



## **Request for Proposal**

**Tender Number: 1/2022/S**

**Tender Name: National VISUM Transport Model**

**Proposal Deadline: 2/10/2022**

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# **Terms & Conditions**

## ***FINANCIAL TERMS***

The Consultant should take into consideration the following general financial terms when submitting his proposal:

1. This RFP is subject to the Governmental procurement by law no. (8) For the year 2022, and the Tender instructions issued.
2. All prices should be quoted in Jordan Dinars including all taxes, duties and levies of any kind.
3. The type of contract will be fixed price contract including both professional fees and expenses.
4. The Consultant shall bear all costs associated with the preparation and submission of its proposal and LTRC will in no case be responsible or liable for these costs regardless of the conduct or outcome of the proposal process.
5. LTRC is not bound to accept the bid and will reserve the right to reject the bid without the obligation to give any explanation.
6. The winning Consultant must take into consideration the following payment term:
  - a. Payments will be released upon submission and acceptance of each stage.
  2. The proposal shall be signed by the Consultant or a person or persons duly authorized to bind the Consultant to the contract. The latter authorization shall be indicated by duly – legalized power of attorney.
  3. Any erasures or overwriting shall only be valid if they are initialled by the signatory (ies) to the proposal.
  4. The bid shall contain an acknowledgement of receipt of all Addenda to the RFP the numbers of which must be filled in on the bid form.

## ***LEGAL TERMS AND CONDITIONS***

The Consultant should take into consideration the following general legal terms when preparing his proposal:

1. The Consultant shall not submit alternative proposal. Alternative proposals will be returned unopened or unread. In lieu of returning the alternative proposal, the entire submission will be returned to the Consultant and the Consultant will be disqualified.
2. LTRC requires that all parties to the contracting process observe the highest standard of ethics during the procurement and execution process. In pursuance on this policy, LTRC defines ,for the purposes of this provision, the terms set forth below as follows:
  - i. “Conflict of Interest” :
    1. The Consultant is required to provide professional, objective, and impartial advice, at all times holding the Client’s interests paramount, strictly avoiding conflicts with other assignments or its own corporate interests, and acting without any consideration for future work.

2. The Consultant has an obligation to disclose to the Client any situation of actual or potential conflict of interest that impacts its capacity to serve the best interest of its Client. Failure to disclose such situations may lead to the rejection of the Consultant's Proposal or the termination of its Contract.

Without limitation on the generality of the foregoing, the Consultant shall not be hired under the circumstances set forth below:

- |                                 |   |
|---------------------------------|---|
| ii. Conflicting activities      | Conflict between consulting activities and procurement of goods, works or non-consulting services: a firm that has been engaged by the Client to provide goods, works, or non-consulting services for a project, or any of its Affiliates, shall be disqualified from providing consulting services resulting from or directly related to those goods, works, or non-consulting services. Conversely, a firm hired to provide consulting services for the preparation or implementation of a project, or any of its Affiliates, shall be disqualified from subsequently providing goods or works or non-consulting services resulting from or directly related to the consulting services for such preparation or implementation; |
| iii. Conflicting assignments    | Conflict among consulting assignments: a Consultant (including its Experts and Sub-consultants) or any of its Affiliates shall not be hired for any assignment that, by its nature, may be in conflict with another assignment of the Consultant for the same or for another Client;  |
| iv. Conflicting relationships   | Relationship with the Client's staff: a Consultant (including its Experts and Sub-consultants) that has a close business or family relationship with a professional staff of the Client who are directly or indirectly involved in any part of (i) the preparation of the Terms of Reference for the Services, (ii) the selection process for the Contract, or (iii) the supervision of the Contract, may not be awarded a Contract, unless the conflict stemming from this relationship has been resolved in a manner acceptable to the AFC throughout the selection process and the execution of the Contract.  |
| v. Unfair Competitive Advantage | Fairness and transparency in the selection process require that the Consultants or their Affiliates competing for a specific assignment do not derive a competitive advantage from having provided consulting services related to the assignment in question.   |

vi. 'Corrupt practice'' It means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.

vii. 'Fraudulent practice' It means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of LTRC ,and includes collusive practice among bidders (prior to or after proposal submission)designed to establish proposal prices at artificial non-competitive levels and to deprive LTRC of the benefits of free and open competition.

### 3. Clarification and Amendment of RFP

(a) The Consultant may request a clarification of any part of the RFP before the Proposals' submission deadline. Any request for clarification must be sent in writing, or by standard electronic means. The Client will respond in writing, or by standard electronic means, and will send written copies of the response (including an explanation of the query but without identifying its source) to all shortlisted Consultants. Should the Client deem it necessary to amend the RFP as a result of a clarification, it shall do so following the procedure described below:

(i) At any time before the proposal submission deadline, the Client may amend the RFP by issuing an amendment in writing or by standard electronic means. The amendment shall be sent to all shortlisted Consultants and will be binding on them. The shortlisted Consultants shall acknowledge receipt of all amendments in writing.

(ii) If the amendment is substantial, the Client shall extend the proposal submission deadline to give the shortlisted Consultants reasonable time to take an amendment into account in their Proposals.

