# Urban Planning & Development Practices of Ahmedabad Urban Development Authority

*With Focus on Creating Sustainable Infrastructure for Citizens*

*April 2021*

**Ahmedabad Urban Development Ahnt Authority (AUDA)**

# Vijay Rupani

Chief Minister, Gujarat State

Dt. 16/03/2021

## MESSAGE

"Gujarat has been forever a source of continued inspiration for other states across the country. The development in Gujarat is always focused on making the life of its citizens better."

Gujarat is the role model of development for the country and remained the most developed state in the nation. Gujarat is the number one state in providing employment to the youth, industrial growth, agricultural growth rate, milk production and Gross State Domestic Production and many other indicators that have put it on the top spot.

Schemes like PMAY has been incorporated with the urban planning of Ahmedabad and planned development of Affordable Housing has been accomplished. It has improved the lives of urban poor by providing affordable housing with basic facilities like water, sanitation, recreation, libraries. For the Water deficit state like Gujarat, it is important to focus on urban water management. **Ahmedabad Urban Development Authority** has came up with projects to save water resources and reuse it by treating and harness storm water by interlinking of lakes

The **E-Book** on **New & Innovative Urban Planning & Development Practices** will be useful for other urban authorities as a ready reference and will inspire them to provide urban infrastructure in their respective areas of development. **I wish Ahmedabad Urban Development Authority** will progress effectively in implementing the development schemes.

**(Vijay Rupani)**

To,
**Shri Mukesh Kumar** *IAS & Chairman*
Ahmedabad Urban Development Authority,
Sardar Vallabhbhai Patel Bhavan,
Usmanpura, Ashram Road, Ahmedabad - 380 014
Email: auda_urban@yahoo.co.in

**Shri Mukesh Puri, IAS**
Additional Chief Secretary
Urban Development & Urban Housing Department
Government of Gujarat

> " *Peri-Urban areas play a huge role in the overall growth of the cities. Implementing Development plan with innovative practices to guide the growth is at most necessary for robust and sustainable growth of any city.* "

Gujarat is one of the most urbanized states in the country with urban population of 2.57 crore accounting for 42.58% of the State's total population of 6.04 crore. The decennial growth rate of urban population is 35.83%. The urban sprawl comprises eight Municipal Corporations and 159 Municipalities. Over and above, there are 16 constituted Urban/Area Development Authorities and 113 designated Area Development Authorities.

Burgeoning growth in urbanization has brought with it an increased pressure on physical and social infrastructure. The challenges of urbanization have unleashed a whole world of opportunities as well as demanded the need to be ready for the prospects in the coming future.

Urban areas of Gujarat are facing distinct challenges in the development of urban infrastructure. The challenge is to adhere to a development plan in the face of a strong tendency towards unplanned growth. The Authorities like AUDA, with the use of its power given plays major role in mitigating such challenges of urban planning.

Rural areas adjacent to the huge urban area like Ahmedabad needs preparedness for becoming a part of urban area. To ensure that the implementation of Development Plan is important, so that we can harness the potential that these villages behold. Villages in this area are potential locations of fast real estate and industrial development. It requires basic amenities for quality living. Therefore, the urban projects in the sector of mobility, water and sanitation becomes important for urban growth in such areas. AUDA has played good role in implementing needed infrastructure projects and making the Ahmedabad city prepared for the upcoming development.

**Shri Mukesh Puri, IAS**
Additional Chief Secretary,
UD & UHD, GoG

**Shri Mukesh Kumar, IAS**

Chairman

Ahmedabad Urban Development Authority

(AUDA), Gujarat

> " *AUDA is shaping urbanization in Ahmedabad and the citizen centric approach in its plans, proposals and execution stands effectual.* "

Ahmedabad is one of the fastest growing cities in India. Urbanization is one of the major aspects of growth in the city. Managing urban growth in an efficient manner becomes significant for the holistic development of the city and also helps in minimizing urban sprawl.

Ahmedabad's urban planning model integrates key features necessary for inclusive and robust planning process. These include stakeholder participation at various stages, layers of urban planning which includes macro and Micro Planning through DPs, TPs and LAPs. The core planning structure is substantiated with various unique features such as land pooling for land allocation in TPs, Transit Orientated Development and focus on improving green cover across the city.

The Ahmedabad Urban Development Authority (AUDA) since its foundation has had significant contribution in planned Development of the city. AUDA is shaping urbanization in Ahmedabad and the citizen centric approach in its plans, proposals and execution stands is impactful and effectual.

It is the results of AUDA's dedicated efforts in Urban Planning and Implementation, as a result to which the peri-urban area surrounding AMC provides city like amenities. AUDA aims to provide systematic, planned urban development with the goal of citizen centric services.

**Shri Mukesh Kumar, IAS**
Chairman, AUDA

**Shri A. B. Gor, IAS**

Chief Executive Authority

Ahmedabad Urban Development Authority

(AUDA), Gujarat

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" *AUDA has been able to successfully implement the key projects and has contributed to the sustainable development of the city.* "

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Ahmedabad Urban Development Authority decided to implement new and innovative projects to achieve overarching goal of Ahmedabad Development Plan 2021, which is to ensure robust development of Ahmedabad envisioning the prospects in 2021-2031. The holistic development of the AUDA area needed interventions in different sectors studying the key problem areas within the UDA limits. The sector included Mobility, Housing, Water and Sanitation.

To deal with it, AUDA came out with a plan to construct new bridges and roads along with laying new drainage lines and implementing Pradhan Mantri Awas Yojana (PMAY). For the same, the urban development body has also sought a soft loan of from Asian Development Bank (ADB) to fund its future projects.

AUDA has initiated to construct new bridges at junction of the SP Ring Road, laid new roads in developing areas, provided affordable housing under Mukhya Mantri Awas Yojana (MMAY) and Pradhan Mantri Awas Yojana (PMAY).

AUDA has focused on constructing sustainable housing under PMAY by providing solar roof tops and dual plumbing system. It has not only made the buildings 'green', but also has helped in making the housing well served with energy and water supply for gardening by cutting out the overall cost in operation and maintenance. In addition, the provision of recreational spaces like gardens and lakes, community halls and library have also been incorporated to make it user friendly and a step towards realizing Honorable Prime Minister Narendra Modi's vision of Better India.

Also, we have put stress on Integrated Urban Water Management by managing storm water in the UDA area by laying storm water drains, lake interlinking and reusing of treated wastewater for construction, industrial and irrigation purposes.

With the financial support from implementing agency, state government and ADB, we are looking forward to continuing developing peri-urban area in AUDA area.

**Shri A.B. Gor, IAS**
Chief Executive Authoruity, AUDA

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# *Executive Summary*

In the last few decades, Ahmedabad has seen exponential growth in the sectors of industrial and commercial development. It has attracted population from other areas to the urban area of Ahmedabad. This growth in population necessitates expansion and urbanization of the city.

## Urban Planning in Ahmedabad

Ahmedabad has always followed a sustainable approach toward its urbanization with an active attempt to ensure equity through town planning.

> " In 1960 Gujarat became a separate state from the erstwhile Bombay state and enacted an urban development act in 1976. The act led to formation of area/urban development authority. Till 2020, AUDA has Prepared total 247 nos. of Town Planning Schemes, out of which total 163 nos. of TPS is handed over to various authority like Nagarpalikas, Ahmedabad Municipal Corporation (AMC) & Gandhinagar Municipal Corporation (GMC). as the changing in boundary of AUDA. "

For Ahmedabad total 357 no. of TPS are prepared to implement the Development Plan. Out of which total 112 TPS prepared by AMC and 247 by AUDA till 2020.

## AUDA's Approach to Urban Planning in Ahmedabad

AUDA's planning Processes integrates a robust structure which includes Development Plan, Town Planning Scheme and the provision of Central Business District and Transit Oriented development as Local Area Plans. The process involves special provisions of citizen engagement and land pooling mechanism for equitable and planned urban development.

1. *Urban Planning Principles*

AUDA's planning principles focus on creating compact city forms, enhance accessibility and mobility options across the city for all citizens, integrated transportation and land use planning, consolidated and connected green network to promote sustainable and environment friendly development, provide efficient physical and social Infrastructure, Cultural heritage preservation, support economic activities for employment generation and overall facilitate vibrant, lively and safe urban environment.

2. *Key Considerations during Planning Processes*

Key considerations include Zoning and Development, Transport Network and Mobility, Housing, Physical and Social Infrastructure, Green Network, Heritage and Environment and Economic Development in such a way that it follows a holistic approach in urban planning process. It is evident in all of AUDA's urban development plans and projects which demonstrate foresighted and sustainable features.

3. *3-Tiers of Planning by AUDA*

The robust planning process mechanism of AUDA involves layers of planning at macro and micro level with the aim of holistic planning as well as successful implementation of the same. The 3-Tiers of Urban Planning of AUDA includes:

➢ *Development Plans:* Medium term comprehensive plan of spatio-economic development of the urban centers in the city. Preparation methodology involves unique steps like Zoning, Land Use Planning, Citizen Consultation, GIS Integration.

➢ *Town Planning Schemes:* Micro Level Plans used as tools to execute the

development plan, implemented using the land pooling mechanism.

➢ *Local Area Plans:* Prepared for rejuvenation of existing development, utilized for different concepts such as transit-oriented development (TOD) and central business district (CBD) development.

Ever since the establishment of AUDA, it has come up with remarkable infrastructure and development projects that has emphasized on the provision of robust connectivity in transport, affordable housing, basic infrastructural services such as water and sanitation and supporting blue and green development practices.

**Innovative projects by AUDA**

AUDA is constantly evolving in its rich experience of executing large scale infrastructure projects and making the urban area environment friendly, citizen centric and sustainable. Below are the projects done by AUDA.

1. *Affordable housing model of AUDA*

Under PMAY, central government initiated a scheme for the provision of affordable housing for poor with all basic amenities like toilet, water supply, electricity and kitchen.

AUDA incorporated PMAY scheme for building affordable housing scheme with all the basic amenities mentioned by central government. On top of it AUDA has also provided potable water, electricity, sewerage system, solar roof tops, Aanganwadi, Business and commercial establishment for Economically Weaker Section (EWS) of the society.

2. *Solar Roof top panel project in EWSH Schemes*

As part of this initiative, maximum number of its EWS projects are coming up with installation of solar roof top panel.

This will approximately reduce the electricity bill and will translate into savings of ~1200 Rs. per family per year residing in these EWSH schemes.

3. *Sustainable Water Management*

AUDA is focusing on effective management of water resource by Dual plumbing system and Sewage Treatment Plant. Most of its upcoming EWS societies are equipped with Dual plumbing systems where 80% of the treated water will reused for toilet flushing, gardening and landscape irrigation.

4. *24\*7 water supply in Bopal*

This project is aiming to ensure the 24\*7 hours availability of the potable and safe drinking water for Bopal area.

Under this project, Total 180 LPCD of water would be supplied per day by sourcing the water from Narmada canal.

5. *Interlinking of lakes*

This project has solved the problem of urban flooding in city. To control this, AUDA identified 42 lakes to drain the flooding water by interlinking 10 lakes.

In recent times, work is ongoing to interlink the Aslali and Jetalpur lakes providing major relief to the people suffering.

6. *Public Garden and Sports facility at Bopal*

AUDA has developed state of art garden named SOBO garden which has an area span of 6235 sq. m and has sport facilities such as Basketball cum Volleyball court with online booking option.

7. *Green Initiatives by AUDA*

AUDA has come up with remarkable initiative of creation of micro urban forest using Miyawaki technique which grows 10 times faster and is 30 times denser as compared to conventional tree plantation. Under this initiative 85,000 number of trees have been planted by AUDA.

8. *Traffic congestion management*

AUDA has undertaken the construction of 3 nos. of fly over bridges, 2 nos. of Rail over bridges, 1 no. of pedestrian foot over bridges and 2 nos. of 3-layer underpass development across SP ring road.

*9. Streetlight installation at S.P. Ring Road*

In order to improve the safety of riders, pedestrians and especially women during night time, AUDA has installed streetlights all along the 76km long stretch of S.P. ring road.

*10. Use of technology for transparency in governance*

AUDA has given special focus in building state of an art IT tools and systems which helps in citizens engagement by online tendering, online generation of letter for intimation and allotment of housing unit to beneficiary and real time tracking of projects information by Pragati portal and smart 311 application.

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# AUDA'S Pillars for Urban Development

## 06 Efficient Execution

- GIS based approach in Planning
- Efficient Execution through Town Planning Schemes & Local Area Plans
- Online tendering mechanism
- Use of Smart 311-mobile based application for field work

## 01 Macro & Micro Level Urban Planning

- Ten Principles for Integrated Planning
- 3-Tiers of Planning Processes through DP, TPS and LAP – CBD & TOD

## 05 Citizens at the Core

- Citizen Consultation at different Levels of Planning – DPs, TPS and LAPs.
- Citizen friendly website and portals
- Citizen engagement through online booking system for sports complex at Bopal etc.
- Use of Pragati portal-Online project tracking system initiated by AUDA.

## 02 Innovative Projects & Practices

- Lake Interlinking projects
- Installation of solar roof top panels in EWS projects
- Use of STP and Dual plumbing system in EWS projects
- Miyawaki method to increase urban green cover

**AUDA's Pillars of Success**

- 06 Execution
- 01 Planning
- 02 Projects
- 03 Finance
- 04 Development
- 05 Citizens

## 04 Holistic Development of Urbanized Areas

- 10 Principles for Integrated Planning
- Sustainable and Inclusive Approach
- Efficient Execution through Town Planning Schemes & Local Area Plans
- Sustainable Infrastructure development through planning

## 03 Financial Sustainability

- Funding through Land Pooling for TP and non-TP areas
- Sources include impact fees, development charges etc.
- Revenue allocation in sectors based on prioritization in line with the planning proposal
- Curating Financially Sustainable Project Models

# 1 | Ahmedabad City

# 1. *Ahmedabad City*

Located at the western end of India in the state of Gujarat, Ahmedabad is the fifth largest metropolis of India. Ahmedabad is called the textile capital of India and is considered the financial epicenter of Gujarat.

**5th** Largest Metropolis of India

**Financial Epicenter of Gujarat**

**10th** Largest Metropolis in terms of Area

**UNESCO World Heritage City**

> " Ahmedabad ranked as no. 3rd most livable city in India to live in as per the MoHUA's Ease of Living Index 2020. "

## City Profile

Ahmedabad is the largest city and the erstwhile capital of Gujarat with a population slightly more than 56 lakhs as per 2011 census. Ahmedabad Municipal Corporation is spread in an area of 449.50 sq. km (in the year 2008), and the greater Ahmedabad encompassing an area of about 1866 sq. km falling under the jurisdiction of AUDA, Ahmedabad is the 10th largest metropolis of India in terms of size. The boundaries of AMC (Ahmedabad Municipal Corporation) expand periodically acquiring areas surrounding the municipality which have seen urbanization. In the year 2020, the area under AMC is 488.17 sq. km. and the area under AUDA is 1344.68 sq. km. The local governance of Ahmedabad City is undertaken by the AMC whereas, town planning of the surrounding areas of agglomeration is undertaken by AUDA (Ahmedabad Urban Development Authority), a parastatal, which is a body directly controlled by the state government.

**Connectivity:**

Ahmedabad is strategically located in the center of Gujarat, in the Sabarmati basin. Ahmedabad is spread on both banks of Sabarmati River which cuts through the city. It forms a vital transport & trade link to the vast areas in the north & east. The city is well connected not only to major towns within the state but also to neighbouring states through strong transportation linkages by rail, road and air.
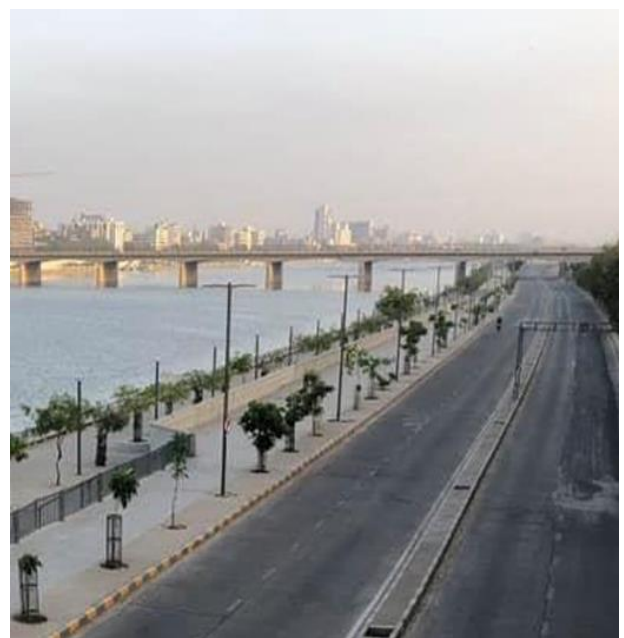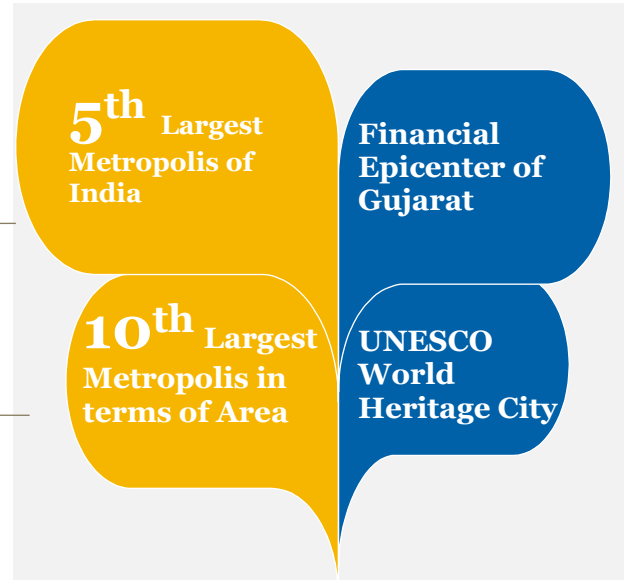
# 1.1 *Urban Planning in Ahmedabad*

Gujarat is one of the most urbanized states in India. Based on the urbanization trends in India, it found that the 46% of Gujarat's population resides in urban areas. Urbanization can have both positive and negative impacts. Gujarat has focused on managing the urban growth for positive development. The planning practices in the state are considered one among the most fruitful across the country.

Ahmedabad is considered as one of the most livable cities in the country. The city has a sustainable approach towards its urbanization with an active attempt to ensure equity through town planning. Through the Town Planning, the city has been able to avoid urban sprawl and effectively manage corresponding issues like high cost of housing and real estate, increased distances and travel times between home and work places, traffic congestion, increased demand for amenities, gardens, open spaces and much more. The city is experiencing a planned and proficient urbanization.

## Legislations Governing Urban Planning in Ahmedabad

**1915** — **Bombay Town Planning Act 1915**

Bombay Town Planning Act, 1915 enacted by Presidency of Bombay had a piecemeal approach of planning and only had a concept of town planning scheme incorporated.

**1920** — **1st Town Planning Scheme Prepared for Jamalpur**

The 1st TP Scheme of Ahmedabad sanctioned as on 1st September, 1925.

**1946** — **1st Town Planning Scheme along the Sabarmati River**

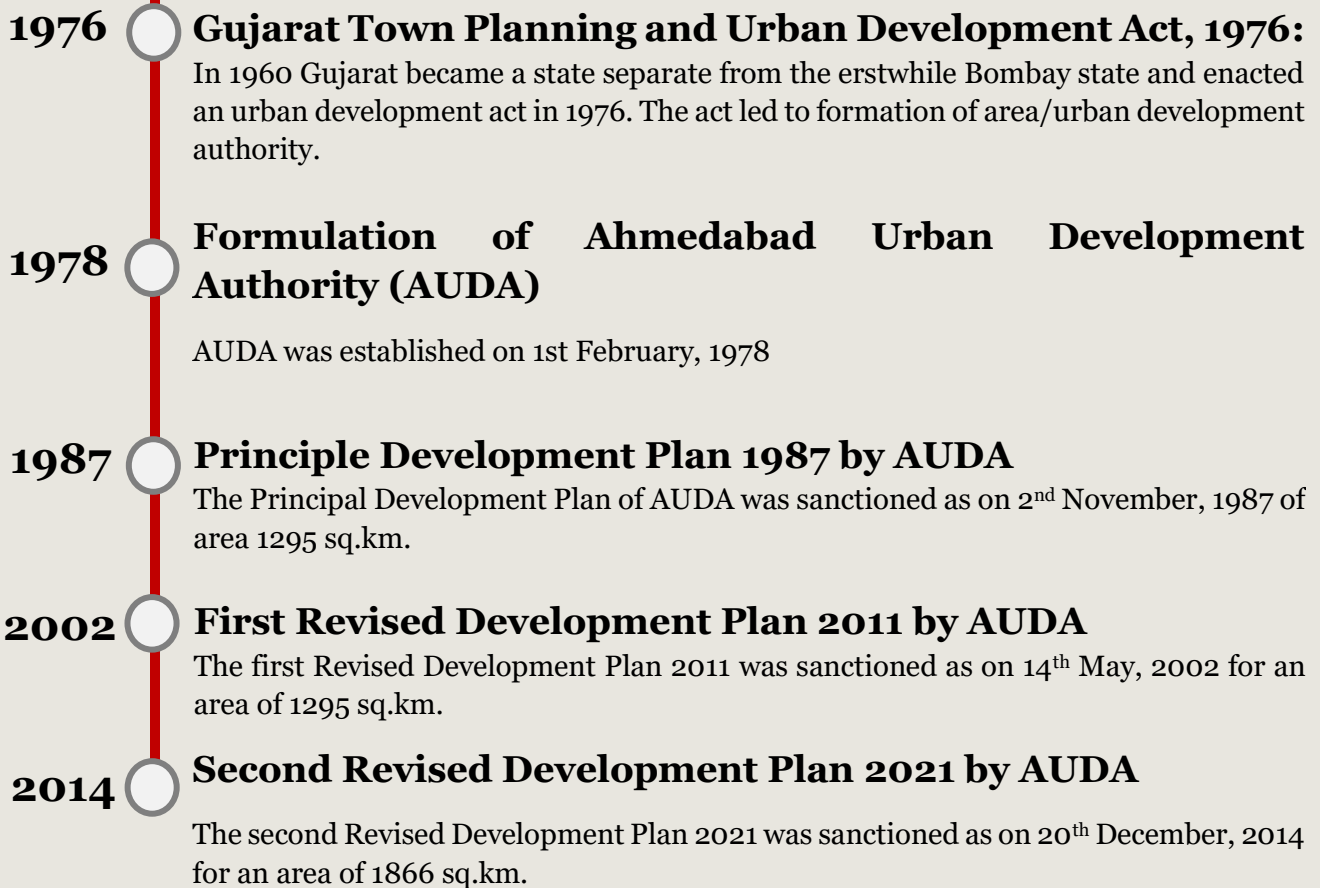1st TP Scheme implemented for the development of area along Sabarmati River

**1954** — **Bombay Town Planning Act 1954**

Since Bombay TP Act 1915 provided for growth of part of city only & so was repealed by Bombay TP Act 1954 where the repealed Act made it obligatory to prepare Development Plan of whole city area with a rational approach.

Bombay Town Planning Act, 1954 lead to the first attempts at town planning in Ahmedabad. The Act replaced the 1915 Act and came into force on April 1st, 1957. The Act provided for 20 town planning schemes and several other Development Plans.

**1965** — **First Development Plan by AMC**

The first Development Plan for AMC was formulated and was later revised in 1983

**1976** ◯ **Gujarat Town Planning and Urban Development Act, 1976:**
In 1960 Gujarat became a state separate from the erstwhile Bombay state and enacted an urban development act in 1976. The act led to formation of area/urban development authority.

**1978** ◯ **Formulation of Ahmedabad Urban Development Authority (AUDA)**

AUDA was established on 1st February, 1978

**1987** ◯ **Principle Development Plan 1987 by AUDA**
The Principal Development Plan of AUDA was sanctioned as on 2nd November, 1987 of area 1295 sq.km.

**2002** ◯ **First Revised Development Plan 2011 by AUDA**
The first Revised Development Plan 2011 was sanctioned as on 14th May, 2002 for an area of 1295 sq.km.

**2014** ◯ **Second Revised Development Plan 2021 by AUDA**

The second Revised Development Plan 2021 was sanctioned as on 20th December, 2014 for an area of 1866 sq.km.

# *1.2 Ahmedabad Urban Development Authority (AUDA)*

**Image: AUDA Office, Ahmedabad**



AUDA was established on 1st February 1978 by state of Gujarat under Gujarat Town Planning and Urban Development Act (GTPUDA) 1976.

The body was established to enable sustainable planning and development of areas outside the boundaries of Ahmedabad Municipal Corporation.

Planned urbanization of these areas is essential to sustainably accommodate the expansion of the areas falling under AMC in order to avoid haphazard unserved expansion.

**Regional Context of AUDA in Ahmedabad City:** The notified Ahmedabad Urban Development Area is carved out of the four districts and nine talukas which include Ahmedabad City, Sanand and Daskroi Talukas from Ahmedabad District, Dehgam, Gandhinagar and Kalol Talukas from Gandhinagar District, Kheda and Mehmedabad talukas from Kheda District and Kadi Taluka from Mehsana District. Sanand, Kalol, Bareja, Mehmedabad and Dehgam are the five growth centers of AUDA area. AUDA area is surrounded by the Sanand, Viramgam Special Investment Region (SIR) on the western periphery and the Changodar SIR on the south western periphery and GUDA to the north. The Dedicated Freight Corridor (DFC) passes through AUDA near Sanand and on the western side of the city of Ahmedabad.

**Functions of AUDA:** The important functions of the Authority include the preparation of physical plan for the Development of Ahmedabad Urban Agglomeration, to prepare the draft Town Planning Schemes, to implement the Town Planning Schemes and to monitor and control the development activities in accordance with the Revised Development Plan. Besides, it is also looks into the development of the infrastructures like road, sewerage, water supply and other basic civic amenities.
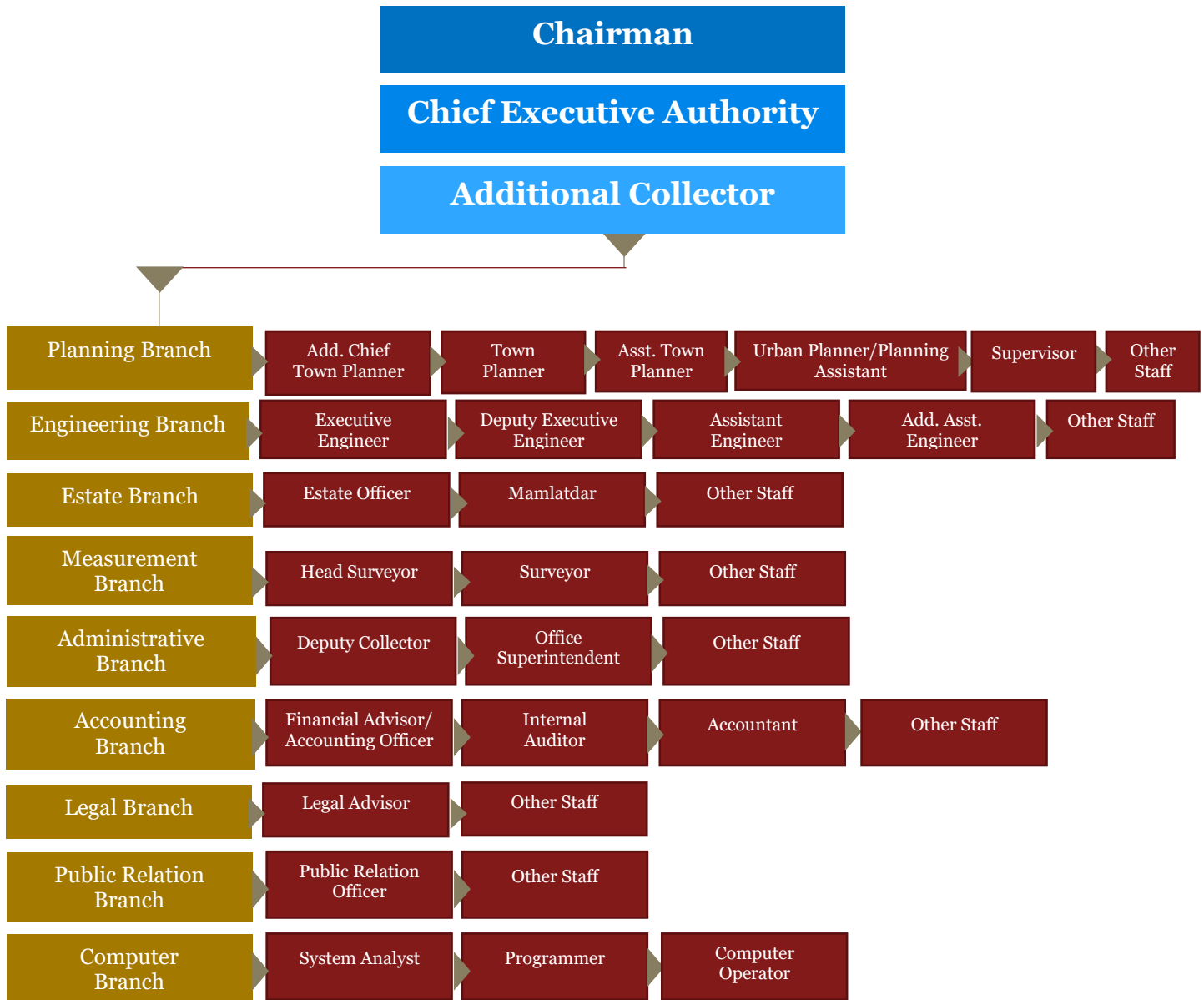
According to Section 23 (1) of Gujarat Town Planning and Urban Development Act 1976 (GTPUDA,1976), the functions and powers of AUDA can be grouped according to the nature of activities. Below mentioned are some of the important functios of the agency:

| | | | | |
|---|---|---|---|---|
| **1** Preparation and Execution of **Development Plans and Town Planning Schemes** | **2** **To carry out surveys** in urban development area for DP and TP preparation | **3** **Guide**, direct and assist the local authority functioning in the urban development on Planning and Land Use | **4** **Control the development** activities in accordance with the development plan in the UDA. | **5** **To acquire, hold, manage and dispose of property**, movable or immovable, as it may deem necessary. |
| **6** **To execute** works in connection with supply of water, disposal of sewerage and other amenities & Services | **7** **To levy and collect fees** for the execution of development works and scrutiny fees | **8** **To carry any development work** in the urban development area as may be assigned by the State Government | **9** **Entrustment of Powers and Functions** to Government Company | **10** **To enter into contract agreements** with any local authority or organisation as UDA may consider necessary |

## Organisation Structure

The hierarchy of AUDA is headed by the Chairman of the organization who is followed by the Chief Executive Authority. Chief town planner comes next in the hierarchy who presides over the departments. AUDA is a lean organization with 250 staff members working in these departments.

