



Ministry of Housing and Urban Affairs
Government of India



INDIA
CYCLES 4 CHANGE
CHALLENGE

Streets 4
People
CHALLENGE

Investing in Healthy Streets WHY? WHAT? HOW?

An introductory guide for funding & financing street design projects



What is a Healthy Street?

A Healthy Street prioritises walking, cycling, and public transport to enable all citizens to access work, education, and amenities comfortably and safely.

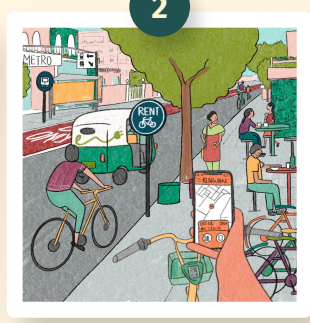
10 things that make a Healthy Street!

1



Every citizen gets a fair share of road space

2



Everyone breathes clean air

3



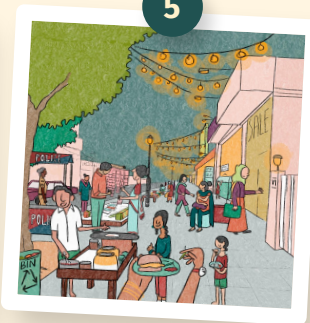
Public transport is easily accessible

4



Everyone moves around the city seamlessly

5



Women, children, and the elderly feel safe at all times

6



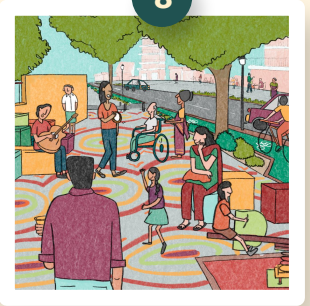
No lives are lost

7



Walking and cycling are attractive

8



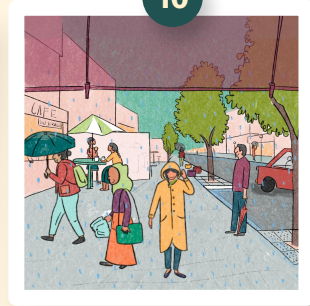
People enjoy street life

9



Local businesses flourish

10



The design adapts to climatic changes

Why? - 4 reasons to invest in Healthy Streets

1. To **reduce socio-economic costs** incurred to cities
2. To **nurture** a thriving **local economy**
3. To attract employers and **boost workforce participation**
4. To **reduce** recurring operations & maintenance **costs**

1. To reduce socio-economic costs incurred to cities

- **Prevent road crashes by designing safe streets and intersections**

A life lost in a road crash in India incurs ~91 lakhs worth of socio-economic costs. Road crashes cost Indian economy about 3-5% of GDP each year
Source: MoRTH 2018, World Bank 2022

- **Build resilience against disasters by integrating public utilities and services in street design**

The overall economic loss due to Chennai 2015 floods is estimated at ~Rs. 15,000 crores
Source: ASSOCHAM

- **Improve citizens' health by promoting walking & cycling**

India can incur an economic loss of \$4.58 trillion during 2012-30 due to non-communicable diseases.
Source: Benefits of cycling in India, TERI



2. To nurture a thriving local economy

- **Boost retail sales by improving the public realm**

High street walking, cycling, and public realm improvements can increase local sales by upto 30 percent.

Source: TfL 2014, Lawlor 2013

- **Free up disposable income by reducing travel costs for citizens**

One car trip (average 7km, 5 days/ week) less for one month means ₹1,500 saved and 144gms CO emissions reduced

Source: Central Pollution Control Board



Hong Kong saw rental rates grow by 17% following investments in pedestrian infrastructure

Source: Living Streets, 2014

3. To attract employers and boost workforce participation

- **Reduce economic loss to employers by preventing congestion on streets**

Bengaluru IT companies suffered a loss of ₹225 crore in a day as their employees were stuck in traffic for around five hours

Source: Hindustan Times

- **Encourage women workforce participation by ensuring safety**

Safe infrastructure is a contributor for advancing gender equality in India which could add ~\$700 billion of GDP in 2025

Source: Elsa Marie D'Silva, Mckensy Report



Church Street, Bengaluru

4. To reduce recurring operations & maintenance costs

- Eliminate the costs of road-cutting and frequent re-laying of roads by integrating underground and aboveground utility management with street design
- Ensure long-lasting street infrastructure with minimal expenses to Urban Local Bodies by including 'Defect Liability Period' under the executing contractor



By investing in Healthy Streets and replacing short-distance motor vehicle trips in India with walking and cycling...



we can achieve annual savings of up to
~INR 1.8 trillion

It is equivalent to 1.6% of Indian GDP in 2015-16.

We now know **WHY** to invest in Healthy Streets.

Let us understand **HOW MUCH** investments would
Healthy Streets initiatives require!

