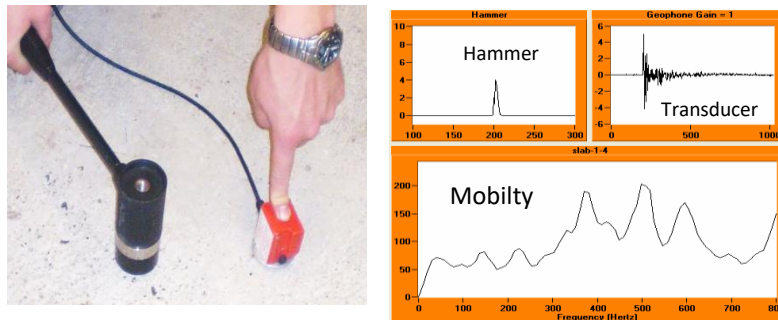


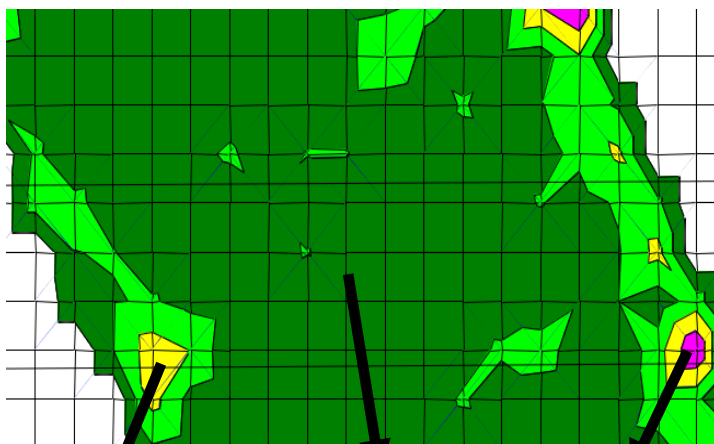
NDTitans in action

Case 10.1 Delamination of highway bridge deck found by impulse response



Average Mobility

□ 0-4 ■ 4-8 ■ 8-12 ■ 12-16 ■ 16-20



The soffit of a bridge slab showed starting deterioration at the edges. **Germann Instruments s'MASH** Impulse Response system was applied from the top of the slab.

Above is shown the instruments, a rubber tipped hammer with build-in load cell and a velocity transducer. A hammer stroke to the surface makes the member bend in a flexural manner, and e.g. the average mobility of the member is plotted.

In the bridge case above delaminationa were suspected.

Tests were performed all over the bridge slab in a 1 m x 1 m grid, in 5 sections. The testing lasted 5 hours.

The software allows different options to be presented in contour plots for illustration e.g. the stiffness, the mobility slope, the voids index and the average mobility

The contour plot of the average mobility showed low mobility in the center part of the slab (green color) and higher mobility at the edges, (yellow / red color).

Cores were drilled out at three locations. The three cores confirmed that low mobility (rigid response) corresponded to a sound slab and higher mobility (flexural bending) corresponded to the presence of delamination, at the edges.

The bridge was load tested, and it was finally decided to demolish it.

Testing and Report by **NDTitan Claus Germann Petersen**