

Greater Brighton Water Plan
July 2020

Contents

- Foreword from Water Working Group Chair – page 2
- Introduction – page 3
 - Impact of covid-19 – page 3
 - Supporting a green recovery – page 3
- The plan – page 5
 - Vision – page 5
 - Themes – page 6
 - Water energy agriculture nexus – page 9
- Context – page 10
 - Greater Brighton – page 10
 - The scale of the challenge – page 10
 - Relevant national policy – page 15
 - The 25 Year Environment Plan – page 15
 - Environment and Agriculture Bills – page 15
 - National Infrastructure Commission – page 16
 - National Framework for Water Resources – page 17
 - Regional Policy – page 17
 - Water resources and water efficiency – page 18
- The first five years – projects being taken forward – page 20
 - Water neutrality – page 21
 - Carbon capture projects – page 24
 - Water and energy efficiency visits – page 27
 - Rain garden campaign – page 29
 - Water recycling in large new developments – page 32
- Next steps and future action – page 34

Foreword from Ben Earl – Head of Water Efficiency at Southern Water and Chair of the Water Working Group

Greater Brighton is home to so much we all value.

We have an exceptional environment – miles of beautiful coastline, the South Downs National Park and a UNESCO Biosphere.

Before the covid-19 crisis hit, it was home to 400,000 jobs across 40,000 businesses from aviation to agriculture, high-tech manufacturing to creative agencies and tourism to international trade.

The coastline, the biosphere, the South Downs and the cultural hub of Brighton are why people visit Greater Brighton from across the UK and around the world.

All of these – and more – are why people want to move, work and stay here. This is why our region is growing.

But it's not without its challenges. This plan outlines the actions Greater Brighton can take to meet one of its biggest – water.

Water companies can – and are – taking steps to increase the quality and quantity of our resources. But there are actions that can only be taken collaboratively. Which is why we involved more than 45 organisations in the developing both the energy and water plans.

The projects we will develop over the next five years will help make Greater Brighton more resilient, improve affordability for residents and set the groundwork for our region to be recognised as a national leader in water efficiency and sustainable development.

The economic impact of covid-19 is still being understood, but we know it will be felt for many years. Stakeholders and political parties are calling for us to “grow back greener” and the Local Government Association estimates nearly 700,000 jobs could be created in a green recovery by 2030, with a fifth of those in retrofitting existing homes¹.

While the majority of the work to develop the plan was carried out before the crisis, the actions within it will help alleviate its economic impact – while addressing the longer-term climate challenge and setting a strong foundation for a resilient future.

¹ <https://www.local.gov.uk/lga-over-million-new-green-jobs-could-be-created-2050>

Introduction

Without action, the Greater Brighton region faces a water supply deficit of almost 90 million litres per day by 2050 due to the combined pressures of climate change, population growth and environmental protection. At the same time, there are increased risks of groundwater pollution from industry and agriculture and threats to infrastructure from flooding and coastal erosion.

Water companies have, and are developing, long-term plans in place to address these. This plan adds to these by bringing water companies, local authorities, regulators and businesses together to identify gaps in knowledge and policy, share best practice and identify solutions.

Without this plan, Greater Brighton will miss opportunities to become a UK-leader in sustainable water management, to improve the affordability of water and energy for its residents and secure a more sustainable foundation for growth.

Impact of Covid-19

The bulk of this plan was developed before the impact of Covid-19 became apparent. As such, many of the timings have had to become longer-term and less certain. We know the economic impact will be felt across business and both the public and charity sectors – so we may find funding available before the pandemic is no longer accessible.

As a result of the impact of Covid-19, the plan has to be flexible. The uncertainty – both economic and social – means competing pressures have to be managed and certain activities necessarily be prioritised over others. It also means the plan takes on a secondary purpose – as an evolving evidence base for Greater Brighton and Coast to Capital LEP to help our region sustainably recover.

Supporting a green recovery

Stakeholders have called for the UK to ‘grow back greener after lockdown’² and the projects and ambitions in both the energy and water plans will support Greater Brighton to do that. Infrastructure investment is an established vehicle for economic recovery, but this should not be limited to traditional ‘hard’ infrastructure thinking.

Through Coast to Capital, local authorities have submitted requests for £40 million to fund 10 (from an initial list of more than 100) projects to the Ministry of Housing, Communities and Local Government. These projects include funding for innovation centres, improving rural connectivity, developing green skills and investing in green technology. At the time of writing, the projects being funded are still to be determined.

² <https://greenallianceblog.org.uk/2020/05/04/we-must-grow-back-greener-after-lockdown/>

Separately, Southern Water has submitted for £530 million of no-regrets projects to government to be brought forward to aid recovery and facilitate future growth – possibly creating 35,000 jobs across the South East³.

The Local Government Association estimates potentially 700,000 jobs could be created by investment in a green recovery – with as many as 140,000 through retrofit programmes⁴. By working across Greater Brighton, and through the Coast to Capital LEP, additional funding could be secured for energy and water plan projects – possibly alleviating difficulties around cross-utility funding.

The next steps for the Infrastructure Panel will be to understand how the outputs from both plans can best support submissions by Coast to Capital LEP for funding and consider whether a supporting Green Recovery delivery plan is appropriate. This work will begin in summer 2020.

³ These are both direct and indirect through the supply chain

⁴ <https://www.local.gov.uk/lga-over-million-new-green-jobs-could-be-created-2050>

The plan

Vision

This plan is the first five-year step on the journey to achieve the Water Working Group's vision that:

By 2040, Greater Brighton will enjoy a resilient, integrated water environment, underpinning sustainable growth, with a popular appreciation of the fundamental role water plays in supporting daily life

This supports the Greater Brighton Economic Board's vision that the region will be a modern, growing economy that is international, creative, connected, talented and **resilient**.

A number of key objectives sit under the water plan's vision:

- Adopting a region-wide target of 100 litres per person per day by 2040 and sustainably reducing consumption
- Increase security and resilience of the water environment
- Achieve affordable water bills for all
- Understand and overcome key water infrastructure constraints to sustainable growth
- Measuring, protecting and investing in Greater Brighton's natural capital
- Providing regular information about water resources to Greater Brighton residents

To achieve these objectives, the water plan identifies five projects to be delivered over the next five years:

- Supplementing water efficiency home visits with energy efficiency interventions and affordability information
- Supporting [Sussex Inshore Fisheries Conservation Authority's Kelp Forest Restoration project](#) and investing in carbon-capture projects
- Piloting water neutrality for new developments of ten homes or more
- Piloting water recycling for 3,500 new homes at Northern Arc, Burgess Hill
- A raingarden communication campaign to promote nature and natural drainage in domestic gardens, driveways, pavements and business spaces.

This plan identifies opportunities and projects, but does not provide exact detail of where and how they should be delivered. After the plan has been adopted, the Water Working Group (WWG) will develop detailed execution plans, confirm funding sources and provide a launch pad for new activity.

