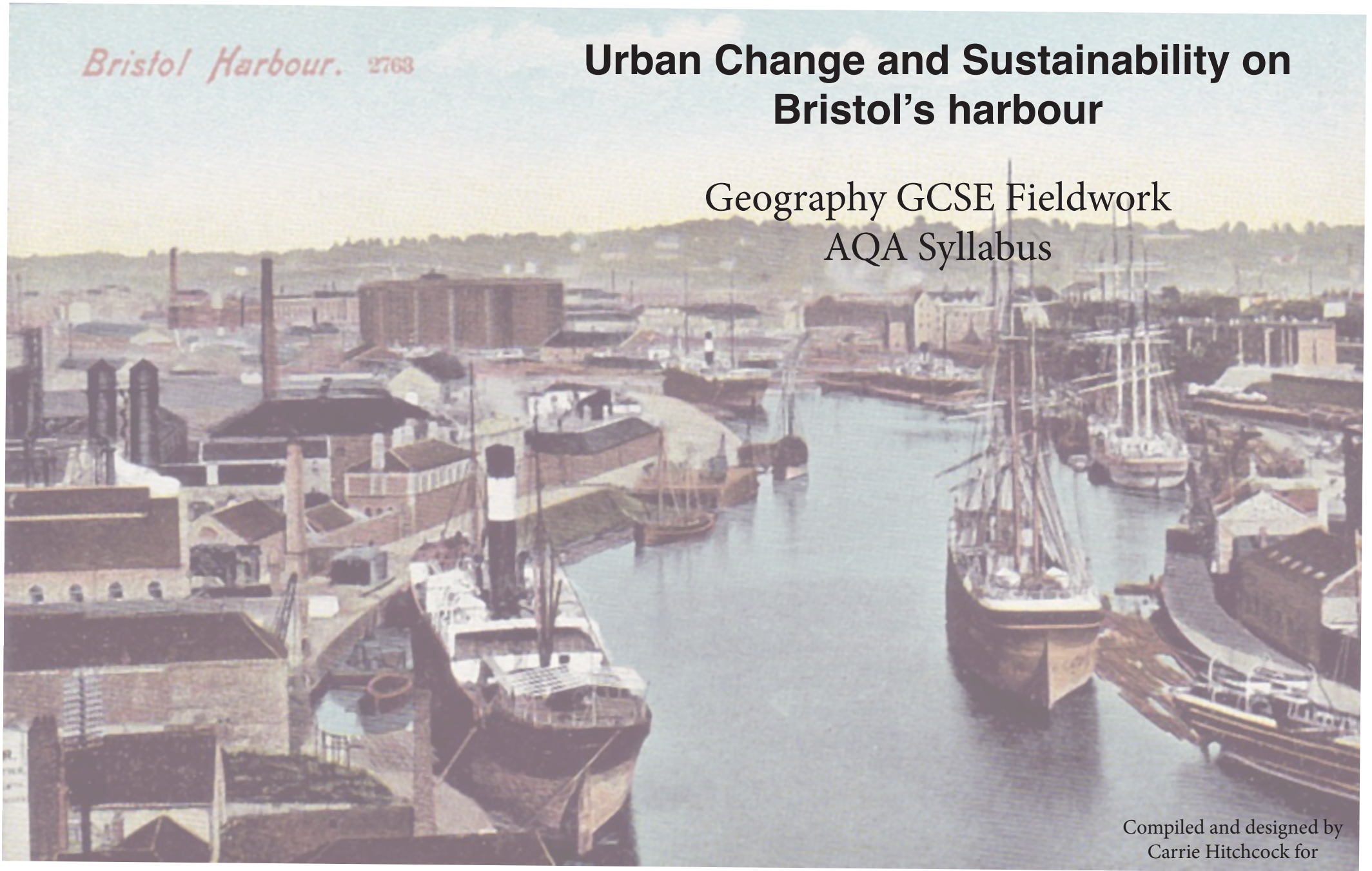


*Bristol Harbour. 1763*

# Urban Change and Sustainability on Bristol's harbour

Geography GCSE Fieldwork  
AQA Syllabus



Compiled and designed by  
Carrie Hitchcock for



# When, how and why Bristol developed into a city

**Bristol grew up around its harbour.** It began life in around 1000 AD as an Anglo Saxon settlement on Castle Park with a wooden bridge (Brigstowe=settlement by the bridge) over the River Avon where it joined the Frome. By 1239 Brigstowe had a castle, and had become such a popular port that a new reach was dug out and the River Frome diverted to increase the quayside. In 1248 the wooden bridge was replaced by a stone one, and it became a busy and built-up thoroughfare.



*left:* This bridge replaced the wooden Anglo-saxon bridge in 1248.

*right:* The 'new' Bristol Bridge built in 1761 with the metal walkways added by the Victorians to widen it. It was a very busy bridge, for many years the only crossing in the city. This picture was taken in the 1930's, certainly before the war when the buildings beyond the bridge were destroyed in the Bristol Blitz.

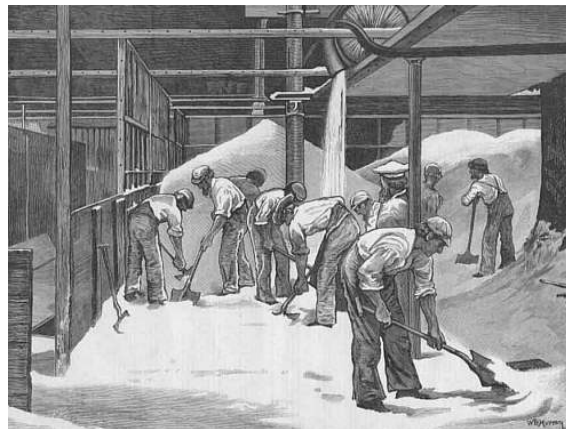


Because of its location, Bristol quickly became a major port town. In 1698 Bristol officially joined the Transatlantic Slave Trade. It was an extremely lucrative business with profit to be made at each point in the triangle. Manufactured goods and arms were taken to Africa, African people were enslaved and sold in the Americas, and the tobacco, sugar and cotton they produced brought back to Bristol. This trade fuelled the Industrial Revolution, the Bank of England and the insurance industry. It created the city of Bristol as we know it and shaped the future of not only Bristol, but the development of Europe, America and Africa. Its guise as 'a respectable trade' was to be exposed with the increased resistance of the enslaved people themselves, but also the testimony of the sailors, many of them Bristolians, 'crimped' onto the slave ships. The Abolition movement became the blueprint for modern social justice movements.



*left:* Toussaint L'Ouverture, a General who led one of the most successful Black insurrections liberating Saint-Domingue, which became the independent state of Haiti.

*right:* Finzels sugar factory and Barton Hill Cotton Factory in C18<sup>th</sup> Bristol.



## Bristol in the 1800's: the Floating Harbour and Brunel

In 1700 Bristol was still England's second largest port, but by 1800 Bristol's prosperity had begun to wane and it had been overtaken by Liverpool. Worse still, ships were steadily increasing in size and those entering the River Avon from the Bristol Channel had to contend with seven miles of winding river with fast currents and an exceptionally high tidal range before they reached the quays in the city centre. Ships were grounded on the rocky river bed at low tide and loading and unloading could only be done at high water and took weeks to turn ships around.

