

# Operationalising E-rickshaws in Gwalior

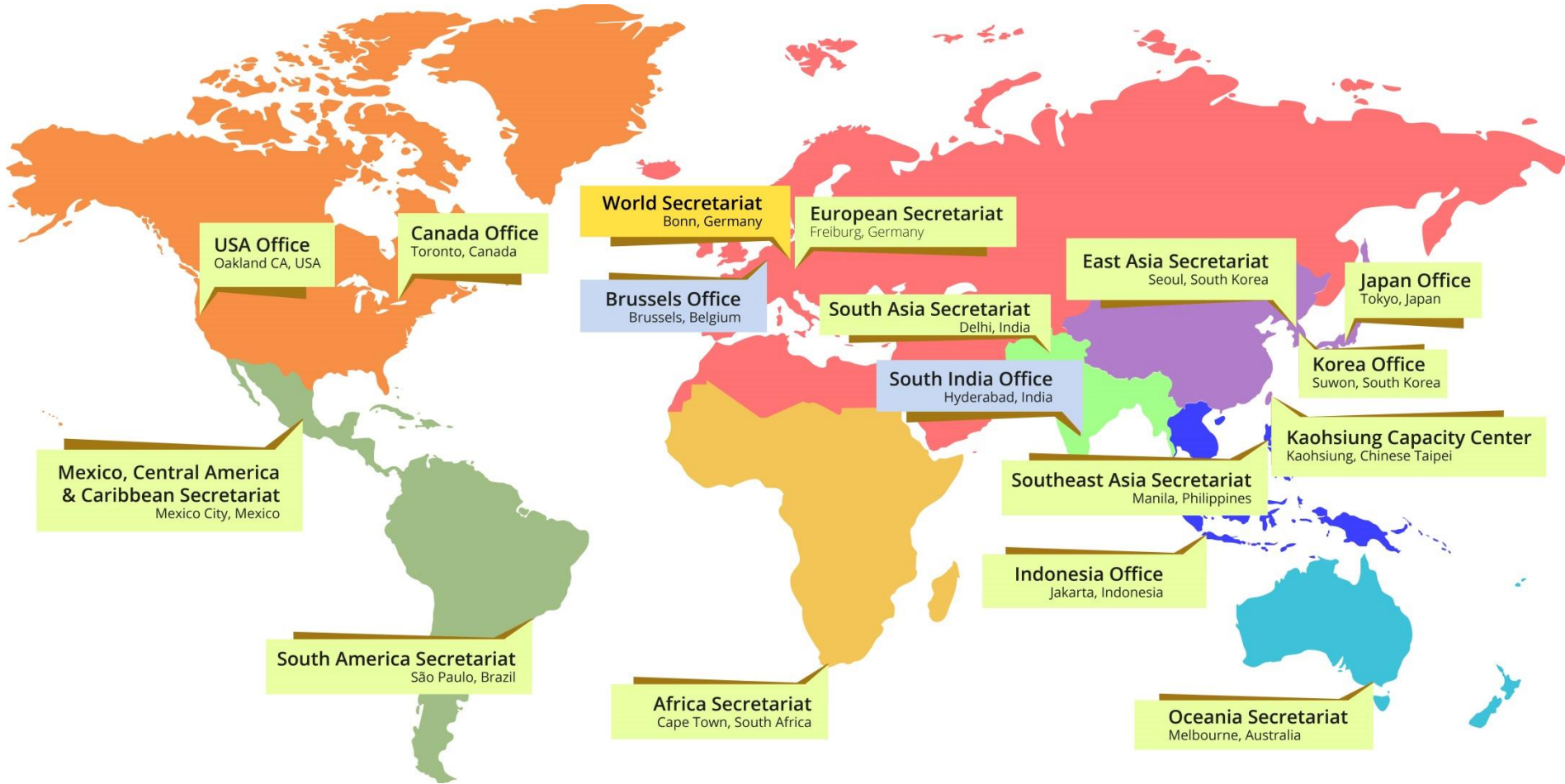
ICLEI - Local Governments for Sustainability South Asia



# ICLEI - Local Governments for Sustainability

The leading global network of over 1,500 cities, towns and regions in 100+ countries committed to building a sustainable future.





