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M4 Corridor around Newport

Statement of Case – Part I



Welsh Government
M4 Corridor around Newport
Statement of Case - Part 1

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It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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Introduction

Under the Highways Act 1980, the Acquisition of Land Act 1981 and the relevant Regulations, it is necessary to hold a Public Local Inquiry into the case for the proposed M4 Corridor around Newport Scheme and the objections to the Welsh Government's draft Scheme and draft Orders, where a statutory objection remains outstanding.

Evidence will therefore be presented and directed to set out the case for the proposed Scheme and address the outstanding objections by demonstrating that they are necessary, deliverable, desirable, proportionate and that there is a compelling case in the public interest.

This Statement of Case is presented in three parts:

1. An overview of the Scheme and its development, outlining the evidence to justify the Welsh Government's decision to publish the draft Orders.
2. A summary of the objections received to the published draft Orders and an outline of the Welsh Government's response to those objections.
3. A provisional list of the documents that will be referred to in evidence by the Welsh Government to support its case.

1 Overview

1.1 Scope of Evidence

1.1.1 The Welsh Government's Chief Witness, Mr Matt Jones BEng CEng MICE will in his evidence at the Public Local Inquiry, present in detail the Welsh Government's case for its proposals for the M4 Corridor around Newport. In particular, evidence will be presented to explain in detail matters including:

- a) The Published Draft Orders
- b) Background to the Proposals
- c) The Need for the Published Draft Scheme Proposals
- d) Objectives of the Proposed Scheme
- e) Description of the Proposed Scheme
- f) Land Acquisition and Compensation

1.1.2 In addition, the Welsh Government will rely on the following Expert Witnesses to prepare evidence to address the following topics:

- a) Mr Bryan Whittaker (Traffic)
- b) Mr Stephen Bussell BSc (Hons) MIED (Economics)
- c) Mr Ben Sibert BEng CEng FICE MIStructE MCIHT (Engineering Design)
- d) Mr Andrew Meaney BSc (Hons) MSc (Port Economics)
- e) Mr Barry Woodman BSc (Hons) MBA CEng FICE FIHE MCIHT (Construction)
- f) Dr Peter Ireland MA (Oxon), D.Phil (Environment)
- g) Mr Nick Rowson BSc (Hons) Hort BLD CMLI MIHort (Landscape & Visual)
- h) Mr Mick Rawlings BA (Hons) MCIfA (Cultural Heritage)
- i) Ms Julia Tindale BSc Hons MI soil SCI (Land Use, Community and Recreation)
- j) Mr Andy Clifton BSc (Hons) MSc CEng FGS CEnv CSci (Contamination)
- k) Dr Michael Bull BSc DIC PhD CEng CEnv CSci FIAQM MIEEnvSc MIChemE (Air Quality)
- l) Mr Tim Chapman FICE FIEI FREng (Carbon)
- m) Mr Phil Evans BSc (Hons) MSc MIOA FGS (Noise & Vibration)
- n) Mr Richard Graham BSc (Hons) MSc FGS (Water Quality)
- o) Dr Paul Canning BEng (Hons) PhD CEng MICE (Tidal Flooding)
- p) Mr Mike Vaughan BEng (Hons) Exon CEng CWEM MICE MCIWEM (Flood Consequences Assessment)
- q) Dr Keith Jones BSc PhD MRSB CBIol (Ecology and Nature Conservation)
- r) Ms Joanne Wilson BSc MSc MCIEEM CEnv (Dormouse and Water vole)
- s) Mr Richard Green BSc MCIEEM CEnv SocEnv (Bats)
- t) Mr Martin Scott BSc (Ornithology)
- u) Mr Jonathan Vine MNI (Shipping)
- v) Mr John Davies MBE BSc MRTPI (Sustainable Development)

1.1.3 An overview of the Welsh Government's case for each of the above topics is outlined in the remainder of this section.

