

**Action Plan
to Increase Green Cover in
Bathinda City**

Municipal Corporation Bathinda

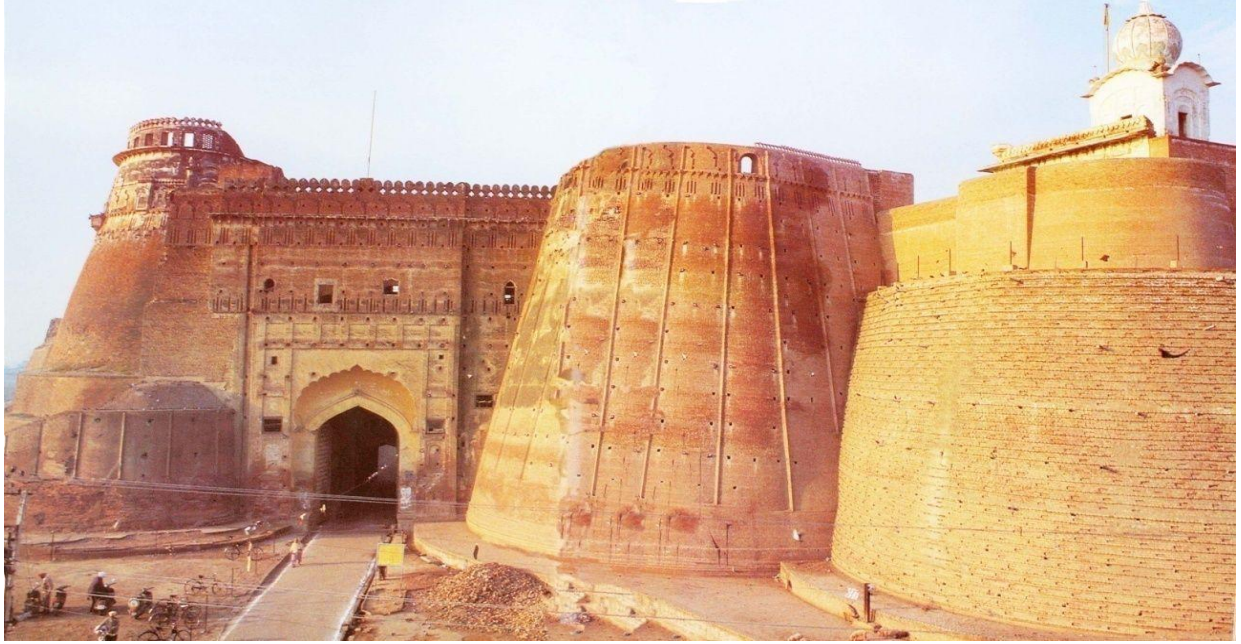


Green spaces are an essential element of liveable towns and cities in which people want to live. They can contribute to the urban renaissance by helping to regenerate and improve the economic performance of areas, enhance and support the ecology and biodiversity of the built environment, enable healthy living and lifelong learning opportunities, and foster local pride and community cohesion. Realising this ambition requires a powerful new framework of policy, funding and management to produce exciting, diverse and green spaces which meet the needs and aspirations of local communities. Green space distribution plays a vital role in urban planning since they contribute significantly in enhancing environmental air quality, urban health, conserving biodiversity, reducing noise, etc. Migration of rural population into urban areas and widespread industrialization lead to the rapid growth of urban population, consequently expanding urban sprawls. Removal of vegetation cover can be identified as one of the most adverse effects of urbanization. Proper distribution of green spaces in urban environments is therefore a necessity for the sustainable development and healthy living. Hence, it is essential to identify the green space requirement quantitatively and spatially.



INTRODUCTION TO CITY

Bathinda is one of the oldest towns in the state of Punjab and has many historical associations. There is an ancient "Fort" in Bathinda, which is believed to have been in existence for the last 1800 year. It is believed that Rao Bhatti, son of Bal Band who became ruler of Punjab in 336 Bikrami Sambat established the modern town of Bathinda in Lakhi Jungle area in the third century and the city was captured from him by Sur Brars. Bala Rao Bhatti inhabited the city in 965 AD naming it Bhatinda after his surname. The city also remained the capital of Raja Jaipal. It was also called "Whatinda" and "Bitunda" which finally came to be known as Bathinda on authority of Survey of India to conform to the phonetical expression locally pronounced. In the year of 1000 Mahmud Gazni besieged the Bathinda Fort which fell in his way from North West to the rich Ganges Plains. Later Mohammad Gori attacked and captured the Fort of Bathinda in 1189, but Prithavi Raj Chauhan the ruler of this region managed to recover the possession of the fort thirteen months later in 1191. The fort is also associated with the first woman ruler of India "Razia Sultana" who ruled India during 1236-1240. Razia Sultana was imprisoned in the Fort in 1240. Tenth Guru of Sikhs, Guru Gobind Singh visited the town in 1705 on his way to Talwandi Sabo (Damdama Sahib) after battles of Muktsar. Guru Ji stayed in the fort for some days. With the formation of Patiala and East Punjab States Union (PEPSU) on May 5, 1948, Bathinda district came into existence on August 20, 1948. Its headquarters were originally at Faridkot which were shifted to Bathinda in 1953.