This plan primarily focuses on water availability and quality, with limited focus on the impacts of flooding. This is due to the complexity of this issue and limited engagement with

Lead Local Flood Authorities (LLFAs) in Greater Brighton. The WWG has drafted a proposal for a technical study to understand flooding and coastal erosion across Greater Brighton and identify interventions to mitigate their impacts.

Themes

The water plan was developed around four interconnected themes – investing in our natural capital, engaging and inspiring communities, catering for sustainable growth and protecting our water resources.



Figure 1 – Themes in the water plan

Many of the projects and commitments within the plan support multiple themes, illustrated by the table below.

<u>Theme</u>	<u>Engaging and inspiring communities</u>	<u>Catering for sustainable growth</u>	<u>Protecting our water resources</u>	<u>Investing in our natural capital</u>
<u>Project / commitment</u>				
Real-time water resource information	✓		✓	
Water neutrality		✓	✓	
Enhanced home visits	✓	✓	✓	
Carbon capture projects and kelp restoration	✓	✓		✓
Reducing consumption to 100 litres per person	✓	✓	✓	
Water recycling	✓	✓	✓	
Affordable water bills	✓			
Overcoming constraints to sustainable growth		✓	✓	
Measuring and protecting natural capital	✓	✓	✓	✓

Table 1 – example of projects and themes

Water, energy, agriculture nexus

It's essential the challenges around water, energy and agriculture are addressed in an integrated way.

Food production is inextricably linked to water, and new agricultural policies will incentivise land managers for delivering public goods. Across the UK, almost 30% of licenced water abstractions are used for energy generation – and wastewater treatment processes are a source of renewable energy, as well as high-quality fertiliser for agricultural land. The Environment Agency estimate an additional 175 million litres of water per day is needed by 2050 to meet non-domestic needs⁵.

Numerous reviews and studies, including the 2009 Walker Review of water charging the Committee on Climate Change's report [UK Housing: Fit for the Future?](#) and the Green Alliance's [Cutting the Cost of Water](#) called for stronger links between water and energy efficiency programmes, with the latter finding ambitious water efficiency could reduce overall household bills by around £80⁶.

The water, energy, agriculture nexus illustrates the links and interdependencies between the three sectors and 'solving' this will deliver multiple benefits across them.

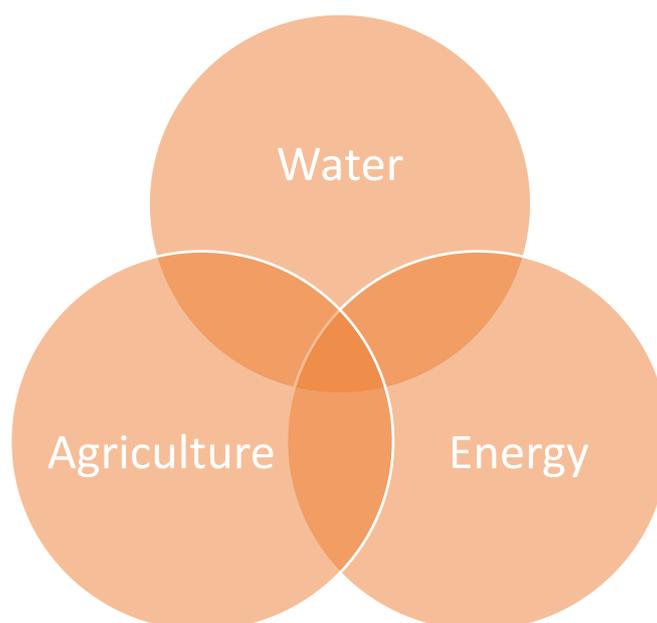


Figure 2 – water, energy, agri nexus

This plan is closely linked to the energy plan, but with some important differences.

The two sectors are regulated differently, meaning it is very difficult for new entrants and community-scale initiatives in water compared to energy. As a result, none of the

⁵ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/873100/National_Framework_for_water_resources_summary.pdf

⁶ Green Alliance – Cutting the Cost of Water

recommendations in this plan are investible opportunities of the same kind identified by the energy plan.

During the development of the concept of a community investment bond it emerged the costs were too high, with too low a return. This idea will be explored further to see if an investible programme can be identified.

Water companies' investment programmes are set and regulated by Ofwat, the sector's economic regulator. This adds an additional level of complexity to identifying and acting on investible opportunities and alternative sources of funding. The latest water company price determination, PR19, has been described by Ofwat, companies and commentators as "the toughest yet" adding additional financial pressures to water companies⁷.

As a result, the majority of the recommendations are to change policies, collaborate deeper and build on projects already underway to deliver more integrated, holistic benefits. Work will continue to identify investible opportunities which benefit residents, businesses, local authorities and investors.

⁷ <https://commonslibrary.parliament.uk/research-briefings/cbp-8931/>

Context

Greater Brighton

Greater Brighton stretches from Brighton to Crawley, and from Bognor Regis to Seaford and is home to almost 990,000 people, two international ports and an international airport.

Greater Brighton is also home to a UNESCO Biosphere, a national park, an area of outstanding natural beauty, 17 designated bathing waters and over 100 Sites of Special Scientific Interest. Six of the seven Greater Brighton local authorities have declared a climate emergency, with Mid Sussex district council pledging to “actively look for ways to protect the environment and tackle climate change”.

Before Covid-19, Greater Brighton supported 400,000 jobs and an economy worth £21 billion. The economic damage caused by the pandemic may not become apparent for some time, but it is clear it will have a severe impact to the important sectors in Greater Brighton.

The scale of the challenge

The South East is a growing region, and Greater Brighton is no different. The table below shows the predicted population increase by local authority area to mid-2028. Overall, Greater Brighton’ population is predicted to increase by 5.05% (almost 50,000). As a percentage, this is higher than the South East (4.4%) and London (4.9%)⁸.

Local Authority	Population Increase	Percentage Increase
Adur	2,125	3.3%
Arun	13,724	8.6%
Brighton and Hove	10,454	3.6%
Crawley	3,599	3.2%
Lewes	5,350	5.2%
Mid Sussex	8,915	6.0%
Worthing	5,755	5.2%
Greater Brighton	49,922	5.05%

Table 2 – population growth by Local authority

Without action, the Greater Brighton region faces a potential water resources deficit of around 90 million litres per day by 2050. The graph below shows the baseline (before water company interventions) supply-demand balance for the five water resource zones (WRZs) within Greater Brighton to 2050.