1.2 Published Draft Orders

1.2.1 The following draft Orders have been published:

Draft Orders	Publication Date	End of Objection Period
The M4 Motorway (Junction 23 (East of Magor) to West of Junction 29 (Castleton) and Connecting Roads) and The M48 Motorway (Junction 23 (East of Magor) Connecting Road) Scheme 201-	10 March 2016	4 May 2016
The London to Fishguard Trunk Road (East of Magor to Castleton) Order 201-	10 March 2016	4 May 2016
The M4 motorway (West of Magor to East of Castleton) and the A48(M) Motorway (West of Castleton to St Mellons) (Variation of Various Schemes) Scheme 201-	10 March 2016	4 May 2016
The M4 Motorway Junction 23 (East of Magor) to West of Junction 29 (Castleton) and Connecting Roads) and the M48 motorway Junction 23 (East of Magor) Connecting Road) and the London to Fishguard Trunk Road (East of Magor to Castleton) (Side Roads) Order 201-	10 March 2016	4 May 2016
The Welsh Ministers (The M4 Motorway (Junction 23 (East of Magor) to West of Junction 29 (Castleton) and Connecting Roads) and the M48 motorway (Junction 23 (East of Magor) connecting road) and the London to Fishguard Trunk Road (East of Magor to Castleton) Compulsory Purchase Order 201-	24 March 2016	4 May 2016

1.2.2 An Environmental Statement (ES) has been prepared, which identifies the main environmental effects of the Scheme and describes the proposed measures to avoid, remedy or reduce effects and provide environmental enhancement where practicable. Environmental Impact Assessment has been carried out in accordance with Section 105A of Part VA of the Highways Act 1980 (as amended) and the Directive 2011/92/EU and having regard to the requirements of Directive 2014/52/EU.

1.2.3 Information has been provided to the Welsh Ministers in the form of a draft Statement to Inform an Appropriate Assessment (SIAA) of the implications of the M4 Corridor around Newport (M4CaN) on European Sites as required by Regulation 61 of the Conservation of Habitats and Species Regulations 2010 (as amended) (the 'Habitats Regulations'). In line with guidance set out by the Design Manual for Roads and Bridges (DMRB) HD44/09 (Highways Agency, 2009), that document provides the necessary information for Welsh Ministers to undertake an Appropriate Assessment.

1.2.4 Both the ES and SIAA were published on 10 March 2016 and the period for comments ended on 4 May 2016.

1.2.5 The proposed Scheme has been designed by reference to the standards set out in the Design Manual for Roads and Bridges (DMRB). The use of these standards has informed the preparation of the published draft Orders, Environmental Statement and the Statement to Inform an Appropriate Assessment, alongside other associated transport, economic and sustainable development reporting. That reporting has also been informed by previous development work and more recent surveys and assessments, including environmental, social, economic and sustainable development matters.

1.2.6 In addition to the draft Orders above, a formal notice was issued of the intention to acquire common land and rights over common land in order to obtain a certificate in accordance with Section 19 and paragraph 6 of schedule 3 of the Acquisition of Land Act 1981. A formal notice was also issued of the intention to acquire allotment land in order to obtain a certificate in accordance with Section 19 of the Acquisition of Land Act 1981. Both notices were published on 24 March 2016 and their objection period ended on 4 May 2016.

1.2.7 Public Notices accompanying the draft Orders and ES are contained within the following deposit documents:

- a) The Public Notice announcing the publication of both the above draft Scheme, Line, Side Roads and Variation Order;
- b) The Public Notice announcing the publication of the above draft Compulsory Purchase Order; and
- c) The Public Notice announcing the publication of the ES and SIAA.

1.2.8 The following documents were also published:

- a) An Explanatory Statement for the draft Orders; and
- b) A Statement of Reasons for the draft Compulsory Purchase Order.

1.2.9 Since the draft Orders and the accompanying Environmental Statement for the Scheme were published on 10 March 2015, the Scheme design has continued to progress and those potentially affected by the draft Orders have had the opportunity to make further comment on them. Those processes have resulted in new information becoming available that could have a bearing on the Environmental Impact Assessment as reported in the Environmental Statement. Therefore an Environmental Statement Supplement will be presented to help ensure that all relevant information is captured and disseminated in a single volume, so that the fullest up to date environmental information is available at the Public Local Inquiry.

