

#### **AYALON HIGHWAYS CO.**

# TRAFFIC SURVEILLANCE AND CONTROL SYSTEM

# TURN-KEY DESIGN / BUILD UPGRADE PROJECT

### **Tender No. 17/15**

# Annex L SCHEDULE OF PRICES & METHOD OF MEASUREMENT

**Volume C2** 

August 2015

#### 1. Preamble To The Schedule Of Prices

#### 1.1. General Directions

- 1.1.1.All works and or equipment to be supplied as described in items of this Schedule of Prices (SOP) are to be considered by the Contractor as including all requirements and according to specifications set forth in the tender documentation, as well as all detailed design and specifications as will be approved by AHCo during the Critical Design Review.
- 1.1.2.The Schedule of Prices shall be read in conjunction with the drawings and the Specification. The Contractor shall be deemed to have included in his price all needed for executing the whole of the Works in a sound and workmanlike manner according to good engineering practice.
- 1.1.3.The Contractor shall be deemed to have inspected the sites and the environmental conditions on the sites and satisfied himself of all matters relating thereto and also to have ascertained the full extent of the Works involved in each described item and to have taken note of existing conditions and quantities as necessary. No claim will be upheld owing to misconceptions by the Contractor due to his failure to visit and inspect the site.
- 1.1.4.Items are to be priced individually in print. Lump sum prices for groups of items or complete sections of the work will be liable to rejection.
- 1.1.5.Prices are to include for removing all rubbish, debris and surplus materials from site during the progress of the Works as and when necessary and for leaving the site in a clean and tidy condition on completion.
- 1.1.6.All prices quoted in the Schedule of Prices shall not include value added tax.
- 1.1.7.The proposed prices in the Schedules shall be valid for the period of time specified in the Terms and Conditions.
- 1.1.8.In any case the Contractor chooses to rely on the design item prepared by the AHCo the design will consider as initiated by the Contractor and he shall bear sole responsibility for it.
- 1.1.9.Where the unit is stated as 'item' this shall include for all necessary equipment and works to cover the design, supply, installation and implementation of one unit of the item description as described in the clause above.

1.1.10. Where the unit is stated as 'item gantry' this clause shall refer to either new gantries in cases where the cabinet, mechanical mounting for equipment, electrical, communication and cabling infrastructures do not exist, or in cases where these elements and infrastructure have been previously installed but are to be completely replaced with new ones.

This item shall include all necessary equipment and works to cover the design, supply, installation and implementation of a complete infrastructure for a single gantry including cabinets, mechanical mounting for equipment, electrical, grounding, communication and cabling infrastructures as required for the installation of all the field equipment of any sort (e.g. LCS's, VMS, VPS or any other filed equipment required) on this gantry. For the removal of doubt this type of 'Item gantry' shall be paid only once for a gantry. Any field equipment to be installed on this gantry shall be measured and paid separately and its price shall include all changes as required in the existing gantry cabinets, mechanical mounting for equipment, electrical, communication and cabling infrastructures to accommodate this filed equipment installation.

- 1.1.11. Where the unit is stated as 'complete' this shall include all necessary equipment and works to cover the design, supply, installation and implementation of the all the work described.
- 1.1.12. In this Schedule of Prices (SOP) the item descriptions identify in general the work covered by the respective item The nature and extent of the work to be performed is to be ascertained by reference to the Drawings, Specification and Conditions of Agreement. The rates and prices entered in the Schedule of Prices shall be deemed to be the full inclusive value of the work and anything necessary to achieve AHCo approval for the equipment and works applied. The price shall include at least the following, unless expressly stated otherwise:
  - A. Design and all the design deliverables at all of the design stages as described in the Specification and Conditions of Agreement.
  - B. Labour and all costs in connection therewith.
  - C. The supply of materials, goods, storage and costs in connection therewith including delivery to Site. Collection of materials and goods supplied by others, unloading, storage, and costs in connection therewith.
  - D. Contractor's Equipment and all costs in connection therein.
  - E. Plant and costs in connection therewith.
  - F. Fixing, erecting and installing or placing of materials and goods in position.
  - G. Temporary works, including searching and locating existing infrastructure elements.
  - H. The effect on the phasing of the Works of alterations or additions to existing services and supplies to the extent that such work is set forth or reasonably implied in the documents on which the tender is based.

- I. General obligations, liabilities and risks involved in the execution of the Works set forth or reasonably implied in the documents on which the tender is based.
- J. Testing and commissioning including all its deliverables for all of the tests and testing stages as described in the Specification and Conditions of Agreement.
- K. Attendance and transport for sampling and testing carried out by AHCo, and supplying results of tests carried out by the Contractor.
- L. Any cost for equipment or samples required for any test carried out by AHCo or the Contractor as described in the Specification and Conditions of Agreement.
- M. Establishment charges, taxation of any kind, overheads and profit.
- N. Waste and reinstating the work area to its previous condition.
- O. Complying with Quality Assurance standards.
- P. Preparation and supply of detailed working drawings.
- Q. Run-up / Trial Run period before system commissioning.
- R. Training AHCo personal including all its deliverables as described in the Specification and Conditions of Agreement.
- 1.1.13. Without derogating from the sections above, the prices for installation of electronic equipment shall include the delivery, unloading and storing equipment, taking from store, assembling and fixing equipment including installation boxes, terminators, sockets, earth connections, internal wiring including links and jumper leads, distributive and protective devices and labelling equipment all in accordance with the relevant Specification sections.
- 1.1.14. Items included in the SOP which do not have quantity the Contractor is required to detail the items quantity and Rate according to his proposed design.
- 1.1.15. The proposed prices in the Schedules shall be valid for the period of time specified in the Terms and Conditions.

#### 1.2. Identical Prices for Identical Items in Different Segments of the Work

- 1.2.1. Prices for the same Items in the Schedule Of Prices of Segments 1, Segment 2 and Segment 3 must be identical.
- 1.2.2. In case the event that a Contractor did not offer exactly the same identical price for the same items in both of the Schedule of prices of Segments 1, Segment 2 and Segment 3, then the price for such item will be the lower one price of the three, the higher prices shall be corrected by the Company and the Company will recalculate the Bid.

#### 1.3. Schedule Of Prices for Segment 1 (SOP 1.1-1.5)

1.3.1.Segment 1 of the SOP includes "Major Items" identified by a description in the "Description" column of the SOP provided with the tender. These Items are seen by AHCo as an inclusive list of all main items required to complete segment 1 of the project including all equipment and work required.

