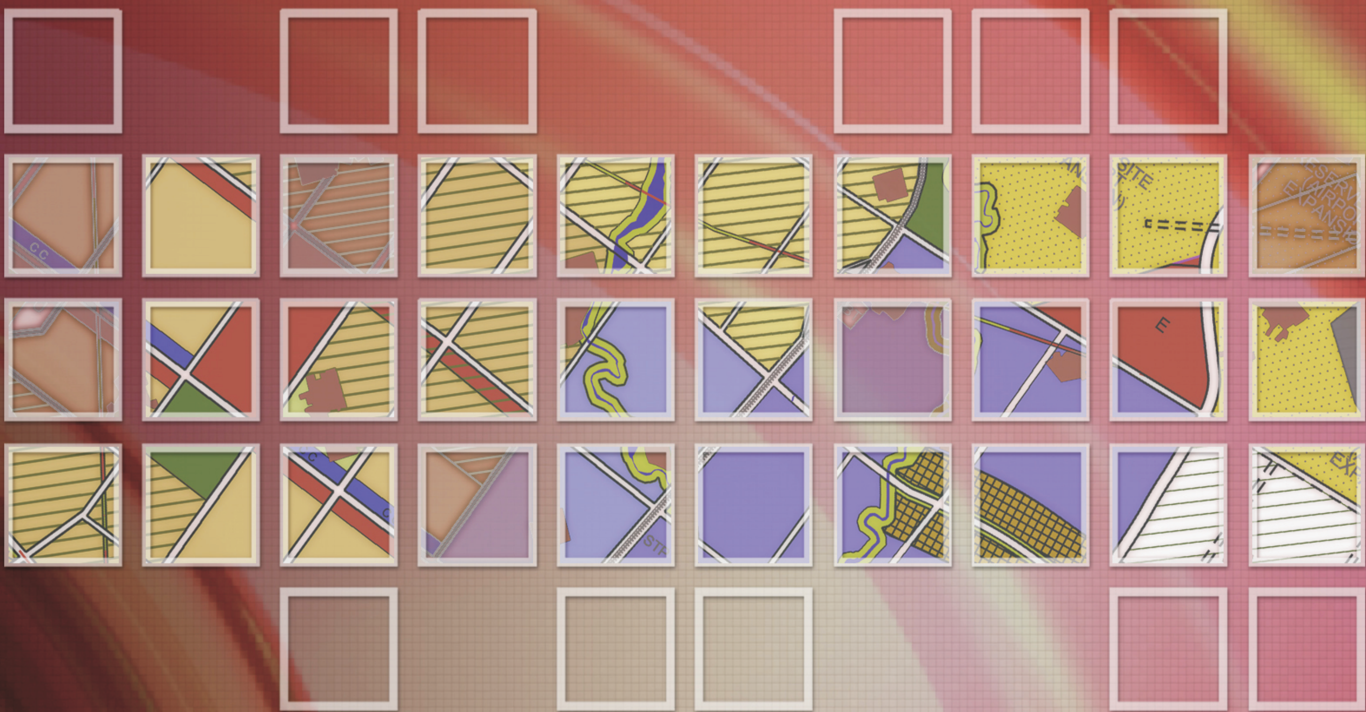

SAS NAGAR LOCAL PLANNING AREA

GREATER MOHALI REGION, PUNJAB (INDIA)

MASTER PLAN REPORT

2006-2031

JURONG
JURONG Consultants Pte Ltd

SAS NAGAR LOCAL PLANNING AREA

GREATER MOHALI REGION, PUNJAB (INDIA)

Chapter 1

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1.0 Regional Framework

1.1 Vision for Regional Development

The vision for the Greater Mohali Region is to become a globally competitive metropolis with a self-built resilience capacity to sustain the pace of economic and urban development in Punjab. It will offer unique lifestyle choices and memorable experiences to the residents and visitors. It is a commitment to ensure that the development is able to keep pace with the rest of the world and be constantly adapting to the changing global environment.

Keeping in mind the social and physical characteristic, the economic growth potential and the existing development trends within the region, objectives and strategies have been formulated to achieve the vision. The proposed strategies shall provide economic stimulation to existing development, enhance the environmental condition, offer world-class living and provide accessibility to everyone through all modes of transportation.

The primary objective as set forward at the Regional Plan level is to ensure that enough land resources have been allocated to meet the target population of 4.5 million for year 2056. This safeguarding shall not only be for the ultimate population but shall also be in tandem with the intended economic and infrastructure development. The core objectives of the Greater Mohali Region plans are:

- To build and transfer the Greater Mohali Region into an attractive place to visit, work, live and play.
- To strengthen the economic, social and cultural well being of the Region
- To regulate and optimise urban development so that the outlying areas of fertile agriculture land, natural features, water catchments and ecologically sensitive zones are conserved and preserved.
- To prioritize development in areas with existing infrastructure development, community facilities and other commercial entities.
- To encourage sustained economic growth, there by improving the quality of living and working environment.
- To promote growth in tourism in accordance to the growth strategy of Greater Mohali Region.
- To encourage creation and expansion of new businesses and growth areas like e-commerce, environmental science and research, aviation and logistics as well as the creative sector.
- To preserve and enhance the network of green and open spaces.
- To create a good variety of housing types and ample jobs for the residents.
- To conserve and enhance the Region's historical, architectural and cultural assets.

Hence, **Distinctive Mohali** highlights the encapsulate objectives, which being the premier town of the Greater Mohali Region.

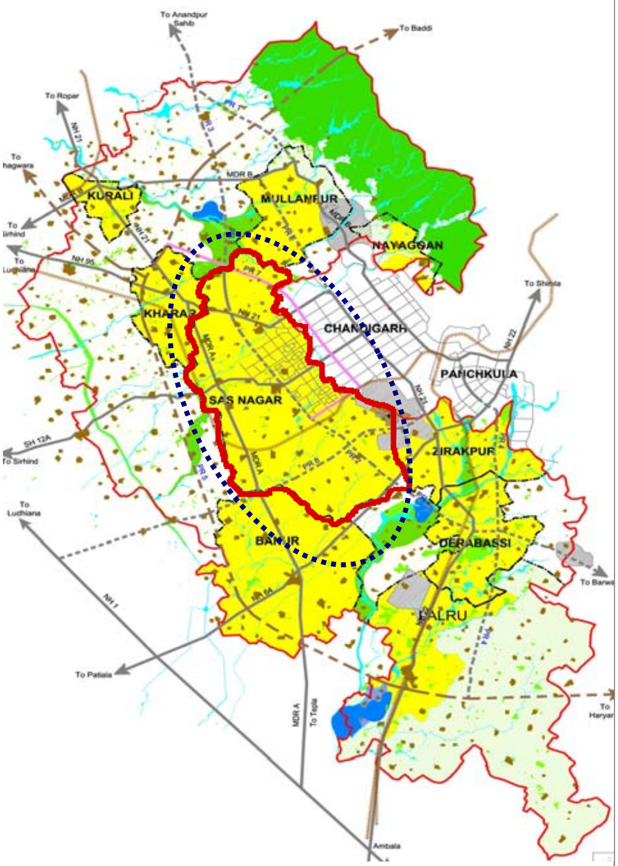


Fig. 1.1: Local Planning Area of S.A.S Nagar

1.2 Broad Planning Intention for SAS Nagar

The main objective is to ensure that there is sufficient land in S.A.S Nagar to provide jobs and housing for the population in 2031. This Section of the report evaluates the broad planning intentions and strategies adopted for the physical development of the local planning area of S.A.S Nagar up to year 2031. It also includes the proposal of growth nodes and corridors and the key economic drivers that have been identified in promoting the highest quality of life for its residents.

The Greater Mohali region focuses on seven key primary areas, which were identified in the Regional Plan as potential economic zones.

Table 1.1: An overview economic activities within the seven economic clusters

Economic Clusters	Primary/ secondary activities
Central S.A.S. Nagar	CBD Financial District Arts and culture Centre Administrative Centre Medical Hub
North- eastern S.A.S. Nagar	Airport / Aviation Hub Logistics & Manufacturing Hub
Zirakpur	Heavy manufacturing Wholesale and trading Warehousing Medium/ small Manufacturing
Banur – Zirakpur Corridor	Instructional – knowledge belt Business – technological Belt Southern gateway
Foothills of Shivalik	Nature Conservation and Preservation Public enjoyment of Flora and Fauna Ecological Tourism
Mullanpur	Resort Centre Low Density Country living Northern Gateway
Agriculture / Rural Zone	Diversification of agriculture activities Rural Growth centres
	Mass Approach to Rural development Preservation of fertile agriculture land

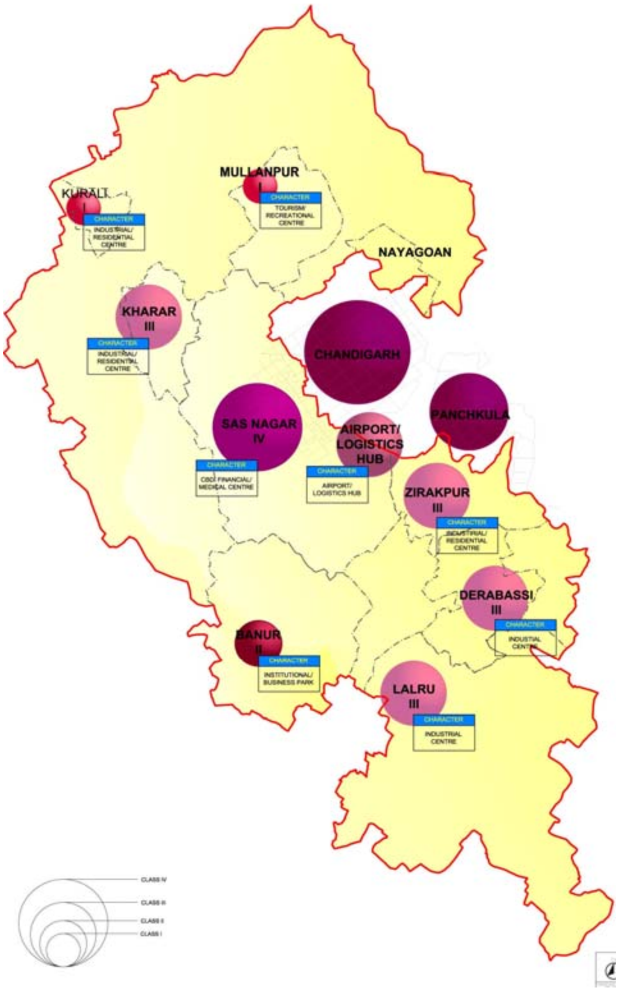


Fig. 1.2: Proposed Development Strategies

The planning intention for S.A.S Nagar is a direct derivative of the Vision as well as core objectives of the Greater Mohali Regional Plan.

Most of the developments within the Greater Mohali Region are concentrated around the Southern periphery of Chandigarh, which has experienced the spill over effect of a highly urbanised Chandigarh. S.A.S Nagar is one of the most developed areas as well as the main urban centre of the Greater Mohali Region. Based on the inherent qualities as well as the stage of development in the local planning area, S.A.S Nagar being the largest and most urbanised town, has assumed the status as the central business and financial district of Greater Mohali Region. The major growth poles for the LPA are:

- ***Central Business District :***

  CBD is known to be the nerve centre and focal point of a metropolitan area. The central business and financial district would accommodate a higher order of financial, institution, administrative and commercial establishments.