Initially in 1945, a small committee was established for Bathinda. After recording a rapid growth during the decades of 1971-81 and 1991-2001 and attaining the status of the fifth largest town of the State (as per 2001 census) the Municipal Council of Bathinda was upgraded as Municipal Corporation on 10.4.2003. In order to control the development activities within as well as outside the municipal limits of Bathinda Development Authority (BDA) was constituted in the year 2007 vide Govt. notification No. 13/31/07/1HG-2/5398 dated 16.7.20

It is situated in north-western India in the Malwa (Punjab) Region, 225 km west of the capital city of Chandigarh. It extends from $30^{\circ}-4'-30''$ N to $30^{\circ}-21'-20''$ N Latitude and $74^{\circ}-47'-50''$ E to $75^{\circ}-10'-00''$ E longitude. Total area falling under municipal limit is 73 sq.km as per census of India, 2011.

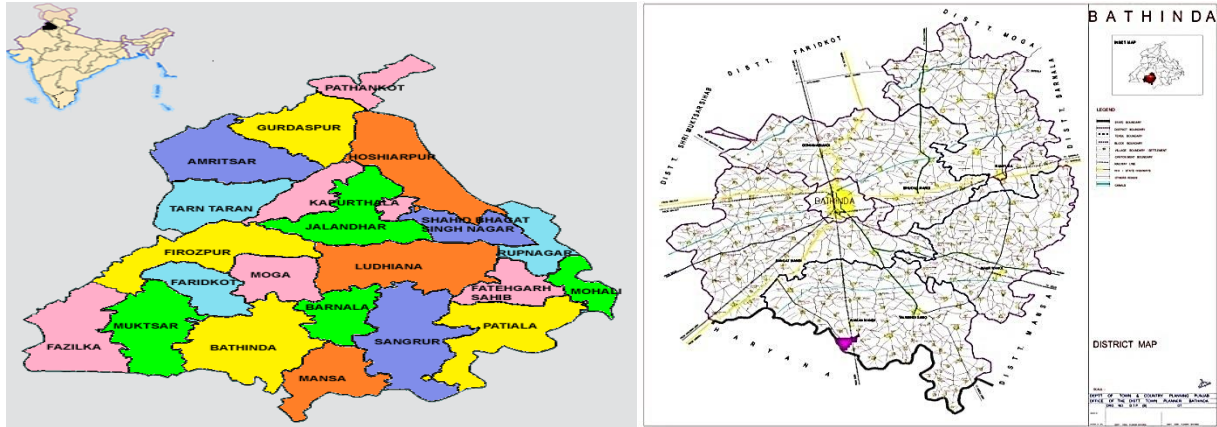


Figure 4: Location map of Bathinda city

Demography

Bathinda is 5th largest city and is the major urban settlement of its LPA but its share in the total urban population of Punjab has decreased during the year 1981-2001. The share of population of Bathinda to the total urban population of the state was 2.63 in the year 2001. The growth rate of Bathinda was 95.12% during 1971-81 mainly because of the expansion of limits of Municipal Committee as to include the two major industries i.e. Thermal Power Plant and National Fertilizer Limited which were established during that decade. During the decade of 1971-1981 the population grew from 0.65 lacs to 1.27 lacs, which was highest in the state. However during the period of 1981-91 the growth rate dropped to 24.79% due to terrorism. Normalized social and economic conditions during 1991-2001 led to a growth rate of 36.60%. The details of population growth of Bathinda city from 1901 to 2001 is given in table below:

Years	Population	Decadal Growth Rate (%)
1901	13185	--
1911	15035	14.05
1921	20154	34.03
1931	22771	12.99
1941	24833	9.06
1951	36991	40.91
1961	52253	49.33
1971	65318	25
1981	127363	95.12
1991	159042	24.79
2001	217256	36.6
2011	285788	31.50

