

## **Contents**

1. Overview on TOD implementation in India

2. TOD Planning – Ahmedabad Experience

# Metro Systems in India

### **Operational Metro Rail Systems**

Cities with Operational Metro Systems > 15

• Total Metro lines > 37 lines

• Total Metro stations > 655 stations

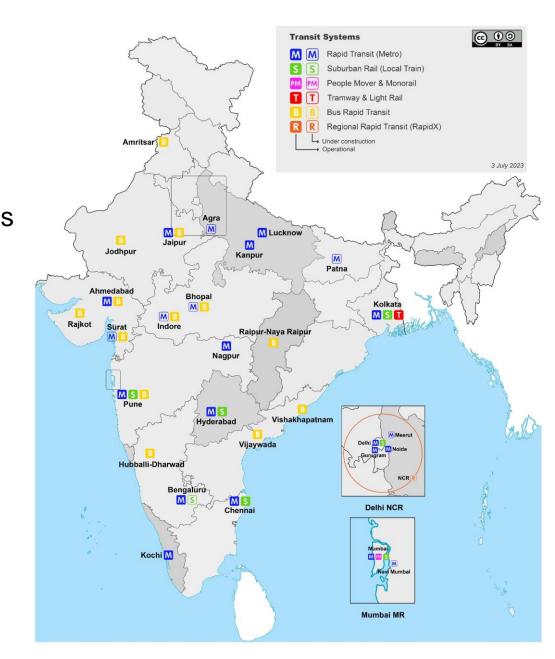
• Total Length > 855 km

#### **Upcoming Metro Rail Systems**

Under Construction > 7

• Approved > 3

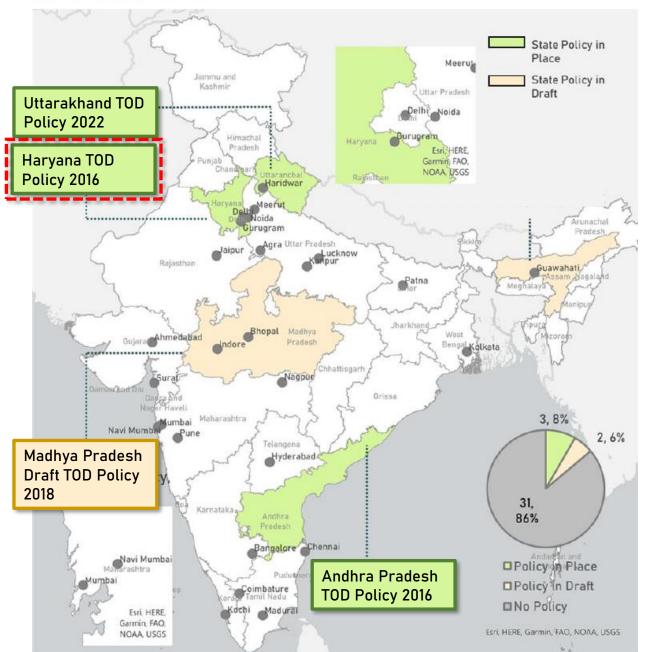
• Proposed > 4



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|-----------|----------------------|----------------------------|--------------------|-----------------------------|--------------------|--------------------------------------|---|-----------------------------------|-----------------------|---|--|--|--|
| Ahmedabad | 63,57,693            | 2019                       |                    | 2                           | 38                 | 32                                   | 539   | Yes                               |                       |   | 102 Zone in<br>DP-2021                                       | DCR, 2017, com.<br>Dev Plan<br>regulations | TPS & LAP<br>for TOD<br>Areas                            |
| Bangalore | 1.31.93.000          | 2011                       |                    | 2                           | 55                 | 51                                   | 297   | Yes                               |                       | TOD Policy,<br>2022                         |  |  |  |
| Chennai   | 1.15.03.000          | 2015                       |                    | 2                           | 54                 | 40                                   | 289   |                                   |                       |   |  |  |  |
| Delhi     | 3,20,66,000          | 2002                       |                    | 9                           | 349                | 286                                  | 733   | Yes                               |                       | Delhi TOD<br>Policy, 2021                   | Policy in MPD  | Regulations in<br>TOD scheme,<br>MPD 2021* |  |
| Gurugram  | 17.26.452            | 2013                       |                    | 1                           | 12                 | 11                                   | 909   | Yes                               | Haryana TOD<br>Policy |   |  |  |  |
| Hyderabad | 1.05.34.000          | 2017                       |                    | 3                           | 67                 | 57                                   | 850   |                                   |                       |   |  |  |  |
| Jaipur    | 41.07.000            | 2015                       |                    | 1                           | 12                 | 11                                   | 918   |                                   |                       |   |  |  |  |
| Kanpur    | 31,90,000            | 2021                       | ×                  | 2                           | 8                  | 31                                   | 1799  |                                   |                       |   |  |  |  |
| Kochi     | 33.01.000            | 2017                       |                    | 1                           | 27                 | 22                                   | 788   | Yes                               |                       |   | TOD Zone in<br>MP 2040                                       | TOD DCR in<br>MP 2040                      |  |
| Kolkata   | 1,51,34,000          | 1984                       |                    | 3                           | 41                 | 40                                   | 418   |                                   |                       |   |  |  |  |
| Lucknow   | 38.54.000            | 2017                       |                    | 1                           | 23                 | 23                                   | 1004  |                                   |                       |   |  |  |  |
| Mumbai    | 2,09,61,000          | 2011                       |                    | 3                           | 30                 | 43                                   | 238   |                                   |                       |   |  |  |  |
| Nagpur    | 29,91,000            | 2019                       |                    | 2                           | 24                 | 42                                   | 1007  | Yes                               |                       |   |  | TOD regulation notified in 2017            |  |
| Noida     | 2,93,908             | 2019                       |                    | 1                           | 29                 | 21                                   | 707   | Source: Re                        | esearch Project       | by Prof Jigne                               | sh Mehta & Pa  | arth Makwana, I                            | MUP, FP, CEPT  |

