

Cardiff Local Development Plan 2006 - 2026



Background Technical Paper No.6 Infrastructure Plan

September 2013



CARDIFF DEPOSIT LOCAL DEVELOPMENT PLAN 2006 - 2026

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Infrastructure Plan

September 2013

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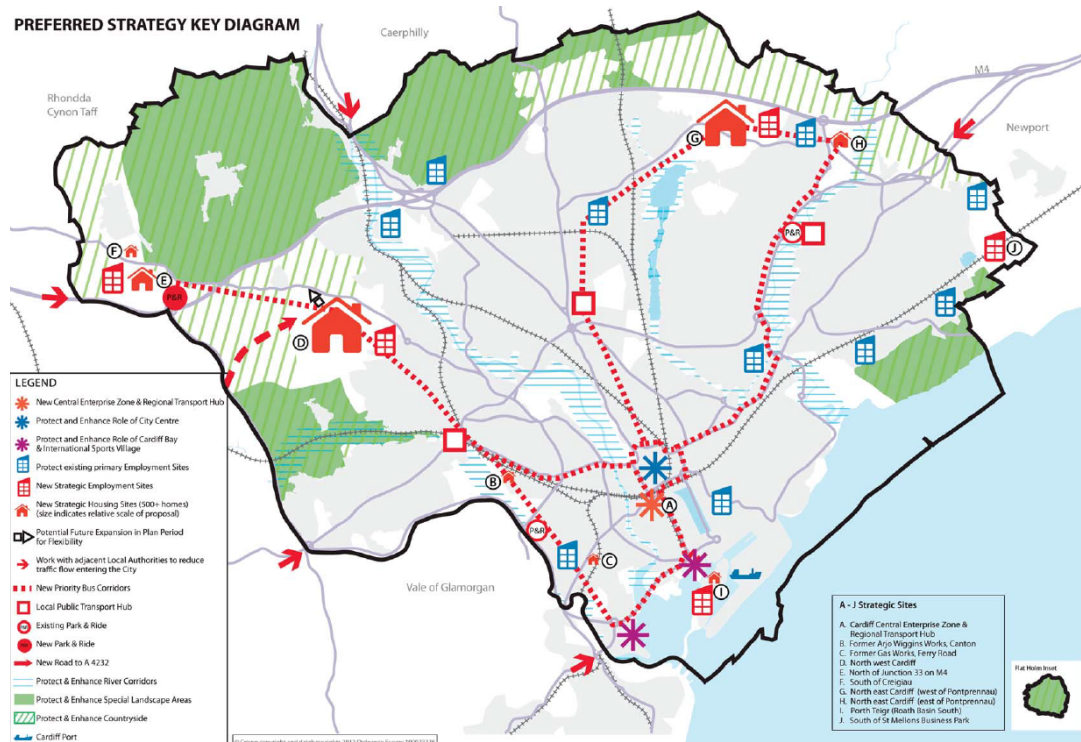
Data provided by Cardiff Council corporate GIS and accurate at the time of preparation (January 2013)

1. INTRODUCTION

1.1. LDP Background Paper

1.1.1. This Infrastructure Plan (IP) is a supporting document for Cardiff's Deposit Local Development Plan (LDP). It covers the plan period to 2026 and identifies the infrastructure required to facilitate and sustain the city's projected level of growth. The information contained in this document is accurate at the time of preparation (July 2013). **The IP will be regularly updated and reviewed to ensure that the LDP is supported by an accurate and up-to-date evidence base.**

1.1.2. LDP Preferred Strategy Key Diagram (October 2012):



1.2. The Purpose of the Document

- 1.2.1. Over the Plan period, population growth, demographic changes, new developments, emerging technologies and climate change will all create challenges to the capacity, resilience and distribution of existing infrastructure located across the County.
- 1.2.2. **The delivery of the right level and type of infrastructure at the right time is not only essential to support the development of new homes, economic growth and the creation of sustainable communities, but also provides benefits to the city's existing residents, workers and visitors.**
- 1.2.3. Although there is no statutory requirement to prepare Infrastructure Plans in Wales, given the scale of growth projected within Cardiff over the Plan period, it is considered useful to prepare an Infrastructure Plan to form part of the evidence base for the Deposit LDP. In addition, **the Infrastructure Plan will provide developers with an early indication of their infrastructure requirements, which will help to inform development proposals and the preparation of masterplans, particularly for larger sites.**
- 1.2.4. This Infrastructure Plan provides details of the current provision of infrastructure across the county, highlights planned investment / development proposals and identifies future infrastructure requirements based on Cardiff's projected level and distribution of growth. It supports Policy KP6: 'New Infrastructure' of the Deposit LDP and other detailed policies.

1.3. Defining Infrastructure

1.3.1. The Planning Act 2008 provides a wide definition of what constitutes infrastructure. For the purpose of this document, the infrastructure items that are considered necessary to help support the delivery of the LDP are set out in the table below:

Infrastructure Category	Sub Category
<ul style="list-style-type: none"> ▪ Transport 	<ul style="list-style-type: none"> ▪ Cycling and Walking ▪ Buses / Rapid Transit ▪ Park and Ride ▪ Rail Network ▪ Road Network
<ul style="list-style-type: none"> ▪ Schools 	<ul style="list-style-type: none"> ▪ Nursery, Primary, Secondary and Sixth Form Education
<ul style="list-style-type: none"> ▪ Health 	<ul style="list-style-type: none"> ▪ Primary and Secondary Health Care
<ul style="list-style-type: none"> ▪ Green Infrastructure 	<ul style="list-style-type: none"> ▪ Parks, Green Spaces and Allotments ▪ Destination Play Areas ▪ Sports Pitches and Games Areas
<ul style="list-style-type: none"> ▪ Community Buildings 	<ul style="list-style-type: none"> ▪ Libraries ▪ Sports Centres and Indoor Recreation Facilities ▪ Community Hubs and Facilities
<ul style="list-style-type: none"> ▪ Environmental Management 	<ul style="list-style-type: none"> ▪ Flood Defences and Drainage ▪ Recycling and Waste Management
<ul style="list-style-type: none"> ▪ Utility Services 	<ul style="list-style-type: none"> ▪ Water and Waste Water ▪ Gas ▪ Electricity ▪ Telecommunications

1.4. Infrastructure Plan - Content and Process

1.4.1. Part 2 of the Infrastructure Plan (Detailed Assessment) is presented as a series of chapters for each category of infrastructure and identifies:

- Why the infrastructure is needed
- The lead organisations / agencies
- Existing provision across the County
- Links to Neighbouring Authorities
- Key issues and infrastructure requirements
- Estimated phasing and delivery
- Existing and potential funding sources
- Opportunities to share facilities.

1.4.2. The infrastructure requirements that have been identified within each chapter are then presented as projects in a series of summary tables at Appendix 1. Where possible, the estimated timing of infrastructure delivery is identified, along with the likely capital costs associated with each infrastructure item.

1.4.3. While reasonable care has been taken in the preparation of this document to ensure that the information contained is accurate, there may be additional infrastructure requirements and services which are identified through the later stages of consultation and engagement on the LDP, on-going stakeholder liaison and as part of the Development Management process. As such, the IP is seen as a 'live' document that will need to be regularly reviewed and updated over the course of the Plan period to reflect these issues, along with any changes in legislation, technology, delivery mechanisms and the needs of existing and new communities.

1.4.4. As part of the preparation of the IP, Council Services and external infrastructure providers were asked to contribute to the content of the Plan. Information has been obtained through direct engagement with infrastructure and service providers and is consistent with their plans, programmes and strategies. An assessment of responses to the LDP Candidate Site and Preferred Strategy consultations, as well as a series of meetings and stakeholder workshops have all informed the content of the Infrastructure Plan. This engagement has helped to ensure that the Infrastructure Plan provides an accurate reflection of Cardiff's existing and future requirements and identifies any potential gaps in provision.

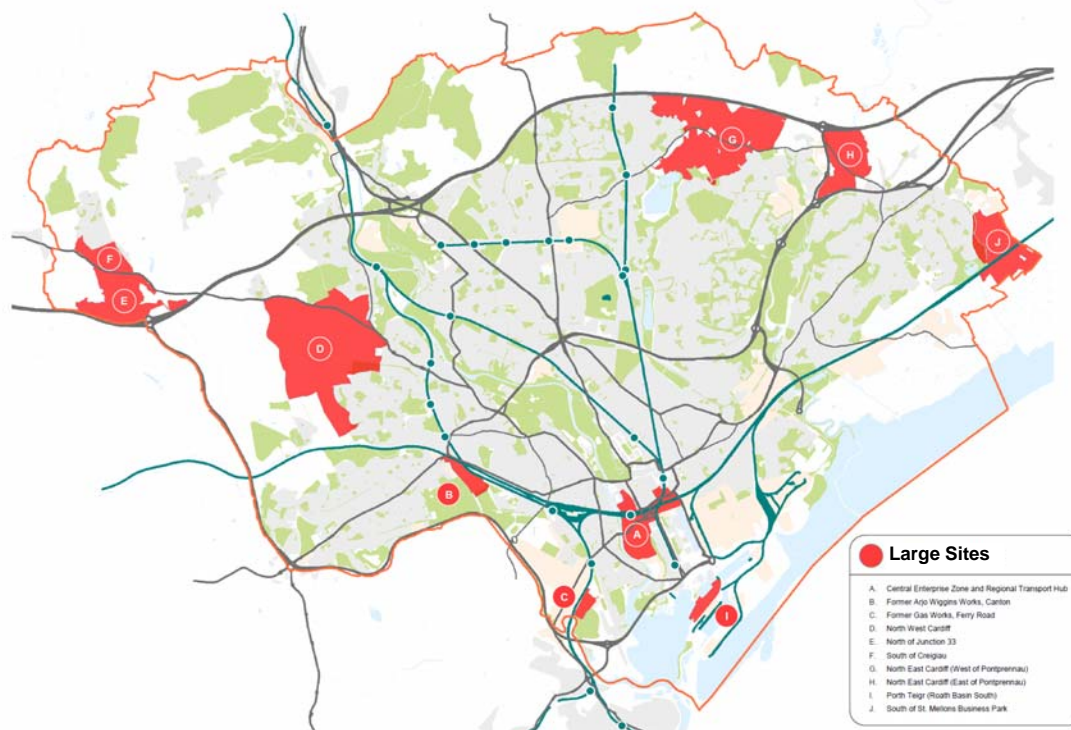
1.4.5. Whilst the Infrastructure Plan seeks to identify the key infrastructure items that are necessary to support the level of growth set out in the Deposit LDP, it does not capture every individual project being planned by the Council or external service providers. There are already a wide range of strategies and plans in place to facilitate and secure the delivery of necessary infrastructure across Cardiff and these documents are referenced within the relevant chapters of the IP. In addition, the scale, nature and timing of development over the Plan period will influence the phasing of associated infrastructure. As such, it will be necessary for infrastructure providers to work in partnership with developers to ensure that new developments and necessary infrastructure are delivered in a co-ordinated and timely manner.



1.4.6. It is recognised that Local Development Plans need to be flexible to allow for changes in building rates, new technologies and market conditions. A 10% allowance for additional growth has been evidenced in the Deposit LDP which may require additional infrastructure provision to that which is identified in this Infrastructure Plan.

1.5. Larger Sites and Masterplanning

1.5.1. The Deposit Local Development Plan identifies several large areas for future development (i.e. sites containing 500 or more dwellings and / or significant employment uses). Each chapter of the IP identifies where these sites will have an impact upon existing services / facilities and generate the need for new / additional infrastructure.



Site Name	Site Allocations
A. Cardiff Central Enterprise Zone	<ul style="list-style-type: none"> Major employment-led initiative including a Regional Transport Hub together with other mixed uses and approx 2,000 homes
B. Former Arjo Wiggins Works, Canton	<ul style="list-style-type: none"> Approx 700 homes, employment and associated community uses
C. Former Gas Works, Ferry Road	<ul style="list-style-type: none"> Approx 500 homes with associated community uses
D. North West Cardiff	<ul style="list-style-type: none"> Approx 5,000 homes, employment and other associated community uses
E. North of Junction 33	<ul style="list-style-type: none"> Approx 2,000 homes, employment, other associated community uses and Park and Ride
F. South of Creigiau	<ul style="list-style-type: none"> Approx 650 homes with associated community uses
G. North East Cardiff (West of Pontprennau)	<ul style="list-style-type: none"> Approx 4,500 homes, employment and other associated community uses
H. North East Cardiff (East of Pontprennau)	<ul style="list-style-type: none"> Approx 1,300 homes with associated community uses
I. Porth Teigr (Roath Basin South)	<ul style="list-style-type: none"> Mixed use scheme including approx 1,000 homes, offices, leisure and retail uses
J. South of St Mellons Business Park	<ul style="list-style-type: none"> Strategic employment site.

1.5.2. To help ensure that new homes and jobs form part of well planned communities, a schematic framework (including site masterplanning principles) has been produced for each of the Strategic Sites. They are supporting documents to the Deposit LDP and provide additional details of the infrastructure requirements within each of the Strategic Sites.

1.5.3. The Infrastructure Plan does not seek to identify all 'onsite' provision, (e.g. roads, footways and associated public realm) as these requirements will be addressed through the development management process.

1.6. Infrastructure Phasing

1.6.1. For the purpose of the plan, infrastructure items have been divided into two categories:

- Category 1: Infrastructure to enable growth – Those items which will need to be delivered prior to, or at the commencement of development (e.g. highway / utility infrastructure)
- Category 2: Infrastructure to support growth – Items which need to be phased and implemented alongside new development. This will ensure that the growth in population is served with appropriate facilities over time (e.g. schools and health care).



1.7. Land Requirements

1.7.1. Projects identified in the IP will require land to accommodate the associated infrastructure item(s). The early recognition of land requirements (particularly in relation to the larger sites) will provide clarity and confidence to developers, help to inform site masterplanning and identify opportunities for the co-location of complementary uses.

1.8. Shared Facilities

1.8.1. The IP encourages partnership working between public, private and third sector stakeholders to create a co-ordinated approach to infrastructure delivery. The sharing of facilities within multi-functional buildings and the co-location of complementary services, activities and land uses within community, leisure, recreation and business hubs can create a number of significant opportunities, including:

- Using existing infrastructure most efficiently
- Providing more facilities at convenient locations, encouraging walking and cycling
- Delivering economies of scale and maximising the use of land
- Reducing the delivery and running costs of infrastructure
- Designing buildings that are adaptable to changes in future needs

1.8.2. Further discussion with stakeholders and partner organisations will be required to understand and establish appropriate operating and delivery models for shared facilities and buildings. These models will be informed by the availability of land, capital and revenue funding and will vary upon the scale, location and nature of developments and the needs of existing and new communities. An indication of potentially compatible facilities and services is included within each of the chapters in Part Two and expanded upon in Chapter 6 (Community Buildings).

1.9. Renewable Energy

1.9.1. The consumption and production of energy is a matter of growing concern that raises issues at a local, national and global scale. CO₂ emissions from the burning of fossil fuels, the future security of the supply of energy and spiralling costs for the consumer are all well-known problems that are stimulating action in many sectors. In recognition of this, the LDP encourages developers of major and strategic sites to incorporate schemes which generate energy from renewable and low carbon technologies. The Council is also active in this area itself, and work is being undertaken to produce an Energy Strategy to progress various projects,

activities and ambitions for renewable energy production and demand minimisation.


1.9.2. Part of the need for this action arises from the planned growth of the city and there will be a requirement to ensure that this becomes embedded as part of the wider overall infrastructure. There is a range of Government innovation funding in this sector and Cardiff Council is fully engaged in bidding for and looking to benefit from this. However, there is still a need to engage with developers to ensure that opportunities are understood and realised.

1.10. Infrastructure Funding

1.10.1. A commitment to working in partnership between service / infrastructure providers, national / local government and the development industry will help to maximise resources / funding opportunities and ensure that infrastructure can be delivered in a co-ordinated, efficient and timely manner. Infrastructure provision will also involve joint working between neighbouring authorities, where infrastructure needs cross administrative boundaries and where there are regional solutions to specific projects.

1.10.2. There are a number of potential funding sources to deliver necessary infrastructure. The opportunities for these funding streams will depend upon the nature of the infrastructure proposed, legislative and statutory obligations, the availability of alternative funding and other local factors. An indication of potential funding sources have been identified below, including (but not limited to):



- 1.10.3. Currently, the Council negotiates developer contributions and planning obligations on a site by site basis through Section 106 of the Planning Act and, for highway works, Section 278 of the Highways Act. In April 2010 The Community Infrastructure Levy Regulations (as amended) came into effect. The Community Infrastructure Levy (CIL) is a means by which developers make a financial contribution towards the provision of necessary infrastructure. A Local Authority can only progress CIL when they have an up to date development plan. Whilst work has commenced on initial scoping and viability testing for a Cardiff CIL, it can only come into place following the adoption of the LDP. 
- 1.10.4. The amount of CIL which can be levied will be determined following the preparation, consultation and approval of a Draft Charging Schedule and will be subject to an independent Public Inquiry (Examination). The balance between infrastructure funded through CIL and that which can be funded through other mechanisms (including planning obligations and site masterplanning) will be further informed by viability testing and on-going dialogue with developers, central and national government and other funding sources.
- 1.10.5. Revenue costs associated with staffing, management and maintenance are not identified in this document and will need to be considered alongside the capital cost of providing infrastructure.

1.11. Infrastructure Requirements Summary Table

1.11.1. A summary of the overall infrastructure items required are identified below. Further details are provided in the corresponding chapters of Part 2 (Detailed Assessment) of the Infrastructure Plan.

Chapter 2. Transportation and Highways	
2.1 Cycling and Walking	<ul style="list-style-type: none"> Countywide walking and cycling improvements over the plan period including enhancements to and / or the creation of links between existing corridors, Strategic Sites and key facilities.
2.2 Buses / Rapid Transit	<ul style="list-style-type: none"> Countywide bus lane improvements over the plan period. Rapid Transit serving North West Cardiff Rapid Transit serving North East Cardiff Rapid Transit serving the eastern corridor Rapid Transit serving the southern corridor
2.3 Park and Ride	<ul style="list-style-type: none"> Park and ride / park and share facility at M4 Junction 33
2.4 Rail Network	<ul style="list-style-type: none"> Electrification of Mainline to Cardiff Electrification of Cardiff / Valleys Railway Lines New platforms and station improvements at Cardiff Queen Street and Cardiff Central railway stations Access for all improvements at 3 railway stations Rail network extensions, which could include new lines, new stations and station improvements Improvements to access and facilities at 18 railway stations
2.5 Road Network	<ul style="list-style-type: none"> Strategic highway improvements at major road junctions Major highway improvements, including the Eastern Bay Link
Chapter 3. Schools	
3.1 Nursery and Primary Education	<ul style="list-style-type: none"> 9-12 new build primary schools (with nurseries) and sites and / or expansion of existing primary schools
3.1 Secondary and Sixth Form Education	<ul style="list-style-type: none"> 2 new build secondary schools and sites and expansion of existing secondary schools
Chapter 4. Health	
4.1 Primary and Secondary Health Care	<ul style="list-style-type: none"> 3 new primary care facilities
Chapter 5. Green Infrastructure	
5.1 Parks, Green Spaces and Allotments	<ul style="list-style-type: none"> Provision of open space (including formal and informal recreation) linked to associated

	<p>residential and non-residential developments.</p> <ul style="list-style-type: none"> ▪ 2 new Country Parks ▪ Creation of new allotment sites linked to associated residential developments
5.2 Destination Play Areas	<ul style="list-style-type: none"> ▪ Improvements to 4 existing destination play areas ▪ Upgrading of 2 existing play areas to destination status ▪ Creation of 2 new destination play areas
5.3 Sports Pitches and Games Areas	<ul style="list-style-type: none"> ▪ Development of up to 6 new 3G artificial floodlit pitches ▪ Improvements to 7 rugby pitches, 16 football pitches and 16 junior football pitches

Chapter 6. Community Buildings

6.1 Libraries	<ul style="list-style-type: none"> ▪ 2 library facilities (which could form part of multifunctional community hubs).
6.2 Sports Centres and Indoor Recreation Facilities	<ul style="list-style-type: none"> ▪ Refurbishment of 2 leisure centres ▪ Upgrading of 2 leisure centres
6.3 Community Hubs and Facilities	<ul style="list-style-type: none"> ▪ Provision of new and / or improved community facilities, linked to associated residential developments. ▪ 2 new multifunctional community hubs ▪ 2 new multifunctional community leisure hubs

Chapter 7. Environmental Management

7.1 Recycling and Waste Management	<ul style="list-style-type: none"> ▪ Household Waste Recycling Centre ▪ Food Waste Treatment Facility ▪ Residual Waste Treatment Facility ▪ Materials Reclamation Facility ▪ Commercial Recycling Centre ▪ Satellite Street Cleaning Depots ▪ Bring Sites (Bottle Banks etc)
7.2 Flood Defences and Drainage	<ul style="list-style-type: none"> ▪ Flood mitigation measures ▪ Coastal defence measures

Chapter 8. Utility Services

8.1 Water and Waste Water	<ul style="list-style-type: none"> ▪ Off site works to facilitate new water and sewerage supplies to associated development sites (including any necessary upstream reinforcement works). ▪ Upgrading of 4 Waste Water Treatment Works
8.2 Gas	<ul style="list-style-type: none"> ▪ Off site works to facilitate new gas supply to associated development sites (including any necessary upstream reinforcement works).
8.3 Electricity	<ul style="list-style-type: none"> ▪ Off site works to facilitate new electricity supply to associated development sites (including any necessary upstream reinforcement works).
8.4 Telecommunications	<ul style="list-style-type: none"> ▪ Off site works to provide 'Fibre to the Premise' (FTTP) through associated ducts.

2. TRANSPORTATION AND HIGHWAYS

2.1. Cycling and Walking



Lead Organisations / Agencies

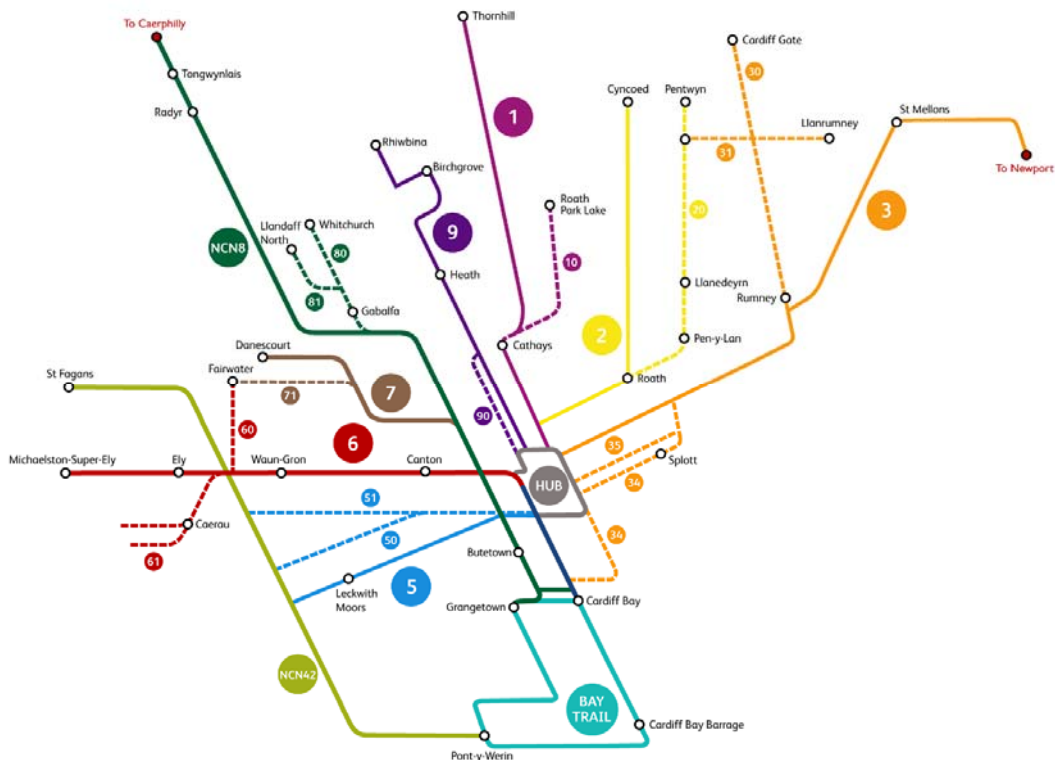
- Cardiff Council
- Welsh Government
- South East Wales Transport Alliance (Sewta)
- Natural Resources Wales

Why is the Infrastructure Needed?