No attempt has been made to specify more minor details of equipment and installation. However, the Contractor is required to detail the breakdown of the Major Items into subitems, to the extent possible, by detailing (under the Major Item) the sub-items required for the installation and implementation of each Major Item.

- 1.3.2.For every Major Item the Contractor shall complete the Quantity (if not defined by AHCo), Rate and Total. The prices shall be in New Israel Shekels (NIS), and shall not include Value Added Tax (VAT). Wherever the Contractor has specified sub items, the Total for the Major Item shall be equal to the total cost of all sub-items which are the breakdown of the Major Item.
- 1.3.3.For sub items entered by the Contractor as the breakdown of the Major Item, the Contractor shall complete only the Quantity and Rate and shall not complete the Total. It is expected that the total cost of all sub-items in the breakdown shall be equal to the Total of the Major Item.
- 1.3.4.Regardless to the extent of details identified by the Contractor as breakdown Items, the Contractor will be deemed to have made due allowance for these items in his prices for the Major Items.
- 1.3.5.Items in Segment 1 of Schedule Of Prices, against which no price or rate is entered shall be deemed to be covered by the other rates and prices in the Schedule of Prices for this Segment.
- 1.3.6.In case the Contractor would like to specify other Major Items, he may add these under "Other Major Items" and complete their Unit, Quantity, Rate and Total.
- 1.3.7. Where the Unit is described as "Item Alternative" the Contractor shall enter his price according to the technology he is proposing, either Magnetometer Detectors or Microwave detectors. The Contractor shall mark the items of the other technology, which he is not proposing as "Not Proposed" and not price them.
- 1.3.8.The Total price proposal for Project segment 1 shall be the sum of the totals for all Major Items.

#### 1.4. Schedule Of Prices for Segment 2 and 3 (SOP 2.5, SOP 3.6-3.7)

1.4.1.Segment 2 and 3 of the SOP include a list of Items identified by a description in the "Description" column of the SOP provided with the tender.

- 1.4.2.For every Item the Contractor shall complete the Quantity (if not defined by AHCo), Rate and Total. The prices shall be in New Israel Shekels (NIS), and shall not include Value Added Tax (VAT).
- 1.4.3.The Total price proposal for Project Segment 2 shall be the sum of the totals for all Items.
- 1.4.4.The Schedule Of Prices for this Segment 3 includes a quantity of one (1) for every item.

  The Contractor shall not tabulate the prices proposed for this segment.

#### 1.5. Schedule Of Prices for Segment 4

- 1.5.1.As the full and final consideration for the Support Services (to the extent Company elects to receive such services, if any), the Company shall pay Contractor a yearly fee in an amount equal to a certain percentage (as proposed by the Bidder in its Bid) of the applicable consideration paid under the Agreement in connection with the items for which Support Services are selected by Company at its discretion.
- 1.5.2.Bidders shall complete the Bill of Quantities for this segment by including the percentage requested.
- 1.5.3.Please be noted that Bidders shall not be allowed permitted to offer a percentage which is higher than 12% or lower than 5%. A Bid that includes a proposed percentage higher than 12% or lower than 5% will be disqualified.

#### 1.6. Measurement And Payment

- 1.6.1.The measurement of work shall be computed according to the Unit as defined for the specific Item in the SOP, unless stated otherwise in the Method of Measurement and subject to the following requirements.
- 1.6.2.Contractor shall enter the quantity for every Item in the SOP for which no quantity has been entered by AHCo as part of the tender documents.
- 1.6.3.Where the quantities are entered in the SOP by the Contractor, payment shall be made according to these quantities, subject to any variations to the Agreement agreed in writing between AHCo and the Contractor. No additional payments shall be made should the actual installed quantities differ from those entered by the Contractor in the Schedules.
- 1.6.4. Where the quantities are entered in the SOP by AHCo, as part of the tender documents, and the actual installed quantities are different than those in the SOP payment shall be made in accordance with the quantity actually installed.

1.6.5.AHCo reserves the right to vary the quantity of any Item in the Schedules. In such cases the variation and its effects shall be agreed with the Contractor in writing and in accordance with the Conditions of Agreement.

#### 1.7. Privately And Publicly Owned Services Or Supplies

1.7.1.The Contractor shall include in his rates and prices for locating and taking measures for the support and full protection of pipes, cables and other apparatus during the progress of the Works, obtaining the written consent of the appropriate authority to interrupt the service or supply and for keeping AHCo informed of all arrangements he makes with the owners of privately owned services or supplied, Statutory Undertakers and Public Authorities as appropriate.

#### 1.8. Day works

1.8.1.Where additional or varied work ordered during the currency of the Works has been authorised by AHCo to be executed as day work it shall be paid for as described in the Conditions of Agreement.

#### 1.9. Payments vs. Certificates

- 1.9.1.For any of the works identified in the SOP relevant for the project and all segments detailed in the SOP, after completion of the Works AHCo shall make the payments according to the stages and the certification as detailed in the table "Schedule Of Price payments vs. Certificates" below.
- 1.9.2.After the completion of the warranty period. In case AHCo shall implement works as specified in Segment 4 SOP, payments shall be made by AHCo upon completion of the work of a (3) three calendar months period, each such payment shall be equal to 1/4 of the amount calculated by multiplying the percentage proposed for yearly logistic and maintenance support fee with total sum for the implementation work performed for the segment of the work relevant for this payment. The certification of this payment is subjected to the delivery by the Contractor and approval by AHCo of all logistic and maintenance support reports and deliverables.
- 1.9.3.The Contractor is advised that any / every payment to be made by AHCo under this Agreement, shall subjected to deduction of any amount payable to AHCo from the Contractor as compensations for breach of service level defaults or any other compensation under the terms set forth in the Agreement.
- 1.9.4.Items assigned to Allocated Budget prices section in the SOP, the payment shall be made by AHCo according to approved bills / invoices payments made by the Contractor to an approved AHCo pre assigned subcontractors or the police. These payments shall

be considered to be refund to the Contractor for this expenses, no supplement addition beyond the total sum of the approved invoice shall be paid to the Contractor for these items. All work carried out by the Contractor regarding these items require preapproval of AHCo. All payments under these items shall not exceed the budget allocated.

