



UKCRIC

UK COLLABORATORIUM
FOR RESEARCH ON
INFRASTRUCTURE & CITIES
**Inspired infrastructure
for better living**


Introduction to UKCRIC

William Powrie, Convenor of UKCRIC

8.2.21

UCKRIC Southampton Roadshow

UK Collaboratorium for Research on Infrastructure and Cities



A portfolio of research and innovation facilities and programmes with a mission to underpin the renewal, sustainment and improvement of infrastructure and cities in the UK and elsewhere.

UKCRIC

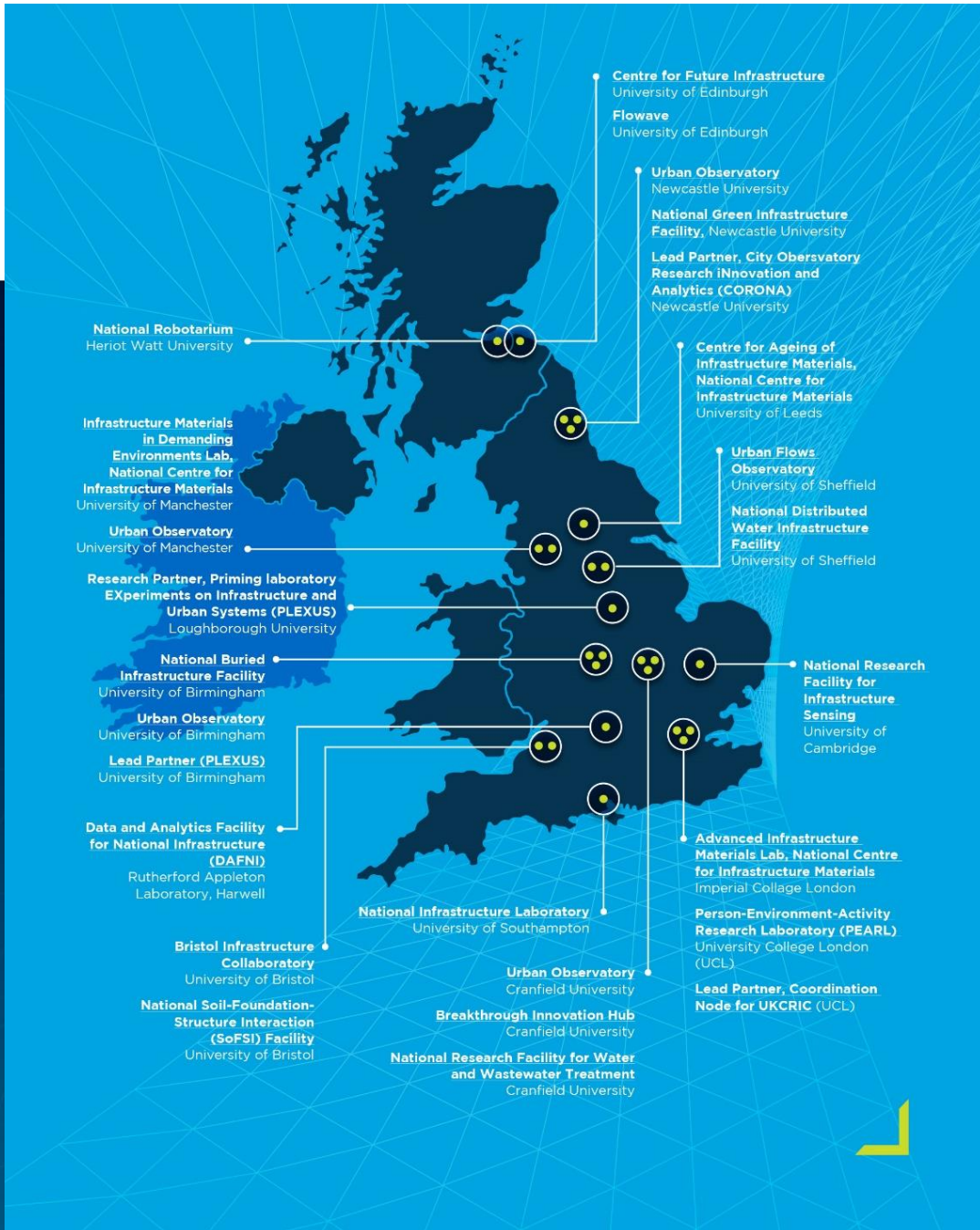


- 15 UK universities
- Major National Institute for Infrastructure & Cities research
- Similar to Royce, Turing and Crick Institutes, but distributed around the UK and multi/trans-disciplinary / multi-application
- 3 strands: laboratories, urban observatories, DAFNI

www.ukcric.com

hello@ukcric.com

[@ukcric](https://twitter.com/ukcric)



