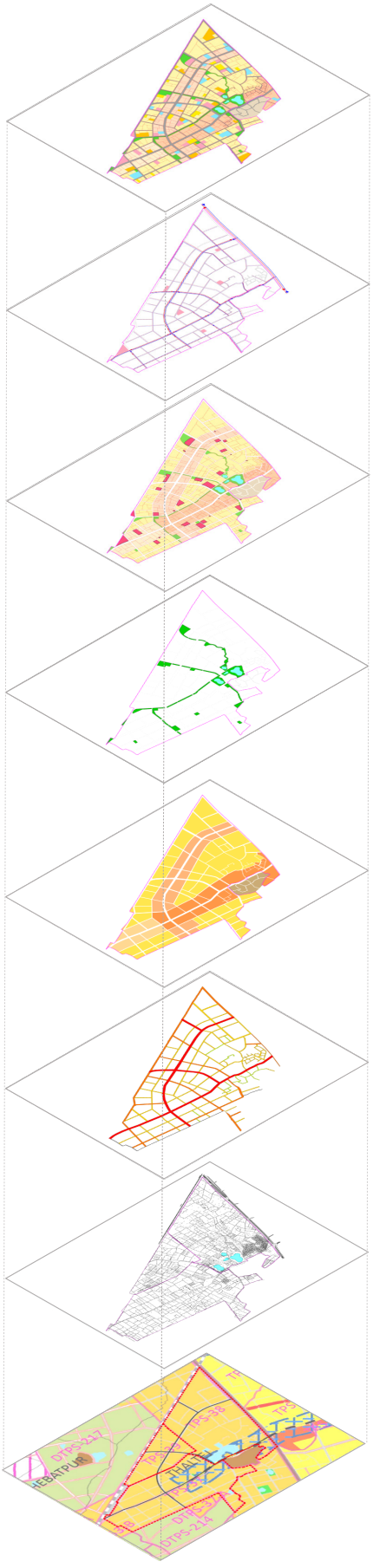
Manual for Preparation of Town Planning Schemes



GUJARAT REAL ESTATE REGULATORY AUTHORITY
GOVERNMENT OF GUJARAT

CRDF CEPT RESEARCH AND DEVELOPMENT FOUNDATION
CUPP CENTER FOR URBAN PLANNING AND POLICY

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Feburary 2022

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Preface

In line with the global trends, the Urban population of India is likely to go up to 70 crores by 2050. It will be double that of the current urban population and 2.5 times the present population of the USA. Experts estimate a need for 500 cities to accommodate this humungous growth in urban population. Recent data from the southern and western States shows that there is a clear linkage between urbanization, population growth and economic prosperity. These States have a high level of urbanization ranging from 33.4% to 48.4% and considerably higher per capita GDP ranging from (Rs.1.86 to 2.05 lacs) as compared to the national average of 1.32 lacs, indicating relative prosperity. The Gross Enrolment Ratio (GER) in higher education in the range of 20.1 to 48.6 and lower Total Fertility Rate (TFR) as well as better care of every child in these states reflect a superior quality of life. The experience of south Korea is also instructive. Its urban population rose from 28.8% in 1966 to 85.7% in 1999, while its economy went from low income to upper middle-income status during this phase. Cities have been centres of growth, innovation and creativity. GDP of New York as well as that of Tokyo is at par, with that of India!

If India has to achieve the Prime Minister's vision of becoming a 5 trillion-dollar economy by 2024, its cities and towns must play a crucial role of becoming the engines of growth and development. The state and cities must facilitate the demands of the future through innovations in spatial planning regime, & facilitating greater efficacy in achieving the vision for Indian cities in the 21st century.

The state of Gujarat, as one of the front runners contributing significantly, to this economic growth of the country, has already risen to achieve this vision. The Vibrant Gujarat Global Summits have paved the way for this. The Urban Development and Urban Housing Departments (UD & UHD) has been playing a key role in facilitating this growth and development, and working closely with other departments and authorities including Gujarat RERA Authority to achieve the vision.

Gujarat is known for its planning and urban development, and the Town Planning Scheme mechanism is the back bone of this development. TP Schemes have been prepared for over a century in Gujarat and they form an integral part of the state's planning framework. TP Schemes are the reason why Gujarat's cities have been able to develop well planned grid of road network, including ring roads, and provide land for infrastructure, social amenities, gardens and housing for economically weaker sections. Apart from enabling and managing planned urban development the TP Scheme mechanism has also proved to be efficient fiscal and value-capture tool for the authorities.

Although the TP Schemes have been very efficient in facilitating development in cities of Gujarat, some of the studies show that the development demand often outpaces the supply of planned and serviced land provided through TP Scheme mechanism in the state. As this study indicates, in Tier-1 cities such as Ahmedabad, Surat, Rajkot, Vadodara etc almost 18% of the newer development projects are in Non-T P Scheme Areas. However, this situation is even more urgent in the Tier-2 and Tier-3 cities such as Anand, Baruch-Ankleshwar, Junagarh, Navasari, etc. where almost 60 % of the newer development projects are in non-T P Scheme areas that require planned network, infrastructure and amenities.

The department has already risen to address this challenge by carrying out necessary improvements and reforms in the sector. To achieve this, the department has strengthened its human resources by recruiting new urban planners and officers. To facilitate ease of development, the department has also accelerated preparation and sanctioning of T P Schemes in recent years. To facilitate this noble task, Gujarat RERA have joined hands to undertake preparation of "Manual for Preparation of Town Planning Scheme". This manual has been conceptualized with the help of highly experienced planners and practitioners,

The core team instrumental in preparing the manual includes **Shri V. K. Phatak** (Former Dean, Faculty of Planning, CEPT University, and Former Principal Chief, Town and Country Planning Division, MMRDA), **Shri Jignesh Mehta** (Urban Planner and Program Chair, Master of Urban Planning, CEPT University), **Shri Utkarsh Patel** (Urban Planner & Domain Expert) and other experts from CEPT university. **Shri Vatsal Patel** (Technical officer, Guj-RERA, Former Chief City Planner, AMC) ably coordinated the whole effort. The

successive drafts were reviewed by senior experts **Shri P.L. Sharma** (former Chief Town Planner, Govt of Gujarat), **Shri P. K. Ghosh**, IAS (R) (Former Municipal Commissioner, AMC), **Shri N. K. Patel** (Urban Planning and Development Domain Expert), **Shri M. M. Bhaumik** (Former Senior Town Planner), **Shri U. S. Mehta** and other senior planners and professionals involved in planning and implementation of Development Plans. The final draft was reviewed by **Shri R. Shrinivas** (Town and Country Planner, TCPO, MoHUA, Govt of India), who provided valuable inputs, which have been duly incorporated.

The manual has become even more relevant in light of the Union Budget 2022-23, which focuses on bringing in the reforms in urban sector policies, capacity building, planning and implementation, where TP Schemes and Local Area Plans become crucial to guide the urban growth. We are delighted that TCPO has circulated advance copies of the manual to all states, as a reference document for providing guidance and support for formulation of LAPs, and TP schemes under the scheme of Amrut.

We do hope that the manual will be found useful by the states in preparing effective implementable Town Planning Schemes and in the process provide guidance to the young new generation planners.

We welcome any suggestions to further refine the manual.

Dr. Amarjit Singh IAS (R)
Chairman
Gujarat Real Estate Regulatory Authority

Letter from Town and Country Planning Organization, Ministry of Housing and Urban Affairs, Government of India

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F.No. 19-1/2016/TCPO/MUT (203) Dated: 24th January , 2022

To all the State/UT Chief Town Planners/Director
Town and Country Planning Department

Subject: Manuals on Formulation on Local Area Plan Plans and Town Planning Scheme prepared by Gujarat RERA

Sir/Madam

As you are aware that this Ministry has been administering the sub scheme of Formulation of Local Area Plans and Town Planning Scheme in 25 cities and the same shall continue under the AMRUT 2.0 and more cities will be covered depending on the requests of the State Government and Union Territories. In this regard, a DO of even number dated 17th January has already been sent.

It is informed that Gujarat Real Estate Regulatory Authority (GRERA) has brought out two important documents *viz.,* Manuals on Formulation on Local Area Plan Plans and Town Planning Scheme. The documents provide step- by- step methodology to prepare both the plans and are ideal guide to Town Planners working in State Town and Country Planning Departments/Urban Development Authorities/Urban Local Bodies. The documents can be downloaded from the following link:

https://gujrera.gujarat.gov.in/resources/staticpage/attachments/Manual_for_Preparation_of_Local_Area_Plans.pdf

https://gujrera.gujarat.gov.in/resources/staticpage/attachments/Manual_for_Preparation_of_Town_Planning_Schemes.pdf

This may kindly be circulated to all the district offices of State /UT Town and Country Planning Department.

Yours faithfully

(**R. Srinivas**)
Town and Country Planner

Note:

1. This manual is NOT a Statutory document, and in no form should it be understood or construed as one. The main purpose of this manual is only to provide additional guidance to support, facilitate and improve the preparation of T P Schemes in the state of Gujarat and to make the process more efficient.
2. This manual is based on multiple discussions, suggestions and recommendations identified during various meetings with various experts from relevant departments in the State Government and practitioners in the field identified by Guj-RERA.
3. It is important to note that this manual must be used in conjunction with the Gujarat Town Planning and Urban Development Act 1976 and the rules published by the Government, and not as standalone document.
4. While this manual has been based on the GTPUD Act,1976, the other states interested in preparation and implementation of T P Schemes should customize their planning Acts by adding/ modifying the relevant sections according to their state specific needs and requirements.
5. Beyond the current conventional practice this Manual also makes recommendations to carry out some improvements either in the process or in the institutional framework by the authority and/or the government (without requiring amendments in the act). All such recommended improvements are indicated with **BROWN** colored text in this manual.

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Acknowledgments:

The following individuals graciously contributed to the reviews, discussions and decisions taken during the process of preparing the manuals.

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List of Tables

List of Abbreviations

ACTP	Additional Chief Town planner
ADA	Area Development Authority
AUDA	Ahmedabad Urban Development Authority
CBD	Central/ Commercial Business District
CPHEEO	Central Public Health and Environmental Engineering Organization
CSO	City Survey officer
CTP	Chief Town planner
DCR	Development Control regulations
DILR	District Inspector of Land Records
DP	Development Plan
DSO	District Survey Officer
ERC	Expert Review Committee
EWS	Economically Weaker Sections
FBR	Form Based Regulations
FGD	Focused Group Discussion
FP	Final Plot
FSI	Floor Space Index
GIDC	Gujarat Industrial Development Corporation
GoG	Government of Gujarat
GOVT	Government
GTPUDA	The Gujarat Town Planning and Urban Development Act 1976
GTPUDR	The Gujarat Town Planning and Urban Development Rules 1979
LR	Inspector of Land Records
IPT	Intermediate Public transport
IRC	Indian Roads Congress
JTP	Junior Town Planner
KJP	kami Jasti Patrak
LRO	Land record Officer
LVC	Land Value Capture
NBC	National Building code
OFC	Optical Fiber cable
ONGC	Oil and Gas Corporation
OP	Original Plot
PPP	Public Private Partnership
RERA	Real Estate Regulatory Authority
ROW	Right of Way
SEWS	Socially and Economically Weaker Sections
SFP	Semi-Final Plot
SIR	Special Investment Region
SOR	Schedule of Rates
SP Ring Road	Sardar Patel Ring Road in Ahmedabad, India
STP[1]	Sewage Treatment Plant
T P Scheme	Town Planning Scheme
TDR	Transferable Development Rights
TPO	Town Planning Officer
TPVD	Town Planning and Valuation Department
UDA	Urban Development Authority

01.
Introduction

Highlights

- *The main purpose of this manual is to provide stage-by-stage guidance for preparation of Town Planning Scheme to the new generation planners and professionals in simplified terms and illustrative format, without much legal jargon.*
- *The manual draws upon the deep knowledge, experience and learnings of senior planners in government and practitioners in the field, with objectives to simplify and expedite the process of urban spatial planning, to bring everyone on the same platform and to facilitate organized development on ground.*
- *The manual is not a statutory document. It shall be used in conjunction with GTPUD Act 1976 and the GTPUD Rules 1979. The Act, the Rules and the extant GoG orders must be the final reference in case of any confusion, inconsistency or discrepancy in interpretation of any part of this manual.*

1.1 Why this Manual?

Town Planning Scheme (T P Scheme) mechanism has been practiced in Gujarat since more than a century now. This land pooling and land reconstitution based mechanism is much appreciated throughout the country and is referred to as a greatly successful alternative to the other models of development which require forceful land acquisition.

T P Scheme mechanism is a tool to prepare and implement a detailed plan for a smaller area under the development authority in such a way that it remains consistent with the provisions of the overall development plan prepared for the urban area. It resorts to undertaking a strategy for land pooling and land readjustment for different areas falling within the T P Scheme area.

The T P Scheme mechanism has reached to this level of success and acceptance in Gujarat, only because it has been continuously evolved and improved upon through improvements and amendments in the acts, rules and regulations responding to the dynamics of urban development.

In spirit of continuing this evolution the main purpose of this manual is three-fold:

- To provide clear stage by stage guidance for preparation of Town Planning Scheme to the new generation planners and professionals in government and elsewhere
- To explain the process in simple terms and in illustrative format without much of legal jargon to bring everyone on the same platform
- To simplify and expedite the process of urban spatial planning, and facilitate organized, sustainable and livable development on ground.

For this, the manual draws upon the deep knowledge, experience and learnings of senior planners in government and practitioners in the field, with objectives to simplify and expedite the process of urban spatial planning, to bring everyone on the same platform and to facilitate organized development on ground.

The manual is NOT a statutory document, but its main purpose is to provide guidance and support to facilitate and improve the preparation of T P Schemes. In this context, this manual can also be a good reference for planners and professionals from other states looking for learning this well-functioning planning mechanism of Gujarat

1.2 What does it Provide?

To achieve the aforementioned purpose, this manual provides detailed, stage-by-stage guidance to everyone involved in preparing Town Planning Schemes under the Gujarat Town Planning and Urban Development Act 1976 (GTPUDA), the Gujarat Town Planning and Urban Development Rules 1979 (GTPUDR) and brings everyone on the same platform by providing the same consistent information and guidance across all T P Schemes. This manual provides clear guidance regarding:

- Overall T P Scheme Preparation Process at all stages.
- Surveys and analysis of existing situation
- Engagement of land owners, beneficiaries and stakeholders
- Articulating the purpose, vision and principles and preparing schematic layout of T P Scheme
- Planning and design of T P Scheme
- Land reconstitution
- Land valuation, incremental contribution (betterment charges), cost, revenue and finance
- Roles and responsibilities of concerned authorities and government etc.

1.3 How is the Manual Structured?

Sections & Chapters: This manual is structured in the same order as the stages of T P Scheme as practiced by the Town Planning and Valuation Department (TPVD) under the GTPUD Act 1976. The chapters provide stage-by-stage guidance for various stages of T P Scheme. Therefore they are organized in four such sections clearly titled based on the stages of T P Scheme; as indicated bellow:

- Stage 1: Declaration of Intention;
- Stage 2: Draft T P Scheme;
- Stage 3: Preliminary T P Scheme and
- Stage 4: Final T P Scheme
- General Guidance

These stages and steps thereunder are also clearly identified in the flow-chart no .1, showing current T P Scheme mechanism in chapter 2.3. Beyond this, under the section titled **General Guidance** this manual provides detailed guidance regarding Institutional framework, roles and responsibilities; Implementation and finance management.

Appendix: for this, the manual includes: Survey methods; Illustrative example for Form F; Review of various land pooling and reconstitution models; Guidance for appointment of consultants, various illustrated examples of Revenue records, maps and other assistance

Recommended Improvements in BROWN Text: The manual is written to provide guidance for preparing T P Scheme as currently practiced under the provision of the Act and the Rules. However, beyond the current conventional practice this Manual also makes recommendations to carry out some improvements either in the process or in the institutional framework by the authority and/or the government (without requiring amendments in the act). All such recommended improvements are indicated with **BROWN** colored text in this manual.

IMPORTANT NOTE: This manual is not a statutory document. It must be used in conjunction with GTPUD Act 1976 and the GTPUD Rules 1979 and the extant orders by the Government of Gujarat (GoG). In case of any confusion, inconsistency or discrepancy in interpretation of any part of this manual, the Act, the Rules and the extant GoG orders must be the final reference.

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02.

Evolution, Strengths and Improvements in the Town Planning Scheme Process

Highlights

- *Town Planning Scheme mechanism has been in use in Gujarat for more than century now. This mechanism has constantly been improved and made stronger over time.*
- *Some key reasons why T P Scheme Mechanism works well are:*
  - *T P Scheme allows the authority to obtain land for public purposes without compulsory land acquisition*
  - *The mechanism is considered fair and equitable as all landowners contribute almost equal proportion of land towards development of infrastructure and amenities*
  - *It creates `win-win' situation for both - the land owners and the authority,*
  - *It remains fair and transparent due to multiple opportunities for beneficiaries to engage in the process.*
  - *It ensures micro-level implementation of the macro level Development Plan,*
  - *It enables inclusive development through provision of land for EWS housing*
- *Some key areas of improvements for ease-of-development, planned growth and sustainable development are identified in this chapter. The details of such improvements are provided in the relevant chapters of the manual.*

2.1 Background

The much appreciated and successfully practiced Town Planning Scheme (T P SCHEME) mechanism has been used in Gujarat for more than century now. The practice of town planning in Gujarat, however, dates back to Indus Valley civilization, where the towns and settlements were properly planned in gridiron pattern to provide clear access to all structures and had basic infrastructure like sewerage, storm water drainage and water distribution network. Later, as towns and cities evolved over centuries during different eras, from Maurya and Gupta to Chaulukya, Sultnate, Mughul and Maratha periods, their planning and settlement patterns reflected the socio-economic, political, and defense concerns of the time. Such cities in the medieval period were broadly organized in zones, where key commercial area and institutions were located along the main roads leading to the citadel or administrative center. The residential zones around such cores were organized in clusters according to the socio-economic hierarchies of the time.

2.1.1 Evolution of current Town Planning Scheme mechanism:

The current system of planning evolved in late 19th and early 20th century during British rule as a response to the challenges of rapid urbanization fueled by industrialization and migration. The industrialization caused clustering of economic activities and opportunities, and attracted a large number of people to migrate to the cities and towns with industries for economic opportunities. The industries were typically set up on the edges of the existing old cities and towns, near the railway stations or intercity connections. Based on the spread of these industries put additional burden on the old cities and towns developed in medieval pattern, and resulted in unplanned growth and congested living conditions in and around the existing cities.

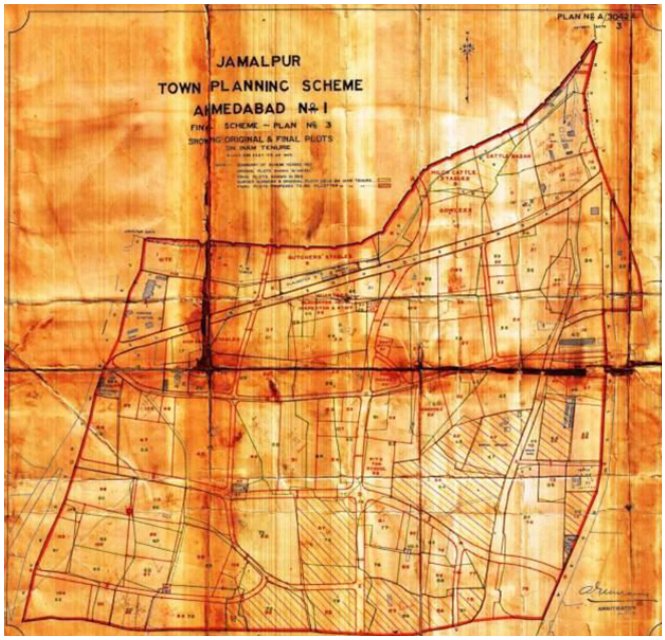

Figure 01: T P Scheme no. 1 Jamalpur
Source: AMC

Organized efforts to improve such urban situations began in late 1800s with formation of Sanitary Commissions, and Improvement Trusts in bigger cities during British Period. However, it was realized that a more organized town planning approach was required to improve the quality of development in the rapidly populating cities. This led to enactment of the Bombay Town Planning Act in 1915, which empowered the local authorities to prepare Town Planning Schemes for various areas of the city or town. This model of planning, which was first formalized and enacted in Germany, allowed the authorities to readjust plots and gain land for providing roads and infrastructure for improving urban areas. Even though this German model of land readjustment was not incorporated in Britain due to various reasons, the British understood its importance and incorporated the mechanism in the planning act passed for Bombay Presidency in 1915.

Under the provision of this act, multiple areas were planned through T P Schemes in Ahmedabad, Bombay, and Pune. The Jamalpur Town Planning Scheme was the first scheme prepared in Ahmedabad [Refer Fig. 01].

Subsequently, it was realized that the Town Planning Scheme helped only to improve small areas and parts of cities and towns. But there was a need for a statutory planning mechanism that allows authorities to prepare macro level Development Plans for the cities and towns, which could then be implemented at micro level through T P Schemes. The new Bombay Town Planning Act, 1954 was passed that replaced the previous planning act to establish the two level DP – T P SCHEME mechanism.

As the cities grew rapidly beyond their boundaries, the outside areas were also needed to develop in a planned manner. The enactment of Gujarat Town Planning and Urban Development Act, 1976 allowed creation of Development Authorities who were responsible for preparing Development Plan for the whole urban area, and for Town Planning Schemes to facilitate organized development and obtain land for roads, infrastructure and amenities in the growing areas. Over the years, the T P Scheme mechanism in Gujarat has continuously evolved and is now a well established and time proven tool for land pooling, land readjustment and land reconstitution. [Refer Fig. 02, Fig. 03]

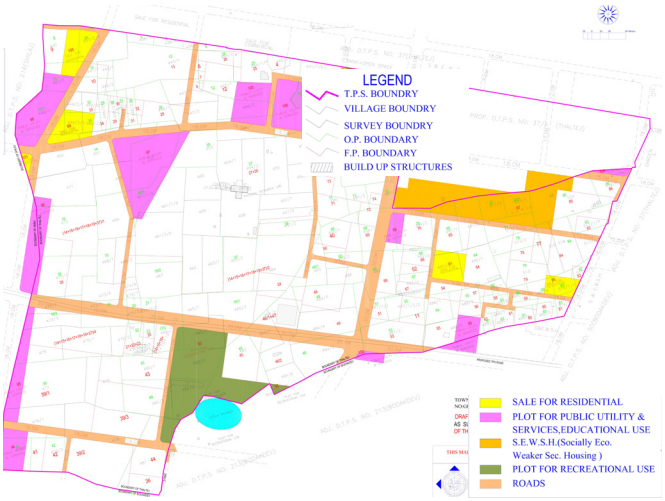

Figure 02: T P Scheme no. 214, Thaltej, Ahmedabad
Source: TPVD

2.1.2 Why T P Scheme mechanism works:

Among the many reasons behind success of the T P Scheme mechanism; below are some key positive aspects:

1. T P Scheme mechanism is a **great micro level planning tool to implement the macro level plan** (Development Plan) at local level.

2. T P Scheme allows the authority to obtain land for public purposes without compulsory land acquisition. It is proven to be an **alternative to the conventional land acquisition approach.**

- The conventional approach to land acquisition, even for public purpose, has become time consuming, expensive and messy. Frequently it leads to long, unending litigations or become instruments of power politics and conflicts. The acquisition process also becomes cost prohibitive while on the other hand the owners, whose lands are acquired, feel that they have not been adequately compensated. Therefore, there is inequity in distribution of costs and benefits for the land owners.
- The T P Scheme is a very good alternative to assemble land for providing infrastructure and amenities to facilitate planned urban development in a faster and financially affordable manner, without taking recourse to compulsory acquisition.

3. The T P Scheme mechanism is **considered fair and equitable** as almost equal proportion of land area is taken from each plot, and pooled together at appropriate locations in planned manner to provide for roads, infrastructure and amenities.

4. It **creates 'win-win'** situation for both - the authorities and the land owners - as the land value of the area subsequently increases due to availability of infrastructure and amenities, and the authority is able to recover the cost of infrastructure by monetizing

Figure 03: T P Scheme no. 16, Kapadra, Surat
Source: TPVD

on a part of the increased value of land.

5. The mechanism is generally considered **fair and transparent** due to **stakeholder engagements at multiple stages** of T P Scheme preparation. The process is **participatory and democratic** as the owners are consulted at various stages of the preparation process and are allowed to put forward their suggestions and objections regarding their land and the future development in the area. All individual plot owners are heard and they can meaningfully participate.

6. The T P Scheme is a very good mechanism to **ensure micro-level implementation of the macro level Development Plan**, as it is designed to follow the road network, zoning and other features of the DP.

7. It **allows flexibility** and freedom of development for land owners as it does not segregate areas by specifying plot-by-plot uses for each parcel (unlike zonal plan-layout plan mechanism). Instead, it allows all types of permissible uses as per the DP and facilitate development by providing infrastructure and amenities.

8. It **enables inclusive development**, as it **provides land for EWS housing** along with the same amenities and services provided to the whole T P Scheme.

9. It permits **Land Value Capture (LVC).**

2.1.3 Other examples of Land Pooling, Readjustment and Reconstitution:

[Refer appendix 03 for details of the examples]

Beyond the T P Scheme mechanism of Gujarat, there are other similar examples of Land Pooling, Reconstitution and Readjustment mechanism used both in India and abroad. Magarpatta township, a satellite township in Pune is developed privately by a group of land owners through the land pooling and readjustment mechanism *[Refer Fig. 04]*. Similarly, Delhi has prepared a Land Pooling policy on the privately pooled land development model in 2013. This was subsequently revised in 2018. The policy seems to have generated considerable interest, however the actual implementation of the land pooling policy on ground is yet to happen.

Globally, the land pooling, readjustment and reconstitution model of development is also a widely popular model of development. In Germany, it is used to improve local public infrastructure, accessibility - thoroughfares, public green spaces, carve out areas required for protection against environment (ex. flood prone areas, river basins) and specify newer developable area etc *[Refer Fig. 05]*. In Japan, the model is widely used to control suburban/ peripheral sprawl, development of new towns, urban rehabilitation, infrastructures development and post-disaster reconstruction *[Refer Fig. 06]*. In South Korea, This mechanism is primarily used to prevent disorderly urban sprawl and to acquire public land in new built- up areas in advance.

Figure 04: Land Pooling in Magarpatta Township
Source: Associated space

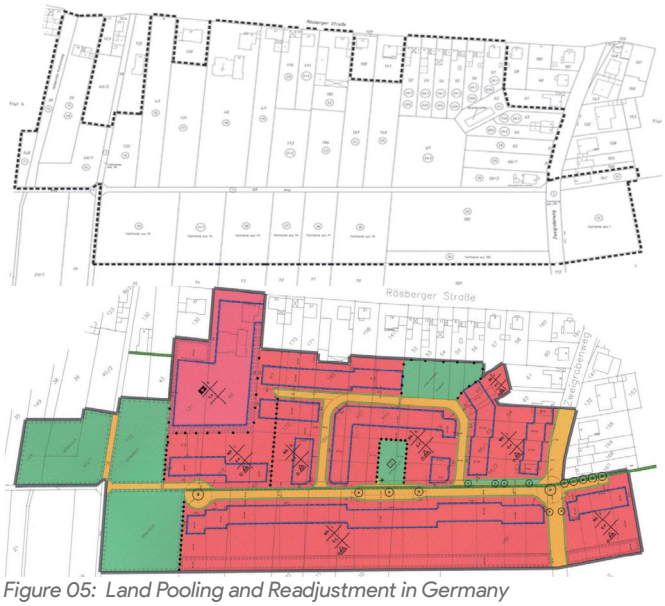

Figure 05: Land Pooling and Readjustment in Germany
Source: JICA

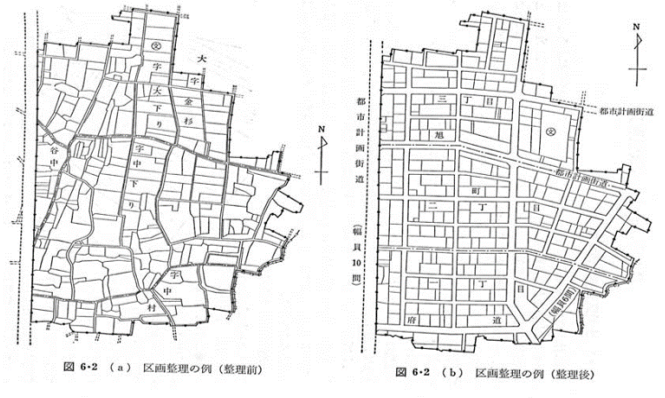

Figure 06: Land pooling and readjustment in Japan,
Source: World Bank Group

2.2 Main Provisions in the GTPUDA for Preparation of T P Scheme

The relevant Sections of the GTPUD Act 1976 and GTPUD Rules 1979 in the current T P Scheme Process are as under:

Town Planning Scheme is a statutory plan to be prepared and sanctioned under Gujarat Town Planning and Urban Development Act 1976 (GTPUDA). Therefore, the process of preparing a T P Scheme must adhere to the relevant sections of the act. While the manual is structured in the same order as the stages followed in practice, this order broadly follows the provisions in the act as listed below.

The table below identifies key stages of the process for preparing a T P Scheme and provides relevant sections of the act applicable at the key stages.

Sections/ Rules	Provisions
• GTPUDA, Section 40 [sub section (1), (2) & (3)]:	**Making and contents of a T P scheme.**
Stage 1: Declaration of Intention	
• GTPUDA, Section 41 [Sub section(1), (2) & (3)]: › GTPUDR, Rule 16:	**Power of appropriate authority to resolve on Declaration of intention to make scheme.** **Publication of declaration of intention to make a scheme under, section-41 of GTPUDA.**
Stage 2: Draft T P Scheme	
• GTPUDA, Section 42 [Sub section(1),(2)&(3)]: › GTPUDR, Rule 17: › GTPUDR, Rule 18:	**Making and publication of draft T P scheme.** **Meeting of owners and framing of tentative proposals.** **Publication draft T P scheme under section-42 of GTPUDA.**
• GTPUDA, Section 43 [Sub section (1), (2)] : › GTPUDR, Rule 20:	**Power of State Government to require appropriate authority to make T P Scheme.** **Manner of publication of draft T P Scheme under section-43, GTPUDA**
• GTPUDA, Section 44: › GTPUDR-Rule 21:	**Contents of draft T P Scheme – clauses (a) to (h)** **Other particulars of draft scheme under section 44(h), GTPUDA.**
• GTPUDA, Section 45 [Sub section(1),(2)&(3)]:	**Reconstitution of plots .**
• GTPUDA, Section 47: › GTPUDR, Rule-22 :	**Objection received on the draft T P Scheme to be considered.** **Manner and method of compensation payable under section-45, GTPUDA.**

• GTPUDA, Section 48 [Sub section (1), sub-section (2) along with amendment in sub-section (2) and sub-section (3)]:	**Power of State Government to sanction draft scheme.**
• GTPUDA, Section 48-A [Sub section (1), (2) & (3)]:	**Vesting of Land in Appropriate Authority**
Stage 3 & 4: Preliminary & Final T P Scheme	
• GTPUDA, Section 50 [sub section(1)(2)(3)]:	**Appointment of Town planning officer.**
• GTPUDA, Section 51:	**Duties of Town planning Officer**
• GTPUDA, Section 52 [Sub Section(1)(2)]:	**Contents of Preliminary and Final Scheme.**
• GTPUDA, Section 55:	**Constitution of Board of Appeal**
• GTPUDA, Section 63 [sub sections(1),(2),(3)]:	**Power of Town planning officer to split up draft scheme into Preliminary and Final T P Schemes .**
• GTPUDA, Section 64:	**Submission of preliminary scheme and final Scheme to Government**
• GTPUDA, Section 65 [sub section(1),(2),(3),(4)]:	**Power of Government to sanction or refuse to sanction the scheme and effect of sanction.**
• GTPUDA, Section 67:	**Effect of preliminary scheme.**
• GTPUDA, Section 73:	**Compensation when scheme is varied.**
• GTPUDA, Section 77 [sub section (1), (2)]:	**Cost of Scheme.**
• GTPUDA, Section 78:	**Calculation of Increment.**
• GTPUDA, Section 79 [Sub Section(1)(2)]:	**Contribution Towards cost of Scheme.**
• GTPUDA, Section 81:	**Transfer of rights from Original to Final plot or extinction of such rights.**
• GTPUDA, Section 82:	**Compensation in respect of property of right injuriously affected by Scheme.**
• GTPUDA, Section 90 [sub section (1) (2)]:	**Power of appropriate authority to borrow money for development plan or for making or executing a T P Scheme.**

2.3 Scope for Improvement in Current T P Scheme Mechanism

Even with all of its strengths, positive aspects and successful implementation, the mechanism of preparing the T P Scheme needs to evolve with the new planning challenges and trends of urbanization. In fact, the T P Scheme mechanism has reached to this level of success and acceptance only because it has been continuously evolved and improved upon throughout its long history.

Considering this, the manual takes up the opportunity to include and incorporate some improvements that will result in better urban environment on ground and make the T P Scheme process more efficient and consistent across all T P Schemes.

Various areas of improvement include:

1. Improved survey and base map preparation.
2. Improved assessment of existing situation to include natural and environmentally sensitive features.
3. Improved planning and design of T P Scheme layout to allow better visioning and improved urban character, better integration of natural and environmentally sensitive features.
4. Improvement in the process to minimize subjectivity and repetitions at all stages of T P Scheme.
5. Improvements in the process to avoid corrections, revisions and reworking at a later stage.
6. Improvements in estimating cost of works.
7. Improvement in valuation to minimize subjectivity.
8. Clearly defining the stages and identifying roles and responsibilities of different authorities, organizations and personnel.

The flow chart 1: **"Current Town Planning Scheme Mechanism"** below shows the process conventionally practiced in the field today and identifies scope for improvements at various stages in the current T P Scheme process.

The subsequent chapter 2.4 describes and illustrates the **"Recommended Improvements in T P Scheme mechanism"** recommended for practice. The recommended improvements have also been comprehensively explained in the Flow Chart 2: **"Recommended Town Planning Scheme Mechanism"** in chapter 13 : **"Recommended Improvements in Institutional framework, Roles and Responsibilities"**

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CURRENT TOWN PLANNING SCHEME MECHANISM

Intension Declaration

Ownership Freezed-Area, Shape & Size of Plot

Index Map Preparation

Data Collection
For Ownership & Area of the plots collected from DILR & Land Acquisition Department

Reconcilation (Melavani)
Superimposing Physical Survey on the Data collected from DILR

DILR Certification
Confirm the Area & Shape of the individual plots

Chief Town Planner Consultation
Section 41(1)

Declaration of Intention
Declaring intension by Authority to prepare Town Planning Scheme for the said area
Section 41(2)

Draft Town Planning Scheme

Preparation of T P Scheme Proposals

9 + 3 months

3 months

3 months

1 months

Draft Scheme Proposals
Road Network, Reconstitution of the final plots, carving out plots for Authority for Social Amenities and Sale
Section 40 45

Meeting of Owners
Inviting Objections & suggestions from the individual plot holders
Rule 17

Publication of the Draft T P Scheme
Inviting Objections & Suggestions from the individual plot holders for one month
Section 42(1), Rule 17

Submitting Draft Scheme to the Government
(Draft Valuation, OP-FP Map, F-Form, G-Form)
Section 48(1)

Sanctioning Draft Scheme from the State Government
Section 48(1)

Authority can take possession of the roads and Authority Plots

Preliminary Town Planning Scheme

Roads Finalized and TP Layout freezed

2 + 3 months

Appointment of Town Planning Officer
Section 50(1)

Public Hearing
Inviting Objection Suggestings

Submitting Preliminary Scheme to the Government
For Sanctioning the Scheme
Section 52(2)

Implementation of the Final Plot

Sanctioning Preliminary Scheme from the State Government
For Sanctioning the Scheme
Section 65(1)

Constitution of Board of Appeal
Section 55 & 56
Rule 28 & 29

Final TP Scheme

Valuation Finalized

3 + 3 months

Implementation of the Financial Proposal
Levy Betterment charges, paying compensation to the owners

Public hearing for Financial Proposals
Inviting Objections Suggestions

Submitting Final Scheme to the Government
For Sanctioning the Scheme
Section 65(1)

Final TPS Sanctioned by State Government

Scope for Improvement

Improvements in Base Map Preparation Process:
Need to prepare a clear base map after detailed survey, clarifying all land records after inviting all plot owners and beneficiaries to update their land records, and melavani.

Various Surveys in the Data Collection Process
-Need for a holistic and Analytic Framework for various surveys required for the preparation of Base Map. This needs to be achieved by strengthening of Act/rules.

Public Consultation- Updating Ownership
-Need for Land owners and Beneficiary consultation to Freeze Land Records with Shape, Size and ownership boundary Before Intension Declaration to avoid delays caused due to changes in the land records at later Stages.

Preparation of Conceptual Layout
- Need to add a Stage for Preparation of Vision/ideas/ Concepts for preparing Draft TP

Public Consultation- Preparation of Conceptual Layout
-Need to incorporate Public Consultations as part of conceptualizing the TP Scheme layout

Define Deductions
-Need for a rationale for deriving deductions in TP Scheme process. Act/Rule

Plot Reconstitution
- Need for clear Principles and considerations for key planning ,Design and Plot re-constitution such as the FP plot shape, size, -proportion of x-y ratio, physical features like nala, Street Design, Built Form, Physical and Social Infra, informal activities, housing and EWS etc.

Owners Meeting- Method to Conduct
- Need for proper framework / guidelines specified for conducting owners meeting and other forms of Public consultation and Stakeholder engagement throughout the TP Scheme Preparation process.

Valuation
- Need for Detailed Specification for undertaking Valuation

Appointment of TPO
-Need for Appointment of TPO at the earliest post the sanctioning of Draft TP Scheme to reduce the delay in the TPS Process

Public Consultation
- Need for proper framework / guidelines specified for the manner and medium of undertaking public consultation.

Public Consultation
-- Need for proper framework / guidelines specified for the manner and medium of undertaking public consultation.

Practiced but not prescribed

Prescribed and Practiced

Publication under the Act or Rules

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2.4 Recommended Improvements in T P Scheme Mechanism

Based on the assessment of current T P Scheme process identified in the previous sub-section, this sub-section identifies improvements in T P Scheme process and its components

2.4.1 Recommended Proposed Improvements in T P Scheme Process

Stage 1: Declaration of Intention

Boundary Delineation: It is recommended that the T P scheme boundary should be identified based on the guidance provided in the Development plan. In case, where boundaries of such T P Schemes have been indicated in the DP, further revisions may be made to revise or re-delineate these boundaries based on surveys, studies and considerations described in chapter 4.

Appointment of Advisory Group (AG): At the time of Boundary Delineation, the Authority may appoint an Advisory Group for guidance and internal review of the draft T P Scheme preparation process. (Refer chapter 13.2 for details regarding appointment of AG)

Physical Features survey: Simultaneously, the authority should do the data collection of land records, ownerships and beneficiaries and conduct Topographic & Physical features surveys (Refer chapter 5.1).

Reconciliation (Melavani) and Index Map (Plan no. 1) Preparation: The reconciliation (Melavni) process is then initiated and an Index Map should be prepared by superimposing physical features survey (structures), Survey numbers along with their boundaries, Administrative boundaries, Road and Revenue Water bodies. *(Refer chapter 5.2a.1)*.

Base Map preparation (Plan No. 1-A): A Base Map should be prepared by adding other layers such as Green Cover, Forest land, Infrastructure lines etc. to the Index Map

Publication of draft Index Map/ Base map and Freezing of Land Records: In the current practice, the Base-map can be revised anytime during the process of preparing T P Scheme. Many times this results in significant changes in the Base-map even after the Draft T P is sanctioned, causing significant changes in the planning and design and requiring significant reworking. In order to avoid this, the authority may alternatively decide to publish a draft version of the Index Map/Base Map ("Draft Base Map") along with land records inviting plot owners by public notices to update/verify their land records after Reconciliation (Melavni). The queries and updates of land records along with the Base map should then be submitted to the Inspector of Land Records (appointed at the authority specifically for T P scheme by the DILR), who would make the required revisions in the draft base map and subsequently, Freeze the Final Base Map. *(Refer chapter 5.2b).*

Index Map Certification by DILR: The Index Map along with the area statements should be reviewed and certified from the DILR (Refer chapter 5.2a.2).

Consultation with Chief Town planner (CTP): After certification of the Index Map by the DILR, the delineated Boundary of the T P Scheme clearly demarcated on the Index Map and /or Base map shall be taken for review by the CTP (Refer chapter 5.2a.3).

Declaration of Intention: The Index map with the final T P scheme boundary is then reviewed and subsequently approved (if deemed appropriate for approval) by the Chief Town Planner (CTP) (Refer chapter 5.2a.3). The declaration of intention to make T P Scheme is then published in consultation with the CTP. (Refer chapter 5.2a.4)

Stage 2: Draft Town Planning Scheme

Other Data Collection and Stakeholder Inputs: Simultaneously with preparation of base map, the authority should carry out consultations and informal discussions to get inputs from stakeholder, and conduct various observation based and contextual surveys such as land use survey, building use, NA conversions, infrastructure network etc. that would help in preparing T P Scheme Layouts. (Refer chapter 6) Before preparing schematic layout, the authority should prepare various thematic maps and carry out necessary surveys and analyses. Using the base map, the authority should prepare the Original Plots Map (OP Map) and initiate the preparation of F-Form.

Preparation of Schematic Layout: The authority should prepare the schematic T P Scheme layout on its own or with help of qualified consultants including town planners experienced in preparing T P Schemes (Refer Appendix 4). Such schematic layout should identify street network layout, gardens and open spaces, plots for various amenities and infrastructures, plots for sale etc (Refer chapter 7). The authority should also initiate preparation of T P scheme report with inputs from relevant stakeholder and advisory group (AG).

Deriving Land Deduction/Contribution: Based on the land area allocated to street network, gardens and open spaces, amenities, infrastructure, EWS, For-Sale plots etc, the authority should define total Land Deduction/contribution (in percentage) to be levied from the T P Scheme area (Refer chapter 7.12). Based on this, the authority should carry out land reconstitution exercise and prepare a map identifying Final Plots (FP) (Refer chapter 7.13).

F-Form: Subsequently, F-Form should be prepared identifying FP values, compensation and contributions to be levied from each plot (Refer chapter 8).

G-Form: The authority should estimate total Cost of Works and prepare G-Form to calculate total cost of preparing the T P Scheme, which will determine the contributions to be levied from each plot in F-Form (Refer chapter 8).

Draft T P Scheme - Maps, Forms and Report: The Draft T P Scheme proposal should comprise of maps (showing Survey Plots, OPs, FPs and plots alloted for public purpose, road network and water bodies), F-form, G-form and the T P Scheme Report (Refer chapter 3).

Owners' Meeting: The authority shall conduct owners meeting and present the Draft T P scheme proposal to all stakeholders and beneficiaries and receive objections from them if any (Refer chapter 9.1).