- 2.1.1. The Active Travel (Wales) Bill was introduced by the National Assembly for Wales on the 18th February 2013. The purpose of the Bill is to require Local Authorities to continuously improve facilities and routes for pedestrians and cyclists and to prepare maps identifying current and potential future routes for their use. The Bill also requires new road schemes (including road improvement schemes) to consider the needs of pedestrians and cyclists at the design stage.
- 2.1.2. Walking and cycling have a fundamental role to play in delivering an integrated, safe and accessible transport network in Cardiff, particularly with regard to improving access to employment, services and community facilities, including access to the wider transport network. Provisions for active travel modes are vital to providing real and desirable alternatives to the private car, as well as encouraging active and healthy lifestyles, providing opportunities for recreation, enjoying the countryside and reducing the impact of transport on the environment.
- 2.1.3. Improved infrastructure for walking and cycling is supported within the Sewta Regional Transport Plan and the Welsh Government's National Transport Plan.

Existing Provision

- 2.1.4. Cardiff has an existing cycle network and extensive walking environment (covering both footways and traffic-free routes) that are used for both leisure and commuting purposes. However, there are gaps in the existing cycling provision and the network does not currently serve the Deposit LDP Strategic Sites to the north of the city.
- 2.1.5. In order to maximise opportunities for active travel, Cardiff's Strategic Cycle Network Plan is being delivered to ensure investment maximises the uptake of cycling in Cardiff. The Cardiff Strategic Cycle Network Plan (approved 2011) outlines a core network of cycle routes for the City and identifies a five year programme of schemes to develop those routes. A Walkable Neighbourhoods Plan is also being developed which is ensuring that investment in walking is strategically focused on the areas that would benefit most.
- 2.1.6. A series of strategic recreational routes across the city which are predominately off road cycling and walking routes continue to be developed and enhanced, including the Taff Trail, Ely Trail, Rhymney Trail and Nant Fawr Trail.
- 2.1.7. Cardiff's Enfy's Cycle Network (www.keepingcardiffmoving.co.uk):



Links to Neighbouring Authorities

- 2.1.8. There are a number of cross boundary walking and cycling routes, including the Ely Trail, the Rhymney Trail and the Nant Fawr Trail. The Taff Trail links Cardiff to Caerphilly and Rhondda Cynon Taf, the Bay Trail links Cardiff to the Vale of Glamorgan and the Wales Coastal Path links Cardiff to Newport and Penarth. Work is also being undertaken to improve additional walking and cycling linkages between Cardiff and Newport.
- 2.1.9. There is an extensive public rights of way network which provides access from the urban area into the wider countryside beyond. There have been a series of cross boundary walks developed into the Vale of Glamorgan, in addition to the more extensive Glamorgan Ridgeway Walk.

Key Issues

Removing barriers to cycling

- 2.1.10. The uptake of walking and cycling is impacted upon by a number of issues, such as volumes and speeds of traffic, safety concerns, a lack of appropriate infrastructure and practical difficulties, such as cycle storage.

Maximising opportunities

- 2.1.11. Travel behaviour research in Cardiff and Penarth¹ has shown that for approximately 55% of car trips, the car is chosen in preference to sustainable travel alternatives for subjective reasons, such as lack of information or poor perceptions of travel time, costs, safety, comfort and infrastructure rather than necessity. It also suggests that of these car trips 37% could be made by bicycle and 13% on foot. Furthermore, 57% of Cardiff residents travel less than 5km to work, which presents a realistic opportunity for more journeys to be undertaken by active modes.

Parks and Green Spaces

- 2.1.12. There is substantial 'off road' walking and cycling infrastructure within Cardiff's parks and green spaces. The path infrastructure that exists is collectively substantial, but varies from well developed through to intermittent (where there is not a tradition of public access). Similarly, the quality and condition of paths, together with ancillary items such as signage, cycle parking, information boards, seating and lighting can vary widely.

Improving health

- 2.1.13. Levels of physical activity in Cardiff are relatively low with only 25% of adults carrying out the recommended levels (at least 30 minutes of moderate intensity physical activity, five times a week), which is below the Welsh average of 30%. Providing easily accessible walking and cycling routes and facilities will help to address these issues.

Infrastructure Requirements

- 2.1.14. Routes – The delivery of permeable and legible networks of safe, convenient and attractive walking and cycling routes that connect to the Cardiff Strategic Cycle Network, form part of Cardiff's Walkable Neighbourhoods Plan and link to wider public rights of way / cycling networks beyond the County boundary.
- 2.1.15. Speed – Delivery of measures to reduce vehicle speeds in order to provide safe, convenient and attractive walking and cycling connections; and
- 2.1.16. Supporting facilities – Provision of facilities such as directional signage, secure cycle parking (covered where necessary) and shower / changing facilities.

Summary of Infrastructure Projects:

- 2.1.17. Countywide walking and cycling improvements over the Plan period include enhancements to and / or the creation of links between existing corridors / trails, Strategic Sites and key facilities.
- 2.1.18. It is important that the Strategic Sites identified in the Deposit LDP have good connectivity with the rest of the city from an active travel perspective. This connectivity must originate from within the developments, cross the interface with their surrounding environment, extend across the city and link to networks / trails beyond the County boundary.

¹ Sustrans and Socialdata 2011

Phasing

Category 2: Infrastructure to Support Growth:

- 2.1.19. Walking and cycling routes / facilities including onsite infrastructure, together with connections to nearby communities and the Strategic Cycle Network should be implemented at the earliest opportunity to benefit planned and existing communities
- 2.1.20. The delivery of Cardiff's Strategic Cycle Network Plan is already taking place and will continue to form the basis of future cycling investment in Cardiff. The emerging Walkable Neighbourhoods Plan will ensure strategic delivery of walking improvements across the city.

Funding Sources

- 2.1.21. Where the need for cycling and walking infrastructure arises as a result of a development proposal, on and off site provision will be secured either through site masterplanning processes, or by way of developer contributions.
- 2.1.22. Other sources of funding for cycling and walking infrastructure, include: Sewta Regional Transport Capital Fund, Welsh Government – Safe Routes in Communities, Cardiff Council's General Capital Funding and through collaborative projects with other stakeholders.

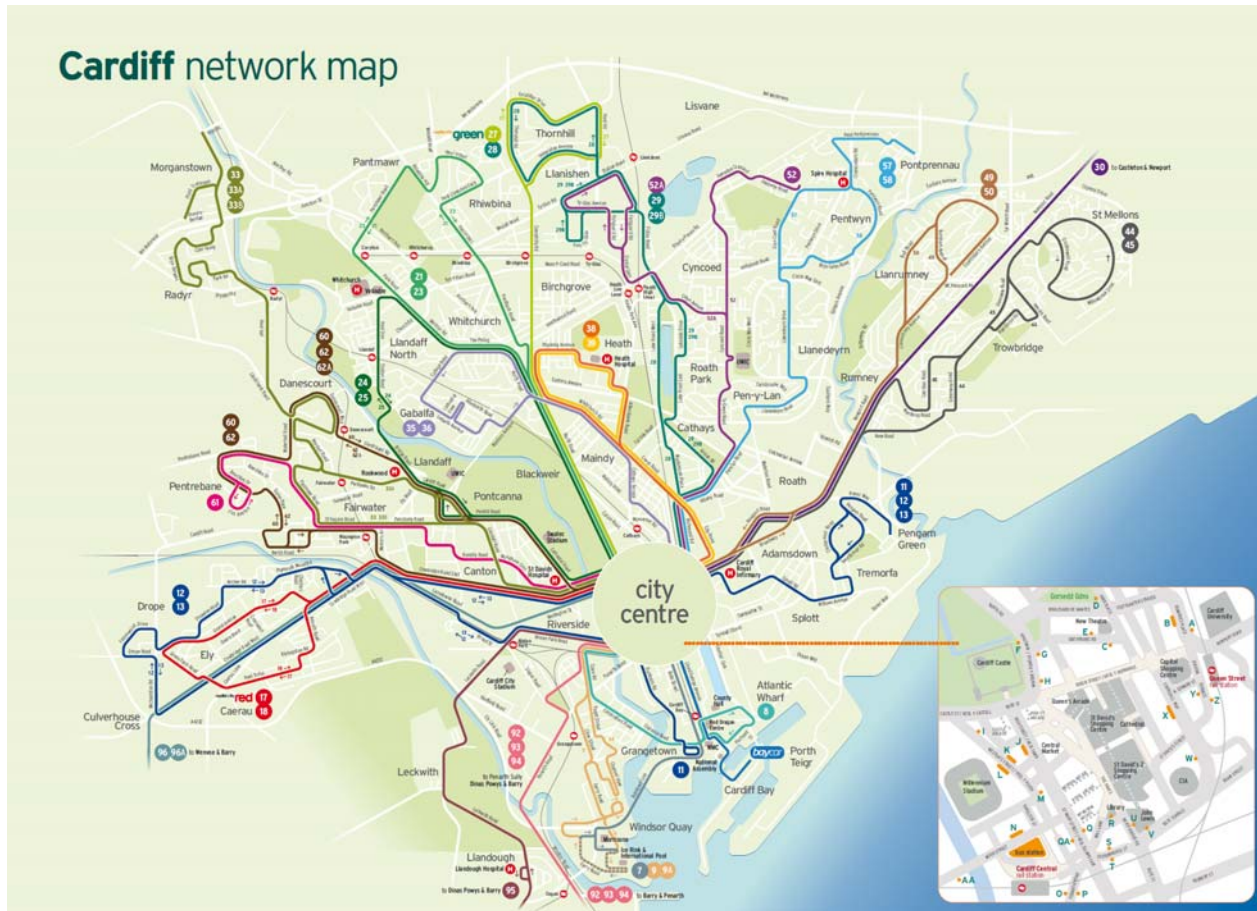
Opportunities to Share Facilities

- 2.1.23. The delivery of new developments, together with improvements to existing infrastructure, such as public transport facilities and parks / green spaces should consider walking / cycling routes and facilities, as an integral part of their design.

2.2. **Buses / Rapid Transit**



2.2.1. Cardiff Bus Network Map (High frequency services only) www.cardiffbus.com:



Lead Organisations / Agencies

- Cardiff Council
- Welsh Government
- South East Wales Transport Alliance (Sewta)
- Public Transport Operators (Bus and Rail)

Why is the Infrastructure Needed?

- 2.2.2. The Transport Strategy for Cardiff aims to encourage modal shift away from the car for regular journeys, especially for commuting. Cardiff has a good local bus network which offers commuters and other travellers the opportunity to travel using a combination of more than one mode of transport for their journey.
- 2.2.3. Public transport needs to be more attractive as an alternative to travelling by private car if Cardiff's objective of achieving a 50:50 modal split is to be met by 2026. **Bus priority measures and rapid transit infrastructure (heavy rail, light rail, tram train, bus rapid transit etc) will enable express public transport services to have journey times that are reliable and provide a travel time advantage over general traffic between key destinations.** These improvements are also required in order to encourage public transport operators to invest in their fleet and improve the frequency and capacity of the services they provide.
- 2.2.4. Infrastructure improvements which reduce bus journey times and improve the reliability of services are supported within the Welsh Government's National Transport Plan and the Sewta Regional Transport Plan.

Existing Provision

- 2.2.5. Cardiff is well served by an extensive network of bus services. The majority of local services in Cardiff are operated by Cardiff Bus, with most connecting to the city centre and Cardiff Central Bus Station. Existing infrastructure across the county includes: 1740 Bus Stops, 659 Bus Shelters, 17km of Bus Lanes and 7 Bus Gates

Links to Neighbouring Authorities

- 2.2.6. Key regional bus services use the following strategic routes in the relevant corridors:
- Eastern Corridor: A48 Eastern Avenue and Newport Road and Rapid Transit to Cardiff Bay from the East
 - North East Corridor: A469 Thornhill Road / Caerphilly Road, A470 Northern Avenue and Pendwyallt Rd.
 - North West Corridor: Cowbridge Road West and Llantrisant Road.
 - Southern Corridor: Leckwith Road, Penarth Road, Cogan Spur and Cardiff Barrage Link

Key Issues

Rapid Transit

- 2.2.7. Rapid Transit infrastructure will need to provide frequent and reliable services that cater for the needs of residents, employees and visitors. **Types of rapid transit services that are being considered** for Cardiff include:
- Heavy Rail – Rolling stock compatible with existing UK rail network.
 - Light Rail – Which can operate on-street, but is not compatible with the heavy rail network.
 - Tram Train – A hybrid between heavy and light rail (which is currently being tested in the UK). One of the key benefits is that it can operate on-street overcoming the severance effect associated with heavy rail.
 - Bus Rapid Transit – Higher quality vehicles, facilities and more segregated routes than bus.
 - Bus – Flexible service frequencies and routes with on-road bus priority.
 - Elevated frequent transport* – unconventional systems such as gondolas, monorails and personal rapid transit.
- 2.2.8. *There are technological, operational and delivery issues associated with providing unconventional modes of transport that are incompatible with existing networks. Some of these systems may be identified as deliverable at a future time, however infrastructure required for the Deposit Local Development Plan will be based on proven technologies.

Transport Hubs

- 2.2.9. Transport hubs provide interchange facilities for several modes of transport at one location. Benefits include improved accessibility for commuters and an associated decrease in journey times for trips incorporating more than one mode of transport. At each hub location, facilities and information will have a key role in providing an experience that caters for a variety of journeys and users. Hubs can also offer benefits for operators in terms of co-ordinating service timings and providing driver rest facilities. Transport hubs could be provided within shared facilities at key destinations which will be identified through detailed masterplanning.

Better Use of the Highway

- 2.2.10. Bus priority measures including bus priority links, road widening and the removal of on street parking can make better use of the highway and provide a travel time advantage over general traffic. They can also increase people carrying capacity on strategic routes.

Walking and Cycling

- 2.2.11. Improvements to cycling and walking routes leading to (and the facilities at) transport hubs and bus stops will support access to bus and rapid transit services.

Infrastructure Requirements

2.2.12. The form of rapid transit (heavy rail, light rail, tram train, bus rapid transit etc.) which can be accommodated on each corridor will be determined through further technical assessment work and as part of the detailed masterplanning of the Deposit LDP Strategic Sites.

2.2.13. The infrastructure required to provide rapid transit serving the Strategic Sites identified in the Deposit Local Development Plan includes the following options identified in paragraphs 2.2.14 – 2.2.17 (Source: Arup Cardiff LDP Rapid Transit Options).

2.2.14. North West Corridor – linking Strategic Sites E (North of Junction 33), F (South of Creigiau), D (North West Cardiff) and B (Former Arjo Wiggins Works) to the City Centre and Site A (Cardiff Central Enterprise Zone):

Estimate of car journey in 2026 = 13.1km & 45 minute journey time.

- Bus Rapid Transit (NW1) via Cowbridge Road East through Fairwater (12.3km, 45minute journey time);
- Bus Rapid Transit (NW2) via the A4232 and a new link off Capel Llaniltern Link (18.4km, 55 minute journey time);
- Bus Rapid Transit (NW3) via the River Corridor providing a dedicated bus route and / or bus priority measures on the west side of the River Taff (12.2km, 36 minute journey time);
- Tram Train (NW4) via City Line (12km, 26 minute journey time) – this option would need to be linked with the Southern corridor;
- Heavy Rail (NW5) via City Line (12km, 26 minute journey time);

2.2.15. North East Corridor – linking Strategic Sites G (North East Cardiff – West of Pontprennau), H (North East Cardiff – East of Pontprennau) and J South of St Mellons Business Park) to the City Centre and Site A (Cardiff Central Enterprise Zone):

Estimate of car journey in 2026 = 9.4km & 46 minute journey time.

- Bus Rapid Transit (NE1) via Newport Road and A48 Eastern Avenue (10.3km, 41minute journey time);
- Bus Rapid Transit with transfer to Rhymney Line (NE2) through site G (8.8km, 22 minute journey time);
- Bus Rapid Transit with transfer to Rail (NE3) via the rail relief line beside the Main Line (15.1km, 36 minute journey time);
- Direct Bus Service (NE4) with bus priority measures on a route between North East Cardiff and the City Centre via Cyncoed (8.2km, 35 minute journey time)

2.2.16. Eastern Corridor – linking Strategic Site J (South of St Mellons Business Park) to the City Centre and Site A (Cardiff Central Enterprise Zone):

Estimate of car journey in 2026 = 13.8km & 45 minute journey time.

- New Railway station and service (E1) via relief line beside the Main Line (8.6km, 13minute journey time);
- Bus Rapid Transit (E2) via Newport Road and A48 Eastern Avenue (13km, 39 minute journey time);
- Enhanced Bus (E3) with bus priority measures via Newport Road (10.0km, 44 minute journey time);
- Bus Rapid Transit (NE4) via sites G and H to rail interchange (15.4km, 50 minutes).

Note: Upgrades to enable passenger services on the rail relief lines is not currently programmed by Network Rail.

2.2.17. Southern Corridor – linking Strategic Sites A (Cardiff Central Enterprise Zone) and I (Porth Teigr) and the City Centre with Cardiff Bay

Estimate of car journey in 2026 = low vehicle speeds.

- Enhanced Bus Rapid Transit (S1) based on improving existing bus services (6.8km, low / medium vehicle speeds);
- Enhanced Rail Services (S2) based on existing services between the City Centre and Cardiff Bay (2km, medium vehicle speed);
- Elevated Light Transit (S3) with a frequent service and wider network coverage (5.5km, high vehicle speed);
- Tram Train (S3) running on street (3.9km, medium vehicle speed);
- Light Rail (S3) running on street (3.9km, medium vehicle speed);

2.2.18. Further work on the above is being progressed with stakeholders and developers.

2.2.19. In addition, there is an ongoing programme of bus priority improvements based on the implementation of the Express / Core Bus Network identified in 2002 by Halcrow which focuses on the main transport corridors.

Phasing

- Category 1: Infrastructure to enable growth and
- Category 2: Infrastructure to support growth:

2.2.20. The phasing of the strategic rapid transit corridor improvements and associated transport hubs will be informed by masterplanning work for the Deposit LDP Strategic Sites and the availability of funding.

2.2.21. The Express / Core Bus network will be delivered through an ongoing rolling programme over the next 10 years. The early phases of work will be focused on providing priorities that serve the Deposit LDP Strategic Sites (which will be informed by detailed masterplanning work) and improved regional bus services.

Funding Sources

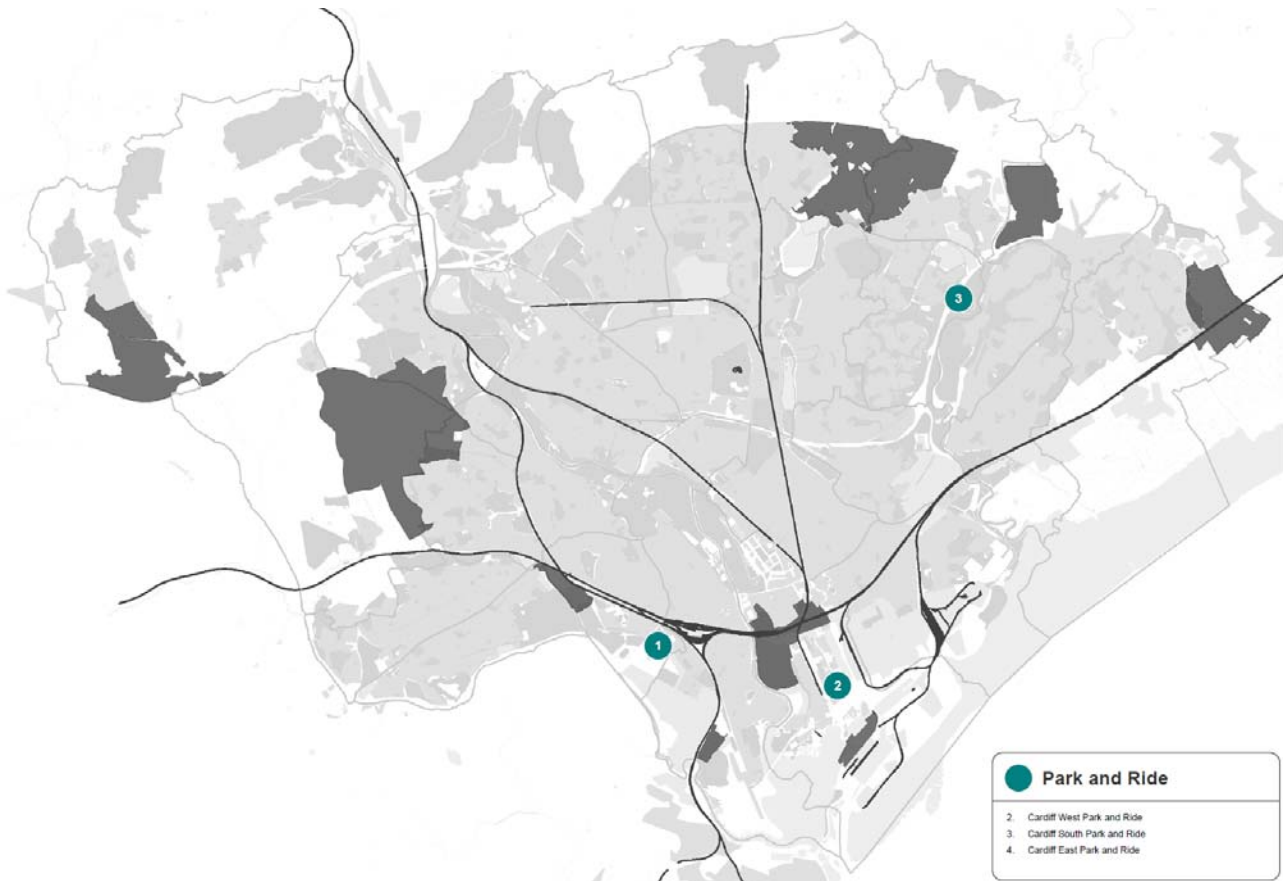
2.2.22. Funding of bus and rapid transit infrastructure will be sourced from the Welsh Government, Network Rail (rail-based improvements), Sewta Regional Transport Grant, developer contributions and the Council's General Capital Fund.

Opportunities to Share Facilities

2.2.23. The co-location of services and associated facilities at (or in the vicinity of) Transport Hubs offers the potential for efficiencies in service delivery, improved accessibility for passengers between modes of transport and increased pedestrian activity within the areas that they serve.

2.2.24. New and improved bus / rapid transit infrastructure should consider opportunities to incorporate cycling and walking routes and facilities.

2.3. Park and Ride



Lead Organisations / Agencies

- Cardiff Council
- Welsh Government
- South East Wales Transport Alliance (Sewta)

Why is the Infrastructure Needed?

- 2.3.1. The Sewta Regional Transport Plan has identified a programme of park and ride and park and share schemes that are aimed at encouraging a modal shift away from single occupancy car travel. The purpose of these facilities will be to remove traffic from the existing road network and relieve existing congestion. Cardiff has 3 bus-based Park and Ride facilities which offer commuters and other travellers the opportunity to travel using a combination of private car and public transport.
- 2.3.2. The development of interchanges which provide facilities for park and ride and park and share is supported by the Welsh Government's National Transport Plan, and the Sewta Regional Transport Plan.

Existing Provision

- 2.3.3. There are currently 3 Park and Ride facilities located in the South, East and West of the City:
- Cardiff West - Cardiff City Stadium, Leckwith
 - Cardiff East - Pentwyn Interchange, M48 / Junction 30
 - Cardiff South - County Hall, Atlantic Wharf
- 2.3.4. Cardiff West operates Monday to Friday (max 1000 spaces), Cardiff East operates all week (950 spaces). Cardiff South is a Saturday only operation (max 550 spaces).

Links to Neighbouring Authorities

- 2.3.5. There is significant potential to intercept traffic north of Cardiff by providing Park and Ride / Park and Share facilities on the A470 corridor. The Cardiff West facility is well placed to intercept traffic from the Vale of Glamorgan and Rhondda Cynon Taf, whilst Cardiff East is used by traffic originating in the neighbouring South East Wales authorities and travelling to Cardiff via the M4 and A48.

Key Issues

- 2.3.6. Deposit LDP Strategic Site E (North of Junction 33) has the potential to incorporate park and ride / park and share facilities that could intercept traffic on the A470, north of Cardiff.
- 2.3.7. Strategic Site J (South of St Mellons Business Park) has the potential to include a new railway station and attendant Park and Ride facility. This should however be viewed as a trunk rail facility, rather than a facility for local journeys into Cardiff, which are already catered for at Cardiff East (Pentwyn Interchange) site.