**Figure: AUDA's Departments and Hierarchy**

| Chairman |
| --- |
| **Chief Executive Authority** |
| **Additional Collector** |

| Planning Branch | Add. Chief Town Planner | Town Planner | Asst. Town Planner | Urban Planner/Planning Assistant | Supervisor | Other Staff |
| --- | --- | --- | --- | --- | --- | --- |
| Engineering Branch | Executive Engineer | Deputy Executive Engineer | Assistant Engineer | Add. Asst. Engineer | Other Staff | |
| Estate Branch | Estate Officer | Mamlatdar | Other Staff | | | |
| Measurement Branch | Head Surveyor | Surveyor | Other Staff | | | |
| Administrative Branch | Deputy Collector | Office Superintendent | Other Staff | | | |
| Accounting Branch | Financial Advisor/ Accounting Officer | Internal Auditor | Accountant | Other Staff | | |
| Legal Branch | Legal Advisor | Other Staff | | | | |
| Public Relation Branch | Public Relation Officer | Other Staff | | | | |
| Computer Branch | System Analyst | Programmer | Computer Operator | | | |

# AUDA and AMC Area Expansion

The area under jurisdiction of AUDA was 1196 sq. km. The first urban expansion of AUDA's area was done in the year 2008 that included the village of Bopal on the western side with an area of 5 sq. Km. and the second expansion was done in the year 2009. In addition to the area falling under the Ahmedabad Municipal Corporation's limit, it also includes 5 growth centers and 169 villages of Ahmedabad district. The body was established to regulate planned development of the City.
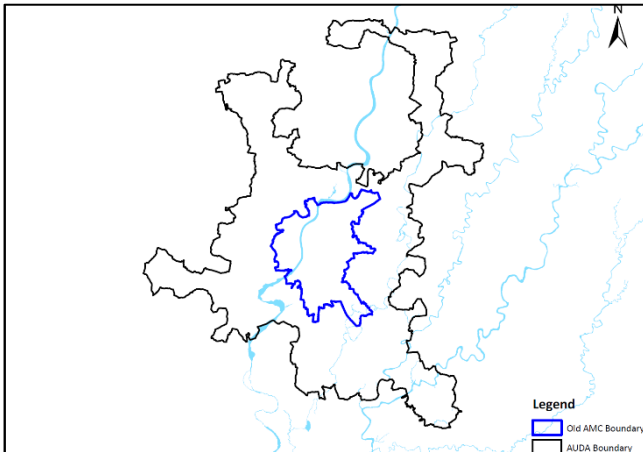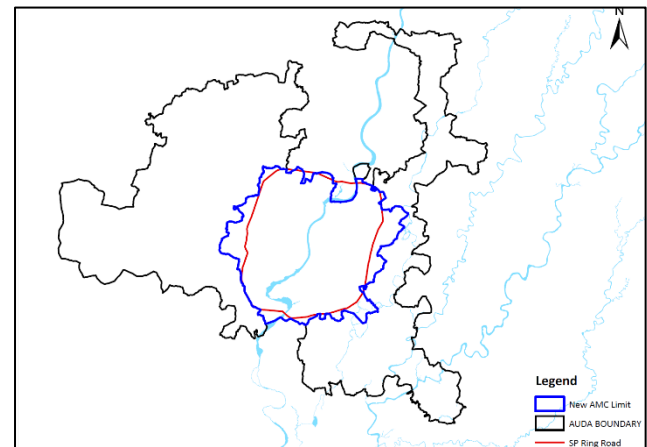


1986 – Old AUDA & AMC Boundary
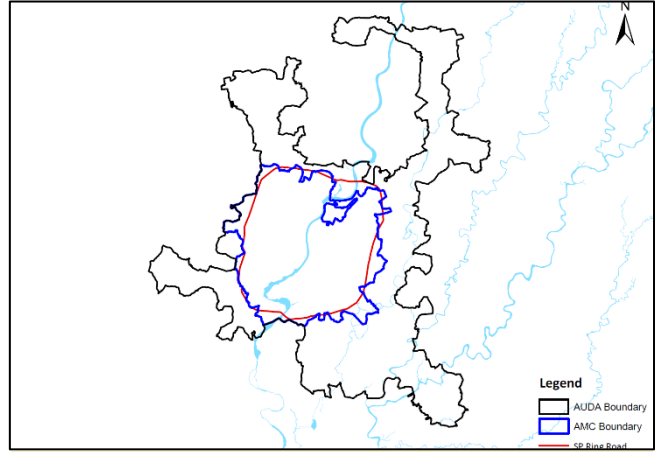


2006-08 – Development of SP Ring Road
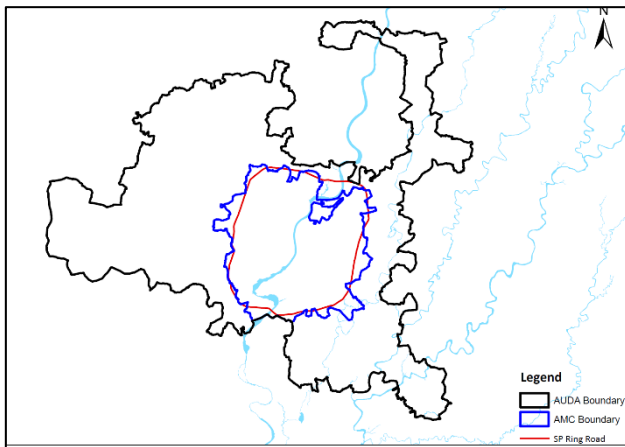


**2009** – 69 Villages added in AUDA



**2020** – Adding 9 VPs & 1 municipality in AMC

The above maps show the AMC and AUDA boundaries over the years. The area surrounding the Ahmedabad Municipal Corporation is governed by the Ahmedabad Urban Development Authority. The Authority takes up the responsibility of planning and execution of these growing outskirts of the city and the city expands itself time to time and submerges the developmed areas into it. This phenamenon has helped Ahmedabad's planned urban growth.

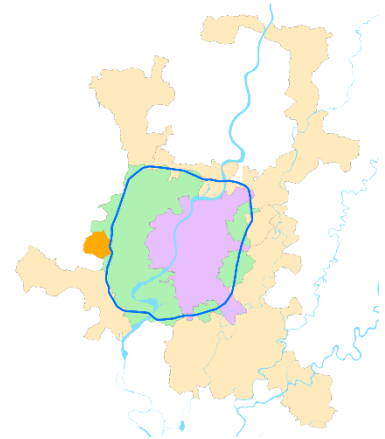## AUDA and AMC (Ahmedabad Municipal Corporation) Boundary
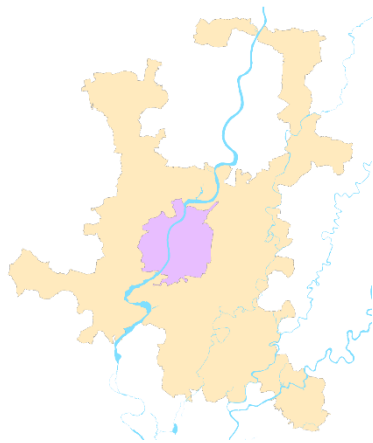


**1978**

**1986**

**2006-08**

**Establishment of AUDA**

Area of AMC: 99 Sq. km.

Area of AUDA: 1196 Sq. km.

Total: 1295 Sq. Km.
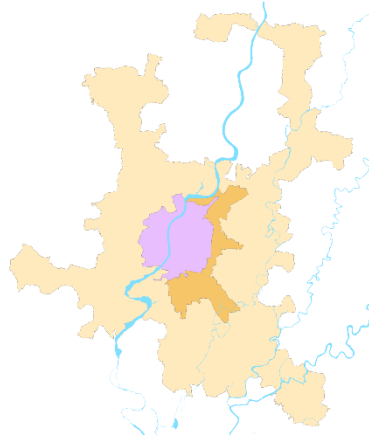
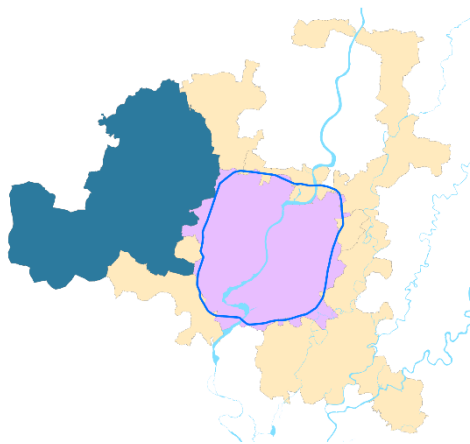**Fist AMC expansion:** 12 TPS handed over to AMC by AUDA

Area of AMC: 183 Sq. km.

Area of AUDA: 1112 Sq. km.

Total: 1295 Sq. Km.

**First expansion of AUDA:** Bopal – Ghuma Villages added in AUDA

**& Second Expansion of AMC:**
Area of AMC: 183 Sq. km.

Area of AUDA: 1112 Sq. km.

Total: 1295 Sq. Km.

**Legend**

- AMC Area
- AUDA Area
- 1$^{st}$ AMC Expansion
- 2$^{nd}$ AMC Expansion
- 1$^{st}$ AUDA Expansion
- 2$^{nd}$ Expansion of AUDA
- 3$^{rd}$ AMC Expansion
- Area added to GMC from AMC & AUDA

**2009**

**2020**

**Second Expansion of AUDA:** 69 villages merged in AUDA

Area of AMC: 449.5 Sq. km.

Area of AUDA: 1416.5 Sq. km.

Total: 1866 Sq. Km.
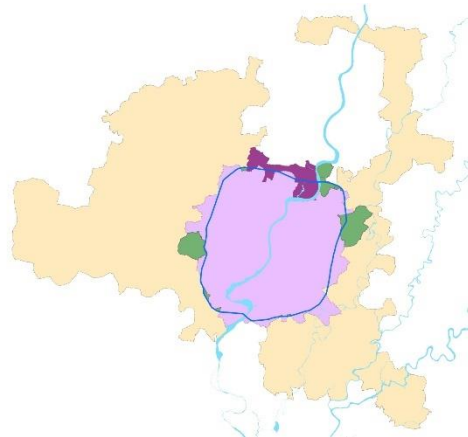
**Third Expansion of AMC & First expansion of GMC**

Area of AMC: 488.17 Sq. km.

Area of AUDA: 1344.68 Sq. km.
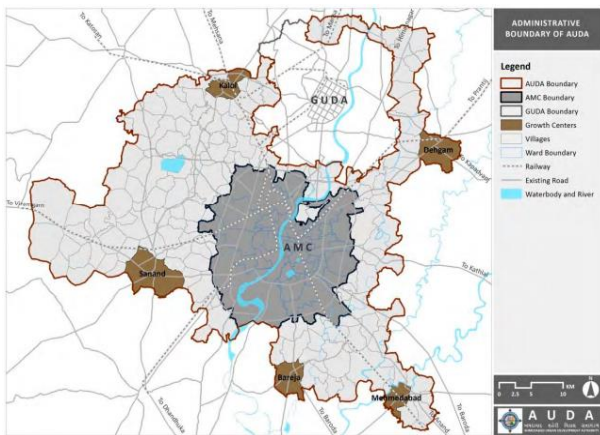
Total: 1832.85 Sq. Km.

Area of added in GMC: 34.05 Sq. Km

➢ Administrative Context of AUDA and AMC
➢ Well Connected with Rail and Road Networks

| Sl. No. | Growth Centers | Area (Sq. Km) |
|---|---|---|
| 1 | Kalol | 17.22 |
| 2 | Sanand | 40.41 |
| 3 | Dehgam | 26.94 |
| 4 | Mehmedabad | 13.49 |
| 5 | Bareja | 20.36 |
| Total | | 118.42 |

➢ Rest of AUDA includes villages surrounding AMC area other than Growth Centers that includes 169 villages combining 1866 sq. km land

# AUDA Shaping the Urban Growth in Ahmedabad

AUDA's planning Processes integrate a robust structure which includes Development Plan, Town Planning Scheme and the provision of Local Area Plan for the development of Central Business District and Transit Oriented Zones. The process involves special provisions of citizen engagement and land pooling for equitable and planned urban development. AUDA has focused on the broader perspective of urban development in Ahmedabad through the Development plan. The Town Planning Schemes and Local Area Plans are used as tools to implement the ideas envisioned in the Development Plan.

Economy is another important aspect of urban development. The example of Ahmedabad strikes a balance between the need for a thriving economy through markets and necessity to uphold the public interest. Thus, AUDA's holistic urban planning approach has facilitated Ahmedabad's emergence as one of the most livable cities in India with focus on all kinds of Infrastructural development.

## AUDA's Principles for Holistic Urban Planning and Development

AUDA abides by certain principles which have shaped the urban planning proposals. These principles consolidate encouraging compact development, co-ordination between land use and transport through transit-oriented development, creation of green network, promoting affordable housing along with sustainable development. The principles below further articulate the overarching vision and focus to guide planning and development of Ahmedabad in a manner that is coherent and aligned with the overall vision of creating sustainable and livable cities with robust physical and social infrastructure.

# *Principles of the Urban Planning and Growth Management*

**1** **Encourage a Compact city form**
> ➢ Reduce sprawl by encouraging compact city form which helps shorten commute trips, makes infrastructure more efficient and leads to a higher quality of life
> ➢ Discourage the development inducing infrastructure in far flung areas

**2** **Enhance accessibility, connectivity and mobility options for all citizens**
> ➢ Develop a 'complete' network of complete streets to enhance connectivity
> ➢ Improve footpaths and other amenities to create pedestrian friendly streets
> ➢ Intermediate Public Transport and Feeder Services

**3** **Integrate planning and implementation of transportation and land-use**
> ➢ Plan and implement public transport linking existing nodes of development and activity

**4** **Consolidate and connect the green network**
> ➢ Provide adequate gardens, parks and public open spaces
> ➢ Connect the gardens and open spaces with a network of "Green Streets"

**5** **Promote sustainable and environment friendly development**
> ➢ Promote development that is based on principles and best practices of sustainability
> ➢ Protect and enhance environmental assets to create development that is environment friendly

**6** **Incentivize inclusive and affordable urban development**
> ➢ Promote inclusive development policies for enhancing affordable access to housing
> ➢ Support inclusion of affordable housing around public transport corridors

**7** **Support diverse economic activity**
> ➢ Support economic activity of various scales at various levels of economic ladder
> ➢ Support the informal sector by facilitating vending and other informal activities and encourage industrial development for employment

**8** **Provide efficient physical and social infrastructure**
> ➢ Provide efficient and adequate physical infrastructure
> ➢ Provide social infrastructure that supports the needs of the developed areas

**9** **Celebrate the social and cultural heritage**
> ➢ Preserve and enhance the built heritage
> ➢ Promote awareness and understanding of the built and social heritage

**10** **Facilitate vibrant, lively, and safe urban environment**
> ➢ Facilitate the creation of vibrate, and lively urban environments by encouraging consistent and coordinated development regulations
> ➢ Facilitate safe urban environment with 'eyes on the street'

# 2

# **Integrated Urban Planning Approach**
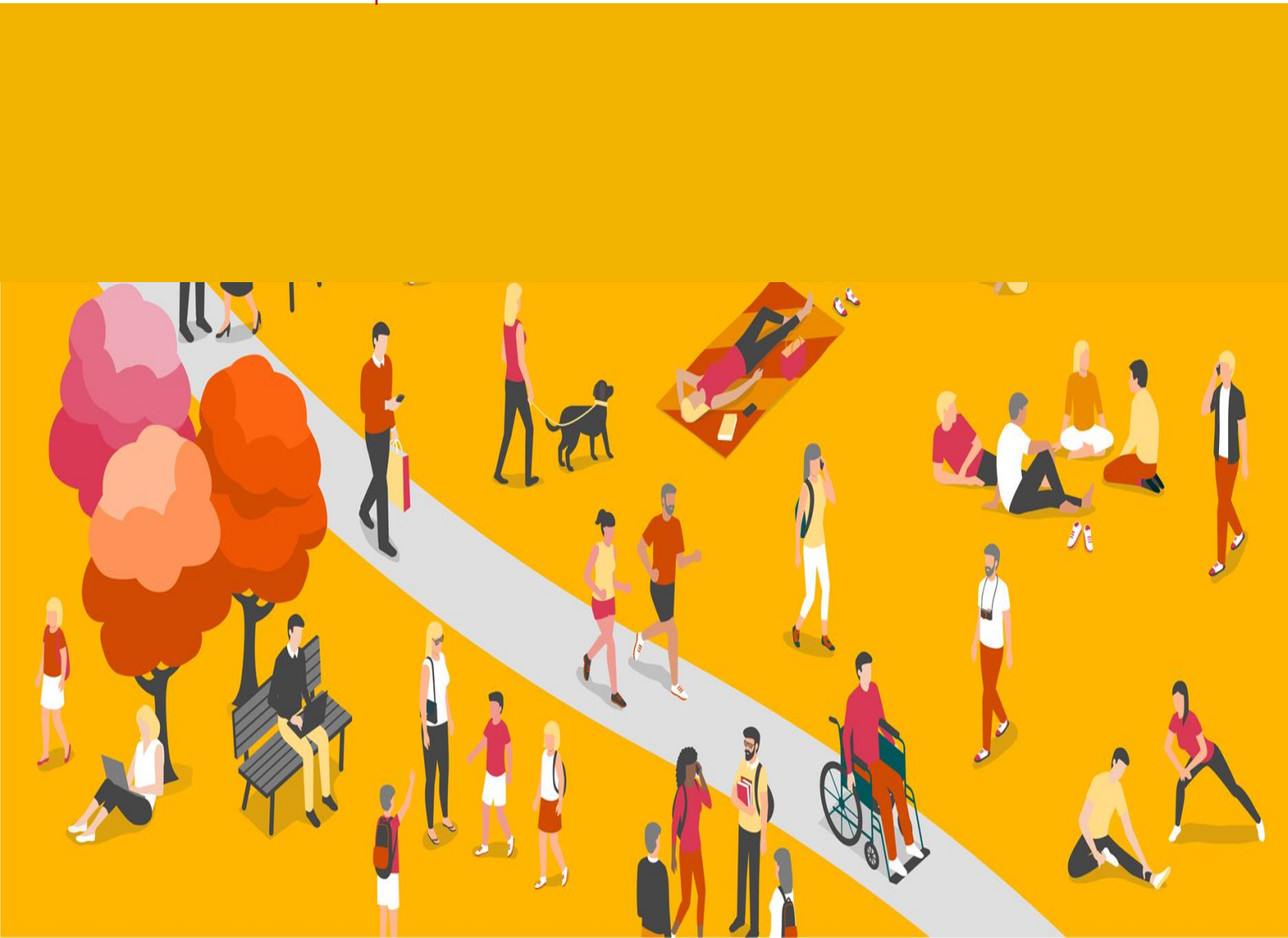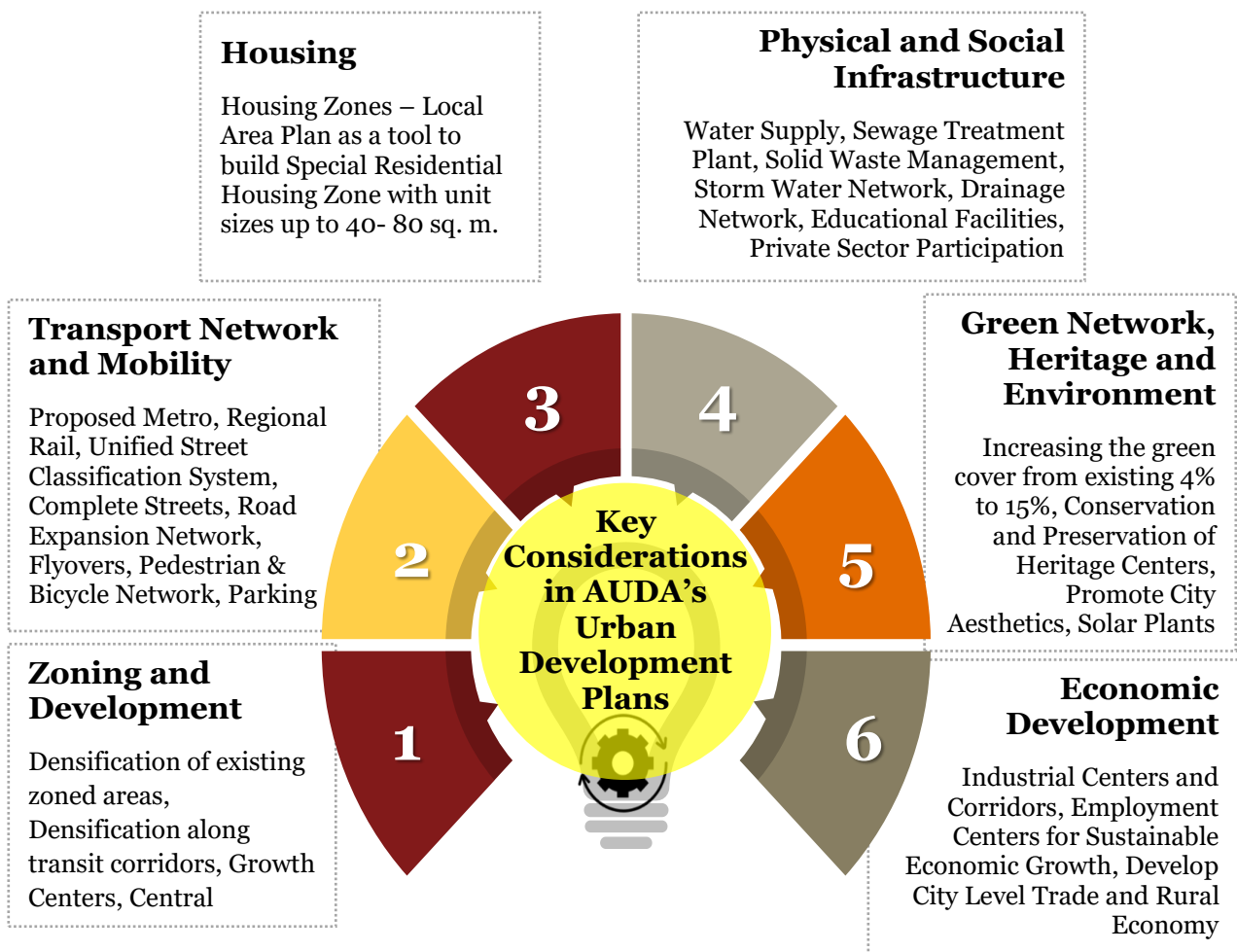
# 2. *Integrated Urban Planning Approach*

Ahmedabad is one amongst the few cities that stands out in the field of urban planning, thereby avoiding urban issues and contributing to citizen well-being. The robust planning process mechanism of Gujarat involving layers of planning at micro and macro level lead to coming together of several elements.

## Key Considerations in AUDA's Planning Process

AUDA follows a holistic approach in urban planning processes. It is evident in all of its urban development plans and projects which demonstrate foresighted and sustainable features. Through transparency in by engaging stakeholders at different levels of planning and execution stages AUDA has led the process of urbanization of areas surrounding Ahmedabad in an inclusive fashion. The Authority considers the extensive guidelines laid down by GDCR during the planning process.

The plans are formulated after multiple deliberations, detailed analysis of existing conditions, future growth projections, the overarching vision, the principles and the input from stakeholders all combined. Even though many of these proposals cover more than one focus area, for ease of organizing they are grouped under six subsections which are as below:

**Key Considerations in AUDA's Urban Development Plans**

**Housing**

Housing Zones – Local Area Plan as a tool to build Special Residential Housing Zone with unit sizes up to 40- 80 sq. m.

