



chapter 11 Natural Environment

Maintaining a clean and sustainable environment - to create a more attractive environment that is safe, clean and tidy as well as being a more healthy and diverse natural environment.

Natural Environment

Introduction

11.1 The quality of our lives is determined, in large part, by the condition of our surrounding environment. Enhancing and protecting Plymouth's natural environment is critical to the city's image, as well as bringing both social and economic benefits to its communities. To help understand how the city has been shaped and what is important to protect, the Council has commissioned a number of studies.

11.2 The task of the LDF is to build on this evidence base, setting out positive policies that help protect and enhance the quality of the natural environment, promoting its contribution to the city's regeneration. The following sections outline how this will be delivered.

Context

National / Regional

11.3 National and Regional planning policy expects development and growth in Plymouth to preserve and enhance a variety of environmental assets and to protect the carrying capacity and qualities of both the local and global environment. This is about enabling the city to be passed on to future generations in a state which they too can enjoy and benefit from.

Sub-regional

11.4 Plymouth's sub-region is unique with the city being surrounded by European and / or national protected landscapes and natural environments – Dartmoor National Park, the Tamar Valley and South Devon Areas of Outstanding Natural Beauty and the Plymouth Sound European Marine Site. This feeling of quality permeates right to the heart of the city, creating strong bonds between town and country.

11.5 Plymouth's urban fringe is one of its most immediate and accessible natural assets. It needs to play a key role in the city's regeneration, but not to the detriment of the communities that live there. To achieve this we need to work closely with our neighbours to ensure it becomes a place where the many demands placed upon it complement each other, and are effectively planned and

managed respecting the principles of sustainable development.

City Wide Environmental Characteristics

11.6 *"It is one of the outstanding attractions of planning for Plymouth that the seaboard of Devon and Cornwall and the heights of Dartmoor are included within its scope; the city is visibly and physically linked to our Coast and to one of our National Parks. No other city in England do these two precious possessions approach so close; the privilege carries its responsibilities."* A Plan for Plymouth (1943).

No other city in England can claim to possess such a rich and varied natural setting.

11.7 A reflection of this is in the number of national and international environmental designations within and adjacent to the city. In combination these factors make a very significant contribution to the city's image and the quality of life of its citizens. Understanding, cherishing and enhancing this heritage is vital to the city's successful regeneration.

Landscape and Green Space

11.8 The city's most valuable natural asset is its waterfront. The city has been shaped by its maritime history and its future prosperity is equally dependant on how it capitalises upon this asset.

11.9 If the area's topography created a fine natural harbour and a dramatic landscape, it has also been a constraint on the city's growth. Plymouth's topography, with its hills and valleys, makes movement difficult and often indirect, creating problems of legibility. The lack of historic settlement in northern Plymouth testifies to the fact that it was not a natural place for human occupation. On the other hand, the topography offers the opportunities of dramatic locations and views, which have not always been exploited. It also provides a distinctive network of wooded valleys providing quality green space between settlements, connecting town to country and providing both a natural and recreational resource.

11.10 The city's network of parks, natural green spaces and water bodies are equally important. Not only are they a vital visual, educational and cultural

resource in their own right, providing definition along transport corridors and between areas, but they also make an invaluable contribution to the health and well-being of its citizens, as well as providing an ecological resource for the benefit of biodiversity.

11.11 The LDF's task must be to protect and enhance the city's natural heritage and its unique setting. Key matters to be addressed are:

- Focusing new development within the urban boundary will inevitably add pressure to these assets. The aim must be to protect these resources by managing them wisely, as well as providing an appropriate planning framework for the coastal zone
- In terms of creating a legible townscape, a lot of Plymouth's northern development has paid little regard to the topography and as a consequence, produces places which feel unnatural. New development needs to redress the balance
- The goal must be not only to protect the city's natural setting, but also to improve the physical and cultural links between townscape, coast and green space.