Infrastructure Requirements

- 2.3.8. A470 Northern Corridor Park and Ride / Park and Share Facility. Bus based park and ride sites need to be large and attractive enough to encourage a significant shift from traffic on the target corridors. Therefore, parking for a minimum of 500 cars with bus priority / BRT measures along the route will be required for any sites being considered.
- 2.3.9. Schemes located outside Cardiff that have the potential to reduce the volume of traffic travelling into the city include:
- Barry Docks Bus Interchange;
 - Llanwern Park and Ride; and
 - Taffs Well Park and Ride decking
- 2.3.10. The provision of additional Park and Ride facilities, including additional capacity at the identified stations are an integral part of emerging Sewta Metro Plus proposals for South East Wales.

Phasing

- 2.3.11. Category 2: Infrastructure to Support Growth:
- The phasing of park and ride facilities in the region requires collaborative working with the Welsh Government and Sewta.

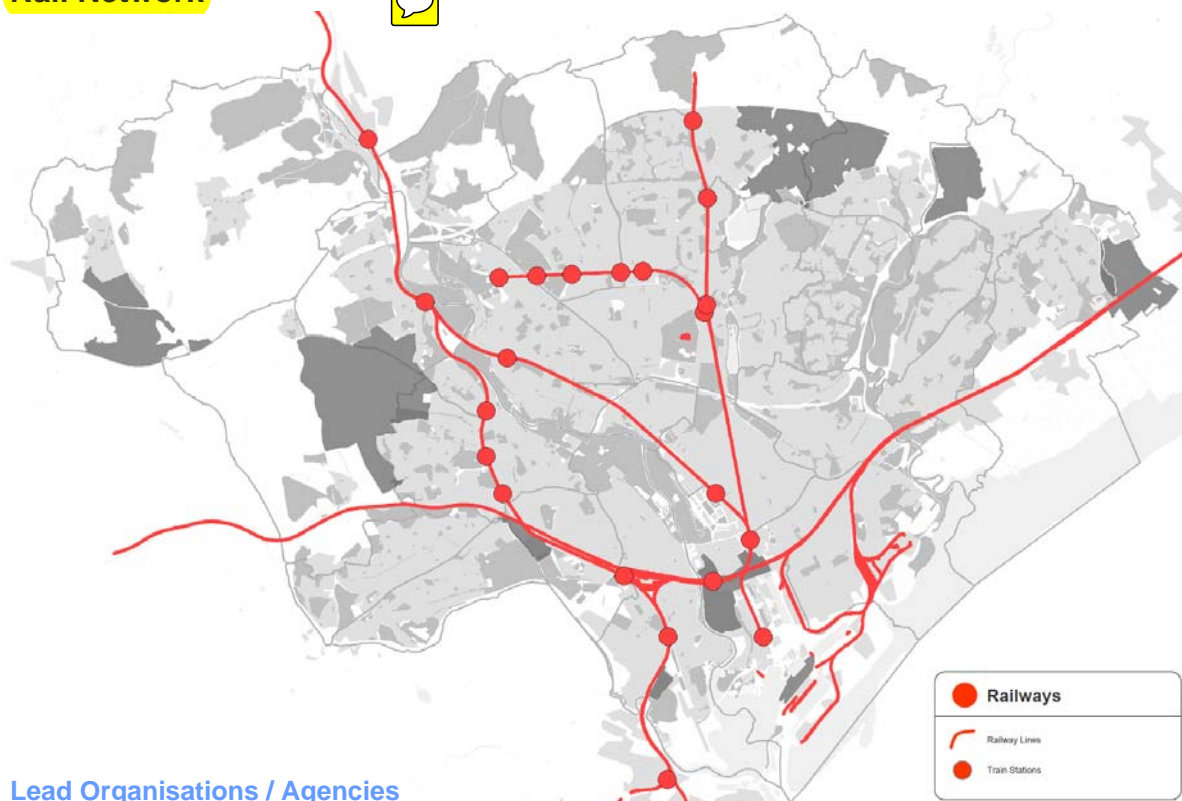
Funding Sources

- 2.3.12. Further work is required to identify the costs of providing the Park and Ride facilities. Funding sources would include developer contributions and Regional Transport Grant funding.

Opportunities to Share Facilities

- 2.3.13. Some Park and Ride sites may provide opportunities to share facilities.

2.4. Rail Network



Lead Organisations / Agencies

- Network Rail
- Train Operators
- UK Government
- Welsh Government
- South East Wales Transport Alliance (Sewta)
- Cardiff Council

Why is the Infrastructure Needed?

- 2.4.1. The number of commuters travelling to work in Cardiff has increased from 190,000 in 2001 to 198,000 in 2010, with some 124,000 Cardiff residents travelling across the city to their place of work on a daily basis.
- 2.4.2. Cardiff, as the economic hub of the South East Wales City-Region experiences the largest net daily inflow of commuters (74,000), with the largest proportion from Rhondda Cynon Taf and Vale of Glamorgan, plus 28,800 Cardiff residents travelling to work outside of the city. Around 80% of inbound commuter movements are by car.
- 2.4.3. These pressures are set to intensify as Cardiff's population grows and as areas of the city are developed that are not currently well served by sustainable transport.
- 2.4.4. The transport assessment and modelling carried by the Council for the Deposit LDP shows that a major shift to sustainable travel modes is required to support projected urban growth in Cardiff and across the wider region. The rail network has an important role to play in facilitating this shift for both journeys within the city and inbound commuting from the wider City Region. Currently, 6% of journeys to work by Cardiff residents are by train. Approximately 10% of commuters from outside Cardiff travel by train according to the 2001 census. There is however the potential for rail to increase this share.
- 2.4.5. Extending service provision, developing new rail stations and improving access to existing stations / associated facilities is supported within the Welsh Government's National Transport Plan, the Sewta Regional Transport Plan and the Sewta Rail Strategy.

Existing Provision

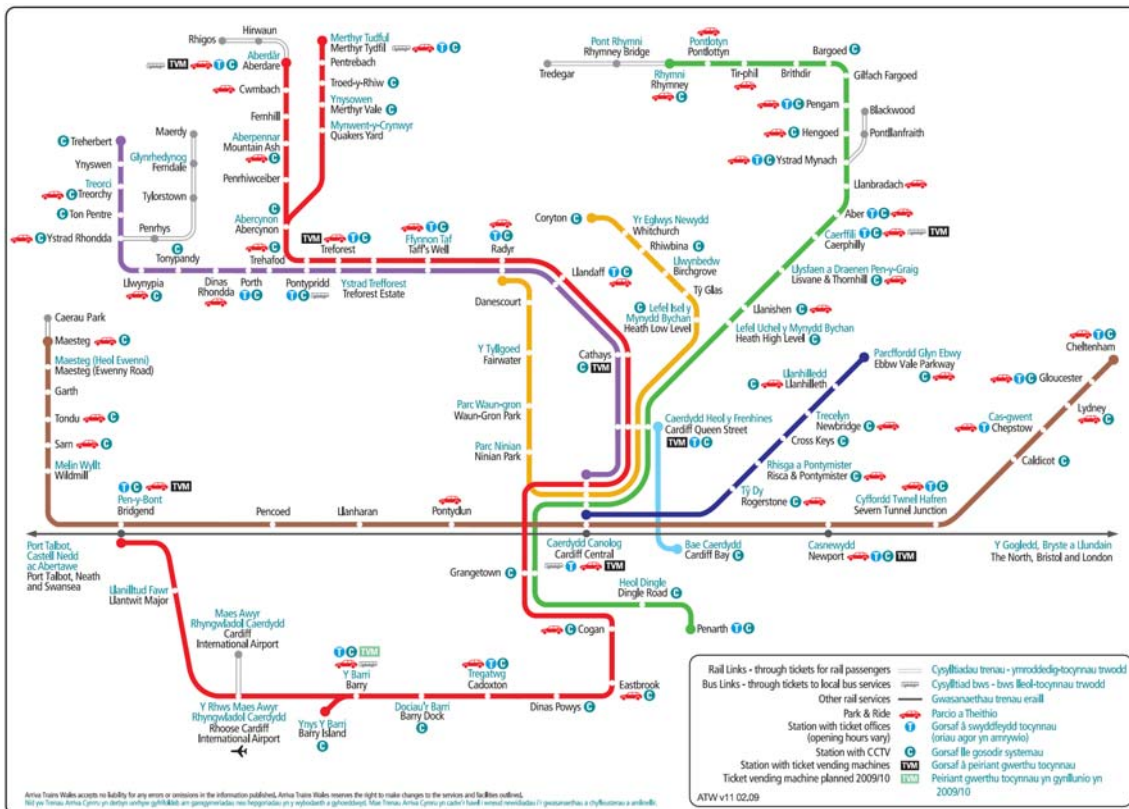
2.4.6. There are currently 20 commuter railway stations located across the county which are owned by Network Rail. The stations are managed by Arriva Train Wales, who operate all of the services at these stations, with the exception of Cardiff Central which is also served by Cross Country and First Great Western.

2.4.7. Located on the Great Western London – South Wales mainline, Cardiff Central is one of the UK’s major railway stations and provides connections to Newport, Bristol, Bath, London, Southampton, Portsmouth, Gloucester, Cheltenham, Birmingham and Nottingham.

Links to Neighbouring Authorities

2.4.8. In addition to the London – Swansea mainline, there are a further seven routes across Cardiff that link to a range of destinations both within and beyond the city including the neighbouring authorities of the Vale of Glamorgan, Rhondda Cynon Taf, Caerphilly, Blaenau Gwent and Newport. Cardiff forms the hub of the Valley Lines network which connects the city to communities throughout the Rhymney Valley, Taff Vale, Ebbw Valley and the Vale of Glamorgan.

2.4.9. Cardiff and Valleys Local Routes Network Map (www.arrivatrainswales.co.uk):



Key Issues

Rail Network Capacity

2.4.10. During peak periods, services on routes into Cardiff are running at capacity. Passenger numbers on commuter rail services into Cardiff have grown steadily in recent years. Excluding new lines, average growth of 4.3% per annum was achieved between 2000 and 2010 on Valley Lines services, well above the average for the UK as a whole². The Rail Utilisation Strategy for Wales³ predicts continued growth in commuting flows

² Valley Lines Electrification – Outline Business Case (Welsh Government, June 2012)

³ Wales Rail Utilisation Strategy, Network Rail (2008)

on lines into Cardiff of 3.4% per annum until 2018. The existing network and train fleet lacks the capacity to facilitate this increase.

2.4.11. The £220 million Cardiff Area Signalling Renewal (CASR) project, (which includes extending platforms at key stations) will increase network capacity (to be delivered by 2014), and expand the capacity of the network by increasing the number of train paths between Cardiff Central and Cardiff Queen Street from 12 to 16 trains per hour.

2.4.12. The Valley Lines Network will be electrified in 2019. In combination with CASR improvements, the provision of electric multiple units and new timetabling will increase the carrying capacity of the rail network to meet projected growth in passenger demand. Valley Lines electrification will follow on from electrification of the Great Western Main Line between Swansea and London which will be completed in 2017.

2.4.13. The electrification of the rail network will help to achieve a number of key improvements, including:

- More seats and faster journeys: Electric trains have more seats than diesel trains of the same length. Journey time savings can be made due to the superior performance of electric traction and line speed improvements.
- Reduced costs: Electric trains are cheaper to operate, require less maintenance and have lower energy costs than diesels. They're lighter and do less damage to the track, helping create a more reliable railway
- Better for the environment: Electric trains emits circa 20-35% less carbon per passenger than a diesel train. With zero emissions at the point of use, they improve air quality in pollution hot spots such as city centres and main line stations (www.networkrail.co.uk).

Limited Reach of the Rail Network

2.4.14. A number of areas of South East Wales, including parts of Cardiff are not served by the rail network. The Sewta Rail Strategy 2013 sets out a programme of infrastructure delivery up to 2028. The programme includes a range of schemes which would extend the regional rail network to connect with communities not currently served by rail and thus increase opportunities for rail travel within the Cardiff travel to work area. St Fagans and St Mellons within the Cardiff area are among a number of locations earmarked for potential new stations within the programme. The Council is commissioning separate studies to assess the feasibility of developing these stations in summer 2013.

2.4.15. The cost of delivering the capital elements of the Sewta Rail Strategy programme is estimated as £19.5 million (average) per annum. This equates to a cost of around £254 million between 2013 and the end of the LDP Plan period in 2026.

Railway Station Facilities

2.4.16. Many large and small stations across the regional rail network require improvements to access and passenger facilities. Network Rail is currently working with train operating companies to deliver better stations across England and Wales. The National Stations Improvement Programme (NSIP) focuses on medium-sized stations and seeks to improve facilities, including real-time information, clearer way finding and better waiting areas. A number of stations within the Cardiff travel to work area have benefitted from recent improvements through the NSIP programme including new passenger waiting and ticketing facilities and improvements to access. Many stations however are still in need of improvements to bring them up to standard.

2.4.17. Cardiff Council has undertaken an audit of 18 railway stations located across the County (excluding Cardiff Central and Queen Street as major interchanges). It has identified a series of improvement works, including improvements to access, on site information and the quality of the pedestrian environment. Proposed enhancement works are identified in the 'Cardiff Interchange Facilities Audit' (Final draft report July 2012).

2.4.18. Network Rail is currently undertaking improvement works at Cardiff Central Station and Queen Street Station as part of the CASR project. These works include the installation of additional platforms and new entrances to the buildings. This project will help to 'future proof' the stations by increasing capacity for potential future passenger services. It will also provide more robust and flexible infrastructure in order to maintain and improve train reliability and punctuality.

2.4.19. Network Rail is also due to carry out improvements at Llandaff and Radyr Stations as part of the Department for Transport's (DfT's) Access for All Programme. These measures will include new ramps, bridges and lifts to make the stations fully accessible and Disability Discrimination Act (DDA) compliant.

Infrastructure Requirements

- Cardiff Area Signal Renewal (CASR): Increase train paths from 12 to 16 trains per hour between Cardiff Queen Street and Cardiff Central; platform extensions at key stations (2014/15).
- Station improvements at Cardiff Central and Queen Street (part of CASR) (2014/15)
- Great Western Mainline Electrification (2017)
- Valley Lines Electrification (2019 -2024)
- Sewta Rail Strategy (2013) proposals: rail network extensions including new lines, new stations and station improvements including potential new stations at St Mellons and St Fagans (2013-2028).
- Cardiff Local Interchange Improvements: small scale upgrades to walking and cycling access and passenger facilities at 18 local railway stations: Birchgrove, Cardiff Bay, Cathays, Coryton, Danescourt, Fairwater, Grangetown, Heath High Level, Heath Low Level, Lisvane and Thornhill, Llandaff, Llanishen, Ninian Park, Radyr, Rhiwbina, Ty Glas, Waun-Gron Park and Whitchurch (by 2018).
- DfT Access For All Improvements: Provision of DDA compliant passenger access at Llandaff and Radyr Stations (by 2014).

Phasing

2.4.20. Category 2: Infrastructure to support growth:

Railway Electrification

- Construction work on the electrification of the mainline has already started in London and the scheme will progress in a westbound direction. The first phase incorporates the area from London to Didcot; phase two will link to Bristol Temple Meads; the third phase will extend to Cardiff and the final phase to Swansea. The mainline upgrade to Cardiff is due to be completed by 2017. Construction work to the mainline will not start in Wales until 2015 and improvements to the Valleys network is scheduled for completion between 2019 and 2024.

Railway Station Facilities (Major Interchanges)

- Improvements works at Cardiff Central and Queen Street Station have commenced and are due to be completed by 2015 as part of CASR.

Other Railway Station Facilities

- Improvement of Cardiff local stations will be delivered through a rolling programme over 5 years. Provision of new stations will be driven by market demand, the development of supporting business cases and commitment of schemes in Network Rail's 5 year investment programmes (Control Periods). Early

implementation will benefit existing communities and rail users. Funding is likely to be provided by Central Government (DfT) or Welsh Government.

- Access for All: Improvements. To be undertaken at Llandaff and Radyr stations to provide DDA compliant access. The need for further Access for All improvements has been identified for Cathays station (by 2018)

Network Extensions

- Extensions to the regional network identified through the Sewta Rail Strategy will be driven by demand, the development of supporting business cases and commitment of schemes in Network Rail's 5 year Control Period programmes. Funding is likely to be provided by Central Government (DfT) or Welsh Government. The Sewta Strategy is a 15 year programme of investment covering the period 2013-2028.

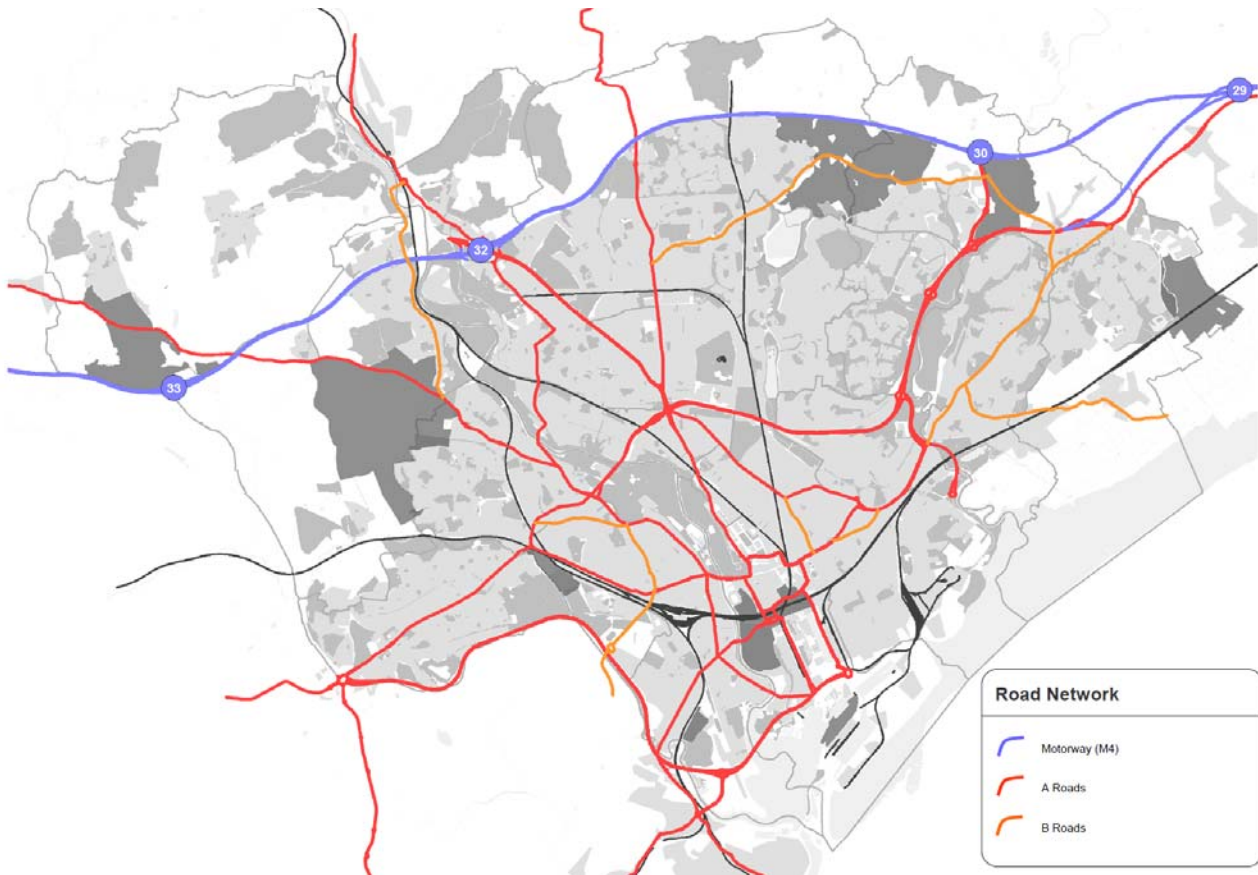
Funding Sources

2.4.21. Funding sources for countywide, regional and national rail infrastructure includes the Department for Transport, Network Rail and the Welsh Government. Additional funding opportunities include the Sewta Regional Transport Capital Fund, Cardiff Council Capital funding and developer contributions.

Opportunities to Share Facilities

2.4.22. Any proposed public transport, walking and cycling improvements in the vicinity of railway stations should consider opportunities to link to and contribute toward identified projects.

2.5. Road Network



Lead Organisations / Agencies

- Cardiff Council
- Welsh Government
- South Wales Trunk Road Agency
- South East Wales Transport Alliance (Sewta)

Why is the Infrastructure Needed?

- 2.5.1. The Sewta Regional Transport Plan includes a Making Better Use programme which supports junction improvements in order to improve journey time reliability, reduce congestion, keep traffic moving, reduce the negative impact of traffic on people and the environment and support public transport proposals. Junction improvements which contribute to road safety are supported by the Sewta Regional Transport Plan and Wales National Transport Plan.
- 2.5.2. Traffic on Cardiff's roads grew on average by 9% between 2002 and 2012 (Cardiff Annual Traffic Flow Surveys, calculated using 5yr Rolling Averages). Although the recession has reduced the rate of traffic growth since 2008, this upward trend is likely to resume during the LDP plan period. Cardiff's highway network remains under considerable strain, with a number of key junctions and roads either at or approaching capacity at peak times. A large proportion of Cardiff's workforce (37%) travel into Cardiff from outside the county and 80% of inbound commuter movements are by car. Many short trips in Cardiff are currently made by car, but could easily be made by other, more sustainable modes.
- 2.5.3. Highway improvements will focus on schemes that assist with managing network resilience, improve access and road safety and facilitate sustainable travel and development.

Existing Provision

2.5.4. Road Lengths by road type (source: Welsh Transport Statistics, 2011):

- 17km of Motorway, 8km of trunk road, 86km of A-roads (52km in built-up areas), 138km of B & C roads (96km in built-up areas), 859km of minor surfaced roads (848km in built up areas), Total = 1096km (1001km in built-up areas).

2.5.5. Some of the most congested strategic roads in Cardiff include:

- A470 North Road
- A48 Western Avenue
- A48 Eastern Avenue
- A4232 Capel Llanilltern
- A4232 Pentwyn Link
- Southern Way
- Newport Road
- Central Link Road
- Leckwith Road
- Cogan Spur

2.5.6. Significant congestion occurs regularly at the M4 motorway Junctions 30, 32 and 33 and on the local strategic network at junctions in the City Centre, Gabalfa Interchange, Coryton Interchange, Llanedeyrn Interchange and at A48 Western Avenue / Cardiff Road.

Links to Neighbouring Authorities

2.5.7. The M4 Motorway forms part of the Trans-European road network that links Cardiff with neighbouring local authorities between Newport and Swansea. It is a key corridor for the economy of South Wales, however it suffers congestion during peak periods and is, in parts, vulnerable to closures without appropriate alternatives being available (Source: National Transport Plan). Cardiff is also connected to neighbouring authorities by the following key routes:

- A470 North Road, A4119 Llantrisant Road, A469 Caerphilly Road – Rhondda Cynon Taf (RCT) & Caerphilly (CCBC);
- A4119 Llantrisant Road - RCT & Vale of Glamorgan (VOG);
- A48 St Nicholas, A4050 Port Road, Leckwith Road, A4160 Penarth Road, A4055 Cogan Spur – Vale of Glamorgan; and
- B4487 Newport Road / A48 Castleton – Newport.

2.5.8. The Welsh Minister for Economy, Science and Transport has identified in the 'Transport' Written Statement of 10 July 2013 key road projects for delivery (recognising that progress will be subject to statutory consents and funding availability). It is the intention of the Minister to consult on a draft plan and associated assessments for the M4 corridor around Newport which, if implemented, would lead to motorway being built to the south of Newport, addressing capacity and resilience problems on this key arterial route.

Key Issues

Constraints

2.5.9. The strategic road network in Cardiff is focused on accessing the City Centre with the A48 providing a cross-city route. There are few alternative routes for the major traffic movements which results in traffic converging on the strategic corridors and traffic conditions worsening during peak periods. There is limited opportunity to provide alternative routes in Cardiff due to the form of the built area, rail infrastructure, statutory undertakers, parks, topography, river systems, environment and ecology.

On-Street Parking

2.5.10. Most local highway improvements will be limited to works that can be done within the adopted highway where possible. The limitation of or removal of on-street parking provides the opportunity to make better use of the highway to improve network resilience and / or provide infrastructure to encourage sustainable travel. Public

resistance to the removal of on-street car parking is an issue that needs to be addressed in order to facilitate sustainable travel options.