1.2.10 The Environmental Statement Supplement is being provided voluntarily as an aid to the Inquiry by:

- a) giving greater clarity to some environmental aspects of the published Scheme;
- b) making minor corrections or providing new information and/or data; and
- c) providing an environmental assessment of design changes requiring a supplementary draft Order or a significant modification to an existing draft Order.

- 1.2.11** The Environmental Statement Supplement will be published around 6 to 8 weeks in advance of the start of the Public Local Inquiry. It will be available for viewing at the project website and public deposit points. A Public Notice announcing the publication of the Supplement will be published in the press.
- 1.2.12** The comments and objections received from those affected by the draft Orders have resulted in a number of minor modifications to the Scheme. Following discussions with affected landowners and those with interests in the land, modifications to the draft Side Roads Order and draft Compulsory Purchase Order are required. These modifications generally relate to resolving Private Means of Access issues and alternative arrangements for land take such as essential landscaping and planting mitigation areas. Modifications to the draft Side Roads Order have also been suggested by the Local Authorities relating to Public Rights of Way, Private Means of Access and extents of local highway. Relevant parties with interests in these modifications have been consulted.
- 1.2.13** Due to further design development since publication of the draft Orders, Bencroft Lane may be realigned to improve the junction arrangement at the proposed new junction at the eastern end of the Scheme. This would require additional land and may be subject of a draft Supplementary Compulsory Purchase Order, which is programmed to be published in September 2016.
- 1.2.14** A supplementary draft Scheme order may also be made in relation to navigation during construction.
- 1.2.15** Modifications have been made to the Docks Way junction and the Glan Llyn junction links along with a change of their designation, from Special road to Trunk road. The amended layouts are within land set out in the current draft Orders and a modification to their respective Scheme, Side Road and Line Orders will be made.
- 1.2.16** Through various correspondence/meetings the Welsh Government has been informed of changes to information for occupiers, tenancies, leases, addresses, plot numbering, access rights, land interests and land owners. Furthermore, changes in property ownership have been updated. Modifications are also proposed to address objections. Evidence to explain the changes will be presented at the Public Local Inquiry.
- 1.2.17** The list of proposed supplements and modifications to the draft Orders is provided in Appendix A.
- 1.2.18** The Welsh Government gave notice of its intention to hold a Public Local Inquiry on 30 June 2016 and a Pre-Inquiry Meeting was held on 18 July 2016 in accordance with The Highways (Inquiries Procedure) Rules 1994 and The Compulsory Purchase by Ministers (Inquiries Procedure) (Wales) Rules 2010. A public notice to announce and give details of the Public Local Inquiry will be published in the press in advance of the start of the Public Local Inquiry.
- 1.2.19** The Public Local Inquiry will consider all responses to the published proposals. It is then for the independent Inspector to report his findings to the Welsh Ministers, giving his findings of fact, conclusions and recommendations.

1.3 Background

- 1.3.1** Since the early 1990s, much assessment and consultation has been undertaken to develop a preferred solution to the transport related problems associated with the M4 around Newport.
- 1.3.2** Following consultation in 1993 and 1994, a Preferred Route for an M4 Relief Road was announced by the then Secretary of State for Wales, on 12 July 1995. A TR111 Notice was also published on the same day, which protected a corridor for planning purposes. A revised TR111 Notice was published in 1997 to take into account local developments of importance.
- 1.3.3** Between 1997 and 2006, studies were undertaken to consider other options such as public transport improvements, and a comprehensive route review led to a further revised TR111 Notice being published in 2006. The modified route took into account environmental legislation affecting Sites of Special Scientific Interest (SSSIs) amongst other constraints.
- 1.3.4** In 2009 the Scheme following the Preferred Route was pronounced to be unaffordable by the then Deputy First Minister. Instead, the M4 Corridor Enhancement Measures (CEM) programme was set up to explore and resolve issues of capacity, safety and resilience along the M4 corridor in south east Wales.
- 1.3.5** Initiatives, including discussions between the Welsh Government and HM Treasury/Department for Transport, created potential funding opportunities for Welsh Government infrastructure projects. As a consequence, the decision was taken by the Welsh Government to further reconsider solutions to resolve the transport related problems on the M4 around Newport.
- 1.3.6** Further appraisal was undertaken of options that included M4 CEM options, motorway options, and complementary measures. The appraisal concluded that a new section of dual 3-lane motorway to the south of Newport, in addition to complementary measures, should be progressed.
- 1.3.7** These options subsequently formed the basis for the development of a draft Plan and Strategic Environmental Assessment, which was subject to public consultation between September and December 2013.
- 1.3.8** Taking responses to the consultation and its associated assessments into account, the Welsh Government decided to adopt its Plan for the M4 Corridor around Newport in July 2014. A revised TR111 Notice was published in July 2014 to protect a modified preferred route for a new section of motorway to the south of Newport.
- 1.3.9** Costain-Vinci and Taylor Woodrow Joint Venture were appointed in March 2015 under an 'Early Contractor Involvement' (ECI) Contract to develop the Scheme. Engineering design and environmental support is provided by Arup-Atkins Joint Venture and RPS respectively.
- 1.3.10** In March 2016 the draft Orders for the Scheme were published, alongside an Environmental Statement, Statement to Inform an Appropriate Assessment, and associated reporting.

