

# JAIPUR METRO RAIL PROJECT AS A CATALYST FOR ENHANCING HERITAGE VALUE OF WALLED CITY

By

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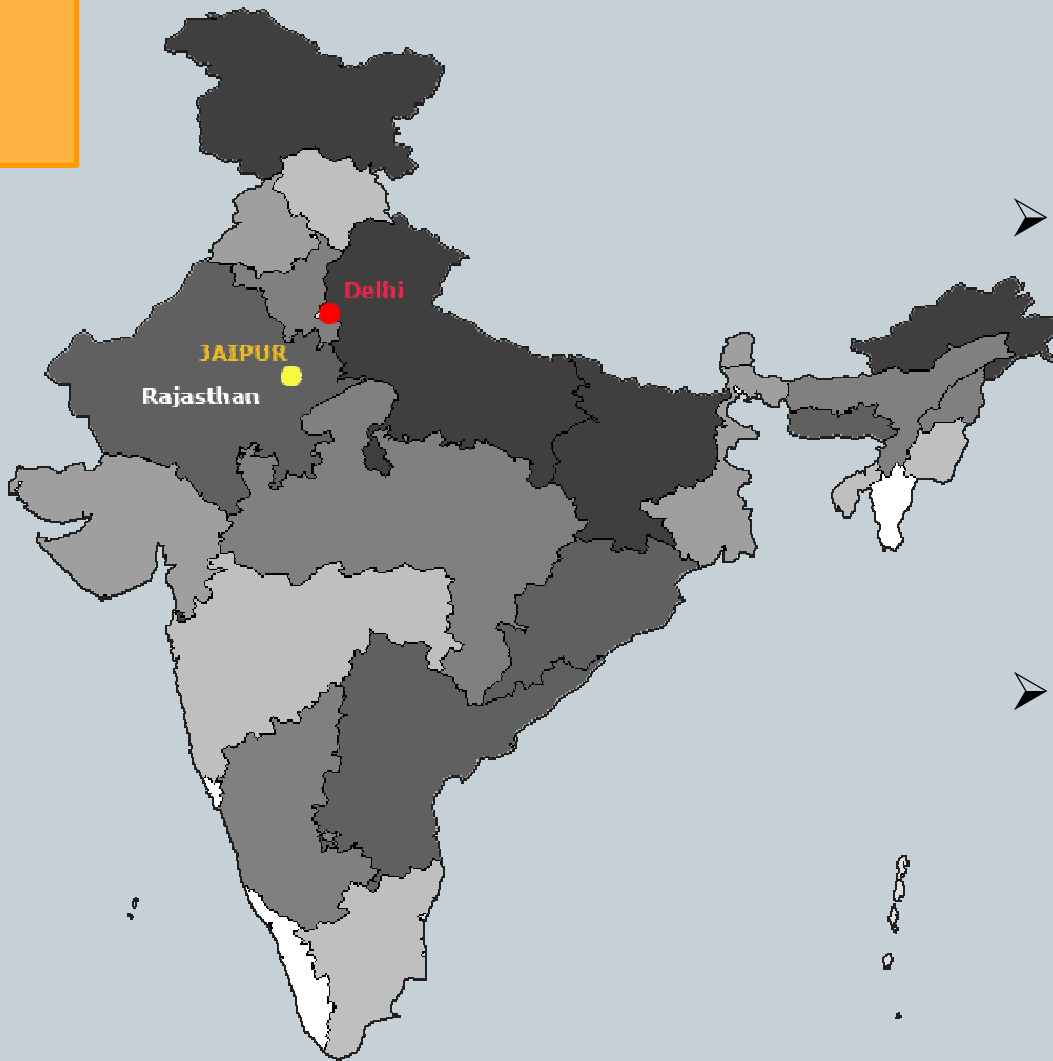
Gandhinagar, 10<sup>th</sup> November 2016

# Metro Rail Project as a catalyst for Heritage city !



Understanding the case

## Case Introduction: Jaipur



Map of India

- Jaipur, the Pink City, is a heritage city and a major tourist destination.
- With a population of 3.1 million in 2011 and an annual population growth of 4.6%, it is one of the **fastest growing 3 million plus cities in India** (Population 8.1 m by 2031).
- Jaipur has about 2 million private vehicles and the **lowest share (19%)** of public transport among 3 million plus cities of the country.

## Project Need

- Jaipur being famous for its heritage assets posed a challenge in front of Jaipur Metro Rail Corporation.
- The walled city of Jaipur is home to several internationally known and acclaimed heritage structures like Hawa Mahal, Jantar Mantar etc.
- **The walled city is highly dense and also a Central Business District (CBD) of the city and caters to almost every type of business. With increasing population and pressure from rapid urbanization the traffic within the walled city has increased many folds thereby leading to excessive traffic congestion, inflated level of pollution.**
- **The overall impact has been over the heritage monuments which are asset to the city and helps it to keep itself bonded to the legacy left behind by our ancestors.**

## Project Need

This project shall make an effort to

***Identify solutions and interventions which in turn make Metro Rail project a catalyst towards enhancing the Heritage value of the historic walled city of Jaipur.***