Funding

2.5.11. Major highway infrastructure commitments have been announced in the Minister's Statement (Transport) issued 10th July 2013. Such works include:

- Eastern Bay Link
- M4 Junction 32 Dedicated Slip Road
- M4 Junction 33 Dedicated Slip Road

Infrastructure Requirements

2.5.12. In addition, the following strategic highway network improvements at junctions on main corridors have been identified:

- M4 Junction 30 – Traffic signal and / or access improvements
- Gabalfa Interchange – Access improvements and signalisation
- Ely Bridge Roundabout – Signalisation and/or other junction improvements
- A48 Western Avenue / Cardiff Road Junction – Traffic signal improvements
- Queensgate Roundabout – Gyrotory and traffic signal improvements
- Central Link / Adam Street Junction – Traffic signal improvements
- Llanedeyrn Interchange – Traffic signal improvements
- Pentwyn Interchange – Traffic signal improvements and/or other junction improvements
- Pentwyn Link Interchange – Traffic signal improvements
- A4232 Pentwyn Link / Heol Pontprennau Roundabout – Signalisation
- Newport Road / A48 / Eastern Avenue roundabout – Traffic signal and / or access improvements

2.5.13. These measures and other local improvements will be developed further as part of detailed masterplanning work. Some of these improvements may require Welsh Government approval.

Phasing

2.5.14. Category 2: Infrastructure to support growth:

- The strategic highway improvements at junctions on main corridors would be programmed to be completed within a 10 year timescale and prioritised to facilitate the development of Strategic Sites.
- The Eastern Bay Link would take approximately 3-5 years from funding becoming available to completion of construction.

Funding Sources

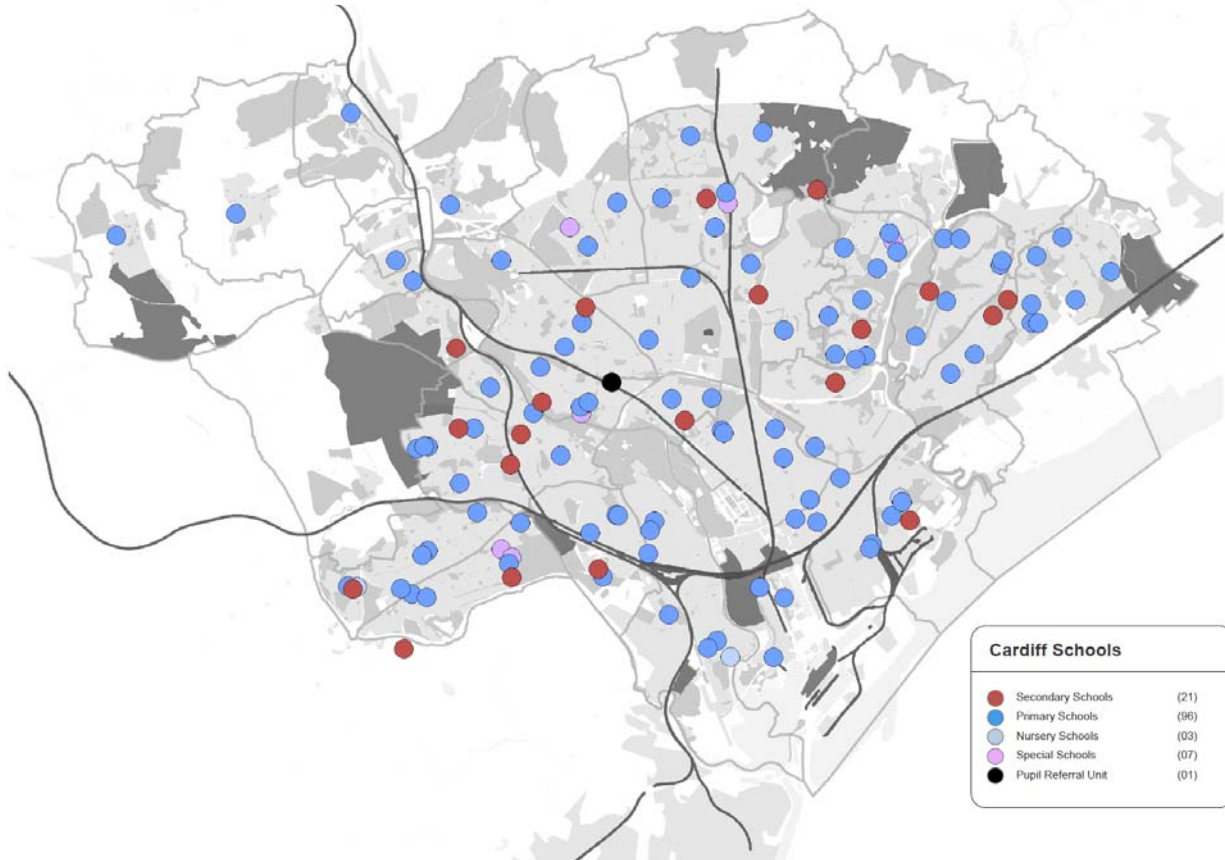
2.5.15. Funding currently includes Cardiff Council General Capital Fund, Sewta Regional Transport Grant, other Transport Grant and developer contributions. Additional funding sources will be required to deliver highway infrastructure.

Opportunities to Share Facilities

2.5.16. Any proposed highway improvements should consider opportunities to link to and contribute toward public transport, walking and cycling infrastructure.

3. **SCHOOLS**

3.1. Nursery, Primary, Secondary and Sixth Form Education



Lead Organisations / Agencies

- Cardiff Council

Why is the Infrastructure Needed?

- 3.1.1. Cardiff Council has a statutory duty as Local Education Authority to ensure that a sufficient number and variety of school places at primary and secondary level are available to meet the needs of the population of the county.
- 3.1.2. In 2006, the Council adopted its 21st Century Schools Strategic Framework, setting out a number of objectives including to “establish the number of children at each age range, current and projected, requiring school places in each area of the city; achieve the best match possible between supply and demand of school places in each area of the city in order to focus resources in each area on producing the best possible quality of education”.
- 3.1.3. Wherever possible, the Council seeks to create all-through primary schools catering for the age-range 3-11, organised preferably with 2 or 3 Forms of Entry (420 or 630 pupil places). The Council also seeks to create a mix of community, voluntary aided, English and Welsh-medium schools in each area and seeks to meet the targets set out in its Welsh Education Scheme.
- 3.1.4. The Council’s Developer Contributions for School Facilities Supplementary Planning Guidance (SPG) was approved in March 2007, enabling the Council to seek contributions from developers towards the provision of sufficient and suitable school facilities necessitated by their proposed developments.
- 3.1.5. The Council seeks financial contributions towards the cost of providing additional or improved primary and / or

secondary school facilities from developers proposing housing developments that would generate a requirement for school places, that cannot be reasonably met by existing schools because:

- The capacity at the school(s) in whose catchment area(s) new housing developments are proposed would, as a result of the development, be exceeded by demand; and / or
- There is surplus capacity in such schools to accommodate some or all of the projected number of pupils generated from the proposed development but this requires investment to make it suitable.

3.1.6. An initial assessment of the number of children likely to be generated by a proposed housing development is currently made on the basis of pupil yield factors of:

- 0.31 primary school places per Relevant Residential Unit (RRU)
- 0.07 nursery class places per RRU
- 0.22 secondary school places per RRU
- 0.04 sixth form school places per RRU
- For flats and apartments the pupil yield factors of 0.07 primary, 0.016 nursery, 0.05 secondary and 0.01 sixth form places per RRU are applied.

3.1.7. Schools are defined as:

- Primary schools, which include nursery class provision, serve ages 3-11
- Secondary schools serve ages 11-16
- Sixth forms serve ages 16-18

3.1.8. Additional education provision where required is listed in Forms of Entry (FE). A single Form of Entry refers to:

- 210 primary school places (7 year groups of 30 pupils)
- 150 secondary school places (5 year groups of 30 pupils)

3.1.9. Primary schools are ideally organised as 2 or 3 Forms of Entry plus 48 nursery places per form of entry. Secondary schools are usually within the range of 6 – 10 Forms of Entry, plus sixth form provision.

3.1.10. Cardiff Council's School Organisation Plan monitors and reviews the demand for and supply of school places. The methodology for projecting the demand for places uses individualised pre-school health data to project at individual school catchment area level, using a standard cohort survival model and taking account of recent proportionate take-up of places.

3.1.11. Whilst the existing proportionate split of school places overall is approximately 88% English-medium / 12% Welsh-medium, there has been significant growth in the proportion of children entering Welsh Medium education and trend projections indicate that this will continue to grow. However, the proportion of education provision through each medium may vary according to demand within particular communities at the time of building development.

3.1.12. In bringing forward proposals, Local Authorities must comply with a wide range of legislation and take account of national guidance, in respect of premises specification and the ability of these premises to offer good quality learning opportunities. This is in order to raise standards of achievement as part of a broader role in community engagement, supporting achievement of the objectives contained in the School Effectiveness Framework.

3.1.13. Local authorities have powers deriving from the School Standards and Framework Act 1998 which must be used to make substantial changes to schools. Reorganisations of school provision including the provision of new schools usually require the publication of statutory proposals.

3.1.14. Key principles for the organisation of schools are set out in Welsh Government (WG) School Organisation Proposals guidance. Specific to Wales, WG guidance indicates that Local Authorities should aim to retain no more than 10% surplus capacity, measured with specific reference to Measuring Capacity of Schools in Wales guidance.

- 3.1.15. Building Bulletins 98, 99 and 102 are used widely in England and Wales as the basis for preparing masterplans and briefs as part of the development of school designs. Playing field requirements are set out in the School Premises Regulations 1999. Schools are subject to Infant Class Size regulations and in Wales are required to provide free-flow access to outdoor space for pupils taught in the Foundation Phase (ages 3-7).
- 3.1.16. Additional statutory considerations including equality impact and environmental impact assessments are required, ensuring that all school proposals are compatible with the environmental objectives identified in the SEA of Cardiff's 21st Century Schools: A Strategic Framework for a School Building Improvement Programme.

Existing Provision

3.1.17. There are presently 128 schools located across the city:

- 2 English-medium nursery schools
- 1 dual-stream (bilingual) nursery school
- 56 English-medium primary schools
- 2 dual-stream (bilingual) primary schools
- 15 Welsh-medium primary schools
- 23 Faith-based primary schools
- 13 English-medium secondary schools
- 3 Welsh-medium secondary schools
- 5 Faith-based secondary schools
- 7 Special schools
- 1 Pupil referral unit

3.1.18. At present there are:

- 5,000 part-time maintained nursery places (ages 3-4) provided either at nursery schools or as nursery classes at primary schools
- Approximately 350 part-time non-maintained places provided at private pre-school settings to meet an existing shortfall in maintained nursery places
- 29,105 primary pupil places (ages 4-11)
- 24,903 secondary and sixth form places available at secondary schools
- 514 places provided at special schools.

Links to Neighbouring Authorities

- 3.1.19. As the Welsh Government School Admissions code allows pupils to attend any school where sufficient places are available regardless of Authority boundary, there are pupils from other authorities attending Cardiff schools and vice-versa. Cardiff does not plan additional places to meet this demand nor does it set aside a proportion of places, with a single exception to this. Cardiff Council is the Admission Authority for one community primary school that serves a catchment area extending into Rhondda Cynon Taf, currently providing in the region of 90 places to pupils from outside of Cardiff.
- 3.1.20. The Governing Bodies of faith schools act as the admissions authority for each school and the admissions criteria vary between schools. Whilst the majority of schools require residency within a Cardiff parish as a priority admissions criterion, one Church in Wales secondary school serves a number of parishes extending into The Vale of Glamorgan, currently providing in the region of 221 places to pupils from outside Cardiff.
- 3.1.21. Pupils taught in special schools account for approximately 1% of the school population, and provision is planned on a County-wide basis. As this provision seeks to best meet the needs of learners the Council funds some provision outside of Cardiff and similarly provides places for a small number of pupils from other Local Authorities.

Key Issues

- 3.1.22. Following a period of unprecedented growth in demand, the Council is in the process of expanding primary school provision city-wide.
- 3.1.23. A wide range of infrastructure improvements have been undertaken since 2005. The considerable improvement in matching the capacities of schools to their local demand has continued through a programme of closures and re-assigning school facilities to meet wider social agendas including Flying Start. Cardiff's 21st Century Schools Programme and the existing financial model has a value of £240m of which 46% is Council funded and 54% funded by grants, and includes projects which take account of existing needs or those projected based upon existing housing.
- 3.1.24. Planned increases to primary school capacities from 29,105 in September 2012 to 31,857 in January 2020 to meet the projected demand from existing housing will allow 4,551 pupils to be admitted at entry.
- 3.1.25. Following the completion of existing school organisation proposals, secondary school capacities will reduce from 24,903 in September 2012 to 23,984 in January 2020, allowing approximately 4,047 pupils to be admitted at entry.
- 3.1.26. Although the supply of and demand for places varies by area, it is anticipated that there will be no overall surplus school places at entry to the primary sector in 2015, nor in the secondary sector in 2019, taking account of existing development proposals and projections based upon Health Service (GP) and school roll data. It is therefore likely that additional primary and secondary education provision would be required to serve the entire yield of pupils from any proposed green-field or brown-field developments.
- 3.1.27. When expanding school provision to meet additional demand for school places, consideration is given primarily to:
- expansion of existing schools on unconfined sites
 - expansion of existing school sites that abut proposed development land, or
 - new-build sites.
- 3.1.28. Where expansion of an existing school site meets the objectives of the Strategic Framework, this may allow for efficient use of both capital and revenue resources whilst enhancing and integrating provision within established communities.
- 3.1.29. School Premises Regulations set out inter alia the requirements for schools to provide access to playing fields. Where there is a clear educational imperative to provide additional school places in response to basic need requirements, sites which, if expanded, would not meet the Department for Education's Building Bulletin recommendations or School Premises Regulations or are otherwise unsuitable for significant expansion are excluded from consideration.

Infrastructure Requirements

- 3.1.30. The Council seeks to acquire contributions to meet the entire demand from within each proposed housing development, but would look to fund any shortfall in school places arising from existing housing developments from Council funding or other funding sources. Contribution requests would be based upon circumstances known / data available at the time of developments. Consideration will also be given to developers building schools to agreed quality and performance standards.
- 3.1.31. For the purposes of the Infrastructure Plan, the pupil yields and requirements arising from greenfield sites are calculated on the basis of houses whilst brownfield sites are calculated on the basis of flats; however, it is recognised that the composition of dwellings will vary between and within new development areas.
- 3.1.32. Where the scale of developments are not sufficiently large to support the building of new primary or secondary

schools, careful consideration will need to be given to the timing of and combining of contributions from multiple developments, including the provision of any land for construction.

3.1.33. The figures identified below at paragraphs 3.1.35 – 3.1.39 are an initial assessment based on existing / planned schools infrastructure as of 2013 and the levels of growth identified in the Deposit LDP. Development proposals (particularly for the Strategic Sites identified in the deposit LDP) will need to be considered on a site by site basis over the course of the plan period in order to take account of (1) any changes to local provision in the time preceding an application and (2) any existing capacity within schools that have a catchment area incorporating the proposed development site.

3.1.34. The Developer Contributions for School Facilities SPG allows for costs to be calculated based upon figures provided by the Department for Education and Skills (DfES). In the absence of recent DfES costs being made available, costs are based upon Royal Institution of Chartered Surveyors (RICS) costs (Q.4 2012), assuming that providing additional school capacity is in the form of new-build.

3.1.35. Site F: South of Creigiau / 650 dwellings & Site E: North of Junction 33 / 2,000 dwellings

- 1 - 2 new build primary schools (with nursery) and sites, and /or expansion of existing primary schools required, providing places for up to 186 nursery age pupils and 822 primary age pupils (3.9FE).
- Expansion of existing secondary schools, providing places for up to 583 secondary age pupils (3.9FE) and 106 sixth form pupils

3.1.36. Site D: North West Cardiff / 5,000 dwellings



- 3 - 4 new build primary schools (with nursery) and sites, and / or expansion of existing primary schools required, providing places for up to 350 nursery age pupils and 1550 primary age pupils (7.4FE).
- 1 new build secondary school providing places for up to 1100 secondary age pupils (7.3FE) and 200 sixth form pupils

3.1.37. Site G: North East Cardiff (west of Pontprennau) / 4,500 dwellings

- 3 - 4 new build primary schools (with nursery) and sites, and/or expansion of existing primary schools required, providing places for up to 315 nursery age pupils and 1395 primary age pupils (6.6FE).
- 1 new build secondary school, providing places for up to 990 secondary age pupils (6.6FE) and 180 sixth form pupils

3.1.38. Site H: North East Cardiff (east of Pontprennau) / 1,300 dwellings

- 1 new build primary school (with nursery) and site, providing places for up to 91 nursery age pupils and 403 primary age pupils (1.9FE).
- Expansion of existing secondary schools, providing places for up to 286 secondary age pupils (1.9FE) and 52 sixth form pupils

3.1.39. Brownfield sites / 7,540 dwellings

- 1 new build primary schools (with nursery) and site, and / or expansion of existing primary schools required, providing places for up to 121 nursery age pupils and 528 primary age pupils (2.5FE).
- Expansion of existing secondary schools, providing places for up to 377 secondary age pupils (2.5FE) and 75 sixth form pupils

Phasing

- 3.1.40. School Provision needs to be carefully phased, in order to achieve a balance between having a critical mass of population to ensure the viability of new facilities and ensuring that new residents are not left without facilities for a disproportionate period of time.
- 3.1.41. Where a need is identified, developers should identify appropriate sites and provide schools at the relevant phase(s) of development. Additional forms of entry should then be made available where necessary (210 primary school places plus nursery provision; 150 secondary school places plus sixth form provision) following completion of each 700 dwellings to provide sufficient school places in accordance with the pupil yields set out in the Supplementary Planning Guidance.
- 3.1.42. In the event of the Council being allocated developer contributions to expand existing provision, the phasing of contributions over the period of construction would normally be in line with those set out in the Developer Contributions for School Facilities SPG but would require careful consideration to ensure the supply of school places is aligned with the construction process.

Funding Sources

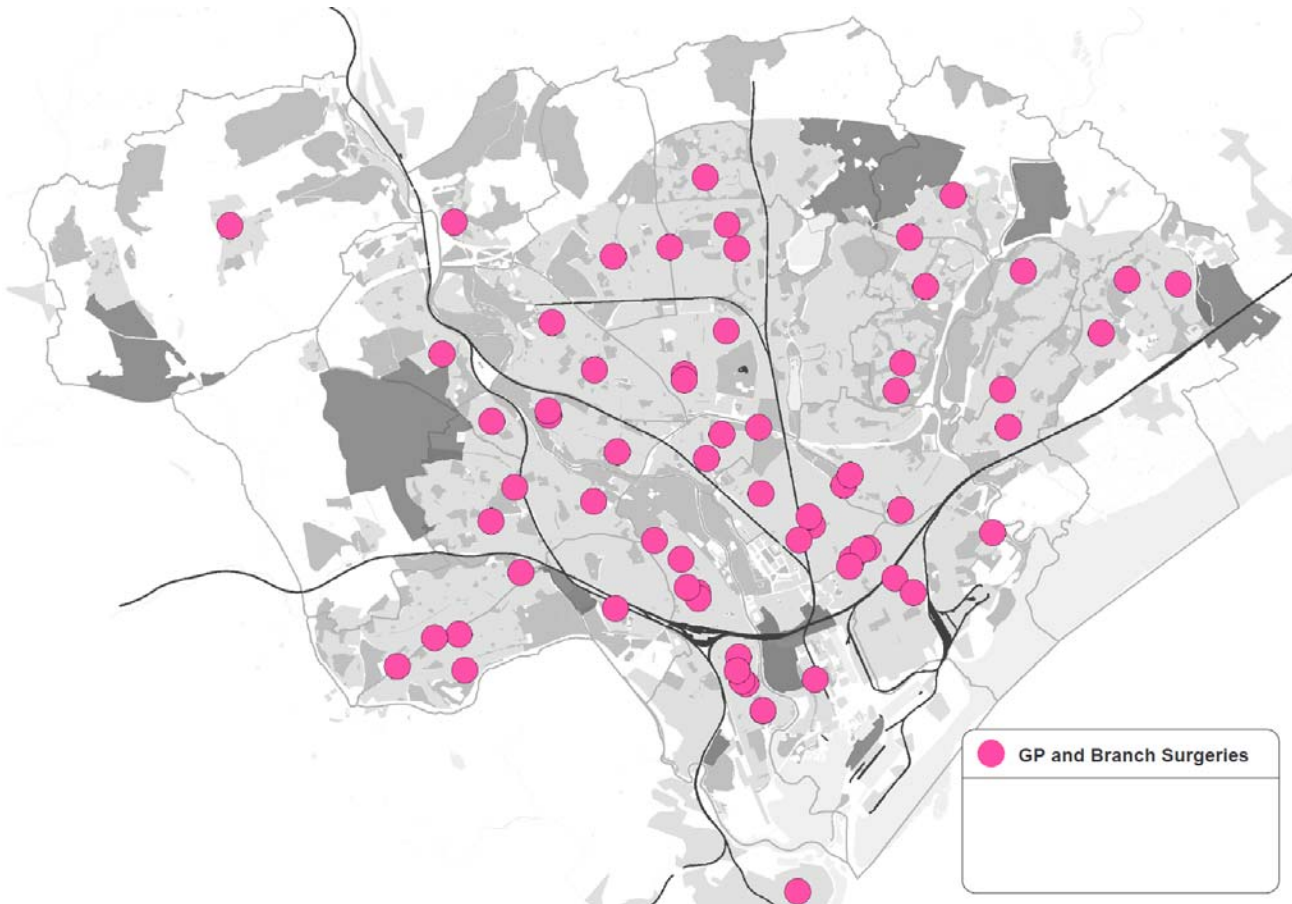
- 3.1.43. The 21st Century Schools Programme and the existing financial model has a value of £240m of which 46% is Council funded and 54% funded by grants, and includes funding in relation to asset renewal and developer contributions.
- 3.1.44. The Council received approval in principle in December 2011 in respect of its match-funded bid for Welsh Government 21st Century Schools Band A capital funding. This approval in principle is subject to business case submission and the funding is allocated to specific projects which meet needs arising from the current and projected pupil population from existing housing through to 2019. The Council is not able to submit further bids for Band A capital funding in this timescale.
- 3.1.45. Contributions from developers are currently negotiated in accordance with the Developer Contributions for School Facilities SPG and may be in the form of land, school(s), and / or financial contributions.

Opportunities to Share Facilities

- 3.1.46. There may be opportunities to share buildings and facilities with other service providers, including:
- Libraries
 - Community Centres and Facilities
 - Leisure Centres and Indoor Recreation Facilities
 - Play Centres
 - Adult Education facilities
 - Integrated childcare facilities (wrap-around childcare / private nursery provision)
 - Adjoining natural habitat (forest schools initiative)
 - Health care facilities.
- 3.1.47. Other options that may also be considered dependent on geographical constraints include:
- Shared school facilities / playing fields with other schools (e.g. a Primary and Secondary school sharing fields)
 - Continuous 3-19 school provision.

4. HEALTH CARE

4.1. Primary and Secondary Health Care



Lead Organisations / Agencies

- Cardiff and Vale University Health Board (UHB) Including: Primary, Community and Intermediate Care Clinical Board (PCIC) and Service and Capital Planning.

Why is the Infrastructure Needed?

- 4.1.1. Cardiff and Vale University Health Board (UHB) is one of the largest NHS organisations in the UK. It provides day to day health services to a population of around 472,400 people living in Cardiff and the Vale of Glamorgan who need emergency / scheduled hospital treatment and mental health care, as well as delivering care in people's own homes and community clinics.
- 4.1.2. The UHB is also responsible for ensuring access to NHS primary care services in Cardiff and the Vale of Glamorgan, including General Practitioners (GPs), Community Pharmacists, Dentists and Optometrists.

Existing Provision

- 4.1.3. The UHB manages nine hospitals and seventeen health centres across Cardiff and the Vale of Glamorgan, it also provide services in health centres run by NHS partner organisations both within Cardiff, the Vale and neighbouring authorities, including Caerphilly and Merthyr Tydfil.

