

TERMS OF REFERENCE FOR CONSULTANTS

A. Indicative Consulting Services

1. Consulting services for this assignment will be contracted by the Asian Development Bank (ADB) to a firm that will be engaged for 132 person-months of international and national expertise, involving 24 experts over a 2-year period. In addition, ADB will recruit five national consultants on an individual basis for a total of 20 person-months to support implementation and quality control. All consultants, both firm and individual, will be recruited in accordance with the ADB Procurement Policy (2017, as amended from time to time).

2. Table 1 shows the experts required and the indicative person-months of consulting services entailed.

Table 1: Summary of Consulting Services Requirement

	Person-Months
CONSULTING FIRM (International/National)	132
International	
Team Leader and TOD Specialist (Urban Designer/Planner)	12
TOD Specialist (Land Use and Transport Integration)	4
MMI Specialist (Urban Transport Planner)	4
TOD Specialist (Implementation and Enabling Frameworks)	4
Public Space/Public Realm Strategy Specialist	1
Sustainable Master Planning – Water Specialist	1.5
National	
Deputy Team Leader MMI Specialist (Urban Transport Planner/Engineer)	12
Deputy Team Leader TOD Specialist (Urban Designer/Planner)	12
Urban Design Specialist (with Spatial Planning/Design Guidelines expertise)	7
Urban Planning Specialist (with Land Use/FSI Planning expertise)	6
Sustainable Master Planning – Energy Specialist	1.5
Landscape/Public Realm Design Specialist	3
Transport Engineer (with MMI expertise)	8
Transport Modelling Specialists (2) (with UTDM/Micro Simulation expertise)	7
Real Estate Expert	6
Financial Expert (with Land Value Capture expertise)	4
Financial Expert (with Public Transport Fare Rationalisation expertise)	4
Legal Expert (with Town Planning Act and Land expertise)	2
ICT Specialist (with Operational MMI and Integrated Ticketing expertise)	4
Data analytics and GIS Expert	6
Gender Specialist	6
Institutional Specialist	4
Training Specialist	7
Communications Specialist	6
INDIVIDUAL EXPERTS (National)	20
TOD and Urban Design/Mobility Specialist	10
Urban Institutional and Governance Specialist	3
Land Value Capture and Urban Finance Specialist	2
Transport Specialist with ITS Knowledge for Operational MMI	3
Communications Specialist	2

GIS = Geographic Information System, ICT = information and communication technology, ITS = information technology services, MMI = multimodal integration, TOD = transit-oriented development, UTDM = urban travel demand modelling.
Source: Asian Development Bank estimates.

B. Background

3. The Government of Karnataka (GOK) state is currently developing public mass transit systems for Bengaluru city, including expansion of the metro rail and introduction of suburban rail. In addition, the GOK is upgrading the existing bus transport system to enable a shift toward more sustainable modes. As part of this initiative, the Government of India (GOI) requested ADB for financial assistance for the construction of new metro lines, phases 2A and 2B, with a total length of 56 kilometers (km), including 30 stations and three depots. Phase 2B of the metro will connect the city with the Kempegowda (Bengaluru) International Airport, while phase 2A will provide interconnectivity with other metro lines at two junction stations along the Outer Ring Road (ORR). The total project cost is estimated at \$1,055.8 million. Expected outcomes of the project are (i) strategic shift toward low carbon transport modes to meet mobility needs of the city through the creation of an integrated, safe, reliable, efficient, affordable, inclusive, and environment-friendly public transport system; (ii) empowerment of women and other vulnerable groups including the elderly and differently abled persons through safe, convenient, and equitable access to the benefits of public transport; and (iii) enhancement of livability and economic productivity of the city of Bengaluru.

4. The GOK also plans to prioritize (i) integrated and systemic urban planning to manage growth, catalyze strategic renewal of the city core, and enhance competitiveness, sustainability, and inclusiveness of the city; (ii) creation of a ridership base that improves the economic and financial viability of mass transit investment; (iii) accessibility benefits of a comprehensive public transport system for all city residents; (iv) using land as a revenue source to finance long-term investment needs of the city; and (v) addressing complex and intertwined economic and technological needs. To meet these objectives, the GOK has requested technical assistance support from ADB for the following:

- (i) **Transit-oriented development (TOD) vision plan for the study corridors and TOD-based urban development plans for selected six zones prepared, and TOD implementation framework adopted.** TOD can help maximize the potential of areas along mass transit corridors to accommodate projected city growth and to enhance economic productivity of the city, through strategic renewal and densification. TOD, an urban planning tool, will help realign growth and densities along these new mass transit corridors through the creation of higher density, mixed-use, mixed income, resource-efficient neighborhoods that are (a) safe, compact, resilient, and inclusive, and designed for effective disease containment and cure; and (b) reduction in the city's carbon footprint. In addition, this approach will help enhance land values along the corridor and generate capital revenues to meet long-term investment needs of the city.
- (ii) **Multimodal integration (MMI) plan covering physical, information, operational, and institutional integration and integrated ticketing prepared and institutionalized.** MMI across four key pillars of integration—(i) physical, (ii) information, (iii) operational, (iv) institutional—and integrated ticketing will provide seamless, convenient, and affordable route and mode choices to all citizens. This will make mobility more efficient, safe, affordable, and accessible for all, empowering women and differently abled persons to move and access opportunities and amenities across the city with greater ease and confidence.

- (iii) **Capacity of line agencies for planning and implementation of TOD and MMI enhanced and community awareness program prepared and implemented.** While TOD and MMI are fast gaining ground in India due to the substantial merits they bring, these concepts are complex to plan and design, and to eventually implement and manage. Capacity building of the Bengaluru Metro Rail Corporation Limited (BMRCL), the Directorate of Urban Land Transport (DULT), and other parastatals shall enable them to successfully plan and implement TOD and MMI with efficacy and technical knowhow.

5. The TOD and physical MMI components of this assignment will be undertaken for the study area defined by a 2 km continuous corridor on either side of the metro alignment including all stations of phases 2A and 2B. For all the components of MMI excluding physical, the study will cover areas/systems beyond the defined corridor, as required.

6. To facilitate the preparation and effective on-ground implementation of the technical assistance (TA) and to make the planning process demand-driven and evidence-based, ADB is supporting BMRCL and DULT in preparatory activities for the TA, which include (i) setting up a relevant database so that the TA is founded on high quality robust analytics; (ii) formulating an integrated regulatory framework to harmonize conflicts within the existing policies and plans and to create conditions for successful TOD implementation by minimizing inherent ambiguities and inconsistencies; (iii) developing pilot concept plans for physical MMI for seven proposed stations to demonstrate tangible benefits of convenient intermodal connections and barrier-free access for all; (iv) devising a strategy for integrated service and financial planning for the city public bus transport agency, to ensure the readjusted travel demand generated in the context of the upcoming mass rapid transit system is met; and (v) organizing sensitization workshops for decision makers, capacity building programs, and exposure visit for operational staff of parastatals, to enhance skill and to create conditions of ownership.

C. Objectives

7. The main objective of this assignment is to help BMRCL and DULT ensure that (i) transit-oriented development is planned and delivered along the identified metro corridors to set new benchmarks for sustainable, inclusive growth, and restructuring of the city; (ii) physical infrastructure and operational (service and financial) improvements are planned for all public transport (PT), intermediate public transport (IPT), and non-motorized transport (NMT) to enable an effective modal shift toward low carbon modes while ensuring social inclusiveness through equitable access to the urban transport system for all users irrespective of gender, age, and socioeconomic profile; and (iii) capacity building for state agencies is undertaken such that the planning, design, and implementation of related projects can be led successfully and efficiently, and conditions of ownership and commitment can be created for a lasting legacy.

