



Planning for pedestrian- and cycle-friendly neighbourhoods

Sensing **Local**

1

Identification of priority network

What is the network of streets, which, if improved, can transform walkability in the ward?

2

Audit of prioritised network

What is the ease of resolution of the infrastructural gaps?

3

Assessing User demand

Where is there an existing demand and what trips can we convert?

4

Selection of the pilot route

What smallest part of the network that is easy to do, and if improved will have the maximum impact?

5

Strategic Budgeting

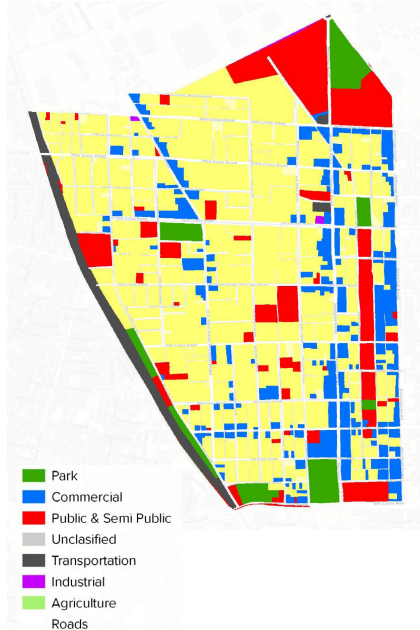
How can ward budgets be maximised by aligning it to the plan?

Datasets required for analysis

The road network was analysed on the basis of secondary data in order to arrive at a **network** that can be made walkable.

Land-use

(Parks, Institutions, commercial)



Road Hierarchy

(major, minor, intermediate)



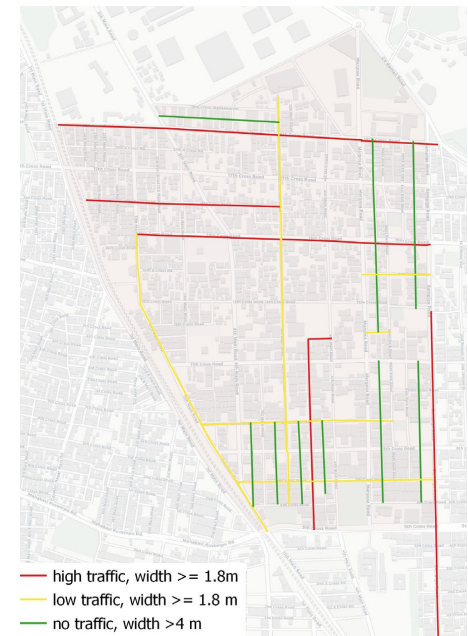
Key destinations

(Bus Stops, Metro Stations, Schools, Commercial, etc.)



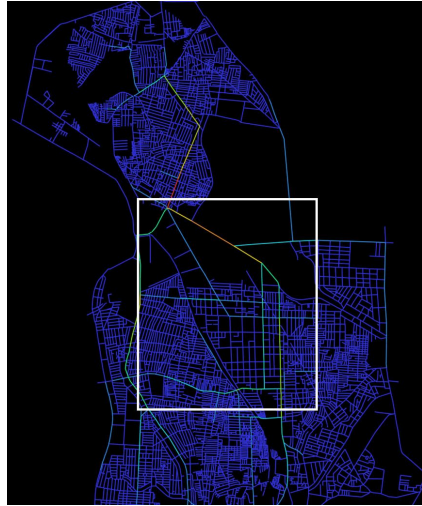
Footpath widths

(1.8m, 1.8-2.5m >2.5m)



Space Syntax analysis of the street network identifies streets with highest levels of connectivity.