⁸

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/subnationalpopulationprojectionsforengland/2018based#change-by-region>

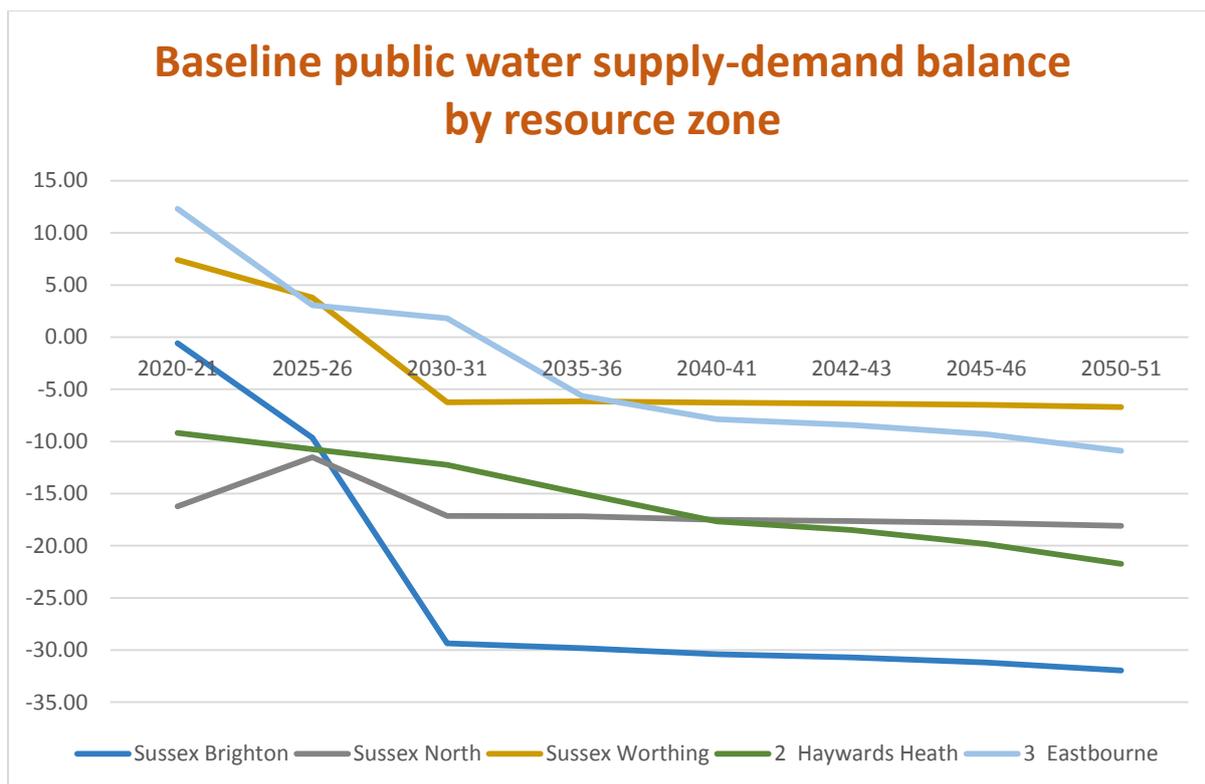


Figure 3 – Baseline public water supply-demand balance by resource zone

Water companies have long-term plans to address resource shortfalls, including significant investment in infrastructure. Policy interventions, large-scale behaviour change programmes and investment in natural capital will have positive impacts and deliver broader benefits – in potentially more cost effective ways.

Greater Brighton’s water resources challenges are not unique within the South East. Based on conservative estimates the South East will need an additional 1 billion litres of water a day over the next 30 years⁹.

Greater Brighton also has to address the “nitrates time bomb”. This is a phenomenon caused by historic high applications of artificial fertilisers that have not filtered through into groundwater aquifers because of the local geology – particularly in chalk areas. Although we are aware of the threat, it could take up to 100 years for nitrate levels to peak¹⁰.

With the majority of water supplied to Greater Brighton coming from groundwater¹¹, this is particularly acute challenge to address. Water companies are investing in catchment management and multi-stakeholder programmes like [The Aquifer Partnership](#) (formerly [Brighton ChaMP](#)) are specifically addressing this.

Protecting our precious groundwater

Annual Review 2018-19

RESULTS

NITRATE LEACHING

The use of cover crops compared with crop stubble or cultivated land shows a reduction in nitrate leaching of between **50%-95%**

A diverse cover crop seed mix is more effective than a simple mix

WORKING WITH FARMERS AND LAND MANAGERS

20 ADVICE VISITS

3 LAND MANAGER events and technical workshops

1 SOIL HEALTH WORKSHOP attended by 45 farmers, agronomists and

RURAL INCENTIVES PHASE 1

Measures to reduce the risk of nitrates entering drinking water sources

10 FARMERS signed up to...

17 INCENTIVES (10 SMN*, 6 Cover Crop, 1 Precision N*)

URBAN - SUSTAINABLE DRAINAGE PROJECTS

182

Figure 4 – The Aquifer Partnership infographic

Flooding and Coastal Erosion also creates challenges for sustainable growth across Greater Brighton. In the two years from 2018 to 2020, the Environment Agency objected to 37 planning applications across Greater Brighton and surrounding areas on flood risk grounds¹².

Planning authority ¹³	EA Objections ¹⁴
Adur and Worthing	20
Arun	30
Crawley	9
East Sussex	2
Mid Sussex	1
Lewes	9
South Downs National Park	4

Table 3 – EA planning objections on flood risk grounds – April 1 2017 to 31 March 2018

Almost the entire length of Greater Brighton’s coastline has a coastal erosion intervention planned. The map below shows planned interventions based on the Shoreline Management Plan for each area. Almost every ‘management unit’ has “hold the line” interventions

¹² <https://www.gov.uk/government/publications/environment-agency-objections-to-planning-on-the-basis-of-flood-risk>

¹³ No data available for Brighton and Hove City Council or West Sussex County Council. East Sussex County Council included to

¹⁴ This includes where the EA identified risks to life or property and where unacceptable flood risk assessments have been carried out

planned. This means it has an “aspiration to build or maintain artificial defences so that the position of the shoreline remains”. Between Brighton and Newhaven there is a section of ‘No Active Intervention’ and at a number of locations around Brighton and Peacehaven the policy is to hold the cliff toe until 2055 and then monitor, manage and review¹⁵¹⁶.

As mentioned above, flooding and coastal erosion is an incredibly complicated issue involving a wide range of stakeholders from central and local government, as well as water companies, community groups and infrastructure providers. The Water Working Group has drafted a proposal for a technical study to understand flooding and coastal erosion across Greater Brighton and identify interventions to mitigate their impacts.

The Southern Regional Flood and Coastal Committee includes 13 elected members from local authorities alongside a number of independent expert members and a representative from Southern Water. Its role is to:

- Ensure coherent plans for identifying, communicating and managing flood and coastal erosion risks across catchments and shorelines
- Encourage efficient, targeted and risk-based investment in flood and coastal erosion risk management that represents value for money and benefits local communities
- Provide a link between the Environment Agency, LLFAs, other risk management authorities, and other relevant bodies to build understanding of flood and coastal erosion risks in its area

In June 2020, Southern Water began work on its first Drainage and Wastewater Management Plan (DWMP). DWMPs are new long-term planning studies that will identify sewerage and wastewater treatment needs over the next 25 years – similar to the approach companies already take for water resources planning.

Industry body Water UK has developed a framework for companies to use as they develop their first plans¹⁷. Companies will consult on their plans during 2022 to inform their 2024 price review and investment programmes from 2025 onwards.