|           |                      |                            | 1                  |                             |                    |                                      |   |                                  |                       |   |  |  |  |
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| Bangalore | 1.31.93.000          | 2011                       |                    | 2                           | 55                 | 51                                   | 297   | Yes                              |                       | TOD Policy,<br>2022                         |  |  |  |
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| Kanpur    | 31,90,000            | 2021                       | ŭ                  | 2                           | 8                  | 31                                   | 1799  |                                  |                       |   |  |  |  |
| Kochi     | 33.01.000            | 2017                       |                    | 1                           | 27                 | 22                                   | 788   | Yes                              |                       |   | TOD Zone in<br>MP 2040                           | TOD DCR in<br>MP 2040                      |  |
| Kolkata   | 1,51,34,000          | 1984                       |                    | 3                           | 41                 | 40                                   | 418   |                                  |                       |   |  |  |  |
| Lucknow   | 38.54.000            | 2017                       |                    | 1                           | 23                 | 23                                   | 1004  |                                  |                       |   |  |  |  |
| Mumbai    | 2,09,61,000          | 2011                       |                    | 3                           | 30                 | 43                                   | 238   |                                  |                       |   |  |  |  |
| Nagpur    | 29,91,000            | 2019                       |                    | 2                           | 24                 | 42                                   | 1007  | Yes                              |                       |   |  | TOD regulation notified in 2017            |  |
| Noida     | 2,93,908             | 2019                       |                    | 1                           | 29                 | 21                                   | 707   | Source: R                        | search Project k      |   | sh Mehta & Pa                                    | arth Makwana, I                            | MUP, FP, CEPT  |

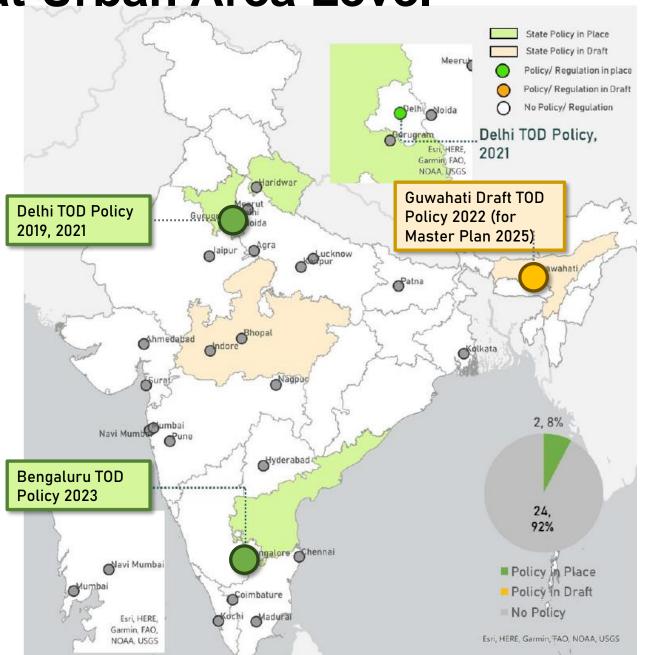
# TOD Policy at State Level



Source: Research Project by Prof Jignesh Mehta & Parth Makwana, MUP, FP, CEPT University