Biodiversity and Geological Conservation

11.12 The city's landscapes are rich in biological and geological diversity. This is reflected in the range of international, national and local designations, which includes the Plymouth Sound and Estuaries European Marine Site, nine Sites of Scientific Interest (SSSIs), seven Local Nature Reserves (LNRs) and three proposed LNRs.

11.13 The city supports important areas of ancient woodland, species rich grassland, mudflat and rocky shore. Significant numbers of national rare / declining species have been recorded including Otter, Bats, Plymouth Pear, Cirl Bunting, Field Eryngo, and Deptford Pink.

11.14 A key issue to be addressed is that not all of this wildlife is secure within protected areas. The city's biodiversity and geological diversity is still threatened by inappropriate land management, habitat fragmentation, development pressure and climate change. At a local, national and global level

we continue to lose biodiversity. Plymouth needs to play its role in protecting biodiversity as part of the urban renewal process - enhancing existing assets and rebuilding what has previously been lost.

11.15 Work to protect biodiversity must also have a broader focus than just rare habitats and species. We must recognise the educational, health and quality of life benefits that come from regular contact with nature, and plan for accessible green spaces that allow these benefits to be realised.

Future Provision – Accessible Natural Greenspace

11.16 Green spaces within towns are vital for providing people with regular contact with wildlife. English Nature strongly believes that:

- everyday contact with nature is important for well-being and quality of life
- everyone should be able to enjoy this contact, in safety, without having to make any special effort or journey to do so
- natural green space in towns and cities can play an important part in helping safeguard our national treasure of wildlife and geological features
- accessible natural green spaces give everyone an excellent chance to learn about nature and to help protect it in practical ways.

11.17 English Nature's Urban Greenspace standards provide a set of benchmarks for ensuring access to places of wildlife interest. These standards recommend that people living in towns and cities should have:

- An accessible natural green space less than 300 metres (5 minutes walk) from home
- Statutory Local Nature Reserves at a minimum level of one hectare per thousand population
- At least one accessible 20 hectare site within two kilometres of home; one accessible 100 hectare site within five kilometres of home; and one accessible 500 hectare site within ten kilometres of home.

11.18 Current provision within the city against these benchmarks is as follows:

- 36% of the city is recognised as green space

(Greenscape Assessment 2000). However, the Greenscape Assessment identified deficiencies in Keyham / Ford, St Judes, Mutley, City Centre. All these areas were shown to have less than 7% green space

- Seven LNRs provide a total of 146 hectares or 0.6 hectares per thousand population. However, there is potential to designate 3 new LNRs (Ham Woods 35 ha, Plymstock Woods 38 ha, and Cann Woods 20 ha) and extend Bircham Valley (8ha) giving 101ha of new LNR
- The Mount Edgcumbe Country Park and National Trust estate at Plym Woods and Saltram also provides a significant green space resource for the benefit of the city and its sub-region.

11.19 The South West Regional Biodiversity Partnership has identified a range of targets in respect to the maintenance, restoration and recreation priority habitat and species. These are expressed within RPG10, and a similar set of targets are currently being refined for the draft RSS. These targets include the above targets for urban green space provision.

11.20 Plymouth has potential to contribute to biodiversity targets in respect of LNRs, (see above) and habitat restoration / recreation particularly as part of a Countryside Park Proposal, and new green space provision as part of the Derriford /Seaton Area Action Plan.

Climate Change and Resource Use

11.21 The quality of Plymouth's local environment needs to be framed within a wider global picture. Globally we are consuming our natural resources and altering our environment at an unprecedented rate and scale. Plymouth's eco footprint (Plymouth's Eco Footprint – A First Step May 2005) indicates that we need 5 hectares of land to meet each Plymouthian's requirements for food, energy and transport. As there is only 1.6 ha per person available on Earth, this eco foot print is not sustainable and Plymouth needs to shift towards a more resource efficient future.

11.22 Human activities around the globe are increasing the amount of carbon dioxide and

other 'greenhouse gases' that are entering the atmosphere. This is leading to a warming of the planet and changes to our climate. Climate change is a major issue facing the world, and Plymouth must take steps to reduce the cause (carbon dioxide emissions) and make plans to respond to the effects (sea level rise, increased flood risk).