## Project at a Glance

Brief details of Phase-wise DPR prepared by DMRC

Phase	Length (in kms)			No. of Stations			Projected Completion Cost (Rs in Cr.)
	Total	Elevated	UG	Total	Elevated	UG	
<b>Phase-I</b> Mansarovar to Badi Chaupar	<b>12.0</b>	<b>9.3</b>	<b>2.7</b>	11	8	3	<b>3,149</b>
Phase-IA* Mansarovar to Chandpole	9.6	9.1	0.4	9	8	1	2,023
<b>Phase-IB</b> <b>Chandpole to Badi Chaupar</b> <b>(Within Walled City)</b>	<b>2.4</b>	<b>-</b>	<b>2.4</b>	<b>2</b>	<b>-</b>	<b>2</b>	<b>1,126</b>
<b>Phase-II**</b> Sitapura to Ambabari	<b>23.8</b>	<b>13.8</b>	<b>10</b>	20	13	7	<b>10,394</b>

**\*Phase 1A was commissioned on 03.06.2015**

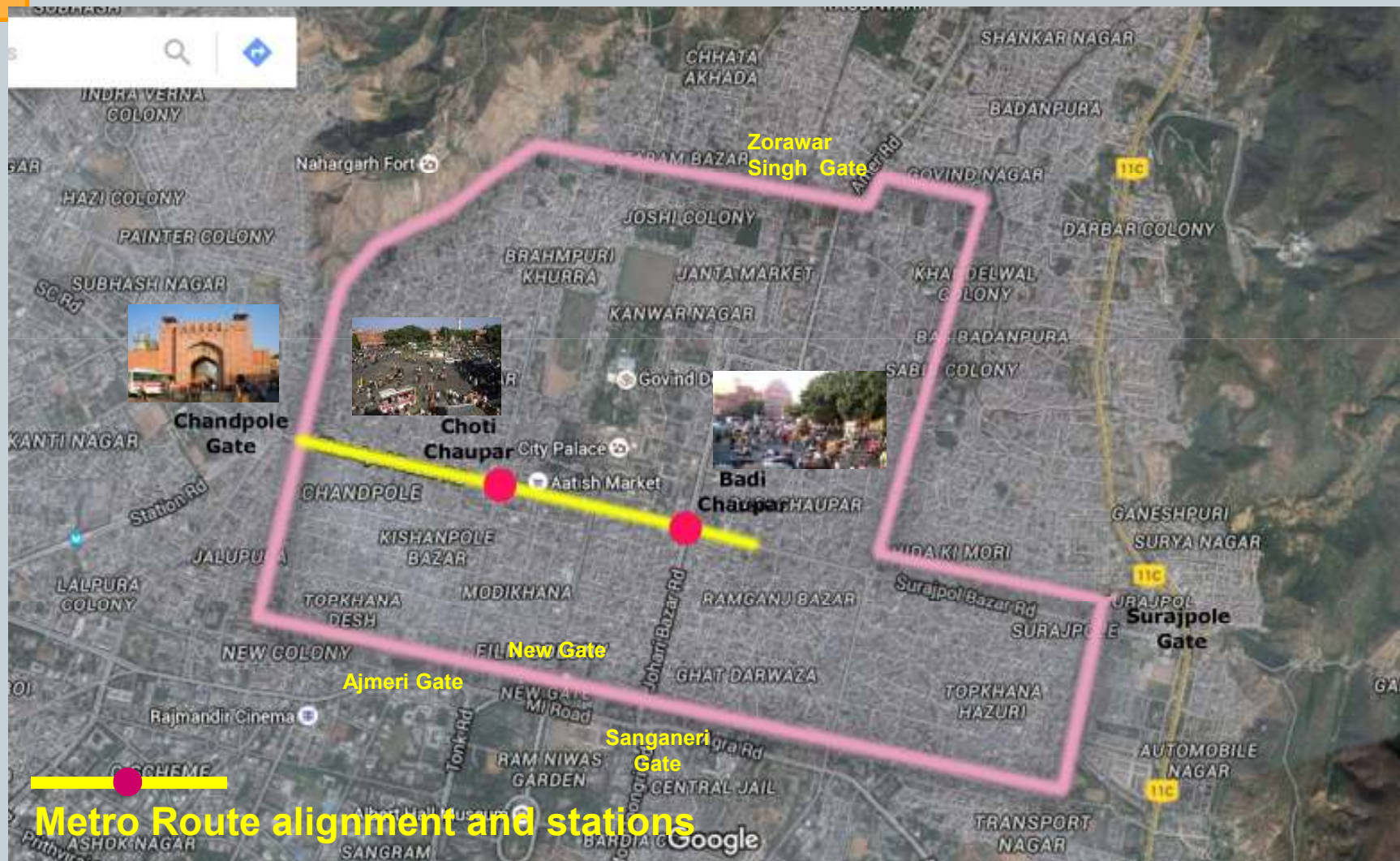
**\*\*Portion of Phase 2 in and around the walled city has been planned underground**

# Advantage of Metro System over other modes

- **Requires 1/5<sup>th</sup> energy** per passenger km compared to road-based system
- Causes **no air pollution** in the city
- Causes **lesser noise** level
- Carries same amount of traffic as 5 lanes of bus traffic or 12 lanes of private motor cars (either way), if it is a light capacity system
- Is more **reliable, comfortable and safer** than road based system.
- **Air-conditioning** and ventilation system for environmental control.
- Automatic ticket vending and checking system for quick and **easy access** to passengers.

