	Int	Dom	Int
Terminal serving	Domestic only with GA	NA	Integrated with GA	
Total Departure entry gates	30	NA	19	
Departure entry gates for passengers	28	NA	18	
No. of traditional check-in counters	86	NA	54	
No. of self-baggage drops	16	NA	36	
No. of security lanes	26	NA	9	9
No. of immigration counters (departure)	NA	NA	NA	38

Terminal -wise details	Terminal 1		Terminal 2	
	Dom	Int	Dom	Int
No. of boarding gates	26 (17 Contact + 9 Bus)	NA	24 (10 Contact + 14 Bus)	13 (9 Contact + 4 Bus)
No. of aerobridges	17	NA	10	9
No. of Baggage Delivery Belts	7	NA	4	4
No. of immigration counters (arrival)	NA	NA	NA	58
Capacity (annual)	Current – 26.5 MPPA	NA	15.6 MPPA	9.4 MPPA
Area	163,535 m^2	NA	255,645 m^2	

In order to cater to the expected future aviation demand and growth rate, BIAL has proposed expansion/upgradation in airside, terminals, landside and associated facilities to enhance the passenger handling capacity of KIAB from current 51.5 MPPA to 80 MPPA and Cargo Handling Capacity from 0.5 Million Metric Tonnes Per Annum (MMTPA) to the forecasted 0.75 MMTPA demand.

In the context of the expansion proposed by BIAL, AERA has appointed MECON to review the CAPEX as proposed for the fourth control period (2026-2031).

1.2 Scope of Services of MECON

MECON was appointed as the consultant for Study and Analysis of CAPEX PLAN proposed for the development, expansion/ upgradation of Kempe Gowda International Airport, Bengaluru for the upcoming 5-year fourth control period (2026 – 2031) by AERA vide their Letter of Award dated 19th Sept, 2025.

The scope of work of MECON are as follows:

1. Review of cost estimates, BOQ, SOR from the point of view of reasonability of cost and essentiality of various components under the capex plan in terms of sizing and scheduling vis-à-vis future air traffic projections.
2. Review and analysis of Capex plan for the specified Control Period (5 years) to be correlated / linked to the airport Master Plan / Major Development Plan/ Traffic Assessment by the Consultant.
3. Review and analysis of Capital Expenditure proposed under the CAPEX Plan for the development of the airport infrastructure in reference to AERA's Normative Benchmarks/ IMG Norms/ ICAO-IATA Norms/ Concession Agreement/ CPWD Schedule of Rates / MORTH Schedule of Rates, etc.

4. Study and review the report of Capex study already undertaken, if any, by the Airport Operator.
5. Visit to Airport, as and when required, for carrying out the onsite assessment/ analysis.
6. Assist AERA from time to time to appropriately incorporate the contents/outcome of the report of subject assignment in the draft Consultation Paper that AERA would be issuing in the course of tariff determination of the concerned airport.

Assistance to AERA post completion of Assignment:

MECON will be required to provide assistance to the Authority, post completion of assignment, in respect of and limited to the following:

1. In case any legal case/appeal is instituted related to the tariff determination exercise in respect of airport under the assignment, MECON will be required to furnish inputs/ comments on such matters. MECON will not be required to represent AERA in any Tribunal/ Court of Law. The scope of MECON under this clause will be limited to furnishing of inputs/ comments on the appeal/ case and these services will not include any legal services or legal advice. No work performed by MECON or its Personnel to be construed as legal service / legal advice.

2. This assistance is required to be given to AERA by MECON till the end of the Control Period pertaining to Tariff Order of the airport under the assignment awarded.

1.3 Data Collection

Initially, Multi Year Tariff Proposal for the Fourth Control Period of Kempegowda International Airport, Bengaluru was provided by AERA.

Subsequently, a site visit was conducted by MECON team to review the airport infrastructures. Further, after a series of email communications and discussions between MECON and BIAL following major documents/ data/inputs have been received and studied:

- Concession Agreement for the Development, Construction, Operation and Maintenance of the Bangalore International Airport between Ministry of Civil Aviation, Government of India and Bangalore International Airport Limited
- Design Basis Report (DBR), Cost Plan Report and Concept Notes
- Traffic Study reports of NACO and CAPA
- Tender documents, Purchase Orders/ Contract Documents for orders already placed.
- Various inputs received through email email communication from BIAL.

Thereupon, multiple rounds discussions were held with AERA as well as BIAL and a site visit was also conducted along with team of AERA.

1.4 Study Team

The following team of MECON is involved in the assignment:

SI. No.	Name	Designation
1	Mr. Dinesh Arya	Sr. GM (Civil & Structural) & Team Leader
TRAFFIC STUDY		
1	Mr. Shikhar Firmal	AGM (Infrastructure Projects)
TECHNICAL TEAM		
1	Ms. Somadyuti Basu	DGM (Infrastructure Projects)
2	Mr. Kumar Saurabh Shrivastava	DGM (Defence Projects)
3	Mr. S Y Wahid	AGM (Infrastructure Projects)
4	Mr. Nandish Mohindroo	AGM (Infrastructure Projects)
5	Mr. Yogesh Garg	AGM (Infrastructure Projects)
6	Mr. Avijit Das	Sr. Manager (Civil & Structural)
7	Mr. Lodha Darshan Lalit	Asst. Manager (Infrastructure Projects)
COST ESTIMATE TEAM		
1	Mr. Paritosh Padha	AGM (MAS & Estimation) & PC
2	Mr. Kunal Kishore	Sr. Manager (MAS & Estimation)
3	Mr. Rajat Anand	Sr. Manager (MAS & Estimation)
4	Mr. Ankit Kumar	Dy. Manager (MAS & Estimation)

1.5 Report

The report pertains to MECON's analysis on the CAPEX Plan proposed for the development, expansion/ upgradation of Kempegowda International Airport, Bengaluru for the upcoming 5-year fourth control period (2026 – 2031).

2. PROJECT DETAILS

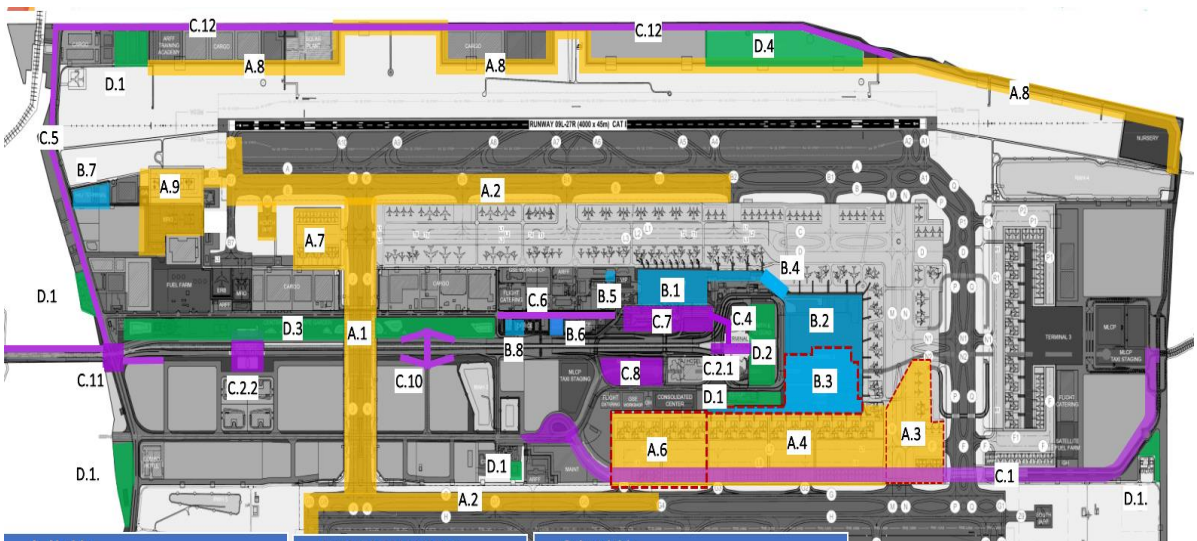
Kempegowda International Airport Bengaluru (KIAB/BLR) is undergoing significant upgradation to strengthen its position as one of India's leading aviation hubs. In FY2025, the airport handled approximately 41.8 million passengers per annum (MPPA) and 500,000 metric tons of cargo, ranking as the third busiest airport in the country.

With around 36 MPPA in domestic traffic, KIAB has emerged as a dominant transit hub, while its around 5.8 MPPA international traffic emphasizes its growing role in global connectivity competing with southern airports - Chennai, Kochi and Hyderabad.

The inauguration of Terminal 2 on November 11, 2022 expanded total terminal handling capacity to 51.5 MPPA (T1: 26.5 MPPA, T2: 25 MPPA) enabling enhanced passenger flow and operational efficiency.

Current projects focus on infrastructure modernization, capacity expansion and service improvements ensuring KIAB evolves into a future-ready, passenger-centric airport that integrates sustainability, technology and state of the art facilities to meet rising demand.

To accommodate the projected demand of air traffic and passengers, the fourth control period will encompass the following projects and scope of improvements:



Package A- Airside projects:

A.1 **West Cross Field Taxiway**: To improve airside connectivity between the northern and southern runways.

A.2 **Airfield works (Taxiway extension, Isolation Bay etc.)**: In order to support the proposed Western Crossfield Taxiway (WCT) through taxiway extensions, new connectors, and improved runway access points

A.3 **T2 Apron (9 +4 Stands):** Under this package 13 remote stands have been considered to meet the operational and night parking demand

A.4 **T2 Phase 2 Apron (40 Stands):** Development of a Phase-2 apron to support expansion of Terminal-2 during the Fourth Control Period

A.5 **Taxiway connector to SE Parcel:** Development of Taxiway Z to facilitate efficient aircraft access to the proposed Engine Run-Up Bay (ERUB) and to provide direct airside connectivity to the planned Maintenance, Repair, and Overhaul (MRO) facility

A.6 **T2 Phase 2 West Apron (18 Stands):** To meet increasing aircraft stand demand for operations and night parking

A.7 **Cargo West Apron (12 Stands):** The proposal aims to support hub operations and address rising night parking and cargo-related demand

A.8 **North Airside Perimeter Wall & Perimeter Road:** The proposal in this package includes construction of a 7 m wide perimeter road and installation of Perimeter Intrusion Detection System (PIDS) to meet Bureau of Civil Aviation Security (BCAS) requirements.

A.9 **Extension of Taxiway B9 & Associated Works:** To facilitate aircraft access to the proposed Contingency Facility and to provide direct airside connectivity to the planned Maintenance, Repair, and Overhaul (MRO)

Package B - Terminal / Building Infrastructure:

B.1 **T1 Upgrading** capacity to ~35 MPPA with improved baggage handling system, advanced screening, and renewal of MEP/ICT infrastructure and other facilities

B.2 **T2 Phase 1 Enhancement** and improvement of comprehensive facilities

B.3 **T2 Phase 2 -** Expanding Terminal 2 capacity from 25 to 45 MPPA by 2031 with integrated operations, swing gate flexibility, and smart, sustainable airport design.

B.4 **T1-T2 Connectivity (North Pier to T1)** introduces a 320-meter elevated airside link with modern passenger amenities, enabling seamless domestic–international transfers while maintaining efficient vehicular movement below.

B.5 **GA Terminal** to offer premium, dedicated facilities for private, corporate, and charter operations

B.6 **Airport Staff Parking & Cafeteria (Alpha 4)** entails a new staff parking and cafeteria facility integrating structured parking and dining.

B.7 **Contingency Passenger Processing Facility** designed for 450 passengers per hour, integrates modular scalability with essential amenities to ensure seamless flow, operational flexibility.

B.8 **New Air Traffic Control Tower (ATCT)** A new ~ 85-meter facility integrating advanced systems, safety infrastructure, and staff amenities to manage over 90 aircraft movements per hour

Package C - Landside Project:

C.1 **Eastern Connectivity Tunnel (ECT):** To improve access from the eastern suburbs and increase resilience, KIAB plans an Eastern Connectivity Tunnel (ECT) linking SH104 to the terminals under the airside area.

C.2 **Metro Stations:** Two metro stations—Airport Terminal Metro Station (ATMS) and KIA West metro stations (KWMS) are proposed to enhance connectivity

C.4 **T1- ATMS connecting Elevated Walkway and T1-T2 walkway:** A 5m-wide at-grade covered walkway will connect the terminals T1-T2 over a 600m distance, while an elevated covered walkway with a travelator will link the Terminal 1 and Airport Terminal metro station

C.5 **North-West Road Expansion (2+2 Lane):** Upgrading a 1.2 km stretch of road in the northern area of KIA to a 4-lane dual carriageway through eccentric widening

C.6 **Cargo Avenue (NCR) expansion (2+2 Lane)- LSG to Alpha 1:** The existing 2-lane stretch of North Cargo Road is proposed to be upgraded to a 4-lane (2+2) configuration.

C.7 **T1 & T2 arrival and Departure recirculation roads:** T1 and T2 kerbs are congested and in need of refurbishment and extension to enhance passenger handling and operational efficiency.

C.10 **MAR Recirculation Link:** A diamond interchange is proposed on the Main Access Road (MAR) / Terminal Boulevard connecting MLCP and Terminals

C.11 **MAR-SWR Interchange Upgrade:** This project involves upgrading of existing signalised junction to roundabout for better traffic movements

C.12 **North Boundary Road (Landside North-East Road):** A new roadway system running parallel to the airport perimeter to meet the growing traffic demands driven by increased aircraft operations and expanding cargo facilities

Package D - Others

D.1 **Utilities**: The potable water demand is projected to increase to 7.2 MLD, necessitating the construction of a new 4 MLD Water Treatment Plant (WTP). The wastewater treatment demand will rise to 9.2 MLD requiring a new Sewage Treatment Plant (STP) beyond the current 5.0 MLD capacity. Further, Substations has been proposed.

D.2 **MMTH Enhancement:** The upgrades aim to improve passenger experience and ensure long-term infrastructure sustainability.

D.3 **Green Belt:** The green belt development will include street furniture, orchidarium, fernery, signage wall, wooden boards, free standing granite pillar, as well as the requisite signs. In addition, a 2 numbers of toilet blocks, a meeting room and an information centre is envisaged.

D.4 **Rain Harvesting Pond – 1:** This project focuses on the harvesting of stormwater runoff generated from the Airfield Works Area, North Boundary Road, and the North Airside Perimeter Wall & Road.

3. METHODOLOGY ADOPTED FOR EVALUATION

3.1 References

The following major data has been gathered and reviewed:

- Multi Year Tariff Proposal for the Fourth Control Period of Kempegowda International Airport, Bengaluru
- Concession Agreement for the Development, Construction, Operation and Maintenance of the Bangalore International Airport between Ministry of Civil Aviation, Government of India and Bangalore International Airport Limited
- Design Basis Report (DBR), Cost Plan Report and Concept Notes
- Traffic Study reports of NACO and CAPA
- Tender documents, Purchase Orders/ Contract Documents for orders already placed
- Bill of Quantities (BOQ) and other documentary supports made available

3.2 Methodology

The following section sets forth the methodology adopted for the assessment of Capital Expenditure pertaining to the proposed expansion at Kempe Gowda International Airport, Bengaluru. This structured approach ensures transparency in the evaluation process and provides a clear basis for subsequent analysis and decision-making:

- The traffic study submitted by BIAL was reviewed to analyse the Passenger growth projections and traffic forecasts.
- The necessity of different projects as proposed by BIAL under this control period were reviewed based on the traffic projections and passenger demand forecasts. Furthermore, the projects identified as necessary were analysed to assess whether they are required to be undertaken within the current control period or if there is a possibility of deferring them to the subsequent control period.
- Once the necessity of the projects was established, the projects were analysed against the recognized international and national standards norms such as IMG, IATA, ICAO etc.
- The BOQs, Cost Estimates were reviewed to establish the correctness of the CAPEX proposal as submitted by BIAL.
- Further, in some projects, purchase orders were already placed and the price data of the POs etc of those major projects were cross checked.

4. TRAFFIC REVIEW

4.1 PASSENGER HISTORICAL TRAFFIC:

The historical passenger traffic of Kempegowda International Airport, Bengaluru indicates a strong growth trend, except during the pandemic period (2020–2021), followed by a robust recovery from 2022 onwards. The total passenger traffic has reached 41.8 million in 2025. The historical Passenger traffic data of Kempegowda International Airport Bengaluru is given as under:

Year	Domestic Passengers		International Passengers		Total Passengers (Int + Dom)	% Increase from previous (Int +Dom)	CAGR (Dom)	CAGR (Int)	CAGR (Int +Dom)
	Passenger in Million per Annum	% Increase from previous	Passenger in Million per Annum	% Increase from previous	Passenger in Million per Annum				
2015	12.5		2.9		15.4		10.09%	6.50%	9.50%
2016	15.6	24.80%	3.4	17.24%	19	23.38%			
2017	19.3	23.72%	3.6	5.88%	22.9	20.53%			
2018	23.1	19.69%	3.8	5.56%	26.9	17.47%			
2019	28.8	24.68%	4.5	18.42%	33.3	23.79%			
2020	27.8	-3.47%	4.6	2.22%	32.4	-2.7%			
2021	10.4	-62.59%	0.5	-89.13%	10.9	-66.36%			
2022	15.2	46.15%	1.1	120.00%	16.3	49.54%			
2023	28.1	84.87%	3.8	245.45%	31.9	95.71%			
2024	32.9	17.08%	4.7	23.68%	37.6	17.87%			
2025	36	9.42%	5.8	23.40%	41.8	11.17%			

The passenger traffic at KIA has shown a strong upward trend over the past decade, with temporary disruption during the COVID-19 pandemic.

Total passenger traffic increased from 15.4 million (2015) to 41.8 million (2025).

This represents a long-term CAGR of approximately ~10%.

Domestic traffic remains the dominant component, contributing ~85–87% of total traffic.

International traffic has shown relatively higher growth rates in recent years.

Key Observations

Pre-pandemic growth (2015–2019): Strong and consistent growth (~17–24% annually).

Pandemic impact (2020–2021): Sharp decline up to -66% in total traffic.

Recovery phase (2022–2025): Rapid rebound with growth up to 95.7% in 2023, stabilizing to ~11–18% thereafter.

4.2 TRAFFIC PROJECTIONS:

Traffic projections have been assessed based on reports submitted by BIAL through NACO and CAPA:

i. **NACO Projections** estimate passenger traffic to reach **71.8 million per annum by 2031** with an overall CAGR of approximately **9.4% (2026–2031)**.

ii. **CAPA Projections** estimate passenger traffic to reach **72.4 million per annum by 2031** with an overall CAGR of approximately **9.55% (2026–2031)**.

4.2.1 TRAFFIC PROJECTION BY NACO:

Passenger Projection Below are the passenger projection given by BIAL-NACO:

Year	Domestic Passengers		International Passengers		Total Passenger (Int +Dom)	% Increase from previous (Int +Dom)	CAGR (Dom)	CAGR (Int)	CAGR (Int +Dom)
	Passenger in Million per Annum	% Increase from previous	Passenger in Million per Annum	% Increase from previous	Passenger in Million per Annum				
2026	40.3	11.94%	7.1	22.41%	47.4	13.4%	8.60%	13.90%	9.40%
2027	44.9	11.41%	8	12.68%	52.9	11.6%			
2028	48.1	7.13%	9	12.50%	57.1	7.94%			
2029	51.4	6.86%	9.7	7.78%	61.1	7.01%			
2030	54.9	6.81%	10.4	7.22%	65.3	6.87%			
2031	**59.1**	**7.65%**	**12.7**	**22.12%**	**71.8**	**9.95%**			

Cargo Projection: The forecast projects air cargo to grow from 511 thousand tons in FY2025 to 990 thousand tons in FY2036, implying an average CAGR of 7.1% (FY2026–FY2036).

ATM Forecast (FY2027–2031) - The forecast projects total aircraft movements (ATMs) to grow from 291,000 in FY2026 to 429,000 by FY2031 and 505,000 by FY2036, implying a CAGR of 8.9% (2025–2031).

The observations on the above projections (ATM, passenger and Cargo) in traffic report by NACO was communicated to BIAL.

4.2.2 TRAFFIC PROJECTION BY CAPA – After getting the observations on the traffic analysis by MECON, BIAL submitted the report of CAPA on traffic analysis of Kempegowda International Airport Bengaluru.

Passenger projection: The projections by CAPA as per submitted report are as below:

Year	Domestic Passengers		International Passengers		Total Passengers (Int +Dom)	% Increase from previous	CAGR (Dom)	CAGR (Int)	CAGR Int + Dom)
	Passenger in Million	% Increase from previous	Passenger in Million	% Increase from previous	Passenger in Million per Annum	(Int + Dom)			
2026	37.3	3.61%	7.3	25.86%	44.6	6.70%	8.72%	14.34%	9.55%
2027	39.9	6.97%	8	9.59%	47.9	7.40%			
2028	45.2	13.28%	9.2	15.00%	54.4	13.57%			
2029	50.1	10.84%	10.2	10.87%	60.3	10.85%			
2030	54.4	8.58%	11.6	13.73%	66	9.45%			
2031	59.4	9.19%	13	12.07%	72.4	9.69%			

Cargo Projection: The forecast projects air cargo 756 thousand tons in FY2031, implying an average CAGR of 7.50% (FY2026–FY2031).

ATM Forecast (FY2027–2031): The forecast projects total aircraft movements (ATMs) to grow from 2,72,798 in FY2026 to 425,814 by FY2031 implying a CAGR of 9.31% (2025–2031).

Both projections are broadly consistent in terms of growth trajectory, despite minor variations in year-wise estimates. The projections for cargo (CAGR ~7–7.5%) and Aircraft Traffic Movements (CAGR ~8.9–9.3%) also indicate steady and aligned growth across aviation parameters.

4.3 MECON's OBSERVATION:

The projected growth is in line with the expected traffic trends of India and is consistent with the share of Bengaluru in the overall air traffic growth in India as projected by DGCA up to 2030.

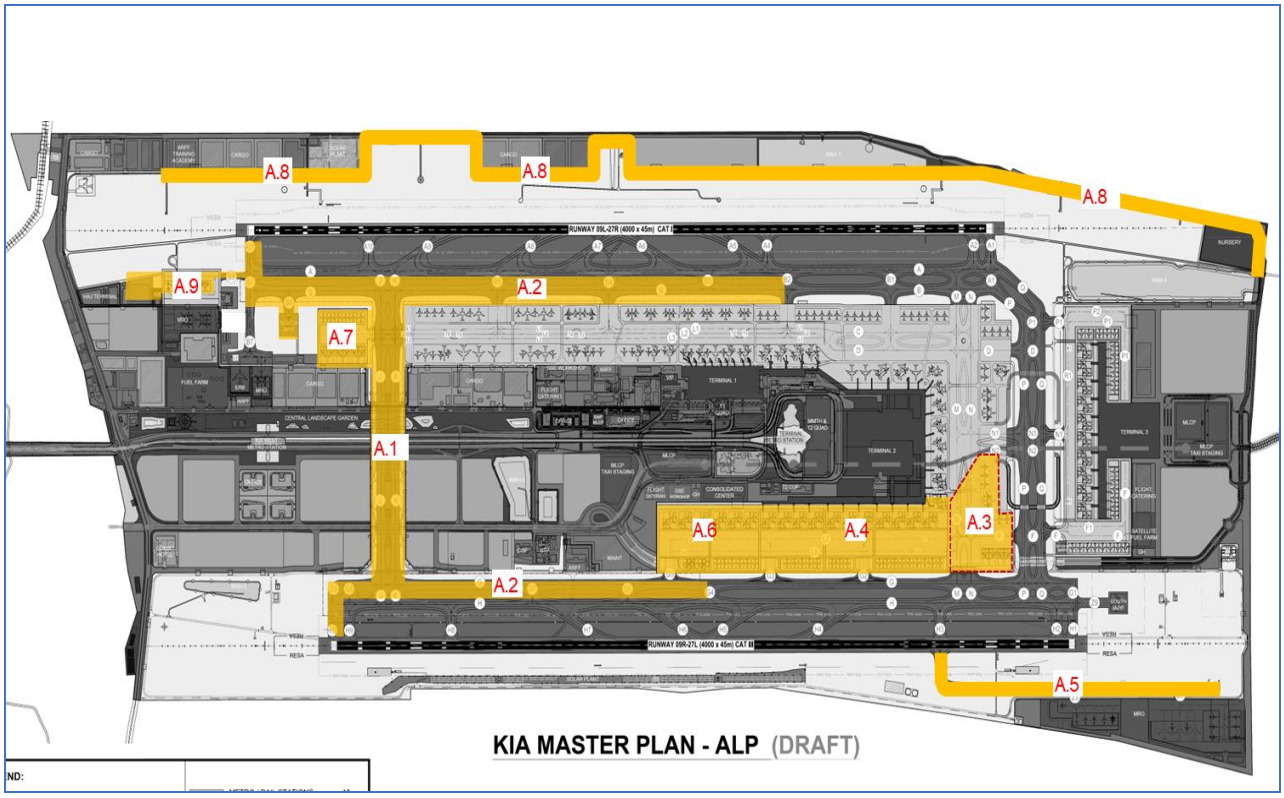
In view of the above analysis, the projected passenger traffic of approximately 72 million by 2031 considered by BIAL for planning the expansion of the terminal building appears reasonable and achievable.

5. CAPACITY ASSESSMENT

5.1 AIRSIDE WORKS

BIAL has proposed the following Airside Packages in the Fourth Control Period in order to:

(i). translate into higher airside capacity, towards faster and easier movement of aircrafts thereby reduced delay costs
(ii). create additional stands and associated GSE areas for operational and night parking requirements
(iii). ensure overall operational efficiency, airside safety and improved passenger experience.



BIAL has proposed **9 Nos.** of Projects under Airside Works (A) in the MYTP Submission. Projects are as follows:

A.1 West Cross Field Taxiway
A.2 Airfield works (Taxiway extension, Isolation Bay etc.)
A.3 T2 Apron (9 +4 Stands)
A.4 T2 Phase 2 Apron (40 Stands)
A.5 Taxiway connector to SE Parcel
A.6 T2 Phase 2 West Apron (18 Stands)

A.7 Cargo West Apron (12 Stands)
A.8 North Airside Perimeter Wall & Perimeter Road
A.9 Extension of Taxiway B9 & Associated Works

5.1.1 A.1 WEST CROSS FIELD TAXIWAY

5.1.1.1 BIAL's SUBMISSION:

Kempegowda International Airport (KIA) operates two independent runways—North (09L/27R) and South (09R/27L) with spacing of approx. 1925 m flanked by a complex central apron with ~142 aircraft stands, a three-lane taxiway system and multiple taxi lane intersections with operational hotspots. Each runway is presently served by one full-length parallel taxiway and one partial secondary parallel taxiway.

Current operations forces departing aircraft from north aprons to taxi 6–9 km (20–30 min average) resulting in excessive fuel burn (est. 500–800 kg/flight), elevated emissions, increased pilot/controller workload and rotational delays. Runway mode changes occur 8–10 times daily (weather, maintenance, nav aids) incurring 15–20 min delay compounding to 2–3 hours daily system-wide delay.

In order to addresses long taxiing times of up to 20 minutes which cause operational delays, higher fuel consumption and environmental impacts, BIAL is developing the Western Crossfield Taxiway (WCT) between the northern and southern runways. The WCT will link the extended Taxiway B on the north with Taxiways G and H on the south complementing the existing eastern cross-field taxiways and form dual ring like taxiway system. The WCT will reduce average taxi times by around 10 minutes, streamlined mode change to less than 5 min via ring flexibility, additional queuing space near both runway ends and enable more efficient runway utilization.

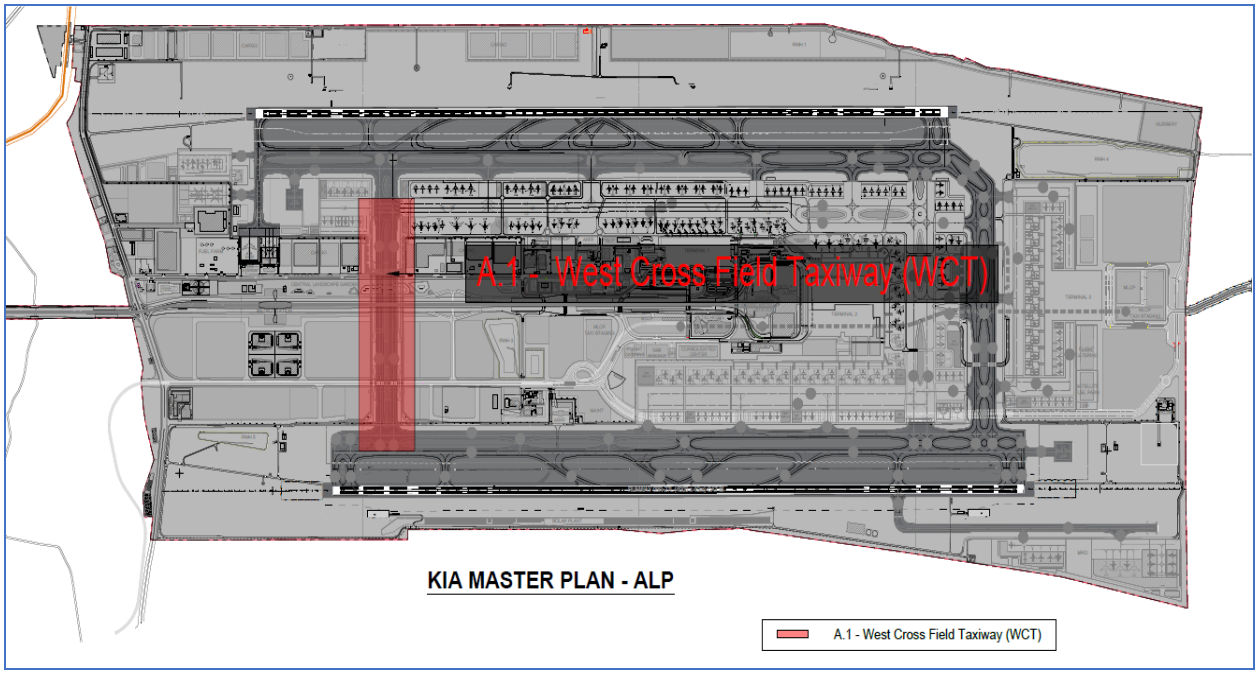
The project involves construction of two new ICAO Code F compliant parallel Taxiways J and K as part of the Western Crossfield Taxiway (WCT). The proposed taxiways are perpendicular to the northern and southern runway and are planned as an **elevated taxiway** over key landside roads - North Access Road (NAR), Main Access Road and South Access Road (SAR)

The total WCT length between Taxiway B and Taxiway G is 1.36 km, with Package A.1 covers **1.05 km**. The scope of works covered under the package at the time of MYTP submission are as follows:

i. The airside works constitute the elevated WCT bridge, ramps, retaining walls and their tie-ins with the Western apron, north perimeter road, south perimeter road and associated infrastructure developments.
ii. The landside works covers the areas affected due to WCT works i.e., the development of the North Cargo Road (NCR) which runs under the WCT alignment and service roads for the adjoining buildings.

iii. The infrastructure safety and security works include retaining walls, boundary walls, watch towers and patrolling roads.

iv. Further to the above submission, installation of ASR (Airport Surveillance Radar) and associated facilities towards replacement of Operational ASR-MSSR was added under the package during the assessment process.



BIAL also submitted that since the WCT is an elevated structure, a key feature that sets the design apart is the need to comply with provisions contained in IS 4991 (1968) Criterion for blast resistant design of structures for explosion above ground and the shock response spectra analysis as per the UFC 3-340-02. The blast resistant design adopted is for 100kg explosion above the ground for the bridge structure at 15m distance from ground zero.

5.1.1.2 MECON's OBSERVATION:

MECON has examined the submissions furnished by BIAL and is of the view that West Cross Field Taxiway (WCT) forms a **critical component** of the long-term airport master plan aimed at enhancing capacity, operational resilience, sustainability and overall airside efficiency.

The proposed WCT is expected to significantly improve effective airfield capacity by enabling more efficient utilization of both runways and reducing congestion arising from existing taxiway constraints and gridlock conditions.

Further, the project is expected to substantially reduce aircraft taxiing time and consequent fuel consumption and emissions. The proposed dual-ring taxiway configuration will also facilitate quicker and more flexible runway mode transitions thereby improving operational resilience during changing runway usage scenarios.

Considering the operational benefits, enhancement in airside efficiency and its strategic importance in supporting future traffic growth, MECON is of the opinion that the proposed West Cross Field Taxiway is an **essential** airport infrastructure project.

5.1.2 A.2 AIRFIELD WORKS (TAXIWAY EXTENSION, ISOLATION BAY ETC.)

5.1.2.1 BIAL's SUBMISSION:

BIAL has submitted that in order to support the proposed Western Crossfield Taxiway (WCT), it intends to strengthen and optimize the existing airfield taxiway network through taxiway extensions, new connectors, and improved runway access points to ensure seamless integration with the WCT and at creating dual parallel taxiway systems for both runways to achieve the projected peak-hour ATM capacity of upwards of 70 ATMs per hour by the year 2031.

In view of above, BIAL has proposed the following works under the package at the time of MYTP submission:

i. Extension of Taxiway B & G along with new runway connectors in the North Airfield & South Airfield for proposed area of 225749 sqm and 142311 sqm respectively.

ii. Construction of relocated Isolation Aircraft Parking (IAPP) in the North Airfield along with connections for cumulative area of 22049 sqm.

iii. Construction of IAPP Access Road and Airside Access Road for cumulative area 9330 sqm.

iv. Relocated Constant Current Regulator (CCR) Room for AGL Systems.

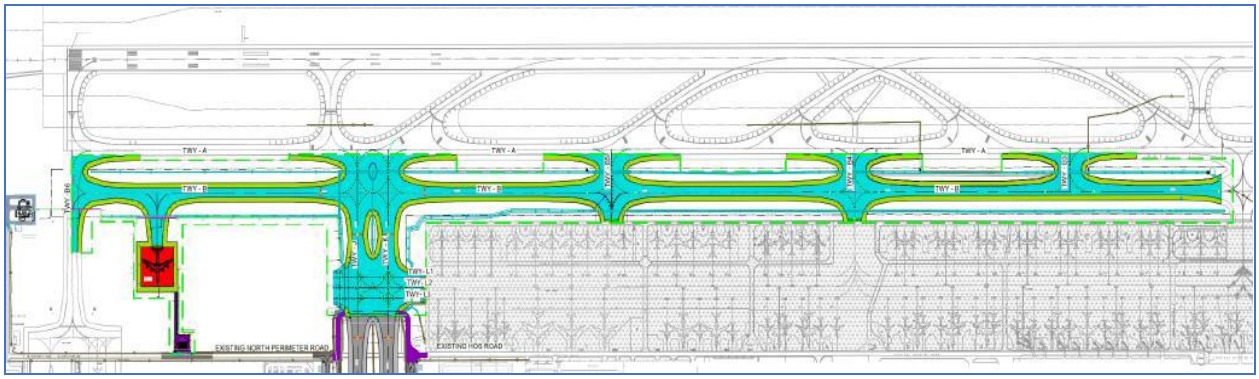
Further to the above submission, the following works were added under the package during the assessment process:

i. Construction of an additional GSE staging area of 14300 sqm is proposed, as the existing GSE staging area (~20,200 sqm) of Terminal 1 apron is being impacted due to the proposed developments under A1 & A2 projects.

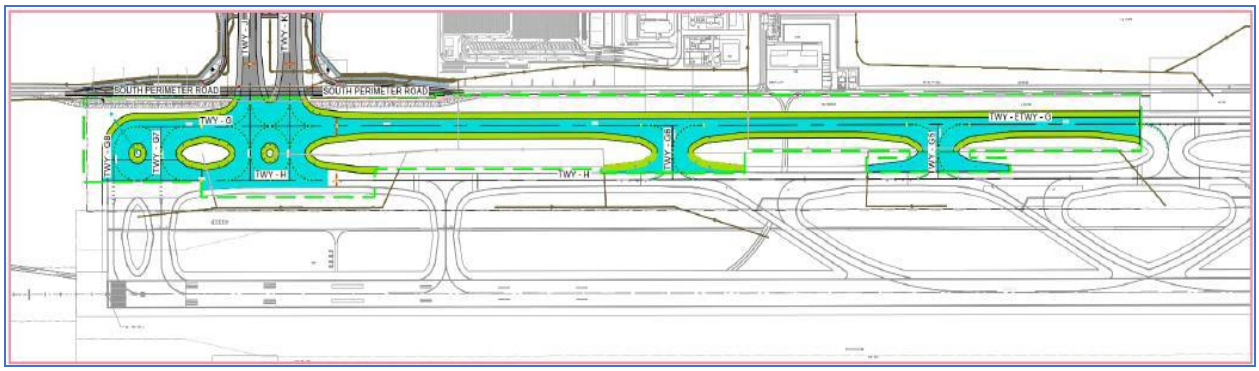
ii. Construction of South IAPP as per guideline from Bureau of Civil Aviation Security (BCAS) for an area of 23750 sqm including associated access road and GSE area.

iii. Construction of connections to relocated North IAPP for an area of 7040 sqm.

