9th Urban Mobility India Conference & Expo 2016
Planning Mobility for City's Sustainability

TECHNICAL SESSION FOR MUNICIPAL COUNCILLORS

TRENDS AND IMPERATIVES FOR INCLUSIVE PEDESTRIANISATION

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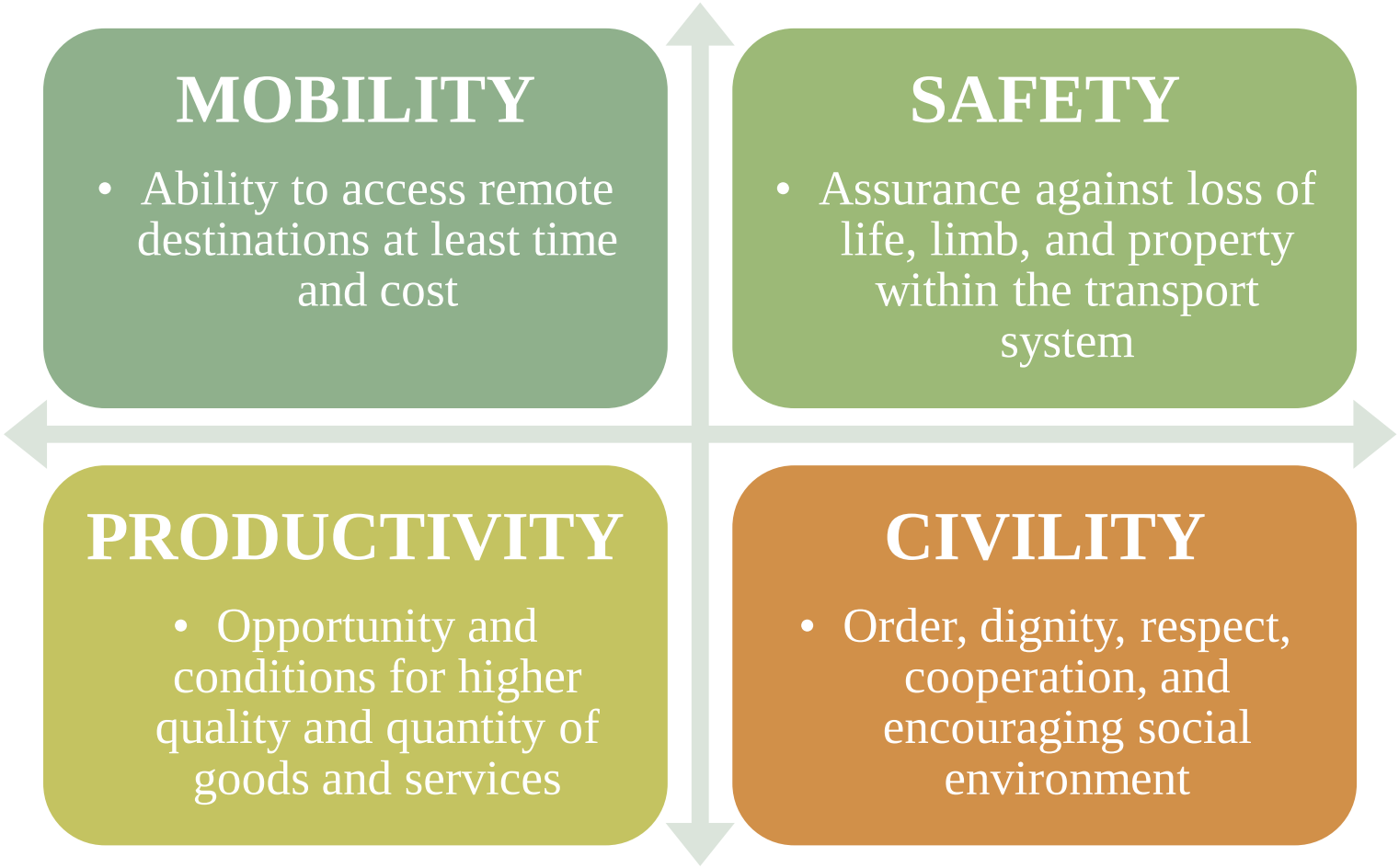
Dimensions of Overall Inclusive Mobility



Source: Metro Manila Inclusive Mobility Initiatives Mapping Workshop 17 October 2013

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Principles of Inclusive Mobility

- A transport system that works for the poor and the vulnerable
- A walkable, bike able and accessible city
- Moving people, not vehicles
- Mobility with safe and civility
- Planning and communicating better and travel less
- Sharing information to increase connectivity and accessibility
- Making our neighbourhood more accessible
- Changing mind-sets and behaviours
- Mobility of all, for all, by all

Source: The Inclusive Mobility Network, MMDA(Metro Manila Development Authority) /

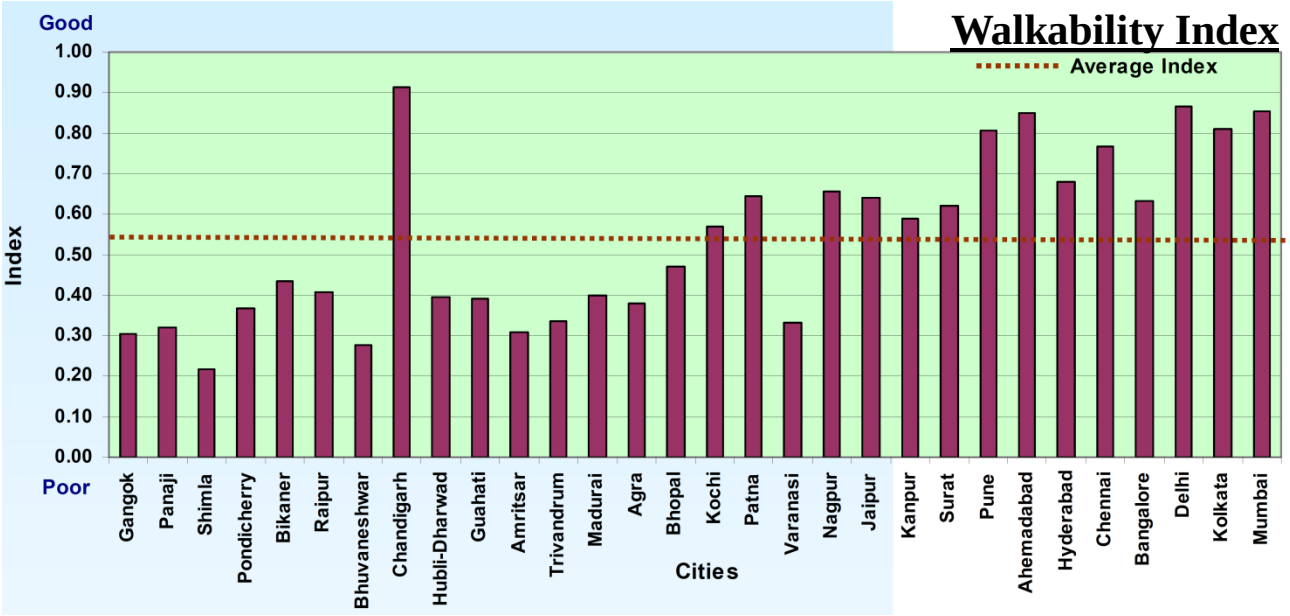
Current Scenario of Pedestrianisation in India Cities

