

PRE-FEASIBILITY REPORT

PROPOSED EXPANSION OF CHAUDHARY CHARAN SINGH INTERNATIONAL AIRPORT, LUCKNOW, UTTAR PRADESH



Lucknow International Airport Limited
Lucknow, Uttar Pradesh

April, 2022

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Abbreviation	
AAI	Airports Authority of India
AIP	Aeronautical Information Publication
ALIAL	Adani Lucknow International Airport Limited
AOCC	Airline Operations Control Center
ARFF	Aircraft Rescue and Firefighting
ASML	Above Sea Mean Level
ATC	Air Traffic Control / Air Traffic Controller
ATF	Aviation Turbine Fuel
ATM	Air Traffic Movement
ATS	Air Traffic Services
CAT	Category
CCSIA	Chaudhary Charan Singh International Airport

CFE	Consent for Establishment
CIFS	Central Industrial Security Force
CIP	Commercial Important Person
CRZ	Coastal Regulation Zone
CTE	Consent to Establish
CTO	Consent to Operate
C&D	Construction and Demolition
DME	Distance Measuring Equipment
DVOR	Doppler Very High – Frequency Omni Range
ECBC	Energy Conservation Building Code
EIA	Environmental Impact Assessment
GA	General Aviation
GSD	Ground Service Depots
GSE	Ground Service Equipment
Ha	Hectare
HPCL	Hindustan Petroleum Corporation Limited
HVAC	Heating, Ventilation and Air Conditioning
HWM	Hazardous Waste Management
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
ILS	Instrument Landing System
IMD	Indian Meteorological Department
IRC	India Roads Congress
KLD	Kilo Litre per Day
UPPCB	Uttar Pradesh Pollution Control Board
LDI	Landing Direction Indicator
LIH	Light Intensity High
LPG	Liquified Petroleum Gas
LOC	Localizer

MBBR	Moving Bed Biofilm Reactor
MET	Meteorological
LIAL	Lucknow International Airport Limited
MLCP	Multi Level Car Park
MLD	Million Litre per day
MPPA	Million Passengers per Annum
MTPA	Million Ton Per Annum
MVA	Mega Volt Ampere
NAVAIDs	Navigational Aids
NBC	National Building Code
NDB	Non-directional beacons
NHAI	National Highways Authority of India
NHDP	National Highways Development Project
NITB	New Integrated Terminal Building
PTB	Passenger Terminal Building
RESA	Runway End Safety Area
RMC	Ready Mixed Concrete
ROW	Right of Way
RWH	Rainwater Harvesting
SALS	Simple Approach Lighting System
SBR	Sequential Batch Reactor
STP	Sewage Treatment Plant
TPD	Ton Per Day
ULD	Unit Load Device
VFD	Variable Frequency Drives
VIP	Very Important Person
WHR	Waste Heat Recovery

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EXECUTIVE SUMMARY

Chaudhary Charan Singh International Airport (CCSIA) is situated on southern edge of Lucknow, the capital city of state of Uttar Pradesh, on Lucknow-Kanpur National Highway (NH27) about 11 km south of Lucknow Railway Station which is in centre of the city. CCSIA is an international airport serving this capital city and is one of the three international airports in Uttar Pradesh, the other being Varanasi International Airport in Varanasi and Khushi Nagar International Airport in Gorakhpur. Being a state capital and due to its proximity to Kanpur (located 75 km from Lucknow) CCSIA serves the air traffic demand of Lucknow as well as of Kanpur and has a substantial catchment of Gulf bound air traffic. It has been designated as major airport by Airport Economic Regulatory of India.

A Concession Agreement (CA) for Operation, Maintenance, Management & Development of Chaudhary Charan Singh International Airport (the "Airport" or "CCSIA") Lucknow has been signed between Airports Authority of India ("AAI") and Lucknow International Airport Ltd (LIAL) (earlier known as Adani Lucknow International Airport Ltd.) on 14th February 2020. As per the Concession Agreement, LIAL has commenced the for Operation, Maintenance, Management & Development of the Airport from 2nd November, 2020.

Chaudhary Charan Singh International Airport (CCSIA) is spread over an area of 509.41 ha (1258.80 acres). CCSIA has Runway strip (09/27) of 2864 m x 280 m dimensions with primary runway measuring 2744 m X 45 m which is built in rigid pavement. It can handle a wide range of aircrafts, from narrow-body Code C to wide-body Code E.

CCSIA presently has two operating passenger terminals. The single level Terminal T1 is the older terminal, which was originally commissioned in 1986 for domestic operations, but later the domestic operations was shifted, on commissioning of another Terminal Building. Presently T1 is international terminal and other new Terminal Building (T2) is used for domestic operations. At present New Integrated Terminal Building (NITB) (T3) and associated landside facilities such as car parks, access roads, utilities, amenities, etc is being developed inline the Environment Clearance dtd. 26th September 2018.

CCSIA has two aprons, the main apron for commercial aircraft operations located on western side near terminals T1 and T2, and secondary apron for State Government/ General Aviation situated on eastern part of airport near State Govt hangars/ VIP Terminal. The main apron has area of approximately 11.175 ha (27.614 acres) and has 2 passenger boarding bridges. It accommodates 14 Code C aircrafts and 2 Code E aircrafts parking stands. At present, CCSIA has a linked taxiway.

CCSIA has handled ~ 5.53 MPPA in the FY 2018-19.

The proposed capacity enhancement activity includes works required for relocation, improvement, modification / up-gradation / augmentation and modernization of existing Airside/Landside facilities and infrastructure, and to meet operational safety requirements to facilitate the required infrastructure to serve the projected passenger and cargo traffic in ultimate phase. The Master Plan has been considered into two major zones (1) Airside Zone (Terminal Development, Cargo complex development, Runway, Apron & taxiway, Hangar,

Support Facilities & Utilities, Road & Transport) & (2) Landside Zone (Support Facilities & Utilities, Cargo complex development, Road & Transport, ATC).

The proposed master plan is inclusive of Two integrated terminal buildings, i.e NITB (T3) (modification) and New Terminal Building (NTB) (T4) with associated infrastructure, support facilities & utilities, to accommodate 39 MPPA (Million Passengers Per Annum). The projected Cargo Handling capacity will be 0.25 MTPA (Million Ton Per Annum).

The northern side of the runway is planned with a double parallel taxiway system. The southern side of the runway is planned with a single parallel taxiway.

As a part of concession agreement between AAI & LIAL, 509.41 Ha (1258.80 acres) has been allotted to LIAL for development of CCSIA into state-of-art Airport serving business markets, tourism, and keeping pace with the growth in Air traffic. Out of which, 44.52 Ha (110 Acre) of land will be considered for City Side development, which will be developed phase wise after obtaining required approvals.

3 Isolated plots with individual area of 6.8 Ha (16.812 Acre), 0.19 Ha (0.47 acre) 0.81 Ha (2 Acre) are excluded from this Master plan.

LIAL now proposes expansion of CCSIA within an area of 457.10 ha (1129.52 acre), which includes land area of 14.34 Ha (35.44 acres) as a Carved out area, retained by Airport Authority of India (AAI).

For achieving the better operating practices for safety, additional area of 22.27 Ha (55.06 acre) is identified and same will be acquired and utilized subject to its availability from AAI. However this will not have, any direct implications on the proposed expansion, as same will be used only for enhancing safety.

Water requirements for CCSIA Operation is estimated to be 9.6 MLD, out of which 4.4 MLD is potable water requirement, which is proposed to be met through State Government Water Supply / Bore wells and 5.2 MLD will be recycled from STP.

The total estimated waste water generation is expected around 5.10 MLD which will be treated through total STP capacity of 5.45 MLD (MBR, MBBR, SBR etc.) (Including 1.95 MLD STP which is being developed inline to existing Environment Clearance) to be developed on modular basis. Treated wastewater will be used for Landscaping or other purposes. Liquid waste from aircraft will be treated at Triturator as a primary treatment & further will be pumped to STP for secondary treatment.

The total estimated power demand for CCSIA Operations is 41 MVA, which will be sourced from Electrical Substation. DG sets for emergency requirements will be installed on modular basis.

The total estimated Solid waste generation is 34 Ton/day, which will be managed inline with the provisions of the Solid Waste Rules, 2016, amended till date.

Hazardous waste (1 Ton/day) Used Oil, Contaminated filters, Oily cotton waste, discarded drums etc will be generated and will be handled in accordance with Hazardous Waste Management Rules 2016, amended till date.

Construction & Demolition waste will be handled inline to Construction & Demolition Waste Rules, 2016, amended till date.

The budgetary estimate for the master plan development including Airside and Landside development is **INR 10,700 Crores**.

1.0 INTRODUCTION TO PROJECT

1.1 Background

Lucknow International Airport Limited (LIAL), a wholly owned subsidiary of Adani Enterprises Limited, signed Concession Agreement with Airports Authority of India (AAI) on 14th February 2020, for operation, maintenance, management, and development of Chaudhary Charan Singh International Airport (CCSIA), Lucknow.

LIAL has been entrusted with the responsibility to operate and manage the existing airport assets and will be responsible for designing, engineering, financing, construction, upgradation, and development of future airside, terminal, city side and landside infrastructure for the airport in phases, and its subsequent operation and management for a 50 year concession period.

2.0 PROJECT PROFILE/DEVELOPMENT

2.1 Project Proponent

With a vision to be a globally admired leader in the integrated infrastructure and transportation business, the Adani Group forayed into the airports sector in 2019. Incubated within the group's flagship company Adani Enterprises Ltd. (AEL), Adani Airports won the mandate to modernize and operate – Lucknow Airport through Airports Authority of India.

The Adani Group is committed to offer the best-in class airport infrastructure to passengers, ensuring the most seamless and secure airport experience. Through Adani Airports, it envisions the redefining of the city-airport relationship, building shared facilities that cater to the ever evolving global travel, life and work requirements.

