Since September 2012, the SEI (formally Institute for Sustainability Solutions Research) has been working closely with the Low Carbon City Team at Plymouth City Council (PCC) to ensure that opportunities for research collaboration are realised. This has resulted in collaboration on a number of projects and project opportunities. However, it has been recognised that much of this collaboration has been reactive in nature. Hence, the partnership was keen to develop a proactive approach, setting out some of the key local sustainability issues for Plymouth and the related research questions and action learning opportunities. PCC’s 2014 Plymouth Plan Sustainability Appraisal1 Scoping Report has been used as evidence to define the themes presented here. Please let us know what you think – this is an iterative process!

**Background:**

Plymouth City Council is in the process of developing a Local Plan for the City2. The Plymouth Plan will set out a vision and strategy for the city’s sustainable growth to 2031.

**The purpose of this document:**

- Define the unique research opportunities in Plymouth: what research questions and learning areas can support Plymouth’s sustainable growth?
- Provide a platform for increased co-working between PU and PCC around a shared research need
- Identify priority research themes that support Plymouth’s sustainable growth challenges
- Identify medium to long term action learning opportunities linked to delivering sustainable growth

**Action learning opportunities:**

An inexhaustive list of current action learning opportunities has been compiled. These are schemes, projects or developments in Plymouth which present a unique opportunity for sustainability research which relates to the key themes outlined below. Relevant action learning opportunities have been suggested for each theme and each opportunity is detailed at the end of this document. Please note the list of opportunities is not intended to preclude research relating to other schemes, projects or developments – the list is intended to be a starting point.

**Document structure:**

The following section sets out the nine priority research themes including key contextual information and a number of relevant research questions. The final section includes outlines of the action learning opportunities referred to in the themes.
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1. HEALTH INEQUALITIES

Context
• Birth trends in Plymouth have plateaued since 2010, whilst the proportion of the population aged over 65, as well as those aged over 85, is currently rising and is predicted to rise further.
• There is significant disparity evident between the poorest and most affluent neighbourhoods of Plymouth across the majority of health and wellbeing indicators, life expectancy perhaps being the most profound.
• There are Local Super Output Areas (LSOAs) in Plymouth which fall into the 3%, 2% and 1% more deprived in England.
• The people of Plymouth suffer from worse health than the national average on two thirds of indicators.
• Whilst early death rates have fallen nationally, people in Plymouth still have lower life expectancies than the national average.

Research Questions:
1. How can the city’s growth agenda support interventions that tackle the inequality in life expectancy?
2. What role can accessible natural spaces play in reducing health inequalities? Is access to natural spaces more valuable to deprived communities? How can we ensure that maximum health and wellbeing benefits are achieved from our natural spaces?
3. Ageing population challenges – how does a city service an aging population?

Action learning opportunities:
Cumberland Centre; Stepping Stones to Nature
2. NATURAL INFRASTRUCTURE

Context
- Plymouth is unique in being surrounded by a World Heritage Site, three Areas of Outstanding Natural Beauty and also Dartmoor National Park. This network of natural infrastructure links the City with its rural and marine surroundings and supports ecological processes that are integral to the health and quality of life for the city’s future.
- The Plymouth sub-region includes six sites recognised at a European level for their biodiversity value – five Special Areas of Conservation (SACs) and a Special Protection Area (SPA).
- Within the city boundary there are nine Sites of Special Scientific Interest (SSSI) and eight Local Nature Reserves (LNR).
- Green and blue spaces require additional management.
- Positive management of nationally and locally important wildlife sites and the biodiversity network is currently inconsistent.
- The supply of high quality, accessible natural spaces may not keep pace with the ongoing demands of Plymouth’s growth agenda.
- Recreation in green and blue spaces is at risk of becoming unsustainable, in particular in the national parks and European marine site.
- Bathing water quality is a key issue, with particular importance for leisure and tourism in Plymouth.

