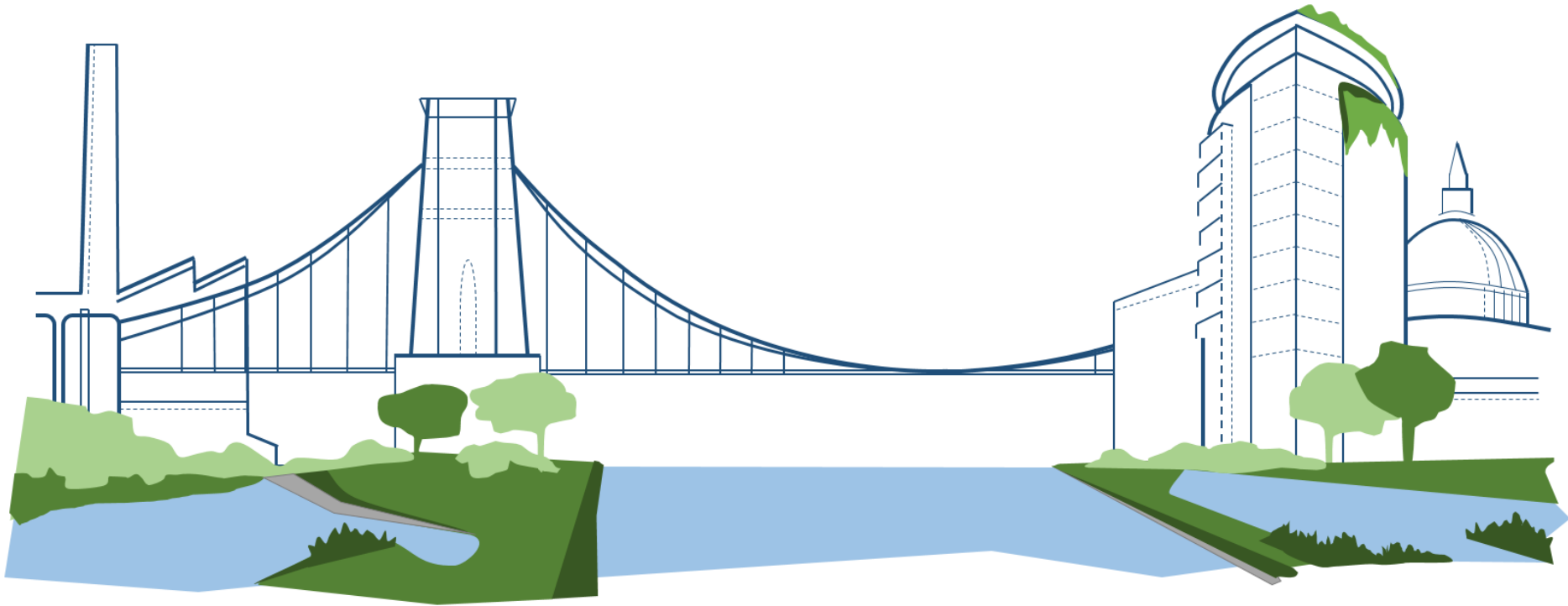


# Urban Flood Resilience in Newcastle

Newcastle University, 15<sup>th</sup> December 2016



# Agenda items and meeting aim

- Introduction to the Urban Flood Resilience research project  
*(Colin Thorne, University of Nottingham)*
- Resilient urban flood risk management and planning  
*(Karen Potter, Open University)*
- Q&A
- Research update: Newcastle University  
*(Chris Kilsby and Vassilis Glenis, Newcastle University)*
- Newcastle declaration on blue and green infrastructure  
*(Emily O'Donnell and all)*
- **Plans for continuing the Newcastle LAA** – where does the new urban flood resilience project fit in? What are the next steps for the LAA?  
*(Small group discussion and feedback)*

# Newcastle and Blue-Green infrastructure in National Flood Resilience Review

“Blue-green infrastructure is acknowledged as playing a role in flood risk mitigation. This is generally implemented at a local level.

In England, Newcastle provides a well-studied example (ref: Blue-Green Cities website)”

Pg 107 (Annex 10, comparison of international approaches to flood resilience)

HM Government

## National Flood Resilience Review



September 2016

# Transformative change to urban flood risk management in Sheffield (NFRR pilot core city)

In Sheffield, the plan is to: “unlock the economic, aesthetic and ecological value of the city’s water at the same time as making (Sheffield) an even nicer place to live”.

NFRR will “be working with Sheffield to enable the city to identify development of a type that will beautify the city-scape, unlock opportunities for urban regeneration and fit with local development priorities”.

Our aim is for Sheffield, and thereafter the **other Core Cities**, to own and lead this resilient (re)development”  
(NFRR, p25).

# Sheffield Grey-to-Green programme



# Learning and Action Alliances (LAAs)

- A LAA is usually an **open arrangement** where participants create a **joint understanding** of a problem and its **possible solutions** based on rational criticism and coherence through **discussion**
- It facilitates the identification of **innovative ideas** for the solution of complex (wicked) problems **outside the constraints of existing formal institutional settings**
- Solutions or ideas are afterwards presented in formal inter-organisational **decision-making processes**



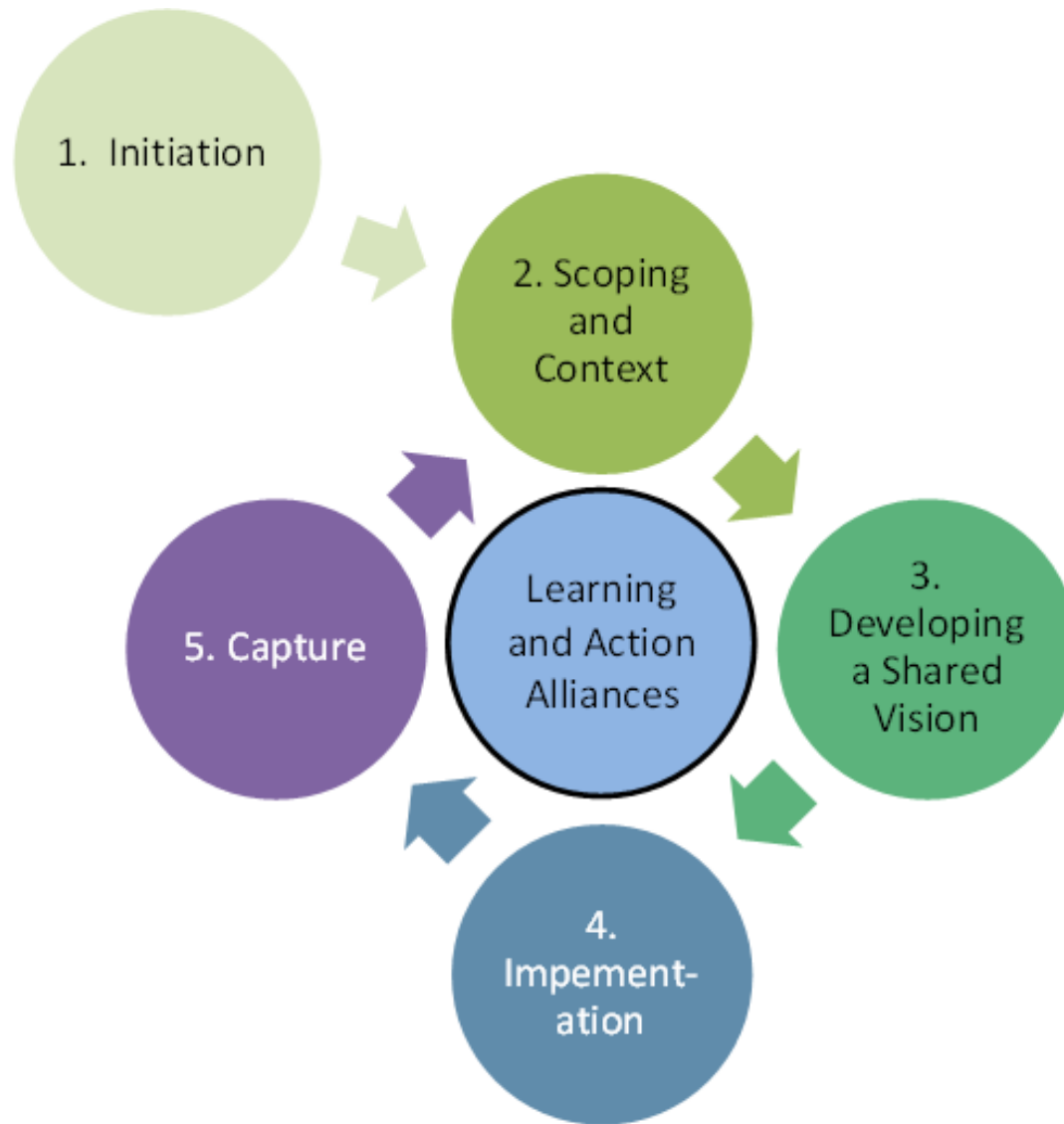
# Learning and Action Alliances (LAAs)

