

**2014**

# Corporation of Chennai



## **NON MOTORISED TRANSPORT POLICY**

CORPORATION OF CHENNAI

SPECIAL PROJECT

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# Corporation of Chennai Non-Motorised Transport Policy

## 1. Definition

- 1.1. Non-motorised transport (NMT): walking, cycling, cycle rickshaws, pushcarts, and other forms of mobility that are powered by humans.

## 2. Vision

- 2.1. Chennai will be a city with a general sense of well-being through the development of quality and dignified environment where people are encouraged to walk and cycle; equitable allocation of public space and infrastructure; and access to opportunities and mobility for all residents.

## 3. Goals

- 3.1. The Corporation of Chennai (COC) aims to increase the use of cycling and walking by creating a safe and pleasant NMT network of footpaths, cycle tracks, greenways, and other facilities to serve all citizens in the COC area. The designs of Chennai streets will be consistent with best practices in pedestrian-oriented, multi-modal street design. They will also incorporate appropriate environmental planning and water management techniques. Together, these measures will achieve the following:
  - 3.1.1. Improved access and mobility for all residents.
  - 3.1.2. Social and economic empowerment through the provision of improved low-cost mobility.
  - 3.1.3. Gender equity through the provision of NMT facilities that are safe for women to use.
  - 3.1.4. Social inclusion in creating NMT facilities that follow principles of universal design and are usable to the greatest extent possible by everyone, regardless of his or her age, ability, or status in life.
  - 3.1.5. Reduced local and global environmental impacts of COC's transport system through expanded use of zero pollution modes.
  - 3.1.6. A changed culture that accepts the use of cycling and walking as acceptable and aspirational means to move around in the city.
  - 3.1.7. Participation of local residents, businesses, and other stakeholders in the preparation of designs and standards in order to foster the community's active use and sense of ownership of these spaces.

## 4. Corporation Leadership

- 4.1. COC will provide the necessary leadership by emphasising a paradigm shift from current urban transport planning methods to the new focus on NMT and public transport.
- 4.2. COC will proclaim NMT as priority modes and will issue policy guidelines and instructions to professionals regarding priorities in the design of transport facilities.
- 4.3. COC will conduct extensive training and outreach to COC engineers, administrators, and elected officials on NMT user needs, design principles, and promotion strategies.

- 4.4. COC will encourage and provide incentives for its own employees to walk, cycle, and use public transport as part of their daily commuting.
- 4.5. COC will urge other institutions to prioritise non-motorised modes in physical designs, regulations, management practices, and investment plans for transport systems.

## 5. Performance Measurement

- 5.1. COC will measure the effectiveness of the NMT policy using the following indicators. The desired direction of change is indicated in parentheses.
  - 5.1.1. Mode share for pedestrians and cyclists (increase)
  - 5.1.2. Traffic crashes involving pedestrians and cyclists (decrease).
  - 5.1.3. Footpath<sup>1</sup> coverage (increase).
  - 5.1.4. Cycle track<sup>2</sup> coverage (increase).
  - 5.1.5. Public transport mode share (increase).
  - 5.1.6. Personal motor vehicle kilometres travelled (VKT) (decrease).
- 5.2. COC will create an inventory of footpaths and cycle tracks, conduct surveys of transport system users, and compile other records to measure progress as per the indicators listed in section 5.1.
- 5.3. COC will commission progress reports that indicate compliance with this policy, performance as per the indicators listed in section 5.1, and progress toward achieving the goals outlined in section 3.1. COC will make progress reports available for public scrutiny and feedback.
- 5.4. COC will ensure that NMT infrastructure designs are reviewed and re-evaluated per their contribution to performance indicators listed in section 5.1.

## 6. Principles of Street Design and Management


- 6.1. The following principles will guide COC street design and management:
  - 6.1.1. Streets that support and invite multiple uses, including safe, active, and ample space for pedestrians, cycles, and public transport, are more conducive to the public life of urban neighbourhoods and efficient movement of people and goods than streets designed primarily to move private motor vehicles. Decisions regarding the design and use of Chennai's limited public street space shall prioritise space for pedestrians, cycles, and public transport over space for private motor vehicles, following the hierarchy of uses shown in Table 1. In some circumstances, the hierarchy may be adjusted somewhat. For example, when allocating space for a BRT corridor, public transport may take precedence over cycling.

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<sup>1</sup>Only footpaths that comply with the standards in the NMT Policy and the CSDM (see Section 7.2) are to be counted.

<sup>2</sup>Only cycle tracks that comply with the standards in the NMT Policy and the CSDM (see Section 7.2) are to be counted.

Table 1: Transport framework priority by mode.

