

## ANNEX I : Functional Requirements

Ref. #	Feature	Bidder Comment
<b>1.0</b>	<b>Fixed Assets Registration and Valuation Module</b>	
1.1	The system must provide a database for the municipality fixed assets which is the base of municipalities O&M operations	
1.2	The system must reflect the FARV sheet developed by MDLF to help the municipalities to file a all necessary information about their assets	
1.3	The system must provide the ability to classify the fixed assets into 5 levels of classifications <ul style="list-style-type: none"> <li>• Asset Class</li> <li>• Asset Category</li> <li>• Asset Master Group</li> <li>• Asset Sub-group</li> <li>• Asset Type</li> </ul>	
1.4	The level of transactions is done on the Lowest level (Asset Type) in which it will be reflected on the parent classes	
1.5	The system must have a unique identifier for Master Asset Name	
1.6	The system must include but not limited to the following Asset attributes: <ul style="list-style-type: none"> <li>• Asset ID (Unique)</li> <li>• Asset Name</li> <li>• Master Asset ID</li> <li>• <b>Geographical</b> Location</li> <li>• <b>Physical Location</b></li> <li>• Asset Class</li> <li>• Asset Category</li> <li>• Asset Master Group</li> <li>• Asset Sub-group</li> <li>• Asset Type</li> <li>• Property type (Owned, Rented)</li> <li>• Unit of Measurement</li> <li>• Quantity</li> <li>• Acquisition info (Date, Year, Currency, Unit Acquisition cost, base currency rate, ...)</li> <li>• Evaluation year</li> <li>• Asset age</li> <li>• Depreciation method</li> </ul>	
1.7	Based on registered Asset information the system must calculate additional asset information for each asset indicated as follows: <ul style="list-style-type: none"> <li>• Unit Acquisition cost in base currency</li> <li>• Asset total acquisition cost in acquisition currency</li> </ul>	

	<ul style="list-style-type: none"> <li>• Asset total acquisition cost in base currency</li> <li>• Asset Annual Depreciation cost</li> <li>• Total Asset Depreciation cost</li> <li>• Asset fair value</li> </ul>	
1.8	<p>The system must <del>store</del> <b>allocate</b> the following additional information for each asset for integration procedures with Financial System:</p> <ul style="list-style-type: none"> <li>• <b>Belong to which</b> Budget</li> <li>• <b>Belong to which</b> Cost Center</li> </ul>	
1.9	<p>The system must provide a detailed asset profile provides complete asset transaction history to assist municipalities in asset management.</p>	
1.10	<p>The system must provide flexible depreciation calculations support such as straight line, declining balance, variable declining balance</p>	
1.11	<p>The system must provide the ability to process a group of transactions based on a predefined criteria by the user for:</p> <ul style="list-style-type: none"> <li>• Specific asset ID</li> <li>• Specific master asset ID</li> <li>• The 5 levels of classifications</li> </ul>	
	<p><b>The system must track all expenses related to particular item of fixed asset</b></p> <p><b>The system should allow to identify the expenses into two types (revenue expenses and capital expenses) and reflect the capital expenses to the original value of asset , age of asset and rate of depreciation.</b></p> <p><b>The system should segregate the process of updating the fixed asset register between the technical side and the accounting side.</b></p>	
<b>2.0</b>	<b>Operation and Maintenance System</b>	
2.1	<p>The system must provide a database for the municipality Operation and Maintenance system that reflect the coding and segmentation of fixed assets for the purpose of Operation and Maintenance procedures, including but not limited to:</p> <ul style="list-style-type: none"> <li>• Asset segments (sections in roads, floors in buildings, lines,...)</li> <li>• Segment classifications for Operation and Maintenance (differs than fixed assets classifications)</li> </ul>	
2.2	<p>Asset segments information must contains the following information:</p> <ul style="list-style-type: none"> <li>○ Segment ID (Unique ID)</li> <li>○ Segment name</li> <li>○ Segment Classification</li> <li>○ Segment Description</li> <li>○ Segment Quantity</li> <li>○ Segment current condition value</li> </ul>	