| Name      | Population<br>(2022) | Operation<br>Start<br>year | Status of<br>Metro | Existing<br>No. of<br>lines | length<br>Existing | Existing<br>number<br>of<br>stations | Average_dis tance of metro station (Exist and UC) (in metres) | TOD<br>provisions<br>at any level | State<br>Level        | Develop<br>ment<br>authority/<br>ULB policy | DP/ Master<br>Plan<br>Identification<br>of TOD/TOZ<br>zone) | TOD Specific<br>Regulations                | Micro-level<br>planning<br>through<br>(LAP/TPS,<br>etc.) |
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| Ahmedabad | 63,57,693            | 2019                       |                    | 2                           | 38                 | 32                                   | 539   | Yes                               |                       |   | 10Z Zone in<br>DP-2021                                      | DCR, 2017, com.<br>Dev Plan<br>regulations | TPS & LAP<br>for TOD<br>Areas                            |
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| Gurugram  | 17.26.452            | 2013                       |                    | 1                           | 12                 | 11                                   | 909   | Yes                               | Haryana TOD<br>Policy |   |   |  |  |
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| Kochi     | 33.01.000            | 2017                       |                    | 1                           | 27                 | 22                                   | 788   | Yes                               |                       |   | TOD Zone in<br>MP 2040                                      | TOD DCR in<br>MP 2040                      |  |
| Kolkata   | 1,51,34,000          | 1984                       |                    | 3                           | 41                 | 40                                   | 418   |                                   |                       |   |   |  |  |
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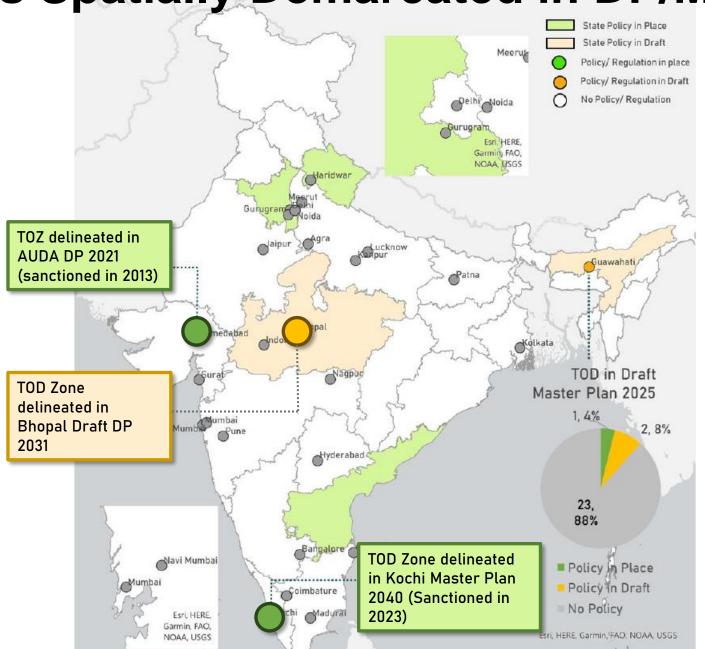
TOD Policy at Urban Area Level



Source: Research Project by Prof Jignesh Mehta & Parth Makwana, MUP, FP, CEPT University

| Name      | Population<br>(2022) | Operation<br>Start<br>year | Status of<br>Metro | Existing<br>No. of<br>lines | length<br>Existing | Existing<br>number<br>of<br>stations | Average_dis tance of metro station (Exist and UC) (in metres) | TOD<br>provisions<br>at any level | State<br>Level        | Develop<br>ment<br>authority/<br>ULB policy | DP/ Master<br>Plan<br>(identification<br>of TOD/TOZ<br>zone) | TOD Specific<br>Regulations                | Micro-level<br>planning<br>through<br>(LAP/TPS,<br>etc.) |
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| Ahmedabad | 63,57,693            | 2019                       |                    | 2                           | 38                 | 32                                   | 539   | Yes                               |                       |   |  | DCR, 2017, com.<br>Dev Plan<br>egulations  | TPS & LAP<br>for TOD<br>Areas                            |
| Bangalore | 1.31.93.000          | 2011                       |                    | 2                           | 55                 | 51                                   | 297   | Yes                               |                       | TOD Policy,<br>2022                         |  |  |  |
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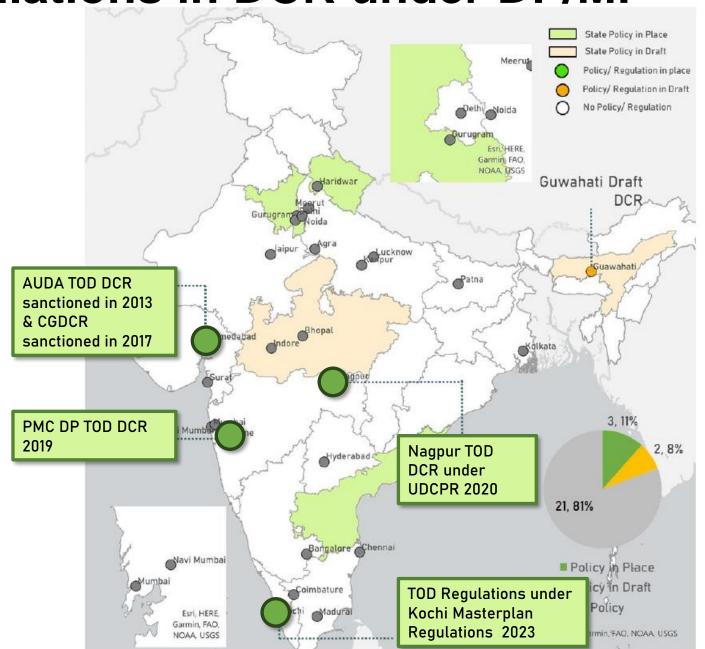
**TOD Zones Spatially Demarcated in DP/MP** 