8. Specific objectives are as follows:

- (i) **To plan and incentivize TOD as a tool to realign densities and accommodate growth** along mass transit corridors to reverse Bengaluru's urban sprawl and enable renewal of the city core, while safeguarding public health and addressing specific micro development characteristics of each TOD zone within the corridor. In doing so, enable the following:

- (a) **Strategic urban renewal of overburdened parts of the city core and densification, urban restructuring, and design of underutilized developed areas** to sustainably manage planned city growth. To enable this, creation of high density, mixed-use, vibrant, walkable, secure, and economically, socially, and environmentally resilient neighborhoods that provide adequate affordable housing.
 - (b) **Place making and delivery of good quality public realm** for all users to create a truly inclusive city, one that is accessible, safe, and secure at all times including during pandemics for the elderly, women, children, and differently abled.
 - (c) **Value creation** through sustainable urban regeneration, economic restructuring, and place making.
 - (d) **Optimized value capture and revenue generation** through effective mechanisms customized to suit the specific development contexts of TOD.
- (ii) **Sustainable mobility** that provides efficient, accessible, eco-friendly, safe, and convenient transportation options and seamless multimodal integration (across all 5 pillars of integration—physical, information, operational, institutional and fare) to enable and empower all users, ensuring gender equality, social inclusiveness, public health, and safety.
 - (iii) **Strengthening of agencies** to undertake all tasks related to the planning, designing, operations and management of TOD and MMI in the city with technical finesse.
 - (iv) **Development and implementation of an outreach and communication strategy** for TOD and MMI.

D. Outputs and Activities

9. The major outputs and activities are summarized in Table 2.

Table 2: Summary of Major Outputs and Activities

Major Outputs	Key Activities with Milestones
1. TOD vision plan for the study corridors and TOD-based urban development plans for selected six zones prepared, and TOD implementation framework adopted	<p>1.1. Review the policy framework and study area to identify (i) different TOD typologies based on development context, (ii) underutilized areas with significant development/densification opportunity, and (iii) developed areas in need of renewal.</p> <p>1.2. Prepare an overall vision plan for the study area with specific strategies for densification, urban renewal and retrofitting, among others, for each TOD zone,¹ to create vibrant and inclusive neighborhoods that safeguard public health and ensure safety.</p> <p>1.3. Prepare detailed development plans for six priority TOD zones identified within the corridor to demonstrate different strategies arrived at in 1.2 and devise a comprehensive implementation framework that addresses different development contexts and strategies.</p> <p>1.4. Develop detailed plans for three identified parking management areas (PMA) within different development contexts based on the city parking policy to demonstrate strategies for parking allocation (for all modes), pricing, place making, etc.</p> <p>1.5. Recommend TOD Development Control Regulations based on learnings from planning of priority TOD zones to create an integrated regulatory framework for effective implementation of TOD.</p>

¹ TOD zone is defined by a 1 km radius from the center of the Metro Station.

Major Outputs	Key Activities with Milestones
	<p>1.6. Based on the above, devise guidelines for planning, designing, and implementation of future TODs and PMAs.</p> <p>1.7. Support agencies to institutionalize TOD.</p>
<p>2. Multimodal Integration plan covering physical, information, operational, and fare aspects prepared and institutionalized</p>	<p>2.1 Undertake Urban Travel Demand Modelling (UTDM) based on an existing city travel model, calibrated as required, to estimate the number of trips by type, time of day, origin and destination, mode, routes, etc.</p> <p>2.2 Collect data and assess (i) existing localized service levels and capacity of different public transport and intermediate public transport (IPT) modes; (ii) existing information sharing systems, operational protocols and regulatory mechanisms; and (ii) existing fare structures, revenue generation, and competitiveness, for different modes.</p> <p>2.3 Prepare a micro-simulation model (based on UTDM) to understand localized characteristics of physical MMI at 23 metro station locations.</p> <p>2.4 Study relevant best practices from across the globe for MMI.</p> <p>2.5 Based on 2.3, prepare MMI concept plans and design for physical integration at 23 stations and evaluate the same through micro-simulation. Prepare design guidelines and implementation framework for physical MMI for all future corridors.</p> <p>2.6 Investigate the potential to address overall travel demand by improving access and service levels of various public transport, IPT, and non-motorized transport (NMT) modes.</p> <p>2.7 Develop an MMI strategy for enhancing operational efficiency and competitiveness of Bengaluru's public transport system (through physical, information, operational, institutional integration, and integrated ticketing) to meet the readjusted travel demand generated by TOD.</p> <p>2.8 Prepare a MMI implementation plan to operationalize the strategy and deliver a comprehensive urban mobility solution to empower all communities and user groups (particularly women, differently abled, and elderly).</p> <p>2.9 Support agencies to institutionalize and implement MMI.</p>
<p>3. Capacity of line agencies for planning and implementation of TOD and MMI enhanced and community awareness program prepared and implemented</p>	<p>3.1 Conduct institutional capacity diagnostics and identify all stakeholders—public and private.</p> <p>3.2 Prepare a capacity building framework focusing on strengthening of institutional capacity of key agencies and their training needs, and support the identification of training service providers.</p> <p>3.3 Prepare manuals, toolkits, standard operating procedures (SOP), and all other necessary training materials for various aspects of planning, implementing, operating and managing TOD and MMI in close consultation with the government agencies and the identified training service providers.</p> <p>3.4 Support the rollout of training programs and all allied activities identified in the capacity building framework. Track training outcomes and feedback and suggest improvements for future training programs.</p> <p>3.5 Prepare a communication strategy, conduct awareness programs, and disseminate information to promote TOD and MMI and get “buy in” from stakeholders and the market to enable urban transformation at the required scale.</p> <p>3.6 Provide technical assistance to line agencies to address emerging issues encountered during project implementation.</p>

E. Detailed Scope of Work (which will be used for selection of Firm)

10. It is envisaged that the scope as follows will be completed over the TA implementation period from the commencement of the assignment.

Table 3: Detailed Scope of Work

TRANSIT ORIENTED DEVELOPMENT		
S. No.	Component	Activities
1	Existing situation analysis	<p>Data Collection</p> <ul style="list-style-type: none"> • Undertake site visits and prepare inventory of the planning and physical characteristics of the study area. The existing conditions inventory will include the preparation of a detailed base map and a series of inventory maps and photographs. • Coordinate with the Bengaluru Metro Rail Corporation Limited (BMRCL), the Directorate of Urban Land Transport (DULT), and other agencies as required to get high-quality vector-based geographic information system (GIS) base maps for the study area. These shall include, among others, administrative boundaries, existing and proposed road infrastructure with hierarchy, existing and proposed transit and transport networks with special emphasis on multimodal integration (MMI) and non-motorized transit (NMT) infrastructure, existing natural features including landcover details, existing and proposed land use including all amenities, major nodes and activity centers, population distribution and density (as available from secondary sources such as the census), proposed key developments, restricted/no development zones as per other regulations (e.g., National Green Tribunal orders, air funnel guidelines, etc.), heritage precincts and monuments, an inventory of public lands, and areas affected by coronavirus 2019 (COVID-19), etc. within the corridor. • Undertake scoping consultations with various interest groups, and nongovernment and civil society organizations. • Collate the above collected data for the study area to, among others, (i) identify and quantify land area that is developed/undeveloped, land area under different land uses, different land cover types, roads, air funnel, slums/villages, natural water resources, etc.; (ii) estimate population and population density, and identify demographic trends and socio-economic profile (gender, age, employment, economic profile, etc.); (iii) identify clusters/nodes of socio-economic activity; and (iv) estimate levels of physical and social infrastructure provision. Additionally, based on all the above, for each transit-oriented development (TOD) zone within the study area, capture these spatial characteristics through numeric data to enable comparative analyses. • Conduct sample primary surveys on existing consumption of floor space index (FSI) and building use at the urban-block level (i.e., approximately 40–50 acres of built-up area). Devise rationale for sample selection to enable effective representation of different development trends within the study area, in general, and TOD zones, in particular. • Collate and map (i) land and property values based on government determined guidance value rates and property tax collection, and (ii) sale and rental price ranges. • Identify and prepare an inventory of existing urban/building typologies within the study area that are appropriate/inappropriate to meet the larger objectives of TOD, particularly of creating safe, mixed-use, mixed-income neighborhoods.