Research Questions:
1. How do we ensure a supply of high quality natural space which services population wellbeing as well as the growth agenda?
2. How can we prompt a step-change in how natural spaces are valued by communities?
3. What contribution towards the Plymouth population’s wellbeing is made by our urban green spaces and how can these positive impacts be increased?
4. How do we value our green spaces? Hence, is it possible to leverage finance on natural assets?
5. What are the economic, social and environmental benefits of delivering new communities that contain significant green spaces and what actions can be taken to ensure that the planning vision is delivered on the ground?
6. Will Plymouth’s biodiversity networks function in the face of climate change? Do the Lawton principles work in urban environments?
7. How can we ensure that as our population grows urban green spaces and protected landscapes balance recreational needs with the need to protect biodiversity?

Action learning opportunities: Sherford; Derriford; Plym Valley Connections project
3. WATER QUALITY AND FLOODING

Context

- Due to a rise in European minimum water quality standards, Plymouth’s bathing beaches are under threat of being classified as unsafe for swimming. This is due to lower water quality associated with urban surface water run-off and sewage overflows during heavy rainfall.

- Plymouth and particular aspects of its infrastructure are at risk of flooding and the draft Local Flood Risk Management Strategy (LFRMS) identifies the following areas which require management:
  - Plympton – at risk of fluvial and tidal flooding, as well as fast flowing and pooling surface water.
  - Millbay/ Union Street – at risk of tidal flooding, including overtopping.
  - Plym Estuary – at risk from significant tidal flooding.
  - Sutton Harbour – at risk from tidal flooding.

- The Flood and Water Management Act makes Sustainable Urban Drainage Systems (SUDS) mandatory on new developments.

Research Questions:

1. What water infrastructure do we need to become a resilient city?
2. How can we manage our increasing flood risks and protect our water quality? What are the challenges and benefits of retrofitting SUDS?
3. How can Plymouth ensure that its bathing beaches meet current and future water quality standards?

Action learning opportunities:
Sherford; Derriford;
4. HOME ENERGY

Context

- Plymouth has the largest private sector Energy Company Obligation (ECO) scheme for retrofitting energy measures.
- Plymouth has a large proportion of ‘hard to treat’ properties, approx. 31%.
- Approx. 90% of Plymouth homes are heated by mains gas – a lower carbon and cheaper fuel option for domestic properties.

Research Questions:

1. How can we best drive uptake of domestic energy efficiency and renewable measures?
2. How can we influence behaviour change in order to ensure that energy saving technologies deliver the emissions reductions intended?
3. What technological and smart solutions can assist residents in reducing their energy demand? How can businesses be persuaded to invest in energy saving or renewable technologies in the absence of national ambitions?

Action learning opportunities: ECO; Sherford; Derriford
5. TRANSPORT

Context

- Plymouth’s population is growing and so is its geographical reach, with large housing developments being built on the city boundary. This will put additional pressure on main road arteries as well as other transport links, especially to the north and east of the city.
- Plymouth is a major hub on the strategic routes from London & the rest of the UK (and Europe) to Cornwall, including the A38, main rail links and the commercial port.
- Plymouth has low levels of congestion relative to other similar sized cities
- The A38 creates a north-south split in the city, making cycle and foot travel from the northern suburbs difficult.
- Cycling has increased in Plymouth with 40% more people cycling than in 2008.

Research Questions:

1. What is needed to ensure that city growth aspirations are supported by adequate transport links?
2. How can we create the modal shift away from car use that is needed to cut emissions and keep the city moving?
3. How can we design new infrastructure which will be flexible enough for future needs?
4. How to ensure that new housing developments on the city perimeter are established with quality non-car transport links?
5. Can the rising trend in cycling in Plymouth be maintained? How?

Action learning opportunities: Sherford; Derriford; smart ticketing
6. KNOWLEDGE ECONOMY

Context
- Plymouth plays a significant economic role in its sub-region, contributing Gross Value Added (GVA) of £4.3 billion in 2011 – 12% of the combined output of Heart of the South West and Cornwall Local Economic Partnership (LEP) areas.
- Knowledge and technology have become key drivers of economic growth across the UK, but the share of Plymouth jobs within the high technology sectors is significantly lower than national and regional averages.

