TRUUD

Tackling **R**oot causes **U**pstream of
Unhealthy **U**rban **D**evelopment

Informing healthy urban policy making through quantitative health impact appraisal

A co-designed approach in a live decision-making context

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UKPRP Prevention Research Partnership

University Consortium

Local Authority Partners

Research Funders

Professional Membership Partners

Introduction

Objectives/Motivation:

- Strategic planning for urban regeneration has the potential to address a wide number of environmental determinants of health in and around homes
- Quantitative health impact appraisal for land use scenario development is limited with existing tools
- Our stakeholders told us they need better ways to access and apply health data

Synopsis of talk:

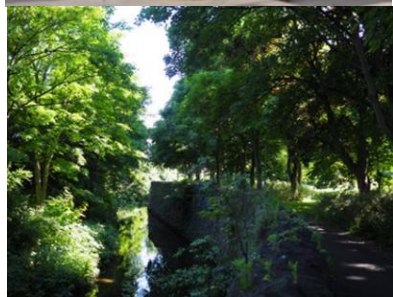
- We created a new comparative risk assessment model for use in quantitative HIA
- Our case study demonstrates a collaboration between urban development practitioners and academics applying the model to inform healthier planning in an urban area

The Regeneration Framework

BCC: Frome Gateway Regeneration Framework

Regeneration Frameworks establish a long-term vision and principle for development in areas set to experience significant change

- Set out priorities for a place and create a vision for delivery;
- Focus on strategic and guiding principles (not detailed designs or solutions);
- Produced in collaboration with the community and other stakeholders;
- Used to guide and determine planning applications;
- Primarily targeted at developers and landowners; and
- Drive long-term co-ordination.



Case study: Bristol

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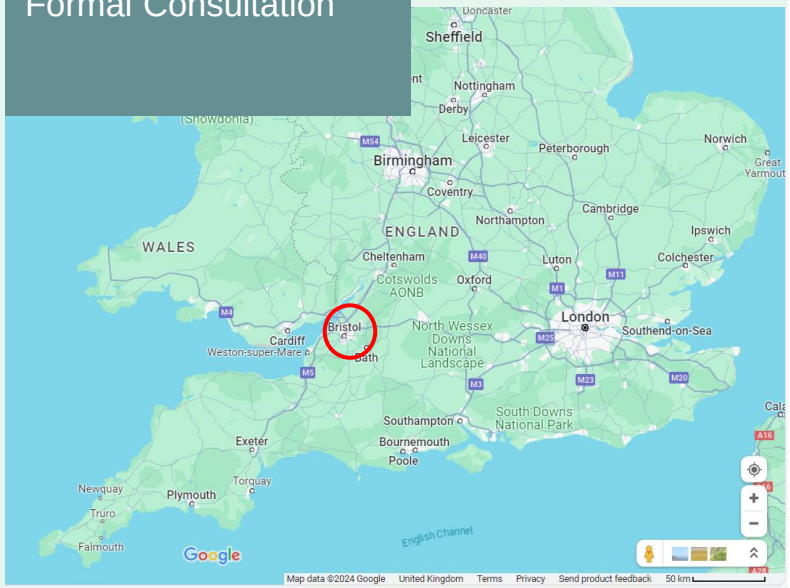
	Feb-May 2022	May – Dec 2022	Dec 2022 – Sept 2023	Oct – Dec 2023	Jan – Feb 2024
Stage	**Stage 01:** Analysis & Development Assumptions	**Stage 02:** Concept testing & exploring strategic opportunities	**Stage 03:** Framework refinement & detail	**Stage 04:** Public Consultation	**Finalisation & Adoption**
Tasks	**Stage 01:** Baseline work & Story of Place	**Stage 02:** Develop scenarios & technical opportunities & evaluate them	**Stage 03:** Viability appraisal & refine preferred scenario	**Stage 04:** Formal Consultation	
Input	**Evaluation framework:** Health impacts to be considered, scope of environmental effects & populations at risk	**Scenario development:** 1. Headline scoring for land use options 2. In-depth detail on green space provision	**Health impact appraisal:** Full economic valuation of preferred scenario informs a detailed health impact assessment		



