A Request for Information (RFI)

with respect to Monitoring Units for the "Derech Erech" Project

חברת נתיבי איילון בע"מ רחוב שדרות נים 2, ראשון לציון, מיקוד 7546302
טלפון: 03-6931212 פקס: 03-6931270

1. Background

1.1. Ayalon Highways Highways Ltd. (hereinafter: "**the Company**" or "**Ayalon Highways Highways**") is a governmental company responsible for promoting the planning and execution of transportation projects, and constitutes the executive arm of the Ministry of Transport.

1.2. The Company is currently working on the "Derech Erech" project (hereinafter: "**the Project**"), aimed at exploring ways to focus the bulk of payments on the varying costs in the automotive industry, increase the fill coefficient, and create a better internalization of the external costs among private vehicle drivers.

1.3. As part of the intention to expand the project, the Company is examining the existence technical solutions for policy implementation, which concerns the crediting or billing of vehicles in Israel in accordance with their contribution to traffic congestion. One of the examined alternatives was the use of monitoring units with advanced capabilities (hereinafter: "**the Monitoring Unit**" or "**the Solution**").

1.4. In light of this, the Company hereby requests information pertinent to monitoring units which can be installed in a vehicle, as detailed in this request (hereinafter: "**the Request**").

2. Derech Erech Project

2.1. In 2010, the government of Israel passed a resolution (number 2008) in the framework of which the Minister of Finance and the Minister of Transport and Road Safety were tasked with appointing a professional committee for examining a multi-year process, the objective of which is to focus the bulk of the payments on the variable costs in the automotive industry, increase the fill coefficient and create a better internalization of the travel costs among private vehicle passengers, as well as to examine how the aforementioned can be implemented while protecting the right to privacy. The government resolution included, inter-alia, the authority to conduct an experiment to examine the various implications of the aforementioned processes.

2.2. Following the aforementioned government resolution, beginning in 2013, several experiments were conducted ('Transitioning to Green 1' and 'Transitioning to Green 2').

2.3. Following the previous experiments, and to draw conclusions regarding the required validity for implementing a crediting and billing policy, which is likely to apply to many citizens, it was decided to conduct the Project, which will include an extensive and continuous trial in an operational-like format.

2.4. The Project began operating in May 2019. The Project is carried out by 3 operators selected in the framework of Tender No. 21/18 (hereinafter: "the Operators'). During the first phase, the Project is intended to include about 100,000 volunteers, who will be recruited gradually for the experiment. The duration of the planned experiment is 7 years.

3. Description of Need

3.1. The Company seeks to examine massive equipping with monitoring devices, including existing devices or devices at the development or implementation stages, which will enable location of vehicles, and will constitute the basis for calculating travel costs (hereinafter: "the Service"). It must be clarified that the suggested Solution was considered relatively to other solutions that need not be mentioned in the framework this inquiry. The Solution must enable location of vehicles all over the State of Israel, as well as calculation of travel costs based on several parameters, including:

3.1.1. Date and time of travel – the Solution shall enable to distinguish between travel days and hour ranges (for example-morning, afternoon, and evening)

3.1.2. Location of the vehicle in Israel – the Solution will enable identification based on entrance and exit from various polygons to be defined across the country.

3.2. In addition to the aforementioned, the Solution must meet the detailed requirements below, and the Company seeks to receive information about the manner and extent of response provided by the Solution and how it meets the following requirements:

3.2.1. The Solution must have a high level of accuracy, as far as is possible, to determine time and location.

3.2.2. The ability to transfer information within an available medium and with high survivability is required.

3.2.3. A Solution with a high level of reliability, and with the ability to prevent the occurrence of fraud as far as is possible is required.
3.2.4. The Solution must enable simple, covert, and fast installations in large masses.
3.2.5. The Solution must be implementable for all types of vehicles in Israel (both in terms of model and year of manufacture).
3.2.6. The Solution must meet strict privacy protection requirements and prevent 'leakage' of information to unauthorized entities.
3.2.7. The Solution must have minimum maintenance requirements and high MTBF.
3.2.8. The Solution must be as inexpensive as possible in all its aspects (purchase,installation,operation,communication,and maintenance).

3.3. Additional assumptions for the response to this Request:

3.3.1. The solution shall we operational all over the state of Israel.
3.3.2. The Solution is liable to be required for all types of vehicles in Israel (about 4 million vehicles).
3.3.3. A Solution that is already under commercial implementation or in development stages may be proposed. Please detail the state of the Solution (is it currently implemented, is it in development stages or other stages), and if the proposed Solution is in development stages – present a plan for the completion of development and preparedness for commercial supply.
3.3.4. The information will be collected by private companies.
3.3.5. The proposed Solution may rely on any feasible communication medium.

