



Walkable Bengaluru

Pilot programme under Walkable Cities initiative

www.walkablecities.in

sensinglocal

SUSTAINABLE
MOBILITY
NETWORK



About Walkable cities

A national initiative to improve walkability in our cities at scale

Goal:

Conduct walkability audits and generate data led budgets estimates to help government prioritise spending towards pedestrian infrastructure for maximum impact!



Challenge: Fixing footpaths is a wicked problem

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1. **'Where do we start?' - It's impossible to fix footpaths on every road**, due to road width and budgets constraints
2. **Footpath upgradation is fragmented**, leading to limited again in overall walkability.
3. **Middle child syndrome** - private and public actors like dumping on the footpaths



Walkable Bengaluru

19 ward Pilot programme

March - August '23

350

Kms of Footpath

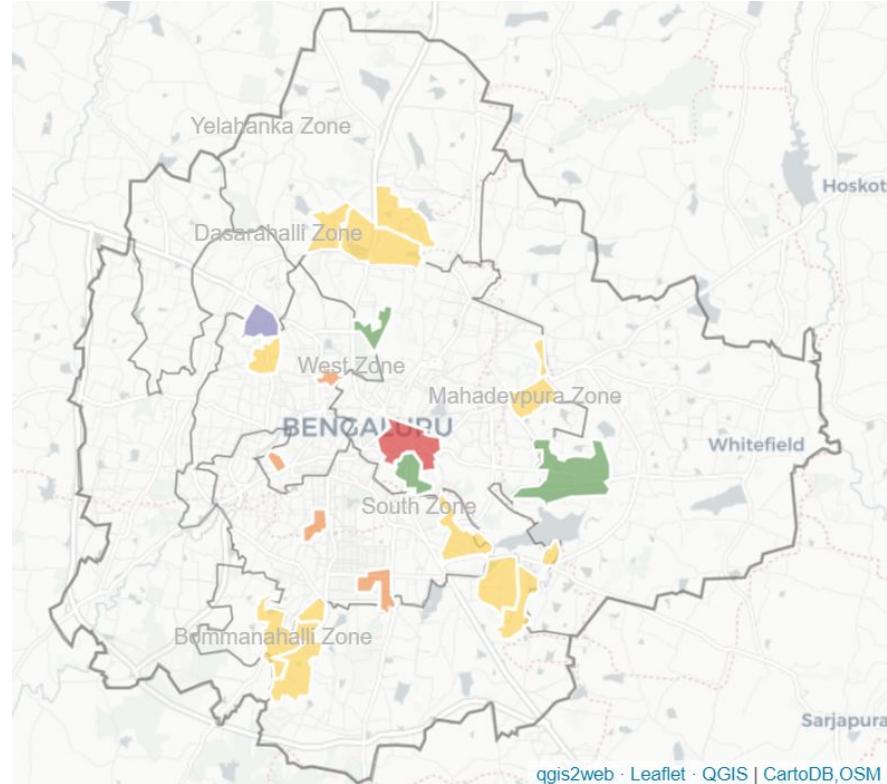
185

Junctions

150+

Trained
Volunteers

A blueprint to radically improve walkability in Bengaluru in a rapid, affordable and inclusive way