These above works are intended to improve runway accessibility, enhance airfield circulation and support efficient aircraft movements routing flexibility during peak-hour operations. Overall, the proposal focuses on augmenting the airfield infrastructure to align with future traffic projections while ensuring safe and efficient aircraft operations.



Scope included in Northern Airfield



Scope included in Southern Airfield

5.1.2.2 MECON's OBSERVATION:

MECON upon examination of BIAL's submission, observes that the proposed airfield works for a cumulative area of **4,33,739 sqm** are intended to address key operational constraints currently experienced at the airport including extended taxiing times, congestion at critical runway access points, presence of multiple taxiway intersections (hotspots) and limited routing flexibility for Air Traffic Control.

The proposed associated works comprising of taxiway extensions, additional connectors, and network optimization are expected to improve airside circulation and enhance overall operational efficiency. MECON notes that in the absence of these associated works, the intended benefits of the Western Crossfield Taxiway (WCT) may not be fully realized, potentially leading to sub-optimal utilization of existing and planned airside infrastructure.

It is also noted that the extension of Taxiway B necessitates the removal of 12 existing temporary aircraft stands. However, this appears to be part of a broader airfield reconfiguration strategy aimed at improving long-term operational efficiency.

Based on the information provided, MECON is of the view that the proposed works are **justified** from an operational and planning perspective as they facilitate improved utilization of existing and approved airside infrastructure, support the projected peak-hour capacity enhancement and contribute to improved safety and reduction of operational bottlenecks.

However, the area of proposed South IAPP including associated area has been reduced by MECON from 23,750 sqm to 20,000 sqm based on the drawing provided and technical requirements.

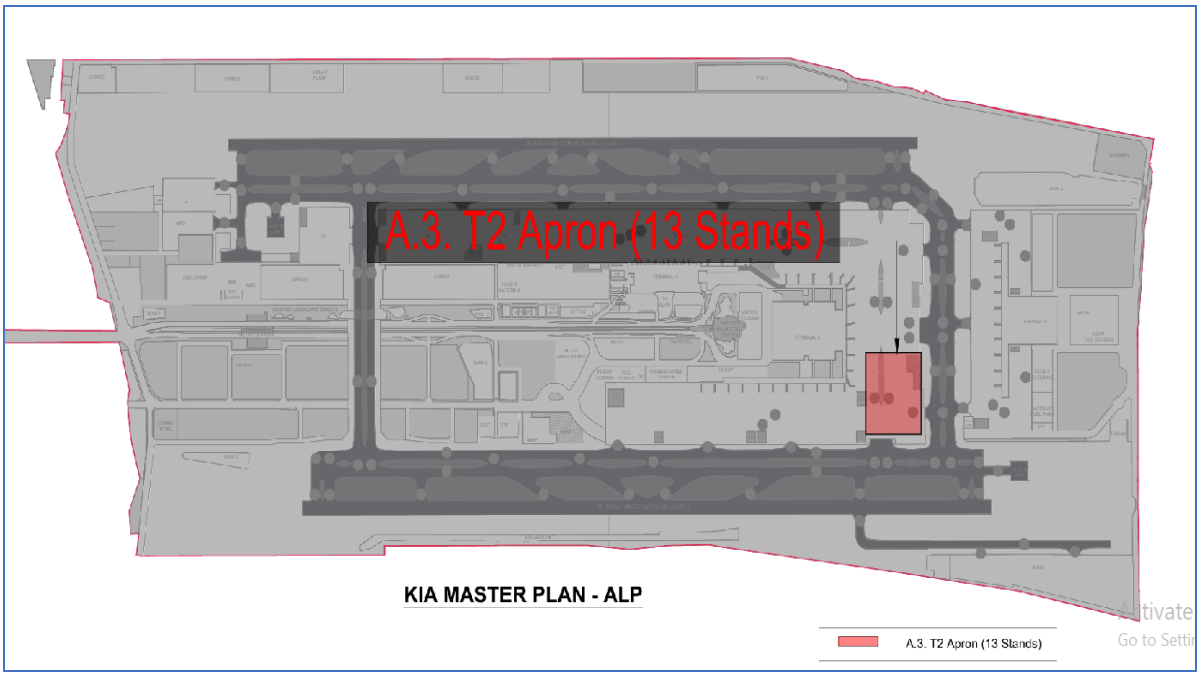
5.1.3 A.3 T2 APRON (9 +4 STANDS)

5.1.3.1 BIAL's SUBMISSION:

BIAL has proposed augmentation of aircraft stand capacity from existing 142 stands to 227 Code C equivalent stands by 2031 in order to cater to increasing operational and night parking demand driven by anticipated fleet expansion plans by Indian airlines and BIAL's strategy to develop the airport as a hub.

Aircraft Parking Stands & associated works

Sl. No.	Details of Existing Infrastructure	Code-C Equivalent Stands
1	**Current Available Stands**	**142**
2	Stands to be demolished for TWY B Extension	(-)12
3	Net Available Stands	130
4	Total Stands Required by 2031	227
5	**Additional Stands Requirement**	**97**



As part of this package, BIAL has proposed the development of 13 remote stands (9 + 4 configuration) which are intended to **replace 12 existing stands** that will be removed due to the extension of Taxiway B under the airfield development works.

In the initial MYTP submission, the apron area was considered as approximately **138,661 sqm** with rigid pavement which has been subsequently revised to approximately **175,434 sqm** during the assessment process.

5.1.3.2 MECON's OBSERVATION:

MECON assessed the proposed augmentation of 227 Code C equivalent aircraft stands by 2031 based on peak hour forecast and projected ATMs along with fleet mix distribution for domestic, international and combined passenger operations submitted by BIAL and details are tabulated below:

Peak Hour Forecast

Total Commercial ATM	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
Commercial ATM Arrival	28	29	32	36	38	40	42	45
Commercial ATM Departure	33	34	37	41	43	46	48	**50**
Commercial ATM 2-way	50	51	56	62	66	69	73	76
Domestic Commercial ATM								
Domestic commercial ATM Departure	31	32	35	38	40	43	45	**47**
International Commercial ATM								
International commercial ATM Departure	9	10	12	13	15	16	17	**17**

Combined Peak Hour Stand Demand

COMBINED Passenger Aircraft Stands	Unit	**2031**
1-way absolute peak hour commercial air traffic movements		**50**
Fleet mix		
ICAO CODE B - combined		0.5%
ICAO CODE C - combined		92.6%
ICAO CODE D - combined		0.0%
ICAO CODE E - combined		6.5%
ICAO CODE F - combined		0.3%
Demand - 1-way peak hour ATM per ICAO Code		
ICAO Code B		0.26
ICAO Code C		46.20
ICAO Code D		0.00
ICAO Code E		3.25
ICAO Code F		0.17
Average service & parking time		

COMBINED Passenger Aircraft Stands	Unit	2031
Aircraft servicing & parking time ICAO Code B	mins	45
Aircraft servicing & parking time ICAO Code C	mins	75
Aircraft servicing & parking time ICAO Code D	mins	90
Aircraft servicing & parking time ICAO Code E	mins	90
Aircraft servicing & parking time ICAO Code F	mins	110
Average maneuvering time		
Maneuvering time in & out + engine startup ICAO Code B	mins	10
Maneuvering time in & out + engine startup ICAO Code C	mins	10
Maneuvering time in & out + engine startup ICAO Code D	mins	10
Maneuvering time in & out + engine startup ICAO Code E	mins	10
Maneuvering time in & out + engine startup ICAO Code F	mins	10
Average vacancy time in between DEP and next ARR		
Vacancy time of stand for short haul flights	mins	15
Vacancy time of stand for long haul flights	mins	15
Total stand occupancy time per ICAO Code		
Total stand occupancy time ICAO Code B	mins	70
Total stand occupancy time ICAO Code C	mins	100
Total stand occupancy time ICAO Code D	mins	115
Total stand occupancy time ICAO Code E	mins	115
Total stand occupancy time ICAO Code F	mins	135
TOTAL OPERATIONAL STANDS:		
ICAO Code B		**1**
ICAO Code C		**77**
ICAO Code D		0
ICAO Code E		**7**
ICAO Code F		**1**
TOTAL OPERATIONAL STANDS:		**86**

International Peak Hour Stand Demand

International Passenger Aircraft Stands	Unit	2031
1-way absolute peak hour INT air traffic movements		**17**
Fleet mix		
ICAO Code B - INT		0.0%
ICAO Code C - INT		65.3%
ICAO Code D - INT		0.0%
ICAO Code E - INT		32.3%
ICAO Code F - INT		2.4%
Demand - 1-way peak hour ATM per ICAO Code		
ICAO Code B		0.00
ICAO Code C		11.29

International Passenger Aircraft Stands	Unit	2031
ICAO Code D		0.00
ICAO Code E		5.59
ICAO Code F		0.42
Average service & parking time		
Aircraft servicing & parking time ICAO Code B	mins	45
Aircraft servicing & parking time ICAO Code C	mins	75
Aircraft servicing & parking time ICAO Code D	mins	90
Aircraft servicing & parking time ICAO Code E	mins	90
Aircraft servicing & parking time ICAO Code F	mins	110
Average maneuvering time		
Maneuvering time in & out + engine startup ICAO Code B	mins	10
Maneuvering time in & out + engine startup ICAO Code C	mins	10
Maneuvering time in & out + engine startup ICAO Code D	mins	10
Maneuvering time in & out + engine startup ICAO Code E	mins	10
Maneuvering time in & out + engine startup ICAO Code F	mins	10
Average vacancy time in between DEP and next ARR		
Vacancy time of stand for short haul flights	mins	15
Vacancy time of stand for long haul flights	mins	15
Total stand occupancy time per ICAO Code		
Total stand occupancy time ICAO Code B	mins	70
Total stand occupancy time ICAO Code C	mins	100
Total stand occupancy time ICAO Code D	mins	115
Total stand occupancy time ICAO Code E	mins	115
Total stand occupancy time ICAO Code F	mins	135
TOTAL OPERATIONAL STANDS:		
ICAO Code B		0
ICAO Code C		**19**
ICAO Code D		0
ICAO Code E		**11**
ICAO Code F		**1**
TOTAL OPERATIONAL STANDS:		**31**

Domestic Peak Hour Stand Demand

Domestic Passenger Aircraft Stands	Unit	2031
1-way absolute peak hour DOM air traffic movements		**47**
Fleet mix		
ICAO Code B - DOM		0.6%
ICAO Code C - DOM		97.2%
ICAO Code D - DOM		0.0%
ICAO Code E - DOM		2.2%

Domestic Passenger Aircraft Stands	Unit	2031
ICAO Code F - DOM		0.0%
Demand - 1-way peak hour ATM per ICAO Code		
ICAO Code B		0.28
ICAO Code C		45.56
ICAO Code D		0.00
ICAO Code E		1.04
ICAO Code F		0.00
Average service & parking time		
Aircraft servicing & parking time ICAO Code B	mins	45
Aircraft servicing & parking time ICAO Code C	mins	75
Aircraft servicing & parking time ICAO Code D	mins	90
Aircraft servicing & parking time ICAO Code E	mins	90
Aircraft servicing & parking time ICAO Code F	mins	110
Average maneuvering time		
Maneuvering time in & out + engine startup ICAO Code B	mins	10
Maneuvering time in & out + engine startup ICAO Code C	mins	10
Maneuvering time in & out + engine startup ICAO Code D	mins	10
Maneuvering time in & out + engine startup ICAO Code E	mins	10
Maneuvering time in & out + engine startup ICAO Code F	mins	10
Average vacancy time in between DEP and next ARR		
Vacancy time of stand for short haul flights	mins	15
Vacancy time of stand for long haul flights	mins	15
Total stand occupancy time per ICAO Code		
Total stand occupancy time ICAO Code B	mins	70
Total stand occupancy time ICAO Code C	mins	100
Total stand occupancy time ICAO Code D	mins	115
Total stand occupancy time ICAO Code E	mins	115
Total stand occupancy time ICAO Code F	mins	135
TOTAL OPERATIONAL STANDS:		
ICAO Code B		**1**
ICAO Code C		**76**
ICAO Code D		0
ICAO Code E		**2**
ICAO Code F		0
TOTAL OPERATIONAL STANDS:		**79**

Based on the operational stand calculations considering swing operations, the passenger operational requirement works out to approx. 81 Code C equivalent stands, whereas without swing operations the requirement increases to approx. 124 Code C equivalent stands. The analysis demonstrates that swing stand operations significantly optimize stand utilization and operational efficiency.

PAX OPERATIONAL TOTAL (With Swing Operations)

Pax Operational Total	2031
Peak Hour ATM – 1-way	50
ICAO Code B	1
ICAO Code C	54
ICAO Code D	0
ICAO Code E	12
ICAO Code F	1
Grand Total	**68**
Equivalent Code C	**81**

PAX OPERATIONAL TOTAL (Without Swing Operations)

Pax Operational Total	2031
Peak Hour ATM – 1-way	50
ICAO Code B	1
ICAO Code C	95
ICAO Code D	0
ICAO Code E	13
ICAO Code F	1
Grand Total	**110**
Equivalent Code C	**124**

Further, the projected cargo and general aviation stand requirements have also been assessed. Based on the projected cargo aircraft movements and fleet composition, the cargo stand requirement has been assessed as 18 Code C equivalent stands while the general aviation requirement has been assessed as 11 Code C equivalent stands.

Cargo Aircraft Stands	2031
Annual Full-freighter aircraft movements	**9,498**
Peak day Factor	1.25
Peak day Full freighter movements	33
Ratio movements per stand	4
Cargo Fleet Mix	
ICAO Code C - Cargo	18.2%
ICAO Code D - Cargo	33.7%
ICAO Code E - Cargo	40.2%
ICAO Code F - Cargo	7.9%
CARGO STANDS:	
ICAO Code C - Cargo	2
ICAO Code D - Cargo	3
ICAO Code E - Cargo	4
ICAO Code F - Cargo	1
TOTAL CARGO AIRCRAFT STANDS:	**10**
CARGO CODE C EQUIVALENT	**18**

GA Aircraft Stands	2031
Annual GA aircraft movements	**3,466**
Ratio movements per stand	1.25
Fleet mix	
ICAO Code A - GA	14.2%
ICAO Code B - GA	40.5%
ICAO Code C - GA	42.6%
ICAO Code D - GA	0.5%
ICAO Code E - GA	2.3%
GENERAL AVIATION STANDS:	
ICAO Code A	2
ICAO Code B	4
ICAO Code C	4
ICAO Code D	1
ICAO Code E	1
TOTAL GENERAL AVIATION STANDS:	**12**
GA CODE C EQUIVALENT	**11**

Accordingly, the overall stand demand assessment for the year 2031 is summarized as follows:

PAX NON-OPERATIONAL	2031
Demand Code C (Night Parking)	**172**
Existing Allocation (Night Parking)	**117**
GRAND TOTAL	**2031**
Pax operational requirement	**81**
Pax Night parking requirement	**117**
Cargo Requirement	**18**
General Aviation Requirement	**11**
TOTAL	**227**

Based on the above assessment, MECON observed that the proposed total aircraft stand requirement of 227 Code C equivalent stands appears reasonable and justified considering the projected traffic growth, operational requirements and anticipated increase in night parking demand. However, the projected requirement remains contingent upon future aircraft fleet deliveries and actual traffic realization.

Further, the apron layout was reviewed and found to be in compliance with applicable ICAO standards and DGCA CAR provisions**.** The pavement design carried out as per FAA Advisory guidelines using FAARFIELD software was also reviewed and found to be in order. It is noted that the design life of rigid pavement (apron) has been considered for 40 years instead 30 years as per stipulated in the Concession Agreement. However, the same has been accepted considering the extension of concession agreement term up to 2068.

MECON further reviewed the revised apron configuration for this package and the justification provided by BIAL for the increase in apron area. It is observed that the apron area has been increased from approximately 138,661 sqm in the initial MYTP submission to approximately 175,434 sqm. The increase in area has been primarily attributed to the **revision of taxilane configuration** from a three-taxilane system to a **two-taxilane system** in compliance with DGCA CAR requirements.

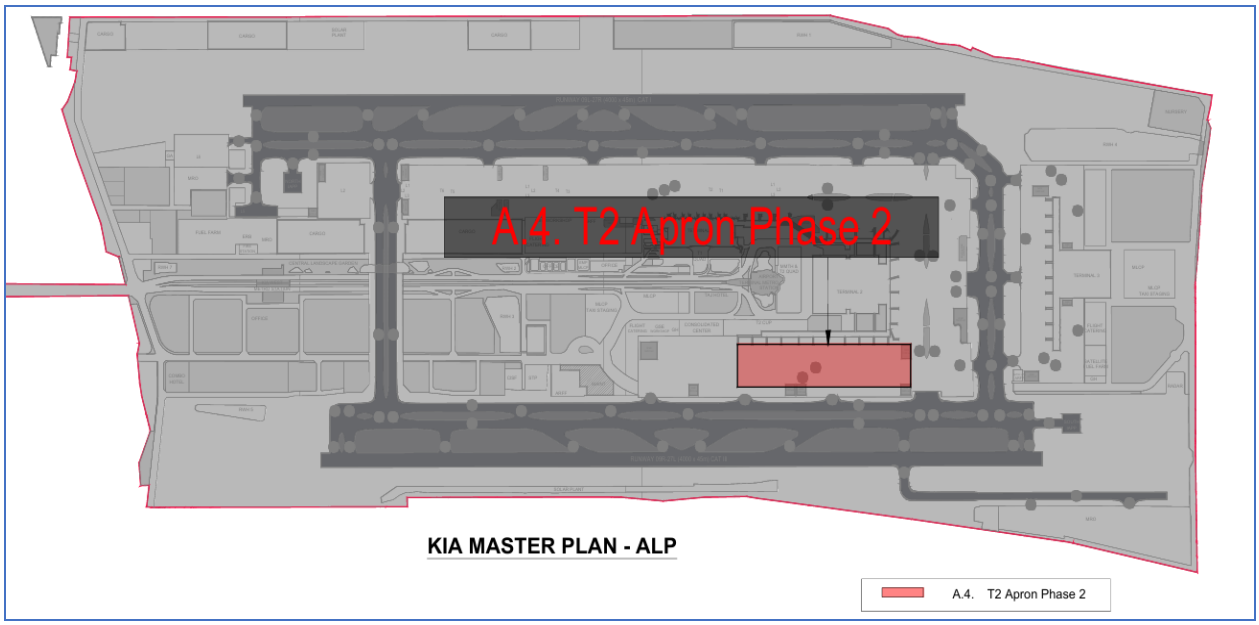
MECON further notes that the proposed apron development arises due to the **removal of 12 existing aircraft stands** necessitated by the extension of Taxiway B under Package A.2. In this context, the development of additional stands is considered **necessary and prudent** as it ensures the **augmentation of aircraft parking capacity** particularly in view of projected traffic growth and increasing night parking demand.

5.1.4 A.4 T2 PHASE 2 APRON (40 STANDS)

5.1.4.1 BIAL's SUBMISSION:

BIAL has proposed the development of a Phase-2 apron to support expansion of Terminal-2 during the Fourth Control Period with the objective of addressing projected passenger growth and associated night parking demand.

In the initial MYTP submission, the proposal comprised **40 Code C–equivalent stands** with a total apron area of approximately **373,959 sqm** with rigid pavement. Subsequently, the proposal has been revised during the assessment stage to **46 Code C equivalent stands** with an increased apron area of approximately **430,244 sqm**. The proposed apron configuration includes 8 Code-E MARS contact stands, 12 Code-C contact stands, 18 Code-C remote stands and parallel taxi lanes connecting the new apron to the existing taxiway system.



5.1.4.2 MECON's OBSERVATION:

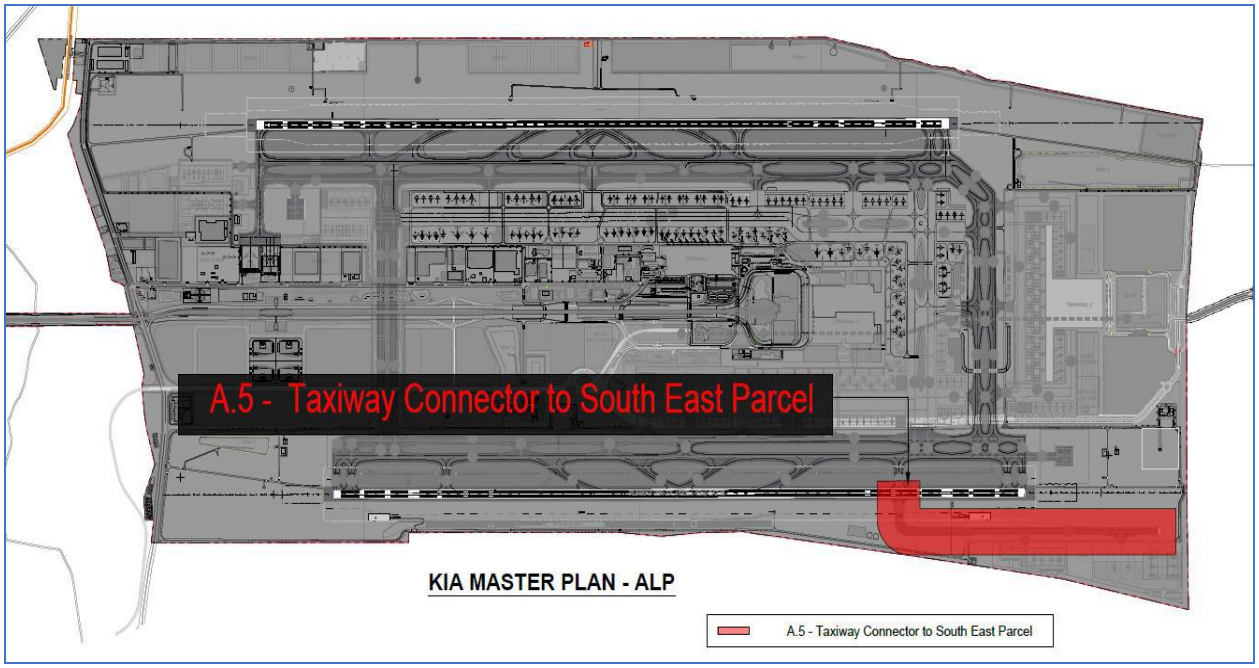
MECON noted that the proposed apron expansion is intrinsically linked to development of Terminal-2 Phase 2 and the associated increase in passenger traffic and aircraft parking demand. Accordingly, consideration of the proposal within the Fourth Control Period is deemed appropriate.

The proposed apron layout has been reviewed and found to be in compliance with applicable ICAO standards and DGCA CAR provisions. Accordingly, the proposal is considered **justified** and aligned with the objective of capacity augmentation and operational efficiency.

5.1.5 A.5 TAXIWAY CONNECTOR TO SE PARCEL

5.1.5.1 BIAL's SUBMISSION:

BIAL has proposed the development of Taxiway Z for proposed area of **82255 sqm** to facilitate efficient aircraft access to the proposed Engine Run-Up Bay (ERUB) and to provide direct airside connectivity to the planned Maintenance, Repair, and Overhaul (MRO) facility being developed by Air India & Tata Advanced Systems Limited (TASL) in the southeast land parcel, pursuant to agreements executed in August 2024 & January 2025.



5.1.5.2 MECON's OBSERVATION:

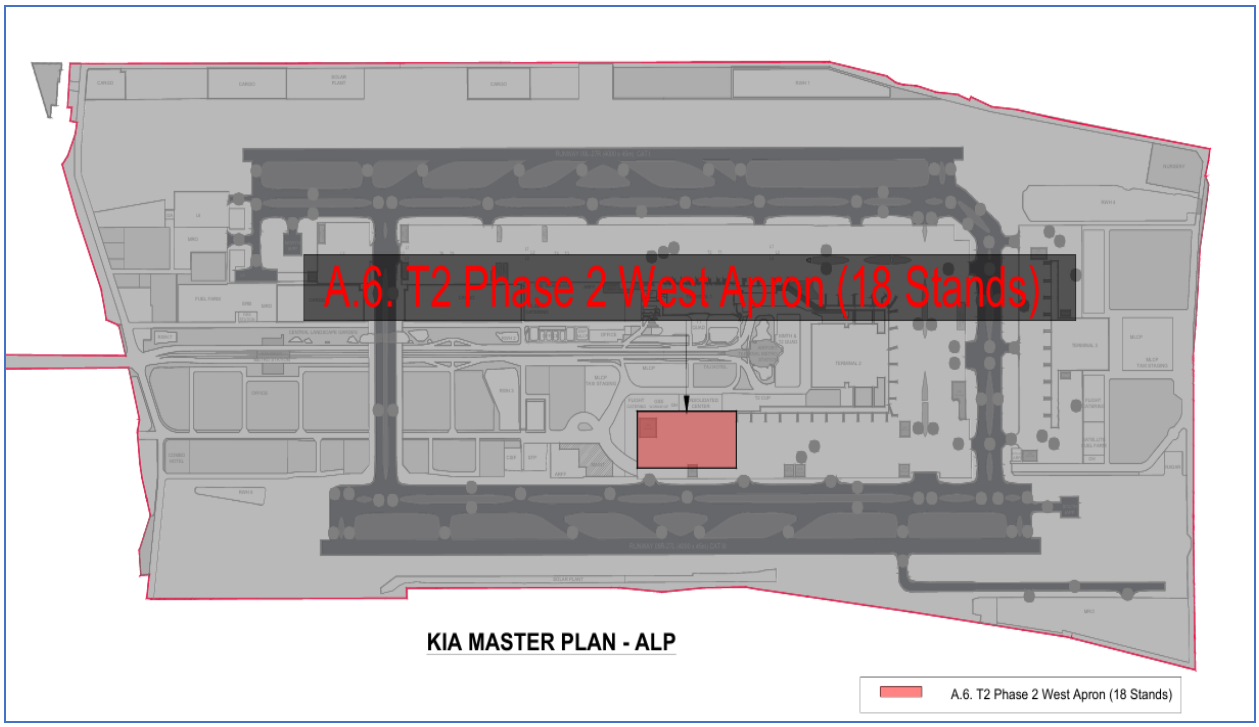
MECON noted that the primary necessity of Taxiway Z is to provide direct airside connectivity to the planned upcoming MRO facilities in the southeast parcel and hence considered **necessary and prudent** within this control period.

5.1.6 A.6 T2 PHASE 2 WEST APRON (18 STANDS)

5.1.6.1 BIAL's SUBMISSION:

BIAL has proposed development of the T2 Phase-2 West Apron to cater to the increasing demand for aircraft stands for operations requirements and night parking. In line with its hub airport strategy, the total stand requirement is projected to rise to 227 stands by 2031.

Under Package A.6, located west of the A.4 apron, **18 additional remote stands** were originally proposed in the MYTP submission over a total area of **165,327 sqm**. However, during the assessment process, BIAL revised the proposal to **12 Code C equivalent** remote stands with a reduced area of **1,22,868 sqm**.



5.1.6.2 MECON's OBSERVATION:

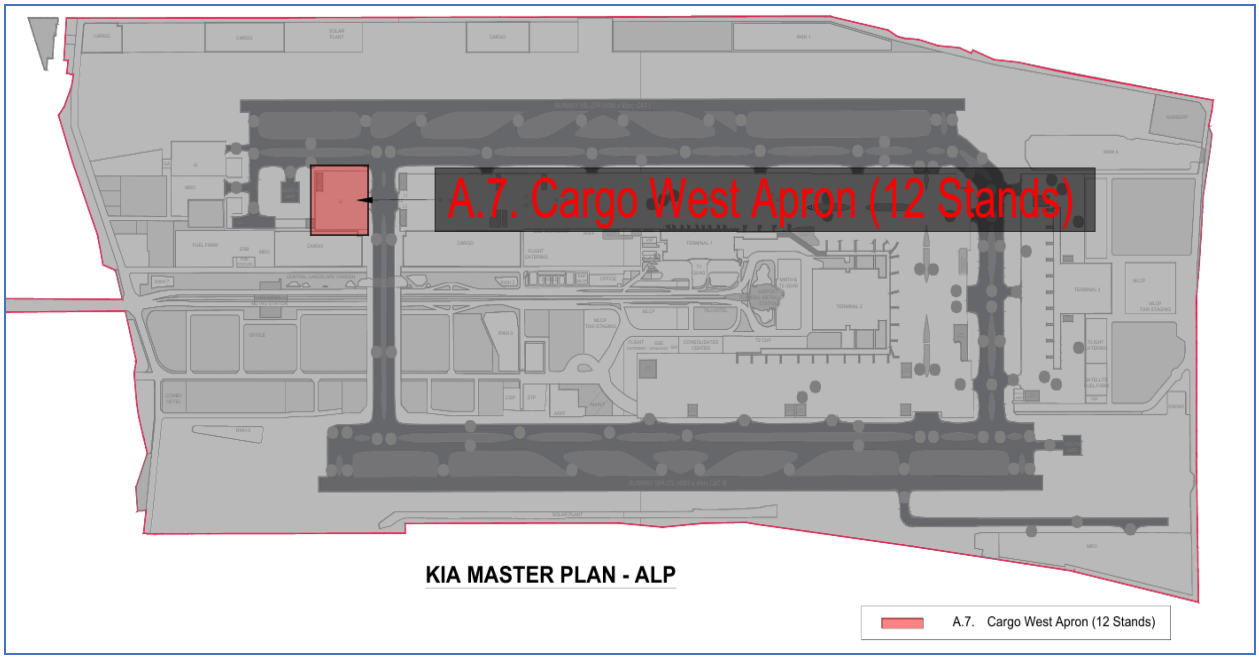
MECON observes that the proposed remote stands are primarily intended to cater to night parking rather than immediate operational needs, which remain contingent upon future aircraft fleet deliveries. Further, BIAL has indicated the completion timeline for the project as December 2030 which falls in the last quarter of the Fourth Control Period.

Accordingly, MECON proposes that the project may not to be considered within the Fourth Control Period.

5.1.7 A.7 CARGO WEST APRON (12 STANDS)

5.1.7.1 BIAL's SUBMISSION:

BIAL has proposed the development of **12 additional remote stands** for proposed area of **83,043 sqm** with rigid pavement in the west of the Western Crossfield Taxiway (WCT) as part of its plan to increase overall aircraft stand capacity. The proposal is intended to support hub operations and cater to the increasing demand for **night parking and cargo-related operations,** in view of airline fleet expansion and the projected increase in cargo volumes from 0.45 to 0.75 million tonnes within this control period**.**



5.1.7.2 MECON's OBSERVATION:

MECON observes that based on projected annual cargo aircraft movements by 2031, there is an incremental increase in requirement for **5** additional **Code C equivalent remote stands**. However, provision of **12 Code C equivalent stands** under this package is considered **justified** in view of the **higher demand for night parking** expressed by airline operators. Further, the proposed apron area has been reviewed and found to be compliant with ICAO standards.

Considering the above-mentioned packages for apron development, the cumulative aircraft stand capacity post augmentation within the control period shall be **201 Code C equivalent stands** by the year 2031, as assessed by MECON.

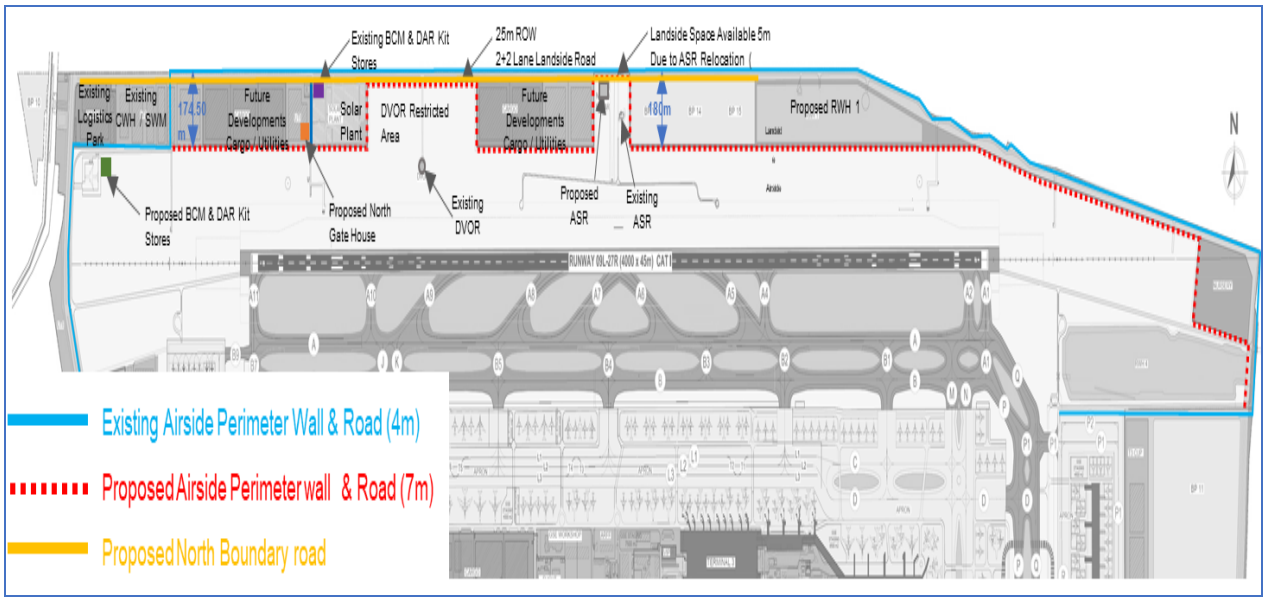
Considering the above-mentioned apron development packages which includes the proposed addition of **71 aircraft stands** as assessed by MECON during the current control period, the cumulative aircraft stand capacity post augmentation is **201 Code C equivalent stands** by the year 2031.

5.1.8 A.8 NORTH AIRSIDE PERIMETER WALL & PERIMETER ROAD

5.1.8.1 BIAL's SUBMISSION:

BIAL has proposed relocation of the **North Airside Perimeter Wall and Perimeter Road** in line with the approved Master Plan, which envisages development of a cargo district, support facilities and other landside developments along the northern boundary. The proposal

includes construction of a **7 m wide perimeter road** and installation of **Perimeter Intrusion Detection System (PIDS)** to comply with Bureau of Civil Aviation Security **(BCAS)** requirements. In order to avoid repetitive works and multiple regulatory approvals, realignment of the entire perimeter wall and road over an approximate length of **7.5 km** has been proposed.



5.1.8.2 MECON's OBSERVATION:

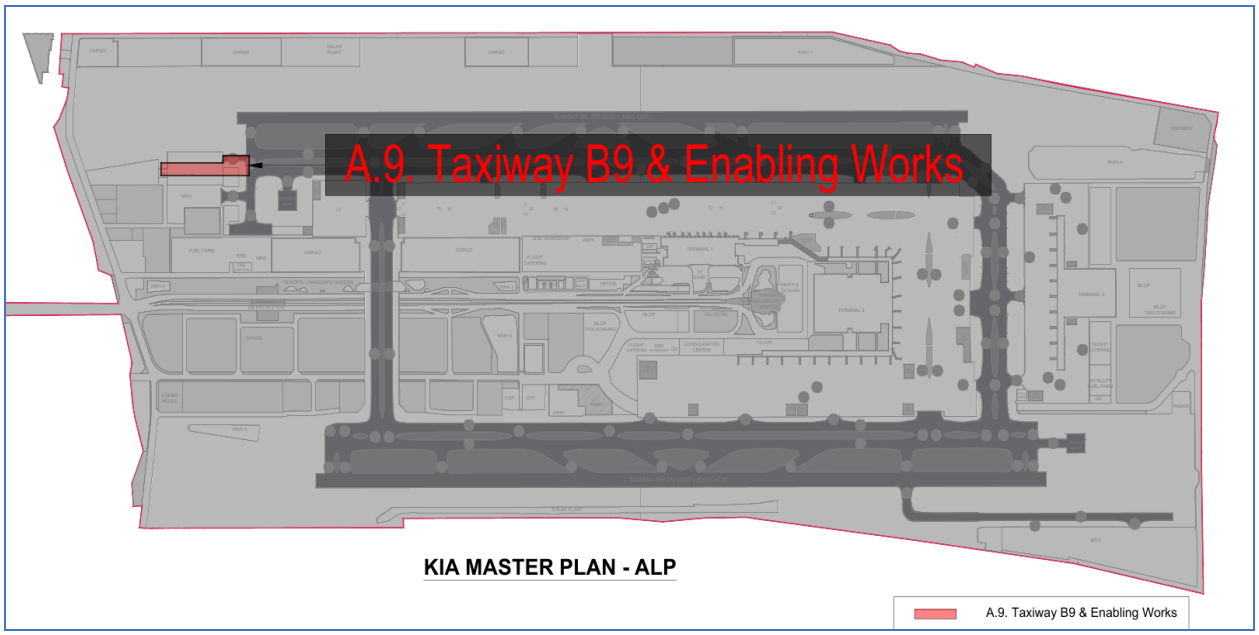
MECON noted that although a **cargo-focused warehousing zone and aerospace park** have been planned along the northern boundary in the updated master plan, **no MOUs or firm commitments** with prospective companies have been executed to date.