- Significant number of trips in Indian cities is made by foot (16% - 58%),
- pedestrian infrastructure, amenities and services are neglected and not given adequate focus.

Walk trip share

City size Category	% share of Walk Trips
< 5 lakhs with plain Terrain	34
< 5 lakhs with Hilly Terrain	57
5-10 lakhs	32
10-20 lakhs	24
20-40 lakhs	25
40-80 lakhs	25
>80 lakhs	22

Walkability Index



Source: Willbur Smith Report 2008

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Challenges of Pedestrian Movement in Indian Cities

CROWDED FOOTWAYS

In too narrow streets footways crowding conditions appear and deteriorate the walking experience substantially and exclude certain user groups.

PARKING ON FOOTWAYS

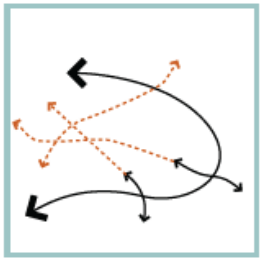
Footways are frequently used for parking often forcing pedestrians onto the road.

POORLY MAINTAINED FOOTWAYS

Lack of maintenance results in broken pavements, lack of street lights etc.

DIFFICULT CROSSINGS

To increase capacity for the congested vehicular traffic compromises have been made in the pedestrian landscapes



UNCLEAR PEDESTRIAN NETWORK

few significant walking routes and the connections between them are poor.

LACK OF PUBLIC SEATING

Absence of essential that ample opportunities to sit and rest

Source: Istanbul Public Space & Public Life, EMBARQ Turkey

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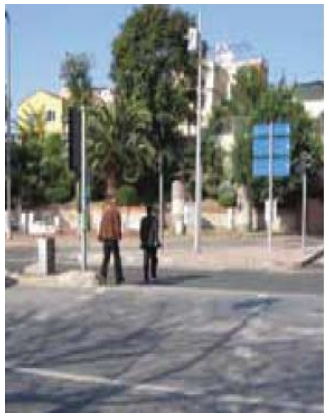
Typical examples of Pedestrian Neglect in Design

Weak and limited marking



Weak and limited marking of pedestrian crossing.

High middle kerb

High middle kerb creates an uneasy pedestrian crossing.

Inconsistent crossing design

Slip lanes accommodating the vehicular traffic constitute difficult conditions for pedestrians.

Lack of pedestrian prioritisation

Narrow drop kerb limit access at crossings for the vulnerable user groups.

Difficult crossing

Design of the refuge form an unnecessary obstacle making people change course.

Source: Istanbul Public Space & Public Life, EMBARQ Turkey

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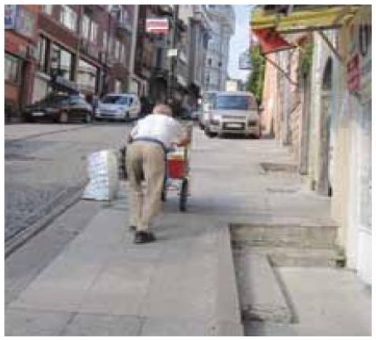
Typical examples of restrictive and good walking environment

Restrictive

No clear walkway = Confusion Zone

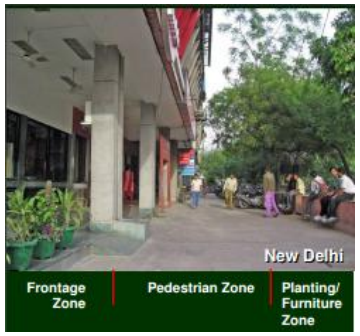
Tree branches on walkway



Walls and stairs compose barriers and restrict accessibility.

Good

Smooth surfaces on footways.



Clear pedestrian Zones.

Active areas

Segregated Pedestrian and Planting Zones

Source: Istanbul Public Space & Public Life, EMBARQ Turkey

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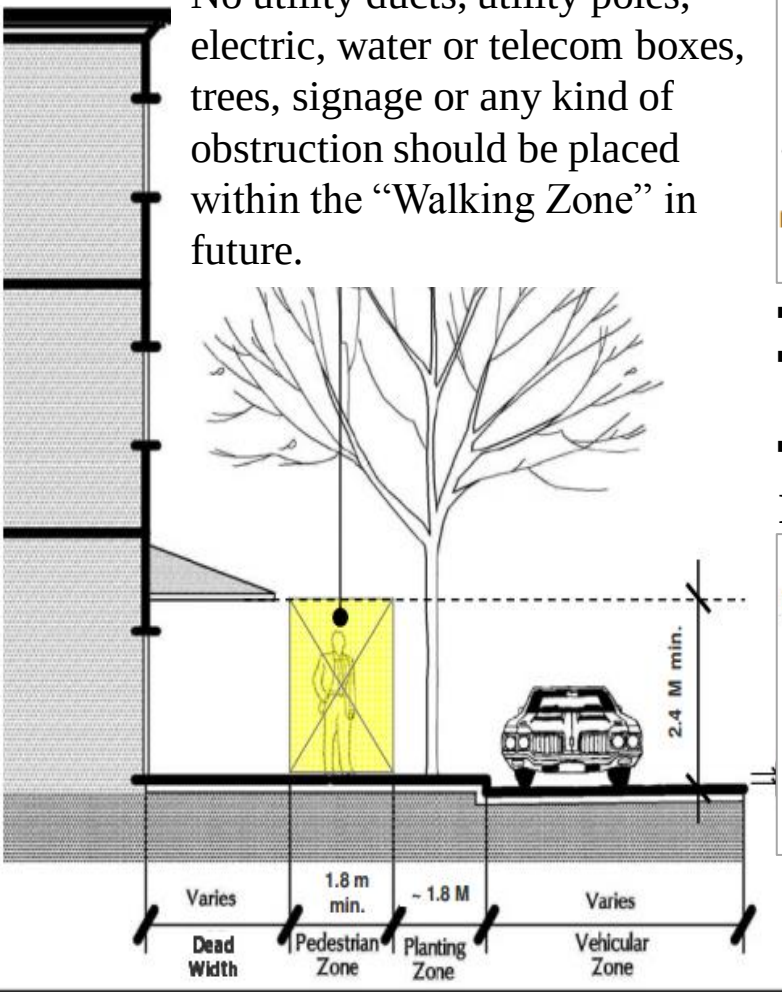
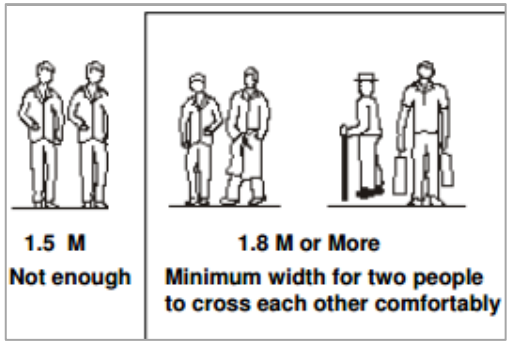
Key Design Standards: **Footpaths**

