

Building Complete Communities

Transit Oriented Development in India

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LIVABLE CITIES SYMPOSIUM



Building Complete Communities

Transit Oriented Development in India

- **Transit Oriented Development and Transit Adjacent Development**
- **Opportunities and Challenges for TOD in India**
- **Interpreting the Principles of TOD in the Indian context**
- **Case studies: Building Complete Communities through TOD**
- **Way Forward**

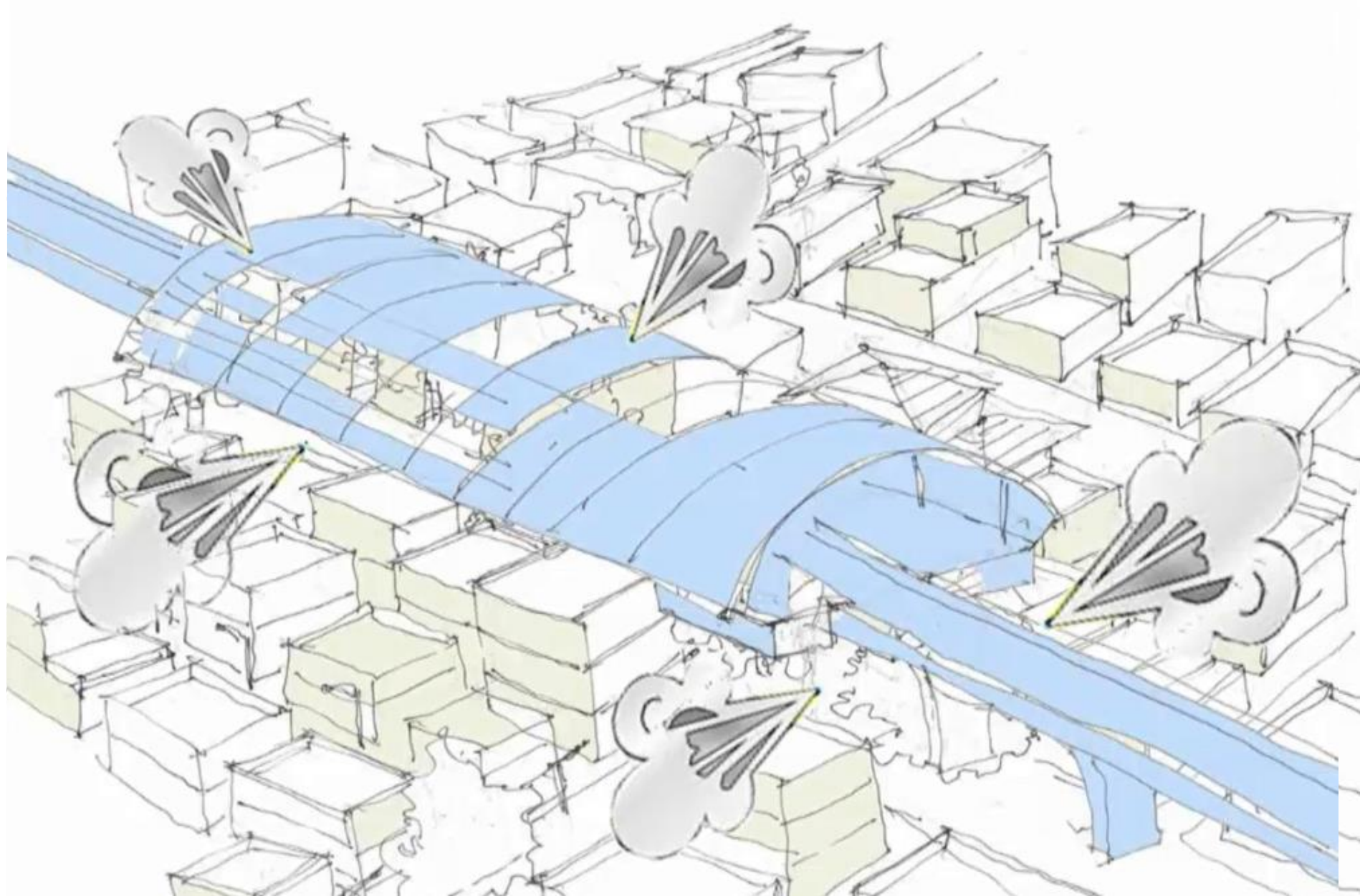
Transit Oriented Development and Transit Adjacent Development

Transit Oriented Development

TOD is a matter of transforming the city, not only the transportation



Transit Adjacent Development



Opportunities and Challenges for TOD in India

Weak Frameworks to integrate TOD into Statutory Documents

- National level guidelines (UDPFI), State Level Acts (TCPA), and city master plans do not acknowledge the need to integrate land use and transportation
- Urban form controls and local area plans are not mandated
- Automobile oriented transport planning which is single use based and promotes the use of private vehicles dominates new areas and redevelopments