In view of the above, MECON proposes that **the relocation and construction of the new perimeter wall and road may not be considered under the Fourth Control Period**. However, installation of **Perimeter Intrusion Detection System (PIDS)** to meet Bureau of Civil Aviation Security **(BCAS)** requirements has been considered within the **Fourth Control Period.**

5.1.9 A.9 EXTENSION OF TAXIWAY B9 & ASSOCIATED WORKS

5.1.9.1 BIAL's SUBMISSION:

BIAL has proposed the development of Taxiway B9 for proposed area of **31,426 sqm** with rigid pavement to facilitate aircraft access to the proposed Contingency Facility and to provide direct airside connectivity to the planned Maintenance, Repair, and Overhaul (MRO) facility being developed by Indigo adjacent to the airport's Northwest Road, pursuant to agreements executed in August 2025.



5.1.9.2 MECON's OBSERVATION:

MECON noted that the primary requirement of Taxiway B9 is to provide direct airside connectivity to the upcoming MRO facility being developed by Indigo along with connectivity to the Contingency Facility being developed within this control period. Accordingly, the proposed development is considered **necessary**.

5.1.10 SUMMARY OF AIRSIDE PROJECTS

SL. No.	PROJECT NAME	MECON OBSERVATION
A.1	West Cross Field Taxiway	Essential
A.2	Airfield works (Taxiway extension, Isolation Bay etc.)	Essential
A.3	T2 Apron (9 +4 Stands)	Essential
A.4	T2 Phase 2 Apron (40 Stands)	Essential
A.5	Taxiway connector to SE Parcel	Essential
A.6	T2 Phase 2 West Apron (18 Stands)	Deferred
A.7	Cargo West Apron (12 Stands)	Essential
A.8	North Airside Perimeter Wall & Perimeter Road	Partially Essential
A.9	Extension of Taxiway B9 & Associated Works	Essential

MECON has assessed seven proposed Airside Works projects as essential for supporting projected air traffic growth, apron capacity enhancement, operational efficiency and future airport expansion requirements at KIAB. Out of the projects assessed as essential, four projects (A.1, A.2, A.3 and A.5) have already been awarded indicating the immediate implementation requirement and advanced stage of execution planning for critical airside infrastructure.

Key projects including the West Cross Field Taxiway, Airfield works, T2 Apron developments, Cargo West Apron and Taxiway extensions have been considered essential considering their direct operational relevance and capacity augmentation requirements.

The T2 Phase 2 West Apron (18 stands) has been proposed for deferment considering present phasing and demand assessment while the North Airside Perimeter Wall & Perimeter Road has been assessed as partially essential based on the immediate operational requirement.

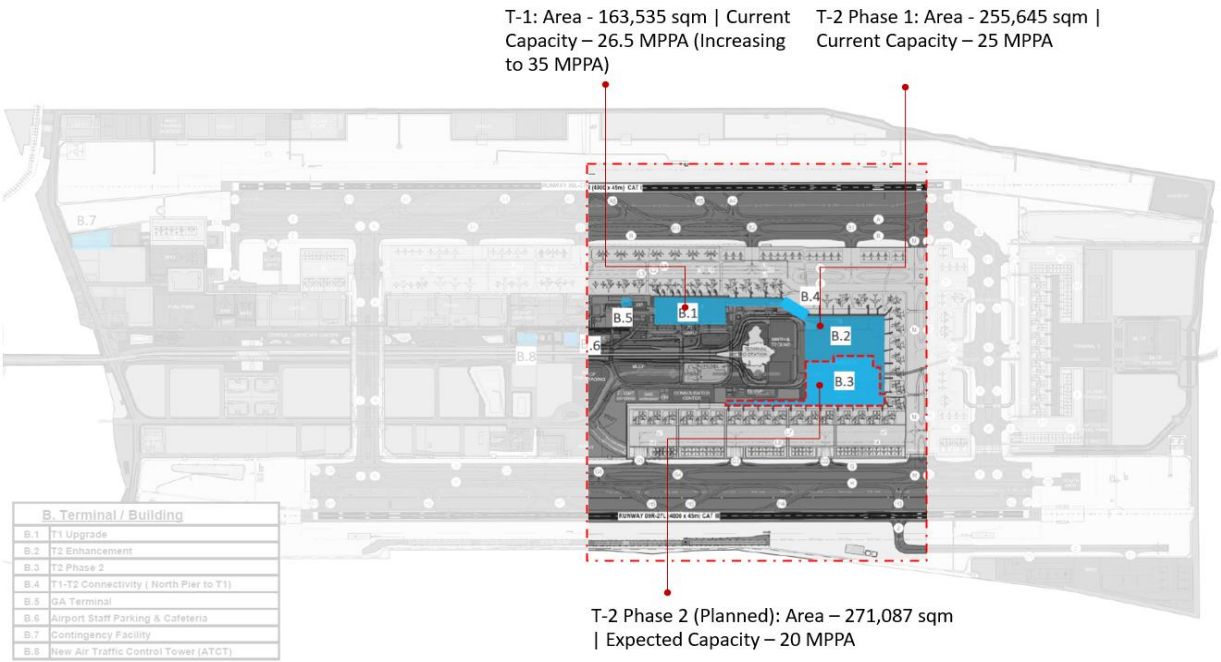
5.2 TERMINAL WORKS

5.2.1 TERMINAL 1 UPGRADATION

5.2.1.1 BIAL's SUBMISSION

Terminal 1 (T1) at Kempegowda International Airport is a domestic terminal with a built-up area of approximately 163,535 sqm and an original design capacity of 26.5 MPPA. As per BIAL's projections, T1 capacity is proposed to be enhanced to 35 MPPA during the fourth CP, primarily by improving processing efficiency rather than through physical expansion. The upgradation proposal is driven by sustained peak-hour congestion, ageing systems, and the need to align the proposed increased capacity of terminal with IATA/AAI normative standards. Given the inherent structural limitations of T1, the proposed works focus on optimizing existing space, modernizing systems, and improving passenger throughput to support the planned capacity increase.

Terminal	Area (sqm)	Category	Current Capacity (MPPA)	Planned Capacity (MPPA)
Terminal 1 (T1)	163,535	Domestic	26.5	35



The scope of work for T1 Upgradation under fourth CP broadly comprises the following components:

a) Enabling Works:

- Preliminary enabling and preparatory works to facilitate phased construction within a live terminal environment.

b) Civil & Interiors Works:

- Architectural and civil construction including drains, electrical and IT-related civil works, AAI-related works, VHT interfaces, structural steel and associated civil works
- Construction and refurbishment of passenger toilets
- PESC-related civil and architectural works
- Construction of security-related rooms, airline offices, and bulkhead rectification works
- Arrival area enabling works, civil and interior works, and add-on feature works
- Passenger Boarding Bridge-related civil works
- Loose furniture, bought-out items, signage, and repacking stations

c) MEPF & ICT Works:

- Upgradation and augmentation of HVAC, electrical systems, plumbing, firefighting, and allied services
- Modernization of ICT infrastructure including networks, systems integration, and terminal-wide digital enablement

HVAC System

Phase-1 of Terminal-1 was operationalized in May 2008 to serve both domestic and international operations. Phase-2 of Terminal-1 called T1A was commissioned in 2014. In terms of the HVAC systems, the Terminal-1 is equipped with air-conditioning for all passenger area like check-in hall, arrival hall, baggage reclaim hall and Security Hold Area. Areas like baggage handling/sorting area, stores, basement areas etc are equipped with mechanical ventilation.

Now Terminal-1 is being upgraded to meet the current and future operational requirements. With operationalization of Terminal-2 Phase-1, complete international operation has been shifted to Terminal-2. Operational changes like this and the need to introduce facilities for domestic-to-domestic transfer, express security check, upgradation/ enhancement of Baggage Handling System etc has resulted in change in usage of existing space. Such changes in space usage also calls for modification of MEP systems. Accordingly, HVAC systems are being modified in phased manner.

Along with changes driven by operational requirements, a major reason for upgrading the HVAC system is the need to replace equipment installed in 2008, which has

reached the end of its service life. The existing chillers, pumps, cooling towers, AHUs, and ventilation fans have been in continuous 24/7 operation for over 17 years now, resulting in significant wear and tear that compromises their reliability and performance. Frequent breakdowns and rising maintenance costs indicate that these assets are nearing the end of their useful life. Additionally, the technology is now obsolete, making it difficult to source spares and maintain operational efficiency. Modern HVAC systems offer advanced energy-efficient technologies that can substantially reduce power consumption, improve system reliability, and ensure compliance with current sustainability requirements.

Major replacement in HVAC systems are chillers, primary pumps, secondary pumps, condenser pumps, cooling tower, Air Handling Units, major Ventilation fans commissioned during 2008. Along with certain new systems such as automatic condenser tube cleaning system (ACTCS), side stream filters, automatic chemical dosing systems, chiller plant energy optimizer etc are being introduced to improve the chiller plant efficiency.

Within Terminal-1 building AHUs (40 Nos) and ventilation fans (35 Nos) installed during 2008 which were conventional belt driven types are being replaced with EC fans and directly coupled fans respectively. Along with this VRF systems are being introduced meet the air conditioning of rooms/office which have specific cooing requirements.

T1 Phase-1 chiller plant is currently equipped with 6 Nos of water-cooled screw chiller of 375 TR capacity each along with the associated primary, secondary & condenser pumps and its cooling towers. T1A chiller plant is equipped with 5 Nos of VFD driven water-cooled centrifugal chiller of 500TR capacity each with associated pumps and cooling. The table below provides the details of the installed equipment and its configurations.

Existing HVAC Equipment in Terminal-1					
Equipment	**Unit**	**T1**		**T1A****	
		Type/Capacity	**Configuration**	**Type/Capacity**	**Configuration**
Total Capacity	TR	Centralized **2250 TR**	-	Centralized **2500 TR**	-
Chiller	TR	Screw Type / 375 TR / 6 Nos	(N+1)	VFD Centri / 500 TR / 5 Nos	(N+1)
Cooling Tower	TR	Induced / 400 TR / 6 Nos	(N+1)	Induced / 550 TR / 6 Nos	(N+1)
Primary Pump	KW	18.5 KW / 7 Nos	(N+1)	15 KW / 6 Nos	(N+1)

Secondary Pump	KW	30 KW / 7 Nos	(N+1)	90 KW & 30 KW / 3 Nos each	(N+1)
Condenser Pump	KW	30 KW / 6 Nos	(N+1)	30 KW / 6 Nos	(N+1)
AHUs	Nos	40 Nos	(N)	40 Nos	(N)

*** Phase-2 of Terminal-1 called T1A was commissioned in 2014.*

The planned configuration of only T1 chiller plant is being carried out by replacement of chillers by new chillers of 550 TR x 4 Nos = 2200 TR with associated primary, secondary, condenser pumps and cooling Towers. VRF systems of totalling 290 TR are also being introduced in the terminal building to meet the air conditioning of rooms /office which have specific cooing requirements.

Electrical & ICT

Electrical Cabling and Panel Modifications

The T1 upgrade involves new electrical cabling, modification of existing panels, and provision of new panels to support:

- New Air Handling Units (AHUs),
- Baggage Handling System (BHS),
- Revised architectural layouts, and
- Functional zoning modifications.

These interventions are directly attributable to the expansion and are required to cater to increased electrical loads, revised distribution architecture, and safe segregation of services.

Based on the available information, these works are considered technically necessary and capacity-linked.

Lighting System Modifications

New lighting fixtures are proposed due to:

- Changes in room layouts,
- Architectural modifications, and
- Creation of new passenger and operational areas.

The scope appears aligned with revised layouts and operational requirements.

UPS Provision for T1 Expansion

BIAL has proposed provisioning of a new UPS system for T1 expansion. MECON's review indicates that:

- The existing UPS system appears to have spare capacity for incremental T1 loads, and the justification submitted does not establish any technical shortfall in the absence of proposed new UPS System.

Accordingly, MECON does not presently consider the proposed new UPS system technically justified.

Core ICT Network Infrastructure (LAN & Wi-Fi)

The ICT network forms the digital backbone for passenger processing and security systems at T1. The proposed scope includes:

- Telecom rooms,
- Fiber-optic backbone links,
- Structured cabling systems,
- PoE-enabled switches,
- Wi-Fi infrastructure augmentation, and
- Cybersecurity upgrades.

These systems are considered necessary for expanded passenger handling and operational requirements.

Surveillance and Security Systems (CCTV & SOCC)

The CCTV system at T1 is proposed to be expanded and modernized through:

- Deployment of new IP-based cameras,
- Replacement of legacy analog / low-resolution cameras, and
- Augmentation of storage systems.

The proposed systems appear operationally justified for enhanced surveillance and security compliance.

Access Control and Fire Detection & Alarm Systems

Access Control System (ACS)

Electronic access control systems are proposed for newly created and modified operational areas. The systems include card readers, electric locks, and biometric access arrangements.

Fire Detection & Alarm System (FDAS)

The FDAS scope includes:

- Additional fire alarm panels, Detectors,
- Manual call points, Alarm sounders, and
- System integration with evacuation and operational systems.

These systems are considered mandatory from life-safety and regulatory compliance perspectives.

Passenger Processing and Information Systems

The proposed scope includes:

- Digi Yatra biometric e-gates,
- Retrofit Self-Baggage Drop (RSBD) systems,
- Flight Information Display Systems (FIDS),
- Public Address systems,
- Queue Management Systems (QMS),
- Digital signage, and
- Passenger feedback systems.

These systems are generally aligned with passenger processing requirements, operational efficiency, and service quality enhancement objectives.

d) Airport Systems:

- Baggage system design and augmentation
- Baggage screening systems
- SSCP and associated passenger processing systems
- Transfer baggage carousel system

e) Landscaping Works:
Limited landscaping and external environment improvements within the terminal precinct

5.2.1.2 MECON's OBSERVATION:

As per data submitted by BIAL, the projected peak hour passenger (PHP) requirement for T1 corresponding to a capacity of 35 MPPA is approximately 8,000 PHP. Assessment against IATA, AAI, and IMG norms indicates that achieving this PHP within the existing terminal footprint would require significant optimization of processing areas, circulation, and system efficiencies. The proposed upgradation therefore relies on process re-engineering, system augmentation, and improved space utilization to meet normative service standards.

MECON has reviewed the proposed HVAC upgradation requirements for Terminal-1, considering the changed operational needs as well as the fact that the existing HVAC equipment commissioned in 2008 has reached the end of its service life. Based on the technical assessment of system condition, reliability concerns, and proposed scope of replacement, the execution of the works is validated for implementation during the Fourth Control Period.

Based on the presently available information, Electrical & ICT works considered are aligned with engineering requirements under the package except the proposed new UPS system which has not been justified presently.

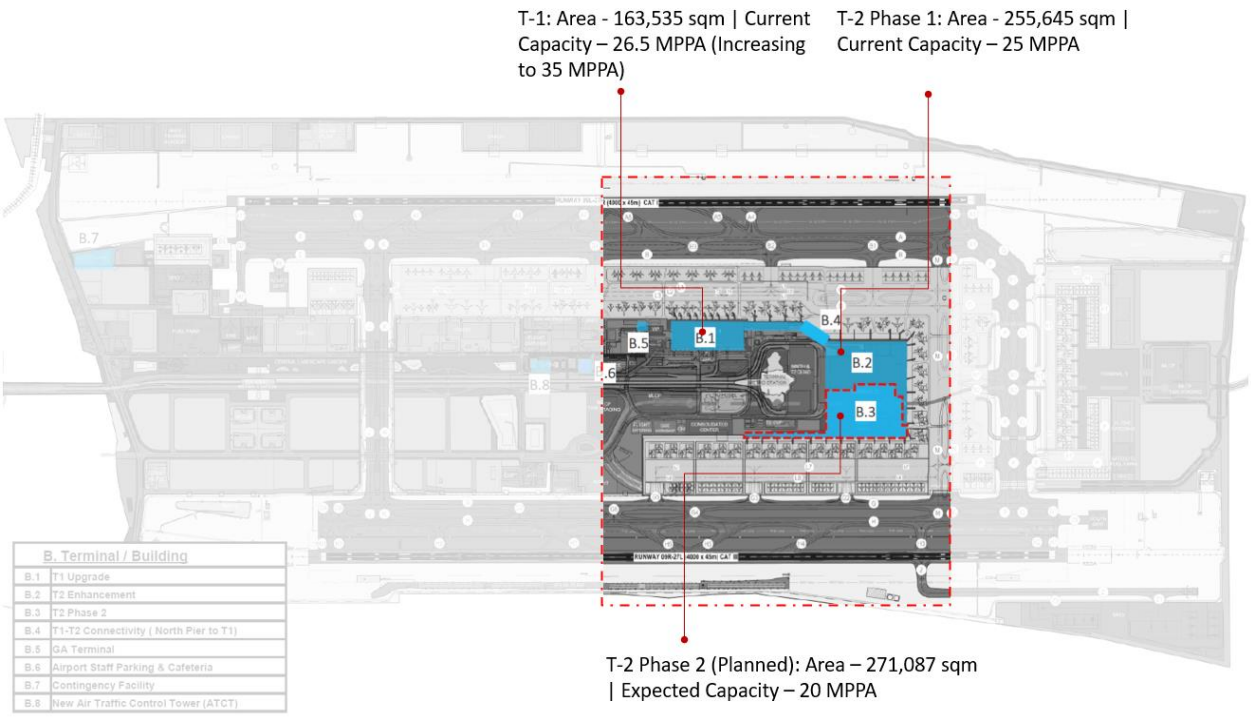
In addition to this during the course of review, BIAL proposed numerous extra works beyond the original MYTP list. These include Passenger Amenities, Lounges and Offices, Interior Alterations, MEP Enhancements, Miscellaneous Civil Works (New canopy for entry gates; flexible pavements/turning pads for VIP vehicles; landscaping and feature wall finishes; and furniture/joinery for new offices or lounges.) and the same has been considered.

5.2.2 B.2 TERMINAL 2 ENHANCEMENT (PHASE 1)

5.2.2.1 BIAL's SUBMISSION

Terminal 2 (T2) Phase 1 at Kempegowda International Airport is an integrated domestic and international terminal with an existing built-up area of approximately 255,645 sqm and a current handling capacity of 25 MPPA. Under PAL–2, a set of enhancement works has been proposed to address operational fine-tuning requirements, passenger flow optimization, and experience-related improvements, without any material increase in terminal capacity. The proposed package is positioned as a performance and service-level enhancement initiative to support rising peak-hour loads and international passenger processing requirements.

The enhancement scope for T2 Phase 1 comprises the following key interventions:



- **Signage**: Upgradation of wayfinding signage from fabric-based systems to acrylic signage for improved durability and legibility.

- **FOH Washrooms** – Passenger Zones: Modification and refurbishment of existing toilets for FOH at T2, including civil and PH works, along with provision of an additional washroom at Level 3 Check-in Hall.

- **North & South Façades (External):** Design and construction of extension canopies at Level 3 (south side) for rain protection and provision of approximately 6 m high glazed wall at Level 3 (north side) for weather protection.

- **Connecting Corridor 3 (Level 4):** Installation of glass partitions to enhance spatial clarity, safety, and passenger segregation.

- **T2 Museum Area:** Interior fit-outs including wall panels, lighting, display frames, acoustics, and ceiling works.

- **D2D & I2D Transfer Areas:** Installation of backlit glass wall panels, metal trims, and feature lighting to improve transfer passenger experience.

- **Seating Zones:** Reupholstery and selective seating upgrades across lounges and gate hold areas.

- **Forest Belt & Roof Garden (Landscaping):** Softscape development including planting, vertical greens, and irrigation networks.

- **MEPF Works:** HVAC, electrical, plumbing, fire protection systems, and elevator enhancements for VHT at T2.

- **ICT Works:** Biometric cameras and system integration with T1 DigiYatra, SP04 light fixtures for landscape zones, Cisco active switches, breaker monitoring systems (BMS) for T2 MCB DBs

- **Airport Systems:** Airport systems packages for International-to-Domestic hub transfer (L0 near customs) and Domestic-to-Domestic transfer (L1).

5.2.2.2 MECON's OBSERVATION:

MECON evaluated the enhancement package by categorizing works into operationally essential, compliance-related, and experience-driven interventions. The assessment focused on determining whether the proposed elements are necessary for maintaining service levels under existing traffic conditions or are discretionary in nature.

The proposed enhancement works do not envisage any increase in the designed MPPA capacity of T2 Phase 1. The interventions are primarily aimed at improving passenger circulation, transfer efficiency, weather protection, and service quality within the existing terminal envelope. Accordingly, no incremental PHP capacity has been attributed to this package.

The review indicates that certain elements—such as washroom augmentation, façade rain protection, transfer area improvements, MEPF upgrades, and airport systems for passenger transfers—support operational robustness and passenger processing efficiency. However, a substantial portion of the scope relates to aesthetic upgrades, interior fit-outs, and landscaping, which do not directly contribute to capacity enhancement.

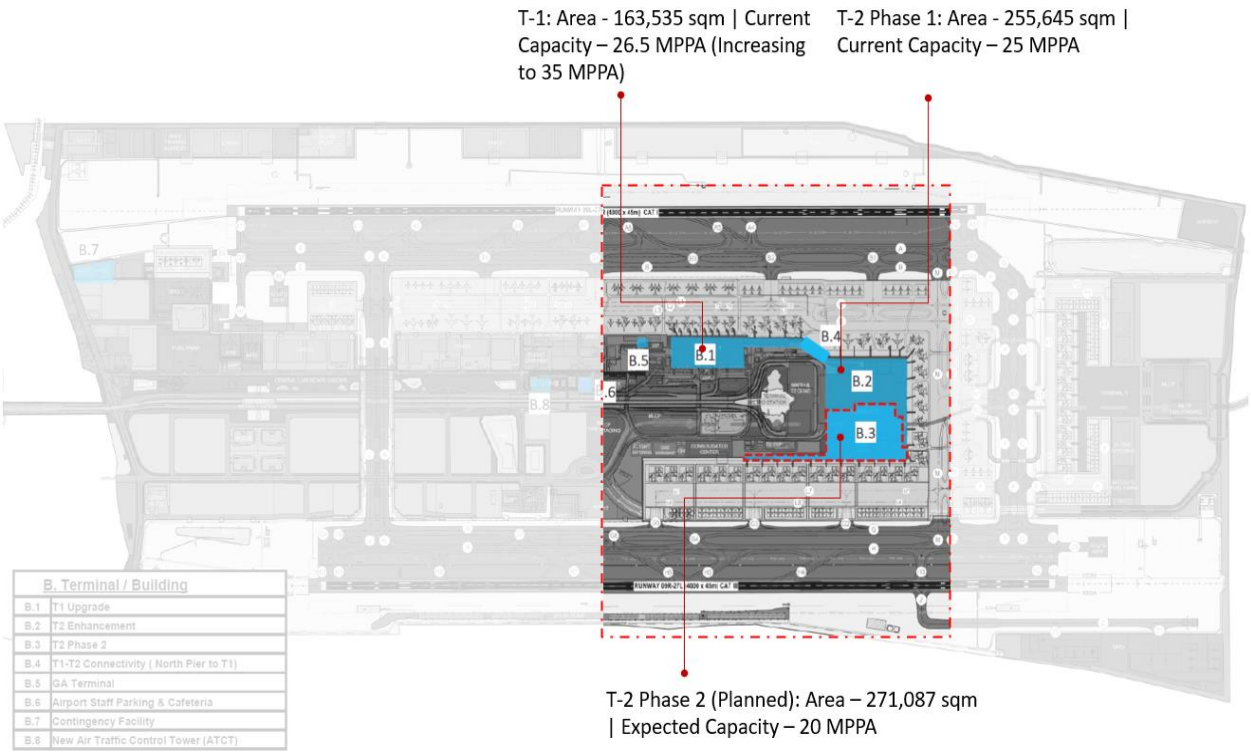
Notwithstanding the absence of incremental capacity creation, MECON is of the view that the proposed enhancement works are required for sustaining the intended level of service, improving passenger experience, addressing operational constraints and supporting efficient terminal operations. Accordingly, the admissibility of the technically **justified** scope under the capital expenditure programme is considered appropriate subject to the scope rationalisations and cost optimisations carried out during the evaluation.

5.2.3 B.3 TERMINAL 2 – PHASE 2 EXPANSION

5.2.3.1 BIAL's SUBMISSION

Terminal 2 Phase 2 is proposed to expand T2 capacity from 25 MPPA to 45 MPPA by 2031, in response to sustained passenger growth at KIAB. The expansion aims to future-proof terminal infrastructure while maintaining service quality and global hub positioning.

Terminal	Area (sqm)	Category	Current Capacity (MPPA)	Planned Capacity (MPPA)
Terminal 2 (T2)	255,645 (existing) →526,732*(planned)	Domestic	15	30
		International	10	15
T2 Capacity	-	-	**25**	**45**



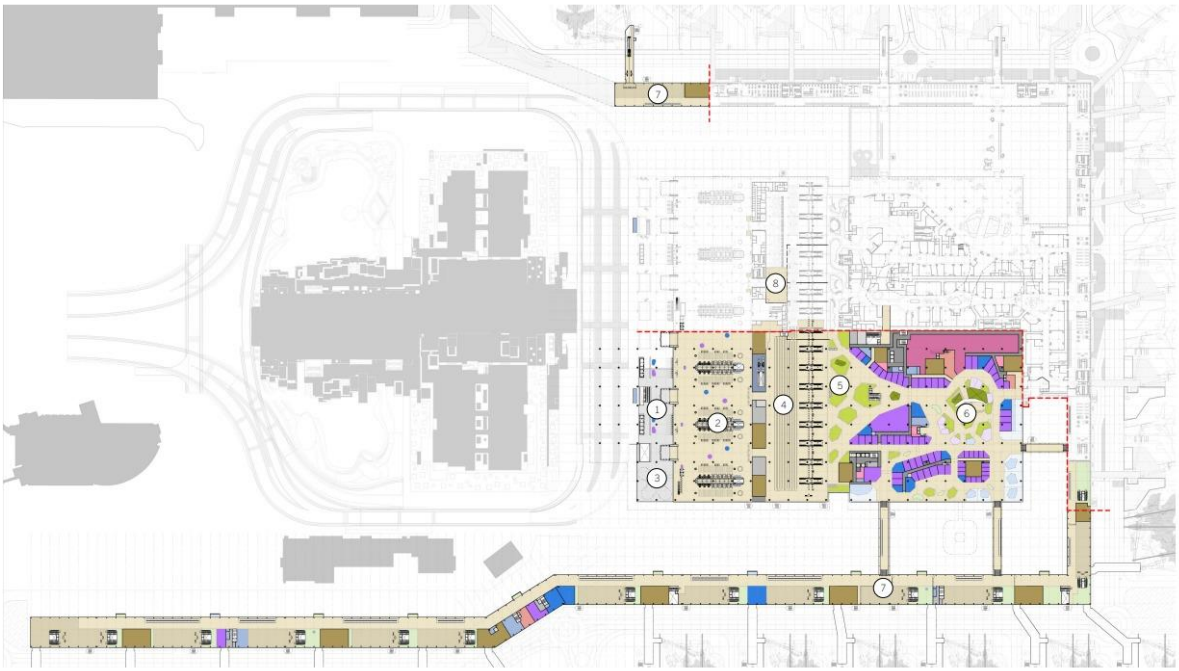
**Source: BIAL's letter no. BIAL/AERA/Finance/2025-26/04 dated 08.12.2025 to AERA*

Scope of Work

- ❖ Construction of additional terminal building (~2,71,087 sqm upon consideration of BIAL's letter dated 08.12.2025)
- ❖ Expansion of passenger processing areas for domestic and international operations
- ❖ Swing terminal functionality
- ❖ Integration of smart systems and sustainability measures
- ❖ Associated MEP, ICT, and airside interfaces

5.2.3.3 MECON'S ASSESSMENT

For the purpose of all assessments pertaining to Terminal 2 Phase 2 (T2P2), Terminal 2 at Kempegowda International Airport Bengaluru (KIAB), comprising both Phase 1 (T2P1) and Phase 2 (T2P2) has been considered as a single integrated terminal facility. Accordingly, the assessment has been carried out based on the overall terminal capacity and operations of the combined Terminal 2 complex rather than treating T2P2 as a standalone 20 MPPA terminal.



Peak Hour Passenger (PHP) Capacity for KIAB Terminal 2:

The table below presents the Peak Hour Passenger (PHP) figures shared by BIAL for Kempegowda International Airport Bengaluru (KIAB) Terminal 2, covering Terminal 2 Phase 1 (T2P1) and the overall integrated Terminal 2 operations. The data includes domestic and international arrival/departure passenger volumes, integrated enplaned and deplaned passenger capacities, and transfer passenger assumptions.

Category	Sub-category	PHP for T2P1	PHP for T2 overall (Projection)
Terminal 2 (Dom)	Departure	2,990	4,993
Terminal 2 (Dom)	Arrival	2,610	4,750
Terminal 2 (Intl)	Departure	2,640	3,287
Terminal 2 (Intl)	Arrival	2,240	3,315
Total		**10,480**	**16,345**
Integrated	Combined Deplaned	3,810	6,211
Integrated	Combined Enplaned	4,180	5,943
Total (Integrated)		**7990**	**12,154**
Transfer Zone	Domestic to Domestic	No zone as on date	998
Transfer Zone	Domestic to International	No zone as on date	687
Transfer Zone	International to International	No zone as on date	330
Transfer Zone	International to Domestic	No zone as on date	681

Area per PHP Based on IATA Normative Calculation:

The table below summarizes the assumed Peak Hour Passenger (PHP) values derived using the IATA normative methodology, considering 0.03% of the annual design passenger capacity (MPPA) and Area per PHP for respective facility. The calculation has been presented for Terminal 2 Phase 1, Terminal 2 Phase 2 and the integrated Terminal 2 facility:

Sl. No.	Airport	Terminal 2 Phase 1	Terminal 2 Phase 2	Terminal 2 Integrated
A	Annual Design Capacity (MPPA)	25	20	45
B	PHP (@ 0.03% of A)	7,500	6,000	13,500
C	Area of Terminal (SQM)	2,55,645	2,71,087	526732
D	Area per PHP (C/D)	**34.08**	**45.18**	**39.01**

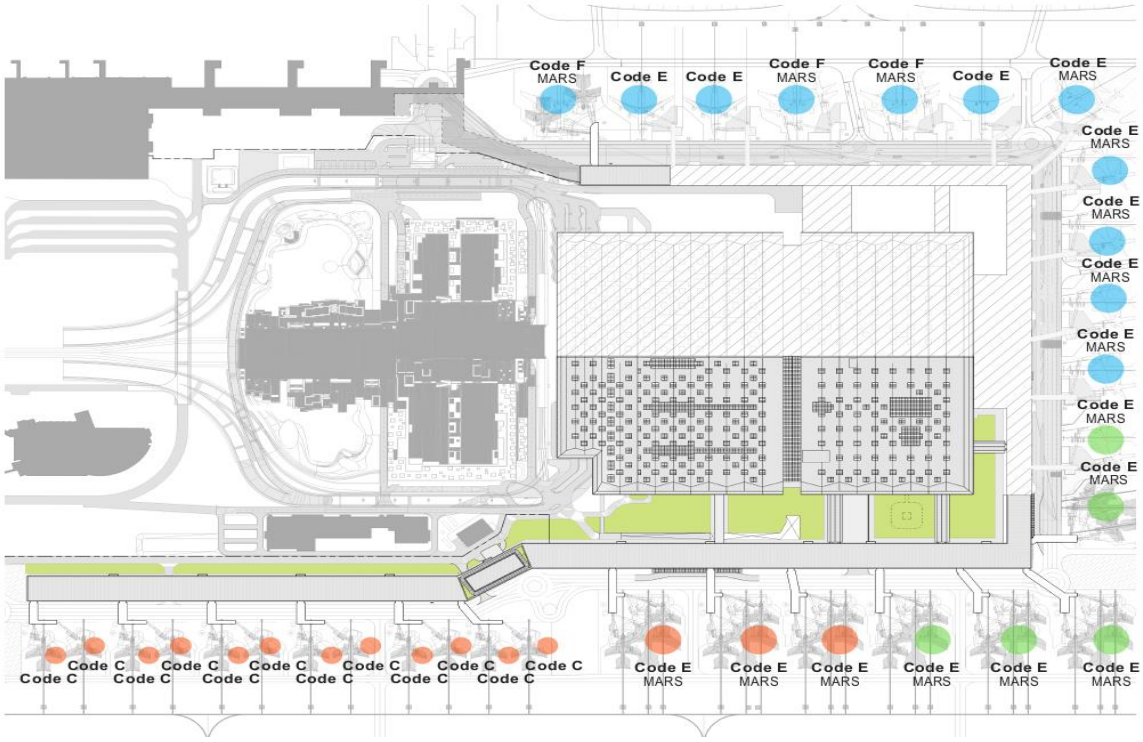
Summary of Processing Facilities Planned at KIAB, Terminal 2 Expansion:

S. No.	Facilities for additional 20 MPPA of Domestic Airport	Units	Quantity	Remarks
1	Number of Terminal entrances control points	Nos.	18	Peak 15 mins factor of PHP- 45% Queuing time- 10 min Utilisation factor 100%
2	Number of Terminal entrances for departure Check-in Pax	Nos.	3	
3	Check-in desks	Nos.	96	Peak 15 mins factor of PHP- 45% Queuing time- 8 min Utilisation factor 100%
4	CVIP check-in desk	Nos.	4	
5	Self-service Kiosk- curb side	Nos.	20	Peak 15 mins factor of PHP- 45% Queuing time- 2 min Utilisation factor 100%
6	Self-service Kiosk- inside	Nos.	39	
7	CVIP Kiosk	Nos.	3	
8	CVIP Screening	Nos.	2	
9	PSEC Dom	Nos.	16	Peak 15 mins factor of PHP- 45% Queuing time- 10 min Utilisation factor-100%
10	PSEC Swing	Nos.	1	
11	PSEC Dom Staff	Nos.	1	
12	Day Hotel	Nos.	1	Outside Airport Terminal
13	Departure Emigration Control Points	Nos.	26 (including D-I transfer)	Peak 15 mins factor of PHP- 45% Queuing time- 10 min Utilisation factor-100%
14	Security x-ray machines (Dom)	Nos.	17	Based on PSEC lines
15	Security x-ray machines (Swing)	Nos.	1	

S. No.	Facilities for additional 20 MPPA of Domestic Airport	Units	Quantity	Remarks
16	Dom-Dom Transfer Security x-ray machines	Nos.	6	
17	Int'l-Int'l Transfer Security x-ray machines	Nos.	4	
18	Dom-Int Transfer Security x-ray machines	Nos.	3	
19	Code C Contact Stands	Nos.	12	
20	Code E MARS Stands	Nos.	7	
21	Code F MARS Stands	Nos.	1	
22	Total Number of PBBs	Nos.	28	
23	Number of Domestic Departure Bus Gates	Nos.	1	
24	Number of Domestic Arrival Bus Gates	Nos.	3	
25	Number of Swing IROPS gate	Nos.	2	
26	Total Number of combined Bus Gates with Swing	Nos.	6	
27	Domestic Reclaim belts	Nos.	8	Peak 15 mins factor of PHP- 45% Queuing time- 25 min Utilisation factor-100%

Assessment of Contact Stands for Terminal T2 Phase 2:

Contact gates requirements were assessed on based of data provided by BIAL considering the fleet operations, peak hour stand demands and aircraft sizes.



DOMESTIC		REMARKS
Dom Dep Peak hour	4993	PHP For T2 domestic
Capacity/ aircraft	180	Average based on existing fleet operating at T2 domestic
No of implied ATM departure	28	
Stand occupancy time	75	Linked to occupancy time calculation
Adjustment factor for overlap of previous hour	1.25	
Requirement	35	
% of aircraft proposed to be handled through contact bridge	**80%**	BIAL's Planning parameter
Requirement of contact bridges	**28**	Refer drawing (Green and Orange dot)
Actual Proposed development (including Swing as domestic)	**28**	Code C equivalent contact stand
International		**Remarks**
Intl Dep Peak Hour	3287	Dep PHP for T2 international
Peak hour ATM departure	17	Linked to departure ATM projection for FY31 (International is consolidated in 1 terminal)
Code C/ Narrow Body	11	
Stand Occupancy time	75	Linked to occupancy time calculation

Adjustment factor for overlap of previous hour	1.25	
Requirement in Code C equivalent	14.0	
Code E & F/ Wide Body	6	
Stand Occupancy time	90	Linked to occupancy time calculation
Adjustment factor for overlap of previous hour	1.5	
Requirement	9	
Total Requirement		
Code C	14	
Code E/F	9	
Equivalent requirement in Code C	32	
Development plan		
Code E dedicated	3	Refer drawing of T2 layout (blue dot)
Code E MARS	5	Refer drawing of T2 layout (blue dot)
Code F MARS	3	Refer drawing of T2 layout (blue dot)
Contact stand w/o Swing	**19**	
Contact stand in Swing Zone		
Code E MARS	5	Refer drawing of T2 layout (green dot)
Equivalent in Code C	**10**	
Contact stand if Swing is enabled	**29**	
% Aircraft that can be handled by contact	**91%**	

Based on the calculations it was observed that with 80 % of domestic aircraft and 91% of international aircraft proposed to be handled through contact bridges and hence, the development plan of contact stands is acceptable as proposed by BIAL.

5.2.3.3 MECON's AREA ASSESSMENT:

The primary objective of this study is to evaluate whether the terminal area of Bengaluru is aligned with existing major airports with similar traffic across India (Delhi, and Mumbai). The analysis aims to:

- Compare actual terminal areas with normative guidelines.
- Assess excess or deficit areas.