#### 1.10. Schedule Of Price payments vs. Certificates

				Certificate /	/ Milestor	ne							
Item	SDD	CDR	Completion of site infrastructure works	<b>EFAT</b> (FAT outstation equipment)	SFAT (Syste m FAT)	Delivery of electronic equipment	POP (Proof-of- Performance Test)	completion and approval Trial run	Final acceptance completion of warranty & ROG	Total	Project Segment 1	Project Segment 2	Project Segment 3
SOP 1.1	3%	7%			30%		30%	20%	10%	100%	V		
SOP 1.2	3%	7%			30%		20%	30%	10%	100%	V		
SOP 1.3	3%	7%		20%		15%	25%	20%	10%	100%	V		
SOP 1.4	3%	7%	55%					25%	10%	100%	V		
SOP 2.5		10%		20%		15%	25%	20%	10%	100%		V per site on order	
SOP 3.6		10%		20%		25%	25%	20%		100%			V per site on order
SOP 3.7		10%	70%					20%		100%		V per site on order	V per site on order

#### ROG=Release of Guarantees

- For more details on certificates and milestones, please see Chapter 10 of the SOW
- All payments will be made only after AHCo approval according to the table in chapter 10.1 of the SOW

# 2. Schedule of prices No' 1.1: Project Segment 1 - TSCS central hardware in the TCC

Item	Description	Unit	Quantity	Rate	Total (回)
1.1.1	Central TSCS servers hardware	•			
1.1.1.1	TSCS Servers (primary and secondary backup server)	Item			
1.1.1.1.1					
1.1.1.2	C2C server and external interface server	Item			
1.1.1.2.1					
1.1.1.3	Database Servers (primary and secondary backup server)	Item			
1.1.1.3.1					
1.1.1.4	Disk Storage Array	Item			
1.1.1.4.1					
1.1.1.5	Simulation Server	Item			
1.1.1.5.1					
1.1.1.6	Central Synchronizations system server (e.g. for NTP services)	Item			
1.1.1.6.1					
1.1.1.7	Servers equipment cabinet of 19" 42 U	Item			
1.1.1.7.1					
1.1.1.8	Professional color laser printer	Item	1		
1.1.2	TSCS workstations				
1.1.2.1	Multiple screen Engineer / Modeler Workstation including OS and required software / equipment	Item	1		
1.1.2.1.1					
1.1.2.2	Multiple screen local Operator Workstation including OS and required software / equipment	Item	4		
1.1.2.2.1					
•••					
1.1.2.3	Single screen Administrator Workstation including OS and required software / equipment	Item	1		
1.1.2.3.1					
1.1.3	Central communication hardware in the TCC				
1.1.3.1	Backbone switches for AHCo TCC Specification no# 4.2.17.1 The backbone switches will have redundant dual	Item			

Item	Description	Unit	Quantity	Rate	Total (回)	
	power supply .MTBF > 240,000 hours					
1.1.3.1.1						
1.1.3.2	Routers	Item				
1.1.3.2.1						
1.1.3.3	Firewall	Item				
1.1.3.3.1						
1.1.3.4	Communication control system	Item				
1.1.3.4.1						
1.1.3.5	RJ45 Patch panel and accessories	Item				
1.1.3.5.1						
1.1.3.6	Category 7 cabling in the TCC	Item				
1.1.3.6.1						
1.1.3.7	FO cabling in the TCC	Item				
1.1.3.7.1						
1.1.3.8	Communication equipment cabinet of 19" 42 U	Item				
1.1.3.8.1						
1.1.4	Additional Major Items	<u> </u>				
1.1.4.1						
	Total of Schedule of prices No' 1.1 Carried forward to summary					
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### 2.1. Schedule of prices No' 1.2: Project Segment 1 - TSCS central Software in the TCC

Item	Description	Unit	Quantity	Rate	Total (回)
1.2.1	Central TSCS servers software	•			
	Important: The prices for Central TSCS server's software in segment 1, include the cost of this software for the second identical TSCS central software and hardware systems, which will be installed in the new TAMCC once it is built (see SOW of segment 3). No additional payment shall be made to the Contractor for central software installed at the TAMCC.				
1.2.1.1	Final Core TSCS application software	Item			
1.2.1.1.1					

Item	Description	Unit	Quantity	Rate	Total (回)	
1.2.1.2	TSCS Interfaces software for C2C, internal in the TCC or external interfaces and web services interface software.	Item				
1.2.1.2.1						
1.2.1.3	GIS services software interfaced and adapted to the TSCS application software	Item				
1.2.1.3.1						
1.2.1.4	Database COTS software and TSCS application integration and adaptation of it.	Item				
1.2.1.4.1						
1.2.1.5	Communication central management software	Item				
1.2.1.5.1						
1.2.2	TSCS Workstations Software					
1.2.2.1	Engineer Workstation application software	Item	1			
1.2.2.1.1						
1.2.2.2	Operational Workstation application software	Item	4			
1.2.2.2.1						
1.2.3	Additional Major Items					
1.2.3.1						
	Total of Schedule of prices No' 1.2 Carried forward to summary					

# 2.2. Schedule of prices No' 1.3: Project Segment 1 - TSCS Outstations and Field equipment

Item	Description	Unit	Quantity	Rate	Total (₪)
1.3.1	TSCS signaling sub-system			•	
1.3.1.1	Lane Control Sign (LCS)	Item	94		
1.3.1.2	Variable Message Sign (VMS) Type A	Item	2		
1.3.1.3	Variable Message Sign (VMS) Type B	Item	5		
1.3.1.4	Communication Access Switches -ruggedized MTBF > 150,000 hours	Item			
1.3.1.5	Communication in house passive infrastructure (RJ45)	Item			
1.3.1.6	Cabinets for signaling control and communication equipment including all the signaling control and communication equipment and a UPS backup for the communication equipment in the cabinet.	Item	27		
1.3.2	TSCS Vehicle Detection Sub-System				
1.3.2.1	VDS for Magnetometers Detectors including all the software, control, all necessary polls and mounting hardware and communication equipment required for a complete functional VDS outstation (in the MDS or EDS sites).	Item alternati ve			
1.3.2.2	Repeater (including battery pack for 10 yr. operation) for VDS for Magnetometers Detectors	Item alternati ve			
1.3.2.3	Single Magnetometers Detector (DSU) (Stad) to be installed in the lane (in the MDS or EDS sites) Includes reusable envelopes, sealing material etc.	Item alternati ve			
1.3.2.4	VDS/DSU for Microwave Detectors including all the software, control, all necessary polls and mounting hardware and communication equipment required for a complete functional VDS/DSU outstation (in the MDS or EDS sites).	Item alternati ve			
1.3.2.5	Cabinets for Vehicle Detection outstations including all necessary equipment fixtures for installing the VDS control and communication equipment.	Item	48		
1.3.2.6	UPS for the Vehicle Detection outstations including all necessary equipment fixtures, UPS batteries, UPS control and communication equipment. UPS for every Cabinets for Vehicle Detection outstations.	Item	48		
1.3.2.7	Cabinets for UPS for the Vehicle Detection outstations including all necessary equipment fixtures for installing the UPS, UPS batteries, UPS control and communication equipment. Cabinets for every UPS	Item	48		
1.3.3	Additional Major Items				
1.3.3.1					

