Demonstration, Investigation and Reference Area of the BASt

The Federal Highway Research Institute (BAST) creates the conditions to prepare German roads for the challenges arising for the future from increased freight traffic, climate change, the energy transition, resource scarcity etc.

The objective is to be able to build and operate a safe, reliable, low-emission and sustainable road infrastructure. With the new Demonstration, Investigation and Reference Area of the Federal Highway Research Institute – duraBASt in short – this objective will be pursued.

The key role of BAST is furthermore to coordinate and to supervise the nationwide recording process in the course of road monitoring and assessment (ZEB).

The various reference sections on the duraBASt are used in the quality assurance of ZEB measurement vehicles. They set new standards in the approval of these measurement vehicles and thus play an important part in improving the monitoring of road damage and the resultant maintenance planning.

The duraBASt lies on the Köln-Ost motorway junction (BAB A3/ A4). The entire site covers an area of around 25,000 square metres and has a total length of a good kilometre.

There are different bridge structures, a tunnel-like situation beneath a bridge, noise barriers and drainage installations as well as open stretches of road. The site therefore represents an extensive miniature of today’s road traffic infrastructure and the direct road environment.

The spatial proximity to BAST and to the Cologne/Bonn metropolitan region promotes networking with national and international partners from the areas of science, industry and politics.

Demonstration and investigation sections

The demonstration and research tracks available have a maximum length of 100 metres and are four or five metres wide. The full-scale sections are installed under realistic conditions using standard road building machinery.
They can subsequently be subjected to accelerated load using BASt’s own Mobile Load Simulator (MLS30). Embedded sensor technology monitors the behaviour of the road constructions to be examined, and the behaviour is checked at regular intervals using non-destructive test methods (Falling Weight Deflectometer, ground penetration radar, monitoring of the road surface condition).

**Reference Sections**

Modern and innovative test facilities are required to ensure the quality and further develop the measurement technology deployed in the ZEB.

The sections on the duraBASt are not integrated in the public road network and as such are not subject to any continuous changes which are largely caused by traffic load. They have defined and permanent characteristics and properties that enable the measuring systems to be tested within their respective limits.

This then permits a quality assurance process to be performed on surfaces with different, defined features and no longer exclusively in comparison with reference measurement vehicles. The objectivity of the tests is boosted, and the permitted test tolerances can be more tightly defined given the considerably more constant ancillary conditions. As a result, much greater measurement accuracy may be expected. Additionally, scientific research can be conducted into new parameters to describe surface conditions.

In addition to a longitudinal evenness section of track, the site also has a rolling section for transverse evenness, a skid resistance section, a section with substance characteristics (surface) and a texture section.

**Facts**
- Start of construction: June 2015
- Construction period: approx. two years
- Cost: approx. 13 million euros
- Service life: approx. 30 years
- Length: approx. one kilometre
- Area: approx. 25,000 square metres
- Demonstrators and test areas: 16
- Reference sections: longitudinal evenness, transverse evenness, substance characteristics (surface) and texture

**Published by**

Federal Highway Research Institute (BASt)
Press and Public Relations
Special consultants: Stefan Höller
Brüderstraße 53
D-51427 Bergisch Gladbach
Telephone +49 2204 43-0
E-Mail: info@bast.de
www.bast.de
December 2017