Modifications: The authority shall make necessary modifications (if any) with reference to the objections received (Refer chapter 9.1.2). The same is then submitted to the advisory group for their review and subsequently submitted to the authority for publication of draft T P Scheme. (Refer chapter 8.2)

Submission of Draft T P Scheme: The Draft scheme is then submitted to the State Government for Sanctioning.

Appointment of ERC: It is recommended that the State Government appoints an Expert Review Committee (ERC) which shall review and recommend approval of Town Planning Schemes submitted to the government at different stage (Refer chapter 10.1). (Refer chapter 13 for detail recommendations for constitution and appointment of ERC) .

Sanctioning of Draft T P Scheme: After the Authority submits the Draft T P Scheme to the State Government, it shall review and recommend changes (if any) before sanctioning the Draft T P Scheme (Refer chapter 10.2).

Appointment of TPO: A Town Planning officer (TPO) shall be appointed, as soon as the Draft T P scheme is sanctioned by the State ERC (Refer chapter 10.3). (Refer chapter 13 for details regarding requirements for appointment, qualification, duties and functions of TPO).

Stage 3: Preliminary Town planning scheme

Land Owners and Beneficiary Hearings: The TPO shall invite land owners and beneficiaries for one to one consultations and hearing. Subsequently, TPO shall do the necessary modifications and prepare Preliminary T P Scheme (Refer chapter 11.1)

Submission of Preliminary T P Scheme: The Preliminary T P Scheme shall be submitted to the State Government for review by ERC, and subsequent sanctioning by the State Government (Refer chapter 11.4).

Stage 4: Final Town Planning Scheme

Upon sanctioning of preliminary T P Scheme, the State Government shall constitute a board of appeal. The TPO shall prepare the final T P scheme and submit the same to the State Government for review by ERC and subsequent sanctioning by the State Government (Refer chapter 12.4).

GENERAL NOTE: Refer Flow Chart 2 (Chapter 13)

03.
Components of T P Scheme

Highlights

- *It is important to document the rationale, vision and/or principles behind various decisions taken during preparation of T P Scheme. It is recommended that this should be recorded in the T P Scheme Report that accompanies the T P Scheme Maps and Forms required under the Act and the Rules.*

Draft T P Scheme is typically composed of Maps and Forms and a Scheme Book compiling relevant form and notes. However, it is also important to record the key aspects based on which the T P Scheme planning and design has been carried out, including the purpose and/ or vision of T P Scheme, key layers showing existing situation analyses, principles and rationale for the lay out, principles for plot reconstitution, valuation etc. Therefore it is recommended that the Draft T P Scheme prepared for submission to the State Government should have the following maps and documents under three components, Maps, Forms and Report.

3.1 Maps

- **Map No. 0- DP Part Plan:** Part Plan of the T P Scheme area within the Development Plan.
- **Map No. 1- Index Map:** Showing structures from the physical features survey, Survey numbers along with their boundaries, Administrative boundaries, Road and Revenue Water bodies.
- **Map No. 1A- Base map** showing all cadastral plots (with numbers) as certified by DILR, along with all existing natural and man-made features including roads (pakka and kaccha), structures, poles, electricity and communication lines, pipelines, utilities, water-bodies and contours .
- **Map No. 2- Original Plots (OP) Map:** including all plots as certified by DILR.
- **Map No. 3-Final Plots (FP) Map:** Including all Reconstituted Final Plots from the Original Plots.
- **Map No. 4- OP-FP Map:** showing Survey Boundary and number(in Black color), Original Plot Boundary (in Green color), Final Plot boundary (in Red color), plots allotted for public purpose, road network and water bodies
- **Map no. 5 (A, B, C, D)-Physical Infrastructure Maps** showing water supply network, sewage network, , Drainage, Roads, gas grid, street lights, etc.
- **Map No. 6- Green & Open Space Network Map** showing the proposed network of parks, green and open spaces and water bodies overlaid on the existing natural features including perennial and seasonal water bodies, wetlands, contours, low lying flood prone areas.

Table 01: Example of an F-Form

F - FORM											
Sr. No	Name of Owner	Tenure	Block No	Original Plot				Final Plot			
				No.	Area (sqm)	Value in Rupees		No	Area (sqm)	Value in Rupees	
										Underdeveloped	
						w/o value of structures	Inclusive of value of structures			w/o value of structures	Inclusive of value of structures
1	2	3	3(a)	4	5	6(a)	6(b)	7	8	9(a)	9(b)
1	Savitaben d/o aanabhai Yogeshbhai pujalal Mukeshkumar pujalal Other Rights (OR) Rasoolmiya Salumiya		250	1	11402	627110	627110	1	6841	355740	355740

Table 02: Example of G-Form

Form G		
1	Expenses under section 40(3), (c), (f), (g), (h)1 (Abstract sheet for costs of work)	
2	Expenses shown in the redistribution and valuation statement (Total of column 11 of Form F)	
3	Cost of publication under section 41(2), legal expenses under section 42(1) or (2) rules 16 to 18	
4	Compensation under section 49(2), legal expenses under section 77(f), (e), Compensation under section 82	
5	Cost of demarcation, salaries of Town Planning officers, and Board of Appeal, and their staff, and other expenses under section 61(2)	
	Total (a)	
6	Total of Increment (column 12 of F-form)	
7	Proportion of increment to be the contribution by Each Holder (Section 79) @ _____%	
	Total of contribution under Section 79 (b)	
	Net cost of scheme to the Appropriate Authority (a-b)	

3.2 Forms

- **F-Form** and various other forms (as prescribed in GTPUD Rules 1979) for the purpose of documentation of ownerships, plot sizes, area deductions / contributions, land valuations, incremental contributions, compensations etc.) [Refer table. 01 as an example]
- **G-Form** (including cost of service ducts along streets, culverts, landscape works and structures for parks, green and open spaces, and water bodies identified on the Green and Open Space Network map) [Refer Table. 02 as an example]

3.3 T P Scheme Report

Currently, during the preparation of T P Scheme a scheme book is prepared. Typically such scheme book includes compilation of the Maps and Forms listed out in Chapter 3.1 and 3.2. However, for improving the documentation process while preparing a T P Scheme, it is recommended that a detailed T P Scheme Report *[Refer Fig. 02]* should be prepared. Such a T P Scheme report should clearly identify the integral planning decisions pertaining to the T P Scheme. The major contents of the T P Scheme Report Should include:

- Purpose & Vision
- Key Principles and rationale for the T P Scheme Layout
- Maps & Analysis of existing situation
- Schematic Layout Plans showing:
  - Proposed Street Network
  - Areas with different urban characters
  - Parks, green space, open spaces and water bodies and other natural features
  - Public purpose plots indicating proposed amenities and social infrastructural plots
  - Physical infrastructure including water network, sewerage network, sewerage treatment plant, storm water network etc.

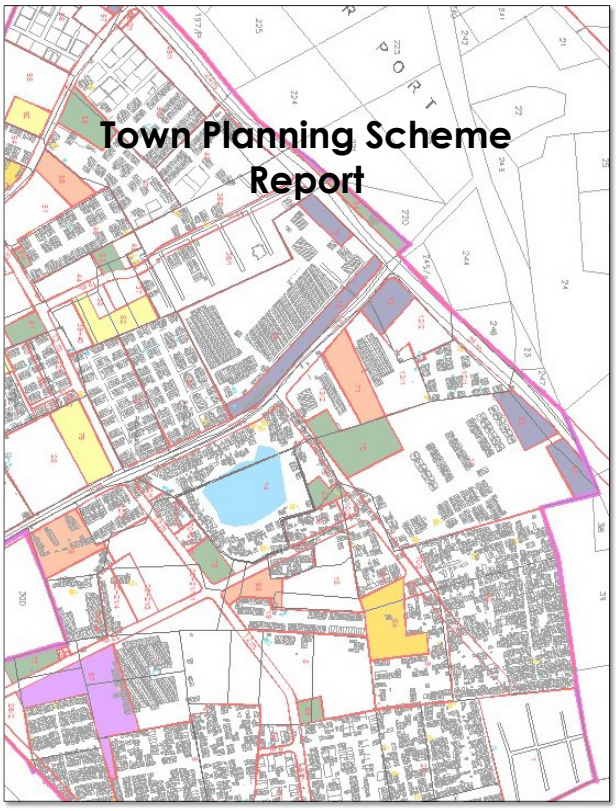


Figure 07: An illustrative example showing T P Scheme Report

- Land Deduction/ contribution calculations based on Land area required for street network, for public amenities and for parks and green and open space network.
- Principles for plot reconstitution.
- Plot reconstitution map showing OPS, FPs .
- Cost estimate for implementing the T P Scheme.
- Principles for calculating OP and FP values and contributions (betterment charges), incremental values.
- F-form, G-form, Cost of works, Legal Notes.
- 3D visualization showing a future scenario.
- Built Form Regulations for specific areas.
- Phasing and implementation strategies.

Stage 1
Declaration of Intention

04.

Identification and Delineation of Area for T P Scheme

Highlights

- *Delineation of T P Scheme requires careful considerations of various aspects to ensure consistency with the overall the Development Plan, the purpose and the natural and physical context .*
- *The authority may appoint an Advisory Group at the time of delineation of area for T P Scheme.*

The First important step in T P Scheme Process is identifying and delineating area for T P Scheme. Currently the delineation of T P Scheme is done separately from the Development Plan (DP) Process.

Town Planning scheme is a micro level planning tool to implement the DP. It is a mechanism to plan for a smaller part of the development plan area. Such areas, if developed in multiple parts in a non-coordinated manner is likely to result in pocketed and isolated developments which could be difficult to serve the overall purpose of Development Plan. Hence, it is crucial for it to be delineated in such a way that it works in conjunction and coordination with the T P schemes in the surrounding areas. In order to ensure holistic implementation of DP, T P schemes must be delineated in a continuous and coordinated manner across the DP area. Therefore, it is recommended that the initial delineation takes place in the DP itself. This will help ensure continuity of transportation network and infrastructure across the T P schemes and also ensure continuity of urban development and character as planned in the DP.

4.1 Identifying Purpose of T P Scheme

While delineating T P Schemes, it is important to understand and identify purposes ad objectives of the scheme, as these can have significant impact on the size and shape of the schemes. T P Schemes can be prepared for various purposes, some of which are listed and illustrated below:

- **For Greenfield Development**: Most of the T P Schemes taken up on urban peripheries are for purposes of planned urban expansion in the greenfield areas under the Development Plan. Delineation of such T P Schemes should be done considering the Zoning and other proposals of the Development Plan.

- **For Infill Development:** T P Schemes also can be taken up for purposes of organizing and facilitating the existing haphazard growth in the partially developed urban areas. The T P Schemes taken up for development of old Green Belt areas of Ahmedabad and T P Schemes for areas like Kotarpur etc are some such examples [Refer Fig. 08]. Delineation of such T P Schemes should be done considering the boundaries of surrounding T P Schemes, proportion of built and open land, the existing development character, land ownerships as well as the road network, infrastructure and other proposals in the Development Plan.

- **For City Level Infrastructure, Institutions and Amenities:** T P Schemes can also be taken up in a group or a cluster in order to collect and create large plots for specific purposes such as large institutional areas, large parks, airports, or even Ring Road [Refer Fig. 09]. Delineation of such T P Schemes require clear understanding of the land requirements for the proposed infrastructure or amenities, which subsequently can help decide the area to be taken under the T P Scheme or the cluster of T P Schemes. The series of T P Schemes taken up to obtain land for

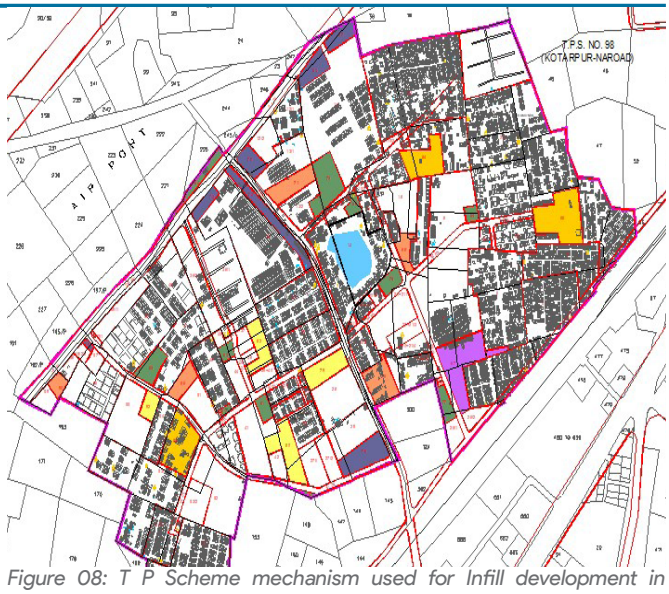


Figure 08: T P Scheme mechanism used for Infill development in Kotarpur-Naroda in Ahmedabad- Source: TPVD

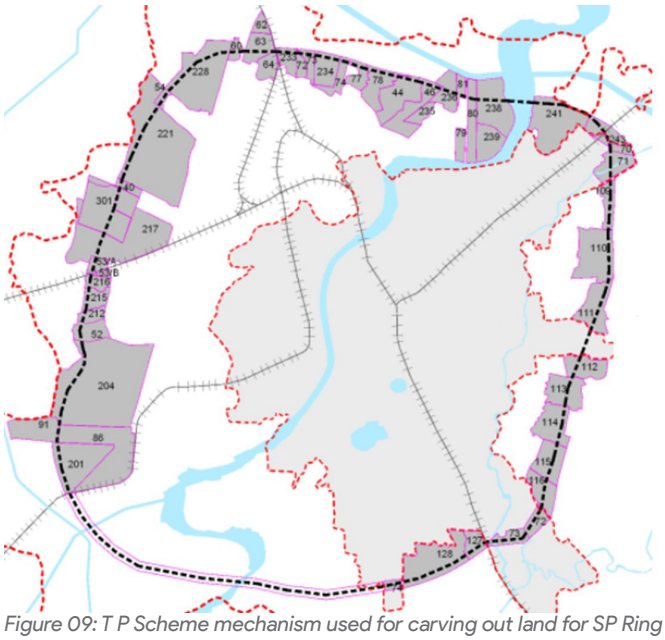


Figure 09: T P Scheme mechanism used for carving out land for SP Ring Road - Source: AUDA

Figure 10: T P Scheme mechanism used to consolidate large parcels of land to create large city level amenities - Source: GUDA

the Ring Road around Ahmedabad, the cluster of T P Schemes prepared to carve out land for a university and educational institutes in Gandhi Nagar etc are some examples of such T P Schemes [Refer Fig. 10]

- **For Special Purpose Developments:** T P Schemes can also be delineated for special purpose developments such as for Smart City Area Based Development or for tourism development areas. The T P Scheme taken up for Smart City Area Based Development at Raiya Road in Rajkot, and the T P Scheme for Shamlaji temple complex are examples of such T P Schemes.

- **For provision of Social Amenities:** Many areas in our cities lack sufficient social infrastructure, such as provision of educational and healthcare facilities. provision for stadiums, recreational amenities, provision for housing for economically weaker sections and slum dwellers etc. T P Schemes can be very good mechanism to ensure provision of land at key locations for such amenities.

- For urban rejuvenation in post-disaster recovery situations: T P Scheme mechanism has been successfully used for urban rejuvenation after disasters such as earthquakes. In such cases, T P Schemes are required to be carefully delineated to reestablish and restructure the old urban fabric and carve out consistent Right of Ways, amenities and infrastructure for urban rejuvenation. The set of T P Schemes taken up in Bhuj after the earthquake destroyed the city in 2001 are some very good examples of such planning for post-disaster recovery [Refer Fig. 11]. With the implementation of T P Schemes in Bhuj, the area was transformed and the beneficiaries were happy and more satisfied with the post earthquake plans and their implementation. This has been amply written about and illustrated through multiple papers published in international journals such as Journal of American Planning Association (JAPA), on World Health Organization (WHO) website etc.

JAPA, Byahut Sweta, Post Earthquake Reconstruction Planning using land readjustment in Bhuj

WHO, Resilient reconstruction: 20 years after Gujarat earthquake

Figure 11: T P Scheme mechanism used for urban rejuvenation in post earthquake situation in Bhuj, Gujarat- Source: EPC, BHADA

4.2 When & Where to Delineate T P Scheme

4.2.1 Delineating and Fine-Tuning T P Scheme Boundary:

The delineation of T P scheme should be based on the demand for development and existence of sufficient development pressure in an area. The Key Indicators that should govern the declaration of a T P Scheme are:

- Development Plan Zoning
- Substantial land transactions in short time (within last 5 years)
- Significant increase in non-agricultural conversions
- Course and trend of development
- Significant number of development permissions registered

- Ripple effect of large scale proposed projects in and around the area
- Laying of streets/ roads of R & B department and District Panchayat
- Development is planned in areas contiguous with existing development areas, provided that the State Government may direct to make T P Schemes
- If the owners of the land collectively request the concerned Authority for preparation of T P Scheme for their area then the authority should prepare the scheme as per the provision under section 40 (1) of the GTPUDA.

4.2.2 Considerations for Delineating T P Scheme Boundaries:

While deciding how to delineate a Town planning Scheme area, the following should be considered:

- The T P Scheme boundary should be delineated in such a way that it falls within the same zone of the development plan as much as possible.

- The areas that are envisioned to have similar characteristics should also be delineated within the same T P Scheme boundary.[Refer Fig. 12]

- The Delineation of the T P Scheme boundary should aim at keeping the number of Plot Owners manageable. This implies that the T P Scheme should not be delineated based on the area. Therefore different T P Schemes can have different areas based on the size of the plots delineated within the T P Scheme/ Development Plan/ as specified by the government. [Refer Fig. 13]

- The delineation of T P Schemes should make use of the physical boundaries or barriers such as natural features, village boundaries, proposed DP road etc. to define its limits. The delineation of T P Schemes should use indicators such as the major DP Roads or zone boundaries to define its limits. ([Refer Fig. 15, Fig. 16]

- If a T P Scheme is required to include the large scale infrastructure, amenity, open space or Eco-sensitive area; the delineation of such T P Scheme should include substantially larger area so that the percentage of land deduction/contribution remain viable as per

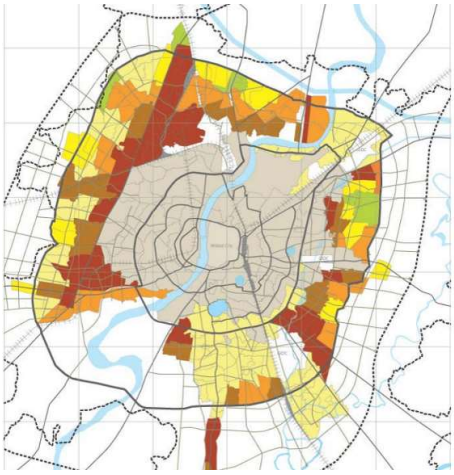
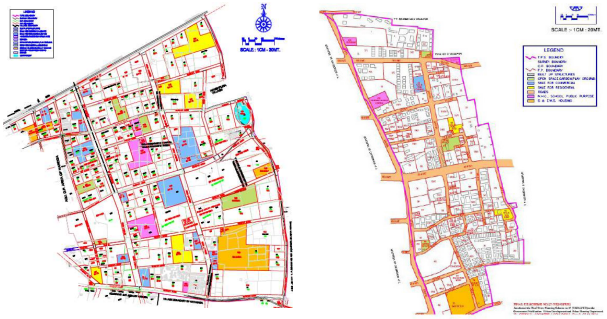


Figure 12: T P Scheme within Similar Zone and Similar Characteristics Source: AUDA



T P Scheme 121
Area: 312 Hectares
No. of OP's: 138

T P Scheme 27
Area: 80 Hectares
No. of OP's: 112

Figure 13: T P Schemes with different areas but similar number of plot owners- Source: TPVD, Govt. of Gujarat

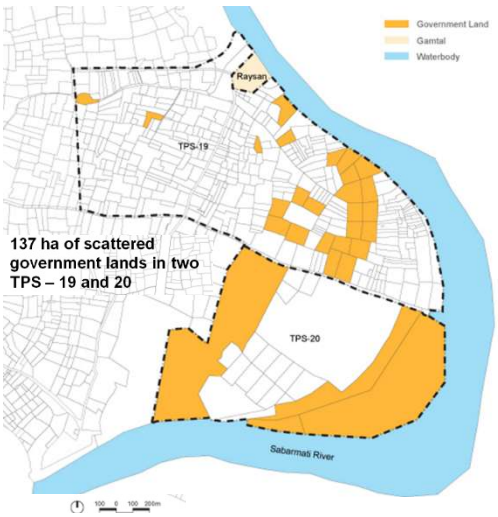


Figure 14: T P Scheme for Large Amenities- Source: GUDA

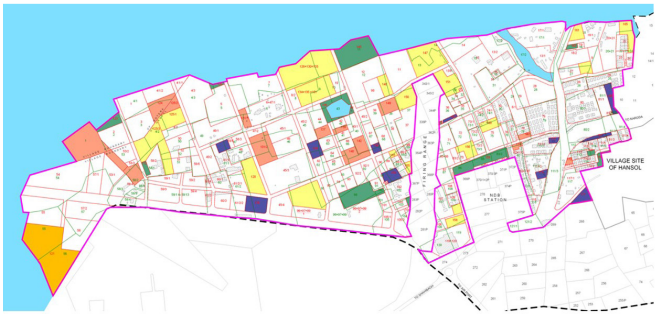


Figure 15: T P Scheme delineated based on a physical feature (Sabarmati River)- Source: TPVD, Govt. of Gujarat

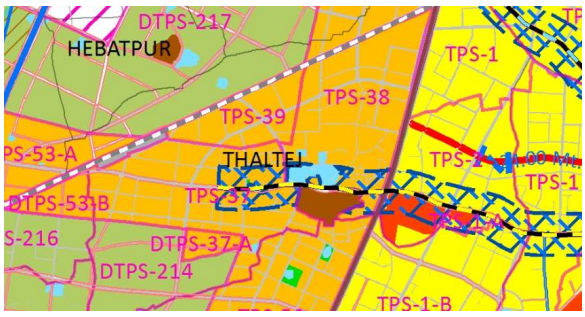


Figure 16`: T P Scheme delineation based on Major Roads, Railway Lines and Zone Boundaries- Source: TPVD, Govt. of Gujarat

the provisions under section 40 (3) (j) & (jj) of the GTPUDA.*[Refer Chapter 7.12 for further details regarding land deductions/contributions for such aforementioned purposes]*

Alternatively, such large land parcels can be retained or obtained by clustering multiple T P Scheme in such a way that they end up retaining adjacent, contiguous land parcels for the purpose. [Refer Fig. 14]

4.3 Appointment of Advisory Group (AG)

It is recommended that the authority appoints an Advisory group (AG) at the time of delineation of the T P Scheme [as explained in detail in chapter 13.2]. If such AG is appointed by the authority, at this stage it should be involved in review of the delineated T P scheme boundary. Beyond the delineation of area for T P Scheme, the Advisory group should also be involved in reviewing and providing guidance to the authority through out the process of preparing and submitting the Draft T P Scheme to the government.

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05.

Surveys, Preparation of Base Map and Declaration of Intention

Highlights

- *A precise Base Map is critical for the whole process of T P scheme to prevent any future complications. The procedure to prepare an accurate Base Map is detailed out in this chapter with detailed guidance for the following:*
  - *Detailed survey of physical features, and collection of data and property records*
  - *Reconciliation (melavani) of maps and records for the preparation of the base map*
  - *Verification and certification of Base Map by DILR.*

- *For making this process more direct and less time consuming it is recommended that an Inspector of Land Records not below the rank of DILR may be appointed by the government with statutory powers & functions at the authority office itself to verify, update and certify the land records and the base map.*

- *Before declaration of intention by the authority, the base map shall be reviewed by the Advisory Group (AG), including various domain experts appointed by the authority.*

The authority should carry out detailed high quality survey *[Refer Appendix 1]* with help of qualified surveyors *[Refer Appendix 4]* in consultation with DILR and under the guidance of Advisory Group (AG), and initiate data collection for the preparation of Base Map after the T P Scheme boundary delineation. The Base Map preparation should require detailed surveys and data collection of:

- All physical features in the area *[Refer Fig. 18]*
- All built forms, structure, utilities in the area
- Data of all land & property owners, occupants, beneficiaries in the area *[Refer Fig. 17]*
- All maps & layouts from various departments for verification of the ownership records
- Issues and aspiration of the residents/stakeholders through informal discussions and observations

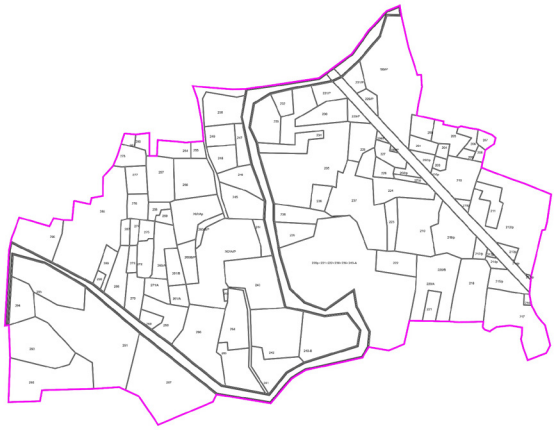

Figure 17: A cadastral Map with Plot Boundaries and plot Numbers

5.1 Physical Features Survey

In order to carry out Topographic and Physical features survey traditional methods such as total station survey can be used as well as newer methods such as the Drone Surveys can be used *[Refer Appendix 1]*. The authority should appoint qualified surveyors and staff for such data collection. *[Refer Appendix 4]*

The physical feature surveys should record and map all Natural features and Man-made Structures within the T P Scheme area and the surrounding area within a predetermined buffer as identified based on the context of the T P Scheme in appropriate manner or depending upon the nature and the shape of adjoining land beyond the T P Scheme Boundary subject to at least 500 meters depth.

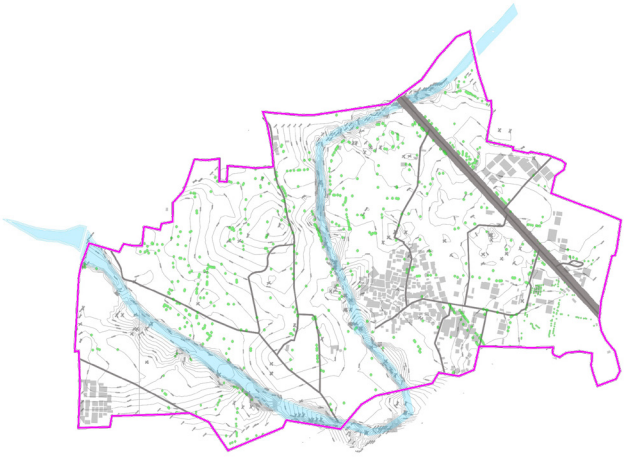

Figure 18: A Map showing Physical Features Survey

Surveys of Natural Features should include:

- **Contours** (at 50 m interval or as appropriate depending on the topography)
- Low lying areas
- **Water bodies** – lakes, seasonal lakes, ponds, rivers, water channels & streams, nalas, wells, water canals etc.
- Trees growth areas and other plantations, vegetation, hedges etc.

Surveys of Man-Made physical features would Include capturing of Built features:

- **Built structures** – buildings, boundary or benchmark stone, survey stones, agricultural bunds, fences demarcation plots, sheds, plinths, compound walls, gates, field boundaries, division boundaries, etc.
- **Building use** – residential, commercial, institutional, religious, industrial, station point etc.
- **Building type** – permanent, temporary, kacha, pacca etc.
- **Utility and infrastructure** – Water tank/ kundi, bore wells, hand pumps, water taps, tube wells, water supply lines, open drains, high tension lines, electric box, electric lines, electric poles, electric transformers, light poles, telephone poles, telephone box, manholes, soak pits, drainage lines, culvert and

cross drainage, cart track etc.
- **Transportation** – roads (kacha, pucca, paved, unpaved, asphalt roads etc.)
- Vendor cluster locations
- Location of informal settlements.

Data Collection-Revenue Records

While preparing detailed survey drawings of the Town planning scheme area, latest revenue records, maps and layouts need to be collected from the concerned authority. This data is available from various urban local bodies in different formats and information. The following data as indicated in Table 03 and table 04 is to be collected from different Departments.

Table 03: Data to be collected from various Authorities

Record Name	Information	Source
7×12 Record (for rural areas), *[Refer Appendix 5.2 as an illustrative example]*	Name of owners, area of the revenue survey plot, type of tenure, other rights on the plots, information of any kind of acquisition takes place such as road or railway, type of crop grown in the agricultural land and its area	Civic Centers, ROR/ Village Talati, Collector
Property Card (for urban areas) / City Survey No.	Name of owners, area of the revenue survey plot, type of tenure, other rights on the plots, information of any kind of acquisition takes place such as road or railway and the available infrastructure	City Survey Office (CSO)
DSO Record,	Area of revenue survey plot	District Inspector of Land Records (DILR)
Kami Jasti Patrak (KJP) / Durasti Patrak, *[Refer Appendix 5.6 as an illustrative example]*	Area of revenue survey plot after acquisition of rail or road or canal- any kind of alteration (addition or deduction) made in the area	
Ektrikaran Patrak, *[Refer Appendix 5.8 as an illustrative]*	Area of block no (amalgamated revenue survey plots)	
Puravani Patrak	Changes in the area of revenue survey plot after KJP	
Hissa Patrak, *[Refer Appendix 5.5 as an illustrative example]*	Area of each division (hissa) made in revenue survey plot	

Table 04: Maps & layouts to be collected from the authority

Record Name	Information	Source
Revenue Village Map, *[Refer Appendix 5.1 as an illustrative example]*	Revenue Survey nos./block nos., revenue survey plot/block boundary, water body, car truck, fencing, village boundary	District Inspector of Land Records (DILR)
Tippan/ Plot book, *[Refer Appendix 5.3 as an illustrative example]*	Revenue Survey plot with all sides and internal cross dimensions to generate/ enlarge accurate plot boundary	
Hissa Measurement Sheet/ Hissa Mapni Sheet, *[Refer Appendix 5.4 as an illustrative example]*	Revenue Survey plot with division marked on the actual shape	
Rail/Road/Canal Measurement Sheet	Alignment of rail/road/canal property line and acquisition from the revenue survey plots for the same	
NA Conversions	Revenue survey plot number, Name of owner, and purpose for NA permission.	Collector Office/ Panchayat office
Approved Layout	Layout fitting into the revenue survey plot with main approach and utilities within the plot	Concerned Authority/ District collector office/ Panchayat office)
GIDC Layout	Accurate boundary of GIDC property and land acquisition done on in T P SCHEME area	GIDC
Joint Measurement sheets	Location of oil/gas pipeline and well / Power and High Tension Line (HTL) passing through the revenue survey plot of T P SCHEME area	ONGC /other concerned authority
Topography Sheets	All physical and natural features including Reserved forest areas, Major water Bodies, channels, streams, Nalas etc and contours	Survey of India (Typically available at 1:25000 and 1:10000 scale)
Satellite Imagery and Remote Sensing (if required)	Physical features, soil type, Ground Water etc.	Data from BHUVAN, NRSC, ISRO, etc. as per the requirements.

5.2 Preparation of Index-Map and Declaration of Intention

5.2a. Current Process

As per the current process the authority should prepare an Index map after reconciling the revenue records and the survey map. Below is a detailed description of Reconciliation process:

5.2a.1 Process of Reconciliation (Melavni)

- Once accurate computer drawing of the surveyed scheme area is prepared, individual Tippans (plot size and shape) of each revenue survey Plot are enlarged to fit on the drawing.
- Reconciliation of each Tippan of the plot and the surveyed plot is done. The divisions are made in the revenue survey plots which are further incorporated referring the Hissa Mapni Sheets.
- Reconciliation of survey and Tippan using bunds, stones, fencing and actual shape of Tippan of Revenue Survey Plot. Sometimes the area of the plot from Tippan and area from DSO record do not match. For which minor adjustments are done in original Tippan based on the site conditions.
- The boundary of rail/ road/ canal is fixed based on their available Mapni Sheets from DILR/ Land Acquisition Office.
- Through the process of reconciliation, area and boundary of each revenue survey plot is finalized, thereafter a final area statement is prepared using all the land records for the approval from DILR.
- All ownership data should be recorded on a Base Map to identify all public and private plots. The Map should record all public plots under various authorities. This helps authority in making decisions about reservation, land consolidation around the government land to execute large projects.
- Enlargement of Tippan collected from District Inspector of Land Records (DILR) office. The Tippan represent actual shape and size. *[Refer Fig. 19]*
- Detailed survey of agricultural fields using Total Station, marking different categories of structures, plinth, shades, compound walls, gates, fencing, roads and utilities.

Reconciliation process for open agricultural area:

Reconciliation of survey and Tippan using bunds, stones, fencing and actual shape of Tippan of Revenue survey plot is to be done. Sometimes the area of the plot from Tippan and area from DSO record do not match; for which minor adjustments are to be done in original Tippan based on the site conditions. Tippan is representation of actual site shape and size which should be surveyed in detail marking bunds, stones, trees, fencing, car track etc.

Reconciliation process for built up area:

Reconciliation of survey and Tippan using compound

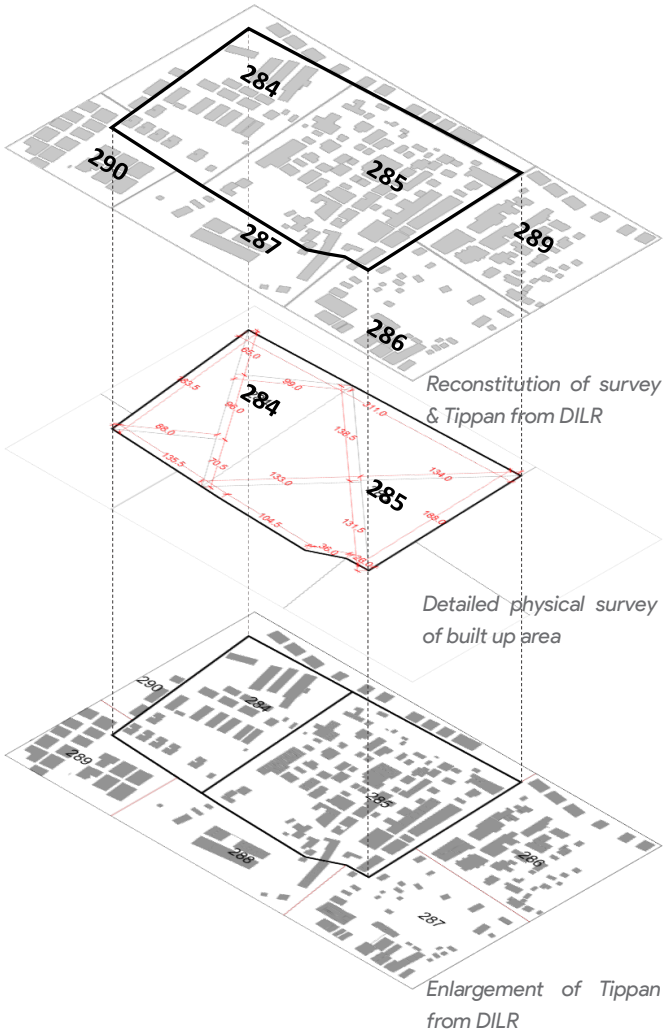

Figure 19: Process of reconciliation (Melavni)

wall, boundary of built up structures, fencing, plinth, shades, compound walls, gates, fencing, roads and utilities etc. as references to overlap the actual shape of the Tippan of revenue survey plot. Sometimes the Tippan boundary does not match with the boundary of property marked on the site that shows the violation of building bye laws and encroachments into the adjacent property.

5.2a.2 Index Map Certification by DILR

The Index map and the area statement *[refer table 5 as an example]* prepared after detailed physical features survey *[refer chapter 5.1]* and reconciliation (melavni) *[refer chapter 5.2a.1]* should be reviewed and certified by the DILR.

Table 05: Area Statement as an example

Area Statement											
Sr. No.	Block No.	Survey no.	As per DSO Record	As per last KJP/ Durasti Area	As per 7/12	As per site	Difference b/w DSO or KJP and site	Difference b/w 7/12 and site	DSO record or KJP and on site %	Final Area	Remarks
a	b	c	d	e	f	g	h	i	j	k	l
1	199	460	50788	46788	46842	46584	204	258	0.44	46788	KJP-13
2	200	457/1'	4957	-	4957	4770	187	187	3.92	4957	
3	201	458	3743	3727	3743	3787	-60	-44	-1.58	3727	KJP-13
4	202	442/1, 459	8296	4744	8296	4571	173	3725	3.78	4744	KJP-13
5	203	455/4	1518	-	1518	1571	-53	-53	-3.37	1518	
6	204	455/3	1720	-	1720	1646	74	74	4.50	1720	

5.2a.3 Consultation with Chief Town Planner

[Refer Section 41(1) of the GTPUD Act 1976]

The delineated boundary of the T P Scheme should be clearly demarcated on the Index Map certified by DILR *[refer chapter 5.2a.2]* and taken for consultation with the Chief Town Planner as required under section 41 (1) of GTPUDA.

5.2a.4 Declaration of Intention

[Refer Section 41(2) of the GTPUD Act 1976]
[Refer document "Recommendations to Strengthen the T P Scheme Preparation Process through enhancements in Statutory Planning Mechanisms", Recommendation 12, Template 1 for Advertisement to be published in newspaper for Declaration of Intention]

After the consultation with CTP, the authority by resolution should declare its intention to make T P Scheme for the delineated area under section 41 (2) of the GTPUDA.

The authority should publish the Declaration of Intention along with the area included within the T P Scheme in the following manner as per Rule 16 (1) of the GTPUDR:

- Wide publication of declaration of intention should be made by publishing the same in one or two local Gujarati newspapers as suggested under Rule 18 (1).

- The notification/ advertisement shall also be published on all the notice board in all the local body such as Panchayat office/Collector office/ Nagarpalika in the area for inviting objections and suggestions.
- Authority Shall paste copies of such advertisement at prominent places in or near the area included in the scheme and at the head office of the authority for inviting objections.
- Arrangement shall be made for inspection and to show and explain map and document collected of the delineated area at office of the appropriate authority.

The authority shall dispatch the copy of declaration of intention to make T P Scheme thereof along with the plan showing the area which it proposes to include in the T P Scheme to the State Government. *[Provision under Section 41 (2) and (3) of GTPUD Act-1976 and Rule-16 of GTPUD Rules-1979]*

The map and the extract of the map should be made available for downloading from the website of the authority.

5.2b Recommended Alternative Process- Freezing the Base Map

Preparing the base map and reconciling it is a very crucial component of the T P Scheme process as it becomes the base for all subsequent planning and land readjustment throughout the T P Scheme process.
However, in the current practice, such base map (referred to as the index map) is not required to be frozen at the time of declaration of intention . This results into frequent changes in the base map and/or land records at all later stages of T P Scheme, eventually resulting into significant delays.

In order to avoid such changes and delays, it is only recommended that the authority should prepare a final base map and land records and freeze it at the time of Declaration of Intention. If the authority decides to do so, it should follow the following process .

5.2b.1 Publication of Draft Base Map & Available Land Records

After the physical features survey (topography survey) and data collection *[as explained in chapter 5.1]*, the authority should prepare the Draft Base map with all on-ground information from the survey and available land record data.

The Base map should be reviewed by the Advisory Group (AG) appointed by the authority and subsequently provide it to DILR. An Inspector of Land Records (ILR) should be appointed from the start of the preparation of Base map by LRO/DILR (Revenue Department) to assist the Authority for updating revenue records and make necessary changes and revisions in the records. The ILR should be preferably appointed in the authority itself. *(Refer chapter 13.1 for details regarding appointment of cadre post of DILR for updating land records for Base map)*

The Authority should publish the draft Base Map and the available land records for 30 days. The authority should invite all plot owners to review and verify their plots on the map and in land records through advertisements in local newspapers as well as sending individual notices to all the land owners of the T P scheme.

The land owners and beneficiaries should verify and make applications for updating the land records to the authority in terms of ownership, shape and area and other relevant aspects of the plot within 30 days of publication.

Subsequently, the ILR should facilitate the process of updating the revenue records and base map and consult with DILR if necessary. The Base map and land records prepared after reviewing and/or incorporating the land owners applications should be certified by the ILR and should be considered as the Final Base Map to be used for declaration of intention.

This Base Map should be considered ‘Final Base Map’ and should be considered Frozen for all subsequent stages, from the Declaration of intention up to sanctioning of the Final T P Scheme.

5.2b.2 Consultation with Chief Town Planner and Declaration of Intention

[Refer chapter 5.2a.3 for detailed guidance on consultation with the Chief Town Planner and chapter 5.2a.4 for detailed guidance on Declaration of Intention of a T P Scheme]

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Stage 2
Draft
T P Scheme

06.
Existing Situation Analysis

Highlights

- *Careful existing situation analysis is crucial for ease of preparing and implementing a well planned T P Scheme. This chapter provides recommendations for such Existing Situation Analysis.*

Simultaneously with updating the Index Map/ Draft Base Map *[as explained in Chapter 5.2]*, the authority should identify necessary layers for mapping and conduct analysis of the existing situation to prepare various maps in order to understand the Town Planning scheme area.

As much as possible all necessary maps should be prepared for better understanding of the area and for developing planning and design proposals *[explained in detail in chapter 7]*. Depending on the requirement, such maps may include: Infrastructure Map, Existing Land Use Map, Existing building use and condition Map, Land ownership Map, Topography, environmental features and development suitability Map, Transport Network Map, Informal activities and settlement Map, Jantri Rates Map etc. Further, the sections elaborates on the preparation of maps and analysis of data.

6.1 Analysis of Existing Land Use

Topographical surveys and observation based surveys should be carried out in order to capture the topography and current Land Use of the area. *[Refer Fig. 21]*

The Land use survey should identify lands being used as: Agricultural, Gamtals, Residential, Commercial, Industrial, Institutional, Recreational, Water bodies, Amenities, Roads/circulation, Wasteland, and Vegetation etc. If Necessary, the captured and analyzed data may be illustrated in form of charts, graph etc.

6.2 Analysis of Building Use and Building Conditions

The physical features surveys should identify all the built structures – buildings/ sheds along with its shape and size in the T P Scheme area. *[Refer Fig. 22]*

The Building Use survey should identify all buildings under different uses such as: Residential, Commercial, Mixed, Industrial, Institutional, religious etc.
If necessary the survey can also identify the condition of the buildings under categories such as: Good, Average, Poor or Dilapidated.

All existing building use and its condition should be analyzed in order to understand and establish the potential redevelopment areas.

6.3 Analysis of Land ownership

Data related to land records and property owners should be collected and surveys related to the same should be carried out. The authority may hire consultants or surveyors for collection of on-ground data. Map showing all public and private land should be prepared *[Refer Fig. 23]*. Data should be analyzed to help the authority in making decisions about reservation land consolidation around the government land to execute large projects.