1.3.11 Since then and taking into account submissions to the draft Orders, work has been carried out preparing modifications and supplementary environmental information.

1.3.12 Evidence will be presented to set out in more detail the history of the Scheme and previous development work.

1.4 The Need for the Published Draft Proposals

1.4.1 The M4 around Newport is a route of strategic importance and is critical to the Welsh economy. It forms part of the Trans European Transport Network and is the gateway to Wales, transporting people and goods to homes, industry and employment. It provides access to ports and airports and serves the Welsh tourism industry.

1.4.2 However, the M4 motorway between Magor and Castleton does not meet modern motorway design standards and yet it carries a greater volume of traffic than it was originally designed for.

1.4.3 The M4 between Junctions 28 and 24 was originally designed as the 'Newport Bypass' in the 1960s. Some sections have alignments (gradients and bends) that are below current motorway standards and in places there is no hard shoulder. In addition to this, there are frequent junctions, resulting in many weaving movements with vehicles accelerating, decelerating and changing lanes over relatively short distances.

1.4.4 The most heavily trafficked sections of the M4 around Newport are those between Junctions 27 and 29, with between 4,300 and 5,300 vehicles travelling in each direction during the peak hours and in excess of 100,000 vehicles per day on these sections.

1.4.5 Congestion, with frequent incidents, is currently an everyday occurrence on the existing M4 between Junctions 23 and 29. Some sections of the motorway, particularly between the Brynglas Tunnels and Junction 29 (Castleton), are approaching peak hour capacity on a regular basis under current conditions. The restricted capacity of the Brynglas Tunnels forms a regular bottleneck on the motorway at peak times, while traffic queuing to leave the motorway at Junctions 26 and 28 frequently extends onto the mainline, exacerbating the problems presented by the poor alignment of the motorway between these junctions.

1.4.6 Traffic forecasts have been produced for the forecast years of 2022 (the opening year for the proposed new section of motorway south of Newport) and 2037 (the design year). The approach used in developing the forecasts and undertaking variable demand modelling has been undertaken in accordance with the guidance set out in the Welsh Government's appraisal guidance WelTAG which in turn refers to modelling guidance provided by the Department for Transport's WebTAG.