# Heritage City: Walled City Area

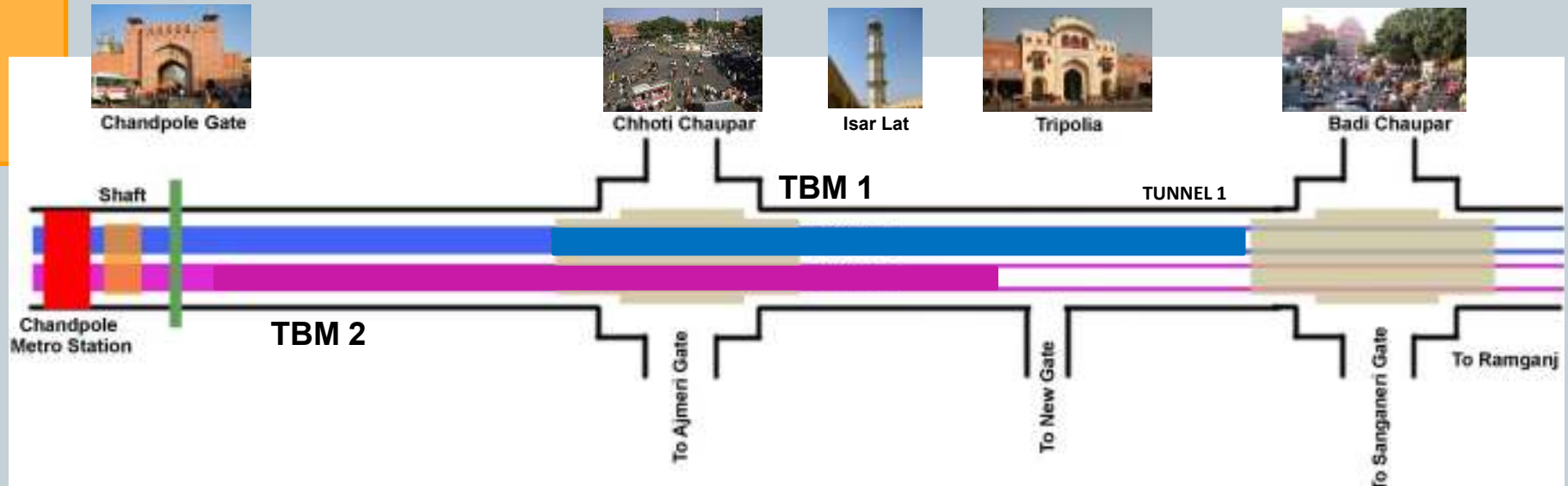
- The old Jaipur city is encircled by city wall which was built in 1727 (by Maharaja Jai Singh II), wall is six meters high and three meters thick. Wall city comprises of many heritage structures like Hawa Mahal, City Palace, Jantar Mantar and many more.



**Metro Route alignment and stations**



## Schematic Diagram of Tunnelling within Walled City



- Chandpole Gate underpass successfully done- biggest challenge of the project
- Isarlat an important structure crossed successfully by both TBMs.
- Joint monitoring by Heritage Consultant and A&M Deptt., GoR, to ensure that no new cracks, widening of existing cracks or any distress occurs.



**Metro Route alignment and stations**

## Special Benefits of Metro Project to protect heritage value of the walled city

- Will reduce vehicular traffic and parking requirements in the walled city
- Will result in reduction of pollution near heritage monuments
- Better access for tourists
- A step towards urban rejuvenation of the walled city
- Heritage walks and bicycle tracks can be planned from Metro stations
- Battery operated mini feeder buses can be operated

## Metro as a catalyst for heritage city!



## PROPOSALS

# Metro as a catalyst

## 1. Base Line Survey for Heritage structures

- An expert in field of heritage conservation i.e. M/s Abha Narain Lambah Associates (Mumbai) engaged to monitor the heritage structure throughout the metro work.
- As a part of the strategy, Base Line Survey was conducted for all heritage structures which were lying in the impact zone of the metro construction work. This was to assess the status of the structures prior to work starts.
- More than 3000 structures were surveyed which included very old Havelies, Temples etc.