Research Questions:
1. What is the role of the University in enabling growth in the city and in the expansion of the hi-tech knowledge economy? What are the spatial and land use requirements we need to meet to maximise the opportunity?
2. How can we make the most of the City Deal programme to enhance low carbon business?
3. As Plymouth’s population grows towards a 300,000 target, is growth delivering the predicted benefits to the city? How important are clusters, such as Derriford, or South Yard, in delivering this?

Action learning opportunities: City deal
7. SUSTAINABLE FOOD

Context
- Plymouth's hinterland is associated with a high level of food production, especially fruit, vegetables and fish.
- There are areas of high deprivation in Plymouth where access to fresh healthy food is limited and where diet related disease levels are high.

Research Questions:
1. How can we use food as a tool to address cross-cutting inequality issues, in particular poor health?
2. How can we create more growing opportunities around the city whilst ensuring the approach is environmentally, socially and economically viable?
3. How to maximize opportunities for sustainable food procurement?
4. How can we ensure that multifunctional community green spaces offer food growing opportunities, with adequate support, in areas currently lacking such provision?
5. How can food (growing, cooking and eating) be maximized as a lifestyle motivator?
6. What learning opportunities exist around food growing in the city and what wider benefits could be achieved?

Action learning opportunities: Cumberland Centre
8. GOVERNANCE AND PARTICIPATION CONTEXT

Context

• Participation in decision making is falling in line with national trends, but there is specific work to address this in the five most deprived neighbourhoods.

• Plymouth’s Voluntary and Community Sector (VCS) plays a key role in delivering essential services and is undergoing development work at present.

• The move to become a Cooperative Council reflects a growing number of cooperatives establishing in the city, alongside a growing network of social enterprises.

Research Questions:

1. How to make the most of opportunities for community involvement and co-design of services within the context of austerity and the need for sustainability?

2. How can we increase the value of VCS and what support is needed to enable the community and voluntary sector to take greater control of services?

3. What new approaches are needed in order to redefine how the council works for its residents?

4. Cooperative council’s agenda – how can these new models of governance maximize their effectiveness?

Action learning opportunities: Cooperative Council; Bickleigh Eco Village; Sherford; Derriford
9. HOUSING

Context

- Local Authorities are required to demonstrate a housing land supply which meets targets for the delivery of new homes. Plymouth’s 5 year housing land supply is anticipated to yield around 5,536 between 2014 and 2019.
- Accelerated delivery of new homes is needed to meet national targets.
- Affordability is a key issue in Plymouth where average incomes are low compared to house prices. More affordable homes are needed.
- The existing private rented housing stock is of particularly poor quality.

Research Questions:

1. In a city where average income is lower than average house price, how do we tackle affordability barriers to home ownership? How do we increase supply of affordable homes?
2. How can we raise the standards of housing in the private rented housing stock?
3. How can we ensure that quality and efficiency is not sacrificed in order to meet housing volume and speed of delivery?
4. How do we balance the need to deliver more homes with the need to enhance natural infrastructure within the city?

Action learning opportunities: Sherford; Derriford; Bickleigh Eco Village
ACTION LEARNING OPPORTUNITIES:

1. Cumberland Centre – In January 2013, the Plymouth University Peninsula Schools of Medicine and Dentistry announced the opening of a new venture set in the heart of Devonport in Plymouth. The new Cumberland Health Centre is a joint venture between the University of Plymouth and Plymouth Community Health Care, who provide primary care and community services in the city. The Cumberland Surgery will increase access to services where people can get advice, care and support. What’s more medical and health profession students will be working alongside the practicing GPs and nurses to get first-hand experience while they train to the highest levels. In turn, the University will offer training and research opportunities to the health professionals. A variety of research opportunities also exist for University staff.

2. Stepping Stones to Nature – Plymouth continues to deliver a nationally recognised programme of community engagement in local urban green spaces, providing research opportunities around outdoor education and the health and wellbeing benefits of access to the natural environment. It is anticipated this work will continue with a significant HLF funded programme based around the Plym Valley.