¹⁵

<https://environment.maps.arcgis.com/apps/webappviewer/index.html?id=9cef4a084bbb4954b970cd35b099d94c>

¹⁶ <https://se-coastalgroup.org.uk/shoreline-management-plans/beachy-head-to-selsey-bill/>

¹⁷ <https://www.water.org.uk/policy-topics/managing-sewage-and-drainage/drainage-and-wastewater-management-plans/>

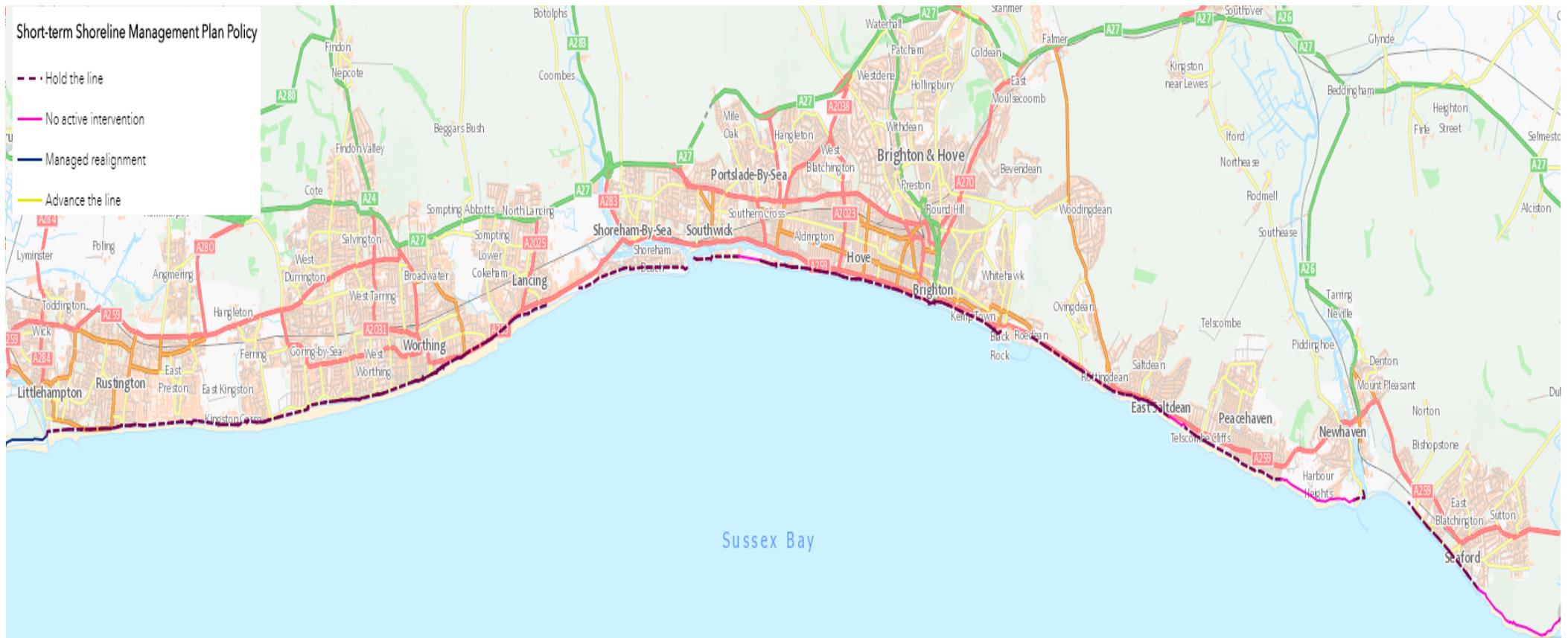


Figure 5 – map showing coastal erosion interventions across Greater Brighton

185

Relevant national policy

In recent years, water has risen up the public, political and policy agendas, and the Greater Brighton Water Plan reflects this.

The 25 Year Environment Plan

Government’s 25 Year Environment Plan (25 YEP) set out how it will meet its commitment to improve the environment.

Two goals from the 25 YEP are highly relevant to the water plan: to “**Ensure clean and plentiful water**” and “**Reduce the risk of harm from environmental hazards**”. The table below shows the actions identified under these two goals.

Some of the actions outlined in the 25 YEP have been taken. Defra consulted on measures to reduce personal water consumption in late 2019 and the outputs are expected to be included in the Environment Bill.

Ensure clean and plentiful water	Reduce the risk of harm from environmental hazards
<ul style="list-style-type: none"> ➤ Safeguard and improve the quality of surface and ground waters through an effective and modern framework of protection and tools ➤ Reach or exceed objectives in our river basin management plans for rivers, lakes coastal and ground waters that are specially protected ➤ Protect bathing waters, shellfisheries, protected sites for wildlife and marine water quality ➤ Ensure sustainable levels of abstraction through our regulation and action ➤ Ensure resilient, sustainable, affordable water and sewerage services to homes and businesses in England 	<ul style="list-style-type: none"> ➤ Ensure a water infrastructure and water environment that can cope with extreme events by producing national and local resilience and incident response plans, including drought plans ➤ Coordinate the delivery of the National Flood Resilience Review commitments, including working with the water sector to deliver permanent improvements to the flood resilience of their assets

Table 4 – 25 Year Environment Plan goals and actions

Environment and Agriculture Bills

In the December 2019 [Queen’s Speech](#), the Government committed to bringing back its Environment Bill to “protect and improve the environment for future generations”. This includes enshrining environmental principles and targets in law and the establishment of a “world-leading regulator”.

It also includes specific action on water. Government said the bill will contribute to:

“Managing water sustainably through more effective legislation to secure long-term, resilient water and wastewater services. This will include powers to direct water companies to work together to meet current and future demand for water, making planning more robust, and ensuring we are better able to maintain water supplies.”

The Speech also included the Agriculture Bill, which will move the agricultural subsidy system to one “based on ‘public money for public goods’” – including protecting and improving water quality and reducing flood risk.

Government committed to responding to the National Infrastructure Commission’s National Infrastructure Assessment (NIA) by publishing a National Infrastructure Strategy alongside its first budget. This NIA included recommendations on water infrastructure, water efficiency and flood resilience.

Due to Covid-19, progress of both the Agriculture and Environment Bills, alongside Government’s full National Infrastructure Strategy, has stalled.

National Infrastructure Commission

The National Infrastructure Commission (NIC) published its NIA in 2018 which recommended compulsory water metering across the UK by 2030, halving leakage by 2050 and increased water transfers. It estimated securing resilient water supplies would cost £20 billion – compared to the £40 billion cost of reactive fixes and potential economic damage.

The Treasury published an interim response to the NIA in October 2018. In it, Government acknowledged the water sector is “beginning to rise to the challenge” and said regulators are assessing plans to ensure they are “in line with government expectations”.