Methods

Case study:

- A collaboration with local authority partners to inform the creation of a strategic framework for a 15ha urban regeneration site in Southwest England.
- Teams included an embedded researcher in residence and health economists
- Health information was provided throughout the process of developing the framework using HAUS
- For the data analysis, scenarios were developed for a population of 8,000 people living near the study area over 25 years, covering a wide range of characteristics of the urban environment e.g., air and noise pollution, green space, crime, walkability, food environment and transport. Health outcomes included non-communicable disease, premature mortality, activity and weight gain for adults and children.

About HAUS: Health appraisal of urban systems model

Health evidence

- Over 200 environment-health impact pathways relating to 26 features of the urban environment from air pollution to walkability
- Includes adults and children
- Derived from a series of systematic reviews of published medical evidence

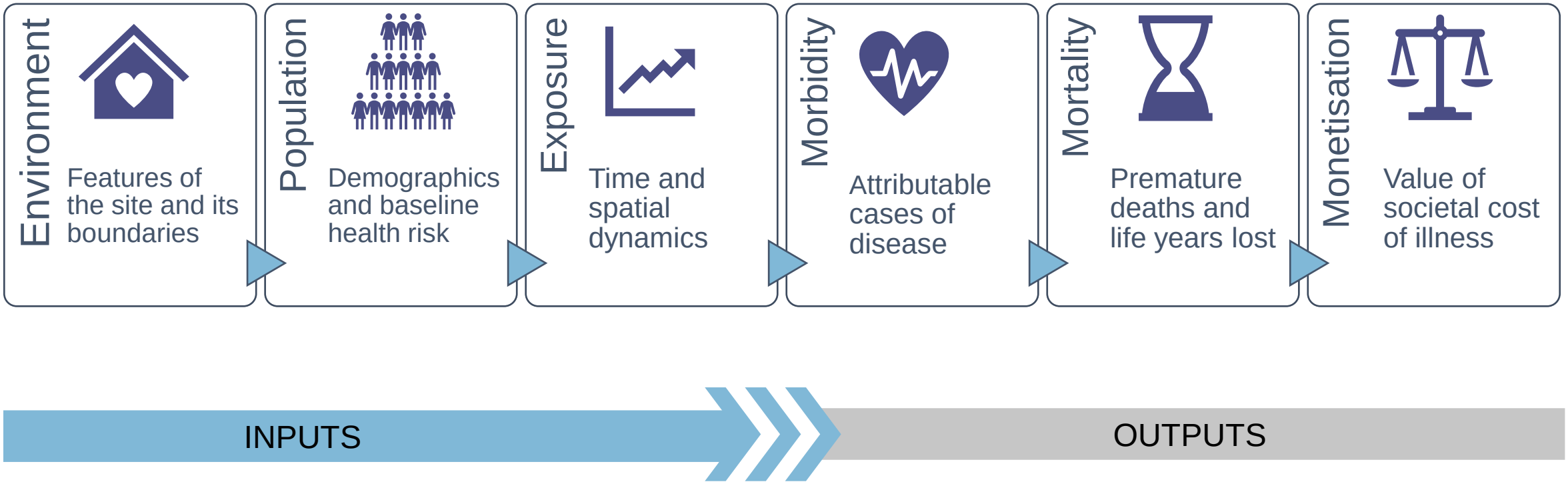
Quantification

- A comparative risk assessment model using impact-pathway approach
- HAUS helps quantify, value and compare the health impacts of existing and future site characteristics
- Users can test several scenarios for options appraisal