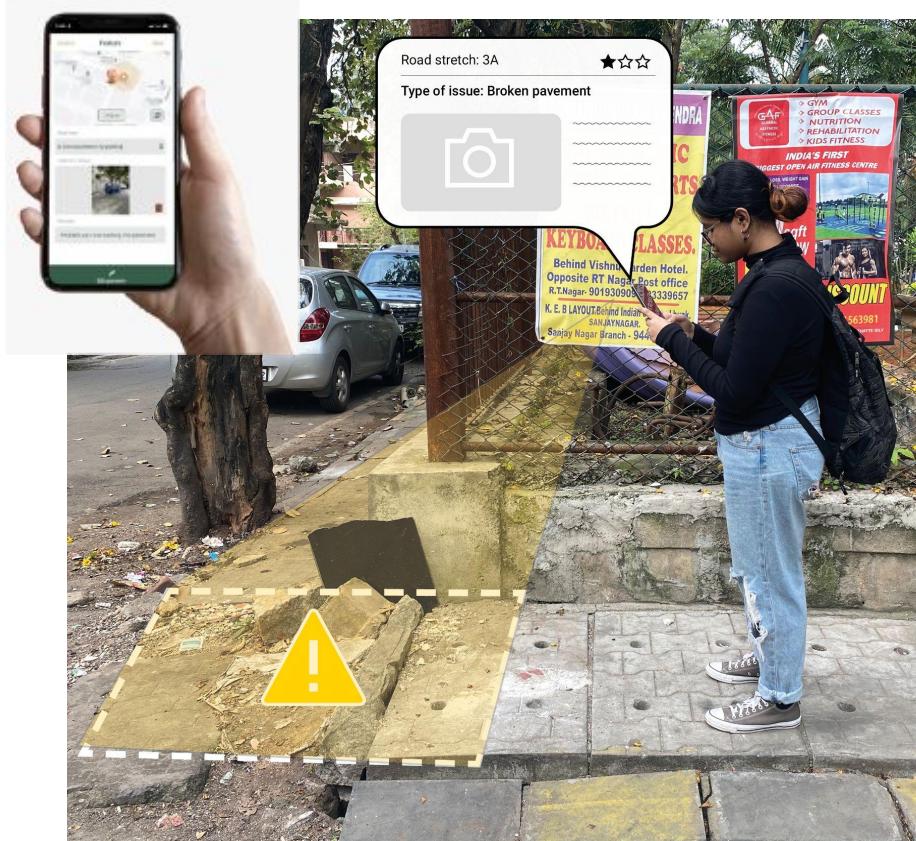


qgis2web · Leaflet · QGIS | CartoDB, OSM

Components

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1. **Strategic approach** to identifying 'Priority walking network' & Audit network
2. **Comprehensive Audits** with citizens - high accuracy and high ownership
 - Data format: geospatial data + photos
3. **Using data to generate budgets** to help decide guide local spending
4. **Using data led analysis to create local projects** that improve safety, comfort, access





Speed

4 hours for 1 ward
to audit & budget



Easy and intuitive

Usable by citizen
volunteers &
government officials



Actionable data

Ready for planning
and budgeting

Priority walking network

30-35% of total road network

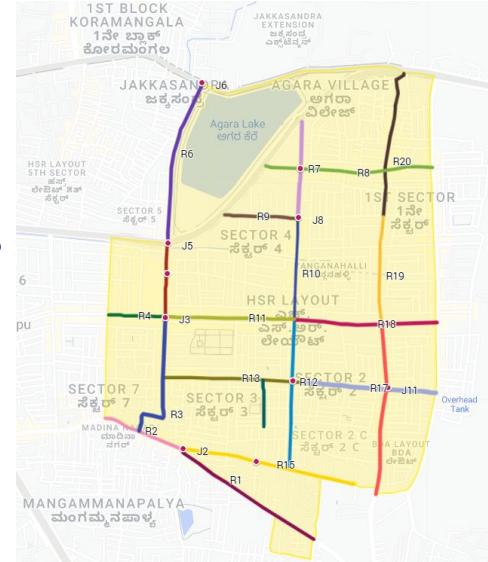
Assessing roads for connectivity level, traffic, trip attractors and land use



Audit network

15-20% of total road network

Road length split into length of footpaths and key junctions



Issue mapping on ground

Issues collected as geospatial data + photos



27 parameters

Footpath audits

- 5 categories of issues - encroachment, footpath quality, unsafe areas, waste
- 20 parameters



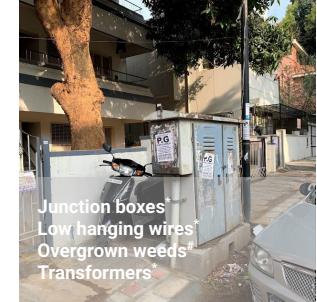
Footpath quality



Waste



Encroachment



Obstruction

Junctions audits

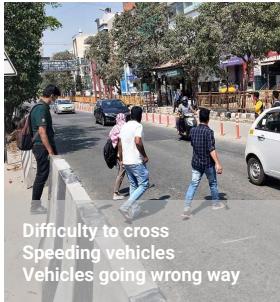
- 7 parameters
- Perception + infrastructure audit + vehicular behavior



Unsafe areas

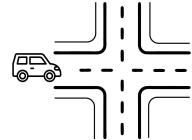
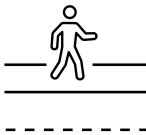


Junction infrastructure



On ground experience of safety

Walkable Kochi 40 Parameters



	Categories	List of Parameters
CARRIAGEWAY (1)		
1	Carriageway quality	Potholes
FOOTPATH (25)		
2	Footpath quality	Broken footpath, level difference, No footpath
3	Waste	Construction debris, Garbage Spots, Street litter, Silt on roads, Silt in drains, Yellow spots
4	Encroachment	Parking, Vendors, Shop spillover, Planters, Construction sites
5	Obstruction	Junction boxes, Low hanging wires, Transformers, Defunct electrical poles, Overgrown weeds/branches, Large tree
6	Safety	Dark zones
7	Universal accessibility	Improper laying of tactile tiles, Damaged bollards, Improper placement of bollards, Damaged/no guard rails

	Categories	List of Parameters
JUNCTIONS (14)		
2	Road infrastructure	Street light, Refuge Island, Pedestrian crossings, Traffic calming measures (Speed breaker/Rumble strips), Pedestrian signals
3	Vehicular Behaviour	Speeding Vehicles, Wrong side driving
4	Junction corner	Pedestrian safety signage (Crossing/School zone/Speed limit), Kerb ramps
5	Obstructions	Parked vehicle, Electric Infrastructure (Junction box/Transformer/Electric pole), Vendor/Shop spillover, Traffic kiosk, Overhanging branches

Creating local street / area based projects



First and last
mile to public
transit



Area based
parking



Safe school and
park zones



Hawking
zones



Universal
accessibility



Mitigating air
pollution



Pedestrian streets
& place making



New financial
models to retrofit
legacy infra.