S. No.	Component	Activities
		<p><i>Literature review</i></p> <ul style="list-style-type: none"> • Review and analyze previously completed and current planning efforts underway including prevailing policies, plans, guidelines, and norms—National TOD Policy, Ministry of Urban Development (MOUD) TOD Guidelines, Delhi TOD Policy (notified by the MOUD), other state/city TOD policies, Government of Karnataka acts and government orders, Bengaluru rules on transferable development rights (TDR), Bengaluru Revised Master Plan 2031, and other frameworks and initiatives as necessary to (i) identify gaps in and inconsistencies of the various policies, strategies, and development projects with respect to promoting and implementing TOD; and (ii) understand organizational structures and mandates. • Review existing built form and FSI provisions and other development control regulations applicable in different parts/zones of the city. • Based on the above, identify (i) urban development strategies for city growth, densification, renewal, etc.; (ii) incentive mechanisms for the same; and (iii) character of built form, planned and supported by the existing regulatory framework. • Identify case studies and best practices in TOD nationally, regionally, and internationally to highlight successes, failures, and lessons learned. These should include best practices for different contexts— infill, retrofitting, redevelopment, and greenfield, etc.—that are applicable to Bengaluru and ensure inclusivity. Also, identify relevant urban initiatives underway globally in response to COVID-19. • Study appropriate models for effective delivery of affordable housing that have been successful internationally and locally in TODs. These should also include cases of rehabilitation of slums and informal settlements (in-situ and otherwise). • Study various types of land-based fiscal instruments (land value capture [LVC] tools), other financing mechanisms, and institutional arrangements employed effectively in TOD projects in India and internationally. <p><i>Public and stakeholder consultation (in accordance with the communication strategy; refer to point 16 onwards)</i></p> <ul style="list-style-type: none"> • Undertake focus group meetings and key interviews with all stakeholders to help generate buy-in, identify major issues confronting the project, and understand social, economic, and political goals for the project. • Undertake assessment of existing and upcoming types of developments in Bengaluru by conducting key person interviews (KPI) with developers and planners to understand the scope and form of development and market interest in the study area. • Undertake infrastructure and capital expenditure assessment by interviewing key persons in the various agencies on estimates of the carrying capacity of and expenditure for existing infrastructure including roads, water supply, sewerage, parks/playgrounds, civic amenities, etc. in the study area. <p><i>Analyses and assessments</i></p> <ul style="list-style-type: none"> • Undertake an analysis of baseline conditions and prepare strengths, weaknesses, opportunities, and threats (SWOT) maps based on the existing conditions inventory to evaluate the physical, environmental, and socio-economic characteristics of the study area. • Prepare preliminary market assessment based on large and small private and public sector development projects, residential, institutional, and

S. No.	Component	Activities
		<p>commercial sale prices and sale velocities, guidance value, etc. within the study area based on data collected and other available secondary sources.</p> <ul style="list-style-type: none"> • Evaluate the effectiveness and appropriateness of existing regulatory frameworks including land use zoning, transferable development rights, accommodation of land for public purpose, and floor space index as policy instruments in the context of the project and study area. • Analyze gaps and overlaps between organizational structures, functions, and governance processes for streamlining and aligning macro- and micro-level planning processes and enforcement for effective implementation of TOD within the study area. • Identify preliminary goals and targets with respect to the institutional support, plans, policies, and development market. • Prepare a consolidated Existing Situation Assessment Statement for the study area.
2	Multi-criteria analysis to arrive at TOD typologies within study area, categorization based on the development scenarios, and assessment of revenue generation potential	<ul style="list-style-type: none"> • Prepare a framework for multi-criteria analysis to arrive at TOD typologies within the study area based on, among others, intensity of development/development potential, levels of accessibility, environmental/cultural sensitivity, intensity and type of activity/land use mix, type and hierarchy of transit facility available, etc. • Undertake multi-criteria analysis to arrive at TOD typologies for all TOD zones within the study area. • Based on all of the above, categorize TOD zones within the study area into three development scenarios as follows: (i) TOD zones in need of strategic regeneration, (ii) TOD zones with underutilized lands with potential of densification/development, and (iii) TOD zones in need of selective retrofitting. • Based on the above, assess the revenue generation potential within the study area and capital expenditure by agencies such as BMRCL, Bruhat Bengaluru Mahanagara Palike (BBMP), and Bangalore Metropolitan Transport Corporation (BMTCL), etc. • Delineate a draft TOD strategy for the study area to bring together the findings of the multi-criteria feasibility analysis, revenue generation potential findings, and existing capital expenditure analysis.
3	Initial vision plan for the study area	<ul style="list-style-type: none"> • Create a vision plan for the study area based on the identified TOD typologies, envisioning the character and development form with considerations of ecology, sustainable drainage and landscape, access and mobility, land use distribution and density, affordability, inclusivity, public health, safety and security, built form, physical multimodal integration, etc. • Based on the above, develop a set of macro TOD principles and development standards for the study area, i.e., corridor level to provide the basis for a regulatory framework that would allow this vision plan to be realized in different development contexts—redevelopment, greenfield, and infill, etc. For this, identify a set of threshold planning requirements and criteria that detailed development control regulations (DCR) would operationalize to ensure inclusive and sustainable urban development. (Refer to points 4 and 8.) • Recommend a set of key strategies and land-based policy instruments that would be used across the study area to incentivize TOD. • Develop a selection criterion to prioritize TOD zones within the study area, based on quantitative and qualitative parameters such as

S. No.	Component	Activities
		<p>development/redevelopment potential, higher transit ridership (expected/proposed), availability of public lands, presence of intermodal service, higher land use mixes, station area character, market potential, etc.</p> <ul style="list-style-type: none"> Based on the above, identify six priority TOD zones to be taken up as pilot cases and designed in detail (refer to point 5). These should have a good mix of the three development scenarios mentioned in no. 2 above: (i) TOD zones in need of strategic regeneration, (ii) station areas with underutilized lands, and (iii) TOD zones in need of selective retrofitting. Among these, identify three parking management areas as pilots for implementation of the city parking policy. Carry out community participation/engagement at this stage (in accordance with the communication strategy) with representatives of all groups and stakeholders to receive feedback on the vision plan and identified TOD zones and parking management areas.
4	Draft development control norms for the corridor	<ul style="list-style-type: none"> Evaluate the appropriateness of the studied policies, guidelines, norms, planning regulations, financial mechanisms, public–private partnership models, and land value capture tools against the objectives of the project, different development contexts within the study area and the vision plan, with the aim to ensure the creation of inclusive and resilient TODs and to mitigate gentrification. Based on this, prepare a framework and principles for draft development control norms. Prepare draft development control norms for, among others, network augmentation, mix of uses, density, consumption of floor space index, transferable development rights, and accommodation reservation of land for public purpose (roads, social infrastructure/amenities, informal markets or vending zones, etc.), parking, setback, and ground coverage, etc. Note that points 4 and 5 will be undertaken reiteratively.
5	Preparation of development plans for identified six priority TOD zones, and three parking management areas	<p>Station area analysis (for six priority stations identified)</p> <ul style="list-style-type: none"> Delineate boundaries for the six priority TOD zones and undertake assessments with regards to walking distance from transit station based on willingness to walk, existing road network, pedestrian shed (Ped-Shed) analysis, critical destinations in and around, natural/environmental features and assets, existing built environment (land use, consumer floor space index, densities, character, etc.), land ownership, etc. Analyze baseline conditions to identify the development character of the TOD zone, market realities, and community need, etc. Identify specific issues and opportunities and establish preliminary spatial, environmental, and socio-economic goals and targets for each TOD zone. Establish micro TOD planning principles and guidelines for the TOD zone level broadly covering (but not limited to) accessibility, blue-green networks and sustainable urban drainage, density and land use mix, urban form and development, transit and station amenities, place making, etc. <p>Stakeholder consultation (in accordance with the communication strategy; refer to point 16 onwards)</p> <ul style="list-style-type: none"> Undertake organized visioning workshops with key stakeholders for all six TOD zones to (i) share and revalidate identified issues and opportunities as well as goals and targets; (ii) discuss potential for land use–transport