- Calculate area per passenger to understand spatial efficiency.
- And draw comparative with Bengaluru airport

A comparative analysis was conducted with airports of similar scale worldwide to evaluate alignment with global benchmarks.

The analytical process followed a step-by-step methodology. In the first step, excess terminal area and corresponding percentages were computed for each airport with reference to both IMG & AAI standards and IATA norms. The second step involved calculating the area per passenger using both actual and normative PHP values. In the final step, the results were analysed collectively to assess whether the observed excess terminal areas align with prevailing global practices or whether they represent isolated or airport-specific cases.

The study was conducted with the selection of two other major Indian airports Delhi (Terminal 3) and Mumbai (Terminal 2) to compare with Bengaluru Airport (Terminal 2). These airports were chosen due to their comparable annual passenger traffic, which ranges between 40–45 million passengers per annum (MMPA), and their strategic importance within India's national aviation infrastructure. For each airport, key parameters were collected, including passenger traffic forecasts, the proposed or existing terminal design area (actual built or planned area), and the Peak Hour Passenger (PHP) capacity. In addition, normative area standards were referred from two principal sources: Indian guidelines issued by IMG and AAI, and international benchmarks provided by IATA.

The comparison across the three airports was structured along following dimension:

- First, the terminal area of each airport was evaluated against the normative area requirements specified by IMG & AAI and by IATA. Based on this comparison, the extent of excess or deficit area was calculated, followed by the derivation of the excess percentage of area with respect to the norms.

Area per PHP is benchmarked using three sources:

Standards	Domestic	International	Integrated
Area per passenger as per IMG	20	27.5	25
Area per passenger as per IATA	25	35	~30
Area per passenger as per AAI	23	28	25

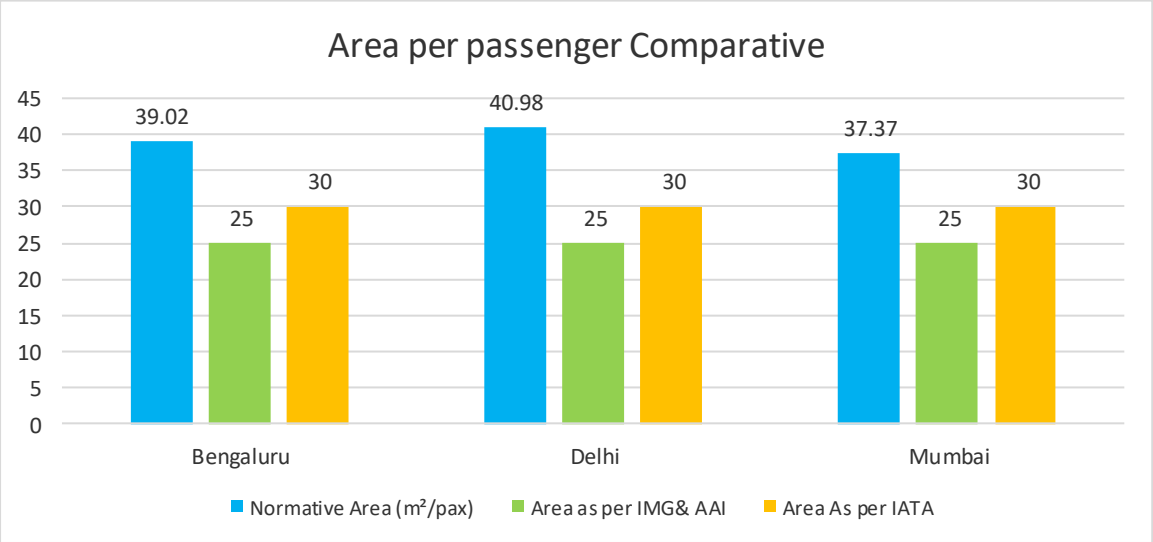
These standards guide spatial allocation for terminal design.

Since, all the three airports (Mumbai T2, Delhi T3 and Bengaluru T2) have integrated terminal, the area per passenger norms for integrated terminal have been considered for comparison in the following table

Sl. No.	Airport	Bengaluru T2	Delhi T3	Mumbai T2
A	Annual Design Capacity (MPPA)	45	45	40
B	Area of Terminal (sqm)	5,26,732	5,53,193	4,48,432
C	PHP (@ 0.03% of A)	13,500	13,500	12,000
D	AREA as per IMG & AAI (sqm) (25 X A)	3,37,500	3,37,500	3,00,000
E	Excess area(sqm)(B-D)	1,89,232	2,15,693	1,48,432
F	Excess percentage	**36%**	**39%**	**33%**
G	AREA as per IATA (sqm) (30 X A)	4,05,000	4,05,000	3,60,000
H	Excess/ Deficit area(sqm) (B-G)	1,21,732	1,48,193	88,432
I	Excess percentage	23%	27%	20%
J	Area Per passenger (sqm)	**39.02**	**40.98**	**37.37**

Observations Against IMG & AAI normative requirements

- Bengaluru (BLR): +189,232 m² (+35.93%) Excess area; terminal size is 1.56× the normative benchmark.
- Delhi (DEL): +215,693 m² (+38.99%) Excess area; terminal size is 1.64× the normative benchmark.
- Mumbai (BOM): +148,432 m² (+33.10%) Excess area; terminal size is 1.49× the normative benchmark.



Range: All airports exceed IMG & AAI normative area by ~33%–39% (i.e., 1.49×–1.64× the normative requirement).

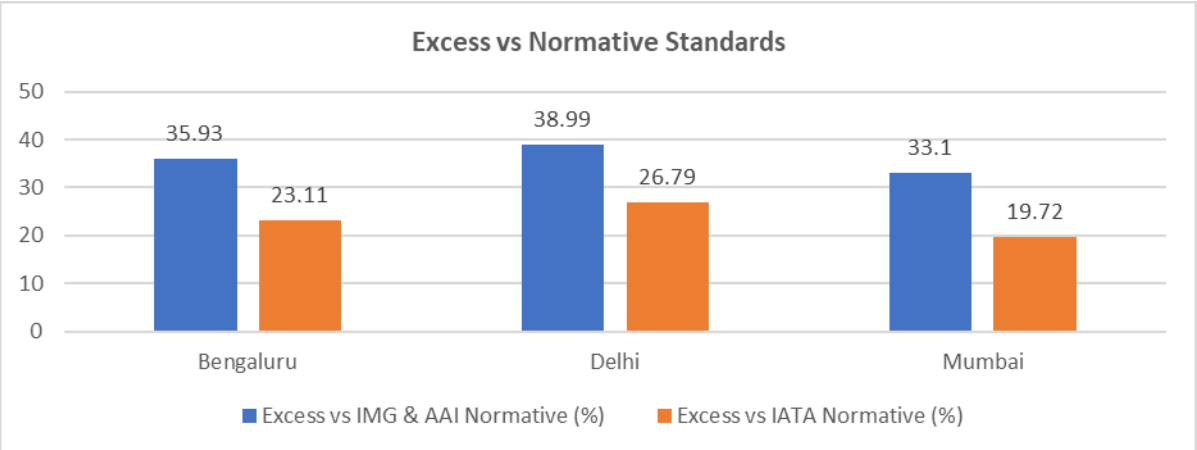
Observations Against IATA normative requirements

- Bengaluru (BLR): +121,732 m² (+23.11%) Excess area; terminal size is 1.30× the normative benchmark.
- Delhi (DEL): +148,193 m² (+26.79%) Excess area; terminal size is 1.37× the normative benchmark.
- Mumbai (BOM): +88,432 m² (+19.72%) Excess area; terminal size is 1.25× the normative benchmark.

Range: All airports exceed IATA normative area by ~20%–27% (i.e., 1.25×–1.37× the normative requirement)

Across Bengaluru, Delhi, and Mumbai, the existing/proposed terminal areas consistently exceed both IMG & AAI and IATA normative standards. The magnitude of exceedance is approximately +33% to +39% versus IMG & AAI norms and +20% to +27% versus IATA norms. On a peak-hour, per-person basis, all airports provide more space than normative expectations to facilitate fast processing of passenger and maintain LoS and also compliance with BCAS norms.

Furthermore, Delhi T3 was developed ahead of the Commonwealth Games and designed as India's premier international hub terminal with substantial provisions for future growth, international operations and enhanced passenger amenities. Consequently, its area per PHP is higher and should be viewed as a project-specific planning outcome rather than a benchmark for other airports.



"The graph indicates that the percentage deviation for the above airports fall within a comparable range. However, Kempegowda International Airport (KIA) shows a higher deviation compared to Chhatrapati Shivaji Maharaj International Airport (CSMIA), even

though Bengaluru's terminal is designed for a capacity of 45 million passengers per annum (MMPA) versus Mumbai's 40 MMPA."

Comparative of International Airports as mentioned in ADRM, IATA

Airport Terminal	MPPA	Floor Area (sqm)	sqm/MPPA	Assumed PHP	Floor Area Based on Assumed PHP	sqm/PHP
Design index: 0.03% (>20 MPPA)						
Berlin Brandenburg	27.0	283,500	10,370	8,100	283,500	35
London Heathrow T5	30.0	353,000	11,767	9,000	315,000	39
Miami North Terminal	30.0	330,000	11,000	9,000	315,000	37
Madrid – Barajas T4	35.0	470,000	13,429	10,500	315,000	45
Seoul – Incheon	44.0	496,000	11,273	13,200	462,000	38
Hong Kong	60.0	710,000	11,833	18,000	630,000	39
Average			**11,612**			**38.83**

Global airport development practices indicate that, for terminals of similar nature and handling more than 20 million passengers per annum (MPPA), the average area per peak-hour passenger is approximately 38.83 sqm.

5.2.3.4 MECON's OBSERVATION:

MECON's observation relating to the sizing of Terminal-2 Phase-II, as examined by MECON during the review of BIAL's MYTP submission, were communicated to BIAL by AERA vide letter F. No. AERA/20010/MYTP/BIAL/CP-IV/2025-26/23579 dated 19.11.2025. In response thereto, BIAL vide its letter Ref. No BIAL/AERA/Finance/2025-26/04 dated 08.12.2025 submitted to AERA, has revisited the proposed terminal development and revised the Terminal 2 built-up area from 5,43,000 sq. m to 5,26,732 sq. m (a reduction of ~16,000 sqm). The revision reflects BIAL's response to the concerns highlighted by MECON/ AERA regarding per-passenger area norms and optimal sizing of terminal infrastructure.

Terminal 2 Phase 2 is a brownfield expansion that must seamlessly connect to Phase 1. Brownfield designs often require extra circulation and joint-processing space (connecting corridors, enlarged piers, inter-segment transfer areas) beyond a stand-alone terminal. Phase 1's existing area had a relative shortfall, which Phase 2 must compensate (e.g., additional hold rooms, IROPS related spaces, washrooms etc). Regulatory factors (BCAS security clearance zones, crowd control areas, etc.) further justify planning reserves above the strict norm.

After reviewing all standards and benchmarks, MECON concludes that 37 m²/PHP is an appropriate cap for T2 Phase 2 (for 45 MPPA at 13,500 PHP). This strikes a balance between IATA/ADRM guidance and real-world practice. At 37 m²/PHP, the total integrated terminal area = 13,500 PHP * 37 m² = **499,500 m²**. Subtracting Phase 1's 255,645 m² (25 MPPA) leaves **243,855 m² for Phase 2**. This is lower than the originally proposed 271,087 m² (45 m²/PHP) and addresses concerns on over-sizing. Yet 37 m²/PHP remains above the normative 30 m², aligning with peers and allowing room for security screening and passenger comfort.

It is noted that Terminal 2 area of **499,500 sqm**, when assessed against the projected peak hour passenger demand of 16,345 PHP submitted by BIAL which is derived from historical traffic trends, traffic forecasts, fleet mix, operational characteristics and other relevant traffic projection parameters corresponds to an area provision of approximately **30.56 sqm/PHP**.

Particulars	Basis Adopted for Planning	Peak Hour Passengers (PHP)	Terminal Area (sqm)	Area per PHP (sqm/PHP)
Normative Planning Case	IATA/ADRM-based planning norm	13,500	499,500	37.00
Traffic Projection Case	PHP derived from historical traffic trends, traffic forecasts, fleet mix and operational characteristics	16,345	499,500	30.56

In light of Indian norms and global benchmarks, MECON finds that capping at **37 m²/PHP is justified** considering the assumed PHP as per the IATA ADRM Normative Calculations for Terminal Capacity greater than 20 MPPA. It yields a Phase 2 area adequate for secure, high-quality operations without excessive oversizing. This recommendation is grounded in data from AERA's consultations, completed terminals and major international examples.

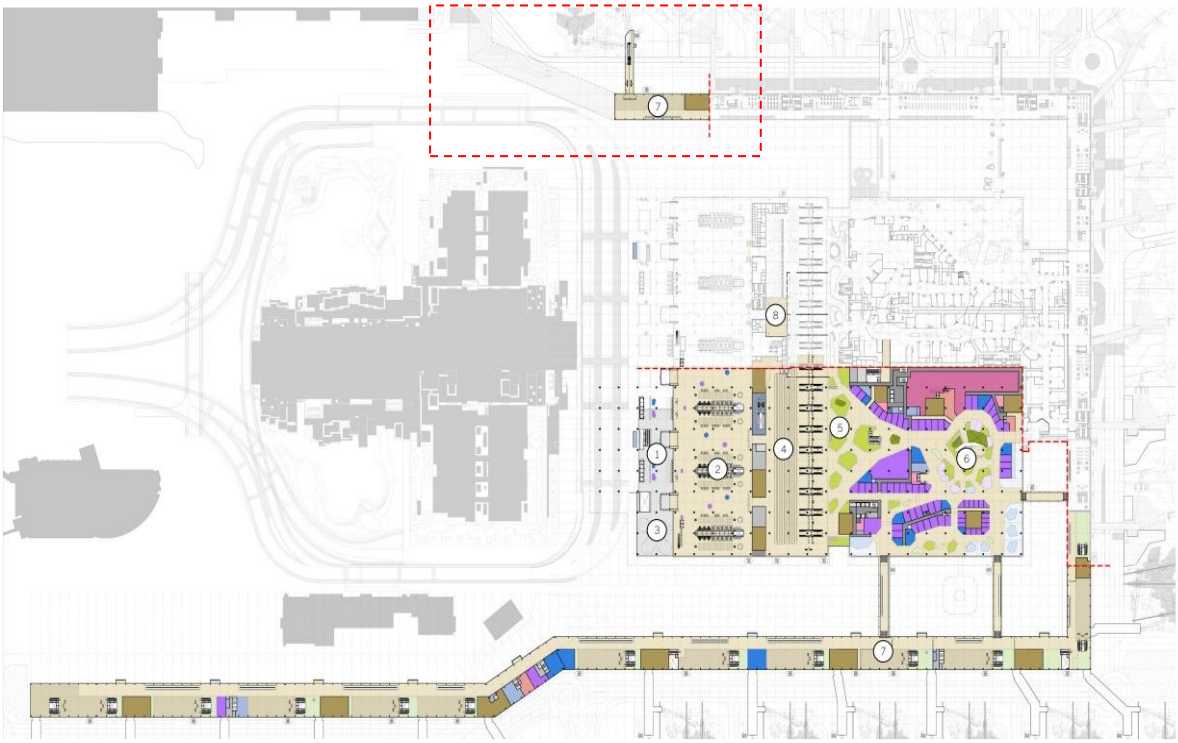
5.2.4 B.4 T1–T2 AIRSIDE CONNECTIVITY (NORTH PIER TO T1)

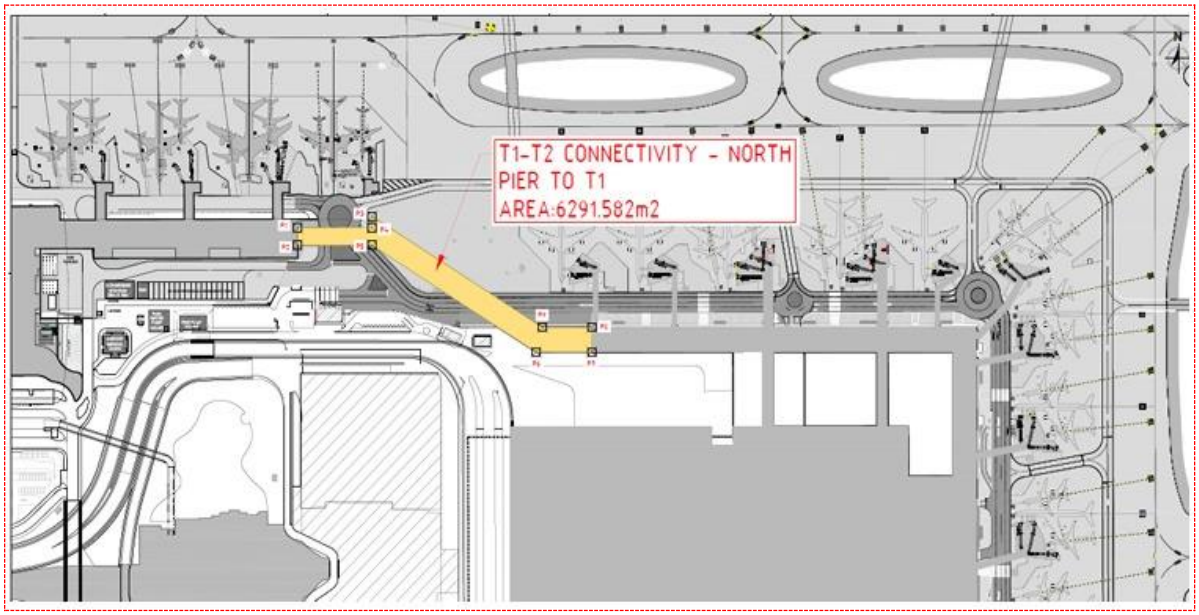
5.2.4.1 BIAL's SUBMISSION

An airside passenger link is proposed to connect Terminal 2 (T2) with the eastern pier of Terminal 1 (T1), facilitating efficient inter-terminal transfers. The link is planned to be approximately 320 meters in length at 5.25 m level and 165 meters in length at 13.5 m level with 30 meters in width (approximately 14,550 square meters). It will include a bridge at Passenger Access Level (PAL) 2, connecting the east pier of T1 to the northwest pier of T2, thereby enabling seamless domestic-to-international passenger movement.

The structure is designed at an elevated level to permit vehicular circulation beneath it. The bridge will be equipped with travellators, escalators, waiting areas, restrooms, security checkpoints, and designated fire exits to ensure passenger convenience and safety.

From a structural perspective, the facility will comprise reinforced cement concrete (RCC) columns and slabs, complemented by a steel roof structure. The airside façade will feature full-height glazing to provide an aesthetically refined appearance.





Scope of Work

- Construction of a 320 m long at 5.25 m level and 165 meters long at 13.5 m level, 22.5 m wide airside bridge (as per the presentation shared by BIAL during AERA and MECON's visit to Bengaluru International Airport on 30th march 2026)
- Multi-level passenger movement with travellators and escalators
- Holding areas, security checkpoints, and support facilities
- Structural, architectural, airport systems and MEP work

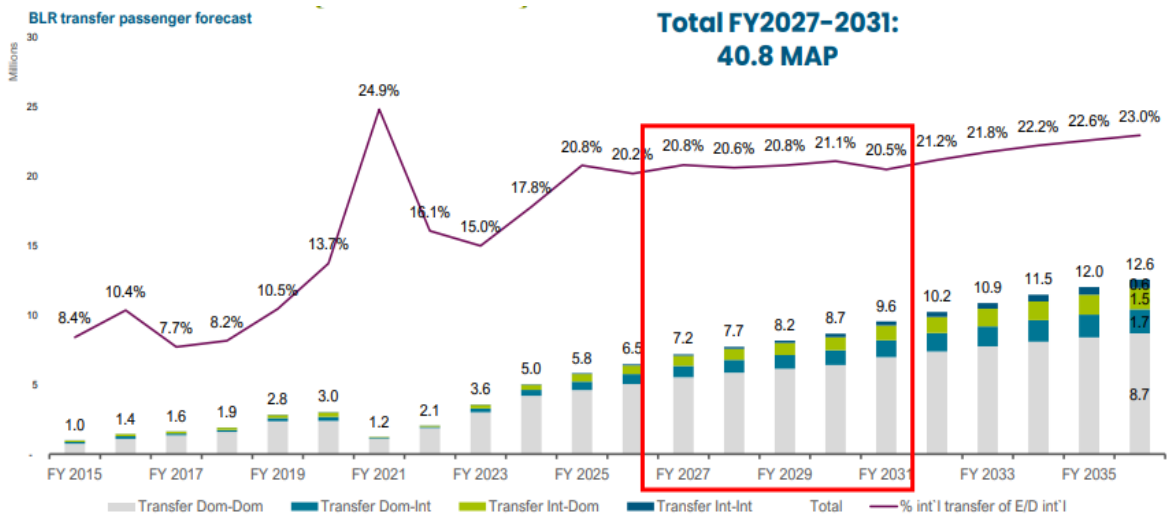
5.2.4.2 MECON'S OBSERVATION:

To facilitate evaluation and providing clarity on evaluating Airside Connectivity (North Pier to T1) requirements demand assessment and financial benchmarking were undertaken. The methodology structure was as follows:

Necessity of the project – Demand analysis

The traffic study provided by BIAL suggests that the transfer passengers at the airport is almost equivalent to the total international passengers which is 5.8 MPPA. Projected transfer traffic for the airport is expected to almost double by end of design year in 2033 and will be 10.9 MPPA.

Due to UDAN scheme increase in connectivity to regional domestic airports and the international transfers have increased, making it mandatory for the T1 terminal to be connected to the T2 terminal on the airside for seamless operations.



Historical				Forecast				CAGR	CAGR
Segment	2015	2019	2025	2026	2027	2031	2036	2015 - 2025	2025 - 2031
Transfer Dom-Dom	0.7	2.4	4.6	5.0	5.5	7.0	8.7	20.0%	7.2%
Transfer Dom-Int	0.1	0.2	0.6	0.7	0.8	1.2	1.7	17.2%	12.1%
Transfer Int-Dom	0.1	0.2	0.5	0.6	0.7	1.1	1.5	16.7%	12.1%
Transfer Int-Int	0.0	0.0	0.1	0.1	0.1	0.3	0.6	25.6%	30.3%

Area Discrepancy

MECON notes a significant inconsistency in reported areas. The BOQ lists the pier area as ~19,349 m², whereas BIAL's March 2026 presentation shows a pier width of only 22.5 m. Using 22.5 m width yields a total area of only:
Span 1: 320 m × 22.5 m = 7,200 m²
Span 2: 165 m × 22.5 m = 3,712.5 m²
Total: 10,912.5 m²

Even the original 30 m width (if retained) would give 320×30 + 165×30 = 14,550 m², well below 19,349 m². In other words, the BOQ area is ~33% larger than the design surface implied by 30 m width, and ~77.3% larger than the 22.5 m design. The proposed connectivity pier is conceptually sound and aligns with long-term inter-terminal integration goals. The primary concern is the misalignment in area metrics. MECON is of the view that total area of this package considering 22.5 m wide pier would be 10,912.5 m².

5.2.5 B.5 GENERAL AVIATION (GA) TERMINAL

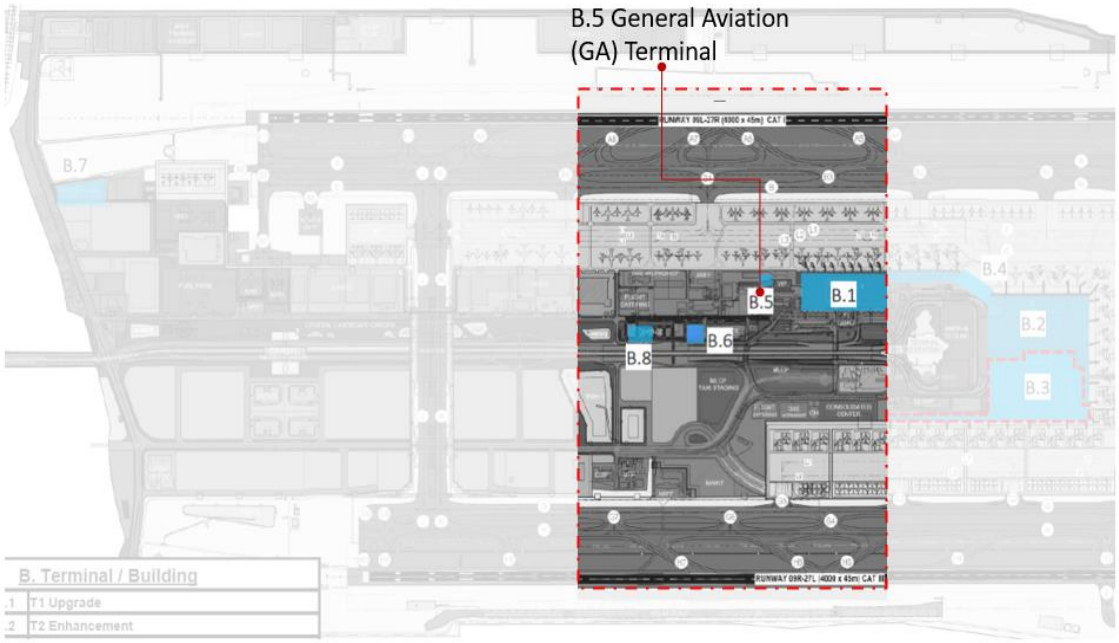
5.2.5.1 BIAL's SUBMISSION

The proposed General Aviation (GA) Terminal (1,282.90 sqm) planned within a designated zone of the Kempegowda International Airport Bengaluru (KIAB) master plan is intended to serve private, corporate, and charter aircraft operations through dedicated infrastructure tailored to non-scheduled aviation needs. Currently, GA activity constitutes just 0.7% of total

aircraft movements at KIAB, with private charters forming the bulk of this limited traffic segment.

Scope of Work

- ❖ Construction of a multi-level GA terminal with sterile and non-sterile segregation
- ❖ Private lounges, security processing, support offices, and utility areas
- ❖ Provision for future expansion



5.2.5.2 MECON's OBSERVATION:

Delhi's role as the political capital and Mumbai's position as the financial and corporate hub justify the demand for GA terminals in those cities. Bengaluru, despite being an IT hub, contributes only about 0.7% of the country's total air traffic. Hence, the requirement for a dedicated GA terminal in Bengaluru is not substantiated to the same extent. The data supports the recommendation to defer the GA terminal to the next control period, allowing time to reassess demand, optimize design, and align investment with realistic utilization potential. While dedicated GA infrastructure may be warranted in the long term, the current utilization forecasts do not justify immediate investment.

Further, since the proposed GA Terminal is intended to cater to a selective and limited user group comprising private, corporate, and charter aircraft operators, it is appropriate that the associated infrastructure development be undertaken by the concerned concessionaire at its own cost, rather than through recovery from general airport users. In this regard, BIAL has

confirmed via email that the proposed GA infrastructure shall be developed by the concessionaire. Accordingly, the cost of this package shall not be borne by the general passenger traffic at KIAB.

5.2.6. B.6 AIRPORT STAFF FOOD COURT AND MLCP (ALPHA 4)

5.2.6.1 BIAL's SUBMISSION

The proposed staff parking and cafeteria facility at the airport integrates structured parking for ~550 vehicles with hygienic dining for staff (~600 employees), promoting land efficiency, sustainability, and modular scalability in line with BIAL's master planning and green infrastructure goals.

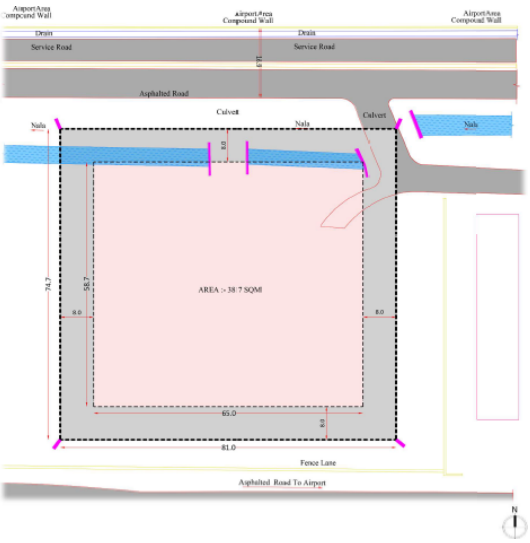
SITE LOCATION:

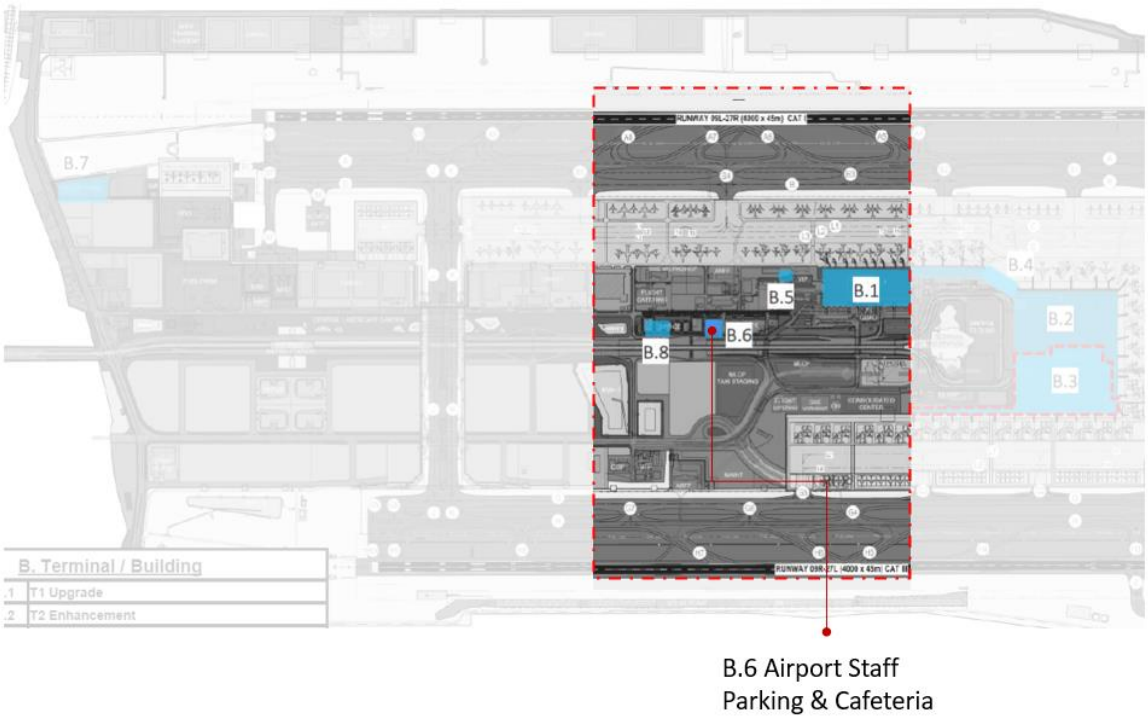
Kempegowda International Airport

Site area	-	6053.10 sq. m / 65155.0261 sq. ft
Set back	-	8m
Height (max)	-	24m
Ground Coverage	-	3817 Sq. m / 41085.85 sq. ft

REQUIREMENTS:

Car parks	-	450 car parking
Food court	-	600 people





B.6 Airport Staff Parking & Cafeteria

Scope of Work

- Parking facility for ~550 cars
- Staff cafeteria and food court (~600 Staff Employee)
- Sustainable design features

5.2.6.2 MECON's OBSERVATION:

The assessment of staff parking requirements was conducted using a data-driven and scenario-based methodology based on workforce figures, commuting modes, and operational patterns. The assessment of parking requirements is based on key data inputs, including workforce size. It also considers operational patterns shaped by staggered staff shifts and peak overlaps, alongside diverse transport modes such as private vehicles, company shuttles, public transport, and the planned metro connectivity.

In the context of the above, considering approximately 2,000 current BIAL employees as per MYTP document, only a fraction will require car parking. The provision of around 550 car parking spaces accommodates peak overlaps, striking a balance that cannot be said to be excessive.

It is pertinent to note that, as per the estimates submitted, the External Development Works, vertical green wall, and vertical plantation system constitute a portion of the overall cost of the Airport Staff Food Court and MLCP (Alpha-4) project. The inclusion of these sustainable design features is necessitated by the requirement to incorporate green elements within the car parking facility to reduce carbon footprint, enable passive cooling, and enhance the building envelope through a green façade.

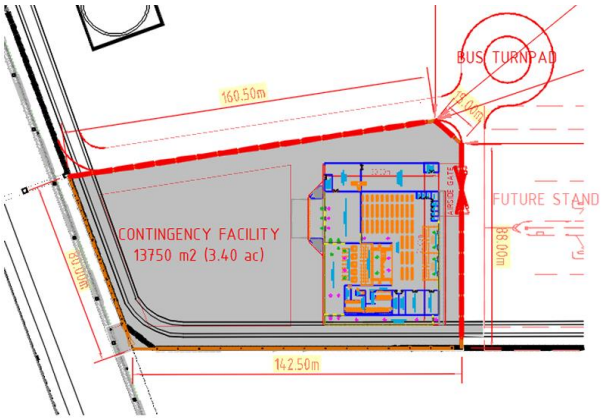
The project to provide staff car parking is necessary, with the aforementioned assessment confirming a balanced requirement of approximately 550 car parking spaces based on workforce size, commuting diversity, and operational patterns.

Further to this, it may be noted that the primary beneficiaries of this facility are BIAL's employees and internal agencies, rather than the passengers or general airport users. Therefore, the Capex associated with this development does not directly enhance passenger experience or airport service quality, and the admissibility of the cost for the purpose of tariff determination may be evaluated based on the aeronautical/ non-aeronautical ratio.

5.2.7. B.7 CONTINGENCY FACILITY

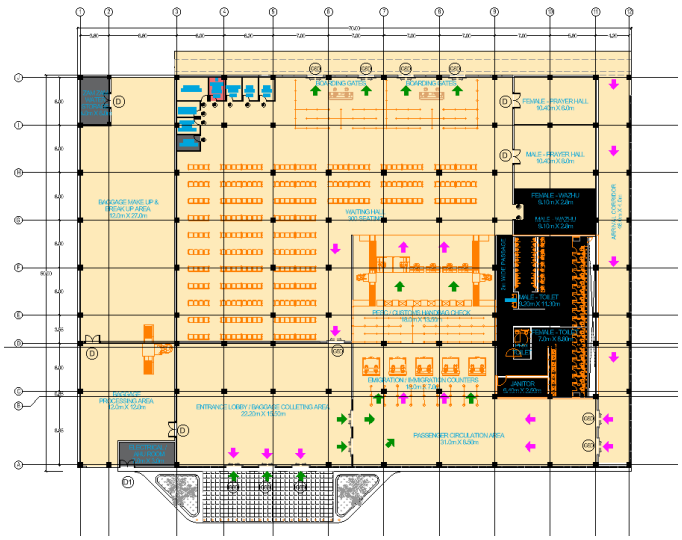
5.2.7.1 BIAL's SUBMISSION

The proposed Contingency Facility is a modular and temporary passenger terminal infrastructure planned to support airport operations during emergencies, traffic surges, and special seasonal requirements such as pilgrimage and Hajj operations. The facility is designed to function independently from the main terminal infrastructure and is located approximately 2.6 km from Terminal 1 and 2.83 km from the airport toll plaza.

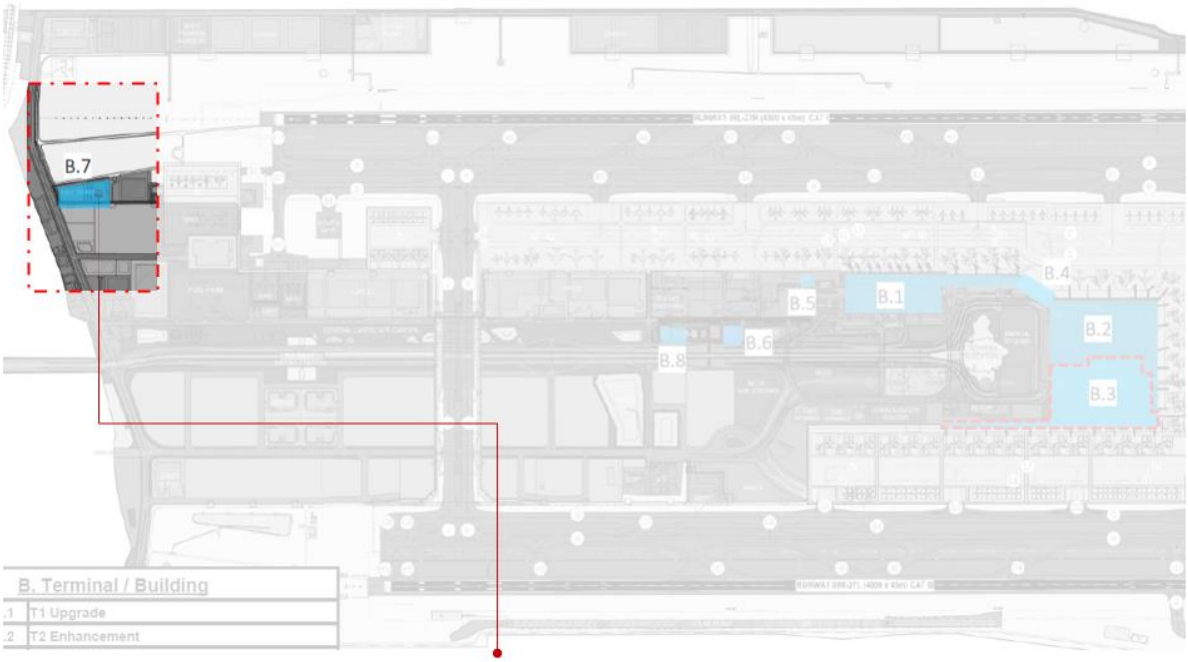


The facility is planned with a handling capacity of 450 passengers per hour (PHP) and includes complete passenger processing infrastructure comprising immigration/emigration counters, waiting areas, boarding/arrival gates, baggage handling systems, prayer halls, F&B spaces, utilities, and support infrastructure.