Item	Description	Unit	Quantity	Rate	Total (₪)	
Total of Schedule of prices No' 1.3 Carried forward to summary						

### 2.3. Schedule of prices No' 1.4: Project Segment 1 - Field Infrastructure, Communication, gantry and miscellaneous

Item	Description	Unit	Quantity	Rate	Total (₪)
1.4.1	Cabling and Infrastructure (According to plan -9701-412)				
1.4.1.1	Design of Power and communication infrastructure.	Complete			
1.4.1.2	Inspection of existing ducts and infrastructure.	Complete			
1.4.1.3	Excavate a tranche for ducts up to 100 cm' wide, in depth of 2m' including installing the ducts, covering the tranche and restoration of the area to its previous condition.	Lin m'			
1.4.1.4	Supply and install (HDPE) Multilayered Conduction Pipes- (YAKA 11 יק"ע) in accordance with Bezeq standard and ISI 1531, fit for Conducting Optic fibers and commercial communication Diameter:50 mm supplied with a standard 8 mm pulling rope, SDR: 11 Outer color lines: According to customer's specifications (red, green, yellow, orange) Surrounded in a tranche, depth to invert not exceeding 2m'.	Lin m'			
1.4.1.5	Supply and install (HDPE) Multilayered Conduction Pipes- (YAKA 11 יק"ע) in accordance with Bezeq standard and ISI 1531, fit for Conducting Optic fibers and commercial communication Diameter:75 mm supplied with a standard 8 mm pulling rope, SDR: 11 Outer color lines: According to customer's specifications (red, green, yellow, orange) Surrounded in a tranche, depth to invert not exceeding 2m'.	Lin m'			
1.4.1.6	Excavate a tranche for ducts according to item A include Laying all need conduction Pipes	Lin m'			
1.4.1.7	Excavate a trench for ducts according to item B include Laying all need conduction Pipes	Lin m'			
1.4.1.8	Excavate a trench for ducts according to item C include Laying all need conduction Pipes	Lin m'			

Item	Description	Unit	Quantity	Rate	Total (₪)
1.4.1.9	Excavate a trench for ducts according to item D include Laying all need conduction Pipes	Lin m'			
1.4.1.10	Excavate a trench for ducts according to item E include Laying all need conduction Pipes	Lin m'			
1.4.1.11	Excavate a trench for ducts according to item F include Laying all need conduction Pipes	Lin m'			
1.4.1.12	Supply Conduction concatenation Pipes for Underground Installation of Electrical and Communication Lines Model: "Cobra" or "Magnum" or equal. Diameters: 110 mm with 8 mm Pulling rope According to ISI 1531 ISI 499, ISO 4427	Lin m'			
1.4.1.13	Supply and install of Manhole of 60cm' internal diameter till 2m' digging with 40 ton cover according to item and steps/ladder.( according to item H)	Item			
1.4.1.14	Supply and install of Manhole of 80cm' internal diameter till 2m' digging with 25 ton cover according to item and steps/ladder.( according to item H)	Item			
1.4.1.15	Supply and install of Manhole of 100cm' internal diameter till 2m' digging with 40 ton cover according to item and steps/ladder.( according to item H)	Item			
1.4.1.16	Supply and install armored optical fiber cable of 34SM+18MM fibers as a minimum.	Lin m'			
1.4.1.17	Supply and install 5x10 sq.mm armored concentric power cable.	Lin m'			
1.4.1.18	Supply and install 5x25 sq.mm armored concentric power cable.	Lin m'			
1.4.1.19	Supply and install termination to 5x10 sq.mm split armored concentric power cable.	Item			
1.4.1.20	Supply and install termination to 5x25 sq.mm split armored concentric power cable.	Item			
1.4.1.21	Supply and install termination to armored optical fiber cable for 34SM+18MM	Item			
1.4.1.22	Supply and install armored optical fiber cable joint for 34SM+18MM	Item			
1.4.1.23	Supply and install armored optical fiber cable splicing for 34SM +18MM	Item			
1.4.1.24	Fiber optic cables testing using OTDR including its documentation	Complete			
1.4.1.25	Supply and install armored optical fiber cable of 6 SM include splicing and termination	Lin m'			
1.4.1.26	Supply and install armored optical fiber cable of 6MM include splicing and termination	Lin m'			

Item	Description	Unit	Quantity	Rate	Total (₪)
1.4.2	Gantries and gantry structures				
1.4.2.1	Metal structure work and materials required for adaptation and mounting all signs and other equipment required on an existing <a href="Traffic Control Gantry">Traffic Control Gantry</a> .	Item	27		
1.4.2.1.1					
1.4.2.2	Design Supply and install VMS console gantry structure including its foundations and all preparations required for the installation of a VMS on this Gantry.	Item	1		
1.4.2.2.1					
1.4.3	Electrical Installation works in the TCC for TSCS				
1.4.3.1	Power point from main essential switchboard with 3x2.5 sq. mm cable and 23 mm conduit or plastic Chanel including opening and closing of floating floor and connection to existing switchboard.	Item	5		
1.4.3.2	Ditto but from main existing UPS switchboard.	Item	5		
1.4.3.3	Addition of 1x16A miniature circuit breaker (MCB) in existing switchboard including all the materials and works including terminals.	Item	10		
1.4.3.4	Power outlets box "ADAPLAST" manufacturer D18 type.	Item	5		
1.4.3.5	Inspection of electrical system performed by a certified inspections engineer including submitting of DWGs. Payment for the inspections and repairs as required.	Complete			
1.4.4.	Field electrical works				
1.4.4.1	Electrical switchboard for the vehicle detection station (VDS) as described in the DWG. Made of reinforced self-extinguishing polyester, water proof (IP65), suitable for outside installation on concrete foundation. The switchboard will be size "0" and will include miniature circuit breakers, terminals and all the auxiliary equipment installed on foundation which was prepared by others.	Item	48		
1.4.4.2	Addition to the above switchboard of UPS system similar to the existing UPS on Ayalon Highway but suitable to the equipment supplied by the Contractor, including supply, installation and connection.	Item	48		
1.4.4.3	Addition to the above switchboard of a pair of batteries 12 volt, 75 Ah. (pair of batteries = unit)	Item	48		