2.2 Brief Description of Nature of Project

Lucknow International Airport Limited (LIAL) proposed to enhance the passenger handling capacity to its ultimate phase of 39 MPPA, Cargo Capacity up to 0.25 MTPA. The proposed improvement and new development are being planned to satisfy aviation, environmental and socioeconomic issues. This will include development in airside and landside area of airport, which will support the ultimate capacity.

❖ Project Background

CCSIA, earlier known as Amousi Airport was commissioned in 1986 to facilitate corporate and government officials. Lucknow airport got a new Terminal T1 in 1996. It was formally named as Chaudhary Charan Singh Airport in July 2008. In view of increasing air traffic demand, Union Cabinet granted it international status on October 2012, and it has since been known as Chaudhary Charan Singh International Airport (CCSIA).

❖ Concession Agreement

A concession Agreement for Operation, Maintenance, Management & Development of airport has been signed between Airports Authority of India (AAI)

and Lucknow International Airport Limited (LIAL) on 14th February 2020. As per the Concession Agreement, LIAL has commenced the operations, maintenance, development and management of the Airport from 2nd November, 2020.

❖ **Statutory Clearances**

Various statutory clearances/permission pertaining to environment have been obtained for the project till date, is given in **Table- 1**.

TABLE-1
LIST OF STATUTORY CLEARANCE OBTAINED

Approvals	Additional Information	Reference & Date of Approval
MoEF&CC – Environment Clearance		
Environmental Clearance for proposed terminal building at CCSIA	EC granted Public hearing held on 28 th June, 2011	F.No.10-18/2007.IA.III, dated 23 rd May, 2012
Environment Clearance – Expansion of Lucknow Airport in respect of construction of new integrated terminal building and allied facilities at CCSIA by AAI.	EC granted Public hearing held on 20 th April, 2018	F.No. 10-47/2017-IA.III, dated 26 th September 2018
Transfer of Environment Clearance for new integrated terminal building and allied facilities at CCSIA, Lucknow, Uttar Pradesh from Airports Authority of India (AAI) to Adani Lucknow International Airport Limited (ALIAL)	Granted by MOEF&CC Application dtd. 20 th April 2021	Vide letter no. F.No.10-47/2017-IA.III dated 17 th June, 2021
Transfer of Environment Clearance for proposed terminal building at CCSIA , Lucknow, Uttar Pradesh from Airports Authority of India (AAI) to Lucknow International Airport Limited (LIAL)	Granted by MOEF&CC Application dtd. 5 th February 2022	F.No.10-18/2007.IA.III, dated 16 th February, 2022
Name Change of Environment Clearance for new integrated terminal building and allied facilities at CCSIA, Lucknow, Uttar Pradesh from Adani Lucknow International Airport Limited (ALIAL) to Lucknow International Airport Limited (LIAL)	Granted by MOEF&CC Application dtd. 22 nd March 2022	Vide letter no. F.No.10-47/2017-IA.III dated 2nd April, 2022
UPPCB – Consent to Establish (CTE)		
Consent to Establish	Application dated: 30th October 2018	36083/UPPCB/Lucknow(UPPC BRO)/CTE/LUCKNOW/2018 Dated 1st February 2019 valid upto 30th January 2024.
Transfer of Consent to Establish	Application dated: 9th October 2020	Transfer Order No. H54110/c5/l/NOC-929/2020 Dated: 21st October 2020
UPPCB – Consent to Operate (CTO)		
Consent to Operate	Application reference :	Consent order

Approvals	Additional Information	Reference & Date of Approval
	1146906	no.122221/UPPCB/Lucknow(U PPCBRO)/CTO/water/LUCKNOW/2021 and Consent order no.122245/UPPCB/Lucknow(U PPCBRO)/CTO/air/LUCKNOW/2021 dated 14th May 2020 validity upto 31st December 2025
Transfer of –Consent to Operate	Application dtd. 9th October 2020	Transfer Order No H54107/c5/water 251/2020 Dated: 21st October 2020

*As per the Certificate of Incorporation for name change issued by Ministry of Corporate Affairs on 9th November 2021 Adani Lucknow International Airport Ltd. will be further considered Lucknow International Airport Ltd.

2.3 Need of the Project: Traffic Growth & Demand

2.3.1 Existing and Projected Traffic Growth at LIAL

The unconstrained Annual Traffic Forecast for LIAL is presented in the **Table-2**.

TABLE-2
ANNUAL TRAFFIC FORECASTS: REGRESSION PASSENGER FORECASTS
UNCONSTRAINED HIGH SCENARIO

Year	Domestic Pax	Domestic Pax Growth	International Pax	International Pax Growth	Total Pax	Total Pax Growth
FY18	4,013,891		739,030		4,752,921	
FY19	4,697,121	17.0%	835,698	13.1%	5,532,819	16.4%
FY20	4,696,669	0.0%	737,088	-11.8%	5,433,757	-1.8%
FY21	1,300,000	-72.3%	0	-100.0%	1,300,000	-76.1%
FY22	3,100,000	138.5%	330,000	n/a	3,430,000	163.8%
FY23	4,400,000	41.9%	540,000	63.6%	4,940,000	44.0%
FY24	5,412,000	23.0%	837,000	55.0%	6,249,000	26.5%
FY25	6,548,520	21.0%	1,004,400	20.0%	7,552,920	20.9%
FY26	7,792,739	19.0%	1,190,214	18.5%	8,982,953	18.9%
FY27	9,117,504	17.0%	1,380,648	16.0%	10,498,153	16.9%
FY28	10,530,718	15.5%	1,580,842	14.5%	12,111,560	15.4%
FY29	12,005,018	14.0%	1,786,352	13.0%	13,791,370	13.9%
FY30	13,209,602	11.9%	1,954,351	9.4%	15,163,954	10.0%
FY31	14,450,776	9.4%	2,104,349	7.7%	16,555,125	9.2%
FY32	15,775,046	9.2%	2,260,772	7.4%	18,035,817	8.9%
FY33	17,184,073	8.9%	2,422,846	7.2%	19,606,919	8.7%
FY34	18,301,037	6.5%	2,540,960	4.9%	20,841,998	6.3%

Source: CAPA Traffic Forecast Report

Pre-Feasibility Report (PFR)

Year	Domestic Pax	Domestic Pax Growth	International Pax	International Pax Growth	Total Pax	Total Pax Growth
FY35	19,490,605	6.5%	2,664,832	4.9%	22,155,437	6.3%
FY36	20,757,494	6.5%	2,794,743	4.9%	23,552,237	6.3%
FY37	22,106,731	6.5%	2,930,986	4.9%	25,037,718	6.3%
FY38	23,543,669	6.5%	3,073,872	4.9%	26,617,541	6.3%
FY39	24,956,289	6.0%	3,212,196	4.5%	28,168,485	5.8%
FY40	26,453,666	6.0%	3,356,745	4.5%	29,810,411	5.8%
FY41	28,040,886	6.0%	3,507,798	4.5%	31,548,685	5.8%
FY42	29,723,339	6.0%	3,665,649	4.5%	33,388,989	5.8%
FY43	31,506,740	6.0%	3,830,604	4.5%	35,337,343	5.8%
FY44	33,239,610	5.5%	3,988,616	4.1%	37,228,226	5.4%
FY45	35,067,789	5.5%	4,153,146	4.1%	39,220,935	5.4%
FY46	36,996,517	5.5%	4,324,464	4.1%	41,320,981	5.4%
FY47	39,031,326	5.5%	4,502,848	4.1%	43,534,174	5.4%
FY48	41,178,049	5.5%	4,688,590	4.1%	45,866,639	5.4%
FY49	43,236,951	5.0%	4,864,412	3.8%	48,101,364	4.9%
FY50	45,398,799	5.0%	5,046,828	3.8%	50,445,627	4.9%
FY51	47,668,739	5.0%	5,236,084	3.8%	52,904,823	4.9%

Source: CAPA Traffic Forecast Report

Year	Domestic Pax	Domestic Pax Growth	International Pax	International Pax Growth	Total Pax	Total Pax Growth
FY52	50,052,176	5.0%	5,432,437	3.8%	55,484,613	4.9%
FY53	52,554,784	5.0%	5,636,154	3.8%	58,190,938	4.9%
FY54	54,919,750	4.5%	5,826,374	3.4%	60,746,123	4.4%
FY55	57,391,138	4.5%	6,023,014	3.4%	63,414,152	4.4%
FY56	59,973,740	4.5%	6,226,291	3.4%	66,200,030	4.4%
FY57	62,672,558	4.5%	6,436,428	3.4%	69,108,986	4.4%
FY58	65,492,823	4.5%	6,653,657	3.4%	72,146,480	4.4%
FY59	68,112,536	4.0%	6,853,267	3.0%	74,965,803	3.9%
FY60	70,837,037	4.0%	7,058,865	3.0%	77,895,902	3.9%
FY61	73,670,519	4.0%	7,270,631	3.0%	80,941,150	3.9%
FY62	76,617,340	4.0%	7,488,750	3.0%	84,106,089	3.9%
FY63	79,682,033	4.0%	7,713,412	3.0%	87,395,446	3.9%
FY64	82,470,904	3.5%	7,915,889	2.6%	90,386,794	3.4%
FY65	85,357,386	3.5%	8,123,682	2.6%	93,481,067	3.4%
FY66	88,344,894	3.5%	8,336,928	2.6%	96,681,823	3.4%
FY67	91,436,966	3.5%	8,555,773	2.6%	99,992,738	3.4%
FY68	94,637,260	3.5%	8,780,362	2.6%	103,417,621	3.4%