Clear Walking Zone

No utility ducts, utility poles, electric, water or telecom boxes, trees, signage or any kind of obstruction should be placed within the "Walking Zone" in future.

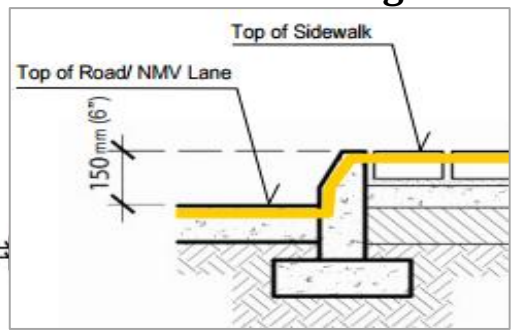


Walking Zone Width



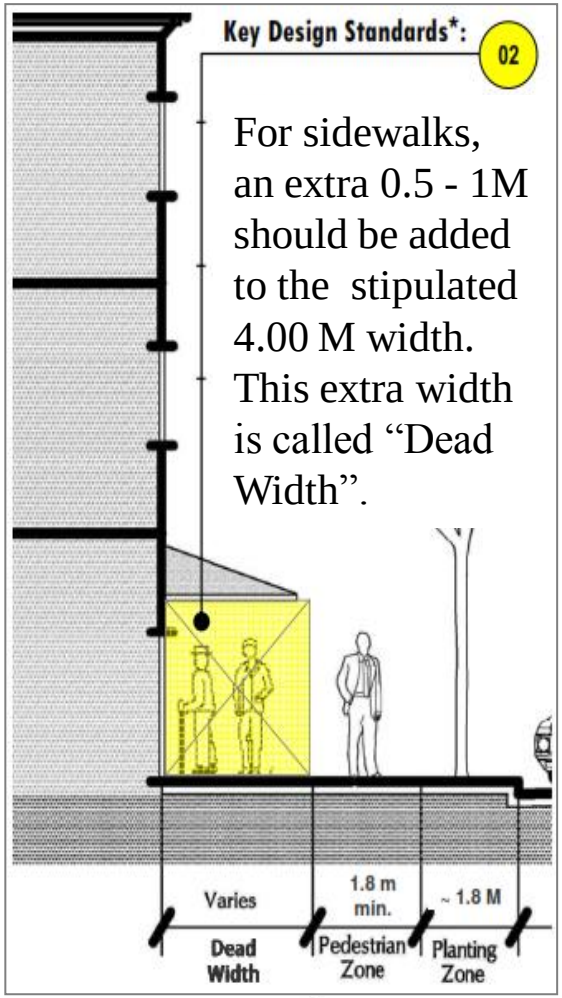
- Residential Areas: 2.00 M
- Commercial/ Mixed Use Areas: 2.50 M
- Commercial Nodes: 4.00 M

Maximum Kerb Height



Matt-finish/ anti-skid Foot path and bus stop surfaces

Dead Width



Source: Pedestrian Design Guidelines, UTTIPEC, Delhi Development Authority, New Delhi, November 2009

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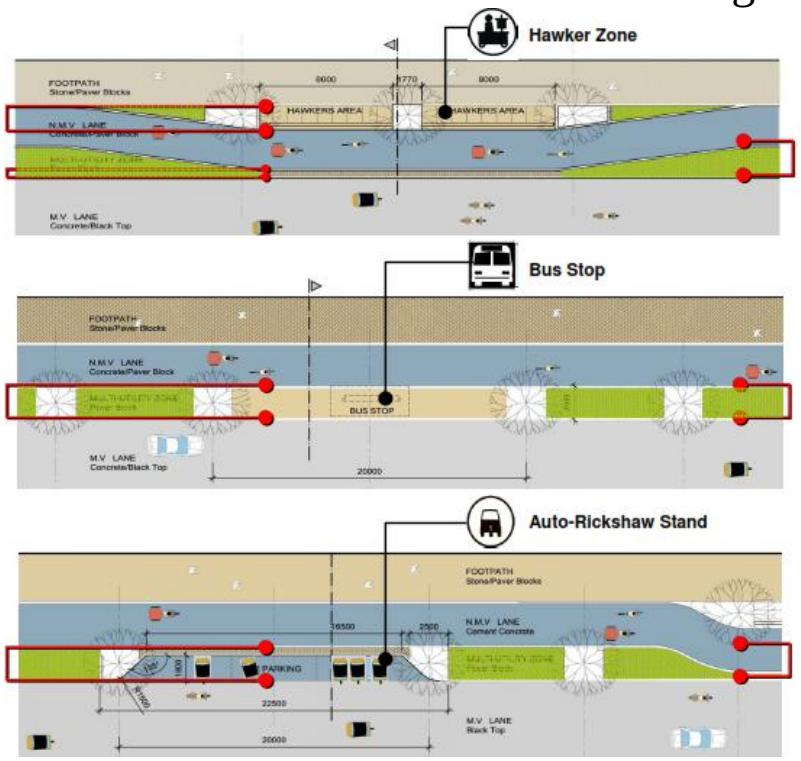
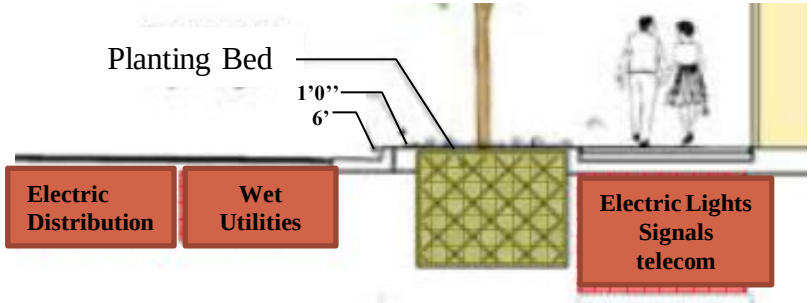
Key Design Standards- Multifunctional zones