S. No.	Component	Activities
		<p>integration and infrastructure augmentation, and solicit feedback on possible implementation strategies; (iii) prioritize goals into short-term, midterm, and long-term opportunities; and (iv) identify the market, generate project interest, and solicit feedback.</p> <p>Detailed area plan for priority TOD zones</p> <ul style="list-style-type: none"> • For each priority TOD zone, prepare a detailed TOD plan demonstrating land use–transportation integration, sustainable mobility, non-motorized transport priority, multimodal integration, inclusive, safe (also with respect to public health) and secure public space creation, sustainable ecology and drainage, appropriate FSI consumption, density and use distribution, affordable housing provision with mixed tenures, effective revenue generation, reservation for public purpose, location of reserved plots for value capture, etc. • Identify and apply appropriate development strategies for different contexts—retrofitting, infill, redevelopment and greenfield, etc. Also, prepare strategies to avoid/mitigate large-scale gentrification and enable inclusion. • Prepare detailed plans for the three identified parking management areas based on considerations of place making and parking management for all modes including non-motorized transport, intermediate public transport, school buses, emergency vehicles, and private vehicles, etc. Formulate parking management area guidelines based on learnings from the detailed parking management area plan preparation. • For the station area² of the six priority TOD zones, specifically integrate physical multimodal integration concept plans (refer to 12 below), and public space creation to enable seamless transfers between modes and safe and secure access for all at all times, giving priority to identification of higher-intensity uses appropriate in close proximity to stations. Taking into consideration the needs of women, elderly, children, differently abled, and the informal sector, provision of basic amenities such as public toilets, seating areas, planned areas for vending zones, etc., active frontages, adequate and appropriate signage and lighting, etc., should be included. • Test the draft development control norms prepared in accordance with point 4 in each of the TOD zone plans and make necessary improvements/amendments. Based on this, prepare recommendations for draft development control norms. • For each priority TOD zone, identify opportunities for land readjustment and consolidation or strategic projects that can help regulate land markets to achieve the envisioned form (based on government land inventory and through amendment to bylaws, as relevant). • Identify appropriate land value capture (LVC) methods for the selected six priority TOD zones. • Undertake follow-up detailed assessment of LVCs (and development potential) in the priority TOD zones through field-based and secondary research on new proposed developments in these zones, price ranges, sales velocities, supplemented by key person interviews with public and private sector stakeholders (as relevant). • For each station, identify development options and broad anticipated impacts (in terms of benefits for all residents—irrespective of gender, age, socio-economic background).

² Station area is defined by a 200-meter radius from the center of the metro station.

S. No.	Component	Activities
		<ul style="list-style-type: none"> Develop a strategy for institutional coordination to enable integrated planning.
		<p>Public and stakeholder consultation (in accordance with the communication strategy; refer to 16 onwards)</p> <ul style="list-style-type: none"> Carry out community participation/engagement for/at each of the six priority TOD zones, with representatives of all groups and stakeholders to receive feedback on the TOD plans.
6	Preparation of revenue generation strategies and financing plan for priority TOD zones	<ul style="list-style-type: none"> Prepare block cost assessment for the proposed six priority TOD zones with supporting infrastructure development. Undertake financial analysis of revenue generation for the proposed six priority TOD zones. Revise TOD zone plans prepared in Task 5 and finalize based on community/stakeholder feedback and estimation of revenue generation, ensuring the creation of contextual, sustainable, and inclusive TODs. Note that points 5 and 6 are to be undertaken iteratively and include discussions with the BMRCL (and other relevant authorities) to finalize the TOD zone plans, TOD guidelines, and draft development control norms.
7	Preparation of implementation strategies, action plan, monitoring and evaluation framework for priority TOD zones	<ul style="list-style-type: none"> Prepare necessary legislative documents, orders, etc. to assist BMRCL, DULT, Bangalore Development Authority (BDA), and BBMP in integrating the recommendations for policy and development control regulations into adopted existing legislation (as identified through the duration of the project). Prepare a draft strategic implementation plan with proposed monitoring and evaluation framework. This is inclusive of financial planning, phased action and management plan for each of the six stations including aspects such as value capture through reserved plots, value creation through open spaces, upgradation of physical and social infrastructure, etc. Develop a framework for institutional coordination for effective implementation of TOD. Develop an implementable institutional approach for scaling up planning and implementation of TOD at the BDA and BBMP level.
8	Preparation of TOD-based urban development plans and guidelines for selected zones, draft development control norms for TOD and implementation framework	<ul style="list-style-type: none"> Prepare draft final report with TOD vision plan, TOD-based urban development plans and guidelines for selected TOD zones, and draft development control norms for TOD and TOD implementation framework (with maps and drawings for submission to BMRCL and DULT). Once final comments are received, revise and prepare the final project report with all necessary maps/drawings (including GIS formats) and an executive summary.
9	Support institutionalization of TOD implementation	<ul style="list-style-type: none"> Support BMRCL, DULT, and other agencies for institutionalization of the TOD implementation framework prepared.

S. No.	Component	Activities
	framework	
MULTIMODAL INTEGRATION		
10	Data collection and appraisals	<p>Data collection</p> <ul style="list-style-type: none"> Undertake site visits and collect data to assess (i) existing transport infrastructure; (ii) existing localized service levels and capacity for different public transport and intermediate public transport modes; (iii) existing information sharing systems and protocols; and (iv) existing fare structures, revenue generation, and competitiveness, for different modes, as detailed below. <p>Physical integration</p> <ul style="list-style-type: none"> For the study area, in addition to data collected under point 1, coordinate with BMRCL, DULT, and other agencies as required to collect secondary data on (i) public transport infrastructure including location of transfer points, inventory of bus stop/metro station/ intermediate public transport stop/bus terminal/multimodal hub (interchange), etc.; (ii) transport network including existing road network, intersections, parking infrastructure; (iii) non-motorized network including existing infrastructure details of footpath, cycle track, access, intersection treatment, etc. (the same must be verified on site); and (iv) user profiles and behavior (with a focus on inclusivity) and models including ridership projections available with different agencies. For physical MMI in all station areas of phases 2A and 2B corridor, collect total station surveys (TTS) and verify the same on site, overlaying all future proposals for metro, suburban rail, road infrastructure, etc. on the TTS data. In addition, identify all road/public landowning agencies in the vicinity of the stations in coordination with BMRCL. <p>Operational integration</p> <ul style="list-style-type: none"> Coordinate with BMRCL, DULT, and other agencies, as required, to get access to the existing city Urban Travel Demand Model and collect data on (i) public transport operations for bus, metro, and suburban rail systems (including fleet usage, fuel used and age, fleet utilization rate, average route speed, service reliability, vehicular kilometers, average kilometers per unit per day, percentage occupancy, total passengers per day, etc.; (ii) impact of COVID-19 on public transport demand; (iii) route detail including route inventory along with bus stops and stations; and (iv) existing provisions/practices for operations and maintenance (O&M). <p>Information integration</p> <ul style="list-style-type: none"> Collect secondary data on existing protocols, methods, and media for information flow between agencies and commuters. Identify implemented and proposed initiatives for data integration. <p>Institutional integration</p> <ul style="list-style-type: none"> Collect necessary information/data for all agencies and departments involved in the providing mobility solutions for Bengaluru and understand their mandate, roles, functions, and operations. Identify implemented and proposed initiatives for institutional integration including Bangalore Metropolitan Land Transport Authority (BMLTA). <p>Integrated ticketing</p> <ul style="list-style-type: none"> Collect data for various modes of transport on (i) fare structure and collection method; (ii) operation cost per kilometer, revenue per kilometer,