Hospitals (Within Cardiff):

- University Hospital of Wales (UHW) – Heath Park, Cardiff
- Noah's Ark Children's Hospital for Wales (CHfW) – Heath Park, Cardiff
- Rookwood Hospital – Llandaff, Cardiff
- St David's Hospital – Cowbridge Road East, Cardiff
- Whitchurch Hospital and Corporate HQ – Whitchurch, Cardiff
- University Dental Hospital (UDH) – Heath Park, Cardiff
- Cardiff Royal Infirmary West Wing – Newport Road, Cardiff

Hospitals (Within Neighbouring Authorities):

- University Hospital Llandough (UHL) – Llandough, Penarth
- Barry Hospital – Colcot Road, Barry

Primary Care Services within Cardiff and the Vale include:

- 67 GP practices, 73 NHS dental premises (separate practices), 68 optometry premises and 76 pharmacy outlets.

Links to Neighbouring Authorities

- 4.1.4. The UHB provides primary, community and secondary health care for people living in Cardiff and the Vale of Glamorgan. It also serves a wider population across South and Mid Wales for specialties such as paediatric intensive care, specialist children's services, renal services, cardiac services, neurology, bone marrow transplantation and medical genetics.

Key Issues

- 4.1.5. In population terms, Cardiff has the largest and fastest growing population of any Local Authority in Wales, which is placing increasing pressure on the capacity of its primary, community and secondary care facilities.
- 4.1.6. Most of the GP premises in Cardiff are working at or near their patient list size and there is not sufficient capacity within existing premises to accommodate the level and distribution of population growth projected in the deposit LDP.
- 4.1.7. The UHB seeks to ensure that sites for new facilities reflect the spatial distribution of need, the importance of accessibility and create opportunities for different service providers to share facilities.
- 4.1.8. The key documents driving primary and community care service modelling and provision are:
- 'Together for Health' (WG 2012)
 - 'Setting the Direction: Primary and Community Services Strategic Delivery Programme' (WG 2010)
 - 'Delivering Local Healthcare: Accelerating the Pace of Change' (WG June 2013)
 - 'A Framework for Delivering Integrated Health and Social Care – For Older People with Complex Needs' (WG July 2013)
- 4.1.9. The UHB's 'Integrated Healthcare Estate Strategy for Primary Care Premises' (January 2008 update) identifies three types of facility :
- Primary Care Facilities
 - Community Health Resource Centres
 - Locality Health and Treatment Centres

Primary Care Facilities.

- 4.1.10. These facilities will support the expansion and renewal of primary care at the heart of the community with a focus on GP practice services, but with opportunities for other primary care services such as dentistry and pharmacy to co-locate.
- 4.1.11. Where possible, the UHB will work with practices on the development of new premises and the improvement of existing premises. It will encourage practices in local areas to work together (including taking the opportunity to co-locate with other practices in new buildings). This will enable practices to offer an extended and more flexible range of services to their patients.

Community Health Resource Centres.

- 4.1.12. Like Primary Care Facilities, the purpose of Community Health Resource Centres is to provide the infrastructure necessary to support primary care professionals and enable them to provide the fullest range of healthcare at a local level. In addition to providing a comprehensive range of primary care services, Community Health Resource Centres aim to target the specific community needs of the area, for example, this might include GPs with an enhanced level of training / special interest in a specific clinical area.
- 4.1.13. These premises will need to be larger than Primary Care Facilities and have the flexibility to grow as services develop and additional facilities move into the community. The number and location of such facilities will need to be carefully considered to ensure equity of access where some communities are situated at the periphery of associated catchment areas.

Locality Health and Treatment Centres.

- 4.1.14. These centres will provide a base for existing community services and the potential for the relocation of primary care facilities, together with the integration of other statutory and third sector services. They will enable the decentralisation of services away from acute hospitals and provide a base for those services that cannot be provided effectively within individual practices.
- 4.1.15. Unlike Community Health Centres, the services of the Local Health and Treatment Centres will serve a wider geographical area and population base. This will provide the critical mass to support the co-ordination and development of services at this level to ensure that the fullest range of specialist, diagnostic and therapeutic services will be available to each locality in Cardiff for all patients.
- 4.1.16. The Centres will also provide an opportunity to bring together the delivery of health and social services care for a locality in one location. This will mean that an expanded range of out of hospital services will be available more locally to support the network of primary care teams who respond to a multiplicity of needs.

Infrastructure Requirements

Primary Health Care:

4.1.17. Primary Care Facilities:

- There is little scope for expansion within existing GP premises; the UHB has therefore recognised the need to prioritise new developments to take forward its strategic objectives.
- Smaller outdated premises will be superseded by larger flexible facilities built to modern clinical and design standards. The need for smaller branch surgeries that are not able to provide the full range of General Medical Services (GMS) will also be reviewed on a case by case basis.

- 4.1.18. The UHB works with a best practice GP to patient ratio of 1:1,800. When applied to the level of population growth identified in the Deposit LDP from 2013-2026, this would equate to the need for an additional 33 General Practitioners. An initial assessment of existing infrastructure has identified that after taking into consideration (1)

capacity for growth within existing premises and (2) potential capacity through planned development (subject to securing funding), there would be a need for 3 additional practices, each accommodating up to 5 GPs / 9,000 patients*.

- 4.1.19. *This is an initial assessment based on the UHB's existing / planned infrastructure as of 2013 and the levels of growth identified in the Deposit LDP. Development proposals (particularly for the Strategic Sites identified in the Deposit LDP) will need to be considered on a site by site basis over the course of the plan period in order to take account of (1) any changes to local provision, such as the creation of new facilities in the time preceding an application and (2) any existing capacity within GP premises that have a catchment area incorporating the proposed development site.
- 4.1.20. Based on the current location of GP premises across the County and the location of the Strategic Sites identified in the Deposit LDP, it is likely that there would be a need for the 3 additional practices to be developed either within, or in the vicinity / catchment of Strategic Sites F/E (South of Creigiau / North of Junction 33), Site D (North West Cardiff) and Sites G/H (North East Cardiff - East and West of Pontprennau).
- 4.1.21. In line with the proposed developments in the UHB's Estates Strategy, Primary Care Facilities that have recently been completed, or are under development in Cardiff include Grange Surgery, Grangetown (opened Oct 2012) and Cloughmore Surgery, Splott. The Grangetown Health Centre is also being redeveloped as a primary care facility.
- 4.1.22. The Welsh Government has recently approved funding for a new premises development for Whitchurch Road Surgery (Heath), whilst Initial Proposal Documents (IPDs) have been submitted to Welsh Government for Cathays Surgery (Cathays), Westway Surgery, (Ely), Park Road Surgery (Whitchurch) and Penylan Surgery (Penylan). These new Primary Care Facilities are intended to meet existing demand / provide additional capacity.
- 4.1.23. In June 2013 the Welsh Government (WG) issued a moratorium on the primary care estates process. Health Boards have been asked to update their primary care estates strategies. Any IPDs currently with WG will be returned with a requirement that these are reviewed in line with updated estates strategies and evaluation criteria (to be issued by WG). The timeframe for this work being completed, and when the moratorium will be lifted, is currently unclear.
- 4.1.24. Community Health Resource Centres:
- The number and location of these facilities will need to be carefully considered to ensure equity of access where communities are at the periphery of the catchment area.
- 4.1.25. In May 2012 a new Health Centre was opened in Loudoun Square, Butetown. Construction is currently underway in Rumney on a Community Health Resource Centre for Cardiff East, which is due for completion in October 2013. Both these facilities provide new, state-of-the-art premises for local GP practices and health board-provided community services as well as capacity to meet existing demand / additional capacity.
- 4.1.26. The projected level of population growth identified within the Deposit LDP will have an impact on the UHB's community health facilities; however it is not possible to accurately predict the level and / or type infrastructure requirements at this stage.
- 4.1.27. Local Health and Treatment Centres:
- The Cardiff Royal Infirmary site at Newport Road forms the first of these centres to be developed
 - Two other sites to serve the north and west of the city are yet to be determined.

Secondary Healthcare:

- 4.1.28. The projected level of population growth identified within the Deposit LDP will have an impact on the UHB's Hospital facilities (including those within Cardiff) over the course of the plan period; however it is not possible to accurately predict the level and / or type infrastructure requirements at this stage.
- 4.1.29. Current secondary healthcare infrastructure projects include:
- A phase 2 extension to the Noah's Ark Children's Hospital for Wales at Heath Park that is currently under construction and due for completion in 2015. The development will create state-of-the-art wards, critical care facilities, four new operating theatres, a new outpatient department and dental suite, an assessment unit, a new critical care unit, parents' accommodation and facilities, education and teaching facilities, and a dedicated radiology department.
 - Spinal and neurological rehabilitation services will, subject to approval of the Business Case by WG, be relocated from Rookwood Hospital at Llandaff to the University Hospital Llandough (UHL) as part of specialist neurological, spinal rehabilitation and elderly care services that will be developed at the site.
 - A new inpatient mental health unit will be built at UHL to provide all inpatient services for patients in Cardiff and the Vale of Glamorgan. This will replace existing facilities at Whitchurch Hospital.

Phasing

- 4.1.30. Category 2: Infrastructure to support growth:
- The early implementation of new facilities will benefit existing communities.
 - For growth associated with the development of Strategic Sites, provision will need to be carefully phased, in order to achieve a balance between having a critical mass of population to ensure the viability of new facilities and ensuring that new residents are not left without facilities for a disproportionate period of time.

Funding Sources

- 4.1.31. The capital cost of the Primary Care Facilities has been via the UHB's Capital Investment Board and forms part of the delivery of the Cardiff and Vale Health Community's capital submission to the Welsh Assembly under the programme for health service improvement.
- 4.1.32. Within the context of the Deposit Local Development Plan there is the potential for the provision of land and / or the development of Primary Care Facilities to form part of the masterplanning of Strategic Sites.

Opportunities to Share Facilities

- 4.1.33. There is potential for communities to have a broader range of primary care needs catered for within one local facility by incorporating dentistry and pharmacy services within GP practice developments. The co-location of primary, community and secondary services within new buildings, or existing premises can help to provide patients with access to a range of services in close proximity to where they live.
- 4.1.34. The UHB supports plans to look at opportunities for the development of facilities that meet community needs in the round and have multi-functional use and shared objectives, including health services. This would also support broader health improvement outcomes.

5. GREEN INFRASTRUCTURE

5.1. Parks, Green Spaces and Allotments



Lead Organisations / Agencies

- Cardiff Council

Why is the Infrastructure Needed?

- 5.1.1. Planning law requires the provision of open space in association with new developments. Under the Small Holdings and Allotments Act 1908, Local Authorities have the power to provide allotments where there is evidence of demand.

Existing Provision

- 5.1.2. Cardiff's Green Infrastructure includes the countryside, river valleys and coastline, along with important geological features and biodiversity interests. The county consists of a wide range of publicly accessible green spaces, including parks, playing fields, informal open space, amenity open space within residential areas, woodland and other semi-natural open spaces. Together they comprise around 2400 hectares and make up approximately 10% of the surface area of the city of Cardiff. The three river valleys of the Ely, Taff and Rhymney (including the Nant Fawr) provide extensive and continuous corridors running from the countryside through the urban area.

Links to Neighbouring Authorities

- 5.1.3. There are links to neighbouring authorities along the River Ely, Rhymney and Taff corridors. Apart from these, however there is limited Local Authority owned green space between Cardiff and its neighbouring Local Authorities. There is however an extensive network of public rights of way linking the urban area to the wider countryside. Additionally there is forest land owned by Natural Resources Wales to the north of the city boundary.

Key Issues

Green Infrastructure:

- 5.1.4. Green Infrastructure assets are important to define Cardiff's character, environmental quality, distinctiveness and sense of place. The Natural Heritage Network is important in its own right and in terms of its contribution to the wider quality of life, including the value that people attach to it. It provides a range of economic, social and environmental benefits including reducing impacts of climate change, enhanced biodiversity habitat and species connectivity, providing greater opportunities for sports and recreation, contributing to the communities' health and wellbeing, providing visual benefits for all, and helping to create an attractive city that is conducive to inward investment.

Publicly Accessible Green Space:

- 5.1.5. Publicly accessible green space caters for the outdoor recreational needs of local communities across a range of activities from walking, picnicking and children's play through to formal sports such as football, rugby, tennis, and cricket. There are multiple benefits arising from the provision of an interlinked network of open spaces, including health, biodiversity, social cohesion, quality of life and the local economy. Making adequate provision of good quality, multi-functional open space is essential to creating sustainable neighbourhoods.

Allotments:

- 5.1.6. There is currently a high level of demand for allotments in Cardiff and the Council maintains a waiting list for sites in its ownership. New housing developments proposed in the Local Development Plan are likely to generate additional demand, it is important that provision is made for new serviced allotment sites.

Infrastructure Requirements

- 5.1.7. Green infrastructure should form an integral part of all new built developments in Cardiff to ensure that they are integrated into the strategic framework of connected multi-functional green infrastructure assets.
- 5.1.8. Connected networks of multifunctional open space, including the retention of semi-natural open space and habitats (where there is an existing nature conservation interest) should form an integral part of all new built developments in Cardiff, particularly with regard to housing developments, but also, where appropriate, in association with other forms of built development where there is local need.
- 5.1.9. Two new Country Parks are proposed to serve the population growth associated with the development of the Strategic Sites in the North West and North East of the city.
- 5.1.10. Significant new housing developments should be provided with serviced allotments. Strategic Sites may need to provide more than one allotment site depending on the geographical size of the development and the need for good access. The provision of informal growing space within new communities could also be considered.

Phasing

5.1.11. Category 2: Infrastructure to Support Growth:

- Green space, recreational facilities and allotments need to be provided in tandem with the growth of new residential communities. Early implementation will benefit new communities and provision should be consistent with the construction and occupation of new housing.

Funding Sources

- 5.1.12. Funding opportunities for the provision and enhancement of green infrastructure assets include the Council's Capital Programme, developer contributions and onsite open space provision for larger developments. There may be additional funding opportunities from external grants and other sources of funding.

Opportunities to Share Facilities

- 5.1.13. There are opportunities to share green spaces with other services, particularly schools in respect of playing fields. Green space provision should consider opportunities for cycling / walking routes and associated infrastructure, including surface water attenuation features.

5.2. Destination Play Areas

Lead Organisations / Agencies

- Cardiff Council

Why is the Infrastructure Needed?

- 5.2.1. There is no statutory requirement to provide fixed equipment play facilities, however there is a requirement in planning law to provide open space in association with new developments, including provision for children's play.

Existing Provision

- 5.2.2. There are currently 102 playgrounds in Cardiff of which 96 are local play facilities providing for their immediate community and 6 are considered to be 'destination' playgrounds. Destination sites are locations which contain a number of leisure / recreational activities and where the playgrounds are considered to be part of the sites attraction, providing a 'destination' facility for children across the city and beyond.

Links to Neighbouring Authorities

- 5.2.3. The infrastructure does not cross county boundaries.

Key Issues

- 5.2.4. It is the intention to provide one destination playground within each of the six Neighbourhood Management Areas in Cardiff in association with other park based attractions, plus an additional destination site in two of the Strategic Sites identified in the Deposit LDP. This will require the rationalisation of facilities, by de-designating existing destination play areas (that are in close proximity to other sites), designating some existing local play areas as destination sites and providing new destination sites within new developments.

Infrastructure Requirements

- 5.2.5. Investment will be required to sustain and improve existing destination playgrounds that will be subject to increased use:

- Roath Park (Botanic Gardens) - Cardiff North Destination Site (Green Flag park)
- Llandaff Fields - Destination Site linked to Central Parklands
- Victoria Park - Cardiff South West Destination Site (Green Flag Park)
- Cardiff Bay Barrage - City and Cardiff South Destination Site (Green Flag Park)

- 5.2.6. Two existing local play areas are proposed to be upgraded to 'destination' standard:

- Roath Recreation Ground - Designate as Cardiff South East Destination Site (Green Flag Park)
- Rumney Recreation Ground - Designate as Cardiff East Destination Site

- 5.2.7. It is proposed to create destination playgrounds as part of two new Country Parks that will serve the Deposit LDP Strategic Sites in the North West and North East of the City.

Phasing

- 5.2.8. Category 2: Infrastructure to support growth:

- The need for improvements to existing Destination Playgrounds will be linked to surrounding population increase. Early implementation will benefit existing communities.

- The need to upgrade two existing local play areas to destination standard will be linked to surrounding population increase. Early implementation will benefit existing communities.
- The provision of two new Destination Playgrounds will be linked to the phasing and implementation of the associated Country Parks (Refer to 5.1: Parks, Green Spaces and Allotments).

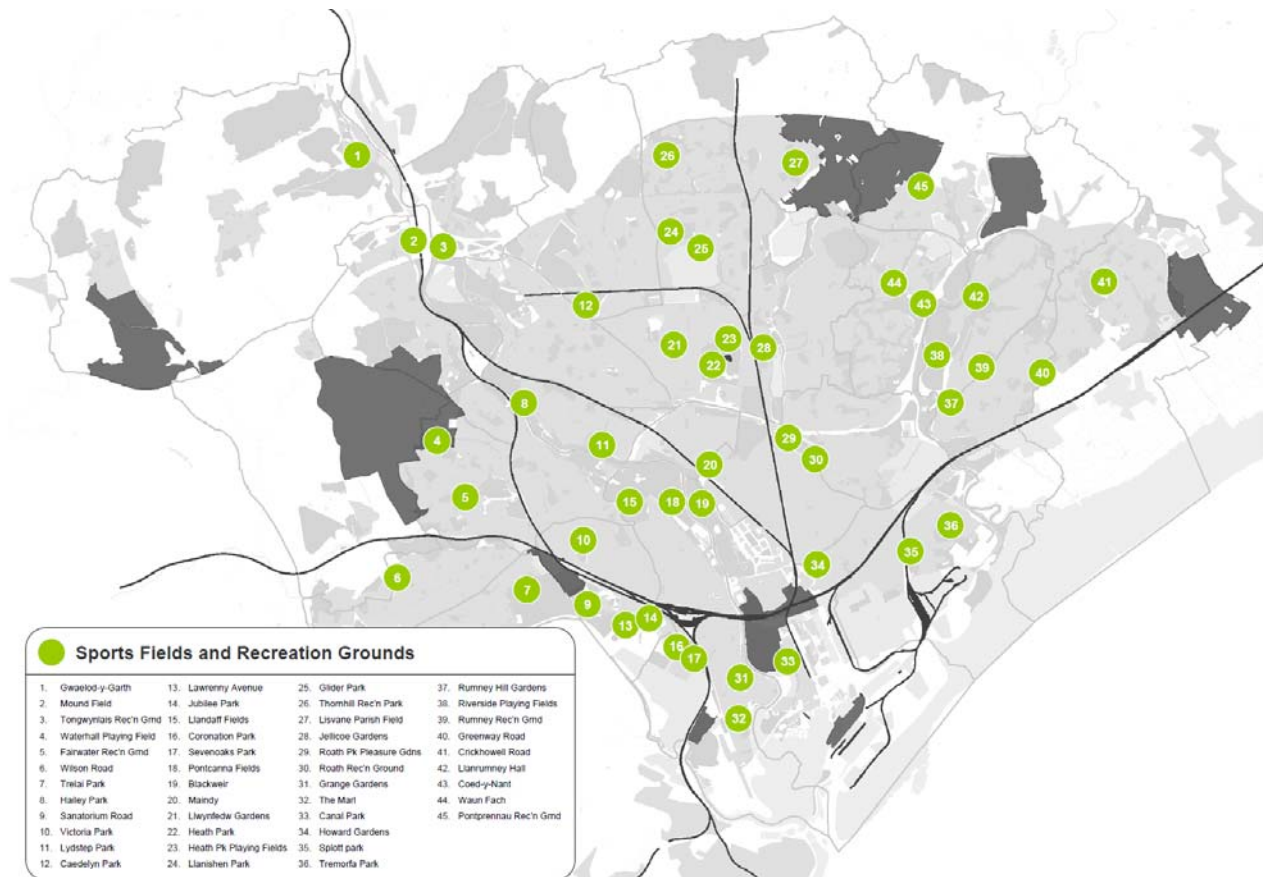
Funding Sources

- 5.2.9. Funding opportunities for the improvement and maintenance of playgrounds includes the Council's Capital Programme, developer contributions and onsite provision for larger developments.

Opportunities to Share Facilities

- 5.2.10. There are opportunities for play provision to form an integral part of complementary outdoor leisure / recreation facilities and landuses. An example includes the City and Cardiff South Destination Playground, which has been developed along the Cardiff Bay Barrage.

5.3. Sports Pitches and Games Areas



Lead Organisations / Agencies

- Cardiff Council operate and manage outdoor sport facilities and work in partnership with local leagues, sports clubs and associations, national governing bodies for sport, Sport Wales and the Welsh Government.

Why is the Infrastructure Needed?

- 5.3.1. Cardiff Council is responsible for providing the strategic lead for sport in Cardiff to deliver Government Agenda and Local Authority corporate sporting objectives.

Existing Provision

- 5.3.2. Cardiff Council manages: 134 senior football pitches, 36 mini football pitches, 45 rugby pitches, 20 cricket pitches and 39 baseball diamonds. There are a number of sand based astro turf hockey pitches and two private soccer centres providing small sided 3rd Generation pitches.

Links to Neighbouring Authorities

- 5.3.3. This issue is specific to Cardiff to fulfil unmet demand

Key Issues

- 5.3.4. There are currently no full size 3rd Generation (floodlit - artificial) pitches in Cardiff. 3G playing surfaces provide a number of benefits when compared to grass pitches, including improved playing standards, reduced maintenance costs and opportunities for extended playing hours.

5.3.5. Existing grass pitches are largely sufficient to provide for the current population however, the level of population growth and the associated location of new homes proposed in the Deposit LDP, means that they are unlikely to be able to support increased demand over the plan period.

5.3.6. Approximately 7,000 football fixtures are played annually on Parks pitches (2009/2010 season) and current trends include:

- Growth in Mini football (ages 5-11)
- Girls football becoming increasingly popular
- An increased number of adult Saturday and Sunday football teams.
- A reliance on parks pitches for football provision in the city
- A limited number of clubs owning their own ground
- Few junior clubs have direct links with senior clubs

5.3.7. At present Lisvane and Pontprennau are poorly catered for in the North East of the City. The West of Cardiff contains a number of existing sports pitches; however they would need to be connected to new development sites by walking / cycling routes and public transport facilities.

Infrastructure Requirements

- The development of up to 6 new 3G pitches to serve the Strategic Sites and levels of population growth identified in the Deposit LDP.
- Improvements to existing pitches which will be subject to increased use, achieved through drainage and surface improvement works.

Phasing

5.3.8. Category 2: Infrastructure to support growth:

- 3G pitches – There is no specific trigger, but in some circumstances, they may be located within, and therefore form part of, the development of Strategic Sites. Early implementation will benefit existing communities.
- Investment to sustain and improve existing facilities – No specific trigger, but demand will be linked to surrounding population increase and associated residential developments. Early implementation will benefit existing communities.

Funding Sources

5.3.9. Funding opportunities for the improvement and maintenance of grass pitches includes developer contributions and grant funding.

5.3.10. 3G pitches – There is potential to attract match funding for these schemes once the projects have the majority of finance in place. Sources could include the Football Association for Wales and Sport Wales Development Grants.

Opportunities to Share Facilities

5.3.11. The development of 3G pitches could form the basis of sporting hub sites, bringing together local clubs / associations and leisure / school facilities for a partnership approach to delivery, programming, management and maintenance.

5.3.12. There are opportunities to share pitches and other facilities with schools, particularly on new sites, but retrofitting pitch sharing schemes with schools is often difficult due to security considerations.

6. COMMUNITY BUILDINGS

6.1. Libraries.



Lead Organisations / Agencies

- Cardiff Council

Why is the Infrastructure Needed?

- 6.1.1 The duty of the Local Authority to provide “a comprehensive and efficient library service” is a statutory requirement under the Public Libraries and Museums Act 1964.

Existing Provision

- 6.1.2 There are currently twenty two public facilities located across the county, which includes stand alone libraries and libraries that form part of Community Hub projects, (i.e. where services are delivered from shared buildings). In addition, there is a non-public facility at Her Majesty’s Prison Cardiff and two offices at County Hall and Newport Road (Stacks and Stock Support).

Links to Neighbouring Authorities

- 6.1.3 There are no links to neighbouring authorities in relation to facilities; however Cardiff Libraries participate in regional working partnerships with other Local Authorities across Wales in relation to the procurement and provision of stock / resources.