Source: Research Project by Prof Jignesh Mehta & Parth Makwana, MUP, FP, CEPT University

|           |                      |                            |                    |                             |                    |                                      | _   |                                   |                       |   |  |  | _  |
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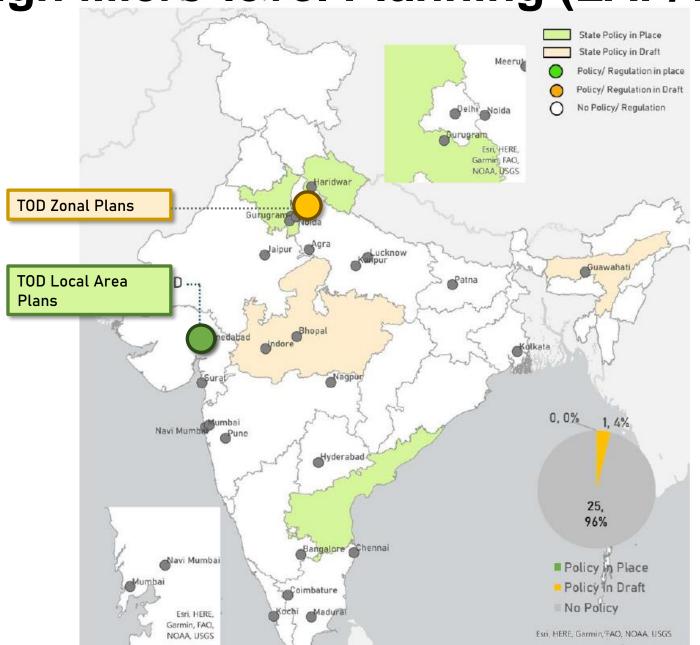
TOD Regulations in DCR under DP/MP



Source: Research Project by Prof Jignesh Mehta & Parth Makwana, MUP, FP, CEPT University

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TOD through Micro-level Planning (LAP/TP/LP/ZDP)



Source: Research Project by Prof Jignesh Mehta & Parth Makwana, MUP, FP, CEPT University

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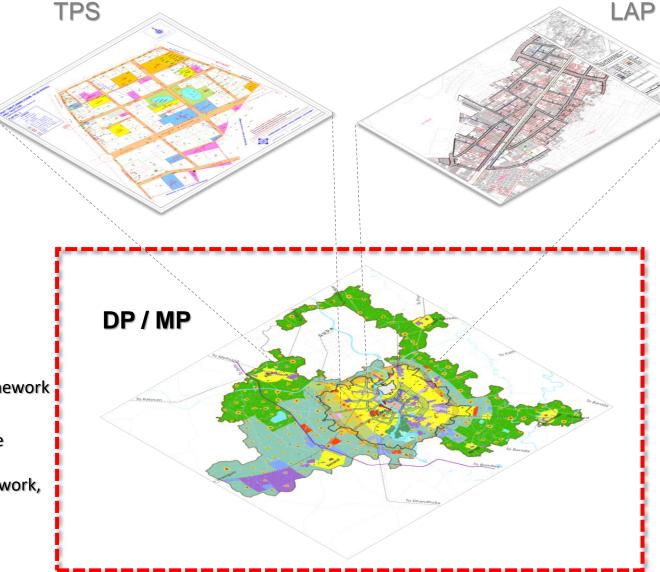
## **TOD Planning at Two Levels – DP and LAP & TPS**

#### TPS:

 Allows implementation of DP network, zoning, infrastructure and amenities by delivering land in planned manner

#### DP/MP:

- Provides a comprehensive framework for the entire urban area
- Includes proposals for Land Use Zoning, Transportation, Infra, Amenities, Housing, Green Network, Env, Heritage Conservation etc