Abstract costs for street redevelopment

Based on the **scope of work**, Healthy Street works can be categorised into:

A

₹ 12 - 18 cr/km

COMPLETE RECONSTRUCTION

Involves **complete reconstruction** of the NMT zone, equipped with footpaths, cycle tracks, designated parking, elaborate placemaking, landscaping, and complete new underground utility laying. **These are usually arterial or sub-arterial streets.**

B

₹ 5 - 8 cr/km

PARTIAL RECONSTRUCTION

Involves **partial reconstruction** of the NMT zone including footpath (cycle track could be painted or excluded), designated parking and seaters. Placemaking is not as elaborate as type A. **There are usually sub-arterial or collector streets**

C

₹ 1 - 3 cr/km

MINIMUM RECONSTRUCTION

Minimum reconstruction - maximum use of existing infrastructure and materials. The prime focus is creating usable, and safe streets. Utilities are not considered - or minimal component is considered. **These are usually collector or local streets**

Pondy Bazar Ped Plaza, Chennai

₹18 cr/km | 32m ROW | 2018



- Walking infrastructure - **Yes**. Full reconstruction - Granite Finish
- Cycling Infrastructure - **No**
- Parking bays - **Yes**.
- Placemaking - **Yes**. Seating clusters and play elements (Both sides)
- Utilities - **Yes**. Underground trenches for telecom, electrical, and stormwater drain. Aligning electrical boxes, and lighting
- Carriage way - **No**.
- Maintenance - **No**

A

Jangali Maharaj Road, Pune

₹10 cr/km | 30m ROW | 2016



- Walking infrastructure - **Yes**. Full reconstruction - Paver blocks
- Cycling Infrastructure - **Yes**. Full reconstruction - Concrete finish
- Parking bays - **Yes**
- Placemaking - **Yes**. Seating clusters, designated vending and play elements (Both sides)
- Utilities - **Yes**. Shifting all utilities underground.
- Carriage way - **No**.
- Maintenance - **Yes**. 5 year maintenance

Pashan Sus road, Pune

₹5 cr/km | 30m ROW | 2022



- Walking infrastructure - **Yes**. Full reconstruction - Paver blocks
- Cycling Infrastructure - **Yes**. At grade - Tar Finish
- Parking bays - **Yes. Partially**
- Placemaking - **Yes**. Seating clusters and play elements (One side)
- Utilities - **Yes**. Shifting utilities underground
- Carriage way - **No**
- Maintenance - **No**

B

Sardar Patel road, Chennai

₹5 cr/km | 24m ROW | 2020



- Walking infrastructure - **Yes**. Full reconstruction - Granite finish
- Cycling Infrastructure - **No**
- Parking bays - **No**
- Placemaking - **No**
- Utilities - **Yes**. Underground duct for OFC telecom cables
- Carriage way - **No**
- Maintenance - **No**

**Granite finish at SP road, Chennai has escalated the overall cost as compared to Pashan-Sus road, Pune.*

Raman Street, Chennai

₹2 cr/km | 15m ROW | 2018



- Walking infrastructure - **Yes**. Full reconstruction - Rubber moulded pavers (One side)
- Cycling Infrastructure - **No**
- Parking bays - **No**
- Placemaking - **No**
- Utilities - **Yes**. Underground HDPE duct for OFC telecom cables
- Carriage way - **No**
- Maintenance - **No**

C

Mooparappan road, Chennai

₹1.6 cr/km | 15m ROW | 2018



- Walking infrastructure - **Yes**. Full reconstruction - Concrete finish
- Cycling Infrastructure - **No**
- Parking bays - **No**
- Placemaking - **No**
- Utilities - **Yes**. Underground HDPE duct for OFC telecom cables
- Carriage way - **No**
- Maintenance - **No**

Approx. cost for implementing 1 km of street (without carriageway)



JM Road, Pune

₹10 cr/km | 30m ROW

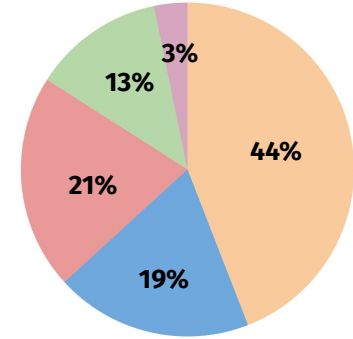
| | |
|-----------------|-----|
| Civil Work | 70% |
| Electrical Work | 9% |
| Utilities | 10% |
| Furniture | 5% |
| Carriageway | 0% |
| O & M | 6% |



Satara Road, Pune

₹12.50 cr/km | 45m ROW

| | |
|-----------------|-----|
| Civil Work | 60% |
| Electrical Work | 14% |
| Utilities | 14% |
| Furniture | 9% |
| Carriageway | 0% |
| O & M | 3% |



Average Cost Analysis

- Civil Work**
Dismantling, Demolition, Surface work
- Electrical Work**
Lighting, Transformers
- Utilities Work**
Telecom, Electricity, Stormwater
- Furniture**
Seaters, Placemaking
- O & M**

Approx. cost for implementing 1 km of street (with carriageway)



Aundh DP Road, Pune

₹36 cr/km | 24m ROW

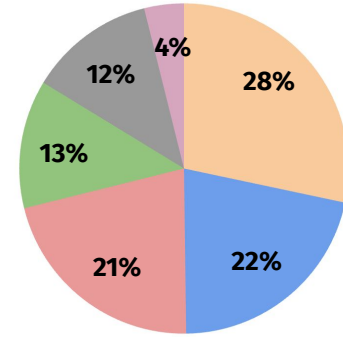
| | |
|-----------------|-----|
| Civil Work | 31% |
| Electrical Work | 20% |
| Utilities | 18% |
| Furniture | 17% |
| Carriageway | 12% |
| O & M | 2% |