Key Issues

- 6.1.4 Cardiff currently meets the Welsh Public Library Standards Framework 4 (2011-14) targets for the percentage of occupied households within 2 miles of a static library (target – 95%, performance – 99%) and publicly

accessible floor space in metres squared per 1,000 population (target – 27, performance – 30). There are a range of additional targets including hours of opening, acquisitions, expenditure on stock and staffing levels that are based on targets per 1,000 population.

- 6.1.5 Welsh Public Library Standards dictate that at least 95% of occupied households must lie within a 2 mile radius of a static library. Cardiff currently achieves 99%. The Strategic Sites which lie outside of this radius are South of Creigiau / North of Junction 33 (Strategic Sites F/E) and North East Cardiff (West of Pontprennau) (Strategic Site G).
- 6.1.6 Based on current population projections to 2026, there will be a need for additional floorspace to meet Welsh Public Library Standards, which dictate the need for 27sqm of publically accessible floorspace per 1,000 population. This could be achieved through the development of the two new facilities identified above, or through alterations to existing facilities.

Infrastructure Requirements

- Development of a library service (which may form part of a Community Hub) in the area of South of Creigiau / North of Junction 33: Strategic Sites F/E
- Development of a library service (which may form part of a Community Hub) in the area of North East Cardiff (West of Pontprennau) Strategic Site G
- Additional publically accessible floorspace to meet current population projections.

Phasing

- 6.1.7 Category 2: Infrastructure to support growth:
- The development of any new facilities will need to be carefully phased, in order to achieve a balance between having a critical mass of population to ensure the viability of new facilities and ensuring that new residents are not left without facilities for a disproportionate period of time.

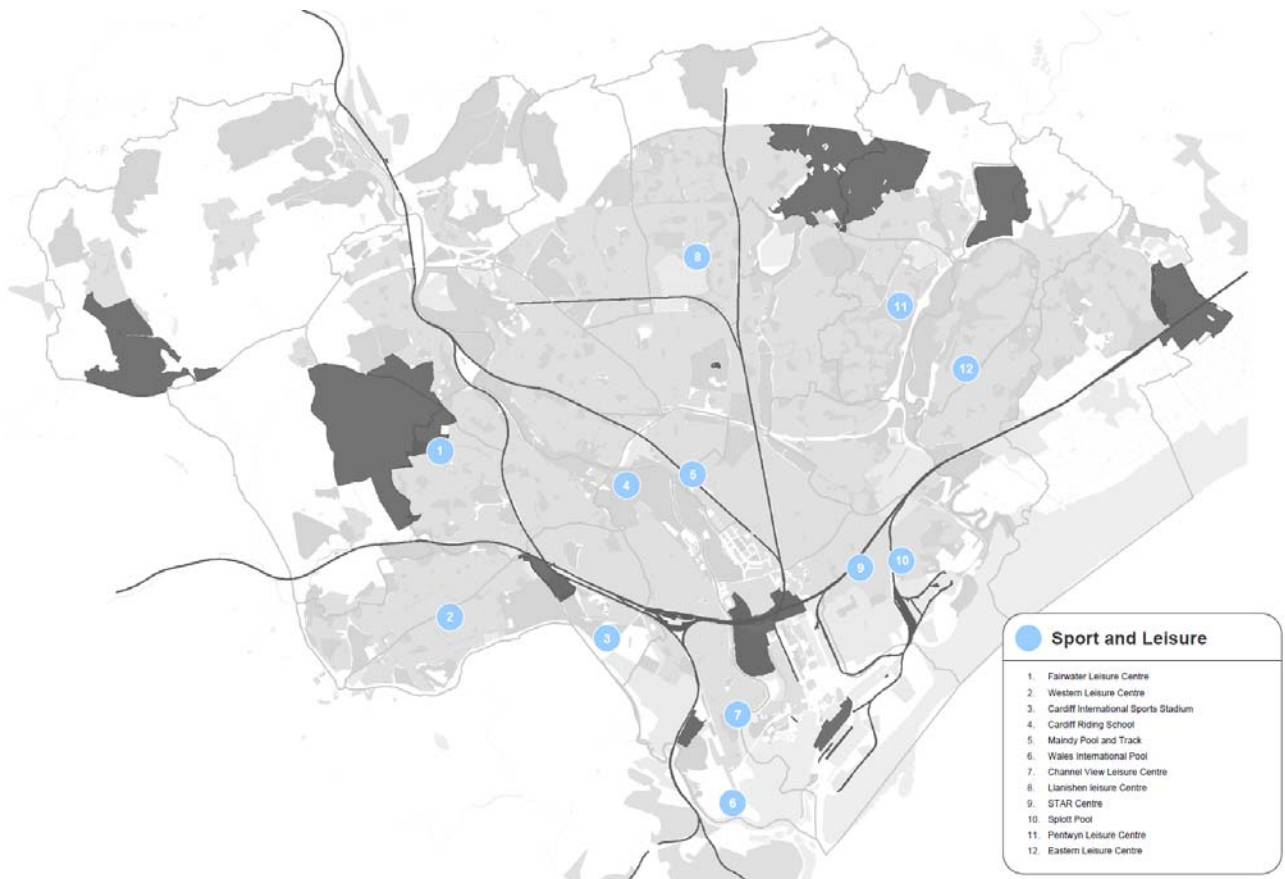
Funding Sources

- 6.1.8 The on site provision of new facilities could be secured by way of site masterplanning, or through developer contributions. Other potential funding sources include the Council's Capital Programme.

Opportunities to Share Facilities

- 6.1.9 Libraries are involved in a number of community hub projects to deliver services from shared facilities, including at Llanrumney Library, St Melons Library and the Butetown Hub. Work has also been undertaken with (Cardiff Council) Leisure to deliver shared facilities at Penylan Library and Community Centre and the STAR Centre in Splott. It is envisaged that this delivery model will continue through the provision of any additional library facilities over the Plan period.

6.2. Sports Centres and Indoor Recreation Facilities.



Lead Organisations / Agencies

- Cardiff Council

Why is the Infrastructure Needed?

- 6.2.1 The Welsh Assembly Government Strategy for physical activity entitled 'Creating an Active Wales' identifies the main framework for increasing and improving physical activity levels in Wales by 1% by way of improving health for communities and reducing health inequalities across geographical areas.

Existing Provision

- 6.2.2 There are currently sixteen leisure centres / community centres located across the County, which include a range of facilities such as swimming pools, badminton courts, gymnasiums, dance studios, multiuse sports halls, squash courts, crèches, junior activities, children's parties and holiday programmes. Additional facilities include:

- Cardiff International Sports Stadium
- Cardiff International Pool (operated by Park Wood Leisure on behalf of Cardiff Council)
- Cardiff Riding Stables
- Cardiff International White Water Rafting Centre
- Cardiff Ice Rink

Links to Neighbouring Authorities

- 6.2.3 The Council's Outdoor Activity Team uses the natural environment of other Local Authorities for activities such as canoeing, climbing and coast walking etc.

6.2.4 There are a number of facilities in Cardiff that other Local Authorities use, such as the White Water Rafting Centre, Cardiff Riding School, Cardiff International Pool, Cardiff Ice Rink and the Cardiff International Sports Stadium. By its nature as a Capital City with upwards of 70,000 in population coming into the city to work, the majority of the facilities will be used by people from other Local Authorities.

Key Issues

- There is some capacity in all the facilities, however not at the peak period of 4.00-8.30pm.
- Pentwyn and Llanishen Leisure Centres are both approaching 30 years old and are in need of upgrading within the next five years.
- Fairwater Leisure Centre is located directly adjacent to Strategic Site D – North West Cardiff. With an additional 5000 dwellings proposed, the facility would not be able to cope with demand in its current format. There is land around the site that could possibly be used and there might be opportunities to link with Plasmawr School (adjacent to the site).
- Pontprennau Community Hall is located near Strategic Sites H/G (North East Cardiff, East and West of Pontprennau) and would also not be able to cope with demand in its current format. Located adjacent to the new Pontprennau Primary School site, there are ongoing discussions to ensure the most effective / efficient use of the space.
- All of the other proposed Strategic Sites do not have facilities within their immediate vicinity, so public transport and walking / cycling links to existing facilities will need to be considered.

Infrastructure Requirements

- Pentwyn and Llanishen Leisure Centres will need upgrading to support existing communities and population increases linked to developments in the vicinity of the sites.
- Facilities at Fairwater Leisure Centre and Pontprennau Community Hall would need to be upgraded as a direct result of the population increases associated with Strategic Sites D (North West Cardiff) and Sites H/G (North East Cardiff, East and West of Pontprennau).

Phasing

6.2.5 Category 2: Infrastructure to support growth:

- Pentwyn and Llanishen Leisure Centres are in need of upgrading within the next five years. In addition, these Centres are located in the vicinity of Strategic Sites H and G (North East Cardiff, East and West of Pontprennau).
- Fairwater Leisure Centre and Pontprennau Community Hall are directly linked to the development of Strategic Sites D and H/G respectively. Early implementation will benefit new and existing communities

Funding Sources

6.2.6 The current (2013) refurbishment of the Eastern Leisure Centre has been funded through the Council's Capital Budget. Other potential funding sources include developer contributions.

Opportunities to Share Facilities

6.2.7 The Community Focused Schools agenda seeks to ensure that the community has greater access to and shared use of facilities on school sites. Any plans to develop or refurbish schools over the course of the plan period should consider opportunities for shared leisure facilities.

6.3. Community Hubs and Facilities.

Lead Organisations / Agencies

- Cardiff Council

Why is the Infrastructure Needed?

- 6.3.1 Planning Policy Wales (Edition 5) places significant emphasis on the role of the planning system in delivering sustainable communities, where people have good access to local services and facilities.

Existing Provision

- 6.3.2 There are a wide range of community facilities located across the County that are used by local communities for leisure and social purposes, including community centres and meeting places, community halls, neighbourhood learning and youth provisions.

Links to Neighbouring Authorities

- 6.3.3 The infrastructure does not cross county boundaries (except in peripheral communities, where there may be some cross-border movement to access facilities).

Key Issues

- 6.3.4 The provision of new and improved community facility infrastructure is a key element in the planning of new development areas and in brownfield development within the existing urban areas. In both cases, community infrastructure provision needs to have regard to existing provision in adjoining communities, as well as the scale and type of the proposed development itself.
- 6.3.5 In the current financial climate, the Council is unlikely to be in a position to take on new facilities and is likely to be consolidating its existing community facility portfolio in future years. In this context, alternative models of operating community facilities (e.g. community interest companies, development trusts and third sector partner organisations etc.) may be considered.
- 6.3.6 The sharing of facilities within multi-functional buildings and the co-location of complementary services, activities and landuses within community, leisure, recreation and business hubs can create a number of significant opportunities, including: delivering economies of scale and maximising the use of land, reducing the delivery and running costs of infrastructure and providing facilities at convenient locations, which encourage walking and cycling.

Infrastructure Requirements

- 6.3.7 Geographic requirements are generally linked to the standards under-pinning the 'walkable neighbourhoods' concept, ensuring that non car-dependent households have ease of access to appropriate community amenities. These requirements also need to link to the hierarchy of community provision, which recognises the need for higher-tier facilities to be accessible by sustainable modes of transport. As well as physical access considerations, the affordability of provision for all sectors of the community will be a principal consideration.
- 6.3.8 The scale and type of facilities required across the county will vary depending upon the needs of each local community and existing provision within the surrounding area. To accommodate the levels of population growth associated with the Deposit LDP, and to maximise the potential benefits of shared premises, the provision of community facilities could include:

- Strategic Site F (South of Creigiau): Investigate potential to enhance existing facilities in the vicinity
- Strategic Site E (Junction 33): New multi-functional Community Hub of approximately 750m² (with potential to incorporate library requirement – ref chapter 6.2).
- Strategic Site D (NW Cardiff): New multi-functional Community Leisure Hub of approximately 2000m² (as part of neighbourhood centre and / or link to school)
- Strategic Site G (NE Cardiff, West of Pontprennau): New multi-functional Community Leisure Hub of approximately 2000m² (as part of neighbourhood centre and / or link to school) with potential to incorporate library requirement – ref chapter 6.2.
- Strategic Site H (NE Cardiff, East of Pontprennau): New multi-functional Community Hub of approximately 750m²
- Brownfield Strategic Sites: generally off-site financial contributions, subject to individual site-by-site assessment of location, accessibility and condition of existing community infrastructure.

6.3.9 For smaller scale residential developments, financial contributions will be sought for improvements to existing community facilities and / or the provision of additional community facilities.

Phasing

6.3.10 Category 2: Infrastructure to support growth:

- The construction of any on-site provision needs to be carefully phased, in order achieve a balance between having a critical mass of population to ensure the viability of new facilities and ensuring that new residents are not left without facilities for a disproportionate period of time.

Funding Sources

6.3.11 For the Strategic Sites identified in the Deposit LDP, it is anticipated that on-site community facility provision will be secured by way of masterplanning and developer contributions.

6.3.12 Other sources of funding may include Government, Lottery and other grant programmes.

Opportunities to Share Facilities

6.3.13 The co-location of services and activities within multi-functional buildings offers potential for improved community provision, efficiencies in service delivery and more sustainable solutions. This applies both to the type of activity (social, advice, learning, leisure etc) and to the service provider (Local Authority, third sector, health, police etc).

6.3.14 The Community Focused Schools agenda seeks to ensure that the community has greater access to and shared use of facilities on school sites.

6.3.15 In all cases, innovative and flexible design solutions and creative and adaptable management practises may be necessary to address compatibility issues between different uses and activities in multi-functional buildings.

7. ENVIRONMENTAL MANAGEMENT

7.1. Recycling and Waste Management

Lead Organisations / Agencies

- Cardiff Council

Why is the Infrastructure Needed?

- 7.1.1 There are a range of Acts and Directives relating to recycling and waste management, including: Waste Framework Directive 2008/98/EC, the Landfill Directive 1999/31/EC, Environmental Protection Act 1990 – S33, S34 and the Finance Act 1996 – Landfill Tax Regulations 1996.
- 7.1.2 The Municipal Sector Plan (WG 2011) outlines the preferred collection method for household waste. Key features of this document include the following and therefore require Cardiff Council to deliver the subsequent infrastructure:
- Bring Site density to reflect the needs of local residents
 - Household Waste Recycling Centre site density to reflect the needs of local residents
 - Separate food waste collections, which require the need for a Food Waste Treatment Facility

Existing Provision

- 7.1.3 Existing infrastructure includes two Waste Transfer Stations at Lamby Way and Brindley Road, a Materials Reclamation Facility and Landfill Site. There are currently 4 Household Waste Recycling Centres at Wedal Road, Bessemer Close, Lamby Way and Waungron Road. 22 Bring Sites (Bottle Banks etc) are located across the county and there are waste collection and street cleansing vehicle depots at Millicent Street and Lamby Way.

Links to Neighbouring Authorities

- 7.1.4 Prosiect Gwyrdd (Project Green) is a partnership between Caerphilly County Borough Council, Cardiff Council, Monmouthshire County Council, Newport City Council and the Vale of Glamorgan Council. The project will deliver a regional solution to residual waste – i.e. the waste left over after recycling and composting has been maximised in each area.
- 7.1.5 Organics Waste Treatment procurement is a partnership between Cardiff Council and the Vale of Glamorgan Council. This project aims to deliver the best long term, environmental, sustainable and cost effective solution for food waste and green garden waste.

Key Issues

- 7.1.6 Many of the Council's existing facilities are at or near capacity and new infrastructure will be required to meet the housing, employment and associated population projections identified in the Deposit LDP.
- 7.1.7 Existing Household Waste Recycling Centres are located to the south east of the city; however a number of the Deposit LDP Strategic Sites are situated in the North. This would be likely to cause logistical difficulties for members of the public and increased expense for operations should another depot not be developed in the North of the city.

Infrastructure Requirements

- Expansion of the existing Household Waste Recycling Centre at Wedal Road and the development of a new facility in the North of the city.
- A Commercial Recycling Centre is required to support commercial small and medium sized enterprises (SME's) and business growth in Cardiff. This can be achieved by extending the existing Waste Recycling Centre at Brindley Road
- Work is currently being undertaken in relation to the development of a Food Waste Treatment Facility
- The development of a Residual Waste Treatment Facility has been secured through the Prosiect Gwyrdd Partnership
- The Materials Reclamation Facility at Lamby Way may need to increase processing capacity over the course of the plan period
- A Green Waste Treatment Facility will be developed through the Organic Procurement Partnership
- Additional Satellite Street Cleansing Depots will be required to service the transfer, sorting and operational needs of vehicles and staff.
- Additional Bring Sites (Bottle Banks etc) maybe required across the county to serve local communities.

Phasing

7.1.8 Category 2: Infrastructure to support growth:

- Extension of existing Household Waste Recycling Centre at Wedal Road by 2015 / 2016.
- Phasing of a new Household Waste Recycling Centre will be influenced by the development of the Strategic Sites in the North of the city. Early implementation would benefit new and existing communities.
- Commercial Recycling Centre by 2014
- Food Waste Treatment Facility by 2016
- Residual Waste Treatment Facility by 2016
- Extension of Materials Reclamation Facility (over the course of the plan period)
- Green waste Treatment Facility by 2016
- Satellite Street Cleansing Depots by 2014
- Bring Sites are likely to be required over the course of the plan period.

Funding Sources

7.1.9 Funding sources include Cardiff Council Revenue, developer contributions / planning obligations and the Welsh Governments Sustainable Waste Management Grant.

Opportunities to Share Facilities

7.1.10 There are opportunities for Household Waste Recycling Centres to be designed to incorporate a satellite depot for street cleansing vehicles.

7.1.11 Sites could be developed in conjunction with other operational service providers, such as Highways and Parks.

7.2. Flood Defences and Drainage

Lead Organisations / Agencies

- Cardiff Council
- Natural Resources Wales – Tidal and Fluvial Flood Defences

Why is the Infrastructure Needed?

7.2.1 Cardiff Council has a strong commitment to reduce the risks of flooding across Cardiff and minimise the impacts that any flood event could have on our communities, environment and businesses. The Flood and Water Management Act (FWMA), introduced in 2010, places a duty on the Council to prepare a Local Flood Risk Management Strategy (LFRMS) that sets out how the Council will proactively seek to minimise these risks and prepare our communities.

Sources of Flood Risk include:

7.2.2 Main rivers: Cardiff falls within the catchment of the rivers Ely, Taff and Rhymney. Natural Resources Wales is responsible for the management of flood risk from these rivers, along with elements of designated watercourses.

7.2.3 Coastal Erosion: The management policy for the Cardiff coastline is set out in the Severn Estuary Shoreline Management Plan 2 (SMP2) (Severn Estuary Coastal Group, 2010), which contains policies proposing how the shoreline around the Severn Estuary should be managed over the next 100 years. The Cardiff Coastline incorporates an area from the east of Cardiff Bay and along the Wentloog Levels.

7.2.4 Surface Water: Surface Water flooding usually occurs when the surface water runoff rates (due to rainfall) exceed the capacity of drainage systems to remove it. As a Local Lead Flood Authority, Cardiff Council completed its Preliminary Flood Risk Assessment (Hyder Consulting (UK) Ltd, 2011) in accordance with the Flood Risk Regulations in October 2011. This assessment identified a number of areas across the county which may be susceptible to surface water flooding as identified below:

Existing Provision

- Flood Risk Assets located across the County include a range of structures / natural features that help to prevent or reduce the risk of flooding.
- Coastal Defences are located along various sections of Cardiff's coast line
- Brindley Road Depot is used as a storage location for gully clearance maintenance vehicles and associated equipment.

Links to Neighbouring Authorities

7.2.5 Coastal defences and flood risk assets cross county boundaries. Cardiff Council works with neighbouring authorities and related public bodies in relation to flood risk management

Key Issues

7.2.6 The provision of additional flood risk assets / flood mitigation measures will be required over the plan period, but will be effected by (and where necessary will need to form an integral part of) the scale, location and design of new developments.

7.2.7 As the coastline is constantly changing, survey work will be required over the plan period to identify coastal erosion risks, the possible timelines for such erosion and necessary infrastructure projects.

7.2.8 Additional depot premises / floorspace maybe required to accommodate gully clearance maintenance vehicles (and equipment) associated with new developments across the county.

Infrastructure Requirements

7.2.9 Large areas of the city have been identified as being susceptible to flood risk from tidal, fluvial, surface water and groundwater sources. In order for development proposals to be acceptable within these areas, developers must carry out a Flood Consequence Assessment (FCA) to evaluate the extent of risk and ensure no unacceptable development occurs within the flood risk area identified. Part of this assessment often requires the need to incorporate environmentally sympathetic flood mitigation measures into development proposals, which often need to be planned in a comprehensive manner with adjoining landowners / occupiers. Given this, it is important to note that there are likely to be further infrastructure requirements relating to flood mitigation measures over the Plan Period. Such requirements will be quantified through the FCA process in connection with new developments in flood risk areas.

7.2.10 Flood mitigation measures:

- Flood mitigation works will be required at Strategic Site J (South of St Mellons Business Park) to raise ground levels across the site by 0.27-1.08 meters.
- Flood mitigation works will be required at Strategic Site B (Former Arjo Wiggins Works), including extensive embankment raising and new culverts. (Cardiff SFCA, Atkins October 2012)

7.2.11 Coastal Defences:

- Work will be required at Strategic Site J (South of St Mellons Business Park / Sluice Farm, Wentloog Levels Sea Wall) to raise the level of the embankment across an area of 740 meters. (Cardiff SFCA, Atkins October 2012)

7.2.12 Gully Clearance:

- Additional depot premises / floorspace maybe required over the course of the plan period to accommodate gully clearance maintenance vehicles and equipment.

Phasing

7.2.13 Category 1: Infrastructure to enable growth:

- Flood mitigation and coastal defence works at Strategic Site J (South of St Mellons Business Park) will be required prior to, or at the commencement of development.
- Flood mitigation works at Strategic Site B (Former Arjo Wiggins Works) will be required prior to or at the commencement of development.

7.2.14 Category 2: Infrastructure to support growth:

- Flood mitigation measures will be linked to the phasing of associated development proposals over the course of the plan period.

Funding Sources

7.2.15 Potential funding sources include Cardiff Council Revenue, developer contributions and the Welsh Governments Flood Defence Grant in Aid mechanism.

Opportunities to Share Facilities

7.2.16 Co-location of services:

- There is an opportunity to locate gully clearance services with other operational service providers, e.g. Highways, Parks and Housing Depots.

7.2.17 Potential economies of scale:

- Sustainable Urban Drainage Systems (SuDS) and flood mitigation measures should form an integral part of other Council projects, including highway schemes, parks / open spaces and biodiversity projects.
- Flood mitigation projects could potentially be shared with neighbouring authorities and with external bodies, such as Welsh Water and Natural Resources Wales

8. UTILITY SERVICES

8.1. Water and Waste Water

Lead Organisations / Agencies

- Dwr Cymru Welsh Water (DCWW)

Why is the Infrastructure Needed?

- Water Industry Act 1991
- Dwr Cymru – Welsh Water is responsible for providing a continuous supply of drinking water and for taking away, treating and properly disposing of the wastewater that is produced.

Existing Provision

8.1.1. Dwr Cymru – Welsh Water are the statutory undertaker providing water supply and sewerage infrastructure in Cardiff.

8.1.2. Cardiff's domestic foul flows are treated at the following Waste Water Treatment Works (WwTW):

- Cog Moors – Cardiff Road, Dinas Powys
- Coslech – Peterston Road, Groesfaen Pontyclun
- Creigiau – Creigiau, Cardiff
- Cardiff – Tremorfa, Cardiff

Links to Neighbouring Authorities

8.1.3. Facilities used by Cardiff (outside county boundary):

- Cog Moors Waste Water Treatment Works is located in the Vale of Glamorgan
- Coslech Waste Water Treatment Works is located in Rhondda Cynon Taff

8.1.4. Facilities used in Cardiff:

- The Cardiff Waste Water Treatment Works is a key strategic site in Wales and receives flows from not only Cardiff, but also from the Local Authorities of Rhondda Cynon Taf, Torfaen, Blaenau Gwent, Caerphilly and Newport.

Key Issues

8.1.5. Given the density and location of proposed development, strategic water and sewerage infrastructure will be required to support development at the appropriate time. As proposals come forward, an assessment will be required to understand how DCWW will provide mains water and where connections to the public sewers can be made.

Infrastructure Requirements

8.1.6. DCWW are able to provide water and sewerage infrastructure but would need to model water supply and sewerage networks in the areas of high growth to understand the extent of potential off-site site mains that may be required to service proposed development sites.