**Physical and Social Infrastructure**

Water Supply, Sewage Treatment Plant, Solid Waste Management, Storm Water Network, Drainage Network, Educational Facilities, Private Sector Participation

**Transport Network and Mobility**

Proposed Metro, Regional Rail, Unified Street Classification System, Complete Streets, Road Expansion Network, Flyovers, Pedestrian & Bicycle Network, Parking

**Green Network, Heritage and Environment**

Increasing the green cover from existing 4% to 15%, Conservation and Preservation of Heritage Centers, Promote City Aesthetics, Solar Plants

**Zoning and Development**

Densification of existing zoned areas, Densification along transit corridors, Growth Centers, Central

**Economic Development**

Industrial Centers and Corridors, Employment Centers for Sustainable Economic Growth, Develop City Level Trade and Rural Economy
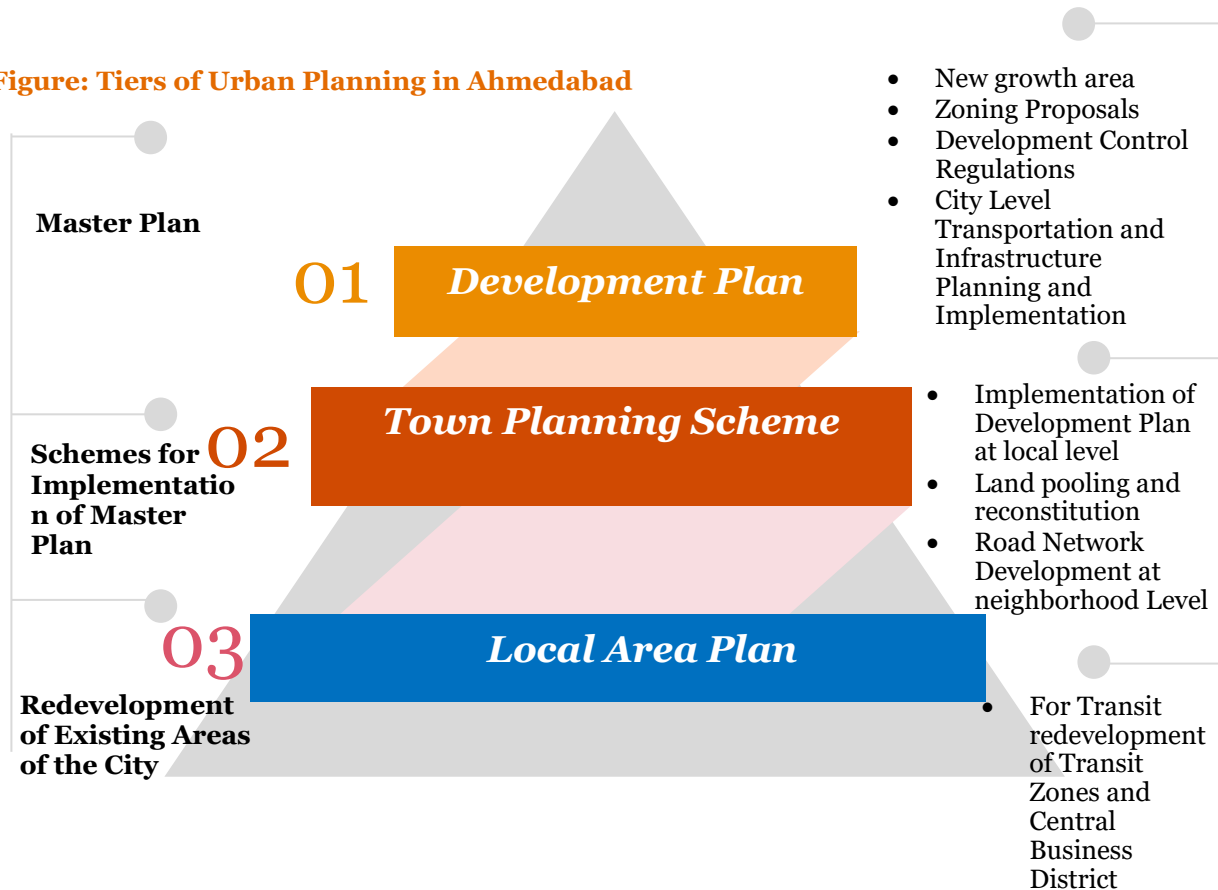
Key Considerations in AUDA's Urban Development Plans

3 4 2 5 1 6

# *2.1    Three Tiers of Urban Planning*

In order to facilitate the impacts of urban development reach to the complete population of the city, AUDA uses a 3-Tier planning process for its urban planning. This ensures that the facilities are available to each citizen in the least levels and issues faced by  all of them is addressed. From planning  to implementation and maintenance, AUDA ensures the percolation of development to all of the levels of a particular area. The urban development within the city is controlled by a Development plan, at micro level it's implemented using Town Planning Schemes (TPS) as a tool. These TPS are plans covering varying around 100-150 hectars of area and are used to develop the physical and social infrastructure. Another tools that aids the execution of the DP (Development Plan) are the Local Area Plans (LAP) which are utilised in developing overlay plans such as Transit Oriented Development (TOD) and creation of Central Business Districts (CBD).

**Figure: Tiers of Urban Planning in Ahmedabad**

**Master Plan**

**01    *Development Plan***

- New growth area
- Zoning Proposals
- Development Control Regulations
- City Level Transportation and Infrastructure Planning and Implementation

**Schemes for Implementation of Master Plan**

**02    *Town Planning Scheme***

- Implementation of Development Plan at local level
- Land pooling and reconstitution
- Road Network Development at neighborhood Level

**03    *Local Area Plan***

**Redevelopment of Existing Areas of the City**

- For Transit redevelopment of Transit Zones and Central Business District

## 1. Development Plan

Development plan is a medium-term comprehensive plan of spatio-economic development of the urban centers in the city.  The methodology and approach followed in the process of preparation of a development plan plays a significant role to produce an efficient and high quality plan. Moreover the methodology and approach undertaken supports the achievement of the aims and objectives of the plan. Development plan for Ahmedabad indicates the manner in which the use of land in the area covered by it shall be regulated and the manner in which the development therein shall be carried out. The key procedures for Development Plan preparation would include:

1. Development Plan Preparation Process
2. Approach
3. Development Plan, 2021
   3.1.    Zoning and Development

- **Development Plan Preparation Process**

The first step in the methodological framework includes collecting data from Primary and Secondary sources and then analyzing it to extract inferences from the same. A review of the sanctioned development plan not only provides the analysis of the level of development achieved in the decade as against proposed but also the requirement of revising the proposals and policies for the better implementation of the Development Plan. The next important aspect of the Development Plan is public participation to represent views and concerns of a wide cross-section of the society, based on which the goals, aims and objectives are formulated for the Development Plan. The final stage in preparation of the Draft Development Plan is the formation of the policies and proposals; this is done by accessing the gaps and deriving the demands for future. This involves the proposals for land use zoning, urban services both physical and social and policies in terms of the General Development Regulations for controlling the developmental activities within the Authority area.

The actual process of preparing the development plan involves many overlaps between the key steps and activities mentioned above.
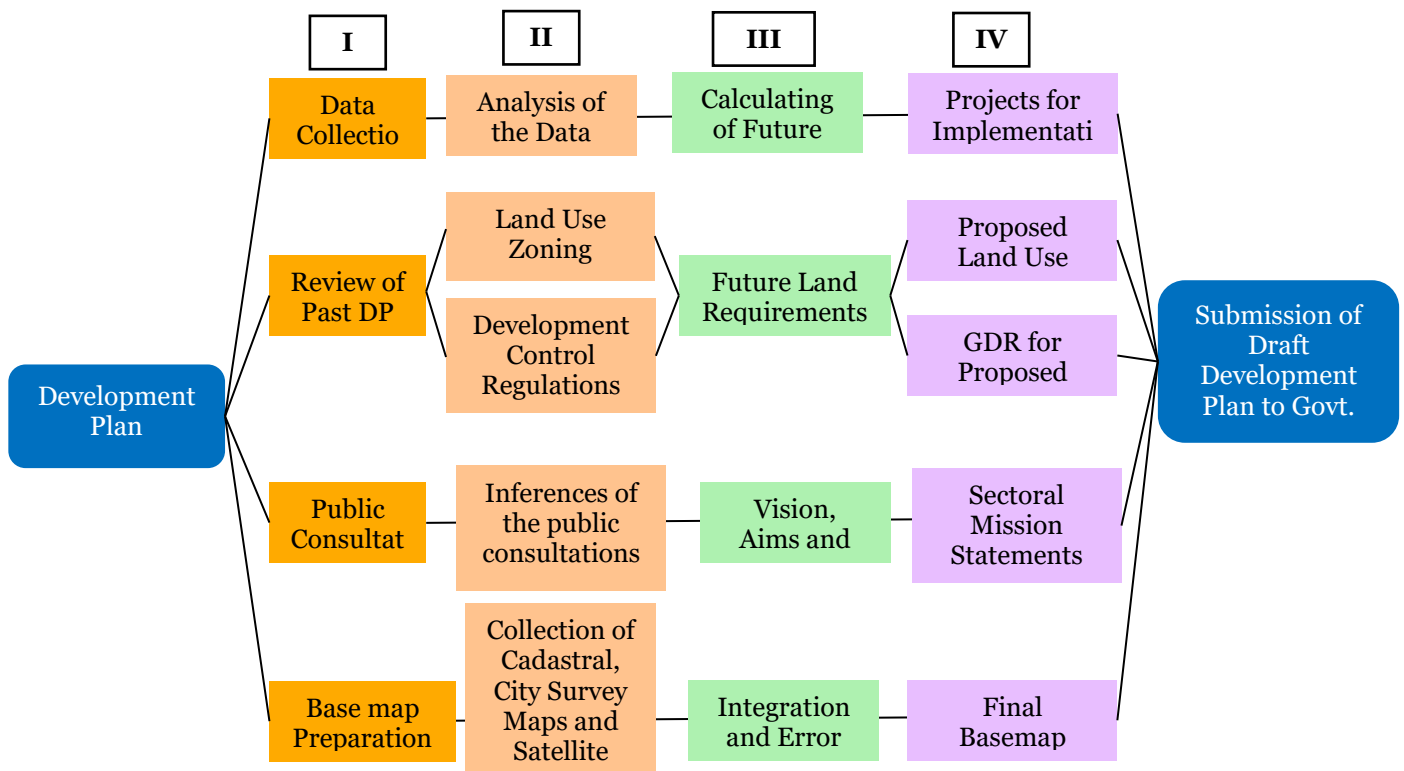


**Figure: Methodology of Development Plan**

**The First phase** of the development plan includes data collection, review of the Sanctioned Development Plan 2011, Initiation of the Public consultations and preparation of the Base Map.

**The Second phase** includes the analysis of the data collected in Phase 1. With the progress of the review of the past development Plan, existing land use, infrastructural services and the GDCR is done.

**The Third phase** involves the assessment of present gap calculation of the future demand for physical and social infrastructure and also the land requirement for the projected population of year 2021 and 2031.

**The Fourth phase** covers the identification of projects based on the sectoral mission statements derived from the vision Statement formed through Stake holding consultations

The methodology of preparing the development plan involves numerous activities, many of which overlap and are carried out simultaneously. The methodology of Development Plan can be divided into four phases as per the type of activities having almost similar characteristics carried out in that particular phase.

> " The Development Plan is prepared in Four Phases that include Data Collection, Analysis of the Data Collected, Demand Calculation, Public Consultation and Project & Proposal Formation "

- **Approach**

The Approach to the preparation of the Development Plan is finalized considering different aspects that would be the cause to the improved quality of the Development Plan. For the development under revision there are three approaches that are considered:

1. **Public consultations:** Extensive public consultations are carried out at different stages of the Development Plan. A wide cross-section of the society is represented through numerous interviews and workshops. The inputs from the consultations are studied and reviewed in detail, vision and objectives to fulfill the vision are formulated based on the inferences from the stakeholders. Nine working groups formed by experts from individual fields focusing on key areas are formed. Stage wise consultation with the Working Groups has led to the formulation of final policy and proposals.S

2. **GIS based approach:** The Development Plan prepared for the area of Ahmedabad Urban Development Authority is a huge document in terms of the data collected, analyzed and the proposals formed. There is a need for a robust system that is capable of handling such data at the same time carry out timely analysis to obtain desired results. The systems used are open ended and allow future improvement as well as addition and deduction of data from the data base at any point of time.

3. **Land use transport integration:** Regulating use and development of land is an important component of the Development Plan. But this must not be done without considering the transportation and infrastructure network. Coordination between land use and transportation is crucial to improve the mobility and quality of life within the city. The Mobility Plan for Ahmedabad was prepared to assess the existing transportation scenario and to identify the option for future improvements and expansion of transportation network. The appropriate recommendations of the mobility plan are integrated with the second revised Development Plan in form of various projects and proposals.

- **Urban Framework and Second Revised Development Plan 2021**

The urban framework in the Second Revised Development Plan 2021 aims to build upon the vision and the principles to guide the urban form of the city so that development continues to be compact and urban infrastructure is optimized. Increase in density is proposed through introduction of CBD and transit-oriented zones which can help facilitate densification and redevelopment in existing areas. Higher densities are proposed along public transport corridors to facilitate transport, reduce congestion, reduce dependability on private transport and optimize investments in transport infrastructure. This will help define characters of the different neighborhoods such as business districts, cultural precincts, walled city area, types of residential areas etc., thereby improving and enhancing the image ability and legibility of the city.

> **Vision:** Ahmedabad as a livable, environmentally sustainable and efficient city for all its citizens; a city with robust social and physical infrastructure, vibrant economy and a distinct identity; a globally preferred investment destination.
>
> **Mission:** The prime mission of the authority is to transform outskirt of Ahmedabad into a city where all citizens have access to basic services and all development take place in a planned manner, supporting rapid, self-financed and sustainable economic growth.

## ➢ Zoning and Development

Over the past decades, the city of Ahmedabad has expanded rapidly in almost all directions from its core areas. The radial arterials have attracted a significant amount of this growth and development while the Ring roads have improved the connectivity and ease of movement between them. Typically, the outward growth is also fueled by availability of developable non agriculture land in the outer areas at lower price and high rate of return upon development of this land. However, such developments have also caused significant amount of low-density sprawl and loss of farmlands.

**Figure: Growth Map of Ahmedabad**
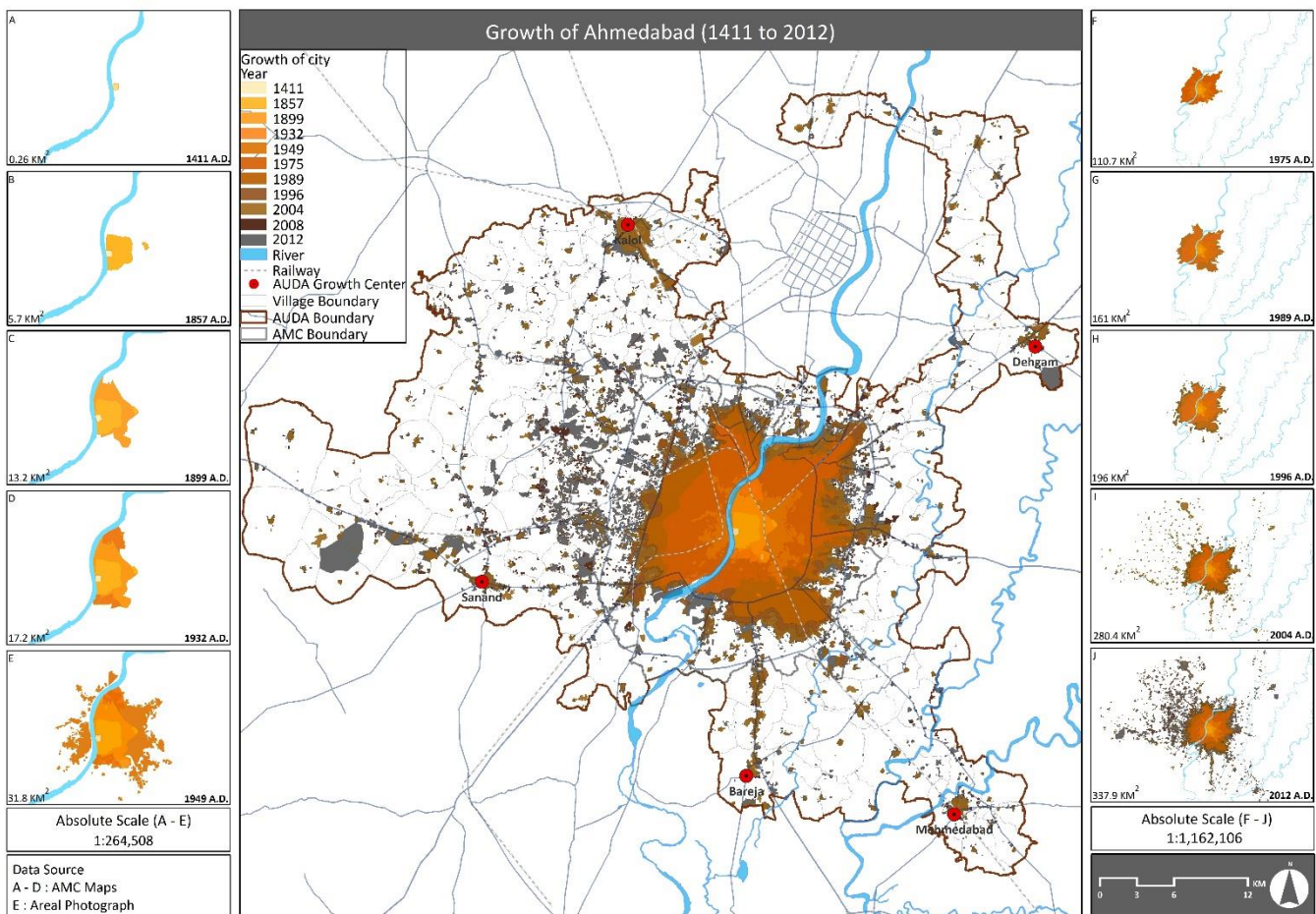


- Rapid urbanization from core in all directions in last few decades
- Ease of movement through ring roads
- Low density sprawl
- Developable nonagricultural land in outer areas facilitating growth

Zoning is one of the important planning tools to manage growth, regulate density and organize land uses within the urban area. By regulating land uses it helps to segregate incompatible uses, increase livability and create desirable character for different areas for the city. Zoning combined with development regulations determines the supply of developable land and built space in various zones. understand the demand for development and various considerations to organize land use and densities. However, before arriving at various proposals to accommodate growth and organize land uses, it is important to first understand the demand for development and various considerations to organize land use and densities.

**Figure: Proposed Zoning Map, Development Plan, 2021 (Second Revised)**
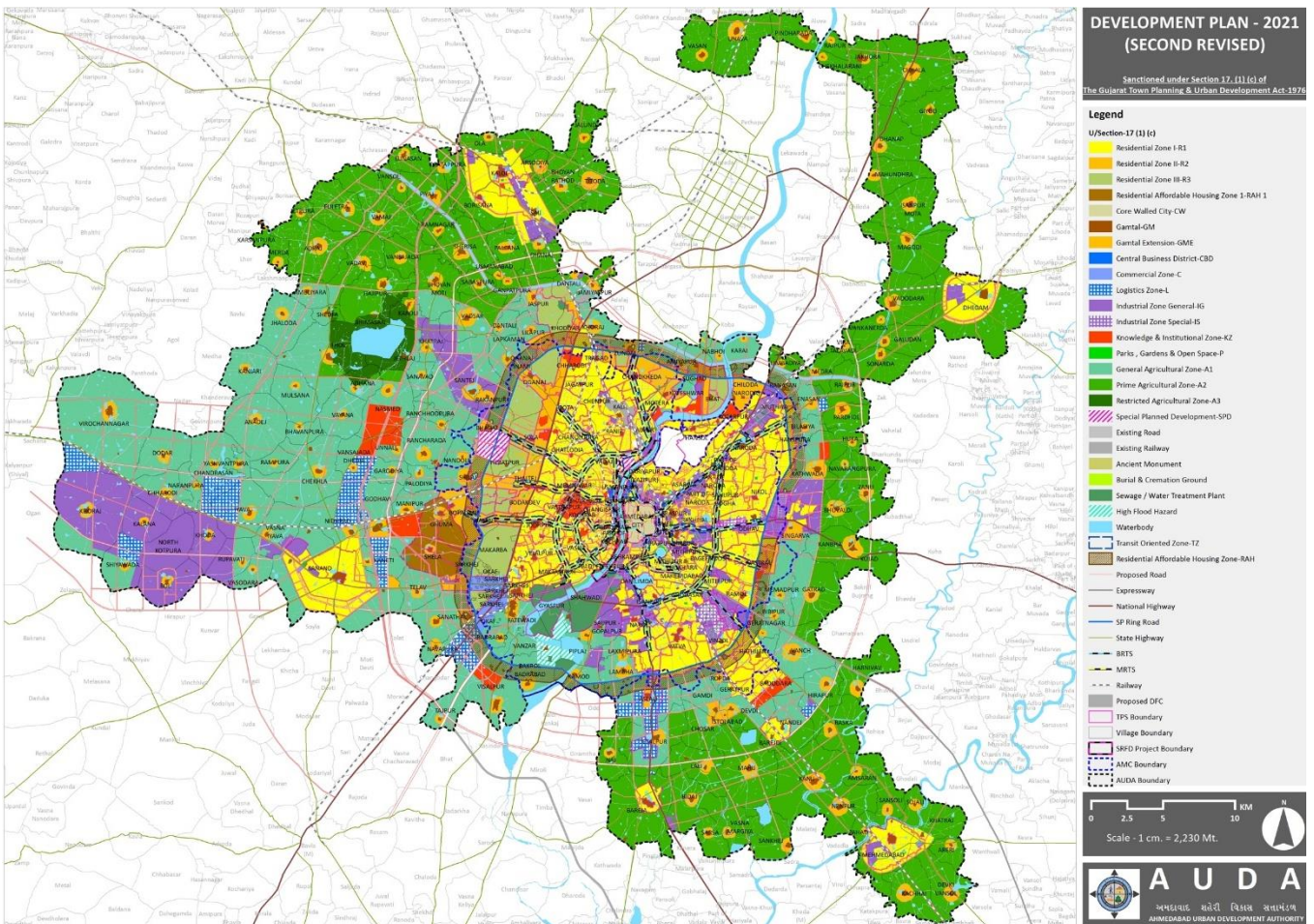


In order to encourage compact city form and to enhance mobility through transit-oriented development. The zoning proposals are prioritized in the following order

- i) Incentivize development in existing zoned areas
- ii) Encourage compact development in the central areas and transit corridors
- iii) Organize development in Growth Centers
- iv) Allow for natural growth around villages while preserving prime agricultural land

**Key Features of AUDA's Zoning**

*Densification of Existing Zones*

For the better utilization of land within the defined AMC and AUDA boundary, AUDA focused on incentivized development in existing zoned areas. In these zones, FSI were increased based on the

existing land use of the area and development and redevelopment within these zones were encouraged. The increased FSI are mentioned in the table below.

| Zone | Existing FSI | | | Proposed FSI | | |
|---|---|---|---|---|---|---|
| | Base FSI | Payable FSI | Total FSI | Base FSI | Payable FSI | Total FSI |
| Residential Zone (R1) | 1.8 | 0.45 | 2.25 | 1.8 | 0.9 | 2.7 |
| Residential Zone (R2) | 1.2 | Nil | 1.2 | 1.2 | 0.6 | 1.8 |

Further overlay plans for Local area development was introduced as micro level planning tool for densification of existing zones. It can provide comprehensive guidance to enhance livability of the area through coordinated developments in transport, social & physical infrastructure and the character of existing character of the area.

**Residential Housing Zone (RAH Zone)**

In order to enhance the supply of affordable housing, a new special zone RAH is identified within 1 km wide stretch on the outer side of SP Ring Road covering around 66.21 sq.km of land area. This special zone shall be applicable only for development of affordable housing with unit sizes up to 80 sq m. All other developments shall be permissible as per the existing zones only. The RAH special zone shall take precedence over the underlying R1, R2, R3, Commercial and Agricultural zone. The base FSI were given for affordable housing in this zone was 1.8 with chargeable FSI of 0.9 at reduced rates.

**Figure: Proposed Residential Zone (RAH Zone)**
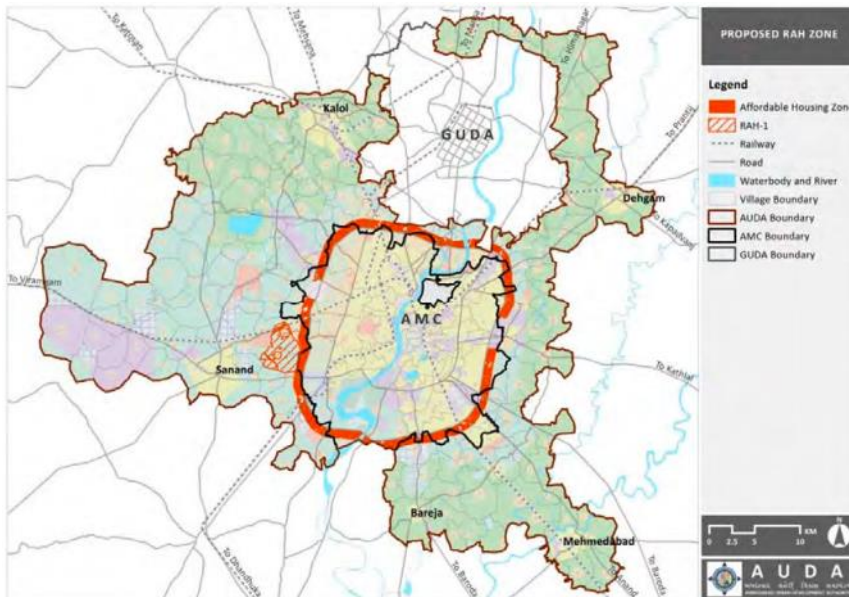


➤ Local area planning introduced in areas RAH Zones

➤ This includes preparation of a Local Area Plan that would provide comprehensive guidance to enhance livability of the area through coordinated improvements in transport, physical and social infrastructure taking into account the existing character, land uses and activities taking place in the area.

### *Development of Growth Centers:*

As new industrial areas, special Investment Regions (SIR) and Special Economic Zones (SEZ) are being developed on large tracts of land around the urban areas of Ahmedabad, it is important to develop additional centers that can accommodate future population in nearby areas. Keeping the principles of compact growth and sustainable development in focus five Growth Centers are identified around the city in AUDA areas. They are Sanand, Mahemdabad, Kalol, Dehgam and Bareja.
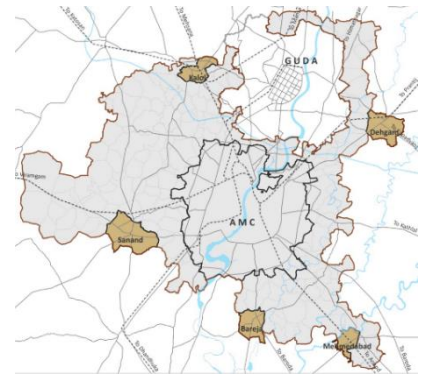
Also, in the revised development Plan of 2021, additional zones of Residential (R1 & R2 Zone) and Commercial were provided.