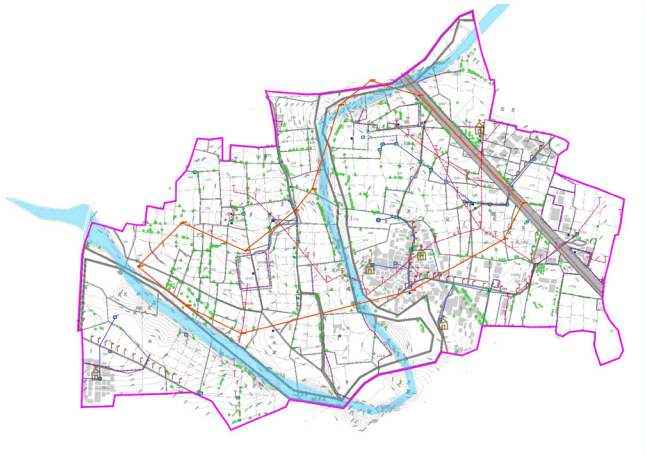

Figure20: A Map Showing all Existing Features and plots

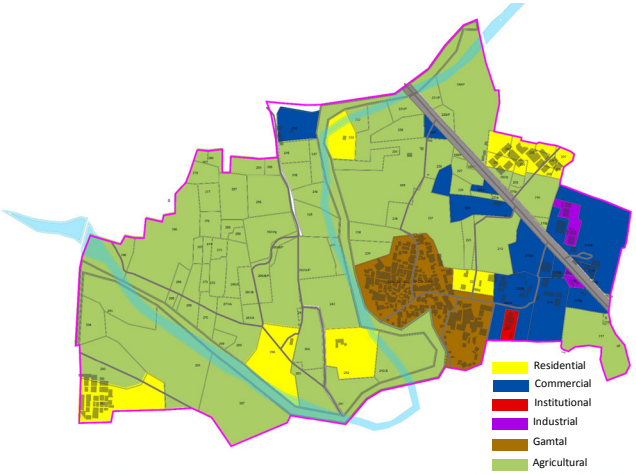

Figure 21: A Map Showing Existing land Use

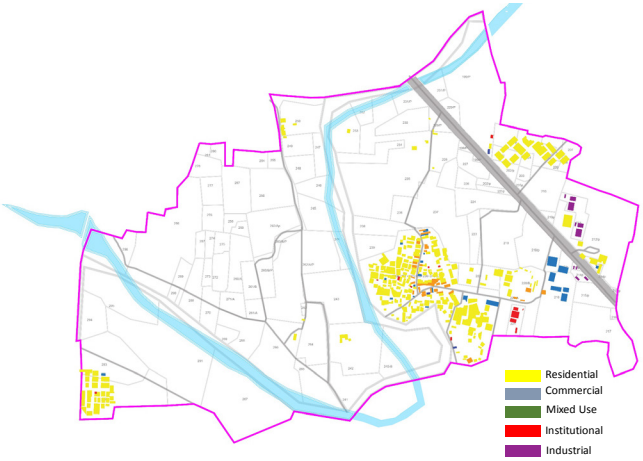

Figure 22: A map showing Existing Building use and Building condition

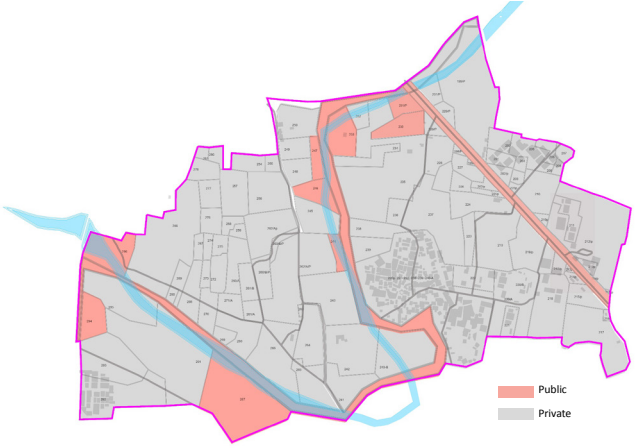

Figure 23: A Map showing Land in Public Ownership

6.4 Analysis of Topography and Environmental Features

Due to the contours on land surface, when the rain falls; water run following the slopes in small rivulets. These rivulets form small streams and merge to form bigger streams, finally merging with the larger water bodies like rivers, lakes etc. The entire area that serves water to the larger water body is called the watershed of that particular water body. Watersheds can also be called catchment area or drainage basin. Protection and conservation of watersheds are necessary for conservation of streams, water bodies, groundwater recharge and control soil erosion and preventing soil degradation.

Watersheds and land use are interdependent. When build-forms consume the land; contours change, flow of stream lines are obstructed and ground is covered with impermeable surfaces. Due to the changes in the natural state; there arises situations of floods, drying of water bodies, and decrease in groundwater levels. Thus, planning and development of watersheds becomes important.

These are major reasons for urban floods and adverse environmental impacts in our cities:

- Urbanization increases impervious surfaces, decreasing the water percolation and increasing the water runoff.
- Further filling up of water bodies leads to drastic decrease in water infiltration or storage of surface water.
- The inefficient infrastructure which is incapable of handling heavy rains and its runoff.
- The unhealthy land use which may pollute the water runoff.

Study of the following is necessary for efficient planning and development:

- Topography and terrain profile – Contours map
- Water bodies and main storm water channels – carrying water to the water bodies
- Soil type and land cover
- Rainfall pattern and runoff
- Infrastructural supplies and demands
- Identifying conflicting land uses

A watershed analysis map, which should help in drafting the T P Scheme proposals, has to be prepared after considering the above studies *[Refer Fig. 24].* A Topography Map should be prepared to analyze the geographical context of the T P Scheme. The Topography Maps and the slope studies should majorly capture all contours in the delineated T P Scheme. This helps authority in making decisions about road alignments, conservation of Eco-sensitive land and storm water network proposals.

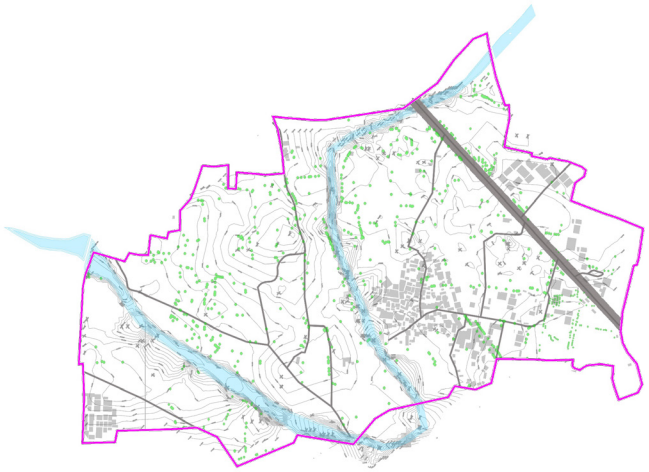

Figure 24: A Map Showing Topography and Environment features

6.5 Analysis of Development Suitability

A Development suitability map should be prepared indicating the features such as Flood Prone areas, Wetlands/Mangroves, Forest areas, Biodiversity areas, Natural Habitats and any such environmental sensitive areas. *[Refer Fig. Fig 25]*

The map should clearly indicate areas 'suitable' for development and areas 'not suitable' for development. All areas which are not suitable for development due to their Eco-sensitive nature should be preserved while preparation of proposals for the scheme.

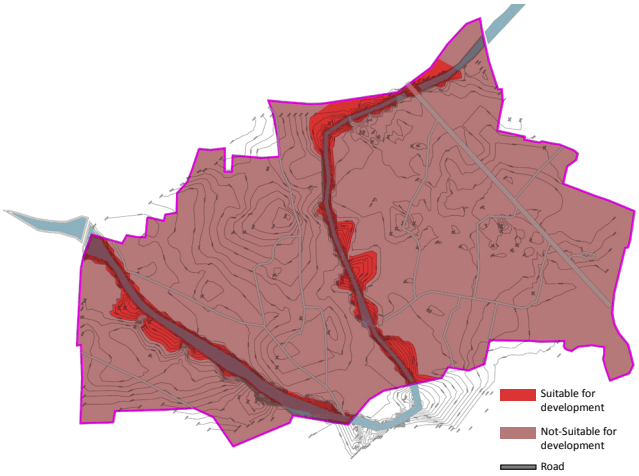

Figure 25: A Map showing Development Suitability

6.6 Analysis of Infrastructure (physical & social)

All existing physical infrastructure – both underground and overhead should be mapped *[Refer Fig.26]* . The map should include all the physical features as well as underground utilities. All existing infrastructure needs to be surveyed both below and above ground. These should include:

- Water supply
- Sewage network
- Storm water network
- Electricity lines (HT lines) and stations
- Telecom lines
- OFC network
- All oil and gas lines

The authority should then decide for provision of an underground utility duct which carries pipelines and cables at the time of drafting proposals.

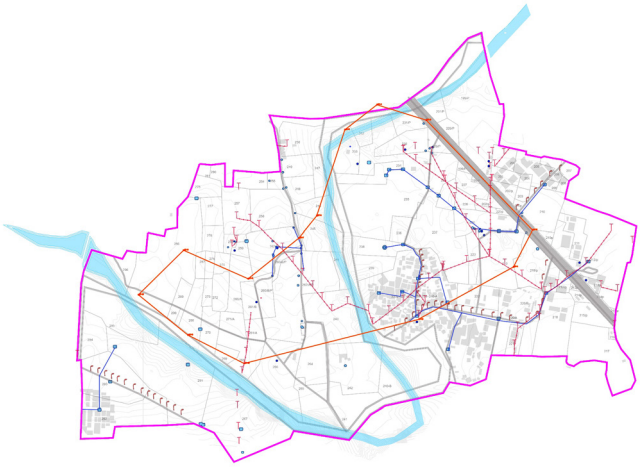

Figure 26: A Map Showing Existing Infrastructure

The authority should also collect data related to presence of all social amenities such as Education facilities, Health facilities, Police stations, Fire Stations, other city level open spaces and recreation areas etc. within the T P Scheme area and in the buffer of at least 1 km beyond the T P Scheme boundary.

Along with mapping of physical infrastructure and social amenities; the following should be taken into account:

- Study of existing or future proposed projects in the area
- Study of surrounding context in terms of development
- Study of surrounding T P Schemes if any proposed

The following details should be recorded and mapped. This would help the authority in making decisions in terms of reserving land for social amenities if there seems lack of such amenities, making provisions for new infrastructure network in case of gaps in current infrastructure, laying of new street networks for better circulation and traffic management, understanding various demands for solid waste management, parking etc.

6.7 Analysis of Transport Network

A Transportation Map showing all major transport nodes, Public Transport stops, Public transport Routes, Road connectivity, Road Hierarchy etc. should be prepared. This helps the authority in making decisions about land reservation for stops, creation of plazas and new road network. Also further surveys should be conducted for circulation pattern within the town planning area and beyond the scheme boundary.

A Map capturing the circulation of the T P Scheme should be prepared. *[Refer Fig. 27]* The Circulation Plan should capture all:

- Road and street network
- Public transport network
- IPT location
- Traffic circulation

This helps authority in making decisions about block size, street network and pedestrian priority streets.

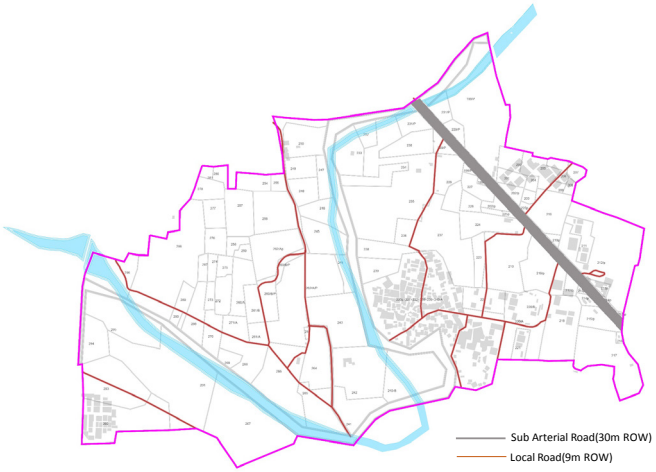

Figure 27: A Map Showing Existing Transport Network

6.8 Analysis of Informal Settlements and Informal Activities

An Informal Activities Map should be prepared to document all major vending zones and types of activities to analyze the vendor behavior. All Potential vending zones should also be identified in the informal activities map. This helps the authority in making decisions about creating spaces for informal activities by either reserving plots or accommodating in the street section *[Proposals for incorporating such informal activities in the T P Scheme layout are further explained in detail under chapter 7.7]* .

6.9 Analysis of Jantri Rates and Land Transaction Rate

A Map capturing the land rates in the delineated T P Scheme area should be produced considering the Jantri rates and land transaction rate (for last five years from the date of declaration of intention). *[Refer Fig. 28]* This helps authority in making decisions about allocation of reserved land for optimizing value capturing.

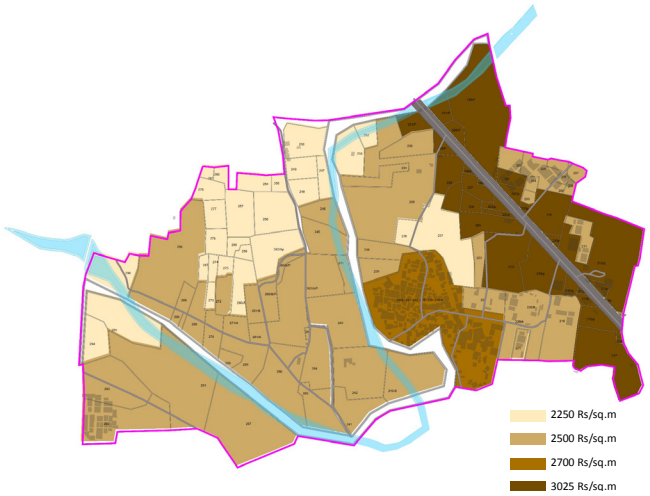

Figure 28: A Map Showing Land values based on Jantri Rates

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07.

Planning, Design and Land Reconstitution

Highlights

- *A T P Scheme is not only an exercise in land reconstitution, but it must be planned to create vibrant, liveable, sustainable neighborhoods and developments consistent with the vision and purpose of the T P Scheme.*
- *The T P Scheme layout must therefore be prepared after understanding the context and envisioning the urban character and built form that may emerge upon its implementation.*
- *This chapter provides detailed guidance regarding how to integrate street network design, locating physical infrastructure, social amenities, parks and open spaces, Informal activities, EWS housing etc while preparing a comprehensive T P Scheme layout.*
- *This chapter also provides key guidance for deriving land deductions/contributions and carrying out land reconstitution.*

7.1 Stakeholder Consultation for Preparing Vision & Concept for T P Scheme

Before identifying the Vision and purpose of the T P Scheme and preparing the conceptual layouts for T P Scheme, the authority should carryout stakeholder consultation meetings to take inputs from the relevant departments and their officers from the urban local body and government departments such as housing, roads, forest, irrigation, health, fire, police, garden, engineering department etc.

The authority may also conduct surveys of land owners and beneficiaries as part of consultations to understand issues faced in the areas. If necessary, the authority may also conduct Focused Group Discussions (FGD) with different groups to understand the issues and requirements of their area.

The above information will help to form the Vision and concept of the T P Scheme and prepare the conceptual layouts.

7.2 Purpose and Vision for T P Scheme

Each Town Planning Scheme should have clear purpose/ objectives to be achieved through the particular scheme. In absence of clear vision, the T P Scheme preparation becomes merely a land reconstitution/readjustment exercise.

If planned with clear purpose and vision, T P Schemes have potential to create much better urban environments, contributing to the overall city context and developing their own urban character and form. Such vision and purpose should be derived based on certain considerations such as; the planning context provided through the Development Plan, the location and development potential of the area, the topography and natural features within the area and other such considerations. Considerations for arriving at such purpose and vision should include the following:

1. Planning context:

This is generally provided by the Development Plan, which should reflect the overall vision for how the T P Scheme area and its surroundings are expected to develop. This is reflected through zoning, regulations, road network and various proposals in the DP which should be integrated within the T P Scheme. *[Refer Fig. 29, 30]*

2. Development potential:

Vision for any plan should consider the development potential for the area for it to be viable and realizable. For example, it is difficult for a T P Scheme envisioned to become high density CBD in area with very low development demand, as it would require higher amount of Land Deduction/contribution from individual plots which land owners may not agree due to lack of development demand.

3. Area specific needs:

Vision for a T P Scheme should reflect the specific needs for any large urban amenities and/or infrastructure such as a large city-scale garden or lake-front park, a city-scale library or town hall, a university, new hubs around bus terminus or railway stations, an aero-city near new airport etc.

4. Envisioned urban form and urban environment:

A clear visualization of the urban form and urban environment to be developed within the T P Scheme area is crucial for it to successfully attract desirable developments, and meaningfully contribute to the overall development of the city. *[Refer Fig. 31]* Such vision should not only envisage the overall built-form from bird's-eye view, but also envision life on streets and public spaces and the interactions between streets and surrounding built-forms resulting from the proposed DCRs.

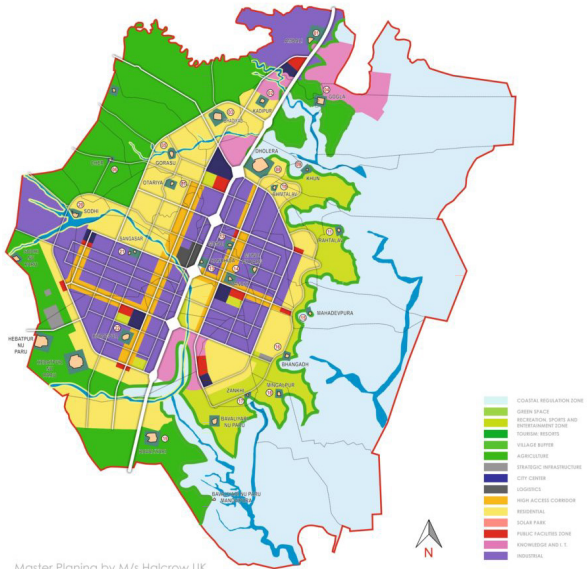


Figure 29: Dholera SIR Master Plan- An Industrial City

Source: http://www.dholerasmartcity.net/

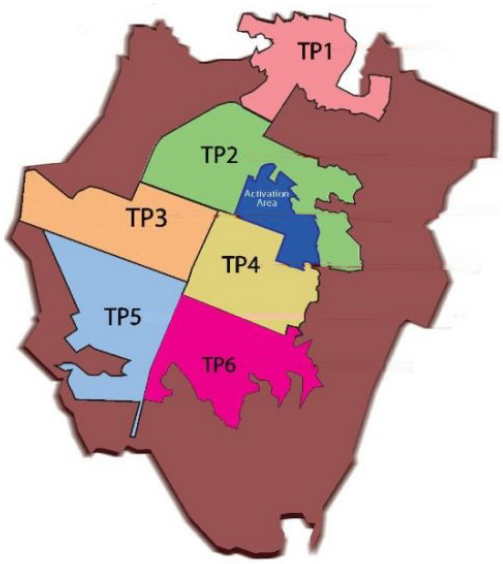


Figure 30: Achieving the overall vision of Industrial city through T P Scheme

Source: http://www.dholerasmartcity.net/

Figure 31: Imagined Built Form conforming to the vision of industrial city

Source: http://www.dholerasmartcity.net/

5. Topography and natural features:

The vision of a T P Scheme should integrate any significant topographic and/or natural features within the area or in immediate context. Natural features such as large water bodies, wetlands, and bio-diversity areas, forest areas in or near the T P Scheme should be reflected in the vision, which should offer to protect them, and at the same time leverage their potential for Eco-tourism or other such environmentally sensitive activities.

In addition to the above, the vision for a T P Scheme may also consider specific aspirations of the community or the authority.

Such vision can be derived after in depth surveys and assessment of the planning area, and inputs from the owners, residents and stakeholders using different methods, which range from informal discussions, surveys and/or focus group discussions to participatory workshops.

7.3 Key Planning and Design Principles for Town Planning Scheme

Once the purpose and vision is clearly identified, a set of clear principles should be identified for each T P Scheme. Such principles should clearly identify the priorities for the T P Scheme based on its purpose and vision. For example, below are some principles, which may be identified before preparing a T P Scheme layout.

- Ensure coherence with the zoning of the Development Plan with the laying out or relaying out of land, either vacant or already built upon, the filling up or reclamation of low-lying, swampy or unhealthy areas, or leveling up of land.
- Ensure continuity of the citywide network of roads with Lay-out of new streets or roads, construction, diversion, extension, alteration, improvement and closing up of streets and roads and discontinuance of communications
- Ensure walkable network of streets within the T P Scheme area
- Ensure the new construction, alteration and removal of buildings, bridges and other existing structures.
- Preserve the key environmental features including all water bodies, streams and nalas. The preservation of objects of historical or national interest or natural beauty, and of buildings.
- Ensure ground water recharge while planning for storm water management system
- Ensure a network of gardens, open spaces and green streets to maximize green cover as far as possible.
- Create a livable, walkable neighborhood. Create pedestrianized main street with street light to serve the neighborhood as key retail and commercial street
- Ensure the allotment or the designation of land for roads, open spaces, gardens recreation ground, schools, market, green belts, transport facilities, public purpose of all kind, school, dispensary, fire-brigade, public utility places. Ensure the allotment or designation of land to the extent of ten per cent. or such percentage as near thereto as possible of the total area covered under the scheme, for the purpose of providing housing accommodation to the members of socially and economically backward classes of people
- Ensure a judicious sale of land for residential, commercial or industrial use depending upon the nature of development.
- Ensure provision of high quality water and sewage infrastructure that is easy to operate and maintain, through provision of utility ducts along the streets .

These planning principles may vary from scheme to scheme as every scheme may have different purpose and vision.

7.4 Preparation of Schematic Layout for T P Scheme:

After identifying the purpose, vision and subsequently defining the key principles for the T P Scheme, it is crucial to prepare a schematic layout that would help to transfer that vision on ground. For this purpose, the authority should prepare various viable alternatives and carry out an objective evaluation process before finalizing the most appropriate alternative for the schematic layout.

The Schematic Layout should be prepared using the base map with topographic survey as a base. The schematic plan should have various layers of information *[Refer Fig. 32]* The layers should include:

- Existing **natural features** to be retained and enhanced.
- Proposed **street network** with layers identifying ROW and street types based on functional hierarchy and circulation.
- Areas with **specific urban form and character** envisioned within the T P Scheme.
- **Green network** of proposed gardens, open Spaces, green streets and other green spaces and natural features
- **Physical infrastructure,** including layouts for water, sewerage, storm water, electricity and gas network, and network of utility ducts to carry such infrastructure.
- **Social Infrastructure** such as civic center, healthcare, library, fire, police, etc.
- Schematic **street sections** for the street types identified in the proposed street network.
- Envisioned **built form** - a plausible scenario.

The schematic layout should be supplemented by draft **Form-based Regulations** to achieve the envisioned urban form and character in the specified areas.

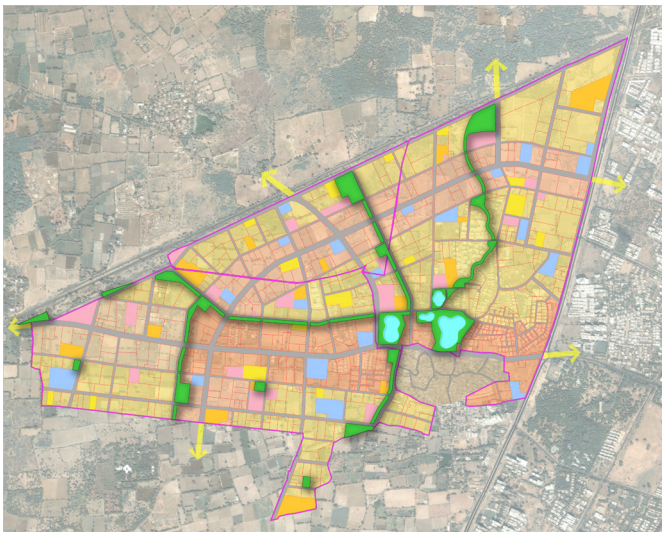


Figure 33: Final T P Scheme Master plan

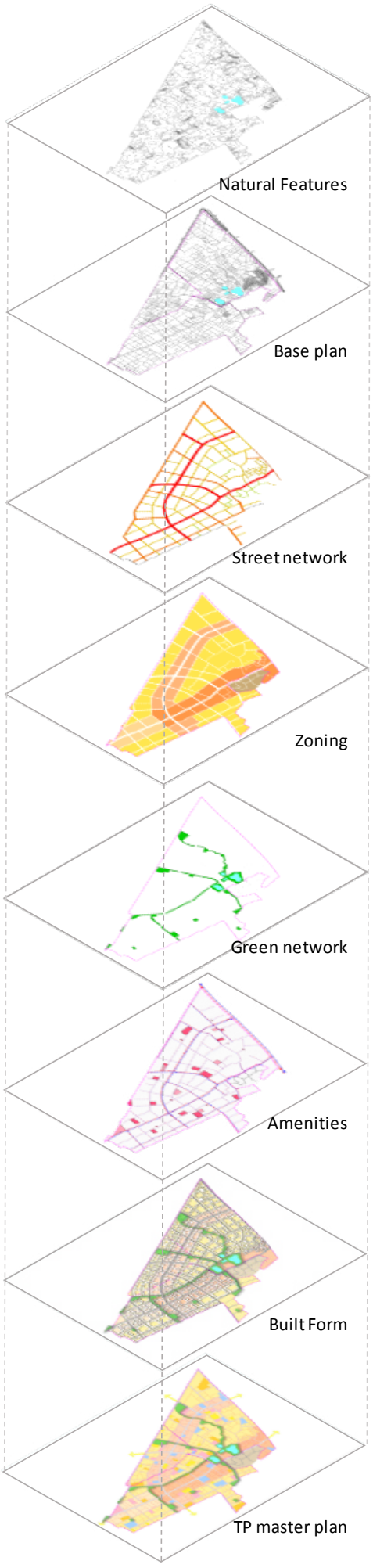


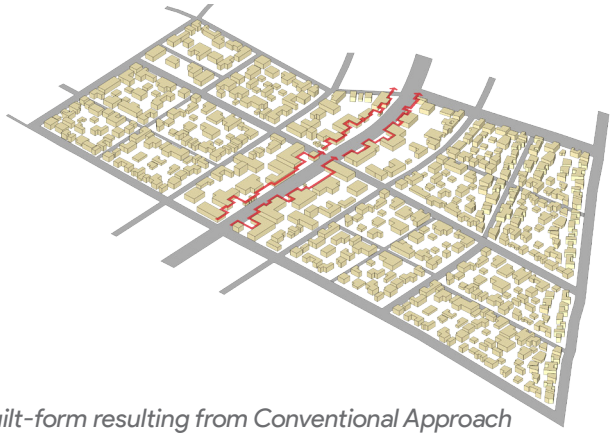
Figure 32 Different layers to be considered for making T P Scheme

7.5 Envisioning Areas with Specific Urban Character and Built Form and Preparing Form-based Regulations:

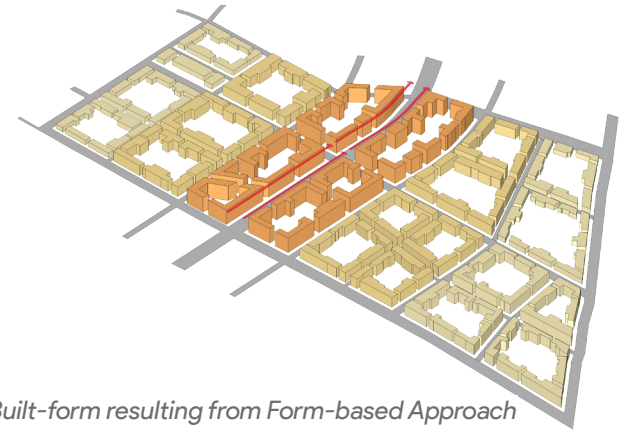
After identifying the purpose, vision and key principles, it is crucial to envision the urban character and urban form for the T P Scheme while preparing the schematic layout. The T P Scheme layout may identify zones or areas where specific urban character or form is desirable. Such zones/ areas should be clearly identified on the T P Scheme map, clearly indicating the final plots included in such zones. Clear **Form-based regulations** governing building forms and urban character should be provided for each of such identified zone. *[refer fig. 35, fig 36]*

The envisioned urban character and form in the T P Scheme layout should also be reflected on the design of its street network , infrastructure, permission of amenities, green network etc.

The urban form and character envisioned for the T P scheme should be context sensitive and suitable transition from the surrounding areas should be worked out. *[refer fig. fig 34]*



Built-form resulting from Conventional Approach



Built-form resulting from Form-based Approach

Figure 34: Envisioning Built form for T P Scheme

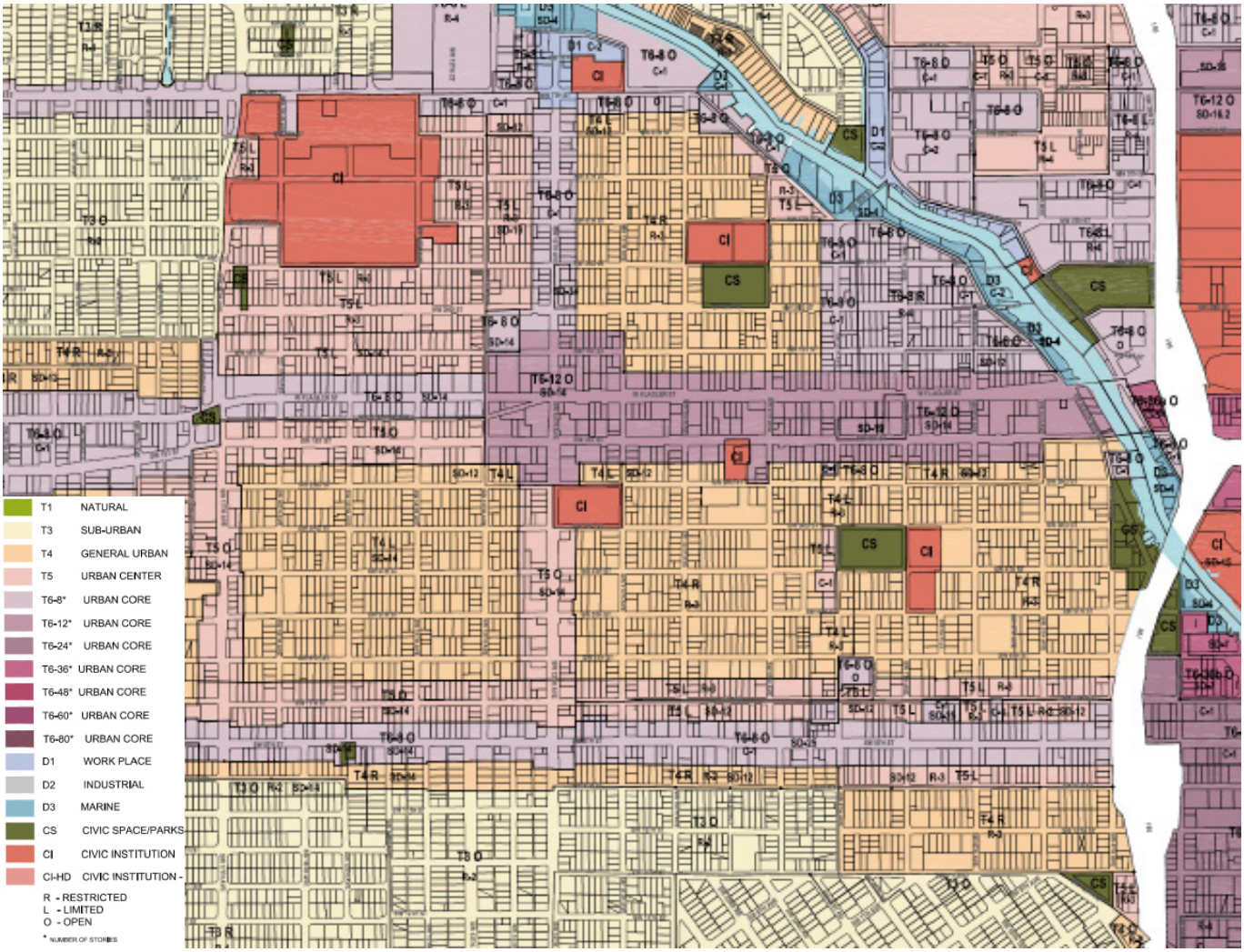


Figure 35: Form Based Codes- Regulating Plan
Source: Miami Form -Based Codes

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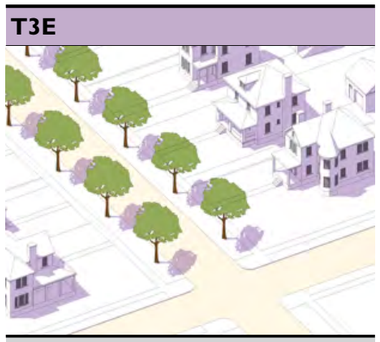
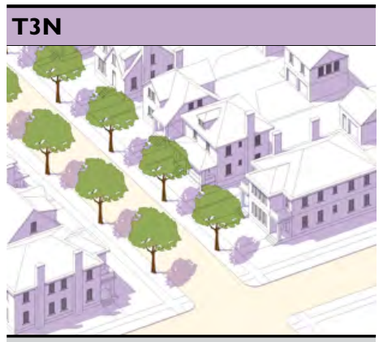
Less Urban — More Urban



T3E

Zone(s)

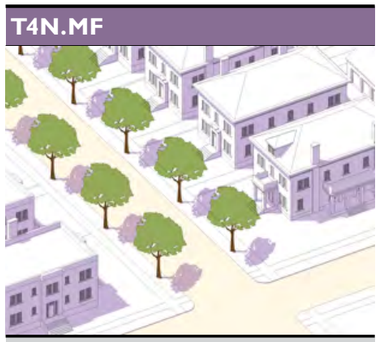
T3 Estate



T3N

Zone(s)

T3 Neighborhood

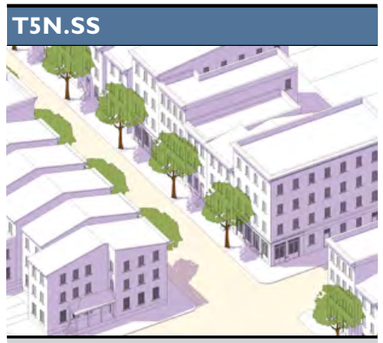


T4N.MF

Zone(s)

T4 Neighborhood Medium Footprint

Sub-Zone: T4N.MF-Open

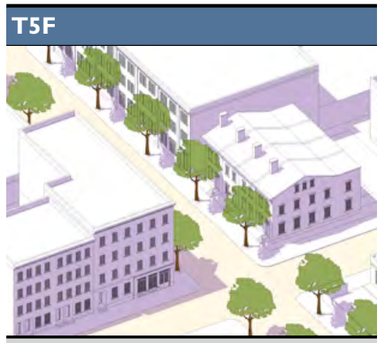


T5N.SS

Zone(s)

T5 Neighborhood Small Setback

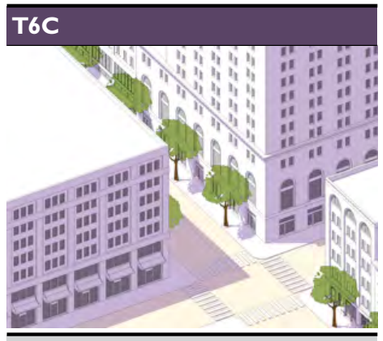
Sub-Zone: T5N.SS-Open



T5F

Zone(s)

T5 Flex



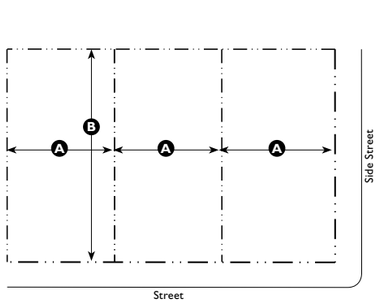
T6C

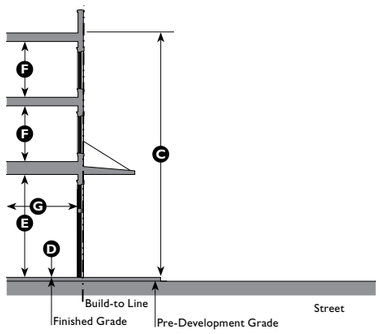
Zone(s)

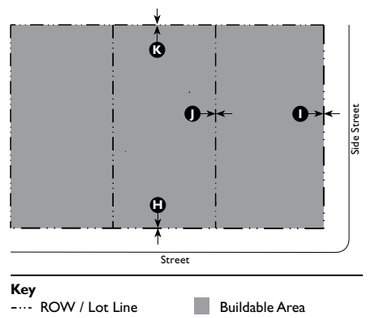
T6 Core

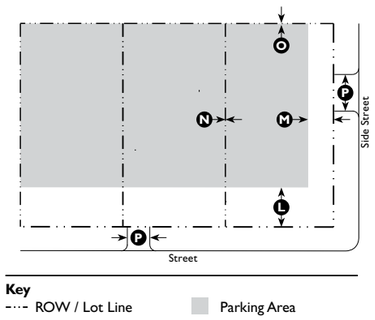
T6 Core (T6C)

1703-2.120 T6 Core (T6C)









Key

ROW / Lot Line

Building Setback Line

Buildable Area

Key

ROW / Lot Line

Parking Setback Line

Parking Area

A. Intent

To reinforce and enhance the downtown city core and to enable it to evolve into a complete neighborhood that provides local and regional service, retail, entertainment, civic, and public uses, as well as a variety of urban housing choices. This zone can also be used around transit nodes. The following are generally appropriate form elements in this zone:

Attached
Medium-to-Large Footprint
Simple Wall Plane along Street
Building at ROW
No Side Setbacks
4 Stories or More
Diverse Mix of Frontages
Primarily Shopfronts

B. Sub-Zone(s)

T6C-Open Zone (T6C-O)

The open sub-zone provides the same building form but allows for a more diverse mix of uses.

General note: The drawing above is intended to provide a brief overview of this transect zone and is illustrative only.

C. Allowed Building Types

Building Type	Lot Width (A)	Lot Depth (B)	Standards
Main Street Mixed-Use	25' min.; 150' max.	100' min.	1703-3.140
Mid-Rise	50' min.; 250' max.	100' min.	1703-3.160, 1703-3.180
High-Rise	100' min.; 300' max.	100' min.	1703-3.170, 1703-3.180

D. Building Form

Height (See Section 1703-5.60)		
Main Building	4 stories min.	C
Accessory Structure(s)	1 story max.	
Ground Floor Finish Level above Street Centerline	6" max.	D
Ground Floor Ceiling Service or Retail	14' min.	E
Upper Floor(s) Ceiling	9' min.	F

Ground floor lobbies and common areas in multi-unit buildings may have a 0" to 6" ground floor finish level.

Within 20' of the rear lot line, buildings may not be more than a half-story taller than the allowed height of adjacent buildings.

D. Building Form (continued)

Footprint		
Per Section 1703-3 (Specific to Building Types)		
Depth, Ground-Floor Space	50' min.	G
Accessory Structure(s)		
Width	24' max.	
Depth	32' max.	

Miscellaneous	
Distance Between Entries, to Ground Floor (Uses)	50' max.

Loading docks, overhead doors, and other service entries shall be screened and not be located on primary street facades.

All mechanical equipment and utilities must be screened from view from the street.

E. Building Placement

Build-to Line (Distance from ROW / Lot Line)		
Front	0'	H
Side Street	0'	I
BTL Defined by a Building		
Front	100%	
Side Street	80% min.	
Setback[1] (Distance from ROW / Lot Line)[2]		
Side	0' max.	J
Rear	0' min.	K

Miscellaneous

[1] Where existing adjacent buildings are in front of the regulated minimum front setback, the building may be set to align with the front building facade of the most immediately adjacent property.

[2] Where the lot line extends to the centerline of the street, the setback is measured from the closest edge of the curb, or presumable curb except where a public sidewalk exists, then the setback is measured from the closest edge of the public sidewalk.

F. Parking

Required Spaces		
Residential Uses	No min.	
Service, Retail, Recreation, Education, Public Assembly Uses	No min.; 4 per 1000 sf max.	
Required parking may be reduced as set forth in Subsection 1703-5.50 (Parking).		
For uses not listed above, see Table 1703-5.50.A (Parking Spaces Required).		
Location (Distance from ROW / Lot Line)[1]		
Front Setback		L
Ground Floor	50' min.	
Upper Floors	30' min.	
Side Street Setback		M
Ground Floor	30' min.	
Upper Floors	0' min.	
Side Setback	0' min.	N
Rear Setback	0' min.	O
Miscellaneous		
Curb Cut or Parking Driveway Width		P
≤ 40 spaces	14' max.	
> 40 spaces	18' max.	

All parking structures must be screened from the front street by habitable space at least 15' deep from street.

Driveways may be shared between adjacent parcels.

[1] Where the lot line extends to the centerline of the street, the setback is measured from the closest edge of the curb, or presumable curb except where a public sidewalk exists, then the setback is measured from the closest edge of the public sidewalk.

Figure 36: Example of Form based Codes
Source: Miami Form -Based Codes

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7.6 Guidelines for Street Network Planning and Street Design

While preparing T P Scheme, the street network planning and Street Design should be carefully prepared considering the following guidance as much as possible

7.6.1 Street Network Planning

Access to individual Land Parcel is the most crucial requirement for development of any plot or any area. Therefore, laying out the street network is the foremost priority for development of any T P Scheme. Design and layout of such street network vary based on the purpose and nature of development in the area. For example, a T P Scheme for primarily residential mixed use should have small walkable block sizes with significant amount of pedestrian friendly streets with wide sidewalks, space for shady trees and street furniture. Whereas a T P Scheme planned for large-scale commercial, wholesale and light industrial uses should have relatively larger blocks with wider streets and vehicular lanes to carry heavy vehicles. For T P Scheme with partially developed areas, the street network should be carefully planned to improve connectivity and circulation while minimizing the need for demolition of existing structures on private properties.

Also the road levels will have to be defined at Draft level and should be designed in such a way that will prevent flooding on road after the whole area is developed.