11.23 Homes contribute one-third of the UK's total carbon dioxide emissions and when other buildings are factored in, the figure is closer to one half (Town and Country Planning Association, 2006). If we are to meet the challenges of rising demand for housing, and reduce our green house gas emissions, there is a need to move towards an urban environment that demands less energy and that is supplied with sustainable energy sources.

11.24 We need to plan for development that will help slow down the rate of, (but also be resilient to the effects of), climate change. In this respect the LDF's task will be to:

- Reduce consumption of natural and non renewable resources
- Reduce pollution to levels that do not damage natural systems
- Help improve air quality
- Reduce contributions, and adapt, to climate change
- Reduce the use of non renewable energy and promote renewable energy
- Plan in the context of increased flood risk.

11.25 With reference to the need to minimise Plymouth's carbon footprint, this can be achieved in part by the promotion of renewable energy generation. Plymouth's Renewable Energy Strategic Viability Study (2007), indicates that the targets supporting the Strategic Objective 11 are both necessary and achievable, providing policy CS20 (5) is implemented and enforced.

11.26 This approach has a number of benefits. It:

- guarantees that energy efficiency measures are implemented first
- does not bias markets towards a particular technology
- allows the builder to select the most cost effective means of meeting the target
- provides greater flexibility that may be required as a result of different site conditions

- encourages the use of renewables
- provides clearer guidance on energy efficiency requirements for developers.

11.27 Where the specified requirements are not practically achievable on any major development, a planning obligation will be sought to secure savings through the implementation of other local renewable energy or energy efficiency schemes. Further guidance will be provided in the Planning Obligations SPD.

Flood Risk

11.28 As a city framed by the sea and two major river systems, Plymouth needs to respond appropriately to the issue of flood risk. The Flood Risk Diagram 8 illustrates the distribution of land considered to be in the Environment Agency's medium and high probability Flood Zone 2 and 3.

11.29 The risk of coastal and river flooding will increase as a result of the predicted effects of climate change, including rising sea level and increased winter rainfall. To achieve a programme of sustainable development Plymouth will need to adapt to this situation by taking steps to defend existing properties and direct new growth to areas with little or no risk of flooding.

11.30 The majority of development allocations in the LDF will be outside areas of medium to high probability of flooding. However, significant challenges exist with the need to deliver social and economic regeneration in Millbay, the City Centre and the East End, but also to respond appropriately in these areas to risk of flooding now and in the future. The Council's Strategic Flood Risk Assessment (2006) indicates that by 2080, in the absence of appropriate defences, sea level rise will result in annual flood events in these areas. Without appropriate mitigation measures, floods in these areas could be caused either directly by tide and waves and / or indirectly by sea level rise reducing the capacity of surface water drainage systems.

11.31 Development within these areas will therefore need to be informed by detailed Flood Risk Assessments that demonstrate how it will make a positive contribution to reducing or managing flood risk. This will involve a number of measures including:

- Locating vulnerable types of development to avoid risk from flooding
- Raising floor and land levels
- Improving capacity and effectiveness of drainage infrastructure
- Providing flood defences and flood warning measures.



c/o Government Agency

Approach

11.32 Everyone in Plymouth depends upon the surrounding natural environment. It is the foundation for our economic and social well-being. The City Vision will not be achieved without its effective stewardship.

11.33 To achieve this the Local Development Framework will:

- Protect and enhance the green space and water space that are essential to the city's setting and character
- Ensure future development enhances the quality and accessibility of these green spaces - encouraging the creation of new landscapes, city greening initiatives and public parks
- Recognise the importance of providing a 'multi functional' green infrastructure, that delivers a broad range of quality of life benefits (education, access, amenity, recreation, biodiversity) in line with 'The Charter for Countryside and Seas in Plymouth 2005'
- Protect, enhance and restore biological diversity in line with targets expressed within national, regional and local Biodiversity Action Plans
- Ensure future development 'designs in' wildlife from an early stage
- Respond to the threat of flooding through the planning of development proposals in the light of a strategic flood risk assessment
- Recognise that effective protection and management of our coast and urban fringe requires a cross boundary / partnership approach to planning and delivery (e.g. Tamar Estuaries Consultative Forum).