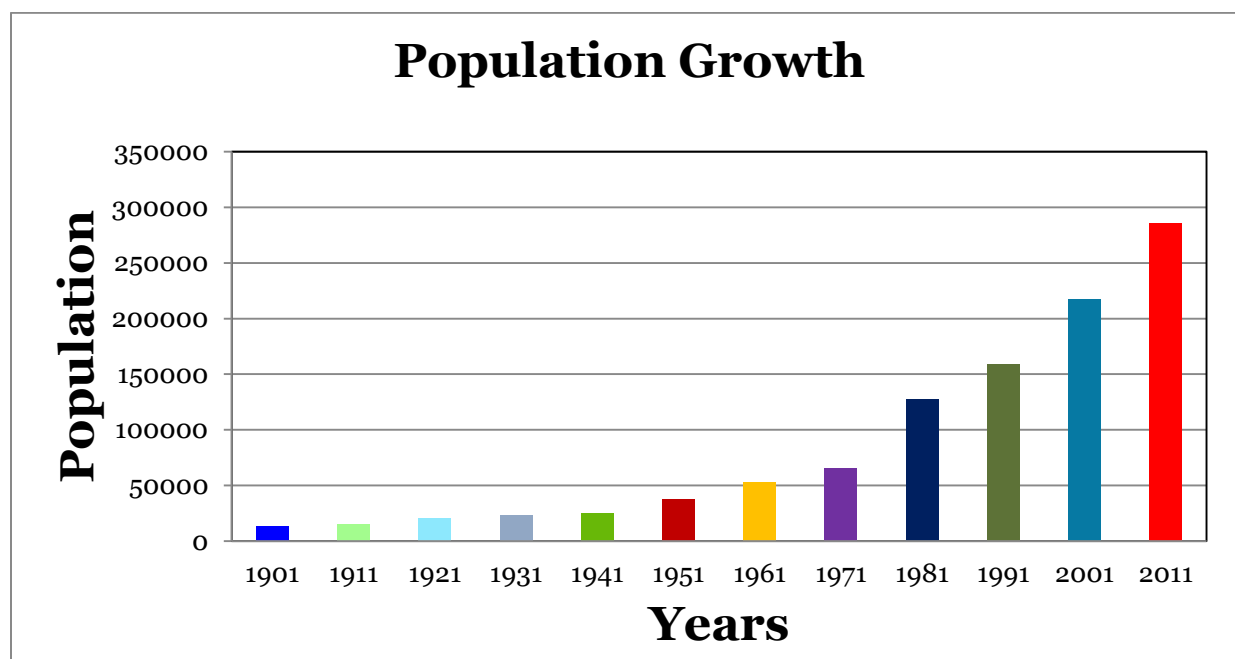


Table below shows that the share of population of Bathinda city to total urban population of Punjab was 2.03% in 1971, 2.74% in 1981 and 2.63% in 2001. The share of population of Bathinda city to the state- urban and the growth trends of urban population in Punjab and that of Bathinda city are given in Table 7 below:

Table 7: Share of Urban Population of Bathinda City in Punjab Urban

Years	Punjab Urban	Population of Bathinda city	Bathinda city / Punjab Urban- %
1971	3216179	65318	2.03
1981	4647757	127363	2.74
1991	5993220	159042	2.65
2001	8245566	217256	2.63
2011	10387436	285788	2.75

Source: District Census Bathinda 1971-2011

3.2 Soil and Topography Conditions

Bathinda mostly comprises of sandy soil. In rural areas big sand dunes (sand mounds) can still be seen in many places though the topography of the area experienced a vast change with the various ventures connected with green revolution. A large number of sand dunes previously existing in the villages have been leveled by the farmers to put more and more land under cultivation. No river flows through the Local Planning Area however Bathinda Branch of Sirhind Canal crosses in the middle providing a very good irrigation network. It is believed that earlier river Sutlej flew adjoining Bathinda Fort which later turned its course towards west.

Bathinda lies in the south-western region of the state and is far away from the Shivalik Hill ranges in the north-east. It is nearer to the Thar Desert of Rajasthan and quite away from the major rivers that run through the state. Therefore climatically this area has a very hot summer. During the month of June which is peak of summer season the mercury sometimes touches over 47° C and the dust storms are regular feature. There is very short spell of rainy season with scanty rainfall of about 410 mm per annum. The winter season is dry with minimum temperature touching to 0° C. The prevailing wind direction of this region is North-West to South-East.

3.3 Climate

Bathinda is in the northwestern region of India and is a part of the Indo-Gangetic alluvial plains. The exact cartographic co-ordinates of Bathinda are 30.20°N 74.95°E. It has an average elevation of 201 metres (660 ft). Bathinda's climate correspond to semi arid with high variation between summer and winter temperatures. Average annual rainfall is in a range of 20 mm to 40 mm. In recent times, Summer temperaures of 49 °C (120 °F)^[13] and winter temperatures of 1 °C (about 33 °F) were not unknown in Bathinda, lowest being -1.4 °C (29.48 °F) in the winter of 2013

AMRUT SCHEME

The purpose of Atal Mission for Rejuvenation and Urban Transformation (AMRUT) is to ensure that every household has access to a tap with assured supply of water and a sewerage connection; Increase the amenity value of cities by developing greenery and well maintained open spaces (e.g. parks); and Reduce pollution by switching to public transport or constructing facilities for non-motorized transport (e.g. walking and cycling).

All these outcomes are valued by citizens, particularly women, and indicators and standards have been prescribed by the Ministry of Urban Development (MoUD) in the form of Service Level Benchmarks (SLBs).

However, the pursuit of better outcomes will not stop with the provision of taps and sewerage connections to all (universal coverage). Other benchmarks will be targeted following a step-by-step process after achieving the benchmark of universal coverage. Such a gradual process of achieving benchmarks is called “instrumentalism”.

A sound institutional structure is the foundation to make the Mission successful. Therefore, Capacity Building and a set of Reforms have been included in the Mission. Reforms will lead to improvement in service delivery, mobilization of resources and making municipal functioning more transparent and functionaries more accountable, while Capacity Building will empower municipal functionaries and lead to timely completion of projects.

Aims & Objectives

The prime aim of Atal Mission for Rejuvenation and Urban Transformation (AMRUT) is to increase the amenity value of cities by developing greenery and well maintained open spaces (Parks).

