Technical study of the existing BRT corridor for the last mile connectivity and pre-feasibility of potential electrification of the corridor - Rajkot

**Terms of Reference**

<table>
<thead>
<tr>
<th>Title</th>
<th>Technical study of the existing BRT corridor for the last mile connectivity and pre-feasibility of potential electrification of the corridor in Rajkot, Gujarat, India</th>
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<tbody>
<tr>
<td>Location</td>
<td>Existing 10.7km BRTS corridor, Rajkot</td>
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</table>
| Time (4 Months) | TOR published on ICLEI South Asia website – 11th October 2017  
Last date of acceptance of proposals: 17th October 2017  
Identification of winning proposal and selection of consultant – 30th October 2017  
Initial information, data collection, review of existing plans, and analysis – November 2017  
Spatial analysis of network and impact/ influence area infrastructure, including primary and secondary surveys - December 2017  
Prefeasibility report for electrification of existing BRT corridor – January 2018  
Output of study: Planning document including financial planning and identification of implementable/bankable projects – February 2017 |
| Involvement of Experts | Urban Mobility Expert-National :45 Man Days  
Urban Mobility Expert -International: 14 Man Days |
**Background:**

Swiss Agency for Development and Cooperation (SDC) is supporting the CAPACITIES project in 4 Indian cities including Rajkot. The project aims at strengthening the capacities of Indian cities to identify, plan and implement measures for achieving lower greenhouse gas emissions growth path and enhancing resilience to climate change in an integrated manner. CAPACITIES project is offering to assist the city improve the reach of BRT corridor.

ICLEI Local Governments for Sustainability, South Asia (ICLEI South Asia) on behalf of Rajkot Municipal Corporation and CapaCITIES implementation team invites proposal for involvement of national as well as international mobility expert for “technical study of the existing BRT corridor for the last mile connectivity and pre-feasibility of potential electrification of the corridor” Under CAPACITIES Project supported by SDC

**Description of the Project**

Rajkot Municipal Corporation (RMC) has various mode of public transportation system and, an integrated approach to transport planning is required for existing public transportation system i.e. Rajkot Municipal Transport Service (RMTS), Bus Rapid Transit System (BRTS), Non Motorised Transport (NMT) and IPT. The study seeks to provide effective last mile connectivity to the existing 10.7kms BRTS corridor and explore scope for different transportation mode available in city along with potential of electric mobility.

The study will be investigated broadly based on following aspects:

- Secondary available information (various reports such as the Master plan, Low carbon Mobility plan (LCMP), DPRs, RMTS, BRTS, Cycle stations data, existing planning documents etc.)
- Primary user sample surveys
- Spatial analysis of network and impact/influence area infrastructure etc.
- Key stakeholder interviews for validation

A preliminary assessment of the existing public transport system will result in review of existing mode of public transportation, bicycle sharing/rental schemes, IPT systems, NMT infrastructure along the corridor and will suggest an integrated public transportation system with incentive model, IT based integrated ticketing and information system, comfort and convenience factors of user experience, park and ride facilities and synchronization of signals, signage and road marking for safe and effective infrastructure. Study will recommend some implementable/bankable projects including financial plan and considering the feasibility of scaling up such initiatives/interventions at the city level.

**Objectives of the project**

- To suggest improvements in the existing BRT system to help reaching out to larger population for each available BRT station based on demand assessment
To provide last mile improved connectivity between different modes (existing and envisaged) as well as safe pedestrian and non-motorized access to public transport.

To propose enhancements, add on for improving the system including new technology aspects and looking at the feasibility of scaling up such initiatives more widely in the city.

Delineate influence area over which ridership enhancement measures need be considered.

Identify various last mile connectivity modes such as E-rickshaw /Auto rickshaws as well as NMT modes that need promotion.

Identify implementation pattern to promote the finalized modes for last mile connectivity improvement including the financial aspects such as cost, revenue etc.