Valuation tool

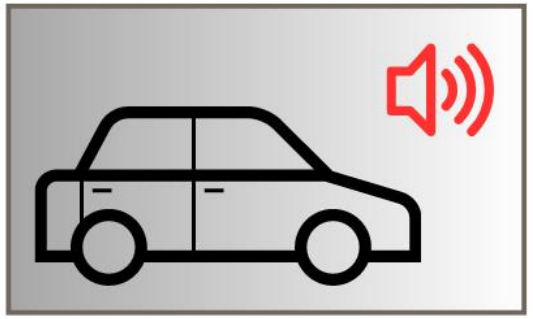
- A database of economic valuations for over 70 health outcomes
- Societal unit costs include direct, indirect and disutility
- Derived using systematic review of published evidence and additional primary research

How HAUS works



The impact pathway approach

Mechanism

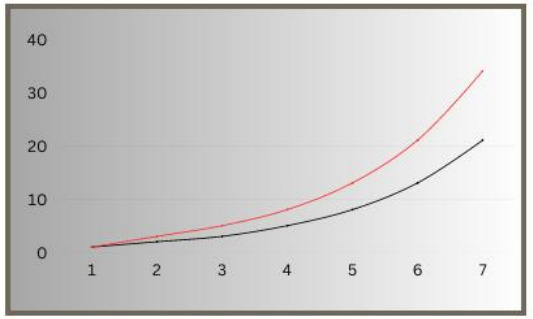


Characteristic of the environment,
e.g. levels of traffic noise

Exposure

Population exposed to feature,
e.g. people aged over 65 years living
in an area with high levels of noise