Influencing policy implementation

- Influencing parking policy and its implementation
- In support of Active Mobility Bill
- Implementation of Hawker policy

What did we find out from
the 19 ward audits?

Top 3 findings

Findings #1

Top issue across pedestrian infrastructure

1. No footpaths

- a. Yelachenahalli (Ward 221) - Highest length of no footpath - 6.67 / 48 km
- b. Koramangala (ward 186) most level differences - 1.65 km

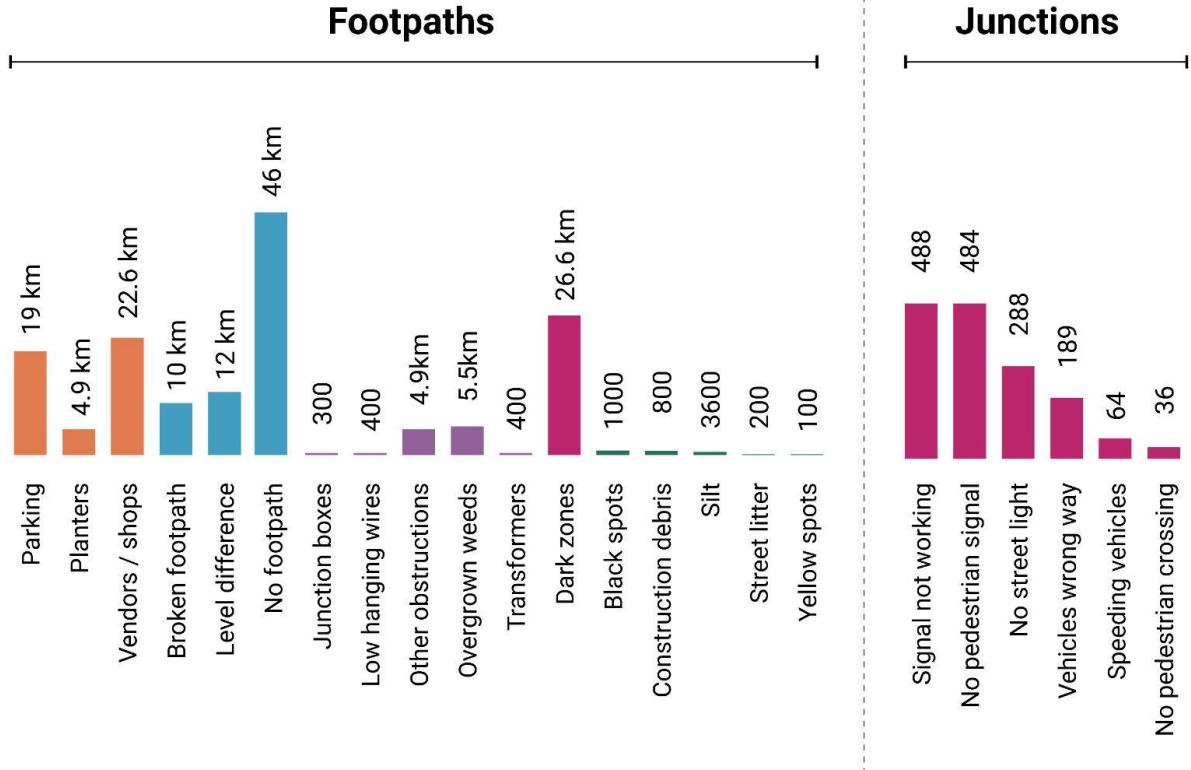
2. Dark zones

- a. Hal Airport (ward 93) - 7.1 / 17.2 km (40%)