The report is an appropriate and scientific tool for promoting systematic & planned growth of open spaces within the city together with infrastructure development in the form of the following:

- a) Development of park by installing child friendly components.

- b) To increase green cover and progressively enhance green cover within the city.
- c) To increase open/green spaces in the city as per universal coverage/build up area.
- d) Identifying existing gaps in physical and social infrastructure & to bridge those gaps.
- e) Assessments of existing parks and open spaces condition and suggest strategies for their development.
- f) To provide healthy living environment to city and its people.

Government of India has Launched AMRUT Scheme (Atal Mission for Rejuvenation and Urban Transformation Scheme) on 26.06.2015 to promote urban forestry and increase in green cover in urban areas and has recommended reform under the AMRUT Scheme for making an action plan to increase green cover in 16 AMRUT cities to 15%. The Governor of Punjab is pleased to notify the Action Plan for Increase in green cover in AMRUT cities in state of Punjab as under:

As per the reform no. 4.4 of AMRUT Scheme, an action plan has to be prepared to increase green cover to 15% in following 16 AMRUT Towns/Urban Local Bodies (ULBs):-

Ludhiana, Amritsar, Jalandhar, Patiala, Bathinda, Hoshiarpur, Batala, Moga, Pathankot, SAS Nagar, Abohar, Malerkotla, Khanna, Muktsar, Barnala and Ferozepur.

Significance of urban greenery

Physical Benefits –

- (i) Urban forests act as temperature buffers providing shade in the summer, and wind breaks in the winter in addition to reducing noise pollution and CO₂ levels, and providing a habitat for wildlife.

- (ii) Urban greening offers improvements in air, water and land resources by absorbing air pollutants, increasing water catchment in floodplain surfaces and stabilizing soils Social Benefits.
- (iii) Green spaces provide a refreshing contrast to the harsh shape, colour and texture of buildings, and stimulate the senses with their simple colour, sound and smell.
- (iv) Particular types of green space may offer a bigger diversity of land uses and opportunities for a wide range of activities, help to foster active lifestyles, and can be of real benefit to health.
- (v) Well-managed and maintained green spaces contribute to social interaction by creating opportunities for people of all ages to interact.
- (vi) Urban green spaces emphasize the diversity of urban areas by reflecting the different communities they serve and meeting their varying needs.
- (vii) They enhance cultural life by providing venues for local festivals, civic celebrations and theatrical performances.
- (viii) Urban green spaces provide safe play space for children, contribute to children's physical, mental and social development and play an important role in the basic education of school children with regard to the environment nature.

Planning Perspective

From the planning perspective, a hierarchy and network of quality green spaces integrating residential areas with commercial and other uses improve the accessibility and attractiveness of local facilities and employment centers.

- (i) Well-designed networks of green spaces help encourage people to travel safely by foot or by foot or by bicycle for recreation.
- (ii) Furthermore, well-designed urban green spaces provide a barrier to noise and can effectively function as visual barriers.

Economic Benefits

(i) Property owners value urban greenery by the premium they pay to live in the neighborhood of urban green spaces and public parks, plots and flats abutting park and to value. In densely populated areas this effect is even more pronounced. For example, View of green spaces and proximity to water bodies increases the real estate prices.

(ii) Impact of neighborhood parks on the transaction price of multi-storied residential units in cities illustrate the fact that neighborhood parks could increase price.

(iii) Urban shady trees offer significant benefits in reducing building air-conditioning load and improving urban air quality by reducing smog.

The action plan for increase in green cover in AMRUT cities to 15% shall dwell upon all the levels starting from city level upto ward level. Following types of green areas are generally available in the cities.

Types of green areas

(i) Reserved/National Forests/ Protected Forests:

These green areas/Parks fall in the category of Forests notified/declared under various Forest Acts.

(ii) National Parks/District Parks

These Parks fall in the category of green parks/centuries notified/declared under various Forest Acts which are shown in Master plans of Regions/towns.

i) Neighborhood Park: Neighborhood park is developed at the neighborhood level for a population of 10,000. The park is conveniently located within the developed residential areas at walking distance and is planned generally on an area of 2,000- 4,000 sqm.

(iv) Totlots: Totlots are the lowest level in the hierarchy of green areas, planned for a population of 2,500 as play-areas for children with an area of 125 sqm.

(v) **Playgrounds:** Playgrounds are provided normally in the educational institutions for the use of the school and college students. They are also provided at the neighborhood level for a population of 5,000.

(vi) **Green Belt (Buffer):** Green Belts Include green girdle, park belt, rural belt, rural Zone, agriculture belt, country bely, agriculture green belt, Agriculture belt, rural and country belt are synonymous terms and they refer to a stretch of the country side around and between towns separating one from the other. These areas are predominantly farm lands and they support agriculture and related fuctions. They may or may no be in ownership of the town/city/local body.

(vii) **Green Strip:** A green strip is developed on a vacant land for example land under high tension power supply lines. It is also developed along the arterial roads separating residential areas from other uses.