Source: CAPA Traffic Forecast Report

TABLE-3
ANNUAL TRAFFIC FORECASTS: REGRESSION CARGO FORECAST
UNCONSTRAINED MEDIUM SCENARIO

Year	Domestic Cargo (tonnes)	Domestic Cargo Growth	International Cargo (tonnes)	Int'l Cargo Growth	Total Cargo (tonnes)	Total Cargo Growth
FY18	481		2,046		2,527	
FY19	391	-18.7%	2,896	41.5%	3,287	30.1%
FY20	1,514	287.2%	3,091	6.7%	4,605	40.1%
FY21	954	-37.0%	0	-100.0%	954	-79.3%
FY22	1,546	61.9%	2,178	n/a	3,724	290.1%
FY23	1,855	20.0%	3,479	59.7%	5,334	43.2%
FY24	2,226	20.0%	4,263	22.5%	6,488	21.6%
FY25	2,671	20.0%	4,966	16.5%	7,637	17.7%
FY26	3,205	20.0%	5,785	16.5%	8,990	17.7%
FY27	3,846	20.0%	6,740	16.5%	10,586	17.7%
FY28	4,615	20.0%	7,852	16.5%	12,467	17.8%
FY29	5,538	20.0%	9,147	16.5%	14,686	17.8%
FY30	6,646	20.0%	10,657	16.5%	17,303	17.8%
FY31	7,975	20.0%	12,415	16.5%	20,390	17.8%
FY32	9,570	20.0%	14,464	16.5%	24,034	17.9%
FY33	11,484	20.0%	16,850	16.5%	28,334	17.9%
FY34	12,058	5.0%	17,693	5.0%	29,751	5.0%

Source: CAPA Traffic Forecast Report

Year	Domestic Cargo (tonnes)	Domestic Cargo Growth	International Cargo (tonnes)	Int'l Cargo Growth	Total Cargo (tonnes)	Total Cargo Growth
FY35	12,661	5.0%	18,577	5.0%	31,238	5.0%
FY36	13,294	5.0%	19,506	5.0%	32,800	5.0%
FY37	13,959	5.0%	20,482	5.0%	34,440	5.0%
FY38	14,657	5.0%	21,506	5.0%	36,162	5.0%
FY39	15,390	5.0%	22,581	5.0%	37,971	5.0%
FY40	16,159	5.0%	23,710	5.0%	39,869	5.0%
FY41	16,967	5.0%	24,895	5.0%	41,863	5.0%
FY42	17,815	5.0%	26,140	5.0%	43,956	5.0%
FY43	18,706	5.0%	27,447	5.0%	46,153	5.0%
FY44	19,548	4.5%	28,682	4.5%	48,230	4.5%
FY45	20,428	4.5%	29,973	4.5%	50,401	4.5%
FY46	21,347	4.5%	31,322	4.5%	52,669	4.5%
FY47	22,308	4.5%	32,731	4.5%	55,039	4.5%
FY48	23,311	4.5%	34,204	4.5%	57,516	4.5%
FY49	24,360	4.5%	35,743	4.5%	60,104	4.5%
FY50	25,457	4.5%	37,352	4.5%	62,808	4.5%
FY51	26,602	4.5%	39,033	4.5%	65,635	4.5%

Source: CAPA Traffic Forecast Report

Year	Domestic Cargo (tonnes)	Domestic Cargo Growth	International Cargo (tonnes)	Int'l Cargo Growth	Total Cargo (tonnes)	Total Cargo Growth
FY52	27,799	4.5%	40,789	4.5%	68,588	4.5%
FY53	29,050	4.5%	42,625	4.5%	71,675	4.5%
FY54	30,212	4.0%	44,330	4.0%	74,542	4.0%
FY55	31,421	4.0%	46,103	4.0%	77,524	4.0%
FY56	32,677	4.0%	47,947	4.0%	80,624	4.0%
FY57	33,985	4.0%	49,865	4.0%	83,849	4.0%
FY58	35,344	4.0%	51,859	4.0%	87,203	4.0%
FY59	36,758	4.0%	53,934	4.0%	90,692	4.0%
FY60	38,228	4.0%	56,091	4.0%	94,319	4.0%
FY61	39,757	4.0%	58,335	4.0%	98,092	4.0%
FY62	41,347	4.0%	60,668	4.0%	102,016	4.0%
FY63	43,001	4.0%	63,095	4.0%	106,096	4.0%
FY64	44,721	4.0%	65,619	4.0%	110,340	4.0%
FY65	46,510	4.0%	68,243	4.0%	114,754	4.0%
FY66	48,371	4.0%	70,973	4.0%	119,344	4.0%
FY67	50,305	4.0%	73,812	4.0%	124,118	4.0%
FY68	52,318	4.0%	76,765	4.0%	129,082	4.0%

Source: CAPA Traffic Forecast Report

The proposed capacity enhancement activity includes works required for relocation, improvement, modification /up-gradation /augmentation and modernization of existing Airside/Landside facilities and infrastructure, and to meet operational safety requirements to facilitate the required infrastructure to serve the projected passenger and cargo traffic in ultimate phase.

The projected total annual passenger demand will be 39 MPPA, of which annual domestic passenger traffic demand is expected to be 34 MPPA and international passenger demand will be around 5 MPPA, which will be handled at New Integrated terminal Buildings. The cargo volume is projected to be about 0.25 MTPA.

2.3.2 Demand Supply Gap

The passenger handling capacity in future may continue to increase. In view of rapid growth in passenger traffic & Aircraft movement, operational infrastructure needs to be upgraded to serve the estimated demand. Improvements in connectivity will effectively contribute to the economic performance of the wider economy through enhancing its overall level of productivity.

The passenger traffic at CCSIA is proposed to increase the passenger handling capacity to its ultimate phase of 39 MPPA & Cargo Handling capacity over 0.25 MTPA.

2.3.3 Imports vs. Indigenous Production

Airports play an eminent role in the economic development of a region, as well as the nation as a whole. Airports facilitate fast movement of man and materials, thereby fostering trade and commerce.

2.3.4 Export Possibility

The airport has significant growth potential on international export of general cargo, and Ecommerce based domestic air cargo. The airport also has attractive captive international export market for perishables.

2.4 Need for the Project and its Importance to the Country

Airports play an eminent role in the economic development of a region, as well as the nation as a whole. Airports facilitate fast movement of man and materials, thereby fostering trade and commerce.

Airports offer increased accessibility, which in turn fuels the tourism sector. With an increase in the number of visitors and airport users, more money flows in to the local economy. With increased economic activity and employment, consumer behavior changes, raising the standard of living of the people in the region. Thus, the availability of airports provides a thrust to the GDP of the local region, having a positively impact on the national economy.

Due to the fast and previously unforeseen growth of air traffic at CCSIA in the last few years it was necessary to review the air traffic forecast. Their view concluded that the actual growth was even higher than anticipated in the most optimistic forecasts from previous efforts. This growth will be met through improvement, modification/up-gradation/augmentation and modernization of existing Airside/Landside facilities and infrastructure. Projected passenger traffic at LIAL is expected to increase up to 39 MPPA and cargo handling up to 0.25 MTPA

2.5 Employment Generation

Direct Employment: Employment generated by activities on site at the Airport. These include the airport operations and management, aircraft maintenance, storage facilities, charter services and leasing activities, airlines, shops and other concessions, catering ground engineering and handling air traffic control and car parking facilities.

Indirect Employment: Employment generated through activities off site by organizations and companies supplying goods and services to the airport. These jobs may be locally based or more remote from the airport, depending on the nature of supply chain.

Induced Employment: Employment generated through spending habits of salaried employee both in direct and indirect activities. This category is likely to provide jobs at regional level.

It is expected about 2000 direct & indirect employment during construction phase and 25000 direct and indirect employment during operational phase of the project after expansion.

3.0 PROJECT DESCRIPTION

3.1 Type of Project

The proposed project falls in Category 7(a) of the Schedule vide EIA notification 2006 amended to date involving preparation of Environment Impact Assessment study and Environment Management Plan. However, general condition is not applicable to this project. This project is independent and is not linked with other projects, which may attract directly or indirectly any provisions of schedule of EIA notification 2006 amended to date.

3.2 Location

Chaudhary Charan Singh International Airport (IATA: LKO, ICAO: VILK) serves the city of Lucknow the capital of Uttar Pradesh. CCSIA is located on southern edge of the city, therefore all passengers visiting CCSIA approach from north. CCSIA's Aerodrome Reference Point (ARP) is 26⁰45' 42.9"N; 80⁰53'00.7" East an elevation of 123.44m AMSL.