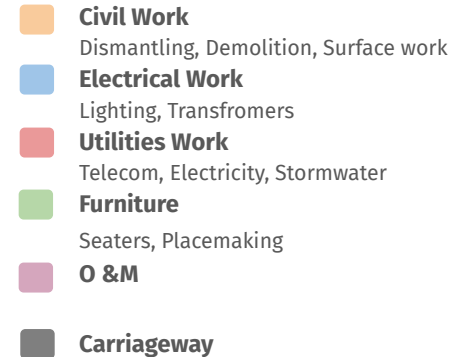
GN Chetty Road, Chennai

₹4.40 cr/km | 30m ROW

| | |
|-----------------|-----|
| Civil Work | 19% |
| Electrical Work | 35% |
| Utilities | 9% |
| Furniture | 4% |
| Carriageway | 33% |
| O & M | 0% |



Average Cost Analysis



*Cost of Aundh DP Road is high, as it involved restructuring the whole street, including concretisation, high quality traffic calming and well designed table top crossings.

To **OPTIMISE** the costs...

1

Prioritize **complete reconstruction** only for high-impact streets

At the cost of implementing **complete reconstruction (Type A)** for 1 km, you can **transform upto 10+ km of streets** through **minimum reconstruction (Type C)** with safe footpaths and traffic calming.

2

Align street redevelopment with **utility repair/replacement** works

Through **proactive collaboration with line agencies and utility mapping** prior to project conception, we can **reduce upto 20%** of project cost.

Phase out the implementation of street redevelopment in alignment with the schedule of shifting/repairing utilities.



3

Do not include **relaying of asphalt** unless necessary

By adopting clean project construction and management practices, you can **save upto 30% of costs** by avoiding carriageway works.

Interventions to improve safety & accessibility like **traffic calming, table top crossing** and **pedestrian refuges** should be prioritised.

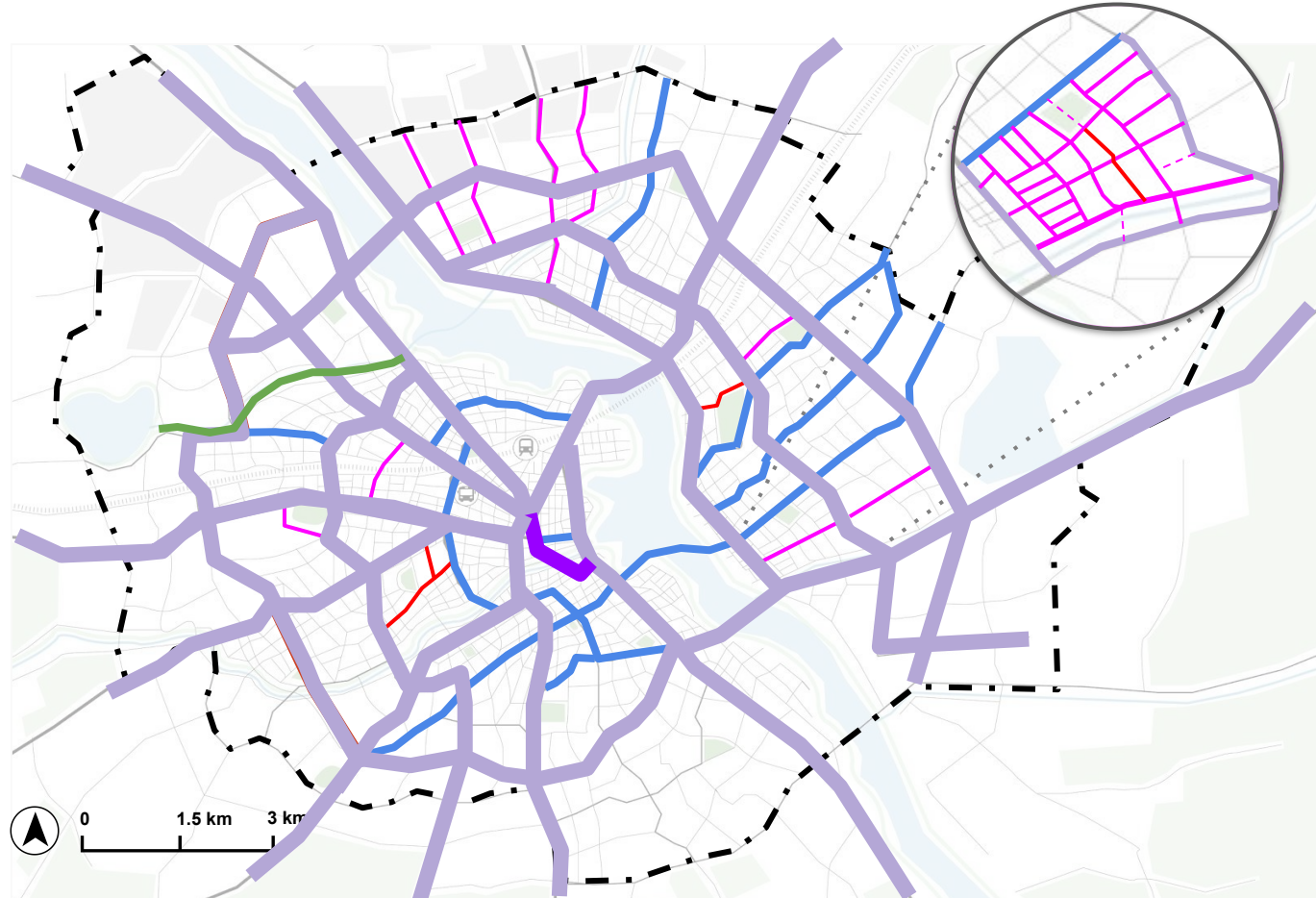
Keeping this as a reference,
we could create an abstract estimate
for **transforming neighbourhoods!**

Step 1: Identify a neighbourhood



Check out the [network planning](#) guide!

