1 Request for Qualification (RFQ) Document

1.1 By amendment to the Maharashtra Regional & Town Planning (MR & TP) Act 66, Slum Rehabilitation Authority has been declared as a planning authority, to function as a local authority for the area under its jurisdiction. SRA has been empowered to prepare and submit proposals for modification to the Development Plan of Greater Mumbai.

1.2 The powers, duties, and functions of the Slum Rehabilitation Authority are: To survey and review existing position regarding Slum areas in greater Mumbai. To formulate schemes for rehabilitation of slum areas. To get the slum rehabilitation scheme implemented. To do all such other acts and things as may be necessary for achieving the objective of rehabilitation of slums.

1.3 It is estimated that more than 52% of Mumbai's population stays in slums. The Afzulpurkar Committee, appointed by the Government of Maharashtra, estimated that for close to 80% of the slum settlements, in-situ rehabilitation should be feasible. Such rehabilitations are typically accompanied by sale real estate built by Real Estate developers under the various schemes of the SRA.

1.4 With a large land mass being redeveloped under these schemes and a very large portion of Mumbai's population set to occupy these redevelopments, it is very critical to understand the traffic impact of these developments on the local traffic as well as the overall city traffic.

1.5 In order to examine the above mentioned traffic impact scientifically, the SRA has determined that a computer based Micro Simulation based study for Demand and Impact Assessment of Traffic and Parking, along with the requisite data collection and surveys, be submitted by Real Estate Developers proposing to participate in the SRA schemes prior to approvals or prior to commencement of works in case of pre-approved proposals. This study would be accompanied by projections of future traffic growth and recommendations for traffic management measures such as signalization, geometric improvements, pedestrian integration, new infrastructure requirement, etc. The real estate developers shall bear the cost for such a study, and the study shall be executed by an empaneled consultant of the SRA.

1.6 For this purpose, the SRA intends to empanel a maximum of 5 consultants with suitable experience in this domain. The Traffic study components to be carried out by the Empaneled consultants include Accessibility, Traffic Demand Assessment, On-Street/ Off-Street Parking Demand Assessment, Future projections of Traffic and Parking, External Traffic Circulation Plans, Traffic Impact Assessment (Local and Global) for present and future scenarios, Traffic Management Plan, New infrastructure proposal etc.

1.7 This Traffic study carried out by the empaneled consultants of the SRA will be compulsory for SRA scheme having BUA area beyond 20,000 sq.mt.

2 Eligibility Criteria

2.1 Consultants satisfying the pre-qualification criteria mentioned below may apply for empanelment. JV/ consortium is not allowed.

2.2 Pre-qualification of the Agencies shall be evaluated based on following criterion

1. The Consultant should be registered under prevailing law in India.
2. The Consultant should have minimum 3 years' experience in delivery of Traffic Micro Simulation projects in India
3. The Consultant should have Service Tax registrations.
4. Aggregate financial business turnover of the Consultant from Traffic/Pedestrian Micro-simulation services should be at least Rs. 1 crore during the last 3 years.
5. The Consultant must have completed/ executing at least 10 works of Traffic Micro Simulation for or submitted to Government organizations in India

   The Consultant therefore shall submit details and supporting documents for the above, in addition to documents required for the evaluation detailed below

2.2.1 Establishment and other manpower and financial details of the firm.

a) Year of Establishment of the Firm
b) Address of the registered office, its area.
c) No. of branches and their locations, area.
d) No. of Employees – category-wise.
e) Financial Details – Turnover of last three years certified by C.A., Member of ICAI or equivalent institutions in respective countries.

2.2.2 Proof of Empanelment with government agencies for micro-simulation study

2.2.3 Details of qualified personnel on the pay roll of the firm

S. No	Name of the person	Qualification	Experience

2.2.4 Details of projects designed and executed in last Three years.

S. No	Name of the Project	Owner of the Project	Duration of the Project	Cost of the Project	Present Status

2.2.5 Details of equipment/ software/ hardware owned

S.No	Description	No. & specifications

3. Evaluation Criteria

Each responsive proposal will be attributed a technical score as specified below. Only Consultants who satisfy the pre-qualification requirements stated above shall be evaluated for technical qualification.

