





GOVERNMENT OF INDIA MINISTRY OF HOUSING AND URBAN AFFAIRS



## Multimodal Integration for peopleoriented transport system



## **MULTIMODAL INTEGRATION**

Multimodal integration is characterized by two components:

Integration of mass transit systems with each other

Integration of mass transit systems with feeder systems that connect them to trip origin and destination.

#### **Key Building Blocks of Multimodal Integration** Infrastructure and Operations Institutional Framework - Metropolitan transport authority Info-structure Integrated Payment Control - User information - Smart cards and interface



Graphic by EMBARQ.

## **OPERATIONAL INTEGRATION FOR METRO**

#### THE METRO PARADOX



Considered convenient, reliable, and a time-saving way to commute

But accessing the Metro often involves inconvenient, unreliable, unsafe, and expensive modes of transport

Commuters choose the metro only if the journey as a whole is reliable



### **NEED FOR EFFICIENT LAST-MILE INTEGRATION**





### **ENABLING EFFICIENT LAST-MILE INTEGRATION**

Attributes influencing modal Choice:





# **BENEFITS OF LAST-MILE INTEGRATION**

#### Scenario 1: Travel time without integration

#### Scenario 2: Travel time with integration



**Distance Travelled** 



## **BENEFITS OF LAST-MILE INTEGRATION**





### **STRENGTHS OF DIFFERENT LAST-MILE SOLUTIONS**





### **CONTEXTUALIZING LAST-MILE SOLUTIONS**





## **CASE EXAMPLE – KANPUR METRO**

#### Last Mile Connectivity Strategies : Possible interventions - station specific

#### We recommend:

Integration of Rawatpur metro station (Corridor 1elevated), Rawatpur bus station, Rawatpur Railway station, Availability of IPT along road, (2) Proposed underground metro station (Corridor 2)

- 1. IPT Parking area
  - adjacent to the Proposed underground station
  - under elevated station
  - near Moti Mall
- 2. Continuous footpath (pedestrian cum cycle track)- extended to Geeta Nagar colony
- 3. FOB to connect Rawatpur Railway Station
- Skywalk to connect Moti Mall and Metro station
- E- bike/ NMT circuit extended to residential pockets and institutional area
- 6. E-Bike Parking Spaces at Interchange
- 7. Intersection improvements
- 8. Urban placemaking options
- 9. Parking lot for metro users



Selected LMC strategy interventions near station area are part of exhaustive LMC strategy interventions list of the Rawatpur metro station



### **PARAMETERS FOR NMT - BASED SOLUTIONS**

- Enabling short and convenient transfers between different modes.
- Static and dynamic signage for information on feeder modes and supporting infrastructure.
- Deploying traffic calming measures in the access route to feeder modes.





## **NMT-BASED SOLUTIONS – MUMBAI METRO 1**







Figure 36: MYBYK modular racks can accommodate 6 bicycles in each rack (Source: MYBYK)

Name	Pre-establishment (Total Travel Time in mins & LM via walk)	Post-establishment (Travel Time in mins LM via PBS)	Time Saved (in mins)
Aarey Colony	79.88	48.23	31.65
Oshiwara	47.86	29.56	18.30
Lokhandwala Complex	41.62	28.31	13.31
CSI Airport	63.16	52.85	10.31
Juhu	38.59	29.34	9.25
Juhu Beach	31.11	25.02	6.09

Table 10: Travel times from Andheri before and after MYBYK's PBS system at metro stations (Source: WRI India)



### **NMT-BASED SOLUTIONS – MUMBAI METRO 1**





**THANK YOU**