(b) The Consultant may submit a modified Proposal or a modification to any part of it at any time prior to the proposal submission deadline. No modifications to the Technical or Financial Proposal shall be accepted after the deadline.

### 4. Language

The Proposal, as well as all correspondence and documents relating to the Proposal exchanged between the Consultant and the Client shall be written in English language

5. Only One Proposal      e Consultant shall submit only one Proposal, in its own name.

6. Opening of Technical Proposals      (1) The Specialized Procurement Committee shall conduct the opening of the Technical Proposals in the presence of the shortlisted Consultants' authorized representatives who choose to attend. The opening date, time and address are :

October 2nd, 2022 at (12.00) pm (Amman Local Time) Late responses will not be considered.

The proposal Shall be Addressed to::

Land Transport Regulatory Commission  
Chairman of the Specialized Procurement Committee  
Amman – Jordan  
Shafa Badran – Pr. Talal St.  
Basement floor, Financial Department, Tenders Section  
Phone: 00 962 6 5100500  
Fax: 00 962 6 5164819  
E-mail: [Tender@ltrc.gov.jo](mailto:Tender@ltrc.gov.jo)  
Website: [www.ltrc.gov.jo](http://www.ltrc.gov.jo)

The envelopes with the Financial Proposal shall remain sealed until they are opened in accordance with Clause 10 of the Legal Terms and Conditions.

7. Proposals Evaluation      The evaluators of the Technical Proposals shall have no access to the Financial Proposals until the technical evaluation is concluded.

The Consultant is not permitted to alter or modify its Proposal in any way after the proposal submission deadline. While evaluating the Proposals, the Client will conduct the evaluation solely on the basis of the submitted Technical and Financial Proposals.

The Client's evaluation committee shall evaluate the Technical Proposals on the basis of their responsiveness to the Terms of Reference and the RFP, applying the evaluation criteria, sub-criteria, and point system. Each responsive Proposal will be given a technical score. A Proposal shall be rejected at this stage if it does not respond to important aspects of the RFP or if it fails to achieve the minimum technical score.

8. Public  
Opening of  
Financial  
Proposals (for  
QCBS, FBS,  
and LCS  
methods)

- (1) After the technical evaluation is completed, the Client shall notify those Consultants whose Proposals were considered non-responsive to the RFP and TOR or did not meet the minimum qualifying technical score (and shall provide information relating to the Consultant's overall technical score) that their Financial Proposals will be returned unopened after completing the selection process and Contract signing. The Client shall simultaneously notify in writing those Consultants that have achieved the minimum overall technical score and inform them of the date, time and location for the opening of the Financial Proposals. The opening date should allow the Consultants sufficient time to make arrangements for attending the opening. The Consultant's attendance at the opening of the Financial Proposals is optional and is at the Consultant's choice
- (2) The Financial Proposals shall be opened by the Specialized Procurement Committee in the presence of the representatives of those Consultants whose proposals have passed the minimum technical score. At the opening, the names of the Consultants, the overall technical scores, and the total prices shall be read aloud and recorded. Copies of the record shall be sent to all Consultants who submitted Proposals.

9. Negotiation and Award :

(1) Negotiations

The negotiations will be held at the date and address indicated hereafter : **TBD**

With the Consultant's representative(s) who must have written power of attorney to negotiate and sign a Contract on behalf of the Consultant.

e Client shall prepare minutes of negotiations that are signed by the Client and the Consultant's authorized representative.

a. Availability of Key Experts

e invited Consultant shall confirm the availability of all Key Experts included in the Proposal as a pre-requisite to the negotiations. Failure to confirm the Key Experts' availability may result in the rejection of the Consultant's Proposal and the Client proceeding to negotiate the Contract with the next-ranked Consultant.



withstanding the above, the substitution of Key Experts at the negotiations may be considered if due solely to circumstances outside the reasonable control of and not foreseeable by the Consultant, including but not limited to death or medical incapacity. In such case, the Consultant shall offer a substitute Key Expert within the period of time specified in the letter of invitation to negotiate the Contract, who shall have equivalent or better qualifications and experience than the original candidate.

b. Technical negotiations

e negotiations include discussions about the Terms of Reference (TORs), the proposed methodology, the Client's inputs, the special conditions of the Contract, and finalizing the "Description of Services" part of the Contract. These discussions shall not substantially alter the original scope of services under the TORs or the terms of the Contract and shall not modify the ranking of the Proposals.

c. Financial negotiations

e negotiations include the clarification of the Consultant's tax liability in the Client's country and how it should be reflected in the Contract.

the selection method included cost as a factor in the evaluation, the total price stated in the Financial Proposal for a Lump-Sum contract shall not be negotiated.

the case of a Time-Based contract, unit rates negotiations shall not take place, except when the offered Key Experts and Non-Key Experts' remuneration rates are much higher than the typically charged rates by consultants in similar contracts. In such case, the Client may ask for clarifications and, if the fees are very high, ask to change the rates.

(2) Conclusion of Negotiations

The negotiations are concluded with a review of the finalized draft Contract, which then shall be initialled by the Client and the Consultant's authorized representative.