### *Development around Gamtals:*

The growth around village should be accommodated in immediate vicinity of the village Gamtal in contiguous manner. Therefore, a buffer of 200 is provided around Gamtals having population less than 5000 and 300 m around Gamtals having population of more than 300 m where specific regulations and uses may be permitted according to GDCR.
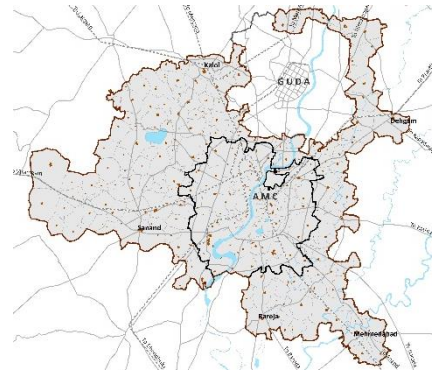
### *Introduction to Prime Agricultural Zone:*

In order to improve primary sector in AUDA area and to preserve fertile double cropping land, zoning of appropriate agricultural land Prime Agriculture Zone has been introduced through this development Plan having an area of 569 sq.km. Further, to protect the prime agricultural land, necessary regulations have been framed. However, along with agricultural activities development of agro-based industries, processing units etc. is allowed in order to support activities like farming and livestock as per the development regulations.
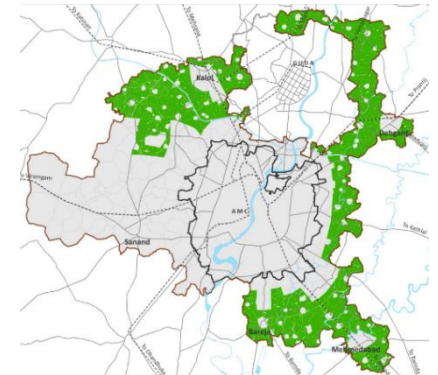
### *Logistics Zone:*

Logistic zones, the category under local area plans group multiple activities involving freight distribution centers, transportation and related services within the area to be developed. These zones are unique because they correlate with transport networks and the array of services available. Under the Development Plan, 2021 the Ahmedabad Urban Development Authority plans to develop 43 sq. m of the area into commercial and logistics zone that is 2.3% of the total zoned area.
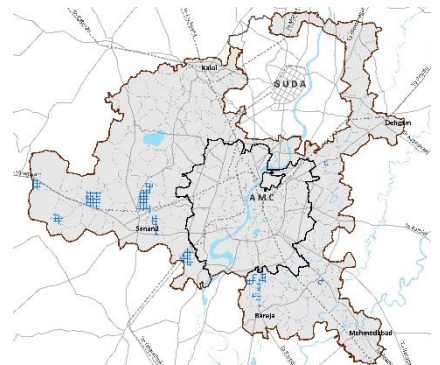
### *Knowledge & Institutional Zone*:

Knowledge and institutional zones have been classified under the Development Plan, 2021 for an estimated area of 20 sq.m constituting 1.1% of the total zoned area. Various educational centres would be developed in the identified area to create educational hubs.
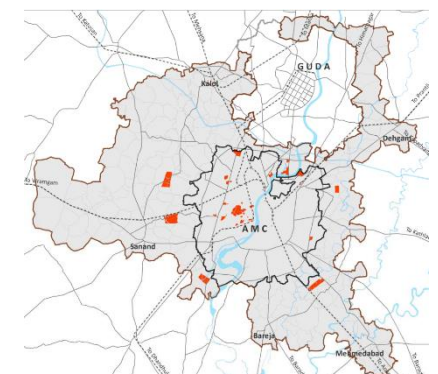
### *Special Planned Area Development Zones:*

Special Planned Area Development Zones are large areas identified for focused development around important structures and to control specific uses. They may have their own zoning classification and may have special DCRs. Below are the three Specially Planned Area Development Zones as defined by AUDA in DP 2021.
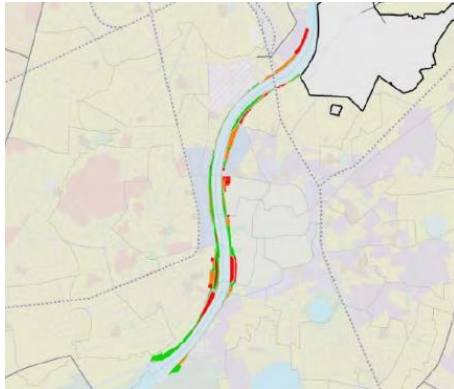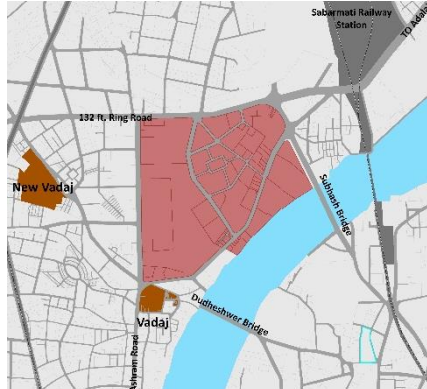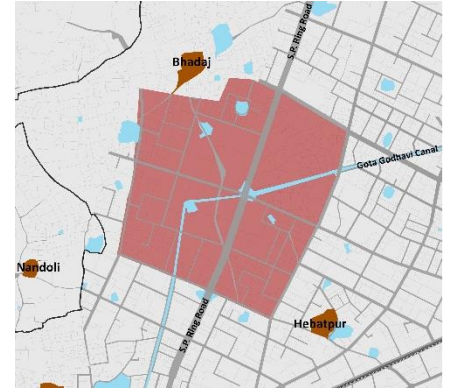
| *Sabarmati Riverfront Development* | *Gandhi Ashram Special Area Development* | *Science City and Science Park* |
|---|---|---|
|  |  |  |
| Plan for overall environmental improvement, social upliftment & urban rejuvenation | Plan for preserving the heritage and national significant character of the area | Planned to conceptualize on hexagonal grid patterns that house various theme pavilions. |

## Key Takeaways from AUDA's Local Area Plan

- **Local Area Plans** help implement the vision of Development Plan at local area level taking into account the needs of the existing ward/ neighborhood or any area within AUDA administrative boundary

- **The Local Area Plan for Central Business District** will promote and incentivize regeneration and rejuvenation of city's central area and transform it into a vibrant, mixed use, transit oriented, walkable CBD that is attractive for business, entertainment and tourism

- **Transit Oriented Zone is introduced in Central Business District** to promote compact transit oriented development and to coordinate land use and transportation, Transit Oriented zone is an effective tool to promote compact, transit oriented development within walking distances of public transit routes such as BRTS and Metro.

## Key Takeaways from Second Revised Development Plan of Ahmedabad 2021

- The methodology of preparing the development plan involves numerous activities, many of which overlap and are carried out simultaneously.

- The Development Plan is prepared in Four Phases that include Data Collection, Analysis of the Data Collected, Demand Calculation and Project & Proposal Formation

- The Approach to the preparation of the Development Plan is finalized considering different aspects that would be the cause to the improved quality of the Development Plan. The major three steps include Citizen Consultation, Use of GIS Technology and Land Use Transport Integration

- Development Plan 2021: Zoning is one of the important planning tools utilized by AUDA to manage growth, regulate density and organize land uses within the urban area. By regulating land uses it helps to segregate incompatible uses, increase livability and create desirable character for different areas for the city.

**Implementing Mechanisms for Development Plans**

### *1. Town Planning Scheme*

The Town Planning Scheme is a pivotal planning tool used to develop the social and physical infrastructure as envisaged in the Development Plan. The town planning scheme is formulated for a particular area varying upto 100-150 hectare size with an aim to develop and  enhancing the public amenities and supporting infrastructure. The Town Planning Scheme is prepared for any land which is i) in the course of development, ii) likely to be used for residential or commercial or industrial, and iii) already built upon. Land development through TP Scheme leads to an equitable, democratic and fair mechanism as compared to the Land Acquisition model to create urban infrastructure.

### *Contents of Town Planning Scheme*

- Laying out or relaying out of land, lay-out of new streets or roads
- Reservation of land for roads, open spaces, gardens, schools, transport facilities, public purposes of all kinds
- Laying of Water Supply, Drainage and Lighting

| *Extent of Land Provision for Various Services* | |
|---|---|
| For Roads | 15% |
| for parks, playgrounds, garden and open space | 5% |
| for social infrastructure such as schools, dispensary, fire brigade, public utility place | 5% |
| for Socially and Economically Weaker Section | 10% |
| for sale by appropriate Authority for residential, commercial or industrial use | 15% |

The town planning process includes identification of land and cadastral mapping through public consulation. Exhaustive on-ground study is carried out in the process and the concerns of citizens are actively addressed and their suggestions are incorporated. All the key activities are undertaken in line with necessary legal procedures and completed within the stipulated time frame.

**Key activities include:**

1. Land Pooling
2. Stages for Preparation of Town Planning Scheme
3. Implementation of Town Planning Schemes
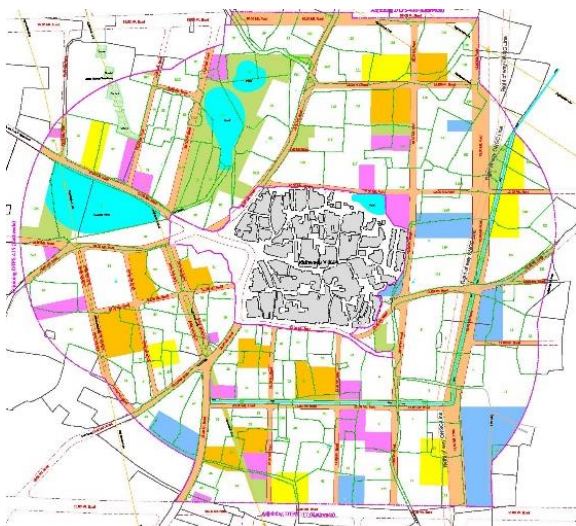


**Land Pooling**
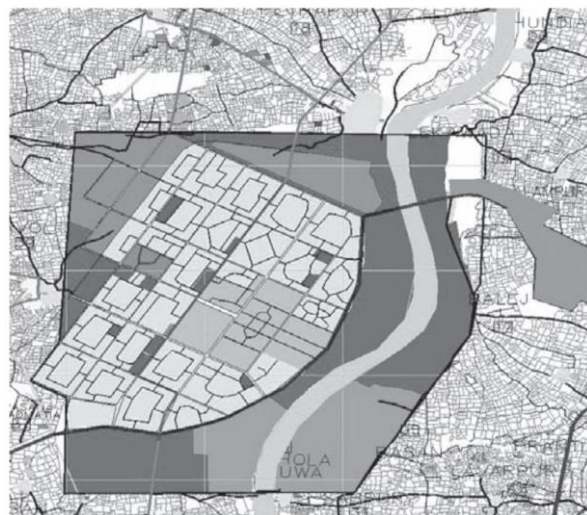


**Land Acquisition**

**Land Pooling**

➢ Within the mechanism of Town Planning Scheme, AUDA uses the land pooling mechanism for urban development. The land is pooled on temporary basis through different landowners of the area for which the Town Planning Scheme is prepared. The developed land is redistributed by AUDA to the respective Landowners

**Land Acquisition**

➢ In land acquisition private land is acquired and urbanized as compensation for the affected landowners.

**Stages for Preparation of Town Planning Scheme**

1. **Draft Stage:** The draft stage includes "Planning & Finance part" which is prepared by the Development Authority.. This draft TPS is then made available in the public domain for concerned stakeholders.

2. **Prelimenary Stage:** The second stage involves , Finalisation of Planning part of Sanctioned Draft Scheme by a Town Planning Officer appointed by the Government. TPO who is a quasi-judicial officer and the leading person in the Town Planning Scheme execution process. The TPO conducts a legal hearing to the land owners and finalizes the plot reconstitution.

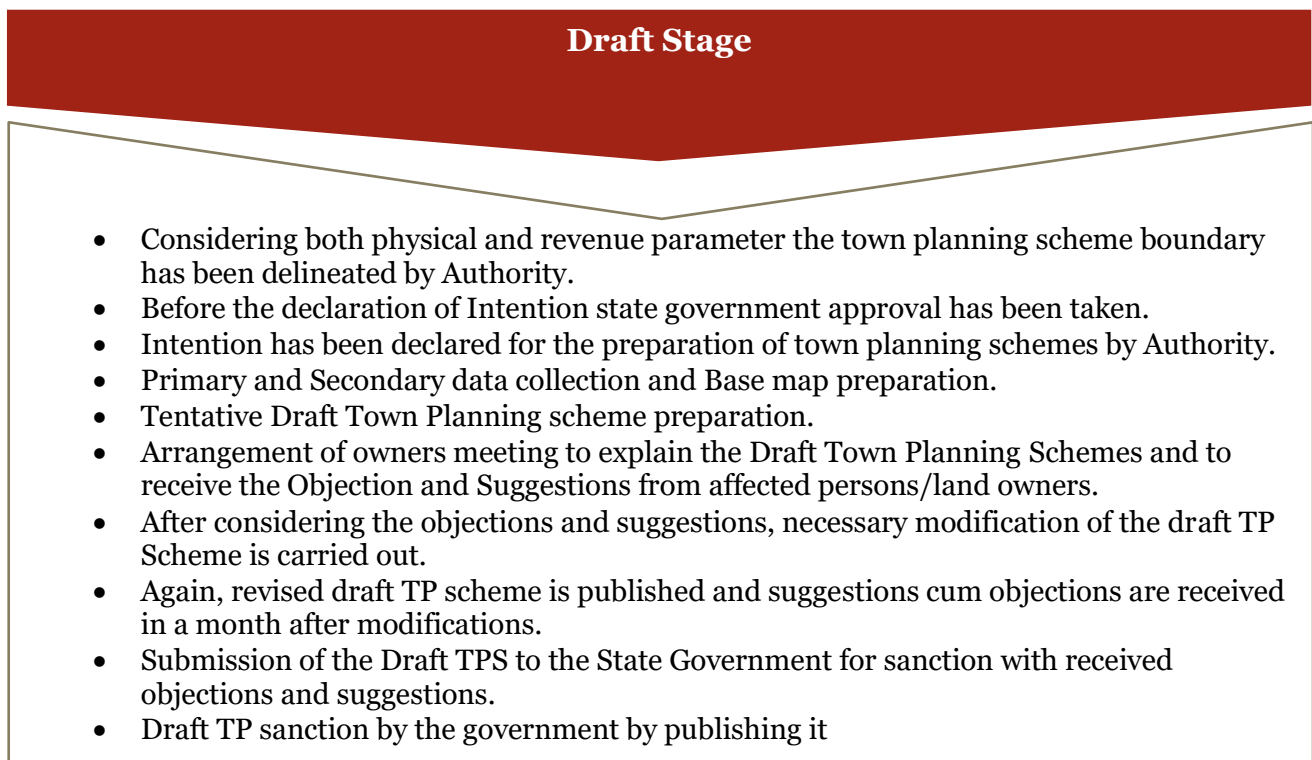3. **Final Stage:** The final stage constitutes, final negotiations of TPO with the landowners regarding financial aspects. On the one hand, the owner is compensated for appropriated lands; on the other, the plot owners pay the betterment charges for infrastructure investments made by AUDA.

**Figure: Steps for Preparation of Town Planning Scheme**

**Draft Stage**

- Considering both physical and revenue parameter the town planning scheme boundary has been delineated by Authority.
- Before the declaration of Intention state government approval has been taken.
- Intention has been declared for the preparation of town planning schemes by Authority.
- Primary and Secondary data collection and Base map preparation.
- Tentative Draft Town Planning scheme preparation.
- Arrangement of owners meeting to explain the Draft Town Planning Schemes and to receive the Objection and Suggestions from affected persons/land owners.
- After considering the objections and suggestions, necessary modification of the draft TP Scheme is carried out.
- Again, revised draft TP scheme is published and suggestions cum objections are received in a month after modifications.
- Submission of the Draft TPS to the State Government for sanction with received objections and suggestions.
- Draft TP sanction by the government by publishing it

## Preliminary Stage

- Appointment of the Town Planning Officer (TPO) by the State Governor
- TPO carries out total station land survey.
- TPO collects latest revenue records and other data.
- Serving of individual notices to the affected persons.
- Hearing of the objections and suggestions on individual basis.
- Adjusting and correcting the revenue record areca and survey area of each land parcel
- Analysis and consultation of physical planning proposals by the TPO.
- Preparation of the Preliminary TPS (physical planning) considering the objection suggestions, drawing and writing decisions on each land parcel.
- Submission of the Preliminary TPS to the State Government for sanction
- Sanction of the Preliminary TPS with or without modification by the State Government.
- Every owner is shown his/her final plot on site by the ULBs and UDAs office.
- Possession of the original plot is taken, and the final plot is handed over to the owner.
- Based on his acceptance, he/she is handed over a possession receipt.
- A plot book indicating the shape of the plot with dimension is provided to each plot owner.

## Final Stage

- TPO works out the valuation, incremental contribution and informs the landowners.
- Further invitation for the objections and suggestions but only for the financial part.
- Decisions on the Final Scheme proposals.
- Information to each landowner.
- For the appeal against the incremental contribution part, the landowner can approach the Board of appeal, constituted by the State Government.
- The Board of Appeal (BOA) gives its decisions after the hearings.
- The TPO varies the final scheme as per the decision of the BOA and submits it to the State Government for its final sanction.
- Government sanctions the final scheme and the authority can collect the betterment charges.
- Copy of the final TP scheme is given to the LSGS or UDAS.
- Promulgation in property or revenue records of final plots and its area.
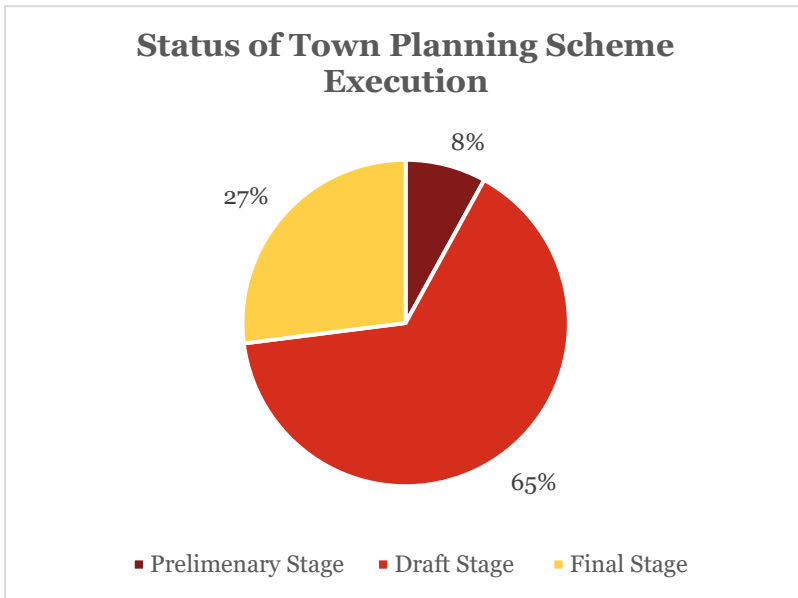- Provision for rectification of error or slip of error.

- ## Status of Town Planning Schemes

AUDA by far has prepared 247 Town Planning Schemes which constitutes an area of 392.80 Sq. Km. Efficiemcy in execution of these TPs is evident as 65% TPS are in Draft Stage and 27% have already been Sanctioned. Out of 247 nos. of TPS total 163 TPS of AUDA have been handed over to various authorities.

| TP Scheme Prepared | | |
|---|---|---|
| **Authority** | **Nos. of TPS** | **Sq.Km** |
| **AUDA** | 247 | 392.80 |
| **AMC** | 112 | 156.16 |
| **Total TPS** | 359 | 548.96 |

| Sr. No | TPS Status | Nos. of TPS |
|---|---|---|
| 1 | Final Sanction | 64 |
| 2 | Preliminary Sanction | 21 |
| 3 | Draft Sanction | 153 |
| 4 | Draft Submit | 9 |
| **Total** | | 247 |

**Figure: Execution of TPS by AUDA**



Status of Town Planning Scheme Execution

- Prelimenary Stage
- Draft Stage
- Final Stage

➢ 247 TPS by AUDA

➢ 65% TPS in Draft Stage whereas 27% are in final stage

➢ 8% TPS are in preliminary Stage

➢ This shows that more than 90% TPS of AUDA is in conclusive stage

➢ AUDA has planned the development of an area of 387.73 Sq. Km. through its town planning schemes
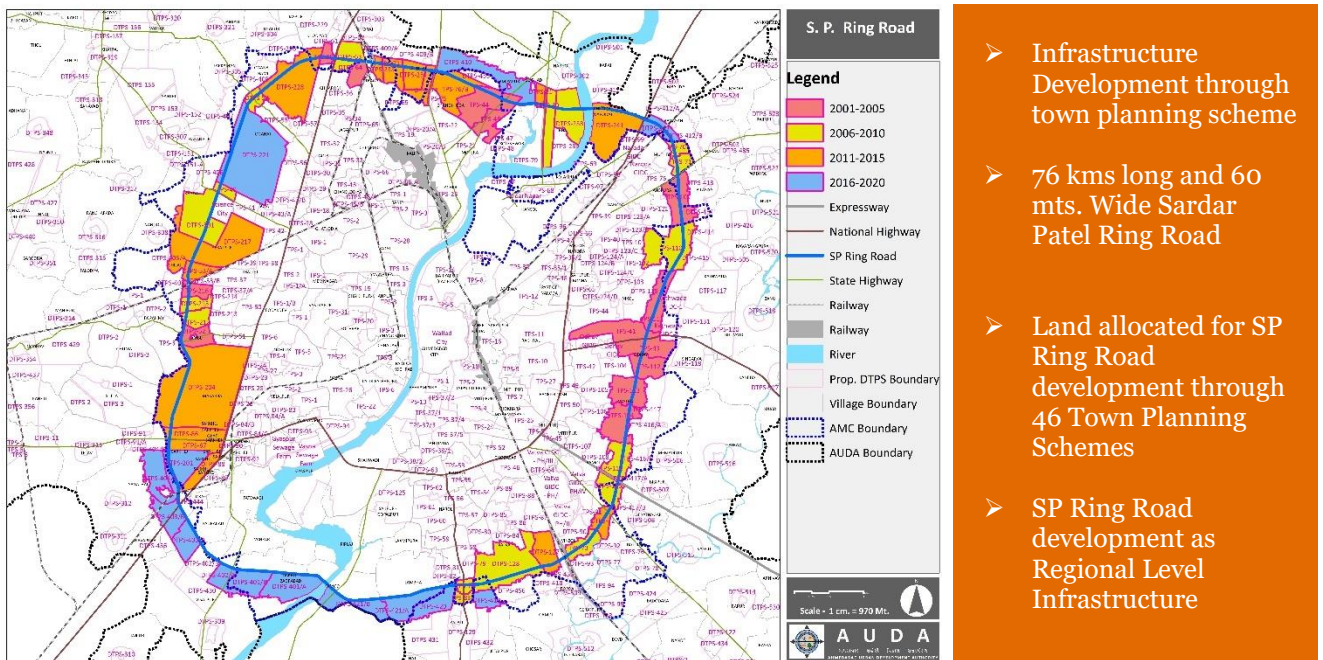
## Details of TP Schemes handed over to various Authority

| Year of Boundary Change | 1986 | | 2006-2008 | | 2020 | | | | | | Grand Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Authority | Nos. of TPS | Area in Sq.km | Nos. of TPS | Area in Sq.km | Nos. of TPS | Area in Sq.km | Nos. of TPS partially handover to AMC in the year 2006-2008 (d-f) | Area in Sq.km | Total nos. of fresh TPS handover in 2020 (d'-f') | Area in Sq.km | Nos. of TPS (b+c+f) | Area in Sq.km (b'+c'+f') |
| (a) | (b) | (b') | (c) | (c') | (d) | (d') | (e) | (e') | (f) | (f') | (g) | (g') |
| AMC | 12 | 16.04 | 101 | 134.07 | 14 | 26.28 | 3 | 6.10 | 11 | 20.18 | 124 | 170.29 |
| AUDA+AMC | 0 | 0 | 18 | 35.33 | 12 | 26.22 | 5 | 14.90 | 7 | 11.32 | 25 | 46.65 |
| AMC+GMC (Old AUDA) | 0 | 0 | 0 | 0 | 8 | 11.57 | 8 | 11.57 | 0 | 0.00 | 0 | 0.00 |
| AUDA+GMC | 0 | 0 | 0 | 0 | 1 | 0.72 | 0 | 0.00 | 1 | 0.72 | 1 | 0.72 |
| GMC | 0 | 0 | 0 | 0 | 11 | 14.98 | 0 | 0.00 | 11 | 14.98 | 11 | 14.98 |
| TOTAL | 12 | 16.04 | 119 | 169.40 | 46* | 79.76 | 16 | 32.57 | 30 | 47.20 | 161 | 232.64 |

Note: *Out of 46 DTPS of AUDA, 16 DTPS was partially handover to AMC in 2006- 2008.
2 nos. of TPS have been handed over by AUDA to Nagarpalika

## Regional Level Infrastructure Development through Town Planning Scheme – SP Ring Road

**Figure: SP Ring Road Development through TP Scheme Implementation**



- Infrastructure Development through town planning scheme

- 76 kms long and 60 mts. Wide Sardar Patel Ring Road

- Land allocated for SP Ring Road development through 46 Town Planning Schemes

- SP Ring Road development as Regional Level Infrastructure

An effective implementation of Development Plans through town planning Schemes under Bombay Town Planning Act 1915, Bombay Town Planning Act 1954 and Gujarat Town Planning and Urban Development Act 1976.

**Figure: Map of Existing and Proposed TPS**
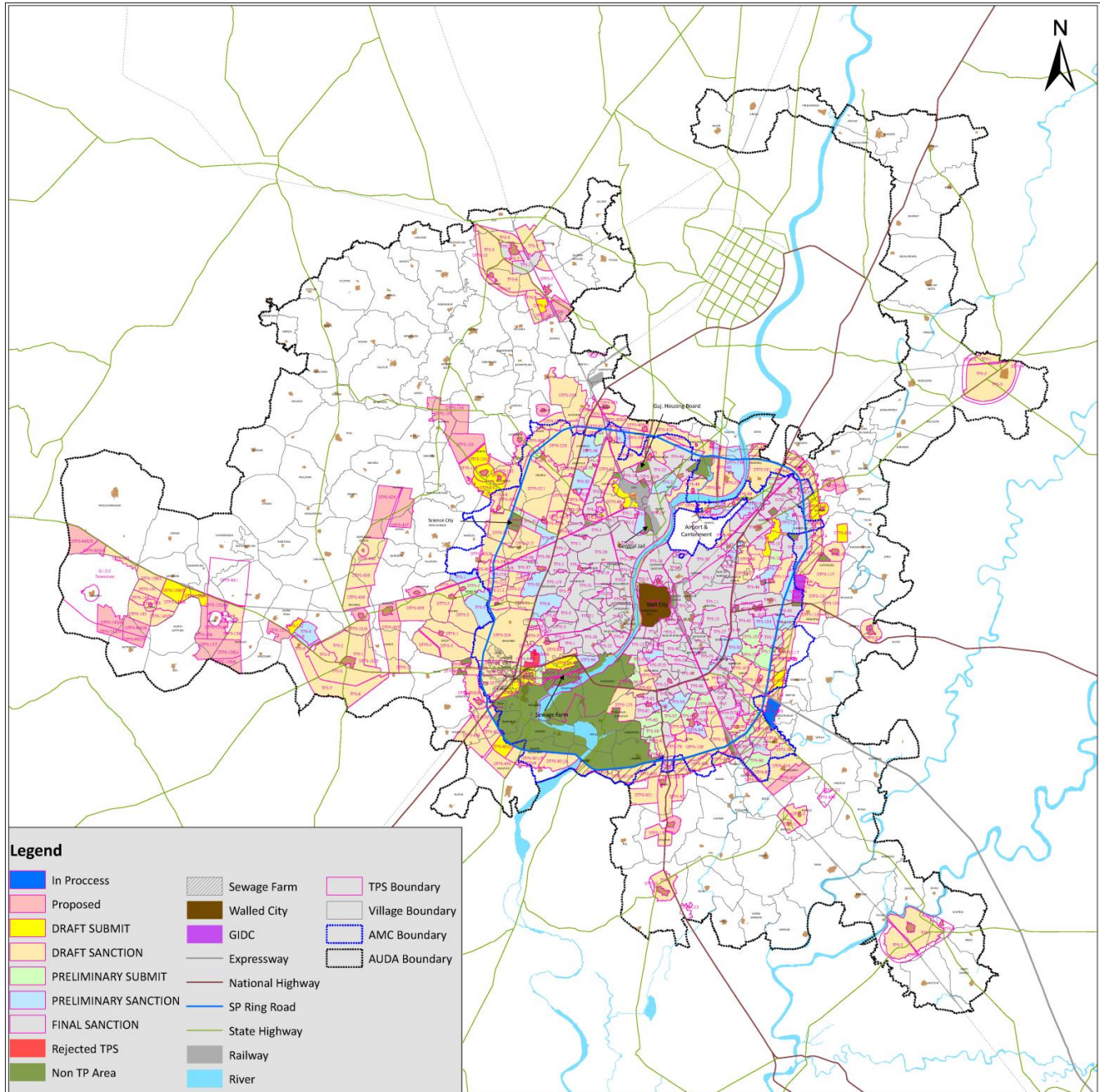
## 2. *Local Area Plan*

Local area planning is used for maintaining densification of existing zoned areas in the Development Plan of AUDA, which acts as a micro level planning tool. This includes preparation of a Local Area Plan that provides comprehensive guidance to enhance livability of the area through coordinated improvements in transport, physical and social infrastructure and taking the existing character, land uses and activities taking place into account. The Local Area Plan in Ahmedabad includes various concepts like:

- Central Business District
- Transit Oriented Development

- **Central Business District**

The concept of Central Business District is to create a new zone carved out from the existing commercial zone to create a high-density district with a distinct character and a clearly identifiable urban form to infuse commercial development. The land uses in this central commercial core would include a mix of offices, retail and other business uses, along with some residential developments. This zone will provide a distinct character and form to the central area of Ahmedabad and enhance the skyline in conjunction with the Sabarmati Riverfront Development.
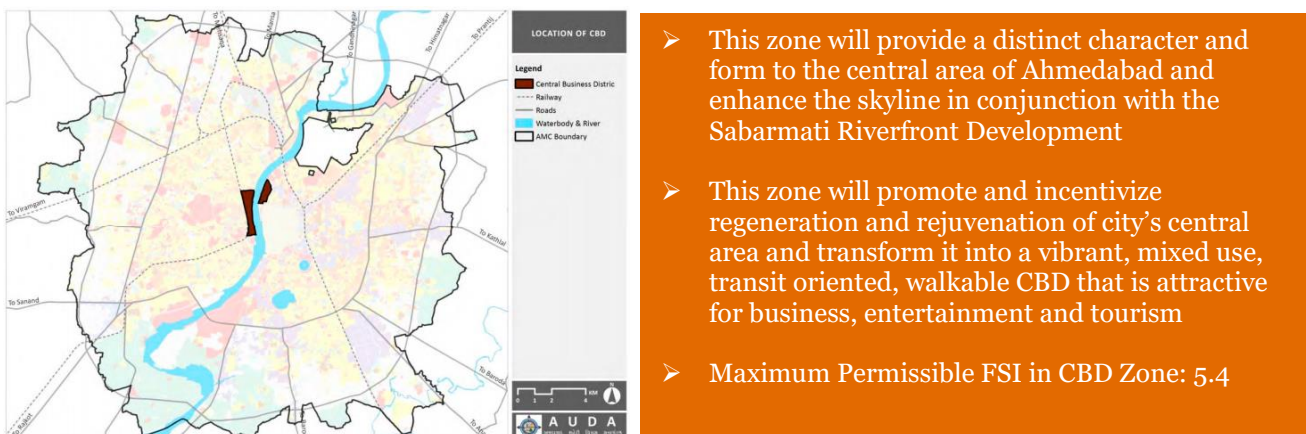
**Figure: Proposed Local Area Plan for CBD Zone**



> This zone will provide a distinct character and form to the central area of Ahmedabad and enhance the skyline in conjunction with the Sabarmati Riverfront Development

> This zone will promote and incentivize regeneration and rejuvenation of city's central area and transform it into a vibrant, mixed use, transit oriented, walkable CBD that is attractive for business, entertainment and tourism

> Maximum Permissible FSI in CBD Zone: 5.4

**Figure: Illustrative representation of the envisioned new skyline**



New Skyline (Source: EPC)



Existing Skyline (Source: EPC)

It was developed with an idea of densifying the existing area and optimizing the land utilization. Therefore, in CBD area high density development was encouraged by giving 5.4 FSI. Also, it was focused to develop the area as well serviced with pedestrian friendly streets and higher transit connectivity by creating multifunctional land use for the local residents.

