

# DELHI DEVELOPMENT AUTHORITY, UTTIPEC

## STANDARD TERMS OF REFERENCE

**Name of work:** Name of work :Integrated Transit Corridor Development and Street Network/Connectivity Plan for the corridor/influence zone alongwith detailed design of all intersections and mid-sections based on traffic and feasibility studies for the corridor/network

**Name of the corridor:**

**OBJECTIVES:** The main objective of consultancy services is to:

- i) **Comprehensive study of:-**
  - **Traffic**(all modes including Pedestrian/NMT)**movement along the corridor/network**
  - **Present and Future Transportation (Metro /BRT) proposals along and around the influence zone.**
- ii) **Propose a comprehensive solution addressing to the need of motorized (Public and private transport) and pedestrian/NMT traffic based on the MOUD(NUTP,MPD-2021) & UTTIPEC policies/ Guidelines.**
- iii) **Propose a comprehensive solution for safe movement of motorized and pedestrian/NMT traffic.**
- iv) **Preparation of an Integrated Transit Corridor (ITC) Development Plan with detailed design of intersections, mid sections and all the features as per the Street Design Guidelines of UTTIPEC.**
- v) **Propose a detailed design of all intersections having entry & exits with the proposed corridor with all arterial & major traffic movement corridors.**

**B** **SCOPE OF WORK:-** The scope of the work includes the following:-

- (i) Carrying out Total Station Survey to work out the feasibility for construction of geometric improvement plan for the all intersections. Survey shall be taken up to 500m depth beyond the ROW for the connecting streets all along the proposed corridor with foot prints of buildings or 50 mt (whichever is less) on both sides of the corridor and connecting streets showing entry/exit points/gates etc. in detail.
- (ii) To incorporate the future proposal of Metro/BRT along the corridor or the surrounding network.
- (iii) To carry out classified Traffic Volume Count survey for all categories of vehicles 24 hours on any two mid week working days showing all turning movements with classification of vehicles, pedestrian/NMTs all along the corridors and at junctions.
- (iv) To carry out Origin-Destination survey of traffic (for approaching traffic on either sides) for all modes including the bicycle, NMT and pedestrians on sample basis for three consecutive working days (16 hours both directions) at locations finalized in consultation with the PWD along with simultaneous classified traffic counts. The O-D survey will be undertaken from 06.00 hours to 22.00 hours. The O-D survey should be at least 10% of the total passenger volume on the study corridor.
- (v) To carry out Speed and Delay survey for the stretch under study. The objective of the survey would be to suggest for future suitable measures for segregation of local traffic, smooth flow of through traffic and traffic safety.
- (vi) To carry out Parking (off-street and on-street) and Activity survey along the corridor.
- (vii) To study the present signal system/cycle time, provision of markings/signages all along the corridors and at all mid points pedestrian crossings.
- (viii) Detailed road inventory study. Study of existing openings in Central Verge/ Intersection, side footpath etc. and rationalization of the same within the overall scheme.
- (ix) All the survey formats shall be approved / vetted by PWD / UTTIPEC and only then they shall be used on the field.
- (x) Fixing of permanent bench marks at important points correlated with Survey of India Bench Mark.
- (xi) Surveyor should also collect the data of infrastructure existing on the ground, below & above the ground and levels of the ground and also identify the monument, reserved green/ parks, sensitive/ defense areas in the vicinity and its influence on the proposed corridor. To obtain details of underground / over ground services from

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various utility department like MCD, BSES, MTNL, DJB, DTL etc. and prepare necessary shifting plans for these services in consultation with PWD and utility department. Inventorying services details and detailing with scheme including proposal for their shifting/ relocation in safe corridor.