3.4. In principle, the Company seeks to examine 2 types of solutions (Monitoring Units):

a. <u>Central processing format</u>
The Monitoring Unit will serve for collection of gross information only (such as: time of travel and location of the vehicle during the trial). The gross information will be continuously forwarded to the factories' central server. The method of transfer of information to the server will be presented and detailed in the framework of the proposed Solution.
b. <u>End unit processing format</u>

The Monitoring Unit will serve both for the collection of raw information and for its processing, in accordance with the algorithm to be determined. The results of the calculation only (such as – time of travel and the polygon in which the vehicle is located) will be forwarded continuously to the central server.

4. Response to the Request

4.1. In the framework of the response to the Request, the following information must be provided:

4.1.1. **Appendix A – general information about the respondent**: controlling entities, respondent's years of activity, key personnel (CEO, VPs and development personnel) and main technologies on which the respondent's activity is based. To be completed in the form attached as Appendix A.

4.1.2. **Appendix B – Technical specifications of the proposed Solution:** General technical specification (SPEC) of the proposed Monitoring Unit (hereinafter: "**the Basic Monitoring Unit**"). The specification will be made in accordance with, and in reference to the list of subjects attached as Appendix B. Attach catalogues, link to websites, or any other source to the Requested information (if any).

4.1.3. **Appendix C – Costs Details: In Appendix C,** the respondent is requested to detail his offer for the supply of the monitoring component and the costs of the installation.

4.1.4. **Appendix D – Sensitivity analysis for additional capacities of the Basic Monitoring Unit** – The objective of the analysis is to allow the Company to examine alternatives for improving the compatibility of the Monitoring Units to the objectives defined by the Company, on various implementation levels. Appendix D details several alternatives for the features of the Basic Monitoring Unit. The respondents are requested in this appendix to refer to the influence of the implementation level on the unit cost (both the purchase costs and the maintenance costs). Levels may be referred

to in ranges (such as 'price increase of 5-10%') and exact numbers are not required. For example – the accuracy of time in the basic unit is 4 seconds. Improvement of accuracy to 2 seconds will lead to a 10% increase in the unit costs, but does not change the maintenance cost. The respondent will indicate in the 'Change in Unit Cost' column "+10%", and indicate in the 'Ownership Maintenance Change" - "0%". The respondent may add to the table a list of additional topics, if any, which he believe to be relevant and may influence the examination of the proposed Solution and its comparison to other solutions (whether proposed in the framework of an information receipt process or other sources).

4.1.5. **Appendix E – Information on the implementation of the proposed Solution in Israel and worldwide:** This information will be submitted as Appendix E. In this approval, the respondent will be requested to present details about clients in Israel and/or worldwide, for which the proposed Monitoring Unit has been installed, including number of installed units and duration of installation, as detailed in Appendix D, as well as additional relevant information, insofar as shall exist.

4.1.6. **Appendix F – Aspects of operation and maintenance:** The respondent must submit a general description of the implementation processes for the solution, including operational and maintenance aspects. The respondent will refer to the issues detailed in Appendix F, as well as to the most updated versions of the Monitoring Unit.

5. General instructions

5.1. The response is to be submitted in Hebrew or English, along with the required documents and information as detailed above, including any relevant information such as a presentation, film, photos, documents, experiments, etc.

5.2. The response shall be submitted via email: shanim@ayalonhw.co.il, no later than 18.2.2020.

5.3. Questions or requests for clarification regarding this Request may be submitted no later than 16.2.2020, via the above email address.

5.4. This Request is not an invitation to submit offers, and is not part of a tender procedure and/or any competitive procedure, and thus does not constitute any obligation to any of the respondents. The Request is intended for the receipt of information only, in accordance with what is specified, and upon receipt of the information, the Company will consider further activities regarding the Request, if any.

5.5. This Request does not constitute any obligation on the part of the Company to publish a tender and/or competitive procedure regarding this Request, or collaborate with any entity for a future tender if any, and this procedure does not constitute an obligation or promise to the participants and/or any person and/or entity.

5.6. Response to this Request does not provide advantage in the aforementioned tender/competitive procedure, if any, and it does not ensure the meeting of threshold conditions or any other condition regarding the aforementioned tender/competitive procedure.

5.7. Should the Company decide to issue a tender/competitive procedure as mentioned above, it may establish requirements in the tender/competitive procedure which differ from those presented in this Request, and it may at its discretion, be entitled to establish terms which are additional to or different from those presented in this Request.