11.34 The Council also recognises that to create and support 'sustainable communities' there is an urgent need to plan for climate change, and limit the city's 'eco footprint' by embracing design and technology that reduces our use of non-renewable resources.

11.35 To achieve this the Local Development Framework will:

- Promote development that maximises energy efficiency and minimises CO2 emissions
- Promote development that utilises low or zero carbon sustainable energy sources

- Promote development that reduces dependency upon the car
- Responding to the threat of flooding through the consideration of planning proposals in light of a strategic flood risk assessment
- Reduce consumption of natural and non-renewable resources.



Strategic Objective and Policies

Strategic Objective 11 Delivering a Sustainable Environment

To set a spatial planning framework through the LDF that supports the City Strategy goal to maintain a clean and sustainable environment, which benefits social and economic well-being. This will be through:

1. Safeguarding, enhancing, and promoting access to Plymouth's green spaces and coastal environments that are of strategic importance in terms of defining the city's character, supporting biodiversity, recreation and other benefits.
2. Safeguarding, enhancing and promoting access to green spaces that are of importance to the creation of sustainable linked communities.
3. Conserving and enhancing biodiversity having particular regard to the maintenance, restoration and re-creation of priority habitats and species.
4. Reducing the consumption of non-renewable sources e.g. fossil fuels, land, soil, and minerals in line with national and regional targets.
5. Promoting renewable energy and address the causes and potential impacts of climate change.
6. Minimising the loss of greenspace, ensuring that where greenspace is developed it achieves more significant sustainable development benefits relative to the function and importance of the greenspace.
7. Protecting people and the environment from pollution.
8. Managing flood risk in a sustainable manner consistent with other spatial planning objectives.
9. Supporting or engaging in partnerships with government agencies, neighbouring authorities and the voluntary sector that deliver an integrated approach to sustainable coastal and urban fringe planning.

Targets

1. To work towards ensuring that the city's population have access to a natural green space within 300 metres of their home. (A specific target for 2021 will be set using the LDF Annual Monitoring Report once the baseline position in Plymouth is identified).
2. To facilitate designation of 100 hectares of new Local Nature Reserve by 2016, and an additional 50 hectares by 2021.
3. To ensure that as a minimum development causes no net loss of biodiversity of acknowledged importance.
4. To review the Strategic Flood Risk Assessment on at least a five-yearly basis.
5. To ensure that all major new developments incorporate onsite renewable energy production equipment to off-set at least 10% of predicted carbon emissions for the period up to 2010, rising to 15% for the period 2010-2016.

Policy CS18 Plymouth's Green Space

The Council will protect and support a diverse and multi-functional network of green space and waterscape, through:

1. Identifying in the Site Allocations Development Plan Document and Area Action Plans a network of strategically and locally important Greenscape Areas. Development on or adjacent to these Greenscape Areas will not be permitted where it would result in unacceptable conflict with the function(s) or characteristics of that area.
2. Requiring development proposals to improve the quality and quantity of accessible green space, where appropriate.
3. Requiring development proposals to address local deficiencies in accessible green space, where appropriate.
4. Using its planning powers to safeguard important trees and hedgerows, and to secure provision for soft landscaping where appropriate as part of development.

11.36 Plymouth contains a wealth of green spaces, such as woodlands, parks, agricultural land, valleys, estuaries and coastal areas. All such spaces provide various benefits, including, biodiversity, visual amenity, sports and recreation. The aim of the above policies is to ensure that the key strategic spaces are protected and enhanced, contributing to the formation of sustainable linked communities. Strategic green space and coastal environments are of importance to the city as a whole in terms of their character, biodiversity value, or recreation / sports value.