Choice
(Inter-neighborhood)



Choice: Most important street as a through-road (Intra-neighborhood)



Integration: Most connected/integral streets (Intra-neighborhood)



2

AUDIT OF THE ROAD NETWORK

PROCESS:

- Walking audit/Handlebar survey:**
 - Barriers and obstructions
 - Road / Footpath quality (level differences, broken footpaths, missing footpaths, etc)
 - Unsafe zones (lighting levels, blank walls, etc)
 - Facilitating infrastructure
- Junction audits:**
 - Crossings
 - Signals
- Experience survey**

OUTPUT:

Calculation of inhibitor and facilitator scores for the network



Parameters and datasets

Undertaking a walking audit requires a lot of prep work in order to ensure that the data collected through the audit process is useful and easily digitizable. The key outputs for the audit include the following:

1. Facilitator and inhibitor map
2. Photo Documentation
3. Individual Experience of the walk



Sl.No.	Data Type for footpaths
A Barriers	
1.	Encroachment by parking
2.	Encroachment by vendor/shop spillover
3.	Construction debris
4.	Garbage dumping
5.	Transformers
6.	Encroachment by planters
7.	Overgrown weeds
B Condition of footpath	
1.	No footpath
2.	Broken footpath
3.	Level difference
C Unsafe Zone	
1.	Blank walls
2.	Unlit areas/stretch
D Facilitators/Infrastructure	
1.	Bollards
2.	Garbage bins
3.	Shaded areas
4.	Seating benches
5.	Railings
6.	Public amenities (Drinking water, toilets, feeding rooms)
7.	Universal accessibility features (ramps, tactile paving)



Parking Encroachments



Vendor/Shop owner encroachments



Black spots of dumping



Transformers



Bollards



Shaded Areas



Broken footpath

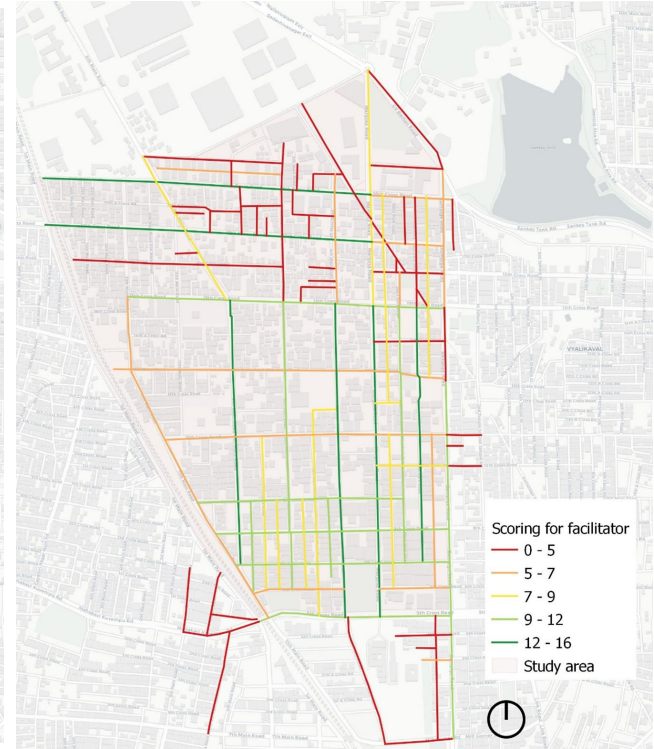
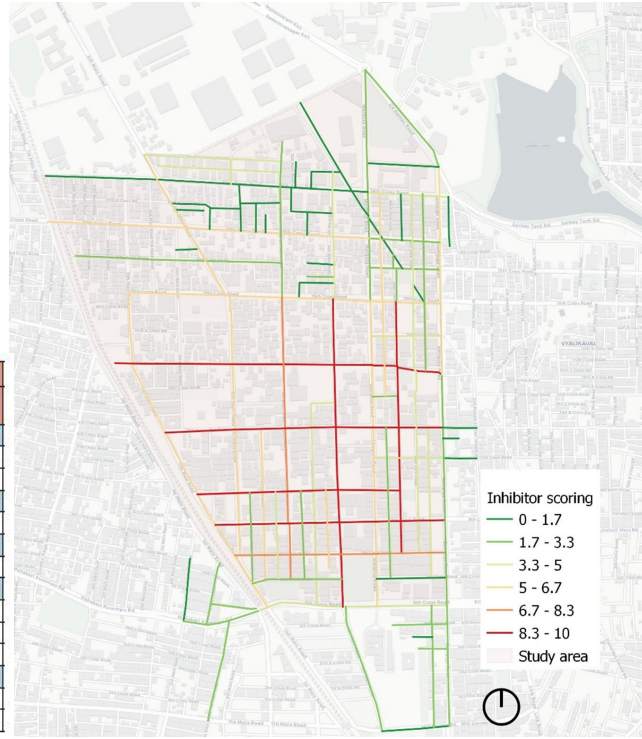