Multi-Functional Zone with Planting





Source: Pedestrian Design Guidelines, UTTIPEC, Delhi Development Authority, New Delhi, November 2009

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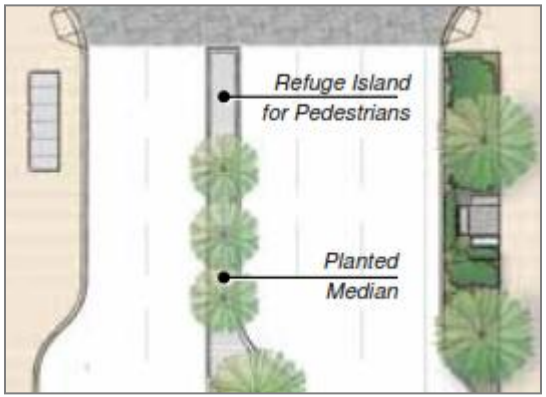
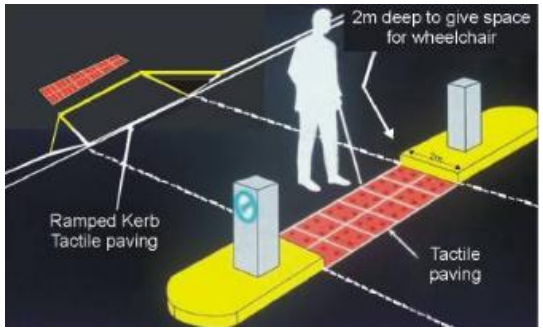
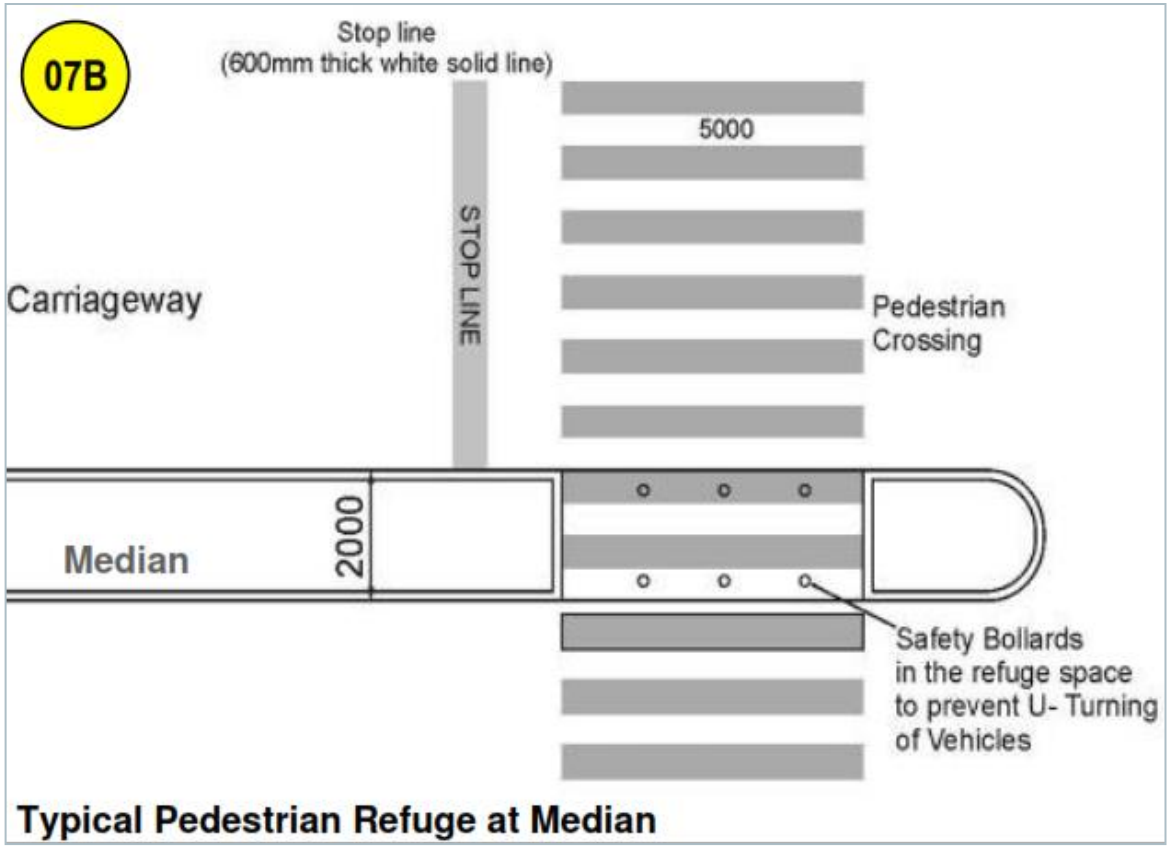
Key Design Standards: Medians and Refuge Islands







Typical Pedestrian Refuge at Median

- Kerb Ramp at Raised Median
- 1200 MM clear waiting area
- Raised Median more than 4 M Wide

Source: Pedestrian Design Guidelines, UTTIPEC, Delhi Development Authority, New Delhi, November 2009

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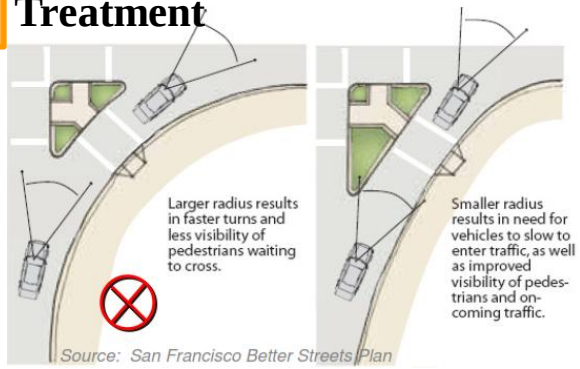
Traffic Calming Measures for Pedestrianisation

Kerb Radius and Slip Road Treatment



Raised Table-Top Crossings & Driveways

Paving Variations

Provides visual continuity to Pedestrians and also makes crossings clearly visible to drivers from a distance.