11.37 Also important to quality of life and the environment are smaller scale greenscape features – even down to the individual tree or hedgerow. The Council will be proactive in protecting such features through Tree Preservation Orders or other application of its planning powers. Development proposals should also bring forward landscaping schemes that protect existing landscape features and deliver environmental improvements appropriate to the location of the scheme and the function and scale of the development.

11.38 The policy will be implemented through:

- Identifying Greenscape Sites in the Area Action Plans and Sustainable Neighbourhoods (Key Site Allocations) DPD, and through the consideration of planning applications
- Provision of significant new areas of accessible green space, including new Countryside Parks, will be proposed in particular within North Plymstock AAP and Seaton Valley Park within Derriford / Seaton AAP
- Production of a Green Space Strategy, which will also deliver the draft RSS requirement for a Green Infrastructure Plan.

Policy CS19 Wildlife

The Council will promote effective stewardship of the city's wildlife through:

1. Safeguarding national and international protected sites for nature conservation from inappropriate development.
2. Appropriate consideration being given to European and nationally protected and important species.
3. Maintaining a citywide network of local wildlife sites and wildlife corridors, links and stepping stones between areas of natural green space.
4. Ensuring that development retains, protects and enhances features of biological or geological interest, and provides for the appropriate management of these features.
5. Ensuring development seeks to produce a net gain in biodiversity by designing in wildlife, and ensuring any unavoidable impacts are appropriately mitigated for.
6. Supporting wildlife enhancements which contribute to the habitat restoration targets set out in the South West Nature Map and in National, Regional and Local Biodiversity Action Plans.

11.39 This policy is primarily about conserving and enhancing the city's wildlife, including in inter-tidal or sub-tidal locations, and supporting a richness of biodiversity that will underpin the creation of sustainable neighbourhoods. The spatial distribution of this hierarchy of important nature conservation sites is illustrated in Diagram 7. It recognises the importance of protecting the assets found within the statutorily designated sites and species, but also the need to view biodiversity enhancement as a cross cutting opportunity in all development. Certain developments may be required to submit an impact assessment to quantify the effect on biodiversity and inform design and mitigation measures. Development proposals need to consider protected species at an early stage. Where development adversely affects biodiversity interest, negative impacts should be minimised and compensation to offset these impacts should be provided. SNAs (identified on SW Nature Map) should also be recognised as one of a number of tools to inform Biodiversity restoration and recreation.

11.40 This policy will be implemented through specific wildlife policies and proposals in relevant Area Action Plans, and using the planning application process to positively bring about development which supports the wildlife policy. The Council's Planning Guidance Note on 'Wildlife and Development' provides further amplification of how it will seek to encourage wildlife friendly development. This will be updated in the Design SPD. Additionally, the Tamar Estuaries Management Plan, and Local Nature Reserve Management Plans are relevant to the promotion of biodiversity in the city.

Policy CS20 Sustainable Resource Use

The Council will actively promote development which utilises natural resources in as an efficient and sustainable a way as possible. This will include:

1. Meeting high water efficiency standards, and incorporating new technologies to recycle and conserve water resources.
2. Promoting the use of Sustainable Urban Drainage Schemes.
3. Requiring all proposals for non-residential developments exceeding 1,000 square metres of gross floorspace, and new residential developments comprising 10 or more units (whether new build or conversion) to incorporate onsite renewable energy production equipment to off-set at least 10% of predicted carbon emissions for the period up to 2010, rising to 15% for the period 2010-2016.
4. Ensuring building design reduces energy consumption by appropriate methods such as high standards of insulation, avoiding development in areas subject to significant effects from shadow, wind and frost, using natural lighting and ventilation, capturing the sun's heat, where appropriate.
5. Supporting development that minimises the consumption and extraction of minerals by making the greatest possible reuse or recycling of materials in new construction, and by making best use of existing buildings and infrastructure.
6. Supporting development that seeks to minimise waste and facilitates recycling.
7. Ensuring that development and land use in the 'coastal zone' responds appropriately to the character of the particular type of coast, in the interests of preserving and making best use of this limited resource.

11.41 This policy aims to reduce the size of the city's ecological footprint, reduce the causes of climate change, and shift Plymouth towards a more resource efficient future.