Tactile pavers

Data analysis and Scoring

The translation of inhibitors and facilitators into a usable data is critical in helping ensuring that the pilot route selected has a reasonable chance of success. To develop the inhibitor and facilitator map, a scoring logic for has to be assigned.

		Scoring range*		
		1 (least effort to fix)	2 (moderate effort to fix)	3 (most effort to fix)
Inhibitors				
Accessible ramps				
Bollards				
Garbage bins				
Seating benches				
Signage				
Tactile paver				
Railings				
Tree cover				
Width of footpath	< 1.5m			
	1.5m – 1.8 m			
	> 1.8 m			
Low traffic roads	No traffic			
	Low traffic			
	High traffic			

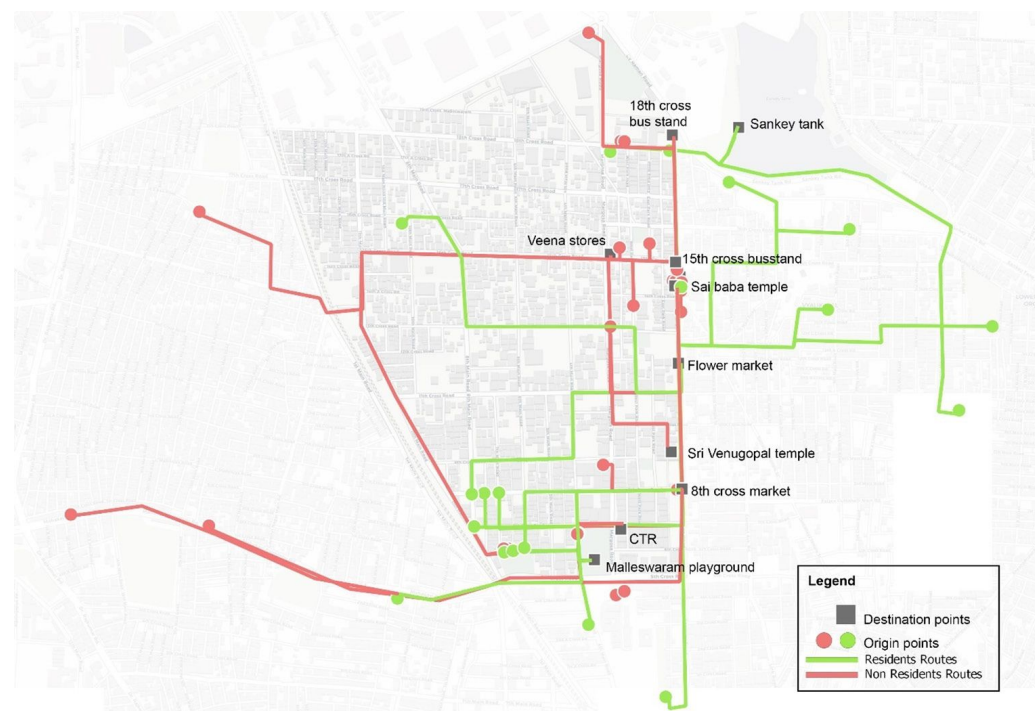


3

ASSESSING USER DEMAND

PROCESS:

1. **Designing the survey**
 - a. Identify the most popular neighbourhood destinations
 - b. Create the survey form
 - c. Identify the sample size and its representation
2. **Conducting the survey**
3. **Analysing the data**