1.4.7 The traffic forecasts indicate that future traffic growth will result in severe congestion on the existing M4.

- 1.4.8** It should be noted that the model represents typical operating conditions of a normal day. It does not therefore take into account conditions on those occasions when an incident takes place on the network and the resultant disruption, increasing congestion and increased journey times that arise.
- 1.4.9** Further details on the existing and predicted traffic conditions for the route as well as collision data will be described in more detail in the Traffic Proof of Evidence by Mr Bryan Whittaker.
- 1.4.10** Congestion on the existing M4, particularly around Newport, is cited by the business community in South Wales as a barrier to economic growth. Where congestion increases, it imposes costs on businesses, commuters and consumers which in turn affects our economy and society. For commuters, congestion results in longer journey times to work. This reduces access to employment opportunities.
- 1.4.11** Residents of Newport close to the existing M4 experience poor air quality as a result of motorway traffic. Out of nine Air Quality Management Areas (AQMAs) designated by Newport City Council, four are associated with the M4.
- 1.4.12** Traffic growth along the existing M4 around Newport has also contributed to noise pollution, affecting neighbouring residential communities. Newport has various designated Noise Action Plan Priority Areas including along the existing M4.
- 1.4.13** The relevant legislative and policy context for the Scheme in relation to transport includes:
- a) The Wales Spatial Plan (Update) 2008;
 - b) One Wales: Connecting the Nation – The Wales Transport Strategy 2008;
 - c) Wales Infrastructure Investment Plan for Growth and Jobs 2012;
 - d) National Transport Plan for Wales 2010 and its Finance Plan 2015;
 - e) Planning Policy Wales (Edition 8) 2016 ;
 - f) Trunk Road Forward Programme 2009; and
 - g) M4 Corridor around Newport Plan 2014.
- 1.4.14** The Wales Spatial Plan 2008 sets out a strategic framework to guide future development and policy interventions in Wales. It emphasises the importance of external connections to Cardiff, Bristol, London and internationally to attract inward investment and a high-skilled, high-paid workforce. It identifies the need to alleviate congestion on the M4 around Newport as a key strategic issue.
- 1.4.15** One Wales: Connecting the Nation, The Wales Transport Strategy is the Welsh Government's strategy for transport. The stated goal of the Wales Transport Strategy is "to promote sustainable transport networks that safeguard the environment while strengthening our country's economic and social life." It sets out that "while much of the road network is congestion-free for most of the day, significant problems exist on strategic routes such as the M4 and in urban centres" and "in South Wales the M4 between the Severn Crossings and Swansea is a vital link with traffic levels well above its capacity."

- 1.4.16** The proposals for the M4 Corridor around Newport are promoted by the Welsh Government as an important part of its Wales Infrastructure Investment Plan (WIIP) which has set a clear direction for capital investment in Wales that supports growth and jobs.
- 1.4.17** The National Transport Plan (NTP) was first published in March 2010. Chapter 4 of the 2010 NTP is concerned about the east-west corridor in South Wales. It notes that “the M4 between Newport and Swansea is a key corridor for the economy of south Wales. It does however suffer congestion during peak periods and is, in parts, vulnerable to closures without appropriate alternatives being available”. A key targeted investment of the NTP therefore is to improve reliability, journey times and safety along the east-west road corridor in South Wales (p.27). The 2010 NTP notes further (p.28) that “Commuter traffic places the greatest pressure on the network, particularly where local traffic also uses the motorway network for short trips. In a number of locations it is being used for a purpose it was not designed for, which compounds the problem and can cause increased risk of collisions”.
- 1.4.18** Intervention 91 of the 2010 NTP commits Welsh Government to deliver a package of measures designed to improve the efficiency of the M4 in southeast Wales, including public transport enhancements, making the best possible use of the motorway and improving the resilience of the network.
- 1.4.19** In December 2014 a draft National Transport Plan 2015 was published for consultation. The National Transport Finance Plan was subsequently published in July 2015, following consultation responses received in support of a streamlined plan with greater focus on supporting the re-focusing of the plan to provide the timescales, budgets and likely sources of financing for schemes being undertaken by Welsh Government. A delivery schedule is provided and under new road schemes to be constructed R8 is included and described as: “Improvements to the M4 Corridor around Newport - a new section of motorway south of Newport and complementary measures including; reclassification of the existing M4 between Magor and Castleton, a M48-B4245 link and cycling and walking friendly infrastructure”.
- 1.4.20** The M4 Corridor around Newport project forms an essential part of the Welsh Government’s vision, and associated policies, for an efficient integrated transport system in Wales.
- 1.4.21** In parallel with the Scheme, the Welsh Government is taking forward a Cardiff Capital Region Metro. The Metro is seeking to improve accessibility to local employment sites, educational facilities and services with-in the Region and is complementary to the proposals for the M4 Corridor around Newport.
- 1.4.22** Studies have shown that new or improved public transport services would only have minimal impact in terms of reducing traffic on the M4. Investment in public transport measures is therefore aimed at achieving wider benefits to the region than relieving motorway traffic. However, potential future public transport enhancement measures are considered to be complementary to a motorway solution.