11.42 The policy will be implemented through specific resource use policies and proposals in relevant Area Action Plans, and through the planning application process. It will be amplified through a Supplementary Planning Document.

Policy CS21 Flood Risk

The Council will support development proposals that avoid areas of current or future flood risk, and which do not increase the risk of flooding elsewhere. This will involve a risk based sequential approach to determining the suitability of land for development. Development in high risk flood areas will only be permitted where it meets the following prerequisites:

1. It can be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk.
2. The development should be on previously developed land; if not, there must be no reasonable alternative sites on developable previously developed land.
3. A flood risk assessment has demonstrated that the development will be safe, without increasing flood risk elsewhere.

In addition development will be required to incorporate Sustainable Urban Drainage Systems (SUDS) to manage surface water drainage. The Council will also seek to reduce the increase in flood risk due to climate change through measures to reduce carbon dioxide emissions

11.43 This policy is needed to safeguard people and property from the risks of flooding. The risks of flooding in Plymouth are forecasted to increase due to climate change.

11.44 Flood risk in certain areas of the city is increased by the current lack of capacity within the existing drainage infrastructure. SUDS are designed to limit the flooding and pollution problems associated with conventional drainage schemes, although they also have a part to play in reducing flood risk to and from new development. They are made up of one or more structures built to manage surface water runoff and can include green roofs, filter strips and swales, infiltration devices and basins or ponds. SUDS can be designed to function in most urban settings, from hard-surfaced areas to soft landscaped features.

11.45 The policy will be implemented in the following ways:

- Identification of specific policies and proposals to reduce flood risk as part of North Plymstock, East End and Millbay and Stonehouse AAPs
- Development within these areas will therefore need to be informed by Level 2 Strategic Flood Risk Assessments, and development based Flood Risk Assessment, that demonstrate how it will make a positive contribution to reducing or managing flood risk. This will include a number of measures to ensure that: (i) the development is zoned to ensure the most vulnerable development types are avoided; (ii) drainage infrastructure is increased; (iii) flood defences and flood warning measures are increased; (iv) flood resistant or resilient design.

Policy CS22

Pollution

To protect people and the environment from unsafe, unhealthy and polluted environments through:

1. Ensuring development proposals will be refused which cause unacceptable noise, nuisance or light pollution.
2. Ensuring development causes no unacceptable impact on water or air quality.

11.46 The control and prevention of pollution is given high priority due to the negative impact it can have on human health, quality of life and the natural environment. This policy aims to protect our environment from the introduction of polluting activities or developments. Pollution could take the form of radiation, fumes, smoke, dust, ash, grit litter, noise, vibration, light, heat, odour and liquid discharges. There are currently two Air Quality Management Areas (AQMA) designated in the city, one at Mutley Plain and one at Exeter Street, both of which result from traffic pollution. These are issues which also will be tackled through the city Local Transport Plan. The East End AAP will need to address the impact of development and road schemes on traffic pollution with the objective of reducing air pollution. Transport and development proposals in the Site Allocations DPD will need to have regard to the same objectives in Mutley Plain.

11.47 The policy will be implemented in the following ways:

- Control of development
- Promotion of Environment Agencies Pollution Prevention Guidelines
- Designated and potential AQMA's to addressed in relevant AAP's and DPD's.

Key Sources:

- Greenscape Assessment, (2000 and 2004) - Land Use Consultants
- Eastern Corridor Urban Fringe Study (2006) – LDA Design
- Plymouth Biodiversity Database - held in Devon Biodiversity Records Centre
- Plymouth Strategic Flood Risk Assessment (2006) - Pell Frischmann
- Tamar Estuaries Management Plan 2006-2012 - TECF
- The Charter for Countryside and Seas around Plymouth (2005)
- Plymouth's Eco Footprint – A First Step (2005) – City Council
- Climate Change – The Impacts and Implications for Plymouth, 2004 – City Council
- Plymouth Renewable Energy Strategic Viability Study 2007 – Centre for Sustainable Energy