(viii) **Tree Cover:** Trees planted along the roads within the right of way and on the central verge (median)

Norms for reservation of green areas:

(i) The WHO (Word Health Organization) recommends atleast 9 sqm. of undeveloped unpaved open space for every inhabitant.

(ii) The Delhi Unified Municipal Building Byelaws, 2016 provides for 1 tree for every 100 Sqm. of open space in a plot (other than residential plotted development).

(iii) Notified Master Paln of various towns in the state of Punjab has also prescribed norms for green covers. the department of Local Government of Punjab has also prescribed following minimun norms of green areas in the Punjab Model Municipal Building Byelaws:-"In case of Group Housing Projects 15% of the total site area that has to be left as organized green/open sapce and 10% in case of the Multiplex projects".

Advisory by Government of India (GOI) for planting trees:

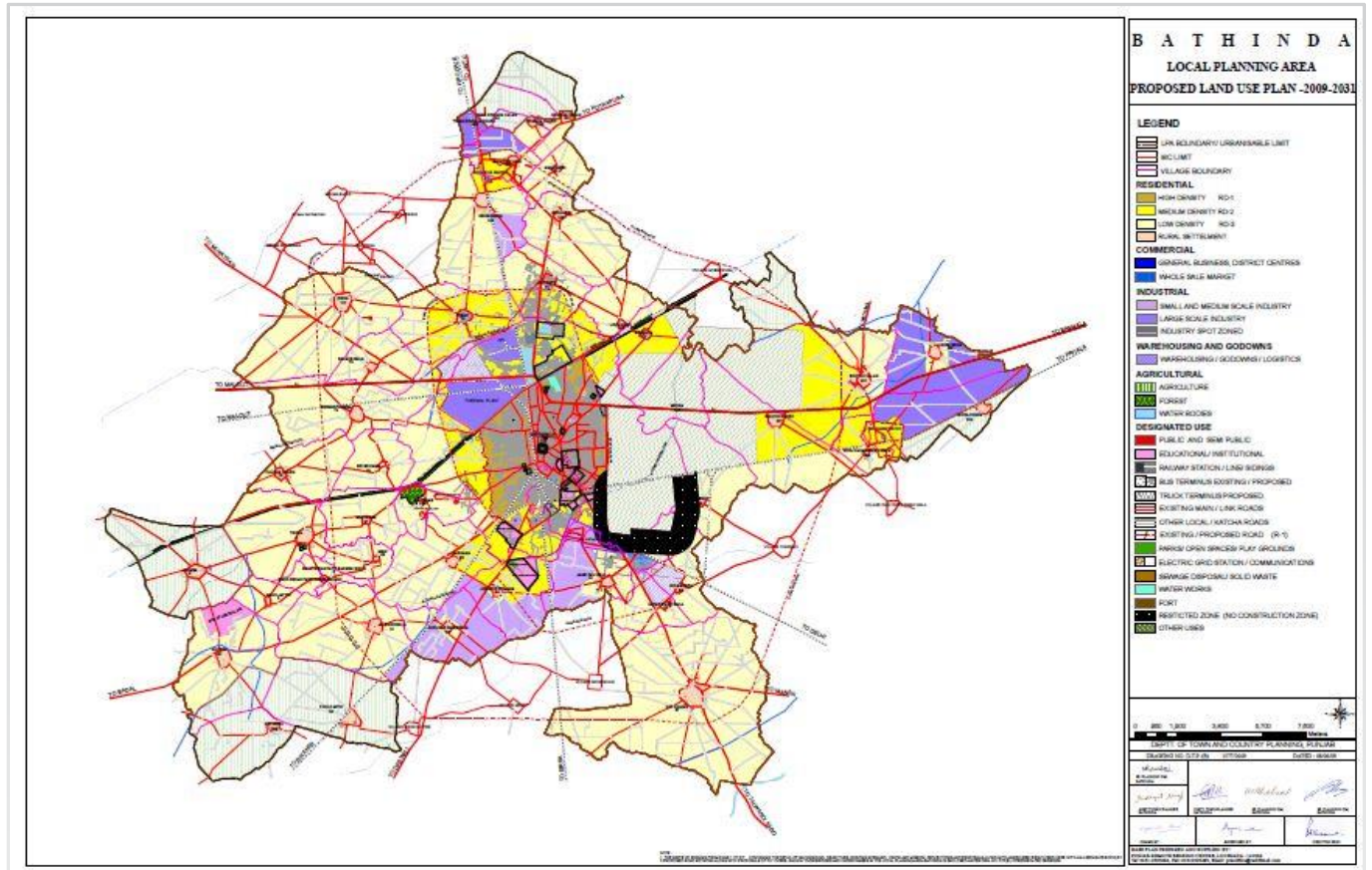
(i) Type of trees for Road side plantation:

Trees like Neem, Mahua, Sheesham, Mango, Imli, Safed Siris etc. should be planted along roads. No hard and fast rule may be laid down for the spacing of avenue trees; it depends on the type of trees.

(ii) Minimum spacing between trees:

A minimum spacing of 10-12m should be followed. The trees in the formal avenue planting should be planted in rows on either side of the road in a staggered manner. At urban intersections the trees should be at least 3 mts. away from the intersections for right viewing distance.