8.1.7. DCWW have carried out an initial assessment of each of the 'Candidate Sites' submitted through the LDP process and these issues can be established in detail as / when development proposal are progressed.

- 8.1.8. For Strategic Sites that are proposed for employment use, water supplies can be made available for 'domestic demands'. It would need to be understood whether the end users would require 'industrial water' and an early dialogue would be required to determine whether it can be provided within DCWW's license abstractions.
- 8.1.9. The proposed level of growth identified in the Deposit LDP would exceed the theoretical design capacity of the Waste Water Treatment Works. The upsizing of the works would be required to accommodate this growth, the timescales for which will be dependent on the rate of associated developments. Alternatively, DCWW and Cardiff Council working in partnership to reduce surface water entering the combined sewer networks could create the required capacity, in many circumstances.

Phasing

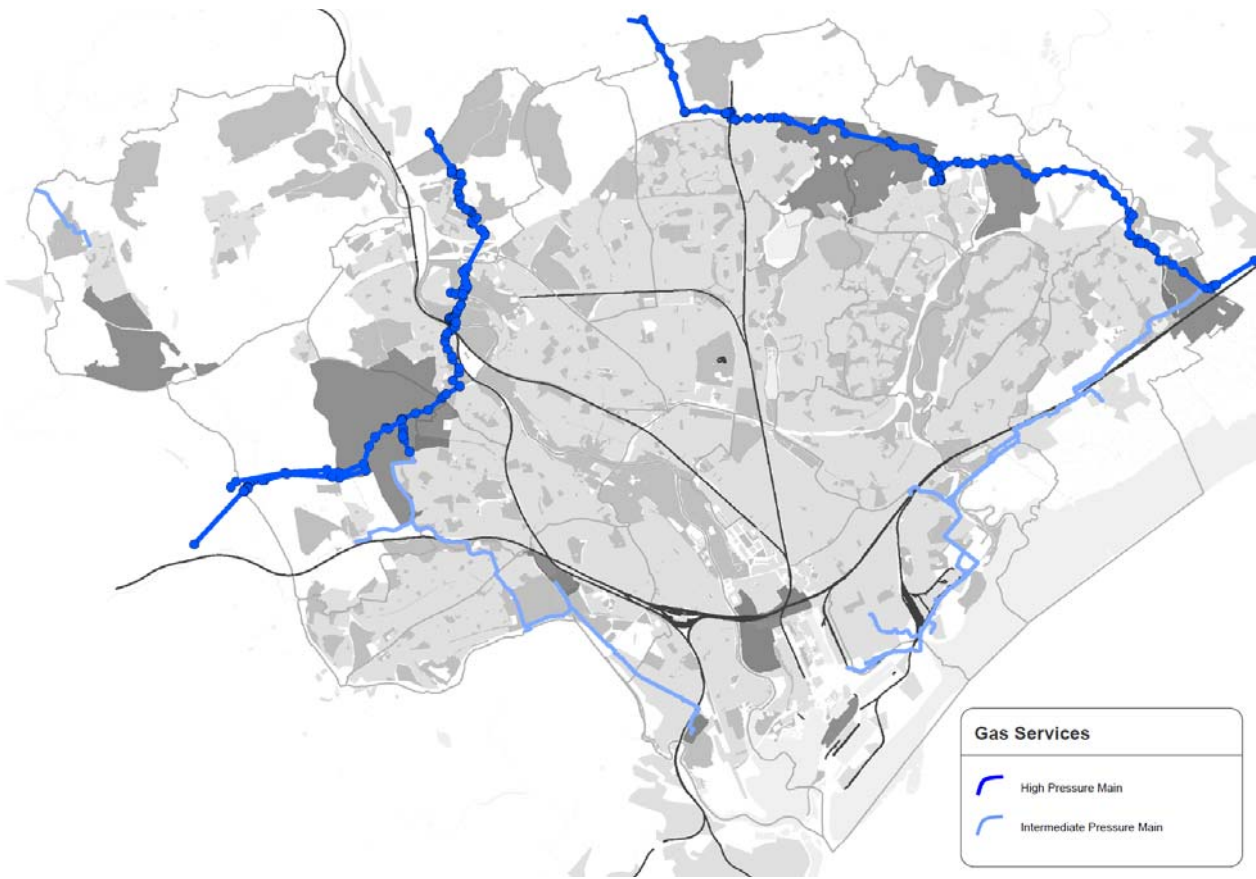
8.1.10. Category 1: Infrastructure to enable growth:

- Triggers for infrastructure will be linked to the phasing of associated developments.

Funding Sources

- 8.1.11. Some of the infrastructure works identified would fall within the remit of DCWW's Regulatory Capital Investment Programme, which is agreed in 5 yearly cycles. Where development will create a need for extra facilities in advance of an Undertaker's Regulatory Investment, it may be reasonable for developers to meet or contribute towards the cost of providing such facilities.
- 8.1.12. Infrastructure costs will be specific to each individual scheme and will be influenced by; the time at which the development comes forward, the scale of the proposed development and any associated works that have been carried out in the time preceding the scheme. As such is it is not possible to attribute an estimated costing to this infrastructure item.

8.2. Gas.



Lead Organisations / Agencies

- National Grid
- Wales and West Utilities

Why is the Infrastructure Needed?

- 8.2.1. The National Grid has a duty to develop and maintain an efficient, co-ordinated and economical transmission system for the conveyance of gas

Existing Provision

- The National Grid owns and operates the high pressure gas transmission system in England, Scotland and Wales
- The National Grid has no gas transmission assets located within the administrative area of Cardiff.
- Wales and West Utilities own and operate the local gas distribution network in Cardiff's administrative area.

Links to Neighbouring Authorities

- 8.2.2. The National Grid owns and operates the high pressure gas transmission system in England, Scotland and Wales.

Key Issues

- 8.2.3. New gas transmission infrastructure developments (pipelines and associated installations) are periodically required to meet increases in demand and changes in patterns of supply.
- 8.2.4. Wales and West Utilities have carried out an initial assessment of the 'Candidate Sites' submitted through the LDP process and these issues can be established in detail as / when development proposal are progressed.

Infrastructure Requirements

- In relation to the local distribution network, an initial assessment of the 'Candidate Sites' has shown that whilst some sites are generally well served with gas infrastructure and contain an existing onsite supply, others contain no existing infrastructure and in some cases, the scale of the proposed development would exceed existing network capacity.
- Developers will be expected to liaise with Wales and West Utilities to ensure that off site and on site works to facilitate a new gas supply are carried out if needed and to ensure that any necessary upstream reinforcement works are carried out.

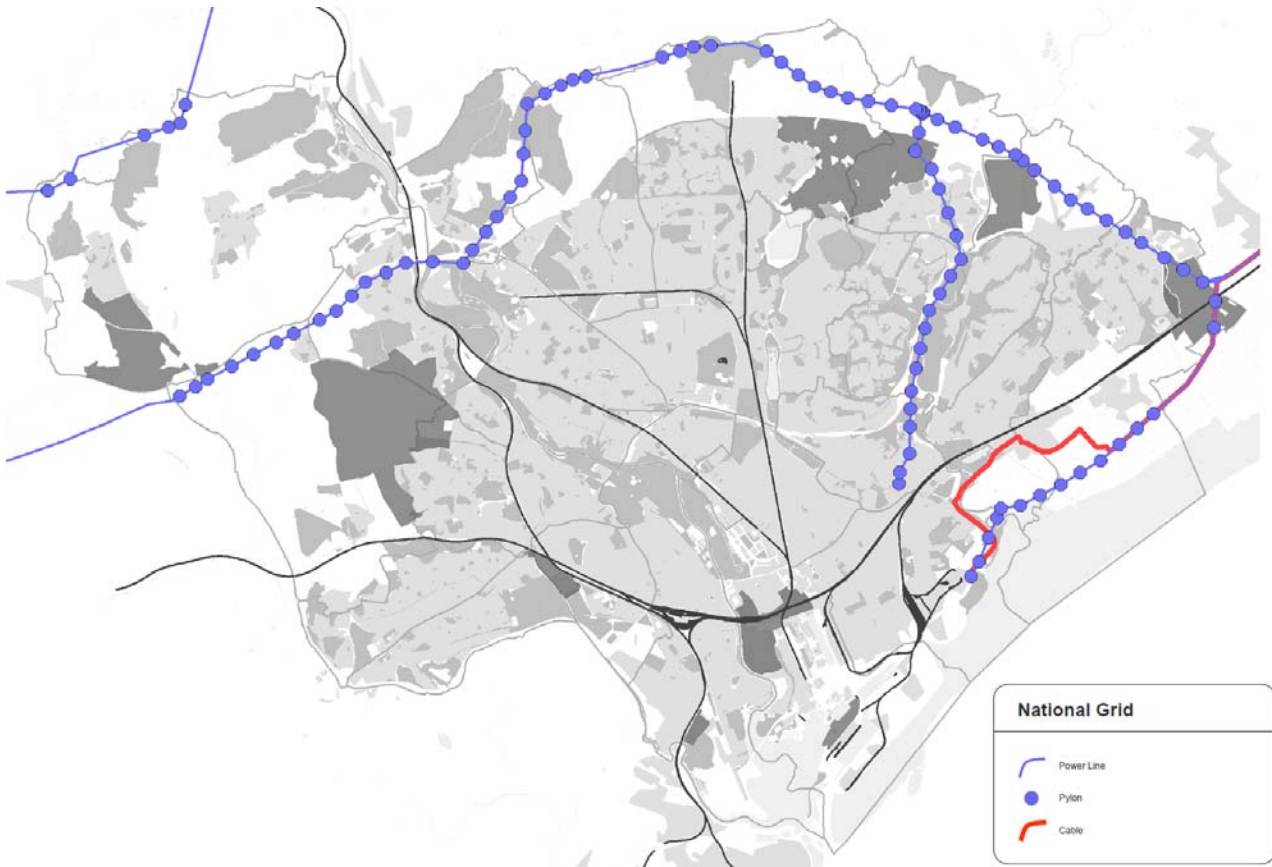
Phasing

- 8.2.5. Category 1: Infrastructure to enable growth:
- Triggers for infrastructure will be linked to the phasing of associated developments.

Funding Sources

- 8.2.6. Where development will create the need for new or upgraded infrastructure, which is either required in advance of, or falls outside the remit of the service providers investment programme, the developer will be expected to meet or contribute towards the cost of providing such infrastructure.
- 8.2.7. Costs will be specific to each individual scheme and will be influenced by; the time at which the development comes forward, the scale of the proposed development and any associated works that have been carried out in the time preceding the scheme. As such is it is not possible to attribute an estimated costing to this infrastructure item.

8.3. Electricity



Lead Organisations / Agencies

- National Grid
- Western Power Distribution

Why is the Infrastructure Needed?

8.3.1. The National Grid under the Electricity Act 1989 has a statutory duty to develop and maintain an efficient, co-ordinated and economical transmission system of electricity.

Existing Provision

8.3.2. The National Grid operates the national electricity transmission network across Great Britain and owns / maintains the network in England and Wales, providing electricity supplies from generating stations to local distribution companies.

8.3.3. Separate regional companies own and operate the electricity distribution networks that comprise overhead lines and cables at 132,000 volts and below. It is the role of these local distribution companies to distribute electricity to homes and businesses. The electricity distribution company in Cardiff is Western Power Distribution

8.3.4. The National Grid's high voltage electricity overhead transmission lines / underground cables within Cardiff Council's administrative area that form an essential part of the electricity transmission network in England and Wales include the following:

- XM line – 275kV route from Cowbridge substation in Vale of Glamorgan to Whiston substation in Newport
- ZZB line – 275kV route from Aberthaw substation in Vale of Glamorgan to Upper Boat substation in

Rhondda Cynon Taf

- VP line – 275kV route from the XM line in Cardiff to Cardiff East substation in Cardiff
- WG line – 275kV route from the XM line in Cardiff to Tremorfa substation in Cardiff

8.3.5. The following substations are located within the administrative area of Cardiff Council:

- Cardiff East substation – 275kV
- Tremorfa substation – 275kV & 33kV

Links to Neighbouring Authorities

8.3.6. The National Grid operates the national electricity transmission network across Great Britain and owns and maintains the network in England and Wales.

Key Issues

8.3.7. Proposals for new electricity projects often involve transmission reinforcements remote from the generating site, such as new overhead lines or new development at substations. If there are significant demand increases across a local distribution electricity network area, then the local network distribution operator may seek reinforcements at an existing substation or a new grid supply point. In addition, the National Grid may undertake development works at its existing substations to meet changing patterns of generation and supply.

Infrastructure Requirements

8.3.8. Developers will be expected to liaise with Western Power to ensure that off site and on site works to facilitate a new electricity supply are carried out if needed and to ensure that any necessary upstream reinforcement works are carried out.

8.3.9. Where necessary, the developer should identify that sufficient land has been set aside within their development site to accommodate electricity supply infrastructure required to address any identified deficit.

Phasing

8.3.10. Category 1: Infrastructure to enable growth:

- Triggers for infrastructure will be linked to the phasing of associated developments.

Funding Sources

8.3.11. Where development will create the need for new or upgraded infrastructure, which is either required in advance of, or falls outside the remit of the service providers investment programme, the developer will be expected to meet or contribute towards the cost of providing such infrastructure.

8.3.12. Costs will be specific to each individual scheme and will be influenced by; the time at which the development comes forward, the scale of the proposed development and any associated works that have been carried out in the time preceding the scheme. As such is it is not possible to attribute an estimated costing to this infrastructure item.

8.4. Telecommunications

Lead Organisations / Agencies

- British Telecom (BT)
- Virgin Media

Why is the Infrastructure Needed?

- 8.4.1. British Telecom has a Universal Service Obligation to provide telephone lines to all buildings.
- 8.4.2. The Super Connected Cities Programme initiated by the Department for Culture Media and Sport seeks to enable ultrafast broadband availability to all businesses and residents to stimulate economic growth and address Digital Inclusion.

Existing Provision

- 8.4.3. Both British Telecom and Virgin Media provide broadband connectivity throughout Cardiff, though availability of SuperFast (>80Mbit/sec download) or Ultrafast (>100Mbit/sec download) varies across the county and is dependent on suppliers upgrading cabinets and existing infrastructure.
- 8.4.4. British Telecom, via their subsidiary BT Openreach, provides wholesale services to other organisations, for example TalkTalk and Sky etc to provide broadband and telephone services.
- 8.4.5. BT has a number of telephone exchanges that connect to cabinets throughout Cardiff. From these cabinets there are connections to Distribution Points (DPs) which then have connectivity to premises via overhead cables or underground ducts. The final connectivity is via a copper connection, but this technology is changing to fibre optic cable.
- 8.4.6. Virgin has a large infrastructure of fibre optic and copper coaxial cable in the ground, passing around 80% of houses in the area. Other network operators in the area operate smaller fibre networks to specific areas and buildings. The Council at present owns over 80km of fibre linking its provisions.
- 8.4.7. The provision of telecommunication services is now unregulated so other providers could provide services if commercially viable.

Links to Neighbouring Authorities

- 8.4.8. The telecommunications network covers the whole of Great Britain with several international connections. International connections currently route via the Internet Exchanges in London, Leeds and Manchester. The connectivity within the city is currently dependent on the Internet Exchanges in London, which results in much traffic for the city being routed via London and back again instead of remaining within the city. International connectivity is also dependent on the Internet Exchanges, with few alternate routes on the south-west side of the UK

Key Issues

- 8.4.9. To facilitate competition in the supply of telecommunications, BT Openreach are required by regulation to make its network available for wholesale use to other providers.
- 8.4.10. All new properties (business, residential and others) in the City should be built with ducts to provide telecommunications connections and should have a 'Fibre to the Premise' (FTTP) solution for both providers.

Infrastructure Requirements

- 8.4.11. All new properties must have ducting provision rather than overhead provision and a Fibre To The Premise (FTTP) provision must be available.
- 8.4.12. Existing providers are well placed to deal with growth in the city and provide capacity. However, some areas of the city are behind in broadband provision for a number of technical and commercial reasons.
- 8.4.13. Developers will be expected to liaise with BT and Virgin Media to ensure that off site and on site works to facilitate new telecommunications infrastructure are carried out if needed and to ensure that any necessary upstream reinforcement works are carried out.
- 8.4.14. Where necessary, the developer should identify that sufficient land has been set aside within their development site to accommodate telecommunications infrastructure required to address any identified deficit.
- 8.4.15. The Council will, using the Super Connected Cities programme funding, seek to provide ducting and fibre provision to existing areas where additional provision is needed. This will be open access to suppliers. In order to address the issue of dependency on the London Internet Exchanges for internal and international connectivity, the Council will, using the Super Connected Cities programme funding, seek to provide a Cardiff-based Internet Exchange and international connectivity.”

Phasing

- 8.3.13. Category 1: Infrastructure to enable growth:
- Triggers for infrastructure will be linked to the phasing of associated developments.

Funding Sources

- 8.3.14. Where development will create the need for new or upgraded infrastructure, which is either required in advance of, or falls outside the remit of the service providers investment programme, the developer will be expected to meet or contribute towards the cost of providing such infrastructure.
- 8.3.15. Costs will be specific to each individual scheme and will be influenced by; the time at which the development comes forward, the scale of the proposed development and any associated works that have been carried out in the time preceding the scheme. As such is it is not possible to attribute an estimated costing to this infrastructure item.

Cardiff Deposit Local Development Plan 2006 - 2026

2: Transportation and Highways – 2.1. Cycling and Walking

ID	Type of Infrastructure	Phasing Category	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required
2.1A	New and Existing	Support	Walking Improvements	Links to and between corridors, strategic sites and key facilities	Cardiff Council	Short - Long 2013 to 2026	General Capital Fund (GCF), Transport Grant, Developer(s)	£10,000,000	GCF: £3,000,000, Transport Grant: £3,000,000	£4,000,000
2.1B	New and Existing	Support	Cycling Improvements	Links to and between corridors, strategic sites and key facilities	Cardiff Council	Short - Long 2013 to 2026	General Capital Fund (GCF), Transport Grant, Developer(s)	£18,000,000	GCF: £6,000,000, Transport Grant: £6,000,000	£6,000,000
Total								£28,000,000	£18,000,000	£10,000,000

2: Transportation and Highways – 2.2. Buses / Rapid Transit

ID	Type of Infrastructure	Phasing Category	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required
2.2A	Existing	Support	Bus Lanes (16 to 20km) and Bus Priority Improvements	Main corridors	Cardiff Council	Short - Long 2013 to 2026	General Capital Fund (GCF), Transport Grant, Developer(s)	£20,000,000 to £25,000,000	GCF: £5,000,000, Transport Grant: £5,000,000	£10,000,000 to £15,000,000
2.2B	New	Support	Rapid Transit, North West Cardiff	Serving North West Cardiff	Cardiff Council	Short - Long 2015 to 2026	General Capital Fund (GCF), Transport Grant, Developer(s)	£36,000,000 to £101,000,000	GCF: £3,000,000	£33,000,000 to £98,000,000
2.2C	New	Support	Rapid Transit, North East Cardiff	Serving North East Cardiff	Cardiff Council	Short - Long 2015 to 2026		£40,000,000 to £50,000,000	GCF: £3,000,000	£37,000,000 to £47,000,000
2.2D	New	Support	Rapid Transit, Eastern Corridor	Serving Eastern Corridor to St Mellons / Trowbridge	Cardiff Council	Short - Long 2015 to 2026		£10,000,000 to £35,000,000	GCF: £2,000,000	£8,000,000 to £33,000,000
2.2E	New	Support	Rapid Transit, Southern Corridor	Serving City Centre and Cardiff Bay	Cardiff Council	Short - Long 2015 to 2026		£50,000,000 to £60,000,000	GCF: £3,000,000, Transport Grant: £20,000,000	£27,000,000 to £37,000,000
Total									£165,000,000 to £275,000,000	£41,000,000

Cardiff Deposit Local Development Plan 2006 - 2026

2: Transportation and Highways – 2.3. Park and Ride

ID	Type of Infrastructure	Phasing Category	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required
2.3A	New	Support	Park and Ride Facility at M4 Junction 33	Links to Strategic Site E (North of Junction 33)	Cardiff Council / Developer	Short – Long (Dependent on development of associated Strategic Site)	Developer(s)	£5,000,000	£0	£5,000,000
Total								£5,000,000	£0	£5,000,000

2: Transportation and Highways – 2.4. Rail Network

ID	Type of Infrastructure	Phasing Category	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required
2.4A	Existing	Support	Electrification of Mainline to Cardiff	Countywide and National Infrastructure	Network Rail	Medium (by 2017)	DfT / Network Rail	Circa £1,000,000,000	Total Project Cost	£0
2.4B	Existing	Support	Electrification of Cardiff / Valleys Railway lines			Medium - Long (2019-2024)		Circa £306,000,000	Total Project Cost	£0
2.4C	Existing	Support	New platform and building entrance at Cardiff Central Station	Countywide and Regional Infrastructure	Network Rail	Short (by 2015)	Welsh Government and DfT / Network Rail	Circa £220,000,000	Total Project Cost	£0
2.4D	Existing	Support	New platforms and building entrance at Queen Street Station			Short (by 2015)				£0
2.4E	Existing	Support	Sewta Rail Strategy 2013 – 2026 Delivery Programme (including potential new stations at St Mellons and St Fagans).	Countywide and Regional Infrastructure	Network Rail	Short - Long (2013-2026)	Welsh Government and DfT / Network Rail	£254,000,000	£0	£254,000,000
2.4F	Existing	Support	DfT Access for All Improvements at Llandaff and Radyr Stations	Countywide Infrastructure	Network Rail	Short (by 2014)	Welsh Government and DfT / Network Rail	£4,300,000	Total Project Cost	£0
2.4G	Existing	Support	DfT Access for All Improvements at Cathays Station	Countywide Infrastructure	Network Rail	Medium (by 2018)	Welsh Government and DfT / Network Rail	Circa £1,500,000	£0	£1,500,000
Total								Circa £1,785,800,000	Circa £1,530,300,000	£255,500,000

Cardiff Deposit Local Development Plan 2006 - 2026

2: Transportation and Highways – 2.4. Rail Network

ID	Type of Infrastructure	Phasing Category	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required
2.4H	Existing	Support	Birchgrove Station Improvements		Cardiff Council	Short – Medium (by 2018)	Welsh Government / DfT / Network Rail (via Sewta)	£42,200	£0	£42,200
2.4I	Existing	Support	Cardiff Bay Station Improvements	Strategic Site A (Central Enterprise Zone)				£5,200	£0	£5,200
2.4J	Existing	Support	Cathays Station Improvements					£12,200	£0	£12,200
2.4K	Existing	Support	Coryton Station Improvements					£10,200	£0	£10,200
2.4L	Existing	Support	Danescourt Station Improvements	Strategic Site D (North West Cardiff)				£53,200	£0	£53,200
2.4M	Existing	Support	Fairwater Station Improvements	Strategic Site D (North West Cardiff)				£83,900	£0	£83,900
2.4N	Existing	Support	Grangetown Station Improvements					£44,900	£0	£44,900
2.4O	Existing	Support	Heath High Level Station Improvements					£51,200	£0	£51,200
2.4P	Existing	Support	Heath Low Level Station Improvements					£84,900	£0	£84,900
2.4Q	Existing	Support	Lisvane And Thornhill Station Improvements	Strategic Site G – North East Cardiff (W of Pontprennau)				£105,400	£0	£105,400
2.4R	Existing	Support	Llandaff Station Improvements					£60,900	£0	£60,900
2.4S	Existing	Support	Llanishen Station Improvements	Strategic Site G – North East Cardiff (W of Pontprennau)				£84,900	£0	£84,900
2.4T	Existing	Support	Ninian Park Station Improvements					£83,600	£0	£83,600
2.4U	Existing	Support	Radyr Station Improvements	Strategic Site D (North West Cardiff)				£155,200	£0	£155,200
2.4V	Existing	Support	Rhiwbina Station Improvements					£14,400	£0	£14,400
2.4W	Existing	Support	Ty Glas Station Improvements					£44,400	£0	£44,400
2.4X	Existing	Support	Waun-Gron Park Station Improvements					£44,900	£0	£44,900
2.4Y	Existing	Support	Whitchurch Station Improvements					£50,700	£0	£50,700
Total										

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2: Transportation and Highways – 2.5. Road Network