- **Transit Oriented Development (TOD)**

Transit Oriented Zone is introduced to promote compact transit-oriented development and to coordinate land use and transportation, Transit Oriented zone is an effective tool to promote compact, transit-oriented development within walking distances of public transit routes such as BRTS and Metro. Implementation of Transit Oriented Zone requires detailed assessment, careful planning and a phased approach for implementation. Therefore, it is recommended to prepare Local Area Plans for various corridors and areas in this zone and implement compact, mixed use, transit-oriented development through incentives, regulations and T P Scheme mechanism as required.

**Figure: Proposed Transit Oriented Zone (TOZ)**
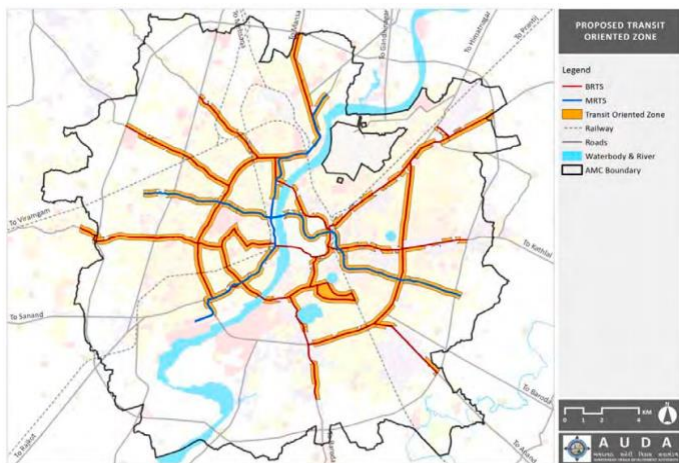


➢ Transit Oriented Zone covers about 42 sq.km of area that is superimposed on the base zones along BRTS & Proposed MRTS corridor.

➢ Proposed Transit Oriented Zone includes the shown areas as delineated on the map i) Metro Transit Corridor (200m on both sides alongMRTS) ii) BRTS Transit Corridor (200 m along BRTS route)

➢ Maximum Permissible FSI in TOZ: 4.0



BRTS network of Ahmedabad city provides good connectivity across the city. Hence the TOZ was delineated along the BRTS network and 200m on each side of the network was developed as high-density zone for compact city development. Also, the same was proposed to be developed along the MRTS network. The areas delineated along the transit corridors were given FSI of 4.0 and was focused to developed with better accessibility across the city, NMT connectivity, basic amenities on street along with better urban environment.
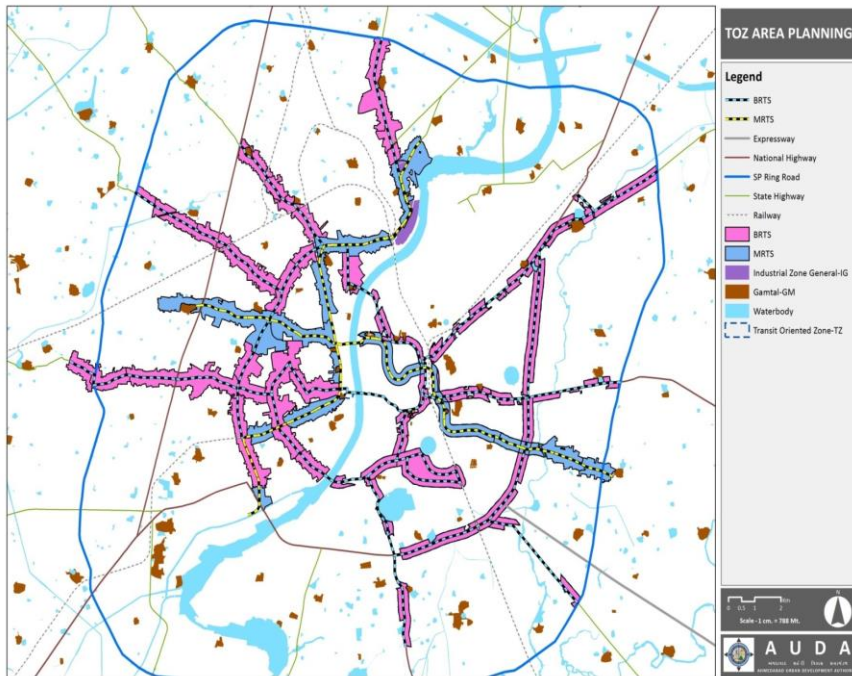
**Implementation of TOZ**

➢ Total 82 Local Area Plans are prepared as part of the Transit Oriented Zone

➢ 36 LAP areas have been identified for the western part out of which 21 are completed and 46 LAP areas have been identified for the eastern part of the Ahmedabad.

➢ BRTS Route Length: 120.44 Kms

➢ MRTS Route Length: 40.6 Kms

➢ Total area covered under LAP: 40 Sqkm.

## Hallmarks of the Chapter

- AUDA's LAPs are formulated after multiple deliberations, detailed analysis of existing conditions, future growth projections, the overarching vision, the principles and the input from stakeholders all combined.

- From planning to implementation and maintenance, AUDA ensures the integrity of development to all of the levels of a particular area.

- The urban development within the city is controlled by a development plan, and in lower level it's implemented using Town Planning Schemes (TPS) as a tool. These TPS are plans covering around 100-150 hectars of area and are used to develop the physical and social infrastructure. Another tool that aids the execution of the DP (Development Plan) are the Local Area Plans (LAP) which are utilised in Transit Oriented Development (TOD) and creation of Central Business Districts (CBD).

- AUDA's Planning Structure includes thoughtful and unique interventions such as active citizen consultation and engagement, land pooling for development, land use planning, Zoning, use of GIS technology for preparing Central Business District and Transit Oriented Zones.

# 3

# Innovative Projects and Practices in AUDA

# *3.1  Ahmedabad Model of Affordable Housing*

**Relevance of the project:**

- AUDA's unique model of affordable housing by providing shelters that are well equipped with all the basic ammenties such as potable water, electricity, sewage system, solar roof top panel, anganwadi, business and commercial establishment for Economically Weaker Section (EWS) of the society

- Residential affordable housing (RAH) zone developed by AUDA at SP ring with proper transist connectivity
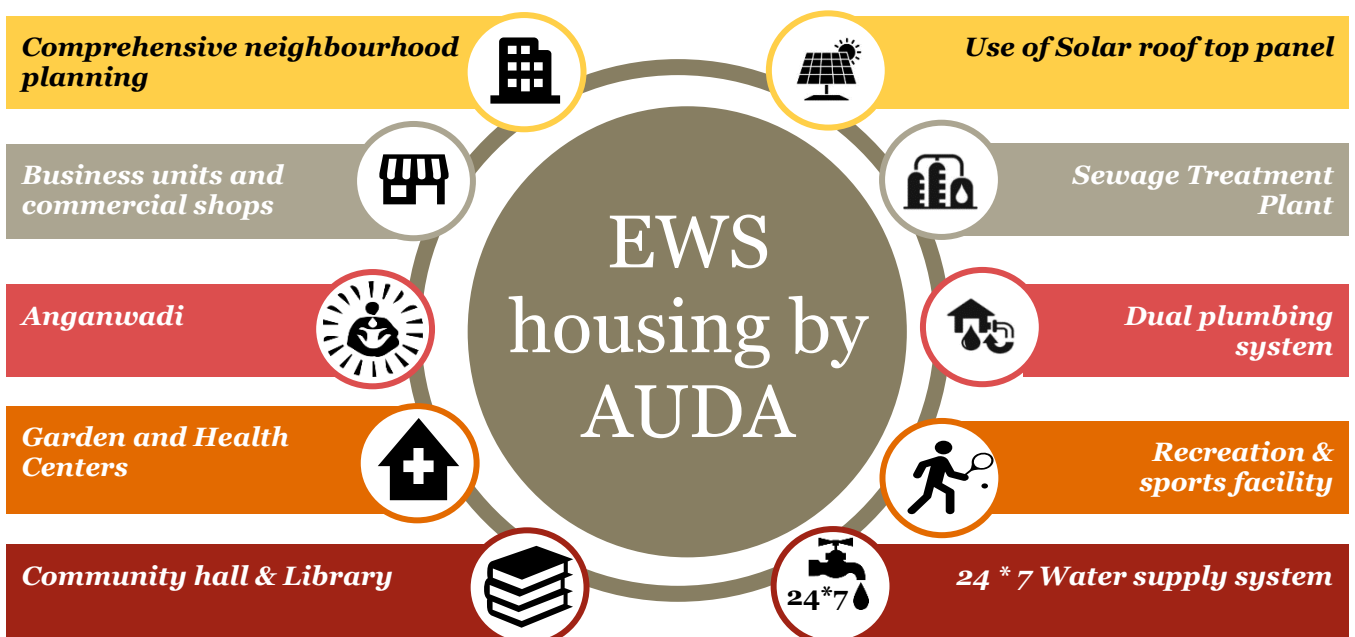
- Project execution by AUDA in PMAY-(U)

The city of Ahmedabad has witnessed remarkable growth over the last couple of decades. The demand for residential areas has also increased with expansion in urbanisation. In order to meet the requirements of residential housing, AUDA has been consistently working towards "Zero Slum" areas and making affordable housing for poor and economically weaker section of the society.

> *AUDA being pioneer since decades in infrastructure and development projects has given special emphasis on the development of affordable low-cost housing schemes focusing on the needs of economically weaker section of the society.*

The central focus while building the housing structures for Economically Weaker Section of the society is the holistic approach towards availability of the components keeping in mind the environment and sustainable usage of the resources.This will not only provide convenience of getting access to basic amenities within the vicinity but also deliver an elevated standard of living.

**Comprehensive neighbourhood planning**

**Use of Solar roof top panel**

**Business units and commercial shops**

**Sewage Treatment Plant**

**Anganwadi**

**Dual plumbing system**

**Garden and Health Centers**

**Recreation & sports facility**

**Community hall & Library**

**EWS housing by AUDA**

**24 * 7 Water supply system**

# Pradhan Mantri Awas Yojna

Pradhan Mantri Awas Yojna (PMAY) is the flagship scheme of Govertment of India which was launched on 25th June 2015 ensuring housing for all in urban areas to all eligible beneficiaries by 2022.

AUDA has done a particularly good work under PMAY affordable housing scheme by incorporating it with existing RAH zone and has further enhanced it by providing Awas that are well equipped with all basic amenities like electricity, sewage system , clean water and security.
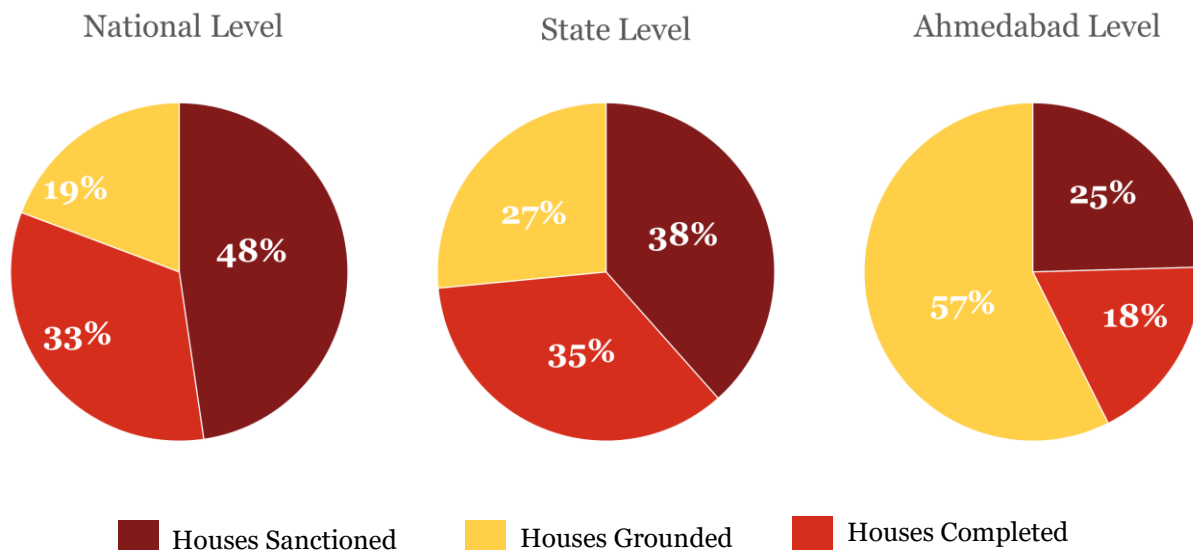
**Image : Pradhan Mantri Awas Yojana**

These houses are not only available at lower rates as compared to current market prices but also provide the feeling of home ownership.

## *Salient Features of PMAY – (U)*

- All weather housing units with facilities of Water, Kitchen, Electricity and Toilet
- Empowering Women by providing safe and secured environment for living with proper access to water and sanitation
- Providing better quality of life to the urban poor
- Adequate physical and social infrastructure
- Security of Tenure

Charts below illustrate progress of National Level , Gujarat as well as Ahmendabad in achieving targets realized for affordable housing schemes under Pradham Mantri Awaas Yojna (PMAY).

**Image : PMAY housing schemes details in Gujarat and Ahmedabad**

| National Level | State Level | Ahmedabad Level |
|---|---|---|
| 48% / 33% / 19% | 38% / 35% / 27% | 25% / 18% / 57% |

**Houses Sanctioned**  **Houses Grounded**  **Houses Completed**

**Source: PMAY Dashboard**

As on March 2021, out of the 2,28,910 houses that were sanctioned under PMAY , 57 % of the houses are completed and remaining 77% are either grounded or in construction phase at Ahmedabad Level. The emphasis on project execution in terms of quality construction, service contracts and warranties have minimised the maintenance requirements.

The phased nature of the project implementation and regular inspection of the construction work in exucution stage have insured quality results.

|  | National Level Target | Gujarat Level Target | Ahmedabad Level Target |
|---|---|---|---|
| Houses **Sanctioned** | 111.3 Lakhs Houses | 7.72 Lakhs Houses | 2.28 Lakhs Houses |
| Houses **Grounded** | 77.15 Lakhs Houses | 7.04 Lakhs Houses | 1.68 Lakhs Houses |
| Houses **Completed** | 45.01 Lakhs Houses | 5.33 Lakhs Houses | 1.30 Lakhs Houses |

## Residential Affordable housing (RAH) zone at SP ring road

Residential affordable housing (RAH) zone are coming up along the 1km long stretch on the outer side of SP ring road. AUDA has ensure proper connectivity for RAH zone by laying down transit corridors for Bus Rapid Transist System (BRTS) and Mass Rapid Transist System (MRTS).
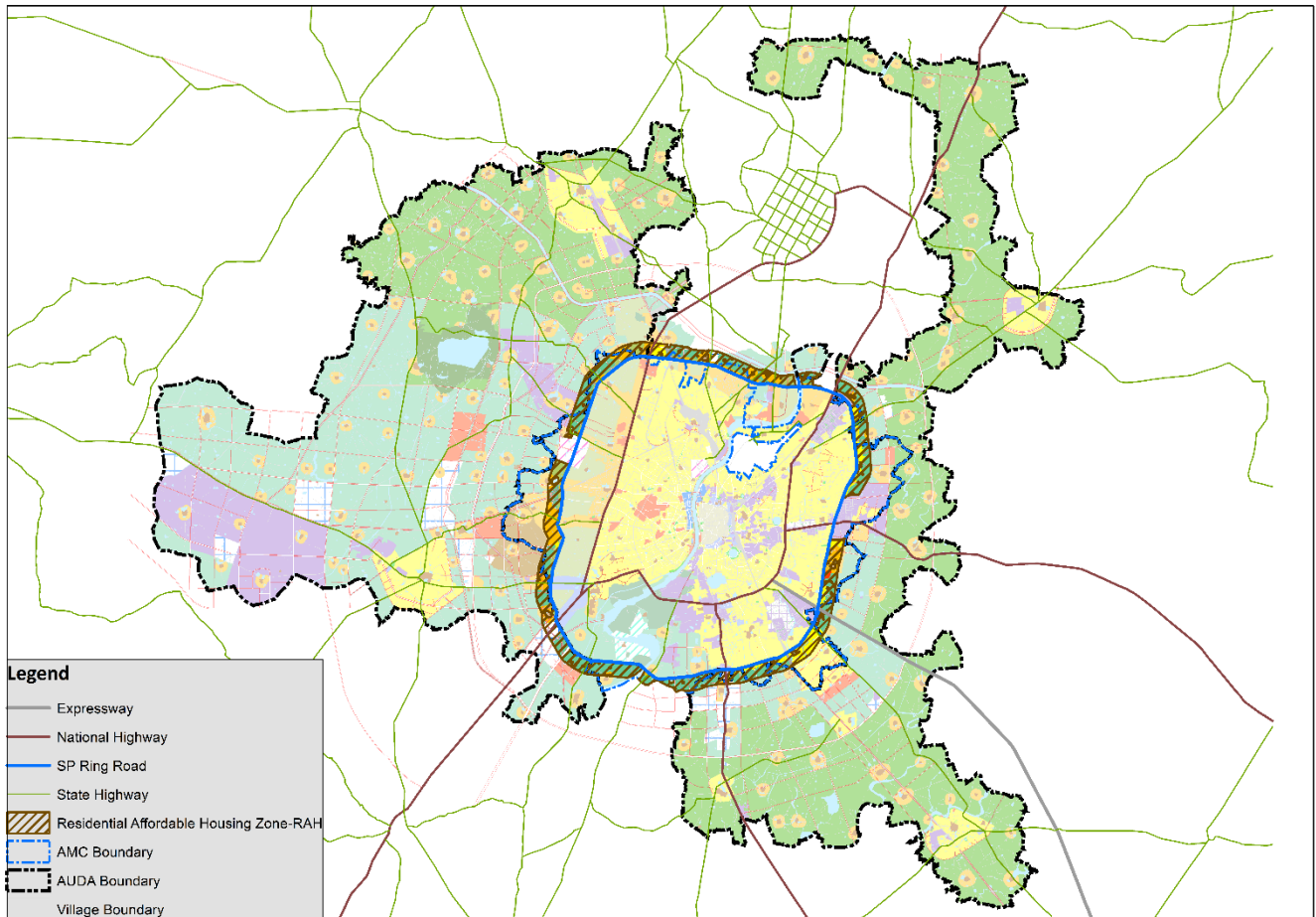
## *3.1.1 Project Execution by AUDA in PMAY*

AUDA has gained tremendous amount of quality experience in the past from executing large scale infrastrusture and development projects. This has resulted in the completion of many EWS housing projects in a time bound manner, of which majority of the Schemes as per below chart are completed, where as remaining EWS housing schemes in Paranti ,Amraparn, Kalol , Koteshwar, Dehgam and Bopal area are expected to achieve its goal in 2021-2022 ,showcasing AUDA's efforts towards speedy project execution.

**Image : Ongoing and Completed EWS project**



> Majority of the EWS housing schemes are coming along the SP ring road

> Image highlights completed and work in progress EWS projects

> Image also highlights boundary of AUDA as well as AMC along with state highways and RAH zone
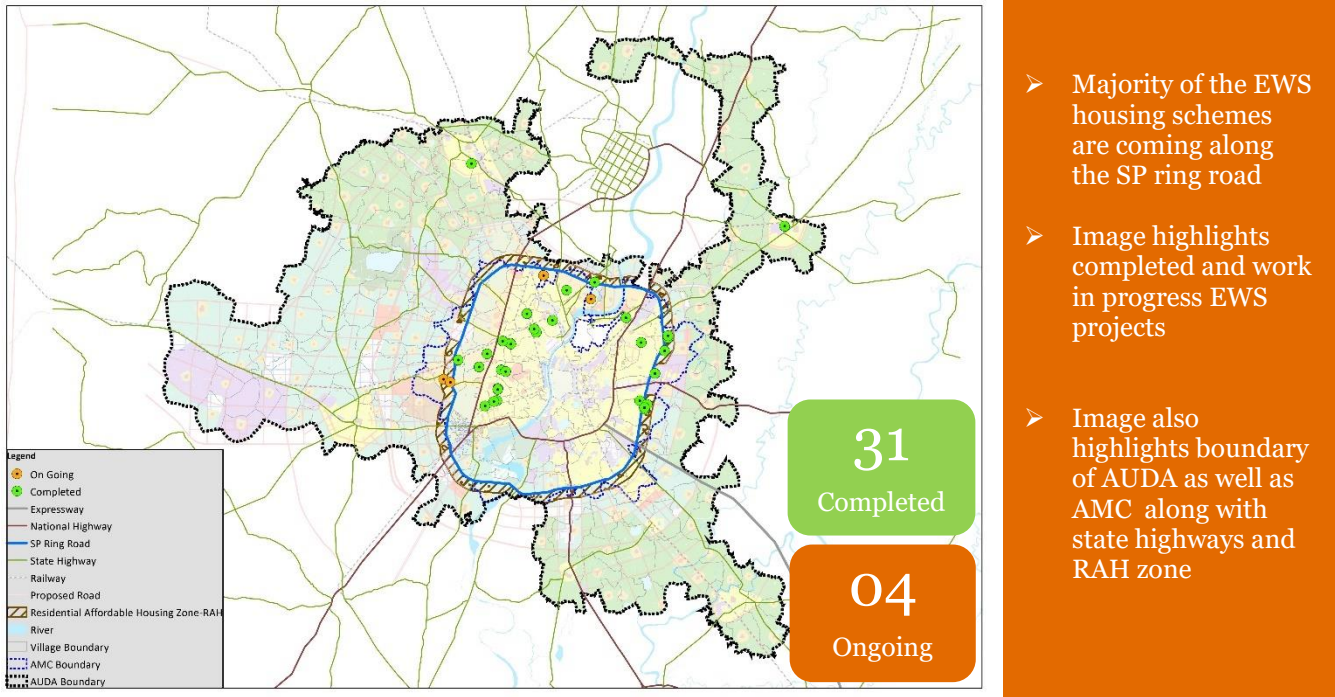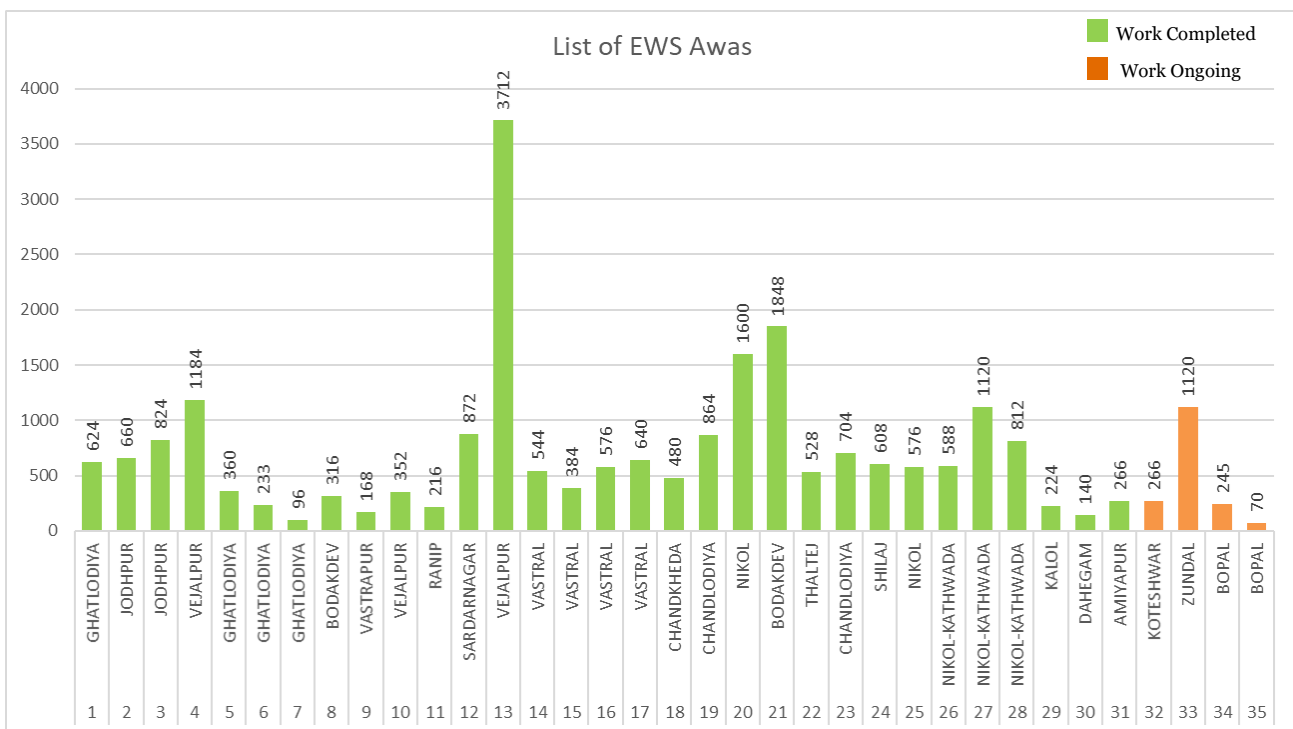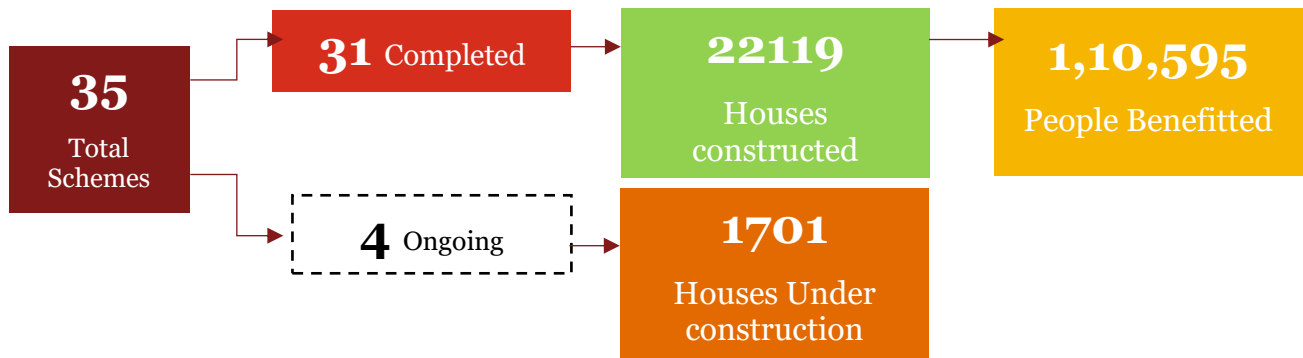
**Image : Chart displaying list of completed & work in progress EWS Awas**



AUDA has been able to house almost a lakh people by the implementation of the affordable housing scheme.

