WB INTEREST IN TOD: TOD ENHANCES VALUE OF URBAN TRANSPORT INVESTMENT

Growing & congested city

Large-scale road and public transport investments

Improved economic competitiveness & quality of life

World Bank has provided $23.5 billion in lending to urban transport projects over the past decade

Effective coordination of transport and land use (TOD) fills the gap here

• TOD allows large-scale public investments funded by World Bank to be more efficient and more effective in producing desired outcomes
Mumbai has a strong heritage of railways being at the center of how people connect…

…which provides a great platform for sustainable growth
...BUT ADJACENT LAND USE IS OFTEN DISCONNECTED

Busy rail stations are not well-connected to surrounding density, with missing or poor quality footpaths
Uncoordinated haphazard development vs. well-planned, cohesive urban districts

Image from MoUD TOD Guideline
DENSITY IN MUMBAI: SIMILAR DISTRIBUTION BUT MUCH HIGHER THAN OTHER WORLD CITIES

Source: Urban Morphology Institute
DRAMATIC EXPANSION OF TRANSIT NETWORK CREATES MORE CENTRALITIES WHERE DEVELOPMENT WILL MOVE IN THE FUTURE

From a focalized network to a grid-like network
FUTURE NETWORK EXPANSION MOVES CENTER EASTWARD

Source: Urban Morphology Institute
FUTURE MUMBAI HUMAN DENSITY (2031 EXPECTED): EMERGING CENTRALITIES

Major Nodes/Corridors

- Central Railway Corridor (Thane/Kalyan)
- Kurla Jct Area
- Central Mumbai (Dadar/Parel/Wadala)
- Navi Mumbai / Panvel

Source: Urban Morphology Institute
Station Development and TOD Planning

- Strategic coordination of corridor land use for better outcomes, building clusters at appropriate station areas
  - Job clusters at well connected nodes (i.e. intersections with radial rail lines)
  - Spreading out affordable housing at station areas with available land that is lower-cost and accessible
  - Retail hierarchy, including regional and local-serving shops
  - Industrial land in other growth areas, and accessible to freight rail and expressways
POTENTIAL DEVELOPMENT AREAS AROUND VIRAR-PANVEL

- **Nilaje**: Existing areas of development and open land.
- **Taloja**: Development not currently connected well to station.
- **Bhiwandi Road**
- **Nighu/Narivali**: Vacant land available for large-scale comprehensive TOD implementation.
- **Tambode**: Areas of ongoing development and available land.
- **Taloja**: Development not currently connected well to station.
CENTRALITY SCORES FOR VIRAR-PANVEL CORRIDOR (2031)
Proactive planning provides resources to reinvest

- **Reinvesting funds generated into urban infrastructure**
- **Capverting increase in value with LVC tools**
- **Allowing new development in station districts to create value**
- **Transit improvement** (e.g. more lines, more frequent trains, better quality service)
- **Associated infrastructure improvement** (e.g. better pedestrian connectivity & public spaces, improved sewers, water systems)

Virtuous TOD cycle

- (most funds generated should go into further public infrastructure improvements)
- (e.g. selling of air rights, special taxation districts, etc.)
- (e.g. higher-density residential/office/retail developments with higher economic value)
World Bank contracted with consortium of urban design and project finance consultants for this project

Approving authority was WBG, with deliverables to be presented to nodal agency and other stakeholders in Mumbai

Task 1: Baseline Survey & Screening

Task 2: Planning and Design of TOD Districts in Station Areas
   2.1: Detailed Stakeholder Engagement
   2.2: Detailed Planning and Urban Design for TOD Areas

Task 3: Cost Estimates for Implementation of Surrounding TOD District & Opportunities for Land Value Capture

Task 4: Application of TOD Planning Design Scenarios

Task 5: Institutional Capacity Building
CURRENT DEVELOPMENT CONTEXT / OTHER PROJECTS

- Mumbai’s eastern suburbs are growing quickly, and greenfield land is facing significant urbanization pressure.
- Plans for new airport and new industrial clusters will generate demand for more residential space.
BETTER STORMWATER/MONSOON MANAGEMENT

- Start development planning with natural fundamentals
- Leverage existing streams to create stormwater infrastructure & recreation network
WALKABLE STREET GRID, CONNECTED TO SURROUNDINGS

- Limited change of existing roads and planned new roads, in order to ease implementation
- Creation of fine-grained grid within these established boundaries
- Planning of street grid focused on walkability and mixed use environment, and developability
IMPROVED URBAN DESIGN & TAPERED DENSITY WITH MULTI-MODAL INTEGRATION

- More complete urban design with recommendations for pedestrian and NMT network
- Prioritization of high-density buildings next to station, with significant investments in public space
- Integration of rickshaws and other first-mile/last-mile options at rail station
RECOMMENDED ZONING CHANGES: REFORM FSI REGS

- Current regulations on Floor Space Index (FSI) are outdated in Mumbai
- Reform and orderly increases in density should be allowed in designated TOD Zones near stations
- Traditional villages ("gaothans") should be incorporated into TOD plans in a sensitive manner, with step-down densities
TOWN PLANNING SCHEME KEY FOR FINANCING, IMPLEMENTATION

- Town Planning Scheme allows for government to pool private and public land, and reserve up to 50% for public infrastructure and amenities.
- Remaining land is given back to private land owners with development approvals and increase in allowable density.
- Similar to land readjustment in other countries.
TOD FUND CAPTURES DEVELOPMENT CHARGES CENTRALLY

Figure 9: Proposed Implementation structure

ULB  MMRDA  CIDCO

Value Capture
Development Charges

Equity

Project Fund

Special Purpose Vehicle

TOD Fund

- Development FIs
- Bank/ FIs
- Structured finance
- Convergence of Gov. schemes

Private land owners

Developed plots/ Approvals

Undeveloped land
Betterment charges
User Fee

Revision and adoption of TOD zone plan in DP
Planning for TP scheme based on TOD
Fund Management
Infrastructure development except for station
Development Permissions, O & M

Funds
Governance
KEY PROJECT RECOMMENDATIONS

• Specific zoning and FSI requirements should apply differently to well-defined TOD Zones around stations, with **higher FSIs to be allowed in the immediate station district**.

• **Rectangular street grid** should be implemented to the extent possible, with additional through-block pedestrian pathways provided as well. Minimum of 20% of each plot should be open space, with an emphasis on combining parcels, yet mandate at least 40% site coverage for urban fabric.

• **Parking policy/pricing should encourage people to use public transit**, but for each private vehicle, owner should confirm fully-paid off-street space.

• There should be a **minimum amount of affordable housing**, with provisions for balancing provision across plots in each district.

• Urban design should **encourage zero-setback buildings**, with sufficient pedestrian and bicycle facilities along the streets.

• Planning authorities should **reserve some area around transit station for land value capture**, in later years, during the initial stages of planning for transit infrastructure. Land ownership by government authorities enables phased and controlled nature of development.
KEY LESSONS FOR TOD COP

- **Institutional buy-in** is essential for effective project management, with understanding of importance of project activities.
- Lack of sufficient land ownership data in most developing countries – need to budget additional time for data gathering activities.
- Identify timeline for land use plan updates in your region, aim to match report recommendations with agency ability to influence regulation, consider conveying key interim recommendations on infrastructure placement.