S. No.	Component	Activities
		<p>profit/loss, etc.; (iii) financial performance of operator; (iv) fare policy and revisions that have been made to the same over time.</p> <ul style="list-style-type: none"> For all the above, undertake scoping consultations with various interest groups, nongovernment and civil society organizations. <p>Literature review</p> <ul style="list-style-type: none"> Review the national, state, and city level policies and plans relevant for the study (in addition to the literature review undertaken in point 1), including the National Urban Transport Policy (NUTP), Sustainable Urban Transport Project (SUTP) guidelines and toolkits, Draft Comprehensive Mobility Plan (CMP), and Draft Parking Policy for Bengaluru, among others. Identify case studies and best practices in MMI nationally, regionally, and internationally to highlight successes, failures, and lessons learned. These should include best practices for four key pillars of integration and integrated ticketing, also addressing universal access and gender inclusivity. Study various types of financing mechanisms and institutional arrangements employed effectively in MMI projects in India and internationally. <p>Public and stakeholder consultation (in accordance with the communication strategy; refer to 6 onwards)</p> <ul style="list-style-type: none"> Undertake focus group meetings and key interviews with stakeholders to help generate buy-in, identify major issues confronting the project, and understand social, economic, and political goals for the project. Undertake infrastructure and capital expenditure assessment by interviewing key persons in the various agencies on estimates of the carrying capacity of public transport, intermediate public transport, and non-motorized transport, and expenditure for existing and planned public transport and physical infrastructure in the study area.
11	Existing situation analysis	<ul style="list-style-type: none"> Undertake assessments of baseline conditions to arrive at SWOTs for physical, operational, informational, and institutional integration and Integrated ticketing. Evaluate effectiveness and appropriateness of existing regulatory frameworks and institutional provisions in the context of implementing MMI. Also, analyze gaps and overlaps between organizational structures, functions, and governance processes, for streamlining and aligning operations and enforcement for effective implementation of MMI within the study area. <p>Physical integration</p> <ul style="list-style-type: none"> In the study area, (i) identify the type of public transport infrastructure with associated facilities such as bus stop/metro station/IPT stop/bus terminal/multimodal hub (interchange) available; (ii) identify regional connectivity, routes, existing location of infrastructure (stops/station/multimodal hub/terminal, etc.), ridership and transfer points where many routes converge or meet, etc.; (iii) identify and review inventory of the existing road network including hierarchy, right-of-way length, cross sectional dimensions, capacity, intersection, control devices, pavement width, central reservation (median), horizontal and vertical clearances, road pattern, etc.; (iv) undertake traffic composition/ volume study to identify average annual flow, annual average daily traffic, hourly flow,

S. No.	Component	Activities
		<p>etc.; (v) through the above analysis, identify required road design, service volumes, different types of road hierarchy, etc.; (vi) undertake analysis of existing parking infrastructure and capacities (types of parking, parking accumulation, volume, load, etc.) with respect to public transport system of demand and supply.</p> <ul style="list-style-type: none"> For sites planned as multimodal hubs within the study area (points 4 to 5), identify the surrounding road network available, approach to sites, on-site and off-site features, applicable development controls, building norms and/or zoning regulations, etc. For physical MMI around metro stations, (i) prepare road level pedestrian and traffic model for the station areas and assess traffic and pedestrian level of service (LOS) before and after proposed implementation through a micro-simulation model; and (ii) undertake situation analysis survey of traffic for all modes, and arrive at a brief and priorities for public realm design specifying the quantum and nature of provision required for physical integration. For the identified PMAs, undertake parking and activity surveys (all surveys to include gender mapping) to establish demand/supply for all modes (note this will be undertaken after point 5). <p>Information integration</p> <ul style="list-style-type: none"> Identify and study existing components supporting information integration and current information technology services (ITS) architecture of various public/private transport modes available to upgrade it. Review the existing ITS masterplan for Bengaluru prepared by the Directorate of Urban Land Transport (DULT). Based upon levels of information flow between all modes, identify the underlying gaps in the planning process. Assess the effectiveness and appropriateness of ongoing initiatives for information integration and identify lessons learned. <p>Operational integration</p> <ul style="list-style-type: none"> Review existing public transport scenario such as public transport modes, available infrastructure, peak load, frequency, etc. Update the Urban Travel Demand Model using appropriate transport software and validate the demand model by using base year trip ends to be distributed and assigned on the network. Undertake demand estimation including travel demand, potential ridership, peak and off-peak frequencies, fleet size requirement, total cycle time, etc. Also, evaluate considerations of pandemics on travel demand. Calculate ridership in terms of passengers per hour per direction (PPHPD) in the estimated horizon year. Evaluate existing routing and scheduling. Assess effectiveness and appropriateness of ongoing initiatives for operational integration and identify lessons learned. <p>Institutional integration</p> <ul style="list-style-type: none"> Identify all concerned authorities and understand their functioning. Identify opportunities, weaknesses, and challenges prevalent in the various organizations/listed agencies. Assess the effectiveness and appropriateness of ongoing initiatives for operational integration, including BMLTA, and identify lessons learned.

S. No.	Component	Activities
		<p><i>Integrated ticketing</i></p> <ul style="list-style-type: none"> • Identify all public transport and IPT modes and their operators. • Study the existing scenario for fare structure, fare products, pricing, concessionary fare, kinds of ticket, and collection system, etc. • Identify issues with respect to point of sale, collection process, verification of correct fare, etc. for integrated ticketing. • Evaluate the potential for standardized operational procedures among the participating public transport modes for implementation of integrated ticketing. <p>Prepare a consolidated Existing Situation Assessment Statement for the study area.</p>
12	Strategy and design for multimodal integration	<p>Strategy and design for MMI will be prepared reiteratively across four pillars of integration and integrated ticketing during this task, as follows:</p> <p><i>Physical integration</i></p> <ul style="list-style-type: none"> • Identify criteria for integration for different components of public transport, intermediate public transport, and non-motorized transport infrastructure including metro station, suburban rail station, bus stop, bus terminal, multimodal hub, IPT stand, etc. with the aim to provide convenient, direct, seamless interconnectivity with minimal conflicts between modes. • Prepare general design guidelines taking into consideration the needs of women, elderly, children, and differently abled persons for integration of components of public transport, intermediate public transport, and non-motorized transport including metro station, bus stop, bus terminal, multimodal hub, etc. taking into consideration, among others, traffic demand, traffic characteristics, function of terminal/station/stop, segregation of vehicular and pedestrian traffic and movement, segregation of traffic by type, coordination of different activities in terms of functional and spatial interrelationship, universal accessibility, etc. • To enable effective MMI, prepare concepts of road network and hierarchy design including design of road speeds, space standards, cross sectional elements, etc. Also, prepare basic principles of intersection design for safe, smooth, and efficient flow of traffic. • Prepare general design guidelines for design for non-motorized transport infrastructure including clear walking zone, cycle track design and capacity, continuity and consistency, tactile pavers, minimum width for crossing and features of crossings, and elements of street furniture and other facilities such as public toilets, cycle parking stations, vending zones, etc. • Prepare strategies to make MMI zones/hubs economically viable, where applicable. • Prepare concept plans for physical MMI in station areas to achieve the objectives of the brief and priorities for public realm design set in point 11. These must include, among others, provision of highest quality public realm design with no conflict between modes; provision of basic amenities such as public toilets, seating areas, kiosks, etc.; creation of activity through active frontages, planned areas for vending zones, adequate and appropriate signage and lighting, etc. to ensure the needs of all users. • Undertake evaluation of concept physical MMI plans through micro simulation to arrive at a preferred solution for each station hub. • Prepare Pricing and Parking Management Strategy for identified parking