  Besides being the pulse of the local economy, the CBD would also create employment opportunities for the local living as well as the surrounding areas. S.A.S Nagar can offer alternative lifestyles, which would be better and affordable than Chandigarh. The facilities and buildings that have a regional catchment are appropriate to be located within the definite boundary of central business district; these include libraries, museums, theatres, symphony halls etc forming a part of the 'soul of the city'. It can be a more wholesome and vibrant place by enhancing the culture and heritage of Punjab.

  The Central Business District would be the new growth catalyst which would further boost the development and also strengthen the economy of S.A.S. Nagar by housing various MNCs.

- ***Airport and Logistics Hub:***

  On a macro – economic level airports are the economic engines accelerating growth and prosperity. An efficient, economically viable and environmentally sustainable international gateway will encourage and drive local, national and regional economic development and prosperity. They provide a region with the ability to attract corporations that rely on time-sensitive manufacturing, e-commerce fulfillment, and telecommunications. At the same time, they provide related communities with an international business presence, an increase in tourism, an increase in jobs covering the various sectors, aviation related and increase in local material purchases and local spending.

  The passenger traffic in Chandigarh and its visit is expected to grow rapidly and it may be saturated in ten years time. Currently, the airport is functioning as passenger traffic hub only for domestic flights only. Once The Chandigarh Airport is upgraded to an international airport and the planning of the Aerotropolis- airport city in the GMADA region will provide an integrated multi modal transport hub at the airport. Thus, the airport city will offer to its residents all first rate conveniences to make it the best place to live in the region and also generate employment and sustainable growth for the region. The corridor along NH-22 would be one of the major passenger and cargo hubs. The airport city would be well balanced for sustainable growth and will boost the economy of the Tricity. The key strategies to build on are:

- Build up a world class passenger airport to boost the growth of Mohali destination.
- Provide a major cargo capacity to drive Mohali's industrial activity.
- Create a superior return by developing the most profitable airport related business.
- Bring in together primary (airport) , secondary(shops) and induced revenues (employees)
- Create high value industry base
- Increase GDP through exports
- Attract highly motivated local and international students
- Create attractive residential area for new inhabitants and also cater to mid income group.

- ***Medical Hub:***

Medical tourism is a growing trend worldwide and shall continue to expand in the years ahead. The high cost of health care, long wait times for certain procedures, the ease and affordability of international travel, and improvements in both technology and standards of are some of the factors that have led to the popularity of medical tourism in India.

The Fortis hospital located in Sector-62 is a world renowned heart speciality hospital and a medical anchor with S.A.S. Nagar, which it can capitalize to grow the sector. With new medical facilities and other medical related activities, the local planning area can be a one stop medical hub for the locals, foreigners and the NRIs.

This sector will not only generate employment but also enhance the economy of the region by reviving the tourism industry through target medical tourism. Though, medical tourism is established in S.A.S. Nagar on a small scale with Fortis hospital as the icon development, there has been no concession and active promotion of this sector. With its location in close proximity to the CBD area and Chandigarh, the tourist can rely on the conveniences and availability of a full range of hotel and commercial establishments and other entertainment activities to enhance their visit.

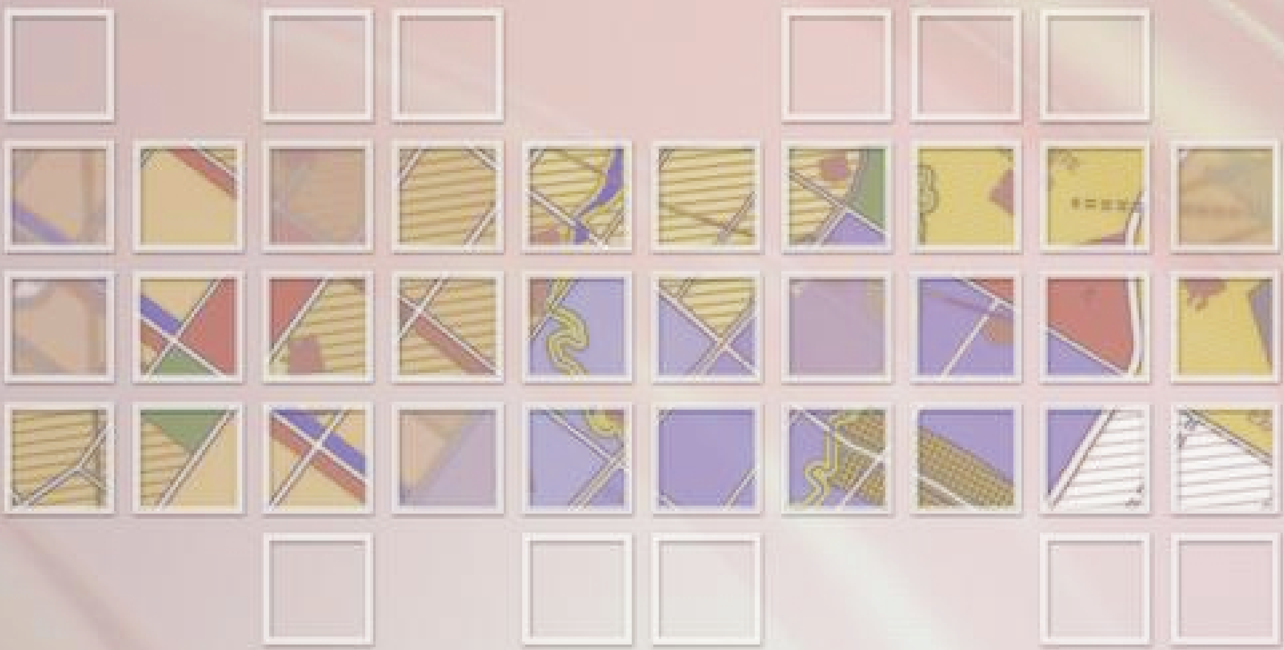
1.3 Development Framework for SAS Nagar Local Planning Area

The Regional plan maps out a broad outline for the long term physical development of Greater Mohali Region for a population of 4.5 million. S.A.S Nagar is now a fast emerging as well as a preferred destination not only for the information technology industry, but also for quality housing and urban infrastructure related investments.

A comparative population study was conducted at the Regional Plan stage. Based on that study the overall population assigned to the various areas in the greater Mohali region FY2056 is scaled down to year 2031. The methodology used is based on the stage of urbanization, the land availability and the economic drivers envisaged for each of the local planning area. It is projected that S.A.S Nagar's population will increase to 1.3 million by year 2031. The following is the preliminary development framework for the local planning areas of S.A.S. Nagar.

SAS NAGAR LOCAL PLANNING AREA

GREATER MOHALI REGION, PUNJAB (INDIA)



Chapter 2

Table 1.2: Preliminary Development Framework for the Local Planning Areas of S.A.S Nagar

	SAS NAGAR
PROJECTED POPILATION-2056	1,726,500
% OF POPULATION GROWTH EXPECTED BY 2031 (assumptions based on Overall Phasing Strategy)	75%
PROJECTED POPILATION-2031	**1,295,000**
Existing Population - 2001	
CLASSIFICATION OF TOWN	Regional Metropolitan Center
AVAILABLE LAND AREA (HA)	16,674
GROSS RESIDENTIAL DENSITY (ppa)	175

The following assumptions were taken into consideration:

- Very High Growth scenario was considers for the ultimate population projection
- Total regional urban population is estimated to be 80% of the total projected population of Greater Mohali Region.
- In migration and other economic catalyst promoted by the government contribute majorly in the population growth.
- The average family size of 5 is considered.

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2.0 Planning Analysis

Having assessed the existing situation within the SAS Nagar Local Planning Area (LPA), this section of the report presents the synopsis of the strength, weakness, opportunity and threats (SWOT), which sets the context of the master planning approach for S.A.S Nagar. A review of the local and global trends have provided an outlook for S.A.S Nagar in terms of its strategic market positioning . The SWOT analysis provides an opportunity to impartially assess the competing operating environment.

2.1 Strength and Opportunities

Opportunities are the factors or conditions which allow positive change or increase development options or alternatives. The following are the list of strengths and opportunities as set in the context of the vision and strategies for the S.A.S Nagar local planning area.

2.1.1 Location:

The S.A.S Nagar LPA is strategically situated immediately to the south – west of the capital for the state of Punjab and Haryana in Chandigarh, which is also an administrative centre for both the states of Punjab and Haryana. The location of the proposed international airport in Chandigarh within close proximity to SAS Nagar is seen as the catalyst for growth and a major economic boost to the area.

Due to the large amount of committed projects in this area, all with substantial industrial component, there is likely to be a high degree of competition between projects and differentiated market positioning. SAS Nagar will need to have a unique brand identity and offer investors something 'different' in order to achieve the vision it has set for itself.

2.1.2 Topography and View Lines

The site is covered with gently sloping land traversed by two streams Patiala Ki rao & Jayanthi Devi Ki rao. This gentle undulating topography is sloping from north-east to south-west as it is situated at the foothills of the Shivalik hills. This gentle sloping terrain that is varied in parts and ranged from 305 m to 335 m sets up opportunities for minimum land leveling and allow creative design responses, especially in the residential areas. In certain places, the built form will be able to put the topographic features to maximum use, creating focal points, and enhancing views and vistas.

2.1.3 Accessibility:

S.A.S Nagar is well linked to the surrounding region by a satisfactory network of National Highway, State Highway and other major district roads. NH-22 and NH-64 runs along the periphery of S.A.S Nagar connecting to the other districts in Punjab and neighboring states. NH 21 connects SAS Nagar via Kharar to the Northern part of the State of Punjab such as, Jalandhar, Amristar etc and SH 12b connects to Fatehgarh Sahib and Sirhind.

The National highway NH22 also connects it to the State of Haryana and further to Delhi which is 244 km away. NH 22 is being upgraded to dual 3 lanes which would increase the road capacity and shorten travel time to three hours. The highway will bring about speedy economic growth to the region as New Delhi and the Gurgaon corridor have become saturated and land prices are soaring.

Besides the relatively good road connectivity; there is a vital rail link which is currently linking Chandigarh to New Delhi via Ambala. There is a new rail link which connects Chandigarh to SAS Nagar and further to the rest of Punjab. The rail line forms the southern border of SAS Nagar and is on a raised embankment. This railway line is completed and waiting for it to be commissioned.

2.1.4 Proximity to Chandigarh

In relation to its proximity and good linkages with the Union Territory, residents of SAS Nagar are able to enjoy good educational and social facilities/ amenities of Chandigarh whilst the town is growing. As most of the land in the Union territory are developed; SAS Nagar also serve to accommodate the spill-over housing demand from Chandigarh. The planning of SAS Nagar is a repeat of Le Corbusier grid pattern and the 2 towns are very well connected and integrated. In recent years, the combined population of the tri city, of Chandigarh, SAS Nagar and Panchkula, is growing very fast due to the cheaper land and property prices here as compared to the 1st tier cities.

Once the tri city's population has grown beyond the 2 million mark, it will have sufficient critical mass to merit the setting up of a major town centre here to cater to the demand. .SAS Nagar can be the Central Business district to the tri city as there are 200ha of commercial land available in SAS Nagar in Sector 62 and Sector 87 for a comprehensively designed new and modern commercial and business district (CBD).