3. Encroachment by vendors, shops and parking

- a. Yelachenahalli (Ward 221) - Most parking encroachments - 1.75km

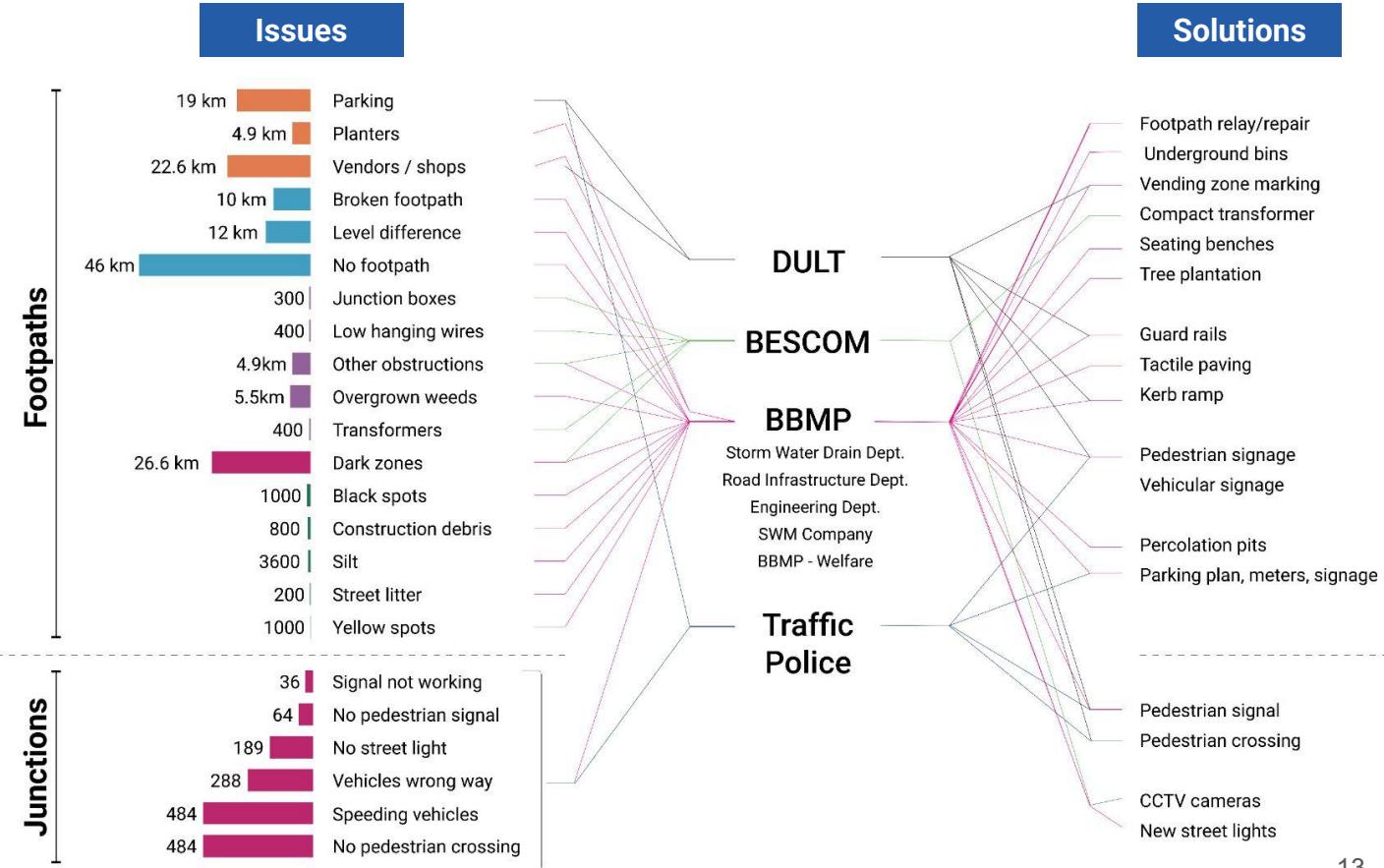
Least walkable wards (highest concentrations of issues per km):
Wards 168 (Padaranayapura.), 93 (HAL Airport), and 12 (Kodigehalli)



Findings #2

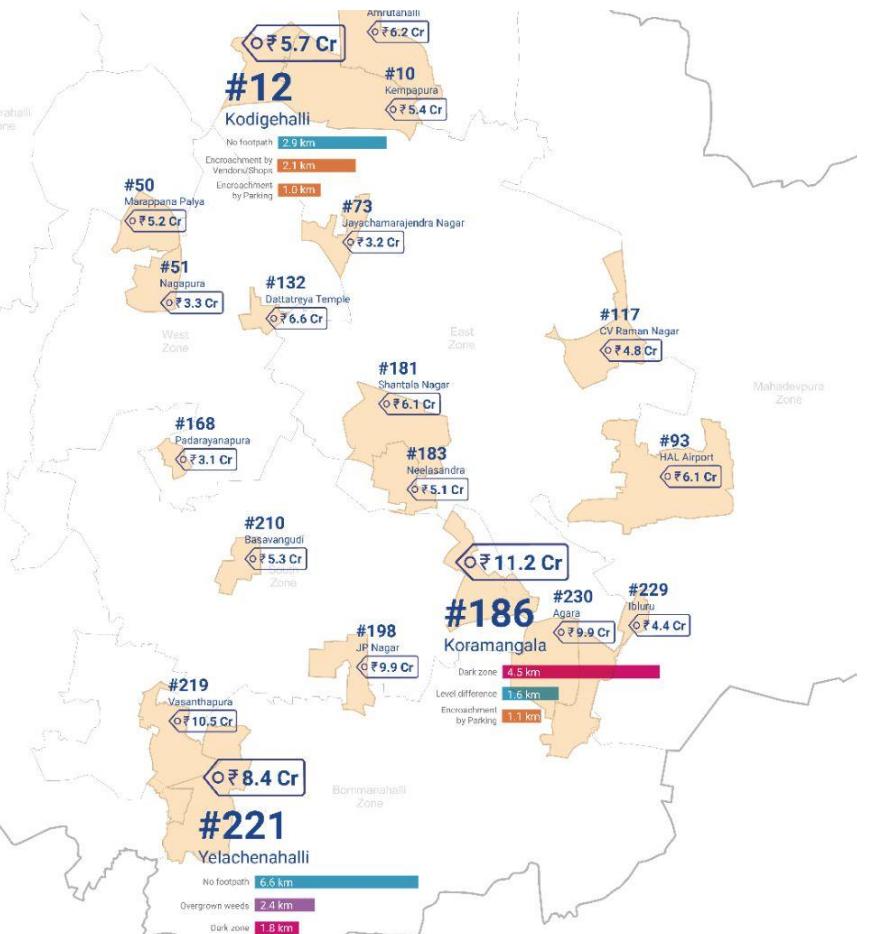
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4 Government agencies are key to fix walkability