Item	Description	Unit	Quantity	Rate	Total (₪)
1.4.4.4	Inspection of the existing cables laid in conduits and manholes between electrical switchboards (FP) and Vehicle Detection Stations outstations (VDS) including connections in the two sides and all the materials and works, opening and closing of manholes etc. (measurements according to quantities of cables.	ltem	48		
1.4.4.5	Electrical and communication installation on gantries to facilitate the installation of field equipment on the gantry, including: cabinets, electrical and communication switchboards and all required equipment, mechanical mounting for all equipment installed, electrical & communication cabling infrastructure from the switchboard to the signs using galvanized steel pipes, reinforced to the bridge with galvanized steel braces, fiber optic /copper communication cabals and 3x2.5 sq. mm N2XY type electrical cables and all the materials and works including a switch near every filed equipment (sign of any sort) to be installed on this gantry.  The electrical switchboard shall be as described in DWG. Made of extinguishing reinforced polyester installed on the bottom level of the bridge, including all the internal equipment, switches, terminals, auxiliary equipment, spare place, door, etc.  (Measurement according to no. of gantries).	Item gantry	27		
1.4.4.6	Inspection of the existing cables laid in conduits and manholes between electrical switchboards (FP) and sign bridges including connections in the two sides and all the materials and works, opening and closing manholes etc. (measurements according to quantities of cables.	Item	27		
1.4.4.7	Inspection of existing earthling systems in sign bridges and their completion including potential equalizing bars, earthling wires etc. all necessary to receive complete earthling systems for sign bridges (measurements according no. of bridges)	Item	27		
1.4.4.8	Inspection of electrical system performed by a certified inspections engineer including submitting of DWGs. Payment for the inspections and repairs as required. Measurements complete for all bridges and VDSs fed from the same switchboard (FP). (Measurements according to no. of FP).	ltem	20		
1.4.4.9	5x16 N2XY cable including laying in existing conduits and connection to switchboard (FP) and sign bridge.	Lin m'	500		
1.4.4.10	35 sq. mm bar copper wire.	Lin m'	500		

Item	Description	Unit	Quantity	Rate	Total (₪)	
1.4.5 Additional Major Items						
1.4.5.1						
	Total of Schedule of prices No' 1. 4 Carried forward to summary					

1.5	Allocated Budget ( In NIS)			Total (₪)
1.5.1	Traffic arrangements and police supervision budget allocated works.	Budget	 	750,000
1.5.2	Publications budget allocated works	Budget	 	150,000
1.5.3	Day work budget allocated works	Budget	 	150,000

# 2.4. Schedule of prices No' 2.5: Project Segment 2 - TSCS Outstations and Field equipment

Item	Description	Unit	Quantity	Rate	Total (₪)
2.5.1	TSCS signaling sub-system				
2.5.1.1	Variable Prism Sign (VPS) 2250X4170 cm'	Item	16		
2.5.1.2	add or subtract 1 sq.m to the VPS sign face	Sq.m	1		
2.5.1.3	All required software adaptation in the TSCS for implementing and integration of all segment 2 field and outstation equipment including VPS's and LCS's	Complete			
2.5.1.4	Communication Access Switches -ruggedized	Item	16		
2.5.1.5	Communication in house passive infrastructure (RJ45)	Item	16		
2.5.1.6	Cabinets for signaling control and communication equipment including all the signaling control and communication equipment and a UPS backup for the communication equipment in the cabinet.	Item	16		
2.5.2	Gantries and gantry structures				
2.5.2.1	Metal structure work and materials required for adaptation and mounting all signs and other equipment required in segment 2, on an existing Traffic Control Gantry.	Item	14		
2.5.2.2	Metal structure work and materials required for adaptation and mounting all signs and other equipment on an existing <u>Static Sign gantry</u> (not designed for traffic control elements).	Item	2		
2.5.3	Additional Major Items				
2.5.3.1	Supply and install 5x10 sq.mm armored concentric power cable.	Lin m'			
2.5.3.2	Supply and install 5x25 sq.mm armored concentric power cable.	Lin m'			
2.5.3.3	Electrical and communication installation on gantries to facilitate the installation of field equipment on the gantry, including: cabinets, electrical and communication switchboards and all required equipment required for the installation of a VPS, mechanical mounting for all equipment installed, electrical & communication cabling infrastructure from the switchboard to the signs using galvanized steel pipes, reinforced to the bridge with galvanized steel braces, fiber optic /copper communication cabals and 3x2.5 sq. mm N2XY type electrical cables and all the materials and works including a switch near every filed equipment (sign of any sort) to be	Item gantry	2		

Item	Description	Unit	Quantity	Rate	Total (₪)
2.5.3.4	installed on this gantry. The electrical switchboard shall be as described in DWG. Made of extinguishing reinforced polyester installed on the bottom level of the bridge, including all the internal equipment, switches, terminals, auxiliary equipment, spare place, door, etc. (measurement according to no. of gantries). Inspection of electrical system performed by a certified inspections engineer including submitting of DWGs. Payment for the	ltem	16		
2.5.3.5	inspections and repairs as required.  Measurements complete for every gantry.	nem	10		
2.5.5.5					
Total of	Schedule of prices No' 2.5 Carried forward to	summary			