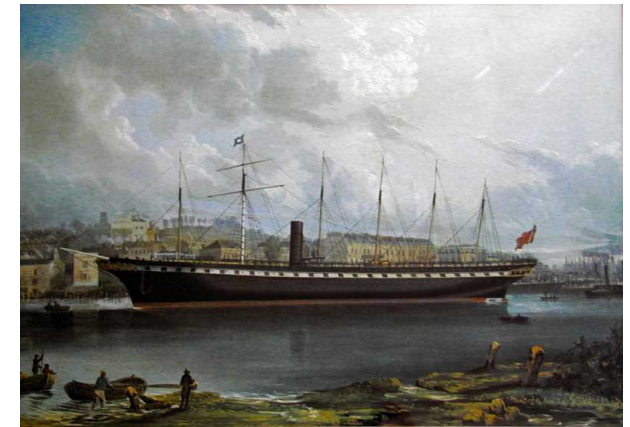
To solve some of these problems William Jessop was commissioned to turn a two and a half mile stretch of the Avon and Frome into one vast Floating Harbour, which opened in 1809.



An aerial view of the Floating Harbour and the still tidal New Cut in the 1950's. You can see the timber drying sheds on Baltic Wharf, and Brunel's original swing bridge crossing the lock before the Plimsole Bridge replaced it.



Building the Great Western Railway, opened in 1841



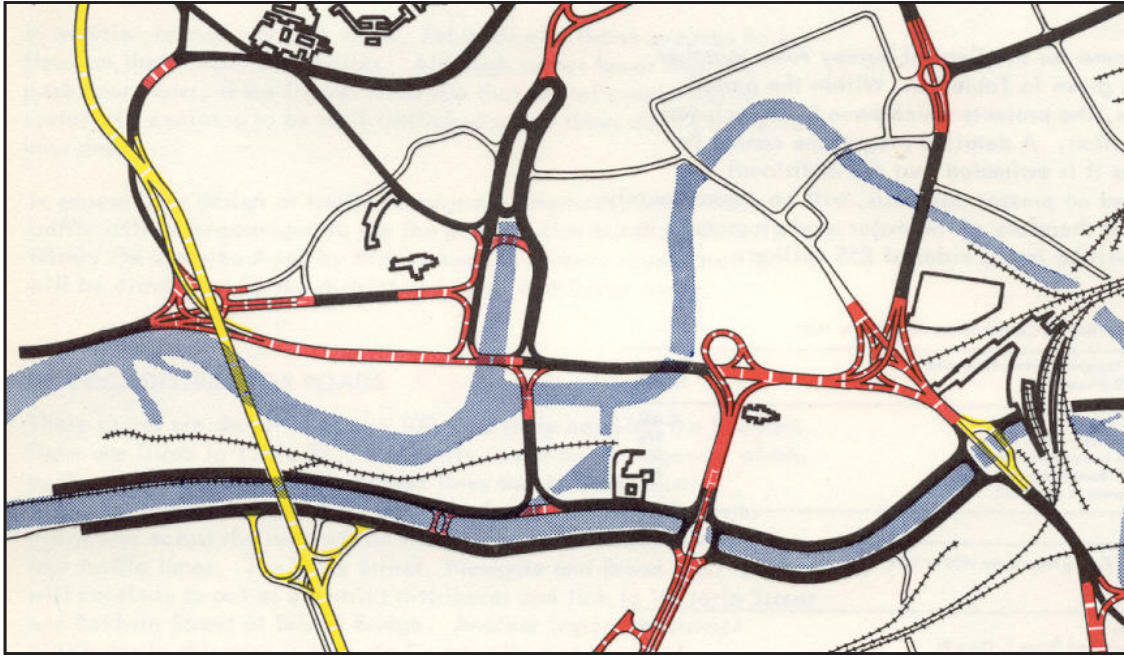
Launching the SSGB in 1843

Brunel died over 150 years ago, but he lives on everywhere around us as he helped to create the modern world. He changed the way ships and bridges were designed and built, and his ships and railways changed the way people and goods travelled around the world.

The South West's tourist industry and seaside towns were created because of the GWR. He also bequeathed to Bristol a continuing tradition of engineering and invention: from ships and railways to motorcycles, cars, buses, caravans, and aeroplanes.