Pedestrian Dominated: Kerb-less Streets

Chicanes

Mid-block curb extensions or islands that reduces vehicular speeds and increasing safety for pedestrians and NMVs

Source: Pedestrian Design Guidelines, UTTIPEC, Delhi Development Authority, New Delhi, November 2009

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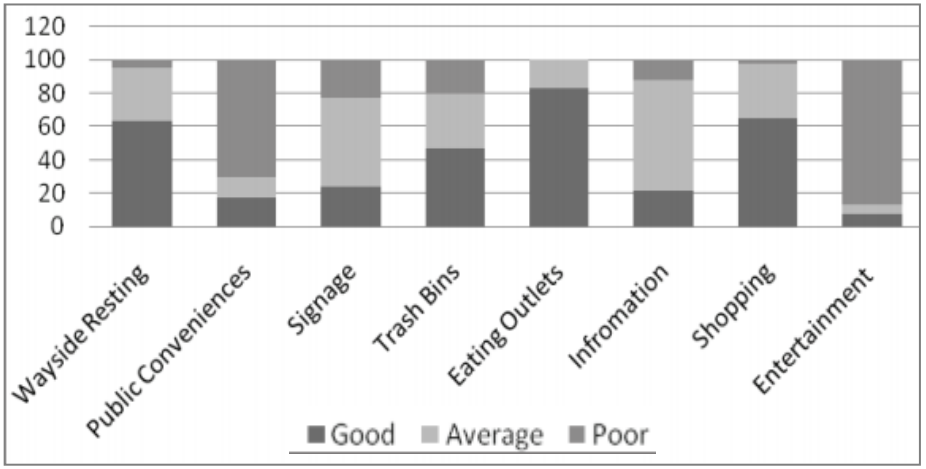
INDIAN CASE STUDIES

Shimla

- A unique pedestrian only-shopping-street known as the Mall Road
- Total length of walk paths under SMC is 73.128 km.
- The Mall road and the Ridge are restricted to pedestrian movement.

Assessment of Facilities on the Mall Road



Source: Sonia Khan, Walking the Walk: an evaluation of Pedestrian tourism on the 'mall road', Shimla

Active Surrounding

Pedestrian Zones

Public Seating

Walk Paths

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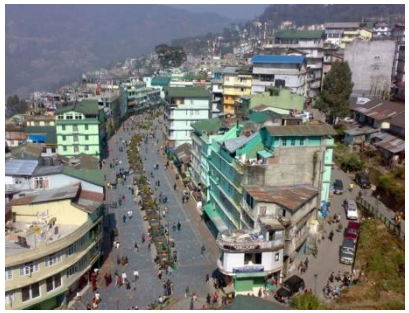
Gangtok

- 20% (8.5 Km) of road has footpath on one side.
- Walk trips higher than the motorized trips 42.57%
- Segregated pedestrian facilities

Skywalks/FOB

Public Seating and Plantation



Restricted Vehicular Movements

Pedestrian Zones

Footpaths

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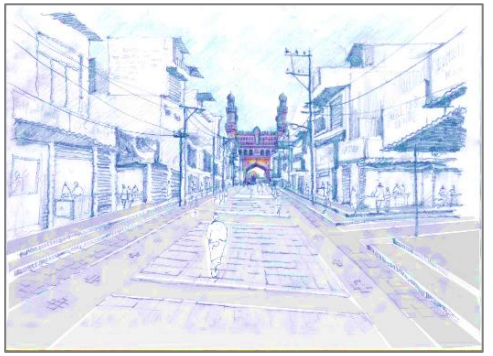
Hyderabad

Charminar Pedestrianization Project

- Revitalization and Conservation of Charminar Historical Core



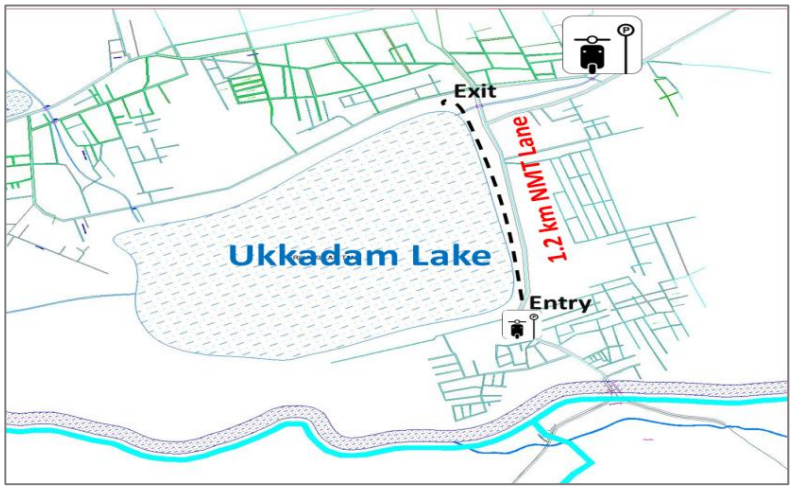
Proposals :

- Full Pedestrianization of the Historical Precinct.
- A vehicle-free buffer zone
- Planned road widening, parking lots, street design, infrastructure & lighting,
- street furniture, utilities and signage scheme.
- roads widening to accommodate diverted traffic

Coimbatore

Ukkadam Lake Project

- innovative concept of developing Greenway to preserve and create an integrated mobility corridor adopted.
- In the first phase, 1.2 km of the total stretch was strengthened and 5.5 metre pathway was built along the lake with landscaping, solar street lights and fencing.
- stretch was made vehicle free road for residents to enjoy walking, cycling and fitness activities every morning from 5 am to 8 am.



Results

Over 500 residents use the stretch to walk/cycle every morning

A fitness regime for many residents especially women

Reduction in pollution/congestion/saving fuel – easy accessibility

Attracts people regardless of age, ability, race, and income

Immense public support to expand this facility at all lakes

A catalyst to promote sustainable transport

The public response has enabled CCMC to propose a 30 km NMT corridor for seamless mobility under Smart city Proposals.