# 2.5. Schedule of prices No' 3.6: Project Segment 3 - TSCS Outstations and Field Equipment

Item	Description	Unit	Quantity	Rate	Total (₪)
3.6.1	TSCS signaling sub-system	_	_		
3.6.1.1	Lane Control Sign (LCS)	Item	1		
3.6.1.2	Variable Message Sign (VMS) Type A	Item	1		
3.6.1.3	Variable Message Sign (VMS) Type B	Item	1		
3.6.1.4	Variable Message Sign (VMS) Type C	Item	1		
3.6.1.5	Variable Message Sign (VMS) Type D	Item	1		
3.6.1.6	Variable Message Sign (VMS) Type E	Item	1		
3.6.1.7	Variable Message Sign (VMS) Type F	Item	1		
3.6.1.8	Backbone switches for AHCo TCC Specification no# 4.2.17.1 The backbone switches will have redundant dual power supply. MTBF > 240,000 hours	Item	1		
3.6.1.9	Communication Access Switches -ruggedized MTBF > 150,000 hours	Item	1		
3.6.1.10	Communication in house passive infrastructure (RJ45)	Item	1		
3.6.1.11	Cabinets for signalling control and communication equipment including all the signalling control and communication equipment and a UPS backup for the communication equipment in the cabinet.	Item	1		
3.6.1.12	Design development installation and integration of interface for third party LCS or VMS device including all software required in the TSCS for functional system.	Item	1		
3.6.1.13	Electrical and communication installation on new gantries or renewal/ upgrading of existing gantries.  The work includes the installation or replacement (in case of an existing gantry) of the infrastructure to facilitate the installation of field equipment such as LCS and/or VMS the gantry including all hardware and software required on site and in the TSCS for a fully functional system. The work includes but is not limited to: Cabinet, Electrical and communication switchboard and all required equipment, mechanical mounting for all equipments installed, electrical, communication and cabling infrastructures from the switchboard to the signs using galvanized steel pipes, reinforced to the bridge with galvanized steel braces, fibre optic / copper communication cabals and 3x2.5 sq. mm N2XY	Item gantry	1		

Item	Description	Unit	Quantity	Rate	Total (回)
	type electrical cables and all the materials and works including switch near every field equipment (sign of any sort) to be installed on this gantry.  Measurement according to no. of gantries.				
3.6.2	TSCS Vehicle Detection Sub-System				
3.6.2.1	VDS for Inductive Loop Detectors including all the software, control and communication equipment required for a complete functional VDS outstation.	Item	1		
3.6.2.2	Inductive Loop Detector device (DSU) for up to 4 (four) physical loop	Item	1		
3.6.2.3	Inductive Loop Detector device (DSU) for up to 16 (sixteen) physical loop	Item	1		
3.6.2.4	Dual Inductive Loop (2 loops) for one lane in the Mainline Detection Sites (MDS)	Item	1		
3.6.2.5	Single Inductive Loop (1 loops) for one lane in the Exit ramps Detection Sites (EDS)	Item	1		
3.6.2.6	VDS for Magnetometers Detectors including all the software, control, all necessary polls and mounting hardware and communication equipment required for a complete functional VDS outstation (in the MDS or EDS sites).	Item	1		
3.6.2.7	Repeater (including battery pack for 10 yr. operation) for VDS for Magnetometers Detectors	Item	1		
3.6.2.8	Single Magnetometers Detector (DSU) (Stad) to be installed in the lane (in the MDS or EDS sites) Includes reusable envelopes, sealing material etc.	Item	1		
3.6.2.9	VDS/DSU for Microwave Detectors including all the software, control, all necessary polls and mounting hardware and communication equipment required for a complete functional VDS/DSU outstation (in the MDS or EDS sites).	Item	1		
3.6.2.10	Cabinets for Vehicle Detection outstations including all necessary equipment fixtures for installing the VDS control and communication equipment.	Item	1		
3.6.2.11	Power Cabinet (UPS) for the Vehicle Detection outstations, including UPS for the Vehicle Detection outstations including all necessary equipment fixtures, UPS batteries, and UPS control and communication equipment and including all necessary equipment fixtures for installing the UPS.	Item	1		

Item	Description	Unit	Quantity	Rate	Total (回)
3.6.3	Other Items				
3.6.3.1	Dismantling an existing LCS from existing gantry (more than 3 LCS per one gantry) including removal and disposal according to AHCo instruction	Item	1		
3.6.3.2	Dismantling an existing LCS from existing gantry (up to 3 LCS per one gantry) including removal and disposals according to AHCo instruction	Item	1		
3.6.3.3	Dismantling an existing VMS from existing gantry including removal and disposal according to AHCo instruction	Item	1		
3.6.3.4	Dismantling an existing cabinet of any Type including all necessary removal and disposal according to AHCo instruction	Item	1		
3.6.4.	Integration works of third party equipment				
3.6.4.1	Participation on behalf of AHCo in the AHCo's design team for implementing of third party field equipment to be incorporated in the TSCS (i.e. VMS, LCS, VDS, DSU, field UPS) including Preparation of all required design, specification and documentation (i.e. ICD, testing procedures) as required by AHCo for this Purpose (per project).	Item	1		
3.6.4.2	Design, development and implementation of all required TSCS software interfaces and HMI interfaces for the integration of third party field equipment to be incorporated in the TSCS (i.e. VMS, LCS, VDS, DSU, field UPS) as required by AHCo (per project).	Item	1		
3.6.4.3	Implementing all data and configuration definitions in TSCS data base and in TSCS software as required of all third party field equipment to be incorporated in the TSCS (i.e. VMS, LCS, VDS, DSU, field UPS) as required by AHCo ( per project).	Item	1		
3.6.4.4	Design of all changes required in the TSCS communication infrastructure required for implementing of all third party field equipment to be incorporated in the TSCS (i.e. VMS, LCS, VDS, DSU, field UPS) as required by AHCo ( per project).	Item	1		
3.6.4.5	Participation on behalf of AHCo in the equipment acceptance test (per site)	Item	1		

Item	Description	Unit	Quantity	Rate	Total ( ₪ )
3.6.4.6	Design, development and implementation of all required TSCS C2C software interfaces and HMI interfaces for the integration and data exchange with third party or AHCo's central systems or subsystems (i.e. other TSCS software that aren't mention in the Turnkey SOW) as required by AHCo.	Item	1		
Т	otal of Schedule of prices No' 3.6 Carried forewo	rd to su	mmary		

