Future Infrastructure Forum

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Some challenges for highway infrastructure

- Design
- Construction
- Use
- Asset Management

Design – flexibility

Design for deterioration (as well as against it)

- Designs to consider component deterioration explicitly
  - plan/install monitoring
  - plan/facilitate intervention – there should be a strategy
  - over-provide?
  - decisions taken over life to suit cost models and “rules”
- Better standardised *day 1* monitoring for *standard* problems e.g. fatigue, corrosion, contamination etc
- Need structures/materials that warn of deterioration themselves – fuses or obvious material changes?

Design for modification

- Design for modification and removal – can’t predict future demands; modular standardised construction

Construction

Reducing disruption to public

- drive for minimum possession time
- rapid construction techniques (e.g. Utah) but at reasonable cost e.g. more offline construction
- affordable lightweight construction – will need high degree of standardisation

Improving safety and reducing mistakes

- Greater automated construction tied in with BIM – extend earthworks and steel fabrication automation for example

Use

Better demand management on roads

- maximise current potential
- variable motorway lane width at congested times
- vehicle automation to allow lateral bunching
- etc

Asset Management

Better skills

- Better education on inspection and maintenance – avoid late discoveries which are expensive
- More sophisticated asset prioritisation e.g. condition, robustness, redundancy, strength, reliability, consequences etc

Better data capture

- Better strategy for automatic capture of key asset condition data for asset stock planning – sensors, loggers, laser scan etc
- Condition info straight to BIM; also asset plans etc

Better monitoring techniques and data interpretation

- Better remote monitoring for typical hidden elements – cater for bulk of our problems
- Better interpretation of data – helps if monitoring derived as part of design rather than retrofit

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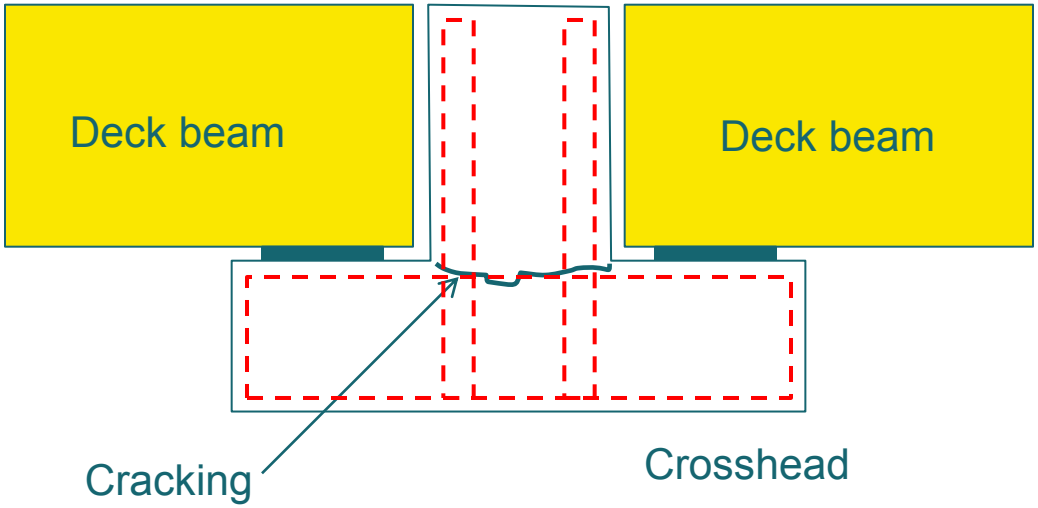

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