The National Infrastructure Commission published a proposed resilience framework – Anticipate, React, Recover – in June 2020. It makes three recommendations:

1. Government should introduce a statutory requirement by 2022 for Ministers to publish
 - a. Clear, proportionate standards for the resilience of energy, water, digital and transport services
 - b. an assessment of how existing structures, powers and incentives enable operators to deliver these standards or where changes are needed
2. Regulators should, by 2024, require regular stress testing for energy, water, digital and transport infrastructure operators, to ensure infrastructure operators’ systems and decision-making can credibly meet resilience standards for infrastructure services
3. Energy, water, digital, road and rail infrastructure operators should develop and maintain strategies to ensure infrastructure services can continue to meet resilience standards in the long term. To ensure this, regulators should:
 - a. introduce obligations by 2023 on infrastructure operators to require them to develop and maintain long term resilience strategies
 - b. In future price reviews, set out how their determinations are consistent with meeting short and long-term resilience standards

National Framework for Water Resources

In March 2020, the Environment Agency published its national framework for water resources: [Meeting our Future Water Needs](#). This sets out the scale of the national challenge, as well as actions for water companies and regional water resources groups.

Each of the regional water resources groups will develop cross-sector strategies which understand the needs of all water uses, in contrast to water companies' statutory water resources management plans which only consider the needs of domestic customers. Each regional plan will "drive a step-change in water resource planning" by:

- **Increasing resilience to drought** so restrictions such as temporary use bans are needed no more than once in every 500 years by 2030
- **Delivering greater environmental improvement** by delivering sustainable abstraction reductions across sectors
- **Long-term reductions in water usage** by planning to achieve average per capita consumption of 110 litres per person per day by 2050
- **Leakage reduction** by delivering the industry's target of halving leakage by 2050
- **Reducing the use of drought orders and permits** by understanding the environmental risks of each measure and using them less frequently
- **Increasing supplies** by exploring a range of storage options and developing new sources
- **Moving water to where it's needed** – by fully exploring opportunities for transfers

Regional Policy

Water Resources in the South East is a collaborative effort between the South East's water companies, Defra and sector regulators. Its ambition is to create a region-wide Water Resources Management Plan, factoring in the needs of all water users, ahead of 2024. It has started this process, in line with the national framework for water resources.

Coast to Capital Local Enterprise Partnership's Strategic Economic Plan lists 'Investing in sustainable growth' as a key priority for the region with ambition to reduce water demand and has set short and long-term actions, as outlined below:

Actions 2018-20

- Investigate what is needed to create a regulated market place for investment in natural assets and services.
- Bring together local authorities, utility providers and neighbouring Local Enterprise Partnerships to identify potential for development standards for water and waste use and management

Actions 2020-30

- Support low-carbon growth and innovation through knowledge transfer from our area's universities.
- Agree development standards for waste and water use and management

As of June 2020, Coast to Capital is reviewing its evidence base for the Local Industrial Strategy in response to Covid-19. The Working Water Group, through the Infrastructure Panel, is committed to supporting this work and feed projects in as appropriate.

Water resources and water efficiency

This is the biggest challenge identified by the group.

Water companies have long-term plans to address resource shortfalls, including significant investment in infrastructure. Policy interventions, large-scale behaviour change programmes and investment in natural capital will have positive impacts and deliver broader benefits – in potentially more cost effective ways.

Sustained pressure to embed water efficiency in new developments will help balance the needs of new developments, the requirements to invest in carbon-intensive infrastructure and ensure more water is left in the environment.

The table below shows policies Greater Brighton local authorities have in place or are proposing. There is ambition to implement more ambitious water efficiency targets, but local authorities are often unable to enforce these. Greater Brighton can use its collective voice to push Government for tighter water – and energy – efficiency standards in new homes and work across sectors to encourage and incentivise developers to go further.

It is crucial new developments are designed with the needs of existing communities in mind and sustainability is embedded from the outset. Greater Brighton can become a test-bed for new initiatives – from behaviour change campaigns to adopting development-scale water recycling and rainwater harvesting.

Local Authority	Water efficiency standards for new homes
Adur	To ensure that all new development of two dwellings or more are water efficient and reduce pressure on water abstraction sites, it must include measures that meet the optional standards of 110 l/person/day
Arun	To ensure that all new development of two dwellings or more are water efficient and reduce pressure on water abstraction sites, it must include measures that meet the optional standards of 110 l/person/day. – <u>from adopted local plan</u> -
Brighton and Hove	All development proposals including conversions, extensions and changes of use are required to demonstrate how the development aspires towards water neutrality by meeting high water efficiency standards and incorporating facilities to recycle, harvest and conserve water resources. From <u>CP8 sustainability policy</u>
Crawley	New dwellings should, where viable and technically feasible, meet the Building Regulations optional requirement for tighter water efficiency. For non-residential development, where technically feasible and viable, development should meet BREEAM Excellent, including addressing maximum water efficiencies under the mandatory water credits
Lewes	Planning permission will not be granted for development schemes which do not incorporate measures to conserve and make the best use of existing water resources, including reducing wastage.
Mid Sussex	Residential units should meet a water consumption standard of 110 litres per person, per day (including external water use); Non-residential buildings should meet the equivalent of a 'Good' standard, as a minimum, with regard to the BREEAM water consumption targets for the development type."
South Downs National Park	Water: Total mains consumption of no more than 110 litres per person per day from <u>local plan</u>
Worthing	Securing higher levels of water efficiency also helps to improve wastewater treatment capacity through reducing the amount of water needing treatment. Accordingly, all new dwellings in Worthing will be required to meet the tighter Building Regulations optional requirement of 110 litres/person/day. From <u>local plan consultation document</u>

Table 5 – Greater Brighton water efficiency standards

The First Five years – Projects being taken forward

Through engagement with stakeholders and understanding the context outlined above the Water Working Group identified three issues which need to – and can be – addressed by the Greater Brighton plans. These are:

- Water resources (including quality) and efficiency
- Improving affordability
- Investing in our natural capital and better management of the water environment

Each of the five projects outlined below addresses one of more of these issues and themes identified (as demonstrated in table 1 above and table 6 below). The projects have been refined through engagement with the Water Working Group from a larger list to those deliverable within the five-year timeframe and the remit of Greater Brighton.

Alongside the delivery of these projects, the Water Working Group will continue developing projects it deemed could not be delivered within the timeframe or without further investigation or information and support the work of the innovation group.

<u>Project</u>	<u>Water resources (including quality) and efficiency</u>	<u>Improving affordability</u>	<u>Investing in our natural capital and better management of the water environment</u>
<u>Water neutrality</u>	✓	✓	
<u>Enhanced home visits</u>	✓	✓	
<u>Carbon capture projects and kelp restoration</u>	✓		✓
<u>Water recycling</u>	✓	✓	✓
<u>Rain garden campaign</u>	✓		✓

Table 6 – Water Working Group projects

Water neutrality

New developments should have a minimal impact on the resilience of both the environment and existing infrastructure. Water companies are obliged to provide connections to new developments and develop new supplies if required.

‘Water neutrality’ is the idea new developments should have a ‘neutral’ impact on the amount of water used in the area and therefore the amount taken from the environment.

There are, broadly, two ways to achieve water neutrality – making a new development totally self-sustaining through on-site water supplies and potable water recycling or by offsetting its consumption. The first option is not yet technically or economically feasible, particularly for smaller developments. The water recycling pilot project at Northern Arc will be an important step towards this.