Proposed Land Use Plan of Bathinda



Existing Land Use Bathinda City -2009

NAME OF LANDUSE	AREA IN HECTARE	PERCENTAG E
Residential	2178.08	32.09
Residential Built Up	1462.11	21.54
Residential Plots	708.03	10.43
Mixed Land Use	7.94	0.12
Commercial	205.56	3.03
Retail Shopping	104.22	1.54
Whole Sale, Godowns, Ware Housing		
Regulated Market	101.33	1.49

Industry	974.46	14.36
Service And Light Industry	38.88	0.57
Medium, Large & Heavy	145.86	2.15
Planned Industrial Areas	789.71	11.63
Utilities	106.66	1.57
Water Works	83.76	1.23
Electric Grid	3.82	0.06
Sewage Disposal	1.29	0.02
Solid Waste	14.57	0.21
Communication	3.22	0.05
Public & Semi-Public	419.53	6.18
Govt/ Semi Govt/ Public Offices	45.46	0.67
Govt Land (Use Undetermined)	45.76	0.67
Education And Research	277.77	4.09
Medical & Health	17.36	0.26
Social, Cultural & Religious	28.55	0.42
Cremation & Burial Grounds	4.63	0.07
Transportation	384.16	5.66
Main Roads & Parking	237.34	3.50
Railways	126.71	1.87
Bus Terminus	20.11	0.30
Recreational	149.89	2.21
Play Grounds, Stadium, Sports Complex	38.58	0.57
Parks & Gardens (Public Open Spaces)	47.39	0.70
Lakes	63.92	0.94
Agricultural	2363.43	34.81
Agriculture	1659.59	24.45
Forest	34.82	0.51

Extractive Area	1.89	0.03
Water Bodies	49.80	0.73
Plantation & Orchards	37.17	0.55
Dairy And Poultry Farms	12.34	0.18
Vacant Land	567.82	8.36
Special Area	5.92	0.09
Heritage & Conservation Area	5.92	0.09
Total	6787.68	100.00