ICLEI is present in **17 offices worldwide** with over 300 staff who manage **local and global projects.**



# ICLEI South Asia

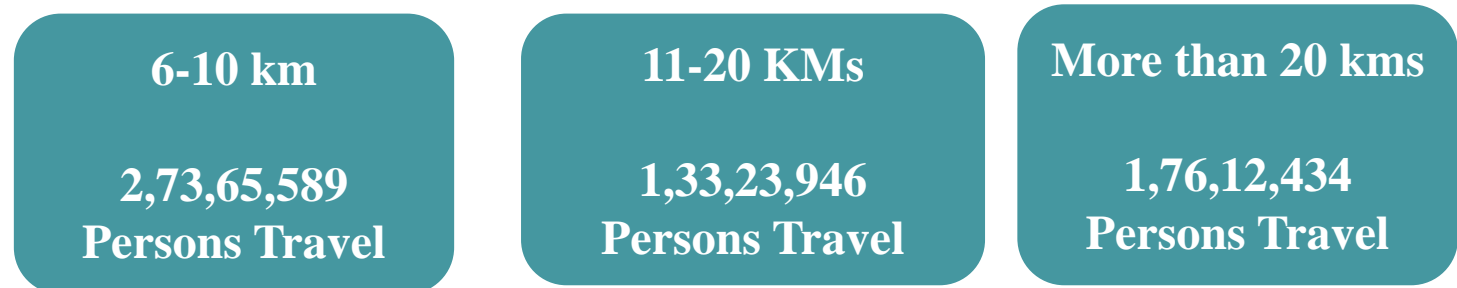


# E-Rickshaws for Last mile connectivity

- India has one of the highest percentages of public transport use in the world, averaging to almost 25% across major cities.
- Additionally the IPT sector dominated by three-wheelers, makes up 11% of the mode share.
- Auto rickshaws and electric rickshaws provide alternate mobility as well as first- and last-mile solutions depending upon average trip length
- E-rickshaws could help solve the problem of growing emissions from mobility sector as well



Approx. 70 percent of people travel less than 5 kms



**Distance of Commute**

# Advantage of E-rickshaws

## Environment

- Environmentally friendly and are emission free
- Even in-direct emission are less compare to Internal combustion engine counterparts
- Considering the distance travel in single ay at 70 km , E-rickshaws in Delhi reduce emission by 164396 tones annually (emission by CNG=2252 g of CO2/Kg of CNG)
- Less noise pollution

## For Commuters

- Compliments Public Transport
- High frequency last mile connectivity
- Economical fare compare to other modes

## For Society

- Source of employment to unskilled people
- Potential to reduce import bills on Crude oil

## First and Last Mile



# About E Rickshaws

## Common Understanding.:

Electricity powered three wheelers visible on Indian roads since 2013-15

## Legal Definition.:

As defined by the Motor Vehicles(Amendment), 2015 e-rickshaw is as follows:

*“e-cart or e-rickshaw” means a special purpose battery powered vehicle of power not exceeding 4000 watts, having three wheels for carrying goods or passengers, as the case may be, for hire or reward, manufactured, constructed or adapted, equipped and maintained in accordance with such specifications, as may be prescribed in this behalf.*



# About E Rickshaws : Challenges

## Policy

- Guided by Motor Vehicles (Amendment) Act 2016
- City/State Transport Authorities need to issue policy guidelines/ notifications for the same

## Technical

- Low range : 70 to 80 Kms per full charge
- Limited battery life : 8 to 12 Months (lead acid)
- New technology

## Infrastructure

- Charging points needed
- Parking and halting locations needed
- Certified service stations needed

## Financial

- Limited financing options available

## Still.....

- A) Evolving technology – high potential to become cheaper and efficient
- B) Highly preferred by users
- C) Good for environment
- D) Does not compete with PT rather complements PT



