Nat. Hazards Earth Syst. Sci. Discuss.,
https://doi.org/10.5194/nhess-2017-433-RC1, 2018

Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "The influence of soil on the impacts of burst water mains on infrastructure and society: A mixed methods investigation" *by* Timothy S. Farewell et al.

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Received and published: 2 January 2018

Very good and some surprising findings that lead to valuable conclusions. Although only a comparatively small number of water mains bursts are involved with other utilities, these have some significant impacts. Ofwat said they would be monitoring the level of impact (e.g. in the news) as a regulatory (ODI, Outcome Delivery Incentive) performance/asset management check on water companies. It will be very nice if the water, gas, electric and telecoms companies had and shared their criticality information. Water mains have no national rules for criticality as there are for sewers so this needs to be addressed. There has to be a cost saving advantage as well. Typically

only 20% of a water company pipeline scheme cost is the physical infrastructure, the rest being construction costs which may be shared. But first the industries have to realise the common risk and consequence they have. Even saving some of the high consequence and repetitive failures must be beneficial to everyone.

1. Page 5 Sect 2 Line 10. The sewer data is explained as being of insufficient accuracy. It is also likely that these repairs were detected and resolved much later in time from the initial event. There are lengths of sewer still in operation although in poor condition, and stay that way for a long time.

2. Page 7 Sect 2 line 20. Total mains length will include 'sundries' e.g. hydrant and wash out 'legs', short pipe section associated with valve complexes. The 7% difference in length may be greatly reduced by discounting mains less than something between 1 - 5m in length. You will probably end up spot on!

3. Page 12 Sect 3 Line 20 and Page 13 Line 6. Are there proportionately more clamp burst repairs in the sand clusters than cut repairs? Cut repairs are usually more serious repairs and are more likely to be responded to quicker as an emergency. Clamp repair bursts may have been running for a much longer time and cause more sub-surface damage.

4. Page 14 Sect 3.2.5. This is interesting. The development of wide tolerance repair fittings and the Regulatory/Customer service need for rapid supply restoration may be leading to water companies to repair rather than replace short sections of mains. We have definitions for sewer criticality but no national guidelines for water main criticality. Further there is no nationally agreed sharing of these details between the utility companies.

5. Page 17 Sect 3.3 Line 6. Whilst most hospitals have second/alternative supplies another significant issue is the closure of schools. The impact on students and families will be significant.

6. Page 11 Sect 3 Line 5. May be say that minor roads have a more historical or appropriate level of engineering instead of saying they are less well engineered.

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