# 2.6. Schedule of prices No' 3.7: Project Segment 3 - Field Infrastructure, Communication, Gantry and Miscellaneous

Item	Description	Unit	Quantity	Rate	Total (回)
3.7.1	Cabling and Infrastructure		<u> </u>		
3.7.1.1	(According to plan -9701-412)  Design of Power and communication infrastructure for one installation site( include all necessary for the design , plan and As-Made )	Site	1		
3.7.1.2	Inspection of existing ducts and infrastructure include but not limited to, "Mendroll", detection, inspection of the manhole etc.'	day	1		
3.7.1.3	Excavate a tranche for ducts according to item A including laying all needed Pipes	Lin m'	1		
3.7.1.4	Excavate a trench for ducts according to item B including laying all needed pipes	Lin m'	1		
3.7.1.5	Excavate a trench for ducts according to item C including laying all needed pipes	Lin m'	1		
3.7.1.6	Excavate a trench for ducts according to item D including laying all needed pipes	Lin m'	1		
3.7.1.7	Excavate a trench for ducts according to item E including laying all needed pipes	Lin m'	1		
3.7.1.8	Excavate a trench for ducts according to item F including laying all needed pipes	Lin m'	1		
3.7.1.9	Supply Conduction concatenation Pipes for Underground Installation of Electrical and Communication Lines Model: "Cobra" or "Magnum" or equal. Diameters: 110 mm with 8 mm Pulling rope According to ISI 1531 ISI 499, ISO 4427	Lin m'	1		
3.7.1.10	Supply (HDPE) Multi-layered Conduction Pipes- (YAKA 11 יק"ע ) in accordance with Bezeq standard and ISI 1531, fit for Conducting Optic fibres and commercial communication Diameter:75 mm supplied with a standard 8 mm pulling rope, SDR: 11 Outer color lines: According to customer's specifications ( red , green , yellow , orange)	Lin m'	1		
3.7.1.11	Supply (HDPE) Multi-layered Conduction Pipes- (YAKA ע 11") in accordance with Bezeq standard and ISI 1531, fit for Conducting Optic fibres and commercial communication Diameter:50 mm supplied with a standard 8 mm pulling rope, SDR: 11 Outer color lines: According to customer's	Lin m'	1		

Item	Description	Unit	Quantity	Rate	Total (回)
	specifications ( red , green , yellow , orange)				
3.7.1.12	Supply and install of Manhole of 80cm' internal diameter till 2m' digging with 40 ton cover according to item and steps/ladder.( according to item H)	Item	1		
3.7.1.13	Supply and install of Manhole of 60cm' internal diameter till 2m' digging with 25 ton cover according to item and steps/ladder.( according to item H)	Item	1		
3.7.1.14	Supply and install of Manhole of 100cm' internal diameter till 2m' digging with 40 ton cover according to item and steps/ladder.( according to item H)	Item	1		
3.7.1.15	restoring existing manhole include cleaning, fixing of the ring, cement, gravel and new cover with AHCo traffic control logo	Item	1		
3.7.1.16	Restoring and cleaning two (2) manhole and all the joint trench \ Conduction between them including: opening blockage, clean from all kind of waste, spreading pulling rope (8 mm made of bundle nylon), filling 5 cm of gravel  This paragraph include all the required equipment include, but not limited, sewage truck (high pressure water pipe), water, man-hours etc.	Item	1		
3.7.1.17	Supply and install armoured Main optical fiber cable combined of 34SM+18MM	Lin m'	1		
3.7.1.18	Supply and install termination to armored optical fiber cable for of 34SM+18MM	Item	1		
3.7.1.19	Supply and install armored optical fiber cable splicing for 34SM+18MM	Item	1		
3.7.1.20	Supply and install armored optical fiber cable of 6SM include splicing and termination	Lin m'	1		
3.7.1.21	Supply and install armored optical fiber cable of 6MM include splicing and termination	Lin m'	1		
3.7.1.22	Fiber optic enclosure applied for the Main Optical Cable	Item	1		
3.7.1.23	Outdoor one day working ( installing fiber optic , enclosure , splicing using fiber optic outdoor splicer, OTDR testing )	Item	1		
3.7.1.24	Fiber optic cables testing using OTDR including its documentation	Item	1		
3.7.1.25	Supply and install 5X10 sq.mm armored concentric power cable.	Lin m'	1		

Item	Description	Unit	Quantity	Rate	Total (回)
3.7.1.26	Supply and install 5x16 sq.mm armored concentric power cable.	Lin m'	1		
3.7.1.27	Supply and install 3X16 sq.mm armored concentric power cable.	Lin m'	1		
3.7.1.28	Supply and install 3x10 sq.mm armored concentric power cable.	Lin m'	1		
3.7.1.29	Supply and install 4x50 sq.mm armored concentric power cable.	Lin m'	1		
3.7.1.30	Supply and install 4x35 sq.mm armored concentric power cable.	Lin m'	1		
3.7.1.31	Supply and install termination to 5x10 sq.mm split armoured concentric power cable.	Item	1		
3.7.1.32	Supply and install termination to 5x16 sq.mm split armoured concentric power cable.	Item	1		
3.7.1.33	Supply and install termination to 3x16 sq.mm split armoured concentric power cable.	Item	1		
3.7.1.34	Supply and install termination to 3x10 sq.mm split armoured concentric power cable.	Item	1		
3.7.1.35	Supply and install termination to 4x50sq.mm split armoured concentric power cable.	Item	1		
3.7.1.36	Supply and install termination to 4x35sq.mm split armoured concentric power cable.	Item	1		
3.7.1.37	Supply and installation Base Type A according to item K	Item	1		
3.7.1.38	Supply and installation Base Type B according to item J	Item	1		
3.7.1.39	Supply and installation Base Type C according to item I	Item	1		
3.7.1.40	35 sq. mm bar copper wire.	Lin m'	1		
3.7.1.41	Grounding Electrode diameter 19 mm depth up to 6 m Include 60mm manhole for the electrode	Item	1		
3.7.1.42	Category 7 cables	Lin m'	1		
3.7.1.43	Loop Feeder Cable	Lin m'	1		
3.7.2	Gantries and gantry structures				
3.7.2.1	Metal structure work and materials on existing gantries required for adaptation and mounting all sign and other equipment on it.	Site	1		
3.7.3	Electrical Installation works in the TCC for TSCS				
3.7.3.1	Power point from main essential switchboard with 3x2.5 sq. mm cable and 23 mm conduit or plastic channel including opening and closing of floating floor and connection to existing switchboard.	Item	1		
3.7.3.2	Ditto but from main existing UPS switchboard.	Item	1		

