



Bridge Safety & Preservation

- ★ Baseline Audits
- ★ Periodic Audits
- ★ Real Time Health Monitoring
- ★ Residual Life Assessment
- ★ Accident Analysis
- ★ Failure Analysis

Foundation Failure

Specially in historic bridges, and bridges made out of Masonry are quite frequent. It needs a very specialize diagnostics and a carefully designed rehabilitation programme.

Bearing Failure

Bearing failure, is again a not so visible occurrence, and it is overlooked until it is too late to attend. A periodic bearing check up will ensure longer life of the bearings and also the bridge.

Corrosion

Corrosion, is again a very common occurrence as most of the bridges span water bodies and are subject to cyclic exposure to moisture and atmospheric

Vibrations

All bridges are subjection dynamic loads and thus vibrations. Extreme vibrations are detrimental to the safety. All types of vibration on a bridge can be kept checked with monitoring and these can be dampened to a safe and comfortable level.

Buckling

Bridges sometimes are aligned through dense city infrastructure and required to be elevated as it is necessary for deep valleys. This will necessitate very tall piers to support the bridge decks. These need a constant check for safety and preservation.

Tilt

Tilt is very critical for bridges in general and for interchanges with a network of bridges in particular. Bearing selection, Uniformity and compatibility of the foundation subsoils is essential. This assistance is extended right from bridge design stage.

Fatigue

All bridges are subject to cyclic dynamic loads leading to Fatigue. If unchecked it may cause severe damage to bridge stability and safety. For existing bridges we can run a check on the fatigue impact and assess the residual life of a bridge.



Expansion Joints

Expansion joints in Bridges are prone to wear and tear and keep the bridge operational. If left unchecked and unattended may affect severe damage to bridge decks. A periodic preventive health check is in a way mandatory for all bridges.

Over Loading

There is always abuse of the conventional checks on letting overweight trucks pass over a bridge. However, it is necessary to have an automated check to stop this damage of the bridge components. An automated weigh in motion can be setup for the safety and preservation of the bridge.

Tendon Relaxation

In all the post-tensioned as well as prestressed bridges tendon provisions are made for relaxation of the tendons. However, not all the design assumptions are validated, thereby subjecting the stressed tendons to higher relaxations cause causing safety and preservation aspects. In this days of fast infrastructure it becomes all the more important to have a regular check up of the tendon relaxation.

Flow Scour

Bridge Piers that are located in the water body which the bridge spans are subject the constant water flows and scour. In extreme cases it causes a severe safety issue. Also, this may initiate Corrosion in the bridge. For all the existing bridges, a structural audit to determine the extent of damage if any has to be a regular regime .

Bolt Loosening

All the bolted metal bridges are subject to loosening of bolts and they are subject to dynamic loads. Even pedestrian bridges are found subject to this phenomenon, A periodic audit or an automated system will ensure safety and preservation of these bridges

Seismic Damage

Geographic location of a bridge in a seismic zone demands additional attention to the severity and the potential of the damage that a bridge may be subjected to due to Earthquakes. A built in health monitoring system would ensure continuity or otherwise of structural system integrity of the bridge.

Fire Damage

There have been instances where an accidental fire on a bridge due to either a Car Crash or overturning of Gas tankers cause severe damage not only to the bridge components but also a waste area around the bridges. The integrity of such bridges can be established with onsite bridge load response tests to ensure operational integrity of the bridge and thus ensuring safety and preservation.