If the negotiations fail, the Client shall inform the Consultant in writing of all pending issues and disagreements and provide a final opportunity to the Consultant to respond. If disagreement persists, the Client shall terminate the negotiations informing the Consultant of the reasons for doing so. The Client will invite the next-ranked Consultant to negotiate a Contract. Once the Client commences negotiations with the next-ranked Consultant, the Client shall not reopen the earlier negotiations.



21. LTRC takes no responsibility for the costs of preparing any bids and will not reimburse any Consultant for the cost of preparing its bid whether successful or otherwise.
22. There will be a performance bond of 10% of the total value of the bid for the selected Consultant. (Covering all the period of project).
23. Consultant should note that all questions and answers will be made available to all bidding parties.
24. All source code, licenses, documentation, hardware and software procured or developed under ‘The project’ must be made available to LTRC to use as it sees fit without any restriction or financial obligation upon conclusion of ‘The Project’.
25. Consultants are responsible for the accuracy of information submitted in their proposals. LTRC reserves the right to request original copies of any documents submitted for review and authentication prior to awarding the tender.
26. The Consultant may modify or withdraw its proposal after submission, provided that written notice of the modification or withdrawal is received by the tendering committee prior to the deadline prescribed for proposal submission.
27. A Consultant wishing to withdraw its proposal shall notify the Specialized Procurement Committee in writing prior to the deadline prescribed for proposal submission. A withdrawal notice may also be sent by fax, but it must be followed by a signed confirmation copy, postmarked no later than the deadline for submission of proposal.
28. The notice of withdrawal shall be addressed to the Specialized Procurement Committee at the address in RFP, and bear the contract name and words “withdrawal notice”.
29. No proposal may be withdrawn in the interval between the proposal submission deadline and the expiration of the proposal validity period.
30. The consultant accepts to comply with all provisions whether explicitly stated in this RFP and otherwise stipulated in the Governmental Procurement Regulation No. (8) of – year (2022) and (its amendments and any other Jordanian contracting documents).
31. The Winning Consultant should submit a proposed agreement for the project and to be studied from LTRC to have the approval between the two parties before award.
32. No Consultant shall contact LTRC or its employees or its Consultant s or the Specialized Procurement Committee on any matter relating to its proposal until the time the contract is awarded. Any effort by Consultant to influence LTRC, its employees, its Consultant s, or the Specialized Procurement Committee in the proposal preparation, tendering committee’s proposal evaluation, proposal comparison, or contract award decision will result in rejection of the Consultant / consultant ’s proposal.
33. The Consultant is committed to assign the same staff members that were named in technical proposal for the whole project duration; any changing in the staff members is not allowed unless under major circumstances and the substituted staff members should be approved by the client and are to have more or equal experience required in the RFP.
34. The Consultant should submit a letter of intent signed by each member of the staff to ensure their commitment to the work in this project through the whole project duration.

35. If the Consultant didn't start work with the approved staff members required by this RFP for more than one week from commencement date or was late in replacing any staff member required by LTRC for more than one month from the date of annotation, LTRC has the right to deduct double the amount of the salary suggested in the cost Breakdown form that has been engaged by the Client to provide goods, works or services other than consulting services for a project, and any of its affiliates, shall be disqualified from providing consulting services related to those goods, works or services. Conversely, a firm hired to provide consulting services for the preparation or implementation of a project, and any of its affiliates, shall be disqualified from subsequently providing goods or works or services other than consulting services resulting from or directly related to the firm's consulting services for such preparation or implementation.
36. LTRC reserves the right to enforce penalties on the winning Consultant / consultant in case of any delay in delivery in a value of 100 JD. on every day delayed for each delivered report and not to exceed 15% of the contract price and if the Consultant continue in this he will consider as delinquent.
37. Termination
- a. Termination for Default
- Should the Consultant default under the terms of the contract, which incorporates the RFP requirements, such default will be determined at the sole discretion of the client will give the Consultant written notice, and the Consultant will have (28) calendar days from the date of notice to correct the default. If the Consultant fails to correct the default within the period specified in the written notice, LTRC will have the right to notify the Consultant in writing of the termination of the contract. In addition, LTRC may report the default to other entities that may have an interest in the solicitation activities of the client.
- b. Termination for Convenience:
- LTRC by written notice may terminate the contract in whole or in part when LTRC determines in its sole discretion. The Consultant shall not furnish the report after it receives the notice of termination, except as necessary to complete the continued portion of the contract if any report after it receives the notice
- c. Termination for cause :
- LTRC may terminate the contract if the Consultant fails to:
- I. deliver the report within the time specified in the contract or any extension,
  - II. maintain adequate progress, thus endangering performance of the contract,
38. The consultant is obligated to provide maintenance insurance for the supplies that require this, or liability insurance for repairing defects in the programs or systems that require this at a rate of (5%) of their value from the actual contract after completing all the services for one year from closure date in the form of a bank guarantee or a certified check issued by one of the banks and institutions only working in the Kingdom.

# **Table of Requirements**

## **1. Introduction**

### **1.1. Purpose:**

Land Transport Regulatory Commission (LTRC) in cooperation with the Greater Amman Municipality (GAM) is soliciting proposals from specialized bidders for Consultancy Services for the Integration and Update of the Supply & Demand of LTRC & GAM Transport VISUM Models (developed under VIUSM platform) into a single National Integrated Model (also in VISUM) hereafter referred to as “The Project”.