- No fixed structure in a LAA
- Founded on their own specific vision that evolves over their lifetime
- Useful to have a strong leader or champion

Aim: to break down  
barriers to both  
horizontal and vertical  
information sharing



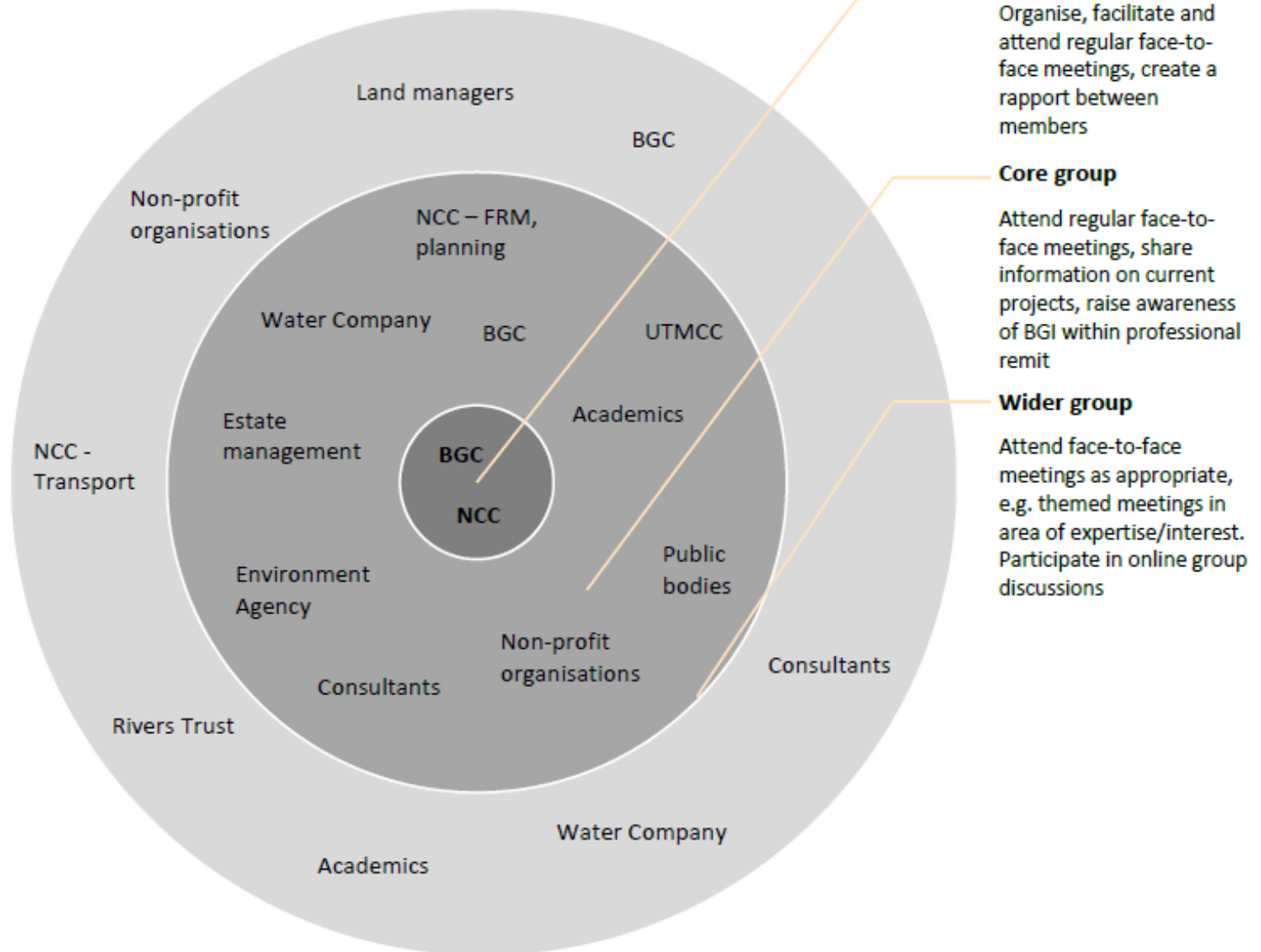
# Establishing and running LAAs



*Adapted from Ashley  
et al., (2012)*



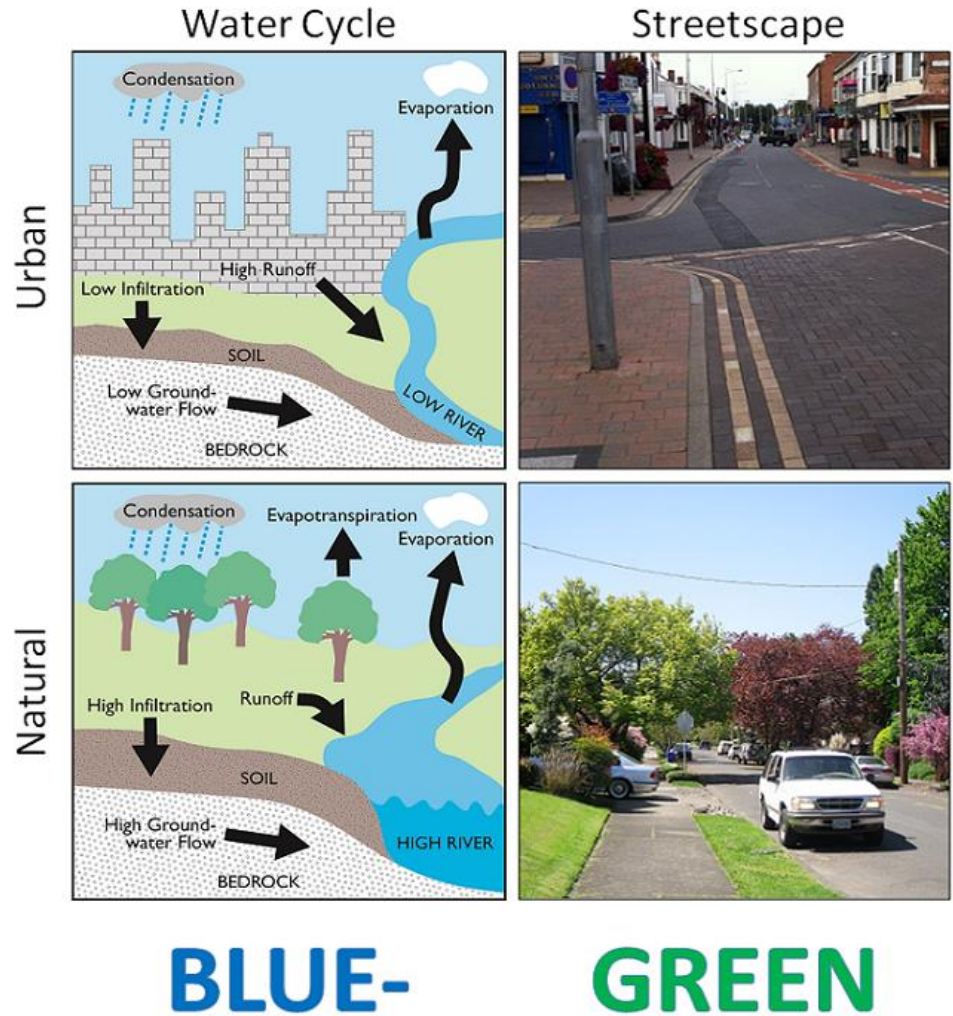
# Newcastle LAA membership



# Developing a shared vision

## The Vision...

is for Newcastle to become a city that follows the principles of Blue-Green design by maximising the opportunities to achieve multiple benefits of Blue-Green approaches to surface water management

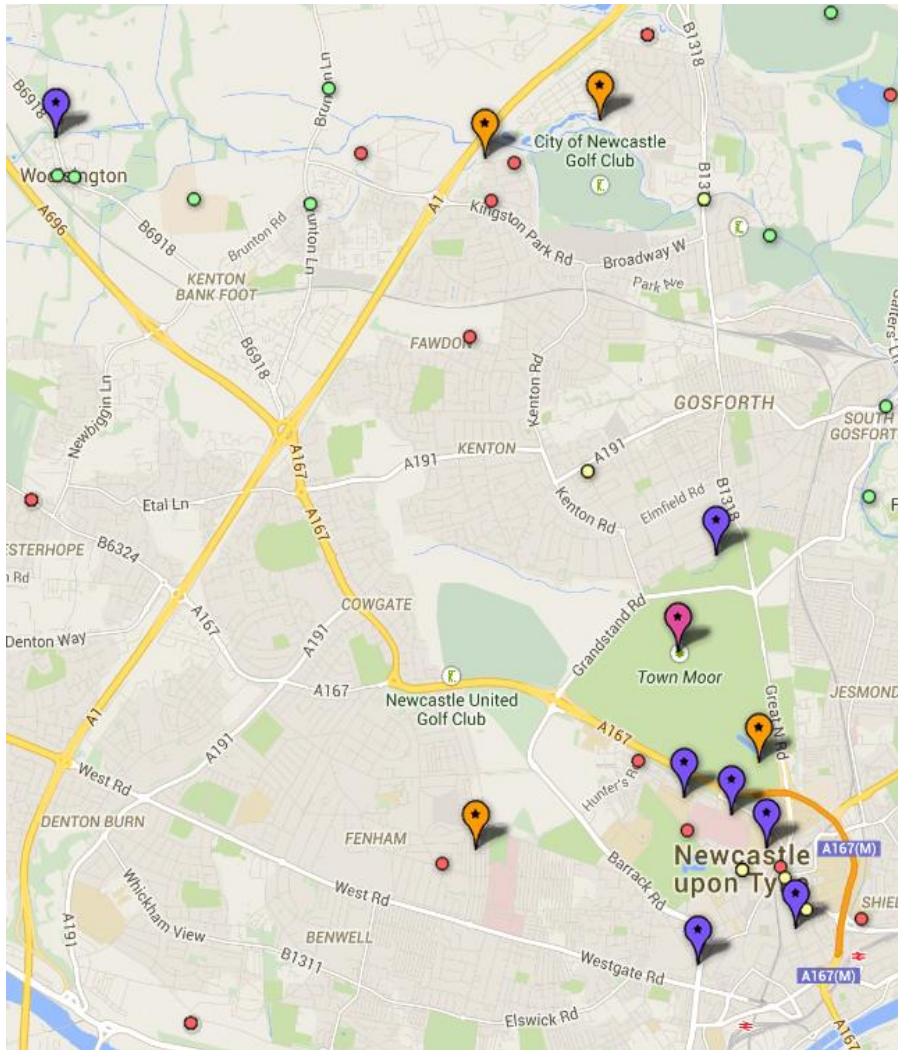


# The Vision...

is for Newcastle to become a city that follows the principles of Blue-Green design by maximising the opportunities to achieve multiple benefits of Blue-Green approaches to surface water management

**The LAA will promote this  
vision and realise it by  
recognising, and utilising,  
windows of opportunity for  
potentially influencing the  
strategies of decision makers**