The selected area should be around **1-3 sq.km** with distinguishable boundaries, either through streets or natural geographical features.



Step 2: Map your street network



Arterial Streets

They facilitate **intra-city long distance travel** and connect various parts of the city. They have **high traffic volume with high design speed**. Arterial streets mostly have a robust **public transport (bus, metro, etc.) or IPT (shared auto/vans etc.) service**. *(usually above 18m ROW)*.

Collector Streets











They connect **traffic from arterial streets to local streets**. They also **provide connection between different neighbourhoods**. They may have public bus transport or IPT service. *(usually have 12-18m ROW)*.

Local Streets

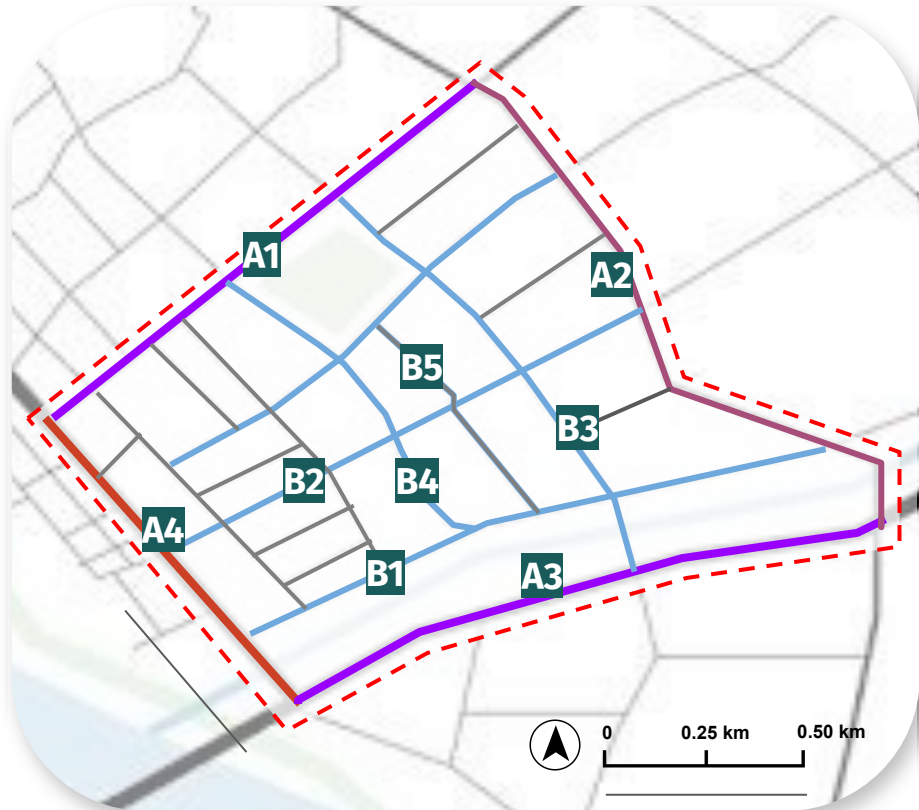
They **provide access to private properties in a neighbourhood**. They do not have public transport services. *(usually have <12m ROW)*.

Step 3: Assign suitable design interventions



| Element | Arterial Street | Collector Street | Local Street |
|--|-------------------------|-------------------------|------------------------|
|  Segregated footpath | ✓ | ✓ | + |
|  Segregated cycle track | ✓ | ✓ | + |
| <small>Only on streets with RoW ≥18m</small> | | | |
|  Multi-Utility Zone (MUZ) | ✓ | ✓ | + |
|  On-street Parking | + | ✓ | + |
| <small>Can be in service lane</small> | | | |
|  At-grade crossings | ✓ | ✓ | ✓ |
|  Public Transport | ✓ | ✓ | ✗ |
|  Mass Rapid Transport | + | ✗ | ✗ |
|  Service Lane | + | ✗ | ✗ |
|  Speed Limit | 30-60 kmph | 15-30 kmph | Below 15 kmph |
|  Carriageway | ≤ 3 lanes per direction | ≤ 2 lanes per direction | ≤ 1 lane per direction |
| ✓ Should be present | + | ✗ Should not be present | |

Step 3: Assign suitable design interventions



| Street types | Interventions |
|----------------------------------|---|
| A1, A3 <i>Arterial</i> | Dedicated and segregated Footpath & Cycletrack (3 km) |
| A2 <i>Arterial</i> | Dedicated and segregated Footpath with Traffic calming (1 km) |
| A4 <i>Arterial</i> | Walking & Cycling Plaza (1 km) |
| B <i>Collector</i> | Dedicated and segregated Footpaths (on both sides) with traffic calming (7 km) |
| C <i>Local</i> | Traffic calmed street (5 km) |

Step 4: Develop an abstract estimate

Healthy Street Budget for transforming approx. 18 km of streets in a neighbourhood ~ ₹100 cr



Walking & Cycling Plaza

A4 - 18cr/km (1 km)



Segregated dedicated Footpath & cycle track

A1, A3- 12 cr/km (3 km)



Segregated dedicated footpath with traffic calming

A2, B - 5 cr/km (9 km)



Traffic-calmed streets

1 cr/km (5 km)

Total Cost - ~₹18 cr

Total Cost - ~₹36 cr

Total Cost - ~₹45 cr

Total Cost - ~₹5 cr

Remember to account budget
for **design consultancy**
and **communication & outreach!**

How can we **fund** and **finance**
Healthy Streets?

