

ANNEX A

TERMS OF REFERENCE

General Introduction; Interpretation

1. For an overview of the Tender Process, the RFP and the work entailed herein and therein, Bidders are referred to the 'General Introduction and Background' (Section 1) of the ITB to which these Terms of Reference are attached as Annex A.
2. The Consultant is to design, implement, and maintain a computerized traffic signal Designing software system, in accordance with the RFP Documents.
3. This document defines the scope and the products of the work of the Consultant that will carry out the Services.
4. Capitalized terms undefined in either Annex A-1 attached hereto or herein shall have the definitions given to them elsewhere in the RFP Documents.

Scope of Work

5. Delivery and implementation of the Traffic Signals Designing Software System (hereinafter: the "Software" or the "Software System", respectively) in accordance with the RFP Documents, including, without limitation, the Contract, these Terms of Reference, the Bid, the Mandatory Requirements (attached to the RFP as Annex E), Annex A-2 (following the receipt of the MOT approval of the Software), and any applicable law.

Documentation

6. The Software shall be supplied together with:
 - 6.1. A detailed user manual.
 - 6.2. A system administrator manual, including installation and configuration manual and troubleshooting procedures.
 - 6.3. Proper training materials.
 - 6.4. A solution roadmap and growth potential, incl. plans for future development and major updates for the proposed system
 - 6.5. The Consultant's brochures and data sheets.

Maintenance

7. The Consultant shall provide Maintenance Services (as such term is defined below) throughout the Term, which Maintenance Services shall include:
 - 7.1. Help desk expert service for troubleshooting and maintenance.
 - 7.2. Technical maintenance via remote access.
 - 7.3. Delivery of bug fixes and service patches.
 - 7.4. Delivery of Software upgrades. Each new Software version issued by the Consultant shall be offered to JTMT for installation at JTMT's discretion.
 - 7.5. The Consultant shall ensure that the Software remains up to date, and all Standard Software Upgrades and MOT Required Software Changes relevant to the Software are merged into the Software in a timely fashion.

A “**Standard Software Upgrade**” is any standard update, upgrade, add-on, or the like that is merged into any Consultant software whatsoever that is not the Software.

A “**MOT Required Software Change**” is any change to the Software that is necessary in order for the Software to remain compliant with the MOT Guidelines (as such term is defined below), including if said guideline are changed from time to time.

Changes and Improvements Process,

8. JTMT will be able to initiate changes and improvements to the Israeli version of the Software.
9. Written requirements will be submitted to the Consultant.
10. The Consultant will submit work hours estimation for the work.
11. JTMT will be able to negotiate the work hours estimation and will submit a written work order in the price of the work hours * the proposed work hour rate.
12. JTMT will be able to request and approve requirements (SRD), design (SDD) and testing (STD) documents.

Traffic Design Software Training Workshop

13. Software training workshop for those persons who will be using the Software, given in English or Hebrew (at the discretion of JTMT).
14. One qualified representative from the Consultant will conduct the workshop resources and effort. The Consultant shall incur all flight expenses (if necessary), and provide all workshop materials, including presentations and printed materials, as needed. The workshop shall run for up to 80 work hours.

Project Management.

15. The Consultant shall appoint a dedicated and experienced Project Manager who will serve as the POC vis-à-vis JTMT.
16. The Consultant shall appoint a dedicated and experienced team as needed.

Technical Maintenance Services.

17. Technical maintenance services to be provided by the Consultant shall be based, at a minimum, on the response and recovery times and other provisions detailed below (collectively, the “**Maintenance Services**”):

Parameters <i>[definitions follow below]</i>	Minimum Service Level		Deduction from Payment in Case of Failure to Meet Minimum Service Level	
			Time Frame Deviation	Penalty (Deduction from Monthly Payment)
Help Desk Availability	5 Business days/week 9:00-18:00 [UTC+2]			
Time To Answer <i>[remote maintenance expert]</i>	Critical	Next business day	Each additional day	ILS 500
	Other	3 business days	Each additional day	ILS 200
Response Time <i>[on-site maintenance expert]</i>	Critical	3 business days	Each additional day	ILS 500
	Other	10 business days	Each additional day	ILS 200
Recovery Time (fixing critical malfunctions)	Critical	5 business days	Each additional day	ILS 500
	Other	15 business days	Each additional day	ILS 300

18. Below are terminology explanations and definitions for the above table:

Definition	Description of Definition & Responsibilities
Service Request	A service request is JTMT's request for resolution of a problem or for assistance in resolving a problem or question, which JTMT presents to the Consultant Help Desk [HD].
Malfunction, Fault	A condition, error, bug, or any problem causing the Software to function wrongly or not function at all.
Critical Malfunction Level	A malfunction in the Software or any of its modules, that results in complete Software malfunction or Software crash. Malfunction classification is at JTMT's sole discretion.
Other Malfunction	Any malfunction that is not a Critical Level Malfunction. Malfunction classification is at JTMT's sole discretion.
Time To Answer [TTA]	The duration starting from the submittal of a Service Request to the Consultant's HD, until a Consultant remote technical expert has contacted JTMT.
Response Time	The duration starting from the reporting of the malfunction to the Consultant's HD until a Consultant's Service Expert arrives on-site or started a remote handling process
Recovery Time	The duration starting from the reporting of the malfunction to the Consultant's HD until the malfunction has been resolved and the System is operational again