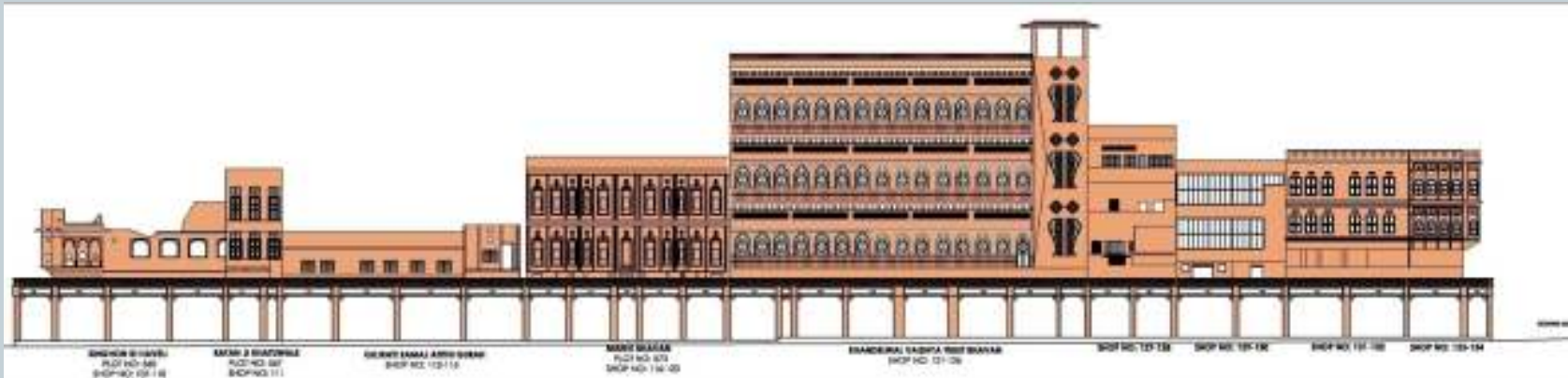
**This exercise led to complete documentation of all structures of heritage importance, which usually remains a neglected aspect.**

- Building Inventories recorded
- Photography & CAD documentation done
- Structural analysis done
- Best practices of monitoring such structure identified.

**Above in itself is an important step for any further restoration work & record keeping.**

# Metro as a catalyst..contd

## 1. Base Line Survey for Heritage structures. ..Contd



Photography & CAD Documentation of Heritage structures

## Metro as a catalyst...contd

### 2. Discovery of lost layer of history: Old Water tanks at Chaupars

- During the construction of Metro, old step water tank at Choti Chaupar and Badi Chaupar we discovered.



# Old Water Tank Initially Found at Choti Chaupar & Badi Chaupar

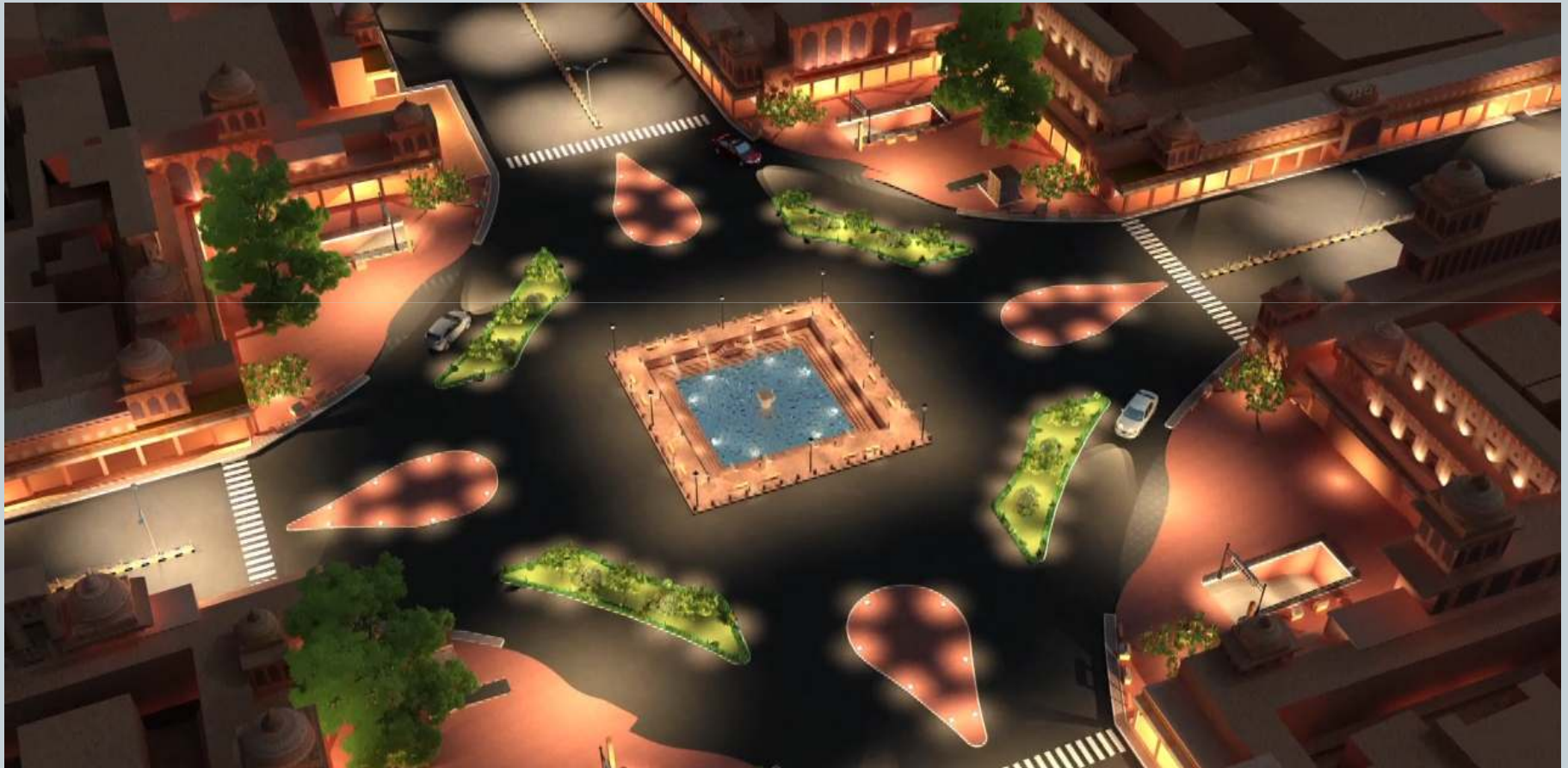




## Metro as a catalyst...contd

### 2. Discovery of lost layer of history: Old Water tanks at Chaupars

- Now these old water tanks after construction of underground Metro Stations will be reinstated at its original site using original material.