Funding vs Financing - **WHAT?**

A. FUNDING - money made available or provided, especially by a government department or any organisation for a specific purpose/goal, without the need for repayment

B. FINANCING - the process of obtaining or furnishing money or capital from a development agency or through other innovative means that mostly requires repayment

Source: Vermont Bond Bank, IDFC First Bank



Harrington Road, Chennai

Funding vs Financing - **HOW?**

1. Prioritize **capital investments routed through National- and State-level Funds**

2. Establish **Healthy Streets Fund as part of your city's annual budget**

3. Leverage **development funds from political representatives**

4. Pitch for **technical assistance grants from external development banks**

5. Leverage **funding opportunities from global development sector for technical assistance**

6. Reinvest **revenue from various Travel Demand Management measures**

7. Explore **Land Value Capture mechanisms through Transit-Oriented Development**

8. Attract **contributions from citizens and corporates**

9. Pursue **market-based financing instruments**

10. Seek **low- or zero-interest loans from development banks**

Here are the **10 ways** to fund and
finance Healthy Streets in your city!

1

National- or State-level funds

These are **one-time/recurring large-scale budget allocations** for capital investments on urban infrastructure/sustainable mobility interventions from the national- or state governments.

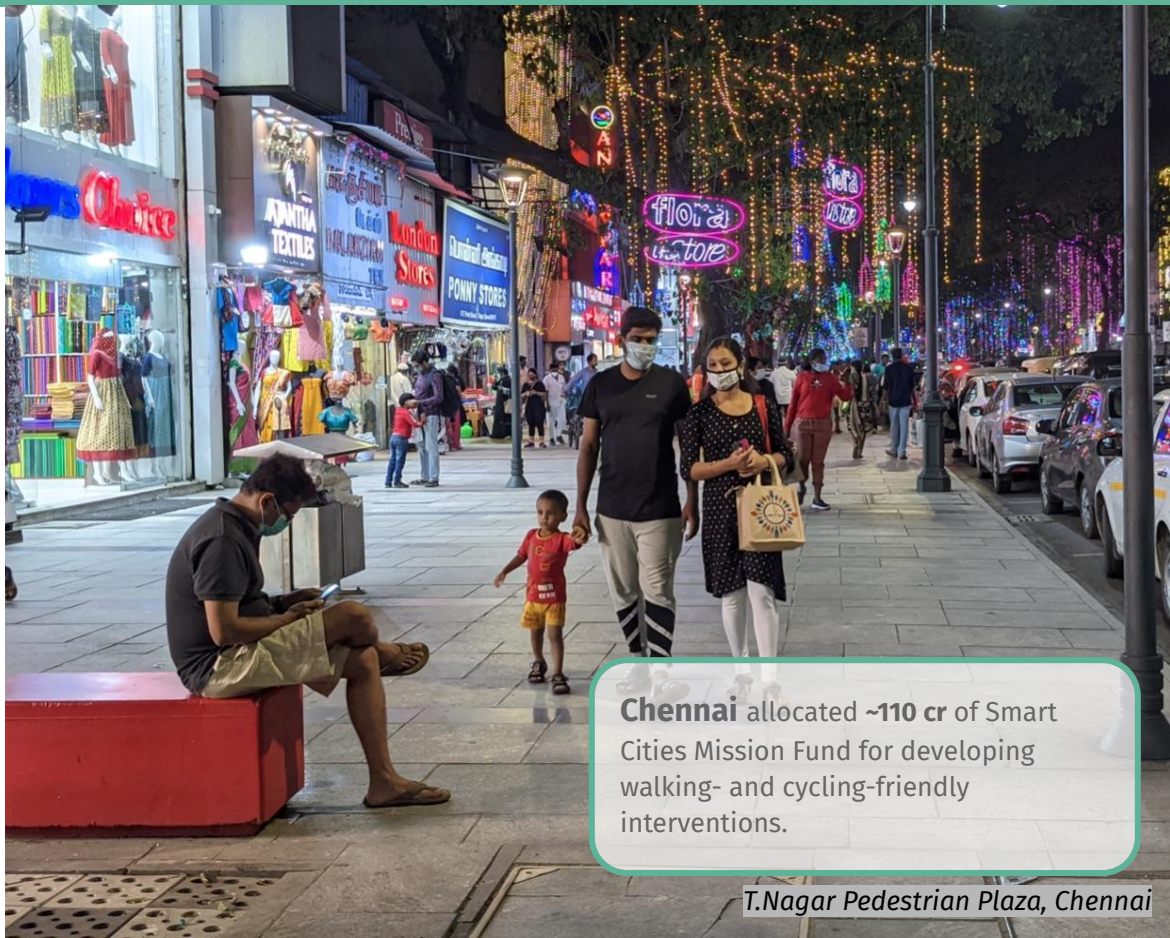
To optimise on these funds, cities could package Healthy Streets projects to improve three key urban infrastructure challenges - **mobility, utility, and liveability.**

Few examples of **National-level funds:**

- Smart Cities Mission Fund*
- National Clean Air Programme Fund (NCAP)*
- Nirbhaya Fund*
- Gati Sakthi Scheme*

Few examples of **State-level funds:**

- Urban Road Infrastructure Fund (Tamil Nadu)*
- City Infrastructure Development Fund (Assam)*
- Urban Infrastructure Fund (Maharashtra)*



Chennai allocated ~110 cr of Smart Cities Mission Fund for developing walking- and cycling-friendly interventions.