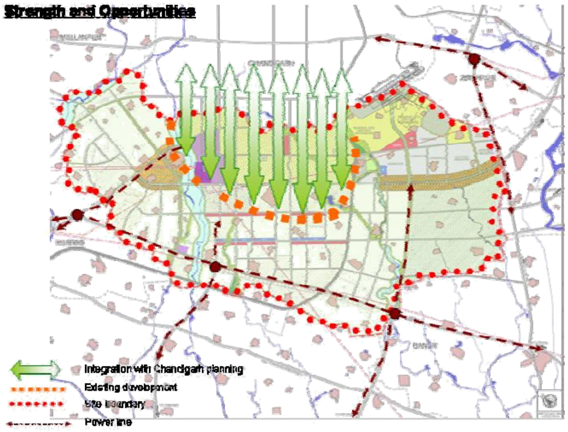

Figure 2.1: Proximity to Chandigarh

2.1.5 New Proposed Highway

Currently the various towns within the Greater Mohali Region area are not directly connected to each other. With the construction of the GMADA expressway; all the six towns within the region will be linked together. Furthermore; the extension into the town of Baddi to the North in the State of Himachal Pradesh will certainly improve the overall travel time. The residents of Baddi would also find it attractive to live, shop and recreate in SAS Nagar due to the shorter travel time..

2.1.6 Proposed International Airport and Development of an Airport Hub

The upgrading of the Chandigarh domestic airport to an international airport was announced in 2008. This project is highly likely to have a significant impact to the entire Greater Mohali region once the new international airport is operational. As typical of other international airport; it will not only serve as a transport hub but as a major economic driver to the Greater Mohali region area since Punjab is a land locked state and the air link is a vital point of contact with other countries. The International airport has been envisaged as the catalyst for growth in SAS Nagar and the multiplying effect of this airport is expected to be tremendous. Tourism and airport related activities and time sensitive manufacturing will certainly increase. As about 9 million NRIs from the state of Punjab are residing overseas; the proposed international airport will certainly make travelling easier for NRIs and tourist to visit Punjab.. The airport hub will also serve as the catalyst for the aviation and logistics business in Greater Mohali region. In addition this will also trigger the establishment of more IT and ITeS companies in the Mohali Region, both local and foreign.

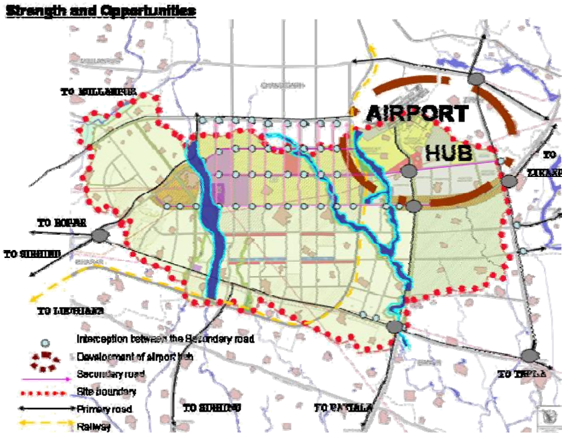

Figure 2.2: Proposed International Airport and Development of an Airport Hub

2.1.7 Demography:

SAS Nagar has a higher literacy rate as 78% compared to 69.7% for the state of Punjab. The whole region has a higher literacy rate as compared to other states in the country. About 66% of the total population is under the age of 35 years. As the population is young and educated, it offers a valuable skill manpower resource for economic development and sustainability of the city.

2.1.8 Proposed Development and Business Opportunities:

SAS Nagar, due to its proximity to Chandigarh has been not only accommodating the spill over of population but also investments from the Union Territory, Hence there are a stream of new proposals emerging in various parts of the Mohali town. It is envisaged that with the up gradation of the Chandigarh airport to international status, it will certainly boost the local economy with more business opportunities inflow in both the tourist and manufacturing and logistics sectors. An international airport will open up the Mohali region to the international arena and with the right marketing strategy, more foreign investments will flow into SAS Nagar due to its world wide Punjabi NRI network. Apart from this there are also proposals to upgrade SAS Nagar as the Central Business District which will facilitate more investments in the commercial and business sectors.

2.2 Weakness and Constraints

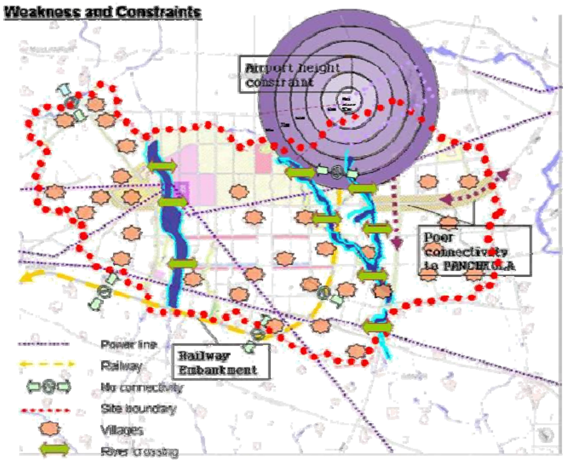

Figure 2.3: Weakness and Constraints

The major area of weakness and constraints for S.A.S Nagar are elaborated below. Some of these constraints can be overcome by land use planning , monetary means and infrastructure up gradation.

2.2.1 Road network limitations:

As the GMADA area is land locked; connectivity to other countries and cities are only possible by way of air; road and rail. Currently, the local road network is far from ideal as there is limited connectivity to Mullanpur and Panchkula from SAS Nagar. Travel time from Delhi by road is also very long stretching beyond 4-5 hours. Hence there is a need to propose expressway and major arterial roads within the Local planning area and linking it to the towns and the regional plan. The GMADA structure plan recognizes it and highways are being proposed to connect SAS Nagar to Mullanpur and Panchkula and other arterial roads and expressways are also being proposed to link up all the towns within GMADA and beyond.

2.2.2 Urban Growth and Land management:

There are slums and squatters existing in several parts of the town and these unauthorized developments are unsightly and may be the seed of disease and social problems if left unchecked. It may also mushroom into organized communities if left unattended within the LPA. These settlements will cause hindrance in the development of the residential township. There are also informal markets in some parts of the town and there is need to organize these informal activities to make it a harmonious environment to live in.

This can be overcome by proper Land Management controls and appropriate EWS housing provided within the LPAs and proper markets and wholesale centres provided.

2.2.3 Competing Developments in the Vicinity:

SAS Nagar, being the most urbanized town within GMADA, has the highest potential to be the commercial hub within the GMADA region. But the neighbouring town of Panchkula is also an up and coming major commercial center and poses a direct competition to Mohali. Hence GMADA has to strategise and provided a higher order of infrastructure and systematically planned and implement the town so that it can compete effectively and become the main investment destination for potential investors in the region.

2.2.4 Railway Embankments Hinders Development

The railway line connecting SAS Nagar to New Delhi forms the southern border of SAS Nagar and is on a raised embankment. This embankment hinders the comprehensive planning and development of the entire town. Some of the safeguarded underpasses at the base of the rail embankments are too narrow and few to provide the high volume of traffic anticipated in the longer term and may be cause for traffic jams at those locations.

2.2.5 River Crossings Hinder Mobility and Accessibility

There are two major streams passing through SAS Nagar namely Patiala Ki rao & Jayanthi Devi Ki rao. These hinder the accessibility and mobility of the traffic passing through. Hence there is need to build several expensive bridges across the streams in various places of the town.


2.2.6 Integration of Villages with Existing Urban Settlement

There are 77 villages within SAS Nagar housing a population of 100,400. Thus developments in SAS Nagar are constraint by these existing villages. Acquisition of land for comprehensive development of the town has ceased in recent years as it is politically unpalatable. Thus there is no intention to acquire more of these villages or parts of it unless for really necessary and critical infrastructure installations. The SAS Local Plan has been designed around these villages and attempts have made to integrate them into the overall land use. These villages will pose a constraint to the local plan in terms of the need to provide access to these villages and to prevent flooding. Some of these villages may also be in the path of critical highways and several road alignment has to be compromised to accommodate these villages. As seen in the overseas examples where villages are relocated to allow the area to be comprehensively planned, the Local plan acknowledges this and there is no objection for private developers to acquire and relocate these villages based on fair commercial terms and privately negotiated. This is inevitable in the long term as market forces will shape the process.

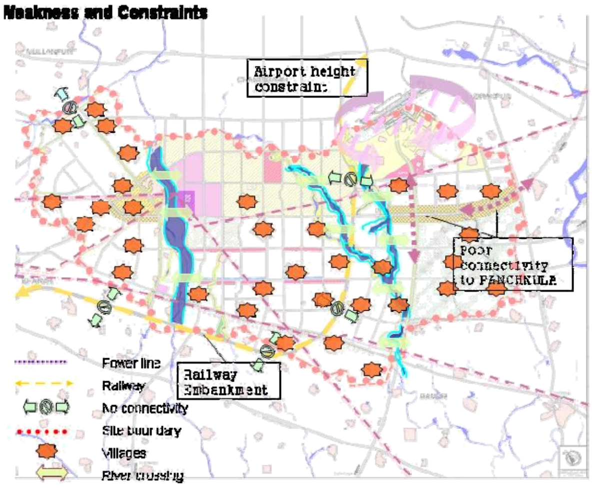

Figure 2.4: Integration of Villages with Existing Urban Settlement

2.2.7 Presence of High Tension Power Lines Across Site

There are high tension power lines crisscross the site at various locations. All land underneath this pylon has to be designated as green pylon reserve. In the local plan 30 m pylon reserve has been set aside along the 220 KV power lines.

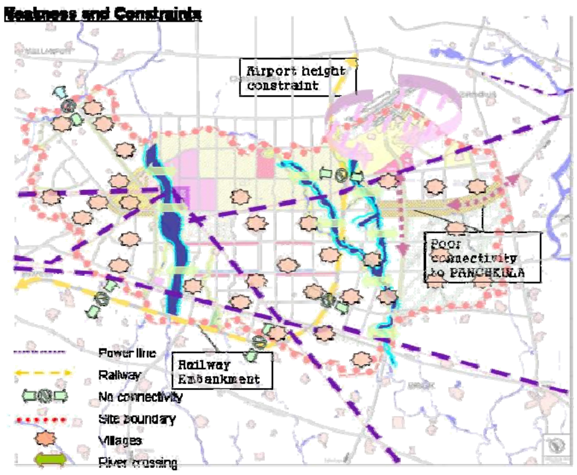

Figure 2.5: Presence of High Tension Power Lines Across Site

2.2.8 Height Restrictions Due to Proximity to Airport

As the eastern part of SAS Nagar is bordering the Chandigarh international Airport, it is affected by the aviation height constraints of the airport. Developments in SAS Nagar and Zirakapur, in the vicinity of the airport and especially along the approach funnel of the runway; will have height restrictions and noise pollution.

As the Chandigarh airport is an Air Force station there are certain building restrictions imposed on developments along the boundary of the airport. These restrictions are clearly spelled out in the Gazette of India No 4 – New Delhi, February 25 – March 3, 2007, where the Ministry of Defence in exercising the powers of Section 3 and 7 of the Works of Defence Act, 1903, had found it expedient to impose restrictions, upon the use and enjoyment of land in the vicinity of the Indian Air Force and Installations.

As per the Annexure A of the same Gazette, no building or structure shall be constructed, created or erected or no tree shall be planted on any land within the limits of 900 meters fro the crest of the outer parapet of the Indian Air force Chandigarh station and 100m around the boundary of the Highgrounds. This no development zone around the Airport will be observed in the Local Plan.