OUTPUT:

Existing walking/cycling routes;
Potential users that can be converted

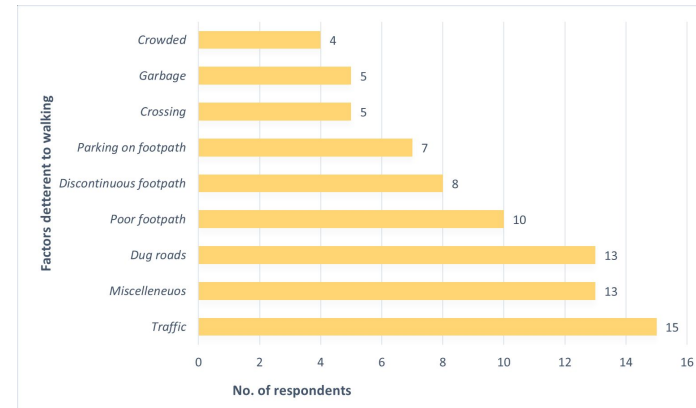
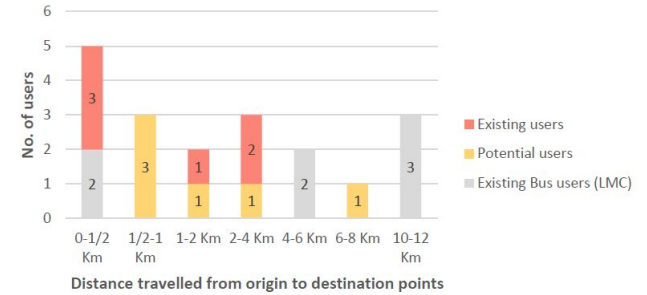
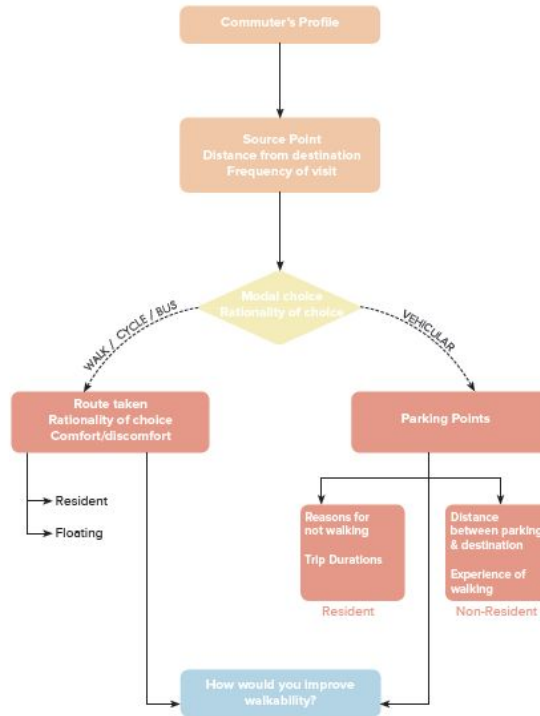
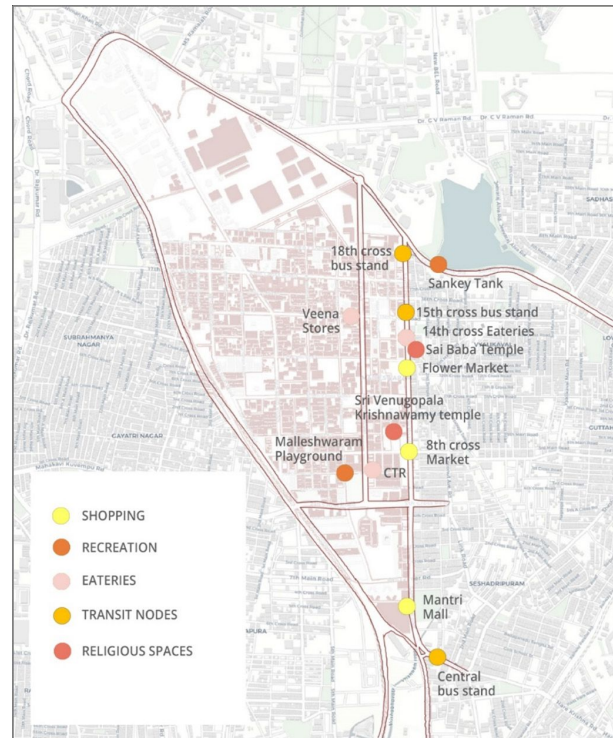