# Bristol in the 1900's: the decline of the port and regeneration



Plans for the Harbour in the 1970's

In 1940 and 1941 Bristol was heavily bombed in the Bristol Blitz.

In the 50's and 60's Bristol experienced a migration of people from the West Indies and Indian sub-continent as Britain sent out a call to its former colonies for skilled workers. This led to the creation of an culturally diverse city, the Bus Boycott in 1963, and the first St Paul's Carnival in 1968.

The creation of the Floating Harbour and Brunel's engineering feats did not ultimately save the Port of Bristol, which closed in 1975, and operations moved to a more convenient location at the mouth of the River Avon. With the closure, the harbour became derelict and empty of life. The Council proposed concreting over parts of the harbour and building a motorway network over it. The harbour had been the economic lifeblood of the city and a major transport hub. Cars and roads were the future of transport and could bring prosperity into the city, the Council's motivation was economic sustainability.

The plans failed to address the social and environmental quality of life that the waterways provided, but roadways do not. Fortunately, these plans were never fully implemented due to protests from Bristolians high and low, and the global oil crisis putting a temporary stop to road building.

**The retention of the Floating Harbour enabled the gradual regeneration of the harbour, promoting tourism and Bristol's economy, enriching the cultural and social life of the city and improving the natural environment.** The earliest developments were:



The return and remodelling of the SS Great Britain into a museum



The creation of Bristol Marina



The building of the Lloyds Bank HQ on Cannos Marsh



The re-use of the Bush warehouse as the Arnolfini Arts Centre



A few early housing developments

# Bristol today

Bristol is a regional centre, the largest city in the South West of England. With a population of 440,500 (over 2 million living within 50 km), it has two Universities, a large concentration of high-tech industries, a lively cultural life, and is a popular tourist destination.

Bristol's floating harbour is recognised internationally as a successful example of sustainable urban regeneration.

## Environmental Sustainability

Bristol was the first UK city to be awarded European Green Capital status in 2015. It has ambitious targets for reducing energy use and 'greening' the city.

Bristol is creating an Integrated Transport System by connecting different methods of transport, including ferries, to encourage people to switch from cars to public transport, thus increasing sustainability and reducing congestion.

Bristol invests in renewable energy schemes, such as its District Heating Network and Castle Park Energy Centre

Bristol has developed a lot of brownfield sites and plans to build over 30,000 new homes on brownfield sites by 2026. This prevents urban sprawl, makes the city more accessible and minimises the necessity of cars as people can live close to their work.

In 2008 Bristol became England's first Cycling City, a £100m government scheme aimed at encouraging cycling.

Bristol is the home of innovative environmental organisations such as Sustrans, a charity which has created over 14,000 miles of signed cycle routes throughout the UK.

### The environmental challenges of urban development:

- lots of people and buildings competing for space and consuming large quantities of energy, food, water and other resources
- waste disposal and traffic congestion causing pollution
- building on greenfield land creates urban sprawl and more cars
- building on brownfield land can be expensive and difficult

## Economic Sustainability

Traditional industries were tobacco and sugar from the West Indies, sherry from Bordeaux, and timber from the Baltic. These have been replaced with the development of global industries such as financial services, defence, Aerospace, technology, culture and media.

### New industries:

- Public and professional services - 50% of jobs in Bristol
- Financial services - 30%
- High tech companies, the largest concentration outside silicone valley - 15%
- Creative enterprises - Aardman Animations, BBC Natural History Unit, Spike Island, Watershed, Arnolfini, and Channel 4.

Bristol has great transport links: the M4 and rail to London (electrification will shorten rail journey to 70 minutes), and an airport to Europe and the US.

Bristol has two major docks: Avonmouth and Royal Portbury, the UK's most centrally located deep-sea container port, a floating harbour connecting to inland canal and river networks for leisure craft, and lots of small maritime businesses on the harbourside.

Two universities mean a skilled workforce for professional and technical jobs.