# Identifying demonstration projects and existing assets



1. Delivered



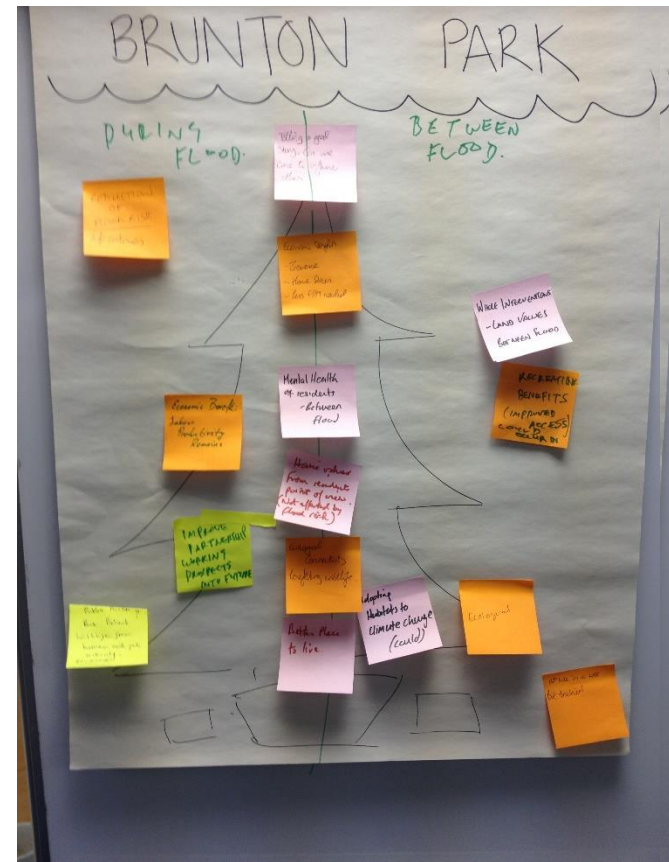
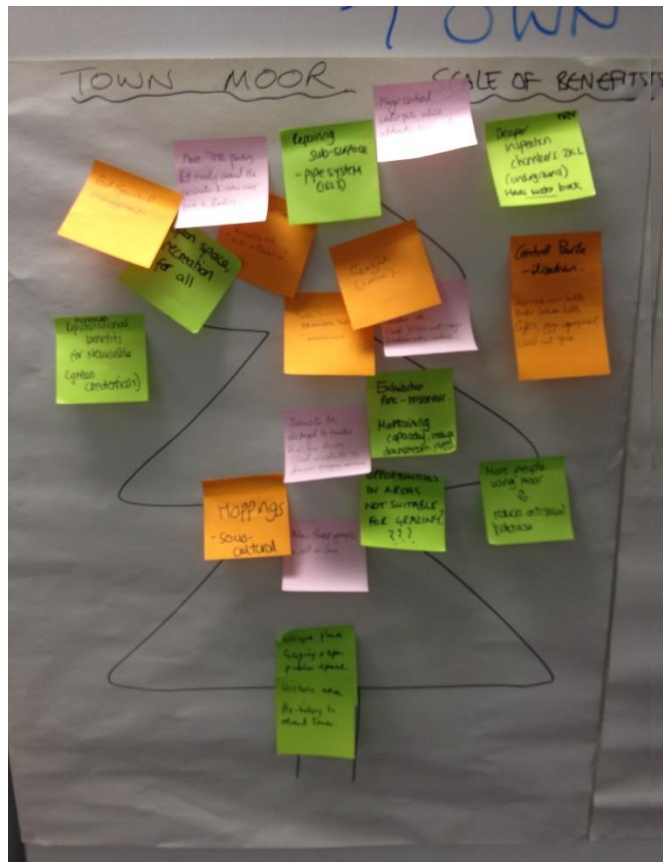
2. Possible to influence