SAS NAGAR LOCAL PLANNING AREA

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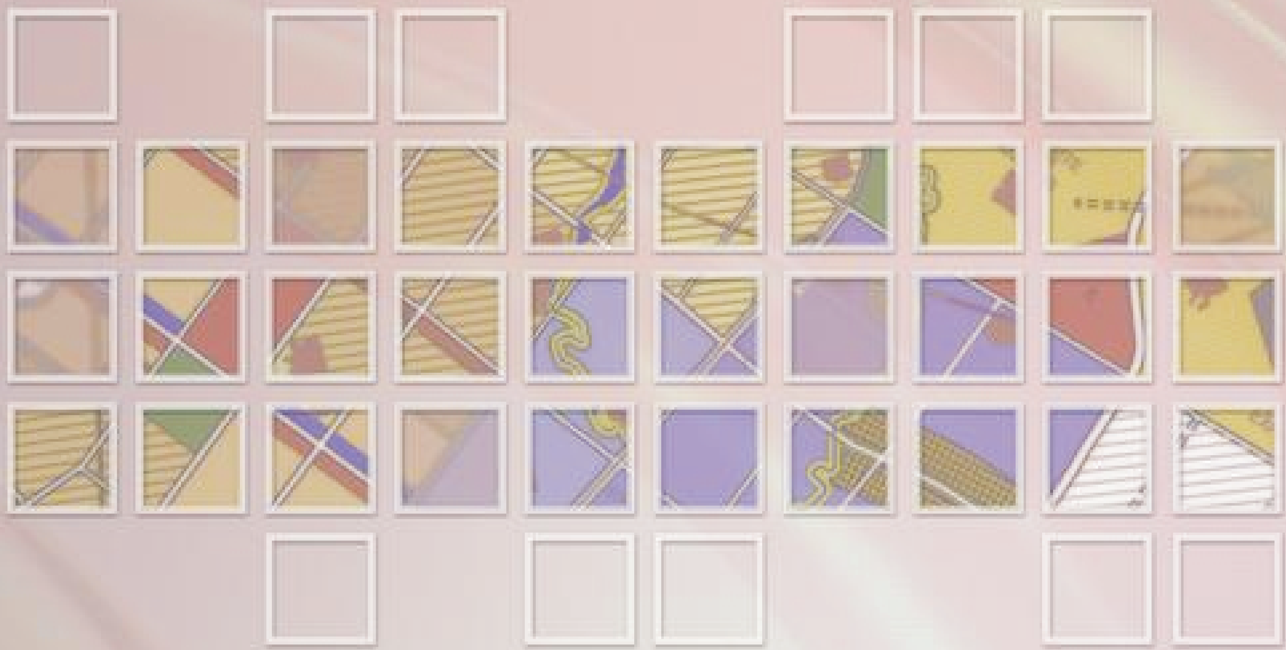

Chapter 3

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3.0 Development Framework

This chapter details the SAS Nagar's vision and objectives which have been formulated to guide and set the direction for the development of this local area. The Local master plan has been developed based on the vision, goals and objectives as envisaged. Planning strategies are also proposed so as to set the direction for the development and to ensure that the quality as set is being maintained throughout.

The vision for SAS Nagar and the supporting strategies, goals and objectives will provide the guidance for the development, the evaluation of the land use proposal.

3.1 Vision and Objectives

The vision for **SAS Nagar** is to create a `premier township' in the Greater Mohali area of Punjab and as the benchmark for other towns in India to emulate. It will be a showcase environment for its citizens to live, work, play, learn and strike business deals. The strategies to achieve this vision are as follows:

- To develop SAS Nagar as the CBD and financial and administrative centre of the Greater Mohali area and the destination for business and centre for civic and cultural activities.
- To integrate the planning and development of S.A.S Nagar with Chandigarh and the adjourning towns.
- To provide a variety and range of housing types for the working and living community within the SAS Nagar
- To provide world class infrastructure and utilities including a comprehensive transportation system facility that will satisfy the needs of the locals and foreign investors.
- To provide a high quality environmental living with emphasis on a whole range of supporting social facilities and mandatory open space provision.
- To provide good landscaping and to maximise the potential of the rivers and waterbodies by injecting leisure activities along the banks.
- To provide good accessibility with efficient road system to the Chandigarh International Airport, the Railway station and adjourning towns and cities.
- To optimise the use of land around the International airport by safeguarding sufficient land around it for the aviation hub uses.
- To safeguard and enhance the premium land value along the major highways and high visibility locations.
- To create a conducive environment through a range of recreation facilities with golf courses, country clubs, sports complexes, parks and recreation open spaces.
- To develop modern retail, hotel and commercial facilities such as retail malls, entertainment, and shopping for the living community as well as the foreign tourist. The CBD within SAS Nagar will be the nerve centre and the dominant focal point for the GMADA area.
- Develop world class educational and research institutions including medical colleges and hospitals as tourism drivers.
- To develop a whole range of social and other community facilities to support both the living and working community within the local plan area including religious temples.
- To ensure a high environmental quality by planning for only non-pollutive and eco-friendly industry.

3.2 Planning Parameters

In planning for GMR's future development, it is necessary to take into consideration the natural growth, migration, urbanization and economic data of the Punjab region and of India as a whole. Understanding past trends and current level of economic activity can help to produce a feasible population scenario for both year 2031 and 2056.

3.2.1 Economic Projection Analysis

S.A.S Nagar is one of most industrialized area in terms of medium and large scale industries. Electronic and pharmaceuticals are the two major industries with a significant presence with textile, chemical and metal (basic and fabricated including auto components) being the other key industries. In the last ten years S.A.S Nagar has emerged as the leading area for the location of Information Technology (IT) and IT Enabled Services (ITeS) in the state. The share of IT and ITeS exports from the LPA is estimated to have accounted for about 6.2% of the estimated economic output of Greater Mohali Region FY2007.

The exports of companies registering under STPI, Mohali has increased from INR 140 mn in FY2000 to INR 5.62 bn in FY2007 registering a growth of 69% p.a. (Figure 3.3) Infosys Technologies, Dell International Services and Quark Media House are the three major exporters registered under STPI, Mohali accounting for 65.4% of total exports in FY2007.

Apart from IT/ITeS, education and healthcare are two emerging services contributing the economy of the Greater Mohali Region. A number of other privately run educational institutes operate in and around Mohali within the Greater Mohali Region. An Indian Institute of Information Technology (IIIT) and a National Institute of Nanotechnology are proposed to be set up as part of a 250 acre "Knowledge City" in Sector 81 of Mohali. In healthcare, the multi-speciality hospital set up by Fortis Healthcare[1] on an 8.2 acre campus in 2001 is established as a leading hospital attracting patients from all over north India and abroad. Based on current situation, the projected economic output of the GMADA area is as follows:

Table 3.1: Projected Economic Output of the GMADA Area (INR Bn, FY2000 Constant Prices)

FY2007	28.5
FY2010	37.9
FY2015	50.0
FY2020	65.4
FY2025	85.1
FY2030	112.3
FY2035	148.8
FY2040	196.4
FY2045	254.2
FY2050	322.9
FY2055	410.1

From the above projection, it is anticipated that the economy of the GMR would grow to about four times its current size in 25 years and to around 14.5 times in 50 years.

Considering GMADA's economic growth potential in the coming years, it is anticipated that economic growth will drive urbanization and can spur further growth in the nearby towns. This integrated development is promising and brings opportunity for economic and population growth in S.A.S Nagar.

3.2.2 Population Projection Analysis

Against the favourable growth conditions, four types of population growth scenario can be anticipated for GMADA – low growth, moderate growth, high growth or very high growth.

Table 3.2: Population Growth Scenarios for GMADA

	Low Growth	Moderate Growth	High Growth	Very High Growth
Population 2001	0.71	0.71	0.71	0.71
Natural Growth	0.42	0.42	0.42	0.42
Migration	1.19	1.71	2.74	3.39
Population 2056	2.32	2.84	3.87	4.51

For the purpose of land use planning, Jurong Consultants shall assume the 'very high growth' scenario so as to accommodate the greatest demand and maximize GMADA's potential to develop fully into a competitive region, on par with other successful cities around the world. Basing on this high growth scenario, JURONG Consultants then attempt to distribute it into six local planning areas with S.A.S Nagar taking the main share (45%) of the gross target population.

The projected population for S.A.S Nagar is 1,295,000 by 2031 and 1,726,500 by 2056. Based on the projected population by 2031, the planning parameters for S.A.S Nagar are:

Table 3.3: Projected Population for S.A.S Nagar LPA

	S.A.S NAGAR
PROJECTED POPULATION-2056	1,726,500
PROJECTED POPULATION-2031	1,295,000
CLASSIFICATION OF TOWN	Metropolitan Town
AVAILABLE LAND AREA (ha)	16674
GROSS RESIDENTIAL DENSITY (ppa)	175

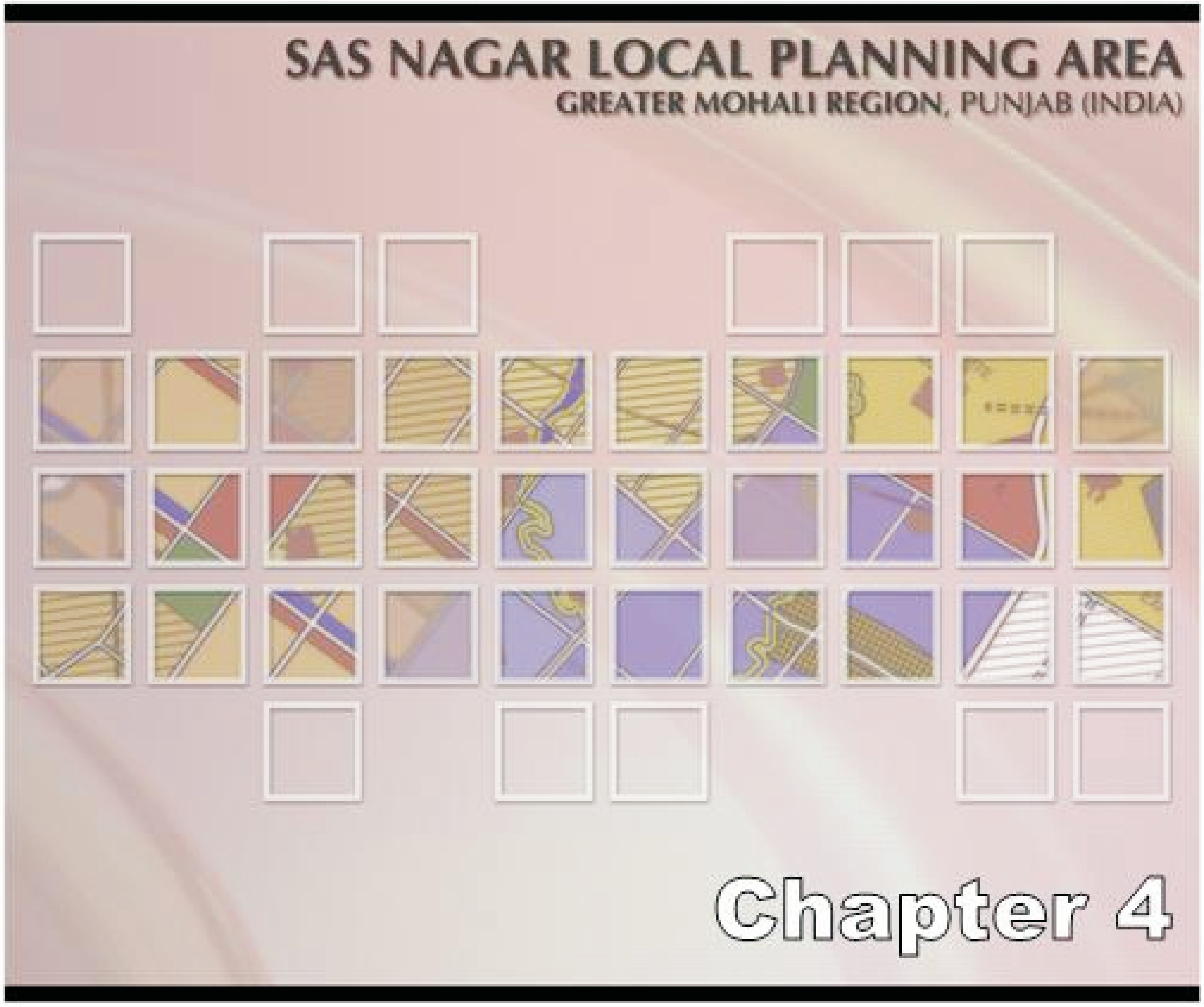
[1] Fortis is promoted by Ranbaxy, which has a manufacturing presence in the GMADA Area as well.