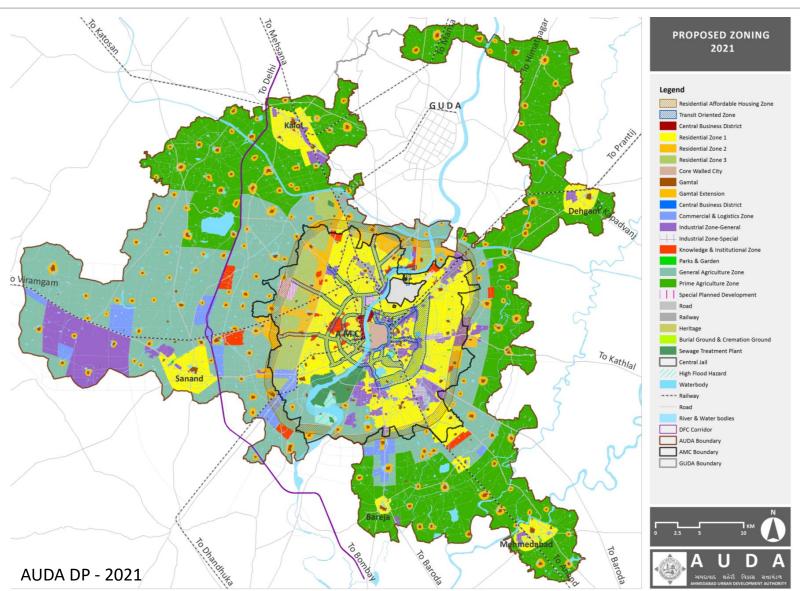
#### LAP:

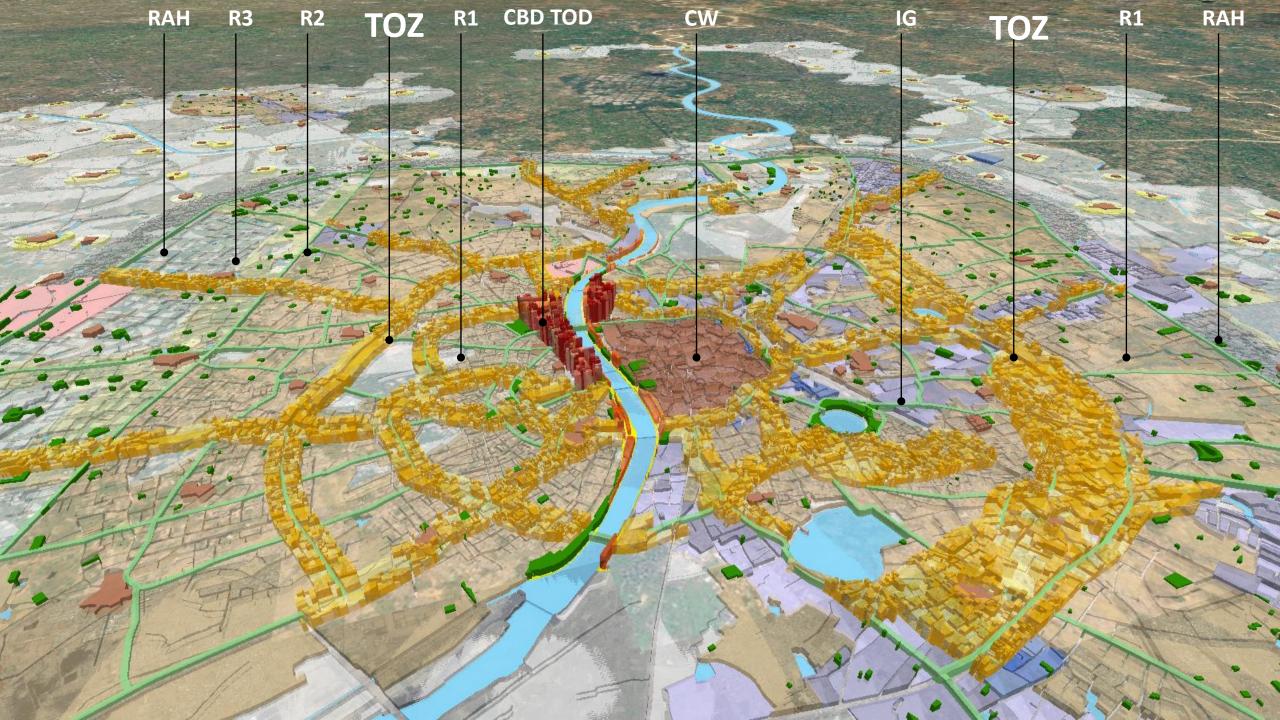
- Allows implementation of DP in existing developed areas through incentivized redevelopment, regulations network and improvement projects.
- Helps maximize the benefits from new investments in the city
- Helps revitalize older areas such as Business Districts, TODs, Heritage Precincts etc

## **AUDA Development Plan 2021**

#### **Key Proposals**

- Zoning
  - Mixed Use Zones (R1, R2, R3)
  - TOD
  - CBD
  - Industrial
  - Institutional
  - Agricultural
- Transport and Mobility
- Infrastructure
- Social and civic amenities
- Special Zones & Projects
- Affordable Housing
- Green and Blue networks
- Environment and Eco Sensitive areas
- Heritage