Partners

University of Birmingham

University of Bristol

University of Cambridge

University College London

Cranfield University

University of Edinburgh

Heriot Watt University

Imperial College London

University of Leeds

University of Loughborough

University of Manchester

Newcastle University

University of Oxford

University of Sheffield

University of Southampton

Affiliated facilities

V-Simulators labs at Bath and Exeter

National Water & Wastewater Treatment Test Facility, Cranfield



National Infrastructure Laboratory, Southampton



National Green Infrastructure Facility, Newcastle



National Distributed Water Infrastructure Facility, Sheffield



National Research Facility for Infrastructure Sensing, Cambridge



Urban observatories

Newcastle University

University of Birmingham

University of Bristol

University of Sheffield

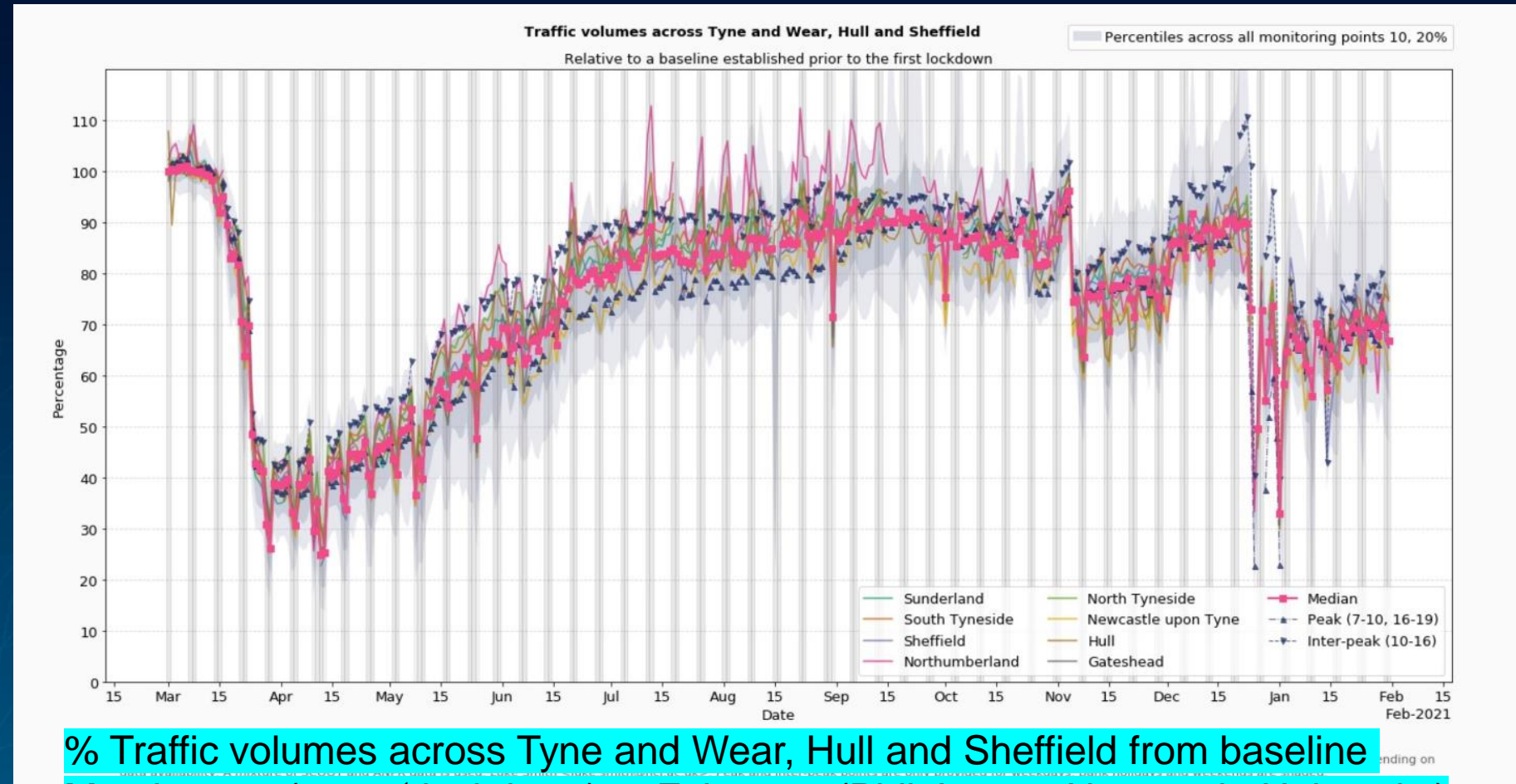
Cranfield University



Investigating

- Air quality
- Flood Management
- Public Health
- Transport
- Machine learning
- Smart Buildings
- Effects of Covid-19

