

STRUCTURAL HEALTH ASSESSMENT OF A BRIDGE

These are the assignments that form the founding stone of **Pixel Networks** expertise. With an experience of over 25 such intense and comprehensive assignments over the last 5 years from the Indian Railways across its zones all over the country, we are the undisputed pioneers in this field within India.

A typical assignment of this type is carried out across 4 quarters of a year (one assessment cycle per quarter) with the instrumentation activities, data collection and analysis outcomes for each cycle being summarized in a well-structured report along with the supporting software files. On completion of all the 4 cycles of assessment, a structured set of conclusions and recommendations are made.

EXAMPLE

Super-Structure: 30.5m Open Web Through Steel Girder built in 1966

Rail: 60 Kg - 3 Panel

Bearing: Roller-Rocker

Sub-Structure: Mass Cement Concrete

Foundation: Well

This bridge has been monitored to assess the impact of increased axle load. Numerical model of the bridge has been developed to carry out static/ dynamic analysis to determine the standard output data set with IRS bridge loading standards (BGML, MBG) against which all the experiment data was compared.

Instrumentation of the bridge was done to obtain the following:

- Strains at critical locations of the super-structure and the sub-structure
- Deflections at critical locations in the superstructure and bearings of the superstructure
- Longitudinal load coming on bearing and proportion transferred to approaches
- Dynamic augment coming on the bridge
- Tilting of abutment/pier
- Vibration Signature Analysis

Recommendations were made on the following:

- Present health of the bridge
- Ability to carry loads – present capacity and extensible capacity without any rehabilitation work
- Signs of deterioration & their interpretation
- Remaining Life Assessment of the bridge girder