T.Nagar Pedestrian Plaza, Chennai

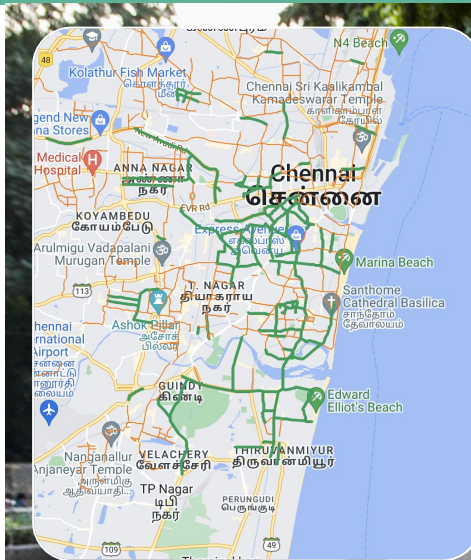
Set up a **Healthy Streets Fund** as part of your city's annual budget. Prioritise recurring funding allocation for roads and related amenities, from your city's own-tax revenue or partly redirect funds from the state department for road construction.

In the long-term, set up a Healthy Streets Cell/Department with **dedicated internal capacity** to implement high-quality infrastructure.

An example of city-level **Healthy Streets funds**:

- Chennai's **Bus Route Roads Department** was allocated ~90 crores was spent on implementing footpaths in 2019-20.

Over the last 7 years through a dedicated fund, Chennai has implemented **150+ km** of footpaths across the city.



Map showing the street segments implemented with footpaths in Chennai



3 Development funds from political representatives

Every ward councillor and constituency representative (MLA/MP) shall have access to a **dedicated, recurring annual development funds.**

While these may not be sufficient for projects that require complete reconstruction, it could be optimised for complementary interventions: street lights, traffic calming measures, etc

Few examples:

- Member of Legislative Assembly Constituency Development Scheme (MLACDS) in Tamil Nadu - available as Rs. 3 Cr/ yr*
- Member of Parliament Local Area Development Scheme (MPLADS) - available upto Rs. 5 Cr/ yr*
- Councillors' Ward Development Fund in Chennai - Rs. 35 lakhs / yr**



Kaloor Bus shelter, Ernakulam, Kerala

4

Grants from development agencies

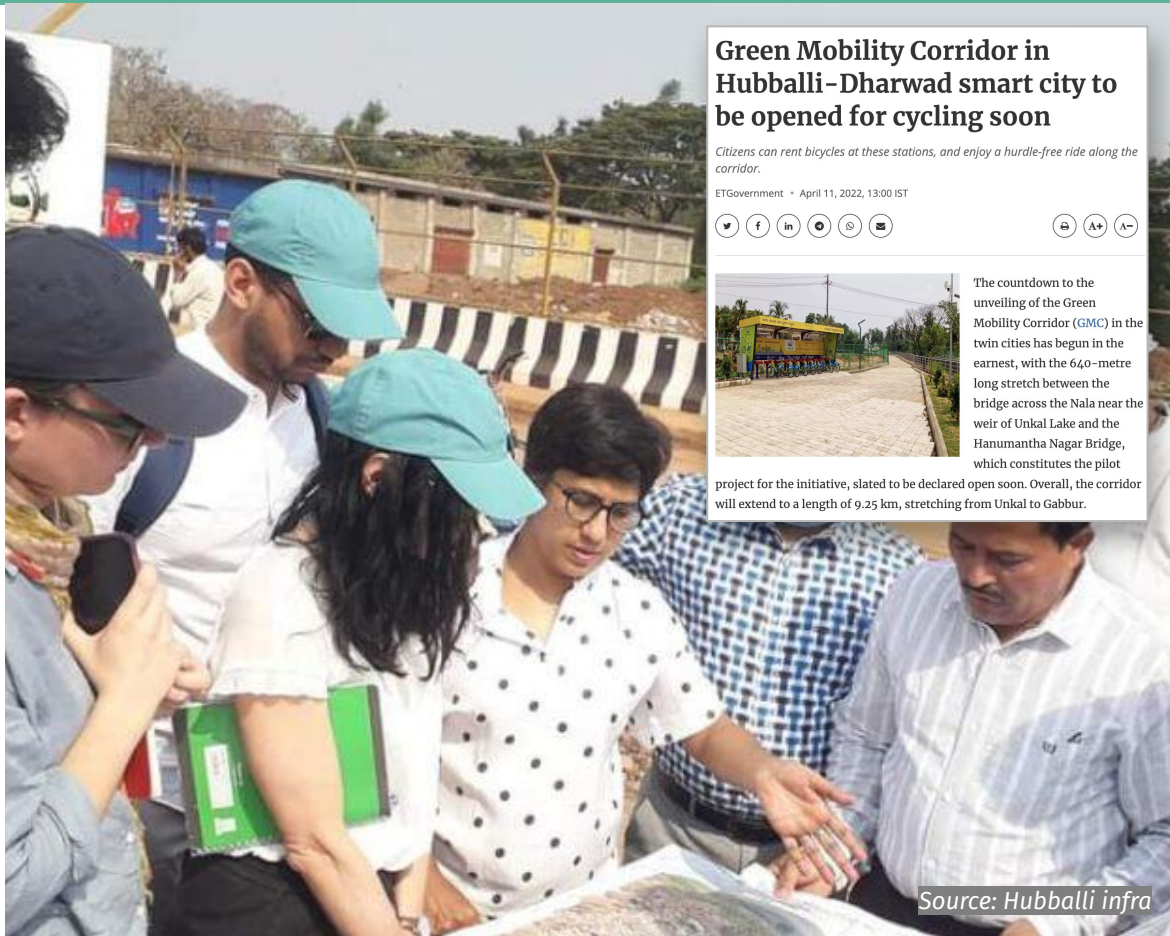
Grants from development agencies are generally available and allocated to a limited number of cities or projects with focused goals.