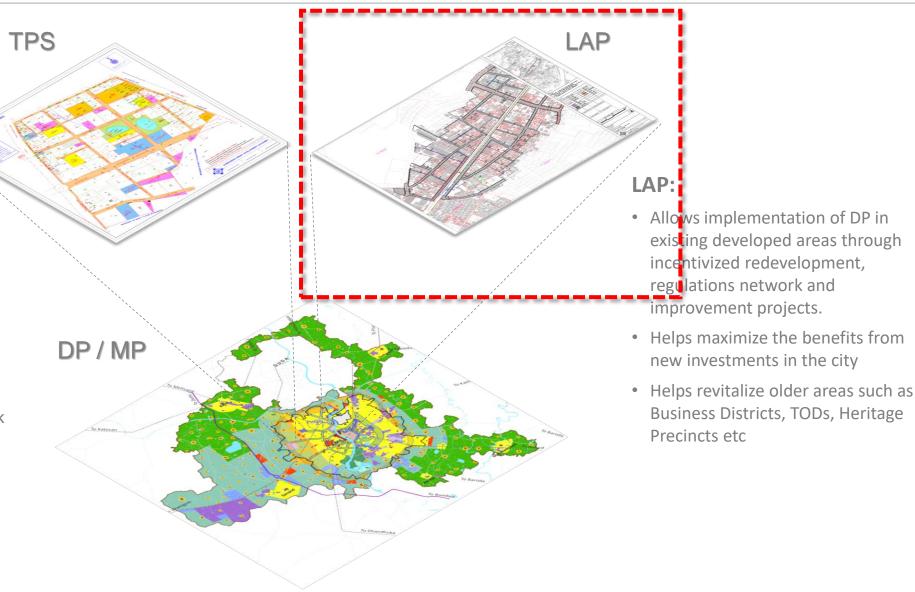
## **LAP Mechanism for Planning TOD**

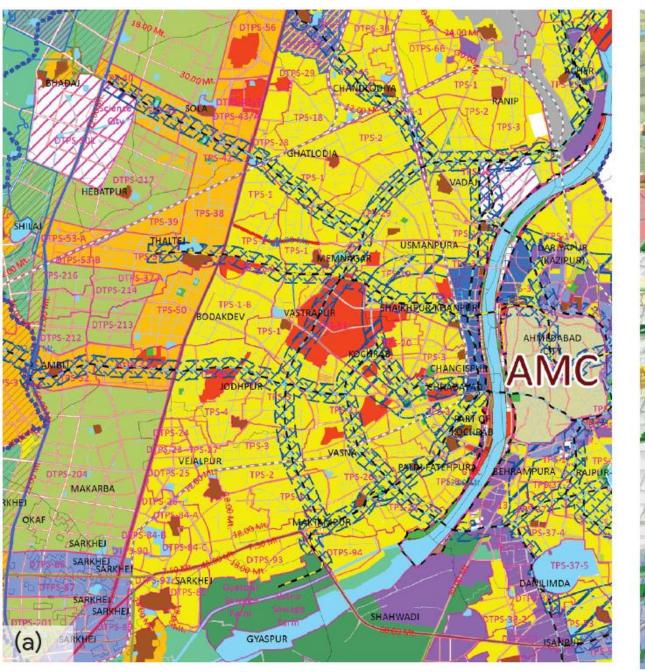
#### TPS:

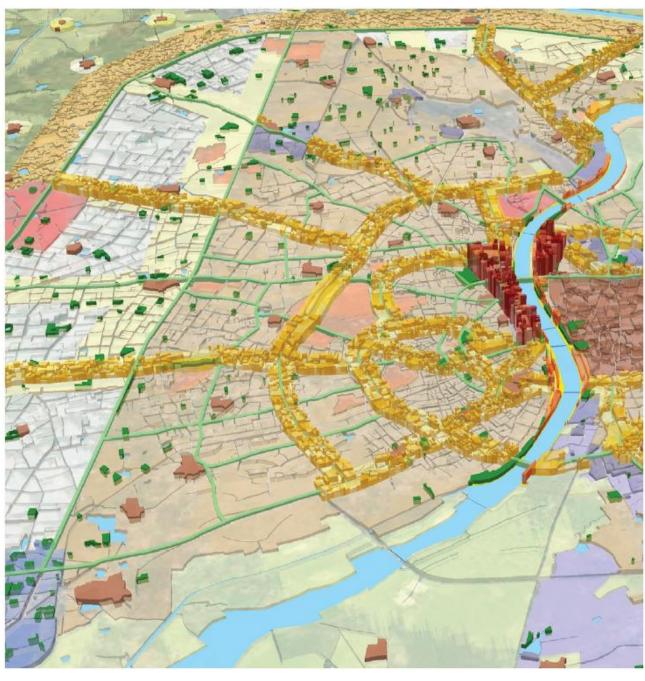
 Allows implementation of DP network, zoning, infrastructure and amenities by delivering land in planned manner