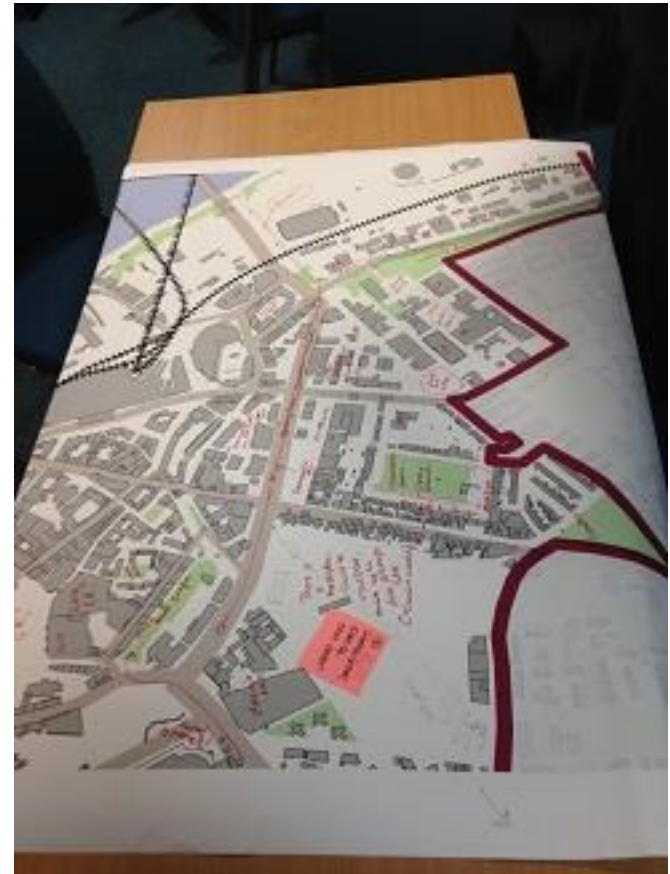
3. Visionary



# Classifying and ranking Blue-Green infrastructure projects

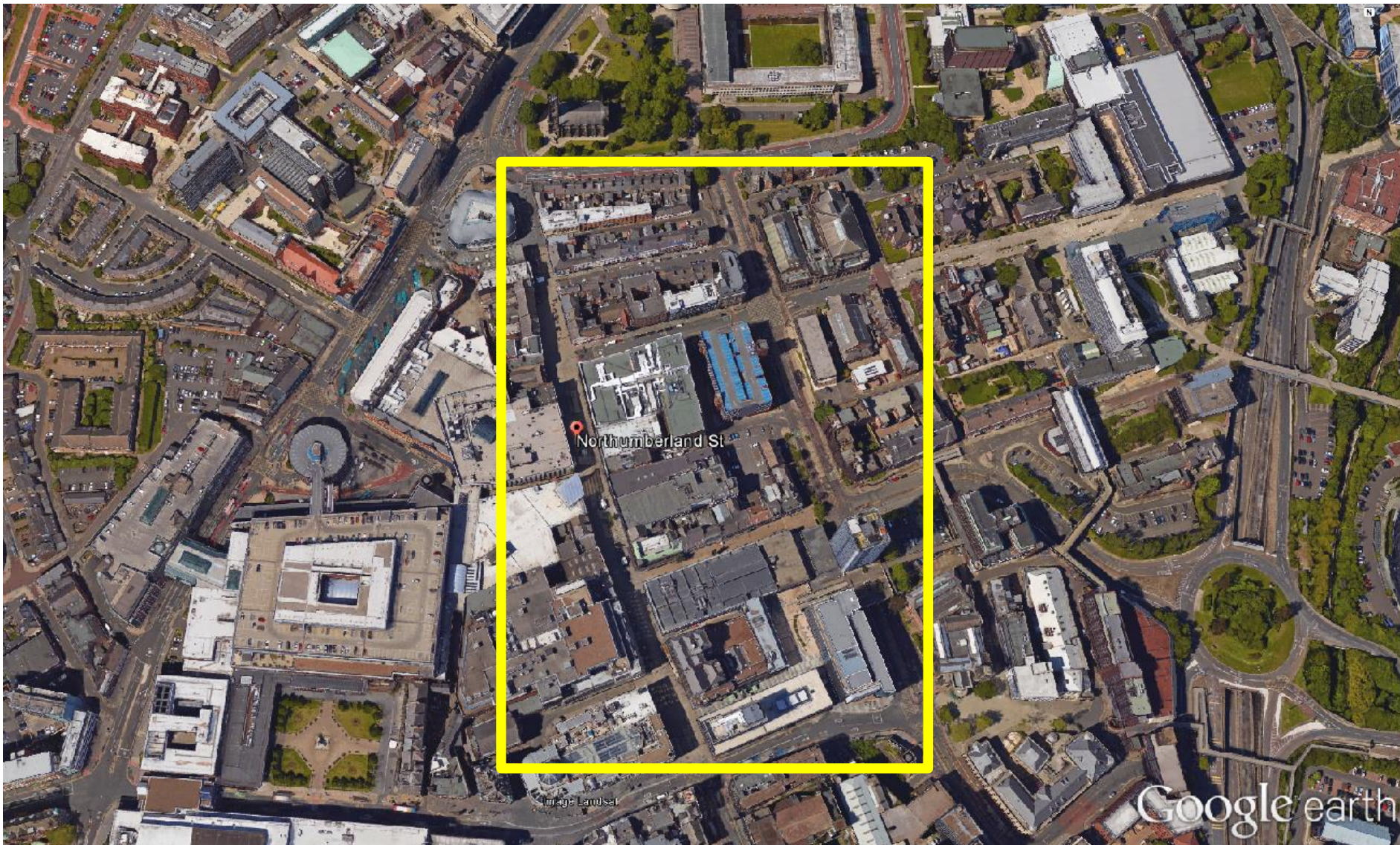


## 'Hypothetical Blue-Green urban core'



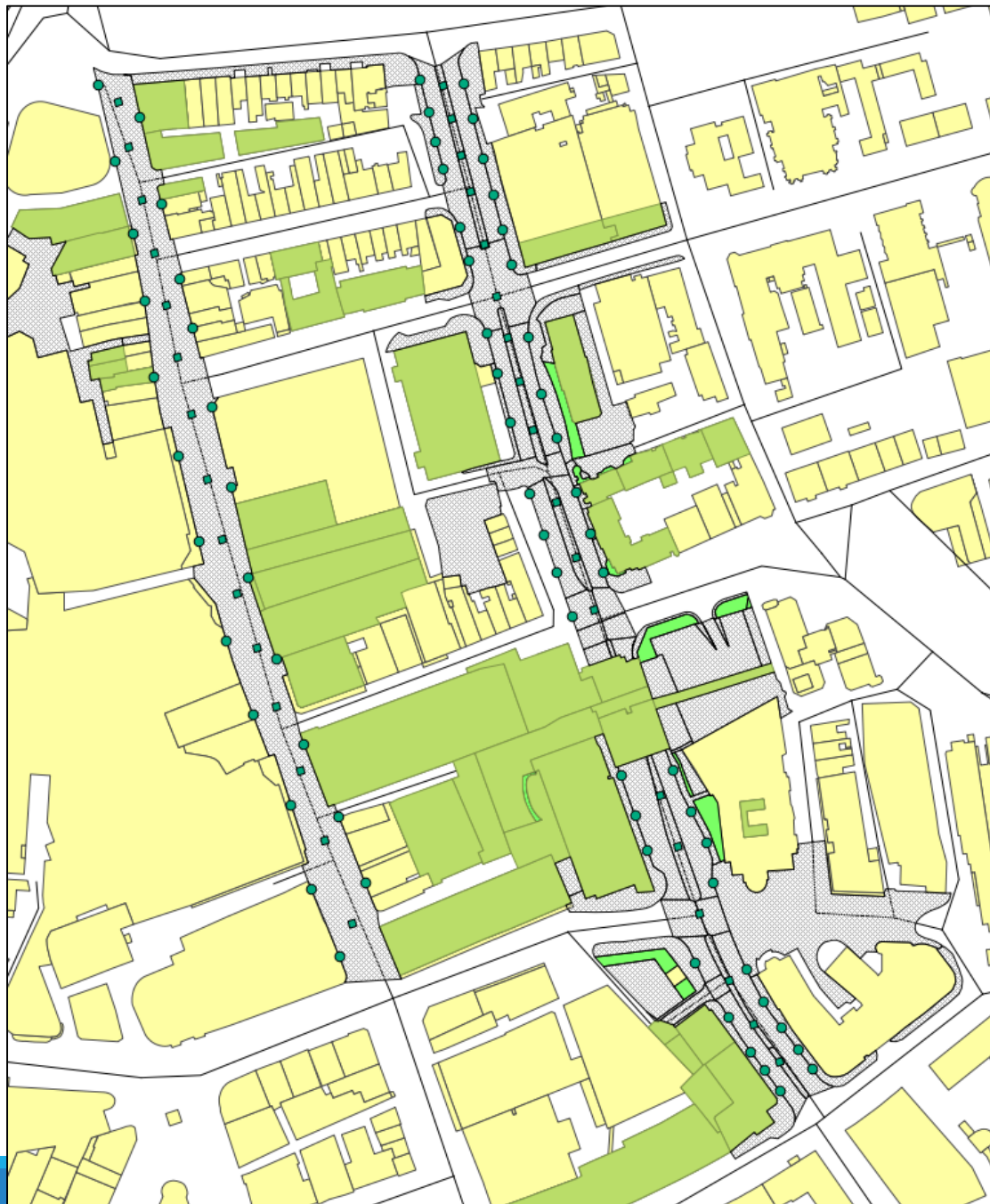


# LAA input into research project





# LAA input to Blue-Green Cities Research Project





# Modelling novel Blue-Green solutions

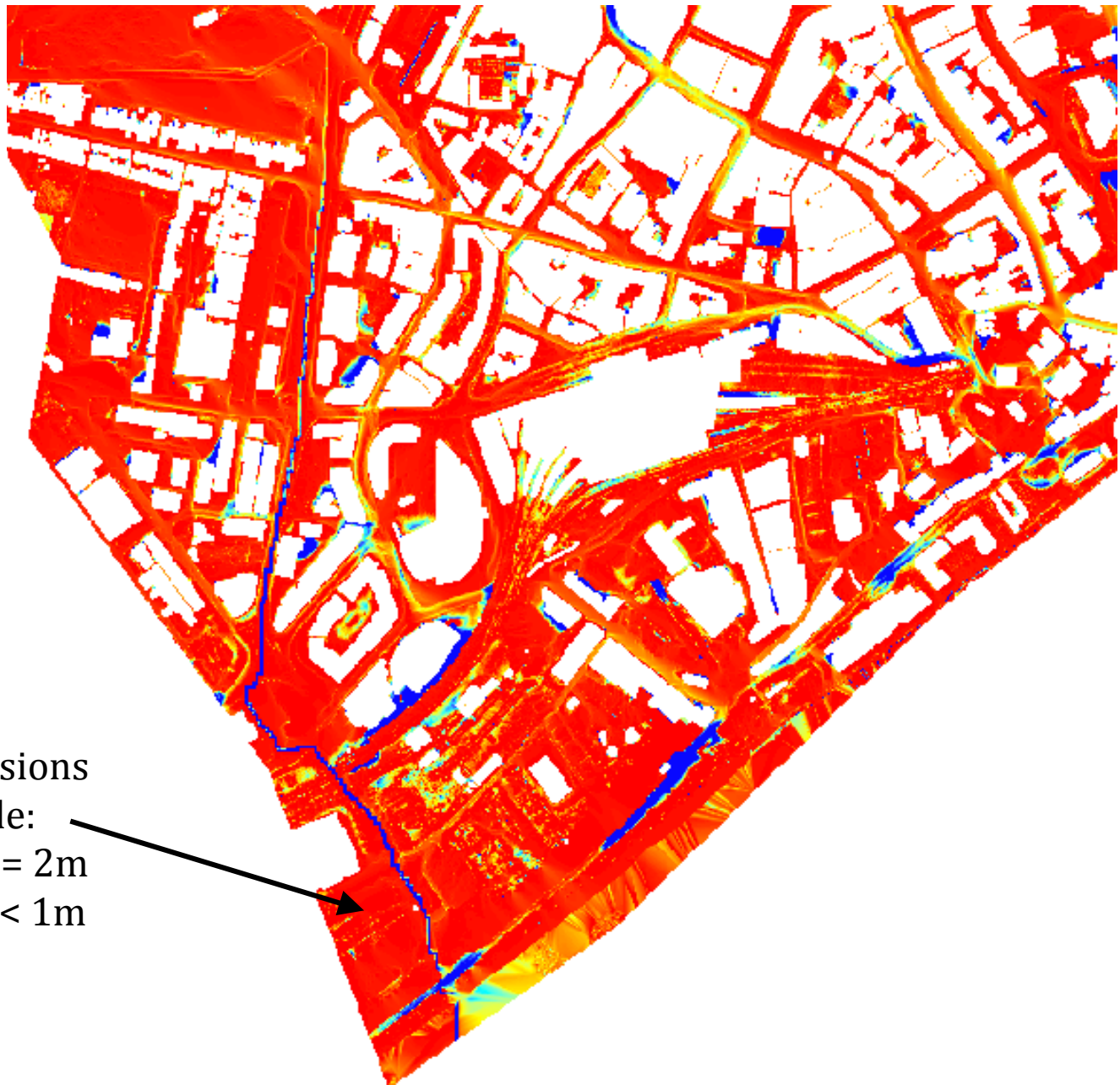




# St James' Boulevard swale

RP= 50 years,  
60 mins

Dimensions  
of swale:  
Width = 2m  
Depth < 1m



# Newcastle helps lead the way in blue-green cities move to combat flood risk

15:30, 19 FEB 2016 | BY [TONY HENDERSON](#)

More water storage and greening spaces in Newcastle are the basis for the city conference pledge at the Life Science Centre

f t G+ in 8 SHARES | COMMENTS

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Blue-Green Cities conference line up, left to right, Fula Ogunyoye, Haskoning DHV; David Wilkes, Arup; Marie Fallon, Environment Agency; Clare Rogers, Newcastle University; Richard Warneford, Northumbrian Water; Coun Ged Bell, Newcastle City Council

Blue and green could rival black and white as key colours in the Newcastle of the future.

Source:  
<http://www.chroniclive.co.uk/news/north-east-news/newcastle-helps-lead-way-blue-10914312>

# Newcastle City Council Local Flood Risk Management Plan

## Foreword

Flooding is one of the impacts of climate change and in recent times it has had a significant effect on the quality of life of our residents and our local economy. There are many challenges posed by this threat and without continued effort the risks will increase.

The City Council has provided investment to begin to resolve some of those challenges set in 2012. This plan helps identify that there has to be collaboration with others to achieve a resilient and safe City to live and work in.

Alongside our partners the Environment Agency, Northumbrian Water and Newcastle University we have recently signed up to the Blue Green pledge which commits the City to managing flooding in a more natural way whilst still obtaining the benefits from using green infrastructure for the benefit of the environment, our residents and visitors and the economy.

A major challenge for the City Council is to identify inward investment opportunities to help us prepare for these challenges rather than responding to them as they happen. We need to consider new ways of working to help the City obtain multiple benefits from one project. New funding models need to develop where groups benefitting from the project contribute to the costs. To do this we need to continuing to build and share data, knowledge and understanding needed to successfully implement this approach.