Scope of Work



- Construction of a modular contingency passenger terminal facility
- Passenger processing areas including immigration/emigration counters and waiting halls
- Boarding and arrival gate infrastructure
- Baggage handling and processing systems
- Prayer halls, washrooms, PRM facilities, and support spaces
- Retail/F&B areas and VIP lounge
- Associated MEP, utility, and back-of-house infrastructure
- Landscaping, signage, and passenger circulation infrastructure
- Provision for scalability and operational flexibility



B.7 Contingency Passenger Processing Facility

5.2.7.2 MECON's OBSERVATION:

The proposed Contingency Facility is intended primarily for temporary, emergency, and seasonal operational requirements rather than regular passenger traffic operations. While the facility may provide operational resilience during peak demand or special events, the anticipated utilization is expected to remain intermittent and event-based in nature.

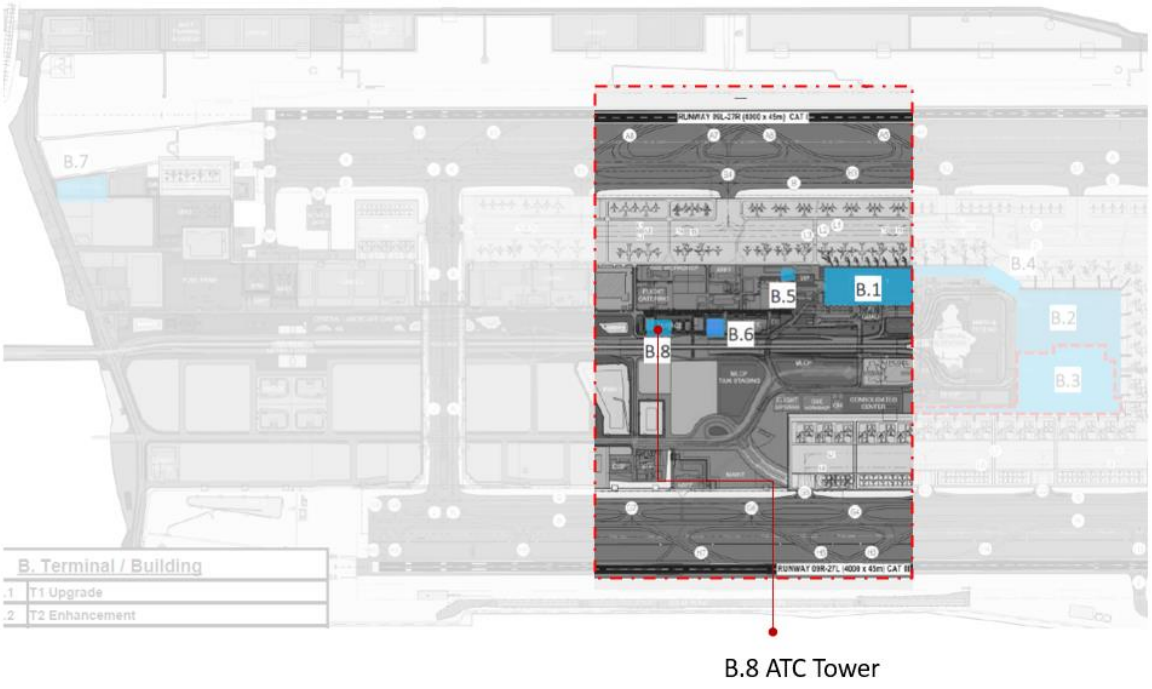
Area standards for a passenger terminal are 18sq.m. per PHP as per IMG standards for airports with capacity ranging between 100-1000 PHP. Based on this the building area should be 8100sq.m. but the building is designed for an area of 3815 sq.m. as per the consolidated cost plan provided by BIAL. Though area provided is only 47% of the requirement, but since the building is not intended for regular use and is specifically designed to manage temporary surges and emergency overflow, the deviation from normative standards can be considered. Once the final plan is drafted key factors like safety, security, and operational requirements can be addressed in detail to ensure the building functions safely and seamlessly.

Accordingly, the proposed scale and scope of work appear to be on the conservative side considering the actual operational necessity, traffic demand, and intermittent frequency of deployment associated with the facility.

5.2.8. B.8 NEW AIR TRAFFIC CONTROL TOWER

5.2.8.1 BIAL's SUBMISSION

A new ATC tower is proposed to replace the existing constrained facility, as requested by AAI, to handle over 90 aircraft movements per hour. (NACO Report – Source)



Scope of Work

- Construction of ~85 m high ATC tower
- Visual Control Room, technical block, and support facilities
- Safety, security, and backup systems

5.2.8.2 MECON's OBSERVATION:

The assessment methodology combines traffic volume analysis, runway capacity benchmarking, comparative infrastructure review, system upgrade evaluation, and capacity projection to evaluate Bengaluru Airport's ATC expansion.

Daily air traffic movements (ATMs) were quantified (~720–730 ATMs/day) to establish current operational load and future demand. The planned ATC upgrade and new tower (85 m) aim to close this gap, enabling dual-runway operations and increasing capacity to 90 ATM/hr.

ATM/hr and ATC tower height were compared across major Indian airports (Delhi, Mumbai, Bengaluru) to contextualize performance and infrastructure adequacy.

Airport	ATM/hr	ATC Tower Height (m)
IGI Airport (Delhi)	86	102
CSMIA (Mumbai)	46	~84
Bengaluru (Current)	~50	65
Bengaluru (New ATC)	90	85

Based on the AAI letter no. AAI/CHQ/CNS-PII/BIAL/2025-06 dated 04.02.2025 to BIAL, The AAI assessment clearly indicates that the current ATC Tower is operating under significant functional and spatial constraints. MECON's analysis supports this assessment, noting that the existing facility has limited capacity to support additional Controller Working Positions (CWPs), enhanced sectorization, and the integration of next-generation ATC automation systems required for future operations.

The proposed expansion of airside infrastructure and progressive capacity enhancement measures, including revised operational modes and phased implementation of updated SIDs (Standard Instrument Departures) and IAL (Instrument Approach/Landing) procedures, will significantly increase operational complexity and controller workload. Existing SMC and CLD sectors are already nearing capacity due to frequency congestion, and the declared capacity of 60 movements per hour is not sustainable without additional sectorization, including new SMC and CLD sectors.

Planned developments such as new aprons, terminal expansion, additional parking stands, and cross-field taxiways will further enlarge the surface movement area, necessitating enhanced sectorization and optimally positioned Controller Working Positions (CWPs) with clear visibility of jurisdictional areas—requirements that cannot be met within the spatial limitations of the existing ATC Tower.

Furthermore, installation of new automation systems within the current tower would introduce significant noise, distraction, and human-factor risks during parallel system operations, leading to temporary but substantial reductions in capacity, increased R/T congestion, aircraft delays, and potential safety concerns.

Collectively, MECON is of the view that the above-mentioned implications reinforce that the existing ATC Tower is inadequate to support proposed expansion and future traffic demand, thereby necessitating development of a new, purpose-built ATC Tower.

5.2.9. SUMMARY OF TERMINAL PROJECTS

SL. No.	PROJECT NAME	MECON OBSERVATION
B.1	T1 Upgrade	Essential
B.2	T2 Enhancement	Essential
B.3	T2 Phase 2	Essential (Area Rationalised)
B.4	T1/T2 Connectivity – Pier	Essential (Area Rationalised)
B.5	GA Terminal	Not Considered
B.6	Airport Staff Parking & Cafeteria	Essential
B.7	Contingency Facility	Essential
B.8	New Air Traffic Control Tower (ATCT)	Essential

MECON has assessed 8 proposed Passenger Terminal projects with reference to projected passenger traffic, operational requirements, terminal capacity augmentation, airside-landside integration, staff infrastructure requirements, and air traffic management needs at KIAB. The projects pertaining to T1 Upgrade (B.1), T2 Enhancement (B.2), T2 Phase 2 (B.3), T1/T2 Connectivity Pier Expansion (B.4), Airport Staff Parking & Cafeteria (B.6), Contingency Facility (B.7), and the New Air Traffic Control Tower (B.8) have been considered essential as they directly support passenger handling capacity, operational resilience, terminal integration, staff welfare, and air traffic management functions necessary for accommodating future traffic growth.

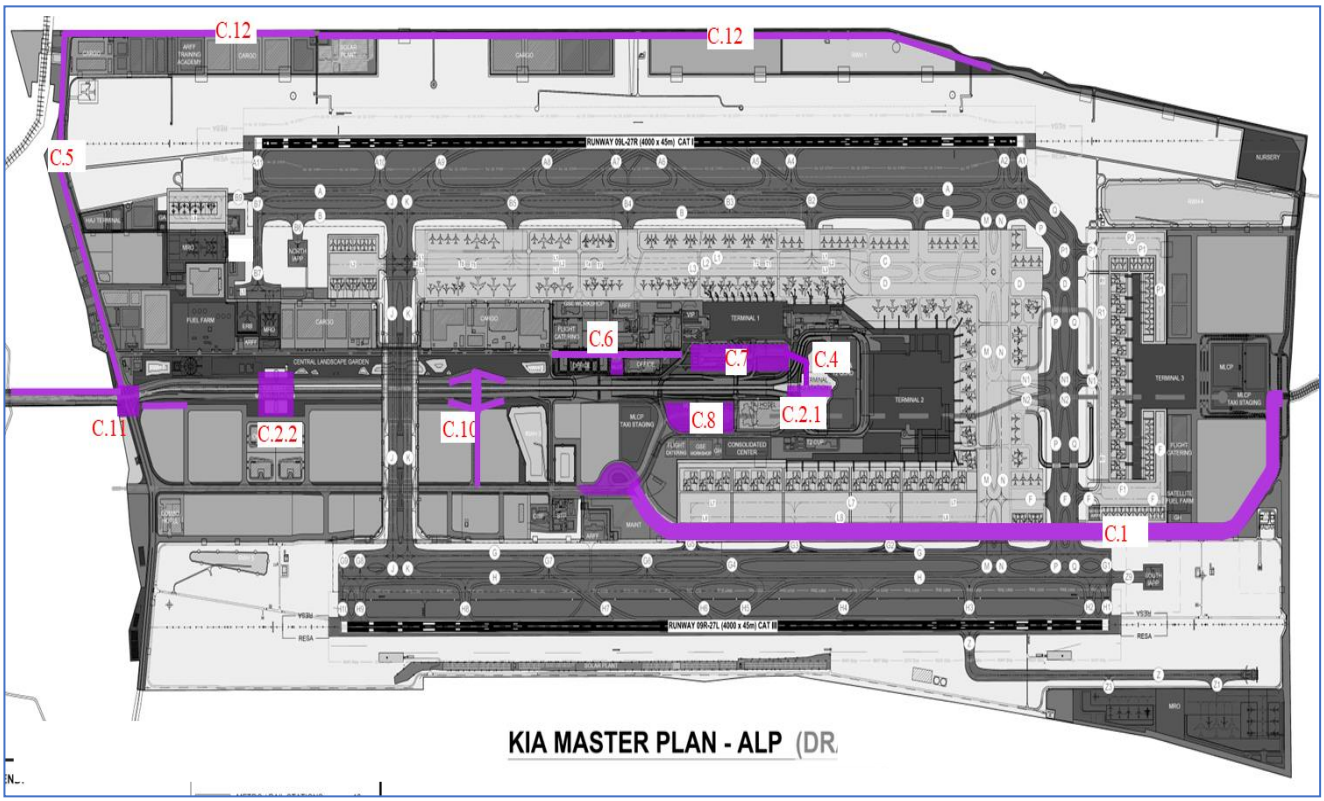
While the projects have been found essential in principle, MECON has undertaken rationalisation of the proposed scope for 2 packages. In particular, the area proposed under T2 Phase 2 (B.1) and the T1/T2 Connectivity Pier (B.4) has been reassessed and rationalised based on traffic projections, industry benchmarks, design submissions, and operational requirements to ensure optimal sizing and cost efficiency.

The proposed GA Terminal (B.5) has not been considered under the Fourth Control Period CAPEX. The facility is intended to cater to a limited user group comprising private, corporate and charter aircraft operators, and BIAL has confirmed that the associated infrastructure shall be developed by the concerned concessionaire. Accordingly, the cost of the proposed GA Terminal has been excluded from the evaluated CAPEX.

5.3 LANDSIDE WORKS

BIAL has proposed **10 Nos.** of Projects under Landside Works (C) in the MYTP Submission. Projects are as follows:

C.1 Eastern Connectivity Tunnel (ECT)
C.2.A Airport Terminal Metro Station (ATMS)
C.2.B KIA West Metro Station (KWMS)
C.4 T1 to T2 & Metro Connector (walkway)
C.5 North West Road Expansion (2+2 Lane)
C.6 Cargo Avenue (NCR) expansion (2+2 Lane)
C.7 T1 & T2 arrival and Dep recirculation roads
C.10 MAR Recirculation Link
C.11 MAR-SWR Interchange Upgrade
C.12 North Boundary Road (Landside North East Road)



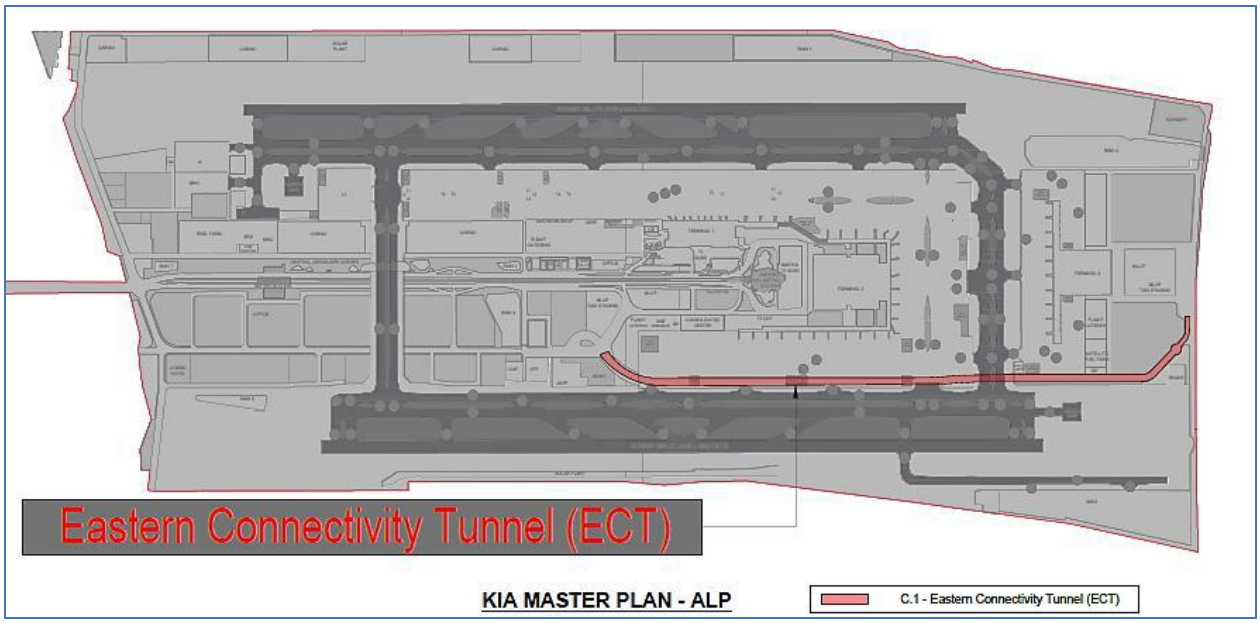
5.3.1 C.1 EASTERN CONNECTIVITY TUNNEL (ECT)

5.3.1.1 BIAL's SUBMISSION:

Kempegowda International Airport (KIAB) is presently accessed primarily through a single connectivity point via the trumpet interchange on NH 44 and the South Access Road developed by BIAL. Reliance on a single access corridor poses security, operational and capacity related risks particularly in the context of growing passenger and cargo traffic. Accordingly, BIAL identified an Eastern Connectivity Tunnel (ECT) linking the airport to SH-104 as an alternate access to KIAB after detailed feasibility of various alignments.

Further, traffic assessments undertaken by BIAL indicate that approximately 20 % of airport traffic originates from East and South-East Bengaluru. The proposed Eastern Connectivity Tunnel (ECT) is therefore envisaged to provide an essential alternate access route, reduce congestion on NH-44 and the Hebbal corridor and facilitate balanced distribution of passenger and cargo traffic over the next 5–10 years.

The ECT comprises an approximately **2.2 km** long 4-lane tunnel (including the already constructed tunnel portion) connecting SH-104 to the Southern Access Road (SAR) within the KIAB campus. A **300 m section** has already been constructed and commissioned during the development of the second runway under East Cross Taxiway. The proposed tunnel alignment passes beneath active and planned airside infrastructure including future apron area and cross-field taxiway.



In addition to the main tunnel, the ECT package associated infrastructure includes approach ramp of approx. **0.80 km**, at-grade roads of about **1.0 km** and a grade-separated trumpet interchange at the Southern Access Road (SAR)–ECT junction all of which are integral for operational functionality and seamless traffic integration of the corridor.

5.3.1.2 MECON's OBSERVATION:

MECON observes that the Eastern Connectivity Tunnel (ECT) was formally endorsed by the Additional Chief Secretary, Government of Karnataka in August 2016 and subsequently identified as a Priority Project by the Government of Karnataka during the consultation process for the Third Control Period. Further, Chief Secretary, Government of Karnataka vide communication in March 2026 has again reiterated the importance of the project and requested that the same be considered as part of the Regulatory Asset Base (RAB) during the present Control Period.

MECON further notes that construction of the tunnel portion beneath the cross-field taxiway (approx. 300 m in length, civil works only) has already been completed in FY 2020–21 as part of the second runway development. However, AERA in its Consultation Paper for the Third Control Period excluded the said asset from the Regulatory Asset Base (RAB), observing that the ECT was envisaged primarily to facilitate airport access for passengers originating from the eastern side of the city and that the facility was not being fully utilized for the intended purpose at that stage.

In this regard, MECON is of the considered view that execution of the balance ECT within the current Control Period is technically and strategically essential for the following reasons:

i. The proposed ECT alignment passes beneath the planned apron development packages (A3 and A4) and future airside infrastructure. Execution of the tunnel after development of these apron facilities would be technically complex, operationally disruptive and significantly more expensive due to constraints associated with working below active airside areas.
ii. The proposed alignment has been integrated into the long-term airport master planning framework and is necessary to support future landside connectivity and circulation requirements associated with future Terminal-3 construction and integration with Terminal-1 and Terminal-2 operations.
iii. The project provides strategic redundancy by establishing an alternate airport access corridor, thereby reducing dependence on the existing NH-44 access route and improving operational resilience during emergencies, traffic disruptions or future traffic growth scenarios.

MECON's observations above are limited to factual and operational aspects based on information furnished and do not constitute a view on regulatory admissibility, which remains subject to AERA's assessment in accordance with applicable principles for inclusion in the Regulatory Asset Base.

5.3.2 C.2.A AIRPORT TERMINAL METRO STATION (ATMS)

5.3.2.1 BIAL's SUBMISSION:

BIAL has entered into a Memorandum of Understanding (MoU) with BMRCL (Bangalore Metro Rail Corporation Limited) under which BIAL shall design and construct **two metro stations located within the airport boundary** with the associated capital expenditure to be incurred by BIAL.

Airport Terminal Metro Station (ATMS) is planned at the terminal forecourt within the Multi-Modal Transport Hub (MMTH) and is primarily intended to serve airport passengers, meeters/greeters and terminal-area employees.

Further, AERA vide letter dated 05.02.2018 addressed to the Additional Chief Secretary, Infrastructure Development Department, Government of Karnataka, had stated as follows:

"In case KIA funds the portion of the metro line within the airport premises, the same can be considered as a Regulated Asset of KIA for determination of aeronautical tariff of KIA on commissioning of the asset. The assets related to the metro line can be considered as Regulated assets only if these assets belong to KIA and fair rate of return shall be paid on the capital amount incurred by KIA to create such assets, once the assets are capitalised and put to use."

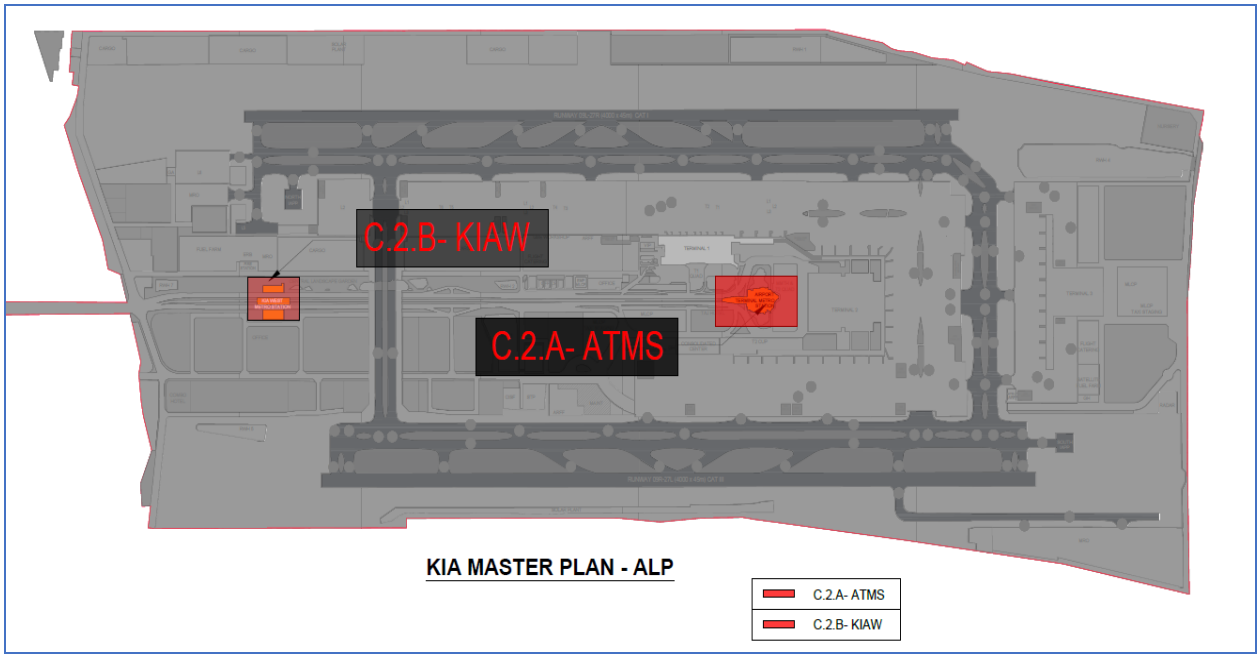
BIAL submitted that the Airport Metro Line is expected to be operational by September 2026.

Further, in para 5.2.59 of the Third Control Period Order, AERA had observed that the Airport Terminal Metro Station could be commissioned only after commissioning of the entire airport metro line and allowed for true-up of actual costs in the subsequent control period.

Considering that the metro line is now expected to be operational by during the Fourth Control Period (September 2026), BIAL had requested **inclusion of the Airport Terminal Metro Station under** Regulatory Asset Base (RAB) during the Fourth Control Period.

5.3.2.2 MECON's OBSERVATION:

MECON notes that the Airport Terminal Metro Station (ATMS) has a direct interface with passenger facilitation, terminal accessibility and landside traffic decongestion at the airport forecourt area. The proposed metro connectivity is expected to provide an efficient alternate mode of access to the airport and reduce dependency on road-based transport infrastructure, thereby easing congestion on the primary approach corridors leading to the airport.



MECON further observes that the ATMS forms an integral component of the planned Multi-Modal Transport Hub (MMTH) infrastructure and is aligned with the long-term integrated transportation strategy for Kempegowda International Airport (KIAB). The facility is expected to improve overall passenger accessibility and operational efficiency by facilitating seamless modal integration between metro connectivity, airport terminals and other landside transport systems.

Further, based on recent construction progress updates of BMRCL works and independent progress assessments, MECON is of the view that a realistic commissioning timeline for the Airport Metro Line appears to be around June 2027.

Accordingly, consideration of ATMS for inclusion in the Regulated Asset Base within the Fourth Control Period appears **justified** subject to Authority's conditions of ownership, commissioning/put-to-use and verification of actual capitalisation.

5.3.3 C.2.B KIA WEST METRO STATION (KWMS)

5.3.3.1 BIAL's SUBMISSION:

BIAL has proposed the KIA West Metro Station (KWMS) near the western trumpet/first roundabout intended primarily for airport employees and essential service personnel associated with airport operations including personnel related to cargo operations, ground handling, security services, fuel farm operations, airlines, Maintenance Repair & Overhaul (MRO) facilities, aviation training establishments and utility infrastructure staff.

BIAL has submitted that in the absence of KWMS, such users would be required to access the Airport Terminal Metro Station (ATMS), thereby increasing vehicular and pedestrian load within the terminal forecourt area and potentially impacting passenger convenience and

operational efficiency at a station primarily intended for passengers, visitors and meeters/greeters.

Further, in para 5.5.28 of the Third Control Period (TCP) Order, AERA disallowed the capital expenditure for the KIA West Metro Station (KWMS) considering that that the station was primarily a city-side station intended for employees and commercial users and not airport passengers.

BIAL has submitted that the above assessment does not adequately consider the operational necessity of the station and its role in supporting airport operations while reducing congestion at terminal-area infrastructure.

5.3.3.2 MECON's OBSERVATION:

MECON observes that the **KIA West Metro Station** is not primarily passenger-facing in nature.

MECON further notes that considering the spatial separation of approximately 2–3 km between the Airport Terminal Metro Station (ATMS) and the proposed KIA West Metro Station (KWMS)**,** the latter would support effective distribution of commuter demand and reduce unnecessary concentration of employee-related traffic within the terminal forecourt area. In this regard, the station may contribute towards operational decongestion and improved circulation management within terminal-side landside infrastructure.

However, MECON also notes that AERA in the Third Control Period (TCP) Order, had already disallowed the capital expenditure associated with the KIA West Metro Station (KWMS) on the grounds that the station primarily caters to employee and commercial user segments rather than direct passenger facilitation.

Accordingly, while the operational relevance of the proposed station is acknowledged from an airport ecosystem and circulation management perspective, MECON is of the view that in light of the earlier regulatory assessment and position adopted by AERA in the Third Control Period (TCP) Order, the associated capital expenditure **may not be considered** for inclusion within the Regulatory Asset Base (RAB) during the Fourth Control Period.

5.3.4 C.4 T1 TO T2 & METRO CONNECTOR (WALKWAY)

5.3.4.1 BIAL's SUBMISSION:

<u>Metro Connector (Walkway)</u>

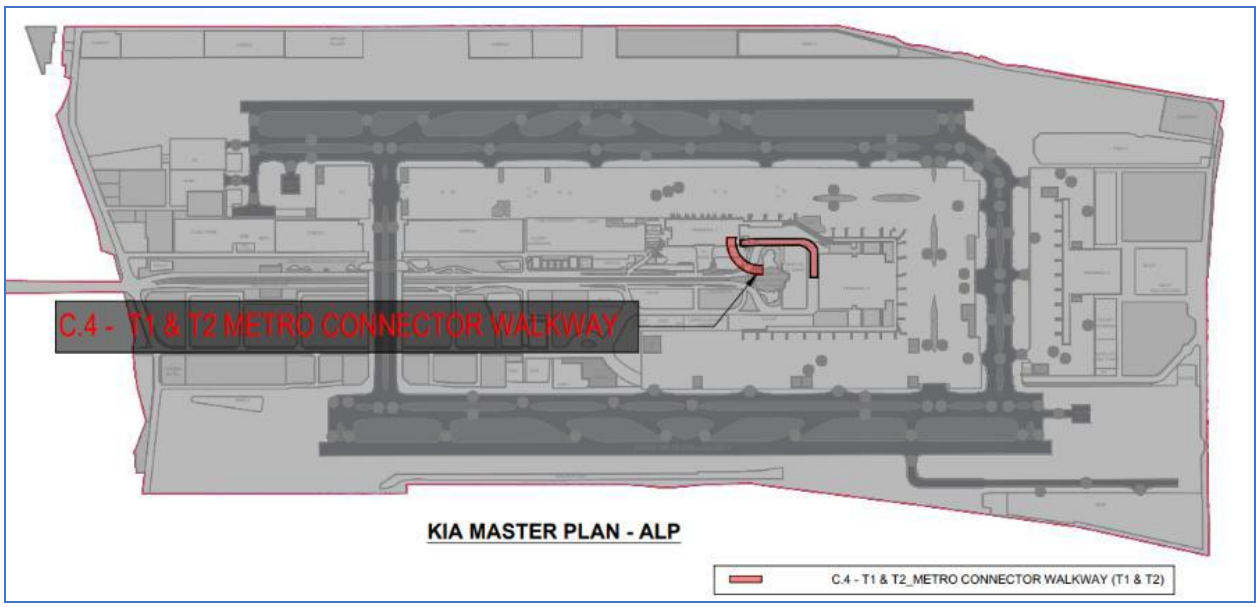
BIAL has submitted that Airport Terminal Metro Station (ATMS) is being designed to connect directly with Terminal 2 (T2) through the proposed Multi-Modal Transport Hub (MMTH). However, there is presently no direct pedestrian connectivity between Terminal 1 (T1) and the ATMS.

Accordingly, BIAL has proposed an elevated covered walkway of approximately **400 m length** connecting T1 with the ATMS/T2 landside interface. The proposed walkway is planned with travelators and weather protection canopy to facilitate seamless passenger movement.

T1 to T2 (Walkway)

BIAL has further submitted that presently there is no operational pedestrian walkway or travelator connectivity between T1 and T2. Inter-terminal movement is currently facilitated through shuttle bus services operated by BIAL.

Considering the projected increase in inter-terminal passenger transfers, BIAL has proposed construction of a separate covered at-grade pedestrian walkway of approximately 600 m length between T1 and T2 independent of the proposed Metro Connector Walkway.



5.3.4.2 MECON's OBSERVATION:

Metro Connector (Elevated Walkway)

MECON notes that the Airport Terminal Metro Station (ATMS) proposed to be commissioned by end-December 2027 is envisaged as the primary metro access interface for airport passengers. In the absence of a direct pedestrian linkage between Terminal 1 (T1) and the ATMS, accessibility of T1 passengers to the metro system would remain constrained and dependent on intermediate vehicular movement.

The proposed elevated covered walkway with travelator is intended to provide a direct, seamless and weather-protected pedestrian connection between T1 and ATMS/T2. MECON

observes that proposed connectivity is directly linked to passenger facilitation and effective utilization of the metro connectivity infrastructure for T1 users.

Further, the proposed walkway is expected to reduce dependence on shuttle-based interconnectivity for metro access, improve passenger convenience and support integrated terminal-to-metro circulation within the airport landside infrastructure.

Accordingly, MECON is of the view that the Metro Connector (Elevated Walkway) has a clear functional nexus with passenger movement and airport access infrastructure and **justified** within this control period.

T1 to T2 (At-Grade Walkway)

MECON observes that the inter-terminal connectivity requirement between Terminal 1 and 2 can be adequately served by the proposed T1 - ATMS T2 is expected to be substantially addressed through the proposed integrated T1–ATMS–T2 connectivity once the Metro Connector Walkway and associated MMTH infrastructure are commissioned.

In this context, the proposed separate T1 to T2 at-grade pedestrian walkway appears to function primarily as an ancillary connector potentially intended for airport staff and non-passenger users requiring a direct outdoor pedestrian route independent of the metro connectivity interface.

MECON further notes that the incremental operational and passenger facilitation benefits of the separate at-grade walkway have not been adequately demonstrated particularly in view of the availability of the proposed passenger-oriented elevated connectivity through the ATMS/MMTH integration.

Accordingly, consistent with AERA's past approach of excluding capital expenditure where direct passenger linkage or operational criticality has not been adequately established, MECON is of the view that the proposed T1 to T2 at grade walkway **does not merit** consideration under the Fourth Control Period.

5.3.5 C.5 NORTH WEST ROAD EXPANSION (2+2 LANE)

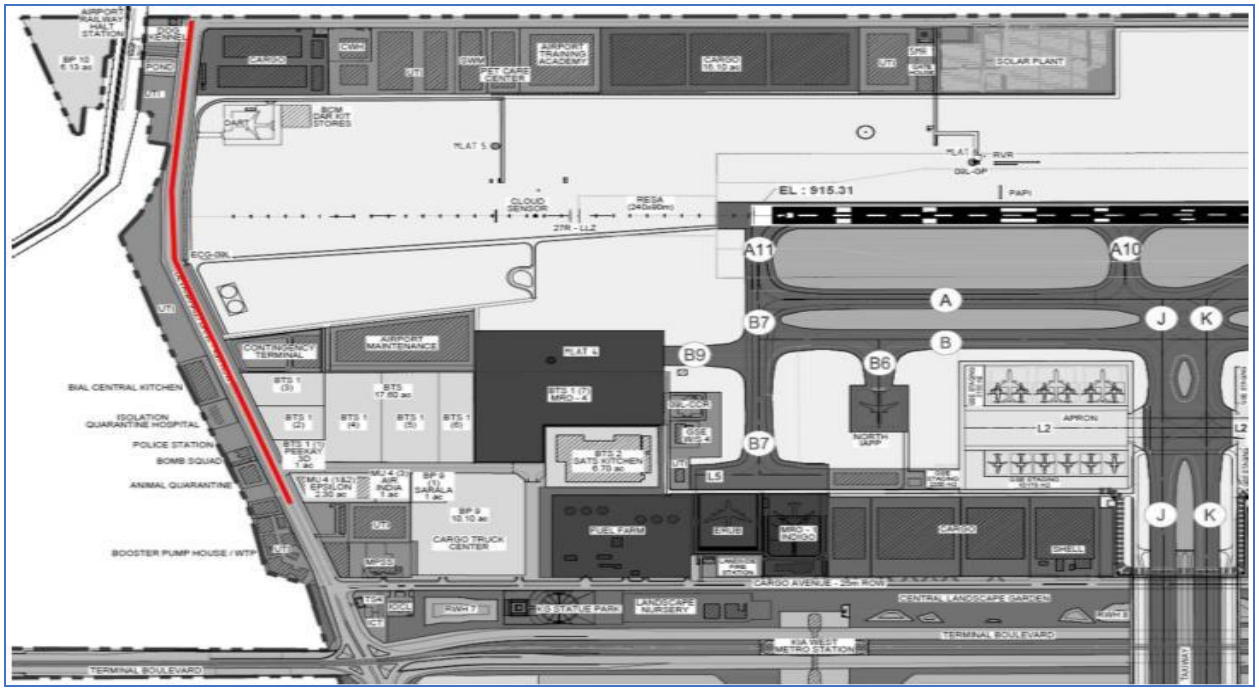
5.3.5.1 BIAL's SUBMISSION:

BIAL has submitted that in accordance with the Airport Master Plan 2024, multiple key developments are planned within the northwest zone of the airport including contingency areas, future Maintenance Repair & Overhaul (MRO) facilities, logistics parks and utility infrastructure.

In view of the proposed developments, traffic demand in the northwest zone is projected to increase from the present level of approximately 500 PCU/hour at around 1,300 PCU/hour in future.

BIAL has further submitted that the existing 2-lane road beyond the Quarantine Facility would not be inadequate to cater to the projected traffic demand. Accordingly, widening of the existing road to a 4-lane dual carriageway (2+2 lane configuration) has been proposed to ensure adequate capacity and maintain acceptable levels of service.

The proposed project involves widening of an approximately **1.2 km** road stretch in the northern area of KIA from the existing 2-lane configuration to a 4-lane dual carriageway through eccentric widening.



5.3.5.2 MECON's OBSERVATION:

MECON notes that the proposed expansion of the North West Road is linked with the planned development within the northwest zone of the airport including MRO facilities, logistics infrastructure, utility services and contingency areas.