Sr. No.	**Parameters**	**Maximum Score**
1	Financial Turnover	30
2	Details of Qualified Personnel	10
3	Details of project Design and Executed	50
4	Details of Software Available	10

Consultant who will score minimum 75 in total and minimum 60% in each group i.e. financials of the firm, Qualified personnel, Project Experience and Software will be shortlisted for the empanelment. Shortlisted Consultants will be asked to make a presentation with one week's notice, and Final list of empanelled consultants (maximum 5) shall be released by SRA in consideration of marks scored in Evaluation (minimum 75) and quality of presentation

3.1 The weightage points given to evaluation of sub-criteria 1, 2, 3 and 4 of above table are as under.

1) Experience of the firm. (Maximum Score – 30 marks)

A Total of 30 marks are allocated under this criteria, the break up is tabulated as under:-

Evaluation criteria for experience in similar projects (Maximum 30 Marks)

Sr. No.	**Parameters**	**Maximum Score**
1	**Average Financial Turnover of minimum Rs. 1 crore from last three years, only from micro-simulation study (Work order/ Completion certificate should establish the same)**	**30**
	Average Financial Turnover using Micro-Simulation study > 1 Crore	**18**
	Average Financial Turnover using Micro-Simulation study > 1.25 Crore	**24**
	Average Financial Turnover using Micro-Simulation study > 1.5 Crore	**30**

2) Details of Qualified personnel (Maximum Score – 10 marks)

A Total of 10 marks are allocated under this criteria, the break up is tabulated as under:-

Evaluation criteria for the Details of Qualified personnel (Maximum 10 Marks)

Sr. No.	Parameters	Maximum Score
1	Details of Qualified personnel with experience in similar project	**10**
	CVs of Transport planners/Traffic planners with at least Masters in relevant discipline and having experience in similar projects.	**marks per CV 3**

Note:- The personnel shall be evaluated for experience as team member in completing similar type of assignment in the past.

3) Details of project design and executed (Maximum Score – 50 marks)

A Total of 50 marks are allocated under this criteria, the break up is tabulated as under:-

Evaluation criteria for the Details of project design and executed (Maximum 50 Marks)

Sr. No.	Parameters	Maximum Score
1	**Details of project design and executed** of similar nature	**50**
1a	**Empanelment with Government organizations for micro simulation based Traffic studies**	**Upto 10**
	If empanelled with a Government organization **for micro simulation based Traffic studies** internationally	**5**
	If empanelled with a Government organization **for micro simulation based Traffic studies** in India	**8**
	If empanelled with a Government organization **for micro simulation based Traffic studies** in Maharashtra	**10**
	If empanelled with **MORTH** for traffic and Transportation studies.	**10**
1b	**Network level micro simulation Study for Government Organization in India**	**Upto 20**
	Network level **micro simulation** study of at least 10 intersections	**10**
	Network level **micro simulation** study of at least 20 intersections in India	**15**
	Network level **micro simulation** study of above 20 intersections in India	**20**

1c	**Total Experience of Consultant in Delivery of Micro Simulation projects for or submitted to Government Organizations in India**	**Upto 10**
	20-25 projects in India	**8**
	Over 25 projects in India	**10**
1d	**Total Experience of Consultant in Delivery of Micro Simulation projects for or submitted to Government Organizations in MMR region**	**Upto 10**
	10-25 projects	**8**
	Over 25 projects	**10**

4) Details of Software Available (Maximum Score – 10 marks)

A Total of 10 marks are allocated under this criteria, the break up is tabulated as under:-

Evaluation criteria for Details of Software Available (Maximum 40 Marks)

Sr. No.	**Parameters**	**Maximum Score**
1	**Details of software, capable of performing Micro, Macro & Hybrid Simulation Studies**	**10**
	Software with licence >1	**5**
	Software with licence >2	**10**

4 The terms to be considered for the Traffic study are as under:-

In order to ensure proper planning for the traffic and transportation needs of SRA developments and mitigation of any adverse impact at local level due to induced traffic from SRA developments, it will be required to carry out comprehensive study covering the following aspects: far SR Scheme having BUA area more than 20,000 sq. mtr.

a. **Accessibility**
b. **External Traffic Circulation Plans**
c. **Traffic Impact Assessment**

4.1 Accessibility

The Accessibility Study will involve the evaluation of accessibility of the Slum Rehabilitation Area to the other zones, Key Locations, Public Transport, Utilities, Services and Major Institutional Areas.

4.1.1 Objective:

1. To capture the existing movement pattern and major destinations proximate to the Slum Rehabilitation area both vehicular and pedestrian.
2. To study the Accessibility indicators/ parameters like distance, cost, time, network capacity, demand and supply etc.
3. To understand the upcoming developments as well as the infrastructure facilities near the project, that might impact accessibility and the traffic circulation in the influence area of the proposed project, will be collected through Primary Survey & from the client as well.
4. To assess the relative accessibility and integral accessibility of the Slum Rehabilitation Area.

4.1.2 Stage 1: Study of the Slum Rehabilitation Area.

The consultant will study the location of the Slum Rehabilitation Area, and identify the existing access road network, infrastructure and facilities to be used by the proposed development. Depending upon the location and the proposed development, the scale of the intensive study area would be decided, analysed by the SRA based on the location.