It doesn't have to be large organisations that can work this way. One resident or a community can make a difference by choosing to manage rain water where they live.

This plan sets out how we intend to manage flood risk in the City into the future and what we can do to mitigate the impact. This is another way of making sure Newcastle is a great place to live and work.

Cllr Ged Bell

Cabinet Member for Investment and Development

[https://www.newcastle.gov.uk/sites/default/files/wwwfileroot/environment-and-waste/flood-management-newcastle/2016.03.31\\_complete\\_and\\_final\\_rpt\\_-\\_lfrmp\\_march\\_2016\\_1.pdf](https://www.newcastle.gov.uk/sites/default/files/wwwfileroot/environment-and-waste/flood-management-newcastle/2016.03.31_complete_and_final_rpt_-_lfrmp_march_2016_1.pdf)

# Newcastle City Council Local Flood Risk Management Plan

The objective is to develop a Blue-Green vision for the City of Newcastle, including strategies for flood risk management that are integrated with city planning, economic growth and urban green infrastructure development, and that create a multitude of environmental, socio-cultural and economic benefits. Ultimately, to define the desirable state for Newcastle, assess the problems and solutions, and mainstream ideas into political/policy frameworks for potential implementation.



The outcomes will vary depending on the vision of the group but all individuals/organisations will have the opportunity to network with other stakeholders (including those that they may not normally engage with), learn from discussions (and freely contribute to discussions outside of their professional remit) and benefit from data, information and contact sharing. We are at the start of a journey to build trust between partners to enable the building of a vision for the City of Newcastle.

# Newcastle declaration on blue and green infrastructure



## Newcastle declaration on Blue and Green Infrastructure

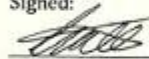
Newcastle City Council, Northumbrian Water, Newcastle University, the Environment Agency, Arup and Royal HaskoningDHV confirm their commitment to expanding the amount of Blue and Green Infrastructure in towns and cities across the UK. In establishing the declaration, the signatories acknowledge that:

- Flooding has a significant effect on the quality of life of our residents and the performance of the North East economy;