Challenges for TOD in India



Buildings enroute to Elphinstone Railway Station in Mumbai

Challenges for TOD in India

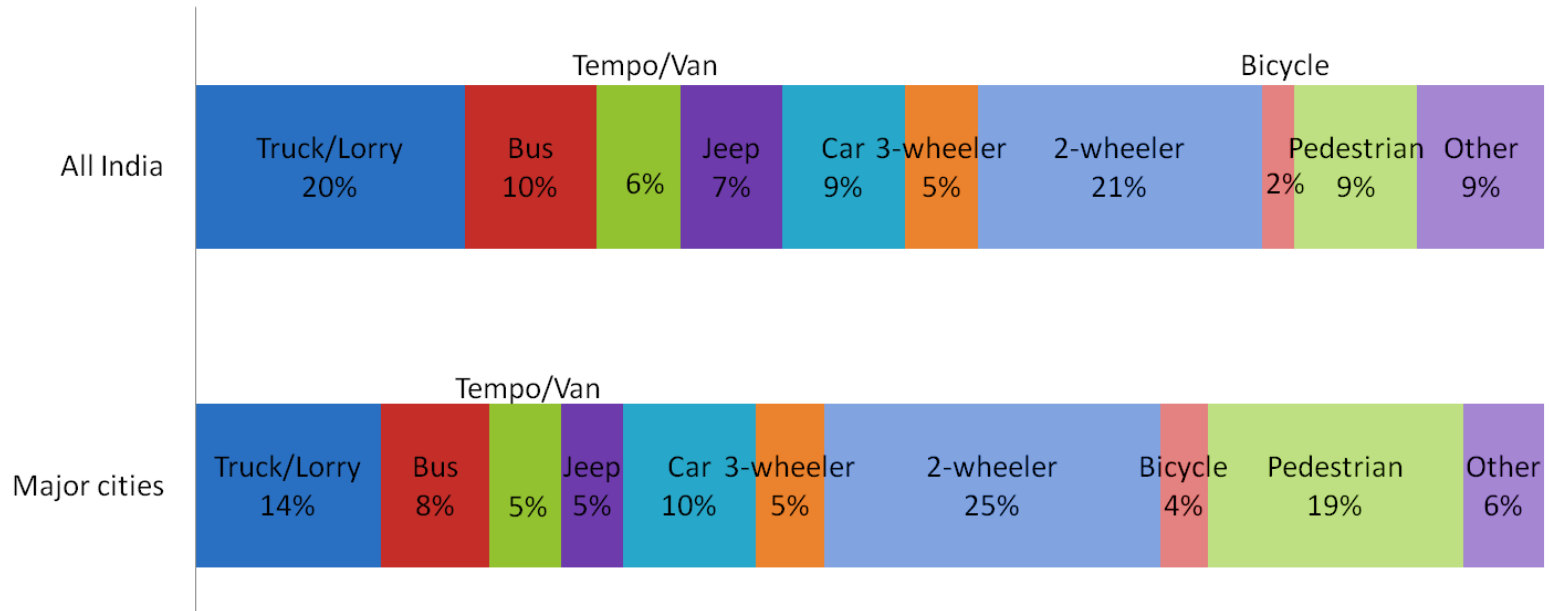


Maze of flyovers at Hebbal, Bangalore - Neither practical nor desirable in emerging economies

Challenges for TOD in India

Share of road fatalities by type of vehicle (Year 2010)

■ Truck/Lorry ■ Bus ■ Tempo/Van ■ Jeep ■ Car ■ 3-wheeler ■ 2-wheeler ■ Bicycle ■ Pedestrian ■ Other



- In cities, it is the pedestrian, NMT and small vehicle users that are the most vulnerable
- Improvements that focus on making fast travel safe do not necessarily improve net safety within cities