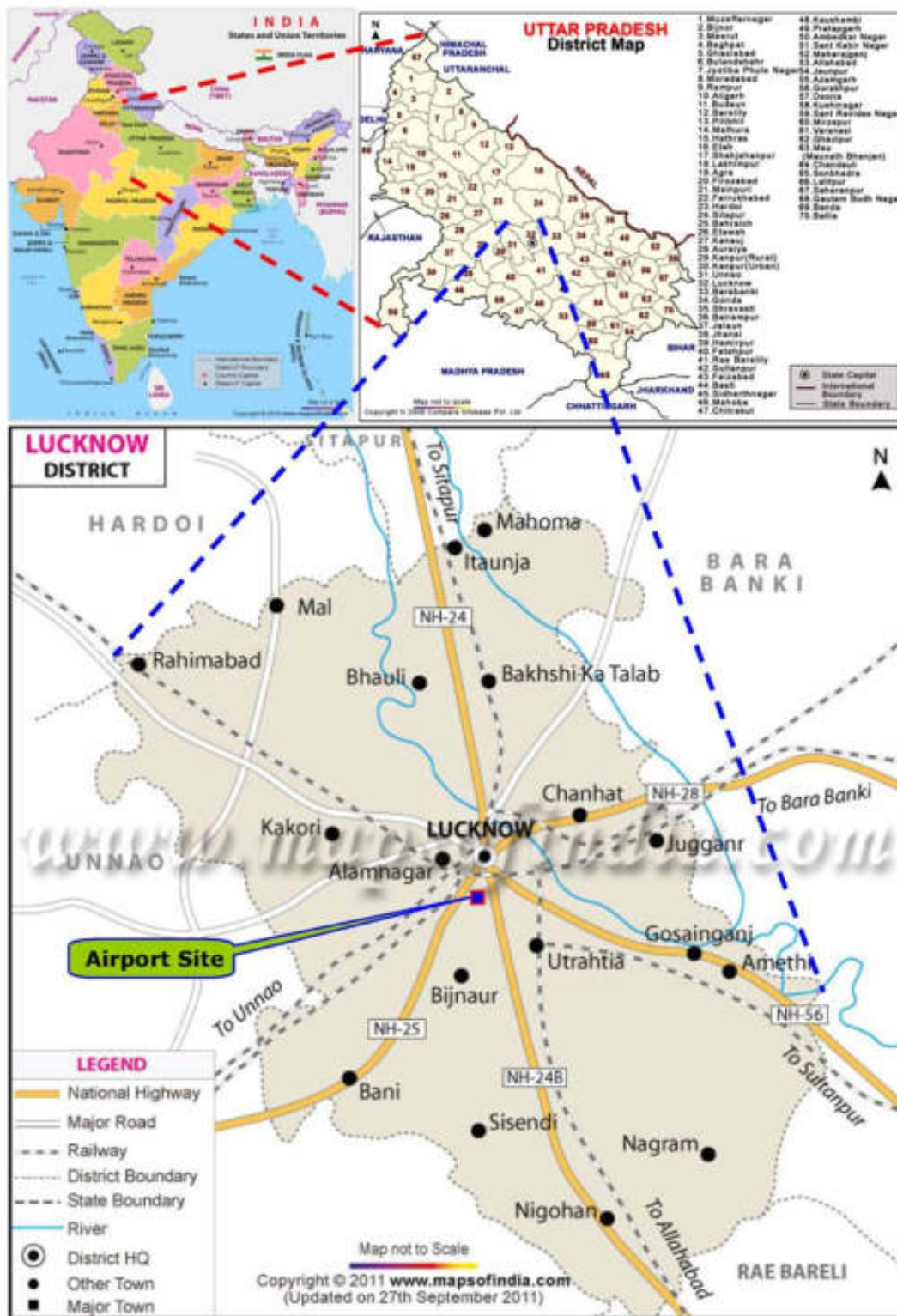


FIGURE-1
INDEX MAP SHOWING THE PROJECT SITE



FIGURE-2
LAYOUT SUPERIMPOSED ON GOOGLE MAP

3.3 Alternate Sites Considered

No alternative site has been considered. The Proposed project falls within the Airport Zone as classified under Master plan/Zoning Plan by the State Government. Hence, there is no consideration of Alternative Sites.

3.4 Project Description

The proposed capacity enhancement activity includes works required for relocation, improvement, modification /up-gradation /augmentation and modernization of existing Airside/Landside facilities and infrastructure, and to meet operational safety requirements to facilitate the required infrastructure to serve the projected passenger and cargo traffic in ultimate phase. The Existing, and Proposed master plans are shown in **Figures-4 to 5**.

The Master Plan has been considered into two major zones:

1. Airside Zone; and
2. Landside Zone.

3.4.1 Airside Zone

The following facilities will be there in the airport zone:

- Runways, Taxiways, Aprons, aircraft parking stands, aircraft hangars, etc.
- Terminals – Passenger, Cargo and General Aviation Terminals; with all requisite sub-uses, services and utilities like Check-in Counters, Baggage Handling, Airlines Counters/Offices, Airport Management Offices, Security Area/Offices, Restaurants, Bars, Retail Shops, Kitchens, Immigration and Custom Offices, Baggage Claim, Utility (water, power, sewerage, IT, telecom, etc) & Air-conditioning Plants & Networks, Baggage Make-up Area, Lounges, AOCC, Training Centres, IT Systems and Offices, Security Gates, Security & Police Offices, Bank & Post Office Counters, Residential Accommodation/Guest Rooms / Day Hotel, Hotel, Gymnasium, Art Gallery, Aquarium, Health/Emergency Service/Medical Centres, Radio & Television, Media Broadcast & Recording Centres, VVIP & VIP Lounges, Parking, Multi-level Car Parking, Safe Deposit Vaults, Foreign Exchange Facilities, Travel & Tourism Offices, Ground Transport Service Centre, Hotel, etc.
- ATC Tower, ATS Offices, MET Offices, Hangars, Warehouses, Workshops, Security Offices/installations, Fire Station, Water Storage & Pumping Stations, Power Substations, Septic Tanks & STPs, Offices (Radar, ATC, Airlines, Airport Security, etc.), NAVAIDs, Radar Installations. Aircraft, Maintenance Workshops, Mechanical Workshops, Vehicle Maintenance Workshops, GSD- Ground Service Depots, ULD Parking, Vehicle Parking, Internal Roads, Security Gates, Airline Support Offices & Warehouses, Cargo Warehouses, Cargo Cold Storage, Bulk Cargo (perishable, non-perishable, vegetable, pharmaceuticals, meat and other cold storage materials) Storage, Ground Support Equipment Area, Transport Workshops, Stores of all kinds, etc.

- Flight Kitchens, Staff Canteens, Staff Kitchens, Staff Dining Lounges, Restaurants/Eating-houses/establishments for preparation and sale of eatables for staff, Convenient Store, Medicine Store, Stationery Store, etc.
- Bulk storage of ATF/Petrol/Kerosene/LPG/Storage of Liquefied Petrol and Gas Cylinders (bottled gas) & other such products; Fuel Farm Clinics, Dispensaries, Emergency Service/Medical Centres, Crèches;
- Offices, including Airport Operation/Management Offices, Airline Offices, Police Stations, Telephone Exchanges, Government Offices, Posts & Telegraph Offices, Banks, Cargo Offices, Cargo Warehouses, Bank/Post Office Extension Counters, Dormitory, etc.

3.4.2 Landside Zone

The following facilities will be established in the landside zone of the airport.

- Shops, Offices, Retails, Stores, Restaurants, Bars, Eating-houses, F&B establishments for preparation and sale of eatables, Departmental stores, etc. Offices, Banks, ATMs, Safe Deposit Vaults, Foreign Exchange Facilities, Travel & Tourism Offices, other administrative offices;
- Bulk storage of ATF/Petrol/Kerosene/LPG/Storage of Liquefied Petrol and Gas Cylinders (bottled gas) & other products; Fuel Farm;
- Flight Kitchens, Staff Canteens, Staff Kitchens, Staff Dining Lounges, Restaurants/Eating-houses/, etc.
- Clinics/Dispensaries, Polyclinics, Health Centres etc Medical Facilities, etc.
- Central and State Government Security Agencies' Offices, Government Offices, Posts etc.
- All roads, Skywalks, Flyovers, underpasses, Public Utilities, Electrical Sub-stations, Water Storage Tanks, Receiving Station, Fire Station, Water Treatment Plant, Pumping Station, Sewage Treatment Plant, Solid Waste Disposal Plant, Bus Parking, Bus Stations, Metro Stations, Taxi Parking & Staging Areas, Multi-level Car Parking areas, Metro Connectivity, Ground Transport Service Centres, Storm Water Drains, Retention /Holding Ponds, etc.

The major classification for Airside zone is listed below.

- Terminal Development;
- Cargo Complex Development;
- Runway;
- Hangar;
- Apron /taxiway;
- Support Facilities & Utilities; and
- Road &Transport.

The major classification for Landside zone is listed below.

- Cargo Complex Development Support Facilities & Utilities;
- Road & Transport; and
- Air Traffic Control (ATC).

❖ **Area Statement**

The primary land area distribution at CCSIA are given in **Table-4**.

TABLE-4
AREA STATEMENT

	Area in Sqm.	Area in Acres	Area in Ha
Airside Area	3,437,571.90	849.45	343.76
Landside Area	1,133,408.18	280.07	113.34
Total Land Area	4,570,980.08	1,129.52	457.10

Land area of 14.34 Ha (35.44 acre) is Carved Out Asset in the master plan and retained by Airport Authority of India (AAI) with itself. As a part of carved out area, required infrastructure (ATC, Defense IAF related facilities, Hangar etc), inline to the requirements will be developed.

❖ **Airside Development**

The main objective of airside planning is to cater the demand of aircraft movements and aircraft stands for both cargo and passenger. In addition to that, the airside should also project the maximum use of space beyond forecasted traffic demand. The details of Airside development is given in **Table-5**.

**TABLE-5
DETAILS OF AIRSIDE DEVELOPMENT**

Sr. No	Components	Existing & Approved	Proposed
1	Runway	09 /27	No change
	Runway Strip Dimension	2864 X 280 M	No change
	Runway Operation	Maximum no of arrival/ departure RWY 09 – 17/ HRS Maximum no of arrival/ departure RWY 27 – 17 /HRS.	Maximum no of arrival/ departure RWY 09 – 23/ HR Maximum no of arrival/ departure RWY 27 – 23 /HR
2	Aerodrome Reference Point	264542.9N 805300.7E MAG BRG 78.26 DEG 842M from physical extremity of RWY 09.	No Change
3	Taxiway System	Linked taxiway	North side double parallel taxiway
4	Apron	Apron Main- 745x150 Apron VIP- 76x107	South side Single parallel taxiway Apron and taxiway will be developed within an area of 116.32 Ha

❖ **Terminal Development**

The ambition for LIAL is to cater for sustainable growth and the passenger terminal buildings should accommodate the growth in line to traffic demand. The details of terminal development are given in **Table-6**. The design of a terminal functional layout takes into consideration the following objectives:

- Optimum functionality with sufficient processing stations;
- Flexibility in development to meet changing operational demands over time;
- Meeting IATA's Level of Service 'Optimum'; and
- Segregation of arriving and departing passengers.