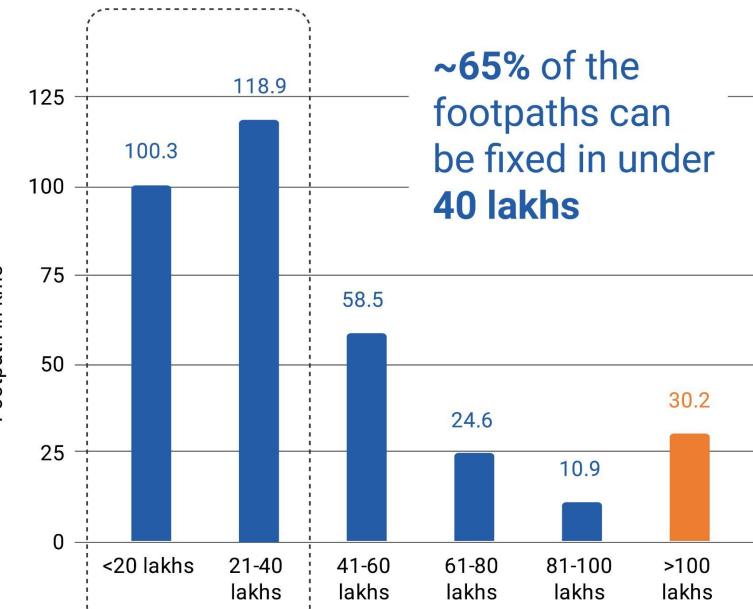


Findings #3

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19 wards	Top 2 roads per ward	Scale up for 225 wards
109 Cr	18.7 Cr	~1500 Cr



Data availability & formats

Walkable Bengaluru

[City level insights !\[\]\(1ac7c971e7df5bf204fbb84fd617a50a_img.jpg\)](#)

[Ward wise data !\[\]\(397cc4c04b5e7ea225dbaa029a5dee1f_img.jpg\)](#)

[Photographic evidence !\[\]\(115eff7009a76771e6b7adb966005e4c_img.jpg\)](#)