Outputs of the project

This proposed study aims to review the performance of the existing 10.7km BRTS corridor and provide effective last mile connectivity based on demand assessment to the existing public transportation system and explore scope for various existing modes of transportation, including potential of electric mobility along existing 10.7kms BRTS corridor to enhance ridership. RMC has proposed BRTS network of total 63.5kms within the city limit. Listed are envisaged output of study:

- Review of existing mode of transportation operating along the corridor
- Review of existing infrastructure and recommendations
- Identify projects for implementation to provide last mile connectivity to the existing BRTS route
- Identify potential of electrification of BRT corridor (electric busses, Solar powered bus stops, e-rickshaws for last mile)
- Recommendations for the entire city based on above.

Study area: Existing 10.7 km BRTS corridor

Total BRTS network proposed is 63.5kms. Among 63.5kms network, 10.7kms BRTS network is operational.
The study is divided into two parts:

- Part A: preparation of an integrated accessibility (last mile connectivity) plan for BRTS network
- Part B: Explore the prefeasibility of electrification of BRTS corridor

Roles

- National urban mobility expert:
  - Responsible for part A of the study i.e. preparation of an integrated accessibility (last mile connectivity) plan for BRTS network
  - Assist and coordinate with international mobility expert to explore the prefeasibility of electrification options for BRTS corridor.
- International expert
  - Explore the prefeasibility of electrification of BRTS corridor

Scope of Work

Part A: preparation of an integrated accessibility (last mile connectivity) plan

Study for the last mile connectivity will include 2.5 Km of buffer Zone from either side of BRTS corridor in Rajkot city. The following, would be undertaken:

Task 1: Delineation of the Study Area, Time Frame and Demand Assessment

- Delineate influence area over which ridership enhancement measures need to be considered.
- Compile approved urban transport development strategy and action plans from past/ongoing studies relevant to the project such as Development Plans/Master Plans, existing Traffic and Transportation studies etc.
- Compile the details on types of the buses and feeder services, the extent and routing of their operations, types of vehicles deployed and categories of services and associated fare structure extended by each.
- Review and analysis of land use adjacent to the BRTS stations to establish origins, destinations and nodes for travel patterns with respect to non-motorised modes.
- Assess ridership along with modal split on proposed corridor for the base year as well as for the horizon years of 2022 and 2027.

Task 2: NMT demand assessment for last mile connectivity

- Identify locations of activity centres such as (but not limited to) schools, workplaces, commercial areas, major transport nodes, parking etc. around the BRTS stations up to 1 km (max.) which is a convenient walking distance
- Identify potential areas and road network for NMT network including cycle tracks and pedestrian walkways in the influence area to give priority to pedestrians and cyclists.
- Establish a baseline for current cycling and pedestrian movement.
• Present various successful international case studies showing how NMT can contribute to enhance the accessibility (Last mile connectivity) of BRTS stations.

Task 2: Identify various last mile connectivity modes such as E-rickshaw /Auto rickshaws as well as NMT
• Identify various Last mile connectivity options, including para transit, PBS and NMT etc.
• Map existing feeder routes and mode wise passenger demand on any transportation tool with performance parameters as link attributes.
• Assessment of the extent of missing links as well as overlapping between the routes, and required extension or curtailment of routes based on the operational performance of the routes.
• Compilation and mapping of data for physical and financial parameters of the proposed routes on a suitable transportation modeling software for the last 2 years, as per availability (Microsoft excel will be preferred).

Task 4: Last mile Connectivity Plan
• Preparation of operational plan including system identification such as routing, scheduling assessment of fleet, feeder route identification and integration with BRTS Operations Plan etc.
• Prepare conceptual plans for BRTS station integration framework for NMT and then use the same guiding principles to prepare conceptual integration plans for station.
• Identify implementation pattern for the finalized modes including the financial aspects such as implementation cost, revenue generated etc.
• Propose NMT infrastructure improvement plan with design specifications.

Task 5: Physical integration of last mile connectivity modes at BRTS Stations covering dispersal and circulation Plans
• Preparation of conceptual multimodal integration plans for station which will cover circulation plans to ensure smooth and efficient movement of all modes of last mile connectivity and integration with the BRTS stations.
• Prepare an integrated ticketing system covering all public transport modes and specify the appropriate fare collection system.
• Prepare infrastructure development plan for integration of last mile connectivity modes (includes NMT) with BRTS.
• Propose accessibility improvement plan for BRTS station.