TABLE-6
DETAILS OF TERMINAL DEVELOPMENT

Sr. No	Components	Existing & Approved	Proposed
1	Foot print	Terminal 1, 2 & NITB (T3) - 80,489 sqm	NITB (T3) * modification & NTB (T4) 1,39,020 sqm
2	Built up	Terminal 1, 2 & NITB (T3) 1,52,815 sqm	NITB (T3) * modification & NTB (T4) 4,26,131 sqm

*To un-lock the benefits of integrated terminal and to enhance the terminal capacity, LIAL has re-visited master planning of NITB (T3) holistically, and has updated/modified the terminal layout and its associated components to accommodate domestic and international operations in single, integrated Terminal T3, thus avoiding the need to retain passenger operations at Terminal T2 as all passenger traffic shall move to Integrated Terminal T3. This will led to capacity enhancement, induced synergy in operations. Additionally New Terminal Building (T4) is proposed to handle the increase passenger handling.

Terminal 1 and 2 to be demolished upon commencement of operations in NITB (T3). NITB (T3) is being developed inline to the existing Environment Clearance, which has been received for Construction of New Integrated terminal building and allied facilities, and includes development of NITB (T3), Multi-level car parking, Road connectivity, Sewage treatment plant of 1950 KLD capacity and other supporting utilities and facilities and same are being developed considering the approvals.

GA Terminal will be developed in the footprint of ~37067.10 sq mtr respectively. As a part of Carved out area, VIP terminal will be developed in the footprint of ~2730.23 sq mtr.

The new terminal building will be a concept of a three-level structure following LIAL's development principles of:

- Basement: Baggage handling system, other systems, storage, Back of house facilities;
- Ground level: Arrival processing and other support facilities; and
- Level 1: Departure processing and other support facilities.

Supported by mezzanine levels where applicable (subject to Programme of Requirements and design). On landside, the new terminal building is accompanied with an elevated kerb road system. The new terminal buildings will be accommodated with two main passengers' flows and a reservation for transfer

flow. The compact arrangement within the terminals will ensure fast and efficient operational processes.

❖ **Cargo Development**

It is expected to handle Cargo up to 0.25 MTPA. As per master plan, Cargo complex will be developed in Airside & landside zone within plot area of 23.14 Ha (57.17 acre).

❖ **Details Of Support Facilities**

Terminal-3 and its support facilities construction ongoing inline to existing Environment Clearance.

MRO

Presently, there are no dedicated Maintenance Repair and Overhaul (MRO) facilities present. As part of master plan, Plot size of 4.6 ha in the south side of the runway is reserved for MRO.

ARFF

Presently, the plot of the ARFF consists of one building with a footprint of 0.13 ha (0.32 acres). There are 9 bays observed within the building for emergency vehicles, with 6 bays equipped with water tanks and 3 bays where ARFF vehicles were visually available. As a proposed master plan, there are 2 ARFF facilities proposed in total plot size of 0.6 Ha.

Fuel Farm

At present, following fuel suppliers are present,

- 1) Fuel farm (HPCL): Capacity is 320 m³ at Amausi oil depot located east of T2;
- 2) Fuel farm (BPCL): Capacity of 61m³ (expansion is planned) is located east of T2;
- 3) Fuel farm (IOCL): Capacity 4 x 200 =800 m³. An additional 9,000m³ storage is located at the oil depot, 7 km away. It is planned to connect this additional storage location to the airport with a pipeline. This will increase the reliability of the fuel supply; and
- 4) Reliance Aviation Fuelling Station: the capacity of this facility is operational within a site of 40 m x 40 m on the landside area west of T3 with a storage of 210KL.

As a part of master plan, LIAL shall develop to store ~ 11,600 KL, which will be developed in total area of 1.1 ha.

ATC tower

The current ATC Tower and Technical Block is located just east of the VIP hangars and suffice for the current airport airside infrastructure. In addition, there is an ATC sub-station located north of the ATC itself.

As a part of Master Plan, current ATC technical block is proposed to be relocated to a new location northeast of existing facility. The reserved plot is located on landside and can be accommodated with offices and parking on its own plot while being secured. Total plot reserved for this facility amounts to 0.825 ha (2.038 acres).

GSE

The existing GSE maintenance facilities is located in the western part of the airport, along the centralized GSE parking. The plot is approximately 0.4 ha with two buildings with footprint of 400 m² and 250 m². As a part of master plan, GSE maintenance facility will be developed in 1.2 hectares are, on the south side of the runway.

Airport Administrative Building

Currently, airport operator LIAL has airport administrative offices on the first floor of existing Terminal T1. As a part of master plan, Airport Administrative building will be developed in 5.8 ha area.

Terminal Hotel

Land for proposed Terminal Hotel is located between Terminal T3 and New Terminal Building. The land for Terminal Hotel has an area of approx. 1.76 Ha (4.35 acres) Ground level is proposed for surface parking and passenger transport facilities and hotel related facilities at upper levels. The Terminal Hotel shall be integrated with passenger terminal facilities for passenger convenience.

Utilities

All airport facilities planned in the concept master plan rely on the provision of utilities: power, water, sewage discharge etc, which will be development on modular basis inline to the traffic loads. The details of utilities are given in **Table-7**.

TABLE-7
DETAILS OF UTILITIES

Sr. No	Components	Existing & Approved	Proposed
1	Power	3.14MVA	41MVA
2	Water requirement	3.605 MLD	Total 9.6 MLD 4.4 MLD will be potable while. 5.2 MLD will be recycled from STP
3	Sewage & STP capacity	2.4 MLD 0.165 MLD under operation	5.45 MLD (including 1.95 MLD STP being developed as part of T3 approval)
4	Solid Waste Management	~0.6 ton/day	34 ton/day

**After finalization of detail design, above details, will be provided in the EIA report*

Landside Development

The planning of terminal landside area is primarily driven by operational requirements of terminals and the volume of vehicles is directly related to the number of passenger arrivals and departures handled at the terminals. Other factors, which influence the landside movement/traffic, are airport employee trips, meters/greeters, airport terminal visitors and traffic related to support and other facilities. The landside planning strategy is to have quick access, minimize or eliminate conflicts and achieve optimal utilization of the proposed facilities. The transport infrastructure planned shall allow phase-wise implementation during various phases of the terminal development. All planning proposals shall aim to provide delay free access for the time sensitive passenger traffic to arrival and departure kerbs without any conflicts with other traffic

City Side Development

In contemporary global context, all major airports have evolved beyond their basic roles as transport nodes into drivers of local & regional economic development enabling financial growth & promoting travel, tourism, hospitality, trade, cargo, etc. leading to employment and revenue generation for local / regional economy.

City side development includes Hotels, Retails, Convention Centers, Commercials, Hospitals, Offices, Hospitals, Food & Beverages, Warehouses, Entertainment & other Cityside Development, inline to business needs and associated utilities will be developed as part of master plan for City side development in accordance with concession agreement. As per concession agreement, CSD development will be carried out in an overall area of 44.52 ha (110 acres) with requisite approvals from the concerned authorities.

The salient features of the expansion proposal is given below in **Table-8**.

TABLE-8
SALIENT FEATURES OF THE EXISITNG AND PROPOSED PROJECT

		Existing & approved	Proposed
Aerodrome Technical Details	ILS Category	ILS CAT-IIIB	ILS CAT-IIIB
	Elevation/reference Temperature	406 FEET / 41.0 DEG. CELSIUS	406 FEET / 41.0 DEG. CELSIUS
	Aerodrome Reference Code	IATA - LKO, ICAO - VILK	IATA - LKO, ICAO - VILK
	Aerodrome Traffic Density	Light	Moderate
	Rescue Fire Fighting Category	CAT-7	CAT-9
	Isolation Bay	TWY M 208.6M X 112.0M PCN:85/R/B/W/T.	TWY S3
	Ground Lighting Facility	RWY 27 (Precision Approach Runway CAT - IIIB)	RWY 27 (Precision Approach Runway CAT -IIIB)
	Communication And Navigation Aids	DVOR DME - 117.400 MHz CH121X ILS(CAT-III B)	DVOR DME - 117.400 MHz CH121X ILS(CAT-III B)

Pre-Feasibility Report (PFR)

Aerodrome		Existing & approved	Proposed
Runway	Description	09/27	09/27
	Numbers	1	1
	DETAILS	2744x45 M	2744x45 M
	Runway Surface Types	Macadam	Macadam
	Orientation	09-27	09-27
	Geometry	2744 X 45 M, 09/27 PCN - 76/F/C/W/T Macadam	2744 X 45 M, 09/27 PCN - 76/F/C/W/T Macadam
	Declared distances	RWY 09 – TORA -2744 , TODA -2744,ASDA-2744 , LDA-2587 RWY 27 – TORA - 2744,TODA-2744,ASDA-2744,LDA-2744	RWY 09 – TORA -2744 , TODA -2744,ASDA-2744 , LDA-2587 RWY 27 – TORA - 2744,TODA-2744,ASDA-2744,LDA-2744
	Displaced Threshold	RWY09 THR displaced by 157M.	RWY09 THR displaced by 157M
	Runway End Safety Area (RESA)	RWY 09 -90X150 M RWY 27 -115 X 150 M	RWY 09 -90X240 M RWY 27 -90 X 182.8 M
	Runway Marking	Distance Coding	Distance Coding
	PAPI/VASI_ WRT respective ends	RWY BOTH END	RWY BOTH END
	Runway Strip Dimension	2864 X 280 M	2864 X 280 M
	Runway operations	Maximum no of arrival/ departure RWY 09 – 17/ HRS Maximum no of arrival/ departure RWY 27 – 17 /HRS.	Maximum no of arrival/ departure RWY 09 – 23/ HR Maximum no of arrival/ departure RWY 27 – 23 /HR
	ILS	CAT IIIB	CAT IIIB
	Pavement design	76/F/C/W/T Macadam	76/F/C/W/T Macadam
	Pavement type	MACADAM	MACADAM
Runway Entry & Exits	TWY A,B,C,D,E,M	TWY P1, P3, P4, P5, P6, P7, P8, P9, P10 TWY S1, S3, S4, S7	
Taxiways	Taxiway System	TWY A ,B,C,D,E,M,L	TWY P1, P3, P4, P5, P6, P7, P8, P9, P10 TWY S1, S3, S4, S7
	Taxiway	On the northern side, Link Taxiway is available	On the northern side of the runway a dual parallel taxiway system is planned. The area on the southern side of the runway is provided with a single parallel taxiway system, with exit/entry points leading to the aprons.
	Taxiway Geometry	Taxi A – 252X23 m Taxi B- 207 x 23 m Taxi C – 207x23 Taxi D – 245x23	TWY P = 2744M X 38M P1 = 124M X 38M P3 = 124M X 38M