Diagram 7 - Natural Environment

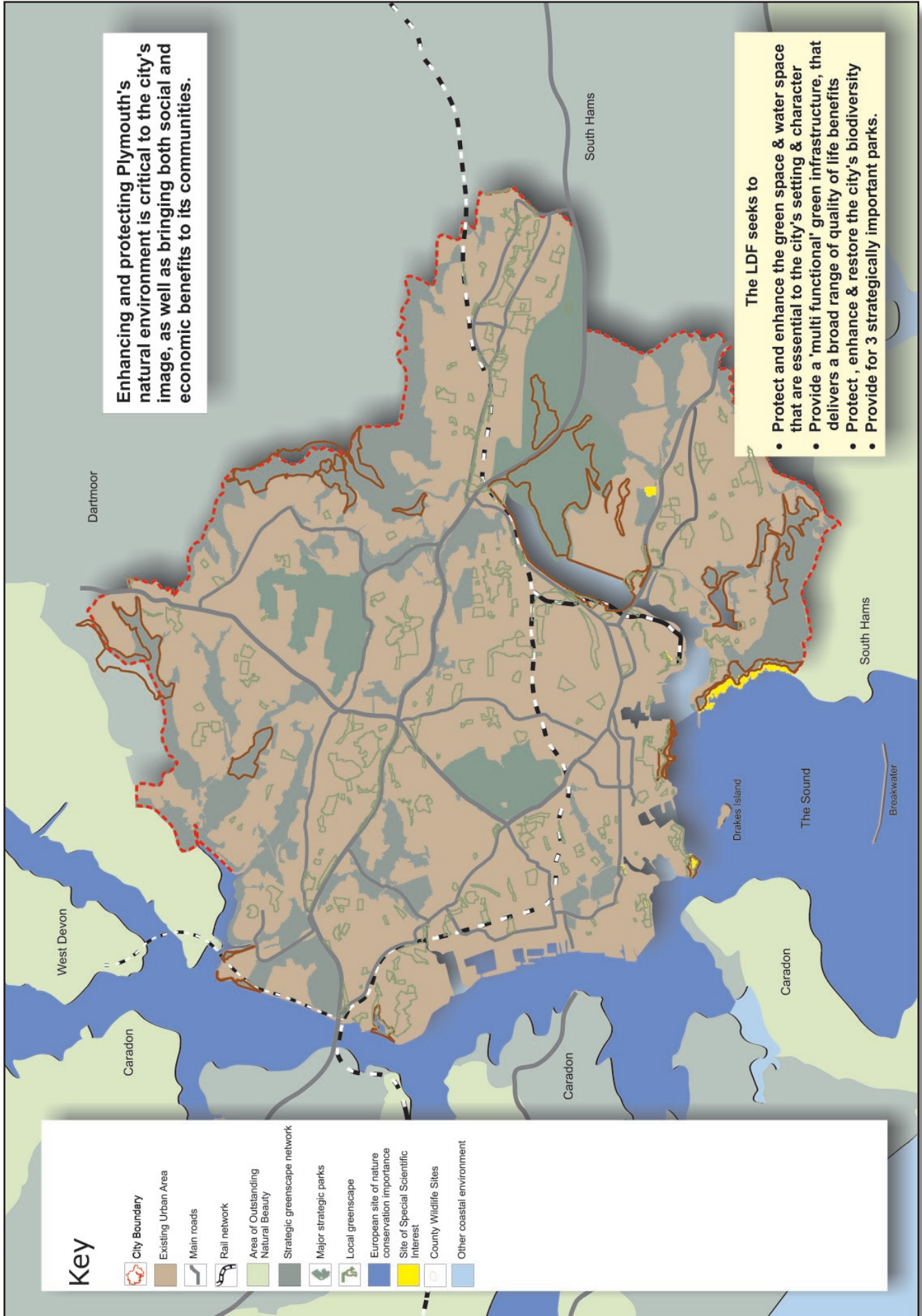


Diagram 8 - Flood Risk