The second option, offsetting, is more feasible. Developers will be asked to contribute to highly successful water saving retrofit programmes (linked to energy efficiency through the plan) with the aim of being water “neutral”, ensuring new developments are as sustainable as possible. This programme will be in addition to, rather than in place of, the ambitions Greater Brighton local authorities have for water efficiency in new developments.

We estimate the cost per home visit would be £70 to £100 and would apply to developments of more than ten homes. This project will deliver the water neutrality pledge.

Themes and issues addressed

- Protecting our water resources
- Catering for sustainable growth
- Engaging and inspiring communities
- Water resources and efficiency
- Improving affordability

Partners

This project requires equal commitments from three main partners:

- Water companies – providing links to water efficiency contractors, tracking water use to measure “neutrality”. Providing locations for home visits and delivering the visits through third parties
- Developers – funding water efficiency visits for identified nearby homes and embedding water efficiency best practice in new homes
- Local Authorities – setting planning expectations (and conditions where possible) that all developments of ten or more homes would be required to fund water and energy efficiency retrofits

Timescales and next steps

By early 2021, the Water Working Group will consult with stakeholders, including developers and local authorities, to determine a definition of water neutrality, including how best to measure it. It will also have identified possible funding mechanisms, including whether Community Infrastructure Levy funds could be used.

By the end of 2021, a pilot project in at least one local authority area will be identified including funding, measurement and evaluation.

By the end of 2022, the WWG will produce a lessons-learned document which can be used by local authorities when developing future strategic plans. This will also help identify possible policy changes Greater Brighton could lobby for.

Southern Water is working with Thames Water and Anglian Water on research to understand potential blockers to water neutrality and identify opportunities.

Ask for Greater Brighton Economic Board

- Local authorities to set planning expectations (or conditions where possible) that all developments of ten more homes are required to fund water and energy efficiency retrofits
- Other Greater Brighton members with housing stock – such as Universities – to support water neutrality with future developments
- Support from individual authorities for a pilot programme

Benefits

- Residents nearby to new developments will benefit from reduced water and energy bills
- Water companies will benefit from increased uptake of water efficiency measures and reduced consumption
- There will be benefits to long-term resilience as both new and existing developments will have reduced impacts on the environment
- Residents who previously may not have engaged in water saving behaviour may become more aware – increasing awareness of the importance of water in daily lives
- Carbon emissions will be reduced through lower domestic water use and heating – as well as reduced energy used to pump water¹⁸.

Risks and dependencies

- Developers cannot be compelled to contribute and are reluctant to volunteer funding, meaning the programme is limited to a very small number of homes
- Local authorities cannot change planning guidance or expectations
- Costs per visit are too high or economies of scale cannot be achieved
- New developments are in areas that have already had high levels of water efficiency visits, making the programme inefficient
 - This could be mitigated by developers funding an equivalent number of visits elsewhere in Greater Brighton, similar to carbon offsetting

¹⁸ Southern Water estimate treating and pumping 1 megalitre of water (equivalent to 1 million litres) generates 201 kgCO₂e – this excludes heating water at home

- Data sharing agreements between developers, local authorities and water companies will be necessary to properly target efficiency visits
- The visits will need to be carried out by an independent contractor to provide accountability and a clear way to track funding

Costs and funding

- Based on Southern Water's understanding of the market, water efficiency visits cost between £70 and £100 per visit
- Southern Water's water efficiency programme has delivered savings of around 36 litres per property, per visit
- The average per capita consumption in Southern Water's region is 130 litres per person per day. Average household occupancy, per the ONS, is 2.4 people, giving an average household consumption of 312 litres per person per day¹⁹
- Therefore for an average new house built to current buildings standards, there would need to be 8.7²⁰ water efficiency home visits to achieve water neutrality
- However, homes are built to 110 or 80 litres per person, the number of home visits (based on the same average household occupancy) would be 7.3 and 5.3 respectively
- Therefore the additional cost per new home will range from £371 to £870 depending on the final cost of the home visits and the per capita consumption level each new home is designed to

¹⁹ Note that this is **without** any other water efficiency measures such as using recycled water

²⁰ This is based on average consumption, multiplied by average occupancy, divided by the average saving per water efficiency home visit

Carbon Capture projects

Aims and Objectives

Carbon sequestration is a key pillar of our region's carbon neutrality ambitions and many interventions to capture carbon can deliver benefits for the wider water environment – or can be delivered by it.

The 'headline' carbon capture project supported by Greater Brighton is the restoration of the Sussex kelp forest. Greater Brighton wrote to the Environment Secretary in early 2020 expressing unequivocal support for Sussex IFCA's proposal to create an exclusion zone for drag-trawling, which would allow the kelp to regrow. It is also committed to looking at how to support the restoration of the forest. The appropriate method and body for doing this will be developed over time²¹.

Beyond the kelp forest, each local authority will identify suitable land in its area to create a new habitat, lock-up carbon and involve local residents as a physical demonstration of their response to the climate emergency.

The project could involve a combination of:

- Tree planting
- Marshland and wetland restoration
- Rain gardens
- Rewilding and working with nature

It's important to recognise the importance of offsetting as part of a regional approach to carbon neutrality – but not to the detriment of moving away from carbon-generating activities. Both activities should be undertaken, rather than an either / or choice. This was flagged as particularly important by the Water Working Group.

Partners

Delivering these projects depends on strong partnership working between local authorities, catchment partnerships, the Sussex Local Nature Partnership, water companies, the UNSECO biosphere and other environmental groups such as the Rivers and Wildlife Trusts and the Sussex Flow Initiative.

The Sussex Local Nature Partnership will lead on delivery. They are best placed to work with local authorities to identify the most appropriate projects for the land identified, secure funding and measure the natural capital benefits.

There are also partnership opportunities for local businesses by identifying space on their properties that could be turned over for carbon capture or by funding projects on local authority land as part of their carbon offsetting.

²¹ As of June 2020, the Environment Secretary is still to approve the required byelaw change.

Local community involvement is essential to make the projects a success. Residents' opinions should be sought when identifying appropriate green spaces to use for carbon capture and residents groups or neighbourhood associations could be provided with funding to maintain them. Local authorities, elected officials and environmental groups can identify the most appropriate methods of engaging local communities.

Potential Cost Implications and funding sources

The cost implications for this project are low. Local authorities can dedicate land already set aside as green space or identified through other programmes and the management costs will likely be covered by existing budgets.

Businesses in the area can support the projects by funding tree planting, if appropriate, or providing funding to environmental groups to deliver and maintain the projects on their behalf. As above, carbon offsetting is an important part of the mix of interventions to move Greater Brighton to Net Zero. Companies' financial commitments would depend on their offsetting budgets.

Community involvement could be funded through local authority and environmental groups' engagement budgets with support in kind from businesses and Greater Brighton.

Timeline and milestones

Due to the impact of Covid-19, timings need to be defined through consultation with local authorities and environmental groups. A suggested timeline is:

- Suitable projects identified in each local authority by April 2021
- Plan for each site agreed by July 2021
- Projects implemented by April 2025

Next steps

The lead partner – Sussex Local Nature Partnership – will start consulting with other partners to understand what land is available from local authorities, how best to measure the impact of interventions and identify sources of funding from businesses. After this, it will develop delivery plans for each project and oversee their implementation.