Item	Description	Unit	Quantity	Rate	Total (回)
3.7.3.3	Addition of 1x16A miniature circuit breaker (MCB) in existing switchboard including all the materials and works including terminals.	Item	1		
3.7.3.4	Power outlets box "ADAPLAST" manufacturer D18 type.	Item	1		
3.7.3.5	Inspection of electrical system performed by a certified inspections engineer including submitting of DWGs. Payment for the inspections and repairs as required.	Item	1		
3.7.4.	Field electrical works				
3.7.4.1	Electrical switchboard for the vehicle detection station (VDS) as described in the DWG. Made of reinforced self-extinguishing polyester, water proof (IP65), suitable for outside installation on concrete foundation. The switchboard will be size "0" and will include miniature circuit breakers, terminals and all the auxiliary equipment installed on foundation which was prepared by others.	Item	1		
3.7.4.2	Addition to the above switchboard of UPS system similar to the existing UPS on Ayalon Highway but suitable to the equipment supplied by the Contractor, including supply, installation and connection.	Item	1		
3.7.4.3	Addition to the above switchboard of a pair of batteries 12 volt, 75 Ah. (pair of batteries = unit)	Item	1		
3.7.4.4	Inspection of the existing cables laid in conduits and manholes between electrical switchboards (FP) and Vehicle Detection Stations (VDS) including connections in the two sides and all the materials and works, opening and closing of manholes etc. (measurements according to quantities of cables.	Item	1		
3.7.4.5	Electrical switchboard for traffic signs bridge as described in DWG. Made of extinguishing reinforced polyester installed on the bottom level of the bridge, including all the internal equipment, switches, terminals, auxiliary equipment, spare place, door, etc.	Item	1		
3.7.4.6	Inspection of the existing cables laid in conduits and manholes between electrical switchboards (FP) and sign bridges including connections in the two sides and all the materials and works, opening and closing manholes etc. (measurements according to quantities of cables.	Item	1		
3.7.4.7	Inspection of existing earthling systems in sign bridges and their completion including potential equalizing bars, earthling wires etc. all necessary to receive complete earthling systems for sign bridges (measurements according no. of bridges)	Item Gantry	1		

ltem	Description	Unit	Quantity	Rate	Total (₪
3.7.4.8	Inspection of electrical system performed by a certified inspections engineer including submitting of DWGs. Payment for the inspections and repairs as required. Measurements complete for all bridges and LDO'S fed from the same switchboard (FP). (Measurements according to no. of FP).	Item	1		
3.7.4.9	Dismantling of existing old switchboard in the bottom of sign bridge and replacing it with new switchboard including supply install and connect of new electrical switchboard.	Item	1		
3.7.4.10	Disconnection of the existing electrical system from the existing LDO and connecting it to new equipment.	Item	1		
3.7.4.11	Foundation grounding for a VMS Console in cross (section 324 approx) according to plan and Israeli standard 4271 including all materials and welding works.	Item	1		
3.7.4.12	Connection of the new VMS Console in cross (section 324 approx) to the existing TSCS including 80 cm. dia manholes with D400 covers. Connecting to the existing infrastructure, and 2x75 mm. conduits between manhole and bridge.	Item	1		
3.7.5.	Engineering\ Programming hourly work rate				
3.7.5.1	Senior computer hardware\software engineer	hour	1		
3.7.5.2	Computer hardware\software engineer	hour	1		
3.7.5.3	Senior software programmer	hour	1		
3.7.5.4	Software programmer	hour	1		
3.7.6.	Central TSCS servers hardware (for TAMCC)			<u>l</u>	
	Important: Quantities (and Prices) for items in this section should be identical to the same items those in segment 1 (1.1.1).				
3.7.6.1	TSCS Servers (primary and secondary backup server)	Item			
3.7.6.2	C2C server and external interface server	Item			
3.7.6.3	Database Servers (primary and secondary backup server)	Item			
3.7.6.4	Disk Storage Array	Item			
3.7.6.5	Simulation Server	Item			
3.7.6.6	Central Synchronizations system server (e.g. for NTP services)	Item			
3.7.6.7	Servers equipment cabinet of 19" 42 U	Item			
3.7.6.8	Professional color laser printer	Item	1		
3.7.7	TSCS workstations (for TAMCC)  Important: Quantities (and Prices) for items in this section should be identical to the same items those in segment 1 (1.1.2).				
3.7.7.1	Multiple screen Engineer / Modeler Workstation including OS and required software / equipment	Item	1		

Item	Description	Unit	Quantity	Rate	Total (₪)
3.7.7.2	Multiple screen local Operator Workstation including OS and required software / equipment	Item	4		
3.7.7.3	Single screen Administrator Workstation including OS and required software / equipment	Item	1		
Total of Schedule of prices No' 3.7 Carried forward to summary					

#### 2.7. Total TSCS Contractor proposal

	SOP	Description	Total( 回 )
Α	1.1	Project Segment 1 - TSCS central hardware in the TCC	
В	1.2	Project Segment 1 - TSCS central Software in the TCC	
С	1.3	Project Segment 1 - TSCS Outstations and Field equipment	
D	1.4	Project Segment 1 - Field Infrastructure, Communication, gantry and miscellaneous	
		Total price proposal for Project Segment 1	

	SOP	Description	Total(ש"ח)
Е	2.5	Project Segment 2 - TSCS Outstations and Field equipment	
		Total price proposal for Project Segment 2	

	SOP	Description	Total(ש"ח)
F	3.6	Project Segment 3 - TSCS Outstations and Field Equipment	
G	3.7	Project Segment 3 - Field Infrastructure, Communication, Gantry and Miscellaneous	
		Total price proposal for Project Segment 3.	

Remark: for the purpose of evaluating the proposal, the Company will calculate the total price for segment 3 in accordance with the quantities set forth in Appendix 17 of the "Volume A - Tender Conditions and Instructions".

	Item	Segment 4 SOP items Description	Percent (%)
Н	4.8	Yearly Support Services for maintenance of the equipment hardware and software, including all temporary traffic arrangements required to perform the work.  The percentage of the applicable consideration paid under the Agreement in connection with the items for which Support Services are selected by Company at its discretion. The percentage shall not be higher than 12% or lower than 5%.	

The evaluation of the price proposal shall be as defined in "Volume A - Tender Conditions and Instructions".