**35**
Total Schemes

**31** Completed

**22119**
Houses constructed

**1,10,595**
People Benefitted

**4** Ongoing

**1701**
Houses Under construction

## Hallmarks of the project

- All the possible aspects have been taken care of such as infrastructure for healthcare facilities and education, sustainable interventions keeping in mind the judicious utilization of our natural resources, provisions for community hall and library, business units and commercial shops etc., to provide people with the best and convenient living experience. A 360 degree development outlook which would be extremely beneficial for the residents.

- Substantial reduction in maintenance cost borne per family due to installation of solar roof top panel in most of the upcoming EWS schemes. This would also shrink the carbon footprint and reduce the emission of greenhouse gases in the atmosphere.

- Promotion of sustainable water management and conservation of gallons of water on a daily basis by setting up of STP and dual pumping system. This move addresses the water crisis and provides a way out to use the finite resource appropriately.

## Testimony of people thanking AUDA:

"અમે પહેલાં બાપુનગર પાસે ઝુંપડપટ્ટી માં રહેતા હતા. ત્યાં અમને ખૂબ જ અગવડ હતી. પરંતુ ઔડા ના આ મકાનો માં ગટર, પાણી, બગીચા, રસ્તા, શાળાઓ વગેરે ની બધી જ સુવિધાઓ છે. આખરે અમને પાક્કું મકાન મળ્યું છે. આ બદલ અમે માનનીય પ્રધાનમંત્રી શ્રી નરેન્દ્ર મોદી, માનનીય મુખ્યમંત્રી શ્રી વિજયભાઇ રૂપાણી તથા અમદાવાદ શહેરી વિકાસ સત્તામંડળ ના ખૂબ જ આભારી છીએ. "

- અરુણાબેન (Beneficiary)

# *3.2    Solar Roof Top Panel Project*

**Relevance of the project:**

- Promoting the idea of sustainable and affordable housing development, AUDA proposed an intervention of installing solar roof top panels in maximum number of its upcoming EWS projects

- Direct benefit provided to the residents of EWS societies by lowering the maintaince cost borne by families

- AUDA's initiative towards reducing the carbon footprint and greenhouse gases

It has been often seen that lifts and water motor pumps which are installed in EWS societies become non-functional, over a period of time as it demands excessive electricity consumption which in turn leads to increased operational cost (approximately Rs 1200-1500 per month). This becomes challenging especially for people residing in EWS societies as, the overall maintenance cost (borne per family) of the EWS societies rises and families hence find it difficult to pay for it.
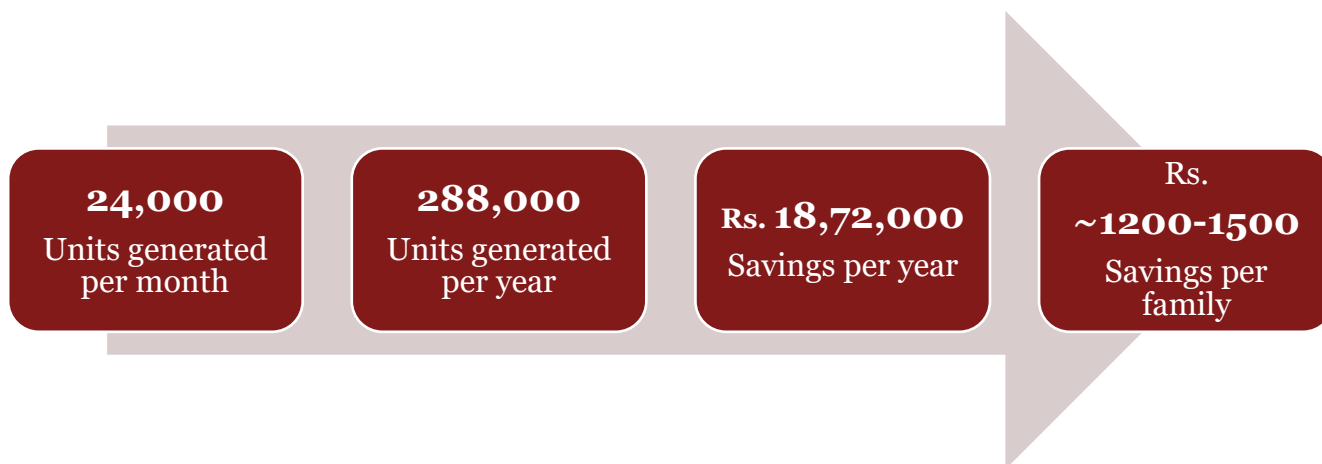
**Image : Roof top solar panel at EWS societies**



Addressing such a scenario, AUDA proposed an intervention of installing solar roof top panels in maximum number of its upcoming EWS projects. This will approximately reduce the electricity bill and will translate into savings of approximately Rs.1200-1500 per family per year residing in these EWS societies.

➢ *AUDA is notably one of the few development authorities which truly believes in harnessing the potential of solar energy and long-term sustainable benefits envisaged from it*

- Presently at Kathwada two EWS projects with 1120 & 588 residential units have installed solar panel capacity of 136 KW and 87.50 KW resulting in combined savings of Rs. 11.5 Lakhs per year in electricity consumption
- Schemes of Amiyapur , Kalol , Dehgam and Kathwada are coming up installation of solar roof top panels with a total installed capacity of 200 KW which will lead towards electricity generation of 800 units per day.

| Sr. No | Scheme Name | No. of Unit | Solar Panel Cap. (KW) | Units Generated /Day | Units Generated/ Month | Units Generated/ Year | Savings/Yr at 6.5 per unit | Savings/ Family |
|---|---|---|---|---|---|---|---|---|
| 1 | Amiyapur | 266 | 50 | 200 | 6000 | 72000 | 468000 | 1759 |
| 2 | Dehgam | 140 | 20 | 80 | 2400 | 28800 | 187200 | 1337 |
| 3 | Kalol | 224 | 30 | 120 | 3600 | 43200 | 280800 | 1254 |
| 4 | Kathwada | 812 | 100 | 400 | 12000 | 144000 | 936000 | 1153 |
| | Total | | **200** | **800** | **24,000** | **2,88,000** | **18,72,000** | **5,503** |

"An independent study conducted by IIM Ahmedabad for AUDA suggest that NPV (Net Present Value) of installation of solar power panel in projects "EWS-1120" & "EWS -588" to be positive.
It was found that NPV alone for above EWS projects came out to be +22.05 Lakhs, which means AUDA is generating value worth 22.05 Lakhs for the residents over the period of 25 years (considering the life of solar panel as 25 years)"

**24,000** Units generated per month

**288,000** Units generated per year

**Rs. 18,72,000** Savings per year

Rs. **~1200-1500** Savings per family

## Hallmarks of the project

- The electricity generated from roof top solar panels will be utilized for functioning of lifts, water motors and street lights installed in common areas of EWS societies.
- This will eventually not only reduce the maintenance cost borne per family residing in the EWS societies by lowering the electricity bills but also help significantly in lowering the carbon footprint.
- This would be one of the most essential steps towards reduction of greenhouse gases and live within the means of our planet.

# *3.3    Sustainable Water Management*

> **Relevance of the project:**
>
> - AUDA's initiative towards sustainable water management practices by the use of dual plumbing systems , sewage treatment plants , rain water harvesting systems and percolating wells in most of its upcoming EWS societies

With the days passing by, availability of potable water is becoming a challenge. Making accessible, water of good quality and sufficient quantity has become difficult for housing societies due to considerable depletion of groundwater.

AUDA is focusing on sustainable management of water resources by following below techniques:

1. Dual Plumbing and Grey water management
2. Sewage Treatment Plant

## 1.   Dual Plumbing & Grey Water Management

Dual plumbing system implemented by AUDA bifurcates the piping systems in two different lines after the discharged waste water gets treated. One line supplies treated waste water in HHs for toilet flushing purpose, and the other one with treated water which can further be used for landscape irrigation and gardening.

**Image : Schematic diagram of Waste water management**
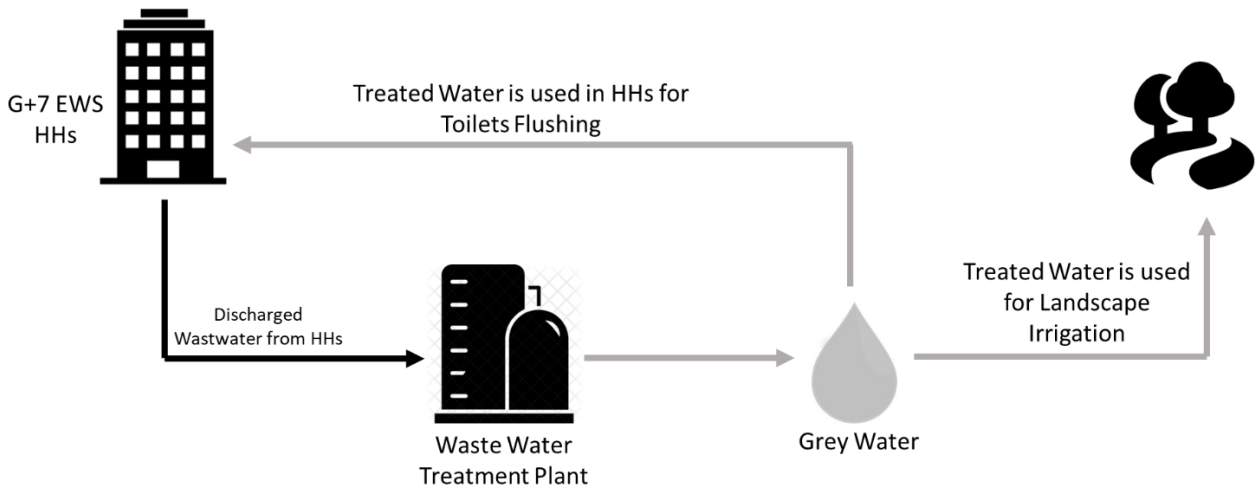


List of EWS housing Scheme where dual Plumbing system is implemented. (In progress Scheme)

| S.No | EWS Society Name | Number of Units | Family size( 5) in each units | Water requirement as per SLB benchmark (135LPCD) | 80 % of water will be reused |
|------|------------------|-----------------|-------------------------------|--------------------------------------------------|------------------------------|
| 1 | Amiyapur | 266 | 1330 | 0.18 MLD | 0.144 MLD |
| 2 | Dehgam | 140 | 700 | 0.0945 MLD | 0.0756 MLD |
| 3 | Kalol | 224 | 1120 | 0.1512 MLD | 0.12 MLD |
| 4 | Kathwada | 812 | 4060 | 0.55 MLD | 0.44 MLD |
| | **Total** | **1442** | **7210** | **0.975 MLD** | **0.780 MLD** |

Considering the average family size residing in each EWS units is 5 . Global benchmark of minimum quantity of water required per individual is 135LPCD.

- Number of residents that will be residing in above EWS socities are (1442 * 5 = 7210).
- Taking approximately 8000 resident , water demand will be 7210 * 135 LPCD = 9,73,350 LPCD.
- In Dual plumbing system approximately 80% of the water is treated and  can be reused for landscape irrigation, flushing toilets etc. ,which will result in approx. saving of 7,78,680 LPCD.

> 7,78,680 LPCD water saved is enough to meet the water demand of 3-5 villages with approximately 2000 people in each village

## 2. STP of 100 KLD capacity installed in Bopal Garden

AUDA has successfully established a package STP Project of 100 KLD Capacity at AUDA Garden in (South Bopal) Ahmedabad on Turnkey Basis, for collection & treatment of domestic waste-water generated near garden, to make it suitable for reuse in gardening, flushing, irrigation, tree plantation etc. in the year 2018.

Bopal garden covers a considerable area of 6,235 sq.mt. 50 KL of water is required on daily basis for maintaining the  garden  (watering of plants ,vegetation etc). The STP has helped in conservation of approx. 50,000 Liters per Day of Ground Water by recycle & reuse of treated sewage (water) for Gardening. The treated wastewater due to its high NPK value has proved very effective in beautification of a garden.

> The Plant was commissioned in Nov-2018 and the STP (along with Garden) was inaugurated by Chief Minister of Gujarat Shri Vijaybhai Rupani on 8th January, 2019.
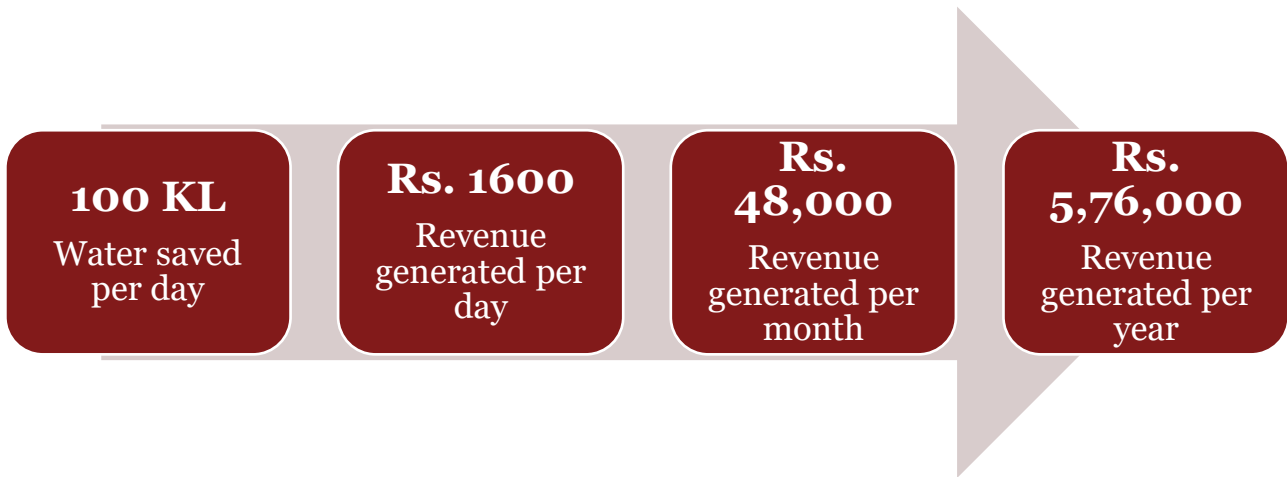
**Image : STP plant at Bopal Garden**          **Image : Picture of AUDA Garden**





The STP will also help to avoid choking of Drainage Network in the area during Monsoon due to excess load. The balance treated water is used for Divider & Road Side Plantations & the excess water is sold to construction sites at Rs. 16 / KL. Below figure illustrates 100 KL of water saved per day will translate into 5.76 Lakh of revenue generation per year for AUDA.

| **100 KL** Water saved per day | **Rs. 1600** Revenue generated per day | **Rs. 48,000** Revenue generated per month | **Rs. 5,76,000** Revenue generated per year |
|---|---|---|---|

**Hallmarks of the project**

- Promotes sustainable waste water management as treated water can be use for toilet flushing, gardening and landscape irrigation
- Recycled water by Dual Plumbing system results in the savings 30% of freshwater quantity.
- Treated water can also be stored in percolating wells which in turn helps in ground water recharge
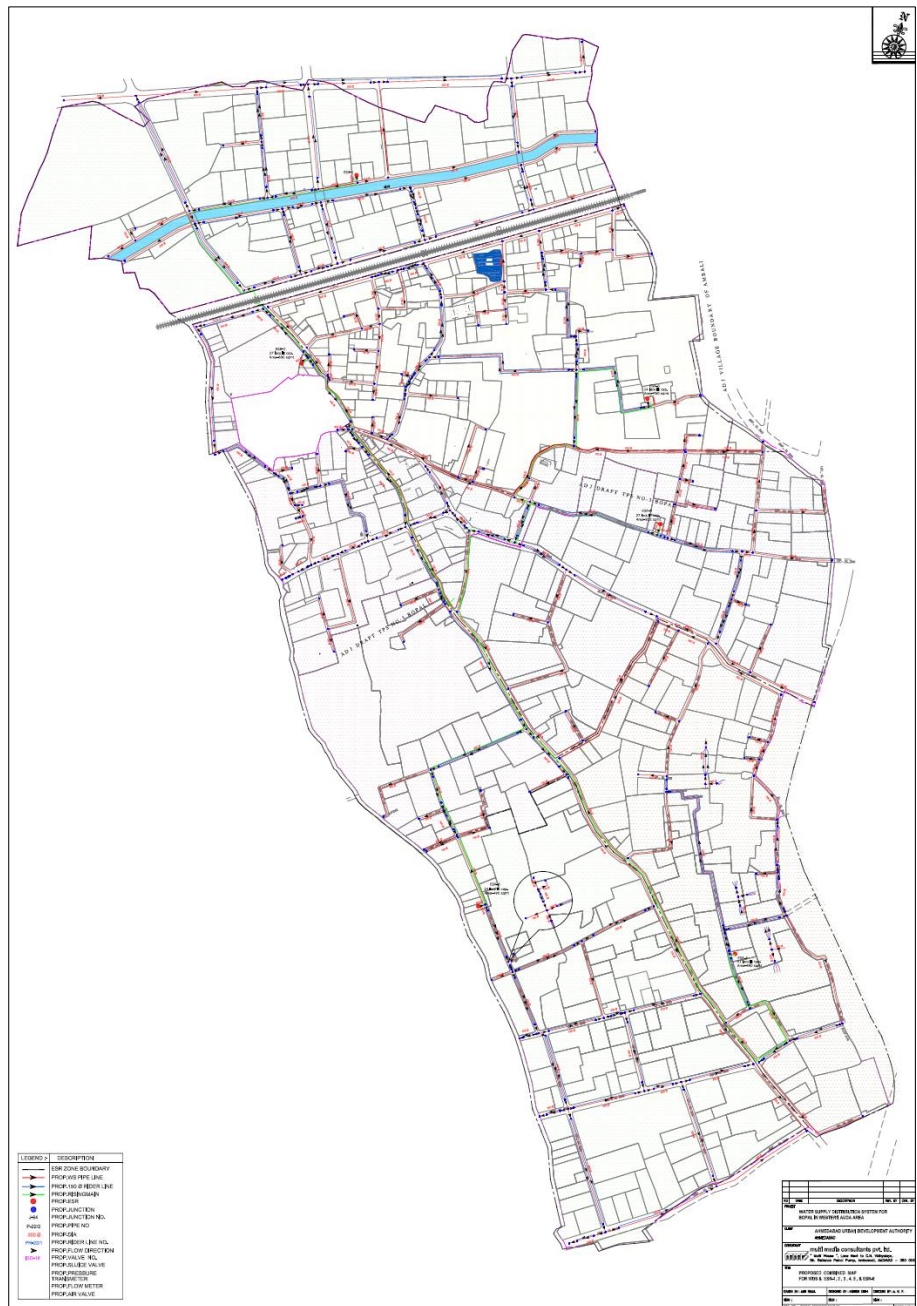
# *3.4    24\*7 Water Supply Scheme*

**Relevance of the project:**

- Providing 24 \* 7 safe , clean water to the residents of Bopal , Ghuma and Shela which were earlier consuming ground water with high total dissolved solid (TDS).

- Providing metered connection in every household leading towards reduction in the losses incurred due to water leakages, unaccountability of water etc.

- 24 \* 7 water supply project meeting the standards defined in national benchmark as well as global benchmark

Water is the most important resource of life, but for residents of Bopal and Ghuma it has become the biggest cause of concern. People residing in these areas have been consuming ground water with exceptionally high TDS (Total Dissolved Solids) as high as 1600 to 2200 ppm (parts per million) against the acceptable limit of 400-500 ppm. Residents who couldn't afford RO systems were forced to drink high TDS water causing serious health problems.
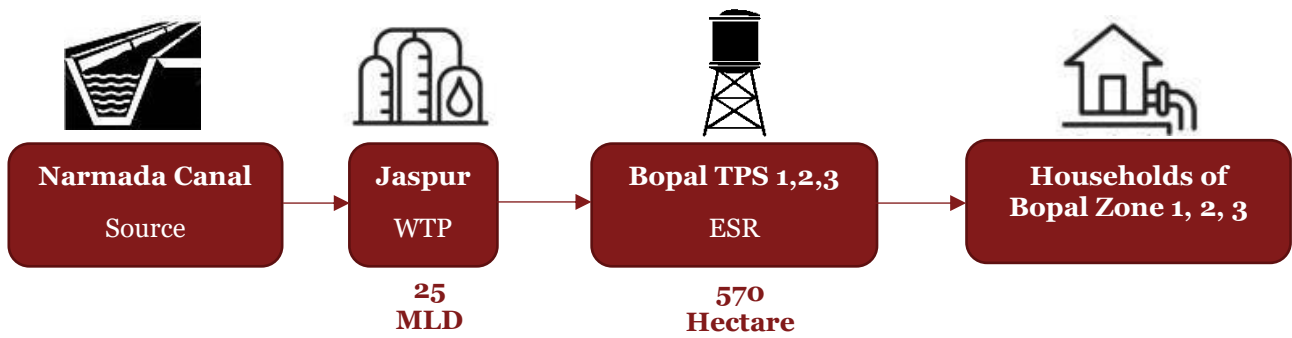
Water supplied by AMC in these areas was time bound (in a day) due to which residents were forced to store water for long term. Due to the non availability of narmada canal water in the areas of Bopal, Ghuma and Shela, meeting the water needs of the residents was a real challenge and was mostly dependent on groundwater extraction by bore wells causing steep depletion of the groundwater level (500-700 feet) in these areas.

**Figure: Bopal TPS 1,2 and 3**



- The Ahmedabad Urban Development Authority (AUDA) has solved the problem of unavailability of Narmada water by laying pipelines and setting up other infrastructure for 24 \* 7 water supply in Bopal.
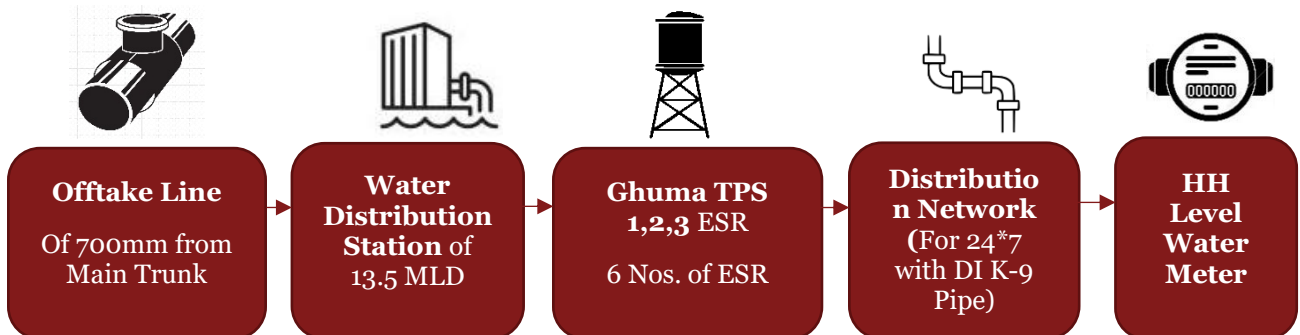
**Salient features of 24 * 7 Water Supply Scheme in Bopal TPS 1,2,3 are :**



| Narmada Canal | Jaspur | Bopal TPS 1,2,3 | Households of |
|---|---|---|---|
| Source | WTP | ESR | Bopal Zone 1, 2, 3 |

**25 MLD**          **570 Hectare**

- Total Quantity of Water Supplied: **25 MLD**
- Per Capita Water Supply: **180 LPCD**
- Projected Population (2033): **1,42,443**
- Coverage Area: **570 Hectares**
- Total Network Length: **78.94 Km**
- Expected Expenditure: **6827.26 Lacs**
- Metering: **100%** of the Households

➢ *For Ghuma Area, Ahmedabad Urban Development Authority is planning to construct new water distribution stations and connect them by offtake line from 1000mm dia. Trunkline (near Bopal Bridge).*

**Salient Features of 24 * 7 Water Supply Scheme in Ghuma TPS 1,2,3 are:**



| Offtake Line | Water Distribution Station of | Ghuma TPS 1,2,3 ESR | Distribution Network | HH Level Water Meter |
|---|---|---|---|---|
| Of 700mm from Main Trunk | 13.5 MLD | 6 Nos. of ESR | (For 24*7 with DI K-9 Pipe) | |

- Total Quantity of Water Supplied: **13.5 MLD**
- Per Capita Water Supply: **180 LPCD**
- Projected Population (2037): **1,74,251**
- Coverage Area: **697 Hectares**
- Total Network Length: **115 Km**
- Expected Expenditure: **105 Cr.**
- Metering: **100%** of the Households

This project has met national benchmark for water as defined in Centre for Public Health and Environmental Engineering Organization CPHEEO guidline as well as global benchmark defined in 6th Sustainable Develpoment Goals (SDGs).

## Hallmarks of the project

### Key Insights from the project

Monitoring the **accountability of water** has reduced losses incurred due to NRW

Availability of **'Safe' drinking water 24*7**

Decline in Water Borne Diseases

Leading to Reduction in Medical Expenditure

Increase in Life Expectancy Rate and Economic status of the people

### National Benchmark

CPHEEO has demarcated Service Level Benchmarks which are the basic minimum standard for water supply services.

The Initiative of 24*7 rationale is fulfilling the following subset of the above mentioned indicator:

Continuity of water supply

Quality of water supply

Extent of Non-Revenue Water

### Global Benchmark

The 6th Sustainable Development Goal (SDGs) aims to provide clean water and sanitation to all. 24*7 water rationale further fulfills the below mentioned subsets:

6.1: Seeks to secure safe and affordable drinking water for all

6.2: Provide safe drinking water free of contaminants
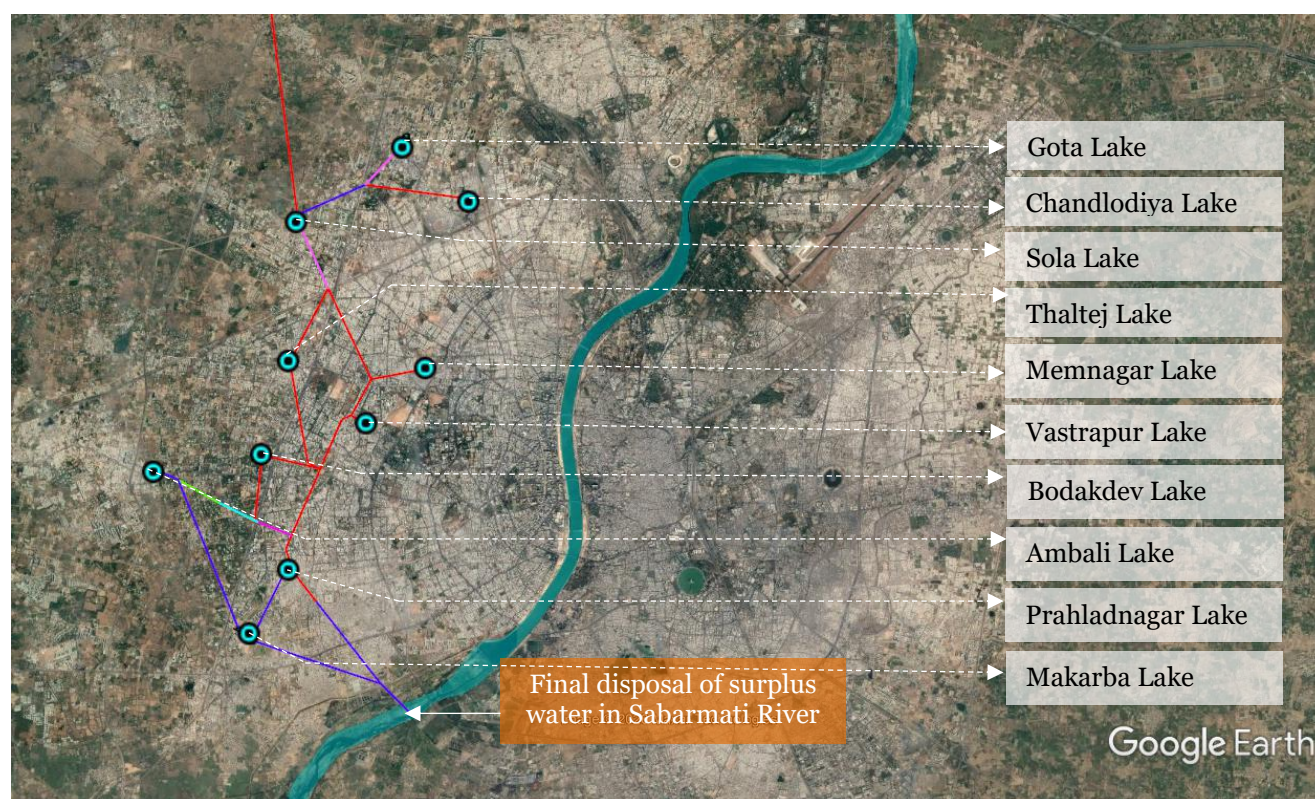
# 3.5    *Inter-Linking of Lakes*

## Relevance of the project:

- Urban flooding of lakes often leads to potential socio-economic stagnancy as water seeps into low lying regions and demands considerable amount of time and investment of the authorities to restore balance and repair the damage caused

- 42 lakes were identified by AUDA in the past which often caused flooding ,out of which , 10 lakes were interlinked using state of an art infrastructure

- AUDA's initiative of interlinking the Aslali and Jetalpur lakes , protecting the low lying areas from flooding and restoring the economic activities of the region

Lakes in Urban and sub urban areas constitute a vital part of planning and ecology, as they demand sustainable strategies for acknowledging problems such as flooding, water pollution, wastewater management etc. In year 2000-2001 Ahmedabad witnessed heavy rainfall causing immense flooding of lakes and damage to life and property.