Investing in small-scale local businesses keeps money and jobs in the community whilst enriching local high streets and small businesses.

## Social Sustainability

Bristol has a young population; there are more young people than pensioners living in the city. It is a cultural centre attracting young people to its music, theatre, art and dance colleges as well as home to a rich variety of established arts venues and organisations.

Bristol is ethnically diverse; there has been lots of migration from Europe, Africa, India, Pakistan and Jamaica. This means we have a hard-working, motivated and skilled workforce contributing to the local and national economy. It also enriches the cultural life of the city in music, theatre, art, literature and food.

Bristol's large African and Afro-Caribbean community has created a strong community spirit. The St Paul's Carnival has been an important part of the city's cultural life for many years.

Conserving cultural and historical sites and buildings gives the city a 'sense of place', and connects people to their history and culture. Redeveloping central sites encourages people to live and spend time in the city centre preventing a 'dead heart' in the city.

Creating space for wildlife and leisure improves people's quality of life as well as their health.

### Social challenges:

- accommodating a growing population without building on greenfield land
- creating affordable homes in central Bristol
- racism and xenophobia
- social inequality



# Re-using listed buildings

'Bristol Byzantine' buildings  
Robinsons Oil Mills and the Granary have been converted into flats.



The Pump House used to house the hydraulic pumps for operating the swing bridges, now it just pumps beer.

Many docks regeneration projects in the UK were handed over wholesale to developers who completely demolished the old dockside and started from scratch. In contrast, Bristol's regeneration evolved in a piecemeal fashion, retaining some of its infrastructure. There are several handsome industrial buildings that have been redeveloped rather than destroyed, as well as transit sheds, warehouses, steam trains and cranes. Evolving over time, this patchwork style has resulted in a variety of uses as well as retaining a sense of place and history. This has been a key ingredient in the success of Bristol's regeneration.



## The Gas Works: polluted land

Reusing listed buildings is expensive and problematic. An example is the Canon's Marsh Gas Works, which manufactured whale oil in the 1820s and later converted to coal gas. The works remained active until the mid 1960s. The process was extremely polluting and the soil has to be decontaminated before development. The last remaining structures have recently been developed into Bradon Yard.