Task 6: Institutional Integration
• Identification of best possible institutional mechanism facilitating integration of proposed systems.
• The Institutional Integration Framework shall also involve suitable coordination mechanism between the agencies and stakeholders. The organizational structure and the roles and responsibilities also need to be identified for the implementation of last mile connectivity modes

**Task 7: Preparation of Business and Implementation Plan**

• Detailed Implementation and Phasing Plan and identification of agencies responsible for Implementation of the project.
• Development of business plan covering the following: block cost estimates, means of financing, revenue, fare structure, demand projections, operations & maintenance cost estimates etc.

**Part B: Explore the prefeasibility of electrification (electric buses) of BRTS corridor**

**Task 1 – Assessment of infrastructure for electrification of BRTS corridor**

• Review of existing mode of transportation operating along the corridor and identify potential of electrification of BRT corridor (electric busses, Solar powered bus stops, e-rickshaws for last mile)
• Assessment of potential for e-vehicles to provide last mile connectivity for commuters while providing a sustainable mobility solution. This should include an assessment of the option of replacement of auto-rickshaws by e-rickshaws in a phased manner, as well as evaluation of strategies such as entrepreneur-driven model for this phasing out.
• Assess the existing situation of required infrastructure for electrification of BRTS route
• Assess the impact of EV usage on electricity grid load and comment on electric grid, possible electricity tariff policies (ex: higher rates at peak time) that can be used to optimize the additional load from EVs.
• Environmental and social impact assessment of real-world performance of EV fleets compared to fossil fuel fleets in the context of Rajkot.

**Task -2 Review Government Policies/Incentives/Schemes for EV’s and assessment**

• Review and document the current policy framework and enabling environment for adoption of EVs (bus as well as feeder vehicles) in India including Government of India schemes such as Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME) and assessing how the various incentives under these schemes & regulations may be integrated in Rajkot BRTS.
• Standards/guidelines for adoption of Electric Buses
• Review any recommended fiscal and other policies/ incentives that promote
  o adoption of EVs and
• Investments to procure electric vehicles and related infrastructure, including charging stations and parking space. The policies should consider impact on overall travel, congestion, impacts on the quality of public transport services
• Share global/national knowledge on the EV industry and on best international practices in setting and scaling-up of EV’s. Examples where implementation was not successful should also be evaluated.

Task 3: Preparation of Business and Implementation Plan
• Analyze the various scenarios of transitioning from current Internal Combustion Engines (ICE) to electric vehicles including retro-fitment
• Evaluate applicable business models to procure EV’s such as through leasing or public private partnerships or buying from the manufacturers.
• Financial feasibility in the short and long term as well based on the different models mentioned above (e.g., direct purchase, rental/lease etc.).
• Identify risks involved in the procurement, operations, maintenance and disposal of EV’s.
• Detailed Implementation and Phasing Plan for fossil fuel fleet (bus as well as feeder vehicles) and identification of agencies responsible for Implementation of the project.
• Identify typical incentives that can promote adoption electric vehicles in BRTS system and last mile connectivity
• Assessment of the possible use of “aggregators” models (such as Uber and Ola) to rollout EVs.
• Development of business plan covering the following: Block cost estimates, Means of Financing, Revenue from various sources, fare structure, Demand Projections, Operations & Maintenance Cost estimates.
• Provide technical assistance to organise a workshop to engage all key stakeholders including the city officials, state Government officials, relevant citizen groups, regulating ministries and prospective vendors, to present the findings of the study and brainstorm on critical issues.
Proposal submission:
- Both independent consultants and firms are welcome to apply for National as well as International expert.
- There need to be separate applications for national and international expert.
- The Expert/firm can either apply for the role of national expert or international expert.

Documents to be submitted by applicants
- **Technical Proposal:** The Technical Proposal should provide the following information/documents
  - Consultant/ firm profile and detailed CV.
  - Consultants experience on assignments of similar nature, the outline should indicate, inter alia, the profiles and names of the staff provided (if in case of a firm), duration of the assignment, contract amount, and firm's involvement.
  - Detailed Approach and Methodology for undertaking the current assignment, project Schedule with activity and duration to accomplish the task within the scheduled project duration along with detailed work plan.
  - List of proposed staff, details of tasks assigned to each staff as per his / her experience shall influence the evaluation.
  - All relevant CVs shall be provided in full detail. If the CV of a proposed staff is found incorrect, the award of the consultancy to the applicant may also be liable to cancellation in such an event.