3.3 Planning Strategies

Based on the above analysis and planning parameter , the planning strategies for S.A.S Nagar will be based on the following principles:

Table 3.4: Strategies Developed for Various Planning Elements

PLANNING ELEMENT	STRATEGIES
	live.
Environment	Manage development to ensure the sustainable use of resources and the provision of a clean, healthy and safe living environment.
Transportation	Provide a safe and efficient private and public transport system and movement network that provides adequate levels of accessibility and mobility, catering to the needs of the residents and tourist.
	Provide adequate utilities to service new development in a timely manner and ensure the optimum use of all utility investment and delivery of those services.
	A flexible planning approach, which provides the ability to respond effectively to changes in economic and social circumstances. The coordinated management of development and the delivery of services with participation by the community and the business sector so as to make SAS Nagar and attractive plan to live and do business.


SAS NAGAR LOCAL PLANNING AREA
GREATER MOHALI REGION, PUNJAB (INDIA)
Chapter 4

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4.0 Implementation and Phasing

4.1 Land and Development Policy

A market-oriented, entrepreneurialism approach to development is adopted. It is assumed that apart from essential services, much of the S.A.S Nagar Local Planning Area development will be carried out by both private and public sector, which is in line with our development objectives from the regional plan.

A proper framework of land acquisition/ rehabilitation should be adopted. The process is to ensure that it evade major risks and is fair. Compulsory acquisition shall have to be taken sensitively and compensation packages are to be updated periodically to reflect true market price. Compulsory acquisition shall take place for important infrastructure development projects or for other strategic public purpose. The uses that are deem crucial for the community are hospitals, police station, fire stations, roads and infrastructure etc. There are many ways to carry out road widening, town planning, and value enhancing investments such as converting ribbon development to corridor development, providing public services through implicit acquisition, as in plot shrinking under 'TP' schemes and the use of TDR (Transfer of Development Rights) . TDRs can also be used to make the process of town planning and corridor development fair to all the beneficiaries including those who give up their land.

The role of local municipal and town development authorities is to facilitate economic growth rather than control and manage it. The departments should aim to make full use of market mechanism as well as growth drivers to achieve public goals. Whilst the private developer can proceed to do their own acquisition, it is also desirable for the state development authorities to play an active role in the acquisition process and getting necessary approvals. This would help in reducing the overall time required for the same process.

In keeping with the vision of S.A.S Nagar as the Premier town in the Greater Mohali Region in place, the qualities should be taken into consideration when implementing S.A.S Nagar's future urban developments. Details of the development control regulation and FSI are contained the chapter dealing with special control for development of S.A.S Nagar.

Table 4.1: Land Use Acquisition Based on Entrepreneurialism Approach

Land use	Acquisition	Development	Operations & Maintenance
Residential	Public/ Private-Sale of Site/Auction	Private / Public	Private / Public
Commercial	Public/ Private-Sale of Site/Auction	Private / Public	Private / Public
Institutional (Regional Scale)	Public/Private (depending on kind of facility)	Public / Private	Public / Private
Institutional (Neighborhood Scale)	Public / Private	Private / Public (BOO/BOOT)	Private / Public
Open Spaces/Green Areas	Public-private	Public / Private	Public / Private
Road/Transport Infrastructure	Public	Private / Public (BOO/BOOT)	Private / Public

4.2 Development Phasing

It is proposed that the 16674 ha site of S.A.S Nagar shall be developed in phases as it is neither feasible nor desirable to develop the entire site of 16674 ha simultaneously. The phasing plan is designed to ensure that the development of various land uses within the local planning area is well coordinated and minimise investments in infrastructure provision. This shall help in an efficient and cost effective implementation of necessary infrastructure.

4.2.1 Principles of Phasing

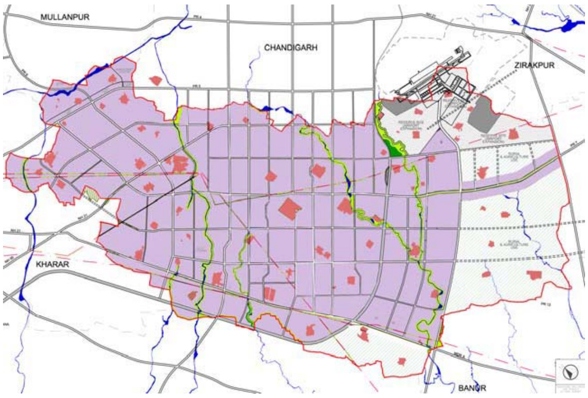
- To allow growth to take place incrementally over time. This is done in order to minimise the need for concentrated investment and mega form solutions at any stage of the development. In addition, incremental development provides flexibility in terms of phasing, sizes of phased packages of development and minimizes the heavy front-end costs where they are not required.

- To recognize that growth takes place by small increments as and when resources are available.
- To provide a degree of choice of site layout at each stage of growth.
- To encourage variety and plurality in investment and participation in the township development, both from public and private aspects. There are opportunities for both large projects taking up several blocks as well as small projects, which may occupy only one block. Hence, providing a spectrum of different project sizes at any one time gives equal opportunity for small as well as large scale developers/ investors to participate actively.

4.2.2 Sequence of Development Phases

The new industrial area shall be developed in phases, as per the demand starting from PR7 Southwards. This will permit a more effective development of existing and proposed investment in infrastructure as well as taking into consideration the proposed development opportunities and impact particularly from Panchkula and Chandigarh.

Figure 4.1: Phase 1 of Development (Year 2031)



The initial projects shall be the catalyst for the development of the local planning area of S.A.S Nagar. These developments should demonstrate financial and economical viability. These projects should be established at a particular quality standard in terms of architectural design and infrastructure services. Like in any other parts of the world, it is likely that industries ad airport will be the catalyst for growth and will be developed first. In line with this, the prominent developments that have been earmarked to be implemented in the 1st phase include:

(a) Aerotropolis;
(b) Knowledge city;
(c) Business and High tech parks

These developments have potential to spearhead IT industry growth, educational tourism, and Airport city. An appropriate quantum of commercial space for retail, leisure and entertainment along the major corridors and allocated locations may proceed simultaneously but their development will have to keep pace with the market demand and also in tandem with other infrastructure developments within S.A.S Nagar.

The phase 1 area would be concentrated in the industrial parcels as designated in the master plan and also with the development of the Aerotropolis. There would also be development of two commercial city centres in sector-62 and 87. Some of the commercial uses will also be designated in the mix use area along the main arterial road that runs through the local planning area. It is proposed that the rest of the residential development logically proceed as per the previous approved projects, initially concentrating around the South-west part of S.A.S Nagar and moving towards North. The start-up area boundary was drawn up taking into consideration the mix of land use types, the proximity to the existing highway and built up areas, and the ease of infrastructure connections.

The completion of the first phase shall accommodate sufficient residential population and work force to justify the area provided for administrative, entertainment, commercial and institutional use within the local planning area of S.A.S Nagar. Infrastructure and utilities development such as roads, electrical substations, sewers, bridges, etc. should be built and laid first because of the long lead time of 1 to 2 years to construct these. However, these provisions should be scheduled to tie in with the development phasing to reduce the high capital outlay and holding cost.

4.3 Urban Renewal

Whilst it is easy to develop new housing colonies; but in the longer term these colonies will faced the problem of obsolescence if nothing is done to renew them, Thus, GMADA should approach the development of SAS Nagar as a total approach in comprehensive town planning, coordinate development, proper management and last but not least an urban renewal strategy .
The urban renewal programme recommended for GMADA includes the following:

a) Eradication of slums;
b) Re-planning of the older housing colonies/estate;
c) Redevelopment of the rental flats/ houses;
d) Upgrading of precincts;
e) Encourage selective en-bloc redevelopment and
f) Up gradation and renewal of facilities.

a) Slum clearance and EWS housing

It is based on the principle of demolishing existing slums and rebuilding the same site in a high density and medium rise apartment bocks, including entirely cross-subsidized housing for the slum dwellers. In slum clearance programs, slums are demolished and slum dwellers are resettled in alternative locations like low cost housing localities. Typically, the resettlement allows government to release the development potential of well located land parcels. Also, in slum up-grading, the slum dwellers will have amenities and housing with full legal title to their property. At times, government also helps in the provision of basic amenities, infrastructure, and housing finance loans.

b) Re-planning of older housing colonies

It is quite a common phenomenon for town and cities; if there is mechanism in place to provide for urban renewal of older housing estates. A common complain from residents in such older estates are complaint on the lack of schools, markets; shops, parks or bus services and car parks. Whilst norms for the residential colonies have been formulated but many of these planning standards were not adopted in totality due to small fragmented developments..
Thus; it is suggested that for all the older towns and estates in each of the sectors of SAS Nagar; there should be a systematically re-planned and review of the existing land use and road networks. These should be checked against current planning norms. It is important that some vacant land within each sector should be safeguarded for future de-canning of the residents during the re-building phase.

c) Redevelopment of rental houses/ flats.

Certain unpopular rental houses or flats shall be identified for demolition to make way for redevelopment. The size of these redevelopment parcels shall be large enough to accommodate in-fill development.

d) Upgrading of Precincts.

In an established housing colony; two socio-economic problems are often encountered. The first is that young couples move out from their parents 'homes in the older part of the town when they purchase their new flats in the new estates. This also applies to the up graders. The resultant social impact in the older parts of the town is the rapid ageing population who would have lesser means to maintain their flats. This would eventually lead to the physical decline of the estates. The Precinct upgrading program is to bridge the gap between the standards of the older estates and those of the newer ones. The basic principle is to upgrade the living environment of selected old precincts without uprooting the people from their familiar surroundings and enabling them to keep their community ties. The government may have too contribute financially to these schemes and the house owners will food a small percentage of the costs. A pilot scheme should commence first to assess how it works with live-in residents. The residents will be able to see the success of these schemes when after improvements in the living environment will see an increase in property value. Some of the upgrading packages offered can be as follows:

i) basic upgrading
ii) Standard upgrading

e) Encourage selective en-bloc redevelopment

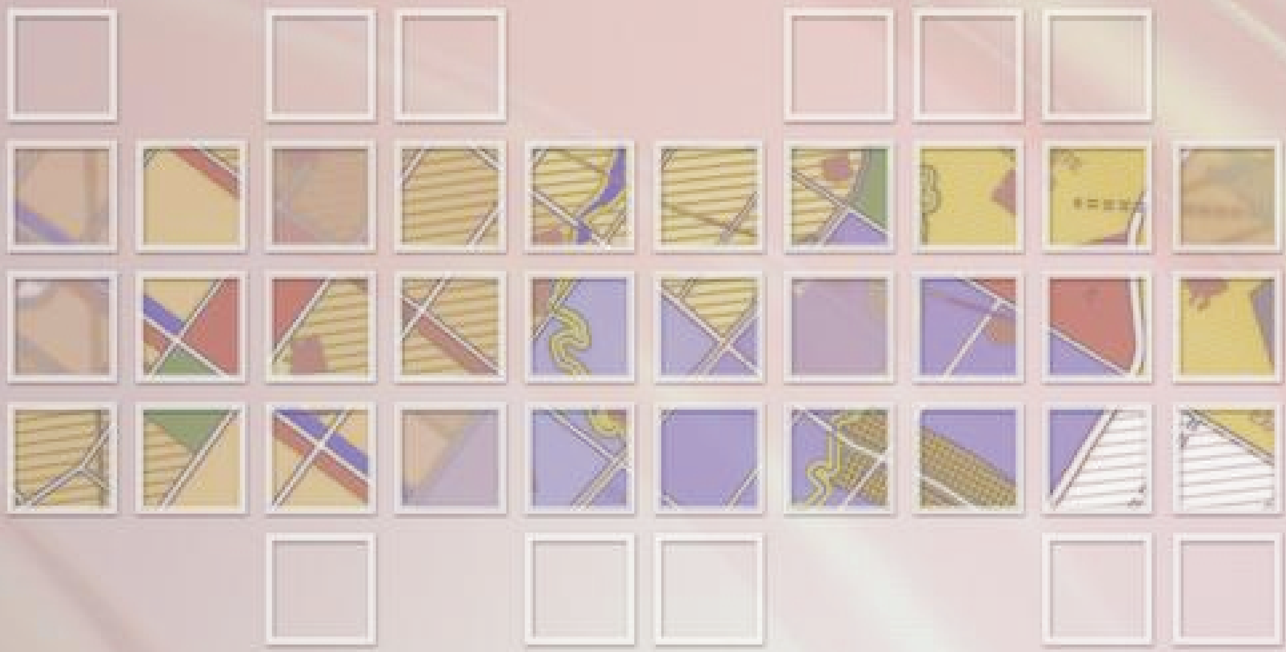
Selective en-bloc redevelopment scheme is an urban redevelopment strategy usually employed by the public housing departments in maintaining and up-grading the public housing. It involves a small selection of specific precincts of older localities to undergo demolition and redevelopment. All residents displaced by the redevelopment works are offered a new 99-year lease in new flats constructed nearby. These residents have the privilege to select their units prior to public release of the remaining units, are compensated financially, and are given subsidised prices for their new flats, as well as other benefits, such as the being able to purchase flats in other locations under the same benefits offered for all affecting residents who purchase the offered replacement units.

f) Up gradation and renewal of facilities

It would constitute of up-gradation of areas in terms of infrastructure and community facilities, introduction of rural growth centres. These centres shall be integrated with the urbanised areas through transportation corridors. The aim is to provide adequate land for a variety of communal and recreational facilities, matching the employment and investment opportunities for the resident population.

SAS NAGAR LOCAL PLANNING AREA

GREATER MOHALI REGION, PUNJAB (INDIA)



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5 SPECIAL AND DETAILED CONTROLS FOR S.A.S NAGAR

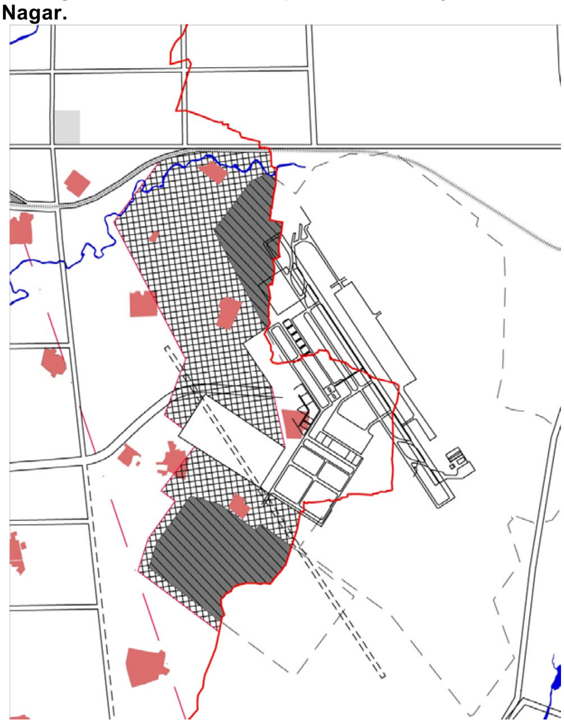
In addition to the common development control parameters applicable to the whole of the GMADA, special and detailed controls are applied to specific area within the S.A.S Nagar Local planning area. These are illustrated in *Figure 5.1 and 5.2*

5.1 Development Constraint Zone around the Special Use Zone

There is an Air Force station Chandigarh/ Mohali and High Grounds within the S.A.S Nagar area. This is inclusive of the current Chandigarh airport. As per the Gazette of India No 4 – New Delhi, February 25 – March 3, 2007, the Ministry of Defense in exercising the powers of Section 3 and 7 of the Works of Defense Act, 1903 found it expedient to impose restrictions upon the use and enjoyment of land in the vicinity of the Indian Air Force and Installations.

As per the Annexure A of the same Gazette, no building or structure shall be constructed, created or erected or no tree shall be planted on any land within the limits of 900 meters fro the crest of the outer parapet of the Air Force station, Chandigarh and there is a restriction of 100m from the High Ground near the airport.

Figure 5.1: No Development Zone
The figure shows no development zone only in S.A.S Nagar.



5.2 Height Constraint Zone – around the Airport

As the Chandigarh airport is abutting the SAS Nagar Local planning area boundary, the lands in the vicinity; of the airport is subject to height controls as specify by the Civil Aviation Authority. The height restriction is most critical for the land enclosed in the approach funnels of the runway and also along both sides of the runway. All developments affected by the aviation height controls will need to obtain the Civil Aviation Authorities approval.

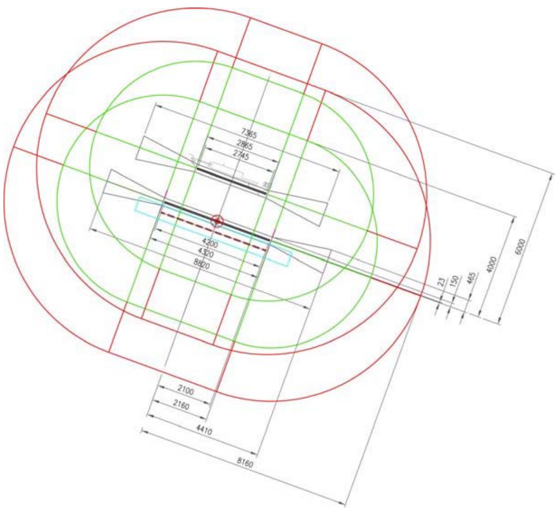
As per the technical requirements of the Civil Aviation Authority, no building or structure shall be constructed or erected or any tree shall be planted on any land within the approach of the runway. The table 5.1 and figure 5.2
below gives the height restriction with respect to the air funnels and shall be applicable for the land enclosed in the approach funnels of the runway. This shall also be applicable to the transitional area also. All submission made within the influence of the airport technical height constraint zone will need the Civil Aviation Authority's clearance.

Table 5.1 Height Restriction with Respect to Approach Funnel:

Area	Maximum permissible Height (in m)*
More than 360m but not exceeding 510m	6
More than 510m but not exceeding 660m	9
More than 660m but not exceeding 810m	12
More than 810m but not exceeding 960m	15
More than 960m but not exceeding 1110m	18
More than 1110m but not exceeding 1260m	21
More than 1260m but not exceeding 1410m	24
More than 1410m but not exceeding 1560m	27
More than 1560m	30

*** or as per the permission given by Airport/ Air force authority**

Figure 5.2 Height Restriction with Respect to Approach Funnel



5.3 Intensity of Development

5.3.1 Special and detailed controls for S.A.S Nagar (overall)

S.A.S Nagar is situated to the west of Chandigarh was planned originally as an extension area. The road pattern of the existing S.A.S Nagar follows the same as Chandigarh. The planning intention is to develop S.A.S Nagar as the commercial, civic and cultural hub of the Greater Mohali Region

Commercial Use

The two main commercial city centers are found in Sector 62 and Sector 87.

Permitted uses with the city centre are:

- Hotels and convention centers
- Shopping Malls
- Offices
- Civic and cultural buildings
- Cinemas and Cineplex
- High rise residential flats at the upper floors

The intensity of development shall be with the maximum global FSI of 2.5. The minimum green coverage area shall be 10%.

In addition to the two city centers a few thematic commercial pockets are also designated in the S.A.S Nagar local plan. This includes the Aerotropolis development next to the proposed Chandigarh International Airport off PR7.

Mixed Land use

There are 2 types of mixed use being proposed in SAS Nagar. They are:

a) Mixed use 1
b) Mixed use 2.

1. **Mixed use 1** – there are 3 linear corridors being proposed for this category of land use in SAS Nagar.
   - One is situated along PR7 and owing to the proximity to the Airport, the permitted uses along this strip are as shown in Table 5.2
   - For the 2nd linear mixed use corridor centred along MDR A; the permitted uses are shown in table 5.2.
   - For the 3rd linear mixed use corridor at northern part of sector 117 and 74A; the permitted uses are shown in table 5.2

2. **Mixed use 2.**

The Mix use 2 - Pocket A (proposed to be numbered as sectors 118 and 119 in SAS Nagar Master Plan) being proposed near Village Balongi is both for residential and supporting commercial and recreational and institutional uses. The minimum site area for residential shall be 20 acres and shall follow the density of the SAS Nagar plan.

Table 5.2: Intensity of Development (overall)

Land use	FAR	Permitted uses
Mixed Use		
a) Mix Use 1		a) Mix use 1 – Commercial use is allowed and flatted high end residential on upper floors is allowed. Minimum size is 5 acres. Shopping malls; multiplexes; hotel, offices, cinemas, institutions and plotted / flatted residential development. Small infill pockets of retail shops etc. For the strip of Mix use 1 along PR7, commercial uses in support of the airport are allowed. *Note: Decision under item no 6 of the 12th meeting of the Punjab Regional and Town Planning and Development Board, held on 24/07/08 shall remain operative.*
b) Mix use 2		b) Mixed use 2 – Commercial and residential use is allowed. For residential, the minimum site area is 20 acres.
Industry / Business park		
a) Industry & warehouse use	Industry FAR=1.0	a) Industrial and warehousing use – Only green and orange industries and logistics use are permitted. General industries are permitted in locations furthest from the residential areas. Minimum site area = 50 acres,
b)Business parks & IT park	FAR=2.0	b) Business park & IT park – minimum site area = 10 acres. The permitted uses will include IT parks; Science and research parks; Business Parks; Laboratories, media hubs and bio-technology parks. c) Projects already approved by Punjab Town and country department with higher density / FAR shall be honoured. In IT city industrial area Phase VIII A and B FAR already allowed shall be honoured. d) Individual industrial plots irrespective of the category shall have FAR of 1.0 only.
Institution	FAR=1.0	Permitted uses include : Secondary and Tertiary educational institutions; Health Clinic, Medical Facility, Police or Fire Station, Post Office, Religious Facility, Museum/Archives, Secondary School, Technical training institutes, international schools, sports.
Residential	1.65	**Dwelling uses:** a) Detached dwelling units, cluster housing, plotted housing, Single family residences, townhouses, garden apartments and apartments, villas up to 3 stories (max 11 mtrs) b) Worker dormitories and FWS housing **Permitted Ancillary Uses:** a) Cultural and recreational uses - parks and sports field b) Nursery school c) Parking area d) Service uses like barber shop, beauty saloon, clinic, Laundromat etc e) Police or Fire Station, Post Office f) Utility and communication uses
Group Housing	1.75	As part of the overall sector plan / layout plans. (with max 15% in min 100 Acres Townships)
Mega Residential Township	As per the PUDA guidelines	1) Minimum site area = 100 acres. 2) One room and two room flats minimum 80 Units per acre.