1. Key Considerations:

Below are some key considerations while preparing street network layout for a T P Scheme: *[Refer Fig. 37]*

- **Integrate DP Roads:** The street network should carefully integrate the DP Roads in its street network layout to ensure citywide connectivity.
- **Connect with surrounding areas:** It should carefully connect with the street network in the surrounding T P Schemes.
- **Clear hierarchy:** The network should have clear hierarchy of streets to ensure smooth movement of traffic and smooth transition in development character within the area. For example, small local residential streets directly opening on major ROW with high traffic volumes may cause unsafe situation at the intersection for the residents.
- **Block size and street width to reflect character of the T P Scheme:** It should reflect the purpose and character of the T P Scheme. For example, T P Schemes prepared for a commercial district or CBD should have small walkable block sizes and wide streets with wide sidewalks to accommodate pedestrian related activities. Whereas T P Scheme for calm residential neighborhood should have small walkable block sizes, but relatively narrower streets and sidewalks with shady trees and street furniture. Compared to that, a T P Scheme for large scale commercial, wholesale and logistics district should have large block sizes with wide streets and vehicular

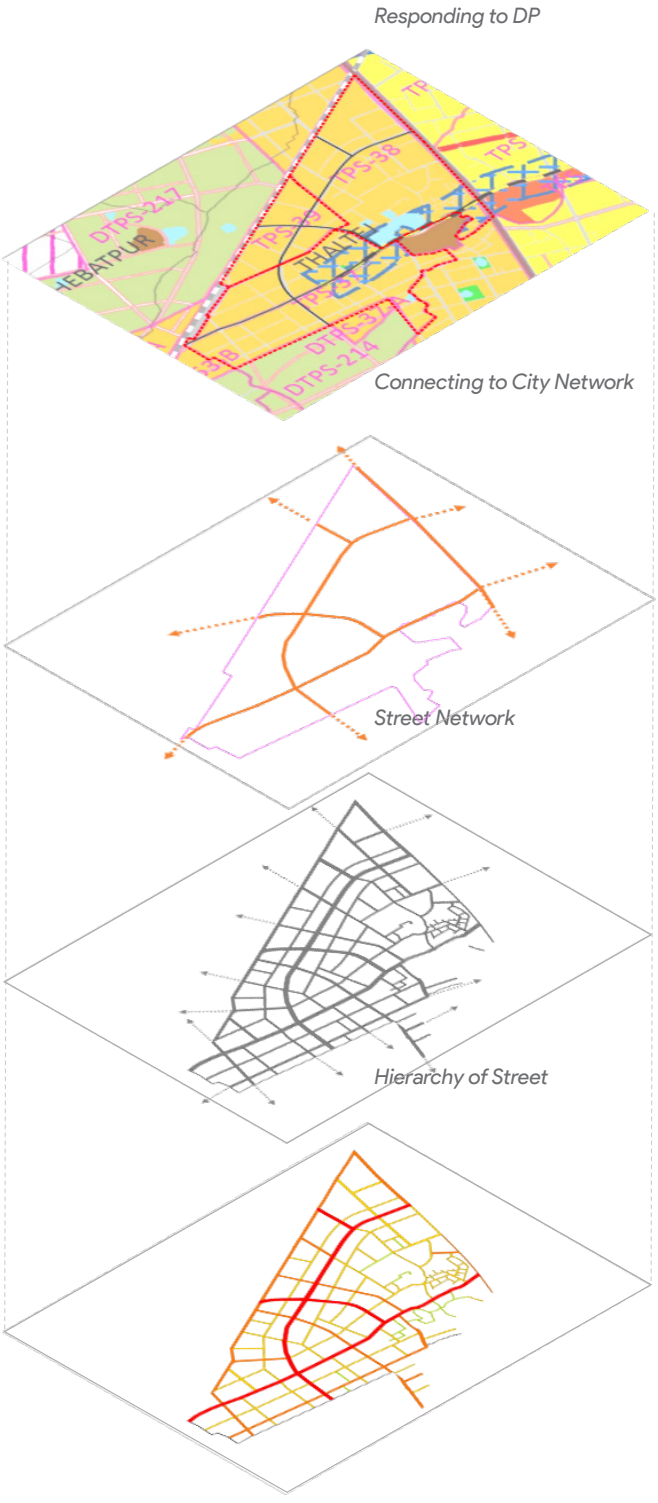


Figure 37: Considerations for street network

lanes to carry heavy vehicles. In all cases, dead ends or cul-de-sacs should be avoided in the street network layout, as they reduce overall connectivity and walkability within the area. *[Refer Fig. 38]*

2. Area under street network:

It is recommended to have about 15% to 20% of total T P Scheme area under street ROW. This can also go higher depending on the types of development envisaged. For example, a CBD could have as high as 30% to 40% area under street ROW to accommodate dense network of wider streets to accommodate small walkable blocks and wide sidewalks. *[Refer Fig. 39]*

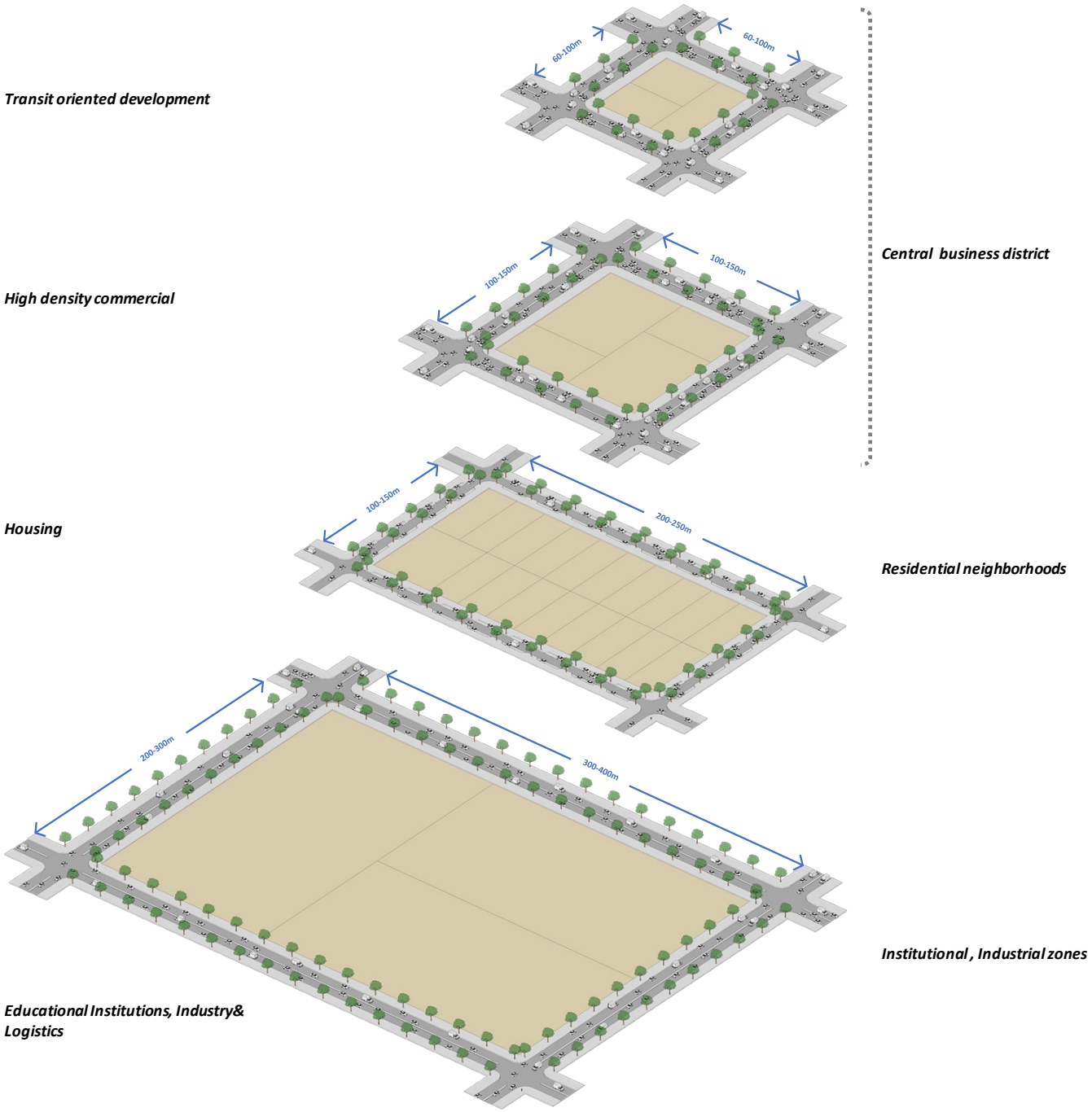


Figure 38: Comparative Diagram for Different Block sizes corresponding to different uses

Street Network Characteristics for Different type of Areas

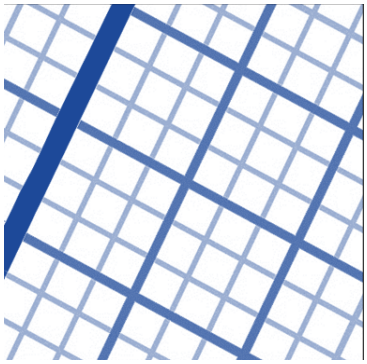
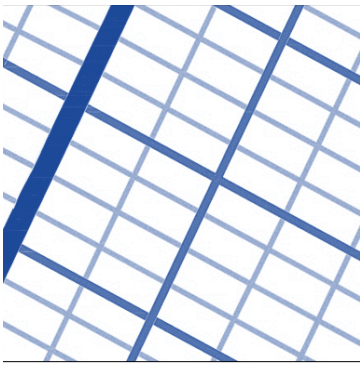
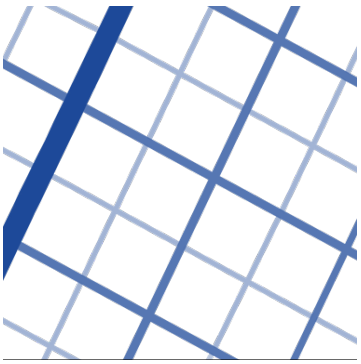
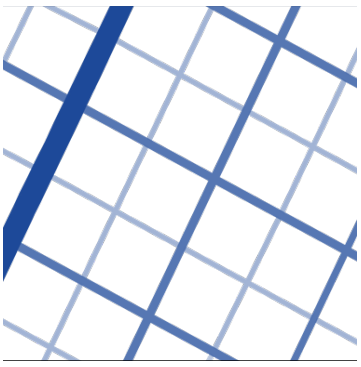
Type of Area	Walkability	Block Size	Streets and Side-walks	Suggestive Street Grid
Urban General	High	Small (100 × 150 m to 100 × 200 m)	Wide ROW With wide (2 - 3 m) sidewalk	
Sub-Urban	High	Medium (200 × 200 m to 200 × 400 m)	Narrow ROW with wide (2-3 m side walk)	
Peri-Urban	Medium	Medium to Large (200 × 400 m tp 400 × 400 m)	Narrower ROW with Moderate (1.5 - 2 m) side walks	
Special areas (Logistics, Industrial, Large scale commercial)	Medium - Low	400 × 400 m or Larger	Wider ROW with Moderate (1.5 - 2 m) side walks	

Figure 39: Planning of street grids based on different character envisioned for the T P Scheme

7.6.2 Street Design

1. Complete Streets:

All streets in a T P Scheme should be designed based on the concept of "Complete Streets" *[refer fig 41].* This means that the streets should be designed considering all modes including pedestrian ways, non-motorized transport (NMT), Intermediate para-transport and private vehicles based on their priorities. . A human being is a pedestrian first. All human trips begin and end as pedestrian trips, therefore all streets in a T P Scheme should prioritize pedestrians followed by NMT, public transport, private vehicles and freight vehicles *[refer fig 40].*

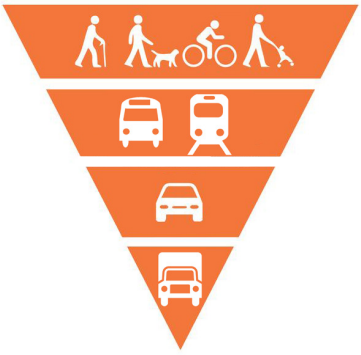


Figure 40: Street priority pyramid

Figure 41: A Sample of Complete street design

They should also be designed for people of all ages and abilities. This means provision of ramps, rails etc. for specially-able people and provision of tactile strips on sidewalks, signages in braille and sound signals etc. for visually impaired persons.

Such streets should also be designed considering the design and location of underground infrastructure *[Refer chapter 7.8 for details]* within the ROW in such a way that it can be maintained and/or repaired with minimum disturbance to vehicular and/or pedestrian movement.

2. ROW Design

Various ROW's in a T P Scheme should be carefully designed considering the concept of "Complete Streets":

- **ROW for Pedestrian-only Streets:** Pedestrian-only streets may have ROW smaller than 12m. However, such pedestrian-only ROW should not be less than 6m to allow emergency and service vehicle access. *[Refer Fig. 42]*

- **ROW for vehicular street:** Considering the minimum clear width for sidewalks, it is recommended that any street with vehicular access in a T P Scheme should have minimum ROW width of 12m in green-field area in UDAs/ ADAs or other authorities,; and minimum 9m in brown-field areas in UDAs/ ADAs or other authorities, and should have minimum 1.5m clear sidewalks. In the case of brown-field, the minimum road width should be worked out depending upon the

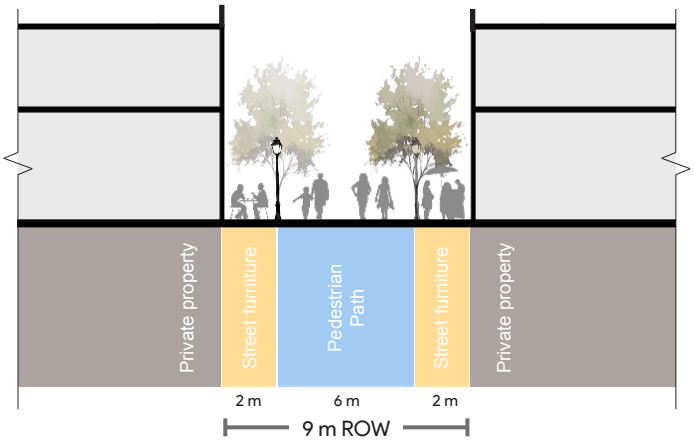


Figure 42: A typical 9 mt. Pedestrian ROW Section

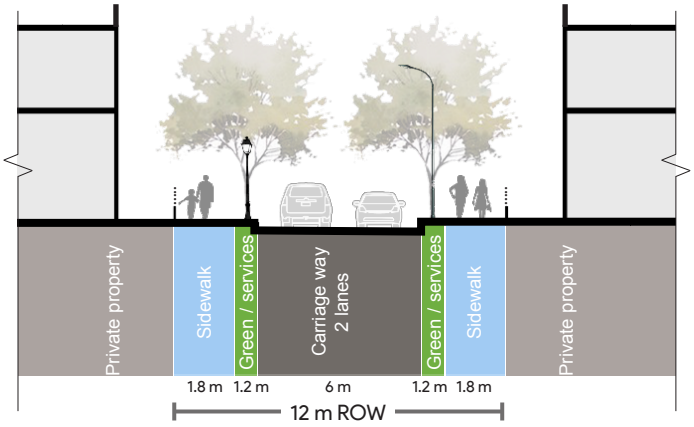


Figure 43: A typical 12 mt. ROW Section

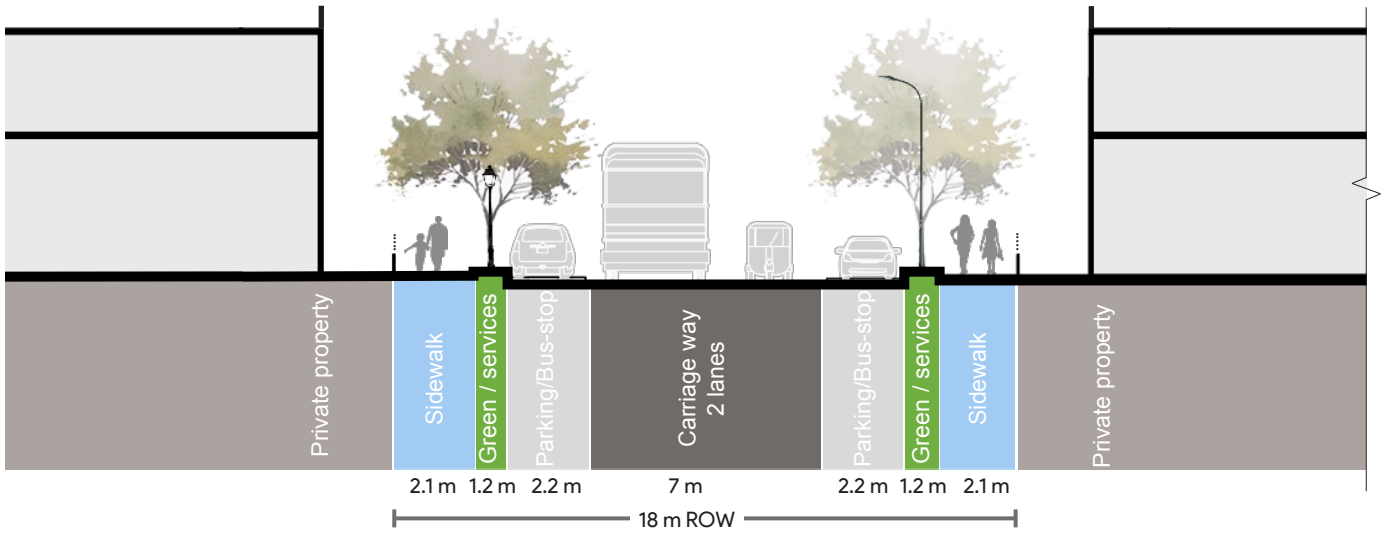


Figure 44: A Typical 18 mts. ROW Section

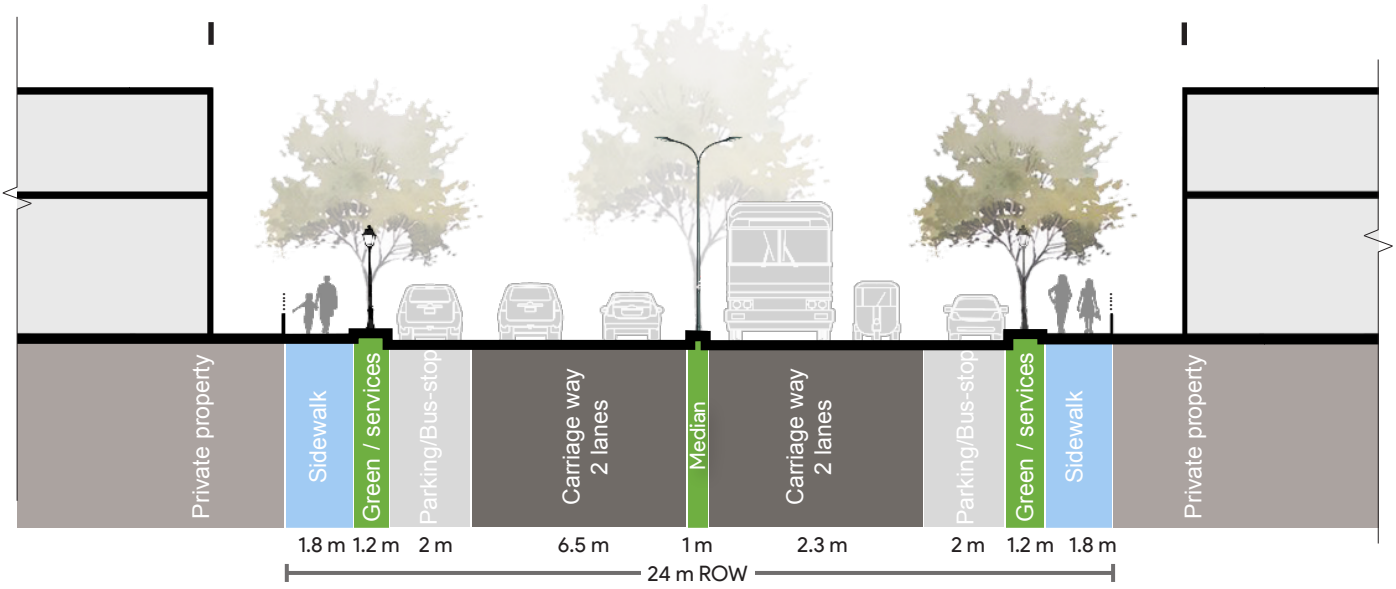


Figure 45: A Typical 24 mts. ROW Section

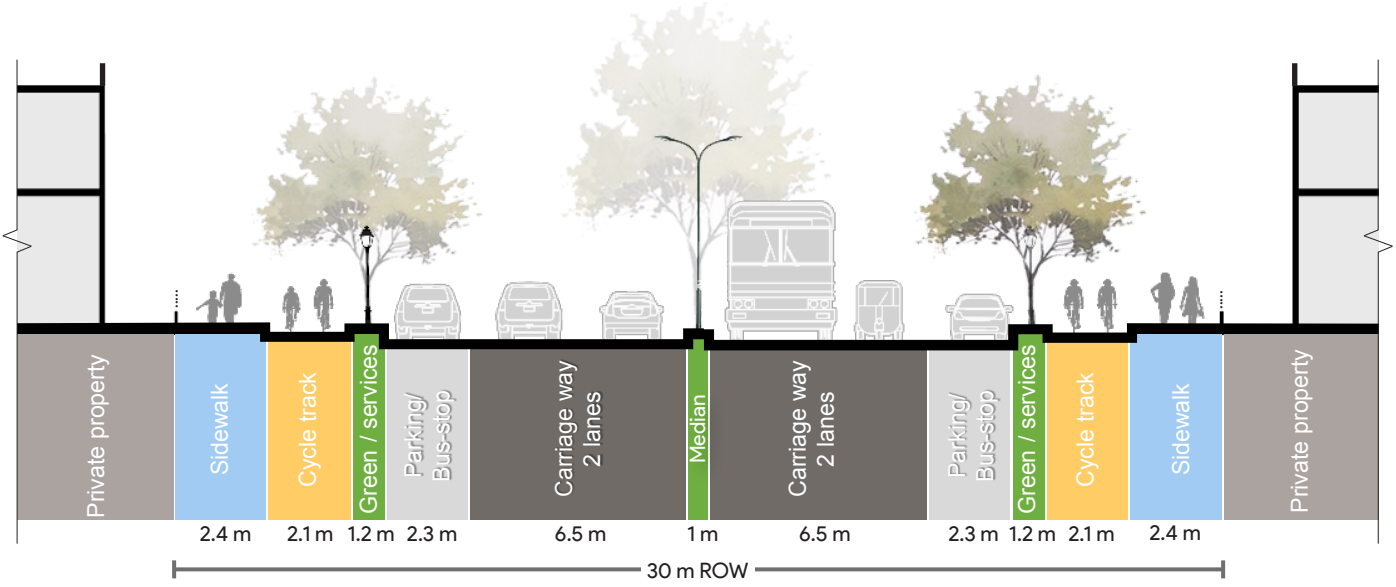


Figure 46: A typical 30 mts. ROW Section

existing development and deduction/contribution available in appropriate manner.*[Refer Fig. 43]*

- **ROW for streets with on-street parking:** All streets with two vehicular lanes requiring on-street parallel parking should have minimum 18m ROW. The two-lane streets with angular parking will require minimum ROW of 24m or more. *[Refer Fig. 44]*

- **ROW for streets with four vehicular lanes:** Streets with four vehicular lanes (two lanes in each direction) and on-street parallel parking should have minimum ROW of 24m to ensure walkable sidewalks. *[Refer Fig. 45, Fig. 46].*

3. Intersection Design

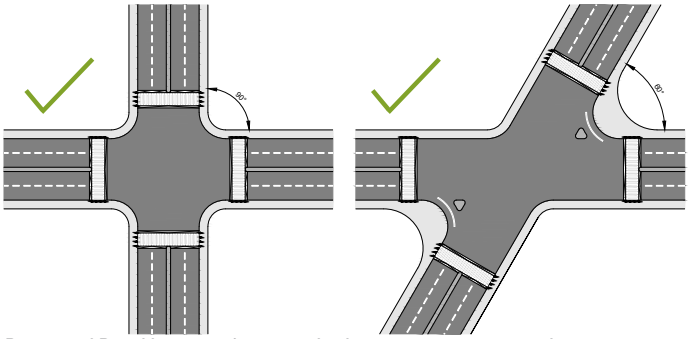
- **Intersection layout:** Street network layout should avoid intersections with more than four-way and with less than 60-degree angle between any two arms. *[Refer Fig. 47]*

- **Distance between intersection:** street layout should avoid intersections too close to each other as this will create significant traffic safety issues and cause congestion. For the same, minimum distance between two intersections should be adequately provided as per the IRC norms. As far as possible, the minimum distance between two intersections should be less than 100m. *[Refer Fig. 47]*

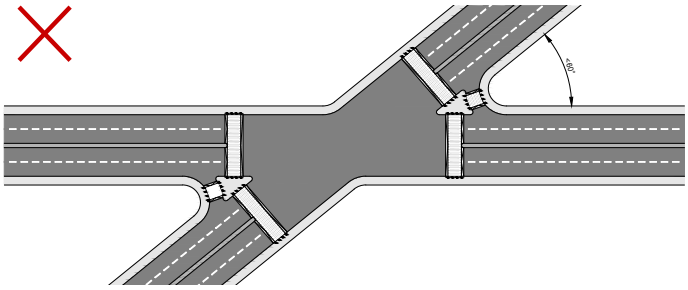
- **Corner Plot Radius:** Radius at corner of the plots at intersections should be as mentioned in table 6 below:

Table 06: Corner plot Radius

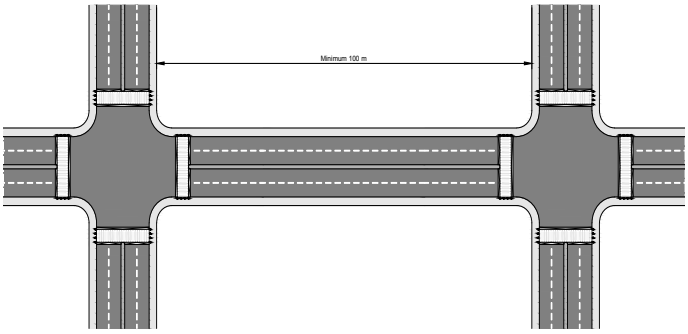
	Intersection corner Type		Plot Corner Radius (Z)
	Smaller ROW (X)	Bigger ROW (Y)	
1	12m	Bigger than 12m	3m
2	More than 12m upto 18m	Bigger than 18m	6m
3	24m or bigger	Bigger than 24m	9m



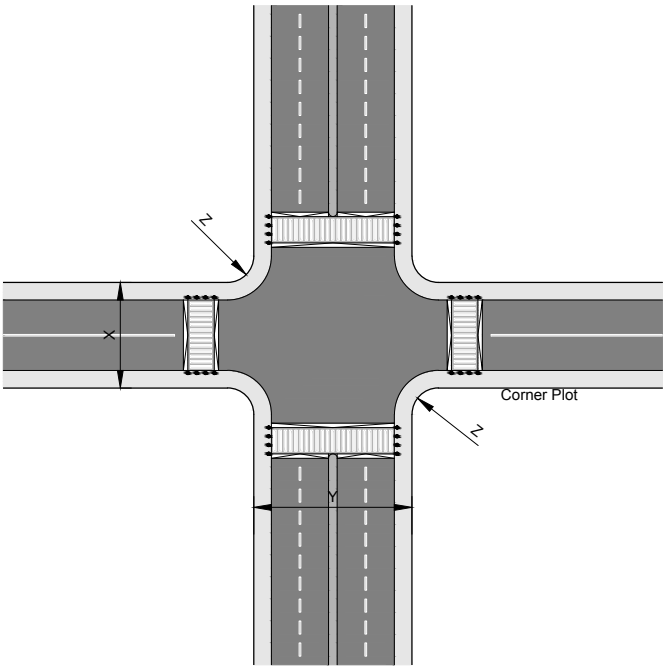
Proposed Road Intersection must be between 90°-60° angle



Road intersection of less than60° angle must be avoided.



Minimum Distance between two intersections



Corner Plot Radius

Figure 47: Principles for Junction Design

7.7 Guidelines for Integrating Informal Activities

Informal activities are the activities such as vending or hawking that take place on temporary basis on a street or other area. Such Informal activities are often perceived as undesirable when they become unmanaged and begin to spill over pedestrian pathways and roads causing congestion, inconvenience and nuisance to other people. However, if they are managed and planned in an organized manner, they can provide significant benefit to the community, while they provide employment to the economically weaker section, they also provide convenient and affordable retail and recreational opportunities to the neighborhood and the city. Therefore, it is crucial to sensitively plan for accommodating any informal sector market that already exists or might potentially develop over the years.

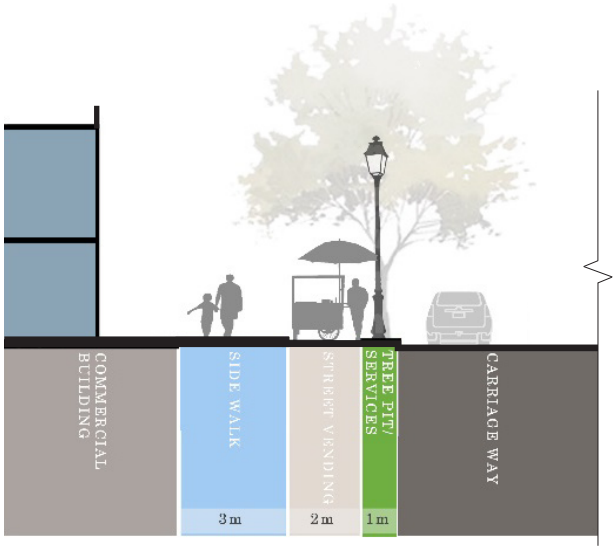


Figure 48: Incorporating Informal vending in street design.

While preparing T P scheme layout, the authority should identify locations and area to incorporate such existing informal activities, and /or make provisions for informal activities that may occur in future after development of the T P Scheme. The informal activities in the T P scheme should be incorporated in the following manner: *[Refer Fig. 48]*

1. Incorporating Informal Activities as part of the Pedestrian ROW:

Informal activities require easy pedestrian access and thrive if they are located along a street or along a thoroughfare *[Refer Fig. 49]* . Therefore, a clear space should be identified along ROW of a pedestrian priority street, located in an area with high pedestrian activity such as pedestrian streets connecting to public transport stations religious institutions or important destinations. Any such space for informal vending should be identified after leaving at least a minimum 20 mts distance from the end of the radius of curvature on the edge of the traffic junction. *[Refer Fig. 50]*

Figure 49: Linear Informal vending zones along the street are a better option Example Market at Law garden, Ahmedabad.

Source: https://images.livemint.com/r/LiveMint/Period1/2015/08/01/Photos/ahmedabad.jpg

In T P scheme layout such streets should be planned with sufficient ROW to accommodate vending activities with approximately 4 sq. m space for each vendor in such a way that they can directly face main pedestrian movement area of minimum 3 m width (in case of vending only one side) and minimum 6 m width should be ideally provided for such pedestrian movement area subject to maximum deduction/contribution and provided civic service amenities (in case of vending on both sides). The width of the pedestrian ROW should be designed based on context and in no case should it be less than 3 meters.

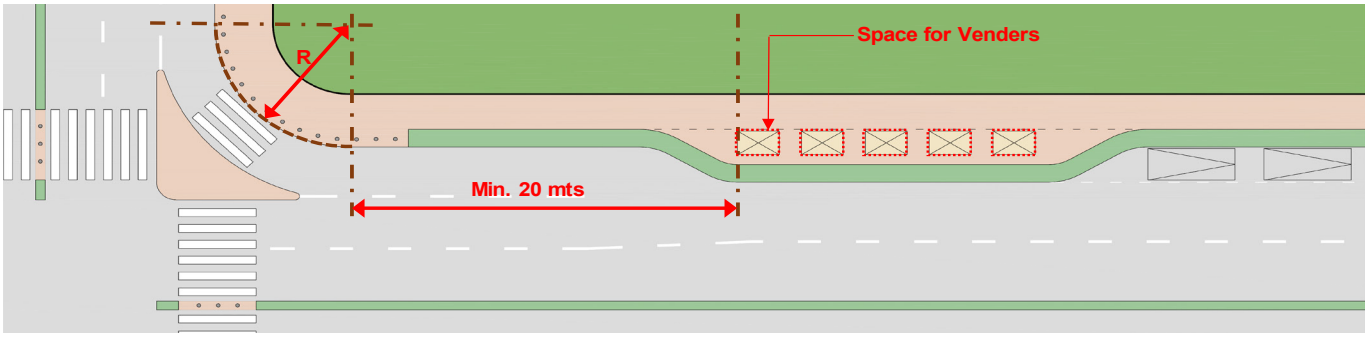


Figure 50: Locating Street vendors/Hawkers near major junctions

2. Incorporating Informal Activities on a designated Public Plot:

Such informal activities may also be accommodated within a public plot with easy access from an important street and with minimum two entry points of minimum 6 m clear width each. *[Refer Fig. 51]*

Figure 51: Concentrated Informal vending on dedicated plots are generally not successful in the long-run.

7.8 Guidelines for Locating Physical Infrastructure

Physical infrastructure is an integral part of T P scheme layout. For every T P scheme a detailed layout for water supply, sewerage, storm water and solid waste management should be prepared *[Refer Fig. 52].* All underground infrastructure network laid under street ROW should be carefully located in such a way that it can be maintained and/or repaired with minimum disturbance to the mobility on the street.

All the physical infrastructure should be designed as per the required Indian standards and guidelines such as NBC, IRC, CPHEEO, or relevant state/ central department guidelines, R&B department and Water supply and sewerage board. It is ideal to engage an infrastructure expert/ consultant to prepare detailed design and Detailed Project Report to identify exact demand and cost of providing infrastructure for T P Scheme. However, in absence of the above, a broad estimate of demand for water , sewage and solid waste infrastructure should be done by estimating the future population assuming average density similar to that of the surrounding developed areas within the city. The cost estimates should be calculated based on the latest SOR's.

Figure 52: Water and sewerage network

1. Key Considerations

Below are some key considerations for locating and providing physical infrastructure in a T P Scheme:

- **Water Management System:** With increased withdrawal of Ground Water, aquifers are depleting. Hence it is important to integrate with management cycle wherein water can be recycled and reused for different purposes.
- **Water supply:** In a T P Scheme the network should be planned considering the natural topography to utilize gravity based network for water distribution and minimize requirement for pumping. Also if an underground or an overhead water tank is required to be located within a T P Scheme, the plot for such purpose should be located at a higher elevation considering the overall network. Similarly, plot for pumping station should be provided after considering topography and overall network design.

Figure 53: Laying of Roads along with Services
Source: HCPDPM

- **Sewerage:** The sewerage network should be planned considering overall topography. In rural areas or areas without centralized STP[1], the T P scheme layout should incorporate plots for sewerage treatment facilities. Such plots should be carefully located considering topography and development distance from drinking water source.
- **Storm water:** T P scheme layout should keep low lying flood prone areas open and develop them as water bodies, and retention ponds integrated within green and open spaces. T P scheme layout should recognize and consider all nalas and seasonal drains and ensure their continuity by integrating in the layout such that they become part of the design public ROW or Public Open spaces; and not get paved over or built over with roads or buildings.

  While preparing T P scheme layout all nalas should be kept open; culverts and/ or bridges at appropriate span should be planned. It should be incorporated in the layout as well as in the cost estimates.

  Also, wherever necessary the nalas should be planned to be channelized to prevent flooding and its cost should be incorporated in the overall T P scheme cost estimates.

  The storm water drainage system should be laid out in such a way that it first leads to local water bodies to allow as much percolation in ground as possible. The water bodies should be interlinked so overflow of one water body can go to other water bodies and ultimately it can lead to the main river within the water shed. Also, percolation wells or percolation bores should be intermittently placed within the storm water system, after conducting soil percolation tests and ground water recharge rate tests at different potential location. *[Refer Fig. 54]*
- **Waste Water Management:** T P Scheme layout should include integral infrastructure for waste water management and reuse.
- **Solid waste management:** T P scheme layout should consider and include locations for solid waste transfer stations. Lack of such planned approach result in solid waste transfer along major road ROW and result in unhygienic conditions and foul odors for all user of the roads and people living and working in close proximity. Instead proper land area for such transfer stations should be clearly identified in T P scheme layout and located at a place that can be easily accessible by the garbage trucks. *[Refer Fig. 55, Fig. 56].*

  T P Scheme layout should also consider and include locations for Bio-waste and E-waste collection and disposal which can be located next to the garbage collection and transfer locations.
- **Electrical Substations:** T P scheme layout should identify public purpose plots at appropriate locations for electrical substation and/ or electrical transformers.

Figure 54 : Networking storm water drains to rain water recharge wells in Vastrapur lake- a case of good practice

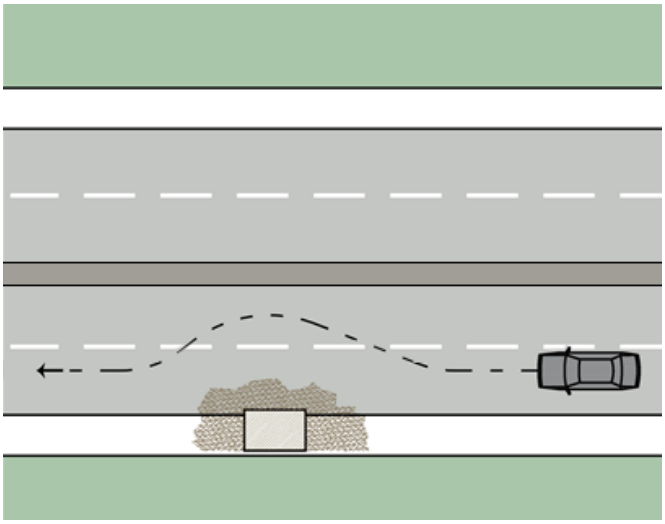


Figure 55: Present condition- no dedicated space provided for waste collection in T P scheme at neighborhood level

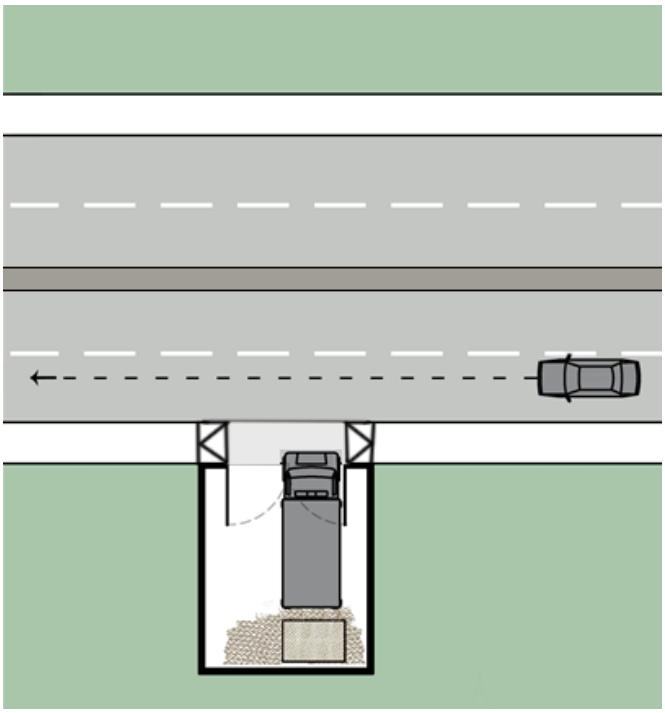


Figure 56: Proposed dedicated waste collection area allocated at neighborhood level in a T P scheme

7.9 Guidelines for Provision of Social Infrastructure

Provision of social amenities such as police stations, fire station, community centers, Sports complex, schools and dispensaries is very essential while planning a T P scheme.

An assessment of the above listed amenities within the larger context should be carried out and need for amenities should be assessed after coordinating with the relevant departments and agencies. Based on this assessment, the T P Scheme layout should identify plots with area to the extent of 5% of the total area of the T P Scheme as per section 40(3) (j) and (jj).

For T P Scheme with partially developed areas (brown-field), the plots for providing key social amenities should be carefully planned and appropriated for the use of immediate community while minimizing the need for demolition of existing structures on private properties.

Limitations on the use of Plots for social infrastructure

The plots for critical social amenities such as Fire Station and Police Station should be clearly identified and should not be used for other purposes. Whereas the plots for other social amenities such as schools, dispensary, civic center, neighborhood center etc. can be identified as social infrastructure and can be used for the any of the above purposes.

Key Considerations for locating key Social Infrastructure

The plots for various required amenities should be located using the following considerations:

- Plots for **Fire Station and related services** should be located along arterial streets with wider ROW, preferably 24 m or bigger in the large town and 18 m or bigger in small towns, in order to allow easy access and movement of fire and emergency vehicles. *[Refer Fig. 57, Fig. 58]*
- Plots for **schools** should not be directly opening up on high traffic streets or arterials. Instead they should be located on 18 or 24 m wide streets which are then connected with bigger arterials. Also, such plots for schools should not be located on small 12 m or 9 m ROW as they generate significant traffic and parking demand during opening and closing hours. *[Refer Fig. 60, Fig 61]*
- Plots for **health care center and other such public amenities** are best provided along major streets connecting residential areas to allow the residents an ease of access. Access to parking for such amenities should not be located on narrow neighborhood street as they create congestion and nuisance for the residents.

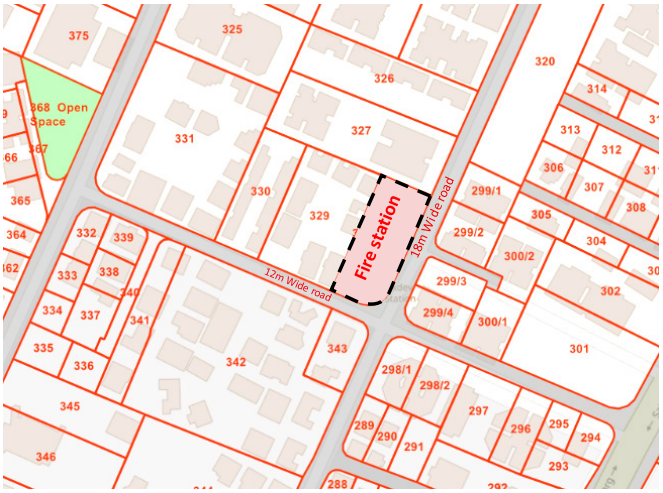


Figure 57: Locating Fire Station on narrow road shall be avoided.

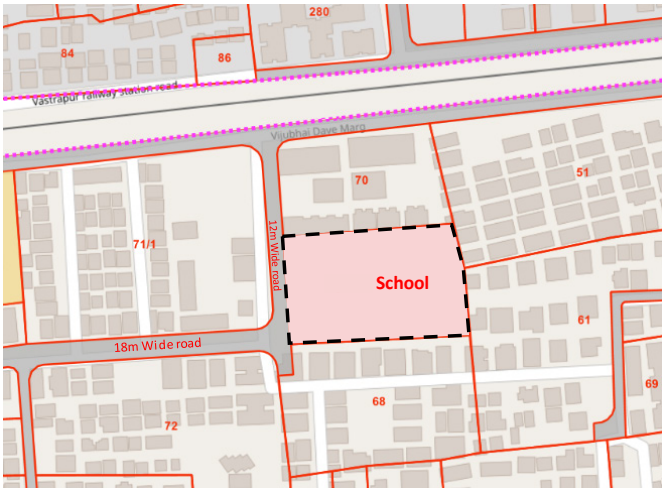


Figure 60: School on 12 m road causes traffic congestion during opening and closing hours.