Data collection and analysis

Key destinations frequented by residents and visitors

Survey design to capture mobility patterns to these destinations

Data analysis to understand routes, trends, reasons for not choosing active mobility, etc.



4

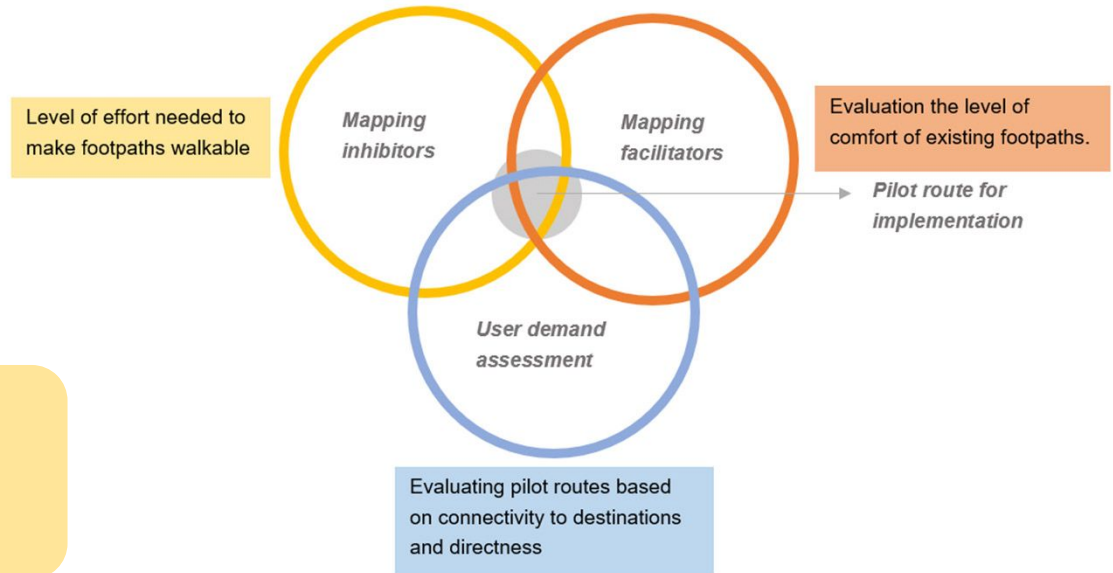
SELECTION OF THE PILOT ROUTE

PROCESS:

Using the demand, inhibitor and facilitator score, the most feasible route for the pilot can be arrived at. This route then forms the basis for design and subsequently the implementation of the project.

OUTPUT:

Identification of the first route that is easy to transform



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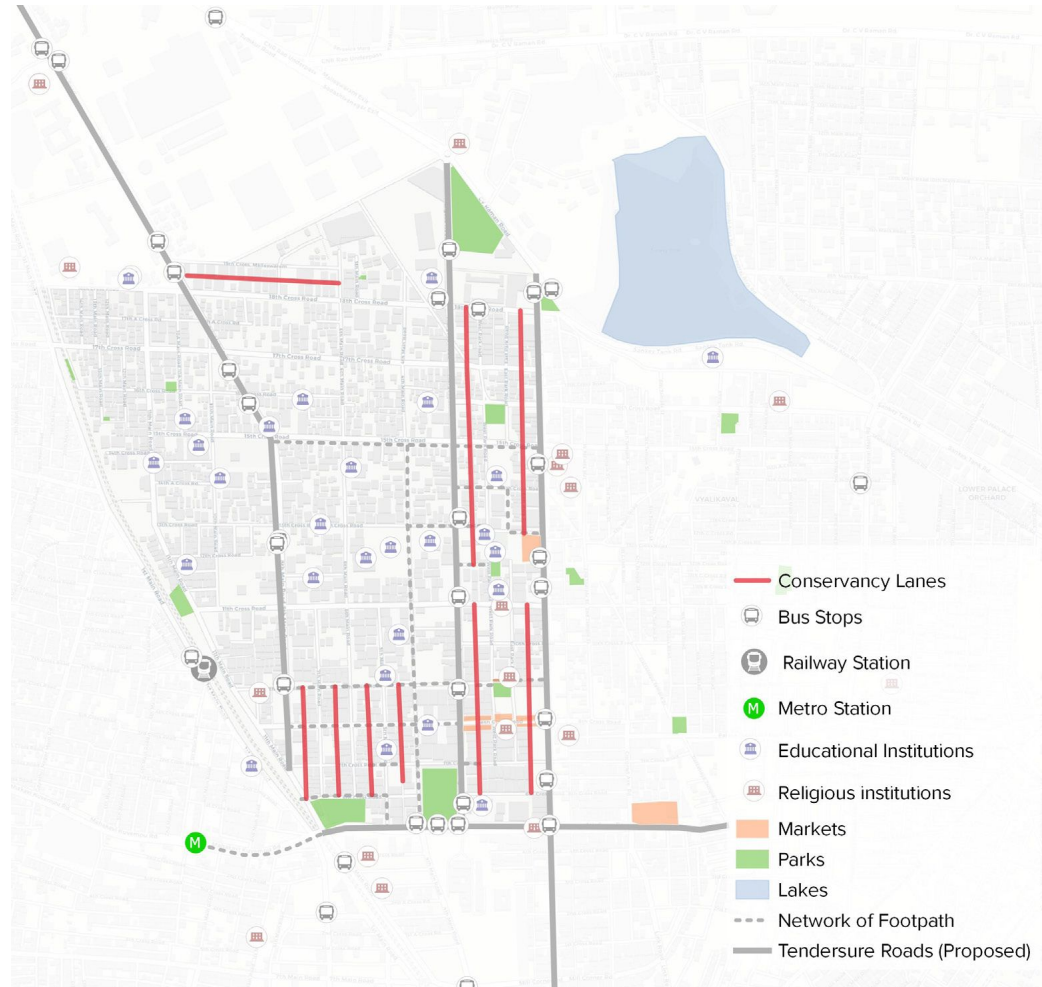
OPTIMISATION OF BUDGETS

PROCESS:

1. **Identification of roads already budgeted**
2. **Calculation of costs with respect to audit data points** (minor improvement / entire road development / no improvement)
3. **Rationalising against existing budgets to check is money can be diverted** (conversations with local government officials)
4. **Channelling of private funds**

OUTPUT:

Budget allocation for development of the pilot route



4500+ Citizens engaged

250+ Issues mapped

25+ Professionals involved
(architects, urban planners, urban designers, designers, engineers)

Unlocked over **60cr** of public funds

12+ Partners engaged

Toolkits have been developed to help scale the process



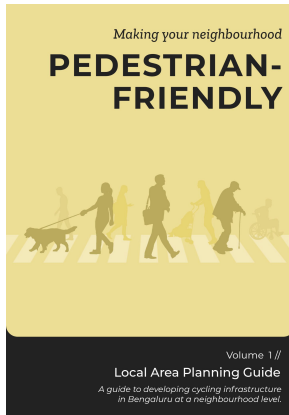
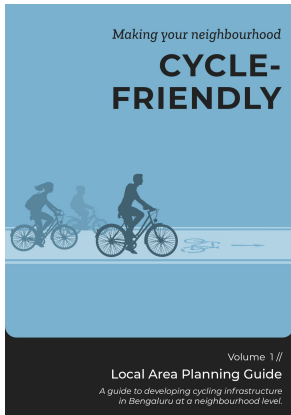
WEBSITE LINKS AND TOOLKITS