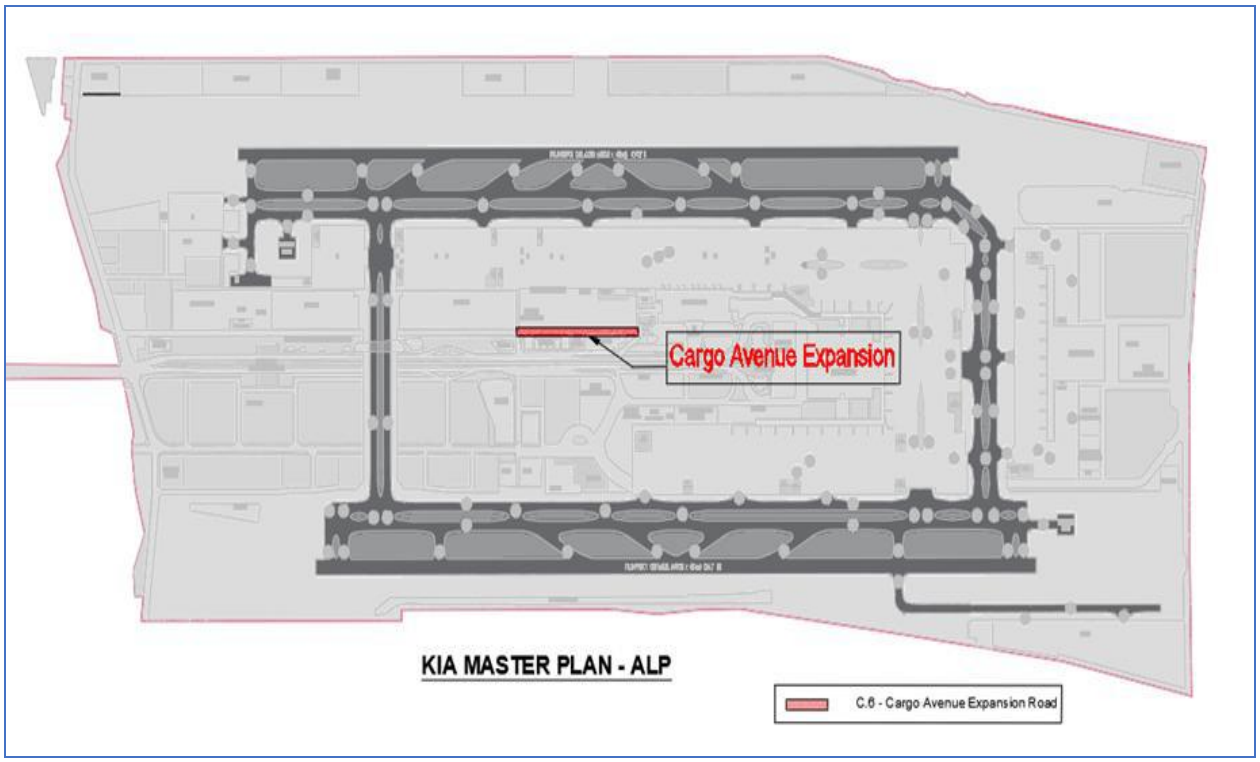
Considering the anticipated increase in vehicular movement arising from these developments, along with the requirement for improved internal circulation and connectivity towards NH-44, MECON observes that augmentation of the existing road infrastructure appears operationally **justified.**

It is also observed that capital expenditure towards expansion of the North West Road (2+2 lane) was earlier approved by the Authority during the Third Control Period. However, the scope was subsequently scaled down by BIAL to a 1+1 lane configuration.

5.3.6 C.6 CARGO AVENUE (NCR) EXPANSION (2+2 LANE)

5.3.6.1 BIAL's SUBMISSION:

BIAL has submitted that the existing 2-lane stretch of North Cargo Road (NCR) located in front of the Alpha Building and Pass Office at Kempegowda International Airport **(KIA)** acts as a congestion-prone section due to the concentration of operational facilities in the vicinity, including offices, proximity to the Air Traffic Control (ATC) Tower and the presence of an airside entry gate.



BIAL further submitted that while the remaining stretches of North Cargo Road have already been developed as a 4-lane road, this particular segment could not be widened earlier owing to constraints associated with existing ATC-related utilities and infrastructure.

With enabling works now being planned including new ATC development, utility shifting and relocation of existing parking areas, BIAL has proposed to widening of the stretch of **approx. 700 m** to a 4-lane dual carriageway (2+2 lane configuration).

5.3.6.2 MECON's OBSERVATION:

MECON considers the proposed expansion to be **justified**, as it addresses an immediate operational constraint through a straight forward linear widening of approximately 700 m

road stretch along the existing alignment. Removal of the existing bottleneck through upgradation to a 2+2 lane configuration is expected to improve traffic circulation, reduce congestion and enhance operational efficiency within the cargo and airside access area and ensure continuity of the North Cargo Road corridor.

5.3.7 C.7 T1 & T2 ARRIVAL AND DEPARTURE RECIRCULATION ROADS

5.3.7.1 BIAL's SUBMISSION:

BIAL has submitted that the existing forecourt and kerbside infrastructure at Terminal 1 (T1) is presently experiencing congestion and operating below the desired service levels due to limited kerb capacity and increasing passenger traffic demand. In order to support the planned enhancement of T1 handling capacity from approximately 26.5 MPPA to 35 MPPA, refurbishment and reconfiguration of the forecourt area have been proposed.

BIAL has further submitted that at Terminal 2 (T2), the existing departure kerb length is generally adequate excluding the dedicated VIP lane areas. However, the arrival kerbside infrastructure and bus holding areas require augmentation through extension of kerb lengths and provision of additional bus bays to cater to increasing passenger traffic and operational demand.

According to BIAL, the proposed forecourt and kerbside improvements at both terminals are intended to enhance passenger handling capability, improve traffic management and support overall operational efficiency within the terminal landside areas.

Further, in response to increasing parking demand arising from higher passenger volumes, BIAL has proposed development of a new Multi-Level Car Parking (MLCP) facility as envisaged under the Airport Master Plan.

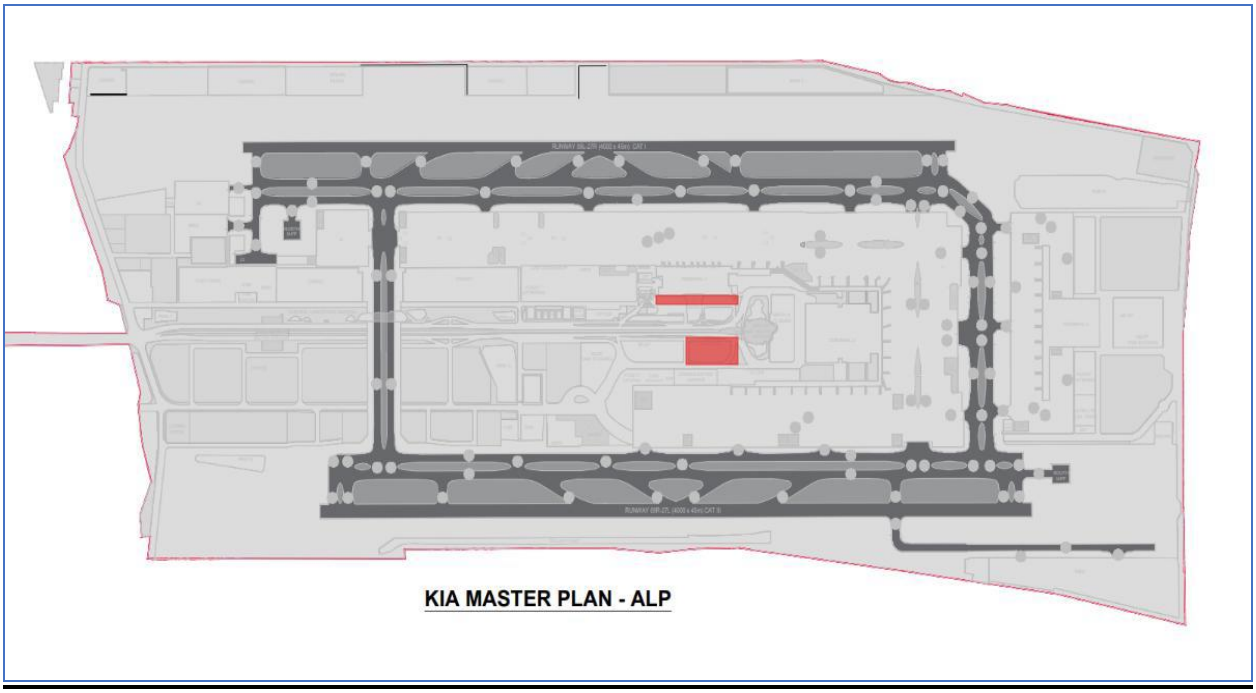
BIAL submitted that the existing P4 ground-level passenger parking facility presently accommodating approximately 1,800 car parking bays and 400 two-wheeler parking spaces is proposed to be dismantled as part of the enabling works for future MLCP development.

To accommodate the displaced parking demand during the interim period and facilitate commencement of the MLCP works, BIAL has identified a temporary passenger parking area south of the existing P4 location. The proposed temporary parking facility covering an approximate area of 53,000 sqm is intended to support passenger parking and staging requirements during the transition phase associated with redevelopment of the existing P4 site.

5.3.7.2 MECON's OBSERVATION:

MECON observes that the proposed forecourt and kerbside improvements at both Terminal 1 (T1) and Terminal 2 (T2) are primarily intended to address existing congestion, improve

traffic circulation efficiency and enhance passenger handling capability within the terminal landside areas.



Accordingly, MECON is of the view that the proposed forecourt and kerbside improvement works at both terminals are operationally **justified** under the Fourth Control Period.

However, with regard to the proposed temporary passenger parking facility intended to facilitate enabling works for future Multi-Level Car Parking (MLCP) development, MECON observes that the facility is temporary and transitional in nature and is proposed primarily to accommodate interim parking arrangements during redevelopment of the existing P4 parking area.

MECON further notes that the proposed temporary parking facility does not constitute a permanent airport infrastructure asset and its utility is limited to the interim construction and staging period associated with future MLCP implementation.

Accordingly, MECON is of the view that the expenditure towards the proposed temporary passenger parking facility **do not merit** consideration under the Regulatory Asset Base (RAB) during the Fourth Control Period.

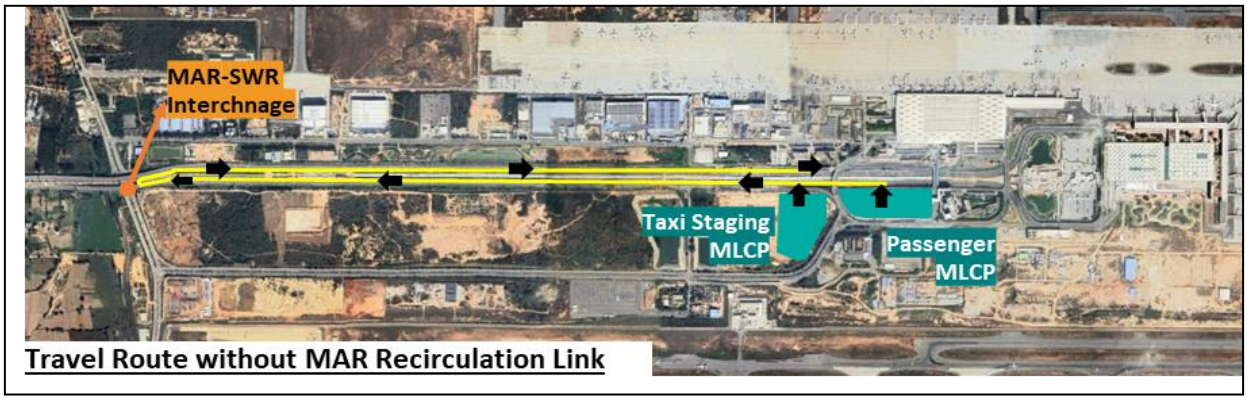
5.3.8 C.10 MAR RECIRCULATION LINK

5.3.8.1 BIAL's SUBMISSION:

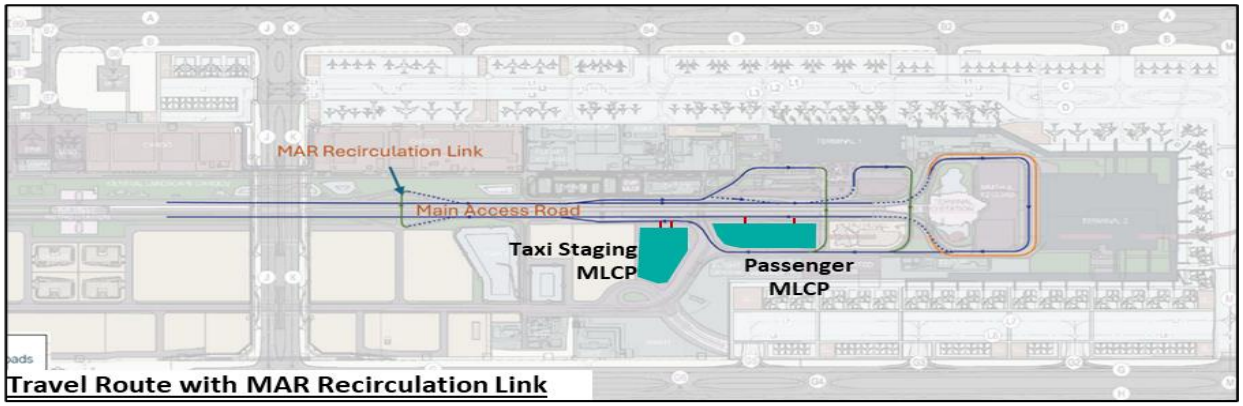
BIAL has submitted that the Main Access Road (MAR) / Terminal Boulevard is a 10-lane dual carriageway providing primary landside connectivity between the city side, the proposed

southern Multi-Level Car Parking (MLCP) and the terminal area. The Airport Metro Line is planned along the median of the MAR.

BIAL further submitted that there are presently no median openings or intermediate junctions along a continuous stretch of approximately 3.0 km on the MAR. Consequently, vehicles requiring a turnaround to access the terminal area from future MLCP must travel up to the Begur Junction, resulting in increased travel distance and operational inefficiencies affecting passenger convenience and ground transportation circulation.



Travel Route without MAR Recirculation Link



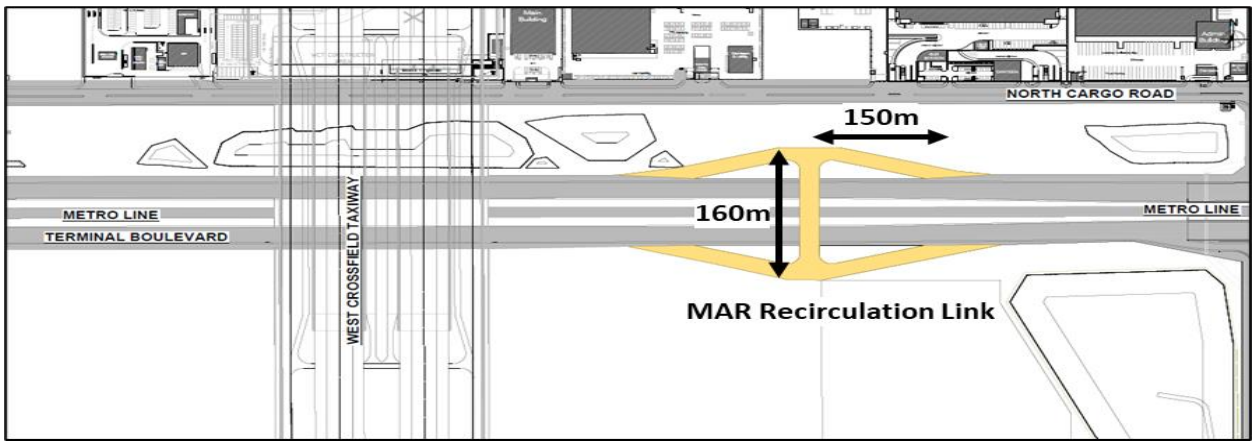
Travel Route with MAR Recirculation Link

5.3.8.2 MECON's OBSERVATION:

MECON observes that the proposed MAR Recirculation Link is conceptually intended to improve landside circulation efficiency and facilitate vehicular recirculation between the terminal area and the proposed southern MLCP facilities.

However, MECON notes that the requirement and overall justification of the proposed facility within the Fourth Control Period is contingent upon the confirmed phasing, timing, and commissioning of the planned southern MLCPs. In the absence of clarity on these dependencies, the immediacy of the requirement remains unsubstantiated at the present stage.

MECON further observes that the proposal involves a critical CAPEX decision as the proposed overpass structure would need to be completed prior to the operationalization of the Airport Metro Line. Post-commissioning execution of such works would be technically complex and operationally restrictive due to interface constraints with the metro infrastructure.



Further, MECON notes that certain components of the proposed recirculation system particularly the city-side ramps appear to be linked more closely with future traffic redistribution and connectivity requirements associated with Terminal-3 development and the proposed Eastern Connectivity Tunnel (ECT) rather than immediate passenger circulation requirements during the current control period.

Accordingly, MECON is of the view that the city-side recirculation ramp (left-side) **may be deferred** to the subsequent control period as the direct passenger and operational benefits during the Fourth Control Period have not been adequately established. The balance portion of the proposed package has been considered.

The deferred ramps (Ramp-1 and Ramp-3) may be considered subsequently in conjunction with future Terminal-3 development and integrated circulation planning, including connectivity for passengers approaching from western parts of the city through the proposed Eastern Connectivity Tunnel (ECT).

5.3.9 C.11 MAR-SWR Interchange Upgrade

5.3.9.1 BIAL's SUBMISSION:

BIAL has submitted that the existing road configuration near Begur Junction (Trumpet Interchange) involves right-side entry and exit ramps from the elevated corridor resulting in unsafe weaving movements over limited merging lengths.

BIAL further submitted that vehicles travelling from the trumpet interchange towards the airport terminals are presently required to undertake abrupt lane changing manoeuvres from high-speed traffic lanes, thereby creating operational conflicts and safety concerns.

According to BIAL, the existing right side exit arrangement is counter-intuitive to normal driver behaviour and leads to hesitation, sudden braking and increased incidence of near-misses and accidents. Similarly, the existing right-side entry ramp requires comparatively slow-moving vehicles to merge across faster traffic streams, thereby increasing collision risk.

BIAL has further submitted that such right-side entry and exit arrangements are generally discouraged under **IRC:92-2017** due to their higher accident potential.

Accordingly, BIAL has proposed widening of the at-grade road through provision of a new two-lane down-ramp on the left side of the elevated road in both directions with the objective of improving safety, reducing weaving conflicts and enhancing operational efficiency at the MAR–SWR interchange.

5.3.9.2 MECON's OBSERVATION:

MECON notes that the Trumpet Interchange and associated road infrastructure were originally developed and capitalised during the Third Control Period as part of the airport access infrastructure.

The concerns highlighted by BIAL primarily relate to deficiencies in the original geometric configuration and traffic movement arrangement of the interchange particularly the right-side entry and exit ramp system which appears to create operational conflicts and safety-related issues under present traffic conditions.

MECON further observes that the proposed scope essentially constitutes design rectification and corrective engineering of an existing operational asset in order to address operational shortcomings and improve traffic safety performance. While the operational and safety concerns raised by BIAL appear technically valid, the proposed intervention does not constitute creation of a substantially new airport asset or capacity augmentation project. Rather, the expenditure appears to be in the nature of modification and rectification of an already capitalised infrastructure asset.

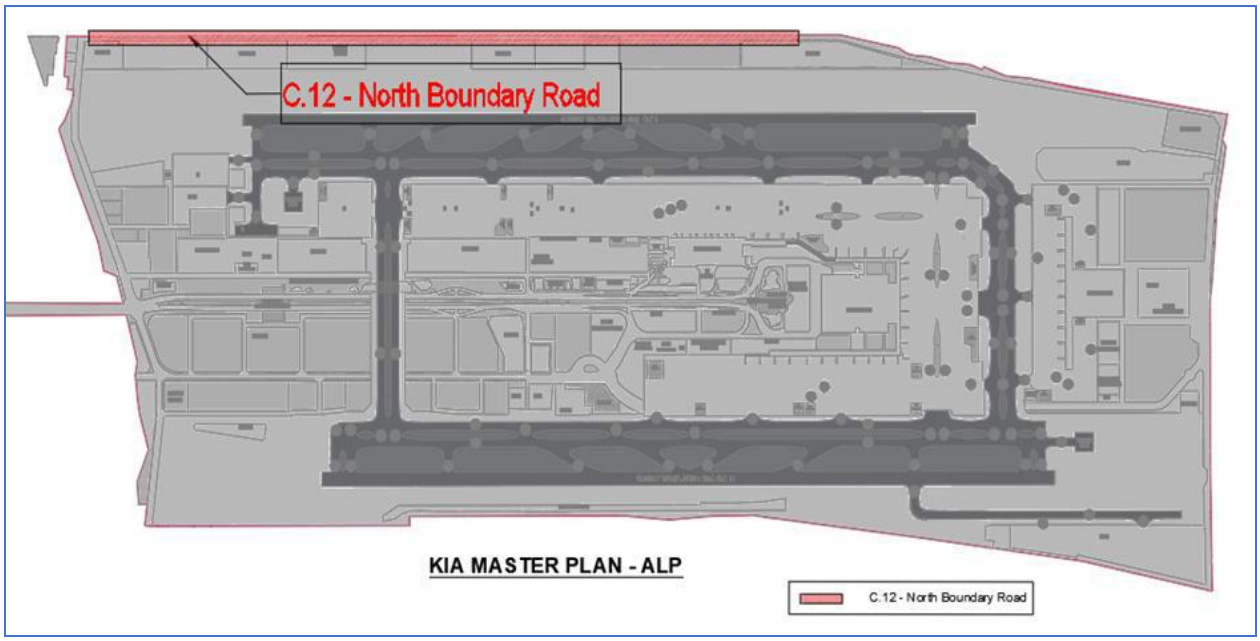
Accordingly, MECON is of the view that the proposed expenditure towards the MAR–SWR Interchange Upgrade **does not qualify** as a new capital addition for inclusion in the Regulatory Asset Base (RAB).

5.3.10 C.12 NORTH BOUNDARY ROAD (LANDSIDE NORTH EAST ROAD)

5.3.10.1 BIAL's SUBMISSION:

BIAL has proposed development of a landside road along the northern airport boundary to provide access to planned cargo and allied developments envisaged in the updated Master Plan and to facilitate efficient movement of cargo, logistics and service vehicles towards the northern part of the airport.

The proposed road is approximately **4.0 km in length** comprising about 1.6 km of 4-lane divided carriageway up to the solar plant and 2.4 km of 2-lane carriageway with provision for future widening. Further, due to land constraints at the existing Airport Surveillance Radar (ASR), an underpass is planned of **approx. 180 m length** to ensure uninterrupted connectivity in constrained section.



5.3.10.2 MECON's OBSERVATION:

MECON observes that the updated Airport Master Plan envisages development of **cargo-focused and allied developments** zone along the northern boundary of the airport and the proposed North Boundary Road is intended to support future accessibility and circulation requirements associated with such developments.

However, MECON further notes that at present no definitive development commitments or executed MOUs with prospective cargo, logistics or allied infrastructure entities have been established for the proposed development zone.

In the absence of confirmed development phasing and committed operational demand, the immediacy and extent of the proposed road infrastructure requirement remain uncertain during the current control period. Accordingly, MECON is of the view that the proposed North Boundary Road may be deferred at this stage under the Fourth Control Period at this stage.

5.3.11 SUMMARY OF LANDSIDE PROJECTS

SL. NO.	PROJECT NAME	MECON OBSERVATION
C.1	Eastern Connectivity Tunnel (ECT)	Essential
C.2.A	Airport Terminal Metro Station (ATMS)	Essential
C.2.B	KIA West Metro Station (KWMS)	Not Considered
C.4	T1 to T2 & Metro Connector (walkway)	Partially Essential
C.5	North West Road Expansion (2+2 Lane)	Essential
C.6	Cargo Avenue (NCR) expansion (2+2 Lane)	Essential
C.7	T1 & T2 Arrival and Dep Recirculation Roads	Partially Essential
C.10	MAR Recirculation Link	Partially Essential
C.11	MAR-SWR Interchange Upgrade	Deferred
C.12	North Boundary Road (Landside North East Road)	Deferred

MECON has assessed key landside infrastructure projects such as the Eastern Connectivity Tunnel (ECT), Airport Terminal Metro Station (ATMS), North West Road Expansion and Cargo Avenue Expansion as essential considering their direct relevance to airport accessibility, operational efficiency, traffic circulation improvement and long-term infrastructure integration requirements at KIAB.

Projects including the T1 to T2 & Metro Connector Walkway, T1 & T2 Arrival and Departure Recirculation Roads and MAR Recirculation Link have been assessed as partially essential, wherein only specific components directly linked to passenger facilitation, operational circulation or integration requirements merit consideration during the current control period.

The KIA West Metro Station (KWMS) and MAR–SWR Interchange Upgrade have not been considered due to their limited direct nexus with passenger processing functions and the nature of the proposed expenditure. Further, the North Boundary Road has been proposed for deferment in view of the absence of confirmed development commitments and uncertainty regarding immediate operational demand during the Fourth Control Period.

5.4 OTHERS

5.4.1 D1 UTILITIES

5.4.1.1 BIAL's SUBMISSION:

To support the growing operational requirements arising from the PAL 2 development at Kempegowda International Airport, Bengaluru (KIAL), BIAL has proposed significant augmentation of the utility infrastructure. The potable water demand is projected to increase to 7.2 MLD necessitating the construction of a new 4 MLD Water Treatment Plant (WTP) along with an additional water storage capacity of 11,400 m^3. The wastewater treatment requirement is estimated to increase to 9.2 MLD including demand from non-aeronautical facilities thereby requiring the development of an additional Sewage Treatment Plant (STP) over and above the existing 5.0 MLD treatment capacity.

The power demand is projected to increase substantially to 63.0 MVA necessitating the establishment of additional electrical infrastructure comprising a 220 kV GIS Substation, a 66 kV Substation, suitably sized power transformers and associated distribution systems. Further, upgrades to the ICT infrastructure have been proposed to support the enhanced utility systems, operational requirements and future scalability of airport operations.

Key Utility Expansion Requirements

Potable Water Supply

- Projected Total Demand of 7.2 MLD.
- Construction of a new 4 MLD Water Treatment Plant (WTP) has been proposed with UV filtration and Reverse Osmosis (RO) system.
- Provision of an additional 11,400 m^3 storage tank (in addition to the existing 10,200 m^3).
- **Source**: Bangalore Water Supply and Sewerage Board (BWSSB) + Treated Rainwater.
- **Primary Infrastructure**: Booster Pump House, Main Pump House, CUP Building.
- **Usage**: Domestic consumption across terminals and support facilities.

Wastewater Management

- Increased sewage treatment requirement to 9.2 MLD including non-aero facilities as BIAL is currently operating the STPs from a central location.

- Need for a new Sewage Treatment Plant (STP) 5.0 MLD to manage additional load.
- **Source**: STPs & Rainwater Harvesting Ponds.
- **Current Treatment**: 2 STPs with total capacity of 5.5 MLD.
- **Usage**: Horticulture, cooling towers, flushing systems.
- **Storage**: Separate from potable supply.

Power Supply

- Projected load increase to 63 MVA.
- Required substation expansion - 220KV GIS sub-station & 66KV substation to cater the demand load with suitable sized power transformers and associated works as per KPTCL standards.

ICT Infrastructure

- Expansion of Fiber optic network.
- New data centre equipment and network nodes.
- Integration with existing command & control systems and airport IT infrastructure.

5.4.1.2 MECON's OBSERVATION

MECON has reviewed the proposed potable water, non-potable water and wastewater management systems planned to cater to the increased operational demand arising from development at Kempegowda International Airport, Bengaluru.

The proposed potable water demand and Water Treatment Plant (WTP) capacity submitted by BIAL were assessed and found to be on the higher side. Based on the review of demand projections, operational requirements and system utilization, the potable water requirement has been rationalized from 7.2 MLD to 5.82 MLD and the proposed WTP capacity has been reduced from 4 MLD to 2 MLD.

The assessment considered projected water demand, adequacy of proposed treatment and storage capacities, compliance with applicable codes and standards and sustainability through reuse of treated wastewater.

Based on the technical evaluation, the proposed augmentation works including construction of new WTP (revised capacity) and STP facilities and associated infrastructure are found to be justified and adequate and their execution is recommended for implementation during the Fourth Control Period.

Further, MECON has reviewed the power infrastructure requirements associated with the PAL-2 development. The proposed 220 kV GIS Substation, 66 kV Substation, suitably sized power transformers and associated electrical facilities have been assessed against the projected load demand and future operational requirements. The proposed electrical infrastructure is found to be justified and is therefore recommended for implementation during the Fourth Control Period.

5.4.2 D2 MMTH ENHANCEMENT

5.4.2.1 BIAL's SUBMISSION:

The MMTH is located in close proximity to Terminal 2, at an approximate distance of 100 meters from T2 and 800 meters from T1, with pedestrian and system-based connectivity to both terminals. The facility provides multi-level parking for private vehicles, including dedicated provisions for persons with reduced mobility (PRM) and electric vehicles (EVs).
In addition to transport integration, the MMTH also accommodates retail and food & beverage outlets, contributing to passenger convenience and dwell-time utilization.

Scope of Work

- Application of specialized traffic-grade floor coating in vehicular circulation zones
- RCC-framed structures, external glazing systems, and warm shell provisions at Level 1
- Extension of the existing canopy at Level 1
- Provision of additional elevators along with associated structural, civil, and MEP works
- Landscape and water feature works
- MEPF works in the Level 1 area
- B3 level civil works and associated services

5.4.2.2 MECON's OBSERVATION:

MECON is evaluating the MMTH enhancement proposal by examining:

- Functional necessity of the proposed works in relation to passenger and vehicular movement
- Overlap or redundancy with existing MMTH infrastructure
- Alignment with projected traffic growth and metro-led modal shift expectations

The proposed MMTH enhancement works address key functional and operational requirements related to passenger movement, vehicular circulation, and supporting infrastructure, and are broadly aligned with projected traffic growth and modal shift expectations. The package may be considered essential for inclusion in the current Control Period.

5.4.3 D3 GREEN BELT

5.4.3.1 BIAL's SUBMISSION:

The proposed Green Belt Development is located near the airport entrance precinct, close to the Kempegowda Monument, forming a visual and environmental buffer at a key gateway to the airport. The development includes landscape features, architectural elements, and visitor-oriented amenities intended to enhance the aesthetic quality of the airport approach.
Proposed elements include street furniture, signature signage walls, wooden display boards, free-standing granite pillars, wayfinding signage, and landscaped areas with thematic planting. The project also incorporates built elements such as visitor facilities, parking provisions, and cultural / leisure features.

Scope of Work

- Civil & Structural Works: Earthworks, backfilling, concrete works, steel works, architectural structures, and associated civil infrastructure
- MEPF Works: HVAC, electrical, plumbing, fire protection systems, automated gates, and services for ferns, Orchidarium, Amphitheatre areas, and visitor facilities
- ICT Works: Access control systems, AV systems, surveillance systems, and ICT infrastructure for visitor-centric facilities
- Landscaping Works: Development of shrubs, grasses, planting zones, and softscape areas
- External Development Works: Hardscape works, pod installations, orchidarium and fernery areas, visitor center with café and deck, amphitheater with natural seating shades, dedicated parking for 50 cars, and entry park signage
- Miscellaneous Works: Signage, street furniture, and ancillary amenities

5.4.3.2 MECON's OBSERVATION:

MECON evaluated the Green Belt Development proposal with reference to the communications received from BIAL in response to the queries raised by MECON regarding this package.

MECON noted that development and maintenance of green belt areas is a statutory requirement under the EC and is therefore a necessary component of airport infrastructure development. Works related to plantation, soft landscaping, soil preparation, irrigation, and basic environmental buffering are directly aligned with compliance obligations.

MECON acknowledges that green belt development is mandatory as per the Environmental Clearance and BIAL's commitments under the 55 MPPA EC (Environmental Clearance) submission, and CAPEX related to essential plantation, landscaping, and environmental buffering measures is justified.

However, MECON observes that certain components of the proposed scope including the Amphitheatre, Visitor Centre, Cafe, Dedicated Parking Facility and associated hardscape developments are ancillary in nature and do not directly contribute to the primary objective of green belt development and environmental compliance. Further, these facilities are predominantly non-aeronautical in nature and do not support core airport functions such as passenger processing, safety, security or airside operations. Accordingly, the associated capital expenditure has not been considered under the evaluated scope of the Central Garden Expansion package.

Accordingly, MECON recommends that CAPEX admissibility under the 4th Control Period be restricted to core green belt and plantation-related works necessary for meeting EC conditions. Discretionary leisure, cultural, and visitor-oriented components may be deferred ensuring that regulatory CAPEX remains aligned with statutory intent and avoids over-capitalization of non-mandatory facilities.

5.4.4 D4 RAIN WATER HARVESTING POND

5.4.4.1 BIAL's SUBMISSION:

The project focuses on harvesting and managing stormwater runoff generated from the Airfield Works Area, North Boundary Road and the North Airside Perimeter Wall & Road. The proposed rainwater harvesting facility comprises a storage area of approximately 107,000 square metres and is designed to accommodate an estimated stormwater volume of 700 million litres. The project is intended to enhance water conservation, improve stormwater management, and reduce dependence on external water sources by capturing and storing runoff generated within the airport premises.

5.4.4.2 MECON's OBSERVATION:

MECON reviewed the requirement of proposed additional rainwater harvesting pond planned during the Fourth Control Period. Based on the assessment of the drainage study, the proposed storage capacity of 700 million litres was found to be higher than the actual requirement. Accordingly, the storage capacity has been rationalized and reduced to 600 million litres. The revised capacity is considered adequate to meet the projected stormwater harvesting requirements while ensuring efficient utilization of capital expenditure.

6. ANALYSIS OF CAPEX

The Summary of Capital Expenditure as submitted by BIAL in the MYTP for the fourth control period of 2026-31 is tabulated below:

Project	Amount (in INR Crore)
Airfield Works	3,021.45
Passenger Terminal	5,928.81
Landside Access and Parking	2,511.36
Others	728.51
Total Hard capex *	**12,190.13**
Indexation	970.14
Taxes (net of ITC) & Cess @ 15%	1,974.04
Total additions	15,134.31
Soft Costs	1,816.12
Total Additions excluding IDC	**16,950.42**
Interest During Construction (IDC)	1,684.86
Total Additions including IDC	**18,635.28**

**As per Cost Plan the hard cost estimate is ~ INR 12,281 Crore. However, the amount for the same indicated in the above table is INR 12,190.13 Crore as per MYTP for the reason of exclusion of part capitalization for T-1 Upgrade estimated in FY 26 (Third Control Period).*

The hard cost has been segmented into four components: Airfield Works, Terminal Works, Landside and Others.

6.1 HARD COST:

The detailed package wise project cost as per Cost Plan report provided by BIAL is tabulated below with base date as March 2025:

SL. No.	Category	Project Description	Amount Excl. GST (in INR Crore)
A.1	Airside	West Cross Field Taxiway	1,145
A.2	Airside	Airfield works (Taxiway extension, Isolation Bay etc)	443

SL. No.	Category	Project Description	Amount Excl. GST (in INR Crore)
A.3	Airside	T-2 Apron (9 +4 Stands)	235
A.4	Airside	T-2 Phase 2 Apron (40 Stands)	557
A.5	Airside	Taxiway connector to South-East Parcel	111
A.6	Airside	T2 Phase 2 West Apron (18 Stands)	285
A.7	Airside	Cargo West Apron (12 Stands)	137
A.8	Airside	North Airside Perimeter Wall & Perimeter Road	71
A.9	Airside	Taxiway B9 & Enabling Works	36
B.1	Terminal	T1 Upgrade	822
B.2	Terminal	T2 Enhancement	61
B.3	Terminal	T2 Phase 2	4,490
B.4	Terminal	T1/T2 Connectivity - Pier Expansion	255
B.5	Terminal	GA Terminal	36
B.6	Terminal	Airport Staff Food Court & MLCP (Alpha 4)	120
B.7	Terminal	Contingency Facility	32
B.8	Terminal	New Air Traffic Control Tower (ATCT)	113
C.1	Landside	Eastern Connectivity Tunnel (ECT)	1,655
C.2.1	Landside	Airport Terminal Metro Station (ATMS)	278
C.2.2	Landside	KIA West Metro Station (KWMS)	143
C.4	Landside	T1 to T2 & Metro Connector (walkway)	76
C.5	Landside	North-West Road Expansion (2+2 Lane)	32
C.6	Landside	Cargo Avenue (NCR) Expansion (2+2 Lane)-LSG to Alpha 1	12
C.7	Landside	T1 & T2 Departure and Arrival recirculation works.	75
C.10	Landside	MAR Recirculation Link	95
C.11	Landside	MAR-SWR Interchange Upgrade	36
C.12	Landside	North Boundary Road (Landside North-East Road)	111
D.1	Others	Utilities	570

SL. No.	Category	Project Description	Amount Excl. GST (in INR Crore)
D.2	Others	MMTH Enhancement	37
D.3	Others	Green belt development	18
D.4	Others	Rainwater Harvesting Pond-1	104
Total Amount in INR Crore			**12,190**

In case of package B1, the above cost is excluding INR 92 Crore which has already been capitalized in previous control period.

As informed by BIAL, out of around INR 12,281 Crore (Excluding GST), the Purchase Orders (POs) of around INR 2,683 Crore (Including GST) have been placed. Further, the POs of around INR 325 Crore (Including GST) have been placed for Design and PMC.

The major Purchase Orders (POs) of the awarded packages were made available by BIAL and it is inferred that almost all the packages were competitive as far as participation of bidders is concerned. Considering above since these PO's are already awarded, figures of these packages are considered as it is in this Capex analysis and further, for balance packages/scope, estimate/BOQ are examined.