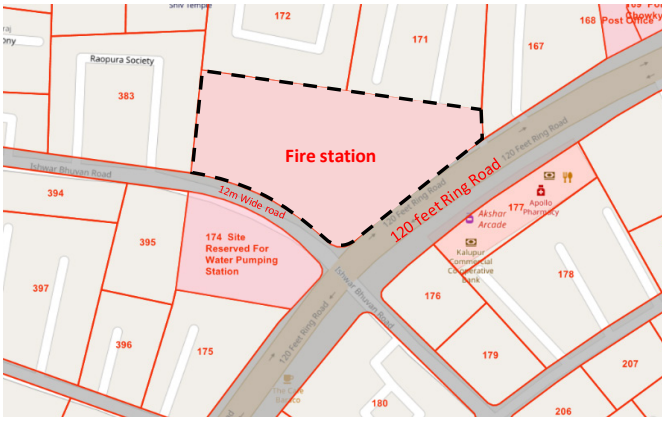


Figure 58: Fire station situated on 120 feet road

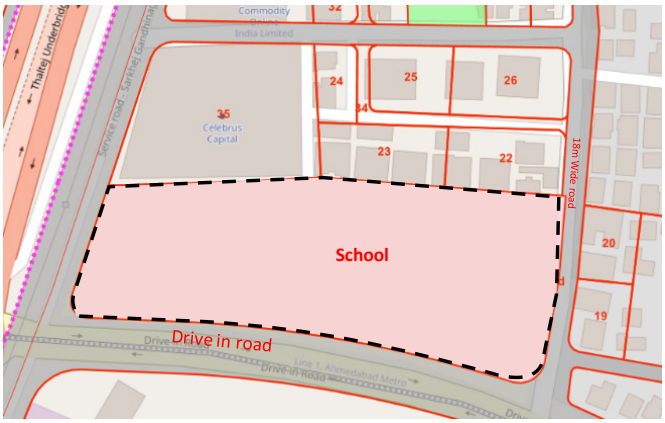


Figure 61: School situated on well connected major road

Figure 59: Fire station access through a major street

Figure 62: On ground scenario of a School situated on well connected major road

7.10 Guidelines for Parks, Open Spaces and an Integrated Network of Green Spaces and Water Bodies

With many recent examples of haphazard development resulting in flooding, ground water depletion, urban heat island effects etc, it is abundantly clear that any new development should be planned to retain and/or integrate sensitive natural features such as water bodies, wetlands, bio-diversity areas, flood prone areas, forest areas etc, with the green and open space network planned as part of the T P Scheme. As per the section 40(j) of GTPUDA, to the extent of 5% of total T P Scheme area may be used for gardens, greenways, green and open spaces. However, this percentage may vary based on the existing natural features to be incorporated within the system.

In order to determine the area and location of land required for such purpose, the authority should prepare detailed maps based on the surveys undertaken by the authority for analyzing existing topography & environment features *[Refer chapter 6.4]*. This would include analyzing slopes, natural drains and water bodies including seasonal and perennial streams, nalas, ponds and lakes, existing forested areas, wetlands, natural habitats of sensitive flora and fauna, low lying flood prone areas etc *[as explained in detail in chapter 6.4]*.

Before preparing the green and open space network, a detailed development suitability analysis considering the above features should be carried out, and a map of areas not suitable for development should be prepared. *[as explained in detail in chapter 6.6]*.

1. Key Considerations

Below are some key considerations for identifying land for green and open space network:

- **Retain and integrate lakes, water bodies:** The layout should strategically locate gardens and green spaces to incorporate existing lakes and water bodies as part of them *[Refer Fig. 63]*. All water bodies under government or public ownership should be retained in such a way that their water storage and/or water carrying capacity and water quality is maintained or enhanced.

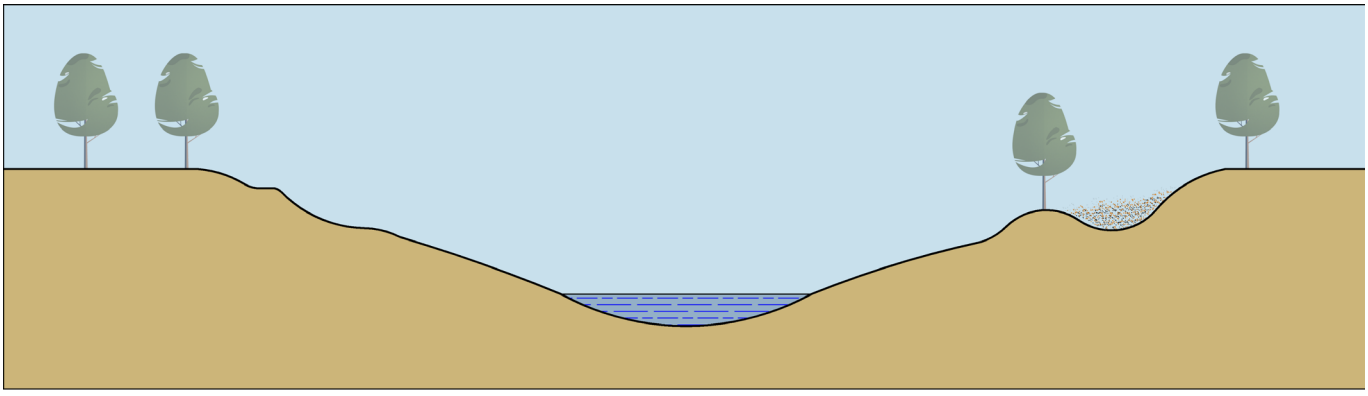
  In cases where significant water-bodies which should be preserved in interest of public purpose are located within private plots, the T P Scheme layout should be prepared in a way that such water bodies after land reconstitution becomes part of public lands alloted for parks, gardens or open spaces. The parameters for prioritizing such water bodies may be evolved in consultation with Geo-hydrological, agricultural and ecological experts. Such parameters could be:
  1. High water Holding capacity
  2. Potential of recharging ground water
  3. Potential to develop recreational places
  4. Happens to be point of connection for serially linked water bodies, etc.

Figure 63: Incorporating Sensitive Environment Features in T P scheme Development

Natural existing stream before execution of TP Scheme

An case scenario where Green spaces are organized around the existing stream

Figure 64: Alternate Approach to planning and considering sensitive environment features during development of T P Scheme



Natural existing stream before development

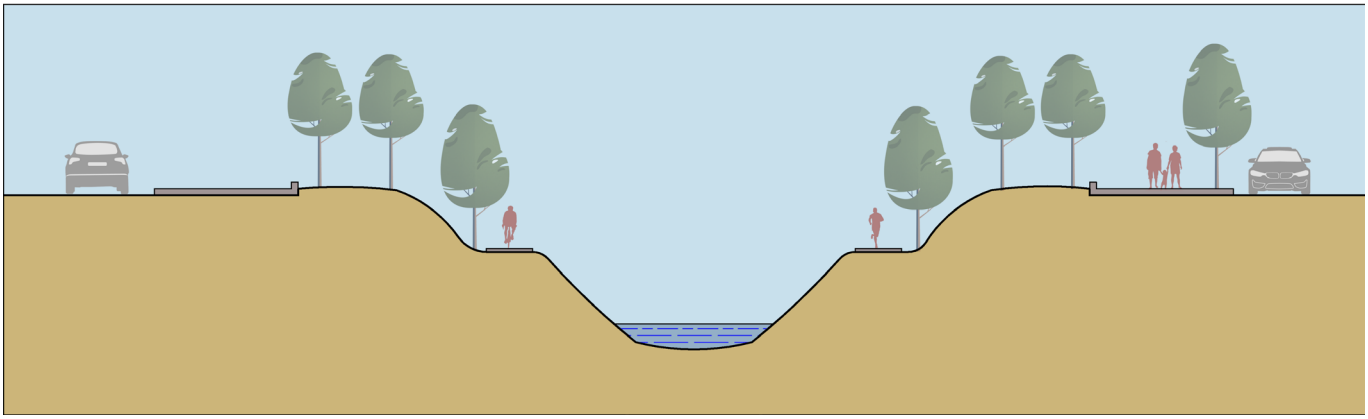


Figure 65: Retaining natural stream and integrating it into the development.

- **Integrate low lying areas, flood prone areas for ground water recharge:** The T P Scheme layout should avoid development over low lying, flood prone areas and wetlands. Instead they should be retained and integrated as parks or green and open space network if possible. Such low lying, flood prone areas can be converted into retention ponds or detention areas to allow percolation and ground water recharge. *[Refer Fig. 65]*

- **Ensure continuity of natural drains and streams:** Natural drains and nalas feed into lakes and rivers and help maintain the underground water table. Over past decades almost all such nalas and small water bodies have been built over or paved over. This has resulted in flooding of such areas in monsoons, and depletion of aquifers due to lack of recharge.

  While preparing T P Scheme layout it is crucial to ensure continuity of such nalas by either (a) integrating them with street network, or (b) integrating them with open space network. *[Refer Fig. 66]* In case of their integration with street network, the street ROW should be kept wide enough (without substantially increasing the Percentage under Streets as identified in chapter 6.5) and the sections should be sensitively designed to allow sufficient level difference and a green buffer between the stream and the street ROW. Whereas, if the stream is bigger and requires wider buffer, it is better to integrate it within a 'Greenway' system with network of parks and open spaces, running through the T P Scheme areas. *[Refer Fig. 67]*

- **Wetlands and Bio-diversity areas:** Wetlands areas or areas that remain swampy grasslands during certain part of the year are important part of ecology. Wetlands not only act as buffers for storm water and help in flood control, but they also sustain many birds

Figure 66: Continuity of natural drains and streams are to be ensured while designing the T P Scheme
source: Bishan park, pintrest

Figure 67: Creating a network of open spaces (Green) and Natural (Blue) in the T P Scheme.
source: mdpi journal Special Issue "Soil Ecosystem Services, Land Planning, Landscape Design and Management"

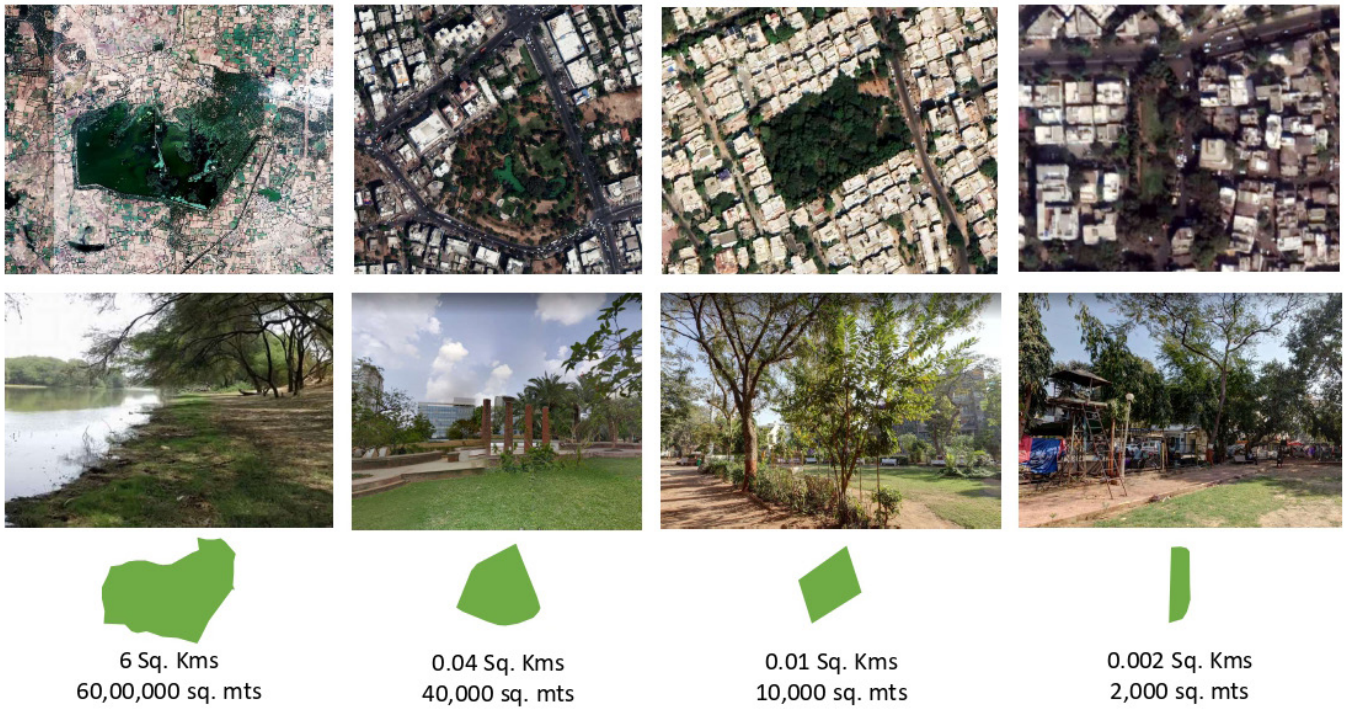


Figure 68: Different Scales of Open Spaces, Gardens and Parks.

and animal species that feed on smaller animals, insects and vegetation living on such wetlands. Therefore, a T P Scheme layout should integrate such areas within the network of greenways, parks and open spaces.

- **Gardens and Open Spaces:** Each T P Scheme should include gardens and open spaces that serve at various scales, ranging from neighborhood level , to larger areas as per the proposals in the Development Plan. The scale of gardens and open spaces should vary based on the nature of development envisaged within the T P Scheme *[Refer Fig. 68].* For example, a T P Scheme with primarily residential neighborhoods should identify multiple, well dispersed smaller gardens. Whereas a T P Scheme envisioned to become an urban center for the surrounding suburbs should be planned to include a city level park or open spaces that may become a focal point for the development.

7.11 Guidelines for E.W.S. Housing

As per the provisions under section 40 of GTPUDA 1976, the authority during preparation of T P Scheme layout should identify plots for the purpose of housing and accommodation of members of socially and economically backward communities upto the extent of 10% of the total area of T P Scheme. For achieving this the authority should carry out the following:

1. Undertake survey of existing informal settlements: A detailed survey of existing informal settlements in the T P scheme area should be carried out and the number of housing units and members per household should be recorded as per the prevailing policy before Declaration of Intention *[as explained in chapter 69]*. The area of each plot and ownership occupied by slums should be clearly identified on the map and no. of housing units living on each plot at the time of Declaration of Intention should be recorded while land reconstitution.

2. Considerations for identification of EWS Plot: The plots for EWS housing should be well distributed throughout the T P Scheme area. In case of existing large slums, such well-distributed locations of EWS plots will also allow them to better integrate in the city.

If a slum is located on government plot, the land area taken under deduction/contribution from such plot should preferably be allocated for EWS. This would allow development of EWS housing on the deducted/ contributed land area and on the government plot together either by the authority or through PPP mode. *[Refer Fig. 69]*

3. Ensuring provision of infrastructure: The scheme should ensure provision of infrastructure such as sanitation, water supply, power supply, solid waste collection, street lighting; and basic amenities like parks, schools, open spaces/ community spaces, health care center are accessible in the neighborhood.

Before

After

Figure 69: Conversion of Slum into EWS housing at same site- Kailashnagar, Ahmedabad.

7.12 Deriving Land Deductions/Contributions

As per the provisions under section 40(3) (j) and (jj) of the GTPUDA 1976, a T P Scheme layout should allocate land in a sustainable and equitable manner for the following purposes:

- Road network and other transport facilities
- Infrastructure including water supply and drainage, inclusive of sewerage, surface or sub-soil drainage and sewage disposal
- Open spaces, Parks, gardens, recreation grounds, green-belts
- Social infrastructure such as school, dispensary, fire brigade and other public utility
- Reservation of land for the purpose of providing housing accommodation to the members of socially and economically backward classes
- Land for-sale by appropriate authority for residential, commercial or industrial use depending upon the nature of development
- Land for preservation of objects of historical or national interest or natural beauty, and of buildings actually used for religious purposes;
- Other public purposes

For the aforementioned purposes under Section 40 (3) (j) and (jj) of the GTPUDA, the authority preparing the T P Scheme layout is required to take land deductions/ contributions from the Land owners within the T P Scheme area. The authority should define set of clear principles while identifying land deductions/contributions for various purposes and also consider the average deductions/ contributions taken in the surrounding T P Schemes. In any case such land deductions/contributions should adhere to the provisions under section 40(3) (j) and (jj) of the GTPUDA. *[Refer Fig. 70 for an extract from the Section 40(3) (j) and (jj) of the GTPUDA]*

1. Land Deduction/Contribution for T P Scheme in greenfield areas:

Before beginning the land reconstitution exercise, the authority should identify Average Land Deduction/ Contribution for the T P Scheme area. Such average land deductions/contributions should be calculated based on the total requirement of land identified for each of the aforementioned purposes under section 40 (3) (j) and (jj). It is not mandatory to apply the same percentage of land deduction/contribution from each and every plot.

All original plots in the T P Scheme (except notified Gauchar lands, Water Bodies and Forest Lands) should generally be subjected to the same average land deduction/contribution. However, the land deduction / contribution on an individual plot may vary based on the existing conditions and the context of the plot. For example, land deduction/contribution may be reduced due to:

- Existing development on the original plot
- Existing physical features on the original plots
- Final plot becoming non-developable after land Deduction/contribution on the original plot.

Gujarat Town Planning and Urban Development Act, 1976

[Presi : Act No. 27 of 1976]

CHAPTER V.

TOWN PLANNING SCHEMES.

Making and contents of a town planning scheme.

40. (3) A town planning scheme may make provision for any of the following matters, namely :—

(a) the laying out or relaying out of land, either vacant or already built upon;

(b) the filling up or reclamation of low-lying, swampy or unhealthy areas, or leveling up of land;

(c) lay-out of new streets or roads, construction, diversion, extension, alteration, improvement and closing up of streets and roads and discontinuance of communications;

(d) the construction, alteration and removal of buildings, bridges and other structures;

(e) the allotment or [1][earmarked]of land for roads, open spaces, gardens, recreation grounds, schools, markets, green-belts, dairies, transport facilities, public purposes of all kinds;

(f) drainage, inclusive of sewerage, surface or sub-soil drainage and sewage disposal;

(g) lighting;

(h) water supply;

(i) the preservation of objects of historical or national interest or natural beauty, and of buildings actually used for religious purposes;

(j) the reservation of land to the extent of ten per cent, or such percentage as near thereto as possible of the total area covered under the scheme, for the purpose of providing housing accommodation to the members of socially and economically backward classes of people [1][and of such other class of people as may be determined by the State Government;]

[3]/[4][(jj) *(a)* allotment of land from the total area covered under the scheme, to the extent of,-

(i) fifteen per cent; for roads,

(ii) five per cent; for parks, play grounds, gardens and Open space,

(iii) *five* per cent for social infrastructure such as school, dispensary, fire brigade, public utility place as earmarked in the [5][Draft Town Planning Scheme and also for industrial development, and]

(iv) fifteen per cent; for sale by appropriate authority for residential, commercial or industrial use depending upon the nature of development:

Provided that the percentage of the allotment of land specified in paragraphs *(i)* to *(iii)* may be altered depending upon the nature of development and for the reasons to be recorded in writing;

Figure 70: Extract from Section 45(2) of the GTPUD Act 1976 explaining Land Deduction/contribution for various purposes

2. Land Deductions/Contributions for T P Scheme in partially developed areas

In case where the T P Scheme is located in a partially developed area, it may be difficult to allot the full amount of land for public purposes as identified in section 40 (j) and 40 (jj) of the GTPUDA. In such situation, it may be essential to prioritize the purpose of land deduction/contribution. Below is a recommended order for prioritizing such land Deduction/contribution:

1. Roads
2. Infrastructure (Key Physical Infrastructure)
3. Green / Open spaces including sensitive environment features)
4. Amenities (Key Social Infrastructure)
5. EWS Housing Plot
6. For-Sale Plot

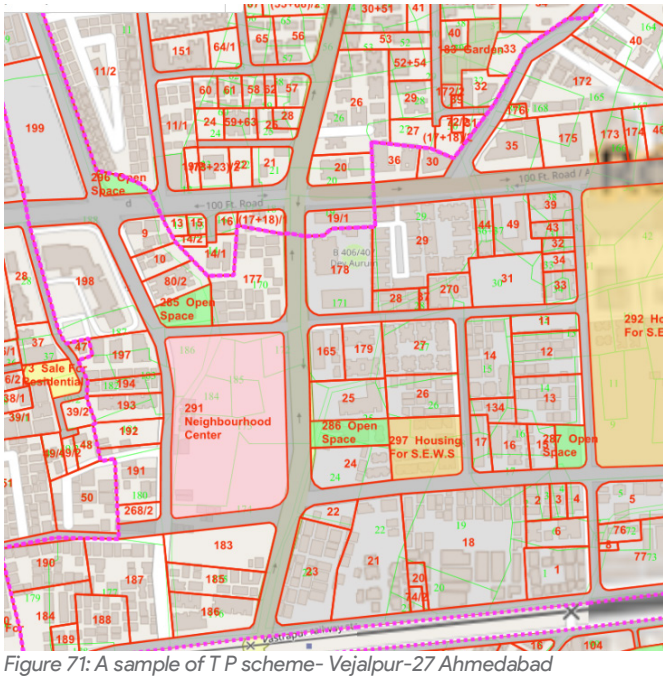


Figure 71: A sample of T P scheme- Vejalpur-27 Ahmedabad source- TPVD

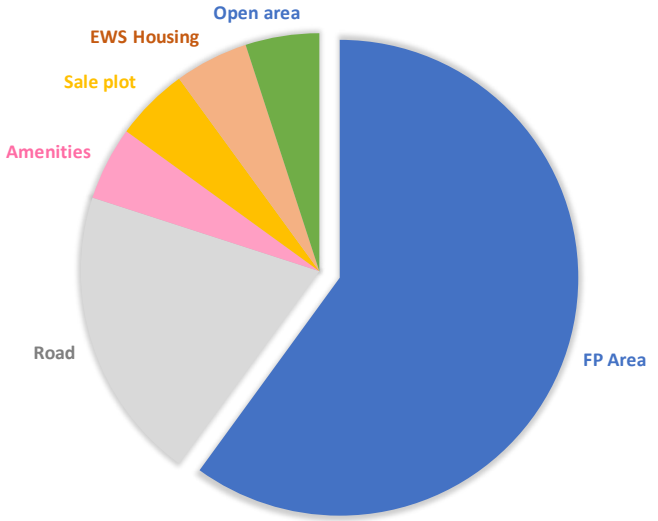


Figure 72: Area deduction/ contribution pie chart for plot reconstitution

7.13 Land Reconstitution

[Refer Section 45(1) of the GTPUD Act 1976]

After laying of road networks, and identifying plots for amenities, infrastructure, garden and open spaces, EWS housing and for sale plot, in the T P scheme layout; original plots are reconstituted to form final plots. This process allows laying of final plots while removing the irregularity in plot shapes and providing efficient plot proportions.

During reconstitution of the plots following principles should be considered:

7.13.1 Considerations for Reconstitution of Unbuilt/Open Plots:

Reconstitution of plots should be carried out adhering to section 45(2) of the GTPUDA *[Refer Fig.73 for an extract from Section 45 of the GTPUDA]*. In this context, the following points are provided for considerations and should not be understood as rules or regulations. They should be used after considering the existing situation, the context, and the nature of development within the T P scheme:

- In order to allow smooth implementation of the T P scheme layout, it is preferable to locate final plots on the same original plots or nearest to the location of their original plots; as this will increase the acceptance of the layout. In case of relocating the original plot, it should be taken care that the semi-final value of the plot is not too low from the value of the original plot
- It should be ensured that the Final Plot should remain buildable.
- It is preferable to locate FP at a location with the same Potential areas as that of the OP
- Since value of a Final Plot is dependent on the type and width of the road it is located on, it is recommended that the Final Plot should be located on the road of the same or similar width as the Original Plot. For example, in case where an original plot is along a proposed DP road, the final plot should also be given adjacent to a DP road
- In case where the area of a Final Plot is larger than a block, the FP can be split in multiple parts to accommodate street network. However, at least one of the subdivided FP should be on a portion of the Original Plot.
- The Final Plot should be located in the same DP Zone as that of the Original Plot
- In case where the original plot falls on two different DP zones, the owner can be given two proportionate FPs in respective zones. If either of such FPs become non-buildable, a combined FP can be given in the zone with higher FSI.
- The FP should be given in the same revenue village, town or city as that of the OP
- No Land Deduction/Contribution should be made in notified Gauchar land, water bodies and forest lands
- All government plots should be subjected to the same standard Land Deduction/contribution as the other plots
- In cases where the OPs fall under proposed amenities, EWS housing, gardens, open spaces etc, the FP may be located to a nearby location.

Gujarat Town Planning and Urban Development Act, 1976

[Presi : Act No. 27 of 1976]

45. *(1)* In the draft scheme referred to in section 44, the size and shape of every plot shall be determined, so far as may be, to render it suitable for building purposes and where the plot as already built upon, to ensure that the building, as far as possible, complies with the provisions of the scheme as regards open spaces. **Reconstitution of plots.**

(2) For the purposes of sub-section *(1)*, the draft scheme may contain proposals-

(a) to form a final plot by the reconstitution of an original plot by the alteration of its boundaries, if necessary;

(b) to form a final plot from an original plot by the transfer of any adjoining lands;

(c) to provide with the consent of the owners that two or more original plots which are owned by several persons or owned by persons jointly be held in ownership in common as a final plot, with or without alteration of boundaries;

(d) to allot a final plot to any owner dispossessed of land in furtherance of the scheme; and

(e) to transfer the ownership of a plot from one person to another.

Figure 73: Extract from Section 45(2) of the GTPUD Act 1976 explaining Land Reconstitution

7.13.2 Considerations for Reconstitution of Plots with Existing Structures, Physical Features and/or Natural Features

- Original Plot with built up: In case where the OP is completely built up at the time of Declaration of intention of the T P Scheme and the deduction/ contribution of land is not possible from the plot, the deduction/contribution should be taken when the plot comes for redevelopment.

  In case where the land receivable by the authority after such standard deduction/contribution is smaller than the minimum building unit area specified for the zone under the GDCR, the authority should not impose any deduction/contribution but should recover betterment charges equivalent to the value of the deductible land.
- The plot reconstitution should be done in such a way that it preserves the existing nalas and water bodies.
- No FP should preferably be allotted under a high tension line as per provision of the Act.
- It is preferable to avoid locating FPs over underground pipeline, such as ONGC
- It is preferable to avoid locating FPs over underground pipeline, such as ONGC and in case where the OP is directly affected by any underground/ pipelines, Final plot should be skillfully carved out in a such a way that the permissible built up is available.
- The status of revenue records on all OP's should be applicable on the reconstituted FPs. However, all newly carved out FPs such as Plots for sale, Plots for amenities, etc can be considered without any encumbrances and without any burdens.

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08.

Valuation, Cost and Finance for T P Scheme Implementation

Highlights

- *Principles of valuation, reconstitution of land, financial management and calculating the incremental contribution by the plot owners are key aspects of the T P Scheme.*
- *These components are provided in the different sections of the Act & Rules. This section gives a detailed illustrative methodology with reference to the various statutory provisions to simplify and make the process uniform & objective within the spirit of Act & associated Supreme Courts Judgments.*

Town planning scheme should have records of inflow and outflow of funds and systematic overall financial strategy. The following section discusses the principles for cost estimations, valuations of original and final plots and provide guidelines for revenue estimation and cash flow management strategies.

8.1 Cost of Preparing Town Planning Scheme

The cost estimation for a particular T P scheme should be prepared and finalized during preparation of Draft T P Scheme Stage under provision of sections 77(1)(a) to (g) of the Act. This includes all sums to be spent by the authority in making and execution of T P Scheme, all sums payable as compensation for land reserved or designated for public purpose, all amounts to be paid to the plot owners as per Form F, all legal expenses and expenses for preparation of T P Scheme.

8.1.1 Cost of Infrastructure Works for T P Scheme

Cost of works is a critical part of the Cost of T P Scheme. The cost of works should be worked out following the provisions of sections 40(3)(b), (c), (d), (f), (g) and (h) of the Act *[Refer Table 07 for Abstract Sheet for cost of works]*. This should include the following:

- Development of infrastructure like such as roads and bridges including all elements above and below ground such as pavements, street lights, street furniture, landscaping, signage etc.
- Provision of infrastructure networks such as water, sewage, storm water, gas, electrical and telecom services, and construction of utility ducts for carrying such services.
- Structures for management of solid waste.
- Development of green open spaces, plazas etc.
- Development, conservation and/or protection of lakes, nalas and other such natural water bodies, and construction of culverts and small bridges over nalas and water streams.

The cost estimations for the above mentioned elements should be calculated and noted in Form G *[Refer Table 09 for calculation table for Form-G].*

Table 07: Abstract sheet for cost of works

Abstract sheet for cost of works		
Expenses under section 40(3) (c), (f), (g), (h)		
Sr no	Name of Work	Amount (INR)
1	Construction of roads including excavation, soiling, metaling, carpeting, and seal coat etc. complete	
2	Providing electricity, street light and underground wiring, painting , lamp, fitting etc. complete provided at every 30 m distance	
3	Providing and laying of appropriate size gutter line including treatment plant, gray water recycling system, storm water disposal, rainwater harvesting and ground water recharge structures, development of green and open spaces and water bodies, conservation of natural drains, wetlands and environmentally sensitive areas by building structures for retaining water, culverts and other civil and landscape works. etc. complete (f)	
4	Providing and laying of appropriate size water pipeline including tube well, sump well, pump room with pump in connection to adjoining schemes etc. complete	
	Total (A)	
	Add for section (1) (g) 10% of cost of infrastructure cost for adjoining schemes (B)	
	GRAND TOTAL (A)+(B)	
	GRAND TOTAL (Round off) (A)+(B)	

8.2 Guidelines for Valuation

[Refer Sections: 78, 79, 80, 82, 83, 84 and 85 of the GTPUD Act 1976]

In order to calculate principle based compensations, incremental values and betterment charges; parameters for valuation of original plots and final plots are to be defined. The following sections shall provide clear guidelines for valuation of plots. Form F shall provide each landowners' compensation for the deducted land and calculated incremental contribution. *[Refer table 08 for detailed illustration of an F-Form]*

All the calculations shall be done on the base rates as on the date of declaration of intention of the T P Scheme. For valuation purpose three sets of value of plots shall be calculated. First, the Value of the original plot (Original Plot Value), second the value of the plot in undeveloped condition (Semi-Final Plot Value) and third the value of the plot in fully developed condition (Final Plot Value).

All the valuation for the scheme i.e.: Original Plot value (O.P. Value), Semi-Final Plot Value (S.F. value), Final Plot Value (F.P. value) shall be worked and finalized as per the principles of the valuation & time to time guidelines of the State Government.

8.2.1 Original Plot value (Column 6a & 6b of Form 'F')

Calculating OP Value for column 6(a) and 6(b) of Form-F *[Refer Table 08]* requires to determine both, the value of original plot, and value of the structure if existing on the plot. Below are two methods for calculating Original Plot value. **Of these, whichever yields higher value shall be considered while calculating the value of Original Plots.** O.P. value of an open plot shall be determined based on prevailing jantri rates or based on recent sales deeds in the area, whichever is higher. Below are further details for calculating OP Value:

- **Using jantri value:** Original Plot value shall be calculated based on the latest prevailing Jantri Rates as on the date of declaration of intention. Average maximum rate per Sq. Meters shall be considered for OP Valuation.

- **Using Sale deeds:** The OP values shall also be calculated based on collection of sale deeds of last five years from the date of declaration of intention for T P Scheme area and surrounding fringe area of one km depth.

  A set of factors shall be considered before applying the rate calculated from recent sale deeds to an OP in order to derive a justifiable OP value. Below is the list of such key factors:
  1. Location
     a. Proximity to developed area
     b. Proximity to Natural Feature
     c. Proximity to Man-made Features
  2. Access (1 or more)
  3. Frontage
  4.Shape (regular/irregular shape)

5.Size/Area (large/small)
6.Zoning (based on development potential)
7.Level of plot with reference to the road

In case where the jantri rate and/or the sale deeds are older than the declaration of intention they shall be applied with an interest rate determined based on the Inflation Index in order to derive its value at the date of Declaration of Intention.

Valuation of plot with structure

(Column 6b of Form 'F')

Value of an original plot with structure shall be calculated by adding value of the structure on the value of the plot. The value of the structure shall be calculated as per the prevailing schedule of rates (SOR) of R&B.

OP value inclusive of structure = Original Plot value of open area + value of structure.

8.2.2 Semi-Final value(Column 9a & 9b of Form 'F'):

The semi-final plot value is the value of the final plot in undeveloped condition (without considering provision of infrastructure). The SF Value is calculated in column 9(a) and 9(b) of the Form-F *[Refer table 08]*.

Semi-Final value shall:

- Remain equal to Original Plot value unless the plot is shifted to other location.

The Semi-final rates may vary:

- If the plot is shifted, then the semi-final value of that plot shall be based on the original plot rates of that shifted location.
- Based on size of Final Plot comparing with the size of the Original Plot.

Table 08: Detailed Form-F

F - FORM											
Sr. No	Name of Owner	Tenure	Block No	Original Plot				Final Plot			
				No.	Area (sqm)	Value in Rupees		No	Area (sqm)	Value in Rupees	
										Underdeveloped	
						w/o value of structures	Inclusive of value of structures			w/o value of structures	Inclusive of value of structures
1	2	3	3(a)	4	5	6(a)	6(b)	7	8	9(a)	9(b)
1	Savitaben d/o aanabhai Yogeshbhai pujalal Mukeshkumar pujalal Ushaben Pujalal Minaben Pujalal Other Rights (OR) Rasoolmiya Salumiya		250	1	11402	627110	627110	1	6841	355740	355740
2	Gauchar, v/k Hathijan Gram panchayat		233	2	11129	556450	556450	2	6677	333859	333859

SF plot value inclusive of structure (Colum 9b of Form 'F')

- SP value inclusive of structure = SF Plot value of open area + value of structure

8.2.3 Final Plot value: (Column 10a & 10b of Form 'F')

The Final Plot value is the value of the plot in developed T P scheme. The F P Value shall be based on the estimated total cost of the T P scheme in fully developed condition with all physical and social infrastructures as on the date of declaration of intention. The FP Value is calculated in column 10 (a) & 10 (b) of the Form-F *[Refer table 08]*

Below are two methods for calculating Final Plot value. **Of these, whichever yields higher value shall be considered while calculating the value of Final Plots:**

- **Using jantri rates:** Calculation of FP base rates should be based on:
  FP Rate = OP rate + (Total expenditure of T P Scheme as per form G / Total available developable plots including 'for Sale Plots')

  Final Plot Value per Sqm. = OP Rate + X

  X = Total Cost of the T P scheme (as per enclosed)
  Total area of all final plots in T P Scheme
- **Using Sale deeds:**

1. Identify OP Rate of the same location where FP is allocated
2. Apply factors as identified in OP valuation method *[refer chapter 8.2.1]*

Table 08: Detailed Form-F (continued.)

F - FORM (cont.)							
Final Plot Value in Rupees Developed		**Contribution (+) Compensation (-) under sec. 80 (column 9b -column 6b)**	**Increment (section 78) (column 10a- column 9a)**	**Contribution (section 79) 50% of column 12**	**Additional to (+) or contribution from (-) the contribution to be made under other section**	**Net Demand from (+) or by (-) owner being the addition of columns 11, 13, 14**	**Remarks**
w/o value of structures	**inclusive of the value of structures**						
10(a)	**10(b)**	**11**	**12**	**13**	**14**	**15**	**16**
2339672	2339672	-271370	7983933	1991966	-	720596	1. Rights of the owners in FP as per their shares in OP 2. Owners to receive compensation and pay contribution in proportion to their share in OP 3. The rights of other right holders in OP is transferable to F.P.
2270243	2270243	-222591	1936384	968192	-	745601	

8.3 Compensation, Incremental Value, Incremental Contribution.

[Ref. Section: 77 of the GTPUD Act 1976]

Compensation, Incremental value, Incremental contribution. *(Refer Appendix 2 as an illustrative example)*

- Compensation to be paid to the owners for deducted land (Column 11 of Form 'F') *[Refer table 08]*
  = Total OP value- Total Sf value.
- Total Incremental contribution to be realized from the owner of the FP plot is the total incremental contribution (Column 12 of Form 'F'). *[Refer table 08]*
  = Total FP value- Total SF value.
- Incremental contribution to the extent of 50% to be taken from the land owners. (Column 13 of Form 'F'). *[Refer table 08]*
- Net Incremental contribution (betterment charge) shall be realized from the owners (Column 15 of Form 'F'). *[Refer table 08]*
  = Incremental contribution to the extent of 50% (column13 of Form- F) – compensation to be paid to the owner (column 11 of Form F).

Form-G

Form 'G' is a balance sheet of T P Scheme. It shows the expenses that are made to implement the scheme in terms of laying of infrastructure, paying compensation to the owners, cost of publication, cost of demarcation, salaries to the officials in the authority etc. Through T P scheme, the authority shall charge 50% of the incremental contribution from all the owners. Form 'G' shows the net cost of the scheme by deducting the cost of total contribution (b) from the Total expense (a). *[Refer table 09]*

- Cost of the physical infrastructure and social infrastructure shall be worked out as per the provisions under sec.- 40(3) (b), (c), (d), (f), (g) & (h)
- Contribution (+), Compensation (-) under section-80 of the GTPUDA shall be calculated. (Column 9b-6b of F-form)

Table 09: Detailed Form-G

Calculation Table for Form G		
1	Expenses under section 40(3), (c), (f), (g), (h)1 (Abstract sheet for costs of work)	
2	Expenses shown in the redistribution and valuation statement (Total of column 11 of Form F)	
3	Cost of publication under section 41(2), legal expenses under section 42(1) or (2) rules 16 to 18	
4	Compensation under section 49(2), legal expenses under section 77(f), (e), Compensation under section 82	
5	Cost of demarcation, salaries of Town Planning officers, and Board of Appeal, and their staff, and other expenses under section 61(2)	
	Total (a)	
6	Total of Increment (column 12 of F-form)	
7	Proportion of increment to be the contribution by Each Holder (Section 79)@ _____%	
	Total of contribution under Section 79 (b)	
	Net cost of scheme to the Appropriate Authority (a-b)	

- Cost of the publication of declaration of intention to make T P Schemes, Publication of draft T P Schemes, publication of enter upon TPO and all other related cost of publications under the GTPUD Act & Rules till the final T P Scheme shall be calculated.
- Compensation under section 49(2), legal expenses under section-77(2) and section-82 of the GTPUD Act shall be calculated.
- Cost of survey and demarcation of T P Scheme proposals, salaries staffs of TPO office, Board of Appeals and other expenses under section – 61(2) of the GTPUD Act should also be included.

8.4 Guidelines for Revenue Estimation

8.4.1 Revenue generation

The different sources of revenue in a T P Scheme shall be as follows:

- Incremental Contribution from plots
- Land for sale
- Development of certain social amenities like police station, fire station could be funded by the respective departments
- The social Infrastructure plots may also be leased to private entities for developing amenities for schools, colleges, hospitals, and community halls
- PPP model could be adopted for development of infrastructure and/or amenities such as roads in partnership with the developer or other such private entities. The cost of development of such infrastructure can be waived off against the amounts payable to the authority by such entities in form of: Development fees, Incremental Contribution, Premium FSI, Advertisement rights etc.

8.4.2 Finance management

The authority shall create a separate account in its own accounting system to manage the revenue and expenditures for the T P Schemes under process at various stages.

Preferably 60% or more of the revenues generated in the T P scheme should be utilized for capital expenditures within the same T P scheme and remaining amount should be utilized for development of other large infrastructure (Section 91A).

09.

Owners meeting, Publication, Modification, and Submission of Draft T P Scheme.

Highlights

- *Consultation with land owners and beneficiaries is the important stage of T P Scheme Preparation.*
- *This section provides guidance for carrying out Owners' Meeting, Publication of the Draft T P Scheme, Receiving suggestions and objections, carrying out required modifications and submission of the Draft T P Scheme to the Government.*
- *It also identifies stages at which advisory guidance of the AG may be taken by the authority.*

9.1 Owners Meeting

[Refer Section: 42(1) of the GTPUDA and , Rule 17 of the GTPUDR]
[Refer document "Recommendations to Strengthen the T P Scheme Preparation Process through enhancements in Statutory Planning Mechanisms", Recommendation 12, Templates 2, 5 for procedures to be followed by the authority for conducting owners meeting]

9.1.1 Conducting owners meeting

[Refer, Rule 17 of the GTPUD rules 1979]

During the preparation of draft T P scheme, once the first draft of the scheme with all the valuation details and reconstitution of final plots is ready and reviewed by the Advisory Group (AG), the authority shall invite all the land owners and other beneficiaries of the T P scheme area by individual notices and also by local newspapers circulating in the area for conducting owners' meeting *[Refer Rule 17 of GTPUDR].*

It is recommended to conduct the owners' meeting in a guided framework to properly convey the contents of the scheme to the owners. Some guidelines for the same are:

- There shall be a presentation prepared of the draft T P Scheme explaining about the purpose, vision and principles of T P Scheme; conceptual and schematic T P Scheme layouts including road layout, character of the area envisioned, green and open spaces, infrastructure and amenities, informal sector, housing and recommended regulations, rationale for standard Land Deduction/contribution and other Land Deductions/contributions, OP map, OP-FP map, FP map, total expenses of the scheme as per the G-form, and other important features of the T P Scheme etc.
- Agenda and proceedings of the meeting shall be elaborated at the beginning of the meeting. A tentative schedule for the meeting can be:
  - Presentation of various components of the T P Scheme by the qualified planner involved in preparation of the scheme
  - Conducting sub group discussions
  - Taking suggestions from beneficiaries
- The meeting shall be recorded and as much as possible the suggestions provided by the beneficiaries should be incorporated in the draft T P Scheme.
- Scale of various maps like OP map, OP-FP map, FP map, Sales map and other infrastructure maps for the meeting shall be as prescribed in the Rule 21 of GTPUD Rules 1979 for the publication of draft T P Scheme.

9.1.2 Incorporating Suggestions from Owners' Meeting

[Refer Rule 17 of the GTPUD Rules 1979]

The authority should prepare a summary of all the objections and suggestions received during the owners' meeting. The authority should also prepare a summary of remarks against each suggestion explaining the reason for either incorporating or not incorporating in the draft scheme.

Figure 74: Various components of an Owners meeting

9.2 Publication of Draft T P Scheme

[Refer Section: 42(1) of the GTPUD Act 1976 and , Rule 18 of the GTPUD Rules 1979]

[Refer document "Recommendations to Strengthen the T P Scheme Preparation Process through enhancements in Statutory Planning Mechanisms", Recommendation 12, Template 7 for Advertisement format for publication of Draft T P Scheme by the Authority]

- Within Nine months (extendable by 3 more months if required), from the date of declaration of intention to make a scheme under section-41 of GTPUD Act 1976, the authority shall make the draft T P Scheme of the area and shall publish by means of any advertisement in the official gazette, along with the draft regulations for carrying out the provisions of the scheme.
- The draft T P Scheme shall also be published in one or more Gujarati newspaper circulating within the authority area. The authority shall also paste such advertisement at the head office of the authority and at other prominent places in or near the area included in draft T P Scheme. The advertisement shall also state that a copy of the T P Scheme is open for public inspection in the authority during office hours.
- The advertisement published shall also announce that if any person is affected by draft T P Scheme, such person shall communicate in writing to the authority about any objection relating to the draft scheme, within one month from the date of publication of the draft T P Scheme in the official gazette.