Opportunities for TOD in India



Ingredients for TOD are everywhere

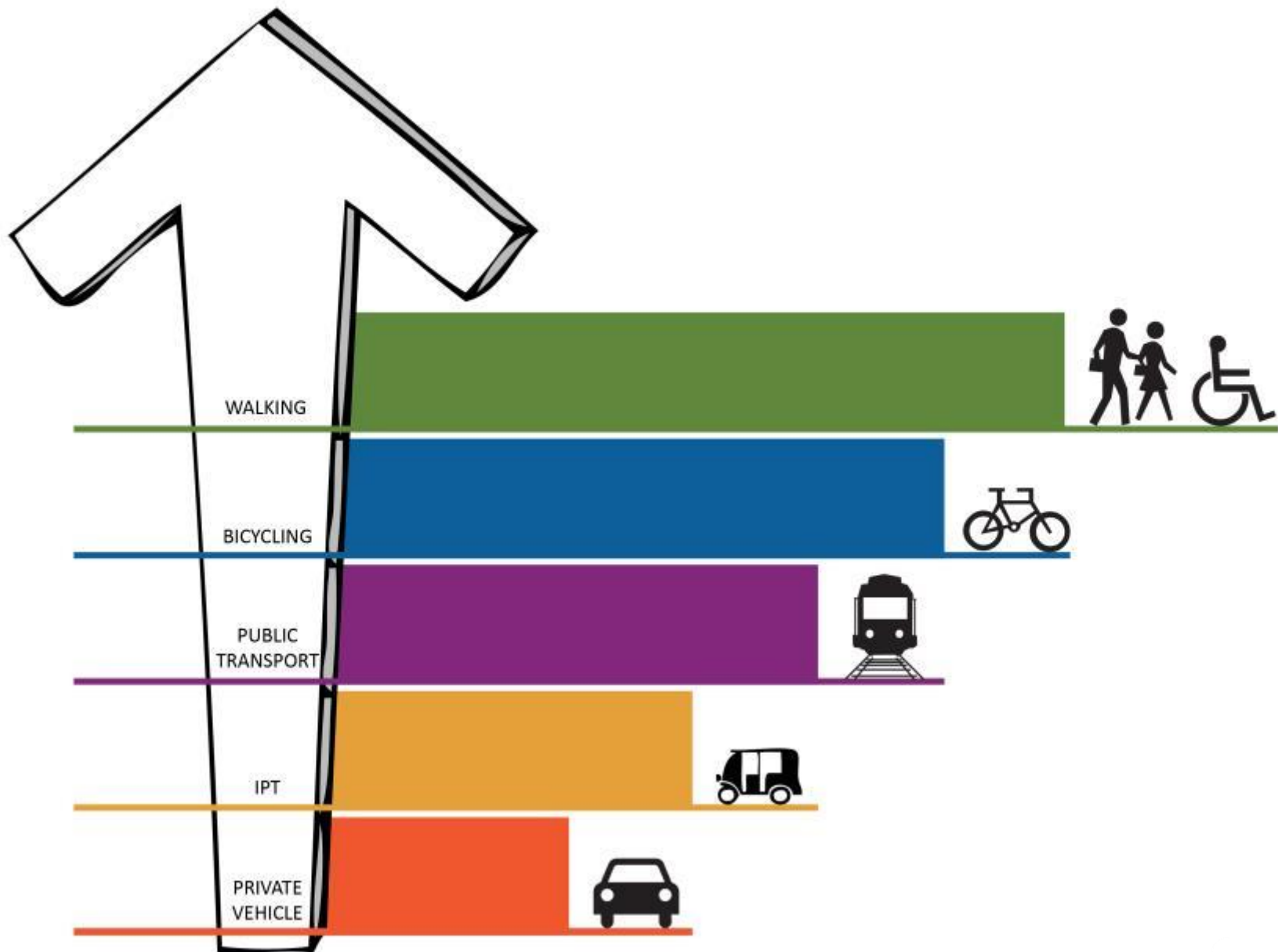
- Density of people is high and mixed land uses are abundant in city centres
- Walking is the dominant mode of movement in most Indian cities especially for economically weaker sections
- Vehicular ownership is gradually increasing, but is not yet an indispensable habit, and needs to be protected while making sustainable transport modes attractive and easily accessed.

Opportunities for TOD

- Over Rs 100,000 crore of investments being made in India currently in the transport sector and should not result in poorly translated projects on ground
- Over 7+ cities are opting for metro rail and another 7+ opting for BRT hence accessibility around these transit stations is key
- Post the census 2011, several master plans and developmental projects are under review and is an opportunity to introduce land use and transport integration

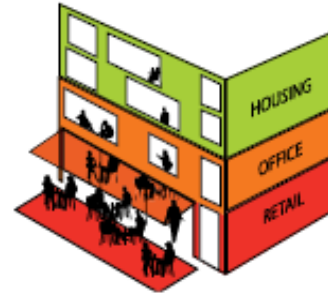
Interpreting the Principles of TOD in the Indian context

Compact, Walkable, Liveable Communities...