Deliverables:

- Identified existing access road and proposed D. P. Road/RL network superimposed on satellite image.
- Brief document (less than 1000 words) explaining rationale of selecting the affected network.

4.1.3 Stage 2: Comprehensive Slum Rehabilitation Area Study:

The cost factor, Public Transport Availability etc. and travel to the destination zones are also the major deliverables of the Comprehensive Slum Rehabilitation Area Study.

- Utilities and services, public Transport.
- To traffic attraction zones.

To understand the demand-supply accessibility measures, the Consultant will carry out Video-graphic Vehicle Count Exercise for the influence are intersections. This will constitute of videos captured of the traffic in the road network during expected 'peak hours of operations' studies based on the traffic pattern during the day (separately for weekday). The Video will be captured for 1 day classified volume count.

The count should include:

- Vehicle Composition of types and numbers of different vehicles)
- Directional distribution.

For the period of the videography, the consultant will, through video, actual commute or other appropriate means, measure the following information:

- Delay at the crossings, intersections etc.
- Peak volume of the pedestrians in the study location.
- Accessibility index for various public Transport Infrastructure.

4.1.4 Stage 3: Simulation and projection exercises

The Consultant shall replicate the access network in a traffic micro simulation software approved by SRA. This replication shall include:

- Geometry of the road network, with the access roads, major attraction zones, utilities and services & proposed D P road/cluster road network.
- Different Road network features- Bus stop, speed breakers, Pedestrian crossing, boom barriers.
- Traffic counts and the vehicle composition.
- Un-signalized and signalized intersections (along with Signal Phases)

The model will be calibrated and validated to reflect actual ground conditions based on the following parameters:

- Travel Time
- Average Speed
- Queue Lengths

The consultant shall define future scenarios chosen for simulation, and evaluate the accessibility parameters and the accessibility indicators.

Deliverables:

- Brief document (less than 1000 words) detailing rationale for identification of simulated future scenarios and methodology for projection of traffic for these scenarios.
- Video capture of simulation of current ground situation (two 15 minute intervals) along with corresponding logs and comparison with data from Video-graphic Vehicle Count (travel times, queue lengths, average speeds) for corresponding intervals.
- Video Capture of simulation of identified future scenarios (at least four 15 minute intervals) along with corresponding logs and comparison with data (travel times, queue lengths, average speeds) from other simulations.

4.1.5 Stage 4: Results and Recommendations:

The consultant shall provide a final report consisting of the following:

i. Accessibility index of the proposed development of Slum Rehabilitation Area.
ii. Accessibility index of the proposed development of Slum Rehabilitation Area five years after construction.
iii. Recommendations to Improve the Accessibility of the Slum Rehabilitation Area without any major changes.
iv. Tabulated data from the previous activities as supporting documents.

4.2 External Traffic Circulation Plan

The External Traffic Circulation for the surrounding area of Slum Rehabilitation for the future. The Horizon year is generally considered as 15 years and will be modelled for every three years accordingly.

4.2.1 Objective:

1. To capture the movement pattern in the area of radius 100 m to 500 m around the Slum Rehabilitation Area, depending on the importance of the rehabilitation site.
2. To assess the demand in the surrounding area.
3. To assess the need for road infrastructure improvement.

4. To model in a micro-simulation framework, the existing traffic system, based on the traffic volumes and directional movements and other information from data collection exercises.
5. To suggest future interventions and recommendations.

4.2.2 Stage 1: Identification of Affected Road Network

The consultant will identify the existing road network and intersections along with proposed road network in the surrounding area, (100 m – 500m), that are likely to be affected by the proposed development. Depending upon the location and the proposed development, the scale of the intensive study area would be decided, analysed by the SRA based on the locatio

Deliverables:

- Identified affected road network superimposed on satellite image.
- Brief document (less than 1000 words) explaining rationale of selecting the affected network.

4.2.3 Stage 2: Vehicle Count using Videography, Secondary Data Collection:

The Consultant will carry out Video graphic Vehicle Count Exercise for these intersections. This will constitute of videos captured of the traffic in the road network during expected 'peak hours of operations' studies based on the traffic pattern during the day (separately for weekday). The Video will be captured for 1 day classified volume count.

The count should include:

- Vehicle Composition of types and numbers of different vehicles)
- Directional distribution.

For the period of the videography, the consultant will, through video, actual commute or other appropriate means, measure the following information:

- Travel times between 'critical points' in the network.
- Queue lengths of intersections.
- Average speed in the network.