**Proposed Urban Plaza, which will heighten the spatial experience of people**

## Metro as a catalyst...contd

### 3. Revisiting the lost history: Heritage Gallery under Chaupar

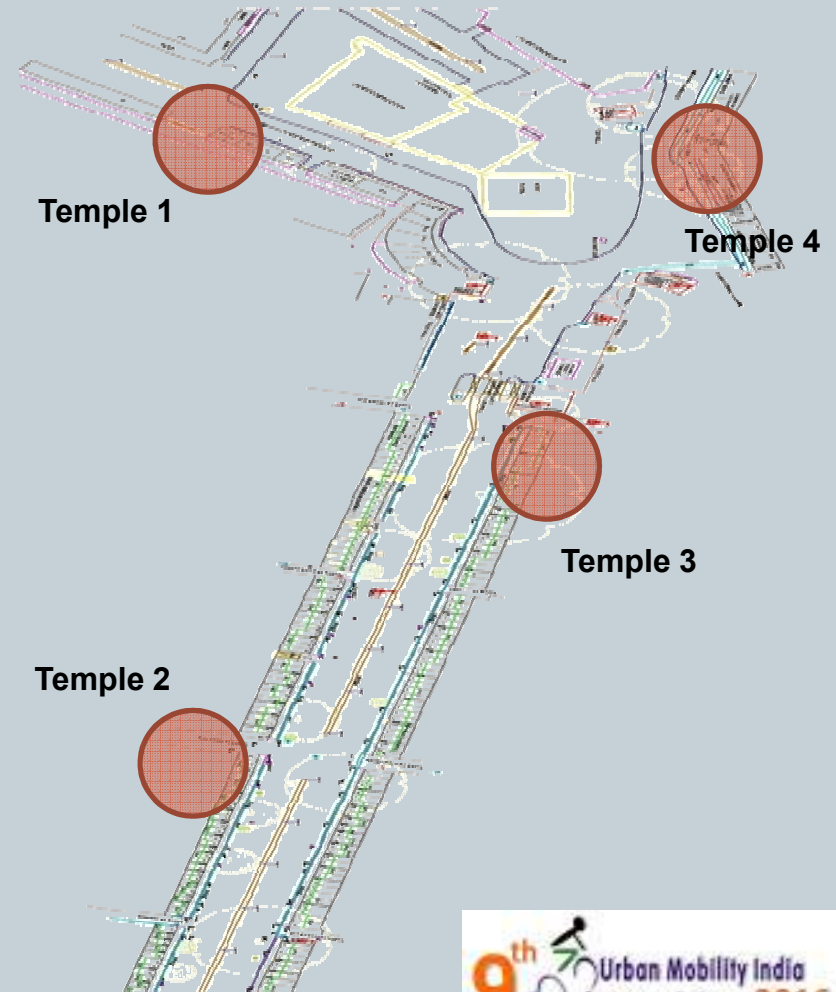
Through Metro project, it is proposed to construct the Heritage Gallery under the Main Chaupar for public viewing.



## Metro as a catalyst...contd

### 4. Mapping of religious structures

- As part of the documentation exercise, mapping of religious structures with historical relevance can be taken up .
- An attempt could be made so as to track the story line of all the important religious structures like Govind Devji Mandir, Tadkeshwar Mahadev Mandir, Rozgareshwar Mandir, Old mosque and many more so as to build upon a corridor which would let tourist appreciate the story behind these historic religious structures and how they have helped in binding the regular life of local people.