An effective pitch would help scaling up Healthy Streets through **grants for technical assistance** (DPRs, Feasibility studies, hiring experts, etc.).

An example:

- a. *City Investments to Innovate, Integrate and Sustain (CITIIS) Challenge - 2018 offered grants for procuring technical assistance*

Cities including **Amritsar, Dehradun, and Hubballi Dharwad** optimised on CITIIS Challenge - 2018 to implement high-quality sustainable mobility projects.



Green Mobility Corridor in Hubballi-Dharwad smart city to be opened for cycling soon

Citizens can rent bicycles at these stations, and enjoy a hurdle-free ride along the corridor.

ETGovernment • April 11, 2022, 13:00 IST



The countdown to the unveiling of the Green Mobility Corridor (GMC) in the twin cities has begun in the earnest, with the 640-metre long stretch between the bridge across the Nala near the weir of Unkal Lake and the Hanumantha Nagar Bridge, which constitutes the pilot

project for the initiative, slated to be declared open soon. Overall, the corridor will extend to a length of 9.25 km, stretching from Unkal to Gabbur.

Source: Hubballi infra

Other than grants routed through the national/state departments, various global development agencies also offer **opportunities for capacity building and technical support** through direct ‘call for proposals’.

While the funding sum could be limited, they enable access to expertise and could **showcase your work** at an international forum to **attract more investments** in the future.

Few examples:

- a. *GDCI's Streets for Kids - Leadership Accelerator Program*
- b. *Bloomberg Initiative for Cycling Infrastructure*



Streets for Kids Leadership Accelerator

APPLICATIONS ARE DUE SUNDAY MARCH 13, 2022, AT 11:59 P.M. ET (New York City time). Only one application per team is required. If you have questions about completing this form, please email us at stk@gdci.global

GENERAL INFORMATION

Country *

City *

City population *

APPLICANTS

Applicants should apply as groups of three people, based in the same city, and representing an interdisciplinary mix (e.g. one person from a transportation/mobility department, one person from an education department, and one person from an urban planning department). Applicants should be mid-career professionals, ideally with at least a few years of experience working with city governments. At least two people in each group should work directly for the city government. One person in the group may work for a nonprofit, NGO, school, or other organization, provided they demonstrate their experience working with city government. The 2022 cohort of the Streets for Kids Leadership Accelerator will be hosted in English, but simultaneous translation may also be provided dependent on interest. All applicants must have full professional proficiency in English. We will select 20 groups of three, with each group representing a different city.

Thrissur, Kerala is part of the GDCI's Streets for Kids - Leadership Accelerator Program 2022, which covers capacity building and implementation grants up to ~0.2 crores

6 Revenue from Travel Demand Management (TDM)

Progressive TDM policies should be based on incentivizing sustainable mobility, as much as **disincentivizing polluting private modes.**

Pricing-based regulation could **persuade long-term behaviour change**, while offering short-term revenue source for strengthening street infrastructure.

(Note: For successful implementation of on-street parking management, curb alignment and presence of footpaths are crucial. Hence, the both should go hand-in-hand.)

Few examples:

- a. **Parking charges**
(Conservative estimates show that Bengaluru can unlock approx. Rs. 300 cr/year through effective on-street parking management)
- b. **Congestion pricing**
- c. **Green Tax**



Bengaluru's Parking Policy 2.0 commits to ring-fence the revenue from parking management for implementing NMT-friendly infrastructure.

Source: Deccan Herald

7

Land Value Capture (LVC) Mechanisms

Land value capture can **promote inclusive and equitable urban development**, by accounting the increase in property value due to public infrastructure, levying relative charges, and reinvesting them for high-quality public infrastructure.

The impact of street transformation projects are not only limited to the right-of-way, **but extends to change business activities, service access for residents, and change the lives of people in that neighborhood.**

Hence, it is important to look through the real estate perspective and optimise the benefits.

Few examples:

- Infrastructure and Amenities Charges
- Station Connection Fees
- Betterment Charges
- Impact Charges



Chennai optimises ~100 cr of their Infrastructure and Amenities Fund for implementing Healthy Streets initiatives under Mega Streets Project.