# About E Rickshaws : Specifications to know

## Safety Certification

- Mandatory certification required from either ICAT or ARAI

## Power

- Based on terrain the output power can vary between 1000 to 1500 W

## Speed Limits

- Maximum 25 kmph

## Gradeability

- Minimum 7 degrees at full load (350 kg laden weight)

## Range

- at least 80 kms per charge

## Carrying capacity

- 4 passengers , 1 driver and luggage upto 40 kgs

## Battery

- 100Ah or more
- Lead Acid or Lithium Ion

## Overall efficiency

- Minimum 75 %

# About E Rickshaws : Legal Issues to address

## 1. City /state E-rickshaw Policy: to regulate

1. License procedure
2. Registration process
3. Guidelines for operations
4. Fare fixation
5. Routes for operations
6. Vehicles specification
7. Fitness of vehicles
8. Training to drivers

## 2. Power tariff – charging purposes

In absence of Charging points most operators use domestic power for charging E-rickshaw , which is commercial purpose (therefore it can be seen as power theft) .

3. **Overlaps with other IPT** : As per Central Motor Vehicles (2016) amendment Act , E-rickshaws does not require permit to operate , however conventional Autos need permit to ply on specific routes , which creates conflict with conventional IPT

# Operationalising E-rickshaw in Gwalior

- Gwalior is planning for revitalisation of Maharaja Bada area.
- Maharaja Bada is the heritage centre along with biggest and oldest Central Business District (CBD) not only for the city, but for entire region.
- The promotion of E-rickshaws will assist city to phase out polluting tempos from its heritage center i.e. Maharaja Bada. Similarly, E-carts will provide cleaner alternative for movement of goods.
- City intends to **operationalize 100 E-rickshaw and 50 E-loaders.**
- GSCDCL will act as a facilitator for large purchase order where, 150 Beneficiaries will be connected to supplier through single purchase agreement.
- It will be mutually beneficial for buyer as well as supplier. Single large purchase order will assist supplier to setup the service center and charging stations in the city.
- Buyers will be benefited through, **low interest loan and subsidy facilitated by GSCDCL.**

# Conceptual planning

## Model A

City buys and operates. Can be operated on a single operator contract, as an individual rental scheme, performance based annual lease scheme

## Model B

City gives subsidy and facilitates guaranteed loans for individual purchase

## Model C

City provides infrastructure and legal support. Includes charging stations, parking stations, insurance policy and the like.

## Model D

City invites PPP investor to procure and operate under exclusive terms. Long term agreement needed to make project attractive.

# Preparatory phase

## Identify Routes

7 Routes identified within Bada area which will be restricted for Auto's running on Diesel/ Petrol

2 Common Routes

## Infrastructure

8 Charging station to be constructed with capacity for charging 120 E-rickshaws at any given time

Plan to cover charging stations with Solar panel

E-rickshaw supplier need to construct service station in the city

## Tariff

To be market oriented  
(Rs 5 for first 3 kms and 10 there after –Sharing basis)