The National model integration will assess both LTRC and GAM in the planning process for more sustainable transportation for a 15 years planning horizon and a strategic vision and evolution of mobility for the next 25 years. Responses to this Request for Proposal (RFP) must conform to the procedures, format and content requirements outlined in this document, which includes the following sections:

### **1. Section 1: Introduction**

#### **1.1 Purpose.**

#### **1.2 Project Background Information.**

##### **1.2.1 LTRC VISUM Model.**

##### **1.2.2 GAM VISUM Model.**

#### **1.3 Definitions and acronyms.**

### **2. Section 2: Project Requirements and Scope.**

#### **2.1 Project Objectives.**

#### **2.2 Scope of Works**

#### **2.3 Project Phasing and Tasks.**

##### **2.3.1 Phase 1: Inception.**

Task (1.1): Data Collection

Task (1.2): Data Review and Analysis.

##### **2.3.2 Phase 2: Methodology.**

Task (2.1): Modeling Methodology.

##### **2.3.3 Phase 3: Model Integration and Update.**

##### **2.3.4 Phase 4: Scenario Development.**

##### **2.3.5 Phase 5: Training and Final Report.**

### **3. Section 3: Project Staffing.**

### **4. Section 4: Technical and financial Evaluation.**

## **1.2. Project Background Information**

In November 2007, an endorsed temporary law on public transport was approved, which tasked GAM with managing the transport sector inside GAM, taking over tasks carried out previously by the Public Transport Regulatory Commission (PTRC).

In April 2017, the Traffic Transport Regulation law was passed, defining GAM's functions and powers regarding internal passenger services and facilities. All public transport services in Jordan, but not exclusively outside the Amman municipality come under the responsibility of LTRC, while services which run exclusively within the municipality come under the responsibility of GAM.

According to that, there are large number of main intercity public transport routs within the jurisdiction of the LTRC, passing through Amman, where approximately 60% of the public transport routs operating within the LTRC, ends within the boundaries of GAM.

LTRC and GAM are partners in managing public transport processes and regulations. The idea of integrating the efforts will be reflected through the integration of the LTRC current VISUM model with GAM current VISUM model into one single integrated model to be developed under VISUM as well. This will make a powerful planning tool integrating public transport operations with passenger demand across Jordan.

### **1.2.1. LTRC VISUM Model:**

LTRC is the owner of The Jordan National Transport Model (JNTM). The model was updated to a base year of 2016 (previously 2010) and the forecast years updated to 2024, 2030 and 2036 (previously 2018, 2024 and 2030). The demand was the focus of the update, whereas the supply remained the same.

In addition to the demand update, the model was upgraded to the version of VISUM software (Version 17). The original model was built using VISUM 12.

### **1.2.2. GAM VISUM Model**

The Greater Amman Transport Model has undergone several revisions:

- Model, with new base year 2015, revised from the original GAM model versions developed in version 10, which were based on comprehensive mobility surveys, with base year 2008. The 2015 model was used to forecast traffic in 2018, using external growth factors. (No forecast models were developed with this model version).
- The latest update being undertaken in 2019 based on traffic count surveys, models built in version 17 with base year 2019 and forecast year 2030, knowing that the 2019 version of GATM was not built on demand data (Not 4 stage model). However, these count have mainly concentrated on the areas around the two BRT lines. The GAM model has recently updated and migrated from VISUM 11 to VISUM 20 with base year of 2019 and forecast year 2030.

### **1.3. Definitions and acronyms**

The following words or expressions used in this RFP shall have the following meaning assigned to them unless otherwise stated in the text:

- PTRC: Public Transport Regulatory Commission
- LTRC: Land Transport Regulatory Commission
- GAM: Greater Amman Municipality
- JNTM: Jordan National Transport Model
- The Consultant: the selected consulting company
- The Project: all activities to be carried out by the Consultant under the assignment covered by the present RFP;
- PT: public transport which covers all means of collective passenger transport.
- Client: Land Transport Regulatory Commission



## **2. Project Requirements and Scope**

### **2.1 Project objectives**

The objective is to integrate the already available VISUM models from LTRC and GAM into a single Integrated Transport National Model and to update the supply & demand base data. The base year to be used in the JNTM is to be advised by the consultant after the review and assessment of the current models. This model should allow both LTRC and GAM to make better forecasts of traffic movements within their jurisdictions and allow for better analysis of future transport projects like the proposed BRT network, Metro and other infrastructure and mass transit projects.

The project should address the following objectives:

- Migrate existing LTRC VISUM model to VISUM 20.
- Transfer up to date data from the GAM and LTRC GIS database into the JNTM.
- Prepare the new integrated model in a way that allows future feasibility studies for projects related to the infrastructure of public transport and mass transit, especially projects between the city of Amman and neighboring cities.
- Include a transport model capable to handling complex tariff systems and estimating revenues.
- Prepare the model to be able to forecast the volume of demand for public transport services in order to assist in taking the appropriate decision regarding the public transport network.