Walkable Malleswaram

<https://www.walkablemalleswaram.in/planning>

Complete Streets Doddanekundi

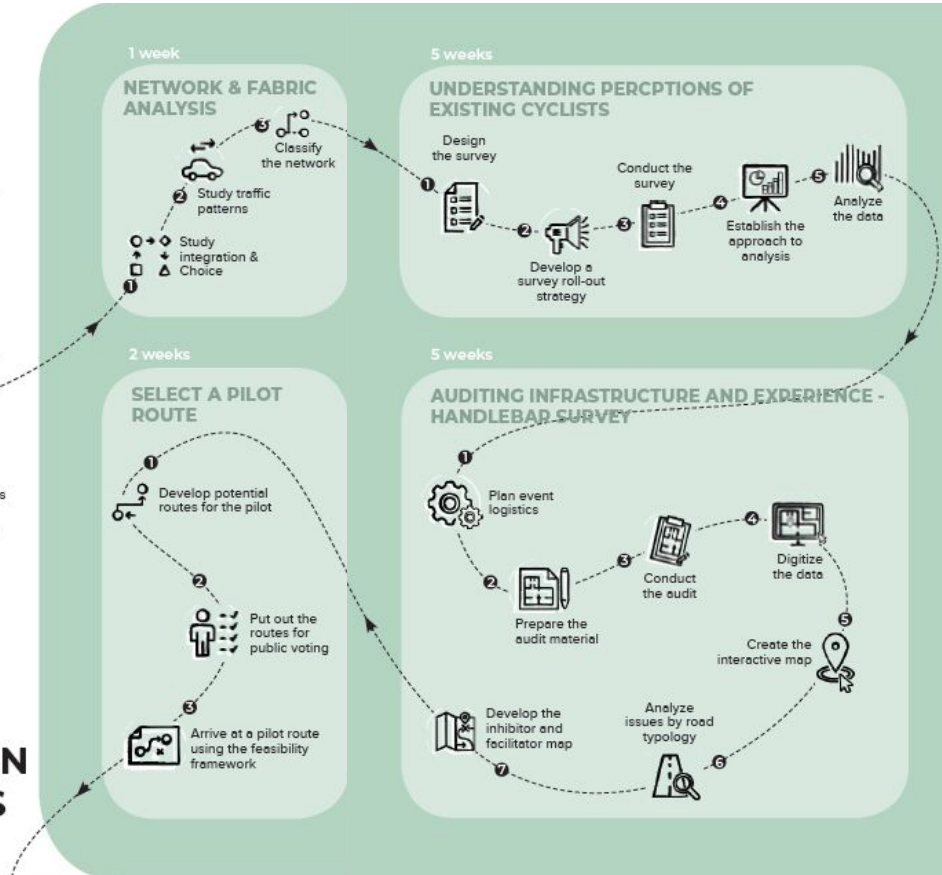
<https://www.suma-doddanekundi.in/planning>



The Exploration and Diagnosis phase aims to baseline the infrastructure at the neighborhood scale from the perspective of building a cycle-friendly road network. It also aims to gather user perspectives in order to understand early adoption and what would it take to create a modal shift to cycling in the neighbourhood. It gathers geo-referenced information about network connectivity, user patterns, cycling inhibitors and facilitators, popular landmarks and destinations and choice of modal transport using data collected from a diverse group of community members and organizations. The data collected from this phase will also inform the selection of the pilot route on feed as insights into the Design Solutions.

- This phase consists of 4 stages
- 2.1 Network and Fabric Analysis
 - 2.2 Understanding Existing Cyclists
 - 2.3 Handlebar Survey - Infrastructure and Experience
 - 2.4 Selecting a Pilot Route

PHASE 2 EXPLORATION & DIAGNOSIS



THANK YOU!

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