9.3 Incorporating Suggestions after Publication of Draft T P Scheme

The authority should prepare a summary of all the objections and suggestions received after the Publication of the Draft T P Scheme. Subsequently, the Authority under the guidance of Advisory Group (AG) shall review the suggestions received and incorporate such corrections/ modifications in the Draft T P Scheme that may be deemed necessary. The authority should also prepare a summary of remarks against each suggestion explaining the reason for either incorporating or not incorporating in the draft scheme.

9.4 Submission of Draft T P Scheme

[Refer Section: 48(1) of the GTPUD Act 1976]

Before submitting the draft scheme to the Govt. the Authority should fill out the draft T P Scheme checklist [Refer document "Recommendations to Strengthen the T P Scheme Preparation Process through enhancements in Statutory Planning Mechanisms", Recommendation 12, Template 6 for checklist] and ensure that the requirements identified in the checklist are met.

After modifications the draft T P Scheme shall be submitted to the State Government for review and sanctioning under section 48 (1).

The Draft Scheme Submission should include:

- Maps (as suggested in chapter 3)
- Forms (as suggested in chapter 3)
- T P Scheme Report (as suggested in chapter 3)
- All Objections and suggestions received during Publication along with Remarks statement.

10.

Sanctioning of Draft T P Scheme and Appointment of TPO

10.1 Appointment of Expert Review Committee (ERC)

10.2 Sanction of Draft T P Scheme

10.3 Assigning T P Scheme to Town Planning Officer (TPO)

Highlights

- *After receiving the Draft T P Scheme from the authority, the Government is required to review and sanction the draft if satisfactory. The Government also appoints a Town Planning Officer after sanctioning of Draft T P Scheme.*
- *At this stage it is recommended that the State Government appoints an Expert Review Committee (ERC), who can review the Draft T P Scheme and make recommendations if necessary before the government sanctions it. .*
- *It is also recommended that the appointment of TPO should be done at the same time or before sanctioning of the Draft T P Scheme.*

10.1 Appointment of Expert Review Committee (ERC)

It is recommended that the State Government appoints an Expert Review Committee (ERC) under the chairmanship of the Chief Town Planner of the Town Planning and Valuation Department (TPVD), Gujarat to review/ scrutinize the draft T P Scheme and recommend any modifications/ changes if necessary before the State Government Sanctions the Draft T P scheme. *[Refer chapter 13.3 for detailed recommendations regarding appointments and roles and responsibilities of the ERC]*

10.2 Sanction of Draft T P Scheme

[Refer Section: 48(2) of the GTPUD Act 1976]

Upon receiving the draft T P Scheme from the authority *[Refer chapter 9.4]* the State Government shall review and suggest necessary modifications prior to sanctioning or sanction the draft T P Scheme as is within three months as per section 48 (2) of the GTPUDA.

10.3 Assigning T P Scheme to Town Planning Officer (TPO)

[Refer Section 50 (1) of the GTPUD Act 1976]

[Refer document "Recommendations to Strengthen the TP Scheme Preparation Process through enhancements in Statutory Planning Mechanisms", Recommendation 12, for relevant templates to be used by TPO for undertaking various procedures during the preparation of Preliminary and Final T P Scheme preparation process]

The State Government shall appoint a Town Planning officer (TPO) for preparing Preliminary and Final T P Scheme within one month from the sanction of the Draft T P Scheme under section 50 (1) of the GTPUDA.

However, it is recommended that a TPO should be appointed at the time or before sanctioning of the Draft T P Scheme. This will allow the TPO to quickly take the charge and reduce any potential delay in the process. *[Refer chapter 13.4 for detailed recommendations regarding appointment of TPO]*

Stage 3
Preliminary T P Scheme

11.
Preparation of Preliminary T P Scheme

Highlights

- *This section clearly lays down the guidelines for the TPO to perform his/her functions & duties effectively and role of government in reviewing and sanctioning the Preliminary T P Scheme within the stipulated time period.*
- *It is also recommended that, upon receipt of the preliminary scheme, the State Govt. should provide the same to the ERC for review. After reviewing ERC shall submit the opinion/ recommendation to the State Govt. After considering the recommendations, the State Govt. by notification may sanction the scheme with or without the modification.*
- *Also, it is recommended that, before submitting the preliminary scheme to the Government, the TPO should fill out the preliminary T P Scheme checklist for ease of reviewing and sanctioning by the State Government.*

11.1 Inviting, Hearing and Recording Objections and Suggestions from Persons Affected by the T P Scheme

[Refer Section: 51 and 52 of the GTPUD Act 1976 ;Rule 26 of the GTPUD Rules 1979]
[Refer document "Recommendations to Strengthen the T P Scheme Preparation Process through enhancements in Statutory Planning Mechanisms", Recommendation 12, Templates 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 for relevant templates to be used by TPO for undertaking various procedures during the preparation of Preliminary T P scheme]

Upon the assignment of the Sanctioned Draft T P Scheme to the TPO, the TPO shall obtain and review the T P Scheme Maps, Forms and T P Scheme Report; and prepare necessary files for conducting the hearings.

Notice of Appointment of TPO: Also, after the assignment, the TPO shall publish notice through Form H of the GTPUD Rules, providing the date when the Draft T P Scheme was sanctioned and assigned to the TPO. Such notice shall be published in the official gazette, in one or more Gujarati Newspapers circulating within the area, at prominent places within or near the T P Scheme area, and at the office of TPO.

Notice inviting consultations with persons affected by the scheme : Subsequently, the TPO shall give notice for inviting objections to all persons affected by the scheme up to a maximum of 2 times, in the prescribed manner and in prescribe format *[Ref: GTPUD Rule,. 26]*. Such notice shall specify the matters which are proposed to be decided by the TPO and state that all persons who are interested in the plots or are affected by any of the matters specified in the notice, shall communicate in writing their objections to TPO within the period of 20 days from the publication of the notice *[Ref: GTPUD Rule. 26 (3)]*.

Recording suggestions, objections and decisions: The TPO shall give every person interested in any land affected by the scheme sufficient opportunity of stating their views. *[Ref: GTPUD Rule. 26(4)]*. If it appears to the TPO that there are conflicting claims or difference of opinions with regard to any part of the scheme, the TPO shall record their suggestions, objections and points relevant for the matter, and shall record her/his decision about the matter with proper reasons. This shall be appended in the T P Scheme Report *[Ref: GTPUD Rule. 26(5)]*. The TPO shall record and enter every decision given by her/him in the T P Scheme Maps, Forms and the T P Scheme Report *[Ref: GTPUD Rule. 26(6)]*.

11.2 Publishing the Revised T P Scheme

[Refer Rule number 26 (9) of the GTPUD Rules 1979]

The TPO shall publish the scheme drawn up by her/him by notification in official gazette in Form I of the GTPUD Rules and also by advertisement in one or more local newspapers announcing that the scheme shall be open for inspections by public. The TPO shall communicate the decision taken by her/him in respect to each plot to the owner/s or person/s interested by issuing requisite extract of the scheme in Form J and Form K of the GTPUD Rules.

[Ref: GTPUD Rule. 26(9)]

Demarcation of plots: Subsequently, the TPO shall define and demarcate the final plots and the areas allotted to or reserved for any public purpose, or for the appropriate authority.

11.3 Submission of Preliminary T P Scheme

[Refer Section 52 (2) & 64 of the GTPUD Act 1976]

Under the provisions of Section 52 (2) and section 64 of the GTPUDA, the TPO shall, after following the prescribed procedure submit, the Preliminary Scheme (with or without the Final Scheme) to the State Government. Upon receiving the preliminary T P Scheme, the State Government shall review and recommend changes, if any.

It is recommended that the State Government invites ERC (if appointed as recommended under chapter13.3) to review and recommend modifications if any. After reviewing ERC shall submit the opinion/recommendation to the State Govt.

Upon the recommendation of the ERC, The TPO may make any modifications If any such changes are impacting any FPs, one final opportunity should be provided to all stakeholders/ landowners for Hearing with the TPO.

Before submitting the preliminary scheme to the Government,. the TPO should fill out the preliminary T P Scheme checklist [Refer document "Recommendations to Strengthen the T P Scheme Preparation Process through enhancements in Statutory Planning Mechanisms", Recommendation 12, Template 17] and ensure that the requirements identified in the checklist are met.

11.4 Sanction of Preliminary T P Scheme

[Refer section 65 (1) of the GTPUD Act 1976]

After incorporating the changes, the State Government shall sanction the Scheme as Preliminary T P Scheme under Section 65(1) of the GTPUDA

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Stage 4
Final
T P Scheme

12.

Preparation of Final T P Scheme

Highlights

- *Procedure for final T P Scheme is clearly simplified and detailed out in this chapter, which will help the TPO, Board of Appeal and Government to complete the process and sanction the scheme in a timely manner.*

12.1 Preparation of Final T P Scheme

[Ref. GTPUDA Section: 52(3)]
[Refer document "Recommendations to Strengthen the T P Scheme Preparation Process through enhancements in Statutory Planning Mechanisms", Recommendation 12, Templates, 18, 19, 20, 21, 22, 23, 24, for relevant templates to be used by TPO for undertaking various procedures during the preparation of Final T P scheme]

The TPO shall prepare and submit the Final Scheme together with, or any time after submission of Preliminary Scheme.

12.2 Calculate Compensation and Contribution for Final T P Scheme

In the Final Scheme, the TPO shall finalize Compensation and Contribution for all plots. This shall be done through calculating/estimating Contribution and Compensation payable on all plots in the following three categories:

- **Contribution to be levied on Plots reserved for public purpose or for purpose of the authority that are partially beneficial to the land owners or residents of the scheme (for example, plots identified for sale by the authority).**
  The TPO shall:
  - Determine whether the areas reserved for public purpose are beneficial wholly or partly to the owners or residents of the scheme *[Ref: GTPUDA Sec. 51 (3) (ii)]*
  - Calculate contribution to be levied under Section 79(1)(iii)on each plot used for public purposes or for the purpose of the authority. *[Ref: GTPUDA Sec. 51 (3) (iv)]*
  - Determine the amount of exemption, if any, from the payment of contribution for the plots exclusively occupied for religious or charitable purposes. *[Ref: GTPUDA Sec. 51 (3) (v)]*

- **Contribution and Compensation payable on Plots reserved for public purpose or for purpose of the authority that are fully beneficial to the land owners or residents of the scheme** (for example, plots identified for gardens and such other amenities).
  - No contribution shall be levied on a plot reserved for public purpose or for purpose of authority, which is solely beneficial to the land owners or residents of the T P Scheme *[Ref: GTPUDA Sec. 79 (1) (iii)]*

- **Contribution/Compensation to be levied on each plots other than the plots under (a) and (b)**
  The TPO shall:
  - Determine the contribution/Compensation to be levied from the plot owner by calculating the increase or decrease in the value of the plot included in the final scheme in comparison with the original plot. The compensation shall reflect any loss in total value of the plot due to loss of land area, change in location of the plot in final scheme or any other effect caused by making of T P Scheme. *[Ref: GTPUDA Sec. 80 , 82]*
  - Estimate the increment accrued on each

plot due to provision of roads, infrastructure and other amenities, in accordance with the provisions under section 78 of GTPUDA *[Ref: The GTPUDA Sec. 52 (3) (vi)]*

- Decide the proportion of increment to be levied from land owners (typically 50%)
- Calculate the final contribution/compensation to be levied on each plot included in final T P Scheme *[Ref: GTPUDA Sec. 52 (3)(viii), (ix)]*

12.3 Submission of Final T P Scheme

[Along with or after submission of the Preliminary T P Scheme]
[Ref. GTPUDA Section: 64]

Under the provisions of Section 64 of the GTPUDA, the TPO shall, after following the prescribed procedure submit, the Final Scheme (with or without the Preliminary Scheme) to the State Government. Upon receiving the preliminary and the final T P Scheme, the State Government shall review and recommend changes, if any.

It is recommended that the State Government invites ERC (if appointed as recommended under chapter13.3) to review and recommend modifications if any.

12.4 Sanction of Preliminary and Final T P Scheme

[Ref. GTPUDA Section: 65]

After incorporating the recommendations, the State Government shall sanction the scheme as Final T P Scheme under section 65 of the GTPUDA.

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Stage

General Guidance

13.

Recommended Improvements in Institutional Framework, Roles and Responsibilities

Highlights

- *This chapter provides following key recommendations for improvements in institutional frameworks and identifies the roles and responsibilities.*

1. *Recommendation for Creation of the post of DILR in the UD & UHD with all the powers & required staff as that of the settlement commissioner, and appointment of Inspector of Land Records at Urban Development Authority and regional offices of TPVD under ACTP.*
2. *Recommendations for appointment of Advisory Group by the Authority to provide advisory guidance during preparation of Draft T P Schemes.*
3. *Recommendations for appointment of Expert Review Committee (ERC) to review the submitted Draft and Preliminary T P Schemes and provide recommendations to the government.*
4. *Recommendations to appoint TPO at the same time or before sanctioning of Draft T P Scheme.*

This chapter outlines the institutional framework and provides details about roles and responsibilities of key individuals and their institutional responsibilities for preparation of T P Scheme.

13.1. Appointment of Cadre Post of DILR for Updating Land Records for Base Map

Appointment:

It is recommended that, The Urban Development and Urban Housing Department (UD&UHD) create a cadre post of the DILR within department with sanction of the State Government. This cadre post shall have the power of land revenue code for land record updating and related work equivalent to DILR.

The Land record officer in consultation with the settlement commissioner shall appoint Inspector of Land records (ILR) not below DILR rank at Urban Development Authorities and at regional offices of TPVD under ACTP of all different regions for ADAs and other smaller authorities to verify, update and certify land records and base map for town planning scheme.

Roles & Responsibilities:

- DILR shall have the power and functions similar to that of the settlement commissioner.
- The Land Record officer shall overall manage the appointments of Inspectors of Land records for UDAs and ADAs. He/She shall also advice the ILR's to verify, update and certify land records and base map for T P Scheme.
- Inspector of Land Records (ILR) at UDA's and ADA's shall verify and update all the land records and maps of the particular T P Scheme and consult land owners as required for the changes in their records.
- Inspector of Land Records shall help the authority with all the updated data related to ownership for preparation of the final base map.
- Authority shall give notice in the newspaper to invite the land owners and beneficiaries to verify their plot ownership, shape and size in the draft base map and records prepared by the DILR and shall prepare Final Base-map and ownership and area statement with the help of the DILR.

13.2. Appointment of Advisory Group (AG) during Preparation of Draft T P Scheme

Appointment:

It is recommended that, the authority may appoints an advisory group for preparation of draft T P Scheme at the time of Delineation of T P Scheme Boundary. *(Refer chapter 4.3).*

Advisory group shall comprise of:

- Chairman/President/ Mayor/ Standing Committee Chairman of the local body
- Chief Executive / Commissioner or their representative/ Administrative head of the other authorities.
- STP[2] of the Authority/ Regional STP[2]/ ACTP/ City

planning Head.
- At least 2 Domain experts like infrastructure expert, transport expert, environment expert, housing expert, valuation expert and other experts from renowned institute from private or government organizations having knowledge of urban planning, as may be required.
- DILR or his representative not below the rank of Assistant DILR.

Roles & Responsibilities:
- Base map prepared by the survey agency, ILR and the authority shall be scrutinized by the advisory group for finalization.
- The advisory group, shall meet with the sarpanches along with its members and the owners of the survey numbers included in T P Scheme.
- Once the land owners of the survey numbers in the T P Scheme and sarpanches agree on the T P Scheme delineated area, any suggestions made by owners and sarpanches shall be considered and if required incorporated in the delineated area and final delineation of the T P Scheme shall be earmarked in the survey numbers of the development plan.
- Area Delineated for the T P scheme shall be finalized by the Advisory Group (AG).
- The AG shall give inputs for initial preparation of Conceptual T P Scheme.
- The members of the committee shall provide suggestions & recommendations for the improvement of Town Planning scheme.
- The domain experts shall give inputs and recommendations for proposals and projects related to their expertise as required. For example the environment expert can ensure whether the nalas/ natural streams, water bodies, forest lands are addressed properly in the T P Scheme proposals.
- After the owners meeting, the authority shall do the necessary modifications as suggested by the owners and expert group shall give final suggestions if any before submitting the same to the UDA board for approval.
- The advisory group shall give inputs for preparation of the T P Scheme Report.

13.3. Appointment of Expert Review Committee (ERC)

Appointment:

It is recommended that, the State Government appoints an Expert Review Committee (ERC) in Urban Development & Urban Housing Department (UD&UHD) to review the Draft T P Scheme, Preliminary T P Scheme and Final T P Scheme before Sanctioning. *[Refer Chapter 10.1]*

The Expert Review Committee (ERC) shall consist of:
- Chief Town Planner of the State Town Planning and Valuation Department -[as a Chairman]
- Senior Town Planner of the Authority/ Region
- Planning and Domain Expert from Advisory group appointed by the Authority

Roles & Responsibilities:

- The ERC should review the submitted Draft, Preliminary and Final T P Scheme and if necessary, recommend modifications in the same.
- After review, if found satisfactory, the ERC should recommend sanctioning of the LAP. Alternatively, if necessary, the ERC may recommend the authority to reconsider specific contents of the draft T P Scheme.
- On receipt of the T P Scheme, the ERC should review the same for necessary action. ERC should submit its opinion to the State Government with detail report. Considering the report of the ERC, the State Government should by notification sanction the draft T P Scheme with or without modification or refuse to give sanction.

13.4. Appointment of Town Planning Officer (TPO)

Appointment:

The government shall appoint the TPO for T P Scheme Preparation and finalization process, who will work under respective ACTP of the region, the same TPO concerned for that particular region shall be deemed appointed for preparation of Preliminary and Final T P Scheme.

- Along with the appointment of the TPO, the State Government shall also appoint the staff such as Junior Town Planner(JTP) and other required officials.

Qualifications:

- Under the provisions of the GTPUD Act 1976 and GTPUD Rules 1979 therein, any person who is holding the post of Town Planner or higher post in the Town Planning & Valuation Department can be appointed by the State Government as Town Planning Officer (TPO).
- The Junior Town Planners shall have minimum 3-5 years of relevant experience in preparation/ implementation of T P Scheme.

Duties & Functions:

- In the interest of timely delivery, TPO is recommended to manage not more than four T P Schemes at any given point of time.
- Procedure to be followed by Town Planning officer under sub rule (1) to (9) of Rule -26 of GTPUD Rules,1979.
- On date of sanction of draft town planning scheme the TPO shall start his statutory functions & Under Section 51, 52, 53, 54, 56, 62, 63 & 64 of the GTPUD Act,1976 & Rule-26, 27, 28, 30 of GTPUD Rules,1979
- TPO shall give notice in prescribed manner and in the prescribed form to the person affected by the scheme, define & demarcate the areas allotted to, or reserved for any public purpose, or for purpose of the appropriate authority and Final Plots.
- TPO shall give notice in Form-H as prescribed in rules under 26 IDR (1) & (3) of GTPUD Rules,1979.
- The same notice shall be published in the official

gazette and one more Gujarati daily newspaper circulating within the authority area. Such notice shall also be pasted in prominent places at or near the areas comprised in the scheme and the office of the TPO.

- In the notice TPO shall state that all interested in the plot who are affected by the T P Scheme shall communicate the objection to the TPO within period of 20 days form the publication of the notice in the official gazette.
- The TPO shall after the date fixed in notice continue to carry on his duties as far as possible on working days and during working hours.
- As part of the preliminary stage of the T P Scheme the TPO has to conduct Land owners and beneficiary hearings to resolve individual land owner's issues as required.
- Within a period of 12 months from the date of his statutory working function the TPO shall subdivide/prepare and submit the T P Scheme as Preliminary T P Scheme & Final T P Scheme.
- Duties of TPO to complete & finalize the preliminary scheme and to submit the same to the State Govt. for sanction under sub-section (1) & (2) section-52, 81,64 of Act, 1976 & rules- 26,27 of Rules,1979.
- TPO shall give notice in prescribed manner and in the prescribed form to the person affected by the scheme, define & demarcate the areas allotted to, or reserved for any public purpose, or for purpose of the appropriate authority and Final Plots.
- TPO shall give every person interested in any land affected by any particular of the scheme, sufficient opportunity stating their views and shall not give any decision till he has duly considered their representation.
- TPO shall determine in a case which a final plot is to be allotted to the persons in ownership, in common the share of such person.
- If during the procedure it appears to the TPO that there are conflicting claims or any difference of opinion with regard to any part of the scheme, the TPO shall record a brief minute in his own hand, setting out the points at issue and the necessary particulars and shall give the decision with the reasons thereof. All such minutes shall be appended to the T P Scheme.
- Provide for the total partial transfer of any right in an original plot to a final plot or provide for the transfer of any right in an original plot in accordance with the provisions of the section-81 of the GTPUD Act 1976.
- Determine the period within which the works provided in the scheme shall be completed by the authority.
- In case "variation is of substantial nature" which on the account of the provision of new works or the allotment of the additional sites for public purposes included in the Preliminary T P Scheme drawn up by the TPO.
- Provided further, if there is any difference of opinion between the TPO and the authority as to whether the variation made by the TPO is substantial nature or not, the matter shall be referred by the authority to the State Government/ERC whose decision there in shall be final.
- The TPO in the above process shall as much as

possible not change the road layout, Land Deductions /Contribution (except irregularities and errors) and should adhere to the time frames specified for the preliminary and final sanctioning of the T P Scheme unless any unforeseen circumstances or new evidences are in light to the TPO.

- The TPO shall give in writing the number of cases heard in the process of the land owners' hearings at Preliminary T P Scheme stage.
- The TPO shall finalize all the decision of the Preliminary T P Scheme within stipulated time and submit the same to the ERC for consideration.

RECOMMENDED TOWN PLANNING SCHEME MECHANISM

	Institutional Framework	Statutory framework
T P Scheme Boundary Delineation		
Finalizing T P Scheme Boundary by Advisory Group (AG) Appointed of AG by the Authority	**Appointment of Advisory Group (AG within the Authority)** AG to constitute of the following members: • Chairman/President/ Mayor/ Standing Committee/chairman of the local body • Chief Executive / Commissioner or there representative/ Administrative head of the other authority. • STP of the Authority/ Regional STP/ ACTP/ City planning Head. • Domain experts like infrastructure expert, transport expert, environment expert, housing expert, valuation expert and other experts • DILR or his representative not below the rank of Assistant DILR.	Act/Rule/Administrative Order should provide considerations for indicative TP boundary provided in DP
Data Collection of Land Records, Ownerships and Beneficiaries (7/12, Aakarbandh,mapni etc.) + **Topographic & Physical Features Surveys** (Through total station, drone etc.)		
Collection of Land Records (Various Revenue Records collected)		
Reconciliation (Melavani) & Base Map preparation Superimposing Physical Survey on the collected Land Records		
Authority shall get inputs from stakeholders through surveys, informal discussions or FGDs + Surveys (Observation based & contextual studies) + **Data Collection** (from different departments)		
Authority to Publish Draft Base-map & land Records **(Invite plot owners by public notices to update/verify their land records)**		Act/Rule/Administrative order should provide for Publication of Ownership records by ILR with base map for freezing of ownership records, shape & size of plots
Updating Base map & Records by DILR **(Based on the Objections received during publication of Draft Base Map)**	**Appointment of DILR within the authority for Updating land Records**	
Chief Town Planner (CTP) Consultation Section 41(1)		
Intention Declaration **Freezed Map=Final Basemap +Updated Records** Section 41(2)	**Freeze the Base map + Records**	Act/Rule/Administrative Order should provide for finalization/ freezing of Base map with updated records
Analysis of Existing Situation Preparation of various Thematic & Analytical Maps	**Authority to appoint support staff including person responsible for preparing drawings, maps, carrying out surveys, studies, analysis & planning proposals.**	
OP Map (Cadastral + ownership) + Initial Preparation of **F-Form**		
Preparation of Schematic TP Layout with Inputs from Stakeholder & Advisory group + Initial Preparation of TP Report	**Inputs from Advisory group (AG) + Public Consultation**	Act/Rule/Administrative Order should provide for a conceptual TP layout stage and should elaborate on the contents of the T P Scheme Report (Scheme Book) -The Report is not to be submitted to state but to be kept by authority and published -Authority to publish the report for public viewing and reference. Also must be in sync with DP
Define Land Deductions Section 40 (3) (jj) + **Infrastructure Layout** Section 40 (3) (jj)		Act/Rule/Administrative order should mandate the provision for rationale for deductions in a TP
FP Layout with Plot Reconstitution Road Network, Reconstitution of the final plots, carving out plots for Authority for Social Amenities and Sale Section 45(1)		Act/Rule/ Administrative Order should specify certain considerations and criteria for reconstitution & Manual should provide guidelines for the same
Valuation & Form F Valuation -Belting Map Section 77-80 Section 82-85 + **Cost Estimate & Form G** Section 77-80 Section 82-85		Rule should mandate to identify valuation criteria & Manual should provide guidelines for the same
Review by Advisory Group (AG) Maps, F form, G-form & TP Report	**While making Draft TP-specialist like infrastructure expert, transport expert, environment expert, housing expert and other experts as required should be consulted or includes in the Advisory Group as Domain Experts**	
Draft TP Proposal Maps, F form, G-form & TP Report		
Conducting Meeting of Owners (through Newspaper advertise & individual notice to land owners) Inviting Objections & suggestions from the individual plot holders Rule 17		Rule should provide for formats, content, duration & methods for conducting owners meeting and consultations & Manual should provide guidelines for the same
Modification in Draft TP Proposal In layout, Form F & Form G		
Publication of the Scheme + Report Inviting Objections & Suggestions from the individual plot holders for one month Section 42(1) Rule 17		Act/Rule/ Administrative Order should also specify for report to be published along with the scheme layout
Review by Advisory Group of Objections and suggestions received during Owners Meeting and During Publication of Draft T P Scheme In layout, Form F & Form G	**Appointment of Expert Review Committee (ERC) by the State govt.** ERC to constitute of the following members: - Chief Town Planner of the State Town Planning and Valuation Department -[as a Chairman] - STP of the Authority/ Region - Planning and Domain Expert from Advisory group appointed by the Authority	
Modifications Incorporating Objections & Suggestions + **UDA Board Approval** (Scrutiny by the board) (30 days) Section 42(1)		
Submitting Draft Scheme to the State Government Section 48(2) + **Review and Recommendation by Expert review Committee (ERC)** Appointed of ERC by the State government		
Sanction of the Draft Scheme By the State Government Section 48 + **Appointment of TPO** Along with the Sanction of Draft TP Scheme Section 50 (1)	• Appointment of TPO under ACTP's and TPO to be Deemed Appointed for maximum of 4 TP Schemes within the Region • TPO to conduct a maximum of 2 Hearings with Each Land Owner to avoid Delays in TP Scheme Preparation • TPO's to as much as possible not change the road layout, Land Deductions (except irregularities and errors) unless any unforeseen circumstances or new evidences are in light to the TPO. • Must Adhere to timeline	Act/Rule/ Administrative Order should provide appointment of TPO "along with" the sanctioning of Draft Scheme to avoid delays in the TP process
Land owners & beneficiary Hearing for Preliminary Scheme (Individual Consultations by the TPO with the Land owners) Rule 26		
Modifications to incorporate decisions from the hearings Rule 26		
Submitting Preliminary Scheme to the State Government Section 64 + **Review and Recommendation by Expert review Committee (ERC)** Appointed by the State government		
Sanctioning of Preliminary Scheme by the State Government after the review by ERC Section 65(1)(a) + **Constitution of Board of Appeal** Section 55 & 56 Rule 28 & 29		Act/Rule should specify the way in which public hearings are conducted. Manual should provide guidelines for the same
Preparation of Final TP Scheme Section 52(3) + **Submitting Final Scheme to the State Government** Section 64		
Review and Recommendation by Expert review Committee (ERC) Appointed by the State government		
Sanctioning of Final TP Scheme by State Government Section 65(1)(b)		

Stage 1 : Intension Declaration — Ownership Freezed-Area, Shape & Size of Plot

Stage 2 : Draft Town Planning Scheme — 9 + 3 months — 2 months — 2 months — Roads Finalized and TP Layout freezed — Authority can take possession of the roads and Authority Plots

Stage 3 : Preliminary TP Scheme — 3 months — 2 months — Implementation of the Final Plot

Stage 4 : Final TP Scheme — 2 months — 1 month — Valuation Finalized Final Plots finalized — Implementation of the Financial Proposal: Levy Betterment charges, paying compensation to the owners

Submission/ Review by the Government

Prescribed and Practiced T P Scheme Process

Publication under the Act or Rules

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14.

Implementation of T P Scheme and Finance Management

Highlights

- *Implementation of a T P Scheme requires to cover full or partial cost of development and construction of various components, including road, infrastructure, gardens, EWS housing, social amenities etc. This may also requires to identify phasing and to manage revenue flow.*
- *It is recommended that the authority should create a separate account in its own accounting system. This will help it manage and reserve a part of revenue from the T P Schemes, for carrying out works within the T P Schemes only.*

14.1 Budgetary Provision for Development Works

Implementation of T P Scheme requires construction and development of various components. Cost of some of these components are included in the cost of the T P Scheme. But cost of many components are only partially covered, or not covered in the T P Scheme cost.

Generally, full cost of the following components should be considered in the cost of works (in Form G) and while making budgetary provision for the T P Scheme.

- Construction of physical infra. Such as roads and footpath, street lights, culverts and bridges wherever necessary.
- Construction of water supply system including the overhead tank and water work system if required.
- Storm water drainage system including renovation of existing water tank, drain, nalla, and other water courses, necessary development along the water bodies by providing the open space, green strips, roads or retaining wall as a protection as may require for the protection of development.
- Provision of sewerage system in T P scheme area.

While the T P Scheme provides land for social amenities such as police stations, library, fire brigade etc. the cost of construction should be borne by the respective departments. Also, the plots for school and hospital may be allotted to other government or non-government entities with appropriate terms & condition.

Similarly, while T P Scheme provides the land for EWS housing, the cost of construction should be paid from other grants or through PPP modes.

Additionally, If required, the authority may also request for grant or for loan for the preparation and implementation of T P scheme, as per the section 91 & 92 of the GTPUDA,1976

14.2 Cash Flow Management

- It is recommended that the majority of revenue generated from the T P scheme should be used for developing infrastructure and amenities in those same T P Scheme.
- The authority should create a separate account in its own accounting system to manage the revenue and expenditures for the T P Schemes under process at various stages.
- Preferably 60% or more of the revenues generated in the T P scheme should be utilized for capital expenditures within the same T P scheme and remaining amount should be utilized for development of other large infrastructure (Section 91A).

14.3 What shall be Implemented When?

As per the GTPUD Act 1976, no development shall be permitted without the prior permission within the T P Scheme area after publication of the Draft T P Scheme. [GTPUDA, Section 49 (1) (a)]

Upon sanctioning of Draft T P Scheme: Demarcation of all T P Scheme roads shall be done and possession of the land shall be taken by the Authority immediately after approval of the Draft T P Scheme [GTPUDA, Section 48-A (1)]. At this stage, all the infrastructure and utilities can be implemented. The authority may also permit development on the area of the Final Plots which is overlapping with area of its Original Plot.

Upon sanctioning of Preliminary T P Scheme: All final plots including plots allotted for gardens, social infrastructure, economically weaker section housing, plots reserved for sale by the authority etc. shall be demarcated and development on such plots can be permitted by the Authority. At this stage the authority shall also issue building permissions to the Final Plots.

Upon sanctioning of Final T P Scheme: Authority may start doing all financial transactions including levy of contributions (betterment charges), paying compensations etc. Borrow funds [GTPUDA, Section 92], create consolidated infrastructure fund [GTPUDA, Section 91-A] etc. to implement T P Scheme infrastructure proposals.

14.4 Who shall Implement What?

All roads, physical infrastructure, amenities and utilities, gardens and open spaces shall be developed by the authority implementing the T P Scheme on its own or through PPP mode. Some popular examples of PPP model include;

- The transfer of responsibility of operation and maintenance of gardens and parks by the appropriate authority to other organization on a PPP basis: e.g. Operation and Maintenance of parks and gardens by AMUL co-operative in case of Ahmedabad, etc.
- The construction and maintenance of rotaries and traffic islands by private investors against the rights to advertise.
- The capital expenditure for construction of roads financed through the incremental contributions made by the plot owners towards development of T P Scheme.

Physical infrastructure for gas, electricity and communication should be developed by the respective companies/ agencies providing the respective services.
Different amenities will be developed by different departments of government/authority.

Amenities such as fire shall be developed by the fire department from its own funding, police stations shall be developed by the police department which is funded by the State Government, and the civic amenities such as library, town hall, civic center's etc. should be developed by the Authority from its own funding or PPP mode.

Economically weaker section housing should be developed by the Authority/PPP using funds from different central and State Government's grants and programs.

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Glossary of Terms and Definitions

- **Land Pooling / Readjustment:** Land pooling/readjustment (LP/R) is a technique for managing the planned development of urban-fringe lands, whereby a government agency consolidates a selected group of land parcels and then designs, services and subdivides them into a layout of streets, open spaces and serviced building plots, with the sale of some of the plots for cost recovery and the distribution of the remaining plots back to the landowners to develop or to sell for development.

- **Town Planning Scheme:** A model of Land pooling, readjustment and reconstitution tool for development widely practiced as a statutory urban planning mechanism in the state of Gujarat and Maharashtra in India.

- **Draft Town Planning Scheme:** The draft stage of preparation of a Town Planning scheme undertaken by the appropriate planning authorities in the state of Gujarat.

- **Preliminary Town Planning Scheme:** The intermediate stage of preparation of a Town Planning scheme undertaken by a Town Planning Officer of the State Government of Gujarat after the completion of Draft Town Planning Scheme by the appropriate planning authorities. Under this stage the Town Planning Officer carries out one to one interactions with all stakeholders and beneficiaries of the Town Planning Scheme.

- **Final Town Planning Scheme:** The Final sanctioned Town Planning Scheme by the State Government of Gujarat.

- **Melavani:** The Process of Reconciliation of revenue plots and records with the on-ground status of physical features survey.

- **GTPUDA 1976:** The Gujarat Town Planning and Urban Development Act of 1976, that provides the statutory framework for preparing urban spatial plans including the Town Planning Schemes in the state of Gujarat

- **Land Value Capture:** Land Value Capture refers to a type of innovative public financing, in which increases in land values generated is “captured” through a land related tax or any other active or passive mechanisms to fully or partially fund public investment and also to compensate social-costs resulting from these investments.

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APPENDIX

01.

Survey Methods

In order to do the Physical features survey traditional methods such as Total station survey can be done as well as newer methods such as the Drone Surveys can be done for capturing high resolution 3D imagery. If required, survey of India Maps as well as remote sensing data through satellite Imagery may also be used to verify/ refine the outputs from the surveys conducted.

1.1 Total Station Survey

If surveys are carried out through total station survey then below is the methodology for the same:
Topography Survey:
To prepare a detailed physical layout of scheme area is the most vital step in the preparation of cadastral plan. An accurate base map requires accurate survey. Detailed survey for Town Planning scheme broadly consists of following stages:

1. Benchmark Transfer
Benchmark transfer is a process by which location of scheme area and its level (R.L), with respect to Survey of India's benchmark (G.T.S= Great Trigonometrically survey of India) or permanent benchmark is established. It establishes difference of level of two points (GTS and Temporary or Traverse point.)

2. Traverse
A survey traverse is an imaginary line consisting of an orderly sequence of points marked permanently on the earth surface. A detailed survey begins along any of these points to close back again at any one of these points. Particularly, for projects like the town planning scheme, traverse should be made to close accurately. The procedure allows errors to be detected and also puts a check on the accuracy required for the survey. A closed traverse begins and ends at the same point.

3. Mapping Physical objects and land within scheme area (Detailed survey)
Built structures: Pucca, kuchha and temporary structures (with internal divisions), factory sheds, building under construction, plinth, compound walls, fencing and gates.

Environmental Features: Small and big trees, plantation, vegetation, water bodies, lakes, water channels, river and wells.

Utility: Water tank, bore wells, hand pumps, water taps, water supply lines, water kundi, open drains, high tension lines, electric box, electric lines, electric poles, electric transformers, light poles, telephone poles, telephone box, manholes, soak pits, drainage lines, culvert and cross drainage

Transportation: All paved or unpaved roads including pucca and kuchha roads and paths

Agricultural Land: Bunds and stones

Land use: Residential, commercial, open space (playground, burial ground, agricultural land), religious, institutional, educational, utility, transportation and water

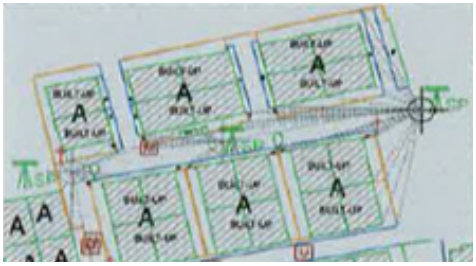

Figure 01: Various stages of Total Station Surveying

bodies.

Building height: Basement, ground and above

Contour: Survey drawings should be mentioned with contours at two different levels- at 50 cm interval and at 100cm interval.

4. Preparing computerized drawing

After the detailed survey of the existing features on the site, a computerized map is created by putting all the above details in their respective layers, line type and color coding.

5. Site checking

After preparing the draft base map with the survey, the distance between the random points of different existing features is checked to ensure the accuracy of the survey.

- Co-ordinates of Traverse point
- Cross reading
- Location of Station points (physical object) like trees, electric poles, telephone poles, bore wells, wells, manholes, water taps, soak pits, septic tanks, stone pegs etc.
- Location of permanent structures
- Location and angle of property lines, electric lines, hedges, bunds in agricultural fields, compound walls etc.

Figure 02: various stages of Total Station Surveying

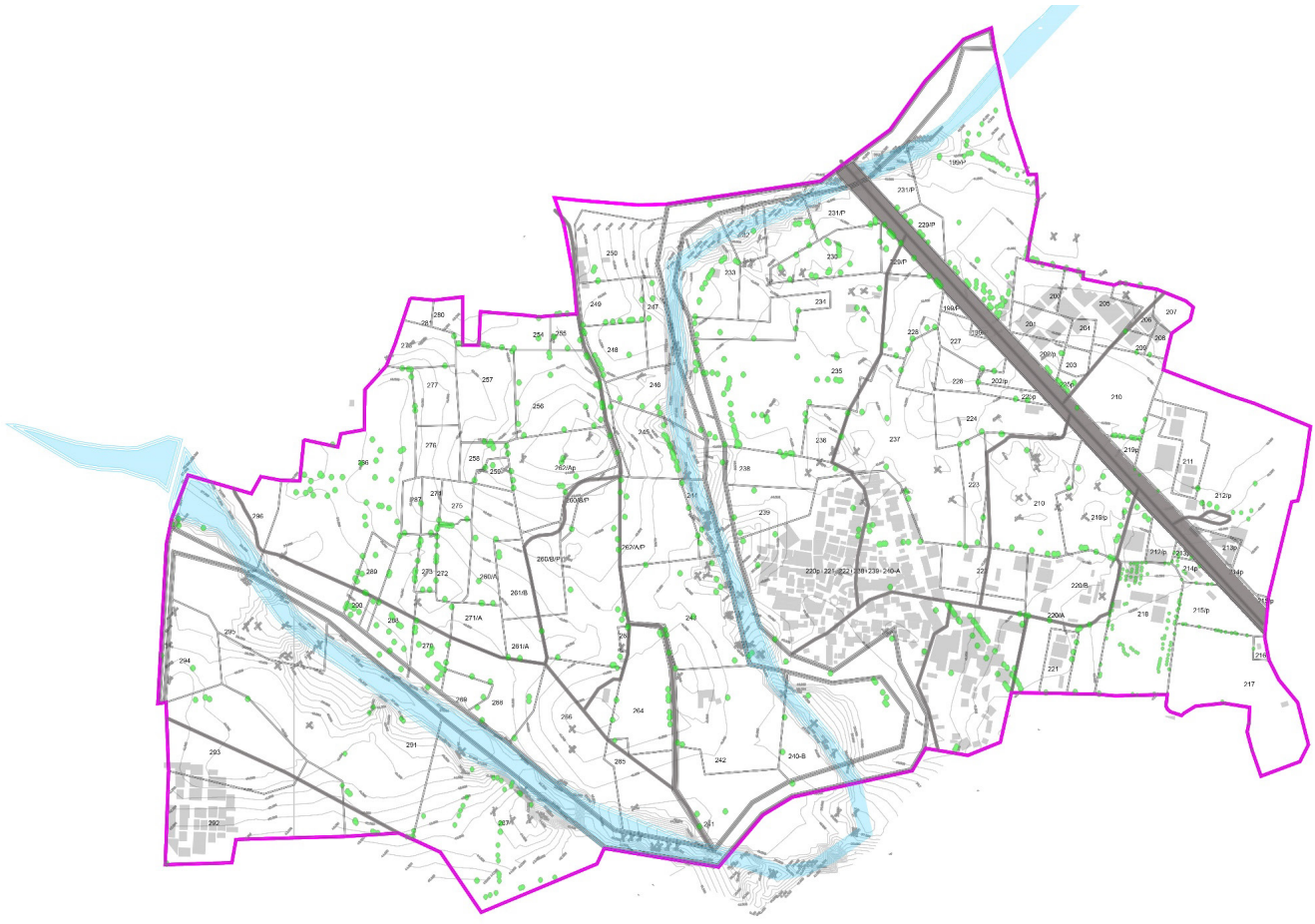

Figure 03: Final Base Map

1.2 Drone Survey

1. Establishment of Ground Control Points (GCP)
GCP on site for conducting topographical survey of project area shall be established. Further, GCP's are established on permanent structure ensuring plane surface and clear visibility from sky for drone survey. Existing features such as HT Line, trees etc. are considered while establishing GCP. In total eight GCP's are established.

Further, the static reading of each established GCP shall be taken for at least 45-60 minutes using DGPS to ensure higher accuracy. The base station should be established at the top of the permanent structure for conducting survey of permanent structures which can be used in future. Afterwards, the existing permanent structures such as pakka house, temple, HT Line etc. should be surveyed. The figure below shows the photos for base station and survey conducted prior to commencement of Drone survey.

Figure 04: Aerial triangulation in drones

2. Conducting Drone Survey
Unmanned Aerial Vehicle (UAV), popularly known as Drone, is an airborne system or an aircraft operated remotely by a human operator or autonomously by an onboard computer. Drone mapping is done using a technique called photogrammetry. Generally, photogrammetry refers to taking measurements from imagery that is captured by drones, airplanes or satellites. A typical photogrammetric technique is called Orth-rectification, which refers to removing the effects of image perspective (tilt) and relief (terrain) effects, resulting in a plan metrically correct image with a constant scale that shows all features in their correct location.