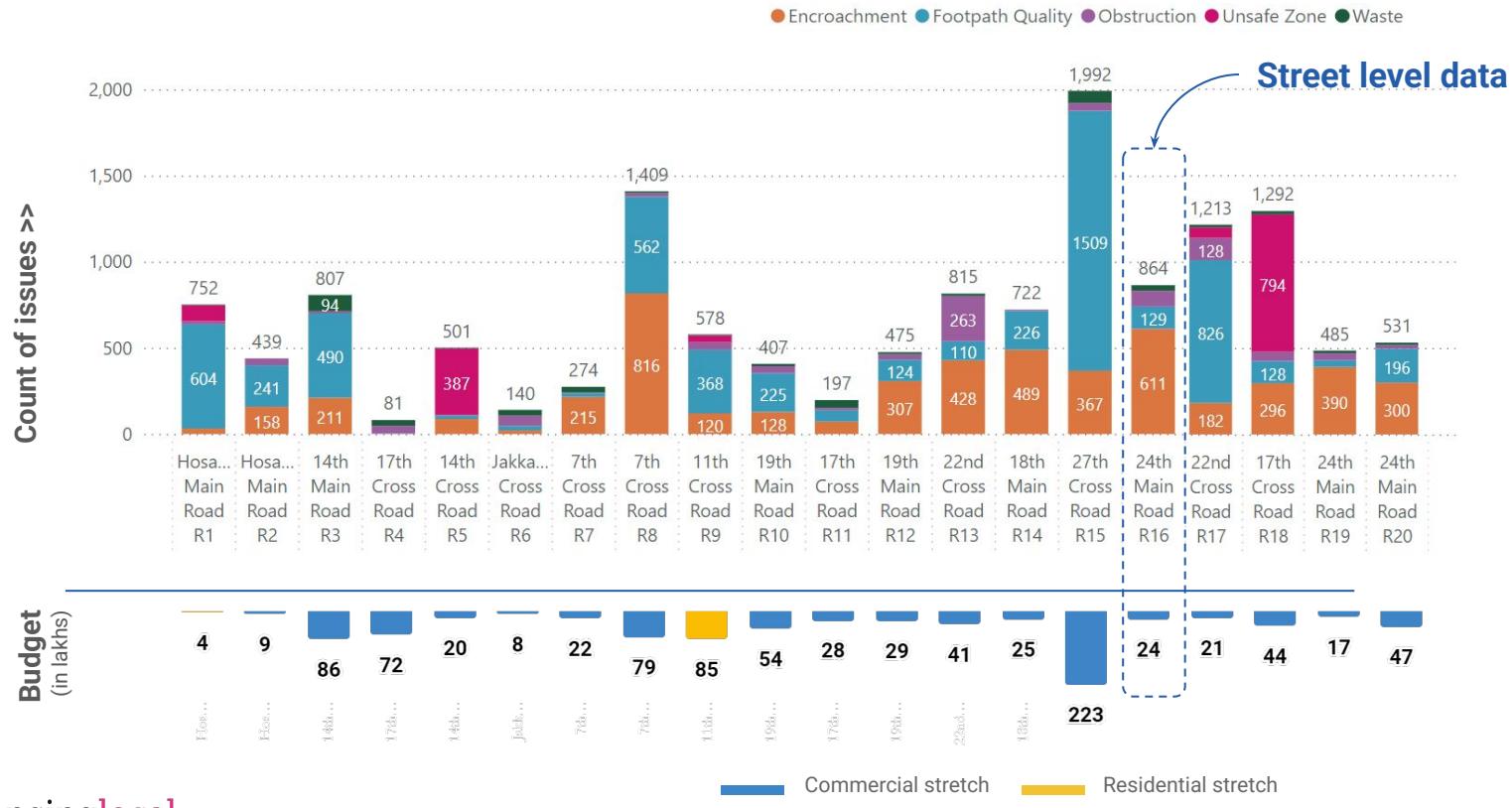


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Ward audit data summary: Footpaths



Issues vary significantly across different streets



Issues | R16 - 24th Main Road



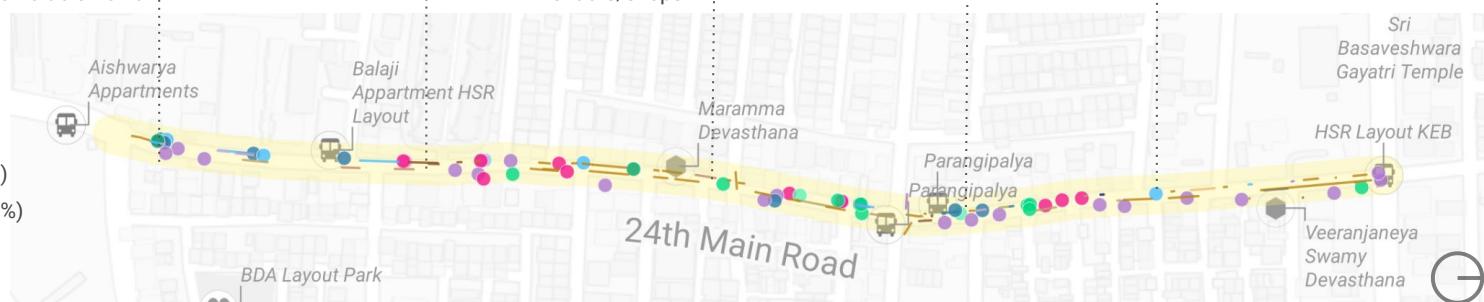
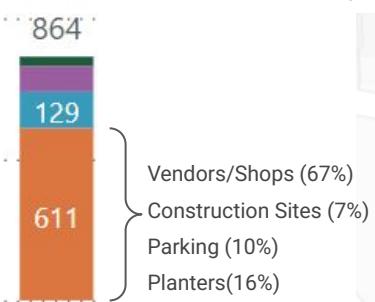
Garbage
Vulnerable Point