19. The Consultant shall submit a detailed quarterly (3 months) report of the service level maintenance services provided, including, *inter alia*, the full life cycle of all service level maintenance requests from the opening to the full closing of each request.
20. The Consultant shall remain technically and financially responsible, within the terms of the Contract, for the servicing capabilities required to maintain the requirements specified above.

Miscellaneous

21. The Consultant shall provide Software licenses as needed, in accordance with the provisions of the Contract.
22. The Consultant shall provide additional professional services and software licenses as may be required and may be ordered by JTMT.

Annex A-1

Definitions

1. **Local Controller Logic Signal Timing Designs** – All the local controller Timing Design Logic, collectively. Runs locally and independently in the local controller. The local controller receives information from detectors and other inputs (such as adjacent intersections) and produces signal outputs based on a predefined logic that runs within the controller. The local controller can be capable of exchanging information (parameters, status) with a central traffic management system. However, this information shall be incorporated in the local logic and not replace this logic
2. **Signal Timing Design** – The complete design of the signal functionality including all elements required for the successful approval and implementation of the signal. The Signal Timing Design will include all information required for implementing different Programs in different situations (e.g. morning, evening...).
3. **Program** – A set of parameters (and sometimes a unique logic) defining the manner of operation under a certain situation (e.g. morning, evening...).
4. **Timing Design Logic** – All considerations, rules of decision and relevant changes in signal heads, made in order to determine the signal's operation at the intersection.
5. **Approach** – one of the intersection's arms.
6. **Movement** – Unique vehicle (regular vehicle, LRT...) movement from an entry approach to an exit approach (e.g. straight, right, left, etc.' or pedestrian move).
7. **Signal Group** – Compatible with signal head in the controller. There may be several types of signal groups:
 - 7.1. **Vehicle Signal Group** – A vehicle signal group will have one or more movements (e.g. straight and right movements controlled by one signal head).
 - 7.2. Pedestrians.
 - 7.3. Flashing amber.
 - 7.4. Transit vehicle preemption signal.
8. **Stage** – One or more Signal Groups receiving green simultaneously.
9. **Partial Inter-Stage** - (also known as "**Parallel Inter-Stage**") – special inter- Stage divided into a number of inter- Stages by grouping the participating moves into independent sub-groups.
10. **Stage Sequence:**
 - 10.1. **Un-Constrained Stage Sequences** – All possible sequences of Stages, not essentially implemented by the Timing Design Logic. Usually will be represented by a diagram showing the Stages and possible transitions between these Stages.
 - 10.2. **Constrained Stage Sequences** – Possible sequences of Stages according to the Timing Design Logic. These sequences shall include all or part of the Un-Constrained Stage Sequences, depending on the Timing Design Logic.
11. **Stage Transition** – The transition between two Stages describing the Signal Group

transition from the origin Stage to the destination Stage.

12. **Pulse** – Binary pulses input/output to/from the intersection controller (and part of the Timing Design Logic).
13. **Branch** - A unique sequence of Stages that begins and ends with the main Stage. (The Branches that are derived from the Constrained Stage Sequence represent the possibilities in which the intersection may operate in different situations, as defined by the Stage Sequence and the Timing Design Logic).
 - 13.1. **Skeleton Branch** – A Branch in which all the Stages receive the minimum length of time needed to ensure the minimum green time required for all Signal Groups included in the Branch (and of course all inter-green times required between conflicting Signal Groups).
14. **Signal Group Timing Design** – A detailed description of the operation of the signal as time proceeds (second by second), under predefined conditions. The details shall include both inputs (detectors, pulses, etc.) and outputs (Signal head aspects for all Signal Groups, Pulses etc.).
15. **Signal Group Timing Chart** – Graphic description of the Signal Timing Design.
16. **Scenario** – a sequence of events related to the signalized intersection and their outcome activated by the Signal controller.
 - 16.1. **Scenario Input** – The input to the controller representing the sequence of events (e.g. detectors, pulses etc.).
 - 16.2. **Scenario Output** – The Signal Group Timing Design resulting from the Scenario Input.
 - 16.3. **Scenario Chart** – Graphical description of the Scenario Output.

Annex A-2

Ministry of Transportation's Requirements for Traffic Light Designing and Unified Format for Defining Timing Plan for Signaled Intersections

As detailed in the documents attached to the link below:

https://www.gov.il/he/Departments/Policies/guidelines_using_software_design_traffic_lights, as will be updated from time to time (the "**MOT Guidelines**").