CONSIDER	MODE
First	Pedestrian access / Walking
	Non Motoraised Vehicles
	Public Transport / Intermediate Public Transport
	Economic activities (Regulated > Informal)
	Freight movement(Light > Heavy)
	Non Motoraised Vehicles goods carriers
	Private motor vehicle movement
	Last

- 6.1.2. Public streets are for public use. Therefore, the design of streets must not discriminate against users by their age, ability, gender, income, race, ethnicity, or religion. An equity-based approach to NMT policy must ensure that services and infrastructure meet the needs of all users.
- 6.1.3. Where motor vehicle speeds compromise the safety of NMT users, COC will provide dedicated, physically separated facilities. NMT user safety should not come at the expense of convenience. Therefore, COC will prioritise at-grade solutions that minimise detours for NMT users rather than grade separated facilities such as pedestrian subways and foot overbridges.
- 6.1.4. COC will urge concerned authorities to ensure equitable allocation of road space through the implementation of bus rapid transit (BRT)<sup>3</sup> corridors with physically separated bus lanes.
- 6.1.5. COC will ensure that the designed width of carriageways and other street elements is based on the function of the street instead of the available ROW.
- 6.1.6. The management and signalisation of vehicle traffic has significant impact on the quality and safety of the street experience for all users, especially pedestrians, cyclists, public transport users, and operators. Decisions regarding the systems and signals for the control of private vehicles including but not limited to changes to signal timing and speed limits and allowable turning movements must consider and balance the impact on the street experience and safety for all users.
- 6.1.7. Street vending plays a crucial role in the economy of Chennai and that vendors help improve safety as “eyes on the street.” Therefore, it is

<sup>3</sup>Bus rapid transit (BRT) is a high-capacity and high-quality rapid transport system that provides an exclusive right-of-way for BRT buses. BRT similar to metro rail but can be accomplished at a lower cost.

important to recognise their role in street management. COC will provide dedicated vending zones, particularly in areas close to the rapid transit stations. COC will form a partnership with vendors under which they would be expected to keep vending areas clean and well maintained.

- 6.1.8. Streets should serve as attractive and safe public open space corridors with generous landscaping, lighting, and greenery. Streets serve as public view corridors and provide light and air.
- 6.1.9. Streets will be appropriately designed and maintained to ameliorate negative effects of traffic on pedestrian areas and adjacent uses, to provide usable on-street open spaces, to enhance property values, and to increase the safety and attractiveness of neighbourhoods.
- 6.1.10. Streets will be appropriately designed and maintained to address the unique characteristics and challenges of the neighbourhood demographics, built environment, watersheds, and natural systems in which they lie.
- 6.1.11. Chennai has more than enough paved space to allow the safe and efficient movement of public transport, cycles, and private vehicles. COC will encourage innovative solutions to reuse such excess street space as planted or open space areas. COC will also consider establishing a program to encourage and make possible for adjacent neighbourhoods to replace paved areas with usable open space, permeable surfaces, plantings, storm water retention areas, and other public amenities.
- 6.1.12. Decisions regarding street designs must utilise techniques that reduce the impacts on the combined sewage and storm water system and increase the permeable surface area, through the planting of street trees and landscaping, and minimising unnecessary pavement. Design treatments will reduce flooding of storm water and sewer overflow and support the health and maintenance of street trees and landscaping.
- 6.1.13. The design of streets shall minimise visual clutter. This concern shall extend to the number, design and placement of signs, signals, utility structures, and elements oriented towards private vehicle traffic.
- 6.1.14. COC will combine incentives for NMT and public transport use with disincentives for private vehicle use. Better cycling, walking, and public transport services increases the viability of initiatives meant to restrict private vehicle usage.
- 6.1.15. NMT planning must be transparent to send a clear message that policies are being developed in close consultation with key stakeholders. Therefore, COC will ensure broad and economically diverse citizen participation at all stages of planning and implementation.
- 6.1.16. The rapid growth and increasing mode shares of private motor vehicles is not an exogenous variable. Therefore all COC sponsored studies of transport and transport plans must incorporate the goal of increasing the use of NMT and public transport rather than simply accommodating the increased numbers of private vehicles.

## 7. Street Design

- 7.1. COC will ensure that all streets are designed as complete streets that are safe and prioritise NMT users and public transport.
- 7.2. To guide street design interventions, COC will create street design guidelines, known as the “Chennai Street Design Manual” (CSDM) (see Schedule C).
  - 7.2.1. The CSDM will include design templates for streets of various widths and a multi-dimensional classification system (including factors such as land use, street character, access to public transport, etc.) to ensure that street design templates are appropriately applied.
  - 7.2.2. The CSDM will include minimum standards and design guidelines for footpaths, cycle tracks, BRT, and other street elements.
  - 7.2.3. The CSDM will include minimum standards and design guidelines for intersections.
  - 7.2.4. The CSDM will include material guidelines to ensure that NMT elements are constructed using appropriate and consistent materials.
  - 7.2.5. The CSDM will include signage and road marking guidelines so that NMT elements are consistently branded to make the network of NMT facilities legible to all users.
- 7.3. Every COC street will have a slow zone where pedestrians have priority.
  - 7.3.1. COC will provide footpaths where there are none, and increase the width of footpaths where pedestrian volumes are high in order to prevent pedestrian overflow onto the carriageway and to ensure continuity.
  - 7.3.2. For streets where the right-of-way (ROW) is 12 m or less and that do not require access for public transport vehicles, COC will employ shared space designs ensuring that vehicle speeds are slow enough for the safe intermingling of vehicles and pedestrians (approximately 15 km/hr). COC will provide vehicle parking on an intermittent basis in alternating locations and other traffic calming elements to reduce vehicle speeds. COC will urge the Chennai Traffic Police to prevent the entry of heavy vehicles(except emergency vehicles) into these streets.
  - 7.3.3. For streets with a ROW of 12 m or less that serve as mobility corridors for public transport or BRT, COC will provide segregated and unobstructed footpaths on both sides of street that have at least 2 m of clear width.<sup>4</sup>
  - 7.3.4. A service lane may serve as a slow zone, provided that the service lane is designed as a slow-speed shared space with physical measures to ensure that motor vehicle speeds do not exceed 15 km/h.
  - 7.3.5. COC will facilitate the creation of pedestrian-only zones (see Section 7.10), forest streets, or other non-standard street conversions that prioritise NMT users.