4.2.4 Stage 3: Simulation and projection exercises

The Consultant shall replicate the local road network in a traffic micro simulation software approved by SRA. This replication shall include:

- Geometry of the surrounding road network.
- Different Road network features- Bus stop, speed breakers, Pedestrian crossing, boom barriers.
- Traffic counts and the vehicle composition.
- Un-signalized and signalized intersections (along with Signal Phases)

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The model will be calibrated and validated to reflect actual ground conditions based on the following parameters:

- Travel Time
- Average Speed
- Queue Lengths

The consultant shall define future scenarios chosen for simulation, including various traffic management options, as well as signal phasing options at intersections in the affected area and provide a rationale for selection of these future scenarios as well as projection of traffic numbers and parking demand for these scenarios. Will take place in say x years. The scenarios should include:

Based on these scenarios, consultant shall simulate the road network and tabulate performance numbers:

- Travel Times between 'critical points'
- Queue lengths at intersections and at entry/exit to parking
- Average Speeds on the road network.

Deliverables:

- Brief document (less than 1000 words) detailing rationale for identification of simulated future scenarios and methodology for projection of traffic for these scenarios.
- Video capture of simulation of current ground situation (two 15 minute intervals) along with corresponding logs and comparison with data from Videographic Vehicle Count (travel times, queue lengths, average speeds) for corresponding intervals.
- Video Capture of simulation of identified future scenarios (at least four 15 minute intervals) along with corresponding logs and comparison with data (travel times, queue lengths, average speeds) from other simulations.

4.2.5 Stage 4: Results and Recommendations:

The consultant shall provide a final report consisting of the following:

i. Traffic Circulation plan during construction.
ii. Traffic Circulation Plan including surrounding area traffic movement for post and after five years of construction.
iii. Recommendations on traffic management in surrounding area to ensure smooth flow of traffic.
iv. Tabulated data from the previous activities as supporting documents.

4.3 Traffic Impact Assessment

4.3.1 Objective:

1. To capture the movement pattern i.e., Vehicular characteristics in the network.
2. To assess the need for road infrastructure improvement.
3. To model in a micro-simulation framework, the existing traffic system, based on the traffic volumes and directional movements and other information from data collection exercises.
4. To suggest future interventions and recommendations.

4.3.2 Stage 1: Identification of Affected Road Network

The consultant will identify the road network and intersections that are likely to be affected by the proposed development. Depending upon the location and the proposed development, the scale of the intensive study area would be decided, analysed by the SRA based on the location.

Deliverables:

- Identified affected road network superimposed on satellite image.
- Brief document (less than 1000 words) explaining rationale of selecting the affected network.

4.3.3 Stage 2: Vehicle Count using Videography:

The Consultant will carry out Video graphic Vehicle Count Exercise for these intersections. This will constitute of videos captured of the traffic in the road network during expected 'peak hours of operations' studies based on the traffic pattern during the day (separately for weekday). The Video will be captured for 1 day classified volume count.

The count should include:

- Vehicle types and numbers of different vehicles)
- Directional distribution.

For the period of the videography, the consultant will, through video, actual commute or other appropriate means, measure the following information:

- Travel times between 'critical points' in the network.
- Queue lengths of intersections.
- Average speed in the network.

4.3.4 Stage 3: Simulation and projection exercises

The Consultant shall replicate the local road network in a traffic micro simulation software approved by SRA. This include:

- Geometry of the road network including the queuing area at entry of parking lot.
- Different Road network features- Bus stop, speed breakers, Pedestrian crossing, boom barriers.
- Traffic counts and the vehicle composition.
- Un-signalized and signalized intersections (along with Signal Phases)

The model will be calibrated and validated to reflect actual ground conditions based on the following parameters:

- Travel Time
- Average Speed
- Queue Lengths

The consultant shall define future scenarios chosen for simulation, including various traffic management options, as well as signal phasing options at intersections in the affected area and provide a rationale for selection of these future scenarios as well as projection of traffic numbers and parking demand for these scenarios.

Based on these scenarios, consultant shall simulate the road network and tabulate performance numbers:

- Travel Times between 'critical points'
- Queue lengths at intersections and at entry/exit to parking
- Average Speeds on the road network.

Deliverables:

- Brief document (less than 1000 words) detailing rationale for identification of simulated future scenarios and methodology for projection of traffic for these scenarios.
- Video capture of simulation of current ground situation (two 15 minute intervals) along with corresponding logs and comparison with data from Videographic Vehicle Count (travel times, queue lengths, average speeds) for corresponding intervals.
- Video Capture of simulation of identified future scenarios (at least four 15 minute intervals) along with corresponding logs and comparison with data (travel times, queue lengths, average speeds) from other simulations.