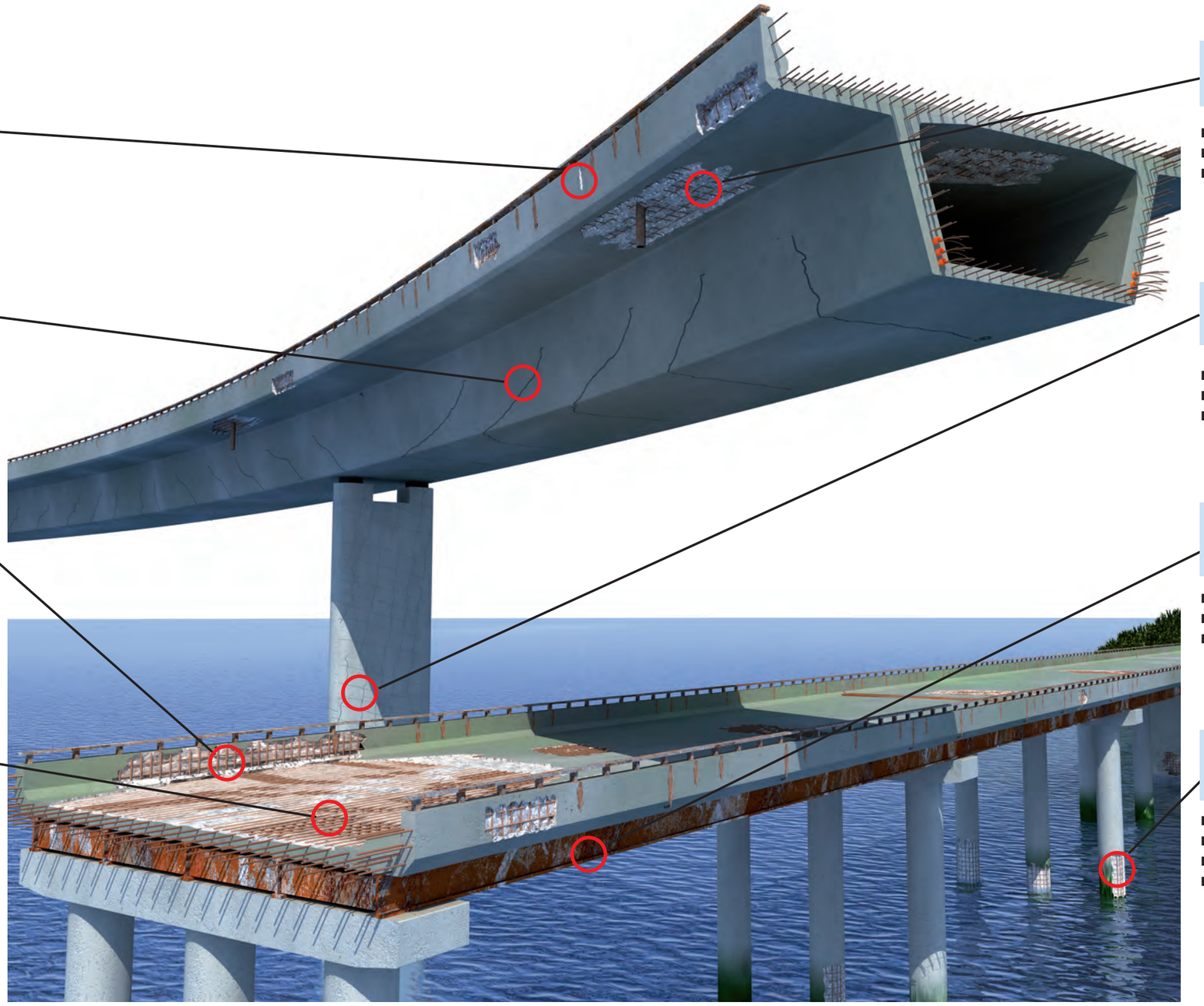
BRIDGE **DAMAGE & DETERIORATION** - ROOT CAUSES



LEACHING / EFFLORESCENCE

- Water ingress

STRUCTURAL CRACKS

- Overloading
- Structural movement/vibration
- Earthquake impact

CONCRETE SPALLING

- Steel reinforcement corrosion
- Freeze/Thaw action
- Impact

DECK CORROSION

REINFORCED CONCRETE OR STEEL DECK

- Failing or inadequate waterproofing
- Chloride ingress
- Water ingress

STEEL REINFORCEMENT CORROSION

- Chloride ingress
- Carbonated concrete
- Stray electrical current

NON-STRUCTURAL CRACKS

- Shrinkage
- Thermal movement
- Alkali Aggregate Reaction

STRUCTURAL STEEL CORROSION

- Inadequate steel coatings
- Chloride ingress
- Water ingress

SCALING OF CONCRETE SURFACE

- Erosion
- Abrasion
- Salt expansion
- Freeze/thaw action

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Bridges are usually found in the most challenging, exposed environments. Many New Zealand bridges have also experienced considerable increases in traffic volumes and traffic loads since their construction. Bridge wear and tear is to be expected - repairing that wear and tear is a global Sika skill.

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