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<sup>4</sup>IRC:103:2012, Guidelines for Pedestrian Facilities.

- 7.3.6. COC will not construct flyovers, elevated roads, and other infrastructure that prevents parallel pedestrian infrastructure from meeting the standards in the NMT Policy (especially Section 7.4) and the CSDM.
- 7.3.7. COC will ensure that all rail overbridges and rail underbridges have pedestrian access. COC also will seek opportunities to provide pedestrian access on flyovers where such access provides a mobility or safety benefit for pedestrians.
- 7.4. COC will ensure that the design of footpaths ensures usability, convenience, accessibility, and safety:
  - 7.4.1. COC will design footpaths that include space for business frontage (frontage zone<sup>5</sup>), space for pedestrian mobility (pedestrian zone<sup>6</sup>) that is at least 2 m wide, and space for landscaping and street furniture (furniture zone<sup>7</sup>).
  - 7.4.2. COC will ensure that footpaths, crossings and other elements of the pedestrian environment are accessible to all users, in compliance with the draft National Building Code/BIS Indian Accessibility Standards (2009).
  - 7.4.3. COC will pursue all means to free up space for segregated footpaths (such as removing vehicle parking) and will prioritise street amenities (street furniture, landscaping, trees, etc.) over vehicle parking.
  - 7.4.4. COC will provide multiuse islands for NMT amenities such as trees, public seating, street vending, and cycle parking.
- 7.5. COC will implement develop a network of dedicated cycle facilities to improve access, convenience, and safety for cyclists:
  - 7.5.1. On narrow streets, COC will create shared-space carriageways where motor vehicles, pedestrians, and cyclists coexist.
  - 7.5.2. If the ROW is greater than 30 m, or if 80th percentile motor vehicle speed exceeds 30 km/h, COC will provide physically separated cycle tracks. An exception will be granted only if clear evidence is provided that demonstrates that cycle facilities are provided on parallel streets nearby and/or if the street forms part of the city's BRT network.
  - 7.5.3. Cycle tracks will have at least 2 m of clear space, will be positioned at a higher level than the carriageway, and will be compliant with other standards in the CSDM.
  - 7.5.4. COC will encourage segregated and unobstructed, two-way median cycle tracks that have at least 4 m clear width and are compliant with IRC

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<sup>5</sup> A *frontage zone* provides a buffer between street-side activities and the pedestrian zone. Next to a compound wall, the frontage zone can become a plantation strip.

<sup>6</sup> A *pedestrian zone* provides continuous space for walking and should be clear of any obstructions.

<sup>7</sup> A *furniture zone* is a space for landscaping, furniture, lights, bus stops, signs, and private property access ramps.



standards<sup>8</sup> where a centre median is present and frequent property access points or commercial uses interrupt side tracks.

- 7.6. COC will design carriageways to provide for efficient mobility of public transport, non-motorised vehicles, and other vehicles at moderate speeds:
  - 7.6.1. COC will ensure that street space is allocated for the vehicle carriageway *only* after adequate usable space has been reserved for walking, cycling, trees, and street vending.
  - 7.6.2. COC will design vehicle carriageways that maintain a constant width to ensure a smooth flow of vehicles.
  - 7.6.3. COC will employ street designs that define clear boundaries through curbs and material differences.
  - 7.6.4. COC will employ a wide variety of traffic calming techniques, including reduced carriageway widths and speed breakers<sup>9</sup> at frequent intervals to reduce motor vehicle speeds.
  - 7.6.5. For streets with ROW of 12 m or less, COC will prohibit street designs that demarcate the centreline, or physically divide the carriageway (such as median wall or fence), except in the case of BRT corridors.
  - 7.6.6. COC will provide easy and understandable methods so that residents can petition to convert existing street designs to check unwanted motor vehicle traffic while retaining public access for NMT users.
  - 7.6.7. COC will review one-way carriageways, unless they are necessary to accommodate rapid transit (such as BRT) corridors or pedestrian zones. Where one-way streets are sanctioned, COC will provide for two-way movement for NMT modes.
- 7.7. COC will abide by the following when designing and retrofitting junctions and crossings:
  - 7.7.1. COC will provide crosswalks minimum 2 m width at all intersections (signalised and uncontrolled) and at frequent intervals in midblock locations. Where fences are installed, breaks of at least 2 m wide will be provided for informal crossings where there is demand.
  - 7.7.2. At locations with either high motor vehicle speeds or heavy pedestrian volumes, such crossings will be elevated to the height of the adjacent footpath with ramps for motorised vehicles to mount the crosswalk. The slope for ramp should be at least 1:4 to adequately slow traffic speeds.

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<sup>8</sup> IRC Code.

<sup>9</sup>*Speed breakers* should be placed so that vehicles do not approach at high speeds. They should also be placed on property lines and near street lights. To be effective, speed breakers should be placed in series at 60 – 180 m intervals. Speed breakers should not be placed on curves, public transport routes, or major emergency response routes. When designed and installed properly, speed humps will reduce vehicle speeds to 15 km/h at the breaker and 30 mph between breakers in a series.