5.8. The Company will be entitled to request clarifications, completions, or additional information from anyone responding to this Request or from any other entities, all as it deems fit.

5.9. The Company may summon any of the respondents to present its Solution before its representatives. It must be clarified that the Company is not obliged to summon all respondents.

5.10. The Company regards favorably invitations for demonstrations of the Monitoring Units at the respondent's sites, in the manner to be selected by the respondent.

5.11. Every respondent to this Request declares that he agrees that the Company may use the information provided by him, whether in full or in part, for preparation of the tender or for any other purpose as it deems fit.

5.12. The respondents to this Request are requested to indicate the data and/or documents included in the response submitted by them which to their opinion constitute a trade secret. Subject to any law, Ayalon Highways will maintain confidentiality and will not disclose and/or forward any information that constitutes a trade secret which came into its possession in the framework of this Request, apart for the workers of Ayalon Highways and consultants on its behalf, for whom the aforementioned information is necessary to fulfill their roles. In addition, it is hereby clarified that the respondent to the

Request may submit documents and references in which details that are not relevant to this Request are censored.

5.13. The respondent to this Request hereby declares that he relinquishes any claim, including regarding intellectual property rights and/or suit and/or demand from the Company and/or anyone on its behalf and/or from the Ministry of Transport for the information included in the framework of his response to this Request, or in the framework of subsequent requests for clarification.

5.14. All expenses entailed in the preparation of a response to this Request and its submission are the sole responsibility of the respondents and at their own expense. The respondents will not be entitled to any compensation or indemnification or refund or any payment whatsoever from the Company for submitting the response to this Request, and the Company will have no responsibility in this regard.

5.15. A respondent who submits information as a response to this Request undertakes that in the framework of the submitted information and/or any use of it, no rights shall be violated, including property rights or trade secrets of any third party. The respondent will be the sole bearer of responsibility for any demand and/or claim derived from the claim that the aforementioned third party rights were violated.

5.16. The Company may revoke this Request at any stage for any reason whatsoever.

5.17. It must be clarified that Ayalon Highways does not undertake to select any technology to be proposed in the framework of this Request, and that it may elect not to implement any technology to be offered in the framework of this Request, and all at its sole discretion.

Appendix A – Details of the Respondent to the Request for Information

Name:_____ corporate/authorized dealer number:_____

Year of establishment:_____ address:_____

Name of the respondent's contact person:_____ position:

_____

Tel:_____ email:_____

Fields of activity: _____

Key technologies on which the respondent's activity is based:

_____

_____

_____

Controlling entities in the respondent (indicate the entities controlling at least 25% of the respondent):

_____

Key personnel – CEO, VPs and development personnel:

_____

_____

_____

_____

*You may add additional documents and any relevant information.

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Appendix B – The Basic Technical/Technological specification of the Monitoring Units Proposed by the Respondent

The respondent is requested to detail in this appendix the technical/technological specification of the Basic Monitoring Unit proposed by him. In addition, the respondent is requested to attach to his response a full technical specification of the monitoring unit.

Refer to the subjects detailed in the attached table.

Detail additional relevant topics.

	Feature	Existent/non-existent	Details
1	Product and model		
2	Manufacturer (including country of manufacture)		
3	Date of commencement of manufacturing		
4	Method of locating the monitoring unit		
5	Time signature method		
6	Level of accuracy of time calculation (in seconds)		
7	Method for measuring travel distances		
8	Sensitivity of GPS data		
9	Level of accuracy of GPS data		
10	Communication medium. In the case of a cellular communication, indicate the generation of the cellular communication.		
11	Capacity of internal data maintenance in the unit		
12	Bluetooth connection		
13	Package description		
14	Physical dimensions (length, width and height)		
15	Location of installation of a monitoring unit in the vehicle and the method of its physical and covert anchoring to the vehicle's body		
16	Energy consumption during travel		
17	Energy consumption when the vehicle is not motorized		
18	Main energy source and backup		
19	Connection to the vehicle's electricity		

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	Feature	Existent/non-existent	Details
20	Additional possible connections		
21	Processor		
22	Internal memory component		
23	Means for preventing cyber-attacks against the vehicle's electrical system		
24	Means for alerting disconnection of the monitoring unit		
25	Means for alerting harm to the information accumulated in the monitoring unit		
26	Ability to detect failures and handle them via remote connection		
27	Ability to update perimeters and software via remote control		
28	Compatibility with standards of environmental protection		
29	Compatibility with standards for wetness and particles		
30	Compatibility with fire safety standards		
31	Compatibility with electrical equipment standards		
32	Compatibility with standards for travel monitoring systems, functional requirements		
33	Life cycle of the monitoring unit		
34	MTBF		
35	Ability to measure the vehicle's travel distances		