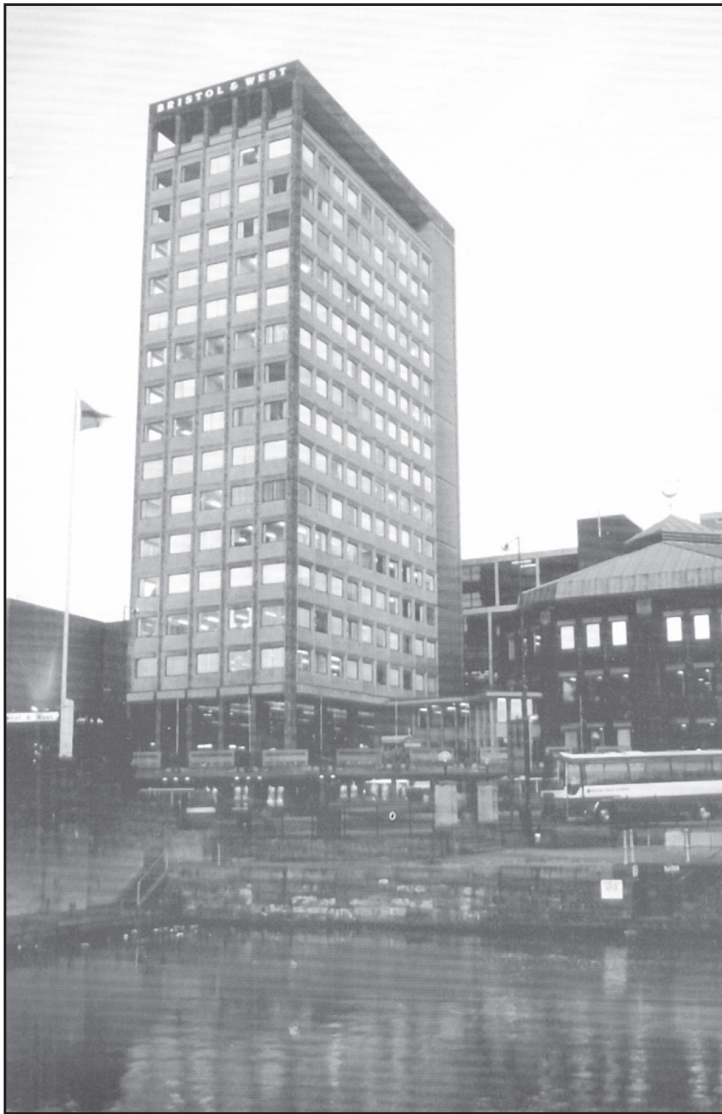


The gasworks then and now



The Mardyke ferry in front of the gasworks. The ferry operated from the middle of the 19th century until 1962, taking shipyard workers to Charles Hills and dockers to the timber yards.

## Re-using existing buildings



**Bristol and West headquarters 1990**

### **The Radisson development: a modern office block reused**

Instead of demolishing the old Bristol and West HQ and sending it to landfill, the developers have re-used the concrete frame, cladding it to create a contemporary appearance. The glass gets lighter as it goes up to create the illusion of disappearing into space.

The building is now part of the Radisson Hotel development comprising an hotel, serviced apartments, both affordable and luxury flats, and street level shops and restaurants.

It is one of the few modern developments to incorporate affordable flats into its harbourside buildings, instead of relocating them to poorer areas of the city.

The Cascade Steps and City Centre regeneration were created for the Millennium by the City Council.



**Same building 2009**



## Recent developments, planning and sustainability

The extensive, profit-led 'Harbourside' development stretches from Lloyds TSB to Capricorn Quay with extensive retail and public space behind. It has been much criticised both for its aesthetic and for the high density, low spec nature of the housing. Its retail space consists almost entirely of corporate chain stores and restaurants with few, if any, local independents. The development proved very controversial, highlighting the undemocratic nature of England's planning processes.

It has, however, incorporated some environmental features; floating reed beds filter the 'grey' water from the estate, and provide a wildlife habitat. The huge office block, commissioned by Lloyds Bank, has a cooling system with 'chilled beams' using harbour water to cool and heat the building. It also has an automatic lighting system that turns off the lights when the building is unoccupied.



### Planning conditions for all harbourside developments:

A walkway providing public access to the harbour

20% affordable housing, (unenforcable)

A community benefit (eg. bridges, sculptures, facilities for boaters, amphitheater, donation to community projects)

**Problems for local people:** If there is a conflict between local people and development corporations, conditions are loaded in favour of developers. If the planning committee refuses permission, developers can appeal to the Government, at the Council's expense. Planning conditions can also be relaxed at the discretion of the planning committee, for example if the site is difficult, or during a recession.



# Wapping Wharf Development



Wapping Wharf is well-known for its independent restaurants, cafes and shops with many of these in converted shipping containers. It's also home to around 1,000 residents, with more homes and a work space to come in future phases of the development.

Umberslade is a local family-run property development company and is planning to retain a long-term interest in the project. A strong community focus is at the heart of Wapping Wharf's ethos to ensure a sense of community is fostered among the residents, retailers and nearby neighbourhoods and that it is truly integrated into Bristol.



Community benefits that are part of the Wapping Wharf scheme include: £1.5 million for M Shed, the museum of Bristol; the redevelopment of Museum Square, a public events space by the waterfront; the extension of Museum Street and newly commissioned public art throughout the development. In addition, Wapping Wharf supports a range of important community and cultural initiatives in Bristol as well as actively supporting homeless charities.