S. No.	Component	Activities
		<p>management areas and assist the TOD team in preparing the parking management area plan.</p> <p>Information integration</p> <ul style="list-style-type: none"> Update/enhance/revise the framework for the information technology services (ITS) architecture proposed in the ITS masterplan for Bengaluru for integrating different ITS components across all modes for information flow and specify detailed design features, concept layout of the control center, and ITS framework design for public transport, transport network and NMT network, as required. Information integration and dissemination strategy must be inclusive for the visual/hearing impaired, illiterate, and for different languages <p>Operational integration</p> <ul style="list-style-type: none"> Prepare the strategy for operational integration based on geographical location, traffic and travel characteristics, route rationalization, socio-economic characteristics, existing public transport, transport infrastructure (roads, station, stops, etc.) and other features (built-up, zone characteristics/activity) as required. Create the framework and specifications for operational integration, keeping a balance between customer-oriented and technology-driven design. Include considerations for pandemic like situations. <p>Institutional integration</p> <ul style="list-style-type: none"> Propose appropriate measures to strengthen institutional provisions including that for BMLTA. <p>Integrated ticketing</p> <ul style="list-style-type: none"> Prepare the strategy for integrated ticketing based on existing provisions such as the "More" card or the "One Nation One Card," etc. <p>Based on all of the above, develop a MMI strategy for enhancing the operational efficiency and competitiveness of Bengaluru's public transport system (through physical, information, operational, institutional integration, and integrated ticketing) to meet the readjusted travel demand generated by TOD within the study area.</p>
13	Preparation of implementation plan, monitoring and evaluation framework for MMI	<ul style="list-style-type: none"> Prepare a Draft MMI Implementation Plan (inclusive of financial planning, phased action and management plan) with proposed monitoring and evaluation framework to operationalize the strategy. Develop a framework for institutional coordination for effective implementation of MMI. Develop an implementable institutional approach for scaling up planning and implementation of MMI.
14	Multimodal integration plan covering physical, information, operational, and fare aspects	<ul style="list-style-type: none"> Prepare Draft Final Report with maps and drawings for submission to BMRCL and DULT. Once final comments are received, revise and prepare the final project report with all necessary maps/drawings (including GIS formats) and an executive summary.
15	Implementation support	<ul style="list-style-type: none"> Support agencies to initiate the implementation of the multimodal integration plan prepared. Support agencies to implement the monitoring and evaluation framework

S. No.	Component	Activities
		and assess accomplishment of targeted outcomes. This will include measurement of input and output indicators.
CAPACITY BUILDING AND COMMUNICATION STRATEGY		
16	Existing Situation Analysis – Institutional Capacity Diagnostics and Communication Strategy Need Assessment	<p>Capacity building</p> <ul style="list-style-type: none"> Identify selected organizations and partners to receive capacity building training, in collaboration with BMRCL and DULT. Assess institutional capacity/strengths of agencies and organizations to be involved in the implementation of TOD and MMI. Complete institutional capacity diagnostics that may feed into technical assistance through the project period. Undertake training need assessment keeping in mind technical and human resource allocations pertaining to TOD and MMI objectives. <p>Communication strategy for TOD and MMI</p> <ul style="list-style-type: none"> Identify all stakeholders (public and private), civil society groups, opinion makers, etc. for outreach and consultation. To enable an inclusive and participatory planning process, identify strategies. Identify enablers and conditions to ensure active and equal participation of women and children, differently abled, the elderly, and persons from across different socio-economic groups in the outreach and communication activities.
17	Preparation of Framework for Capacity Building and Draft Communication Strategy	<p>Capacity building</p> <ul style="list-style-type: none"> Prepare the framework for capacity building focusing on strengthening of institutional capacity of key agencies and their training needs. Identify appropriate tools including online platforms, approaches, training programs for each target group with details of nature of workshops, tutorials, manuals, SOPs, etc. along with schedules/timelines thereof. Prepare a framework for monitoring progress and assessing the impact of training and technical assistance programs. Support BMRCL and DULT in identifying training service providers and any additional specialists, experts, etc. who could be involved in the training programs/workshops. <p>Communication strategy for TOD and MMI</p> <ul style="list-style-type: none"> Work closely with TOD and MMI teams, BMRCL, DULT, and other stakeholders to identify issues, themes, and aspects that need to be communicated to stakeholders. Prepare a draft communication strategy, applicable at macro and micro levels for both TOD and MMI, and taking into consideration consultation needs of the TOD and MMI planning and implementation processes. Identify scales of knowledge dissemination and draft samples of materials to be used for dissemination. Support BMRCL and DULT in identifying agencies and modes to roll out the communication strategy.
18	Preparation of manuals, toolkits and SOPs capacity building, final communication strategy and	<p>During this task, conduct appropriate levels of consultation on the prepared materials to test ease of use, relevance, longevity, etc. before preparing final drafts.</p> <p>Capacity building</p> <ul style="list-style-type: none"> Prepare manuals, toolkits, SOPs, and all other necessary training materials including online resources for various aspects of planning,

S. No.	Component	Activities
	support implementation of the same	<p>implementing, operating and managing TOD and MMI in close consultation with the government agencies and the identified training service providers.</p> <p>Communication strategy for TOD and MMI</p> <ul style="list-style-type: none"> • Prepare the final communication strategy for implementation by BMRCL and DULT. • Support identified agencies in the development of content and modes for dissemination of information as required to successfully roll out the communication strategy. • Support BMRCL, DULT, and identified agencies to conduct awareness programs and disseminate information to promote TOD and MMI and get “buy in” from stakeholders and the market to enable urban transformation at the required scale.
19	Oversight of training provided to identified organizations and partners	<p>Capacity building</p> <ul style="list-style-type: none"> • Support rollout of training programs by providing oversight of (i) training delivered by a separately appointed agency/firm to selected organizations, partners, individuals; and (ii) all allied activities identified in the capacity building framework to meet the objectives of the assignment. Ensure active participation of women, elderly, and persons physically challenged.
20	Monitor progress and assess impact of capacity improvement of line agencies and effectiveness of the communication strategy	<p>Capacity building</p> <ul style="list-style-type: none"> • Based on the framework for monitoring progress and assessing the impact prepared earlier, (i) track training outcomes and feedback and suggest improvements for future training programs, and (ii) assess the impact of capacity building. <p>Communication strategy for TOD and MMI</p> <ul style="list-style-type: none"> • Assess effectiveness of the ongoing communication strategy and suggest improvements to the same.
21	Technical assistance to state agencies to address emerging issues encountered during project implementation	<ul style="list-style-type: none"> • Provide technical assistance related to TOD and MMI to BMRCL, DULT, and other agencies as required during the implementation of the project.

F. Reporting

11. The consultants will submit the following reports to ADB, BMRCL, and DULT. At each stage, there will be a presentation to BMRCL, DULT, the Working Group, and Steering Committee. All deliverables will be prepared in internationally acceptable English language.