Impact

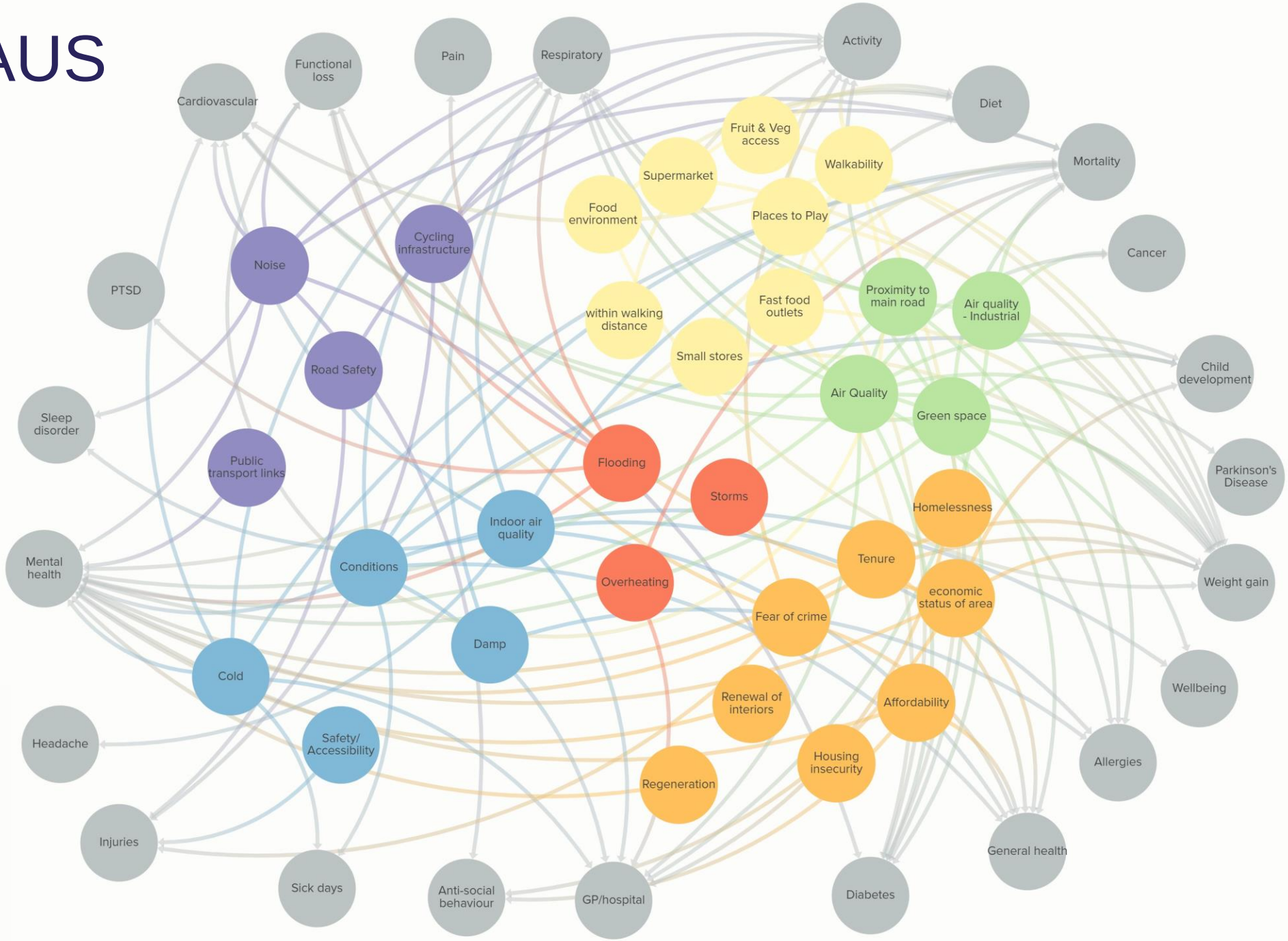


Exposure - Response
e.g. Attributable change to incident
cases of cardiovascular disease

Valuation

Societal cost of illness
e.g. cost of cardiovascular disease
per case per year over 25 years