- 7.7.3. COC will provide continuous medians with at least 1 m clear width that are mountable by pedestrians on all streets with carriageway widths of over 5.5 m per direction.
  - 7.7.4. COC will prohibit guardrails and high curbs that hinder pedestrian movements on all streets except streets with BRT lanes.
  - 7.7.5. Pedestrian crossings will not have steps. Instead, crossings will have appropriately sloped level changes, providing seamless access for all users. COC will provide adequate waiting areas at formal crossing locations. COC will convert all parking lanes to bulb-outs at formal and informal crossings to reduce the crossing distance.
  - 7.7.6. COC will redesign intersections to accommodate NMT volumes safely by minimising crossing distances, reducing motor vehicle speeds, simplifying signal cycles, or through other means.
  - 7.7.7. COC will prohibit pedestrian foot over-bridges and subways on COC streets.
  - 7.7.8. COC may create skywalks to link railway or public transport terminal pedestrian bridges with key destinations, provided that doing so does not compromise at-grade NMT infrastructure. Whenever skywalks are implemented, COC will carry out improvements in parallel at-grade facilities.
- 7.8. COC will implement and maintain landscaping for NMT infrastructure as follows:
- 7.8.1. Landscaping, street trees<sup>10</sup>, built structures, or other appropriate techniques will be provided at frequent intervals to provide continuous shade for all NMT infrastructure.
  - 7.8.2. Coordinated placement of landscaping (e.g. tree pits) with other user amenities (especially advertising panels and utility boxes) to maintain clear width of at least 2 m path of travel to not obstruct through movement of pedestrians and cyclists, and avoid unnecessary clutter.
  - 7.8.3. COC will maintain landscaping so that medium-height vegetation that located adjacent to formal and informal crossings does not hinder the visibility of pedestrians and cyclists using raised crosswalks or entering the carriageway via curb ramps.
  - 7.8.4. COC will provide tree pits of minimum dimensions and appropriate street tree management techniques (e.g. hume pipes) to accommodate the growth of root structures as trees mature.
  - 7.8.5. COC will implement and maintain street lighting for NMT infrastructure as follows:

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<sup>10</sup> Appropriate distance between trees to provide continuous shade will depend on the individual tree's canopy size and shape. Trees with high-branching structures are preferable.

- 7.8.6. COC will identify key conflict points, black spots<sup>11</sup>, areas of sexual harassment and/or violence, areas of personal crime, and areas of isolation. COC will provide additional lighting at these locations to improve safety and security for NMT users. COC will ensure that appropriate lighting is provided in isolated spaces, such as foot over-bridges, subways, and walkways next to parks or blank compound walls to reduce the risk of theft, harassment, and sexual assault.
  - 7.8.7. COC will coordinate the placement of street lighting with other user amenities (especially advertising panels and utility boxes) to maintain a 2 m clear width path of travel to not obstruct through movement of pedestrians and cyclists, and avoid unnecessary clutter.
  - 7.8.8. COC will coordinate the placement of street lighting with other street elements so that shade structures, trees, or advertising panels do not impede proper illumination.
  - 7.8.9. COC will provide appropriate street illumination through proper street light spacing, street light heights and lamp brightness, etc.
  - 7.8.10. COC will provide maintenance, replacement and cleaning service plan to ensure that all street lighting elements receive regular upkeep in the form of electrical maintenance, bulb replacement, and dust cleaning in order to remain effective.
- 7.9. COC will ensure that private vehicle parking does not compromise the mobility and safety of NMT users:
- 7.9.1. Unlike footpaths, cycle tracks, and NMT facilities, parking lanes need not be continuous. On-street parking may be provided where space is available in the public ROW, but COC will prioritise the provision of NMT infrastructure and may interrupt parking lanes where required to provide space for bus stops, street vending, street furniture, landscaping, or other amenities.
- 7.10. COC will work collaboratively with key municipal and public stakeholders to develop criteria to identify locations where private vehicle traffic will be prohibited, and then converted into *pedestrian-only zones*, based on the amount of pedestrian traffic, or the predominant types of uses.
- 7.10.1. COC will develop a set of key criteria for designing pedestrian-only zones that will include prohibition of all private vehicle traffic, using bollards and other barriers to physically prevent vehicles from encroaching on NMT space, ensuring compliance of the zones with disability access guidelines, providing cycle parking, providing for commercial deliveries outside of normal hours, and accommodating emergency response vehicles.
  - 7.10.2. COC will convert important market streets, historical and cultural areas, schools, and municipal institutions per the pedestrian zone criteria in the CSDM.

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<sup>11</sup>*Black spots* are road locations that have a chronic history of traffic accidents / crashes.