Ask for Greater Brighton Economic Board

There are two primary asks for the Greater Brighton Economic Board

- Each local authority to commit to identifying land available for the projects and working with the Sussex Local Nature Partnership to deliver them
- Work through business partnerships to identify businesses who want to invest in projects as part of their carbon offsetting

Benefits and outputs

The full range of benefits will be identified through measuring the natural capital before and after the interventions. However, it's documented that increased access to green spaces provide benefits to health and well-being, as well as improved biodiversity.

Depending on the type of project, in addition to carbon sequestration, benefits could include improved water quality and reduced flood risk.

Dependencies and Risks

The project is dependent on funding and support from local authorities at times when their budgets are stretched and they are having to prioritise essential activities. This may mean they cannot dedicate the time, resources and funding necessary to make the projects successful – including not being able to identify suitable locations.

WWG members flagged the risk that overly focussing on carbon offsetting and sequestration could detract focus from the changes in behaviours and practices needed to reduce carbon emissions. Both activities are necessary to achieve Net Zero.

WWG members also flagged tree planting cannot be seen as a 'panacea' and that it might not be the best solution in each location. If tree planting is the right solution, it's essential the 'right trees are planted in the right place' to maximise benefits.

Greater Brighton Pledges linked to

- Supporting the Sussex Kelp Forest restoration
- Lobbying

National and Local Policy Links

This project is linked to the following national and local policies, objectives and plans:

- 25 Year Environment Plan
- Local Industrial Strategy
- UNESCO Biosphere Strategic Plan
- South Downs National Authority strategic plan
- Climate emergencies declared in each local authority
- Individual business and sectors Net-Zero commitments – including the water industry Public Interest Commitments

Existing GB projects linked to

This project is linked to the following existing projects and plans underway or being developed across Greater Brighton:

- The Aquifer Partnership (formerly ChAmP)
- The Sussex Flow Initiative
- Water companies' business plans, Water Resources Management Plans and Drainage and Wastewater Management Plans

Water and energy efficiency visits

Aims and Objectives

Links between water and energy efficiency are well established, but combining the two has proved difficult. Different regulatory systems and the separation of wholesale and retail in the energy sector have made providing combined energy and water efficiency visits challenging – despite clearly identified benefits²². Capacity issues such as peak time energy usage and other energy saving measures will also be considered.

Greater Brighton residents, who receive water from Southern Water, will be offered a free, bespoke two-hour home visit which delivers behaviour change advice, free water and energy saving products (such as energy efficient lighting, water saving shower heads and tap regulators) and related information. They will also include fixing leaks on toilets.

Southern Water intend to carry out approximately 10,000 water efficiency visits across Greater Brighton over five years from April 2020. Their current programme saves approximately 36 litres per household, per visit.

Partners

Southern Water will lead on this project, but need financial and logistical support from a range of partners. Southern Water has an existing home visits programme and is committed to carrying out thousands more between 2020 and 2025.

However, it cannot fund additional activities on top of its home visits. It will need to secure funding from partners such as UK Power Networks or through Community Energy South and BHESCO networks. Community Energy South and BHESCO already have, or sponsor, home energy efficiency visits so can provide advice, logistical support and potential funding sources.

Research by the University of Sussex found those in vulnerable circumstances can benefit from household visits of this type – but often do not know how to access them. Local authorities, social housing providers and third-sector organisations working in the vulnerable sector could either share data with companies carrying out home visits or flag the visits to people who might benefit from them.

Potential Cost Implications and funding sources

The core home visit programme will be funded by Southern Water. Energy efficiency services will need to be funded by energy companies or community energy groups.

Timeline and milestones

- Consultation with water companies, energy network providers, local authorities and community energy groups by end of 2020

²² The Green Alliance estimate that ambitious water and energy efficiency can save consumers £78 per year on their household bills - <https://www.green-alliance.org.uk/resources/Cutting%20the%20cost%20of%20water.pdf>

- Pilot local authority area identified by May 2021
- Agreement with all stakeholders reached by Summer 2021
- Implementation from Summer 2021

Next steps

- Southern Water to work with UK Power Networks, Community Energy South and BHESCO to identify available funding to understand how many visits can be carried out
- Identify pilot local authority area to trial and measure success of combined visits
 - This area should be a mixture of rural and urban areas to reflect the geography of the region
- Seek support from Beis and Defra as part of UK Carbon Plan
- Work with third-parties to develop additional information on sustainability behaviour change and affordability support

Ask for Greater Brighton Economic Board

- Support from the Board for the concept and to identify potential pilot areas
- Sign up of each local authority to promote and share information from social housing register to allow targeted visits
- Support for lobbying efforts with Defra and Beis to join-up these areas in policy

Benefits and outputs

- Residents benefit from cheaper energy and water bills
- Reduced carbon emissions from lower energy and water use – both at a household and production / distribution level
- Increased awareness of the links between water and energy use

Dependencies and Risks

- No additional funding is available so the energy efficiency component cannot be funded
- No local authority commits to pilot the scheme or is unable to share data, meaning visits are less targeted
- South East Water do not currently offer free home water saving visits which may limit the area this can be rolled out into
- The impact of Covid-19 on customers' willingness for home visits will need to be understood. The visits are currently free for customers, but some additional incentives may need to be provided
 - The Water Insight group will undertake work to understand this

Greater Brighton pledges linked to

- Efficient homes
- Lobbying

National and Local Policy Links

This project is linked to the following national and local policies, objectives and plans:

- 25 year environment plan
- National Infrastructure Assessment
- Future Homes Standard
- Net zero targets
- Climate emergencies
- local plans

Existing GB projects linked to

- BHESCO home visits
- Community Energy South energy awareness champions
- Southern Water home visits programme and Target 100
- Water company Water Resources Management Plans

Rain garden campaign

Aims and Objectives

The aim of this programme is to encourage Greater Brighton residents – including commercial and public buildings – to increase the amount of space dedicated to ‘rain gardens’. This could include permeable pavements and advice to promote nature and natural drainage in gardens and green spaces.

This will be achieved through a communications campaign, led by The Aquifer Partnership, to encourage residents, when renovating front gardens or driveways to consider the benefits of green-blue solutions rather than concrete. For commercial or public properties, the awareness campaign will focus on identifying spaces on their land to turn over to rain gardens or sustainable drainage.

This will deliver benefits for water quality, improved biodiversity and localised flood resilience – as well as natural and social capital benefits from more green spaces.

In the longer-term, this will be reflected in planning policy across Greater Brighton through increased prominence of, and priority for, sustainable drainage.

Partners

The Aquifer Partnership (TAP) (formerly the Chalk Management Partnership (ChaMP)) will lead this programme, with their experience of delivering sustainable drainage, expertise in measuring benefits and strong links with local authorities and the national park.

They will be supported by environmental groups, such as the Brighton and Lewes Downs UNESCO Biosphere who also have expertise delivering and measuring sustainable drainage schemes.