- **Financial Proposal:**
  - A financial proposal including all manpower, travel, equipment, survey and costs as may be required.
  - The Financial Proposal shall be inclusive of all the costs including taxes associated with the assignment.
  - It is clarified that, for the purposes of evaluation, the financial Proposal should be prepared in INR.
  - The total amount indicated in the financial Proposal shall be without any condition attached or subject to any assumption, and shall be final and binding. In case any assumption or condition is indicated in the financial Proposal, it shall be considered non-responsive and liable to be rejected.
  - The final amount should be quoted in both figure and word.
  - A copy of valid Pan Number, of registration with GST, last 3 financial year’s balance sheet (or as applicable), audited by certified Chartered Accountant need to be submitted.

Qualification and Experience
- **Urban Mobility expert –National**
  a. Minimum of 10 years of experience in Urban Transport planning and research and preferably should have a good understanding of Sustainable Urban Transport.
  b. Experience in planning, transportation studies inclusive of network analysis, demand analysis, public transport and NMT studies, operations and management of transport systems is essential.
c. The candidate shall be conversant with sustainable urban mobility developments across the world and should have good communication and writing skills.
d. Should be a good coordinator and would be responsible for quality of the outputs.
e. The candidate should have knowledge and experience in providing proposals for attractive, coherent, safe and comfortable infrastructure for NMT user groups.
f. Should have experience in NMT designing.
g. Should have experience in conducting traffic surveys, analysis and preparing circulation plans.

**Part B – Urban Mobility Expert – International**

a. At least 12 years of professional experience relevant to Urban Mobility
b. Relevant experience of working on urban transport sector in at least 5 different countries of which at least 2 South Asian Countries.
c. Experience of working in Indian cities will be desirable.
d. Relevant experience on sustainable mobility solutions including Electric vehicles.
e. Specifications experience that would enable the expert to recommend international best practices applicable to EV sector.
f. In depth knowledge of EV sector value chain including charging components, battery technologies.
g. Expert should have strong communication skills and global expertise including prior experience of working on similar issues globally.

**Proposal Submission**

- The Terms of Reference (ToR) can be downloaded from the ICLEI South Asia website(southasia.iclei.org).
- The financial & technical proposals should be submitted as separate documents.
- The Proposal should be submitted with title “Technical study of the existing BRT corridor for the last mile connectivity and pre-feasibility of potential electrification of the corridor” under CAPACITIES Project
- The Proposal can be submitted by applicant through email to ashish.rao-ghorpade@iclei.org on or before 17/10/2017.
- The proposal shall be submitted in two parts, viz.
  - Part I: Technical Proposal;
  - Part II: Financial Proposal;
Terms and conditions:

- In case of any doubt/query regarding any portions of ToR, the applicant should send it by mail to contact person mentioned in ToR.
- ICLEI South Asia reserves the right to reject any Proposal, and to annul the selection process and reject all proposals at any time, without thereby incurring any liability to the affected applicant or any obligation to inform the affected applicants of the grounds for such decision.
- It should be noted that the project is being implemented in RMC jurisdiction area and hence instructions to bidders will be given by ICLEI South Asia in consultation with RMC officials. ICLEI South Asia will be overall in-charge for all the works that would be executed under the present scope of work.
- The applicant shall also obtain necessary permission from concerned government departments related to the work/data collection if deemed necessary and in coordination with RMC and ICLEI South Asia.
- The decision of ICLEI South Asia will be final.
- The proposals received will be scrutinized & evaluated by ICLEI South Asia in consultation with senior officials of RMC involved in the execution of CapaCITIES project. The decision shall be informed to the winning applicant.
- Detailed Work Order will be issued to the winning applicant within 14 days of announcing the results.
- The selected applicant is to forward the signed and sealed work order to ICLEI at the earliest or not more than 7 (seven) days of issue of work order.