7.11. COC will design streets and public space that is integrated with and supportive of public transport services. Where it has the power to do so, it will develop understandable and accessible multi-modal interchanges (MMIs) at public transport stations and bus stops:

- 7.11.1. COC will provide bus shelters and/or rapid transit stations at key destinations<sup>12</sup>, and at frequent intervals. Bus stops will be located in the furniture zone or on bulb-outs in the parking lane, leaving clear space for pedestrian movement behind and allowing bus passengers to board without waiting and/or stepping into the carriageway. Bus bays will not be constructed except in cases where they provide improved intermodal access to railway stations, rapid transit stations, or other key destinations.
- 7.11.2. COC will create clear, direct, and short transfers between rail systems, bus stops, and paratransit stops that minimise horizontal and vertical displacement. These pathways should comply with disability access guidelines and should offer consistency and clarity in station entrances and interfaces, spaces, layout, and visual cues. COC will prioritise at-grade access to BRT stations.
- 7.11.3. COC will provide paratransit stands at key destinations, and at frequent intervals.
- 7.11.4. COC will provide protection from rain and sun inside stations and stops and along connections between modes.
- 7.11.5. COC will coordinate feeder service schedules and routes with schedules of trunk services to minimise customer wait times.
- 7.11.6. COC will adopt priority measures to ensure the efficient movement of surface public transport modes, such as buses and rickshaws, to and from the station area.
- 7.11.7. COC will provide clear and consistent way finding and signage to support the efficient navigation to public transport stations in station areas. COC will provide static information such as route maps, route destinations, and transfer opportunities.
- 7.11.8. COC will provide for safe and efficient movement of pedestrians and cyclists in the influence areas around public transport stops and stations.
- 7.11.9. COC will provide an attractive pedestrian environment on all approach streets within a 5 km radius of stations, particularly on routes serving major destinations. All pedestrian links must provide a high level of priority and safety and should be compliant with the NMT Policy and the CSDM.
- 7.11.10. COC will provide clearly marked and protected access for pedestrians and cyclists at station areas to minimise conflicts, particularly at passenger pick-up and drop-offs, bus facilities, and parking access points.

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<sup>12</sup>*Key destinations* are the main places that people need to access including: municipal offices, public transport nodes and stations, common workplaces, schools, markets, shops, sites of worship, and recreation areas.

- 7.11.11. COC will provide secure and plentiful bicycle parking at station entrances with additional cycling amenities at high volume locations.
- 7.12. COC urges the State Highways Department, the Chennai Metropolitan Development Authority, and other concerned authorities to adopt street design standards consistent with the provisions of the NMT Policy.

## 8. Street network

- 8.1. COC urges concerned agencies (e.g. the Chennai Metropolitan Development Authority and others) to provide a dense network of complete streets and paths that give priority to NMT modes:
  - 8.1.1. Create a fine-grained comprehensive network of streets that are safe for walking and cycling. The pedestrian network should have at least 80 intersections per square km, while the cycling network must have a minimum resolution of 350 m.
  - 8.1.2. Support the creation of a citywide greenway network to improve access for pedestrians and cyclists. COC will provide through access for pedestrians and cyclists in city gardens and other public spaces.
  - 8.1.3. Ensure that all new construction and redevelopment limit the small block size so that the longest block face is less than or equal to 150 m.
  - 8.1.4. Prohibit pedestrian cul-de-sacs. The pedestrian network that, when combined with the street network, ensures that pedestrians have access to the shortest path for all journeys.

## 9. Built Environment Regulation

- 9.1. COC will apply the following built environment regulations to ensure that the pedestrian realm is active and vibrant in all of its own buildings and properties, as well as urge their adoption by concerned agencies (e.g. CMDA, MTC, and CMRL) and inclusion in documents such as the Chennai Master Plan, Detailed Development Plans, and Development Control Regulations:
  - 9.1.1. Ensure that atleast 75 per cent of buildings have visually active frontages<sup>13</sup> to create a pedestrian realm that is active, vibrant, and safe. These could be in the form of actual openings and/or transparent frontages (windows/patios) that are visually penetrable and provide a means of passive surveillance.
  - 9.1.2. Prioritize physically permeable frontage<sup>14</sup> abutting public walkways. This can include entrances to restaurants and cafes, storefronts, and residential housing that contribute to a vibrant public realm. The average number of shops and building entrances per 100 m of street frontage should be at least 5.

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<sup>13</sup>Visually active frontage measures the opportunities for visual connection between sidewalks and the interior ground floors of adjacent buildings. Not only shops and restaurants, but also work places, residences and all types of premises qualify.

<sup>14</sup>Physically permeable frontage measures active physical connections through the block frontage via entrances and exits to and from storefronts, building lobbies, courtyard entrances, passageways, and so on.

- 9.1.3. Adopt minimum build-to lines to ensure that private buildings are oriented towards the streets rather than towards internal plots and thus provide “eyes on the street.”
- 9.1.4. Ensure that for commercial buildings, the build-to line is at the edge of the Row. For residential buildings, the maximum setback is 3 m. At least 40 per cent of the building frontage should lie on the build-to line.
- 9.1.5. Ensure that for residential buildings, compound walls are transparent above a height of 300 mm.
- 9.1.6. Ensure that for plots with frontage on more than one street, the main vehicle access should be provided from a side street, off of the main market street.
- 9.1.7. Provide a diverse mix of uses, including employment, housing, regional attractions and public spaces to create a high quality urban environment, especially near mass rapid transit stations.
- 9.1.8. Focus and integrate increased and public transport-supportive densities at, and around, stations to create a compact built form and a critical mass of activity, while ensuring appropriate transition to the surrounding community.