1.4.23 It will be demonstrated that the Scheme aligns with the Welsh Government's strategy for addressing the problems on the M4 around Newport, and forms an essential part of its policy for a sustainable transport network.

1.5 Objectives of the Proposed Scheme

1.5.1 The Welsh Transport Planning and Appraisal Guidance (WeITAG) requires that, at the planning stage, an objectives-led approach be adopted. This means that planning starts by identifying problems and opportunities and defining what is to be achieved. The ultimate outcomes are expressed as 'transport planning objectives'. As a result of consultation and previous development workshops, problems have been identified and aims and objectives have been set for the M4 Corridor around Newport.

1.5.2 The Welsh Government has looked in detail at what travel related problems exist related to the M4 around Newport, and asked the public, other stakeholders and those involved in managing transport in and around Newport what they thought the problems amount to. This process identified 17 problems, relating to capacity, resilience, safety and sustainable development issues. They are:

- 1) A greater volume of traffic uses the M4 around Newport than it was designed to accommodate, resulting in regular congestion at peak times over extended periods.
- 2) The M4 around Newport is used as a convenient cross town connection for local traffic, with insufficient local road capacity.
- 3) HGVs do not operate efficiently on the motorway around Newport.
- 4) There is insufficient capacity through some of the Junctions (e.g. 3 lane capacity drops to 2 lane capacity).
- 5) The 2-lane Brynglas tunnels are a major capacity constraint.
- 6) The M4 cannot cope with increased traffic from new developments.
- 7) Difficulties maintaining adequate traffic flows on the M4 and alternative highway routes at times of temporary disruption; alternative routes are not able to cope with M4 traffic.
- 8) The road and rail transport system in and around the M4 Corridor is at increasing risk of disruption due to extreme weather events.
- 9) When there are problems on the M4, there is severe disruption and congestion on the local and regional highway network.
- 10) The M4 requires essential major maintenance within the next 5-10 years; this will involve prolonged lane and speed restrictions, thus increasing congestion problems.
- 11) There is insufficient advance information to inform travel decisions when there is a problem on the M4.

- 12) The current accident rates on the M4 between Magor and Castleton are higher than average for UK motorways.
- 13) The existing M4 is an inadequate standard compared to modern design standards.
- 14) Some people's driving behaviour leads to increased accidents (e.g. speeding, lane hogging, unlicensed drivers).
- 15) There is a lack of adequate sustainable integrated transport alternatives for existing road users.
- 16) Traffic noise from the motorway and air quality is a problem for local residents in certain areas.
- 17) The existing transport network acts as a constraint to economic growth and adversely impacts the current economy.

1.5.3

The strategic M4 Corridor around Newport Plan, and associated reporting, set out that the Welsh Government's aims for the M4 around Newport are to:

- a) Make it easier and safer for people to access their homes, workplaces and services by walking, cycling, public transport or road;
- b) Deliver a more efficient and sustainable transport network supporting and encouraging long-term prosperity in the region, across Wales, and enabling access to international markets; and
- c) To produce positive effects overall on people and the environment, making a positive contribution to the over-arching Welsh Government goals to reduce greenhouse gas emissions and to making Wales more resilient to the effects of climate change.

1.5.4

The M4 Corridor around Newport Plan set out how the Welsh Government seeks to achieve or facilitate these aims as part of its wider transport strategy for South East Wales, as outlined within the Prioritised National Transport Plan.

1.5.5

Aiming to address one or more of the problems, 15 transport planning objectives were identified and agreed with the public and other stakeholders. The objectives for the M4 Corridor around Newport Plan, and its Scheme, are to help achieve:

- 1) Safer, easier and more reliable travel east-west in South Wales.
- 2) Improved transport connections within Wales and to England, the Republic of Ireland and the rest of Europe on all modes on the international transport network.
- 3) More effective and integrated use of alternatives to the M4, including other parts of the transport network and other modes of transport for local and strategic journeys around Newport.
- 4) Best possible use of the existing M4, local road network and other transport networks.
- 5) More reliable journey times along the M4 Corridor.