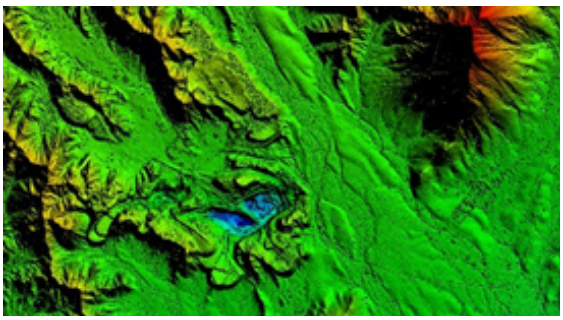

Figure 05: High resolution drone image for mapping of large areas

The main outputs of photogrammetric surveys are raw images, Orth-photo-mosaics, digital Surface Models and 3D point clouds. These outputs contain large quantities of images that are combined and processed using specialized photogrammetric software and are used in many different fields for visual assessment purposes, including topographic mapping, architecture, engineering, urban planning and cultural heritage.

The drone flight path is prepared using CW Drone Control software that enables an unmanned drone to follow a pre-defined flight path to make sure the whole area is covered. Also, it is ensured that a minimum 60% amount of overlap between the imagery is reached so that the imagery can be stitched together using CW Drone Control software to produce an orthophoto.

The drone survey is conducted after setting up flight path and altitude for drone to fly. The image shall be captured by high resolution camera.

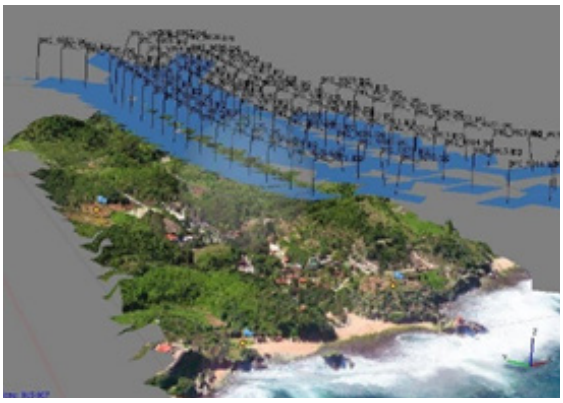

Figure 06: Ortho-photo-mosaics image

3. Image Processing

Image processing is a method to convert an image into digital form and perform some operations on it, in order to get an enhanced image or to extract some useful information from it. Usually Image Processing system includes treating images as two-dimensional signals while applying already set signal processing methods to them. The conversion is followed to be in different steps, they are captured image-Scanning of multiple image-Rectification of image-stitching and mosaic of images-conversion of images.

Captured images - this images are in the 2d platform with the correction of the latitude and longitude errors. In this the images are been in multiple mode, that itself select the clear image for the rectification.

Scanning of multiple image - scanning in the sense the images are in the mode of scanning to select the clear image from the multiple images. This scanning itself eliminates the blurred images and it is thoroughly verified. Rectification of images - In this the images are rectified along with the clear image. The inclination images are matching with one another and it corresponds to the original image. Likewise, entire marked area is evaluated and rectified under this process

Stitching and mosaic- the aerial images are scanned and verified with the pattern rectification. Now the images are to be stitched and mosaic by the merging process. It meant that the entire marked area is to be mosaic and the stitched image is valued.

Conversion of image- The images are converted by stitching and mosaic process

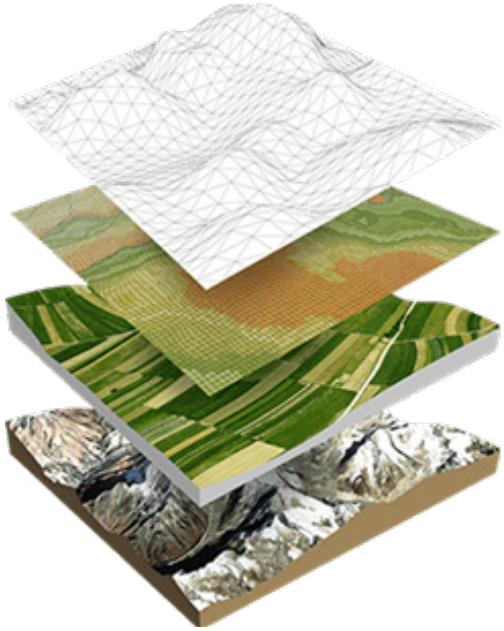

Figure 07: layers for image processing in drone

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02.

An Illustrative Example Explaining OP Value, SFP value and FP Value

The following is an illustrative example explaining the original plot value, Semi-final plot value and final plot value:

Table 1: F-Form explaining OP Value, SF Plot value and FP value

FORM - F

THE GUJARAT TOWN PLANNING & URBAN DEVELOPMENT, ACT. 1976

REDISTRIBUTION AND VALUATION STATEMENT

			Original Plot					Final Plot										
1	2	3	4	5	6	6a	6b	7	8	9a	9b	10a	10b	11	12	13	14	15
Case No/ No.	Owner	Tenure	Survey No.	O.P. No.	Area (sq. mt.)	With out reference to value of structures	Inclusive of structures	Final Plot No.	Area in sq. mt)	With out reference to value of structures	Inclusive of structures	With out reference to value of structures	Inclusive of structures	Contribution (+), Compansation(-)Under section-80(column 9b-column 6b	Increment (section-78)(column 10a-column 9a	Contribution(section-79) 50% of column-12	Addition to(+) or deduction on from(-)contribution to be made under other section	Net demand from(+) or by (-)owner being the addition of column-11,13,14
1	xyz	-	47	1	1000	200000	200000	1	600	132000	132000	300000	300000	-68000	168000	84000	-	16000

OP area = 1000 Sq. Mt.
OP rate = Rs. 200 per Sq. Mt.
SF rate = Rs. 220 per Sq. Mt.
(as FP Shifted to better location)
Increment Rate
(for infrastructure provision) = Rs. 280 per Sq. Mt.

FP area = 600 Sq. Mt.
FP rate = Rs. 500 per Sq. Mt.

Total OP value = 1000×200=200000
A (column 6A, 6B of F Form)

Total SF value = 600×220=132000
B (column 9A, 9B of F Form)

Total FP value = 600×500=300000
C (column 10A, 10B of F Form)

Compensation to be paid = A-B
= 200000-132000=68000
(column 11 of F Form)

Total increment value = C-B
= 300000-132000=168000
(column 12 of F Form)

Incremental Contribution (Assuming 50%. However, % may vary from Scheme to Scheme)
= 50 % of 168000 = 84000
(column 13 of F Form)

Contribution to be taken = 84000
(column 13 of F Form)

Compensation to be paid = 68000
(column 11 of F Form)

Net demand from land owner: 84000-68000= 16000
(column 15 of F Form)

03.

Review of Land Pooling and Reconstitution Models

3.1 Land Readjustment in Japan

Land readjustment mechanism in japan has primarily five category of uses:

1. To control of urban sprawl in suburban/peripheral areas,
2. Development of new towns in suburban/peripheral areas,
3. Urban rehabilitation,
4. Development of complex urban infrastructures
5. Disaster reconstruction.

In Japan, the Land Readjustment mechanism was legally adopted through the enactment of Land Readjustment Law (LRL) in 1954. According to this law, land readjustment means to alter the shape and land conditions of lots and install or improve public facilities in a city's planning area in order to provide better public facilities and increase the usage of each lot.

Typically, landowners contribute 10 % of their land for cost-equivalent purposes and 20% for public facilities. Contribution ratios are higher for undeveloped sites and for non-subsidized projects, and lower for projects in older, developed areas and for government assisted projects. In most cases, some reserve land pooled from land contributed by landowners is sold in the market to cover the cost of the project and represented in a scheme *Refer figure 9]* .

Although there are a wide range of specific procedures for different types of land readjustment projects initiated by different entities, they all share some basic features.

1. The precise boundaries of the target project area must be legally defined. Because land rights are affected, it must be clear whose land is in the project area. Since 1968, this has been the responsibility of local governments.
2. A legal body is established to carry out the project, which can be a public sector organization (local, prefectural, national government, public corporations etc), or a private sector organization (cooperatives of landowners, a land readjustment stock company established by landowners etc). It includes board of directors with members from sponsoring agency and some land owners. In association-led projects, all land owners are members, but it is common for land owners in large project to select delegates to represent them. Even in local government projects, a council of land owner representatives is established.
3. A precise survey of all landholdings, buildings and other features is made. A draft plan of roads, parks etc is drawn up, usually by private consultants. This plan is used to estimate project budget and how much land will be needed from land owners for public land and for selling to pay for the remaining project costs after government subsidies.

Figure 8: Land readjustment for the development of agricultural areas (Tokoyama area 1994-2000, Aichi Prefecture

4. Consent of land owners is solicited. For association-led projects 66% of landowners owning 66% of land must sign a contract consenting to the project before it can legally proceed. For local government led projects no such requirement exists, but in practice all such projects require high degree of consent for them to be implementable.

5. The re-plotting design, financial plan, project implementation plan and land contribution of each landowners must be approved by at least 66% of landowners owning 66% of land.

6. Construction of new roads, sewers and parks and the demolition or moving of buildings are completed.

7. If all bills have been paid and all moneys accounted for, the project can be wound up and the organization dissolved. A financial shortfall must be paid by the project sponsor. That means the landowners in case of association-led projects and government in case of other projects. Surpluses must be spent within the project area.

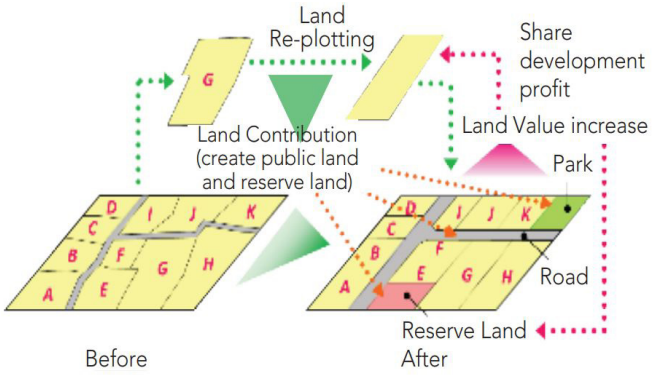


Figure 09: The process of land Readjustment (LR) in Japan

In addition to the facilitating planned development in the periphery of the cities in Japan, the Land Reconstitution mechanism has also been used for Urban Regeneration. Urban Redevelopment (UR) is considered to be an application of Land Readjustment (LR). In this context, the Urban Redevelopment Law (URL) in Japan was established in 1969. UR aims to promote high-intensity land use under the UR Law. UR in Japan converts land rights in a project site to a part of building rights by using land right conversion. For approval of the project and to apply for the national subsidy, the project area must be designated as an urban redevelopment promotion area in urban planning or must satisfy several other conditions such as:

- Designation as a high-intensity land use area,
- Vulnerability to fire hazards, and
- Improving the efficiency of land use.

These conditions focus utilization of UR on urban redevelopment in urbanized areas—distinguishing the UR objectives from those of LR.

In the case of LR projects for city center redevelopment and station area reconstruction in japan, integrating LR with UR have been applied for the purpose of building development for high-intensity land uses. Land parcels which contribute to UR are replotted into specialized urban redevelopment blocks within the LR project site. After re-plotting, the land rights are converted to UR building rights and a share of the joint ownership of the plot of the UR building. *[Refer figure 8c]*

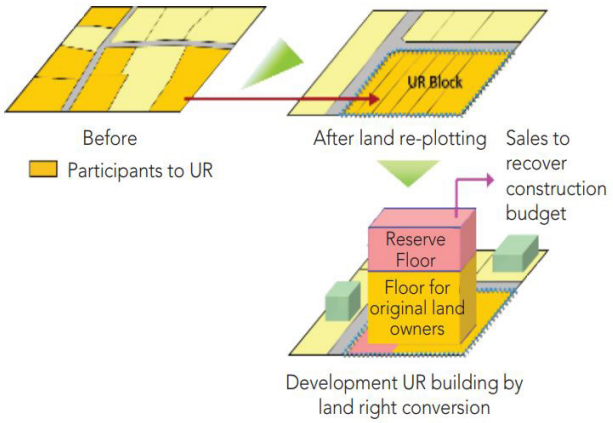


Figure 10 : The process of Urban Redevelopment (UR) and its integration with Land Readjustment (LR) in Japan

3.2 Land Readjustment in Korea

The Land Readjustment Program is a re-plotting-based approach, exchanging and subdividing/combining the land without altering the relationship of rights in existence prior to the program. This method of securing land for public facilities and developing built-up areas in the city was adopted as a way to prevent disorderly urban sprawl as the city grew in areas without sufficient financing. It also sought to acquire public land in new built- up areas in advance. One the advantages of the program is that public land can be acquired without investing public resources as the land owner is compensated through re-plotting as per a certain percentage of lots on the land set out for public use or for other plans. Priority to become the program entity (and implement the program) is given to the land owner and the association. If this does not occur, the national government, local governments, the Korea Housing Corporation, or the Korea Land Development Corporation can implement it.

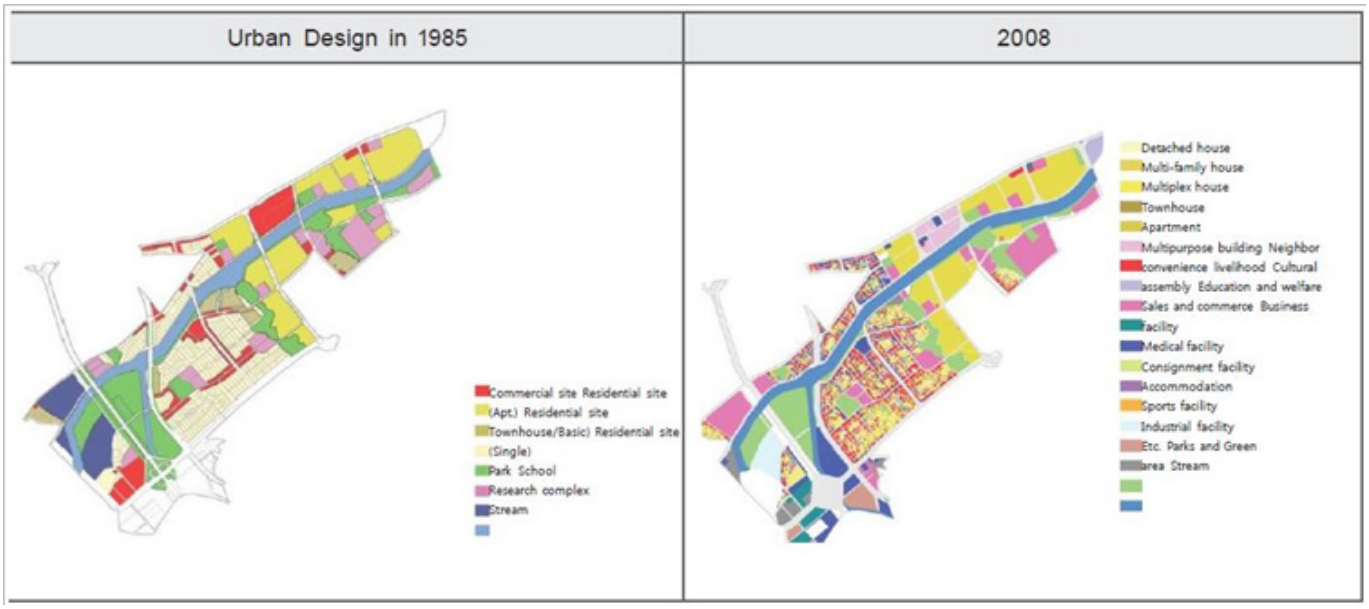


Figure 11: Land Readjustment in korea

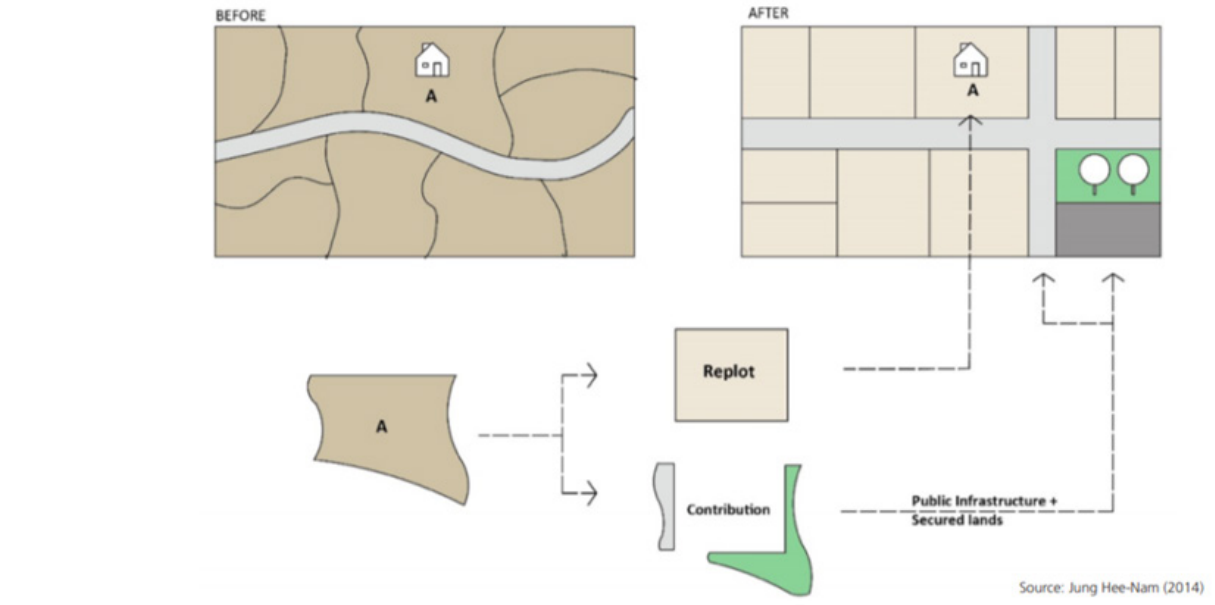


Figure 12: Concept behind Land readjustment in Korea

3.3 Land Re-adjustment in Germany

The procedure for land use planning is adapted in Germany under the Federal Building Code of Germany. The purpose of land readjustments is to improve local public infrastructure, accessibility - thoroughfares, public green spaces, carve out areas required for protection against environment (ex. flood prone areas, river basins) and specify newer developable area etc. The process shall deduce land for public amenities and hand it over to the municipality.

The reconstitution of land is carried out after excluding areas mentioned above. The authority defines the principles of reconstitution upfront. The considerations for criteria for reconstitution of plots in the area are – plot value, plot size and changes in plot values after reallocation. The total contributions from the un-serviced plots shall not exceed 30% and shall not exceed 10% if they are already serviced plots.

The plot values are calculated on the basis of market rate prior to reallocation of plots. The cost of development of land is borne by the landowner; since the land prices increases significantly once the land is developed. Any financial difference between the values of plot contributed and values of plots allocated then the authority shall provide monetary compensation. In case, the authority is not able offer developable plot in the same area as that of the original plot than the owner shall be provided plot outside the area or offered financial settlement.

▲ Figure 3.17. As-built map of original cadastral before implementation of land readjustment (1998)

▼ Figure 3.18. Bornheim-Hemmerich area after the land readjustment project (2000)

▼ Figure 3.19. Bornheim-Hemmerich area binding land use plan (2000)

Figure 13: Land readjustment in Germany

3.4 Land Pooling in Australia

The legislations for the land pooling mechanism in Western Australia took place in 1928, in order to provide infrastructure in the suburban areas of the cities. The implementation of the mechanism started in around 1950s, to provide unified serviced land.

The land pooling mechanism involves the authority to acquire the land for servicing for that time period. The scheme is reviewed by the State and approved prior to publishing. The scheme involves subdividing land proportionally, serviced and returned to the owners. The remaining land is taken into streets, public spaces and infrastructure services. Some portion of the land is serviced and sold in order to fund to the scheme; thus the government does not have to make investments in the project.

The scheme is planned in a way that land is pooled in together and 50% of the land is returned to the owners; while 25% is retained by the local authority in order to sell it off later to cover development costs. 10% of the land is developed as parks and gardens; while 15% for other roads, public amenities and infrastructure.

3.5 Magarpatta land pooling Model

A satellite township in Pune developed by its land owners is famously known as the Magarpatta township. Satish Magar, a known farmer gathered the landowners of the farmers' community and convience them to poool in their land for development. All land owners received shareholding proportionally.

Magarpatta city was owned collectively by 120 families of farmer community and 800 individuals. The central agency of Magarpatta Township Development and Construction Company Limited (MTDCCL) led the holistic development of this region. Farmers understood and believed in the vision of Mr. Magar and contributed their respective land parcels for the development. Afterwards, MTDCCL did tremendous work in transforming the area, right from getting appropriate approvals from different government agencies and conceptualizing the entire project keeping in mind all the stakeholders, to ultimately designing, planning and constructing the township. This resulted in complete transformation of the area and gave huge boost to the real estate market in the region, benefiting the farmers.

Figure 14: Land pooling in Magarpatta city

3.6 Land Pooling in Amravati

In 2014, the Indian state of Andhra Pradesh was separated into two. One state continued to be called Andhra Pradesh, while the other was named Telangana.

It was not viable for the government to buy over private land through land acquisition—a costly process that had a history of generating public discontent over compensation rates when previously implemented in India. Such contestations would not augur well for Amravati's vision to become "The People's Capital", where citizens reap the benefits of its progress.

In search of other ways to secure land for Amravati's development, the Andhra Pradesh government found inspiration in the alternative method of land pooling, through which the state promises landowners a smaller but developed plot of land in the future in exchange for current landholdings. These reconstituted plots would come with smart utilities and infrastructure such as citywide WiFi access, paved roads, sewage pipes and electricity lines. The government realised this model could encourage landowners' buy-in by giving them a stake in the future capital. Making land the primary mode of exchange instead of money would also reduce the pressure on the state's finances.

The key features of the model are as follows:

- Amravati is an Inclusive development model wherein the Landowner becomes resident of the capital city having access to capital city infrastructure, access to high level of educational, medical and recreational facilities.
- The Government has equal rights and responsibilities as farmers that is the Government of Andhra Pradesh and farmers will be equal partners.

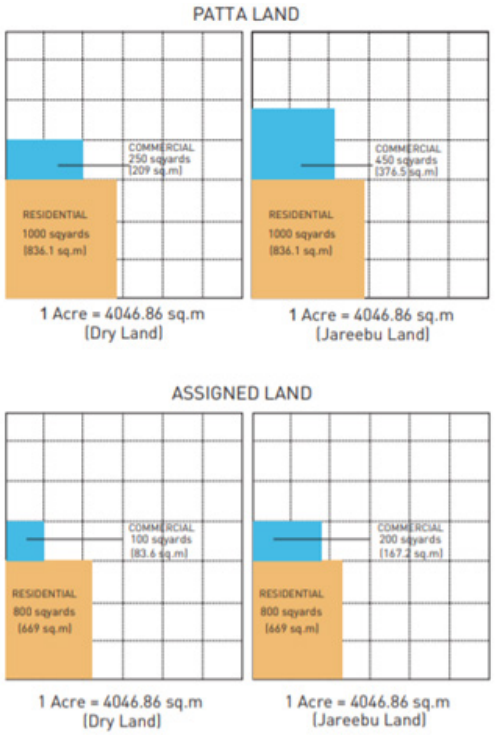
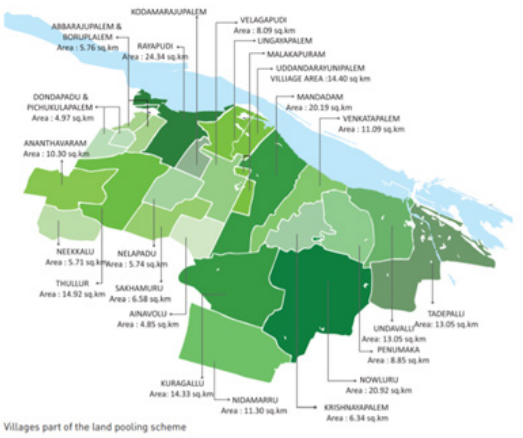


Figure 15: Land Pooling in Amravati

- High participation rate is observed that the success rate is 85% under Land Pooling Scheme at the overall project level. Out of the total project villages, 22 villages are having 88% of participation, while in the remaining two villages the participation rate is 58% and 24% respectively.
- Existing villages are made part of the capital city without displacement and the plans to upgrade village infrastructure to city level infra encouraged participation in LPS.
- The LPS has made significant positive impact on the lifestyle and living conditions as the Communities could become financially independent, with increase in the land prices, waiver of loans and improved credit facilities.
- The Amaravati LPS has resulted in a new identity to the community, confidence to the individuals and sense of belongingness and satisfaction.
- The successful completion of the last milestone of returning the land to the farmers for over 60,000 parcels through lottery, followed by a title registration system, • Legal disputes are set to decrease resulting in transparent transactions which in turn will unlock huge growth potential of the economy.
- The Voluntary LPS process of Amaravati helped the project to make available 98% of land in shortest possible time, thereby facilitating complete control over cost overruns, overheads and project durations.
- The key enabler in the overall success is observed to be Consultation at all levels – farmer level, family level, and village level and in every step in the process.
- The farmer is required to sign with the Government at least six times before final consent is taken.



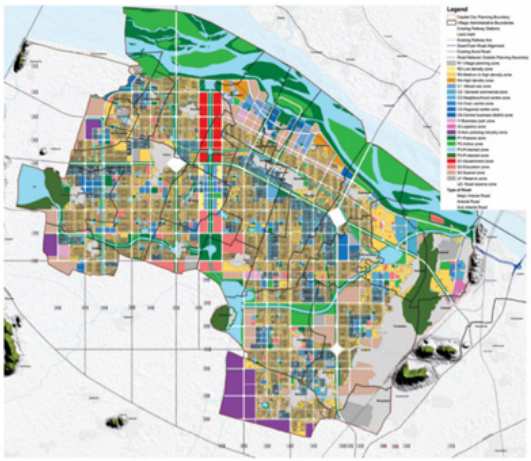


Figure 16: Land Pooling and readjustment in Amravati

3.7 Delhi Land Pooling Policy

Delhi Development Authority is the authority responsible for planning and development in the National Capital Territory area of Delhi. As part of serving these functions, DDA prepares Master Plan and Zonal Development Plans for the area under DDA. It is also empowered to acquire land, prepare and/or approve planned layouts, and develop the land parcels. However, in recent past, it has been realized that the acquisition based land development model has many limitations; including high cost of acquisition, complexities arising from court cases and litigation etc

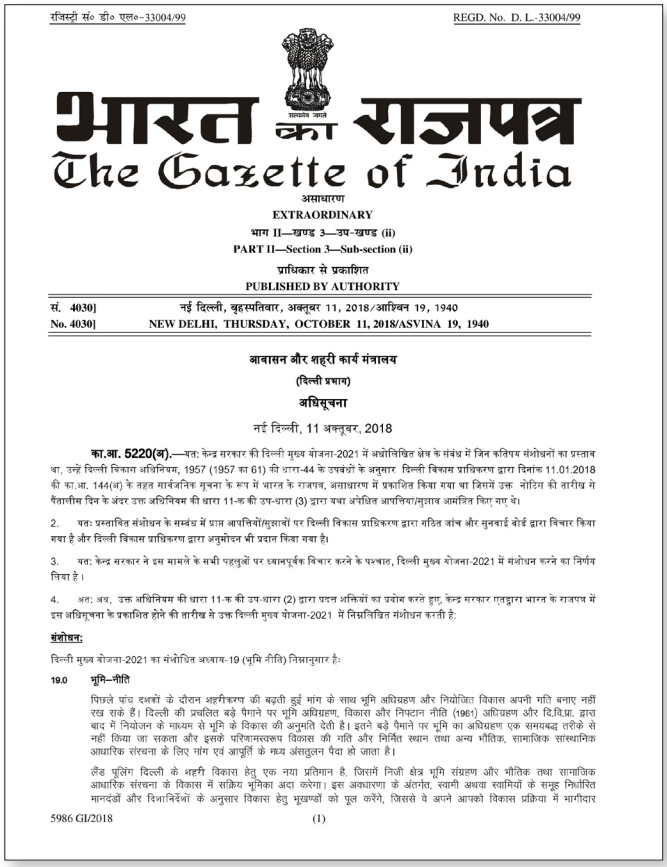
In view of the past experiences, DDA has identified Land Pooling Scheme mechanism as a viable alternative to acquisition based land development model. DDA rolled out the land pooling for the first time in 2013, which met with some difficulties and remained unimplemented. Subsequently the policy was revised and amended in 2018.

A key objective of the land pooling policy was to do away with the complexities in land acquisition by making the land owners a direct beneficiary of the planned development. DDA is currently in the process of inviting Expression of Willingness for participation in Land Pooling Schemes.

Here, it is important to recognize the difference between the Town Planning Scheme model and the Land Pooling Scheme Model of DDA. Briefly, Land Pooling Scheme, as it states in the name, is a mechanism to 'pool' multiple land parcels together, which is subsequently developed by a single entity called Developer Entity (DE) and is treated as a combined land parcel for planning and development purposes. In contrast, Town Planning Scheme is based on Land Readjustment and Land Reconstitution mechanism, where the land parcels are not pooled together under forming a single entity. Instead, in T P Schemes, the land ownership remains with the individual land owners throughout the process of planning and subsequent development of roads and public infrastructure. The whole area is planned with road layouts, amenities and infrastructure in such a way that each individual Final Plot constituted after the land readjustment gets access to the infrastructure and amenities, developed under the TP Scheme.

Since its revision in 2018, DDA has received Expression of Willingness to participate in the process from multiple land owners. DDA has also notified the Regulations for Operationalizing Land Pooling Policy, and currently is in process of operationalizing the schemes so the plans can be prepared and land can be developed together with provision of roads, infrastructure and amenities.

Figure 15 shows introductory section of the DDA's Land Pooling Policy. Figure 1 shows the map with boundaries of revenue villages, zonal development plans & land pooling zones in GNCTD.



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भारत का राजपत्र
The Gazette of India

असाधारण
EXTRAORDINARY
भाग II—खण्ड 3—उप-खण्ड (ii)
PART II—Section 3—Sub-section (ii)
प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

सं. 4030] नई दिल्ली, बृहस्पतिवार, अक्तूबर 11, 2018/आश्विन 19, 1940
No. 4030] NEW DELHI, THURSDAY, OCTOBER 11, 2018/ASVINA 19, 1940

आवासन और शहरी कार्य मंत्रालय
(दिल्ली प्रभाग)
अधिसूचना
नई दिल्ली, 11 अक्तूबर, 2018

का.आ. 5220(अ).—यतः केन्द्र सरकार की दिल्ली मुख्य योजना-2021 में अधोलिखित क्षेत्र के संबंध में जिन कतिपय संशोधनों का प्रस्ताव था, उन्हें दिल्ली विकास अधिनियम, 1957 (1957 का 61) की धारा-44 के उपबंधों के अनुसार दिल्ली विकास प्राधिकरण द्वारा दिनांक 11.01.2018 की का.आ. 144(अ) के तहत सार्वजनिक सूचना के रूप में भारत के राजपत्र, असाधारण में प्रकाशित किया गया था जिसमें उक्त नोटिस की तारीख से पैंतालीस दिन के अंदर उक्त अधिनियम की धारा 11-क की उप-धारा (3) द्वारा यथा अपेक्षित आपत्तियां/सुझाव आमंत्रित किए गए थे।

2. यतः प्रस्तावित संशोधन के सम्बंध में प्राप्त आपत्तियों/सुझावों पर दिल्ली विकास प्राधिकरण द्वारा गठित जांच और सुनवाई बोर्ड द्वारा विचार किया गया है और दिल्ली विकास प्राधिकरण द्वारा अनुमोदन भी प्रदान किया गया है।

3. यतः केन्द्र सरकार ने इस मामले के सभी पहलुओं पर ध्यानपूर्वक विचार करने के पश्चात, दिल्ली मुख्य योजना-2021 में संशोधन करने का निर्णय लिया है।

4. अतः अब, उक्त अधिनियम की धारा 11-क की उप-धारा (2) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, केन्द्र सरकार एतद्द्वारा भारत के राजपत्र में इस अधिसूचना के प्रकाशित होने की तारीख से उक्त दिल्ली मुख्य योजना-2021 में निम्नलिखित संशोधन करती है:

संशोधन:

दिल्ली मुख्य योजना-2021 का संशोधित अध्याय-19 (भूमि नीति) निम्नानुसार है:

19.0 भूमि–नीति

पिछले पांच दशकों के दौरान शहरीकरण की बढ़ती हुई मांग के साथ भूमि अधिग्रहण और नियोजित विकास अपनी गति बनाए नहीं रख सके हैं। दिल्ली की प्रचलित बड़े पैमाने पर भूमि अधिग्रहण, विकास और निपटान नीति (1961) अधिग्रहण और पि.वि.प्रा. द्वारा बाद में नियोजन के माध्यम से भूमि के विकास की अनुमति देती है। इतने बड़े पैमाने पर भूमि का अधिग्रहण एक समयबद्ध तरीके से नहीं किया जा सकता और इसके परिणामस्वरूप विकास की गति और निर्मित स्थान तथा अन्य भौतिक, सामाजिक सांस्थानिक आधारिक संरचना के लिए मांग एवं आपूर्ति के मध्य असंतुलन पैदा हो जाता है।

लैंड पूलिंग दिल्ली के शहरी विकास हेतु एक नया प्रतिमान है, जिसमें निजी क्षेत्र भूमि संग्रहण और भौतिक तथा सामाजिक आधारिक संरचना के विकास में सक्रिय भूमिका अदा करेगा। इस अवधारणा के अंतर्गत, स्वामी अथवा स्वामियों के समूह निर्धारित मानदंडों और दिशानिर्देशों के अनुसार विकास हेतु भूखण्डों को पूल करेंगे, जिससे वे अपने आपको विकास प्रक्रिया में भागीदार

5986 GI/2018 (1)

Figure 17: Introductory section of Delhi's Land Pooling Policy, 2018

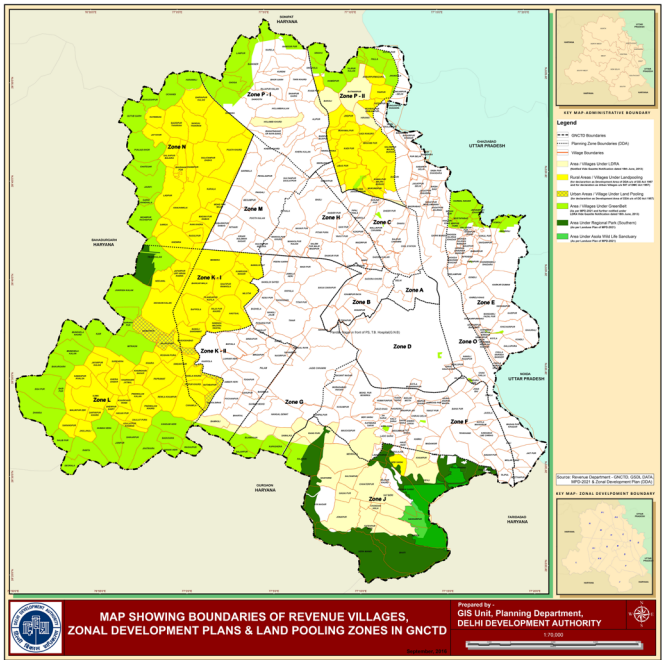

Figure 18: Areas eligible for land pooling policy in Delhi

19.0 Land Policy

Land acquisition and planned development in Delhi has not kept pace with the increasing demands of urbanization during the last five decades. The prevailing large-scale Land Acquisition, Development and Disposal Policy of Delhi (1961), allows for development of land through acquisition and subsequent planning by DDA. Acquisition of land at such large scale could not be conducted in a time bound manner and this led to a mismatch between the pace of growth, and the demand and supply for built-up space and other physical, social and institutional infrastructure.

Land Pooling is a new paradigm for the urban development of Delhi, wherein the private sector will play an active role in assembling land and developing physical and social infrastructure. Under this concept, owners or groups of owners will pool land parcels for development as per prescribed norms and guidelines, making them partners in the development process. For integrated planning of a sector, the land required for development of roads, utilities, greens and other infrastructure shall be made available to the DDA and service providing agencies for development as per approved Zonal Development Plan (ZDP) and sector layout plans. Planned development will increase the value of their land through provision of infrastructure and public facilities. The outcomes are expected to be world class 'smart' and sustainable neighborhoods, sectors and zones, planned and executed as per the availability of water, power and other infrastructure.

This Policy is applicable in the proposed urbanizable areas of Urban Extension for which Zonal Plans have been notified.

Figure 19: Land Pooling Policy as explained under section 19 of Delhi Land Pooling Policy, 2018

3.8 Comparative Matrix

The mechanism of Land Pooling, Land Readjustment and Land Reconstitution has been used in different ways in India and globally. The comparative matrix broadly summarizes a few examples of this mechanism in India and abroad. *[Refer table 2 on the right]*

The mechanism was first legally adopted in 1902 in Germany. The law popularly known as the "Lex Adickes Frankfort-am Main" was introduced by Franz Adickes, who was the then mayor of the city of Frankfurt. This mechanism is used to improve local public infrastructure, accessibility - thoroughfares, public green spaces, carve out areas required for protection against environment (example: flood prone areas, river basins) and specify newer developable areas etc.

In Japan the Land Reconstitution mechanism has been used for both Greenfield development as well as Urban Regeneration. The mechanism is primarily used for controlling urban sprawl, peripheral greenfield development, urban rehabilitation and redevelopment, urban infrastructure development and post-disaster reconstruction.

In South Korea, the mechanism was widely used up till the 1980's. However, instead of improving on the limitations and evolving the mechanism, it was abandoned and discontinued. Subsequently, the country has been primarily using land acquisition based mechanism for development which has its own limitations.

In India, the mechanism commonly known as T P scheme was introduced by the "Bombay Town Planning Act, 1915" in the Bombay Presidency on similar lines to the German law. Subsequently, post-independence in India, the mechanism was continued and promoted in the states of Gujarat and Maharashtra through the state's respective town planning acts.

In 1990's, a suburban hinterland settlement of farmers in magarpatta near Pune initiated a private land pooling and reconstitution model of development in India. This model worked out well for the rural community of farmers. The model was made possible due to good local leadership. However, the same model has not been replicated at large scale in the other parts of the city, state or even outside the state.

In 2014, this mechanism was adopted for building the new capital city amravati, in Andhra Pradesh. Land was taken from the farmers for land pooling purpose and in return each farmer got small amount of land back and also got some monetary compensation and other benefits. In context of Amravati, the mechanism was adopted as a special case where budgetary allocations were made in state budget for monetary compensation to the land owners, and therefore it is not very easy-to-replicate model. Further with change in the government, this provision has been modified and rolled back which has led to discontent in the property owners.

Similarly, the Delhi Development Authority (DDA) has prepared a Land Pooling policy for the NCT of Delhi on a privately pooled land development model in 2013. This was subsequently revised in 2018. The policy seems to have generated considerable interest, however the actual implementation of the land pooling policy on ground is yet to happen.

Table 2: Comparative Matrix of various Land Pooling, Land Readjustment and Land Reconstitution mechanisms in India and Globally

Sr No	Indicators	Germany	Japan	South korea	Gujarat	Maharashtra	Magarpatta, pune Maharashtra	Amravati	Delhi
1.	**Initiated in**	1902	1919	1934 (Predominantly Practiced between 1934- 1980's)	1915	1915	1999	2014	2018
2.	**Age**	119 Years	102Years	87 Years	106 Years	106 Years	22 years	7 Years	3 Years
3.	**Model of Development**	Land Readjustment and Land Reconstitution	Land Readjustment and Land Reconstitution	Land Readjustment and Land Reconstitution	Land Readjustment and Land Reconstitution	Land Readjustment and Land Reconstitution	Land Pooling	Land Pooling and Land Reconstitution	Land Pooling
4.	**Scheme to be planned by**	Municipalities/ Local Bodies	Land Readjustment Implementers (Both Public & Private implementers)	Association of landowners; Central/local government; Korea Housing Corporation; Korea Land Corporation	Development Authority/ ULBs	Development Authority/ ULBs	Magarpatta Township and Construction Company limited (MTDCC)	Developer Entity (DE)	Developer Entity (DE)
5.	**Scheme to be approved by**	Land Readjustment Board (constituting of five persons: a lawyer, a land evaluator, a land surveyor and two members of the local parliament) along with municipalities	Municipality / Prefecture Government	Municipalities	State Government of Gujarat	State Government of Maharashtra	Pune Municipal Corporation (PMC)	Andhra Pradesh Capital Region Development Authority (APCRDA)	Delhi Development Authority (DDA)
6.	**Scheme Road, Infrastructure and amenities to be developed by**	Municipalities / Local Bodies	Land Readjustment Implementers (Public or Private implementers as the case may be)	The scheme required investment by landowners. Unclear on responsibility of construction and development of Infrastructure and amenities	Development Authority/ ULBs	Development Authority/ ULBs	MTDCC	Andhra Pradesh Capital Region Development Authority (APCRDA)	Developer Entity (DE)
7.	**Scheme plots to be developed by**	Individual Land owners/ Developers	Individual land owners/ Developers	Land owners	Individual Land Owners/ Developers	Individual Land Owners/ Developers	IMTDCC / Developers	Developer Entity (DE)	Developers/ Developer Entity (DE)
8.	**Key references**	*JICA institute, Land Readjustment: Solving Urban Problems through Innovative Approach* *Rainer MÜLLER-JÖKEL, German Land Readjustment- Ecological, Economical and social land management;* *Rainer MÜLLER-JÖKEL, Land Readjustment – A Win-Win-Strategy for Sustainable Urban Development"*	*World Bank Case Study: Land Readjustment in japan;* *Kiyotaka Hayashi, Land Readjustment in International perspectives;* *JICA institute, Land Readjustment: Solving Urban Problems through Innovative Approach*	*Hyang A Lee, Tracing Seoul's Modernity: The History of Urban Planning in Colonial Seoul;* *Dr. Sun-Wung Kim, Urban Planning & Management* *Dr. Sun-Wung Kim, The Land Readjustment Program*	*Bombay Town Planning Act 1915* *GTPUDA Act 1976*	*Bombay Town Planning Act 1915* *MRTP Act 1966*	*The story of Magarpatta City; magarpattcity.com web Link: https:// magarpattacity.com/pdf/ english.html*	*APCRDA ACT 2014*	*Delhi Development Authority (DDA), Delhi Land Pooling Policy 2018*

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04.

Guidance for Appointment of Consultants for Survey and other Assistance

Appointment of Consultants for Assisting the Authority for Various Tasks:

Recognizing that different authorities have different levels of in-house technical capacities, and they may or may not have the immediate availability of capable technical team to ensure timely delivery or T P Scheme; an authority may appoint consultants or contractors including experienced Town Planners/ Land Record officers who is or has worked in the relevant Government departments to assist with various technical tasks and aspects of T P Scheme.