- Without continued effort, climate change threatens to increase this;
- Proactive investment in preparing for it is considerably cheaper and more preferable than dealing with damages;
- Investment in blue and green infrastructure has a significant role to play in managing flood risk in urban areas; and that
- Deploying such infrastructure can also make a significant positive contribution to many other important areas of life, including physical and mental health and wellbeing, biodiversity, carbon emissions, culture, quality of life and the economy.

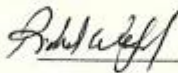
We therefore commit to the following:

- Providing local, regional and national leadership, encouraging and collaborating with others to increase the uptake of blue and green infrastructure
- Developing a supportive policy framework for new and retrofit projects
- Prioritising the use of green and blue infrastructure in managing flood risk wherever possible
- Assessing and increasing deployment within our own estates and activities
- Working with developers to maximise the amount of blue and green infrastructure in new development
- Piloting new ways of working, and new funding models which help to realise the multiple benefits of blue and green infrastructure
- Continuing to build and share data, knowledge and understanding needed to successfully implement such approaches
- Raising awareness and building capacity amongst communities to develop and maintain blue and green space, as part of wider resilience building initiatives

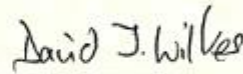
Signed:



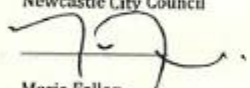
Cllr Ged Bell  
Cabinet Member for Investment  
and Development  
Newcastle City Council



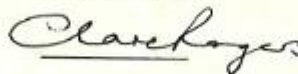
Richard Warneford  
Wastewater Director  
Northumbrian Water



David Wilkes  
Global Flood Resilience Leader  
Arup



Marie Fallon  
Area Manager for  
Northumberland, Durham and  
Tees, Environment Agency



Clare Rogers  
Director of Estates  
Newcastle University



Fola Ogunyoye  
Leading Professional for Flood  
Resilience  
Royal HaskoningDHV

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Research

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Publications

**Newcastle Blue-Green Declaration**

Partners and collaborators

Contact

## Newcastle Blue-Green Declaration

In February 2016, Newcastle City Council and five of their partners launched a declaration on Blue and Green infrastructure, committing signatories to the prioritisation of Blue-Green infrastructure in managing flood risk.