#### DP/MP:

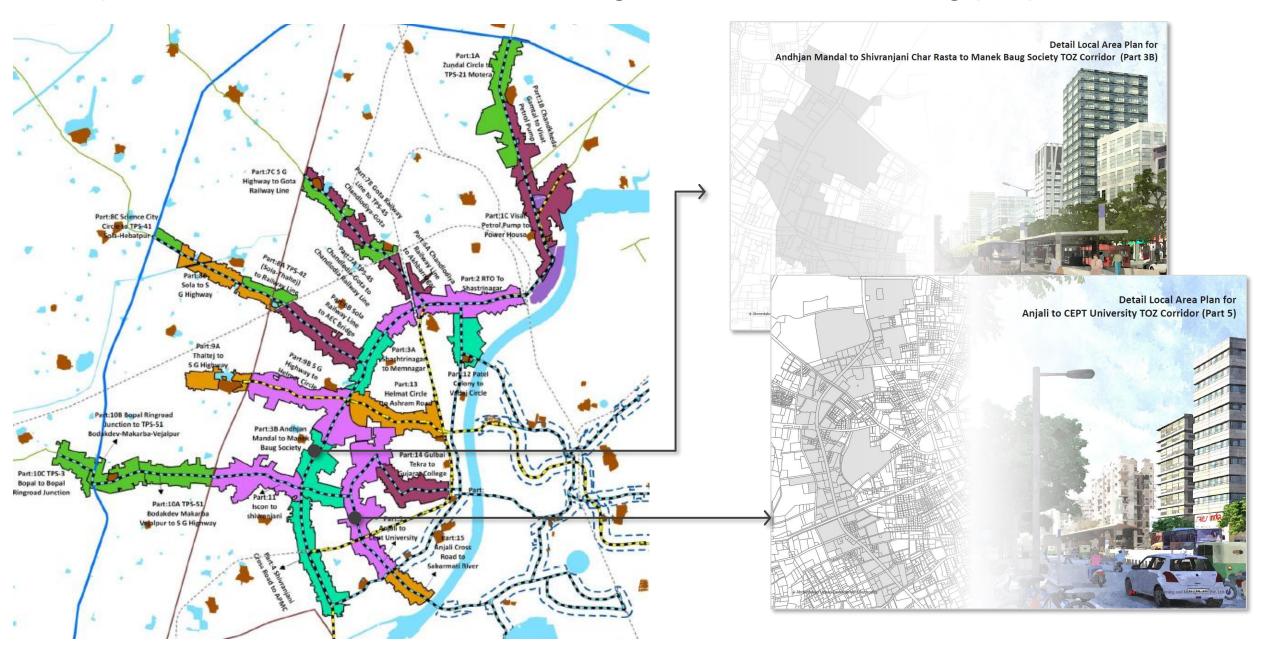
- Provides a comprehensive framework for the entire urban area
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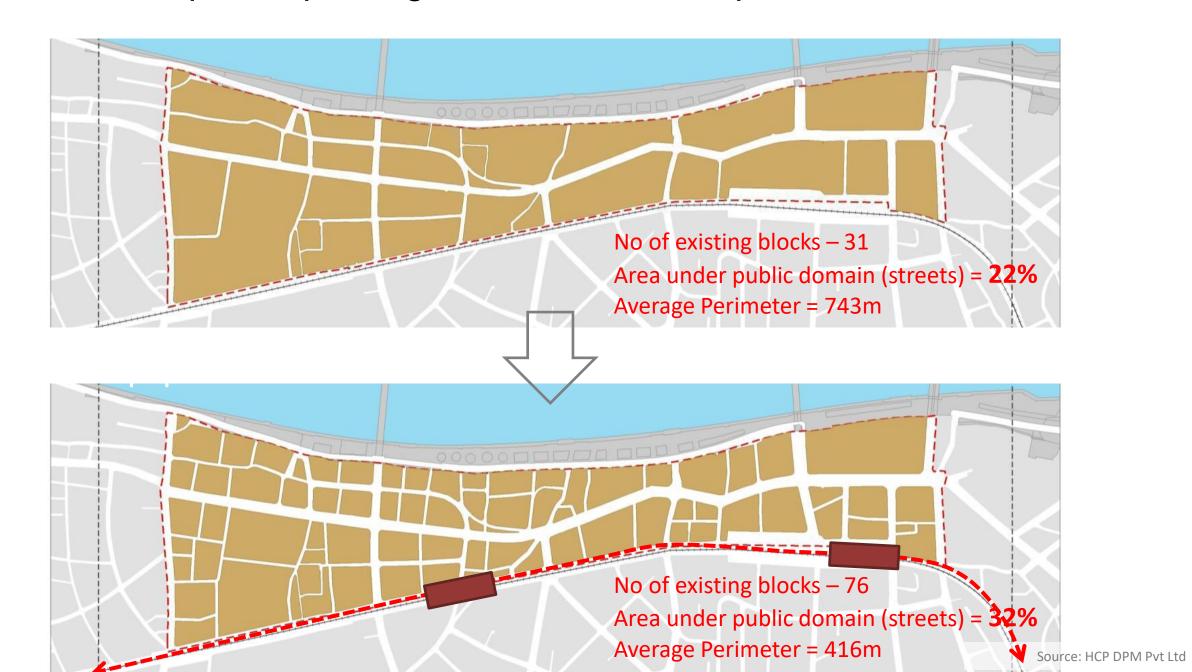




