In order to keep its motorway network in good condition and to be able to develop precise maintenance planning, the National Society for Moroccan Highways needed a reliable road condition and inventory survey from an experienced partner. That is why they turned to TÜV Rheinland.

**Basic Facts**

<table>
<thead>
<tr>
<th>Client</th>
<th>Société Nationale des Autoroutes du Maroc (ADM) - National Society for Moroccan Highways</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timeframe</td>
<td>August 2011 - August 2012</td>
</tr>
<tr>
<td>Project location</td>
<td>Morocco</td>
</tr>
</tbody>
</table>
| Main services                              | - Road condition and inventory survey  
- Condition assessment                      |
- Road inventory                            |
- Survey of road geometries                  |
- Documentation with images and videos       |

**Initial situation and requirements**

The Société Nationale des Autoroutes du Maroc (ADM) is Morocco’s national authority for the management of a fast-growing network of expressways. Apart from the responsibility of the management of existing roads, ADM is in charge of construction projects and the planning of future extensions.

As a basis for transparent and objective decisions on road maintenance, ADM chose TÜV Rheinland to carry out the condition survey with the multifunctional high-speed measurement system ARGUS®. Our ARGUS® measurement system registers longitudinal and transverse evenness independent of the speed, with millimeter precision. The macro video system with nine high performance stroboscope lights enables us to identify surface distress such as potholes or cracks with widths as small as 0.5 mm and to create a reliable database for planning efficient maintenance measures.
Solutions, results

As one of the leading providers of road condition monitoring with the ARGUS® system in Germany, TÜV Rheinland carried out road condition assessment and visualization based on the longitudinal evenness (International Roughness Index - IRI), transverse evenness (rutting and theoretic water depth) and surface distress indicators (diverse types and severities of cracks, potholes and patches). A road inventory, collecting data regarding road markings, traffic signs, street lightning, guardrails, bridges, tunnels, and toll stations, is also part of the TÜV Rheinland monitoring services.

Our experienced personnel completed also a survey of road geometries. ARGUS® captured right-of-way videos and detailed road macro images (with GPS coordinates and linked to the linear road referencing system) in order to document the road condition, to find causes for distress and to be used for a wide variety of safety, logistic and engineering purposes. Evaluated results were then presented in a final report.

Did you know?

More than 600,000 kilometers of road have been surveyed using the multifunctional ARGUS® measurement system by TÜV Rheinland.

Benefits for the client

TÜV Rheinland provided ADM with:

- A highly-skilled and experienced team of experts.
- Measurements at speeds of up to 100 km/h.
- Speed-independent operations, eliminating traffic-related impacts.
- Objective results by using metrological instruments rather than manual registration.
- Strip maps with intuitive visualization of condition data for each road.
- Reliable and precise road condition data that can help ADM to reduce maintenance and operating costs.

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About TÜV Rheinland:

Founded more than 140 years ago, TÜV Rheinland is a global leader in independent inspection services, ensuring quality and safety for people, the environment, and technology in nearly all aspects of life.

We inspect technical equipment, products and services, oversee projects and help to shape processes for companies around the world. Since 2006, we have been a member of the United Nations Global Compact to promote sustainability and combat corruption.

Providing a wide variety of services, including assessment, certification, qualification, inspection, testing, and supervision, our experts can support you to manage your infrastructure project successfully in any project phase, in any part of the world.

As part of the TÜV Rheinland Group, TÜV Rheinland Schniering is a German engineering company with 40 years of experience in road condition assessment. Road condition monitoring service and the development of highly precise measurement systems build the core of their business. The company aims to deliver the major basis for pavement management in order to systematically improve road quality and safety.