Source: Oasis Design Inc

8

Contributions from non-governmental partners

This **reduces the dependency on city budgets** for small-scale neighbourhood-level interventions. This also provides the opportunity for **catalysing community-driven transformation**.

Contributions from non-governmental partners could be tapped into for intersection redesign, tactical urbanism tests, placemaking projects, and pilot street segments.

Few examples:

- a. *Corporate Social Responsibility Funds*
- b. *Public donations*



One Green Mile project in **Mumbai** was implemented with contributions of from private sector

Market-based tools will help cities **increase and diversify own-source revenues**. It gives direct access to capital market and avoid unplanned growth or deficient infrastructure supply.

Note: A total of Rs 1,747 Crores (\$291 Million) of debt across 27 projects has been raised by municipalities in India since 1997. (Source: Janaagraha)

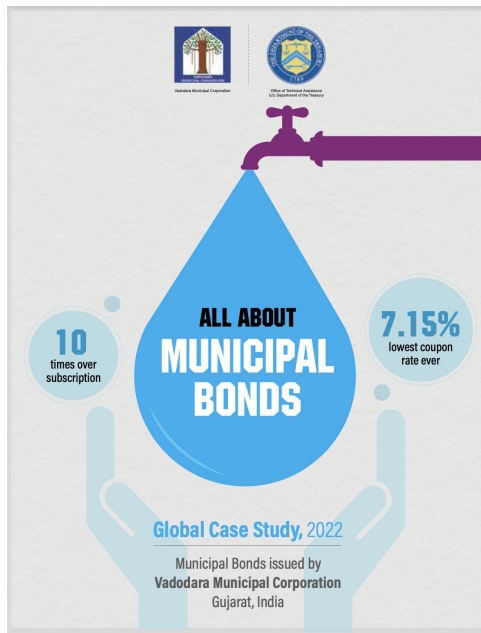
Few examples:

- Public Private Partnership based on Out-of-Home advertising potential
- Municipal Bonds & Credit rating: Debt securities issued by the cities directly or pooled by state government
- Carbon Credits and trading

[Click here](#) to check out the guide to roll-out municipal bonds

Indore Municipal Corporation's green bonds oversubscribed 5.91 times on final day

VMC's 'successful listing' of municipal bond now case study for US Treasury



| Sr. No. | Municipal Corporation | Issue Amount (in INR Cr.) | Rating | Issue Date | Maturity (in years) | Municipal Bond Interest Rate | 10 Year G-Sec Interest Rate | Spread (in bps) |
|---------|---|---------------------------|----------|------------|---------------------|------------------------------|-----------------------------|-----------------|
| 1 | Pune | 200 | AA+ | 20.06.2017 | 10 | 7.59% | 6.64% | 95 |
| 2 | Greater Hyderabad | 200 | AA | 16.02.2018 | 10 | 8.90% | 7.56% | 134 |
| 3 | Indore | 139.9 | AA | 29.06.2018 | 10 | 9.25% | 7.89% | 136 |
| 4 | Andhra Pradesh Capital Region Development Authority | 2,000 | A+ / AA- | 15.08.2018 | 10 | 8.68% | 7.85% | 83 |
| 5 | Greater Hyderabad | 195 | AA | 19.08.2018 | 10 | 9.38% | 7.85% | 153 |
| 6 | Bhopal | 175 | AA | 25.09.2018 | 10 | 9.55% | 8.07% | 148 |
| 7 | Visakhapatnam | 80 | AA | 21.12.2018 | 10 | 9.50% | 7.41% | 209 |
| 8 | Ahmedabad | 200 | AA+ | 11.01.2019 | 5 | 8.70% | 7.32% | 138 |
| 9 | Surat | 200 | AA+ | 27.02.2019 | 5 | 8.68% | 7.58% | 110 |
| 10 | Greater Hyderabad | 100 | AA | 20.08.2019 | 10 | 10.23% | 6.69% | 354 |
| 11 | Lucknow | 200 | AA | 13.11.2020 | 10 | 8.50% | 5.88% | 262 |
| 12 | Ghaziabad | 150 | AA | 31.03.2021 | 10 | 8.10% | 6.18% | 192 |
| 13 | Vadodara | 100 | AA+ | 24.03.2022 | 5 | 7.15% | 6.84% | 31 |

Low- or zero-interest loans could **help in increasing the capital investments** for resilient urban infrastructure. This also opens up opportunities to collaboratively work with Development Banks and tap into international expertise.

Cities could package street redevelopment works with other projects including Social Housing, Metro/other public transport infra, etc

Few examples:

- City Investments to Innovate, Integrate and Sustain (CITIIS) Challenge - 2018 (Agence Française de Développement (AFD) and the European Union (EU))*
- Chennai City Partnership (World Bank)*
- Project Readiness Financing (PRF) loan - Nagaland (Asian Development Bank)*



Chennai has collaborated with the World Bank for transforming arterial and sub arterial streets, through the Chennai City Partnership.

There are so many tools and ways to fund and finance Healthy Streets!

A thumb-of-rule is to **prioritise your city's own budget for healthy streets and explore TDM & LCV mechanisms, before opting for loans and market-based tools.** This will help in long-term sustenance.

Thank you!



<http://bit.ly/c4conline>



<https://bit.ly/s4ponline>

A programme of



Conducted by



www.itdp.in