The summary of the major purchase orders primarily for the analysis of extent of participation by bidders is tabulated below:

Sl. No.	Description of Work	Successful Bidder	Total Bidders / Remarks	Amount In INR Crore (Excl. GST and Cess)
1	Construction of elevated western Crossfield taxiways	M/s Ashoka Buildcon ltd.	9 Bidders participated out of which 6 bidders found qualified and submitted their bids	885.2
2	Construction of WCT Associated taxiway, CCR hall and its related infrastructure	M/s Balajee Infratech	7 Bidders participated out of which 4 bidders qualified and submitted their bids	294.6
3	Construction of Airfield Pavements for Taxiway(s) & Apron stands including its Associated Infrastructures	M/s AIC Infrastructures Pvt. Ltd.	8 Bidders participated out of which 3 bidders qualified and submitted their bids	222.3

Sl. No.	Description of Work	Successful Bidder	Total Bidders / Remarks	Amount In INR Crore (Excl. GST and Cess)
4	Detail Design, Supply, Installation, Testing & Commissioning of Baggage Handling System Upgrade works at Terminal (T1)	M/s Siemens Logistics India Pvt Ltd	3 Bidders participated out of which 2 bidders qualified and submitted their bids	136.9
5	Supply, Installation, Testing & Commissioning of Hold Baggage Screening System Upgrade works at Terminal (T1)	M/s Surescan India Private Limited	3 Bidders participated out of which 2 bidders qualified and submitted their bids	68.0
6	Construction of Airport Terminal Metro Station (ATMS) – Civil, Architectural & Finishing works	M/s Godrej & Boyce	4 Bidders participated and 4 bidders qualified and submitted their bids	43.9
7	Demolition, relocation and SITC of fire alarm and detection system Design, supply, installation, testing, and commissioning of automatic tray retrieval system (ATRS)	M/s SJK Innovations Private Limited	5 Bidders participated out of which 3 bidders qualified and submitted their bids	28.9
8	Construction of Airport City Metro Station (ACMS)	M/s PJB Engineers Pvt Ltd	6 Bidders participated and 6 bidders qualified and submitted their bids	25.0
9	Design, Supply, Installation Testing and Commissioning (DSITC) of Vertical Horizontal Transportation (VHT) units for Metro Stations and Comprehensive Annual Maintenance Contract (CAMC) for seven (7) years	M/s Johnson Lifts Pvt ltd	3 Bidders participated and 3 bidders qualified and submitted their bids	24.3
10	Construction of Airport Terminal Metro Station (ATMS)- Design and build of Canopy Roofing with support structure	M/s Technospan Structure Pvt Ltd	3 Bidders participated out of which 2 bidders qualified and submitted their bids	20.9

Sl. No.	Description of Work	Successful Bidder	Total Bidders / Remarks	Amount In INR Crore (Excl. GST and Cess)
11	Supply, Installation, Testing, Commissioning of Biometric solutions for E-Gates at T1 upgrade project	M/s SITA Information Networking Computi (India) Pvt Ltd	3 Bidders participated out of which 2 bidders qualified and submitted their bids	19.6
12	Design, Supply, Installation, Testing and Commissioning of Electronic Gates (E Gates) with Air sphere software for Terminal -1	M/s Gunnebo Entrance Control Pvt Ltd	2 Bidders participated and 2 bidders qualified and submitted their bids	18.5
13	Toilet Construction / Refurbishment Works for Terminal-1 Upgradation project	M/s Exotic Innovations	5 Bidders participated out of which 4 bidders qualified and submitted their bids.	16.5
14	Toilet Construction / Refurbishment Works for Terminal-1 Upgradation project	M/s Srijee interiors	5 Bidders participated out of which 4 bidders qualified and submitted their bids	16.5
15	Supply, Installation, Testing and Commissioning of Retrofit Self Baggage Drop (RSBD)	M/s Fox Solution Pvt Ltd	2 Bidders participated and 2 bidders qualified and submitted their bids	16.4
16	Construction / refurbishment and associated works for “pre-embarkation security check (PESC) at T1	M/s ACME Interiors Private Limited	5 Bidders participated out of which 4 bidders qualified and submitted their bids	16.2
17	Design, Supply, Installation, Testing and Commissioning of new VHT, Modernization of existing VHT And CAMC for Seven (7) years IN TERMINAL 1 (T1)	M/s TK Elevator India	2 bidders qualified and submitted their bids.	15.2
18	Supply, Installation, Testing, and Commissioning (SITC) of Mechanical, Electrical, Plumbing, Firefighting, PHE, and BMS works for the Kempegowda International Airport West Metro Station (KWMS)	M/s Ascentia Corporation	6 Bidders participated out of which 5 bidders qualified and submitted their bids	11.6
19	Shifting and rerouting of existing utilities in WCT	M/s Ashoka Buildcon ltd.	6 Bidders participated out of which 2 bidders qualified	10.2

Sl. No.	Description of Work	Successful Bidder	Total Bidders / Remarks	Amount In INR Crore (Excl. GST and Cess)
	footprint to lower the North Cargo Road (NCR)		and submitted their bids	
20	SITC of CISCO Active network Switches and WIFI devices for the T1 Upgrade	M/s Netcon Technologies India Pvt Ltd	5 Bidders participated out of which 3 bidders qualified and submitted their bids	9.7
21	Civil & Architectural enabling works for upgradation of Terminal 1 (Package-3A)	M/s Vrushadri Constructions LLP	7 Bidders participated out of which 3 bidders qualified and submitted their bids	7.1
22	"HVAC Refurbishment Works, which include the removal of the existing HVAC system and the supply, installation, testing, and commissioning (SITC) of a new HVAC system." IN TERMINAL 1 (T1)	M/s Bluestar Limited	3 Bidders participated out of which 2 bidders qualified and submitted their bids	6.1
23	Electrical Upgradation works at Terminal1" (Package-4A)	M/S Argos Arkaya Power Solutions LLP	7 Bidders participated out of which 6 bidders qualified and submitted their bids	5.2
24	Terminal – 1 (T1) – Upgradation -Enabling works at Arrivals Level 0 at T1	M/s BC Construction	2 Bidders participated and 2 bidders qualified and submitted their bids	5.0
25	Construction of VIP Reserved Lounge at Level 0 - T1 Upgradation (Package - 14)	M/s Ashish Interbuild Pvt Ltd	8 Bidders participated out of which 3 bidders qualified and submitted their bids	4.6
			TOTAL	**1,928.4**

From the above data, it is inferred that almost all the above packages were competitive as far as participation of bidders is concerned and no. of bidder's participation is tabulated below:

Number of Packages	Number of Bidders Participated
1	9
2	8
3	7
3	6
5	5
1	4
6	3
4	2

The assessment of the Hard cost of each of the package has been articulated below:

6.1.1 AIRSIDE

A.1 West Cross Field Taxiway: (MYTP Submission INR 1,145 Crore)

- To improve airside connectivity between the northern and southern runways.

The detailed Bill of Quantities (BOQ) submitted by BIAL as part of the Cost Plan Report has been examined. It is observed that a significant portion of the total BOQ cost pertaining to the WCT works has already been awarded.

The BOQ corresponding to the remaining (uncommitted) scope of work has been assessed in detail. During the course of this assessment, BIAL was asked to identify and provide a clear breakup of the uncommitted scope of work. In response, BIAL submitted detailed item-wise breakups and the same has been considered in the CAPEX assessment.

MECON's Cost Assessment:

- The awarded works primarily consists of Enabling Works, Civil & Finishes Works, External Development Works, part of MEPF Works, part of ICT works, Miscellaneous works etc.

  Based on the participation of bidders, awarded packages can be said to be finalized through competitive bidding and the cost of the same works out to INR 935 Crore.

- For the balance scope, BIAL has submitted the estimate of INR 163.5 Crore and the total claim now works out to INR 1,098.5 Crore against the original claim of INR 1,145 Crore as per MYTP submission.

- The estimate of INR 163.5 Crore for balance scope includes INR 114.2 Crore for uncommitted works and INR 49.3 Crore for likely potential scope change in different awarded packages. Upon examination, INR 49.3 Crore towards provision of potential scope change in awarded packages is not recommended as the same shall be dealt under contingencies covered under soft cost.

- The uncommitted works of INR 114.2 Crore were examined and the following scope of items submitted by BIAL under Uncommitted Cost have not been considered during the evaluation for the reasons stated below:

  i. Utility Crossing at P4 & SAR Road (INR 7.2 Crore): The proposed Utility Crossing at P4 and SAR Road was not included as part of the WCT Enabling Works in the MYTP submission. Further, the technical requirement and justification for the proposed utility crossing have not been adequately substantiated. Accordingly, the associated cost has not been considered in the evaluation.

  ii. Restoration Works (INR 22 Crore): The scope comprising restoration of utility trenches, manhole covers, roads, demolition of temporary roads, irrigation restoration and other related restoration activities has not been considered separately as these works are deemed to be incidental to and included within the scope of the respective awarded packages. Therefore, the proposed cost has not been considered at present.

  iii. External Painting – Eggshell Finish (INR 14 Crore): External painting is already included within the scope of the awarded package. However, the technical requirement for providing Eggshell Finish on piers, retaining walls, girders, and other structural elements has not been adequately justified. Accordingly, the additional cost associated with this item has not been considered during the evaluation.

Based on the above three omissions, the INR 114.2 Crore submitted by BIAL is reduced to around INR 71 Crore.

The said cost of INR 71 Crore was further examined and rationalized to INR 41 Crore considering the following basis:

- Item rates were reviewed based on CPWD DSRs, KPWD / KPTCL Schedule of Rates, CPWD Plinth Area Rates.

- For items pertaining to market rates, considering the nature of subject assignment, cost has been assessed based on the quotations submitted by BIAL and other available data.

- Indirect cost factor claimed by BIAL is rationalized to avoid duplication of factors as some of the factors like CP&OH are already part of DSR rates.

Based on the above methodology, the awarded PO value happens to be around INR 935 Crore and the uncommitted cost upon review works out to be around INR 41 Crore.

Considering both, the total package cost works out to be around INR 976 Crore against the original claimed cost of INR 1,145 Crore by BIAL.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

A.2 Airfield works -Taxiway extension, Isolation Bay etc.: (MYTP Submission INR 443 Crore)

- In order to support the proposed Western Crossfield Taxiway (WCT) through taxiway extensions, new connectors, and improved runway access points

The detailed Bill of Quantities (BOQ) submitted by BIAL as part of the Cost Plan Report has been examined. It is observed that a significant portion of the total BOQ cost pertaining to Airfield works (Taxiway extension, Isolation Bay etc.) has already been awarded.

The BOQ corresponding to the remaining (uncommitted) scope of work has been assessed in detail. During the course of this assessment, BIAL was asked to identify and provide a clear breakup of the uncommitted scope of work. In response, BIAL submitted detailed item-wise breakups and the same has been considered in the CAPEX assessment.

MECON's Cost Assessment:

- The awarded works primarily consists of Enabling Works, Civil & Interior Works, MEPF Works etc.

  Based on the participation of bidders, awarded packages can be said to be finalized through competitive bidding and the cost of the same works out to INR 328 Crore.

- For the balance scope, BIAL has submitted the estimate of around INR 110.8 Crore and the total claim now works out to around INR 438.8 Crore against the original claim of INR 443 Crore as per MYTP submission.

- The estimate of INR 110.8 Crore for balance scope includes around INR 94.4 Crore for uncommitted works and around INR 16.4 Crore for likely potential scope change in different awarded packages. Upon examination, INR 16.4 Crore towards provision of potential scope change in awarded packages is not recommended as the same shall be dealt under contingencies covered under soft cost.

- The uncommitted works of INR 94.4 Crore were examined and the following scope of items submitted by BIAL under Uncommitted Cost have not been considered during the evaluation for the reasons stated below:

  i. Addition of GSE Relocation in North Airfield (INR 1.5 Crore): The proposal for relocation of Ground Support Equipment (GSE) facilities in the North Airfield has

not been adequately justified and therefore the associated cost has not been considered.

ii. CCR Building MEP Works (INR 7.2 Crore): The cost towards Electrical, Plumbing, HVAC and Fire Fighting works for the CCR Building is already included within the scope of the awarded packages. Hence, this amount has not been considered separately.

iii. Design Changes for Relocation of CCR Building (INR 0.1 Crore): The design cost associated with the relocation of the CCR Building has not been considered as the design and engineering activities are already covered under the approved Soft Cost provisions.

iv. Enabling Works for Perimeter Road Widening, Additional Excavation Depth and Compound Wall Modifications (INR 3.1 Crore): The proposed cost towards enabling works has not been considered as these activities are deemed to be included within the scope of the relevant awarded package and accordingly not considered presently.

v. Pavement construction-TWY G6 & G7 stubs (INR 2.7 Crore): The area for this work along with drawing has not been provided by BIAL and accordingly, the same has not been considered. Further, this work is deemed to be included in the awarded packages.

vi. Further, the area of proposed South IAPP including associated area has been reduced by MECON from 23,750 sqm to 20,000 sqm based on the drawing provided and technical requirements, leading to reduction in cost of INR 4.0 Crore

Based on the above six omissions, the INR 94.4 Crore submitted by BIAL is reduced to around INR 75.8 Crore.

The said cost of INR 75.8 Crore was further examined and rationalized to INR 62 Crore considering the following basis:

- Item rates were reviewed based on CPWD DSRs, KPWD / KPTCL Schedule of Rates, CPWD Plinth Area Rates.
- For items pertaining to market rates, considering the nature of subject assignment, cost has been assessed based on the quotations submitted by BIAL and other available data.
- Indirect cost factor claimed by BIAL is rationalized to avoid duplication of factors as some of the factors like CP&OH are already part of DSR rates.

Based on the above methodology, the awarded PO value happens to be around INR 328 Crore and the uncommitted cost upon review works out to be around INR 62 Crore.

Considering both, the total package cost works out to be around INR 390 Crore against the original claimed cost of INR 443 Crore by BIAL.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation

A.3 T2 Apron (9 +4 Stands): (MYTP Submission INR 235 Crore)

- Under this package 13 remote stands have been considered to meet the operational and night parking demand

The detailed Bill of Quantities (BOQ) submitted by BIAL as part of the Cost Plan Report has been examined. It is observed that a significant portion of the total BOQ cost pertaining to T2 Apron (9 +4 Stands) has already been awarded.

The BOQ corresponding to the remaining (uncommitted) scope of work has been assessed in detail. During the course of this assessment, BIAL was asked to identify and provide a clear breakup of the uncommitted scope of work. In response, BIAL submitted detailed item-wise breakups and the same has been considered in the CAPEX assessment.

MECON's Cost Assessment:

- The awarded works primarily consists of Civil & Finishes Works, MEPF Works, part of ICT works etc.

  Based on the participation of bidders, awarded packages can be said to be finalized through competitive bidding and the cost of the same works out to INR 165 Crore.

- For the balance scope, BIAL has submitted the estimate of INR 60 Crore and the total claim now works out to INR 225 Crore against the original claim of INR 235 Crore as per MYTP submission.

- The estimate of INR 60 Crore for balance scope includes INR 51.7 Crore for uncommitted works and INR 8.3 Crore for likely potential scope change in different awarded packages. Upon examination, INR 8.3 Crore towards provision of potential scope change in awarded packages is not recommended as the same shall be dealt under contingencies covered under soft cost.

- The uncommitted works of INR 51.7 Crore were examined and it is noted that BIAL has included 21,329 sqm of additional pavement works over and above the scope already included in awarded packages under the uncommitted cost. However, based on a detailed review of the drawings and clarifications furnished by BIAL, only 18,797 sqm of additional pavement has been found tenable. Accordingly, a cost reduction of INR 3 Crore has been considered in the technical evaluation.

Based on the above omission, the INR 51.7 Crore submitted by BIAL is reduced to around INR 48.7 Crore.

The said cost of INR 48.7 Crore was further examined and rationalized to INR 38 Crore considering the following basis:

- Item rates were reviewed based on CPWD DSRs, KPWD / KPTCL Schedule of Rates, CPWD Plinth Area Rates.
- For items pertaining to market rates, considering the nature of subject assignment, cost has been assessed based on the quotations submitted by BIAL and other available data.
- Indirect cost factor claimed by BIAL is rationalized to avoid duplication of factors as some of the factors like CP&OH are already part of DSR rates.

Based on the above methodology, the awarded PO value happens to be around INR 165 Crore and the uncommitted cost upon review works out to be around INR 38 Crore.

Considering both, the total package cost works out to be around INR 203 Crore against the original claimed cost of INR 235 Crore by BIAL.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

A.4 T2 Phase 2 Apron (40 Stands): (MYTP Submission INR 557 Crore)

- Development of a Phase-2 apron to support expansion of Terminal-2 during the Fourth Control Period

BIAL has submitted the detailed Bill of Quantities (BOQ) as part of the Cost Plan Report.

MECON's Cost Assessment:

A4 package being of similar nature to A3 package, the work out cost of A3 package is considered to assess the cost of A4 package on area basis.

As can be seen from the preceding paragraphs, the assessed cost of A3 package is around INR 203 Crore for an area of around 1,75,434 sqm and considering the same on pro rata basis, the cost for A4 package having an area of around 4,30,244 sqm, works out to around INR 498 Crore against the claimed amount of INR 557 Crore.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

A.5 Taxiway Z & Enabling works: (MYTP Submission INR 111 Crore)

- Development of Taxiway Z to facilitate efficient aircraft access to the proposed Engine Run-Up Bay (ERUB) and to provide direct airside connectivity to the planned Maintenance, Repair, and Overhaul (MRO) facility.

The detailed Bill of Quantities (BOQ) submitted by BIAL as part of the Cost Plan Report has been examined. It is observed that a significant portion of the total BOQ cost pertaining to Taxiway Z & Enabling works has already been awarded.

The BOQ corresponding to the remaining (uncommitted) scope of work has been assessed in detail. During the course of this assessment, BIAL was asked to identify and provide a clear breakup of the uncommitted scope of work. In response, BIAL submitted detailed item-wise breakups and the same has been considered in the CAPEX assessment.

MECON's Cost Assessment:

- The awarded works primarily consists of part of Enabling Works, Civil & Interior Works, MEPF Works etc.

  Based on the participation of bidders, awarded packages can be said to be finalized through competitive bidding and the cost of the same works out to INR 71 Crore.

- For the balance scope, BIAL has submitted the estimate of INR 21.3 Crore and the total claim now works out to INR 92.3 Crore against the original claim of INR 111 Crore as per MYTP submission.

- The estimate of INR 21.3 Crore for balance scope includes INR 17.7 Crore for uncommitted works and INR 3.6 Crore for likely potential scope change in different awarded packages. Upon examination, INR 3.6 Crore towards provision of potential scope change in awarded packages is not recommended as the same shall be dealt under contingencies covered under soft cost.

- The uncommitted works of INR 17.7 Crore were examined and the following scope of items submitted by BIAL under Uncommitted Cost have not been considered during the evaluation for the reasons stated below:

  i. The scope of Stub Shifting works amounting to INR 1.05 Crore submitted by BIAL under the Uncommitted Cost has not been considered during the evaluation as the technical requirement and justification for carrying out the stub shifting works have not been furnished.

  ii. BIAL has considered 1340 m of Chain Link Fencing under the Uncommitted Cost. However, based on the quantities considered in the Cost Plan submitted by BIAL as part of the MYTP submission, the requirement has been restricted to 300 m as no technical justification has been furnished for the proposed increase in length.

Accordingly, a cost reduction of INR 0.55 Crore has been considered in the evaluation due to the reduced scope.

Based on the above omissions, the INR 17.7 Crore submitted by BIAL is reduced to around INR 16.1 Crore.

The said cost of INR 16.1 Crore was further examined and rationalized to INR 13 Crore considering the following basis:

- Item rates were reviewed based on CPWD DSRs, KPWD / KPTCL Schedule of Rates, CPWD Plinth Area Rates.
- For items pertaining to market rates, considering the nature of subject assignment, cost has been assessed based on the quotations submitted by BIAL and other available data.
- Indirect cost factor claimed by BIAL is rationalized to avoid duplication of factors as some of the factors like CP&OH are already part of DSR rates.

Based on the above methodology, the awarded PO value happens to be around INR 71 Crore and the uncommitted cost upon review works out to be around INR 13 Crore.

Considering both, the total package cost works out to be around INR 84 Crore against the original claimed cost of INR 111 Crore by BIAL.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

A.6: T2 Phase 2 West Apron (18 Stands):

As mentioned in the technical chapters (Para No. 5.1.6), the subject package is not considered at present.

A.7 Cargo West Apron (12 Stands): (MYTP Submission INR 137 Crore)

- The proposal aims to support hub operations and address rising night parking and cargo-related demand.

BIAL has submitted the detailed Bill of Quantities (BOQ) as part of the Cost Plan Report.

MECON's Cost Assessment:

A7 package being of similar nature to A3 package, the work out cost of A3 package is considered to assess the cost of A7 package on area basis.

As can be seen from the preceding paragraphs, the assessed cost of A3 package is around INR 203 Crore for an area of around 1,75,434 sqm and considering the same on pro rata basis, the cost for A7 package having an area of around 83,043 sqm, works out to around INR 96 Crore against the claimed amount of INR 137 Crore.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

A.8 North Airside Perimeter Wall & Perimeter Road: (MYTP Submission INR 71 Crore)

- The proposal in this package includes construction of a 7 m wide perimeter road and installation of Perimeter Intrusion Detection System (PIDS) to meet Bureau of Civil Aviation Security (BCAS) requirements.

BIAL has submitted the detailed Bill of Quantities (BOQ) submitted as part of the Cost Plan Report.

MECON's Cost Assessment:

- The total claim for this package is around INR 71 Crore as per MYTP submission.
- Upon review, only PIDS along the North Airside Wall (Approx.7.5 KM) has been considered (refer Para No. 5.1.8) and the balance scope of the package amounting to INR 56 Crore is not considered for fourth control period.

  The claim of BIAL for tenable part i.e., PIDS along the North Airside Wall (Approx.7.5 KM) is around 15 Crore.

The said cost of INR 15 Crore was further examined and rationalized to INR 10 Crore considering the following basis:

- Item rates were reviewed based on CPWD DSRs, KPWD / KPTCL Schedule of Rates, CPWD Plinth Area Rates.
- For items pertaining to market rates, considering the nature of subject assignment, cost has been assessed based on the quotations / PO submitted by BIAL and other available data.
- Indirect cost factor claimed by BIAL is rationalized to avoid duplication of factors as some of the factors like CP&OH are already part of DSR rates.

Based on the above methodology, the assessed value of tenable part works out to around INR 10 Crore against the total claimed cost of INR 71 Crore for this package.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

A.9 Extension of Taxiway B9 & Associated Works: (MYTP Submission INR 36 Crore)

- To facilitate aircraft access to the proposed Contingency Facility and to provide direct airside connectivity to the planned Maintenance, Repair, and Overhaul (MRO)

BIAL has submitted the detailed Bill of Quantities (BOQ) as part of the Cost Plan Report.

MECON's Cost Assessment:

A9 package being of similar nature to A5 package, the work out cost of A5 package is considered to assess the cost of A9 package on area basis.

As can be seen from the preceding paragraphs, the assessed cost of A5 package is around INR 84 Crore for an area of around 82,255 sqm and considering the same on pro rata basis, the cost for A9 package having an area of around 31,426 sqm, works out to around INR 32 Crore against the claimed amount of INR 36 Crore.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

6.1.2 TERMINAL WORKS:

B.1 T1 Upgrade: (MYTP Submission INR 822 Crore)

- Capacity to ~35 MPPA with improved baggage handling system, advanced screening, and renewal of MEP/ICT infrastructure and other facilities

The detailed Bill of Quantities (BOQ) submitted by BIAL as part of the Cost Plan Report has been examined. It is observed that a significant portion of the total BOQ cost pertaining to the T1 Upgrade works has already been awarded.

The BOQ corresponding to the remaining (uncommitted) scope of work has been assessed in detail. During the course of this assessment, BIAL was asked to identify and provide a clear breakup of the uncommitted scope of work. In response, BIAL submitted detailed item-wise breakups and the same has been considered in the CAPEX assessment.

MECON's Cost Assessment:

- The awarded works primarily consists of Enabling Works, Civil & Interior Works, Airport Systems, part of MEPF Works, part of ICT works, Miscellaneous works etc.

  Based on the participation of bidders, awarded packages can be said to be finalized through competitive bidding and the cost of the same works out to INR 678 Crore. However, as around INR 92 Crore is already capitalized in earlier control period, only INR 586 Crore has been considered as the awarded PO value for this control period.

- For the balance scope, BIAL has submitted the estimate of INR 188.2 Crore and the total claim now works out to INR 774.2 Crore (excluding amount capitalized in previous control period) against the original claim of INR 914 Crore as per MYTP submission and worked out claim of INR 822 Crore (post deduction of INR 92 Crore for amount capitalized in previous control period).

The uncommitted cost of INR 188.2 Crore was further examined and rationalized to INR 112 Crore considering the following basis:

- Mechanized Cleaning of all existing service ducts to flush out the dust/mould/debris accumulated in the ducts is not considered as the same is deemed to be part of O&M.
- In some cases, like Landscape (Planter box and plants), high chairs, modular seating etc., the cost as per back up quotation submitted by BIAL happens to be less than the cost claimed by BIAL, leading to reduction in cost.
- Few items are kept on provisional basis by BIAL like Provision of electrical sockets, miscellaneous works, Art works and no substantial justification and quantum of work is provided by BIAL for the same and cost of these items are rationalized.
- For items pertaining to market rates, considering the nature of subject assignment, cost has been assessed and rationalized based on the quotations submitted by BIAL and other available data.
- BIAL has considered constraint factor of 5%, however, considering the execution of work being inside terminal, the constraint factor of only 3% has been considered as the same is found reasonable primarily on account of some restricted working.

Based on the all above, considering INR 586 Crore as the awarded PO value and INR 112 Crore for uncommitted works, the total package cost works out to be around INR 698 Crore against the claimed cost of INR 822 Crore by BIAL, for this control period (excluding amount capitalized in previous control period).

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

B.2 T2 Phase 1 Enhancement: (MYTP Submission INR 61 Crore)

- The project involves improvement of comprehensive facilities.

The detailed Bill of Quantities (BOQ) submitted by BIAL as part of the Cost Plan Report has been examined. It is observed that a significant portion of the total BOQ cost pertaining to the T2 Phase 1 Enhancement works has already been awarded.

The BOQ corresponding to the remaining (uncommitted) scope of work has been assessed in detail. During the course of this assessment, BIAL was asked to identify and provide a clear breakup of the uncommitted scope of work. In response, BIAL submitted detailed item-wise breakups and the same has been considered in the CAPEX assessment.

MECON's Cost Assessment:

- The awarded works primarily consists of Enabling Works, Civil & Interior Works, External Development Works, part of MEPF Works, part of ICT works, Miscellaneous works etc.

  Based on the participation of bidders, awarded packages can be said to be finalized through competitive bidding and the cost of the same works out to INR 44 Crore.

- For the balance scope, BIAL has submitted the estimate of INR 20.8 Crore and the total claim now works out to INR 64.8 Crore against the original claim of INR 61 Crore as per MYTP submission.

- The estimate of INR 20.8 Crore for balance scope includes INR 18.6 Crore for uncommitted works and INR 2.2 Crore for likely potential scope change in different awarded packages. Upon examination, INR 2.2 Crore towards provision of potential scope change in awarded packages is not recommended as the same shall be dealt under contingencies covered under soft cost.

The uncommitted works of INR 18.6 Crore were examined and rationalized to INR 10 Crore considering the following basis:

- Item rates were reviewed based on CPWD DSRs, KPWD / KPTCL Schedule of Rates, CPWD Plinth Area Rates.

- For items pertaining to market rates, considering the nature of subject assignment, cost has been assessed based on the quotations submitted by BIAL and other available data.

- Few items are kept on provisional basis by BIAL like demolition works, pantry equipment, operating supplies under electrical works and no substantial justification and quantum of work is provided by BIAL for the same and cost of these items are rationalized.

- BIAL has considered constraint factor of 5%, however, considering the execution of work being inside terminal, the constraint factor of only 3% has been considered as the same is found reasonable primarily on account of some restricted working.
  Based on the above methodology, the awarded PO value happens to be around INR 44 Crore and the uncommitted cost upon review works out to be around INR 10 Crore.

Considering both, the total package cost works out to be around INR 54 Crore against the original claimed cost of INR 61 Crore by BIAL.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

B.3 T2 Phase 2: (MYTP Submission INR 4,490 Crore)

- Expanding Terminal 2 capacity from 25 to 45 MPPA with integrated operations, swing gate flexibility, and smart, sustainable airport design.

BIAL has proposed a hard cost of INR 4,490 Crore (Excluding GST) for terminal 2 phase 2 comprising of an area of 2,88,732 sqm and the same works out to INR 1,55,520 per Sqm (Excluding GST).
As can be seen from the preceding chapters (Para No. 5.2.3), upon review, the area for terminal 2 phase 2 is recommended as 2,43,855 Sqm.

It is pertinent to mention here that T2 Phase 2 terminal building is by & large replica of T2 Phase 1 terminal building for which authority had considered cost of INR 3,502 Crore Including GST. This also includes T2 ICT, along with 1% site preliminaries & 4% GST correction factor. The same upon deducting 18% GST works out to INR 2,968 Crore (Excluding GST) for an area of 2,55,645 Sqm, as on 2018-19 and the details for the same are tabulated below:

Terminal P1 Bengaluru	Base Cost	Cost Including Site Preliminaries @1%	Cost Including 4% as GST correction factor	Amount Excl. GST (INR Crore)
T2 P1 including ICT	3,334	3,367	3,502	2,968

Considering the area of 2,55,645 Sqm, the above approved cost works out to INR 1,16,092 per Sqm (Excluding GST) as on 2018-19.

Considering that T2 Phase 2 is essentially a mirror image of T2 Phase 1, there is no more appropriate benchmark than T2 Phase 1 itself and thus already approved cost of T2 Phase 1 is considered along with WPI index of all commodities, as published by the Office of Economic Advisor under Ministry of Commerce & Industry, Govt. of INDIA, in order to

arrive at a ball park figure of Terminal building as on March 2025 and the same is tabulated below:

Financial Year	Inflation rate	Unit Rate Excl. GST (Per Sqm)
FY'19	-	1,16,092
FY'20	1.67%	1,18,030
FY'21	1.31%	1,19,580
FY'22	12.97%	1,35,085
FY'23	9.40%	1,47,779
FY'24	-0.72%	1,46,713
FY'25	2.31%	**1,50,105**

Accordingly, against the claimed per sqm rate of INR 1,55,520 (Excluding GST), per Sqm rate of INR 1,50,000 (Excluding GST) is deemed suitable for the Passenger Terminal Building T2 Phase 2. For the reviewed area of 2,43,855 Sqm, the total amount works to around INR 3,658 Crore (Excluding GST).

The above said figure is hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

B.4 T1-T2 Connectivity (North Pier to T1): (MYTP Submission INR 255 Crore)

- The package introduces an elevated airside link with modern passenger amenities, enabling seamless domestic–international transfers while maintaining efficient vehicular movement below.

BIAL has submitted the detailed Bill of Quantities (BOQ) as part of the Cost Plan Report wherein the total claimed amount is around INR 255 Crore for an area of 19,349 Sqm. In the context of the above, as can be seen from the preceding paragraphs (Para No. 5.2.4.2), upon review, the total area for this package is assessed as around 10,912 Sqm.

MECON's Cost Assessment:

As can be seen from the above, the total area is assessed as around 10,912 Sqm against the claimed area of 19,349 sqm.

Upon reviewing major items in the BOQ based on market rates, DSR, the assessed value of works out to around INR 239 Crore against the total claimed cost of INR 255 Crore for this package for 19,349 Sqm.

The assessed cost is broadly around INR 239 Crore for an area of around 19,349 sqm, and considering the same on pro rata basis, the cost for B.4 package having a reviewed area of

10,912 sqm, works out to around INR 135 Crore and the same has been considered against the claimed amount of INR 255 crore by BIAL for this package.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

B.5: GA Terminal:

As mentioned in the technical chapter (Para No. 5.2.5.2), BIAL has confirmed via email that the proposed GA infrastructure shall be developed by the concessionaire and accordingly, the cost of this package shall not be borne by the general passenger traffic at KIAB.

In view of the above, the subject package is not considered.

B.6 Airport Staff Parking & Cafeteria (Alpha 4): (MYTP Submission INR 120 Crore)

- The project entails a new staff parking and cafeteria facility integrating structured parking and dining.

BIAL has submitted the detailed Bill of Quantities (BOQ) as part of the Cost Plan Report.

MECON's Cost Assessment:

The claimed cost of INR 120 Crore was examined and rationalized to INR 95 Crore considering the following basis:

- In some cases, like Barricading works, Green High wall etc., the cost as per back up document by BIAL / general market data happens to be less than the cost claimed by BIAL, leading to reduction in cost.
- Item rates were reviewed based on CPWD DSRs, KPWD / KPTCL Schedule of Rates, CPWD Plinth Area Rates.
- For items pertaining to market rates, considering the nature of subject assignment, cost has been assessed based on the quotations submitted by BIAL and other available data.
- Indirect cost factor claimed by BIAL is rationalized to avoid duplication of factors as some of the factors like CP&OH are already part of DSR rates.

Based on the above methodology, the assessed value works out to around INR 95 Crore against the total claimed cost of INR 120 Crore for this package.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

B.7 Contingency Passenger Processing Facility: (MYTP Submission INR 32 Crore)

- The package is designed for 450 passengers per hour, integrates modular scalability with essential amenities to ensure seamless flow, operational flexibility.

BIAL has submitted the detailed Bill of Quantities (BOQ) as part of the Cost Plan Report.

MECON's Cost Assessment:

The claimed cost of INR 32 Crore was examined and rationalized to INR 27 Crore considering the following basis:

- Item rates were reviewed based on CPWD DSRs, KPWD / KPTCL Schedule of Rates, CPWD Plinth Area Rates.
- For items pertaining to market rates, considering the nature of subject assignment, cost has been assessed based on the quotations submitted by BIAL and other available data.
- Indirect cost factor claimed by BIAL is rationalized to avoid duplication of factors as some of the factors like CP&OH are already part of DSR rates.

Based on the above methodology, the assessed value works out to around INR 27 Crore against the total claimed cost of INR 32 Crore for this package.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

B.8 New Air Traffic Control Tower (ATCT): (MYTP Submission INR 113 Crore)

- A new ~ 85-meter facility integrating advanced systems, safety infrastructure, and staff amenities to manage over 90 aircraft movements per hour.

BIAL has submitted the detailed Bill of Quantities (BOQ) as part of the Cost Plan Report.

MECON's Cost Assessment:

The claimed cost of INR 113 Crore was examined and rationalized to INR 89 Crore considering the following basis:

- For drone detection system, BIAL has stated that the details are not available at this stage and accordingly the cost for the same is rationalized.

- Few items are kept on provisional basis by BIAL like dewatering system, furniture items etc. Further many items are given as lumpsum like temperature controls, CO2 sensor etc. for BMS Control, earthing system, lightning protection system, miscellaneous items like liasioning etc. In these said items no substantial justification and quantum of work is provided by BIAL and cost of these items are rationalized.
- In some cases, like floor tiles, metal swing doors, glass swing doors etc., the cost claimed by BIAL is perceived to be on higher side compared to general market data and accordingly the cost for these items have been rationalized.
- Item rates were reviewed based on CPWD DSRs, KPWD / KPTCL Schedule of Rates, CPWD Plinth Area Rates.
- For items pertaining to market rates, considering the nature of subject assignment, cost has been assessed based on the quotations submitted by BIAL and other available data.
- Indirect cost factor claimed by BIAL is rationalized to avoid duplication of factors as some of the factors like CP&OH are already part of DSR rates.

Based on the above methodology, the assessed value works out to around INR 89 Crore against the total claimed cost of INR 113 Crore for this package.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

6.1.3 LANDSIDE:

C.1 Eastern Connectivity Tunnel (ECT): (MYTP Submission INR 1,655 Crore)

- To improve access from the eastern suburbs and increase resilience, KIAB plans an Eastern Connectivity Tunnel (ECT) linking SH104 to the terminals under the airside area.

BIAL has submitted the detailed Bill of Quantities (BOQ) as part of the Cost Plan Report.

Additionally, BIAL has furnished data for awarded cost for part of ECT tunnel (282-meter length) of the year 2019.

MECON's Cost Assessment:

- The BIAL has claimed INR 1,655 Crore for said package. The same includes INR 1,143 Crore for tunnel construction (Substructure, Concrete work, Formwork, Steelwork and Finishes etc.,) and INR 512 Crore for balance part of ECT.
- The cost for the tunnel construction (Substructure, Concrete work, Formwork, Steelwork and Finishes etc.,) under the Eastern Connectivity Tunnel (ECT) package has been assessed based on the previously awarded work for a 282-meter length in 2019,

amounting to around INR 77 Crore and considering the same on pro rata basis, coupled with cost escalation based on WPI index of all commodities, as published by the Office of Economic Advisor under Ministry of Commerce & Industry (Govt. of INDIA), an estimated cost of tunnel construction works under ECT works for the proposed length of 2,200 metre has been assessed as INR 753 Crore against the claimed cost submitted of INR 1,143 Crore submitted by BIAL.