Open source real time urban data



% Traffic volumes across Tyne and Wear, Hull and Sheffield from baseline ending on
March 2020 (pre 1st lockdown) to Feb 2021 (Phil James; Newcastle University)

Data Analytics Facility for National Infrastructure



- Part of the UKRIC community
- Computational platform to support data analysis and infrastructure research
- Large scale analysis, data access, software and visualisation

Transformational infrastructure and urban systems for a changing world

- Enabling infrastructure and urban systems to adapt to the challenges of climate change, changing patterns of use, societal expectations and emergent technologies

Infrastructure and urban systems for one planet living

- Empowering society to thrive within the capacity of the planet through responsible consumption, resource efficiency and sustainable growth

Ownership, governance and business models for infrastructure and urban systems

- Coping with greater system interdependencies, changing patterns of use and new, disruptive technologies whilst at the same time delivering social justice and affordability

Infrastructure and urban systems as drivers of equity, inclusion and social justice

- Forging healthy, happy and productive lives for all through urban design, planning, policy and infrastructure

Stakeholder engagement



- Net Zero Coalition Working group/Mott MacDonald
- Resilience Shift/ARUP; NIC resilience consultation; London Resilience Forum
- ICE, IET, RAEng, NIC, IPA, I3P, TTAG, CIRIA, BEIS, DfT
- Digital Framework Task Group, Digital Twin Working Group, CDBB, STFC
- Greater Metropolitan Region Strategy, Newcastle, NSW, Australia
- Singapore: NTU, Govt., National Research Foundation, A*STAR
- Local Authority Workshops: Key Cities, Southampton; Core Cities, Manchester
- PAS 186 Smart Cities Consultation
- National Preparedness Commission

.....among others.....

International community



- UKCRIC Advisory board
Chaired by Cynthia Mitchell, University of Technology, Sydney
- Conferences with strong UKCRIC presence
 - Urban Transitions Conference, Barcelona, 2018
 - ISNGI, Buenos Aires, 2019
 - International No Dig, Florence, Sept 2019
 - International Transdisciplinary Conference, Gothenburg, 2019
- *ISNGI, Rotterdam, September 2021*

CDTs and early career researchers



CDTs at UKCRIC universities

- WiRe: Water Infrastructure and Resilience Centre for Doctoral Training (Cranfield University, Universities of Sheffield and Newcastle)
- Water Wiser (University of Leeds)

C-DICE Centre for Postdoc Development in Infrastructure, Cities and Energy (Universities of Loughborough, Birmingham, Cranfield)

- Training – linked to UKCRIC and ERA facilities
- Development – funded placements and secondments
- Sandpit Programme – to generate novel solutions to the net zero carbon challenge
- Impact – delivering knowledge exchange events

Research projects involving UKCRIC universities



- PLEXUS (Priming Laboratory Experiments on Infrastructure and Urban Systems)
- CORONA (City Observatory Research platfOrm for iNnovation and Analytics)
- ACHILLES (Assessment, Costing and enHancement of long lIfe, Long Linear assEtS) programme grant
- Urban Green Design and Management of SUDs
- Pervasive Sensing of Buried Pipes (Pipebots) programme grant
- Transforming Construction Network Plus
- Twenty65 & Self-Repairing Cities Grand Challenge grants
- Network Rail CP6 research framework contracts (Southampton, Birmingham, Huddersfield, Newcastle, Notts, Loughborough, Heriot Watt, Sheffield)

Exemplar Case Studies



- Oxford Cambridge Arc
 - UKCRIC universities involved in MISTRAL CaMKOx analysis
 - Cranfield University leads Arc Universities Group
 - Scoping projects for East West Rail Ltd
- Fawley Waterside development
 - Scoping studies for net zero residential and commercial development and transport links
- Edinburgh and South East Scotland City Region Deal
- HS2

Example collaborative bids coordinated by UKCRIC



- UKRI Interdisciplinary Circular Economy Centre for Mineral Based Construction Materials (Imperial, Leeds, Loughborough, Sheffield)
- Transforming Construction Network Plus (UCL, Imperial)
- RHOMBUS – mental health and wellbeing in built environment (Bristol, Manchester, Birmingham, UCL)
- REPLENISH – Engineering infrastructure and cityscapes for health (Birmingham, UCL, Southampton)

UKCRIC Vision



- Recognised nationally and internationally as THE UK Centre for Infrastructure and Cities Research
- Go-to place for advice to policymakers and government
- Intimate linkage with local authorities for delivery of 21st century cities and infrastructure
- Strong collaborations with industry to promote technological / technical advance
- Every major infrastructure / cities project an informed learning experience
- Every major infrastructure / cities project engages with all relevant disciplines, sectors, other stakeholders; embraces systems thinking / practices; and works in a transdisciplinary manner towards true excellence and sustainability

Get in touch.....



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