

### STRUCTURAL HEALTH ASSESSMENT OF A BRIDGE

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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