#### **10. Street Management, Maintenance and Enforcement**

- 10.1. COC will ensure that all projects involving the new construction or retrofitting of streets improve safety and convenience for NMT users per the CSDM.
- 10.2. COC will urge the Chennai Traffic Police to manage intersections with a focus on pedestrian and cyclist mobility and safety:
  - 10.2.1. Signal phases should include adequate time for pedestrians.
  - 10.2.2. Green phases should be timed to facilitate cycle and public transport movement.
  - 10.2.3. Motor vehicle users must give the right-of-way to pedestrians and cyclists.
- 10.3. COC will manage vending as follows:
  - 10.3.1. COC will identify locations where there is existing and potential demand for goods and services of street vendors.
  - 10.3.2. COC will accommodate street vendors in on-street locations at mass rapid transit stations, railway stations, market areas, commercial centres, and other key destinations. COC will enhance and preserve existing culturally significant street vending markets.
  - 10.3.3. COC will provide supportive infrastructure such as cooperatively managed water taps, electricity points, waste bins, and public toilets.
  - 10.3.4. COC will regulate street vending by providing vendor infrastructure in locations that ensure the continuity of footpaths and cycle tracks.
- 10.4. COC will institute a repair and maintenance programme to keep all footpaths and cycle tracks in a good state of repair and cleanliness.

- 10.5. COC will provide designated spaces for trash collection so that trash containers and trash collection activities do not hinder the use of NMT facilities.
- 10.6. COC will adopt a zero tolerance approach for managing encroachments on footpaths. COC will remove all temporary and permanent obstructions that force pedestrians to walk on the carriageway. COC will relocate vendors as per the provisions of Section 10.3.
- 10.7. During construction projects that compromise the use of NMT infrastructure, COC will provide alternative means for pedestrians and cyclists to circulate.
- 10.8. COC will implement and maintain street furniture for NMT users as follows:
  - 10.8.1. COC will provide street furniture, such as benches, waste bins, tables, public way-finding signage, shelter, water taps, and other amenities to make streets an attractive place to spend time, promote sanitary conditions, and to function as traffic calming elements.
  - 10.8.2. COC will locate street furniture in appropriate locations that receive proper shade, and maintain 3 m clear width path of travel so that they do not obstruct through movement of pedestrians and cyclists, and avoid unnecessary clutter.
  - 10.8.3. COC will coordinate the placement of street furniture with other user amenities (especially advertising panels and utility boxes) to maintain a 2 m clear width path of travel to not obstruct through movement of pedestrians and cyclists.
  - 10.8.4. COC will scale the quantity of street furniture to meet demand, adjacent land uses and street activity (e.g. larger quantities will be provided at key destinations, public facilities, commercial hubs, etc.). Refuse collection furniture / waste bins will be provided at frequent intervals (e.g. every 20 m) on streets with large numbers of pedestrians and commercial activity.
  - 10.8.5. COC will conduct maintenance, replacement, and cleaning to ensure that all street furniture elements (especially waste bins) remain in usable and sanitary condition.
- 10.9. COC will manage advertising and hoardings in public Rows as follows:
  - 10.9.1. COC will coordinate the placement of advertising panels with other user amenities (especially utility boxes) to maintain an unobstructed 2 m wide, 2 m high clear path of travel to facilitate movement of pedestrians and cyclists, as well as avoid unnecessary clutter and protruding objects.
- 10.10. COC will manage service utility providers to ensure that access points for storm water, sewage, electricity, telecommunications, and other services meet the following standards:
  - 10.10.1. Access points for underground and overground utilities will be designed in such a way that they do not conflict with NMT user movements. Manhole covers will be level with footpaths, cycle tracks, and the surfaces of other NMT facilities. Utility access points will be designed to minimise disruption from maintenance.

10.10.2. Storm water systems will be designed so that storm water drains off of NMT infrastructure into appropriate channels and catch pits. At no point will footpaths, cycle tracks, or other NMT facilities lie at the lowest level in the street cross section, except in the case of NMT-only streets. Storm water facilities will be maintained regularly to prevent flooding of NMT infrastructure.

## 11. Special Services

11.1. COC will provide last mile connectivity to mass rapid transit stations via innovative programs such as cycle sharing. Cycle sharing systems refer to the shared use of a common cycle fleet. The principle is simple: Individuals use the cycles on an “as needed” basis and return the cycles to a network of closely spaced cycle stations. With a smart card or other form of identification, a user can check out a cycle from a station and return it to any other station. These systems imply short-term cycle access and provide users with an environmentally friendly and low-cost form of public transport. The COC cycle sharing system will employ the following best practice features:

11.1.1. A dense network of stations across the coverage area, with spacing of approximately 300 m between stations.

11.1.2. A fully automated locking system at stations that allows users to check cycles in or out without the need for staffing at the station

11.1.3. Radio frequency identification devices to track where a cycle is picked up, where it is returned, and the identity of the user

11.1.4. Real-time monitoring of station occupancy rates through general packet radio service (GPRS), used to guide the redistribution of cycles

11.1.5. Real-time user information provided through various platforms, including the web, mobile phones, and/or on-site terminals

11.1.6. Pricing structures that incentivise short trips, helping to maximise the number of trips per cycle per day.

11.1.7. Cycles with specially designed parts and sizes to discourage theft and sale as whole or for parts.

11.2. COC will effectively manage the use of personal motor vehicles through a formal parking management program:

11.2.1. COC will utilize all revenue collected from the parking management program to fund public transport and NMT improvements that support meeting the goals in listed Section 3 of this policy.

11.2.2. COC will develop a robust management system that improves the enforcement of no-parking zones and keeping private vehicles from obstructing NMT facilities.