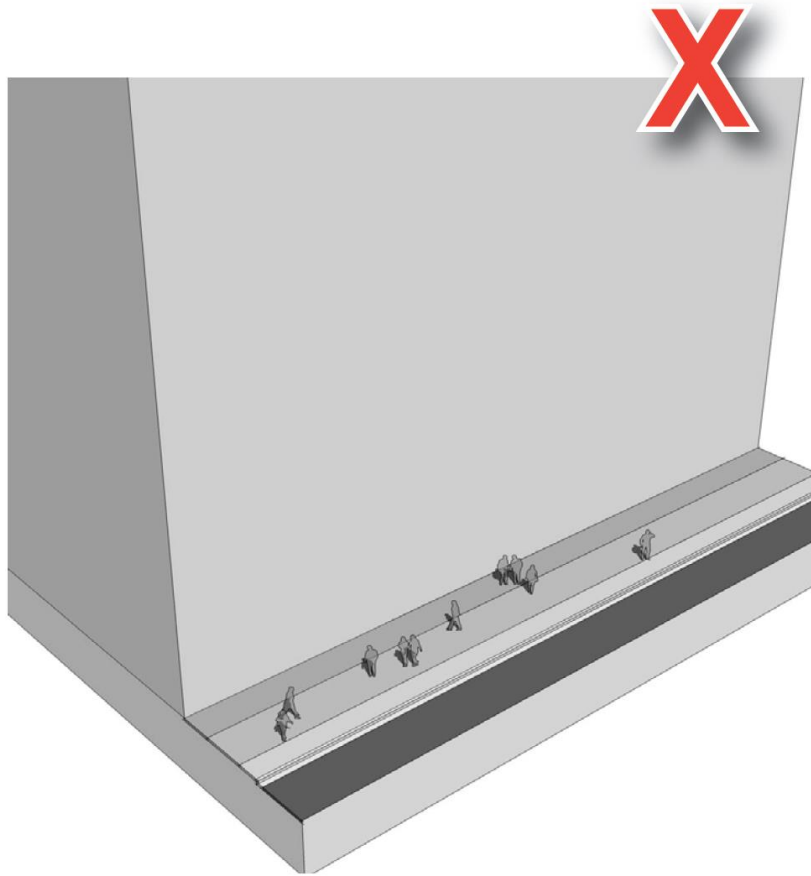


Principles of TOD in the Indian context

- Complete Streets
- Transit Supportive Land uses
- Public Spaces
- Cultural Landscapes
- Integrated Transport
- Travel Demand Management
- Compact Development



Complete Communities Through Better Design



Complete Communities Through Better Design



Large windows promote casual supervision of sidewalk.

Porches and sidewalk encourage interaction between neighbors.

Paving and architectural treatment define public and private zones.

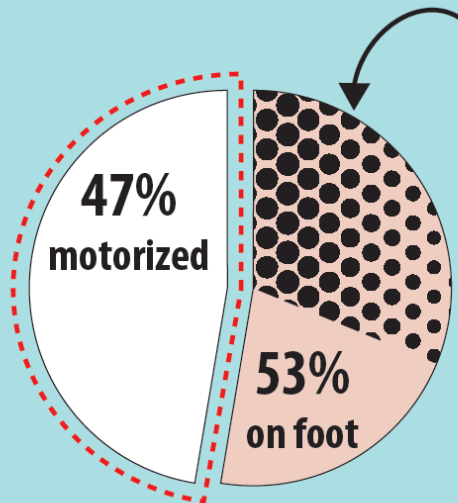
Good pedestrian-scaled lighting on street.

Low landscaping and fences define property lines without creating hiding places.

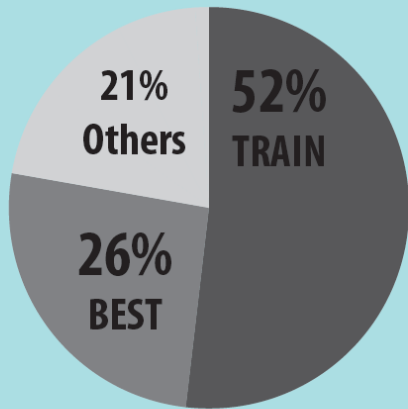
Case studies: Building Complete Communities through TOD