The award-winning **Castle Park Energy Centre** contains the largest water source heat pump in England. The water source heat pump works by taking natural heat from river water to heat thousands of households across Bristol as part of the district heating network. This network of underground pipes currently provides heating and hot water to around 1000 local homes and businesses and continues to expand to new areas across the city. Almost 20% of the UK's greenhouse gas emissions come from heating our homes and workspaces. Water source heat pumps are estimated to reduce the amount of energy needed to heat a building by 80%, helping support the city's resilience in the climate emergency.

Developed by Goram Homes in collaboration with Bristol City Council and Vital Energi and part of the city's Heat Network and City Leap Energy Partnership. Goram Homes plans a mixed-use development to be built over the energy centre that will use the energy centre's low carbon heating. They are a Bristol-based, council owned, commercial, housing company who aim to build sustainable, affordable homes that create communities, respect the environment and contribute to the local economy.



# Finzels Reach

**Halo** in Finzels Reach is “one of the UK’s most sustainable office buildings” was designed to achieve BREEAM Outstanding 2018 – the first building in the UK to attain this certification. Energy consumption, carbon emissions and water consumption are minimised. A range of other innovative ideas include connecting with Bristol’s district heating network for low carbon heating, along with the regeneration of energy from descending lifts.

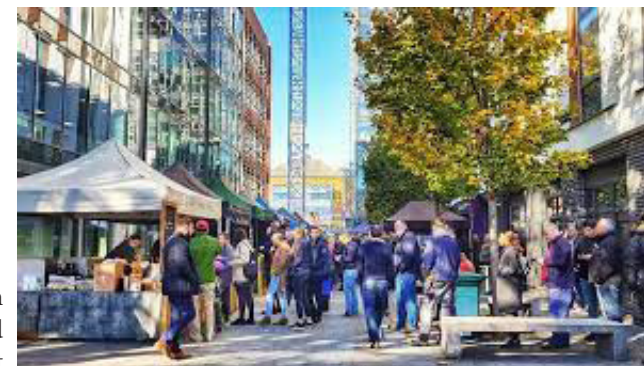
Halo also aims to contribute to the wellbeing of its users with outstanding air quality, natural light and numerous health-giving opportunities. Its design also incorporates many improvements to the local environment, from traffic calming and cycle lanes, to tree planting and pocket parks. It boasts Well Building certification, platinum cycling rating.



Finzels Reach, originally Finzels sugar factory and later a brewery, is a large mixed use regeneration project incorporating housing, offices, an hotel, cafes, restaurants, shops, bars, brewery and a weekly food market. It is a blend of restored historic buildings and contemporary architecture.

Offices are let to creative, eco and heritage organisations such as BAFTA award-winning film company BDH, Channel 4, Outlaw Design Agency, Historic England, English Heritage and Ecosurety, as well as solicitors and financial services.

Finzels Reach weekly food market





# Temple Quarter regeneration in progress



The Temple district has been an industrial centre for Bristol since the Middle Ages. Former industries included: rope, oil, tallow, alum, acid and glass works, timber yards, malt houses, an iron foundry, soap factories and potteries.

The last three decades have seen the development of offices for the banking and financial sectors on Temple Back. It was handed over to the Bristol Development Corporation in Thatcher/Major years ('89-'95), bypassing local authority planning conditions and providing incentives and tax breaks to developers. This has now evolved into a more collaborative approach with incentives for high tech and creative businesses to move to the area.



Bristol's long awaited Arena, originally planned for construction on 'Temple Island', the site of a former diesel depot, will now be located in Filton. Instead, the land will be used to build high density housing and student accomodation.

Major housing and mixed use developments are also planned along the Feeder Canal on land that is currently industrial.



Brunel's Engine Shed is becoming an 'Innovation Centre'; an enterprise hub providing workspace for a range of high-tech, creative and low carbon businesses.