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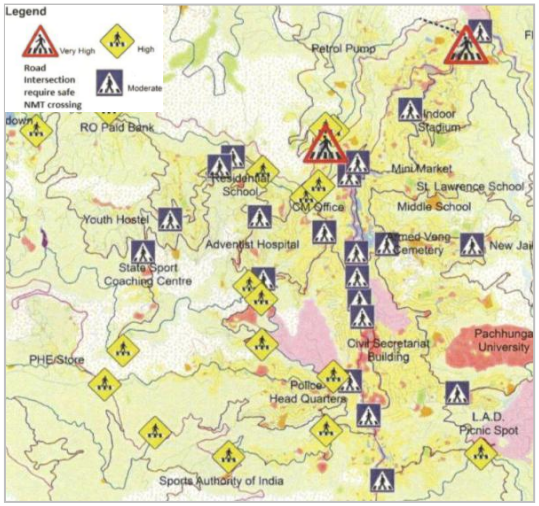
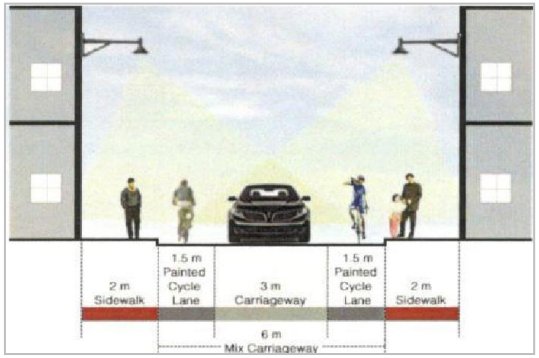
Aizwal

Chanmari to Dawrpuri Pedestrian Street

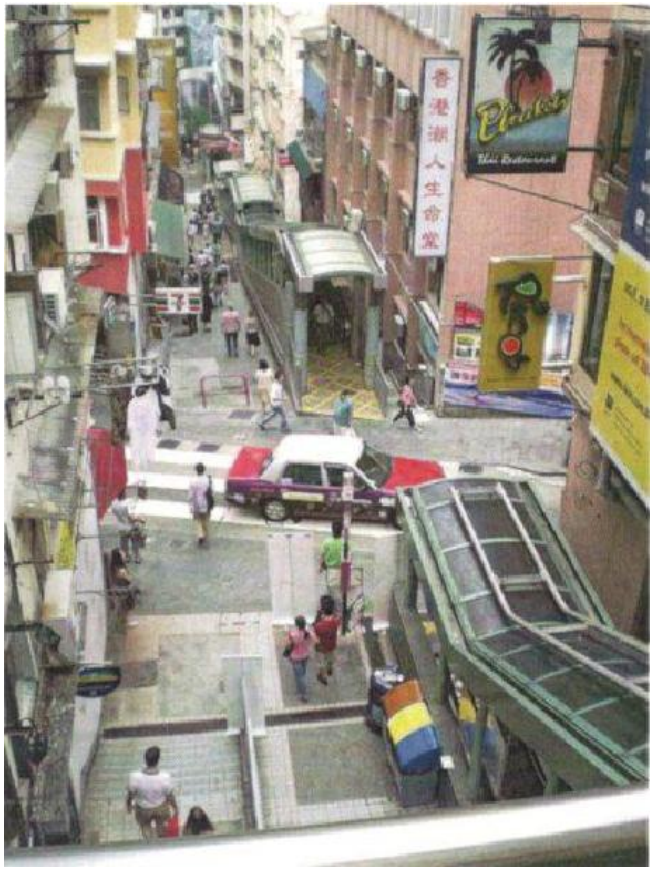
- Pedestrianizing the spinal commercial street of the city proposed as signatory project.



Intersection for safe NMT Crossing



Proposed Cross Section 10 m.



Network of Escalators connecting different level of the city

Proposed Pedestrian Street in Aizawl

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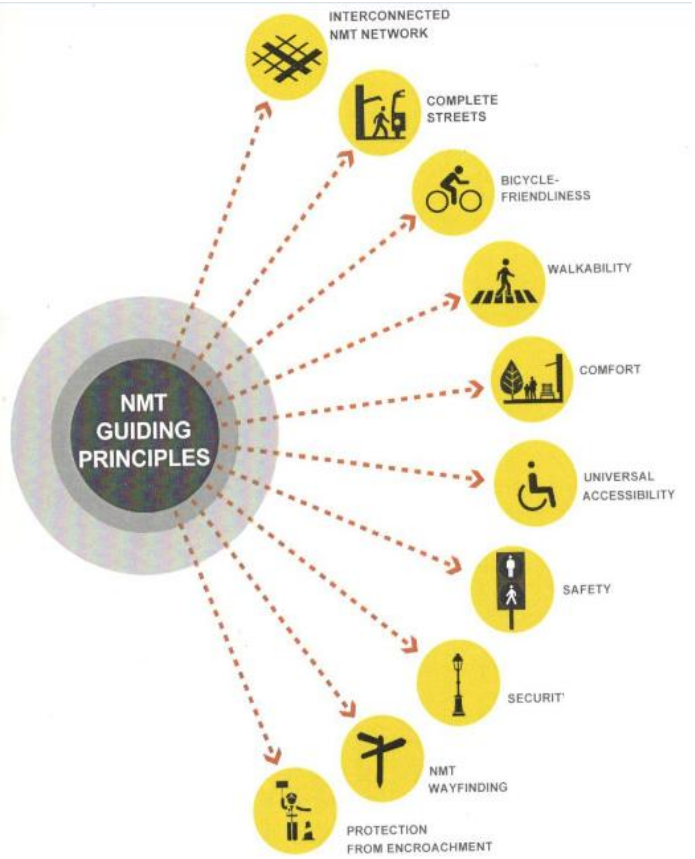
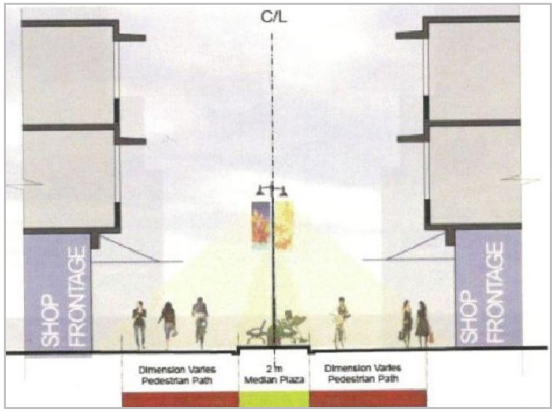
Aizwal