➢ AUDA realized the need of this problem and came up with a unique comprehensive plan of Interlinking the lakes using state of art infrastructure, providing massive relief to the people in distress and improving the socio-economic condition of the region.

**Image : Google earth image of lakes interlinking projects implemeted by AUDA**



Gota Lake

Chandlodiya Lake

Sola Lake

Thaltej Lake

Memnagar Lake

Vastrapur Lake

Bodakdev Lake

Ambali Lake

Prahladnagar Lake

Makarba Lake

Final disposal of surplus water in Sabarmati River

Google Earth

**Before and After Images of Lake Development Project:**

| Before | After |
|--------|-------|
| **Chandlodiya Lake**  |  Chandlodia Lake |
| **Sola Lake**  |  SCIENCE CITY LAKE T.P.41 |
| **Memnagar Lake**  |  MEMNAGAR LAKE & GARDEN T.P.1 |

| Before | After |
|--------|-------|
| **Vastrapur Lake** | |
| **Bodakdev Lake** | |
| **Prahladnagar Lake** | |
| **Makarba Lake** | |

**Interlinking of Lakes in Aslali & Jetalpur:**

Area falling in the vicinity of lakes Jetalpur and Aslali have faced immense problem of water logging and flooding of lakes. Both the areas are low lying, marking high levels of groundwater table and unfortunately with no proper drainage network in place. Rains flooded the entire region causing serious disruptions to local shops, traders, MSME sector, etc. The industrial area around Transport Nagar was suffering a lot of issues in transportation loss due to flooding.

Taking this concern as a challenge, AUDA being pioneer since decades in infrastructure and development projects has come up with a unique and remarkable solution of interlinking Jetalpur and Aslali lakes. So that the spill of Aslali lake can be diverted to the Jetalpur Lake in the downward part of the area. This would not only reduce the damage caused by saturation of water table due to downpour in the area but will also provide major relief to people suffering from the flooding and its serious health, economic and social impacts.

**Salient feature of this project are :**

**Strom Water Box Drain**

- **Box Drain:** 2.0 x 2.0 sqmt.
- **Material:** RCC
- **Total Length:** 2.4 km
- **Interlink:** Aslali Lake to Jetalpur Lake
- **Total Cost:** 9.5 Crore

**Hallmarks of the project**

- The area shall witness enhanced scope of rise in economic activities

- Prevention of wastage and damage of goods due to water logging in stores/warehouses will save people from loss of inventories and unnecessary expenditure

- Areas of transport nagar (region most affected due to flooding of lakes) which frequently witnessed waterlogging will now be protected from flooding, ensuring that the economic activities can be carried forward uninterrupted

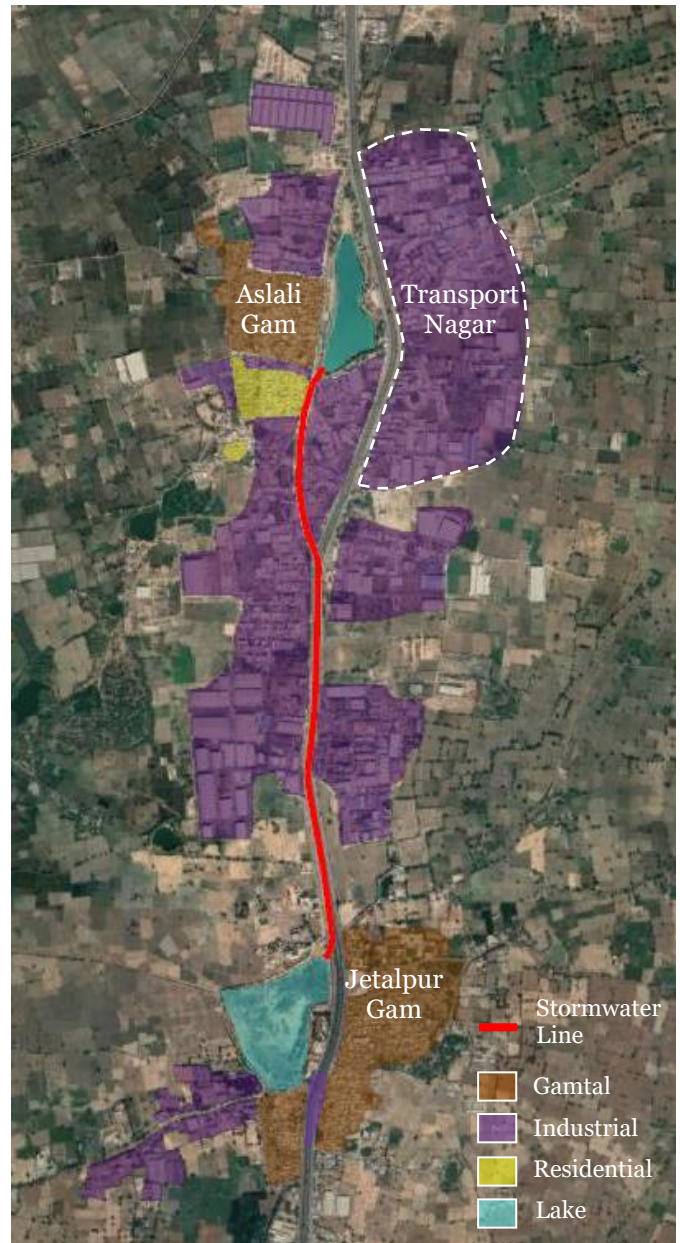**Image : Google earth image of Aslali and Jetalpur area with transport nagar**



**Image : Aslali Lake**

# 3.6 Public Garden & Sports Facility - Bopal

## Relevance of the Project

- AUDA's initiative towards promotion of green urban spaces , improving the air quality, space for physical activities , social interaction by developing SOBO garden at Bopal

Public gardens and sports facilities are important part of community ecosystem and should be given prime importance. These places are considered as platform for the people to exercise, socialize with others, spend time away in peace from hustle and bustle of city life, and moreover connect with nature and outdoors. These spaces also play a major role in improving the air quality and negate urban heat generated due to carbon emissions.

In Bopal and nearby areas, there were lack of public spaces where residents could socialize, exercise, play and moreover spend some time away from the hustle and bustle of the city.

➢ *With a much-appreciated initiative by AUDA, the state of art garden named SOBO garden has been developed keeping in mind all the necessary parameters like park and Sports facility with basketball ground fulfilling the criteria for development of a sustainable and healthy environment for the people.*

## Salient Features of Public Garden and Sports Facility at Bopal:

- Area of the park: **6253 Sqm**
- Facilities included:
    - Park Space
    - Basketball cum Volleyball Court
    - Senior Citizen Sitting Space
    - Benches
    - Street Light
    - Toilet Block
    - Parking
- In Basketball cum volleyball court, 8 mm International rubber coating has been mounted on court for player safety.

**Image : SOBO Garden at Bopal inaugurated by Honorable CM Vijay Bhai Rupani**



**Image : 3 D Picture of SOBO garden**



**Image : Screenshot of the Online booking service for accessing sports facility**



Basketball
Basketball is a team sport in which two teams, most commonly of five players each, opposing one another on a rectangular court, compete with the primary objective of shooting a basketball through the defender's hoop while preventing the opposing team from shooting through their own hoop. The team with the most points at the end of the game wins
Individual\Group    INR 200 / Hour

Volleyball
Volleyball is a team sport in which two teams of six players are separated by a net. Each team tries to score points by grounding a ball on the other team's court under organized rules.
Individual\Group    INR 200 / Hour

- Online booking facilities is available for accessing Basketball court with nominal Fee charge of Rs. 200/hr.
- Revenue generated from these charges are used for O & M of the Park.
- Retired P.T. teacher has been appointed for supervision.
- To deal with storm water, storm water drain lines has been laid.
- **578 m** long pathway has been built.
- **50,000** thousand liters STP treated water is used for maintenance of the garden.

**Hallmarks of the project:**

- Accessibility to mordern recreational facilities
- Open Space allocated for socializing and excersize improving mental and physical health of the citizen.

# *3.7    Green Initiatives by AUDA*

## Relevance of the Project

- AUDA's initiative towards promotion of green urban spaces , improving the air quality, space for tree plantation and afforestation

- Steps towards creating a biodiversity micro forest park by using remarkable technique known as "Miyawaki plantation" at SOBO garden

AUDA has always given special emphasis on promotion of green spaces and biodiversity parks.One such remarkable initiative is the creation of micro forest in 670 Sq. meter using Miyawaki technique named after famous Japenese Botanist " Dr. Akira Miyawaki".

*Miyawaki forest is a method of growing natural potent vegetation , native to the region as per bioclimatic conditions and soils conditions.*

**Salient feature of Miyawaki plantation compared to conventional tree plantation are:**

1. Grows ten times faster
2. 30 times denser
3. Absorb 30 times more Carbondioxide
4. Effuse 30 times more oxygen
5. Retain more ground water
6. 100 % bio diverse (use 40-50 different species of native trees)

 Under this initiative 85,000 number of trees have been planted by AUDA.

**Image: Micro Forest at SOBO Garden**
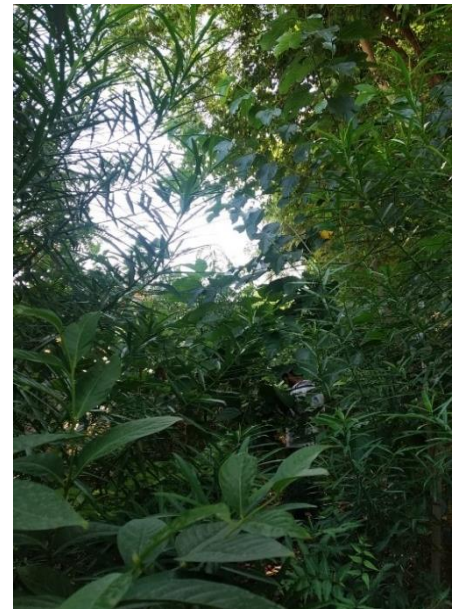


**Image: Growth of forest in the time span of one year (July, 2019 – April, 2020)**



16th July, 2019

16th December, 2019

16th April, 2020

**Hallmarks of the project:**

- Helps in ground water recharge
- Act as an green lungs for the city
- Helps in reducing the air pollution and contain carbon emission
- Grows into 100 year old natural forests within a short time span of 20 years
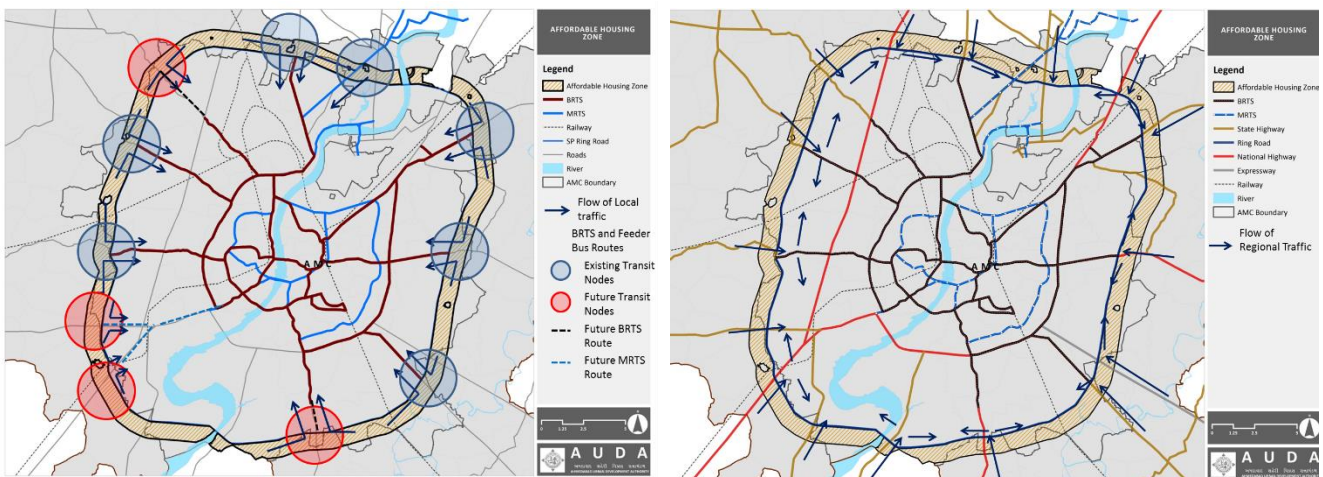
# 3.8   Traffic Congestion Management

**Relevance of the project**

• AUDA's initiative towards improving the traffic congestion management at SP ring road by construction of fly over bridges , foot over bridges and pedestrian bridge

There are several threads to traffic management. Accidents/breakdown, wrong overtaking, excessive traffic with lack of alternate route, poor driving practices are one the most important reasons of traffic congestion.

➢ *SP ring road is one of the busiest roads in Ahmedabad which see immense traffic chaos due to the connectivity it provides around the city.*
➢ *The junctions of SP Ring road are the entry points of the city and therefore it is responsible for regional flow of traffic coming in and out of the city.*



The detailed list of junctions comprising of ongoing infrastructure projects for traffic congestion management are as follows:

**Image: Picture shows Bridge work at 8 locations**
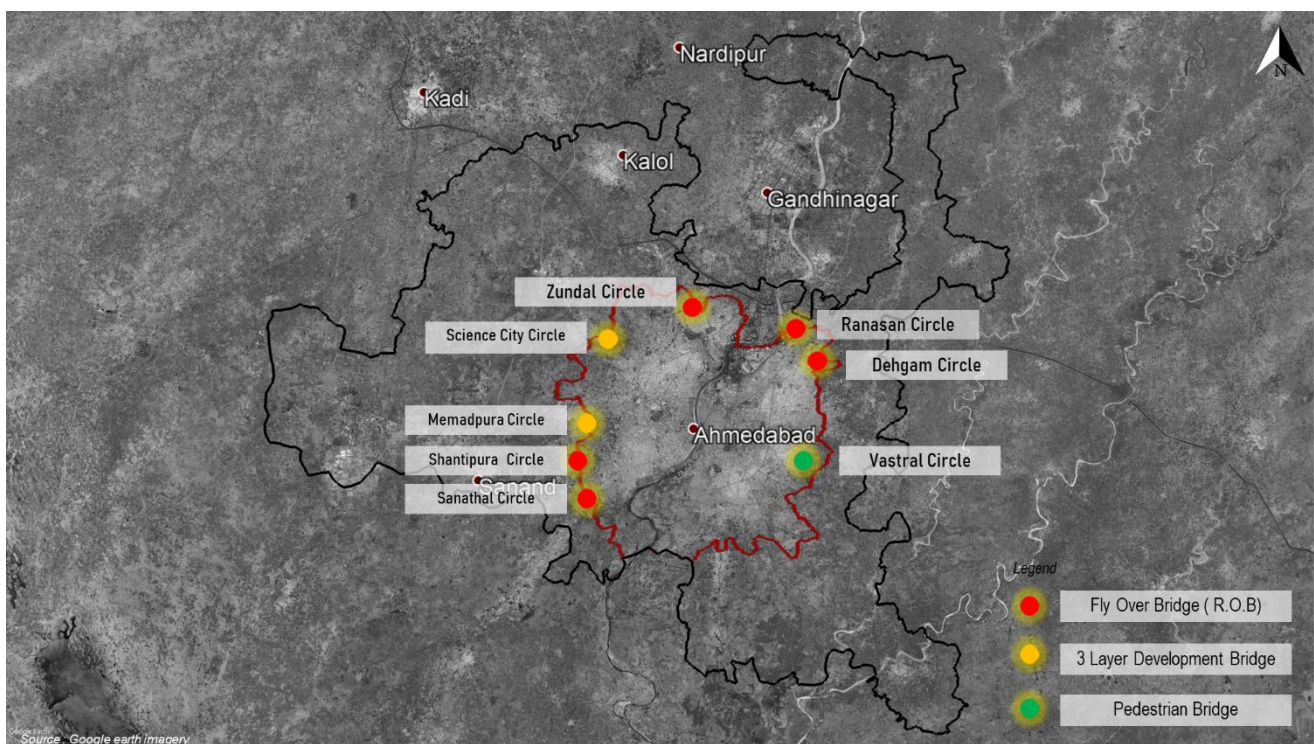
In light of such a scenario, AUDA has undertaken the construction of Fly Over Bridge, foot over bridge and 3-layer underpass development and Pedestrian Bridge across SP ring road.

### Flyover Bridge at below location

- At Sanathal Junction –Cost of 91.88 Cr
- At Dehgam Junction –Cost of 60.47 Cr
- At Ranasan junction –Cost of 53.80 Cr
- At Shantipura junction–Cost of 94.17 Cr
- At Zundal Junction– Cost of 60.99 Cr

### FOB and Underpass for 3 Layer Development

- At Science city junction – Cost of 73.38 Cr
- Memadpura Junction – Cost of 78.47 Cr

### Pedestrian Bridge

- Vastral junction – Cost of 17.85 Cr

### Hallmarks of the project

- Helps in decongestion of SP ring road
- Reduce accidents and breakdown of vehicles
- Reduce travel time , fuel saving and promote better connectivity

## 3 – Layer underpass bride at Science city Junction

Science city junction is one of the prime locations at SP ring road which witnesses heavy vehicular movement. During peak time, science city junction faces severe traffic congestion as it is a critical connecting point helping commuters travel from Gandhinagar to Bopal and Bhadaj to Sola, back and forth.

AUDA is coming up with 3-layer Underpass Bridge at Science junction which would provide uninterrupted vehicular movement for the people traveling from Gandhinagar to Bopal and Bhadaj to Sola, to and fro. This would help people make their rides economic friendly by avoiding traffic, save time and fuel and prevent themselves from negative impacts of traffic on the health of the commuters.

## Hallmarks of the project

- Iconic architectural design of the bridge
- Increase economic activity due to improved connectivity
- Helps in decongestion of science city junction

## Iconic Multi Nodal Foot Over Bridge at SP Ring Road

### Relevance of the project

- AUDA's initiative in building the elevated pedestrian bridge connecting the upcoming metro station at Vastral junction, which is one of the busiest node at SP ring road with heavy vehicular movement

- Unique design of the bridge making it accessible for senior citizen and differently abled person

Bridges are most important structures connecting two or more sides of the roads. The pedestrian bridges allow people safely cross the road and reach the desired side. Considering Vastral Junction an important node of the city at SP soad with heavy vehicular and people movement, AUDA has proposed to construct an elevated pedestrian bridge to provide safe space for people to cross the roads and permit unperturbed vehicular movement.

➤ *Circular design approach of elevated pedestrian bridge, facilitate convenient pedestrian access from all connecting roads below and provision of Lifts for differently abled.*

**Figure: Proposed Image of Multi Nodal Foot over Bridge at SP ring road**
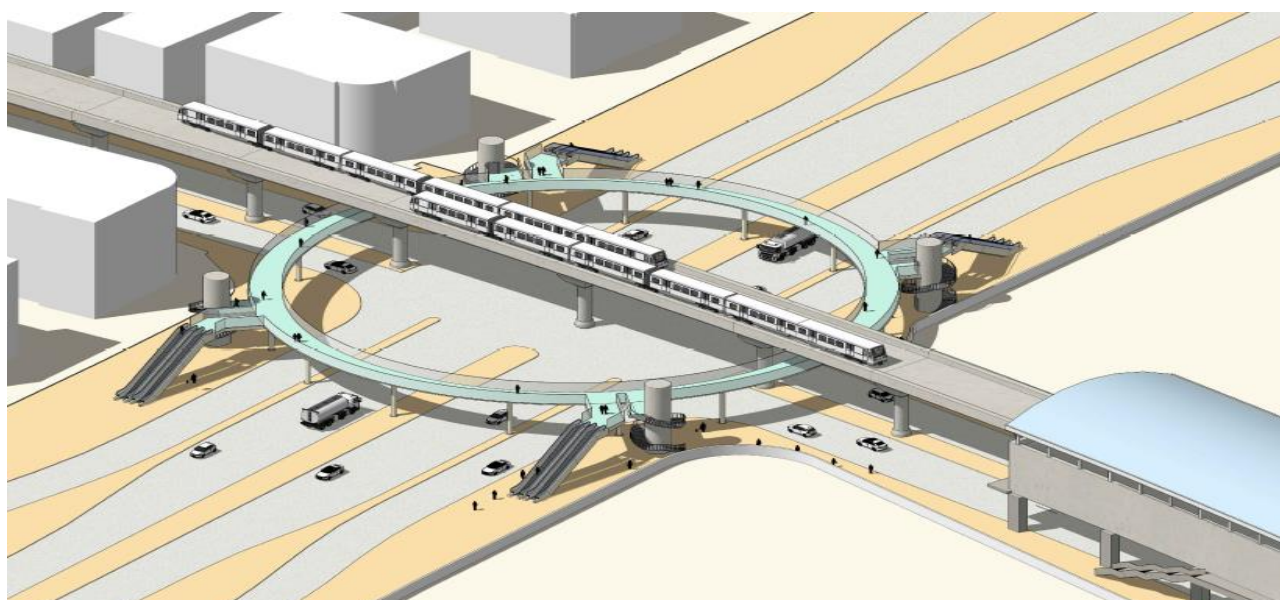
On lines of the universal designed solution, it would ensure direct pedestrian access to four sides of the proposed Vastral Junction metro station well equipped with escalators, elevators and staircases making it accessible for differently abled and senior citizen friendly.

### Hallmarks of the project

- Pedestrian bridge to support safe pedestrian movement against heavy traffic flow at Vastral Junction
- Direct connection to Vastral Metro station
- Staircase, Escalator and Elevators for ease of pedestrians
- Easily accessible by differently abled person and senior citizen

# *3.9   Streetlight*

> **Relevance of the project:**
> - AUDA's initiative towards installation of street lights in SP ring road which is of the prime roads of Ahmedabad
> - Step towards building safe spaces for people in the city and uninterrupted vehicular movement

Poorly lit streets not only pose danger to the public in general but also increase the rate of crimes, theft, accidents, etc. Presence of street lights improves safety of driver, riders, pedestrians and most importantly women, who witness harassment and walk in constant fear while passing by such dark patches.

> *Installation of street lights along major highways of the city promotes infrastructure development activities such as building of housing societies ,bridges, highway restaurants etc. This would enhance the scope of economic activities in the region.*

**Image : Below illustrates the flow of traffic along SP ring road along with existing and future**
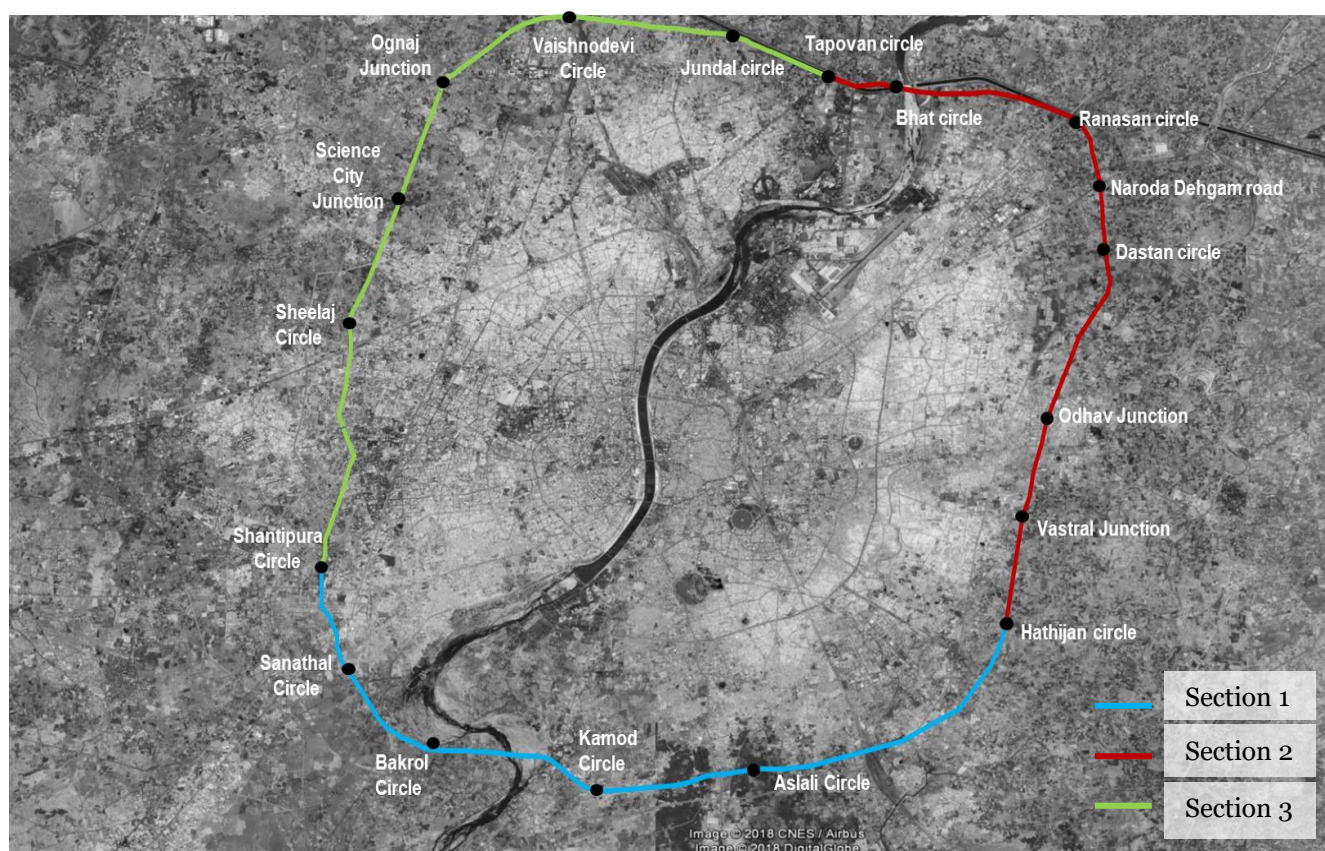


Implementation in 3 Different Projects

**Section 1:** Shantipura Junction to Hathijan Junction

**Section 2:** Hathijan Junction to Tapovan Junction

**Section 3:** Tapovan Junction to Shantipura Junction

With a contribution in building safe spaces for people in the city and ensuring uninterrupted vehicular movement, AUDA installed street lights all along the 76km long stretch of SP ring road. This has been a remarkable step as presence of well-lit roads promotes safety and security in urban areas and increases the duration of hours when the traffic movement can take place.

**Salient feature of the project are :**

**Image : Street Light at SP ring road**

- Street Light works has been carried out on Sardar Patel (S.P.) ring road on DBFOT Basis (Design-Build-Finance-Operate-Transfer)
- Total Length of Street Light Works – 76 KM
- This Works has been Divided into three Sections:

**Section 1 : Shantipura Junction to Hathijan Junction – 24.5 km**
- Total No, Of Poles :- 835 Poles
- Total Expenditure :- 4.86 Cr.

**Section 2 : Hathijan Junction to Tapovan Junction – 24.5 km**
- Total No, Of Poles :- 756 Poles
- Total Expenditure :- 5.18 Cr.

**Section 3 : Tapovan Junction to Shantipura Junction – 27.3 km**
- Total No, Of Poles :- 790 Poles
- Total Expenditure :- 4.70 Cr.



