



# SMART Bridge

- Web based Bridge Management System

SMART Bridge facilitates a systematic, well organised, and well documented bridge management, providing overview on planning level and practical tools on execution level. The web concept ensures that everybody involved in the maintenance has immediate access to continuously updated programs and data.

SMART Bridge – a customised application of SMART. Ramboll's web based asset management system SMART manages the maintenance of any kind of infrastructure assets.

SMART Bridge is the application customised for the management of bridges, tunnels, and similar highway and railway structures. The customisation is made purely on user level; consequently, the program itself is identi-

cal with all other SMART applications, and all SMART users benefit therefore from all further development of the program.

If the same administration manages other types of structures together with the bridges, the prototypes that define bridges, tunnels and other assets are combined in the same installation. In that case SMART provides the total overview for the management while the individual

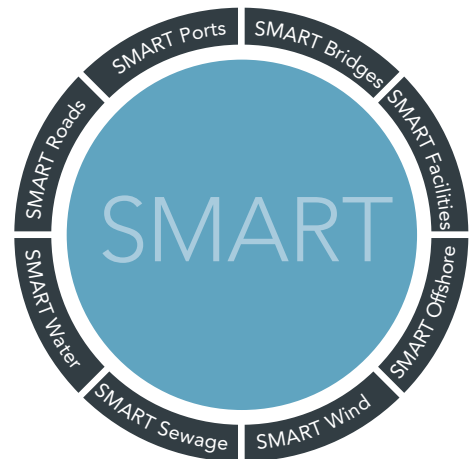
users can be limited to see or edit the data they need to know or are responsible for.

**SMART Bridge manages:**

- minor bridges with a standard component composition
- major, complex structures such as large bridges and tunnels with a specific, user defined hierarchical composition – comprising structural elements as well as mechanical and electrical installations

- complex infrastructure systems comprising different types of structures such as bridges, retaining walls, noise barriers, traffic sign portals, pavements, etc.

Minor bridges and culverts will normally be registered in a hierarchy of which the upper levels define the divisions and routes of the road or railway network while the individual bridges are registered as sub-elements to the





routes. Major bridges and tunnels will often be registered as separate objects on the first level of the inventory hierarchy.

Actual implementations range from culverts on Danish municipality roads to large steel truss bridges like the Victoria Falls Bridge in Zambia/Zimbabwe.

#### Principal Inspection

SMART's Principal Inspection concept is originally developed for bridge management. At the Principal Inspection, which is a visual inspection performed with intervals of about 5 years, condition ratings and possible damage descriptions are registered on all important bridge elements together with photos or other supplementary information. Needs

for further investigation, routine maintenance and repair works are registered through shortcuts to the activity administration module.

#### Overviews and reports

The Principal Inspection Report is a comprehensive report on each bridge, combining inventory data with actual condition registration, historic development of condition ratings, history of previously performed activities, and requested future actions – illustrated by photos.

Statistics on condition ratings show the average and distribution of condition ratings for elements of the same type, e.g. piers, bearings, or the bridge itself. It gives a very good overview of the general condition of the whole bridge stock, and

it can be used to identify element types with particular problems.

Bridge lists are very useful in the administration, and they can be supplemented with selected inventory data, e.g. carrying capacity classes, vertical clearance under bridge, lengths, areas, etc.

Job overviews for individual bridges or for selected routes are very handy for planning the execution of works with minimum disturbance of the traffic flow.

Long term budgets provide the solid documentation for funding application.

Short term budget follow up provides the basis for re-allocation of funds as

the economy of performed activities is updated with the actual consumption.

Document management with comprehensive search facilities provides easy access to all background information and substitutes the bridge archives.

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