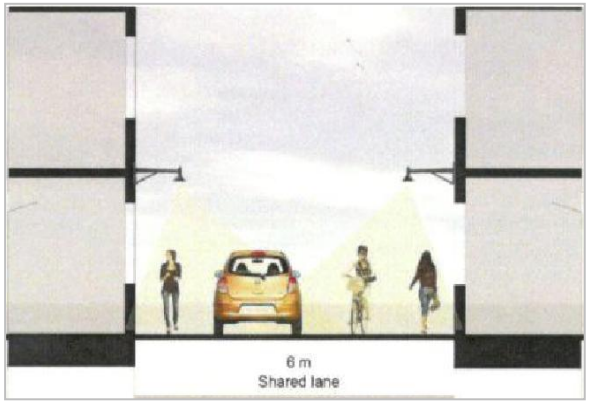
Chanmari to Dawrpuri Pedestrian Street



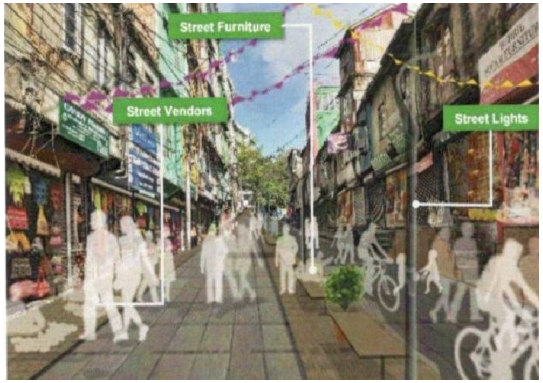
Principles of NMT Planning



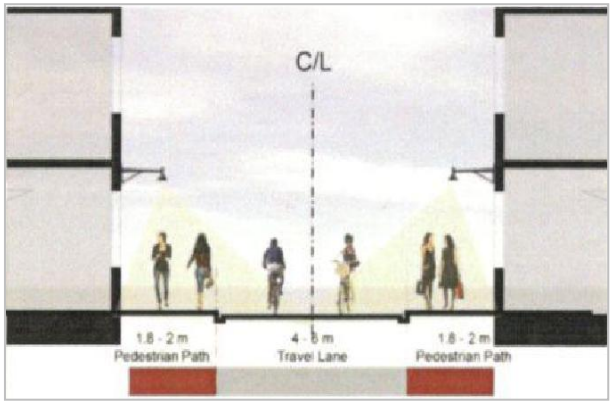
Proposed Pedestrian Street Section



Proposed Cross Section 6 m.



Proposed Vision for Pedestrian Street



Proposed Cross Section 8 m.

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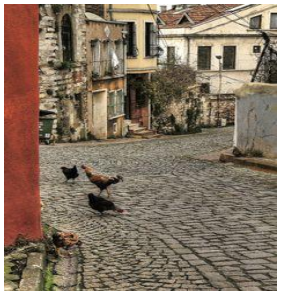
SELECTED INTERNATIONAL BEST PRACTICES

Istanbul

- Istanbul has pedestrianized 295 streets, benefiting 2.5 million people - including residents, public and private workers and tourists
- Repaved the newly pedestrianised streets with granite pavestones, updated signalisation and reorganised waste management services.
- Hydraulic vehicle stopping barriers were installed, and streets lights and waste containers were renewed.
- New car parks were also built for tourist buses (each with 150-160 capacity)

Results:

- 56% expect sales to increase,
- 39% expect customer volumes to increase,
- 25% expect annual income levels to increase,
- 39% expects property values to increase.



Source: The pedestrianizatıon of Istanbul's historic Peninsula perspectives from local businesses, Embarq Turkiye

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New York- Times Square

Street Type: Public Space

Project Extent: 25,000 Sq.M

Project Cost: $55 Million Reconstruction For The Permanent Re-design.

Key Project Works:

- The closure of Broadway along five blocks.
- Multiple temporary installations, and then a permanent redesign, consisting of a level surface, new paving, and basic amenities such as benches.

Other Facts:

- Busiest tourist destination of the world, with 400,000 visitors per day.
- Once complete the transformation will add 13,000 sq m, or 53% more of new pedestrian space to times square
- Revenue from businesses have risen by 71 %, the biggest increase in history.
- 33 % reduction in traffic related injuries
- 180 % increase in shop around the square.

Source: Times Square interim Project New York City

Vienna

- The project has turned a street for cars into a great public space for people.
- The 1.6 km long street Mariahilferstrasse now consists of two shared space areas and one pedestrian area and has become a vibrant, green and livable public space for Viennese citizens

Source: Transforming a street: Before-After images of Vienna's Mariahilferstrasse, October 15, 2015

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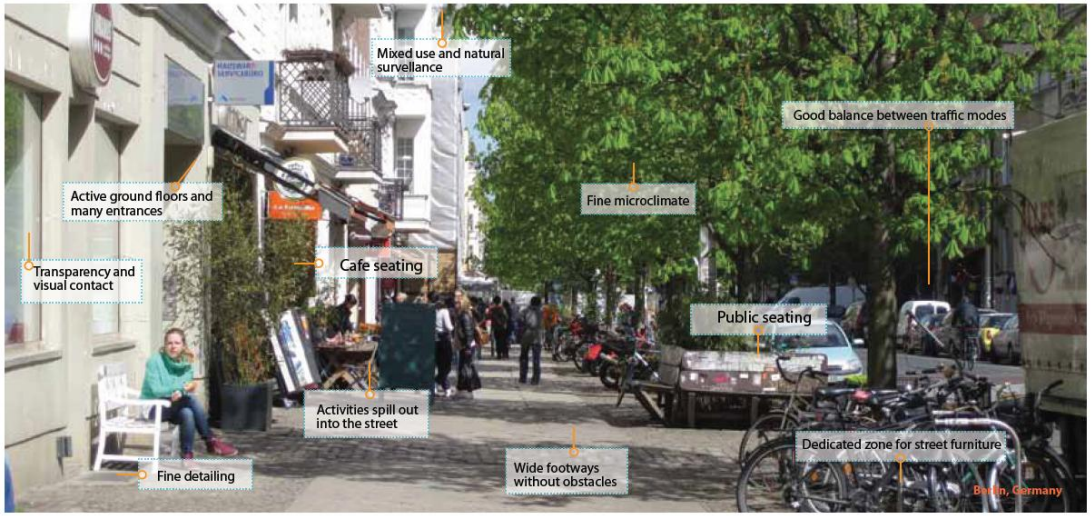
Göteborg and Berlin