**Hallmarks of the project**

- Improve safety of driver, riders, pedestrians along service roads and most important women during night
- Reduced the night accidents,reduction in crime rate and better traffic management at SP ring road
- Promotes development of infrastructure projects such as housing , bridges ,commercial spaces etc

# 3.10  Use of Technology for Transparency in Governance

## Relevance of the project

- AUDA's initiative in building citizens centric IT application , online tendering and real time tracking of projects by Pragati Portal

- Use of Smart city 311 application designed for field work monitoring of its staff  and GPS based attendance system

Technolgy plays a vital role in bringing transparency in governance. It helps to win the trust and build confidence of citizens.

AUDA has given special focus in building IT applications and systems which helps in citizens engagement by user friendly applications ,online tendering, creation of online booking system for sports complex at south Bopal , online generation of letter for intimation and allotment of housing unit to beneficiary and real time tracking of projects by Pragati portal.

Citizens

1. Online Tendering System

2. Online booking system of sports complex

3. IT portal for project Information

## Pragati application:

*Here one can experience 24/7 Accessibility, one touch easy access the information, easy Integration and Collaboration of information.*

"PRAGATI" is a public oriented Online Project Tracking System initiated by AUDA. Accessing this online system any person can track project progress status as well as project's milestone. Through "PRAGATI" one can not only track each aspect of project but also progress and performance. "PRAGATI" assists everyone to the real time detail information about any project. It also provides an automated project activity tracking with high standards.

**Image: IT application portal "AUDA – PRAGATI"**

AUDA - "PRAGATI"
PROJECT TRACKING SYSTEM

| Road Projects | Bridge Projects | Housing Projects |
|---|---|---|
| Total **116** | Total **10** | Total **12** |

| Drainage Projects | Other Projects |
|---|---|
| Total **13** | Total **13** |
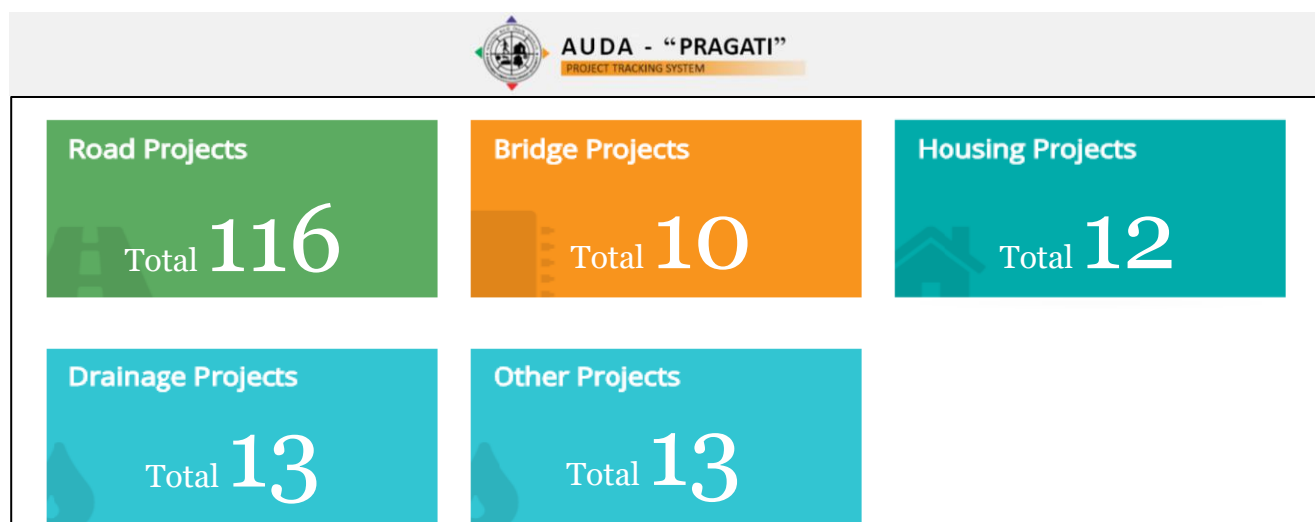
# Smart city -311 application:

AUDA is using smart city 311 application which is a mobile-based application designed for field work monitoring. It allows field staff/officers to create their regular field inspection reports of different categories directly from the field using their smartphone. Smart city -311 application is approximately used by 55 AUDA staff personals, majority of which are from engineering department.

**Image: Below shows various features in Smart-311 application**
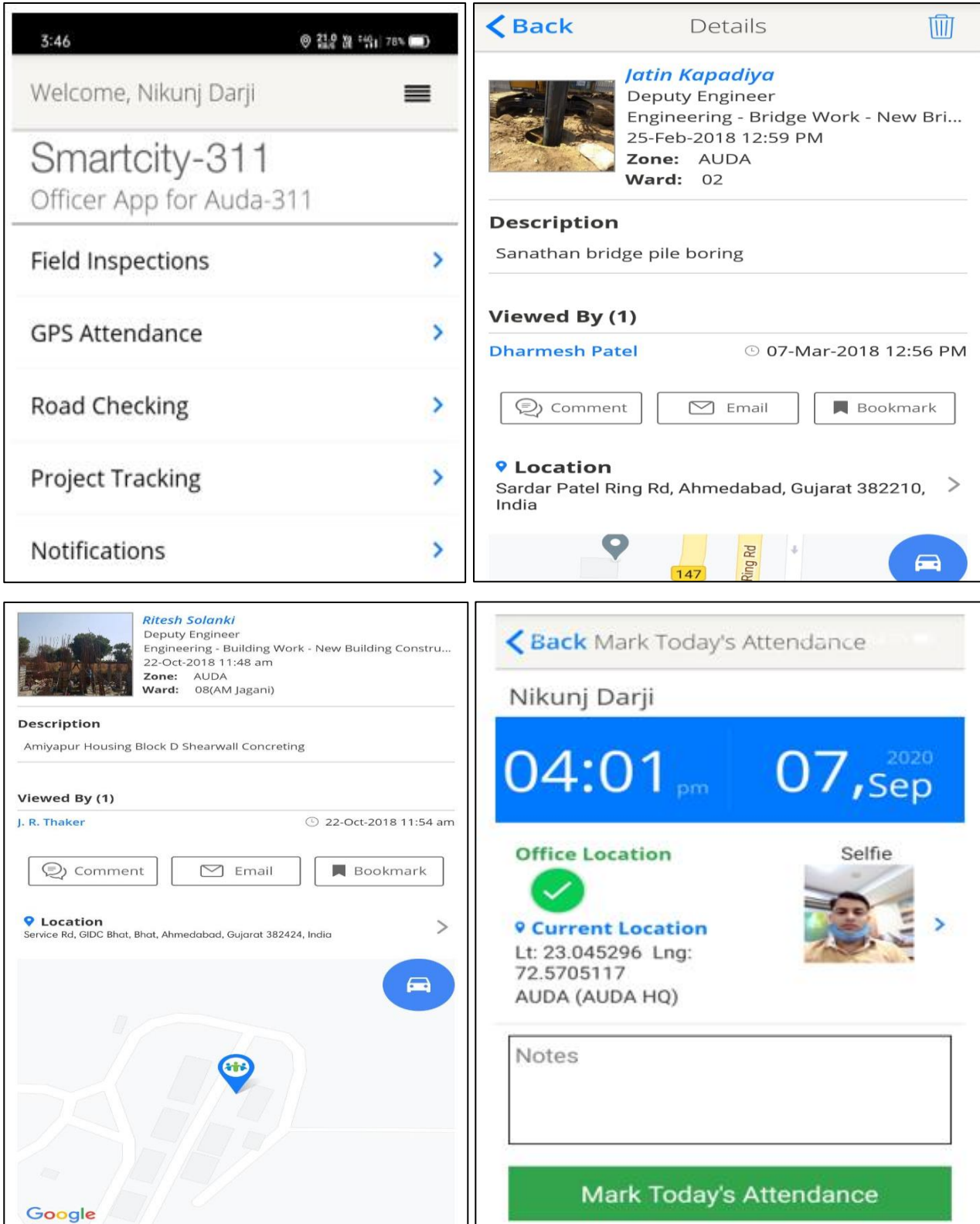
**Hallmarks of the project**

- Engineers and site supervisors can capture a photograph of the field with the latitude and longitude information along with its ward and zone details and allows them to submit it

- GPS based tracking of attendence of employees accuate location from different geographic locations

# *3.11   Water Supply under Jal Jeevan Mission*

### Relevance of the project

- AUDA adapting the initiative by Ministry of Jal Shakti for the provision of safe and adequate potable water supply in rural areas of around Ahmedabad.

The Jal Jeevan mission is an initiative of the Ministry of Jal Shakti Govt of India. Jal Jeevan Mission, is envisioned to provide safe and adequate drinking water through individual household tap connections by 2024 to all households in rural India. The programme will also implement source sustainability measures as mandatory elements, such as recharge and reuse through grey water management, water conservation, rain water harvesting. The Jal Jeevan Mission will be based on a community approach to water and will include extensive Information, Education and communication as a key component of the mission.

## Villages covered under the Project

Under this mission AUDA has covered 45 villages of Ahmedabad and Gandhinagar District for the supply of potable water.

**Image : Villages covered for provision of water supply under Jal Jeevan Mission**
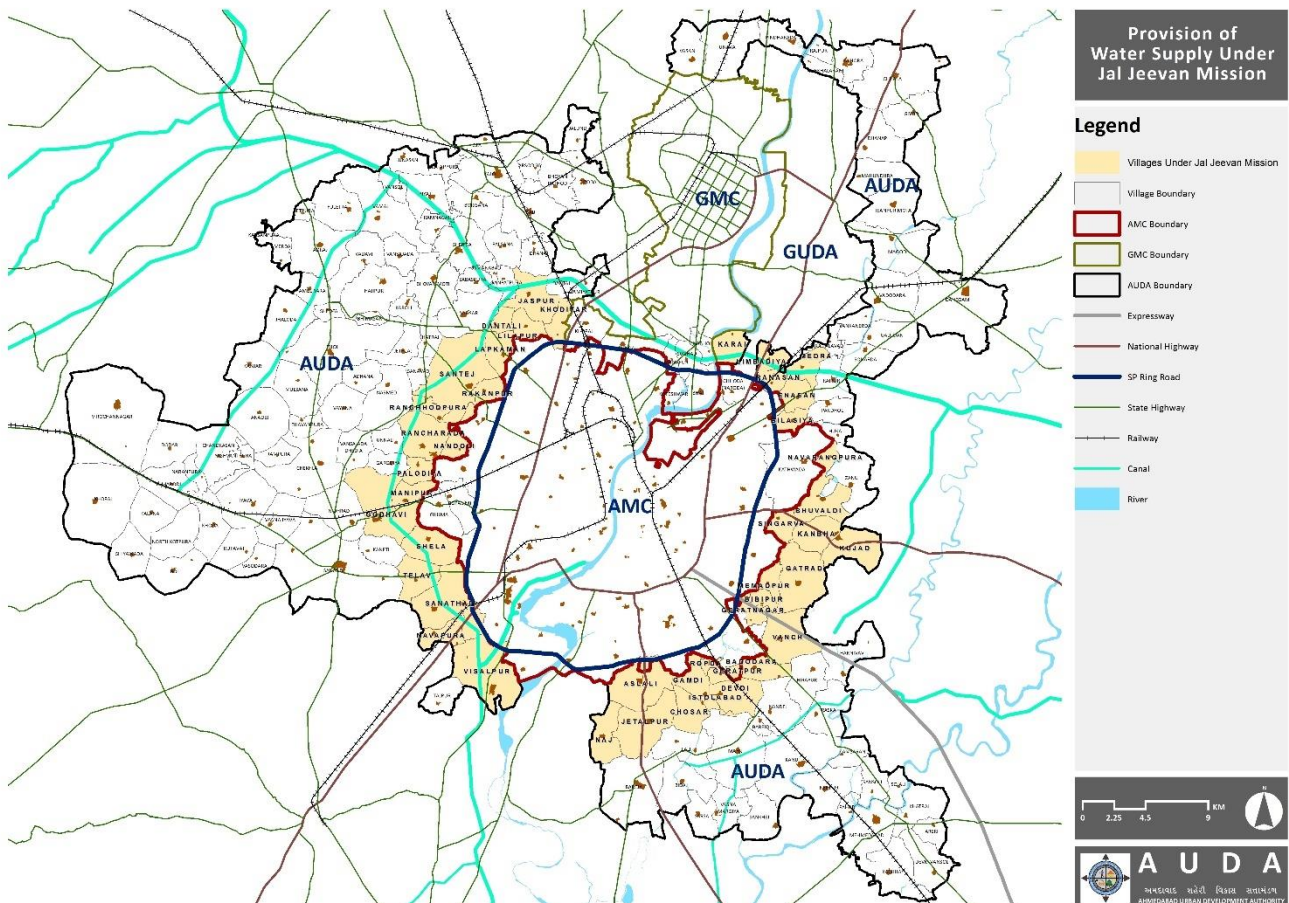
### *In Western Ahmedabad:*

| Sr. No. | Name of Village | Taluka | District |
|---|---|---|---|
| 1 | Khodiyar | Daskroi | Ahmedabad |
| 2 | Lilapur | Daskroi | Ahmedabad |
| 3 | Lapkaman | Daskroi | Ahmedabad |
| 4 | Visalpur | Daskroi | Ahmedabad |
| 5 | Jaspur | Kalol | Gandhinagar |
| 6 | Dantali | Kalol | Gandhinagar |
| 7 | Rakanpur | Kalol | Gandhinagar |
| 8 | Santej | Kalol | Gandhinagar |
| 9 | Ranchhodpura | Kalol | Gandhinagar |
| 10 | Rancharda | Kalol | Gandhinagar |
| 11 | Nandoli | Kalol | Gandhinagar |
| 12 | Palodiya | Kalol | Gandhinagar |
| 13 | Manipur | Sanand | Ahmedabad |
| 14 | Godhavi | Sanand | Ahmedabad |
| 15 | Shela | Sanand | Ahmedabad |
| 16 | Telav | Sanand | Ahmedabad |
| 17 | Sanathal | Sanand | Ahmedabad |
| 18 | Jivanpura (Part of Sanathal) | Sanand | Ahmedabad |
| 19 | Navapura | Sanand | Ahmedabad |

### *In Eastern Ahmedabad:*

| Sr. No. | Name of Village | Taluka | District |
|---|---|---|---|
| 1 | Karai | Gandhinagar | Gandhinagar |
| 2 | Limbadiya | Gandhinagar | Gandhinagar |
| 3 | Medara | Gandhinagar | Gandhinagar |
| 4 | Ranasan | Gandhinagar | Gandhinagar |
| 5 | Enasan | Daskroi | Ahmedabad |
| 6 | Bilasiya | Daskroi | Ahmedabad |
| 7 | Navrangpura | Daskroi | Ahmedabad |
| 8 | Bhuvaldi | Daskroi | Ahmedabad |
| 9 | Kanbha | Daskroi | Ahmedabad |
| 10 | Kunjad | Daskroi | Ahmedabad |
| 11 | Singarva | Daskroi | Ahmedabad |
| 12 | Gatrad | Daskroi | Ahmedabad |
| 13 | Memadpur | Daskroi | Ahmedabad |
| 14 | Bibipur | Daskroi | Ahmedabad |
| 15 | Geratnagar | Daskroi | Ahmedabad |
| 16 | Vanch | Daskroi | Ahmedabad |
| 17 | Badodara | Daskroi | Ahmedabad |
| 18 | Geratpur | Daskroi | Ahmedabad |
| 19 | Devdi | Daskroi | Ahmedabad |
| 20 | Istolabad | Daskroi | Ahmedabad |
| 21 | Gamdi | Daskroi | Ahmedabad |
| 22 | Ropada | Daskroi | Ahmedabad |
| 23 | Chosar | Daskroi | Ahmedabad |
| 24 | Jetalpur | Daskroi | Ahmedabad |
| 25 | Aslali | Daskroi | Ahmedabad |
| 26 | Naj | Daskroi | Ahmedabad |

## Salient Features of the Project



| **Narmada Canal** As Surface Source | **100 LPCD** Supply Qty. | Additional Water Storage for Qty. for **1 Day** | **1 OHT** Per Village | Connection at **Each HH Level** |

### In Western Ahmedabad:



| **Jaspur Headworks** 10 MLD WTP + Clear water Pump House | **+** | **Existing GWSSB WTP of 75 MLD Headworks at Telav** | **72 Kms** Transmission Line from Headworks to all Pump House | **Village Level Storage** Tank **+** Functional **HH level Tap connection** |

### In East Ahmedabad:



| **Under Const. GWSSB WTP 20 MLD Badodara Headworks** | **+** | **Existing GWSSB WTP of 33 MLD Headworks at Kadadara** | **68 Kms** Transmission Line from Headworks to all Pump House | **Village Level Storage** Tank **+** Functional **HH level Tap connection** |

## Components of the Project

**West :**

1. Building 10 MLD WTP and Clear Water Pump House for Headworks at Jaspur
2. Use of Existing GWSSB WTP (75 MLD) and Head works at Telav with Construction of New Clear Water Sump and Pump House
3. Building Clear Water Transmission main from all Head Works up to all Pump House (Approx. leongth 72 km)

**East :**

1. Use of Existing GWSSB WTP (33 MLD) and Head works at Kadadara with Construction of New Clear Water Sump and Pump House
2. Use of under Construction GWSSB WTP and Head works at Badodara (20 Mld) with Construction of New Clear Water Sump and Pump House
3. Clear Water Transmission main from all Head Works up to to all Pump House
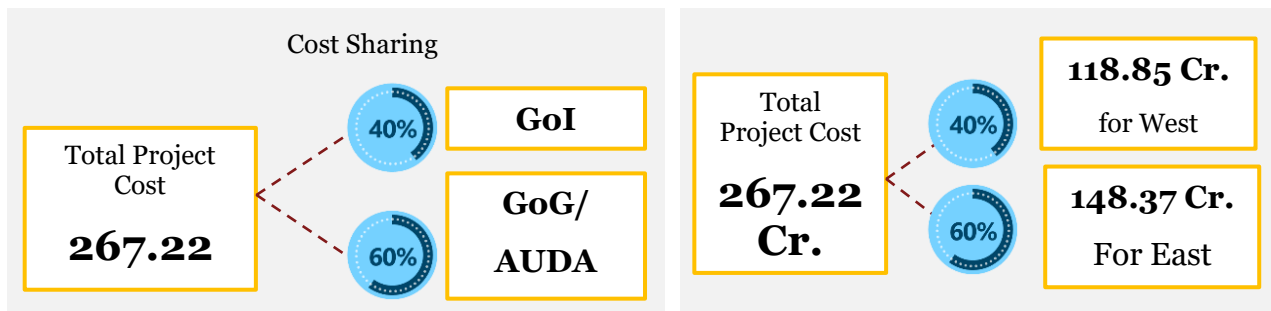
**West :**

4.  Building underground Sump, Pump house and Overhead Tank at all villages and Refurbishing all existing storages wherever possible.

5.  Distribution Network in all villages upto each household with FHTC (Functional Household tap connection.

**East :**

4.  Underground Sump, Pump house and Overhead Tank at all villages. (Existing Storages to be refurbished where possible and required.

5.  Distribution Network in all villages upto each household with FHTC (Functional Household tap connection

**Cost Estimation**

Cost Sharing

| Total Project Cost **267.22** | 40% | **GoI** |
| | 60% | **GoG/ AUDA** |

| Total Project Cost **267.22 Cr.** | 40% | **118.85 Cr.** for West |
| | 60% | **148.37 Cr.** For East |

**Hallmarks of the project**

*   Provision of Water Supply Services in Rural areas of Ahmedabad by developing Water Supply Infrastructure.
*   'Har Ghar Jal' - Household level tap connection by 2024.

# 4

# Upcoming Projects of AUDA

# 4. About the Upcoming Projects

Government of Gujarat (GOG) has been working towards a safe, sustainable, economic, people-friendly urban infrastructure development in the state with main focus on Ahmedabad Urban Agglomeration.

Ahmedabad Urban Development Authority is implementing various infrastructure projects with following broad objectives:

  i. To provide sustainable water supply and sewerage infrastructure with improved services and eventually provide better quality of life to the residents;
 ii. To implement projects for reuse of treated sewage for conservation of water;
iii. To ensure sustainable environment; and
 iv. To create enabling environment for Public Private Partnership (PPP) in projects execution and operation and maintenance (O&M).

With the above goals and objectives GOG has proposed comprehensive development in Ahmedabad Agglomeration Area, improve standard of living, improve health & hygiene and social and economic upliftment of the residents.

## Outputs of the Project

1. Water supply system (Sanand area): 20 MLD capacity Water treatment plant, Water pumping stations, Underground and elevated water tanks, Water supply distribution network
2. Sewerage system (Ghuma, Shela, Manipur, Godhavi, Sanathal, Telav, Kalol, Dehgam, Mehmadabad, Aslali, Jetalpur, Bareja and Sanand areas): Sewerage network, Sewage pumping stations, 5 Sewage treatment plants with total combined capacity of 131 Mld coupled with sewage recycle for industrial use
3. Storm Water Drainage System (Ghuma, Shela, Manipur, Godhavi, Sanathal, Telav, Dehgam, Mehmadabad, Aslali, Jetalpur and Bareja areas): Storm water drains with pumping Stations
4. SCADA system for water supply and sewerage system
5. Construction of 10 bridges on the Ring Road

## Outcomes of the Project

- Implementation of above projects will help in achieve 100% coverage and sustainable water supply and sanitation. It will result into overall good quality of living and social standards.
- These projects will also improve the health and environmental benefits to the public due to improved quality of water and upgraded sewage treatment systems.
- Construction of bridges on Ring Road will improve the urban mobility and public transport.
- Ensuring against the urban flood control by making advance storm water drainage network with rejuvenation of Lake and recharge of ground water.

## Financial Arrangements

| Tranche | Total External Assistance Sought | Counter Part Funding Being made Available | | | | Total Project Cost |
|---|---|---|---|---|---|---|
| | | Implementing Agency | State Govt. | Central Govt. | Others, if any. | |
| Total | 1330 Crore | 285 Crore | 285 Crore | - | - | 1900 Crore |

## List of Projects under APIDP

| Sr. No. | Sub - Projects | Components & Estimated Cost (Rs. Crore) | | | | Total Cost Rs. Crore |
|---|---|---|---|---|---|---|
| | | Water Supply | Sewerage | Storm Water | Flyovers on Ring Road | |
| 1. | Infrastructure facilities in Ghuma Shela, Manipur, Godhavi, Sanathal and Telav | | 155.00 | 115.00 | | 270.00 |
| 2. | Infrastructure facilities in Kalol | | | 52.00 | | 52.00 |
| 3. | Infrastructure facilities in Dehgam | | 67.00 | 41.00 | | 108.00 |
| 4. | Infrastructure facilities in Mehmadabad | | 70.00 | 54.00 | | 124.00 |
| 5. | Infrastructure facilities in Aslali, Jetalpur and Bareja | | 63.00 | 48.00 | | 111.00 |
| 6. | Infrastructure facilities in Sanand | 65.50 | 83.00 | 107.00 | | 255.50 |
| 7. | Development of Ring Road | | | | 660.00 | 660.00 |
| | **Total: INR Crores** | **65.50** | **438.00** | **417.00** | **660.00** | 1580.50 |
| | **Add 10 % for Cost Contingencies / Escalation / Interest during construction** | | | | | 158.05 |
| | **Add 8 % for Project Preparation, PMU, PIU, Project design, Management & Monitoring Consultants etc.** | | | | | 126.44 |
| | | | | | **Total: Rs. In Crore** | 1864.99 |
| | | | | | **Say (Round) Rs. Cr.** | 1900 |
| | | | | | **Total: Million USD*** | 253 |

* $1 = INR 75

# 5 | Lessons from Ahmedabad

# Lesson 1:

## 3-Tiers of Urban Planning
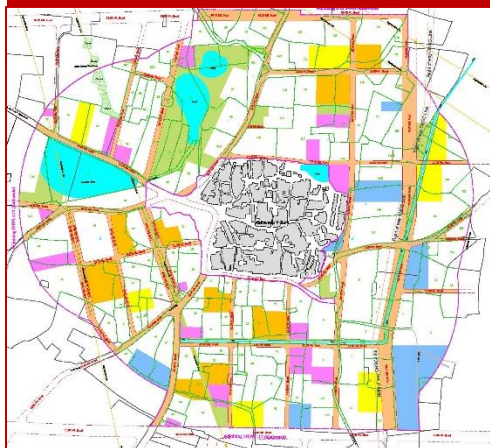


The idea of developing an area into an urban landmass is a complex process. It involves several steps of development. At each step many considerations have to be made in order to ensure optimum effeciency without compromising on the aspect of sustainability. The impacts of the planning and development process need to reach every sphere and cover every aspect of the urban needs.

Ahmedabad's three tier urban planning mechanism manages to strike this balance and reach all the stakeholders quite effectively.

The planning process begins from the big picture at a macro level called the development plan which sets up a foundation for the planning process. This is followed by the TPS which facilitates the integrity of the Development Plan. It involves land pooling through citizen engagement. Ahmedabd is one of the few Indian Cities to be pooling land for planned development.
The Local Area Plan addresses urban issues of any area in the city by planning and improving the local infrastructure

# Lesson 2:

## Efficient Execution through Land Pooling



The Town Planning Scheme is based on a realistic approach of land pooling for implementation of urban development projects. All owners keep substantial portion of developed land and get benefitted by the increment in land value. Public inputs are sought; grievances are Redressed and citizens are actively involved in the complete process. The mechanism is perceived to be fair and equitable for all the stakeholders. It also represents a well defined structure which has ample space for the exercise of expert judgment. It is a tool that facilitates planning, plan financing and plan implementation processes of AUDA. It also addresses ground level needs and allows micro planning and gives enormous flexibility in terms of costs.

The town planning scheme focuses on a particular area (100-150 hectares in size) and takes a comprehensive approach which includes development of roads, infrastructure, buildings etc.

# Lesson 3:

## Care for Environment and Local eco-system

## 1. Installation of Solar panel in EWSH schemes

Thermal power plants are one of the biggest contributors to the global nitrogen oxides and release many other harmful gases which leads to respiratory and skin problems.

One of the breakthrough advancement to prevent such a scenario is the utilization of solar energy in generating electricity. Our honorable Prime Minister Shri Narendra Damodar Modi has been awarded with UN's highest environmental honour 'The Champion of Earth' award in 2018 for his leadership in International Solar Alliance and harness the solar energy in the best possible way to increase the outreach of electricity in the country in a sustainable manner. Promoting the idea of sustainable projects. This will eventually not only reduce the maintenance cost borne per family residing in the EWS societies by lowering the electricity bills but also help significantly in lowering the carbon footprint.

## 2. Promotion of Green spaces

Urban green spaces provide environmental benefits such as reducing greenhouse emissions, negating urban heat and attenuate excess water due to heavy rainfall. AUDA has come up with Sobo garden for the residents of South Bopal. Keeping in mind the requirements of all age groups, it has developed volleyball court, senior citizen sitting space, play area for children, walking/running track etc. In order to make the park sustainable, it has also set up an STP to fulfill the gardening needs and a storm water line which surrounds the garden and drains off excess of water during flooding or heavy precipitation.

Another aspect of promoting green spaces is to carry out rigorous and extensive plantation drive. AUDA aims to plant in total of 5.88 lakh saplings in its project areas this year. It has chosen to adopt a Japanese technique named after a famous botanist Akira Miyawaki where the process includes fencing of area, soil test, water test and identification of native species. This approach has proven to ensure 10 times faster plant growth and the plantation being 30 times denser than the usual.

## 3. Water Conservation through STP & Dual Plumbing

Sewage Treatment Plant (STP) being one of the most effective solution for the treatment of grey water was established by AUDA in South Bopal.

In order to make the process of domestic wastewater treatment and usage sustainable, the STP worth capacity of 100 KLD treats water coming from nearby residential areas and redirects it to AUDA garden hence making it suitable for reuse in gardening, irrigation, tree plantation etc. The dual pumping system also an outcome of STP is a methodology where the treated water is used by the household for flushing, irrigation etc. AUDA, in mostly all of its EWS projects have incorporated this system in order to recycle reuse and hence reduce the consumption of water.

*Ahmedabad Urban Development Authority (AUDA)*