	<ul style="list-style-type: none"> <li>○ Segment last priority index value</li> <li>○ Segment last maintenance date\</li> <li>○ GIS object ID (for GIS system integration)</li> </ul>	
2.3	<p>The system must provide a database for assets Major Elements and Sub Elements per Asset class with the weight of each element contributing in calculation the asset condition value i.e:</p> <p>Major Elements:</p> <ul style="list-style-type: none"> <li>● Element 1 (30% for example) <ul style="list-style-type: none"> <li>○ Sub-Element 1.1 (20%)</li> <li>○ Sub-Element 1.2 (70%)</li> <li>○ Sub-Element 1.3 (10%)</li> </ul> </li> <li>● Element 2 (45% for example) <ul style="list-style-type: none"> <li>○ Sub-Element 2.1 (60%)</li> <li>○ Sub-Element 2.2 (40%)</li> </ul> </li> <li>● Element 3 (25% for example) <ul style="list-style-type: none"> <li>○ Sub-Element 3.1 (18%)</li> <li>○ Sub-Element 3.2 (37%)</li> <li>○ Sub-Element 3.3 (35%)</li> <li>○ Sub-Element 3.4 (10%)</li> </ul> </li> </ul>	
2.4	The system must store the Major and Minor Elements for each asset segment in order to prepare the system for asset condition value calculation during inspection phase	
2.5	The system must provide the ability to define priority index factors per Asset class with its weight contributing in the priority index value calculation for inspected asset segments	
2.6	<p>The system must define the priority index factor calculation method as follows:</p> <ul style="list-style-type: none"> <li>● A pre-defined list with a value for each list element that will be multiplied by the factor weight to get the factor value contributing in the priority index value</li> <li>● A pre-defined formula depending on specific variables</li> <li>● The priority index calculation method should be dynamic and applicable for change according to business need and for new asset types that may be included in the system in future phases</li> </ul>	
2.7	<p>The system must provide a list of lookup tables that will be used during the Operation and Maintenance cycle such as:</p> <ul style="list-style-type: none"> <li>● Maintenance Types (routine maintenance, preventative maintenance, corrective maintenance)</li> <li>● Materials Types (concrete, steel, ...)</li> <li>● Equipments Types (crane, bulldozer,...)</li> <li>● Suppliers with contact info</li> <li>● Donors with contact info</li> <li>● Municipality departments and employees database</li> </ul>	

2.8	The system must provide the ability to add any additional lookup tables for additional information and link it to a flexible additional attributes	
2.9	The system must handle the Operation and Maintenance cycle through the following phases: <ul style="list-style-type: none"> <li>• Database preparation phase</li> <li>• Physical Inspection and Condition Evaluation phase</li> <li>• Data analysis phase</li> <li>• Budget preparation and Planning Phase</li> <li>• Plan Execution and Implementation phase</li> </ul>	
<b>3.0</b>	<b>Database preparation phase</b>	
3.1	This phase includes the following activities: <ul style="list-style-type: none"> <li>• Segmenting the building into floors</li> <li>• Coding segments</li> <li>• Classifying the segments according to their O&amp;M classification</li> <li>• Determining the major elements for each segment</li> <li>• Determining the sub-elements for each major element in the segment</li> </ul>	
3.2	Coding system may vary from municipality to another thus the system will be flexible to setup the coding system according to adopted coding system in the municipalities	
3.3	The system must reflect the proposed data collection forms and information indicated in the O&M manual into the database in a dynamic way that allow to enable or disable any items in future according to the O&M business needs	
3.4	The output of this phase is a complete dataset of all municipality buildings segments and roads sections coded and Major and minor elements for each segment to be the input of the next phase	
<b>4.0</b>	<b>Physical Inspection and Condition Evaluation Phase</b>	
4.1	This phase includes the physical inspection by the technical department at the municipality to provide a condition values for each major element and sub-element for each segment in the buildings or roads	
4.2	Physical inspection process includes the following steps: <ul style="list-style-type: none"> <li>• Primary level inspection (Condition evaluation)</li> <li>• Secondary level inspection (determining Required maintenance type and a set of required materials, labor and equipments to do the required maintenance )</li> </ul>	
4.3	Primary level inspection will provide a score value (i.e from 1..10) for each sub-element condition evaluation according to the technical engineer experience (the system must allow a flexible scoring system for condition evaluation that may vary for each asset type)	