Impact of Urban Codes in Mumbai City

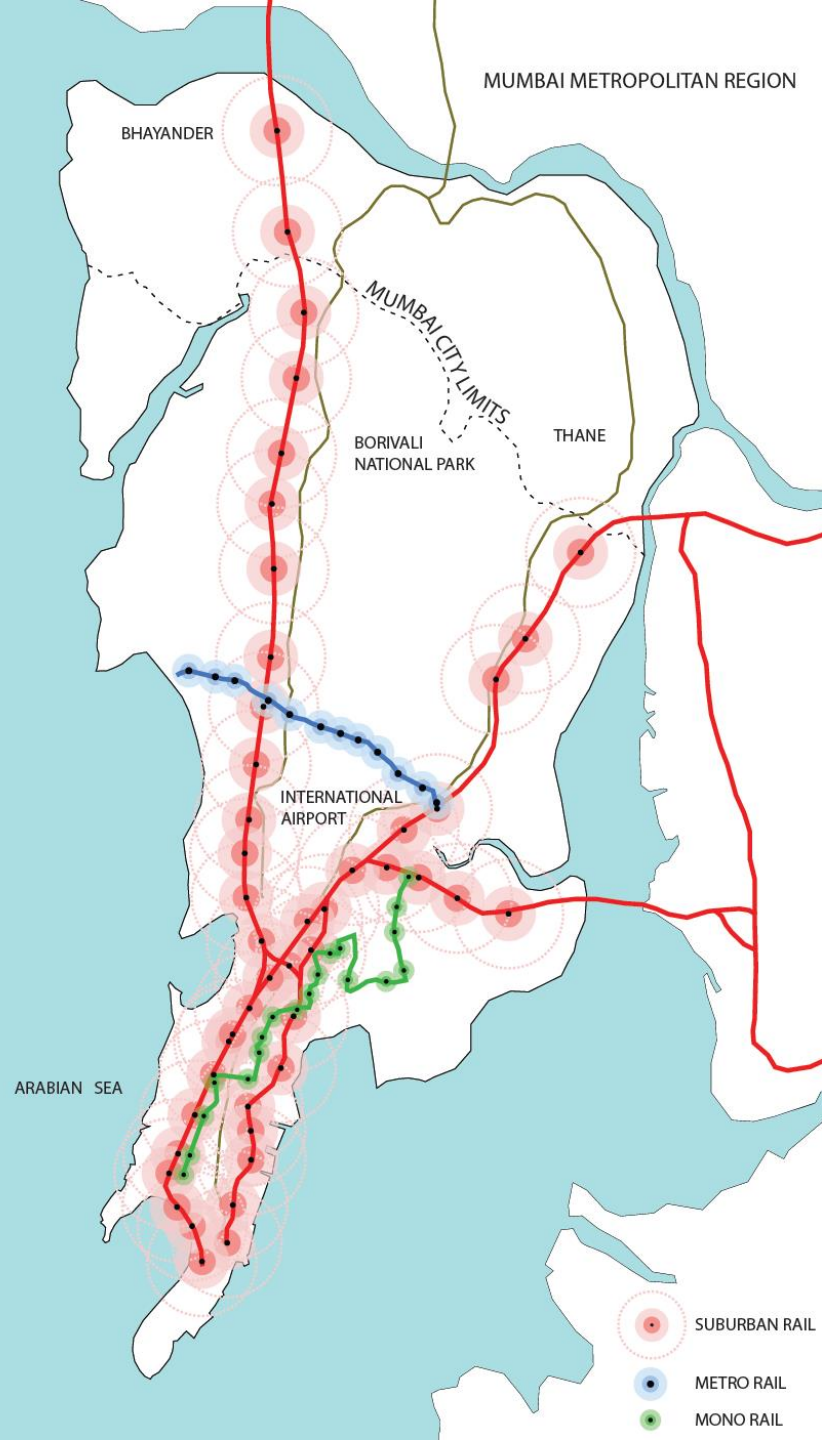
What moves Mumbai City?



60% of the walk trips are generated by the Economically Weaker Section (EWS)



78% of motorized trips are generated on **public transit** while other modes include:
 8% on Two-Wheelers
 7% on Auto-Rickshaws
 6% on Cars



Excerpt from the current parking norms (DP 1991)

1. *For plots reserved as parking lots, a built up area equivalent to the zonal permissible FAR for the area under reservation will be available for free for the Corporation (MCGM) or any other appropriate authority; the area handed over as parking lot will be free of FAR. The authority or owner may be allowed to develop the parking lot for the public, utilizing the full built-up area equivalent to the FAR available. The parking lot may be provided as a basement, on an open space, under stilts or even upper floors.*
2. *Based on the cluster redevelopment policy DCR 33(9), an urban renewal scheme can be proposed for an area of minimum 4000 sq.mt with an incentive FAR of 55%. If a parking lot is proposed in the scheme, it can consume a built up area equivalent to the zonal permissible FAR for the area under reservation. The maximum permissible FAR for the plot (existing FAR + additional incentive FAR) should not be more than 4 (or 3 based on zonal codes). The Built up area consumed by the parking lot is free of FAR.*
3. *Additionally, for the sale component of either Cess building or slum redevelopment schemes, a minimum of one parking space per dwelling unit has to be provided. This adds to the overall parking provision and FAR consumed on any given plot within the Island city.*
4. *Developers or a public authority or organization proposing a multi-storeyed parking lot close to a transit node, follow the same norms as described above. Additionally, they are given a 50% incentive FAR. Within the Island city the total consumable FAR (not including built-up area consumed by parking) is capped at 4 and within Greater Mumbai it is 3.*
5. *Among these regulations, the BEST bus depot, station or Terminus redevelopment norms present a good example. For sites redeveloped to provide for proposed reservations for commercial or amenity use, only 30% of existing permissible FAR will be allowed, out of which 50% of built up area is proposed on the ground and the remaining on floors above. A Traffic Impact Assessment (TIA) study is expected to be conducted to ensure that the new development does not interfere with the existing functions of the BEST services, and does not negatively impact existing traffic volumes on the roads abutting it. If the TIA shows negative impacts, the Commissioner has the right to restrict the development to a justifiable extent. The development has to include the required parking and other services and utilities as per norms within the permissible FAR.*