## Financial Plan

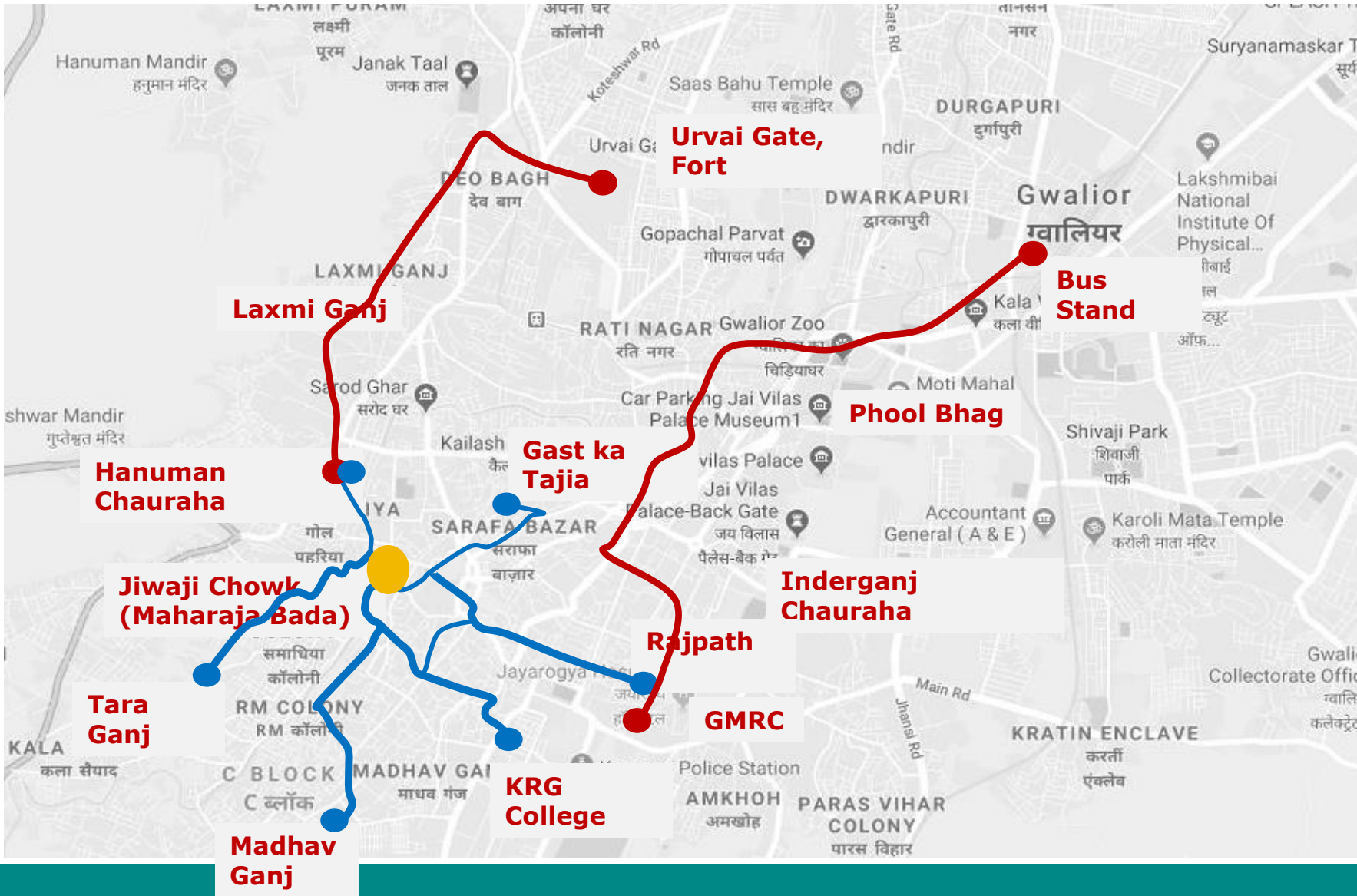
Links with various subsidy scheme including NULM for Below Poverty Line people (20 percent of capital cost available as subsidy under NULM)