Based on the need, the authority may appoint consultants or contractor for providing technical assistance for any of the various tasks preparing draft T P Scheme:

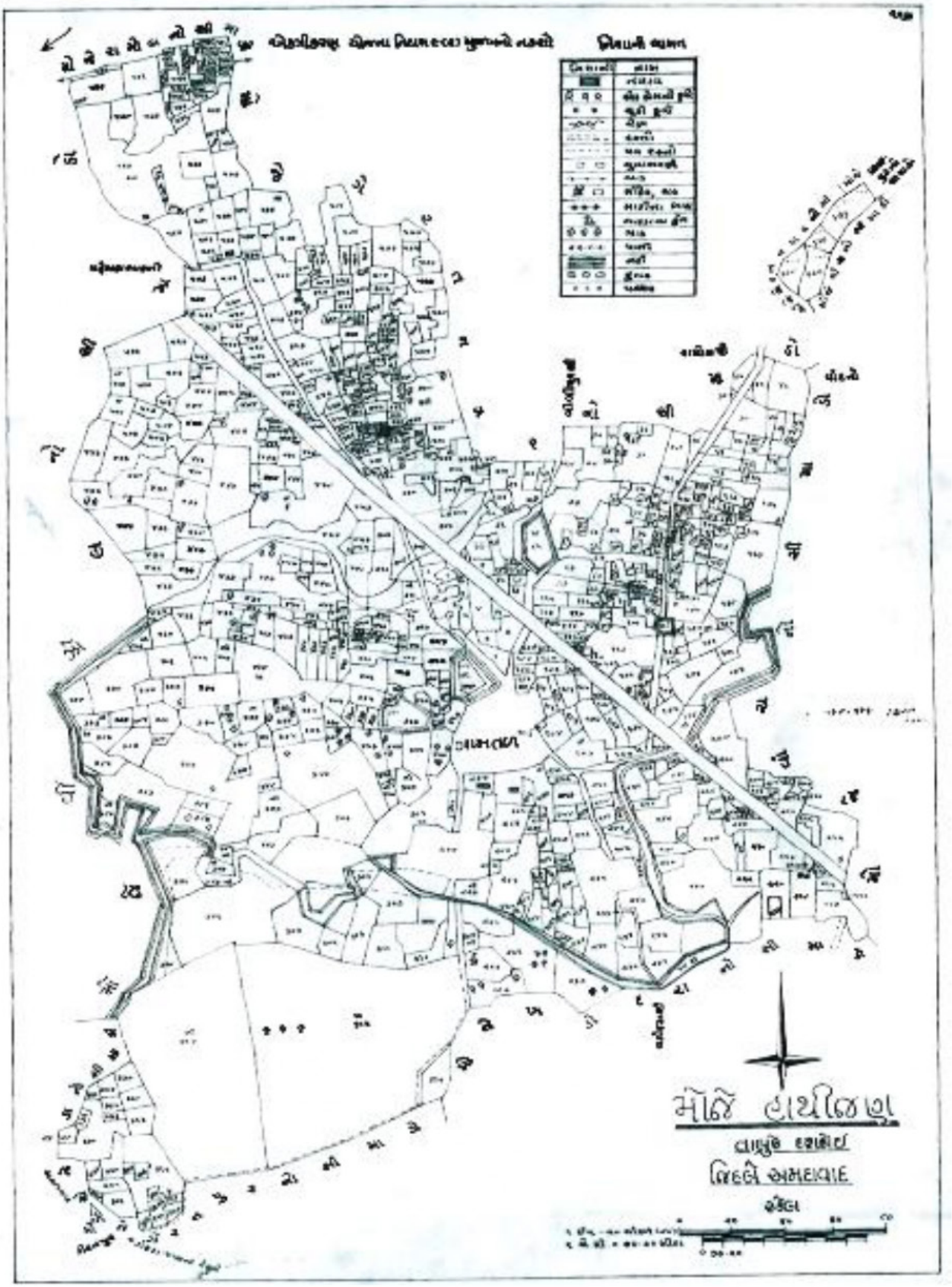
- Topographic survey
- Preparation and finalization of base map after approval by DILR
- Carrying out other relevant surveys and mapping for existing situation analyses, including assessment of environmentally sensitive features, seasonal water bodies, low lying areas, watershed connectivity, ground water level and quality etc.
- Preparing vision, concept and schematic layout considering the purpose, the context, DP provisions, impacts of other plans and proposals etc.
- Assisting authority in determining cost of T P Scheme for preparation of Form-G,
- Assisting authority in valuation of OPs and FPs for preparation of Form-F,
- Preparing components for Draft T P Scheme including T P Maps (showing OPs, FPs and road network, water bodies and plots identified for social amenities, infrastructure, gardens and open spaces, EWS, For-Sale plots etc), Forms (including Form - F, Form - G) and TP Scheme Report.
- Assisting the authority in stakeholders meeting, owners meeting, publication, inviting and reviewing suggestions and objections etc.
- Modifications in the T P Scheme for submission of the draft.
- Assisting authority in preparing presentation for the state government / ERC, providing necessary information to TPO, Government or ERC as required up to submission for sanctioning of preliminary and final T P Scheme.

The authority should appoint such consultants for above purpose through an RFP clearly stating the scope of work and terms or reference. The evaluation criteria must include higher weightage/marks for technical criteria to select technically competent consultant/team of consultants to carry out the identified scope of work and terms of reference.

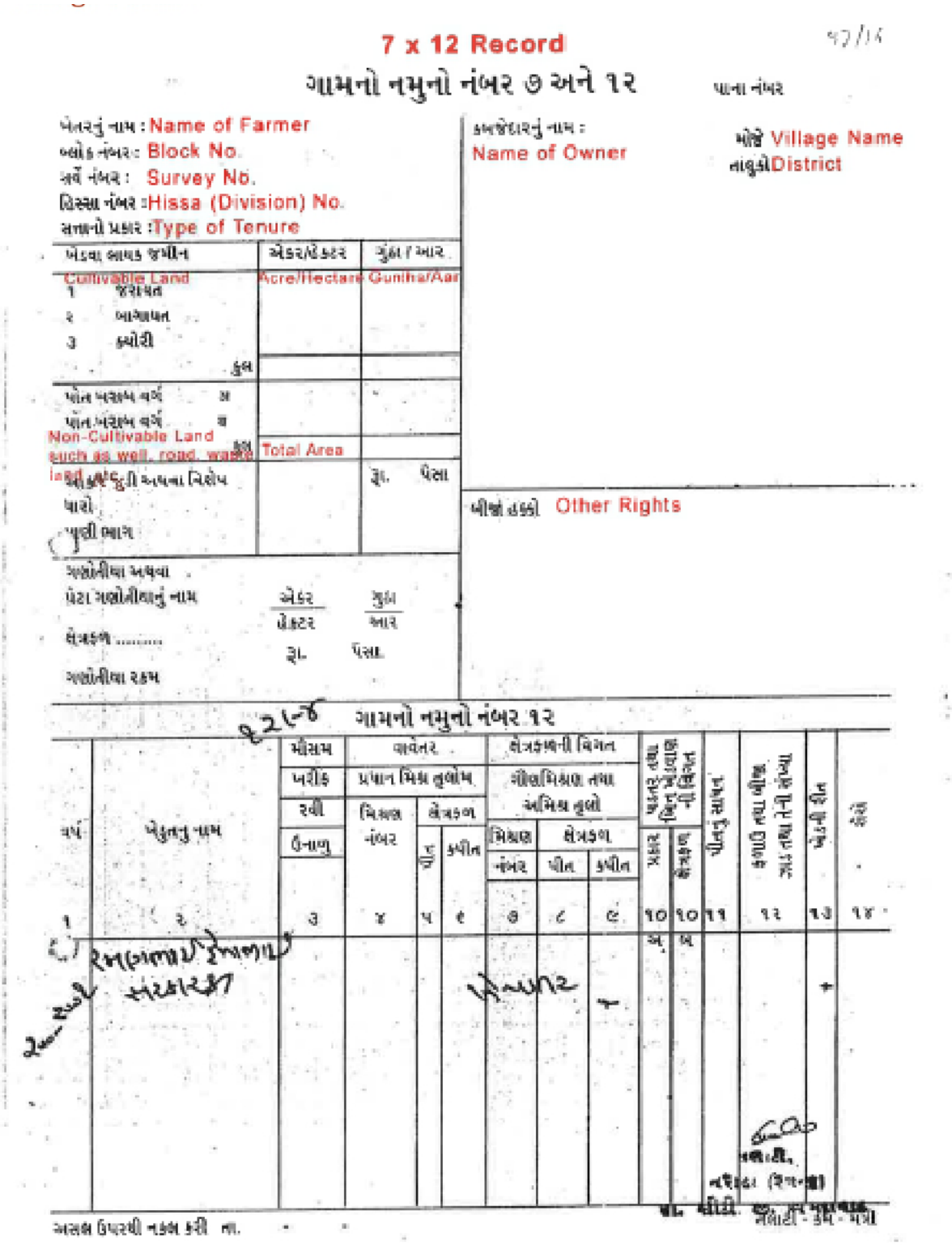
05.

Illustrative examples of Revenue Records & Maps

5.1 Illustrative example of a Village Map



5.2 Illustrative example of a Village Form 7 (7 × 12)



7 x 12 Record

ગામનો નમુનો નંબર ૭ અને ૧૨

પાના નંબર

ખેતરનું નામ : Name of Farmer
બ્લોક નંબર : Block No.
સર્વે નંબર : Survey No.
હિસ્સા નંબર : Hissa (Division) No.
સત્તાનો પ્રકાર : Type of Tenure

ખાતેદારનું નામ : Name of Owner

મોજે Village Name
તાલુકો District

ખેડવા લાયક જમીન Cultivable Land	એકર/હેક્ટર Acre/Hectare	ગુંઠા / આર Gunha/Aar
૧ જરાયત		
૨ બાગાયત		
૩ ક્યારી		
કુલ		
પોત ખરાબ વર્ગ ૪		
પોત ખરાબ વર્ગ ૪		
Non-Cultivable Land such as well, road, waste land કુલ	Total Area	
બીનપિયત જમીનના મિશ્રણ		ગુ. પૈસા
પાકો		
પાકી આકા		

બીજા હકો Other Rights

ગણોતીયા અથવા
પેટા ગણોતીયાનું નામ
ક્ષેત્રફળ .....
ગણોતીયા રકમ

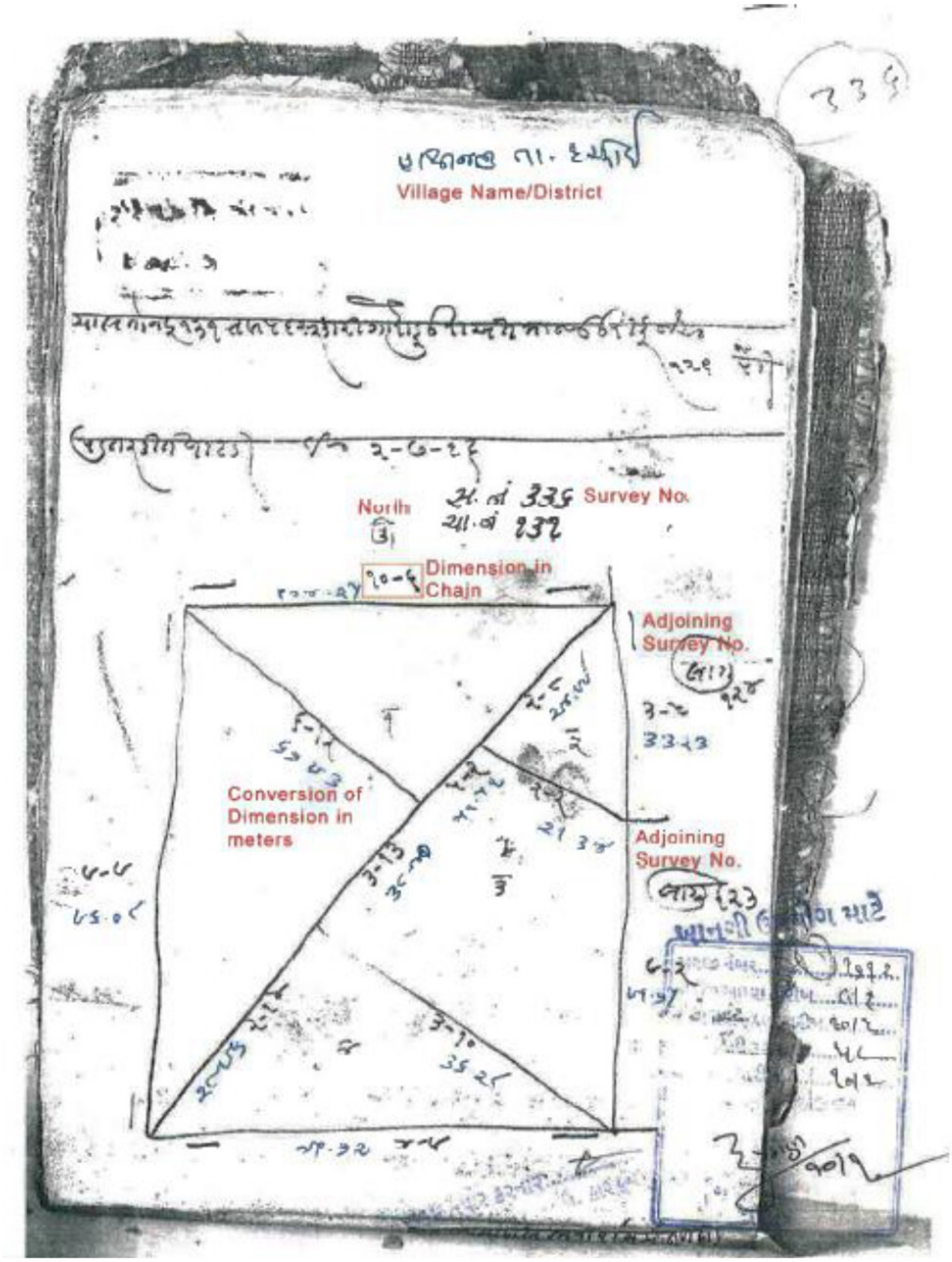
એકર / હેક્ટર
ગુંઠા / આર
ગુ. પૈસા

ગામનો નમુનો નંબર ૧૨

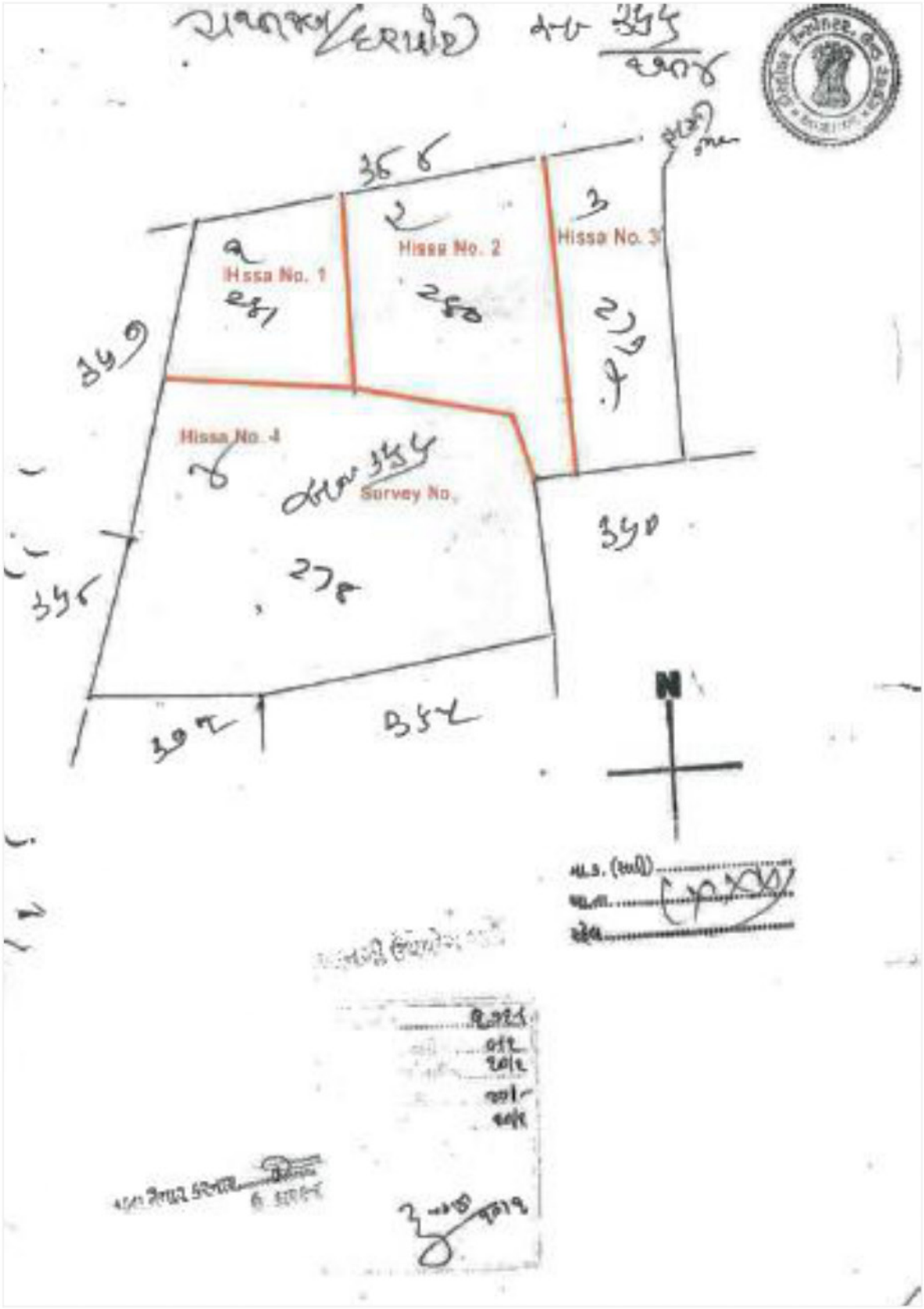
વર્ષ	ખેડુતનું નામ	મોસમ: ખરીફ / રવી / ઉનાળુ	વાવેતર: પ્રધાન મિશ્ર તુલોમ: મિશ્રણ નંબર	ક્ષેત્રફળ: પીત	ક્ષેત્રફળ: કપીત	ક્ષેત્રફળની વિગત: ગૌણમિશ્રણ તથા અમિશ્ર તુલો: મિશ્રણ નંબર	ક્ષેત્રફળ: પીત	ક્ષેત્રફળ: કપીત	પડતર જમીન વિકાસ યોજના નીચે	પ્રકાર	ક્ષેત્રફળ	પીયતનું સાધન	કાયમી ખરાબા પૈકી ખેડવા લાયક જમીન	ખેડવા લાયક જમીન	કેફીયત
૧	૨	૩	૪	૫	૬	૭	૮	૯	૧૦			૧૧	૧૨	૧૩	૧૪
૨૦૧૬	રમણભાઈ ઈશ્વરભાઈ સરકારશ્રી								અ	બ					

જમીન ઉપરથી નકલ કરી તા.

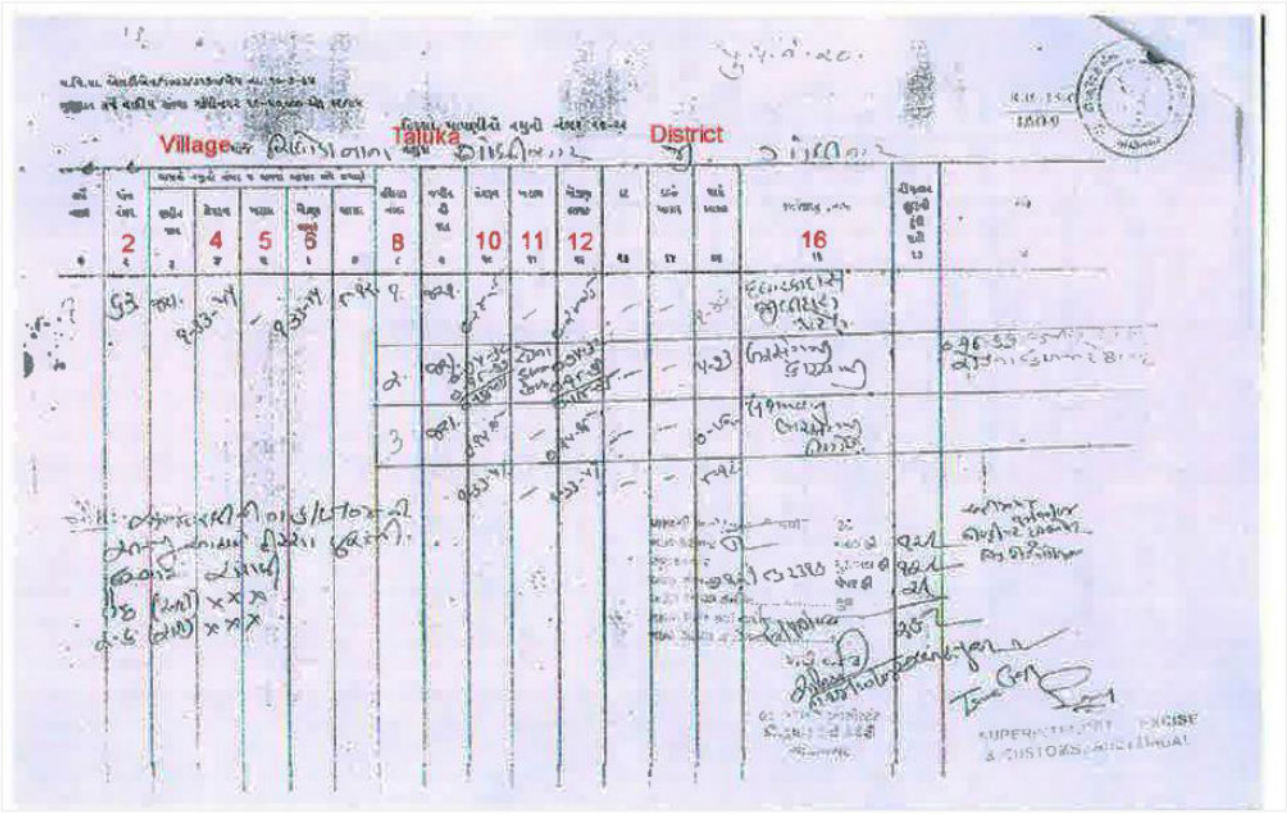
5.3 Illustrative example of a Tippan



5.4 Illustrative example of a Hissa Mapni Sheet



5.5 Illustrative example of a Hissa Form



2. Survey number

4 Total Area

5 Non cultivable land area (well/road/waste land)

6 cultivable land area

8 Hissa (division) number

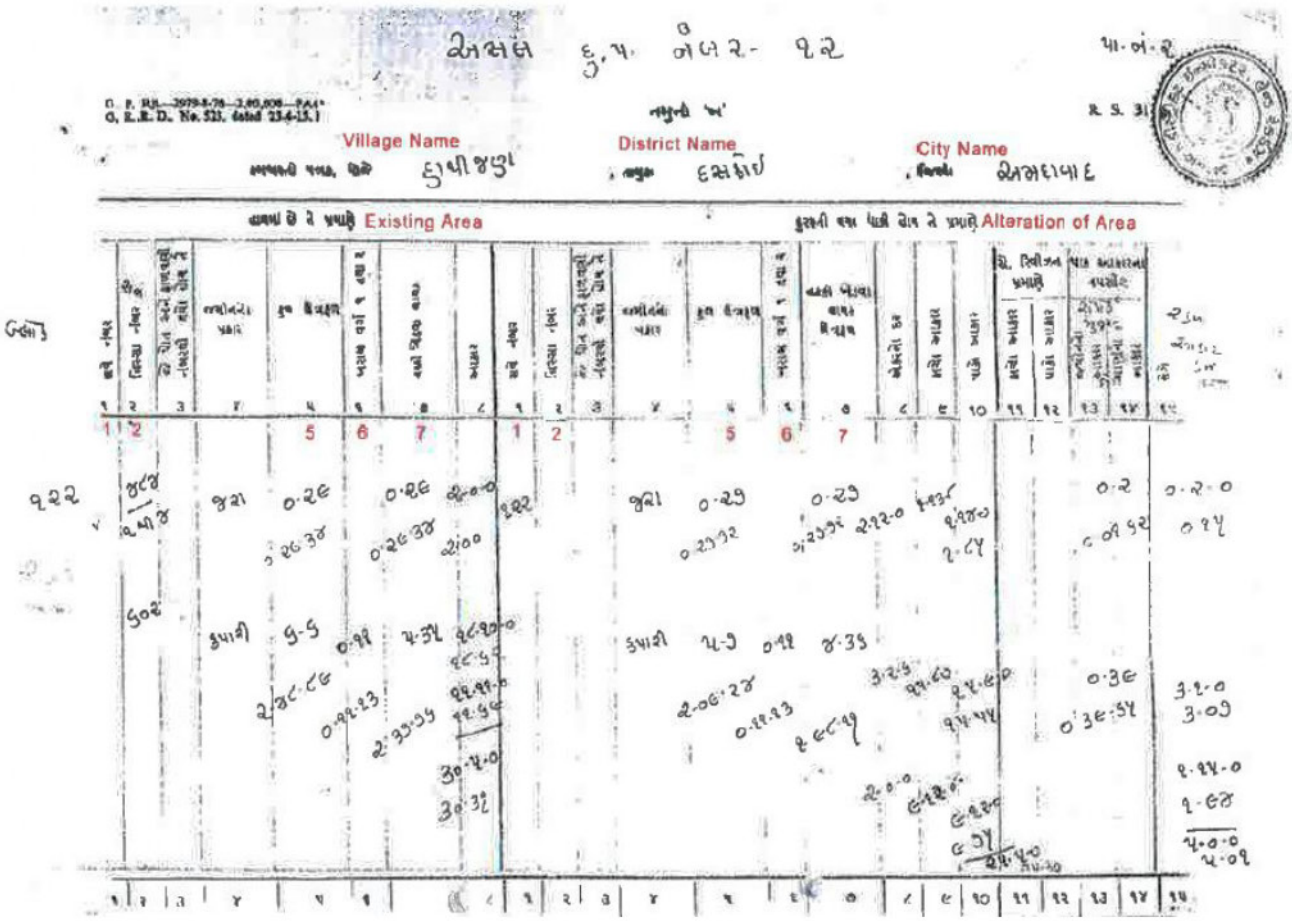
10 Total area

11 Non- cultivable land area (well/road/waste land)

12 Cultivable land area

16 Name of owner

5.6 Illustrative example of a Kami Jasti Patrak/ Durasti Patrak



1 Survey number

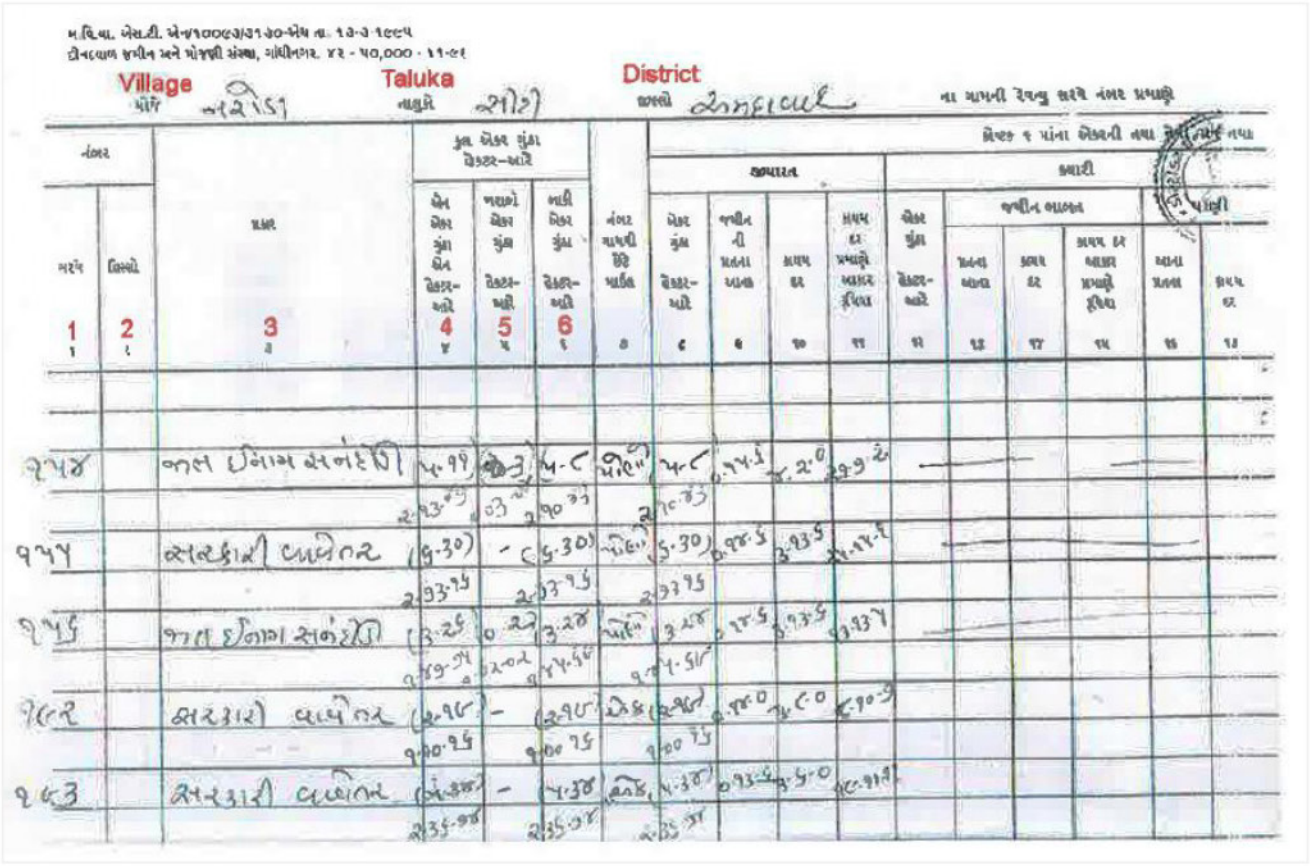
2 Hissa (division) number

5 Total Area

6 Non cultivable land area (well/road/waste land)

7 Cultivable land area

5.7 Illustrative example of an Aakarbandh



1 Survey Number

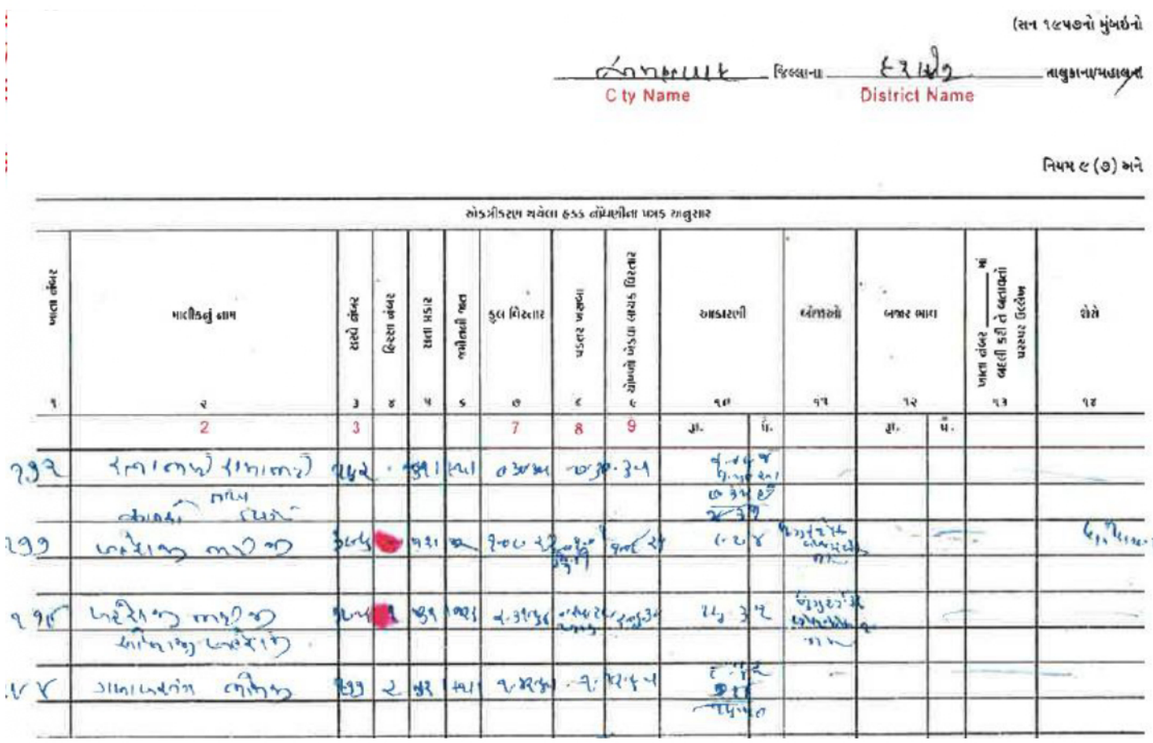
3 Name of Owner

4 Total Area

5 Non cultivable land Are (well/roa/waste land)

6. Cultivable Land Area

6.8 Illustrative example of an Ekatrikaran Patrak



(સન ૧૯૫૯નો મુંબઈનો

C ty Name — જિલ્લાના — District Name — તાલુકાનાગામમહાલના

નિયમ ૯ (૩) અને

એકત્રીકરણ થયેલા હકક લેખિતોના પત્રક અનુસાર

ખાતા નંબર	ખાતેદારનું નામ	સરવે નંબર	હિસ્સા નંબર	સત્તા પ્રકાર	જમીનની જાત	કુલ વિસ્તાર	પડતર ખરાબા	ખેડવાનો ખેડાણ લાયક વિસ્તાર	આકારણી		બોજાઓ	બજાર કિંમત		ખાતા નંબર ____ માંથી બદલી કરી તે ખાતાઓ પરસ્પર ફેરફેર	શેરો
									રૂ.	પૈ.		રૂ.	પૈ.		
1	2	3	4	5	6	7	8	9	10	11	12	13		14	15
૨૧૨	[illegible]	૨૫૨	-	ખુશ્કી	૧૫૫	૦.૩૦ગુ	૦.૦૯ગુ	૦.૨૧	[illegible]						
૨૧૩	[illegible]	૨૫૩	[illegible]	ખુશ્કી	૧૫૫	૧.૦૦ગુ	૦.૧૦ગુ	૦.૯૦	[illegible]						[illegible]
૨૧૪	[illegible]	૨૫૪	[illegible]	ખુશ્કી	૧૫૫	૦.૩૧ગુ	[illegible]	૦.૨૧ગુ	[illegible]						
૨૧૫	[illegible]	૨૫૫	-	ખુશ્કી	૧૫૫	૧.૨૫ગુ	૦.૧૫ગુ	૧.૧૦ગુ	[illegible]						

સરવે નંબર	હિસ્સા નંબર	સત્તા પ્રકાર	જમીનની જાત	કુલ વિસ્તાર	પડતર ખરાબા	ખેડવાનો લાયક વિસ્તાર	આકારણી		બોજાઓ	બજાર કિંમત		ખાતા નંબર ____ માંથી બદલી કરી તે ખાતાઓ પરસ્પર ફેરફેર	બ્લોક	વિસ્તાર	સત્તા પ્રકાર	જો બ્લોક કુકડો લેખે લે કુકડો લખવું	કુકડો લેખવા લાયક જમીનનું પ્રમાણ	શેરો
							રૂ.	પૈ.		રૂ.	પૈ.							
15	16			19	20	21	22		23	24		25	26	27				
[illegible]	-	ખુશ્કી	૧૫૫	૦.૩૦ ૩૧	[illegible]	[illegible]	[illegible]						[illegible]	[illegible]				
[illegible]	-	ખુશ્કી	૧૫૫	૧.૦૦ ૨૭	[illegible]	[illegible]	[illegible]		[illegible]				[illegible]	[illegible]				
[illegible]	[illegible]	ખુશ્કી	૧૫૫	૦.૩૧ ૩૫	[illegible]	[illegible]	[illegible]		[illegible]				[illegible]	[illegible]				
[illegible]	૨	ખુશ્કી	૧૫૫	૧.૨૫ ૫૫	[illegible]	[illegible]	[illegible]						[illegible]	[illegible]				
[illegible]	-	ખુશ્કી	૧૫૫	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]				[illegible]	[illegible]				[illegible]

2 Name of the owner

3 Revenue survey number

7 Total Area

8 Non cultivable land area (well/road/ waste lands)

9 Cultivable land area

15 Survey number

16 Hissa (division) number

19 Total area

20 Non cultivable land area (well/ road/ waste land)

21 Cultivable land area

26 Block number

27 Total Area

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06.

List of Important/Landmark Judgments of Court with respect to T P Scheme.

Sr. No.	Court	Case Reference No.	Parties Involved	Date of Judgment	Key Rulings from the Judgment
1.	Hon. Supreme Court of India	WRIT PETITION NO. 64 OF 1966	MANEKLAL CHHOTALAL & ORS. VS. M.G. MAKWANA & ORS.	02/03/1967	5 Judges constitutional bench of Supreme Court: • Bombay Town planning Act (27 of 1955)- Act is constitutionally valid and not violative of fundamental rights. • It is competent for state legislature to enact this Act. • The reconstituted plots, though of lesser area have a higher value in view of the various improvements, and so what the petitioners lost is actually area had been more than sufficiently compensated by the increased value. Therefore, there is no question of any deprivation of property. • The amount that the petitioners have been asked to contribute is only towards the cost of scheme, which has to be incurred by the local authority. As to how exactly that contribution is to be worked out and proportion in which the plots are to bear the burden, have all been indicated in the Act. therefore, the liability of the petitioners to pay contribution has been upheld.
2.	Hon. Supreme Court of India	CIVIL APPEAL NO. 1377 OF 1968	STATE OF GUJARAT VS SHRI. SHANTILAL MANGALDAS & ORS.	13/01/1969	5 Judges constitutional bench of Supreme Court: • Bombay Town Planning Act (27 of 1955) • Compensation at market value on the date many years before the date of extinction of owners' title is not violative of Art.31(2) of constitution. • Exhaustive discussion on T P Scheme • The principal objects of Town Planning legislation no doubt are to provide for planned and controlled development and use of land in urban areas with special regards to requirements of better living conditions and sanitation. • An area of the plot or even the whole plot belonging to an owner may go to form a reconstituted plot which may be alloted to another person or may be appropriated to public purpose under the scheme. • The method of determining compensation in respect of lands which are subject to the town planning scheme is prescribed in the Town Planning Act and when power is given under the statute to do a certain thing in a certain way, it must be done in that way or not at all. • In making a Town Planning Scheme the lands of the persons covered by the scheme are treated as if they are put in a pool.

3.	Hon. Supreme Court of India	CIVIL APPEAL NO. 1224 OF 1977	PRAKASH AMICHAND SHAH VS STATE OF GUJARAT & ORS.	20/12/1985	5 Judges constitutional bench of Supreme Court: • Finance of the T P Scheme is discussed in detail. • the decision of the Town Planning Officer determining the amount of compensation is not appealable. • Act not providing for an appeal from some of the decisions under a particular section while providing an appeal against some of the other decisions under the very same section held constitutionally valid. • The decision of the Town Planning officer is final and conclusive in all matters refereed to in the various clauses of section 32 (1) except those mentioned in clauses (v), (vii), (viii), (ix), (x) and (xiii). • The act contains necessary provisions for estimating the compensation payable to an owner of land who has not been given a reconstituted plot.
4.	Hon. Supreme Court of India	CIVIL APPEAL NO. 3203 OF 2008	BABULAL BADRIPRASAD VARMA VS SURAT MUNICIPAL CORP. & ORS.	02/05/2008	Rule 26 does not contemplate individual notice. Public notice is sufficient.
5.	Hon. Supreme Court of India	CIVIL APPEAL NO. 1545-1550 OF 2001	STATE OF GUJARAT VS AHMEDABAD GREEN BELT KHEDUT MANDAL & ORS.	09/05/2014	3 judges constitutional bench of supremen court: • If a designation lapses under section 20, the same land can be made part of T P Scheme. • Hardship of an individual cannot be a ground to strike down a statutory provision. • The settled legal proposition in respect of the interpretation of statute is that the provisions of the Act have to be read as a whole and therefore the provisions section 40(3)(jj)(a)(iv) for sale has to be read inconsonance/ conjointly with the other statutory provisions and not in isolation . The sale upto an extent of 15% is from the total area covered under the scheme and not in respect to every plot of land • IN order to generate financial resources for the development of infrastructure, the saleable plot for residential, commercial and industrial use are alloted by the appropriate authority. • Similarly, while reconstituting the plots, final plot is offered to the original owner for its beneficial use.

6.	Hon. High Court of Gujarat	SPECIAL CIVIL APPLICATION NO. 9840 OF 2006	AHWIN ISHWARLAL MODI VS SURAT MUNICIPAL CORP.	16/11/2006	In any matter of T P Scheme which is sanctioned and made part of the Act, the scope of the judicial scrutiny would be extended to the extent of proper or improper distribution.
7.	Hon. High Court of Gujarat	LETTERS PATENT APPEAL NO. 189 OF 2003	AHMEDABAD URBAN DEVELOPMENT AUTHORITY VS SATYASHANKAR COOPERATIVE HOUSING	14/10/2005	• Section 65(1), 65(2), 70 • Once the preliminary or the final scheme is notified in accordance with the section 65(1) and (2), the same acquires statutory status and cannot be modified, altered, changed or varied except to the extent and in the manner provided for in Section 70 of the Act. • The term 'otherwise' appearing in sub-section (2) of Section 70 signifies that the State Govt. can effect variation either suo-motu or being moved by any person adversely affected by the scheme. • However, the scope of variation is very limited. the variation can only be made if the appropriate authority consider that the scheme is defective on account of some error, irregularity or informality and the State Government is satisfied that the proposed variation is not substantial.
8.	Hon. High Court of Gujarat	SPECIAL CIVIL APPLICATION NO. 5906 OF 1995	RAJAN SAKALCHAND PATEL VS STATE OF GUJARAT	02/08/1996	• Court cannot embark upon scrutinizing rightly effective policies of the state or statutory authority. • Where, how and why slum upgradation project is required and is undertaken by the respondent authority should be subjected to judicial review or scrutiny as the same would be falling within the domain of policy of the executive and that too in absence of mala fides ad discrimination.
9.	Hon. High Court of Gujarat	SPECIAL CIVIL APPLICATION NO. 2850 OF 2002	GOVINDBHAI HIRABHAI SURATI VS STATE OF GUJARAT	04/02/2003	• Vesting contemplated under section 48-A is legislative vesting for specific purposes. • The submission of the learned counsel of the petitioners that the section 48-A of the Act, in substance, has the effect of depriving the petitioners of their land either without compensation or with inadequate compensation has no legs to stand.

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