Temple Meads Station will be modernised and access improved with new road layouts and better links to transport networks. The streets and spaces around Temple Quarter will link to Totterdown Basin, which is to be the 'green heart' of the area.



## Bristol University to take over old sorting office by Temple Meads for new £300m campus

Bristol Post, Michael Yong, 21 Feb 2017

Bristol University has unveiled the site of its new campus – and it will replace one of the city’s worst eyesores. Earlier this month, the university revealed it was looking to building a new £300 million campus in city centre – and it has now found a home. It will take over the former Royal Mail sorting office site next to Temple Meads railway station, right in the heart of the city’s enterprise zone.

The plan is to knock it down the former sorting office building, which has been derelict for nearly 20 years, and redevelop the site. The university hopes the new campus will open in time for the 2021/22 academic year and provide capacity for more than 5,000 students. But that is just phase one of the expansion plans, which stretch out over the next 40 years. Called the Temple Quarter Campus, the site is intended to secure the university’s future growth. In time, the new campus will also have a student village.

Sitting by Bristol Temple Meads, it has provided an unwelcoming sight for travellers on trains pulling in to Temple Meads station for a generation. It has been left empty since the Royal Mail left the site and moved to Filton in 1997. The huge building fell into disrepair, attracting squatters and vandals. It became the site of a serious accident in 2005, when Bedminster teenager Daniel Jones fell 20ft through a glass roof while playing in the building.

In 2000, Shepherdess Holdings’ sister company Media Office bought the site for £2 million, outbidding the former South West Regional Development Agency, which wanted it for the first Bristol Arena project. Five years later, Media Office won planning permission to convert the site into 107 flats, seven studio workspaces,



walkways and offices. But that plan never came to fruition, and three years later, it was bought by Malaysian investors the Kian Gwan Group. In 2011, there were plans to encourage independent tenants to take leases on the property after the building was given a makeover by the owners but this project never materialised. For years it stood empty, until Bristol City Council, under former Mayor George Ferguson, bought the site for £6million, using a £5.4 million grant from the Government.



By taking it on, the university hopes to kill two birds with one stone – having the space for a huge city centre campus, while solving a long-term headache for the council. The Bristol Post revealed earlier this month that the new campus would have a digital innovation hub, a new business school and a student ‘residential village’. It will also be used to develop Engine Shed Two, an expansion of the successful Engine Shed enterprise hub which houses the SETSquared business incubator.

The new degree programmes are also set aimed at research and teaching, by combining traditional courses in business

with technology. University vice-chancellor and president Professor Hugh Brady said: “This new initiative is, I believe, truly unique – a dynamic partnership between the university, industry and the city, located in an enterprise zone and major transport hub, and offering the opportunity to position Bristol as a global leader in digital and educational innovation. We now have the opportunity to re-imagine our University as an organisation that is completely porous with our partners, enabling students, researchers and people from all walks of life to move seamlessly between the city, the academy and the workplace, feeding the talent pipeline and creating opportunities.”

Once fully developed, the 70-hectare Bristol Temple Quarter Enterprise Zone has the potential to attract over 17,000 jobs over its 25-year lifetime and add a further £100 million a year to the city’s economy.

A new 12,000 capacity arena is planned for the former Diesel Depot site close to the station which, coupled with the proposed university campus on the former sorting office site, will aim to transform the Temple Meads East area, which has lain derelict for decades.

Bristol Mayor Marvin Rees said: “This news confirms our place as the UK’s most technologically advanced city-region and one of the world’s leading digital cities.

“This will also attract more investment to the city, strengthen our global reputation and create a welcoming and inclusive new part of the thriving Temple Quarter Enterprise Zone. As a UNESCO Learning City, we can also be proud to expand our educational offer in this way.

“The deal also gives us renewed hope of a solution to the eyesore of the former Sorting Office.

“In future, visitors will no longer be welcomed to Bristol by a derelict building, but by a flourishing and inclusive home of digital excellence, innovation, education and industry.”