The balance works of INR 512 Crore were examined and rationalized to INR 464 Crore based on the following:

- The proposed revamp of existing road on eastern side (roundabout to State Highway) amounting to INR 0.60 Crore has not been considered during the evaluation as the proposed work lie outside the boundary limits of BIAL.
- The cost pertaining to Diaphragm Wall concrete was perceived to be on higher side compared to general market data and accordingly the same was rationalized.
- The wastage percentage considered in GI pipes was also rationalized as the same was considered significantly high by BIAL.
- Item rates were reviewed based on CPWD DSRs, KPWD / KPTCL Schedule of Rates, CPWD Plinth Area Rates.
- For items pertaining to market rates, considering the nature of subject assignment, cost has been assessed based on the quotations submitted by BIAL and other available data.
- Indirect cost factor claimed by BIAL is rationalized to avoid duplication of factors as some of the factors like CP&OH are already part of DSR rates.
- BIAL had claimed Corporate Environmental Responsibility (CER) factor as 0.25%, however the calculation was done by BIAL @ 2.5%. The same has been corrected and CER cost at 0.25% has been suitably incorporated.

Based on all above, the cost pertaining to tunnel construction (Substructure, Concrete work, Formwork, Steelwork and Finishes etc.,) works out to INR 753 Crore and that for balance part of ECT works out to INR 464 Crore making total assessed value to INR 1,217 Crore against the total claimed cost of INR 1,655 Crore.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

C.2.1 ATMS Metro Station: (MYTP Submission INR 278 Crore)

- Airport Terminal Metro Station (ATMS) is proposed to enhance connectivity. BIAL has submitted the detailed Bill of Quantities (BOQ) as part of the Cost Plan Report.

MECON's Cost Assessment:

The claimed cost of INR 278 Crore was examined and rationalized to INR 252 Crore considering the following basis:

- In some cases, like waterproofing, smoke barrier system, stone cladding & flooring etc, the cost claimed by BIAL is perceived to be on higher side compared to general market data and accordingly the cost for these items have been rationalized.
- The wastage percentage considered various electrical items was also rationalized as the same was considered high by BIAL.
- Item rates were reviewed based on CPWD DSRs, KPWD / KPTCL Schedule of Rates, CPWD Plinth Area Rates.
- For items pertaining to market rates, considering the nature of subject assignment, cost has been assessed based on the quotations submitted by BIAL and other available data.
- Indirect cost factor claimed by BIAL is rationalized to avoid duplication of factors as some of the factors like CP&OH are already part of DSR rates.

Based on the above methodology, the assessed value works out to around INR 252 Crore against the total claimed cost of INR 278 Crore for this package.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

C.2.2 KWMS Metro Station:

As mentioned in the technical chapter (Para No. 5.3.3), while the operational relevance of the proposed station is acknowledged from an airport ecosystem and circulation management perspective, MECON is of the view that in light of the earlier regulatory assessment and position adopted by AERA in the Third Control Period (TCP) Order, the associated capital expenditure may not be considered for inclusion within the Regulatory Asset Base (RAB) during the Fourth Control Period.

In view of the above, the subject package is not considered.

C.4 T1- ATMS connecting Elevated Walkway and T1-T2 walkway: (MYTP Submission INR 76 Crore)

- A 5m-wide at-grade covered walkway will connect the terminals T1-T2 over a 600m distance, while an elevated covered walkway with a travelator will link the Terminal 1 and Airport Terminal metro station

BIAL has submitted the detailed Bill of Quantities (BOQ) as part of the Cost Plan Report.

MECON's Cost Assessment:

- The BIAL has claimed cost of INR 76 Crore for this package which includes the proposed T1 to T2 at grade walkway amounting to INR 11.3 Crore.
- As mentioned in preceding chapters (Para No. 5.3.4), the proposed T1 to T2 at grade walkway has not been considered.

For the remaining scope of package amounting to INR 64.7 Crore, the cost has been examined and rationalized to INR 58 Crore considering following basis:

- Item rates were reviewed based on CPWD DSRs, KPWD / KPTCL Schedule of Rates, CPWD Plinth Area Rates.
- For items pertaining to market rates, considering the nature of subject assignment, cost has been assessed based on the quotations submitted by BIAL and other available data.
- Indirect cost factor claimed by BIAL is rationalized to avoid duplication of factors as some of the factors like CP&OH are already part of DSR rates.
- BIAL has considered constraint factor of 5%, however, considering the execution of work being inside terminal, the constraint factor of only 3% has been considered as the same is found reasonable primarily on account of some restricted working.

Based on the above methodology, the assessed value works out to around INR 58 Crore against the total claimed cost of INR 76 Crore for this package.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

C.5 North-West Road Expansion (2+2 Lane): (MYTP Submission INR 32 Crore)

- Upgrading a 1.2 km stretch of road in the northern area of KIA to a 4-lane dual carriageway through eccentric widening

BIAL has submitted the detailed Bill of Quantities (BOQ) as part of the Cost Plan Report.

MECON's Cost Assessment:

- The claimed cost of INR 32 Crore was examined and the following scope of items submitted by BIAL have not been considered during the evaluation as the same were not included in the Design Basis Report (DBR) and drawings submitted for review:

i. Retention Pond under Enabling Works amounting to INR 4.5 Crore

ii. Utility Trench under External Development Works amounting to INR 7.5 Crore

Based on the above two omissions, the INR 32 Crore submitted by BIAL is reduced to around INR 20 Crore.

The said cost of INR 20 Crore was further examined and rationalized to INR 17 Crore considering the following basis:

- Rationalization of quantities in some of the items.
- Item rates were reviewed based on CPWD DSRs, KPWD / KPTCL Schedule of Rates, CPWD Plinth Area Rates.
- For items pertaining to market rates, considering the nature of subject assignment, cost has been assessed based on the quotations submitted by BIAL and other available data.
- Indirect cost factor claimed by BIAL is rationalized to avoid duplication of factors as some of the factors like CP&OH are already part of DSR rates.

Based on the above methodology, the total package cost works out to be around INR 17 Crore against the claimed cost of INR 32 Crore by BIAL.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

C.6 Cargo Avenue (NCR) expansion (2+2 Lane)- LSG to Alpha 1: (MYTP Submission INR 12 Crore)

- The existing 2-lane stretch of North Cargo Road is proposed to be upgraded to a 4-lane (2+2) configuration.

BIAL has submitted the detailed Bill of Quantities (BOQ) as part of the Cost Plan Report.

MECON's Cost Assessment:

The claimed cost of INR 12 Crore by BIAL was examined and rationalized to INR 9 Crore considering the following basis:

- Rationalization of quantities as per technical requirement in some of the items.
- Item rates were reviewed based on CPWD DSRs, KPWD / KPTCL Schedule of Rates, CPWD Plinth Area Rates.
- For items pertaining to market rates, considering the nature of subject assignment, cost has been assessed based on the quotations submitted by BIAL and other available data.

- Indirect cost factor claimed by BIAL is rationalized to avoid duplication of factors as some of the factors like CP&OH are already part of DSR rates.

Based on the above methodology, the total package cost works out to be around INR 9 Crore against the claimed cost of INR 12 Crore by BIAL.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

C.7: T1 & T2 Departure and arrival recirculation: (MYTP Submission INR 75 Crore)

- T1 and T2 kerbs are congested and in need of refurbishment and extension to enhance passenger handling and operational efficiency.

BIAL has submitted the detailed Bill of Quantities (BOQ) as part of the Cost Plan Report.

MECON's Cost Assessment:

- The BIAL has claimed cost of INR 75 Crore for this package which includes the proposed temporary passenger parking facility amounting to INR 32 Crore.
- As mentioned in preceding chapters (Para No. 5.3.7), the proposed temporary passenger parking facility has not been considered.

For the remaining scope of package amounting to INR 43 Crore, the cost has been examined and rationalized to INR 38 Crore considering following basis

- Item rates were reviewed based on CPWD DSRs, KPWD / KPTCL Schedule of Rates, CPWD Plinth Area Rates.
- For items pertaining to market rates, considering the nature of subject assignment, cost has been assessed based on the quotations submitted by BIAL and other available data.
- Indirect cost factor claimed by BIAL is rationalized to avoid duplication of factors as some of the factors like CP&OH are already part of DSR rates.

Based on the above methodology, the total package cost works out to be around INR 38 Crore against the claimed cost of INR 75 Crore by BIAL.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

C.10 MAR Recirculation Link: (MYTP Submission INR 95 Crore)

- A diamond interchange is proposed on the Main Access Road (MAR) / Terminal Boulevard connecting MLCP and Terminals

BIAL has submitted the detailed Bill of Quantities (BOQ) as part of the Cost Plan Report.

MECON's Cost Assessment:

- The BIAL has claimed cost of INR 95 Crore for this package which includes the proposed city-side recirculation ramp (left-side Ramp 1 and Ramp 3) having construction of Reinforced Earth Walls, Ramp 1 and Ramp 3 along with related MEPF and ICT works amounting to INR 21.4 Crore.
- As mentioned in preceding chapters (Para No. 5.3.8), the proposed city-side recirculation ramp (left-side Ramp 1 and Ramp 3) having construction of Reinforced Earth Walls, Ramp 1 and Ramp 3 along with related MEPF and ICT works has been deferred to subsequent control period.

For the remaining scope of package amounting to INR 73.6 Crore, the cost has been examined and rationalized to INR 71 Crore considering following basis

- Item rates were reviewed based on CPWD DSRs, KPWD / KPTCL Schedule of Rates, CPWD Plinth Area Rates.
- For items pertaining to market rates, considering the nature of subject assignment, cost has been assessed based on the quotations submitted by BIAL and other available data.
- Indirect cost factor claimed by BIAL is rationalized to avoid duplication of factors as some of the factors like CP&OH are already part of DSR rates.

Based on the above methodology, the total package cost works out to be around INR 71 Crore against the claimed cost of INR 95 Crore by BIAL.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

C.11 MAR-SWR Interchange Upgrade:

As mentioned in the technical chapters (Para No. 5.3.9), the subject package is not considered.

C.12 North Boundary Road (Landside North East Road):

As mentioned in the chapters (Para No. 5.3.10), the subject package is not considered.

6.1.4 OTHERS

D.1 UTILITIES: (MYTP Submission INR 570 Crore)

- The potable water demand is projected to increase necessitating the construction of a new Water Treatment Plant (WTP). The wastewater treatment demand will rise requiring a new Sewage Treatment Plant (STP) beyond the current capacity. Further there is requirement of substations.

BIAL has submitted the detailed Bill of Quantities (BOQ) as part of the Cost Plan Report.

MECON's Cost Assessment:

- The BIAL has claimed cost of INR 570 Crore for this package in initial submission of MYTP document. The same was followed up by submission of revised claimed cost of INR 511 Crore by BIAL.

The said claimed cost of INR 511 Crore has been examined and rationalized to INR 457 Crore considering following basis:

- There happens to be a reduction in portable water requirement capacity from 4 MLD to 2 MLD (Para No. 5.4.1) leading to reduction in cost.
- Multiple Road crossings have been kept as provisional item in the scope and no substantial data and quantum of work has been provided by BIAL and accordingly the cost for the same has been rationalized.
- Item rates were reviewed based on CPWD DSRs, CPWD Plinth Area Rates.
- For items pertaining to market rates, considering the nature of subject assignment, cost has been assessed based on the quotations submitted by BIAL and other available data.
- Indirect cost factor claimed by BIAL is rationalized to avoid duplication of factors as some of the factors like CP&OH are already part of DSR rates.

Based on the above methodology, the total package cost works out to be around INR 457 Crore against the original claimed cost of INR 570 Crore by BIAL.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC**.**

D.2 MMTH Enhancement: (MYTP Submission INR 37 Crore)

- The upgrades aim to improve passenger experience and ensure long-term infrastructure sustainability.

BIAL has submitted the detailed Bill of Quantities (BOQ) as part of the Cost Plan Report.

MECON's Cost Assessment:

The BIAL has claimed cost of INR 37 Crore for this package. The same has been examined and rationalized to INR 22 Crore considering following basis:

- Few items are kept on provisional basis by BIAL like barricading works for view cutter and removing of existing MS structure, light fixtures and MEP works. Further methodology works and removal of existing MS barricade and shifting to BIAL yard has been given as lumpsum works. In these said items no substantial justification and quantum of work is provided by BIAL and cost of these items are rationalized.
- Item rates were reviewed based on CPWD DSRs, CPWD Plinth Area Rates.
- For items pertaining to market rates, considering the nature of subject assignment, cost has been assessed based on the quotations submitted by BIAL and other available data.
- BIAL has considered constraint factor of 5%, however, the constraint factor of only 3% has been considered as the same is found reasonable primarily on account of some restricted working.

Based on the above methodology, the total package cost works out to be around INR 22 Crore against the claimed cost of INR 37 Crore by BIAL.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC**.**

D.3 Green Belt: (MYTP Submission INR 18 Crore)

- The green belt development will include street furniture, orchidarium, fernery, signage wall, wooden boards, free standing granite pillar, as well as the requisite signs. In addition, a 2 numbers of toilet blocks, a meeting room and an information centre is envisaged.

BIAL has submitted the detailed Bill of Quantities (BOQ) as part of the Cost Plan Report.

MECON's Cost Assessment:

- BIAL had submitted cost of INR 18 Crore in its claim. As can be seen from the technical chapters (Para No. 5.4.3), only those components which directly contribute to green area development in line with Environmental Clearance (EC) provisions have been considered.
- For such components which does not directly contribute to green area development and appears to be non- aeronautical in nature like Amphitheatre development, café and visitor

center facilities, dedicated parking and extensive hardscape features, BIAL has claimed around INR 10.7 crore out of INR 18 Crore and and the amount attributed to these components is not considered.

The balance scope of work amounting to INR 7.3 Crore has been examined and rationalized to INR 7 Crore based on the following.

- Item rates were reviewed based on CPWD DSRs, KPWD / KPTCL Schedule of Rates, CPWD Plinth Area Rates.
- For items pertaining to market rates, considering the nature of subject assignment, cost has been assessed based on the quotations submitted by BIAL and other available data.

Based on the above methodology, the assessed value of the tenable scope works out to around INR 7 Crore against the total claimed cost of INR 18 Crore for this package.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

D.4 Rain Harvesting Pond – 1: (MYTP Submission INR 104 Crore)

- This project focuses on the harvesting of stormwater runoff generated from the Airfield Works Area, North Boundary Road, and the North Airside Perimeter Wall & Road.

BIAL has submitted the detailed Bill of Quantities (BOQ) as part of the Cost Plan Report.

MECON's Cost Assessment:

The BIAL has claimed cost of INR 104 Crore for this package. The same has been examined and rationalized to INR 87 Crore considering following basis:

- There happens to be a reduction in pond capacity from 700 ML to 600 ML (Para No. 5.4.4), leading to reduction in cost.
- Item rates were reviewed based on CPWD DSRs, KPWD / KPTCL Schedule of Rates, CPWD Plinth Area Rates.
- For items pertaining to market rates, considering the nature of subject assignment, cost has been assessed based on the quotations submitted by BIAL and other available data.

Based on the above methodology, the assessed value works out to around INR 87 Crore against the total claimed cost of INR 104 Crore for this package.

All the above said figures are hard cost i.e., excluding GST, Cess, Soft cost, Indexation and IDC.

SUMMARY OF HARD COST:

Based on the all above the summary of claimed and assessed hard cost has been tabulated below:

SL. No.	Program / Projects	Claimed by BIAL	As assessed in this Report
		Hard Cost (Excluding GST & Cess) in INR Crore	Hard Cost (Excluding GST & Cess) in INR Crore
	Airfield Works		
A.1	West Cross Field Taxiway	1,145	976
A.2	Airfield works (Taxiway extension, Isolation Bay etc)	443	390
A.3	T-2 Apron (9 +4 Stands)	235	203
A.4	T-2 Phase 2 Apron (40 Stands)	557	498
A.5	Taxiway Z & Enabling works	111	84
A.6	T2 Phase 2 West Apron (18 Stands)	285	Not Considered
A.7	Cargo West Apron (12 Stands)	137	96
A.8	North Airside Perimeter Wall & Perimeter Road	71	10
A.9	Taxiway B9 & Enabling Works	36	32
	Total Airfield	**3,021**	**2,289**
B	**Passenger Terminal**		
B.1	T1 Upgrade	822	698
B.2	T2 Enhancement	61	54
B.3	T2 Phase 2	4,490	3,658
B.4	T1/T2 Connectivity - Pier Expansion	255	135
B.5	GA Terminal	36	Not Considered
B.6	Airport Staff Parking & Cafeteria	120	95
B.7	Contingency Facility	32	27
B.8	New Air Traffic Control Tower (ATCT)	113	89
	Total Terminal	**5,928**	**4,756**

SL. No.	Program / Projects	Claimed by BIAL Hard Cost (Excluding GST & Cess) in INR Crore	As assessed in this Report Hard Cost (Excluding GST & Cess) in INR Crore
C	**Landside Access and Parking**		
C.1	Eastern Connectivity Tunnel (ECT)	1,655	1,217
C.2.1	Airport Terminal Metro Station (ATMS)	278	252
C.2.2	KIA West Metro Station (KWMS)	143	Not Considered
C.4	T1 to T2 & Metro Connector (walkway)	76	58
C.5	North West Road Expansion (2+2 Lane)	32	17
C.6	Cargo Avenue (NCR) Expansion (2+2 Lane) LSG to Alpha 1	12	9
C.7	T1 & T2 Departure and arrival recirculation	75	38
C.10	MAR Recirculation Link	95	71
C.11	MAR-SWR Interchange Upgrade	36	Not Considered
C.12	North Boundary Road (Landside North East Road)	111	Not Considered
	Total Landside	**2,511**	**1,662**
D	**Others**		
D.1	Utilities	570	457
D.2	MMTH Enhancement	37	22
D.3	Green Belt Development	18	7
D.4	Rainwater Harvesting Pond-1	104	87
	Total others	**729**	**573**
	Grand total	**12,190**	**9,280**

Based on the above, it is analysed that upon review the assessed cost happens to be around 24% lower than the claimed cost by BIAL for 4th control period based on the various articulations elaborated in the preceding paragraphs and technical chapters.

6.2 INDEXATION, TAXES, SOFT COST etc.:

INDEXATION

BIAL'S SUBMISSION:

BIAL has provisioned an amount of around INR 970 Crore for indexation based on the individual year wise phasing of each package and considering mean of WPI (all commodities) from the "Results of the Survey of Professional Forecasters on Macroeconomic Indicators – Round 94th released on 6th June 2025 published by the Reserve Bank of India (RBI).

Description	FY 26	FY 27	FY 28	FY 29	FY 30
WPI (All Commodities)	2%	2.8%	2.8%	2.8%	2.8%

MECON'S OBSERVATION:

It is noted that for the projects where Purchase Orders have already been placed, the cost is already finalized and is deemed to be inclusive of indexation and accordingly indexation cost for the already awarded projects is not recommended in this capex analysis.

For the unawarded packages / the uncommitted scope, the year wise phasing of each package has been reviewed and considered accordingly.

With regard to indexation for the forecasted years, it is noted that the claimed percentages of 2% for FY 26 and 2.8% for each of the FY 27 to FY 30 are acceptable and accordingly the same has been considered as claimed by BIAL.

Considering all the above, the indexation has been reviewed on the unawarded/ uncommitted packages only and the same works out to around INR 609.5 Crore against the claimed value of INR 970 Crore resulting in a decrease of around 37% from the claimed indexation amount.

This reduction is predominantly on account of non-consideration of indexation on the awarded portion in this review study.

TAXES

BIAL'S SUBMISSION:

In the CAPEX submission, BIAL had considered GST @18% and cess @1%. Thereupon, 4% Input Tax Credit (ITC) has been considered resulting into a net tax impact of 15%.

MECON'S OBSERVATION:

The GST @18% and cess @1% appears to be in order in line with current guidelines.

The ITC percentage is considered by BIAL on adhoc basis and further it may be noted that there is no precise data available to ascertain the exact anticipated ITC that would be available in various packages of job of this voluminous nature and accordingly for present work, ITC @ 4%, as claimed by BIAL, has been considered.

Considering GST @18% and ITC @4%, GST (net of ITC) @14% has been considered and the same works out to INR 1,385 Crore against the claimed value of INR 1,842 Crore resulting in a reduction of around 25%.

Further, considering Cess @1%, the value of cess works out to INR 99 Crore against the claimed value of INR 132 Crore resulting in a reduction of around 25%.

SOFT COST

BIAL'S SUBMISSION:

In the CAPEX submission, BIAL had considered an amount of around INR 1,816 Crore (12%) as the expenses incurred towards Design Consultancy, PMC Services, Pre-Operative Expenses and Contingencies as detailed below:

I. Design Consultancy, PMC expenses

BIAL has considered 5% for design, consultancy and PMC expenses

II. Pre-Ops Including ORAT

BIAL has considered 4% for Pre-Operative Expenses (incl. ORAT) based on actual costs incurred in PAL 1 Expansion.

III. Contingencies

BIAL has considered 3% for contingencies

MECON'S OBSERVATIONS:

The Design, Consultancy and PMC expenses and Contingencies percentages does not appear to be out of order in general however the pre-Operative charges claimed by BIAL are perceived to be on higher side and no authentic document is provided in support of the same.
Further it is pertinent to mention that in various previous reports soft cost has been recommended as following percentages:

a. Total soft cost as 8% for CSMIA Mumbai airport by Authority in 4th control period (01/04/2024 to 31/03/2029).

b. Total soft cost as 8% for GAU Guwahati airport by Authority in 3rd control period (01/04/2022 to 31/03/2027).

c. Total soft cost as 9% for IGI Delhi airport by independent CAPEX Consultant in 2nd control period (01/04/2014 to 31/03/2019)

Taking a holistic view of all the above articulations in the background, there cannot be any empirical formula for arriving at percentage of soft cost and considering all the various factors in play on broad basis, general industry practice and taking into account the orders of authority in past coupled with global turmoil in early 2026 driven by escalating Middle East conflicts being still prevailing, MECON is of the opinion that soft cost to the extent of 10% seems appropriate for the unawarded packages with Design and PMC @5%, Pre-operative @2% and Contingencies @3%.

On the other side, though in case of awarded packages, Design and PMC @5% and Pre-operative @ 2% also seems appropriate, however extent of applicability of contingencies may not be ascertained on those projects and considering voluminous nature of job, any Scope Change, extra works coupled with global turmoil in early 2026 driven by escalating Middle East conflicts being still prevailing, a contingency of 1.5% may be considered on awarded packages resulting into a total soft cost of 8.5% on awarded packages.

Based on all above, considering the soft cost of 10% on unwarded scope and 8.5% on awarded scope, the total Soft Cost works out to around INR 1,099 Crore against the claimed amount of INR 1,816 Crore by BIAL.

INTEREST DURING CONSTRUCTION (IDC)

Interest During Construction (IDC) is the interest cost on loans taken to finance the project while it is being built and the key factors impacting IDC are duration of Construction period, Debt Drawdown schedule and Interest rates.

Considering the phasing of different unawarded / uncommitted packages, a general industrial practice of Debt: Equity ratio of 70:30 and interest rate of 9%, the package wise IDC has been worked out on broad basis considering the nature of this assignment and the same works out to around INR 1,126 Crore.

With regard to awarded packages it is not possible to ascertain the extent of construction completed precisely and actual IDC of the already executed works is not readily available and moreover, some amount of contingency is already considered in awarded packages. In view of the above, IDC is not worked out for the awarded portion and considering the same being minimal portion in this overall work, the same may be dealt in true up.

Considering all above IDC is worked out to be INR 1,126 Crore against the claimed value of INR 1,685 Crore.

6.3 CAPEX CONCLUSION:

The review of capital expenditure has been carried out with due diligence, relying on documentary evidence made available, general market data, good industrial practices, published CPWD data, KPTCL and KPWD data, published indices by government bodies as well as various discussions and other available data considering the nature of review assignment. As a result, upon rigorous validation exercise, the claimed costs have been rationalized across multiple heads, ensuring that the final figures represent only admissible and optimum expenditures.

This exercise has ensured that the admissible costs reflect actual market benchmarks, thereby eliminating inflated claims.

The revised cost base now represents a transparent figure, aligned with financial prudence and the same works out to INR **13,598 Crore against the claimed amount of INR 18,635 Crore.**

Based on all above, the overall hard and soft cost including taxes etc. is tabulated below:

Description	Claimed by BIAL, INR Crore	Assessed by MECON, INR Crore
Hard Cost	**12,190**	**9,280**
Indexation	970	610
GST @ 14% (net of ITC)	1,842	1,385
Cess @ 1%	132	99
Cost incl. Indexation, taxes	**15,134**	**11,373**
Soft Cost	1,816	1,099
Total including Soft Cost	**16,950**	**12,472**
IDC	1,685	1,126
Total incl. IDC	**18,635**	**13,598**

Further, the total package wise cost including hard cost, indexation, taxes, soft cost and IDC is also tabulated below along with the claimed cost:

SL. No.	PACKAGES/ PROJECTS	Claimed by BIAL Grand Total including hard cost, indexation, taxes, soft cost and IDC, INR Crore	As assessed in this Report Grand Total including hard cost, indexation, taxes, soft cost and IDC, INR Crore
A	**Airside Works**		
A.1	West Cross Field Taxiway	**1,690**	**1,224.9**
A.2	Airfield works (Taxiway extension, Isolation Bay etc)	**678**	**501.7**
A.3	T-2 Apron (9 +4 Stands)	**352**	**260.8**
A.4	T-2 Phase 2 Apron (40 Stands)	**851**	**754.9**
A.5	Taxiway Z & Enabling works	**149**	**106.7**
A.6	T2 Phase 2 West Apron (18 Stands)	**448**	Not Considered
A.7	Cargo West Apron (12 Stands)	**192**	**133.9**
A.8	North Airside Perimeter Wall & Perimeter Road	**102**	**13.8**
A.9	Taxiway B9 & Enabling Works	**51**	**43.8**
	Total Airfield	**4,512**	**3,040.6**
B	**Terminal Works**		
B.1	T1 Upgrade	**1,106**	**892.6**
B.2	T2 Enhancement	**84**	**68.5**
B.3	T2 Phase 2	**7,176**	**5,713.0**
B.4	T1/T2 Connectivity - Pier Expansion	**395**	**204.0**
B.5	GA Terminal	**51**	Not Considered
B.6	Airport Staff Parking & Cafeteria	**176**	**135.8**
B.7	Contingency Facility	**45**	**37.1**
B.8	New Air Traffic Control Tower (ATCT)	**175**	**130.8**
	Total Terminal	**9,208**	**7,181.8**
C	**Landside Works**		
C.1	Eastern Connectivity Tunnel (ECT)	**2,573**	**1,880.3**
C.2.1	Airport Terminal Metro Station (ATMS)	**395**	**354.8**
C.2.2	KIA West Metro Station (KWMS)	**204**	Not Considered

SL. No.	PACKAGES/ PROJECTS	Claimed by BIAL Grand Total including hard cost, indexation, taxes, soft cost and IDC, INR Crore	As assessed in this Report Grand Total including hard cost, indexation, taxes, soft cost and IDC, INR Crore
C.4	T1 to T2 & Metro Connector (walkway)	**106**	**80.0**
C.5	North West Road Expansion (2+2 Lane)	**44**	**23.7**
C.6	Cargo Avenue (NCR) Expansion (2+2 Lane) LSG to Alpha 1	**17**	**12.9**
C.7	T1 & T2 Departure and arrival recirculation	**106**	**54.1**
C.10	MAR Recirculation Link	**134**	**100.3**
C.11	MAR-SWR Interchange Upgrade	**56**	Not Considered
C.12	North Boundary Road (Landside North East Road)	**170**	Not Considered
	Total Landside	**3,804**	**2,506.1**
D	**Others**		
D.1	Utilities	**869**	**696.9**
D.2	MMTH Enhancement	**50**	**29.7**
D.3	Green Belt Development	**29**	**10.9**
D.4	Rainwater Harvesting Pond-1	**163**	**131.9**
	Total Others	**1,111**	**869.4**
	Grand Total	**18,635**	**13,598**

For Package wise Detailed Break Up of Hard and Soft Cost, Refer **Annexure-1.**

Annexure 1

ANALYSIS OF CAPITAL EXPENDITURE OF KEMPEGOWDA INTERNATIONAL AIRPORT, BENGALURU FOR THE FOURTH CONTROL PERIOD (2026 – 2031)

All Figures in INR Crore

Sl. No.	Cost Code	Program / Projects	CLAIMED BY BIAL									AS ASSESSED IN THIS REPORT								
			Hard Cost (Excluding GST & Cess)	Indexation	GST @ 14% (net of ITC)	Cess @ 1%	Cost incl Indexation, taxes	Soft Cost	Total including Soft Cost	IDC	Total incl IDC	Hard Cost (Excluding GST & Cess)	Indexation	GST @ 14% (net of ITC)	Cess @ 1%	Cost incl Indexation, taxes	Soft Cost	Total including Soft Cost	IDC	Total incl IDC
		Airfield Works																		
1.01	A.1	West Cross Field Taxiway	1,145	64	169	12.1	**1,391**	167	**1,558**	132	**1,690**	976.00	1.9	136.9	9.8	**1,124.6**	96.3	**1,220.9**	4.0	**1,224.9**
1.02	A.2	Airfield works (Taxiway extension, Isolation bay etc)	443	32	67	4.8	**547**	66	**612**	66	**678**	390.0	4.5	55.2	3.9	**453.7**	39.6	**493.3**	8.4	**501.7**
1.03	A.3	T-2 Apron (9 +4 Stands)	235	9	34	2.4	**281**	34	**315**	37	**352**	203.0	1.5	28.6	2.0	**235.2**	20.6	**255.8**	5.0	**260.8**
1.04	A.4	T-2 Phase 2 Apron (40 Stands)	557	57	86	6.1	**706**	85	**790**	60	**851**	498.0	51.0	76.9	5.5	**631.4**	63.1	**694.5**	60.4	**754.9**
1.05	A.5	Taxiway Z & Enabling works	111	3	16	1.1	**130**	16	**146**	2	**149**	84.0	0.3	11.8	0.8	**96.9**	8.5	**105.4**	1.3	**106.7**
1.06	A.6	T2 Phase 2 West Apron (18 Stands)	285	45	46	3.3	**379**	46	**425**	23	**448**	-	-	-	-	-	-	**-**	**-**	**-**
1.07	A.7	Cargo West Apron (12 Stands)	137	4	20	1.4	**163**	20	**183**	9	**192**	96.0	3.0	13.9	1.0	**113.9**	11.4	**125.2**	8.7	**133.9**
1.08	A.8	North Airside Perimeter Wall & Perimeter Road	71	3	10	0.7	**86**	10	**96**	5	**102**	10.0	0.4	1.5	0.1	**12.0**	1.2	**13.2**	0.6	**13.8**
1.09	A.9	Taxiway B9 & Enabling Works	36	2	5	0.4	**44**	5	**49**	2	**51**	32.0	1.6	4.7	0.3	**38.6**	3.9	**42.5**	1.3	**43.8**
		Total Airfield	**3,021**	**220**	**454**	**32**	**3,727**	**447**	**4,175**	**337**	**4,512**	**2,289**	**64.2**	**329.4**	**23.5**	**2,706.2**	**244.6**	**2,950.8**	**89.8**	**3,040.6**
2	**B**	**Passenger Terminal**																		
2.01	B.1	T1 Upgrade	822	21	118	8.4	**969**	116	**1,086**	20	**1,106**	698.0	2.9	98.1	7.0	**806.0**	70.5	**876.5**	16.2	**892.6**
2.02	B.2	T2 Enhancement	61	1	9	0.6	**71**	9	**80**	4	**84**	54.0	0.2	7.6	0.5	**62.3**	5.5	**67.8**	0.7	**68.5**
2.03	B.3	T2 Phase 2	4,490	406	685	49.0	**5,631**	676	**6,306**	870	**7,176**	3,658.0	330.5	558.4	39.9	**4,586.8**	458.7	**5,045.5**	667.5	**5,713.0**
2.04	B.4	T1/T2 Connectivity - Pier Expansion	255	32	40	2.9	**330**	40	**370**	25	**395**	135.0	16.7	21.2	1.5	**174.5**	17.4	**191.9**	12.1	**204.0**
2.05	B.5	GA Terminal	36	2	5	0.4	**43**	5	**48**	3	**51**	-	-	-	-	-	-	-	-	-
2.06	B.6	Airport Staff Parking & Cafeteria	120	8	18	1.3	**146**	18	**164**	12	**176**	95.0	6.0	14.1	1.0	**116.2**	11.6	**127.8**	8.0	**135.8**
2.07	B.7	Contingency Facility	32	1	5	0.3	**38**	5	**43**	2	**45**	27.0	1.0	3.9	0.3	**32.2**	3.2	**35.4**	1.7	**37.1**
2.08	B.8	New Air Traffic Control Tower (ATCT)	113	14	18	1.3	**146**	17	**163**	12	**175**	89.0	8.3	13.6	1.0	**111.9**	11.2	**123.1**	7.8	**130.8**
		Total Terminal	**5,928**	**485**	**898**	**64**	**7,375**	**885**	**8,260**	**948**	**9,208**	**4,756**	**365.6**	**717.0**	**51.2**	**5,889.8**	**578.1**	**6,467.9**	**713.9**	**7,181.8**
3	**C**	**Landside Access and Parking**																		
3.01	C.1	Eastern Connectivity Tunnel (ECT)	1,655	145	252	18.0	**2,069**	248	**2,317**	255	**2,573**	1,217.0	99.7	184.3	13.2	**1,514.2**	150.0	**1,664.2**	216.1	**1,880.3**
3.02	C.2.1	Airport Terminal Metro Station (ATMS)	278	11	40	2.9	**332**	40	**372**	23	**395**	252.0	10.3	36.7	2.6	**301.6**	30.2	**331.8**	23.0	**354.8**
3.03	C.2.2	KIA West Metro Station(KWMS)	143	6	21	1.5	**172**	21	**192**	12	**204**	-	-	-	-	-	-	-	-	-
3.04	C.4	T1 to T2 & Metro Connector (walkway)	76	3	11	0.8	**91**	11	**102**	4	**106**	58.0	2.4	8.5	0.6	**69.5**	6.9	**76.4**	3.6	**80.0**
3.05	C.5	North West Road Expansion (2+2 Lane)	32	1	5	0.3	**38**	5	**43**	2	**44**	17.0	0.5	2.5	0.2	**20.1**	2.0	**22.1**	1.5	**23.7**
3.06	C.6	Cargo Avenue (NCR) Expansion (2+2 Lane) LSG to Alpha 1	12	1	2	0.1	**14**	2	**16**	1	**17**	9.0	0.6	1.3	0.1	**11.0**	1.1	**12.1**	0.8	**12.9**
3.07	C.7	T1 & T2 Departure and arrival recirculation	75	5	11	0.8	**92**	11	**103**	3	**106**	38.0	2.5	5.7	0.4	**46.6**	4.7	**51.2**	2.9	**54.1**
3.08	C.10	MAR Recirculation Link	95	5	14	1.0	**115**	14	**129**	5	**134**	71.0	4.1	10.5	0.8	**86.4**	8.6	**95.0**	5.3	**100.3**
3.09	C.11	MAR-SWR Interchange Upgrade	36	4	6	0.4	**46**	6	**52**	4	**56**	-	-	-	-	-	-	-	-	-
3.1	C.12	North Boundary Road (Landside North East Road)	111	9	17	1.2	**138**	17	**154**	15	**170**	-	-	-	-	-	-	-	-	-
		Total Landside	**2,511**	**191**	**378**	**27**	**3,107**	**373**	**3,480**	**324**	**3,804**	**1,662**	**120.1**	**249.5**	**17.8**	**2,049.4**	**203.5**	**2,252.9**	**253.2**	**2,506.1**
4	**D**	**Others**																		
4.01	D.1	Utilities	570	60	88	6.3	**724**	87	**811**	58	**869**	457.0	48.2	70.7	5.1	**581.0**	58.1	**639.1**	57.9	**696.9**
4.02	D.2	MMTH Enhancement	37	1	5	0.4	**43**	5	**48**	2	**50**	22.0	0.4	3.1	0.2	**25.8**	2.6	**28.3**	1.4	**29.7**
4.03	D.3	Green Belt Development	18	1	3	0.2	**22**	3	**25**	4	**29**	7.0	0.5	1.1	0.1	**8.6**	0.9	**9.5**	1.4	**10.9**
4.04	D.4	Rainwater Harvesting Pond-1	104	13	16	1.2	**134**	16	**150**	13	**163**	87.0	10.5	13.7	1.0	**112.1**	11.2	**123.3**	8.5	**131.9**
		Total others	**729**	**75**	**112**	**8**	**924**	**111**	**1,034**	**76**	**1,111**	**573**	**59.6**	**88.6**	**6.3**	**727.5**	**72.7**	**800.2**	**69.2**	**869.4**
		Grand total	**12,190**	**970**	**1,842**	**132**	**15,134**	**1,816**	**16,950**	**1,685**	**18,635**	**9,280**	**609.5**	**1,384.5**	**98.9**	**11,372.9**	**1,098.9**	**12,471.9**	**1,126.1**	**13,598**