- (xii) Locations of trees with girth more than 30 cm (measured at 1 m height from the ground level) in separate Auto Cad layer. A table, showing location, type, their species, and girth diameter and reference number duly shown on the plan shall be made. The trees at site to be numbered and marked with paint including the identification of trees, which can be saved (without cutting), if falling on median.
- (xiii) The feasibility survey shall be in accordance with the UTTIPEC, DDA Guide Lines and other parameters.
- (xiv) Environmental Impact Assessment studies if required any.
- (xv) Traffic Impact Assessment & its management all along corridor & 500 meter across the alignment on roads meeting the alignment.
- (xvi) Preparation of Integrated Transit Corridor Development Plan showing the geometric design details of corridor.
- (xvii) Preparation of Circulation Plan, network connectivity plan for the MRTS influence zones as per UTTIPEC guidelines and Metro Stations alongwith multimodal integration plan as per the checklist /guidelines of UTTIPEC.
- (xviii) Detail proposal for 'on street' & 'off street' parking all along the corridor & also around 800m zone around the corridor.
- (xix) Rationalizing service road in relation to intersection improvement scheme.
- (xx) The consultant is required to submit design of Signages, Pavement Markings etc. and preparation of detailed drawings showing signages, their types & locations as per IRC Standard/UTTIPEC guidelines.
- (xxi) The Proposal shall be submitted to UTTIPEC as per the contents and detailed stages mentioned in the approved format for submission attached Annexure "A".
- (xxii) The proposal should contain all the drawings and texts specified in the format for submission of project and to be submitted at following stages for scrutiny and deliberations in the UTTIPEC:-
  - a) Stage I & II. Project details and conceptual design with 3 options.
  - b) Stage III, i.e. with detail design proposal.
- (xxiii) Preparation of 2 to 3 optional scheme with rough indicative cost and execution time and most viable/ preferred scheme with models for the junctions after study and analysis of data and discussion with Engineer-in-charge and assisting PWD (GNCTD)
- (xxiv) The consultant shall present the scheme before UTTIPEC DDA, Delhi Urban Art Commission, and any other organization like Archeological Survey of India, Delhi Police etc. on behalf of PWD, GNCTD and getting the approval from them.
- (xxv) The general arrangement drawings (Detailed design) after mandatory approvals shall be supplied to the PWD, GNCTD for implementation.
- (xxvi) Proposed Integrated Transit Corridor Development plan approval from various agencies like UTTIPEC, DDA, MCD, DUAC, ASI etc.
- (xxvii) Design of cross section/ longitudinal section shall be adhered to as per UTTIPEC/IRC Standards/ Guidelines.
- (xxviii) Presentation of proposal at any point of time required by the PWD (GNCTD) shall be made available by the consultant.
- (xxix) Preparation of artistic views /photomontage as required for various presentations, for desired locations as per UTTIPEC submission format and as per direction of UTTIPEC/PWD .
- (xxx) The consultant is required to prepare & submit a Detailed Project Report to PWD (Min. 4 sets) based on the detail design of the proposal approved by UTTIPEC before implementation of the project by PWD. A copy of the same shall be submitted to UTTIPEC for reference & record (soft & hard copy).
- (xxxi) Completion plan to be prepared by the Consultant after completion of the project work and the same will be submitted to PWD for onward submission to UTTIPEC for reference and record.
- (xxxii) The consultant is required to submit all the architectural drawings of foot over bridge, if required, approved as part of overall proposal. In case of feasibility of two

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or more proposals, then merits and demerits of each of the proposal is to be furnished for the consideration of PWD, GNCTD.

- (xxxiii) Effecting necessary changes/ modifications to the plans as and when required by the competent authority and submission of Ten sets of final drawings along with soft copy in desired format to PWD (GNCTD) and Ten sets of layout plans along with soft copy in desired formats showing services details including safe corridor.
- (xxxiv) Some field work may have to be done at night. The consultant will have to make his own lighting arrangements etc. for night working for which no additional payment will be made.
- (xxxv) The consultant at his cost shall ensure all road / traffic safety measures including deployment of traffic marshals, placing traffic safety cones, use of traffic safety jackets etc.
- (xxxvi) All the ground levels shall be plotted in the form of L-Section in computer Auto Cad with scale 1 : 1000 horizontal, 1 : 100 vertical. For X-Sections, it would be at 1 : 100 horizontal and 1 : 50 vertical.
- (xxxvii) The consultant shall carryout micro simulation if desired by the PWD / UTTIPEC for the whole stretch under study.
- (xxxviii) After approval of Integrated Transit Corridor Improvement Scheme from UTTIPEC / DUAC, the consultant will issue "Detailed drawings", prepared as per UTTIPEC Street Design Guide line and as approved by UTTIPEC/DUAC. The "Detailed drawings" consist of details of every component of corridor improvement scheme i.e. main carriage way, footpaths, service road, NMV lanes, central verge, street furniture, street lighting, Bus stops/Bus bays, Parking areas, road marking, signage's, Public amenities, drainage, Multi Utility Zone/ Green area, Rain Water Harvesting Scheme, Horticulture work details etc.
- (xxxix) Structural design and issue of structural drawings is not in the scope of work.
- (xl) The required models of the proposal, to be submitted to DUAC/ UTTIPEC etc., will be prepared by consultant and nothing shall be paid on this account.
- (xli) *The consultant shall conduct cost benefit analysis of the scheme by taking into account the economic costs, environmental costs and social costs in implementing the scheme. Resulting savings in journey time, savings in man hours, savings in fuel, savings in vehicular emission and all other savings including carbon credit earned by implementing the scheme shall be calculated by the consultant. Time period of the recovery of the investment made in the implementation of the scheme shall be calculated.*
- (xlii) *Consultant shall study the existing drainage system of the subject corridor and its influence areas and its disposal outfall. The consultant shall assess the future drainage requirements of the subject corridor and its influence areas after implementation of the scheme including its disposal/outfall and submit detailed drainage plan of the corridor/influence zone of the study of existing/proposed drainage arrangements in consultation with DJB/MCD/DSIIDC/other bodies.*
- (xlili) *The consultant shall map all utilities, services owned by DJB, NDMC, MCD, DTL, Power companies, Telecom companies, Gas Companies etc. coming in the alignment of the tunnel.*