Aerodrome		Existing & approved	Proposed
		Taxi E- 223x23 Taxi L- 88x23 Taxi M - 61x23	P4 = 270M X 38M P5 = 270M X 38M P6 = 124M X 38M P7 = 270M X 38M P8 = 270M X 38M P9 = 124M X 38M P10 = 124M X 38M L = 1640M X 38M L1 = 690M X 38M L2 = 890M X 32M L3 = 450M X 32M L4 = 450M X 32M TWY S = 2660M X 38M S1 = 124M X 38M S3 = 274M X 38M S4 = 270M X 38M S5 = 320M X 38M S6 = 320M X 38M S7 = 124M X 38M Q1 = 950M X 45M Q3 = 960M X 80M
	Taxiway Types	Rigid/ Flexible	Rigid/ Flexible
	Parallel taxiway system	N/A	On the northern side of the runway a dual parallel taxiway system is planned. The area on the southern side of the runway is provided with a single parallel taxiway system, with exit/entry points leading to the aprons
	Apron	Apron Main- 745x150 Apron VIP- 76x107	Apron 81.81 Acre 331079.58 sqm
	Holding Point	A - 264540.89840N 0805313.34488E 402 FT B - 264540.74303N 0805303.22175E 403 FT C- 264540.69287N 0805258.79720E 402 FT D - 264540.74181N 0805244.34346E 404 FT E - 264540.58211N 0805242.76315E 405 FT M - 264534.52867N 0805241.14488E 404 FT	90m from RWY Centerline
	Pavement type	Rigid/ Flexible	Rigid/ Flexible
Visual and Navigational Aids (NAVAIDS)	Runway and Taxiway Lighting	RWY - Variable White Taxiway - CL -GREEN , Edge - Blue	RWY - Variable White Taxiway - CL -GREEN , Edge - Blue
	Runway End Identifier Light (REIL) systems	RED	RED
	Airport Windcocks and Airport Beacons	01 -RED	01 -RED

Pre-Feasibility Report (PFR)

Aerodrome		Existing & approved	Proposed
Automated Weather Reporting Equipment		RVR AT TDZ,MID,END BEACON LIGHT RED	RVR AT TDZ,MID,END BEACON LIGHT RED
Visual Approach Slope Indicators (VASI) and Precision Approach Slope Indicators(PAPI)		PAPI BOTH RWY	PAPI BOTH RWY
Approach Lighting Systems		RWY 27 – CAT IIIB RWY 09 – SALS	RWY 27 – CAT IIIB RWY 09 – SALS
Instrument Approach Capabilities		CAT IIIB(27)	CAT IIIB(27)
Automatic Terminal Information Service (ATIS)		126.800 MHZ	126.800 MHZ
ASR & MSSR		ATS surveillance based services using ASR/MSSR/ADS-B shall also be provided during the operations within the jurisdiction of Lucknow Area Control to suitably equipped aircraft within the coverage area of Lucknow ASR/MSSR/ ADS- B ground station on VHF 120.45 MHZ and standby 120.2 MHZ.	No Change
Advanced Surface Movement Guidance and Control System/ Ground Control		Chaudhary Charan Singh Airport, Lucknow is equipped with Advanced Surface Movement Guidance Control System. The system provides non-visual electronics surveillance of manoeuvring area and facilitates the controllers to identify potential ground conflict and runway incursions.	No Change
VOR/DME		117.400 MHz CH121X	117.400 MHz CH121X
Docking guidance/ VDGS		STAND 13 & 14	All Stands
Stop bars or runway guard lights		Available on TWY A,B,C,D,E, (TWY – M ONLY Guard light)	To be proposed at all locations
Apron lighting		Available	At all required locations
Obstacle lighting		Provided at all Obstacle	To be Provided at all Obstacle
Signage's		Provided at All suitable locations	To be provided at all suitable locations
Aircraft Parking Apron	Numbers of Passenger Stands	Apron 1 – 14 Apron 2 -5	Mars Code E – 12 Mars Code D – 2 Code E - 4 Code C – 66 Code B – 8 Isolation Bay - 1
	Number of Cargo Stands	N/A	Mars Code E – 3 Mars Code D – 2 Code E - 4

Pre-Feasibility Report (PFR)

Aerodrome		Existing & approved	Proposed
			Code C - 7
	Stands classification	CODE -B/C/D/E	CODE -B/C/D/E
	Pavement Specification	CONCRETE	CONCRETE

**After finalization of detail design, above details, will be provided in the EIA report.*



FIGURE-3
EXISTING MASTER PLAN



FIGURE-4
PROPOSED MASTER PLAN

3.5 Existing Infrastructure

❖ Existing Terminal

CCSIA presently has two operating passenger terminals; T1 is international terminal and T2 is domestic terminal. The single level Terminal T1 is the older terminal, which was originally commissioned in 1986 for domestic operations, but was later post commissioning of Terminal-2, T1 was converted into international terminal, while domestic operations were retained in T2. At present New Integrated Terminal Building (NITB) and associated landside facilities such as car parks, access roads, utilities, amenities, etc are being developed inline the Environment Clearance dtd 26th September 2018.

❖ Existing Connectivity

CCSIA is located in Amausi area of Lucknow approx. 12 km from the city centre – Hazratganj and Charbagh. CCSIA is connected to the city centre via Kanpur Highway (NH27) which is further connected with the peripheral ring road to other parts of the city. The peripheral road has connections to Agra-Lucknow Expressway and other major national highways for regional connectivity.

The airport is also connected to Lucknow city through a metro line. CCSIA is the originating / terminating station on metro line that passes through the city centre towards the northern end of the city at Munshipulia. The metro line is connected to the Indian rail network at Lucknow’s main railway station Charbagh as well as Badshah Nagar Railway Station. Passengers can change at these stations to board railways for onward out station journey. A second metro line is also planned in Lucknow that will connect CCSIA to the western part of the city.

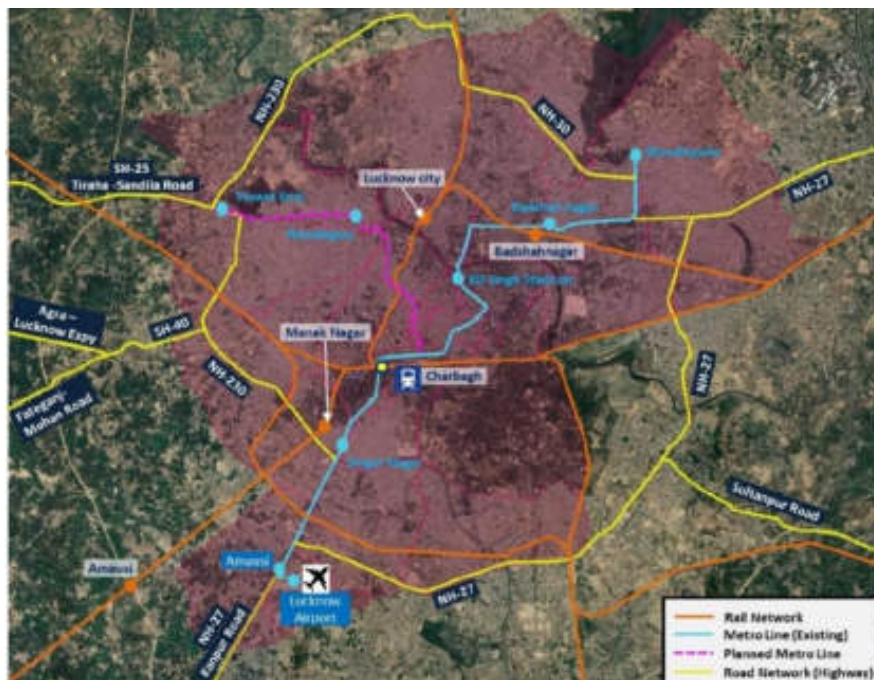


FIGURE-5
EXTERNAL CONNECTIVITY TO LUCKNOW AIRPORT

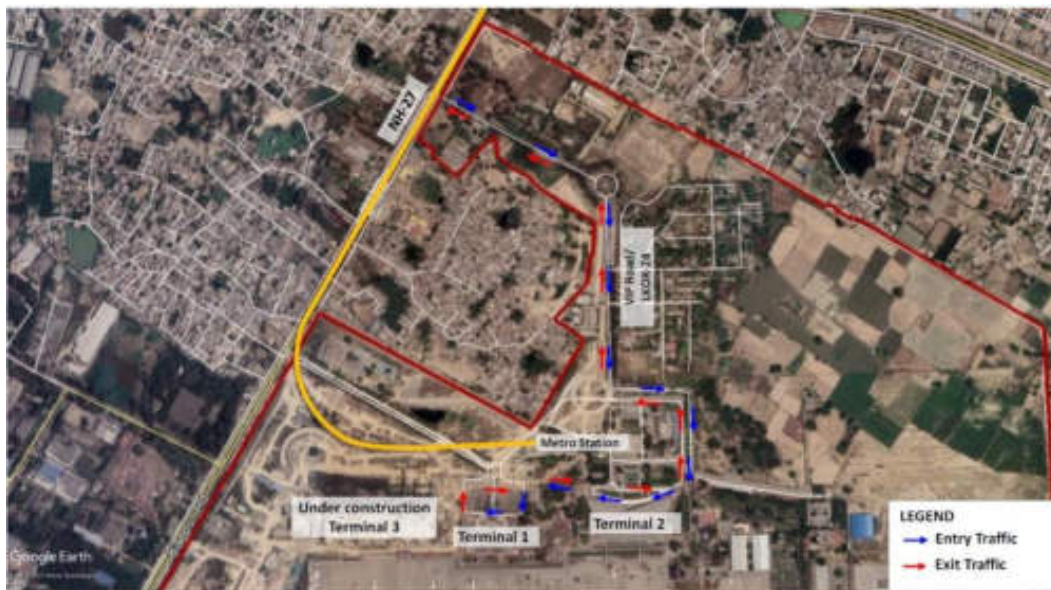


FIGURE-6
TERMINAL ACCESS

In the existing situation, T2 area is currently accessed from the road coming from the north (NH27 national road). T1 used to be accessed from a separate access road coming from the west but due to the construction site for T3, T1 can only be accessed via T2 road. Both the access and the egress roads have one lane per direction with an additional emergency lane. This lane is often used for parking or drive through by road users. The existing terminals have a single level kerb. The roads leading to the kerb and the parking areas have one lane per direction.