Encroachment
by parking

Encroachment by
vendors/shops

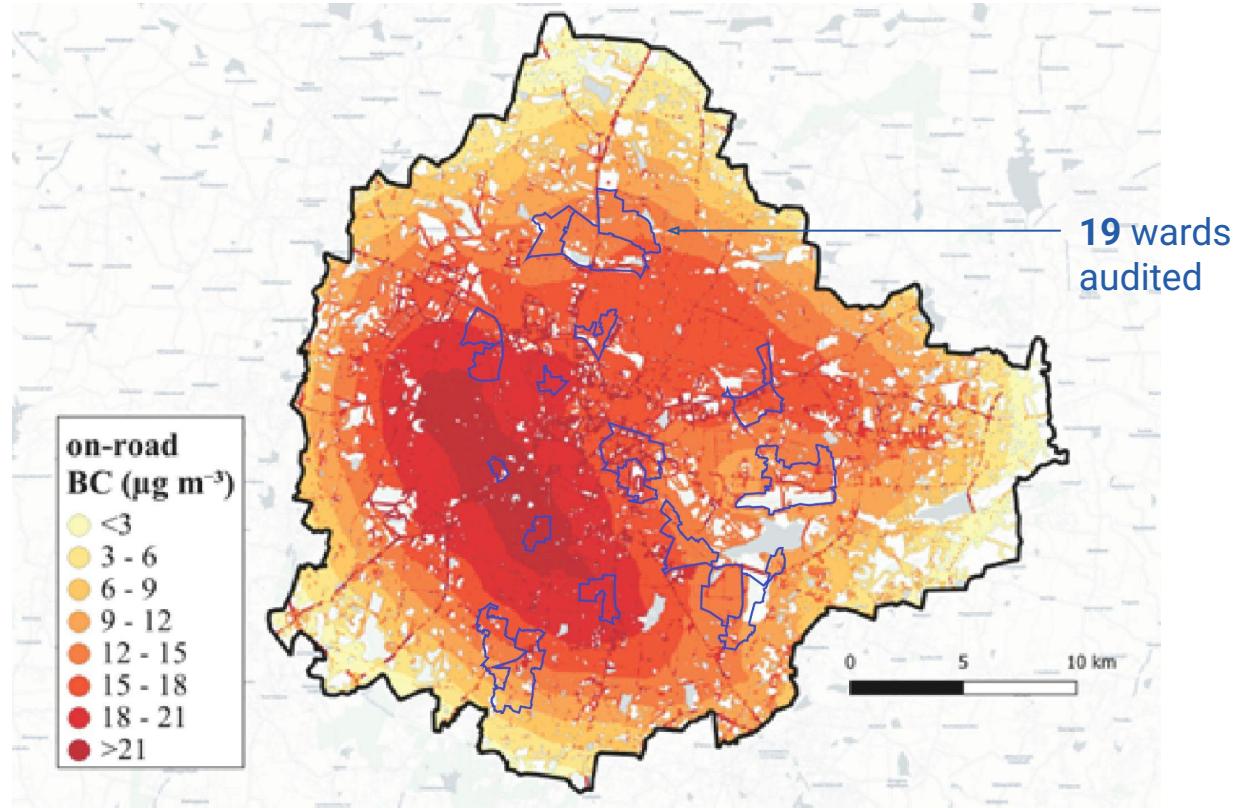
Litter on street

Level difference

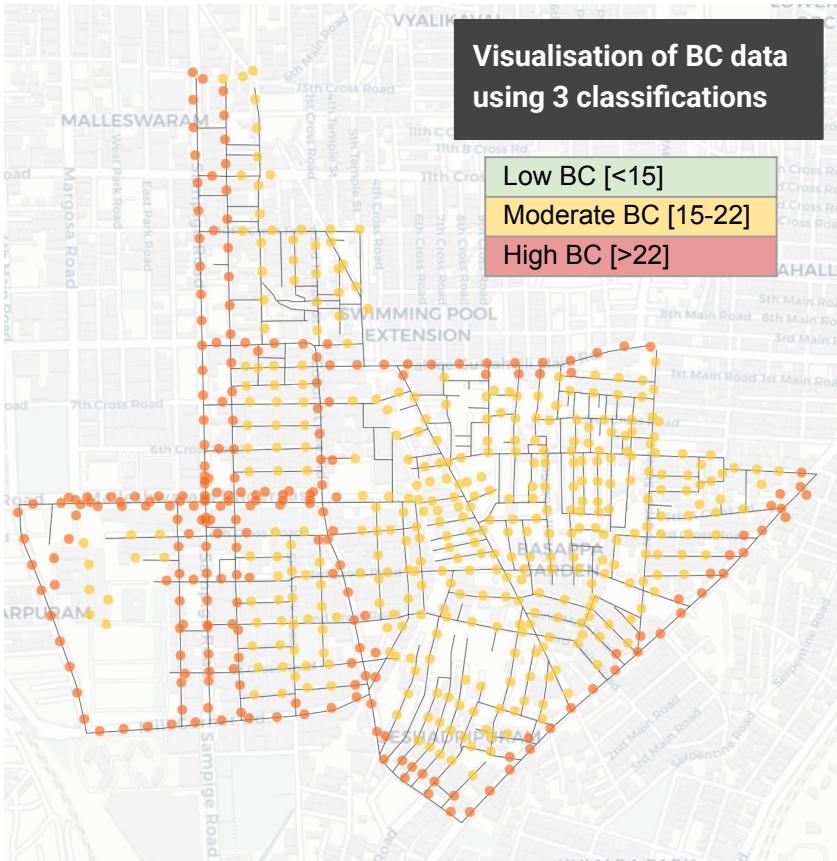
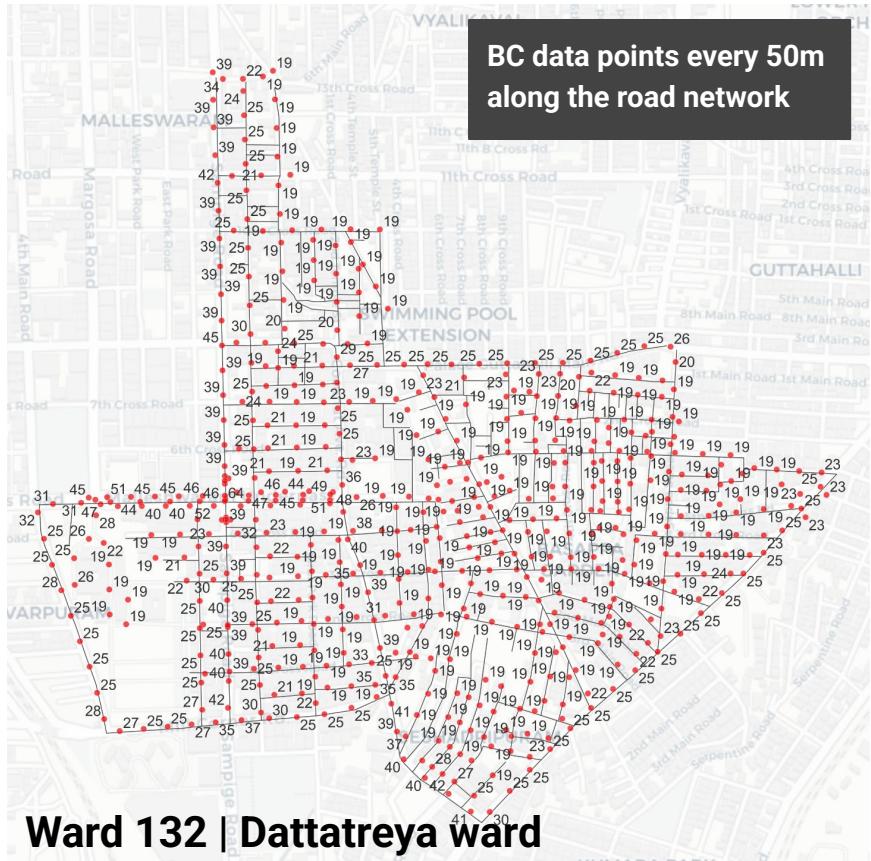