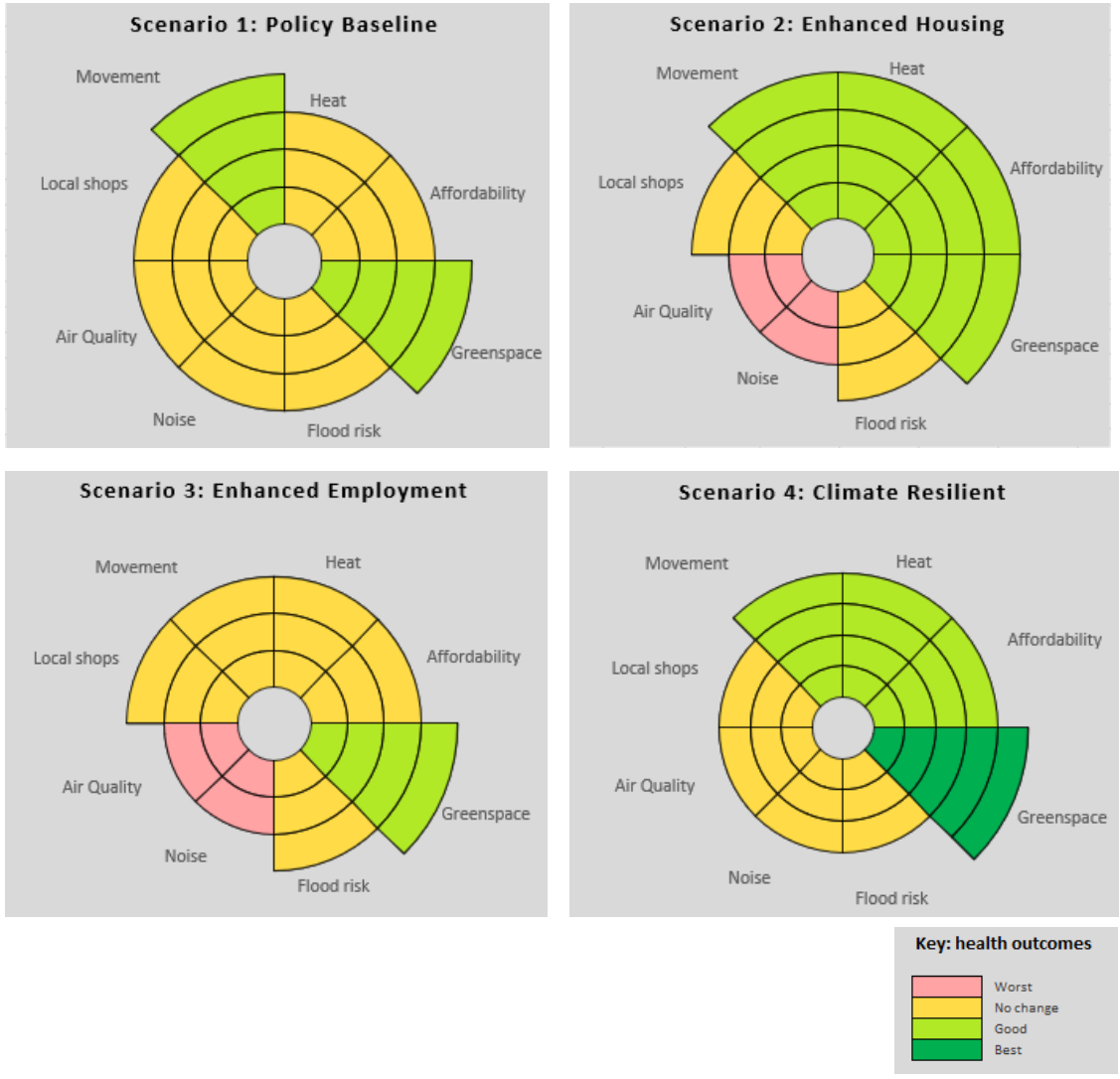
Scope of HAUS



Legend

- Opposite
- Building design
- Natural environment
- Transport
- Community Infrastructure
- Socio-economics
- Health outcome

Findings – Scenario Development



Input

- Rapid data sketch of the potential changes to health in each scenario

Impact

- Informed presentation to Mayor's office for approval of approach
- Consideration of potential impacts on populations outside the proposal boundary
- Story telling focussed on the size of the change and the type of illness, rather than the overall weight of effect
- Benefits of scenario 4, previously seen as a wild card, could be seen as realistic for consideration
- Relocation of accommodation blocks away from major noise and air quality hazards

Findings – Green space provision

Image credit: Green Space "Big Move", BCC Frome Gateway Strategic Regeneration Framework, Copyright Bristol City Council

Input

- Detailed economic valuation of alternative options for green space provision

Impact:

- Showed the value of the existing parks as assets for health
- Demonstrated the extent of increases in size and quality of green spaces required to effect major changes
- Informed discussion around provision of a single new park on site, including making the case for investment in new green space
- Showed the benefit of improvements to general greening of the public realm: more street trees and pocket parks throughout
- Emphasised the importance of legacy arrangements for the future management of green spaces in public areas

Results: Health impact appraisal

Tackling Root causes Upstream of Unhealthy Urban Development

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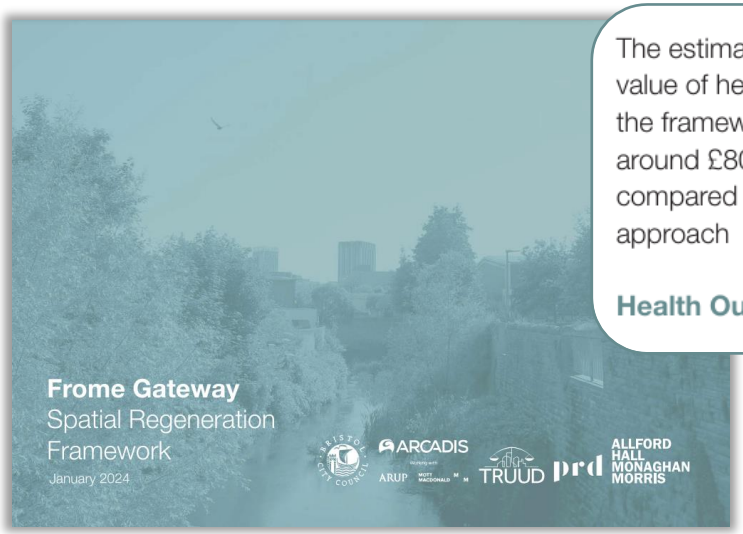