Note: Land Use, FAR, Ground Coverage, Building Height, parking, etc. should be incorporated as permitted with following notifications/memos:

1) Dept of Housing and Urban Development, Govt of Punjab. Memo no – 08/6/07-4HG1/4734-38 dt: 26-06-2007
2) Dept of Housing and Urban Development, Govt of Punjab, Memo no –17/17/01-5HG2/7656-60 dt: 19-09-2007
3) Dept of Housing and Urban Development, Govt of Punjab, Notification no – 17/17/01/5HG2/311 dt: 11 January 2008

Densities

Low density housing	– up to 100 pp acre
Medium density housing	– up to 175 pp acre
High Density housing	_ not allowed

Without exception, the planning standards and guidelines as set out in the Punjab Government Gazette (Extra) Jan 20, 2006 (PAUSA 30, 1927 SAKA) shall be observed in this master plan. As for FWS housing density, i.e. one room/two room houses irrespective of the density of that particular zone, it shall be minimum 80 dwelling units per acre.

5.3.2 Specific Land Uses in SAS Nagar

Airport city - Aerotropolis

CHANDIGARH AIRPORT

The existing airport is a regional airport sited about 12 km to the east of Chandigarh. It presently serves a relatively small number of flights, viz 3 flights daily to Delhi and 1 flight to Mumbai via Delhi and 1 flight to Jammu, totaling of 5 daily flights or a total of 10 aircraft movements.

The runway is 9,000 feet (2,700 metres) long (orientation 11/29) with an asphalt surface. The airport has a parking apron sufficient for 4 aircraft and a small terminal building on the north side of the runway. The existing terminal building has a capacity to handle 200 passengers at any one time. A small surface car park serves air passengers and visitors. The terminal building is linked to National Highway 21 (NH 21) via one access road.

The present annual load is 155,000 passenger movements and 3000 aircraft movements. Air traffic in India is growing rapidly. Air travel in India is predicted to grow at an average of 7.7% to year 2025, compared to 4.8% globally. Demand for domestic air travel saw an increase of about 23% in passenger traffic last year. Chandigarh Airport is expected to experience growth in air traffic of the same order of scale.

To cater for the immediate growth in air passengers, the existing airport terminal is being expanded to cater for 400 passengers at any one time at an estimated cost of Rs 8 million..

Proposed Up-gradation to International airport.

An MOU was recently signed between the Airport Authority of India (AAI) and the Punjab and Haryana governments for the building of a new international airport terminal on the south side of the runway at Mohali. See Figure 5.11. This new terminal will be built on a 300 acre site and will have all the facilities of that of a modern international airport, viz centrally air-conditioned, passenger boarding bridges, in-line baggage conveyor system and car parking facilities. The new terminal area will be accessible via a proposed new access road from Chandigarh and SAS Nagar known as airport road.

An international airport at Mohali is considered viable, given that the Amritsar Airport has been very successful and experiencing a rapid growth rate. Though the absolute numbers of international passengers at Amritsar airport (480,000 for 2006-07) were just 7.3 per cent of Delhi's 6.6 million, the number of international passengers at Amritsar Airport grew 37.4 per cent over the corresponding month of the previous year. In comparison, Delhi's traffic grew just 6.9 per cent. It is observed that non-resident Indians hailing from Punjab form a large part of the international passengers using Delhi Airport and would prefer an airport nearer home. Making Chandigarh Airport an international airport will no doubt help to enhance air access to the region and also stimulate more economic development in the Region.

Whilst traditionally, an airport is seen as a transport infrastructure, the trend is towards developing an airport city as an economic driver for the region. Air logistics, aviation and aerospace industries will require sizeable land often with direct access into the runway and very good land side access. Such airport-related development is recommended for consideration to the south side of the new airport terminal area.

The current airport is a military airport and is close to Chandigarh city and highly accessible but it there is a lack of available un-encumbered land if significant growth including the development of an air logistic park and supporting uses and a possible second runway , is anticipated. The present runway orientation already imposes height constraints on many areas in SAS Nagar and the areas around Zirakpur and limits their development potential. The existing airport had served Chandigarh well.

However with the planned urbanization of the Greater Mohali Region, the airport and its required expansion will pose a constraint on future development. The possible extension of the existing runway to cater for bigger and longer range aircraft on long international flights and the need for a second runway in the longer term future have also to be borne in mind.

These new airport expansion works will impose further limits on the development potential of the surrounding area. These factors would need to be addressed if the upgrading and further expansion of the existing airport to a large international one catering for bigger and longer range aircraft is contemplated in the longer term future. Other options could be considered and carefully evaluated at the appropriate time.

In a preliminary study by the transportation consultant of this study, it is estimated that the present runway has to be extended to 4,200 metres to cater to longer range and heavier aircraft e.g. Boeing 747 and Airbus 330/340, taking into account the airport's altitude and the area's ambient temperature.

In order to safeguard land for the Chandigarh International airport expansion and to have the option of having a 2nd runway; no developments shall be allowed on all lands in the vicinity of the airport and designated for future airport expansion. This safeguarding will be enforced until such time when the status of the future 2nd runway is made.

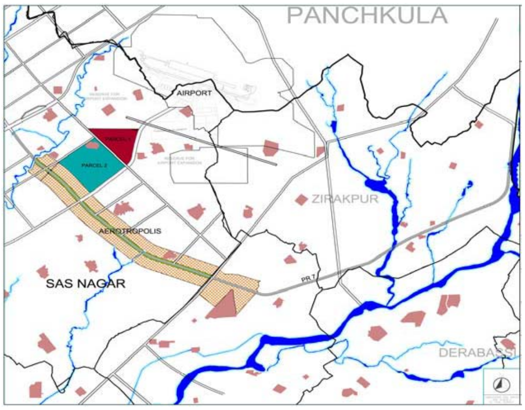
In order to complement and support the International Airport, a triangular plot (parcel 1) of mixed use is being proposed which is adjacent to the Airport boundary as indicated in figure 5.3.This plot of land is designated for supporting airport uses only and the permissible uses within this zone will include:

a) Hotel and convention hall;
b) Exhibition and Exposition halls;
c) Aviation academy;
d) Logistics uses;
e) Offices relating to aircraft companies; freight forwarders; insurance companies etc;
f) Aircraft catering companies and kitchen;

The permissible uses in parcel 2 shall be:

1. Institutions and Aviation industries.
2. International Business
3. Tourism related projects
4. Export and import houses
5. Logistic companies, warehouses and cold storage.

Fig. 5.3 Aerotropolis Development



Floral mile, Recreation use and Handicraft village.

Land parcels designated for leisure and recreation could be tendered out to the private sector for such development. As per the Punjab Government Gazette (Extra) Jan 20, 2006 (PAUSA 30, 1927 SAKA), leisure and recreation infrastructure may include amusement park, open-air theatres, theme parks, stadium and sports grounds etc. but not shopping malls, cinema halls, multiplexes and the like. Golf course, stadium and sports facilities including limited amount of chalets, camping grounds, parks and a variety of leisure and recreation spaces is allowed.

- In the SAS Nagar local plan; 2 areas have been designated as floral mile. The 2 parcels are located along PR5 and another along PR9 leading to the airport. The permitted uses within the floral mile will include floral nurseries and some fruit market. The minimum plot size for these nurseries should be of 1 acre and more and the covered area of the floral / fruit showroom shall not exceed 20% of the site area. Ample visitors' car parks shall be provided.

- Land parcels designated for open space and recreation use may include amusement park, open-air theatres, theme parks, stadium and sports grounds etc. but not shopping malls, cinema halls, multiplexes and the like. Golf course, stadium and sports facilities including camping grounds, parks are allowed.

- Handicraft village is modeled along Dilli haat and it will be venue for thematic fairs and local handicrafts. The FSI should not be more than 0.25 and the ground coverage should not exceed 25%.

For leisure and recreation usage, the following minimum area and development norms apply:

Table 5.3: Proposed Guidelines for Recreational and Sports Activities

	Recreational Activities	Sports Activities
Minimum size (acres)	10*	10
Floor Area Ratio (FAR)	5%	2%
Ground Coverage (%)	3%	1%
No. of Storeys	2	2
Height (feet)	28	28
Hard Surface	10%	5%

- Except for golf where the prescribed norms shall apply.

Some norms for the recreational facilities include:

1. Golf course: 2X18-hole course: (minimum 75 ha approximately for a 18 hole golf course);
2. Spa village: approximately 0.4 ha, could be larger if we have a cluster (1 ha);
3. Indoor stadium – approximately 1.0 ha;
4. Sports stadium – approximately 5.0 ha;
5. Swimming complex – approximately 1.5 ha.

Open space and parks

- All the residential developments will have to designate at least 6% of the land as Neighbourhood parks and playgrounds.
- There shall be a strip of green corridor on either bank of all the rivers within the SAS Nagar local plan. These green connectors will be visually exciting, providing a pleasing environment for the residents. Walkways and cycle paths in dispersed with trees will be provided.
- Within the green connectors along the river banks; trees shall be planted and there shall be hardscape and soft landscape. Connecting footpaths, cycle paths, footpath lightings, signage, and species of trees shall be identical for each stretch of the green connectors for identity.
- Besides the linear riverine park connectors, there are a few pockets of parks being safeguarded within the SAS Nagar plan. The largest being the regional town park at sector 97 (botanical garden) and another is north of PR5 next to the handicraft centre. And the 3rd is near to the airport.
- A small quantum of commercial activity (0.2%) can be allowed within these town parks for the enjoyment of the residents such as ice cream and drinks kiosks, fast food kiosks, newsstands, fresh flower stand, milk booths etc. Ancillary uses allowed include activity playgrounds for children, picnic grounds, barbeque pits; shelters and toilets. Such ancillary structures found within the parks should be of good quality and sound structures. No make shift sheds are to be allowed.

High Technology Parks / IT Parks

- Industrial- This will largely be high technology, value-added kind of industrial development in the form of Science Park, Business Park and R&D parks. The target industries include IT parks and bio-technology industries. Spaces and facilities including the following:

- Permissible FAR is 2.0. Height of development is up to 40 meters. Site coverage is 35% (maximum) with minimum of 20% green open space.

Landscaped plans are to be submitted for each campus development.

- Minimum size of IT parks shall be 10 acres and approach road should not be less than 60 feet.

5.3.3 Setback from Roads

Buffers are building setback requirements from the public road, which normally include a tree planting strip. The rationale for the imposition of buffers within the individual developments fronting the road is:

- Provides a uniform building setback from roads to create neat rows of buildings and critical vistas.

- The width of the buffer varies with the hierarchy of the roads (width of the road) the land abuts and the height of the development.

Location	Buffer setback from road on both sides	Width of mixed use
PR7 within SAS Nagar LPA up to NH 64	30 (10m green & 20m physical)	300m
PR 7 between NH 64 and NH 22	15 (5 m green & 10 m physical)	As shown on sketch
PR7 from NH 22 up to Panchkula	15 (5 m green & 10 m physical)	Please see Zirakpur local plan

Note : FAR 1.0 for buffer setback shall be given to promoter free of cost

- No buildings or developments are allowed to encroach into the buffer zone. However, certain types of light ancillary structures, such as a bin centre, guard house, small ring main substations, sign board, lamp posts, letter box, etc., are allowed to be placed in the buffer zone.

- There should be a stipulation that planting within the plots is required making it mandatory for the developers to plant trees and scrubs within their plot with the intention to soften the environment within the industrial park. Exemption is permitted for certain developments if the planting will pose a fire hazard and it is a Civil defense requirement.

- Within the buffer zone; there are 2 zones namely the green buffer and the physical buffer zone.