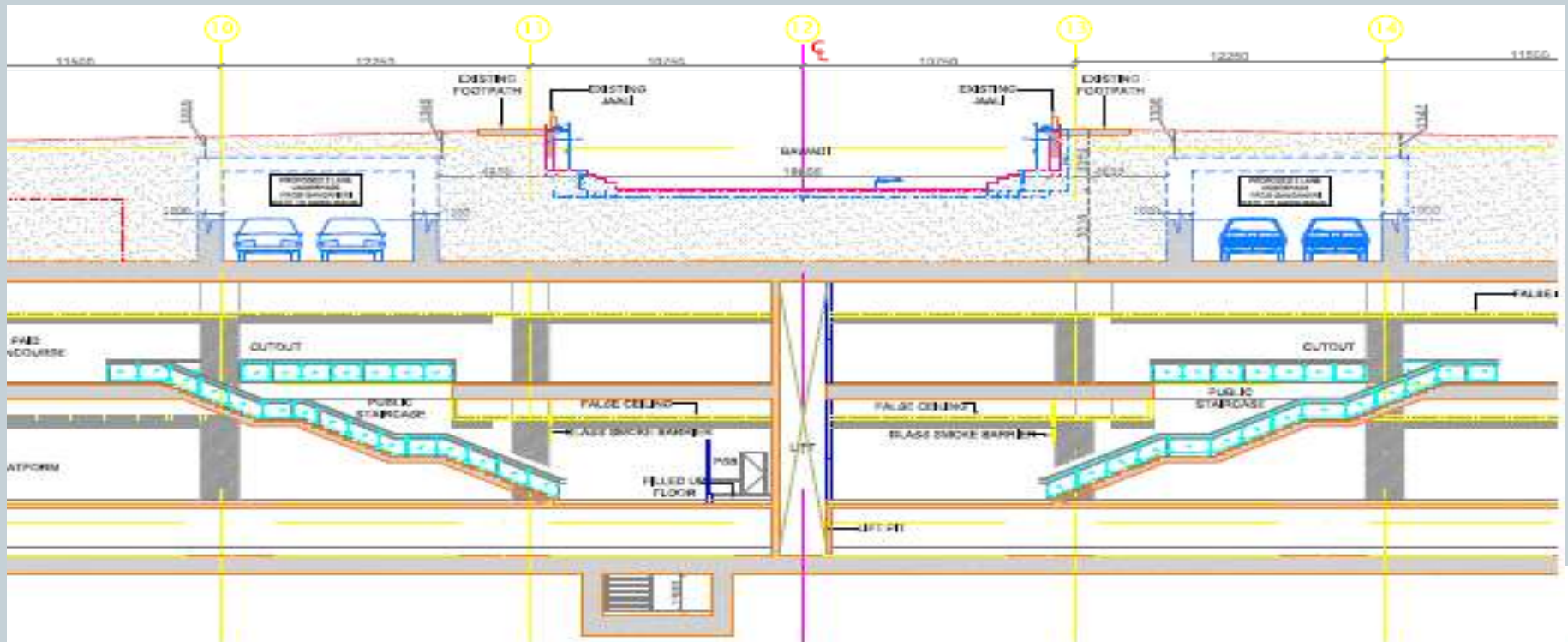


## Metro as a catalyst...contd

### 5. Subway to relieve the traffic pressure from Walled City

A study was got conducted through Jaipur Metro, wherein it was identified that a large proportion of Traffic which enters the walled city, only uses it to cross the walled city and enter Delhi Road.

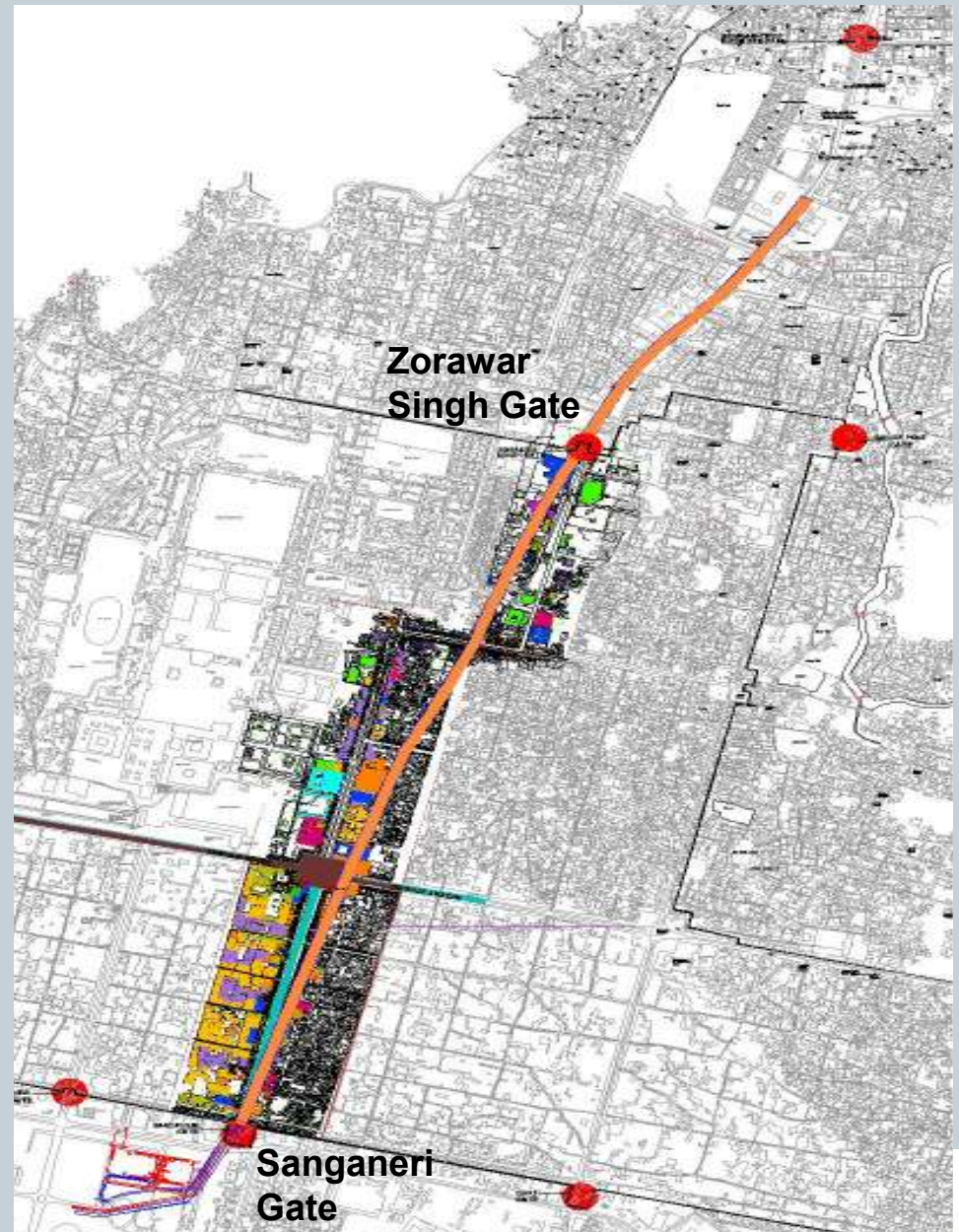
As a strategy, a provision is proposed at Badi Chaupar Metro Station, wherein a subway will be created under the station which will carry the traffic from Sanganeri Gate to Zorawar Singh Gate uptill Delhi Road.