Göteborg, Sweden



Berlin, Germany

Source: Istanbul Public Space & Public Life, EMBARQ Turkey

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IMPERATIVES FOR INCLUSIVE PEDESTRIANISATION

Create Comfortable walking Environment

Free space for walking

Designated zones for walking and furnishing support the pedestrian accessibility. *Aalborg, Denmark.*

Walking friendly paving

Smooth tracks in the paving *Århus, Denmark*

Pedestrians priority

High pedestrian priority on minor street. *Copenhagen, Denmark.*

Well lit streets and connections

- Street lighting in human scale *Vejle, Denmark*

- Dedicated lighting of street corners and signs *Copenhangen, Denmark.*

- Combination of delicate river walk lighting and street lighting *Seoul, South Korea.*

Source: Istanbul Public Space & Public Life, EMBARQ Turkey

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Promote Safe crossing

Designated crossing space

Clearly marked and wide pedestrian crossing at grade *Copenhagen, Denmark.*

Dedicated signals

Lights and pedestrians crossing wait times. *Copenhagen, Denmark*

Dropped kerbs

Dropped kerbs facilitating easy crossing *Copenhagen, Denmark.*

Medians as stopover

Median provides a refuge while crossing streets. *Copenhagen, Denmark.*

Source: Istanbul Public Space & Public Life, EMBARQ Turkey

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Promote Way finding systems

Easily read signs and guides

Simple and iconic signs guide visitors to important destinations. *Barcelona, Spain.*

Marking on the paving ease orientation and way finding. *Lyon, France.*

Communicate information

Well placed, easily read maps and directions are crucial in guiding both visitors and locals. *Sydney, Australia*.

Map with walking distances illustrates and relate time and destinations. *London, UK.*

Source: Istanbul Public Space & Public Life, EMBARQ Turkey

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Create City spine

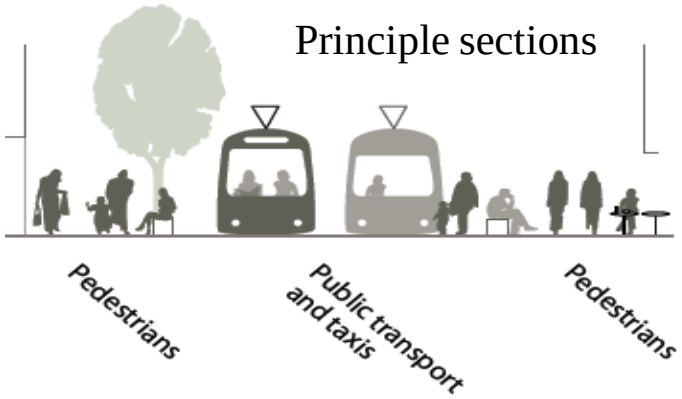
Main street and commercial link

A pedestrian oriented design with dedicated zones for walking on a single level surface.

Generous opportunities for public seating to rest and socialise.

Art and street trees add to a distinct character and atmosphere.

A 'no drive-through' street with first priority given to pedestrians, public transport and taxis.



Source: Istanbul Public Space & Public Life, EMBARQ Turkey

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Create City boulevard

Green connector

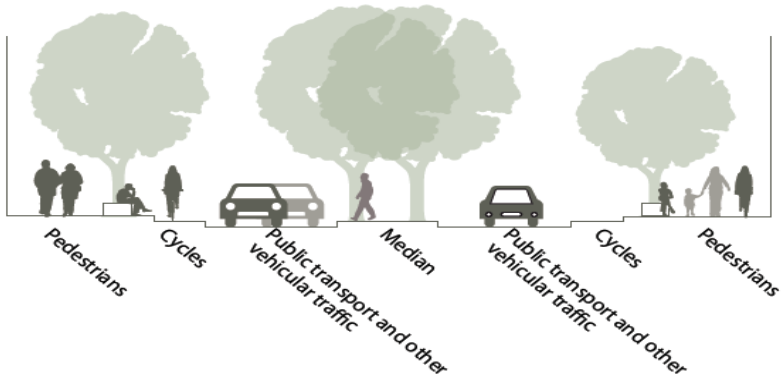
Footways with designated zones for walking

A green street suitable for all means of transportation; walking, public transport, cycling and vehicular traffic.

Dedicated bicycle lanes

Widespread opportunities for public seating to rest and socialise

Principle sections



Source: Istanbul Public Space & Public Life, EMBARQ Turkey

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Create City street

Urban connector

Footways with dedicated zones for walking are taken across minor side streets

Pedestrian connector

Opportunities for public seating and staying with small scale greenery

A ‘shared space’ giving high priority to pedestrians

A pedestrianized street or a street with limited vehicular access

Source: Istanbul Public Space & Public Life, EMBARQ Turkey

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Create Routes and connections

Distinct surfaces and characteristic paving

Artistic marking identify an innovat!ve laneway.
Tokyo, Japan.

Wooden surfaces indicate a pedestrian route.
Tokyo, Japan.

Recognisable design elements

A distinct lamp post characterise a local pedestrian link underlining a strong identity.
Copenhagen, Denmark.

Canopy and lighting accentuate an inviting evening connection.
Brisbane, Australian.

Source: Istanbul Public Space & Public Life, EMBARQ Turkey

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Create Waterfront

Blue - green connector

A strong connector between the city and the waterfront - comfortable for walking, cycling, public transport and vehicular traffic.

Wide zones for walking and dedicated bicycle lanes support the soft road users.

Foreshore walk

A scenic water's edge route allowing for walking and cycling along the waterline and connecting the amenities along the coast

explore opportunities to experience the water through steps down to the water

Source: Istanbul Public Space & Public Life, EMBARQ Turkey

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Summing Up

- Pedestrianisation is vital and need orchestration of various parameters for implementation
- Identify pedestrian priority streets, identify direct links, decide minimum footpath width and plan for multi use activities……public spaces
- Initiating scheme may be easy but its sustainability is critical
- Government structure is vital for funding, implementing and managing pedestrian projects
- Stakeholder consultation necessary for its success