The estimated overall societal value of health benefits from the framework approach is around £80-£100 million, compared to an unmanaged approach

Health Outcomes

Prolonged exposure to housing costs above 30% of income can have a negative impact on mental health, increasing risk of mental disorders

Health Outcomes

Compared to low walkability areas, **high walkability areas are associated with a reduction in risk of depression by around 68%** for men over 65. Walkability improvements for the site could **improve health valued at £23 million** by increasing activity and reducing risk of conditions such as diabetes and weight gain.

Health Outcomes

Air pollution has the largest health impact of any factor at Frome Gateway, with current levels potentially increasing risk of premature mortality by around 6%. This could result in 1,700 premature life years lost, and result in health costs of £175 million. It is unlikely to reduce significantly without reduced traffic on Newfoundland Way.

Health Outcomes

Poor perceptions of the neighbourhood at Frome Gateway may prevent some people from leaving the house – potentially leading to problems with mental health and weight gain. Improvements planned for the site could be worth £0.5 million just for these two conditions alone.

Health Outcomes

Impact

3.3 Vision & Placemaking

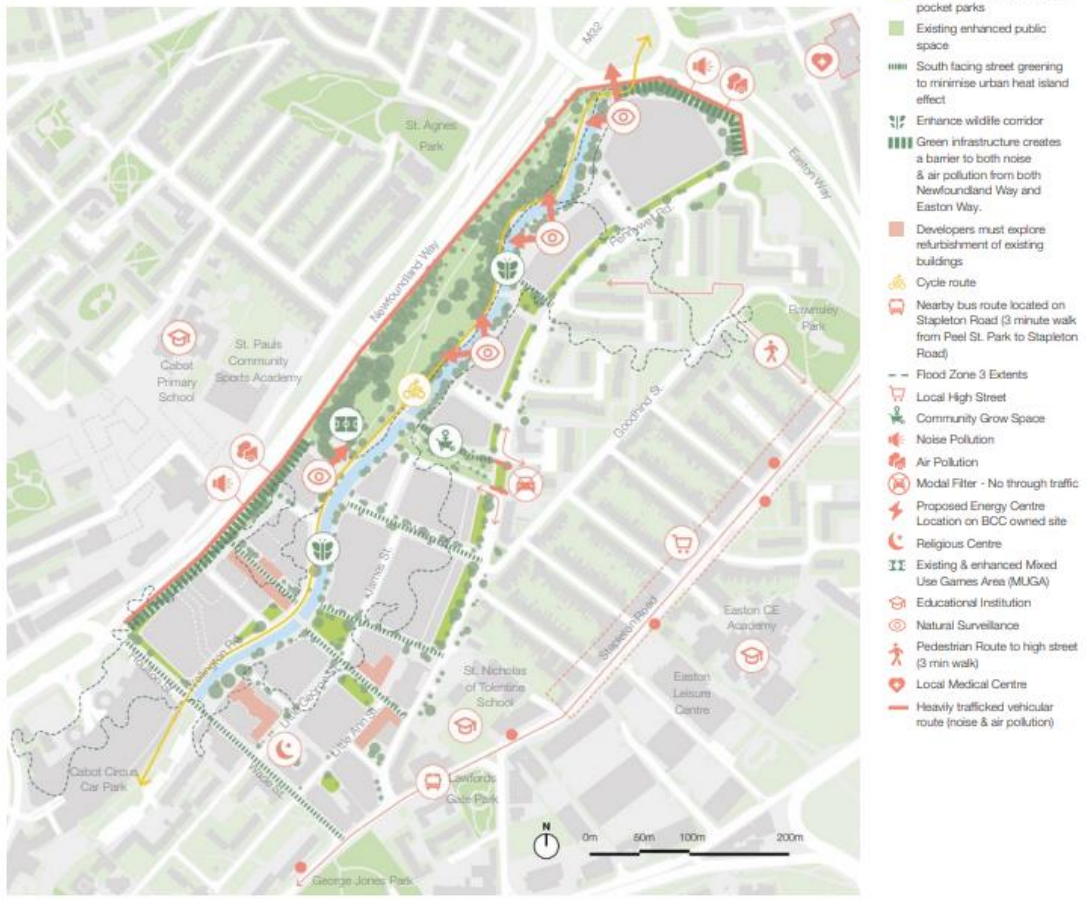
Urban Design Framework

Health & Wellbeing

The health and wellbeing of local people is a high priority and this framework seeks to maximise benefits for both new and existing communities. This framework has been developed alongside a Health Impact Assessment which outlines expectations to create a healthy neighbourhood by considering the wider determinants of health. These are summarised below.

Key Outcomes

- Accessible and affordable family homes to meet local need
- Good layout, orientation and insulation to protect from overheating in summer and fuel poverty in winter, as well as ventilation design that avoids exposure to air pollution and noise from major roads
- Avoid new hot food takeaways in the area due to links with obesity
- Support a diverse range of local employment and training opportunities for sustainable employment which can have mental health benefits
- Support social cohesion, inclusivity and sense of belonging by engaging early with different communities to inform development design.
- Sufficient local healthcare services capacity to meet the needs of a larger population
- Local social infrastructure such as community and leisure centres and places of worship to be supported and provided with opportunities to be accommodated within development plans
- Improve access to existing and new open and green spaces and nature to support physical activity and wellbeing in the area