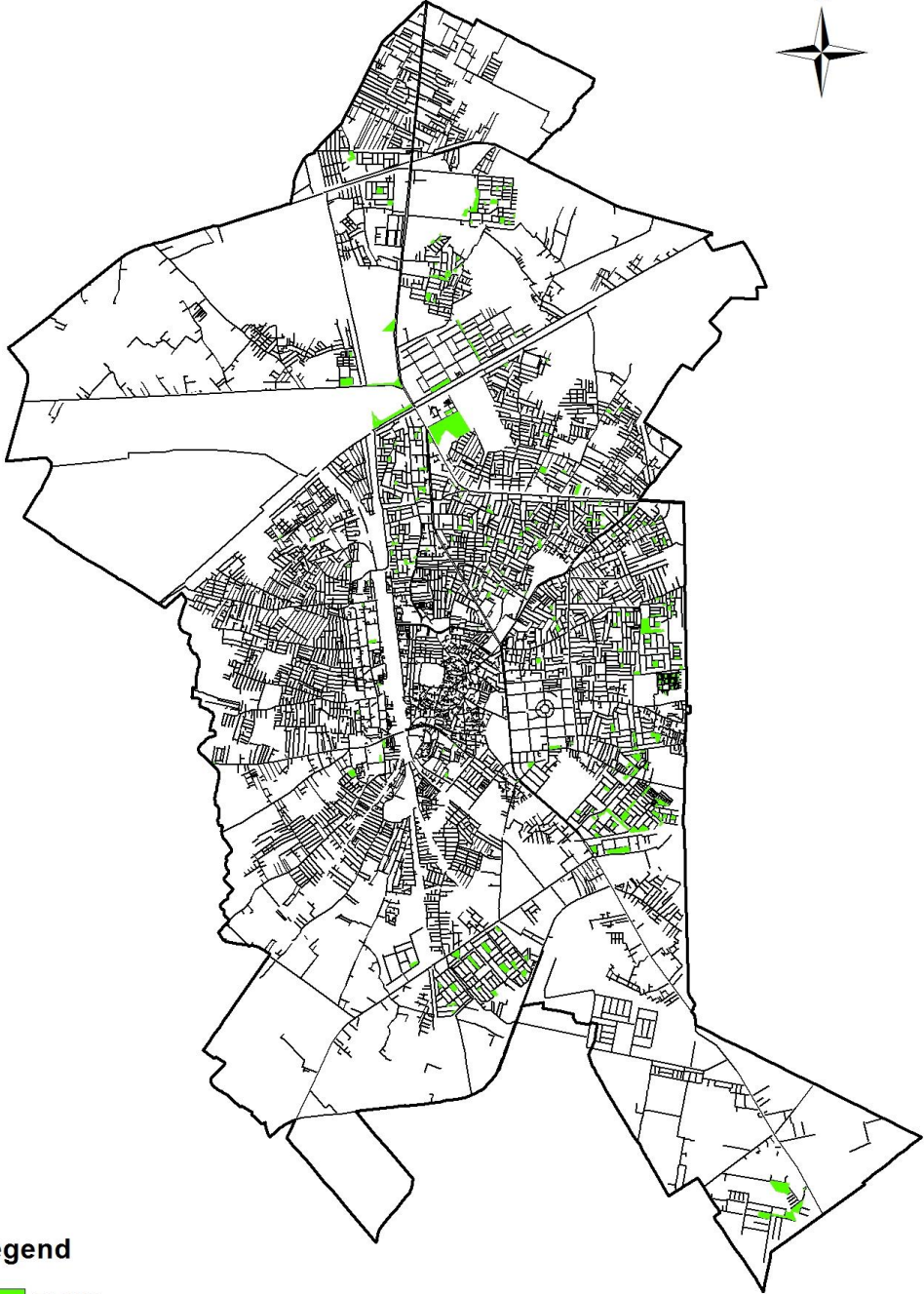
Existing Green Cover in MC Bathinda

Identification of existing green cover				
Details of existing green cover/area				
Sr. No.	Type	Area in acres	Total %age of existing green area with respect to municipal area	Proposal
1.	Park	129.87	0.75	Re-development of existing parks
2.	Plantation	29.93	0.17	Already developed
3.	Stadium\ playground	68.62	0.40	Already developed
4.	OPEN FOREST	122	0.71	Already developed
5.	Water Body	139	0.80	Developments of green areas around water works
6.	Cremation ground	11.84	0.07	Already developed
7.	Agriculture Land	5620	32.49	Already Green Cover
	TOTAL	6121.30	35.39	




Total Existing Green Cover = 6121.30 in Acre (35.39%)

Total agricultural land in MC Bathinda Boundary is 5620 acre. 32.49 % share of total MC Bathinda Area.