4.4	Secondary level inspection will allow the technical engineer to enter the required maintenance type for each major element in the segment and provide a Bill of Quantities for each segment in order to be taken in consideration in the data analysis and budget preparation phase	
4.5	The inspection phase may involved different level of approvals in which the system must handle it in a dynamic way according to municipality hierarchical structure	
4.6	The inspection phase will provide a condition score value from (1..100%) for the overall elements for each segment	
4.7	The Bill of quantities will provide an estimated cost for maintenance required for each segment	
4.8	The system must reflect the inspection and condition evaluation forms as indicated in the O&M Manual in a dynamic way that allow the user retrieve the major and minor elements of a segment either with empty scores or with last scores stored for each element during the previous O&M cycle	
<b>5.0</b>	<b>Data analysis phase</b>	
5.1	This phase includes the calculation of priority index value for each segment in order to provide an overall ranking for all segments that enable the municipality to take decision for implementing the required maintenance	
5.2	For calculating the priority index value for each segment and as we described before in point 2.6 regarding the priority index factors, the system must allow the users to enter other factors for each segment described as follows for buildings: <ul style="list-style-type: none"> <li>• Segment condition index (obtained in the previous phase) with a weight of 40%</li> <li>• Segment O&amp;M classification (obtained from the main info of the segment during the database preparation phase) with a weight of 35%</li> <li>• Number of beneficiaries(Formula) with a weight of 5%</li> <li>• Segment dangerous value with a weight of 15%</li> <li>• Number of complaints with a weight of 5%</li> </ul>	
5.3	Priority index for road described as follows: <ul style="list-style-type: none"> <li>• Section condition index (obtained in the previous phase) with a weight of 45%</li> <li>• Section O&amp;M classification (obtained from the main info of the segment during the database preparation phase) with a weight of 13%</li> <li>• Average Daily Traffic(Formula) with a weight of 12%</li> <li>• Section importance value with a weight of 20%</li> <li>• Number of complaints with a weight of 10%</li> </ul>	
5.4	By applying the weights of priority factors on their obtained values	

	the system must calculate automatically the Priority index value for each segment (1..100%)	
5.5	This will help the municipality to concentrate on the major segments that need to apply the maintenance for it.	
5.6	After priority index calculation for each segment the activity of determining and choosing the segments to be included in the maintenance plan is applied as follows:	
5.7	For each segment we have a 2 values that help in decision making <ul style="list-style-type: none"> <li>• Priority index value</li> <li>• Estimated maintenance cost</li> </ul>	
5.8	The system must allow the users to review these information in ranking list with check option to be included in the maintenance plan	
5.9	The system must provide a drilldown option to review the detailed information for each segment either for priority factor value or for the segment Major elements and sub-elements contributed in condition index calculation	
5.10	The system must provide a dynamic and complicated search criteria to help the user to search for a specific or ranged values for Segments Major elements and sub-elements that have a high condition value while the overall condition value of the segment is low meaning that the weight of these Major elements or sub-elements are very low in contributing in condition value calculation for all segment	
<b>6.0</b>	<b>Budget preparation and Planning Phase</b>	
6.1	In this phase an approved short list of segments prepared for the maintenance procedures obtained from the data analysis phase are reviewed according to the available financial resources at the municipality and taking in consideration if there is a replacement plans for very bad condition segments	
6.2	The system must allow to enter the available financial resources to help the users to compare and allocate the required costs for each segment	
6.3	The system should provide a user hint if the amount of estimated cost for maintenance exceeds the available financial resources but without preventing the process to continue	
6.4	Execution plan is prepared according to these factors: <ul style="list-style-type: none"> <li>• Time and period of execution</li> <li>• Determining source of funding(internal from the municipality or external form donors)</li> <li>• Determining the execution agency (internal by the municipality technical teams or by an external supplier or contractor)</li> <li>• Responsible person or department to follow up the execution</li> <li>• Prepare evaluation criteria (performance indicators)</li> </ul>	

6.5	The system must provide a plan preparation sheet including the above mentioned factors with a flexibility to change the plan during the implementation and execution phase	
6.6	The system must provide an level of approvals for plan and plan change during the preparation and implementation phase	
<b>7.0</b>	<b>Plan Execution and Implementation phase</b>	
7.1	In this phase the maintenance procedures are implemented and executed according to the planned schedule a work orders dataset will be generated for each maintenance execution in order to allow the responsible person or department to follow-up the execution according to the approved plan	
7.2	Work orders should be determined for each segment and for what major elements and sub-elements to help the responsible person to follow-up the execution and group similar type of maintenance in one bulk work order to be implemented by an external supplier or contractor	
7.3	Work orders should register the real bill of quantities and costs to provide a comparison criteria for estimated and actual amounts	
7.4	Work orders must be flagged with a status value (new, in process, delayed, executed and canceled)	
7.5	After Execution of work orders the system must reflect the maintenance impact on the segment and its major elements and sub-elements providing a current condition index value	
7.6	Responsible person for execution must state if the executed maintenance work order will increase in the asset life and value in order to update the fixed asset module	
<b>8.0</b>	<b>Operations Module</b>	
8.1	Operations module composed of a pre-defined templates and forms that are filled according to municipality operation requirements and costs	
8.2	The system must provide the ability to define templates and forms of entry as indicated in the O&M manual	