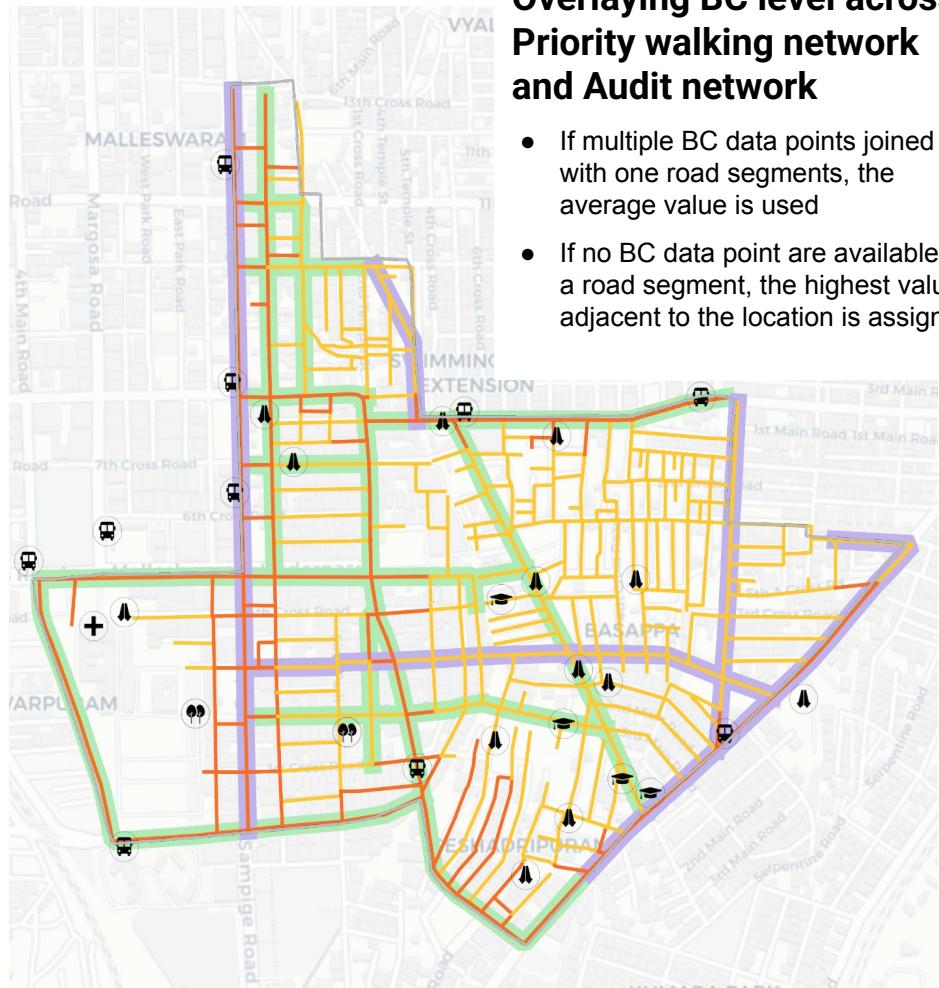
Overlaying air quality data on priority walking networks

Bengaluru Map of on-road Black Carbon



Black Carbon (BC) modelling data by CSTEP





Overlaying BC level across Priority walking network and Audit network

- If multiple BC data points joined with one road segments, the average value is used
- If no BC data point are available for a road segment, the highest value adjacent to the location is assigned

Network type	Total	PWN	AN
Length (km)	28	10	6.5
LOW BC [<15]	0%	0%	0%
MODERATE BC [15-22]	~65%	~37%	~32%
HIGH BC [>22]	~35%	~63%	~68%

■ Only Audit Network (AN)
■ Together make Priority Walking Network (PWN)

	Educational Institutions	4
	Hospitals	1
	Parks	2
	Public Transportation	10
	Religious Institutions	13

65% of the high BC roads lie