### **2.2 Scope of Work**

The work has to include: integrating the available data database from the GAM and LTRC, and to provide a clear recommendation on the base year for the JNTM.

The merged model should address the following:

- To be able to assess public transport routing.
- To be able to assess public transport routing between Governorates and Greater Amman and between other governorates itself based on the latest data provided by LTRC (GIS database) and other applicable data sources.
- To be able to assess public transport journey times based on updated headways/timetable information.
- To be able to assess boarding and alighting at bus stops, bus stations/transfer hubs.
- To be able to assess public transport ridership.
- To include proper demand modelling which allows for mode share estimation
- To be able to assess future public transport route scenarios (Example: BRT and feeder buses).
- Re-assess public transport needs.

### **2.3 Project Phasing and Tasks**

The project is expected to be delivered **within nine months**. The project will be carried out over four main phases. The Consultant shall undertake and perform the respective tasks and any other tasks deemed necessary to meet the objectives of the project. The main phases are:

- Phase 1 - Inception
  - Task (1.1): Data Collection:
  - Task (1.2): Data Review and Analysis:
- Phase 2 - Methodology
  - Task (2.1): Modeling Methodology
- Phase 3 – Model integration and update
- Phase 4 – Scenario Development.
- Phase 5 - Training and Final Report.

For each phase, a presentation followed by a technical report is expected to be delivered by the consultant to be approved by the client in ten business days.

This document will be used as a reference by LTRC and GAM on all the activities carried out

Knowing that a technical team from LTRC and GAM to be involved with on-job learning for all project activities.

### **2.3.1. Phase 1: Inception**

The objective of this phase is to kick start the project by mobilizing the team and list down data required to design model methodology. Also, in this phase the consultant is expected to develop full project plan with all the activities and the training proposal.

#### **Task (1.1): Data Collection:**

Both LTRC and GAM will provide the consultant with all the necessary and available data including the following:

- Existing LTRC VISUM model and GAM VISUM model versions, with all the supporting files to run the models and documentation.
- The available land use data for the recommended base year and for horizon years.
- The latest updated road network and public transport routes as GIS or any available format
- Any available new Traffic and transport counts.
- The available socio economic data to understand the production and attraction points spread across Jordan.
- Planned future projects to help in scenario development.
- Any other available data.

Note that LTRC GIS Data available in this stage only for three governorates: Jarash, Zarqa and Irbid Within the framework of updating the JNTM.

#### **Task (1.2): Data Review and Analysis:**

Based on the provided data the following tasks shall be carried out:

- Retrieve all the available datasets for the recommended base year and horizon years provided by GAM and LTRC.

- Review the existing model architectures.
- Review all the data received as requested in Inception phase.
- Consolidate the available data to understand the data gap and develop a pragmatic approach to fill the data gaps.
- Preparation of a comprehensive report addressing the analysis of the two models.
- Provide a clear recommendation on the new Base Year for the JNTM.
- Number of Scenarios to be developed.
- Development of the acceptance criteria

This should be done with the project's team consultation and it should be agreed with all parties what constitutes an acceptable result for the model considering software capability, data availability with reference to similar model reviews or any other guidelines. It is recommended to use the UK Design Manual for Roads and Bridges (UK DMRB).

**Deliverable (1):** The outcome of this stage is to prepare a detailed project Objectives, methodology, plan, tasks, acceptance criteria, deliverables and defining the recommended base year for the JNTM and a document listing data suitable for developing the JNTM and highlighting data gaps supported by a narrative report that breaks down the project into tasks that are easy to understand and monitor (Inception Report). The plan is to take into consideration the needs of LTRC and GAM, to support their long-term objectives and is to form the basis of monitoring project delivery. In addition to the training proposal.

This is to become a technical document that stakeholders are to discuss and update throughout the project lifecycle.

### **2.3.2. Phase 2: Methodology**

Designing the methodology is task of utmost importance. All the available required data to setup a JNTM model has been provided in the inception phase.

#### **Task (2.1): Modeling Methodology**

The consultant will be responsible for developing modeling methodology and facilitating the necessary procedures for the integration and update of the two VISUM Models into one Transport National Model to include all different types of transport data that fall within the jurisdiction of the LTRC and GAM to meet the projects requirement.

**Deliverable (2):** The outcome of this task is a report describing the methodology will to be followed by consultant and to create a document of data suitable for developing the JNTM and how to overcome data gaps.

### **2.3.3 Phase3: Model integration and update**

In this phase the consultant will be carrying out the necessary activities in order to provide effectively integrate both existing models and get one single, valid model:

- a. Preparation of model database. All retrieved information will be processed and transferred to the integrated model:
  - Network model, with a complete, comprehensive, unitary set of links with adequate characteristics and hierarchy.