ID	Type of Infrastructure	Phasing Category	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required
2.5A	Existing	Support	Strategic highway improvements to major junctions on main corridors	Countywide Infrastructure	Cardiff Council	Short – Long (to 2026)	General Capital Fund (GCF), Transport Grant / Developer(s)	£20,000,000	GCF: £3,000,000, Transport Grant: £2,000,000	£15,000,000
2.5B	New	Support	Eastern Bay Link.	Countywide Infrastructure	Cardiff Council / WG	Short - Medium (to 2021)	WG	TBC	WG Commitment	--
2.5C	New	Support	Junction 32 Dedicated Slip Road			Short - Medium (to 2021)	WG	TBC	WG Commitment	--
2.5D	New	Support	Junction 33 Dedicated Slip Road			Short - Medium (to 2021)	WG	TBC	WG Commitment	--
Total								£20,000,000	£5,000,000	£15,000,000

Cardiff Deposit Local Development Plan 2006 - 2026

3: Schools – 3.1. Nursery, Primary, Secondary and Sixth Form Education

ID	Type of Infrastructure	Phasing Category: 1: Enable 2: Support	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required
3.1A	Existing planned infrastructure 2012 -2020	Support	21 st Century Schools – projects for which funding is approved in principle	Countywide Infrastructure	Cardiff Council	2007-2019	Match Funded: Cardiff Council and Welsh Government	£240m	£240m	£0
3.1B	New	Support	New 2 Form entry (420 place) primary school with 48 Full Time Equivalent Nursery places	Sites F&E: South of Creigiau / north of Junction 33	Cardiff Council	Initial phases of development	Developer, Council Capital Funding, WG 21 st Century Schools Funding	£6,152,480	£0	£6,152,480
3.1C	New	Support	New 1.9 Form entry (402 place) primary school with 46 Full Time Equivalent Nursery places	Sites F&E: South of Creigiau / north of Junction 33	Cardiff Council	Following completion of 1,400 homes	"	£5,925,680	£0	£6,152,480
3.1D	New	Support	Extensions to existing English-medium and Welsh-medium secondary schools to provide an additional 583 secondary places and 106 sixth form places	Sites F&E: South of Creigiau / north of Junction 33	Cardiff Council	Initial phases of development	"	£16,267,900	£0	£16,267,900
3.1E	New	Support	Extensions to one or two existing English-medium primary schools to provide an additional 290 primary places and 33 Full Time Equivalent Nursery places	Site D: North West Cardiff	Cardiff Council	Initial phases of development	"	£4,505,840	£0	£4,505,840
3.1F	New	Support	New 2 Form entry (420 place) primary school with 48 Full Time Equivalent Nursery places	Site D: North West Cardiff	Cardiff Council	Following completion of 800 homes	"	£6,152,480	£0	£6,152,480
3.1G	New	Support	New 2 Form entry (420 place) primary school with 48 Full Time Equivalent Nursery places	Site D: North West Cardiff	Cardiff Council	Following completion of 2,200 homes	"	£6,152,480	£0	£6,152,480
3.1H	New	Support	New 2 Form entry (420 place) primary school with 48 Full Time Equivalent Nursery places	Site D: North West Cardiff	Cardiff Council	Following completion of 3,600 homes	"	£6,152,480	£0	£6,152,480
3.1I	New	Support	New 7.3 Form entry (1100 place) secondary school with 200 sixth form places	Site D: North West Cardiff	Cardiff Council	Initial phases of development	"	£26,105,000	£0	£26,105,000

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3: Schools – 3.1. Nursery, Primary, Secondary and Sixth Form Education

ID	Type of Infrastructure	Phasing Category: 1: Enable 2: Support	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required
3.1J	New	Support	Extension to an existing English-medium primary school to provide an additional 135 primary places and 31 Full Time Equivalent Nursery places	Site G: North East Cardiff (West of Pontprennau)	Cardiff Council	Initial phases of development	Developer, Council Capital Funding, WG 21 st Century Schools Funding	£2,558,400	£0	£2,558,400
3.1K	New	Support	New 2 Form entry (420 place) primary school with 48 Full Time Equivalent Nursery places	Site G: North East Cardiff (West of Pontprennau)	Cardiff Council	Following completion of 400 homes	"	£6,152,480	£0	£6,152,480
3.1L	New	Support	New 2 Form entry (420 place) primary school with 48 Full Time Equivalent Nursery places	Site G: North East Cardiff (West of Pontprennau)	Cardiff Council	Following completion of 1,800 homes	"	£6,152,480	£0	£6,152,480
3.1M	New	Support	New 2 Form entry (420 place) primary school with 48 Full Time Equivalent Nursery places	Site G: North East Cardiff (West of Pontprennau)	Cardiff Council	Following completion of 3,200 homes	"	£6,152,480	£0	£6,152,480
3.1N	New	Support	New 6.6 Form entry (990 place) secondary school with 180 sixth form places	Site G: North East Cardiff (West of Pontprennau)	Cardiff Council	Initial phases of development	"	£24,012,000	£0	£24,012,000
3.1O	New	Support	New 1.9 Form entry (403 place) primary school with 46 Full Time Equivalent Nursery places	Site H: North East Cardiff (East of Pontprennau)	Cardiff Council	Initial phases of development	"	£5,938,080	£0	£5,938,080
3.1P	New	Support	Extensions to existing English-medium and/ or Welsh-medium secondary schools to provide an additional 286 secondary places and 52 sixth form places	Site H: North East Cardiff (East of Pontprennau)	Cardiff Council	Initial phases of development	"	£10,616,800	£0	£10,616,800
3.1Q	New	Support	Extensions to existing primary schools to provide an additional 528 primary places and 121 nursery places	Brownfield sites	Cardiff Council	Initial phases of development	"	£7,524,800	£0	£7,524,800
3.1R	New	Support	Extensions to existing English-medium and/ or Welsh-medium secondary schools to provide an additional 377 secondary places and 75 sixth form places	Brownfield sites	Cardiff Council	Initial phases of development	"	£12,452,200	£0	£12,452,200
Total								£398,974,060	£240,000,000	£158,974,060

Cardiff Deposit Local Development Plan 2006 - 2026

4: Health – 4.1. Primary and Secondary Health Care

ID	Type of Infrastructure	Phasing Category	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required
4.1A	New	Support	Primary Care Facility (approx 865sqm) to accommodate up to 5 GP's / 9,000 patients	Sites F,E&D: South of Creigiau, North of Junction 33 and North West Cardiff	Cardiff and Vale University Health Board (UHB)	Short – Long (to 2026) / Dependent on associated developments, including Strategic Site(s)	UHB Capital Investment Board / Welsh Government Developer(s)	£2,750,000	£0	£2,750,000
4.1B	New	Support	Primary Care Facility (approx 865sqm) to accommodate up to 5 GP's / 9,000 patients	Site D: North West Cardiff				£2,750,000	£0	£2,750,000
4.1C	New	Support	Primary Care Facility (approx 865sqm) to accommodate up to 5 GP's / 9,000 patients	Sites H&G: North East Cardiff (East and West of Pontprennau)				£2,750,000	£0	£2,750,000
Total								£8,250,000		£8,250,000

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5: Green Infrastructure – 5.1. Parks, Green Space and Allotments

ID	Type of Infrastructure	Phasing Category	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required
5.1A	New / Existing	Support	Provision of open space (including formal and informal recreation)	Linked to associated residential (and non-residential) developments, (Including Deposit LDP Strategic Sites)	Cardiff Council	Medium / Long (Prior to 2026)	Developer(s)			
5.1B	New	Support	New Country Park	Linked to Strategic Site D – North West Cardiff	Cardiff Council	Medium / Long (Prior to 2026)	Developer(s)	To be provided predominantly through onsite provision.	£0	To be provided predominantly through onsite provision.
5.1C	New	Support	New Country Park	Linked to Strategic Site G – North East Cardiff (West of Pontprennau)	Cardiff Council	Medium / Long (Prior to 2026)	Developer(s)			
5.1D	New	Support	Allotments	Linked to associated residential developments, (Including Deposit LDP Strategic Sites)	Cardiff Council	Medium / Long (Prior to 2026)	Developer(s)	£2,550,000	£0	£2,550,000
Total								£2,550,000	£0	£2,550,000

Cardiff Deposit Local Development Plan 2006 - 2026

5: Green Infrastructure – 5.2. Destination Play Areas

ID	Type of Infrastructure	Phasing Category	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required
5.2A	Existing	Support	Improvements to Roath Park Botanic Gardens (Cardiff North) Destination Site		Cardiff Council	Short (2015/2016)	Council Capital Budget	£100,000	£0	£100,000
5.2B	Existing	Support	Improvements to Llandaff Fields (linked to Central parklands) Destination Site		Cardiff Council	Medium (2018/2019)	Council Capital Budget	£100,000	£0	£100,000
5.2C	Existing	Support	Improvements to Victoria Park (Cardiff South West) Destination Site		Cardiff Council	Medium (2019/2020)	Council Capital Budget	£100,000	£0	£100,000
5.2D	Existing	Support	Improvements to Cardiff Bay Barrage (City Centre and Cardiff South) Destination Site		Cardiff Council	Medium (2017/2018)	Council Capital Budget	£100,000	£0	£100,000
5.2E	Existing	Support	Upgrade Roath Recreation Ground to Cardiff South East Destination Site		Cardiff Council	Short / Medium (2016/2017)	Council Capital Budget	£350,000	£0	£350,000
5.2F	Existing	Support	Upgrade Rumney Recreation Ground to Cardiff East Destination Site		Cardiff Council	Short (2014/2015)	Council Capital Budget	£350,000	£0	£350,000
5.2G	New	Support	New Destination Play Area in proposed Country Park.	Linked to Strategic Site D – North West Cardiff	Cardiff Council	Medium / Long (Prior to 2026)	Developer(s)	£350,000	£0	£350,000
5.2H	New	Support	New Destination Play Area in proposed Country Park.	Linked to Strategic Site G – North East Cardiff (West of Pontprennau)	Cardiff Council	Medium / Long (Prior to 2026)	Developer(s)	£350,000	£0	£350,000
Total								£1,800,000	£0	£1,800,000

Cardiff Deposit Local Development Plan 2006 - 2026

5: Green Infrastructure – 5.3. Sports Pitches and Games Areas (Existing Facilities)										
ID	Type of Infrastructure	Phasing Category	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required
5.3A	Existing	Support	Morganstown - Improvements to: 1 Rugby Pitch and 2 Junior Football Pitches (16340m2)	Links to NW Cardiff Strategic Sites	Cardiff Council	Short – Long (to 2026) / Dependent on associated developments, including Strategic Site(s)	Grant Funding / Developer(s)	£125,000	£0	£125,000
5.3B	Existing	Support	Greenway Road Rec - Improvements to: 2 Football Pitches (12800m2)	Links to NE Cardiff Strategic Sites				£95,000	£0	£95,000
5.3C	Existing	Support	Rumney Riverside Park - Improvements to 1 Rugby Pitch, 2 Football Pitches and 2 Junior Football Pitches (29140m2)	Links to NE Cardiff Strategic Sites				£220,000	£0	£220,000
5.3D	Existing	Support	Rumney Rec - Improvements to: 1 Rugby Pitch (9940m2)	Links to NE Cardiff Strategic Sites				£75,000	£0	£75,000
5.3E	Existing	Support	Tongwynlais Rec - Improvements to: 1 Rugby Pitch and 1 Football Pitch (16340m2)	Links to NW Cardiff Strategic Sites				£125,000	£0	£125,000
5.3F	Existing	Support	Lisvane Rec - Improvements to: 1 Football Pitch (6400m2)	Links to NE Cardiff Strategic Sites				£50,000	£0	£50,000
5.3G	Existing	Support	Mill Road, Wiggins Teape - Improvements to: 2 Football Pitches (12800m2)	Links to Strategic Site B: Arjo Wiggins				£95,000	£0	£95,000
5.3H	Existing	Support	Blackweir - Improvements to: 1 Rugby Pitch, 2 Football Pitches and 2 Junior Football Pitches (29140m2)	Potential 'Leisure Hub' Site				£220,000	£0	£220,000
5.3I	Existing	Support	Tremorfa - Improvements to: 4 Junior Football Pitches (12800m2)	Links to NE Cardiff Strategic Sites				£95,000	£0	£95,000
5.3J	Existing	Support	Parc Coed Nant - Improvements to: 2 Junior Football Pitches (6400m2)	Links to NE Cardiff Strategic Sites				£50,000	£0	£50,000
5.3K	Existing	Support	Heath Park - Improvements to: 2 Football Pitches (12800m2)	Potential 'Leisure Hub' Site				£95,000	£0	£95,000
5.3L	Existing	Support	Hailey Park - Improvements to: 1 Rugby Pitch, 1 Football Pitch and 2 Junior Football Pitches (22740m2)	Links to NW Cardiff Strategic Sites				£170,000	£0	£170,000
5.3M	Existing	Support	Llanishen Park - Improvements to: 1 Rugby Pitch and 1 Football Pitch (16340m2)	To support population increase				£122,500	£0	£122,500
5.3N	Existing	Support	Thornhill – Improvements to: 2 Football Pitches and 2 Junior Football Pitches (19200m2)	To support population increase				£145,000	£0	£145,000
Total								£1,682,500	£0	£1,682,500

Cardiff Deposit Local Development Plan 2006 - 2026

5: Green Infrastructure – 5.3. Sports Pitches and Games Areas (New Facilities)										
ID	Type of Infrastructure	Phasing Category	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required
5.3O	New	Support	Full Size 3G artificial floodlit pitch No:1	Countywide infrastructure to support projected population growth and the development of associated Strategic Sites	Cardiff Council	Short – Long (to 2026) / Dependent on associated developments, including Strategic Site(s)	Grant Funding / Developer(s) Other Potential Funding Sources include: The Football Association for Wales - £50,000 per pitch Sports Wales - £25,000 per pitch	£500,000	£0	£500,000
5.3P	New	Support	Full Size 3G artificial floodlit pitch No:2					£500,000	£0	£500,000
5.3Q	New	Support	Full Size 3G artificial floodlit pitch No:3					£500,000	£0	£500,000
5.3R	New	Support	Full Size 3G artificial floodlit pitch No:4					£500,000	£0	£500,000
5.3S	New	Support	Full Size 3G artificial floodlit pitch No:5					£500,000	£0	£500,000
5.3T	New	Support	Full Size 3G artificial floodlit pitch No:6					£500,000	£0	£500,000
Total										

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6: Community Buildings – 6.1. Libraries										
ID	Type of Infrastructure	Phasing Category	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required
6.1A	New	Support	Development of a Library Facility (which could form part of multi functional community hub)	To provide facilities for Strategic Sites F&E: South of Creigiau and North of Junction33	Cardiff Council	Short – Long (to 2026) / Dependent on development of associated Strategic Sites	Council Capital Budget / Developer(s)	£1,000,000	£0k	£1,000,000
6.1B	New	Support	Development of a Library Facility (which could form part of multi functional community hub)	To provide facilities for Strategic Site D: North West Cardiff	Cardiff Council	Short – Long (to 2026) / Dependent on development of associated Strategic Sites	Council Capital Budget / Developer(s)	£1,000,000	£0k	£1,000,000
6.1C	Existing	Support	Additional floorspace over the plan period to support projected population increase. Potential to be delivered through 2 new library facilities identified above and / or alterations to existing facilities.	Depended upon location and associated level of population increase over the plan period.	Cardiff Council	Short – Long (to 2026)	Council Capital Budget / Developer(s)	Accounted for above	--	--
Total								£2,000,000		£2,000,000

Cardiff Deposit Local Development Plan 2006 - 2026

6: Community Buildings – 6.2. Sports Centres and Indoor Recreation Facilities										
ID	Type of Infrastructure	Phasing Category	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required
6.2A	Existing	Support	Refurbishment of Pentwyn Leisure Centre	Strategic Sites H/G: North East Cardiff (East and West of Pontprennau).	Cardiff Council	Short / Medium	Council Capital Budget / Developer(s)	£8,000,000	£0	£8,000,000
6.2B	Existing	Support	Refurbishment of Llanishen Leisure Centres		Cardiff Council	Within the next 5 years	Council Capital Budget / Developer(s)	£8,000,000	£0	£8,000,000
6.2C	Existing	Support	Upgrading of Fairwater Leisure Centre	Strategic Sites D: North West Cardiff (Opportunity to share facilities - This site is located directly adjacent to Plasmawr School)	Cardiff Council	Medium / Long Dependent on phasing of associated Strategic Sites	Council Capital Budget / Developer(s)	£6,000,000	£0	£6,000,000
6.2D	Existing	Support	Upgrading of Pontprennau Community Hall	Strategic Sites H/G: North East Cardiff (East and West of Pontprennau).	Cardiff Council		Council Capital Budget / Developer(s) / 21 st Century Schools Programme	TBC	TBC	TBC
Total								£22,000,000	£0	£22,000,000

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6: Community Buildings – 6.3. Community Hubs and Facilities

ID	Type of Infrastructure	Phasing Category	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required
6.3A	New / Existing	Support	Provision of new and / or improved community facilities	Linked to associated residential developments, (Excluding Deposit LDP Strategic Sites identified below)	Cardiff Council	Short – Long (to 2026) / Dependent on associated developments, including Strategic Site(s)	Developer(s)	£10,200,000	£0	£10,200,000
6.3B	New	Support	New multi-functional Community Hub of approximately 750m ²	Strategic Site E (Junction 33):			Developer(s)	£2,000,000	£0	£2,000,000
6.3C	New	Support	New multi-functional Community Leisure Hub of approximately 2000m ²	Strategic Site D (NW Cardiff):			Developer(s)	£5,000,000	£0	£5,000,000
6.3D	New	Support	New multi-functional Community Leisure Hub of approximately 2000m ²	Strategic Site G (NE Cardiff, West of Pontprennau):			Developer(s)	£5,000,000	£0	£5,000,000
6.3E	New	Support	New multi-functional Community Hub of approximately 750m ²	Strategic Site H (NE Cardiff, East of Pontprennau):			Developer(s)	£2,000,000	£0	£2,000,000
Total									£24,200,000	

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7: Environmental Management – 7.1. Recycling and Waste Management

ID	Type of Infrastructure	Phasing Category	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required	
7.1A	Existing	Support	Expansion of existing Household Waste Recycling Centre at Wedal Road		Cardiff Council	Short (by 2015 / 2016)	Cardiff Council Capital	£1,500,000	£1,500,000	£0	
7.1B	New	Support	Development of a new Household Waste Recycling Centre	To be located in the North of the City		Long (to 2026)					
7.1C	New / Existing	Support	Development of a Commercial Recycling Centre at Brindley Road			Short (by 2014)					
7.1D	New	Support	Development of a Food Waste Treatment Facility			Short (by 2016)	Cardiff Council Revenue and Welsh Government		Yes (subject to final business case)	£0	
7.1E	New	Support	Development of a Residual Waste Treatment Facility	N/A – Located outside Cardiff		Short (by 2016)	Cardiff Council Revenue and Welsh Government		Yes	£0	
7.1F	Existing	Support	Increased capacity at Materials Reclamation Facility in Brindley Road			Long (to 2026)					
7.1G	New	Support	Development of a Green Waste Treatment Facility			Short (by 2016)	Cardiff Council Revenue and Welsh Government		Yes (subject to final business case)	£0	
7.1H	New	Support	Additional Satellite Street Cleaning Depots			Short – Long (to 2026)					
7.1I	New	Support	Additional Bring Sites	Linked to associated residential (and non residential) developments (including Deposit LDP Strategic Sites).		Short – Long (to 2026)					
Total									£1,500,000	£1,500,000	£0

Cardiff Deposit Local Development Plan 2006 - 2026

7: Environmental Management – 7.2. Flood Defences and Drainage

ID	Type of Infrastructure	Phasing Category	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required
7.2A	New	Enable	Flood mitigation measures relating to associated development sites	Dependent on existing infrastructure provision and the associated size / location of new developments	Site Developer (Through Flood Consequence Assessment)	Short – Long (to 2026) / Dependent on associated developments	Developer(s)	Unknown	N/A	Unknown
7.2B	New	Enable	Flood mitigation works at Strategic Site J (South of St Mellons Business Park) to raise site levels by 0.27 to 1.08 metres	These works will be required before Strategic Site J can be developed.	Site Developer	Short – Long (Dependent on development of associated Strategic Site)	Developer(s)	£19,000,000*	£0	£19,000,000*
7.2C	New	Enable	Flood mitigation works at (Strategic Site B, Former Arjo Wiggins Site) including extensive embankment raising and new culverts	These works will be required before Strategic Site B can be developed.	Site Developer	Short – Long (Dependent on development of associated Strategic Site)	Developer(s)	£8,188,000*	£0	£8,188,000*
7.2D	Existing	Enable	Coastal Defence / Flood Mitigation works to raise level of embankment at Sluice Farm within Newport (total length of works 740 m)	These works will be required before Strategic Site J can be developed.	National Resources Wales	Short / Medium The works are programmed to take place in next five years in <i>Managing the flood risk in the Severn Estuary South East Wales</i> report January 2011	National Resources Wales / Developer	£2,500,000*	£0	£2,500,000*
Total								£29,688,000		£29,688,000

* Estimates derived from Atkins SFCA report, October 2012.

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8: Utility Services – 8.1. Water and Waste Water

ID	Type of Infrastructure	Phasing Category	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required
8.1A	New / Existing	Enable	Works to facilitate new water and sewerage supplies to associated development sites (Include any necessary upstream reinforcement works).	Dependent on existing infrastructure provision and the associated size / location of new developments	Site Developer / Dwr Cymru – Welsh Water	Short – Long (to 2026) / Dependent on associated developments	Site Developer(s) / Dwr Cymru – Welsh Water	Unknown	N/A	Unknown
8.1B	Existing	Enable	Upgrading of the Cog Moor Waste Water Treatment Works. (Dinas Powys / outside Cardiff's Boundary)	The treatment works would serve Strategic Sites D: North West Cardiff, B: Arjo Wiggins and C: Ferry Road Gas Works	Dwr Cymru Welsh Water	Short – Long (to 2026)	DCWW Regulatory Capital Investment Programme or site developer(s) – dependent on phasing of development.	Unknown	N/A	Unknown
8.1C	Existing	Enable	Upgrading of the Coslech Waste Water Treatment Works. (Pontyclun / outside Cardiff's Boundary)	The treatment works would serve Strategic Site E: North of junction 33	Dwr Cymru Welsh Water	Short – Long (to 2026)		Unknown	N/A	Unknown
8.1D	Existing	Enable	Upgrading of the Creigiau Waste Water Treatment Works. (Creigiau)	The treatment works would serve Strategic Site F: South of Creigiau	Dwr Cymru Welsh Water	Short – Long (to 2026)		Unknown	N/A	Unknown
8.1E	Existing	Enable	Upgrading of the Cardiff Waste Water Treatment Works. (Tremorfa)	The treatment works would serve Strategic Sites I: Porth Teigr, H&G: North East Cardiff, East and West of Pontprennau	Dwr Cymru Welsh Water	Short – Long (to 2026)		Unknown	N/A	Unknown
Total								Unknown	N/A	Unknown

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8: Utility Services – 8.2. Gas

ID	Type of Infrastructure	Phasing Category	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required
8.2A	New / Existing	Enable	Works to facilitate a new gas supply to associated development sites (Including any necessary upstream reinforcement works).	Dependent on existing infrastructure and the size / location of new development	Site Developer / Wales and West Utilities	Short – Long (to 2026) / Dependent on associated developments	Site Developer(s)	Unknown	N/A	Unknown
Total								Unknown	N/A	Unknown

8: Utility Services – 8.3. Electricity

ID	Type of Infrastructure	Phasing Category	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required
8.3A	New / Existing	Enable	Works to facilitate a new electricity supply to associated development sites (Including any necessary upstream reinforcement works).	Dependent on existing infrastructure and the size / location of new development	Site Developer / Western Power Distribution	Short – Long (to 2026) / Dependent on associated developments	Site Developer(s)	Unknown	N/A	Unknown
Total								Unknown	N/A	Unknown

8: Utility Services – 8.4. Telecommunications

ID	Type of Infrastructure	Phasing Category	Scheme Description	Locational Factors	Delivery Lead	Delivery period S: to 2016 M: to 2021 L: to 2026	Potential Funding Sources	Estimated Cost	Funding Secured	Funding Required
8.4A	New / Existing	Enable	Works to provide 'Fibre to the Premise' (FTTP) through associated ducts.	Dependent on existing infrastructure and the size / location of new development	British Telecom / Virgin Media	Short – Long (to 2026) / Dependent on associated developments	Site Developer(s)	Unknown	N/A	Unknown
Total								Unknown	N/A	Unknown



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