In addition, the declaration highlights the importance of changing working practices towards greater collaboration through commitments to work with developers to maximise Blue-Green infrastructure in new developments; raise awareness and build capacity amongst communities to develop and maintain Blue-Green infrastructure, and; pilot new way of working to realise the multiple benefits.

If your organisation would like to become a signatory, please download the [declaration template](#) (.docx) and return to [floodmanagement@newcastle.gov.uk](mailto:floodmanagement@newcastle.gov.uk).

### Newcastle Blue and Green Declaration

#### Newcastle declaration on Blue and Green Infrastructure

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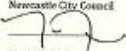
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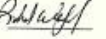
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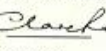
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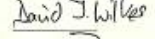
Signed:


  
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Newcastle City Council

  
Marie Fallon  
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Leading Professional for Flood  
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Royal HaskoningDHV

Newcastle  
City Council

NORTHUMBRIAN  
WATER living water

Newcastle  
University

Environment  
Agency

ARUP

Royal  
HaskoningDHV

### Declaration signatories

- [Newcastle City Council](#)
- [Northumbrian Water](#)
- [Environment Agency](#)
- [Newcastle University](#)
- [Arup](#)
- [Royal HaskoningDHV](#)

<http://www.urbanfloodresilience.ac.uk/newcastle-blue-green-declaration/newcastle-blue-green-declaration.aspx>

## Review of extreme events

In 2012, Newcastle experienced significant flooding, as well as a culvert collapse in Newburn. In response, our Scrutiny Committee ran a review to improve the City's response to emergencies and flooding. It made around 40 recommendations that the Council's Cabinet adopted and implemented. A copy of the report, and the Cabinet responses are available here:

[Scrutiny Review of Extreme Events in Newcastle 2012](#) (pdf, 1,590Kb)

[Final monitoring report to Overview and Scrutiny - March 2015](#) (pdf, 1,580kb)

## Newcastle Declaration on Blue-Green Cities

In February 2016, the Council launched a pledge on Blue and Green Cities, with some of our partners. The pledge aims to increase the amount of water features, and green walls, roofs and space in the City. Doing so is an effective way to tackle flooding, prepare for a changing climate and deliver extra benefits. Northumbrian Water, the Environment Agency, Newcastle University, Arup and Royal HaskoningDHV also signed the pledge.

You can read the original declaration here:

[Newcastle Declaration on Blue and Green Infrastructure](#) (pdf, 112Kb)

If your organisation wants to become a signatory, you can download a template here:

[Newcastle Declaration on Blue and Green Infrastructure template](#) (.docx, 1,239Kb)

Once you've completed it, please return to [floodmanagement@newcastle.gov.uk](mailto:floodmanagement@newcastle.gov.uk), or email them for more information.

<https://www.newcastle.gov.uk/environment-and-waste/climate-change-and-energy-saving/preparing-climate-change>

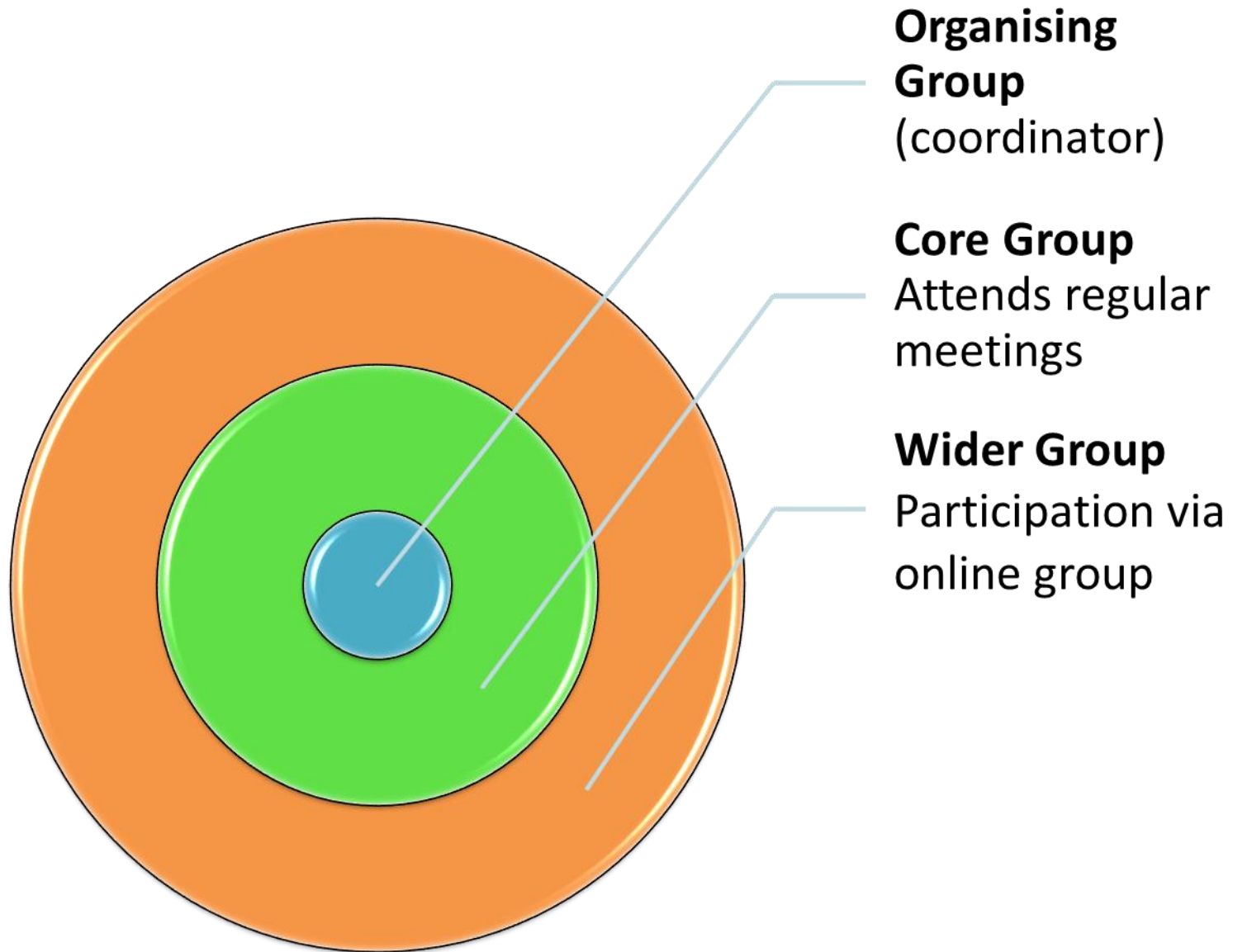
# The Newcastle Learning and Action Alliance