Table 4: Reporting Requirements

Reporting	Transit-Oriented Development	Multimodal Integration	Capacity Building
Inception Report Within 1 month of mobilization	Presenting the approach, detailed work plan, implementation schedule, and key issues that could affect achievement of the tasks in time for transit-oriented development (TOD), multimodal integration (MMI), and capacity building		
Existing Situation Study Within 4 months of mobilization	Presenting the findings of detailed appraisals and assessments as per scope mentioned in points 1, 11, and 15 above		
Interim Report – 1 Within 8 months of mobilization	Presenting Station Typologies, Framework for Development Control Norms, and Initial Vision Plan for the study area as per scope mentioned in points 2, 3, and 4 above	Presenting Initial Strategies for Multimodal Integration and Draft Concept Plans for Physical Integration as per scope mentioned in point 12 above	Presenting Draft Communication Strategy and Framework for Capacity Building as per scope mentioned in point 16 above
Interim Report – 2 Within 12 months of mobilization	Presenting Final Vision Plan for the study area, and draft development plans for 6 TOD zones and 3 parking management areas (PMA), and Draft Estimation of Revenue Generation as per scope mentioned in 3, 4 and 5, and 6 above	Presenting Revised MMI Strategies and Final Concept Plans for Physical Integration, and Draft Implementation Plan, and Monitoring and Evaluation Framework as per scope mentioned in points 12 and 13 above	Presenting Final Framework for Capacity Building Draft manuals, toolkits, and standard operating procedures for Capacity Building and Final Communication Strategy as per scope mentioned in points 17 and 18 above
Interim Report – 3 Within 15 months of mobilization	Presenting final development plans for identified 6 priority TOD zones, Parking Management Area Plan for 3 identified PMAs, and Draft Implementation Strategies, Action Plan, Monitoring and Evaluation Framework as per scope mentioned in points 5, 6, and 7 above	Presenting Final MMI Strategies and Final Implementation Plan, and Monitoring and Evaluation Framework as per scope mentioned in points 12 and 13 above	Presenting details of training delivered to identified organizations/ partners and monitoring progress and assessing impact and assessment of effectiveness of the communication strategy as per scope mentioned in points 18 and 19 above
Interim Report – 4 Within 18 months of mobilization	Recommend updating development plans for identified 6 priority TOD zones, Parking Management Area Plan for 3 identified PMA (if necessary), Final Recommendations for Development Control Regulations, Final	Recommendations for improvements in MMI implementation plan based on oversight as per scope mentioned in points 12 and 13 above	Presenting recommendations for improvements to capacity building program and communication strategy as per scope mentioned in points 19 and 20 above

Reporting	Transit-Oriented Development	Multimodal Integration	Capacity Building
	Implementation Strategies, Action Plan, Monitoring and Evaluation Framework as per scope mentioned in points 5, 6, and 7 above		
Draft Final Report Within 20 months of mobilization	Presenting all required information including with maps and drawings		
Final Report Within 22 months of mobilization	Presenting all required information including all necessary maps/drawings (including GIS formats) and an executive summary		
Support for institutionalization of TOD implementation framework and implementation of MMI plan Within 24 months of mobilization	Supporting Bengaluru Metro Rail Corporation Limited (BMRCL), Directorate of Urban Land Transport (DULT), and other agencies as required and submitting monthly progress reports highlighting progress made, barriers to institutionalization/implementation, way forward/next steps		
BMRCL, DLUT, and ADB will provide written comments within 3 weeks from the receipt of each report.			

G. Terms of Reference for Team Members

12. The terms of reference for each expert position in the team and the qualification requirements are described as follows:

Table 5: Terms of Reference of Team Members

Position	Basic Qualification	Tasks	Responsibility
Team Leader and TOD Specialist (Urban Designer/Planner) – International	A master's degree in Urban Design/Urban Planning or equivalent, with minimum 15 years of experience and 8 years of relevant globally recognized experience in planning, designing, implementing transit-oriented development (TOD), high-density mixed-use developments, land use–transportation integration projects, etc. International experience will be preferred.	He/she will be responsible for the overall implementation and delivery of the technical assistance (TA) outputs, ensuring highest quality, overall coordination, and consistency across deliverables.	All components
TOD Specialist (Land Use and Transport Integration) – International	A master's degree in Urban Design/Urban Planning or equivalent, with minimum 15 years of experience and 8 years of relevant globally recognized experience in land use–transport integration	He/she will be responsible for recommending innovative mechanisms, tools and frameworks from international best practice in the domain of land use–transport integration for	1 to 9

Position	Basic Qualification	Tasks	Responsibility
		TOD.	
MMI Specialist (Urban Transport Planner) – International	A master's degree in Transport/Urban Planning or equivalent, with minimum 15 years of experience and 8 years of relevant globally recognized experience of implementing multimodal integration (MMI)	He/she will be responsible for recommending innovative solutions from international best practice in the domain of designing, planning, and implementing MMI.	10 to 15
TOD Specialist (Implementation and Enabling Frameworks) – International	A master's degree in Urban Design/Urban Planning or equivalent, with minimum 15 years of experience and 8 years of relevant globally recognized relevant experience of creating enabling frameworks for implementing TOD	He/she will be responsible for recommending innovative mechanisms, tools, and frameworks from international best practice in the domain, creating the appropriate enabling framework for TOD implementation.	1 to 9
Public Space/Public Realm Strategy Specialist – International	A master's degree in Landscape Architecture/ Urban Design or equivalent, with minimum 15 years of experience and 8 years of relevant globally recognized experience of implementing large-scale public space/ public realm projects	He/she will be responsible for preparing innovative strategies for public space/public realm creation and/or reclamation at the corridor/TOD zone level, drawing from international best practice.	1 to 9
Sustainable Master Planning – Water Specialist – International	A master's degree in Environmental Engineering/ Landscape Architecture/Urban Design or equivalent, with minimum 15 years of experience and 8 years of relevant globally recognized experience of implementing sustainable strategies for integrated urban water management	He/she will be responsible for preparing innovative sustainable strategies for integrated urban water management across scales, drawing from international best practice.	1 to 9
Deputy Team Leader MMI Specialist (Urban Transport Planner/Engineer) – National	A master's degree in Transport Planning/Transport Engineering, with minimum 15 years of experience and 8 years of relevant experience in planning, designing, and implementing MMI across all 5 pillars of integration	He/she will be responsible for the overall implementation and delivery of the MMI component of the TA outputs, ensuring highest quality, overall coordination, and consistency across deliverables.	10 to 15
Deputy Team Leader TOD Specialist (Urban	A master's degree in Urban Design/Urban Planning, with minimum 15 years of	He/she will be responsible for the overall implementation and delivery	1 to 9

Position	Basic Qualification	Tasks	Responsibility
Designer/Planner) – National	experience and 8 years of relevant experience in preparing policy and regulations, planning, designing for TOD	of the TOD component of the TA outputs, ensuring highest quality, overall coordination, and consistency across deliverables.	
Urban Design Specialist (with Spatial Planning/Design Guidelines expertise)	A master's degree in Urban Design, with minimum 8 years of experience and 4 years of relevant experience of working on TOD, high-density mixed-use projects, large-scale master plans, etc. undertaking spatial analyses, preparing spatial master plans, urban design guidelines, codes, etc.	He/she will undertake all spatial planning and design exercises at the study area and TOD zone levels and work in close coordination with all other experts feeding into the spatial planning and design process.	1 to 9 and 11
Urban Planning Specialist (with Land Use/FSI Planning expertise)	A master's degree in Urban Planning or equivalent, with minimum 8 years of experience and 4 years of relevant experience of working on TOD, land value capture models, town planning schemes, city development plans undertaking land use and floor space index (FSI) planning, development control regulation (DCR) and policy analysis, feasibility studies with in-depth analysis of infrastructure requirements	He/she will undertake all policy and planning-related exercises at the study area and TOD zone levels and work in close coordination with all other experts feeding into the planning process.	1 to 9
Landscape/Public Realm Design Specialist	A master's degree in Landscape Architecture/ Urban Design/Architecture, with minimum 8 years of experience and 4 years of relevant experience of working on landscape, street design, and public realm projects	He/she will undertake all detailed design-related exercises for landscape, public realm, and physical MMI.	2, 5 to 7 and 11
Transport Planning Specialist (with MMI expertise)	A master's degree in Transport Engineering, with minimum 8 years of experience and 4 years of relevant experience of working on city-level transport projects, public transport schemes, MMI, etc.	He/she will undertake all exercises related to integrated ticketing, information, operation and institutional integration, and work in close coordination with all other experts feeding into the MMI process.	1, 2, 3, 5, 7 and 9 to 13
Transport Modelling Specialists (2) (with UTDM/Micro Simulation expertise)	A master's degree in Transport Engineering, with minimum 8 years of experience and 4 years of relevant experience of working on urban travel demand modelling (UTDM), traffic simulation studies, modelling, etc.	He/she will undertake all exercises related to UTDM, simulation/transport modelling, and work in close coordination with all other experts feeding into the MMI process.	9 to 13