- Enhance wildlife corridor along the River Frome to aid serenity in the area and bring ecological and mental health benefits
- Noise and air pollution must be minimised by promoting a green threshold between residential development and major roads (Newfoundland Way and Easton Way)
- Modal filter on Pennywell Road stops through traffic, increasing safety for pedestrians (including primary school children) and reduces air and noise pollution in the area
- Improved walking and cycling infrastructure encourages physical activity and potentially reduces premature mortality by around 10%
- Increase natural surveillance to reduce crime and change public perception of the area. Encouraging people to leave their homes and use green open spaces for physical activity will improve health and wellbeing
- Promote community food growing spaces in public green spaces. Access to healthy and affordable food can support healthy eating
- Reuse materials and refurbish buildings to reduce the environmental impact of construction and benefit health and well-being through reducing climate impact
- Safe escape is needed for flooding. Experiencing flooding can increase risk of mental and physical health problems



Key

- Development Footprint
- River Frome
- Proposed green public space/ pocket parks
- Existing enhanced public space
- South facing street greening to minimise urban heat island effect
- Enhance wildlife corridor
- Green infrastructure creates a barrier to both noise & air pollution from both Newfoundland Way and Easton Way.
- Developers must explore refurbishment of existing buildings
- Cycle route
- Nearby bus route located on Stapleton Road (3 minute walk from Peel St. Park to Stapleton Road)
- Flood Zone 3 Extents
- Local High Street
- Community Grow Space
- Noise Pollution
- Air Pollution
- Modal Filter - No through traffic
- Proposed Energy Centre Location on BCC owned site
- Religious Centre
- Existing & enhanced Mixed Use Games Area (MUGA)
- Educational Institution
- Natural Surveillance
- Pedestrian Route to high street (3 min walk)
- Local Medical Centre
- Heavily trafficked vehicular route (noise & air pollution)

- Extended **capacity and confidence** for regeneration teams to make the case for health in strategic planning
- Informed **wider storytelling** around health via detailed HIA
- **Demonstrated the value** of a strategic, co-ordinated approach beyond normal practice
- **Healthy principles** from these findings were threaded throughout the final Strategic Regeneration Framework consultation document
- Supported **recommendations to developers** to mitigate external risks to health, such as heat, air pollution and traffic noise