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Appendix C – Costs of Monitoring Units According to the Basic Technical Specification in Appendix B

Subject	Component	Respondent's offer
Cost of Basic Monitoring Unit	Basic cost for one monitoring unit	_____NIS per unit
	Cost per unit in case of a centralized procurement of 500,000 Monitoring Units	_____NIS per unit
	Cost per unit in the case of a centralized procurement of 1,000,000 Monitoring Units	_____NIS per unit
	Cost per unit in the case of a centralized procurement of 4,000,000 Monitoring Units	_____NIS per unit
Installation cost	Cost of a single installation at the installer on behalf of the respondent to this call for proposal	_____NIS per unit
	Cost of a single installation at the client's vehicle	_____NIS per unit
	Percentage of discount of the installation cost for a million installations of Monitoring Units at the installer on behalf of the respondent to this call for proposal	_____%
	Percentage of discount of the installation cost for a million installations of Monitoring Units at the client	_____%
Cost of maintenance	Cost of annual maintenance	_____NIS per unit

Appendix D – Sensitivity Analysis for Changes in the Requirements for the Monitoring Units' Features

Instructions for completing the table:

The purpose of the table is to examine the sensitivity of the system components to higher requirements.

Fill in the required information in the empty cells of below table.

For every subject and improvement stage for the Basic Monitoring Unit, the respondent must indicate the improvement level and provide the cost of the improvement stage for the Basic Monitoring Unit and the cost of it maintenance.

The respondent may submit on a separate form details about the improvement stages, as required in the aforementioned table.

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Subject	Perimeter	Improvement stages for a Basic Monitoring Unit	Details about the improvement stage (to be filled by the respondent)*	Cost of the improvement stage for a Basic Monitoring Unit	Cost of maintenance of the improvement stage for a Basic Monitoring Unit
location method	Data	GPS		_____ NIS per unit	_____ NIS per unit
		Multi GNSS	*Indicate the type and number of systems that will operate simultaneously	_____ NIS per unit	_____ NIS per unit
		Other		_____ _NIS per unit	_____ NIS per unit
Level of accuracy of time calculation	Seconds	Up to 2 seconds		_____ _NIS per unit	_____ NIS per unit
		Up to 1 second		_____ _NIS per unit	_____ NIS per unit
Sensitivity of GPS data	Db	140		_____ _NIS per unit	_____ NIS per unit
		160		_____ _NIS per unit	_____ NIS per unit
		180		_____ _NIS per unit	_____ NIS per unit
Level of accuracy of GPS data	CEP	50		_____ _NIS per unit	_____ NIS per unit
		25		_____ _NIS per unit	_____ NIS per unit
		10		_____ _NIS per unit	_____ NIS per unit
Internal data maintenance capacity per unit	MB	128		_____ _NIS per unit	_____ NIS per unit
		256		_____ _NIS per unit	_____ NIS per unit
		512		_____ _NIS per unit	_____ NIS per unit
		1024		_____ _NIS per unit	_____ NIS per unit

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Subject	Perimeter	Improvement stages for a Basic Monitoring Unit	Details about the improvement stage (to be filled by the respondent)*	Cost of the improvement stage for a Basic Monitoring Unit	Cost of maintenance of the improvement stage for a Basic Monitoring Unit
Backup electricity for continued activity in case of disconnection from the vehicle's electricity	Hours	Without			
		2		_____ _NIS per unit	_____ NIS per unit
		4		_____ _NIS per unit	_____ NIS per unit
		6		_____ _NIS per unit	_____ NIS per unit
Device disconnection alert	Component	Without			
		Tamper switch		_____ _NIS per unit	_____ NIS per unit
		Other		_____ _NIS per unit	_____ NIS per unit
Means and mechanisms for preventing fraudulent activities beyond the disconnection of the device	Component	Without			
		Loss of communication		_____ _NIS per unit	_____ NIS per unit
		Additional sim		_____ _NIS per unit	_____ NIS per unit
		Loss of GPS signal		_____ _NIS per unit	_____ NIS per unit
		Other		_____ _NIS per unit	_____ NIS per unit
Pace of data transfer to the core system	Time	Once a day		_____ _NIS per unit	_____ NIS per unit
		Once an hour		_____ _NIS per unit	_____ NIS per unit
		Once in 5 minutes		_____ _NIS per unit	_____ NIS per unit
		Online		_____ _NIS per unit	_____ NIS per unit
Method for maintaining data privacy	General	Information processing in the monitoring unit and forwarding of relevant information for calculation only		_____ _NIS per unit	_____ NIS per unit