11.2.3. COC will clearly demarcate parking and no-parking zones. Footpaths, cycle tracks, and other NMT facilities will be designated as no-parking zones.



11.2.4. COC will urge Chennai Traffic Police to ensure that footpaths, cycle tracks, and other NMT facilities remain free of encroachment by parked vehicles.

## 12. Public Awareness

- 12.1. Working with the Chennai Traffic Police, COC will carry out a diverse public information campaign to generate widespread support and publicize the individual and social benefits of transport by NMT modes. COC also will coordinate NMT advocacy and planning through national organisations. While policy impacts are local, interfacing with national bodies can help coordinate local groups with national efforts to fund and promote India-wide NMT initiatives.
- 12.2. COC will develop long-range NMT plans and regularly update them. NMT plans must be adaptable and flexible. They must include reporting on the existing scenario, evaluation of the past and current initiatives, examining available funding resources, and explaining future efforts.
- 12.3. COC will explore alternative programs with the local business community to promote and encourage NMT use. For example, COC may reduce the business taxes / fees, or waive enforcement of parking requirements, or utilise other financial incentives to reward businesses or organisations that facilitate employees, customers, or the general public traveling by NMT modes. Recognised NMT-supporting amenities include, but are not limited to the following:
  - 12.3.1. Provide secure cycle parking.
  - 12.3.2. Provide on-site employee changing rooms with showers.
  - 12.3.3. Compensate employees who commute by NMT modes (or public transport) and thus *do not utilise* company private vehicle parking resources.
  - 12.3.4. Provide fleet of cycles for employees to use for short errands or trips.
  - 12.3.5. Provide cycle repair station, maintenance supplies such as tools, pumps and tubes, or a dedicated cycle maintenance staff.
  - 12.3.6. Provide employees with cycle-related training, such as finding safe cycle routes to work, safe riding skills, cycle maintenance, driver training (share the road with bicyclists), or other related topics.
  - 12.3.7. Utilise local logistics and courier services that are NMT-based.
  - 12.3.8. Organise cycle rallies or other cycle-related events for employees.
  - 12.3.9. Sponsor a local riding club or cycle racing team (e.g., employee, local, youth, professional).
  - 12.3.10. Sponsor individual employees who participate in local charity cycle rides or events.
  - 12.3.11. Sponsor or directly improve (with COC review and approval) existing street furniture, municipal footpaths, cycle tracks, or bus shelters.

- 12.4. COC will support efforts to appreciate Chennai's history and traditions through neighbourhood walking and cycle tours. COC will specifically create wayfinding signage and network maps to guide participants.

### **13. Funding Development and Infrastructure**

- 13.1. COC will encourage the use of NMT modes and will provide sufficient budgetary support to build and maintain the necessary NMT infrastructure. Specifically, COC will ensure that at least 60 per cent of its existing transport budget is allocated to NMT infrastructure.
- 13.2. COC will prioritize funding NMT improvements in areas where there is high NMT use.
- 13.3. COC will channel foreign loans and investment toward projects that improve conditions for NMT users.

### **14. Planning, Implementation, and Evaluation**

- 14.1. COC will coordinate the various decision regarding the planning, design, and use of public right-of-ways in accordance with the NMT Policy. These actions will be coordinated through an approval or decision concerning any public and private project that impacts, or is adjacent to a publicly accessible right-of-way.
- 14.2. All designs must comply with CSDGAs adopted by COC.
- 14.3. COC will require, where possible, that NMT user participation is included in transport-related planning processes.
- 14.4. Where there are conflicting standards in guidance provided by agencies such as the Indian Roads Congress,<sup>15</sup> COC will prioritise NMT modes in the allocation of street space, the design of street design elements, and street management.
- 14.5. COC will urge that all transport-related planning, plans, and studies (including surveys, plans, forecasts and models, and implementation plans undertaken by professional staff, consultants and / or international agencies) consider the impact of proposed interventions on NMT users and COC's ability to meet the provisions of the NMT Policy.
- 14.6. COC will facilitate annual collection of data related to NMT users and user behaviour including but not limited to:
  - 14.6.1. Gender, age, and income profiles of pedestrians and cyclists.
  - 14.6.2. Cordon counts of pedestrian and cycle volumes.
  - 14.6.3. Mapping of crashes involving pedestrians and cyclists to aid in the identification of black spots.
- 14.7. COC will assure that the transport mode share data are periodically updated, that all NMT modes are included in all studies of urban transport systems, that all transport

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<sup>15</sup>Relevant IRC publications include the Guidelines for Pedestrian Facilities (IRC 103-2012), Geometric Design Standards For Urban Roads And Plains (IRC 86-1983), and Guidelines For Capacity Of Urban Roads In Plain Areas (IRC 106-1990).

investment proposals to assess the impact on NMT users, and that such studies are freely available for public scrutiny.