- Network model, with an integration of transport zones and definition of appropriate main zones.
  - Network model, with an adapted layout of connectors.
  - Public Transport network, with proper set of stops, stop points and stop areas. Line route layout and service program.
- b. Demand data Matrix combination from original models, matrix split per modes.
  - c. Modelling time framework: definition of modelling periods.
  - d. Demand model: definition of adequate unitary set demand strata (person groups and activity pairs)
  - e. Socioeconomic data at zone level to feed the integrated demand model (trip generation/ attraction)
  - f. Generation of correspondent skim matrices for distribution and modal split.
  - g. Review of distribution and modal split models from original models and definition of new, integrated distribution and modal split model
  - h. Calibration and validation of the unified model (a validation report to be delivered)
  - i. Set up of the scenario manager in order to handle future transport projects.
  - j. Built up of the Future Year Model with incorporation of prospective planned projects
  - k. Model outputs

**Deliverable (3):** The outcome of this task is the updated, calibrated and integrated VISUM base year and forecast year models supported by a technical report shows all the activities and changes have been done in this task.

#### **2.3.4 Phase 4: Scenario Development.**

In this phase the consultant will be working on developing three scenarios, scenario details to be agreed with the project technical team.

**Deliverable (4):** The outcomes of this phase are JNTM with agreed scenarios and a report describing the impact of the tested scenarios on the JNTM.

#### **2.3.5 Phase 5: Training and Final Report.**

In this phase the consultant will submit the final report and the model manual in addition to staff training. Training is to be provided to the technical teams of both GAM and LTRC with **up to 10** participants not less than 20 days (both online and in-person proposals to be provided), on how to use, run, edit and update the model, the suggested training material is annexed to this TOR.

The model manual shall be prepared to provide clear steps on how to use, run, edit and update the updated JNTM.

**Deliverable (5):** The outcomes of this phase are the final report training materials and model manual.

### List of Deliverables:

No.	Phase	Deliverable	Suggested Duration
1	<b>Inception</b>	(1)	8 Weeks
2	<b>Methodology</b>	(2)	4 Weeks
3	<b>Model integration and update</b>	(3)	15 Weeks
4	<b>Scenario Development.</b>	(4)	5 Weeks
5	<b>Training and Final Report.</b>	(5)	4 Weeks

Note that time suggested includes client review.

### 3. Project Staffing:

Key Experts	Minimum Qualification Requirements	Minimum Experience	Specific experience
Project Director	Bachelor's Degree, in Civil or Transportation Engineering	(20) years in the transportation Planning and mobility sector projects	Project Director / Manager of at least two projects of <u>similar nature</u> performed in the last 10 years
			He/she must have carried out significant assignments in the Middle-East region or in countries with comparable socio-economic development
Technical Project Manager	Bachelor's Degree in a relevant field	(15) years in the transportation and mobility sector	Deputy Project Director or Project Manager of at least three (3) projects of similar nature performed in the last 10 years
Senior Modelling Advisor	Bachelor's Degree in a relevant field	(15) years in transport modelling	Transport modelling projects built within PTV VISUM software. Projects including models merging is preferable.
Two Senior Transport Modelers	- Bachelor's Degree in a relevant field	(5) years using PTV Software's modeling	Modelers should have expertise in building complex models preferred to be across the Middle East
Public Transport Specialist	Bachelor's Degree in transportation or a relevant field	(15) years in transportation planning projects	-

\* All staff needs to be good in English.

\* The consultant must name one candidate for each Key expert without any repetition.

\* Consultant needs to provide the hours of work for Key Experts; travel time to/ from Jordan; entitlement, if any, to leave pay; public holidays in Jordan that may affect Consultant's work

### Similarity Definition:

1. Transportation Planning Projects.
2. Projects including similar activities in the scope of work.

#### 4. Technical and financial Evaluation

Technical Evaluation Criteria		Points
<b>Technical experience and capabilities of Firm, track record and references:</b> Consultant should Provide a brief company profile and recent relevant experience. 1. Provide three (3) similar projects completed by your firm in the creation of Visum modelling in the past 15 years with at least on project performed in the middle east in one page. Provide client references for each project.		15
<b>Project Team, including expertise and past experience:</b> Consultant should Provide the qualifications, recent relevant experience and responsibility of each member of the project team, clearly stating the employment history of the staff , years with current firm and work location.		50
<b>Quality of Approach and Methodology</b> <ul style="list-style-type: none"> <li>- Understanding of RFP Objectives 7 Points</li> <li>- Quality of Approach and Methodology 20 Points</li> </ul> The Consultant is requested to clarify their understanding, methodology and work plan for each phase. Showing any elaboration will be counted. Elaboration to be demonstrated in separate section. Elaboration 8 Points		35
<b>Total Maximum Points</b> The minimum technical score required to pass is: [70%] <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <math>T = \text{Technical score} / \text{Highest technical score}</math> </div>		100
Financial Evaluation Criteria		
The lowest evaluated Financial Proposal is given the maximum financial score of 100. The formula for determining the financial scores of all other Proposals is calculated as following: <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <math>\text{Financial Score (P)} = 100 \times \frac{\text{The Lowest Price}}{\text{Price of The Proposal Under Consideration.}}</math> </div> The weights given to the Technical (T) and Financial (P) Proposals are: T= 70% P = 30% Proposals are ranked according to their combined technical and financial scores using the weights as following: <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <math>S = 70\% \times T + 30\% \times P</math> </div>		

1. Note that technical team will assess whether the proposed methodology is clear, responds to the TORs, work plan is realistic and implementable; and the work plan has right input of Experts also it all will be Subjected to negotiation!
2. Any technical offer that does not satisfy these mandatory requirements will be eliminated
  - If the consultant gets less than 70% of the total score.
  - If the consultant gets less than 50% in any of the following evaluation sections:
    - Key expert's evaluation
    - Quality of Approach and Methodology
3. All tasks and activities proposed by the client are only the minimum requirements to perform project activities in order to achieve project objectives there for any elaboration is upon the responsibility of the consultant not the client

# Annexes



### ANNEX A - Performance Bond Form

To Messrs (The Employer): .....