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Subject	Perimeter	Improvement stages for a Basic Monitoring Unit	Details about the improvement stage (to be filled by the respondent)*	Cost of the improvement stage for a Basic Monitoring Unit	Cost of maintenance of the improvement stage for a Basic Monitoring Unit
		Use of HSM servers		_____ NIS per unit	_____ NIS per unit
Information security standards	Type of standard	Without meeting the standards		_____ NIS per unit	_____ NIS per unit
		Israeli		_____ NIS per unit	_____ NIS per unit
		Other		_____ NIS per unit	_____ NIS per unit
Compatibility of the monitoring unit with standards for protection against water	Units	Without			
		Protected according to the IP 40 standard		_____ NIS per unit	_____ NIS per unit
		Other		_____ NIS per unit	_____ NIS per unit
Compatibility of the monitoring unit with radiation standards	Units	CE: Directive2014/53/EU (RED)		_____ NIS per unit	_____ NIS per unit
		FCC Part 15 class B		_____ NIS per unit	_____ NIS per unit
		Automotive Directive 2004/104/EC		_____ NIS per unit	_____ NIS per unit
		ISS 961 Part 1.3 – electromagnetic compatibility		_____ NIS per unit	_____ NIS per unit
		Other		_____ NIS per unit	_____ NIS per unit
Ability to connect to the vehicle cameras for documentation purposes		Without			
		Existent (please provide details)		_____ NIS per unit	_____ NIS per unit
Life cycle of the monitoring unit	Years	5		_____ NIS per unit	_____ NIS per unit

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Subject	Perimeter	Improvement stages for a Basic Monitoring Unit	Details about the improvement stage (to be filled by the respondent)*	Cost of the improvement stage for a Basic Monitoring Unit	Cost of maintenance of the improvement stage for a Basic Monitoring Unit
		10		_____ NIS per unit	_____ NIS per unit
		Other			
Level of availability of the monitoring unit	In % of a year-long activity duration	99%		_____ NIS per unit	_____ NIS per unit
		99.50%		_____ NIS per unit	_____ NIS per unit
		99.80%		_____ NIS per unit	_____ NIS per unit
MTBF	Duration of activity between failures – MTBF	50,000		_____ NIS per unit	_____ NIS per unit

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Appendix E – Information on the Implementation of the Proposed Solution in Israel and Worldwide*

	Name of project	Objective of implementation of the monitoring unit	The country where it was implemented	Cumulative number of installations	Time of supply of the monitoring unit	Details of a contact person on behalf of a client
1						
2						
3						
4						
5						
6						

*The number of rows is for illustration only. You may fill the required details in the form itself or in a second party's form, provided that it has an identical version of the table.

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Appendix F – Operation and Maintenance Aspects

In this appendix, the respondent must refer in his own words to each one of the following topics:

1. General implementation plan for the Solution – please refer also to the method of forwarding data to the central server, use of a coded medium and suitability to the law's requirements in anything related to privacy protection.
2. Explanation on the accuracy capabilities of the monitoring unit (in terms of time and location).
3. Proposed unit's stage of implementation – implemented/in development stages/close to implementation. If relevant, detail the processes required for completing the development of the monitoring unit, including development status, schedules for completing the development and preparedness for commercial supply.
4. Method for single- value attribution of the monitoring unit to a specific vehicle.
5. Ability to provide a large quantity of Monitoring Units within a short time.
6. Compatibility of the monitoring unit with the legal requirements and implementable standards (including international standards)
7. Estimates for the installation process of the monitoring unit. Please refer to the feasibility of installation in various types of vehicles of various manufacturers, as well as installation for vehicle fleets and vehicles for one-time travels (such as rented vehicles). There is no need to elaborate the actual execution of installation.
8. Flexibility for changes in the calculation algorithm and specifically the ability to update the calculation algorithm remotely.
9. The end user's possibility of changing the activity mode of the monitoring unit from a unit that only processes data and forwards the bill collecting to a central database, to a unit that transfers gross information to the core processing system.
10. Possibilities for end users to receive full information on the bill for each travel, and receive it in their email addresses, in a file that cannot be changed. Please refer in this topic to regulatory limitations that apply in Israel regarding information security and privacy protection.
11. Manner of forwarding information from the monitoring unit to the central core system and the process of deleting information from the monitoring unit after its transfer.
12. Description of routine activities that are required for proper operation and maintenance of the monitoring unit. Please refer to the entity that is to carry out the maintenance activities, and the possibility of carrying out maintenance remotely.
13. Ability to deal with fraudulent activities, with emphasis on disconnecting of the monitoring unit.

14. Method of dealing with temporary inability to transmit data.

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