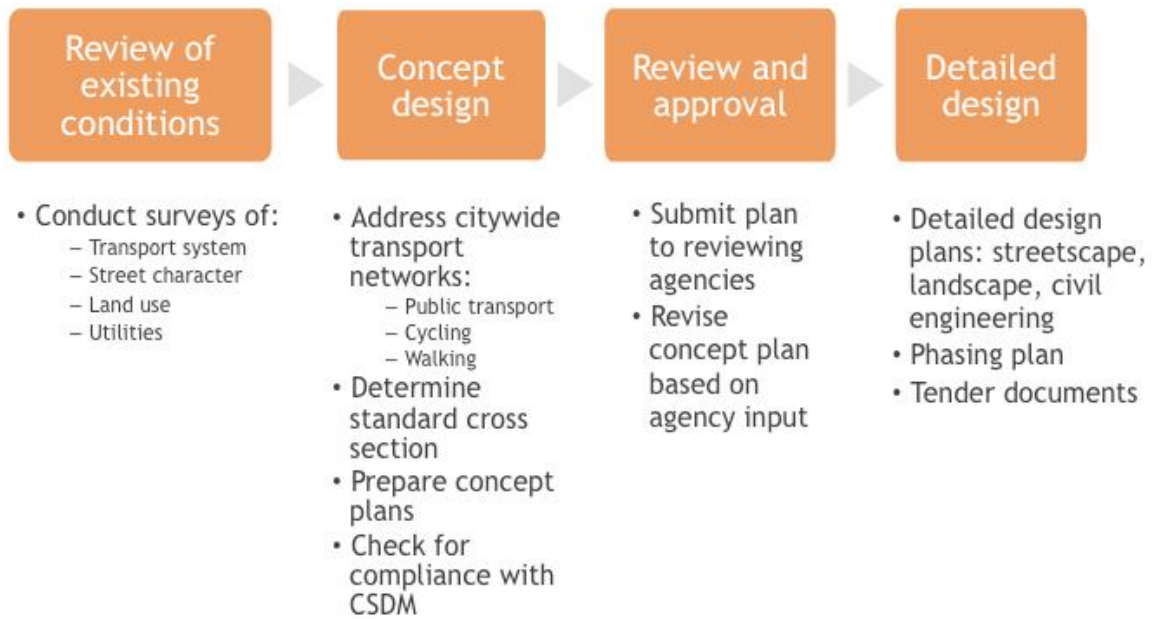
- 14.8. COC will prioritise known black spots for NMT improvements.
- 14.9. COC will ensure (and urge where appropriate) that new developments, both public and private, often include the rebuilding of portions of the public right-of-ways and should serve as models for implementation of the NMT Policy. Great efforts should be made that new COC developments lead by example.
- 14.10. COC will provide regular updates and seek input on such NMT projects and programs through the NMT Subcommittee of the Chennai Unified Metropolitan Transport Authority (CUMTA).

## Schedule A: NMT goals

COC will strive to meet and urge concerned agencies to take action to meet by 2018 the following goals related to the performance measurement indicators set above (Section 5.1):

- A. Increase the mode share for pedestrians and cyclists to at least 40 per cent.
- B. Reduce the number of pedestrian and cyclist fatalities to 0 per annum.
- C. Ensure that at least 80 per cent of streets have footpaths.
- D. Ensure that at least 80% of streets with a right-of-way (ROW) of over 30 m have unobstructed, segregated, continuous cycle track of 2m width.
- E. Increase public transport mode share to at least 60 per cent of motorised trips.
- F. Stabilise private motor vehicle kilometres travelled (VKT) so that there is 0 per cent annual growth in VKT.

## Schedule B: Design process



All projects related to road with a value over Rs. 5,00,000 are subject to design review:

- The Department or Zone office submits detailed design drawings to the Superintending Engineer, Roads and Bridges Department.
- If the designs comply with the CSDM, the Superintending Engineer, Roads and Bridges Department, can approve or reject the designs.
- If the submitting department seeks an exception to the CSDM, the Superintending Engineer, Roads and Bridges Department, can approve or reject the exception.

## Schedule C: Draft Chennai Street Design Manual (CSDM) contents

1. Introduction
  - 1.1. Purpose and need
  - 1.2. Goals
  - 1.3. Coordination with other efforts and agencies
  - 1.4. How to use the manual
2. Street design principles
  - 2.1. Safety
  - 2.2. Mobility
  - 2.3. Pedestrian accessibility
  - 2.4. Liveability
  - 2.5. Sensitivity to local context
  - 2.6. Creative use of street space
3. Priority networks
  - 3.1. Modal hierarchy
  - 3.2. Public transport network
  - 3.3. Cycling network
  - 3.4. Pedestrian network
4. Typologies
  - 4.1. Land use typologies
  - 4.2. Transport typologies
  - 4.3. Street character typologies
  - 4.4. Typology tables
  - 4.5. Typology protocols
5. Standard sections according to typologies
6. Design standards for street elements
  - 6.1. Footpaths
  - 6.2. Cycle tracks
  - 6.3. Carriageway
  - 6.4. Bus rapid transit
  - 6.5. Medians and pedestrian refuges
  - 6.6. Pedestrian crossings
  - 6.7. Landscaping
  - 6.8. Bus stops

- 6.9. Spaces for street vending
- 6.10. Street furniture and amenities
- 6.11. On-street parking
- 6.12. Service lanes
- 6.13. Traffic calming elements
- 6.14. Street lighting
- 6.15. Storm water drainage
- 6.16. Other underground utilities
- 7. Intersections
  - 7.1. Geometric and operational policies
  - 7.2. Standard intersection designs
- 8. Design process
  - 8.1. Surveys
  - 8.2. Design preparation
  - 8.3. Design review
  - 8.4. Implementation oversight
- 9. Evaluation