Effects of the current parking norms (DP 1991)



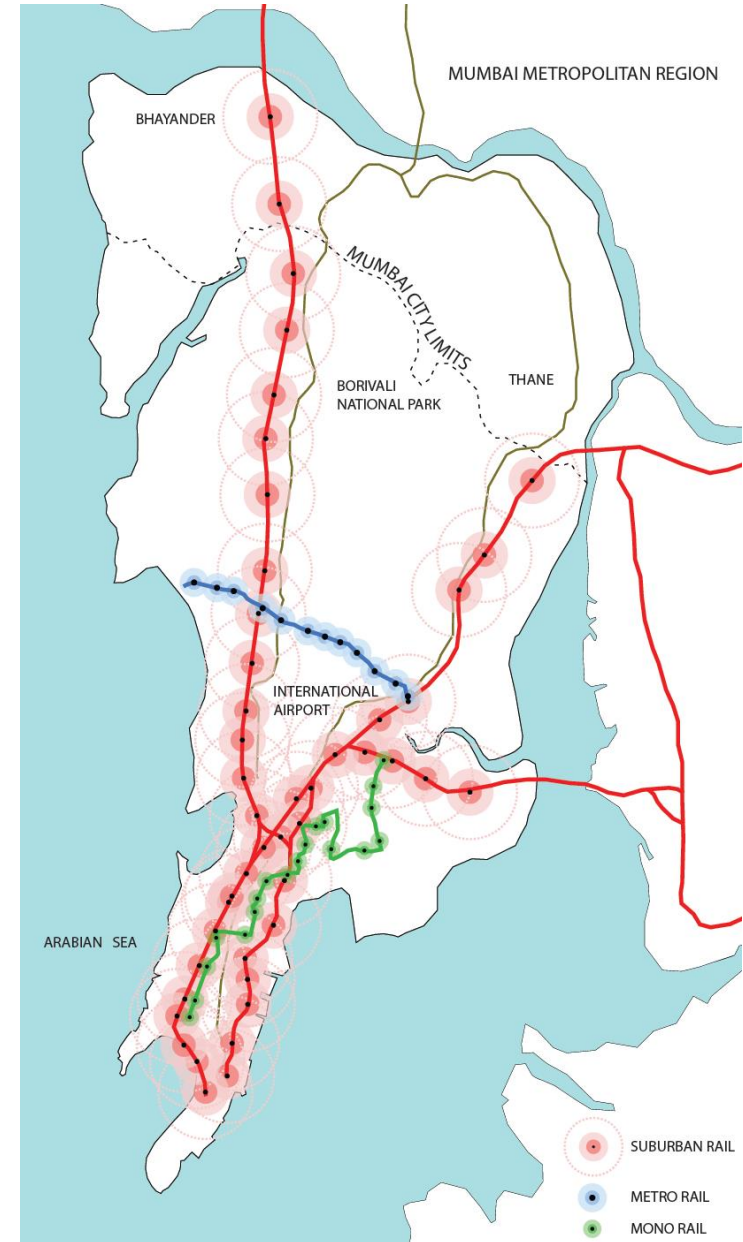
Effects of the current parking norms (DP 1991)



Photo credit: Lubaina Rangwala, EMBARQ India

Recommended Parking Solutions

- 'Walkable Park-Once TOD neighbourhoods'
- Revert to Parking Maximums within TOD zone
(Or at least much lower minimums)
- Urban Form guidelines for quality Off-Street
Parking
- Parking norm flexibility with Deficiency Charges
("Parking-in-lieu fee").
- Lower parking norms for small sites/
developments (and exempt smallest altogether)