Position	Basic Qualification	Tasks	Responsibility
Real Estate Expert	A master's degree in Urban Planning/Finance/Business Administration or equivalent, with minimum 10 years of experience and 5 years of relevant experience of real estate market research, land assembly, real estate valuations, taxation for real estate, etc.	He/she will undertake all exercises related to real estate—valuations, assessments, policy/regulation analyses, strategy for TOD typologies and positioning, revenue generation, etc.	1 to 8
Financial Expert (with Land Value Capture expertise)	A master's degree in Business Administration with specialization in Finance or CA/ICWA qualification or equivalent, with minimum 10 years of experience in developing financial models and 5 years of relevant experience on land-related projects, land value capture, large-scale real estate projects or town planning scheme projects, etc.	He/she will undertake all exercises related to land value capture and revenue generation and work in close coordination with all other experts feeding into the spatial planning and design process.	1 to 8
Financial Expert (with Public Transport Pricing/Fare Integration expertise)	A master's degree in Business Administration with specialization in Finance or CA/ICWA qualification or equivalent 1. With minimum 10 years of experience in developing financial models and 5 years of relevant experience of working on city-wide transportation finance projects, multimodal integration, specifically looking at pricing strategies and fare integration, OR 2. With minimum 10 years of experience working in a public sector organization in India with relevant experience of financial management in the domain of public transport	He/she will undertake all exercises related to fare components of integrated ticketing and work in close coordination with all other experts feeding into the MMI process.	10 to 13
Legal Expert (with Town Planning Act and Land expertise)	A bachelor's degree in Law, with minimum 10 years of experience in legal advisory role and 5 years of relevant experience of land and town planning-related legal matters: Land Acquisition Act, Land Revenue Code, MRTTP Act, town planning scheme, etc. Should have experience in	He/she will undertake all exercises related to drafting of development control regulations and recommendations, institutionalization of TOD implementation framework, etc. from a legal advisory point of view.	5 to 8

Position	Basic Qualification	Tasks	Responsibility
	legislation related to urban governance and institutional framework		
ICT Specialist (with Operational MMI expertise)	A master's degree in Computer Science/Computer Application or equivalent, with minimum 10 years of experience and 5 years of relevant experience in network management, software development, database administration, design of systems, and assessment of the effectiveness of technology resources already in use, training of non-technical workers on the business' information systems, etc., preferably in the domain of transportation	He/she will undertake all exercises related to information and communication technology (ICT) components of multimodal integration and work in close coordination with all other experts feeding into the MMI process.	10 to 14
GIS Expert	An advanced degree in Geograph (GIS) that complements an undergraduate degree in engineering/urban planning/geography, etc., with minimum 8 years of experience and 4 years of relevant experience in spatial analytics for large-scale urban and transport planning projects	He/she will guide a team of GIS technicians to prepare the GIS/vector database, base map, data analytics, production of accurate data, and maps for situation analysis and proposals, for components on TOD, MMI, and training and capacity building.	All
Gender Specialist	A master's degree in Social Sciences/Psychology, Urban Planning or equivalent, with minimum 8 years of experience and 4 years of relevant experience in gender integration in urban planning/transport planning/regeneration. Experience in designing and implementing gender analyses and assessments, designing and facilitating trainings/meetings/workshops Engaging with clients and managing staff and consultants is essential.	He/she will undertake all tasks related to ensuring gender equality and inclusive development and will work in close coordination with TOD, MMI, and capacity building teams.	All
Institutional Specialist	A degree in management or equivalent, with 8 years of experience and 4 years of relevant experience in carrying out institutional audit and business process reengineering of public utilities	He/she will be responsible for carrying out audit of the existing institutional structure with roles and responsibilities of each position and relations between functional groups, and review existing	1, 8, 9, 10 to 14, and 17 to 18

Position	Basic Qualification	Tasks	Responsibility
		administrative arrangements and business processes of state entities for reform implementation for both TOD and MMI.	
Training Specialist	A degree in human resources or equivalent, with 8 years of experience and 4 years of relevant experience in designing and management of capacity building program for major public utilities	He/she will identify training needs for staff, officials, and other functional groups of identified agencies and prepare training plans, identify training institutes for different training modules, and suggest a process for evaluating training outcomes.	16 to 21
Communications Specialist	A degree in mass communications or equivalent, with 8 years of experience and 5 years of relevant experience in preparing and implementing communication strategies and public/governance/utility reform programs	He/she will be responsible for developing the communication strategy for the assignment covering all aspects of communication medium.	1, 5, 10, and 16 to 21
Supporting Technical staff including Infrastructure Engineer	As per requirement	As per requirement	As per requirement
Supporting Non-technical staff	As per requirement	As per requirement	As per requirement

H. Terms of Reference of Individual Experts (for reference purpose only)

13. The terms of reference for individual experts are described below (to be recruited immediately to initiate TA activity before mobilization of Firm).

Table 6: Terms of Reference of Individual Experts

Position	Qualification
TOD and Urban Design/Mobility Specialist	A degree in Urban Planning, Urban Design or equivalent, with minimum 15 years of international and national experience, with expertise in transit-oriented development (TOD), mobility/transportation and urban development across domains of spatial planning, planning policy, regulations, norms, guidelines and codes, enabling frameworks, etc. to assist the Asian Development Bank (ADB) in the day-to-day management of the overall technical assistance (TA) to ensure requirements of the TA scope are met effectively and to the highest standards.
Urban Institutional and Governance Expert	A degree in Urban Planning, Management or equivalent, with minimum 15 years of international and national experience, with expertise in implementation frameworks, institutional structures, and governance with a focus on partnership models for large urban projects, urban sector policies, and regulatory issues relating to urban development, etc. to assist ADB in undertaking relevant components of the TA scope.
Land Value Capture (LVC)	A degree in Urban Planning, Economics, Management or equivalent,

Urban Finance Specialist	with minimum 10 years of international and national experience, with expertise in LVC and other finance mechanisms, statutory frameworks, and mechanisms for urban development with a focus on financial sustainability of urban projects, investment plans for social and physical infrastructure, etc. to assist ADB in undertaking relevant components of the TA scope.
Transport Specialist with ITS knowledge and experience in operational and fare MMI	A degree in Transport Planning, Engineering or equivalent, with minimum 10 years of experience, with expertise in physical, operational and fare integration, impact assessment studies, traffic management schemes, etc. with information technology services (ITS) knowledge to assist ADB in undertaking relevant components of the TA scope.
Communications Specialist	A degree in Mass Communications or equivalent, with minimum 8 years of experience in preparing and implementing communication strategies and public/governance/utility reform programs to assist ADB in undertaking relevant components of the TA scope.