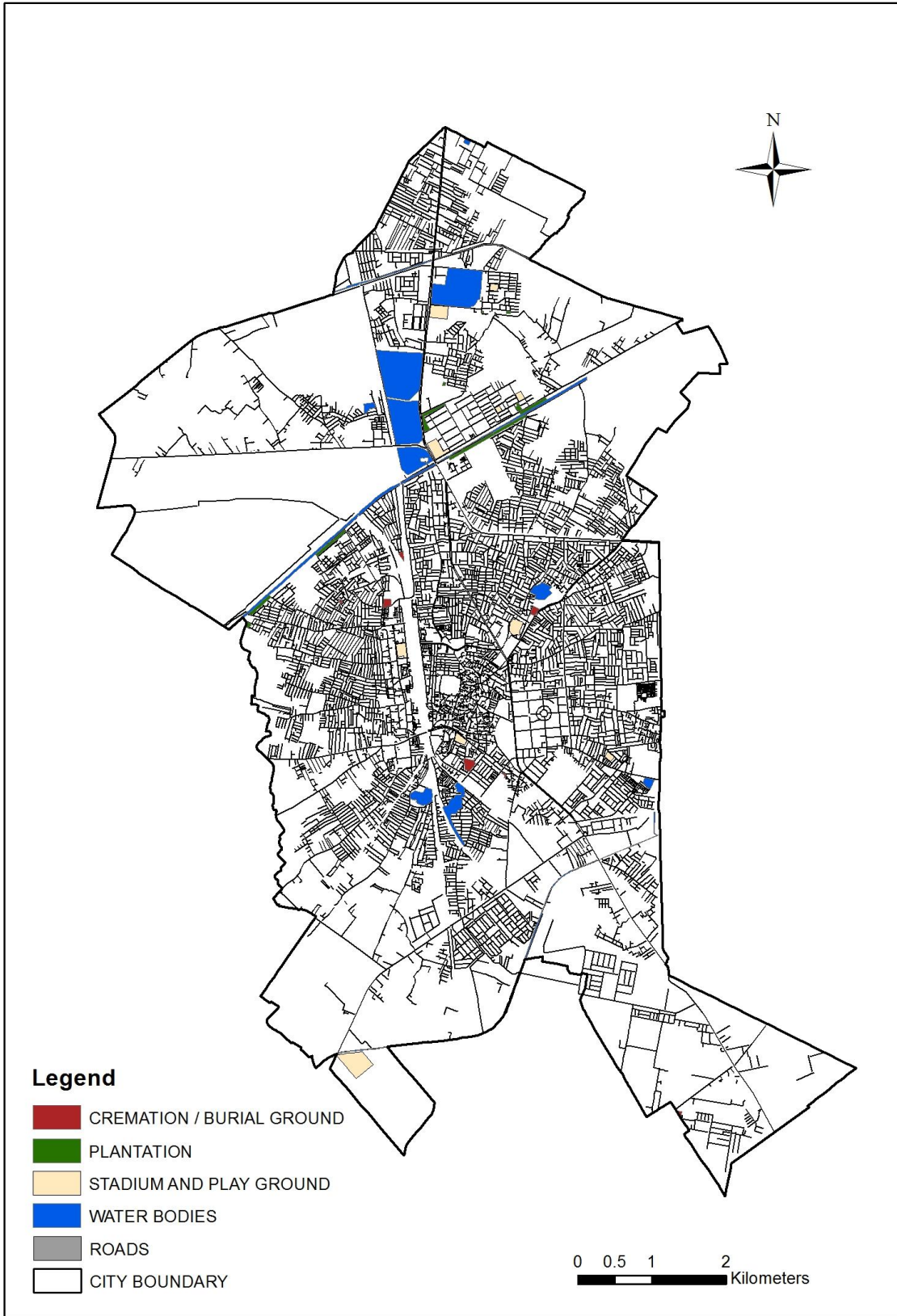
LOCATION MAP OF PARKS IN BATHINDA CITY



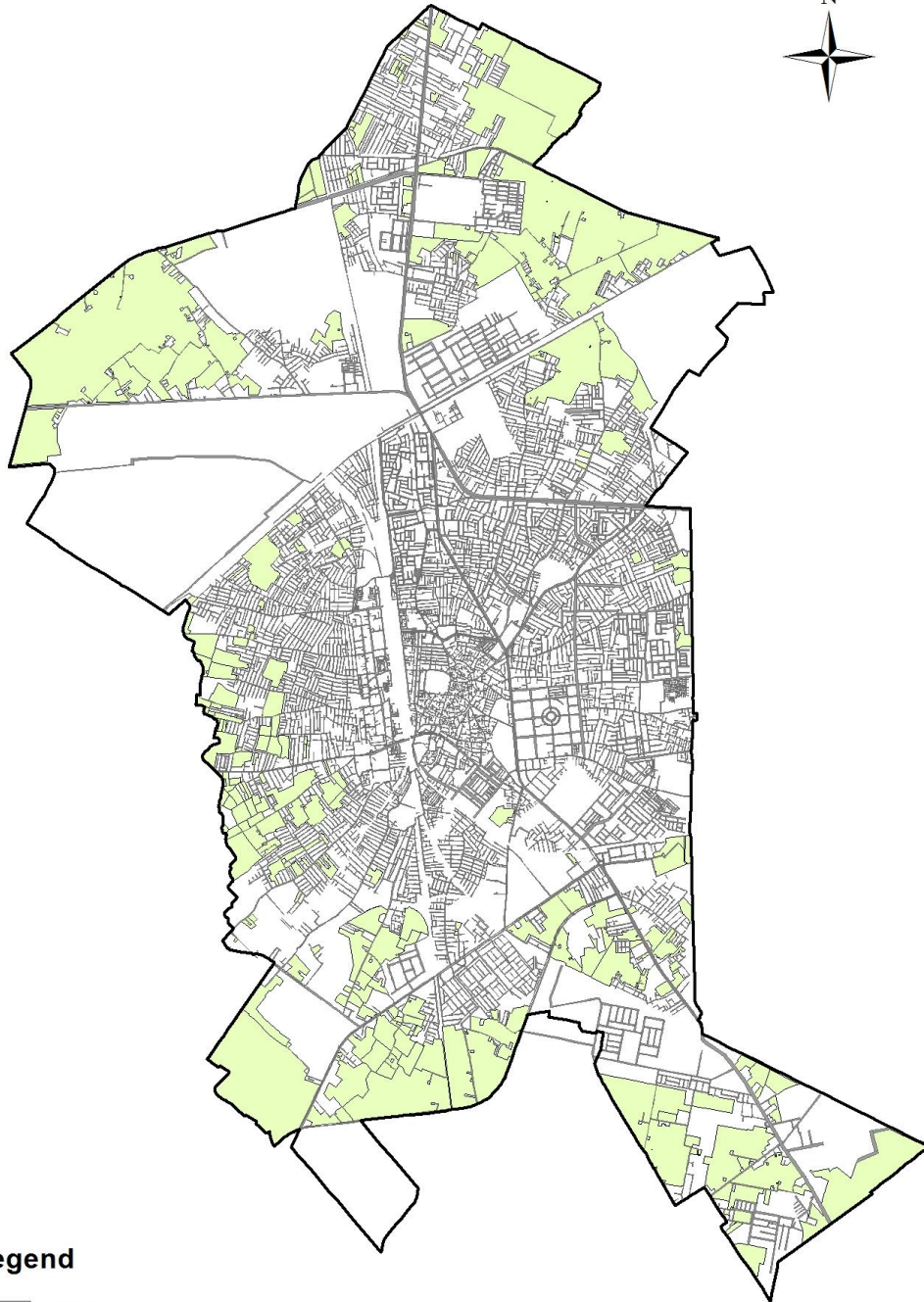
Legend

-  PARKS
-  ROADS
-  CITY BOUNDARY








AGRICULTURE MAP OF BATHINDA CITY



Legend

-  ROADS
-  CITY BOUNDARY
-  AGRICULTURE AREA

0 0.5 1 2 Kilometers

CONCLUSION:-

As per policy (part 3 subpart iv)if we will considered agricultural land as a part of green area then this reform will be achieved automatically i.e.

The agricultural area in MC Bathinda is 5620 acres which is approx. 32.49 %. Municipal Corporation has already more green cover than 15% of total area as mentioned in notification. Municipal Council will prepare Green Area policy to ensure

Increase green cover in and along future development with the help of respective departments