Complete Communities Through Better Regulations and Design



Photo credit: Rejeet Mathews, EMBARQ India

Complete Communities Through Better Regulations and Design



Photo credit: Rejeet Mathews, EMBARQ India

Street design and pedestrian priority in MIDC, Marol, Mumbai

Addressing the needs of a business district



➔ MIDC

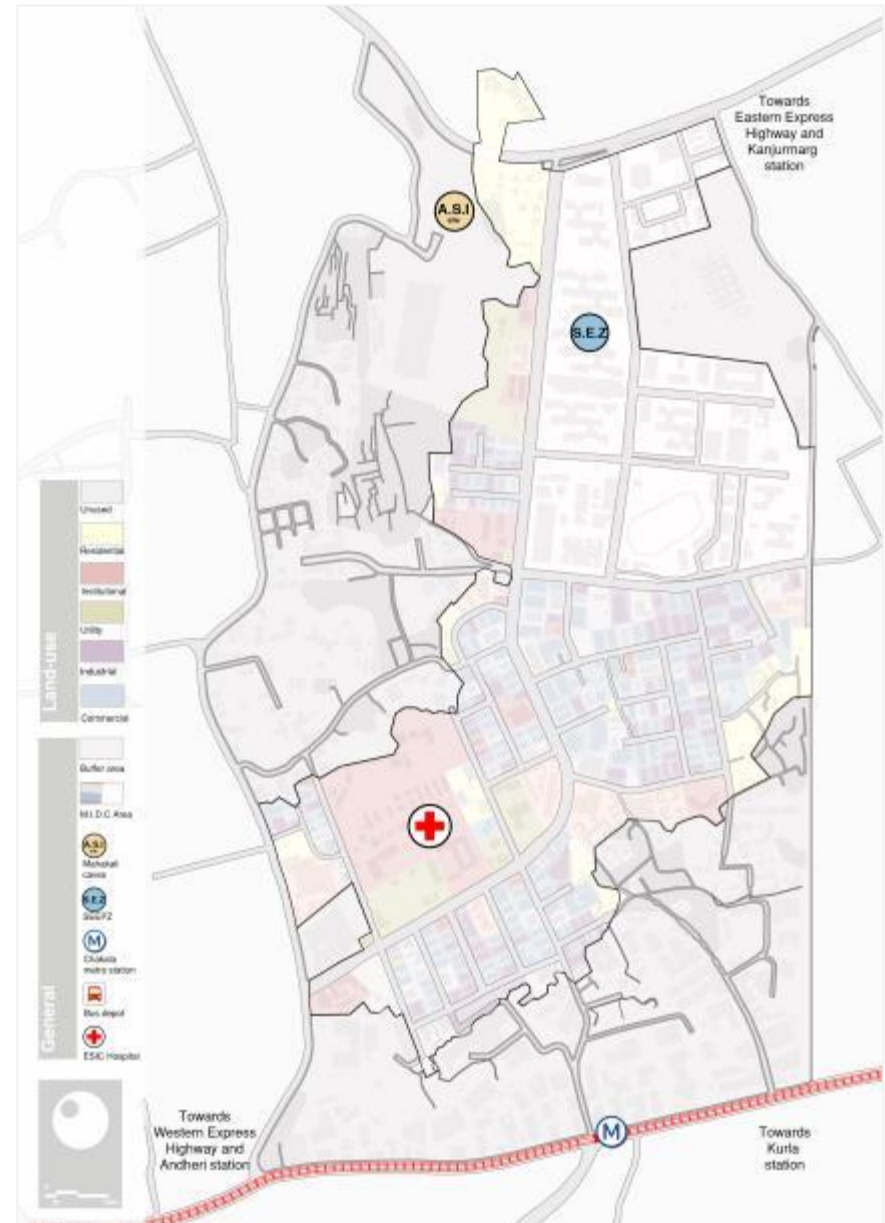
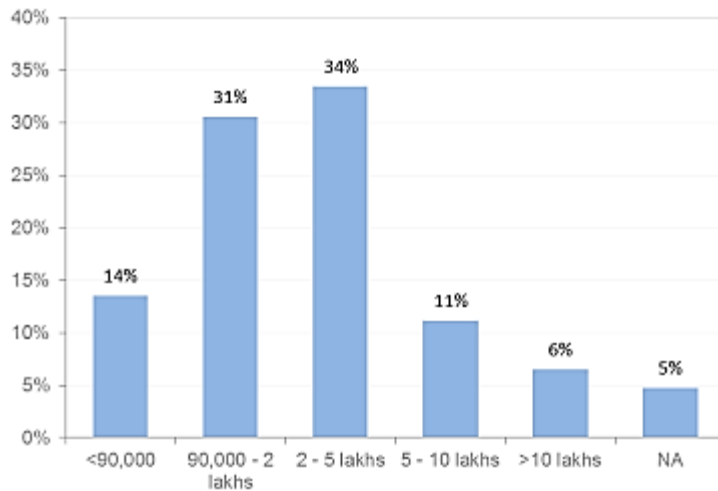
As MIDC Marol transforms, there is an opportunity to create a safe, secure and pleasant environment for people and businesses



Survey Profile of MIDC Marol (2011)

- **Population:** ~ 1.8 lakh people*
- **Age groups:** 72% in 26-50
- **Gender:** 30% women
- **Education**
 - Undergraduate: 25%
 - Graduate: 55%
- **Employment**
 - Salaried: 93%
 - Self-employed: 6%

- **Income**



* Excluding SEEPZ

How do people travel to and from MIDC Marol?



How do people travel to and from MIDC Marol?



62% step out at least once a day

What is the quality of public transport facilities?



Insufficient waiting infrastructure

How safe are the streets from traffic?