## Metro as a catalyst...contd

### 5. Subway to relieve the traffic pressure from Walled City

This will help relieve the Walled City from Traffic thereby benefiting it through various means like, pollution, traffic congestion etc.



## Metro as a catalyst...contd

### 6. Giving back to the Heritage City: Building Metro Station as living Museums

Developing metro system within Walled City as living examples of display of artifacts and antiquities found during the excavation/construction of metro work.



## Metro as a catalyst...contd

### 7. Walkable Walled City: Pollution free heritage city

- Identification of Parking lots on the outskirts of the walled city.
- Restriction to private vehicles
- Feeder services: Public Transport, Walking, Bicycle, Battery driven rickshaw



- Play areas for children
- Space further complemented by proposed Urban Plaza at Chhoti Chaupar

## Metro as a catalyst for heritage city!

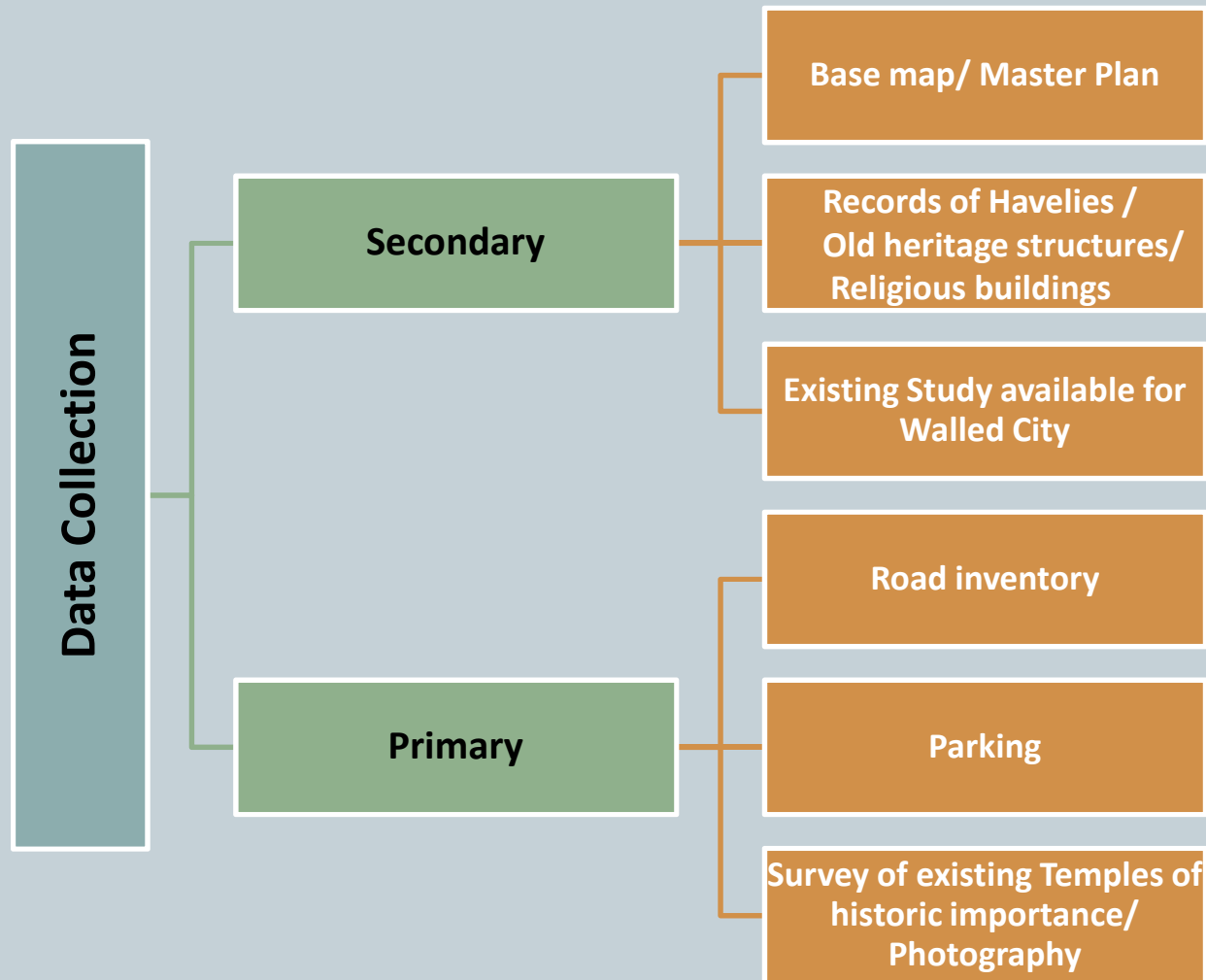


## Methodology & Data Collection



# Methodology & Data Collection

For the purpose to attain the proposals Data Collection shall play a vital role.