Tie up with Public sector Banks for Low interest Loans

## Marketing & Beneficiary Selection

Branding of scheme through advertisement in local newspapers and radio channels

# Proposed routes for E-Rickshaw in Gwalior



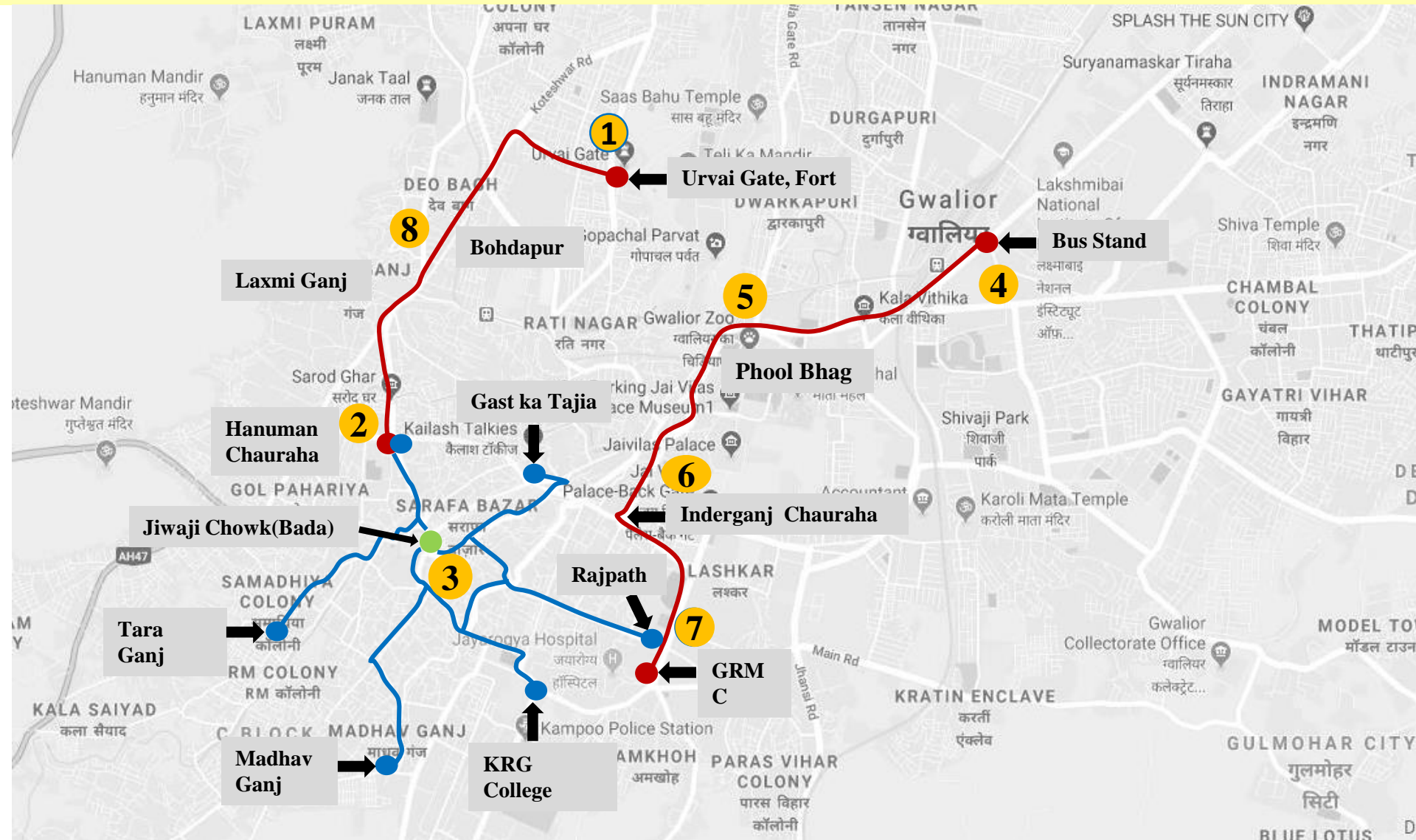
**Common Routes**

1. From Bus Stand to GMRC (Via-Padav , PhoolBhag, Inderganj Chauraha, Achleswer Mandir )
2. From Urvai Gate , Fort to Hanuman Chauraha (Via – Bohdapur, Laxmi ganj)

**Routes restricted for Tempo**

1. From Hanuman Chauraha to Bada
2. From Taraganj to Bada
3. From Madhav Ganj to Bada
4. From Gast ka Tajia to Bada
5. From KRG College to Bada
6. From Rajpath to Bada
7. From Rajpath to KRG College

# Location of proposed Charging Stations



- Each Charging station to have capacity to charge 15 E-rickshaws simultaneously
- Facilities for parking of E-rickshaw along with Toilets and rest area for Drivers

# Electrification of IPT System– What is Critical

## Policy Framework and Capacity

- Policies
- Incentives
- Disincentives
- Standard and regulation

## Enabling ecosystem including infrastructure

- Charging infrastructure
- Service station
- Technology

## Market assessment

- Supply chain
- Demand
- Business model
- Financial viability
- Financing schemes

## Stakeholders Involvement

- Drivers
- Users
- Auto unions
- Government officials





# Thank you

For more information contact: [Vijay.saini@iclei.org](mailto:Vijay.saini@iclei.org)