We are pleased to inform you that our Bank:.....has agreed to give a financial Guarantee to the :.....

In pursuance of Tender No.(        /        )

Related to the project

For

An Amount of :( JD).....

As a security for the execution of the Tender awarded to him in accordance with the conditions listed in the contract agreement documents.

We hereby irrevocably and unconditionally undertake to pay you right after receiving your first written demand the said amount or any part you demand not withstanding any reservation or stipulation, provided that you mention the reasons for this demand that Auditor refused or failed to execute any of his duties accordance to the contract without any consideration to any objection or prosecution from the Contractor on the payment.

**This Guarantee shall be unconditional, irrevocable and returned back only by formal letter issued by LTRC. This Guarantee remains valid from the date of its issuance until the completion of the works and services in accordance with the contract, which is initially to be on the** ..... Day of the month of .....of the year

of..... unless extended or renewed upon the employer's request.

Guarantor's Signature/Bank: .....

Authorized to Sign: .....

**Date:** .....

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## **ANNEX B - Training**

It is requested to provide a (Basic to Advance options) for up to 10 participants.

The Consultant will have to provide the following included:

- a. Training materials
- b. Video recording of the training
- c. Participation certificate

**This should include key methods for:**

- 1) Zoning selection criteria subject to be added addressed.
- 2) Running DS306 version 20, migrated by PTV from the EXCEL sheet and how the planning data in the model can be revised.
- 3) Setting up a filter for areas for both LTRC and GAM, in order to distinguish between internal trips, external trips and trips with one end, and extracting no. of trips of each type.
- 4) Extracting data from model concerning intra-zonal trips, inter-zonal trips and connectors.
- 5) Extracting total VKT by vehicle type from the model by distance travelled and distance travelled. (Note this will be needed for estimating yearly transport emissions).
- 6) Extracting total trip time. (To assess the effect of network improvements).
- 7) Extracting zone data.
- 8) Set up a link as a toll road, i.e. for assessing some projects.

The following table has **suggested training courses** for both **Basic and Advanced**:

**BASIC COURSE**

Introduction to Macroscopic Network Modelling	<ul style="list-style-type: none"> <li>○ Introduction to the fundamentals of transport planning and to PTV Visum</li> <li>○ PTV Visum network model - structure and processing. Explanation of network objects and correlation of basic elements</li> <li>○ PTV Visum network check and validation</li> <li>○ Network data import from third-party systems (e.g. shape file import)</li> <li>○ PTV Visum graphic parameters – simple introduction</li> <li>○ Assignment procedures – Modeling of route choice decisions for private transport</li> <li>○ Volume-delay functions</li> <li>○ Impedance functions</li> <li>○ Assignment procedures in detail: Incremental assignment, Equilibrium assignment, Equilibrium assignment LUCE, Equilibrium Lohse</li> <li>○ Overview of further assignment procedures: Stochastic assignment, Dynamic User Equilibrium DUE, Dynamic stochastic assignment</li> <li>○ Simple public transport assignment procedure for PuT demand segments</li> <li>○ Scenario management (project definition)</li> <li>○ Definition of the base application case</li> <li>○ Generation of scenarios and description of the dependencies</li> <li>○ PTV Visum presentation of the results</li> <li>○ Graphical visualization of the assignment results as flow bundles, isochrones, turn volumes, or one of the difference display variants</li> <li>○ Layout of maps and plans</li> <li>○ Skim matrices and vectors: Travel time, travel distance, access and egress times</li> <li>○ Matrix classification: Distributions of travel times and travel distances</li> <li>○ Matrix correction by T-Flow-Fuzzy</li> <li>○ Skim value-based difference calculation for the assessment of the scenarios</li> <li>○ Print output of the training course results</li> </ul>
Introduction to Public Transport Modelling	<ul style="list-style-type: none"> <li>• Fundamentals of how to model the elements of the public transport supply side <ul style="list-style-type: none"> <li>• Public transport stops and their structure</li> <li>• PT lines and line routes</li> <li>• Regular services and timetables</li> <li>• Vehicle types</li> </ul> </li> <li>• Fundamentals of modeling and analyzing PT demand <ul style="list-style-type: none"> <li>• Connectors</li> <li>• Assignment procedure methods for public transport</li> </ul> </li> </ul> <p>Calculation of public transport-specific skims and their tabular and graphical display</p>
Modelling Public Transport Networks and Combining Supply and Demand	<ul style="list-style-type: none"> <li>• Adopting data from digital network models</li> <li>• Basics of network modelling (nodes, links, turns)</li> <li>• Importing, creating and editing stops, stop areas and stop points</li> <li>• Interactive graphical creating and editing of lines and line routes</li> <li>• Creating and adjusting time profiles</li> <li>• Editing timetables in graphs and tables</li> <li>• Editing vehicle types, operators, valid days</li> <li>• Calculating skims from both the passenger's and operator's perspective</li> <li>• Basic sources and elements required to model PuT demand</li> </ul>