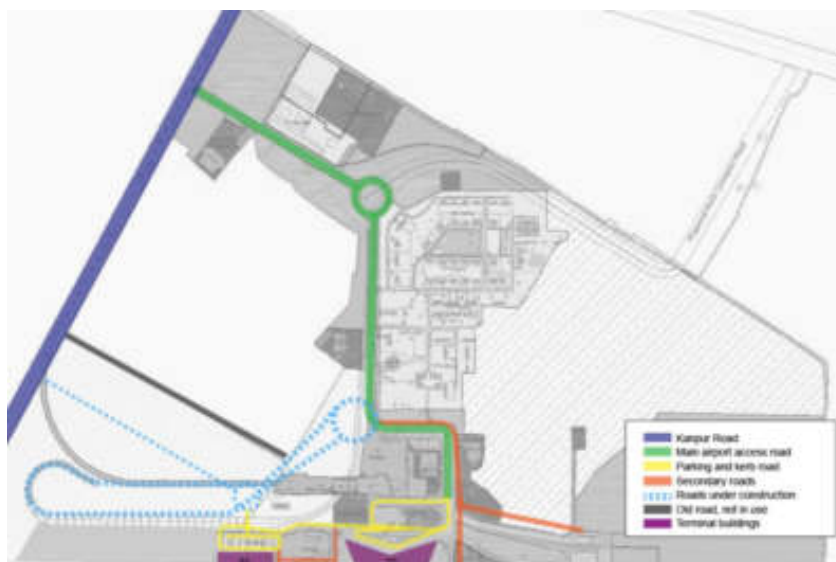


FIGURE-7
EXISTING ROAD SITUATION

T3 terminal is having access from the existing main road. The loads continues on a flyover for the arrival and the departure kerb or at grade for visiting the multi-storey car parking behind the metro station. The egress road coming from the kerbs, passes in front of the multi-storey car parking and continues to the existing airport exit road.

3.6 Proposed Infrastructure

The details of proposed infrastructures has been covered in **Table-8**.

❖ Proposed Connectivity:

Proposals for airport external connectivity improvements and important internal connections shall constitute following:

1. 2+2 lane New Flyover from Shahid Path towards Airport for traffic movement to T3, New Terminal Building (T4) and other cityside land parcels;
2. 2+2 lane New Flyover from South Airport boundary to Sarojini Nagar Road assisting free traffic movement to South Airport area;
3. Proposal to connect Bijnor Road with South Perimeter Road with 3+3 Lane Connector Road;
4. 2 Lane New Underpass for airport traffic exiting from Airport Main Entrance towards Lucknow direction of NH-27;
5. 2 Lane New Underpass for un-interrupted airport bound traffic from Main Airport Road to T3;
6. Proposal to widen the Sarojini Nagar road from current 1+1 lane road configuration or less to 2+2 lanes to handle the South airport traffic;
7. 3+3 lane South Perimeter Road to connect at NH-27;
8. Proposal to widen the Bijnor Road from current 1+1 lane configuration to a minimum of 2+2 lanes; and
9. 2 Lane Airside Underpass from New Terminal Building to South Apron. Alternatively, APM.

The traffic related to the support areas on the north (cargo, VIP etc) will mainly use the new airport access and then continue on the north east road leading to the landside-airside gates on the east.

Details of the proposed connectivity is shown in the **Figure-8** below.



**FIGURE-8
PROPOSED CONNECTIVITY PLAN**

3.6.1 Greenery Development / Open Space

The principal airport level green space/ open area in the form of central linear green is located along the airport access road. Secondary open areas shall be planned in various locations in different land use zones. The total area under this zone shall be approximately 28.89 ha in landside and 151.21 ha in airside.

As part of environmental sustainability measures to develop CCSIA as a green airport, statutory requirements of tree transplantation/plantation and also to create natural ambience befitting a landmark international airport, several green areas shall be developed within airport site. A holistic Green Plan / Landscape Master Plan is being prepared in this regard, inclusive of elements like afforestation, tree transplantation, green turf, ponds/water bodies with fountains, etc. Due care will be taken to avoid attracting birds due to proposed tree, transportation & landscape development.

3.7 Water & Power Availability & its Source

3.7.1 Water Requirement – Demand & Supply

Water consumption, as approved Environment Clearance is 3.605 MLD. Water required for the operations is being sourced from bore wells.

The total fresh water requirement for CCSIA is estimated to be 9.6 MLD, out of which 4.4 MLD is potable water requirement, which is proposed to be met through State Government Water Supply / Bore wells and 5.2 MLD will be recycled from STP.

3.7.2 Power Requirement

The total estimated power demand for CCSIA is 41 MVA which will be sourced from Electrical Substation and DG sets for emergency requirements will be installed on modular basis for Airside and Landside operations.

3.8 Wastewater Generation and its Management

3.8.1 Sewerage System

As a part of existing Environment Clearance, 2.4 MLD STP is approved. At present, 0.165 MLD STP (CAMUS-Soil Biotechnology based technology) has been installed at site.

To reduce the load on fresh water demand LIAL is committed in implementing the Zero discharge concept for sewage system. The entire sewage that is generated will be recycled and reused for non-potable purposes. 5.10 MLD of wastewater will be generated from airport operations, which will be treated through STP (MBR, MBBR, SBR etc.) total capacity of 5.45 MLD (includes 1.95 MLD STP which is being developed inline to existing Environment Clearance), will be developed on modular basis. Treated wastewater will be used for Landscaping or other purposes.

Liquid waste from aircraft needs to be treated at Triturator as a primary treatment & further will be pumped to STP for secondary treatment

3.8.2 Storm Water Drainage

Presently the airport has implemented storm water drainage system inline to the existing development. Based on contours, grading profile plans, developmental & functional requirements, the entire area is demarcated into distinctive drainage zones with major drainage outfalls and as per topography rainwater ponds are developed. Site grading and land development are planned such that the surface runoff from open plots reaches the drain network and to main drain / outfall by gravity.

The storm water runoff generated from airside areas, paved surfaces like runway, apron, taxiways, are collected through extensive network of pipe / RCC / open channels / storm water drains and conveyed through oil water separator units in order to discharge oil free water into rainwater storage pond.

Detailed Storm water drainage plan will be studied and covered in the EIA report. New airfield drainage system will be designed in accordance with international design standards and best practices in airport drainage design.

3.8.3 Solid Waste Management

Solid waste generated from the airport area comprises of Food waste, bottles and cans, newspaper and mixed paper, plastic cups and service ware, food waste, food soiled paper, paper towels, Sludge from STP etc. Total quantity of 34 Ton /day of Solid Waste will be generated from CCSIA Operation. All the waste will be handled inline to 5R principles of waste management (Reduce, Reuse-Recycle-Recover-Reprocess) to avoid the disposal of waste back to the environment, and to be aligned to the vision of Zero Waste to Landfill. The following tasks are accounted as part of Solid waste management methodology.

- Identification of Waste Generation Sources;
- Waste collection, storage & transportation;
- Waste segregation, handling and processing;
- Waste Quantification and Characterization; and
- Treatment & Disposal of wastes.

Hazardous waste (1 tonne/day) Used Oil, Contaminated filters, Oily cotton waste, discarded drums etc will be and will be handled in accordance with HWM rules 2016, amended till date and will be handled in line Hazardous Waste Management Rules, 2016 amended till date.

All other waste including biomedical waste, E-waste, C&D waste and others wastes will be disposed as per the applicable rules amended till date.

4.0 SITE ANALYSIS

4.1 Connectivity to CCSIA

The airport is well connected with below NH/SH network:

- ❖ NH-27 (Adjacent to Airport, W);
- ❖ NH-230 (Adjacent to Airport, N);
- ❖ NH-731 (8.1 km, NE);
- ❖ NH-30 (3.1 km, E); and
- ❖ SH-40 (7.5 km, NW);

4.2 Land Form, Land Use and Land Ownership

4.2.1 Land Form

Land form for proposed project site is plain, accommodating the Airport Airside and Landside areas. Present land use is under industrial (Airport) category.

4.2.2 Land Use

The land use of the project site falls within the Airport Zone as per Master plan/Zoning Plan by the State Government. Since, total Land required for the proposed Master plan within the premises and is already under the possession of LIAL, there will be no major change in the land use.

4.2.3 Land Ownership

As a part of concession agreement between AAI & LIAL, 509.41 Ha (1258.80 acres) has been allotted to LIAL for development of CCSIA into state-of-art Airport serving business markets, tourism, and keeping pace with the growth in Air traffic. Out of which, 44.52 Ha (110 Acre) of land will be considered for City Side development, which will be developed phase wise after obtaining required approvals.

3 Isolated plots with individual area of 6.8 Ha (16.812 Acre), 0.19 Ha (0.47 acre) 0.81 Ha (2 Acre) are excluded from this Master plan.

LIAL now proposes expansion of CCSIA within an area of 457.10 Ha (1129.52 acre), which includes land area of 14.34 Ha (35.44 acres) as a Carved out area, retained by Airport Authority of India (AAI).