- All buildings are to be setback from roads as per the buffer guidelines.
- A 15m buffer (5 m green and 10 m physical) setback is being proposed along all the major arterial roads such as PR9 and MDR A No buildings shall be constructed within this 15 m buffer. However along scheduled roads, already notified, this buffer shall of 30 Meter.

8.3.4 Rural and Agriculture Area

It is the intention not to urbanize the areas designated as rural and agriculture zone within the next 25 years i.e. 2031. For the area sandwiched between PR7 and the airport- designated as rural and agriculture zone, no development shall be permitted until the master plan for the international airport as well as the proposed second runway is concluded. Facilities essential to the airport development may be allowed on a case to case basis depending on how critical it is to the airport use.

Projects / Mega Housing Projects within agriculture / rural zone of local planning area approved by the Govt / Empowered Committee of the Punjab Govt. and the Punjab Regional Town and country Planning Development Board shall be allowed to develop as residential projects subjected to condition that promoter get their CLU done by 31.3.2009. Periphery Policy dated 20.1.2006 shall stand amended to this extent.

Rural zone out side LPA of SAS Nagar falling in between Sector 109 to 112 and Railway line, shall be residential as an integrated part of these sectors, as per decision of PRPTD Board Meeting dated 29.06.2006 and Periphery Policy dated 20.1.2006 shall stand amended to this extent.

If any land notified under PLPA or Forest Act, any color / Zoning has been avariciously shown in the Master Plan it has to be ignored. The area as per Land Records notified under PLPA or any Forest Act shall prevail and not the color / zoning in this Master Plan.

5.3.5 Transferable Development Rights

It is necessary to speed up the process of development. For that, the development of public utilities such as roads, parks, green belts etc., should be done on top priority which will encourage the urbanization. To make it realistic, it is necessary that the land falling under roads, parks and green belts should be transferred to Urban Development Authorities. To acquire this land, the prevalent way adopted till date, is the cash payment of land acquired and 2nd option is to get the land through land pooling scheme which has been approved by the Govt.. To speed up the development process and to protect the interest of land owners, the land owners may be given 3rd option in addition to above two options i.e. transfer of development rights on the pattern of Maharashtra.

Under this scheme if land owner transfers the land falling under roads, parks, green belts etc., to the concerned Urban Development Authority, he/she shall be entitled for additional FAR @ 1:1. No CLU, EDC, Licence/permission fees shall be charged on this FAR. The land owners according to their own choice can sell it in total or in parts to any other person. The record regarding TDR shall be maintained by the concerned Urban Development Authority on the pattern of Mumbai (Maharashtra). With this the farmer/land owners shall have 3rd option in addition to cash compensation and land pooling. To generate the value of TDR in the market, the present practice vide notification no. 17/17/01-5HG2/7623 dt.19.9.07 for additional FAR on additional payment shall, in area under GMADA jurisdiction, stop immediately. GMADA shall come out with detailed guidelines on operation of TDRs.

Mega/super Mega projects in which more than 1.75 F.A.R for commercial or more than 2.0 FAR for Group Housing is permissible or have been allowed shall also have to purchase additional FAR from land owners. This FAR shall be purchased from within same Local Planning Area in which it is to be used. The non Mega projects shall also be entitled to purchase additional FAR on similar pattern. The development projects (Roads, Park, Green belts etc.), to be under taken by the Urban Development Authorities, shall be announced from time to time and TDRs shall be usable from such projects alone. The TDRs shall not be transferable from one Local Planning Area to other Local Planning Area.

5.4 PROPOSED LAND USE LEGEND & ZONING INTERPRETATION FOR S.A.S Nagar LOCAL PLANNING AREA

S/No.	Proposed GMADA Zone	Uses	Examples of Development
1	**Residential**	These are areas used or intended to be used mainly for residential development. student hostels may also be allowed	Residential developments include: 1. Flat 2. Public Housing 3. Apartments 4. Townhouse 5. Semi-detached house 6. Detached House 7. Retirement Housing 8. Serviced Apartment 9. Hostel (eg. for working women, students & youths) 10. Social infrastructure such as educational institutions, health, religious, community, and public facilities as per town planning norms. (as part of residential development project)
2	**Mixed Use 1**	Commercial / Residential use is allowed, minimum size is 5 Acres	1. Shopping malls 2. Multiplex 3. Offices 4. Hotels 5. Service Apartments / Fatted and Cluster Housing 6. Retail and convenient shopping 7. Marriage palaces
	Mixed Use 2	Commercial and residential use is allowed. Commercial quantum is same as Mixed use 1. For residential, the minimum site area is 20 acres.	1. Cluster housing 2. Group Housing 3. Shopping malls 4. Multiplex 5. Offices 6. Hotel / Service Apartments
3	**Commercial**	These are areas used or intended to be used mainly for commercial development.	1. Retail shopping 2. Convention/ exhibition centre 3. Commercial school (such as private coaching centers, training centers, tuition centers, etc) 4. Bank 5. Office / ITES 6. Market/ food centre/ restaurant 7. Cinema 8. Entertainment 9. Hotel 10. Recreation club 11. Marriage Palace

S/No.	Proposed GMADA Zone	Uses	Examples of Development
4	**Industry-Technology and R&D**	These are areas used or intended to be used mainly for business park operations.	1. Business Park 2. Knowledge Park 3. Laboratories 4. Media hubs
5	**Industry and Warehouse**	These are areas used or intended to be used for green industry, orange industry and warehouse uses.	Developments for: 1. Computer software development 2. Knowledge Park 3. Assembly and repair of computer hardware and electronic equipment 4. Printing, publishing and allied industries 5. Packing of dried foodstuff 6. Warehouse except for storage of chemicals
6	**Institution**	**Health & Medical Care**	1. Hospital 2. Polyclinic 3. Clinic/ Dental Clinic 4. Veterinary Clinic 5. Nursing Home 6. Maternity Home 7. Family Welfare Centre 8. Dispensary
		Educational Institution	1. Kindergarten 2. Primary School 3. Secondary School 4. Junior College 5. Institute of Technical Education 6. Polytechnic 7. University 8. Religious School/ Institute 9. Foreign School Special Education School (eg. School for the Disabled)
		Place of Worship	1. Gurudwaras 2. Temple 3. Mosque 4. Church
		Civic & Community Institution	**Civic Institutions** 1. Courts 2. Government Offices 3. Foreign Mission/ Chancery 4. Police Station 5. Fire Station 6. Prison 7. Reformative Centre 8. Disaster Management Center **Community Institutions** 9. Association premises 10. Community Centre/ Club 11. Community Hall 12. Welfare Home 13. Child care Centre 14. Home for the Aged 15. Home for the Disabled 16. Workers' Dormitory

			17. Facility Centre **Cultural Institutions** 18. Television/ Filming Studio Complex 19. Performing Arts Centre 20. Library 21. Museum 22. Arts Centre/ Science Centre 23. Concert Hall 24. Socio-cultural complex
10	**Open Space**	These areas are used or intended to be used as open space and no commercial activity is allowed.	1. Forest reserve 2. Wooded area 3. Swamp area 4. Natural open space 5. Public promenades 6. Outdoor Pedestrian Malls
11	**Park**	These are areas used or intended to be used mainly for parks or gardens for the enjoyment of the general public. It includes pedestrian linkages.	1. National Park 2. Regional Park 3. Community Park/ Neighborhood Park 4. Park Connectors 5. Zoological Gardens, Botanic Gardens, etc. 6. Vender zone except community park / neighborhood park not to exceed 10 sqm per 10 acre area.
12	**Sports & Recreation**	These are areas used or intended to be used mainly for sports and recreational purposes.	1. Sports Complex/ Indoor Stadium 2. Swimming Complex 3. Golf Course 4. Golf Driving Range 5. Recreation Club 6. Campsite 7. Water Sports Centre 8. Adventure Camp 9. Theme Park 10. Turf Club 11. Cricket Club 12. Handicraft – Thematic fairs 13. Boarding / lodging and commercial all together not exceed 5% of total area.
13	**Floral mile**	- Horticulture - Nursery	1. Horticulture 2. Nursery
14	**Water body**	These are areas used or intended to be used for drainage purposes and water areas such as reservoirs, ponds, rivers and other water channels.	1. River 2. Major Drain & Canal 3. Reservoir 4. Pond

S/No.	Zone	Uses	Examples of Development
15	**Drainage Reserve**	These are areas safeguarded for the river / water channels during the wet season.	
16	**Road**	These are areas used or intended to be used for existing and proposed roads.	1. Expressway 2. Major Arterial Road 3. Minor Arterial Road 4. Collector Road 5. Primary Access Road
17	**Transport Facilities**	These are areas used or intended to be used mainly for the parking of vehicles and transport facilities including garages.	1. Car Park 2. Heavy Vehicle Park 3. Trailer Park 4. Bus Depot/ Terminal 5. Transport Depot 6. Train Marshalling Yard/ Depot 7. Driving Circuit/ Test Centre 8. Petrol Station/ Kiosk
18	**Airport**	These are areas used or intended to be used for airport or airfield purposes	1. Airport 2. Airport related facilities
19	**Metro Line**	These are areas safeguarded for the future Metro Line linking Mullanpur to Baddi.	Railway
20	**Utility Source Plants** ***U1** – Water* ***U2** – Power* ***U3** – Sewerage* ***U4** – Solid waste* ***U5** – IT & Communications* ***U6** – Gas* ***U7** - Drainage* **U#**	These are areas used or intended to be used mainly for public utilities and telecommunication infrastructure, including water works, sewage disposal works and other public installations such as electric substations.	1. Electric Sub- & Grid stations 2. Gas Fired Power Station 3. Raw & Local Water Treatment Works 4. Sewage Treatment Plant 5. Sewage Pumping Station 6. Incineration Plant 7. Landfill Site 8. Transfer Stations 9. Treatment Storage & Disposal Facility 10. Telecommunications Station
21	**Utility Corridors** ***UC1** – Water* ***UC2** – Power* ***UC3** – Sewerage* ***UC4** – Solid waste* ***UC5** – IT & Communications* ***UC6** – Gas* ***UC7** - Drainage* **UC #**	These are corridors used or intended to be used for utility services lines.	1. Water main trunk 2. Power corridor 3. Gas pipelines 4. Telecom main trunk
22	**Burial Ground**	These are areas used or intended to be used for burial or cremation purposes.	1. Cemetery 2. Crematorium

23	**Rural & Agriculture**	These are areas used or intended to be used mainly for agriculture purposes and includes plant nursery. Also for areas to be left rural and not needed by 2031.	1. Agro technology Park 2. Aquaculture Farm (eg. Aquarium fish) 3. Plant nursery 4. Hydroponics Farm 5. Agriculture research/ experimental station 6. Floral mile (i.e., nursery cum wholesale centre)
24	**Reserve Site**	These are areas where the specific use has yet to be determined. Interim uses that are compatible with the uses in the locality may be allowed subject to evaluation by the CA.	Nil
25	**Special Use**	These are areas used or intended to be used for special purposes.	1. Military 2. Strategic installations
26	**Existing Built-up**	These are current built-up areas other than residential uses which have been conveyed by GMADA to be left untouched.	
27	**Approved/ Proposed Development**	These are current housing areas conveyed by GMADA to be left untouched.	
28	**Existing Village**	These are villages which have been conveyed by GMADA to be left untouched.	
29	**Existing 132 Kv Lines**	These are above ground power lines to be left untouched.	
30	**Existing 220 Kv Lines**		

OTHER ANNOTATIONS (to be used in conjunction with land use zones)

	Subject Planning area boundary	
	Other Planning area boundary	
	Plot Ratio (Intensity) boundary	
	2.8	Maximum Permissible Plot Ratio/ Floor Space Index
	Conservation Area	C
	Monument	1