## Multiple LAPs for TOD Corridors along BRTS & Metro being prepared



## The LAP Concept – Improving Network & Development



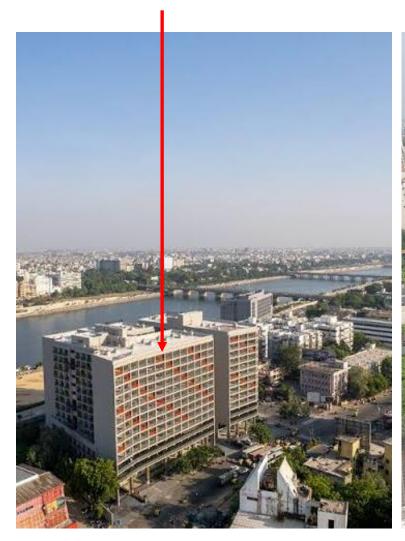








# LAP Mechanism - CBD & TOD LAPs - Recent developments





## LAP Mechanism - CBD & TOD LAPs - Recent developments









## **TPS Mechanism for Planned Development in TOD**

#### TPS:

 Allows implementation of DP network, zoning, infrastructure and amenities by delivering land in planned manner

# **TPS** LAP DP / MP

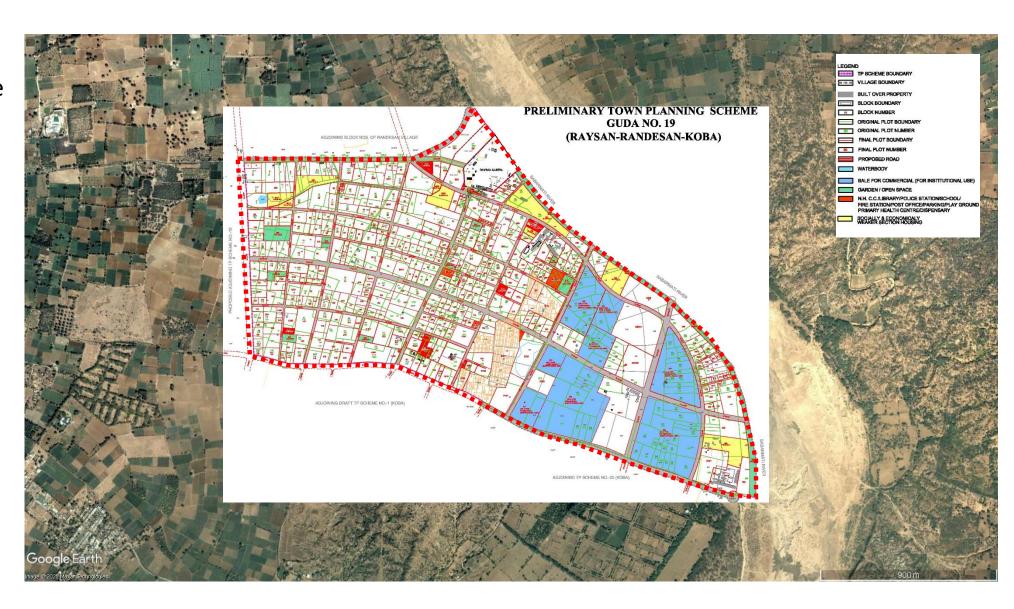
#### LAP:

- Allows implementation of DP in existing developed areas through incentivized redevelopment, regulations network and improvement projects.
- Helps maximize the benefits from new investments in the city
- Helps revitalize older areas such as Business Districts, TODs, Heritage Precincts etc

#### DP/MP:

- Provides a comprehensive framework for the entire urban area
- Includes proposals for Land Use Zoning, Transportation, Infra, Amenities, Housing, Green Network, Env, Heritage Conservation etc









#### Institutions developed

- Pandit Deendayal Upadhyay Energy University (PDEU)
- Gujarat National Law University (GNLU)
- Institute of Advanced Research (IAR)
- International
   Automobile Center of Excellence (iACE)







# Thank you