Cost and funding sources

TAP will identify the funding needed for the public awareness campaign, which may require support from Greater Brighton members. Residents, businesses and public bodies will fund the individual projects themselves.

Timeline and milestones

- Campaign to be designed by February 2021
- Campaign to be launched in June 2021

Next steps

- TAP and Biosphere to scope the communications campaign, identify funding needed and approach supporters
- Identify project group and begin designing campaign

Ask for Greater Brighton Economic Board

- Sign up of each local authority to promote the campaign
- Working through business partnerships to identify potential sites to convert to blue / green infrastructure
- Possible funding for the awareness campaign

Benefits and outputs

- Improved and protected groundwater quality
- Increased resident engagement in adapting to climate change
- Natural and social capital benefits from more blue- green spaces
- Reduced flood risk
- Improved biodiversity
- Carbon sequestration

Dependencies and Risks

- Low resident uptake and awareness of the campaign
- Commercial and public sites do not adopt rain gardens and sustainable drainage
- Funding is not available for the communications campaign
- Longer-term, sustainable drainage and rain gardens are not formalised through regional planning policies

Greater Brighton pledges linked to

- Rewilding

National and Local Policy Links

This project is linked to the following national and local policies, objectives and plans:

- 25 Year Environment Plan
- UNESCO Biosphere Strategic Plan
- South Downs National Park Authority Strategic Plan
- Local plans
- Work of the Natural Capital Committee

Existing GB projects linked to

- The Aquifer Partnership
- Existing rain garden and sustainable drainage projects
- Drainage and Wastewater Management Plans

Water recycling in large new developments

Aims and Objectives

The South East is a designated area of water stress. It is also an area with high levels of predicted housing and population growth. To facilitate this growth, we need to approach how new developments use water in a different way.

Water recycling – returning highly treated water to water networks rather than to the environment – will allow more sustainable management of our resources and reduce the amount of water taken from rivers and aquifers. In Hampshire, Southern Water are considering ways of direct water reuse – treating water to a high enough standard to be treated for drinking water. This poses its own technical and regulatory challenges.

In Greater Brighton, the proposal is to use water recycling for non-potable water – such as toilet flushing and outdoor use. This will be achieved by creating a secondary supply into new homes for the Northern Arc development in partnership with Homes England.

This will mean the new homes will have an average per capita consumption of around 80 litres – significantly lower than the regional average of around 130 litres, meaning residents will benefit from reduced water bills. As the recycled water is treated to a higher standard than normal, and is recycled through water networks, there will also be significantly reduced nitrates entering the water environment.

Longer-term, we hope the proof-of-concept from the Northern Arc development will mean this approach can become embedded across Greater Brighton through local plans.

Partners

Water recycling needs to work for water companies, developers, local authorities and residents. A broad partnership, bringing local and customer insight together with technical expertise is essential.

Southern Water and Homes England are leading on this project, with support from Mid Sussex District Council. Water Resources South East, the coalition of water companies developing a region-wide water resources management plan, will also be a valuable partner. A range of technical expertise will be sought from bodies including UK Water Industry Research (UKWIR) and Universities.

Due to the innovative nature of this project, there may be regulations which need to be changed – meaning support from Greater Brighton to lobby in support will be useful.

Potential Cost Implications and funding sources

Southern Water will seek to – at least partially – fund the project through an application to Ofwat's Innovation Fund to understand regulatory barriers. This application will be made when there is greater clarity about the application process. Homes England have also agreed to partially fund the pilot programme.

Southern Water will fund the new connections through its regulated funding settlement – including through the usual charging mechanism for new connections.

Timeline and milestones

- Consultation on pilot project with Homes England designed by end of 2020
- Application to Ofwat’s innovation fund in late 2020 / early 2021
- Agreement reached with Homes England by summer 2021
- Implementation in Northern Arc from summer 2022

Next steps

- Develop regulator plan and undertake customer insight
- Continue joint-venture discussions with Albion Water as an inset company
- Identify opportunities for other existing large sites to adopt water recycling

Ask for Greater Brighton Economic Board

- Support for concept and Ofwat innovation fund application
- Longer-term consideration of water recycling for all large developments

Benefits and outputs

- UK-first project showing Greater Brighton as a leader in sustainable development
- Customers moving into new homes have cheaper water and wastewater bills
- Increased resilience of water environment
- Reduced nitrates released into the environment
- Southern Water and developer can claim low PCC of around 80 litres
- First project of this size and scale in the UK

Greater Brighton pledges linked to

- Lobbying
- Water recycling
- Water neutrality

National and Local Policy Links

- Future Homes Standard,
- 25 Year Environment Plan
- National Infrastructure Assessment

Existing GB projects linked to

- Water companies’ business plans
- Water Resources Management Plans
- Local Plans

Next steps and future action

The next steps for each project are outlined above. The next actions for the WWG, alongside the project leads, will be to develop delivery plans for each of them. It will also work with the innovation group, being developed to support the infrastructure panel, to further develop projects deemed unsuitable to take forward in this plan. Projects include:

- Providing regular information to Greater Brighton residents on water efficiency and water resources to support sustainable reductions in consumption
 - This will require behavioural insight on how best to share information for maximum impact
- Identifying opportunities for Greater Brighton residents to invest in water infrastructure
 - Including understanding how to overcome the limitations the WWG found while developing a community investment bond for water

Water insight group

To ensure Greater Brighton residents are provided water availability information in effective, impactful ways it is necessary to understand their motivations, levels of interest and drivers of engagement with information about water availability.

The WWG will form an insight group to share, and where appropriate, commission evidence and identify possible trials. The group will include the insight and water efficiency leads from both Southern and South East Water and identify key individuals from across the Greater Brighton network to support its work.

It will build on two key pieces of insight work already proposed. The first is joint research, commissioned by Southern Water and South East Water and undertaken by the Behavioural Insight Team and specialist consultancy Accent, examining how to change entrenched customer behaviours around water use. Southern Water have also committed to undertaking an 'insight sprint', to understand what frequencies and formats customers would find water resources information useful, and how this might change their behaviour. Outcomes of this will be shared with the insight group to inform potential trials of regular and real-time information.

Lobbying for policies on water recycling and water and energy efficiency

The WWG will develop proposed lobbying positions for Greater Brighton to adopt to support the 'Lobbying' pledge. These will be agreed by the WWG and Infrastructure Panel, and supported by local and national best practice and evidence.

As of June 2020, the Environment Bill is yet to continue progression through Parliament and will present an opportunity to influence government for more ambitious action on water efficiency. The Future Homes Standard is also still being developed and also presents an opportunity for action on water efficiency.

Greater Brighton Infrastructure Panel

The next steps for the Infrastructure Panel will be to understand how the outputs from both the energy and water plans can best support submissions by Coast to Capital LEP for funding and consider whether a supporting Green Recovery delivery plan is appropriate. This work will begin later in summer 2020.

It will, through the working groups, monitor delivery of the plans and start work to understand which sectors (such as transport or communications) should be examined next.