Future plans and next steps

# Learning and Action Alliances (LAAs)

- A LAA is usually an **open arrangement** where participants create a **joint understanding** of a problem and its **possible solutions** based on rational criticism and coherence through **discussion**
- It facilitates the identification of **innovative ideas** for the solution of complex (wicked) problems **outside the constraints of existing formal institutional settings**
- Solutions or ideas are afterwards presented in formal inter-organisational **decision-making processes**

# LAA membership





# Benefits of joining a LAA

- Networking:
  - Opening and broadening communication channels
  - Strengthening existing relationships
- Co-production of knowledge and learning from discussions (that may be outside their typical professional remit)
- Opportunities for collaborative working to achieve common goals
- Identification of joint funding schemes
- Realisation of common goals and objectives of many organisations
- Speeding up data sharing between partners
- Access (and influence) to academic research



# Goals for longevity and sustainability of the LAA

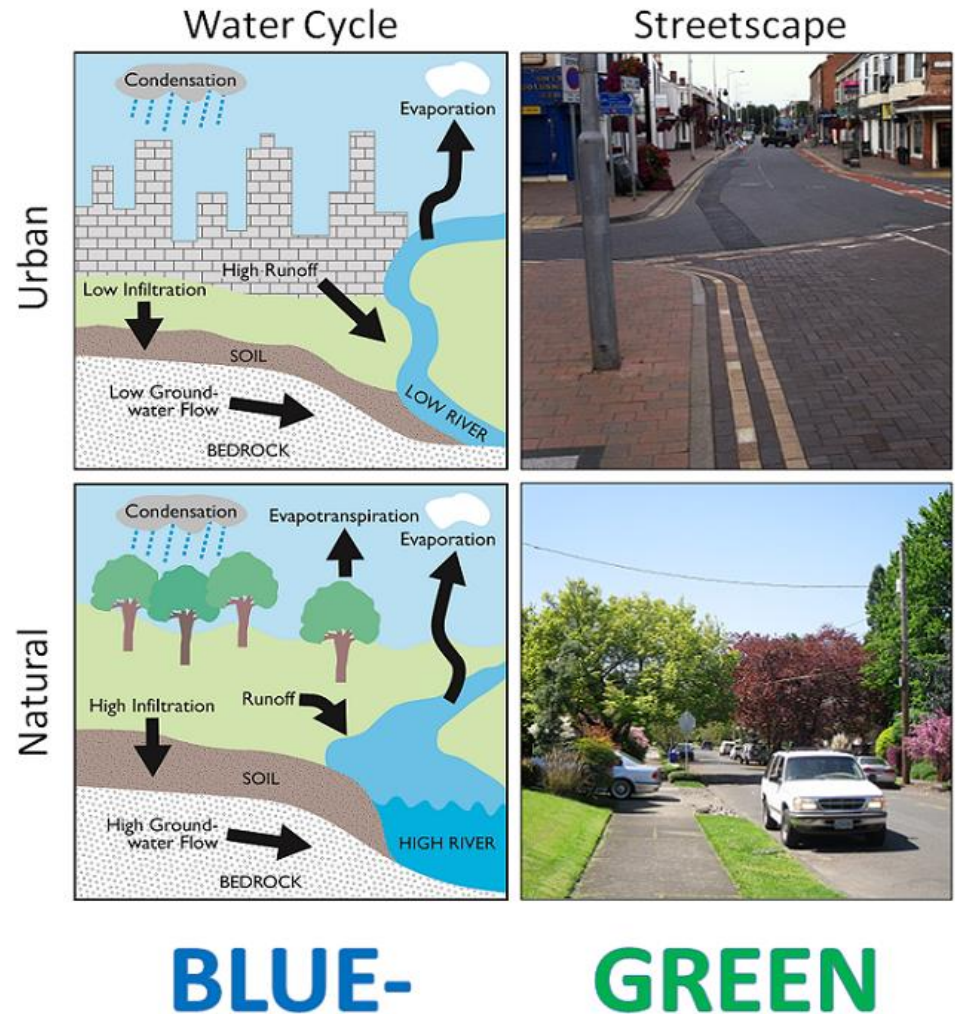
- Active learning
- Communication, rapport and trust
- Clear rewards for all stakeholders – meet (and manage) their expectations
- Facilitation – someone to organise regular meetings
- Manage conflicts of interest
- Overcome bureaucratic difficulties, e.g. data sharing and acquisition
- LAA coordinator – in our experience the coordinator was working on a research project and so had resources to coordinate meetings (difficult for other stakeholders)

# Role of Urban Flood Resilience team in Newcastle LAA

- Member of the LAA
- We will not dictate the direction – this needs to come from the Newcastle stakeholders (help with longevity and ensuring LAA focuses on Newcastle goals)
- We are happy to be part of the organising group and arrange meetings etc.

# The Vision...

is for Newcastle to become a city that follows the principles of Blue-Green design by maximising the opportunities to achieve multiple benefits of Blue-Green approaches to surface water management



# The vision

In the urban environment, a Blue-Green City creates multifunctional land use through surface water management and greening schemes. Surface water is managed in part by natural processes, including interception, attenuation, evapotranspiration, infiltration and subsurface/groundwater flow, to create some of the following benefits:

- Improved infiltration (green infrastructure) and enhanced water storage (blue infrastructure)
- The integration of water management, urban green space and connected Blue-Green networks to make urban environments better places to live
- Valued natural assets that provide economic, ecological, environmental and socio-cultural benefits
- Assets that enhance the visual quality of the urban environment in the time between floods
- More healthy communities and improved quality of life
- .....

# The Vision...

is for Newcastle to become a city that follows the principles of Blue-Green design by maximising the opportunities to achieve multiple benefits of Blue-Green approaches to surface water management

**The LAA will promote this  
vision and realise it by  
recognising, and utilising,  
windows of opportunity for  
potentially influencing the  
strategies of decision makers**

# Strategic Objectives

1. Develop, promote and influence the uptake of novel ideas and BG strategies
2. Explore ways in which institutional barriers can be overcome (to favour BG)
3. Challenge traditional approaches and indicate how new benefits will be generated and how these can promote partnerships in Newcastle
4. Promote the broad vision through identifying specific challenges and locations of interest in the Newcastle region that may be improved by BG approaches
5. Develop location-specific BG strategies that may inform the plans enacted by the organisations represented by LAA members and beyond
6. ....

# Group discussion – next steps for Newcastle LAA

- Meeting frequency and content
- Organisation (e.g. who would like to help coordinate?)
- Other stakeholders to involve (e.g. landowners and developers, other under-engaged groups in flood risk management)
- Online platform? Google Groups?
- Vision and strategic objective – do these need updating?
- Are Newcastle interested in moving towards becoming a resilient city or just a Blue-Green City?
- Roles and responsibilities
- Themes for future meetings

➤ Group spokesperson(s) reports back at 16.15



- Group feedback and future planning
- Date for next meeting
- AOB