	<ul style="list-style-type: none"> <li>• Basics of the procedures for assignment of PuT demand matrices</li> <li>• Application cases and parameters of assignment procedures</li> <li>• Calculation of transport supply indicators and operating costs for evaluations</li> </ul> <p>Tabular, graphical and map-based display of passenger demand indicators by stops, links, lines and vehicle journeys, furthermore display of the volume/capacity ratio by line or vehicle journey</p>
ADVANCE COURSE	
Creating a 4-Step Transport Model	<ul style="list-style-type: none"> <li>•Model architecture <ul style="list-style-type: none"> <li>• Discussing methods (4-stage model, VISEM, EVA)</li> <li>• Model segmentation</li> <li>• Calculation process</li> </ul> </li> <li>•Definition of the model area</li> <li>•Data supply <ul style="list-style-type: none"> <li>• Required data and data sources (network-, behavior- and structural data)</li> <li>• Data preparation and organization</li> <li>• Interfaces for network data</li> </ul> </li> <li>•Creating an 4-step example for practice</li> <li>•Matrix processing</li> <li>•PrT/PuT assignments</li> <li>•Calibration and validation <ul style="list-style-type: none"> <li>• Parameter calibration for choice of destination and means of transport</li> <li>• Bottom-up validation of the model</li> <li>• Matrix calibration</li> </ul> </li> <li>•Forecast calculation</li> <li>•Scenario Manager</li> </ul>
Public Transport Line Performance and Cost Calculation	<ul style="list-style-type: none"> <li>▪ Principles in cost, revenue and cost coverage calculations</li> <li>▪ Basic line blocking procedure for calculating the required number of vehicles</li> <li>▪ Basic data of line blocking, e.g. valid days, depots, interlining trips</li> <li>▪ Modelling of infrastructure costs</li> <li>▪ Tabular and graphical presentation of results</li> <li>▪ Line blocking with vehicle interchange and consideration of demand</li> <li>▪ Modelling of different fare systems in PTV Visum</li> <li>▪ Consideration of the fare model in the assignment and the effect on route choice</li> <li>▪ Representation of revenues per OD pair</li> <li>▪ Tabular and graphical presentation of revenues and cost coverage based on operating branches, lines and territories</li> </ul> <p>Illustrating example exercise</p>
Extending Capabilities Using the COM Interface	<ul style="list-style-type: none"> <li>▪ Introduction to the COM model</li> <li>▪ Fields of application for your own COM programs</li> <li>▪ Short introduction to the programming language Python</li> <li>▪ Programming environment and overview of the COM documentation</li> <li>▪ Manipulating network objects and their properties</li> <li>▪ Complex matrix processing</li> <li>▪ Specific aspects of the COM interface (Public Transport, procedures, importing, ...) on request</li> <li>▪ Including scripts in PTV Visum</li> </ul> <p>Examples for the discussed COM applications &amp; Various exercises</p>

Intersection Capacity Analysis (ICA) and Simulation Based Assignment (SBA)	<ul style="list-style-type: none"> <li>•Intersection Capacity Analysis (ICA) <ul style="list-style-type: none"> <li>• Principles and fundamentals</li> <li>• Junction coding for ICA nodes</li> <li>• The ICA assignment procedure</li> <li>• Convergence criteria</li> <li>• Input and output attributes</li> <li>• Understanding ICA results</li> </ul> </li> <li>•Simulation Based Assignment (SBA) <ul style="list-style-type: none"> <li>• Steps of simulation-based dynamic assignment</li> <li>• Route search</li> <li>• Volume balancing</li> <li>• Simulation and network loading</li> <li>• Input and output attributes</li> </ul> </li> </ul> <p>Evaluation of assignment</p>
Emissions from Road Traffic	<p>General about Emissions</p> <ul style="list-style-type: none"> <li>• Short introduction into the topic and the possibilities and limitations in PTV Visum</li> <li>• Outlook into future concerns and PTVs position Emissions calculation according to HBEFA</li> </ul> <p>Emissions calculation for car and trucks based on assignment results</p> <ul style="list-style-type: none"> <li>• Emissions calculation for scheduled public transport busses based on time table data</li> <li>• Calculation of cold start excess emissions based on zone data</li> <li>• Statistical calculations (not analytical time intervals)</li> <li>• Definition and refining of demand segments and transport systems to create detailed analysis</li> <li>• Comparing scenarios</li> </ul> <p>Noise calculation according to RLS 90 (Emitter Road)</p> <ul style="list-style-type: none"> <li>▪ Definitions for noise calculation</li> <li>▪ Noise calculation based on assignment results</li> <li>▪ Presentation of noise emission maps</li> </ul> <p>Presentation of noise reduction plans (comparing scenario)</p>