The total area proposed for CCSIA Master Plan is categorized under industrial area category (Airport).

4.3 Topography

The Chaudhary Charan Singh International Airport (CCSIA) is located on the southern edge of the city of Lucknow. The airport site is situated in a relatively flat terrain at an elevation ranging from 122 to 123 m Above Mean Sea Level. No major change in the topography is envisaged as the additional features will be developed within the existing complex which has uniform topography.

4.4 Existing Land Use Pattern

LIAL now proposes expansion of CCSIA within an area of 457.10 Ha (1129.52 acre), which includes land area of 14.34 Ha (35.44 acres) as a Carved out area, retained by Airport Authority of India (AAI). The total area proposed for CCSIA Master Plan is categorized under industrial area category (Airport).

4.5 Existing Infrastructure and Amenities

The details are discussed in above Section **3.5** and **Table-8**.

4.6 Social Infrastructure Available

The existing social infrastructure in the area includes the following and will further be strengthened (as required):

- ❖ Hospital with ambulance;
- ❖ Bank;
- ❖ Post office;
- ❖ Railway station;
- ❖ Bus station;
- ❖ Fire station;
- ❖ Secondary school;
- ❖ Police station;
- ❖ Shopping complex;
- ❖ Sports infrastructure (Stadium & Camps etc);
- ❖ Self-help groups;
- ❖ Community halls;
- ❖ Cinema halls; and
- ❖ Primary health care centers.

5.0 PLANNING

5.1 Planning Concept

In view of the continuing rapid growth of the regional and national economy and consequent increase in aviation traffic demand, LIAL is proceeding with the expansion consisting of construction of new terminal and other associated Airside and Landside facilities.

The aim of the Lucknow Airport is to meet the need of air travel in central India, as its main airport serving the region. LIAL plans are designed to provide facilities and services to all passengers by expanding required infrastructure.

Around the world, airports have been expanding their facilities to include retail outlets, office spaces and other commercial developments. Encompassing all these non-aviation facilities and beyond international Airport aims at setting a benchmark for the development of future airports in India. Master Plan ensures that the size and capacity of the airport's facilities are inline with passenger traffic forecast and projected cargo growth. The facilities include runways, taxiways, apron, passenger terminal building, fuel farm, airport fire service, aircraft maintenance facilities, access roads, carparking, control tower, technical building, maintenance, GSE Workshop, administrative building and security. LIAL Master Plan is prepared inline with current ICAO standards and recommendations, IATA guidelines and AAI requirements.

Landside development of LIAL is visualized as a vibrant, dynamic green 'Aerotropolis'. It is proposed to be a dynamic environment integrating and enhancing opportunities for all airport users & city resident for businesses, logistics and shopping, information and entertainment. It will house efficient, multi-modal hub for air, Metro) and road transport which will provide visitors a unique experience. It will offer its visitors and locally based national and international businesses all the services they require on a 24x7 basis, providing extensive level of service, not only in the area of transport and aviation, but also in entertainment, commerce, hospitality, recreation, offices and the establishment of businesses.

5.2 Land Use Planning

The objectives of the Airport land use plan are to illustrate the extent of land potentially required to accommodate projected aviation activity and to recommend how land should be allocated among the Airport's major functional areas. The proposed land use plan reflects the highest and best uses of land based on a careful balancing of both operational and commercial requirement.

Proposed Land use

The proposed Land use Plan for development ensures an integrated, contiguous airport development wherein a holistic transportation, utility, facility infrastructure, along with green/open spaces are pooled and integrated together in a common spatial physical structure, with segregation of vehicular and pedestrian movements as far as possible. This is aimed at achieving efficient land utilization, increasing land use intensity with adequate open space, improving quality of environment, providing required airport facilities for all airport users, and offering world-class airport experience. Master Plan has following two principal land use zones in accordance with holistic airport planning requirements and to ensure clear demarcation of uses/facilities in airside and land side areas within airport site area. The area break of proposed land use are given in **Tables-9 (A-C)**.

Land use has been categorized based on the following functional groups:

1. Airside Zone; and
2. Land Side Zone.

TABLE-9(A)
TOTAL AREA BREAK UP

Sr.No.	Zone	Area in Acre	Area in Ha	Percentage (%)
1	Total Airside	849.45	343.76	75
2	Total Landside	280.07	113.34	25
	Total Site Area	1,129.52	457.10	100%

TABLE-9(B)
TOTAL AREA BREAK UP (AIRSIDE)

Sr.No	Landuse (Airside)	Area in Acres	Area in Ha
1	RUNWAY	51.82	20.97
2	TAXIWAY & APRON	287.43	116.32
3	HANGARS	5.57	2.25
4	TERMINAL	37.30	15.10
5	CARGO	14.52	5.87
6	SUPPORT FACILITIES AND UTILITIES	34.10	13.80
7	GREEN AND OPEN AREA	373.64	151.21
8	ROADS & TRANSPORTATION	30.79	12.46
9	CARVED OUT AREAS	14.27	5.77
	TOTAL – AIRSIDE	849.45	343.76

TABLE-9(C)
TOTAL AREA BREAK UP (LANDSIDE)

Sr.No.	LANDSIDE - AREA DETAILS	Acre	Ha
1	SUPPORT FACILITIES AND UTILITIES	52.98	21.44
2	GREEN AREA	71.38	28.89
3	ROADS & TRANSPORTATION	91.88	37.18
4	CARVED OUT AREAS	21.18	8.57
5	CARGO	42.66	17.26
	TOTAL – LANDSIDE	280.07	113.34

For designing of the proposed development activities National Building Code, ICAO guidelines & other regulation/guidelines as applicable will be followed. As a part of carved out area, required infrastructure (ATC, Defense IAF related facilities, Hangar etc), inline to the requirements will be considered.

5.3 Assessment of Infrastructure Demand (Physical and Social)

For the proposed expansion project, there shall be demand for the following physical and social infrastructure:

- ❖ Road network;
- ❖ Railway network;
- ❖ Water supply;
- ❖ Power transmission;
- ❖ Sewerage system; and
- ❖ Solid waste management.

5.4 Amenities and Facilities

Cityside development shall house range of commercial uses, along with required physical and social infrastructure, like hospitality & commercial facilities, hotels, F&B, retail & entertainment, convention center, exhibition areas, etc along with institutional facilities, ancillary aviation uses like fuel farms, offices for logistics & freight, catering facilities, offices for airline & airport partners, police stations, hospitals, and other support facilities for operating the airport. Utilities required for entire airport shall also be located in this Zone. As per concession agreement, CSD development will be carried out in an overall area of 44.52 ha (110 acres) with requisite approvals from the concerned authorities.

6.0 REHABILITATION AND RESETTLEMENT (R&R) PLAN

LIAL proposes to develop the Master plan within the approved land use falling within the Airport Zone as per Master plan/Zoning Plan by the State Government. No R&R is envisaged.

7.0 PROJECT BENEFITS

- ❖ Improvements in the physical infrastructure by way of addition of project infrastructure, ancillary industries that may come up on account of the project;
- ❖ Improvements in the social infrastructure like roads, railways, townships, housing, water supply, electrical power, drainage, educational institutions, hospitals, effluent treatment plants, improved waste disposal systems, improved environmental conditions, etc;
- ❖ Employment potential-skilled; semi-skilled and unskilled labour both during construction and operational phases of the project with specific attention to employment potential of local population as well as necessity for imparting any specialized skills to them to be eligible for such employment in the project on a long term basis i.e. during operational and maintenance stages of the project and
- ❖ Other tangible benefits like improved standards of living, health, education etc.

8.0 SOCIO-ECONOMIC BENEFITS

- ❖ Provision of additional revenue generation in terms of foreign exchange earned from operations,
- ❖ Triggering growth in the region;
- ❖ Provision of additional employment;
- ❖ Development of ancillary industries and trade centres; and
- ❖ Improvement in quality of life, flight safety awareness and literacy of people in the area and promote direct foreign investment in the region due to access to international markets

9.0 PROJECT SCHEDULE AND COST ESTIMATES

The project will be scheduled in the phase inline to the Master Plan. The budgetary estimate for the master plan development is INR 10,700 crores, which will be implemented in phases.

10.0 ANALYSIS OF PROPOSAL

The proposed capacity enhancement activity includes works required for relocation, improvement, modification/up-gradation/augmentation and modernization of existing Airside & Landside facilities and infrastructure, and to meet operational safety compliance to facilitate the required infrastructure to serve the projected passenger and cargo traffic in ultimate phase.

The proposed development shall proactively participate in the upliftment of socio economic index of the communities around the project site by way of financial and administrative support. The project will open up large employment opportunities, directly and indirectly. There shall be opportunities for entrepreneurs to engage in many service sectors directly or indirectly associated with the project. In addition, the proposed development at Airport would act as a

multi-faceted global destination, a vibrant metropolitan environment, offering a range of hospitality, commercial, recreational, cultural, entertainment, convention & exhibition facilities, along with dedicated business parks and aviation related institutions (educational, training & research). The physical ambience, quality of infrastructure, diversity in offerings in natural green setting of proposed Airport City with strong local and global identity and positioning, shall create a unique business brand, attracting new businesses, creating new jobs and opening new commercial possibilities, introducing a vibrant business model that shall accommodate intensive air travel needs in an environmentally responsible way.

LIST OF ANNEXURES

No.	Content	Link
I	Index map of the project site	https://drive.google.com/file/d/18lo_bar3xBOYGdZjCr7ygSDWyOE1QhCR/view?usp=sharing
II (A)	Study area Map (10 km Radius)	
II (B)	Google Imagery (10 km Radius)	
III	Site Photographs	
IV	Master Plan	
V	EC & EC Transfer	
VI	Concessionaire Agreement (CA)	
VII	Certificate of Incorporation MoCA	
VIII	CTE	
IX	CTO	
X	Covering Letter	
XI	Aerodrome License	
XII	Fire NOC	
XIII	Survey Map of CCSIA	