Image credit: "Health and Wellbeing"; BCC Frome Gateway Strategic Regeneration Framework, Copyright Bristol City Council

Limitations

- **Attribution of health effects** – causality and epidemiology
- **Linearity** – modelling of cases and values over time
- **Uncertainties** – health effects and unit costs of illness
- **Evidence base** – Scope, methods, evidence gaps
- **Data availability** – May not always have access to data on some environmental qualities
- **Spreadsheet based** – complex to use and interpret

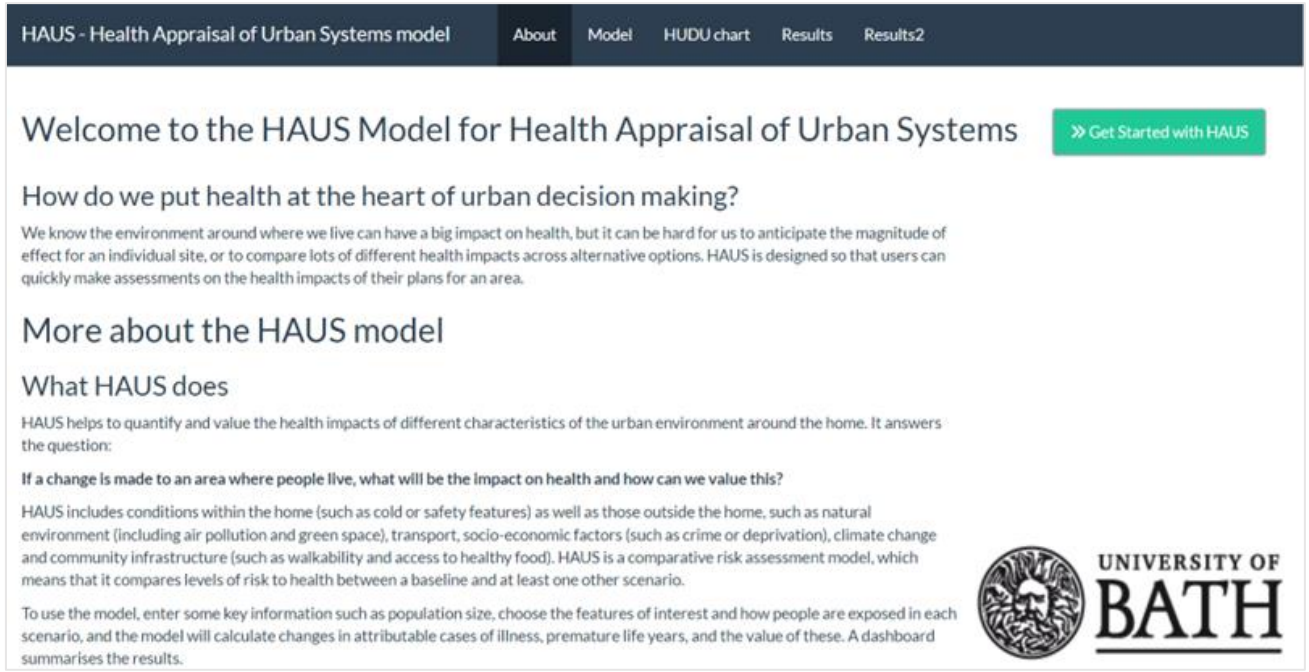
Conclusions

Strategic planning for urban areas could

- tackle health inequalities and mitigate serious risks to public health, such as from air pollution, noise and crime
- unlock potential within the public realm to encourage activity and improve mental health

Effective, **timely** access to quantitative health data can

- inform understanding of unhealthy environments
- strengthen arguments for good design
- increase the capacity of design teams
- improve the quality of urban developments



Case studies to explore applications

Co-design of final HAUS model

Online user interface

Legacy arrangements

What's next?

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Research Funders

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