61% think streets are unsafe to walk

Building Complete Streets in MIDC Marol



Building Complete Streets in MIDC Marol



Current effective utilisation of carriageway

Unregulated hawking activity

Autos park haphazardly near junctions

Pedestrians walk on the road

Building Complete Streets in MIDC Marol



Defining vending areas

Building Complete Streets in MIDC Marol



Retaining existing carriageway

Building Complete Streets in MIDC Marol



Creating safe pedestrian crossings

Building Complete Streets in MIDC Marol



Creating a porous building edge and accommodating seating

Building Complete Streets in MIDC Marol



Creating a safe and pleasant pedestrian environment

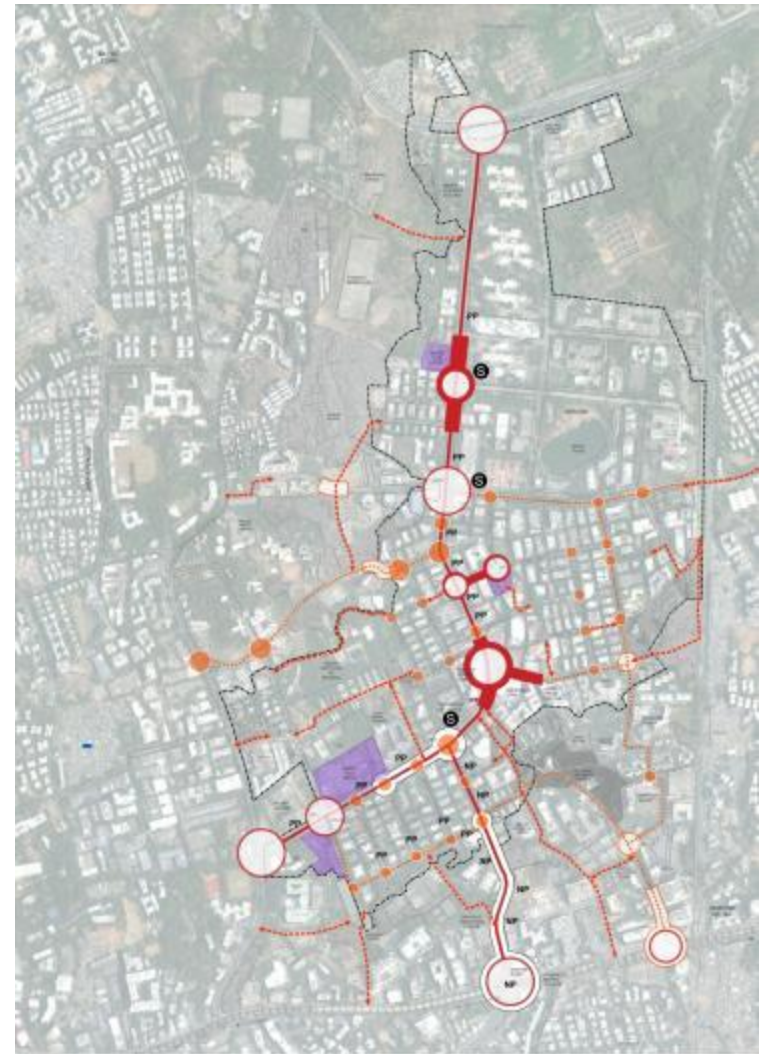
Building Complete Streets in MIDC Marol



Creating a safe and pleasant pedestrian environment

Master List of Proposals

- Street design of primary roads
- ⋯ Street design of secondary roads
- Potential plots for multi-use (public open spaces etc)
- ↔ Introducing pedestrian networks
- Intersection geometry corrections
- PP Parking management strategy
- Creating nodes / Place markers
- SV Street vending strategy
- SS Signage strategy / guidelines



Building Complete Streets in MIDC Marol



Large gap in the divider

No street markings
to guide vehicles
and pedestrians

Unsafe crossing, no
pedestrian refuge area

Building Complete Streets in MIDC Marol



Building Complete Streets in MIDC Marol



Vehicles move on the concrete carriageway

People wait on the road

Bus stop occupies entire footpath

Insufficient footpaths and seating

Building Complete Streets in MIDC Marol



Demarcate lanes

Demarcate bus stopping area

New bus shelters

Provide seating, shade, soften Marol Depot edge

Provide sufficient space to walk

Leveraging Learnings from the Indian Context

- Building liveable cities and complete communities requires efforts at the regional, city, street and building scales.
- Walking is the dominant mode of movement in most cities, ever since we all learnt to walk we are pedestrians and this must be encouraged and promoted as it provides several benefits ranging from health to economical and environmental ones.

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- TOD Guidebook in partnership with Gehl Architects
(Approaches and Methodologies towards applying TOD principles in India)
 - Safe Access Manual for Transit Nodes
(Approaches and Methodologies towards implementing Safe Access Design and DCR's in India)

THANK YOU

Transit Oriented Development (TOD) offers an entirely new perspective to both urban design and urban transit. TOD results in the creation of compact, walkable and liveable communities with safe access to jobs, amenities and homes centred around high quality mass transit stations.

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