

**From:** [Moran J \(Jonathan\)](#)  
**To:** [Minister for Transport and Islands](#)  
**Cc:** [Brannen R \(Roy\)](#); [PS/Transport Scotland](#); [REDACTED]; [Lees S \(Scott\)\(Transport\)](#); [Gillies H \(Hugh\)](#); [Hindshaw W \(Wayne\)](#); [REDACTED]; [Leggett S \(Stewart\)](#); [REDACTED]  
**Subject:** Forth Road Bridge - Closure Recommendation - Details To Minister for Transport and Islands - 3 December 2015  
**Date:** 03 December 2015 21:38:05  
**Attachments:** [image001.jpg](#)  
[image002.jpg](#)  
[image003.png](#)  
**Importance:** High

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Minister for Transport and Islands

Please find below for background for your interview an email from Mark Arndt (Amey, Forth Road Bridge Operating Company Representative) which contains the detail of the information he read into the earlier SGORR call.

Regards

Jonny Moran  
Transport Scotland – Strategic Lead  
[REDACTED]

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**From:** Arndt, Mark [REDACTED]  
**Sent:** Thursday, December 03, 2015 04:00 PM  
**To:** Lees S (Scott)(Transport); Hindshaw W (Wayne)  
**Cc:** [REDACTED]; > Valentine, Bill [REDACTED]; > [REDACTED]; < [REDACTED] >; [REDACTED]; Gair C (Cameron)  
**Subject:** Forth Road Bridge - Closure Recommendation

Scott / Wayne

### Background

- At 1530 on Tuesday 1 Dec 2015 a failure of the suspended / main span inner pendulum support beam (one of a pair of twin supports) to the NE tower truss end link was identified during an inspection
- A closure of the S/B carriageway was implemented with a contraflow arrangement put in place on the N/B carriageway at 2130 on Tuesday 1 Dec 2015
- On Wednesday 2 Dec 2015 amey's specialist engineers immediately commenced a structural inspection and assessment. This progressed into the night
- On Thursday 3 Dec 2015 further assessment scenarios were undertaken with respect to alternative traffic loading and live loading on the bridge. Concurrently non-destructive testing was undertaken at the affected location. Results from the Testing were made available late afternoon.
- We are concurrently developing a design solution for both interim and permanent repairs

### Professional Opinion

- The initial failure mechanism of the identified defect near the NE tower has propagated from the weld and progressed into the steel section leading to failure
- The results from the structural assessment at the failure location and other areas indicate significant overstress on this and other locations
- The results from the testing undertaken on Thursday 3 Dec identified crack defects to

- the other twin support pendulum beam to the NE tower truss end link
- If the other twin support pendulum beam to the NE tower truss end link were to fail in a similar manner (eg propagate from the identified crack defect) then the entire S/B carriageway is expected to vertically drop 150mm without warning. This would compromise safety and likely cause further significant structural damage

#### Risks

- Public safety
- Structural integrity / potential further structural damage
- Travel disruption due to extended long term remedial solution in the event of further damage

#### Recommendation



- In cognisance of the aforementioned we have no alternative but to recommend an immediate full closure of the bridge until such time as interim repairs can be implemented to all affected locations

**Mark Arndt**

Operating Company Representative, Forth Bridges Unit – Consulting and Strategic Infrastructure  
Amey



Forth Road Bridge | Administration Office | South Queensferry | EH30 9SF

		
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