# Data Collection

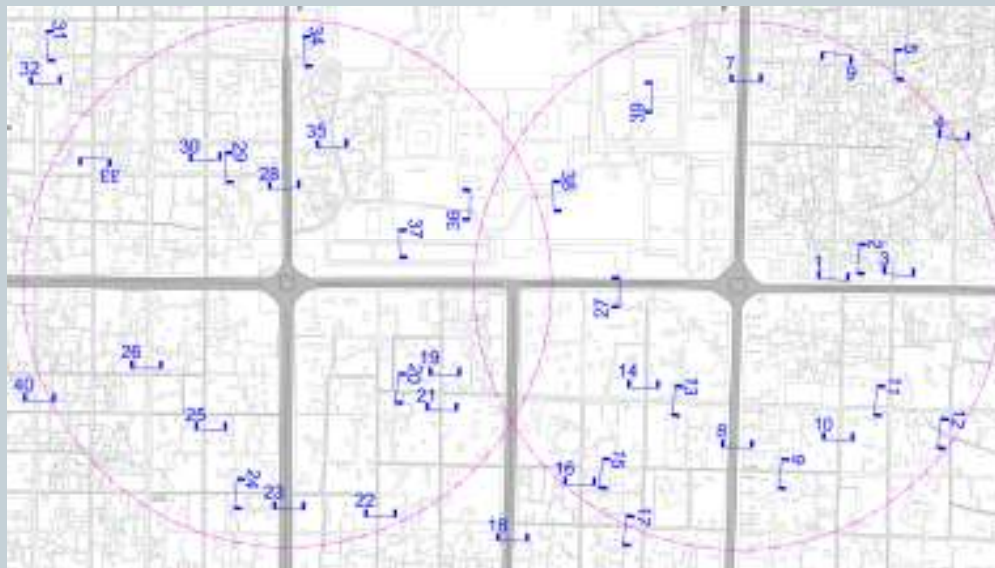
## 1. Primary Source

- Facility Access Audit Report of M/s Mott Mac Donald for Jaipur Metro
- Base Line Survey Record conducted by M/s Abha Narain Lambah (Heritage Consultant)
- Master Plan 2025
- Proposals under 'Jaipur Smart City Proposal'
- Devasthan Department for records related to registered temples within walled city area.
- CAD maps of walled city area from Town Planning Department, Jaipur Development Authority & Jaipur Nagar Nigam
- Various Manuals on Urban Design & Heritage Conservation
- UNESCO Concept Paper on Jaipur Heritage by Dr. Shikha Jain
- Various other related documents

## Data Collection...contd

### 2. Secondary Source

- Assessment and extraction of relevant data regarding old Havellies/ heritage structures/religious buildings through survey of area 200 meter on either side of the metro corridor. This will help locate and map the relevant structures on to the map.



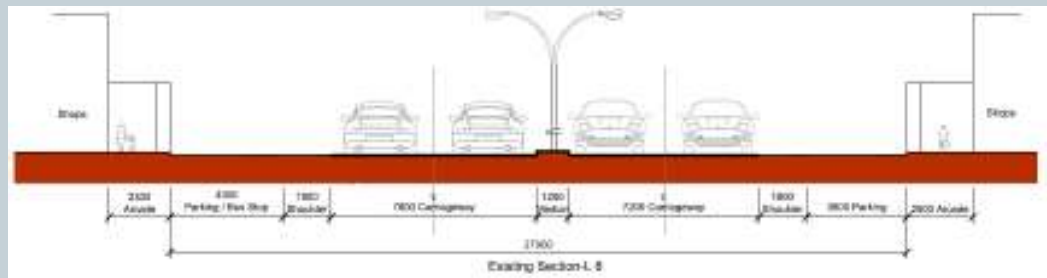
- Photography and videography (if possible) for those relevant structures.



## Data Collection...contd

### 2. Secondary Source

- Interview of local residents, scholars, government officials, local heritage conservation architects over various studies conducted and about their understanding of the heritage value enhancement.
- Interaction with senior reporters and urban designers to understand the need of the city and its ability to compete in today's time. This will help set guidelines for any future interventions.
- Survey of Road Inventories, this will help assess the availability of space on road for any future expansion or any urban design interventions like walkways, cycle pathways, landscape etc.



- Identification of larger size open plots especially government owned, this will help assess the possibility of shifting and restricting all motor vehicles on the outskirts of walled city thereby making an attempt toward complete walk-able walled city.

**THANK YOU**