**(Note: Last three points of scopes were sent by Project Manager (F-11) PWD which was approved by the Working Group- II A in its meeting held on 05.12.14)**

**TERMS OF REFERENCE –**  
**Addendum for Integrating Eco-Mobility aspects into all projects**  
**along Drain corridors taken up by PWD, Urban Local Bodies, MCDs**

- 1.0 The Ecomobility concept envisages the transformation of the less utilized land along the drain into ecological landscapes which function as walking/ cycling networks and also integrate seamlessly into the adjoining neighbourhoods. These aspects are to be integrated in all projects taken up by PWD/ Local Bodies along drain corridors including elevated roads along drains, etc. The Ecomobility component shall include the following:
- (a) Ecological Landscape Design (for in-situ storm water treatment, catchment & infiltration)
  - (b) Environmental Engineering solutions to polluted urban drains
  - (c) Transport Planning with network development and Multi-modal integration
  - (d) Urban design keeping in view public safety especially women and children, and activity generation within the Corridor
  - (e) Business model for implementation and maintenance

*1.1(a) Ecological Landscape Design*

Consultant shall propose unique landscape design solution for sustainable ecological development with an enhanced quality of urban life within project influence area. The landscapes shall include working landscapes which will function as storm water catchment, treatment, management and infiltration systems during the rainy seasons and function as active public parks during other times. Further, the Consultant shall propose good quality walkways dedicated to non-motorized / pedestrianized. The primary components shall be:

- (a) Working landscape design
- (b) Trail design
- (c) Drain cross section

The aforesaid would offer recreational opportunities as well as alternate choice of transport to public at large as well as residents staying in the vicinity of the project area.

*1.1(b) Environmental Engineering Solutions to Polluted Urban Drains*

Consultant shall propose suitable engineering solutions to manage waste water by effectively treating it through the course of the drain by making on-course natural treatment units such as sedimentation tanks, trickling filters, wetland etc., and aesthetically improving upon the drain area so that the drain and its surrounding area can be used for recreational activities.

*1.1(c) Transport Planning with Network Development and Multi-Modal Integration*

To increase the popularity of the public transport system, Consultant shall provide/suggest necessary connections to neighborhoods to the different public transportation hubs like bus-stops, metro stations etc. This would also encourage the people to get out of their cars into open green areas.

Consultant shall propose suitable short-cuts, easy pedestrian and cycling access to various neighborhood destinations which shall make more and more people to use the Corridor, by avoiding small car trips, and helping out in reducing the overall traffic congestion of our city roads.

The proposed plan shall also suggest linkages from residential areas to workplaces, local markets, clubs, schools etc. The various linkages will allow people of different interests, skill and age to find new connections.

*1.1(d) Urban design keeping in view public safety especially women and children, and activity generation within the Corridor*

The consultants shall prepare detail plan including planning of hawker zones and relevant street furniture. All the urban design elements shall be covered in detail while preparing the plan. Consultant shall propose suitable facilities to ensure public safety and typically this shall including following components:

- Design recreational outlets for hiking, walking, jogging and biking
- Propose suitable access to all markets and businesses and enhanced tourist activity.
- The proposed plan shall provide a beautiful landscape tourism corridor to connect the identified tourist destination points in and around the corridor
- Propose suitable measures to ensure public safety
- Suggest appropriate facilities for disable friendly, children and for women.

*1.1(e) Business Model for Implementation and Maintenance*

Consultant shall explore the possibility of revenue generation through various means from the Project. Consultant shall assess the financial viability of the Project (in terms of Financial Internal Rate of Return (FIRR), Debt Service Coverage Ratio (DSCR) etc., based on the estimated cost of project (at prevalent market rates), reasonable O&M expenses and the estimated revenue streams from the project on a stand – alone basis. The impact of other revenue augmentation avenues like provision of way side amenities and advertising rights may also be accounted for in the financial projections in realistic manner. Consultant shall also carry out suitable sensitivity analysis of different revenue streams to various factors.

1.2 The total project would involve detailing out each of the above components and sub-components of the project, as is enumerated in the following table. Detailed drawings and reports would be prepared as part of this phase as the work progresses.

Transport & mobility plan	Access facilities, pedestrian and cycling network, multimodal connectivity, FOB, parking
Environmental Engineering (Water treatment)	Site levelling, lakes, wet lands, fountains
Ecological & Landscape	For entire project area
Urban Design and Place making	Integration with neighborhoods, edge conditions, public plazas, waterfront promenades, heritage and tourism integration, women/ public safety and security – lighting, visual connectivity, eateries, vendor zones

**1.3 Field Surveys and Investigations**

The following field surveys/ investigation shall be undertaken as part of the study by the Consultant:

- Transport related assessment
- Geo-technical investigations
- Hydrological tests
- Topographic survey