3. The Plym Valley Connections Project – The Plym Valley Connections Project is a partnership of local authorities, conservation organisations, land owners and community groups that have come together to coordinate enhancements to the Plym Valley. The key ambitions of the project are to protect the rich built and natural heritage of the valley, enhance the ability of the landscape to support wildlife and enable people to enjoy the valley. The project aims to increase public access to the landscape and re-connect communities with the history and heritage of the valley.

4. Sherford – large new town development in South Hams. Opportunities for research in a number of areas – community engagement and participation, shared green spaces and biodiversity, sustainable transport, SUDS, etc.

5. Derriford – large new housing, employment and retail development planned for the north of the city with particular potential for research linked to its role in driving the City’s economic growth, the delivery of sustainable transport solutions around travel planning, and a new 150ha community park.

6. Bickleigh Eco Village – Bickleigh Down Eco Village will be a new zero carbon village and exemplar sustainable community, which will act as a pilot project showing best practice for the future growth of housing in the South West. CornerstoneZED have been working with City of Plymouth council over a number of years to develop this exciting proposal. The proposal will create an exemplar sustainable development of up to 91 zero carbon homes, together with an assembly facility, to deliver the zero energy housing and low energy commercial and live-work units.
7. Plymouth and South West Peninsula City Deal – a ground-breaking deal with government to deliver economic growth in the south west in exchange for the devolution of powers and funding. The deal area covers Plymouth, Cornwall, Devon, Torbay and Somerset. The deal will tackle low rates of productivity, a key barrier to economic growth, by playing to the peninsula’s strengths and growing the marine and advanced manufacturing sectors. The south west has 14 per cent of the national marine supply chain, employing 26,000.

The City Deal represents an opportunity to study the impacts of sustained investment in economic development. The investment will focus on the advanced manufacturing, marine industry and potential for clean-tech development. The deal is unusual in covering such a large geographical area.

8. Cooperative Council – Cooperative Councils (CC) are local authorities who are committed to finding better ways of working for, and with, local people for the benefit of their local community. CCs have identified a need to define a new model for local government built on civic leadership, with councils working in equal partnership with local people to shape and strengthen communities. This means a new role for local authorities that replaces traditional models of top down governance and service delivery with local leadership, genuine co-operation, and a new approach built on the founding traditions of the co-operative movement: collective action, co-operation, empowerment and enterprise.

Plymouth is one of 16 other local authorities driving this type of innovation into the delivery of local government services. Others include Oldham, Liverpool, York, Newcastle and Southampton. This thinking is influencing how PCC approaches all its work but there are specific examples around energy, housing & economic development.

9. ECO – Plymouth is in the middle of one of the largest energy efficiency retrofit home programmes in the country. Plymouth Community homes are currently eco refurbishing 6000 properties, and PCC has partnered with British Gas to provide over 7000 homeowners, landlords, and tenants the opportunity to secure grants to improve their energy efficiency. This Energy Company Obligation (ECO) funded programme aims to save householders up to 35 per cent on their current heating bills by installing measures such as new boilers and external wall insulation.

10. Smart ticketing – South West Smart Applications Limited (SWSAL) are a not for profit, public/private company limited by guarantee and founded in October 2010. It is jointly owned by the Fifteen Highway Authorities and Seventeen Public Transport Operators in the South West. SWSAL’s key aims are to deliver smart and integrated ticketing throughout the South West, to improve passenger experience, to assist economic growth and to reduce carbon. SWSAL are based in the ISSR.

11. Plymouth Energy Community – Plymouth Energy Community is a members’ co-operative which was established in 2013, with support from Plymouth City Council. Its primary mission is to give the people of Plymouth the power to transform how they buy, use and even generate power in the city. Working together as a community we have the power to change our energy future for the better. In essence, it’s all about people power.

PECs work focuses around three core energy goals:
- Reducing energy bills
- Improving energy efficiency
- Generating a green energy supply in the city

PEC has also created PEC Renewables Ltd which in the process of delivering £1 million of solar panel installations across the city’s schools. Funded by a community share offer that raised £600k in 7 weeks, revenue from these local owned stations will provide £900k to fuel poverty and energy projects over the next 20 years.