- 6) Increased level of choice for all people making journeys within the transport Corridor by all modes between Magor and Castleton, commensurate with demand for alternatives.
- 7) Improved safety on the M4 Corridor between Magor and Castleton.
- 8) Improved air quality in areas next to the M4 around Newport.
- 9) Reduced disturbance to people from high noise levels, from all transport modes and traffic within the M4 Corridor.
- 10) Reduced greenhouse gas emissions per vehicle and/or person kilometre.
- 11) Improved travel experience into South Wales along the M4 Corridor.
- 12) An M4 attractive for strategic journeys that discourages local traffic use.
- 13) Improved traffic management in and around Newport on the M4 Corridor.
- 14) Easier access to local key services and residential and commercial centres.
- 15) A cultural shift in travel behaviour towards more sustainable choices.

1.5.6 Review of the problems, aims and objectives for the M4 Corridor around Newport has been ongoing and subject to consultation during development work. These objectives have provided a framework in which to appraise the relative performance of different options at a strategic level, as part of the development work that led to the adoption of the Plan and subsequent design modifications.

1.6 Description of the Proposed Scheme

1.6.1 The proposed new motorway works would be approximately 23 kilometres (km) in length between connections to the existing motorway and would provide three lanes in both directions.

1.6.2 The proposed new section of dual 3-lane motorway would depart from the line of the existing motorway north of Magor (Junction 23a) passing to the south of Newport across a new River Usk bridge crossing (440m main span), to connect with the existing junction at Castleton (Junction 29), which would be modified.

1.6.3 The route would pass through several Sites of Special Scientific Interest (SSSI) on the Caldicot and Wentlooge Levels known as the Gwent Levels SSSIs. The route would also cross the River Usk which is an SSSI and also designated as a Special Area of Conservation (SAC). In fulfilling its duties under Section 28G of the Wildlife and Countryside Act 1981, the Welsh Government has ensured that the SSSI's have been central to the design and mitigation approach for the proposed new motorway. The alignment of the route is as far north as possible to minimise impact on the SSSIs.

1.6.4 There would be modified junctions at the west end of the Scheme at Castleton and at the east end at Magor. Two new junctions would be provided along the new section of motorway at Newport Docks and at Glan Llyn.

- 1.6.5** The highway cross section would be a three lane motorway. Three lanes and a hard shoulder would generally be provided in each direction, separated by a central reserve (including concrete safety barrier). Drainage channels and fencing would be provided beyond the hard shoulder, with safety barriers where appropriate. This typical profile would vary at junctions (where merge and diverge slip roads would be provided).
- 1.6.6** Road drainage would be provided through a combination of piped systems, grass lined channels and concrete channels, which would discharge into a series of twelve water treatment areas, each with an associated reed bed. These water treatment areas would attenuate and treat the collected surface water prior to discharging it into existing watercourses.
- 1.6.7** The Gwent Levels are designated as a series of Sites of Special Scientific Interest (SSSI) primarily because of their reed and ditch habitats, the insect and invertebrate species that those habitats support, and for the Shrilc carder bee. The Scheme would provide like for like lengths of replacement reens and field ditches which would be buried by the works. The reens and field ditches have been designed in consultation with Natural Resources Wales (NRW) to be in keeping with the existing landscape. These reens and field ditches connect existing reens together, and along with the proposed tilting weirs will help to improve water management across the Gwent Levels.
- 1.6.8** The proposals for the new motorway have been designed with a 120 kph design speed and a mandatory 70 mph speed limit. The speed limits at either end of the new section of motorway are generally 70 mph, with the exception of the toll booth area associated with the Second Severn Crossing.
- 1.6.9** The existing M4 motorway from Magor to Castleton would lose its special road classification but would continue to be trunk road as would the A48(M) between Castleton and St. Mellons.
- 1.6.10** Works on the existing M4, following the removal of its special road classification, would comprise of the installation of traffic control measures, such as changes to traffic signs and to road markings.
- 1.6.11** Works on the existing M4 would also include the reconfiguration of Junction 25 at Caerleon and associated works to reopen access to the existing M4 in both directions.
- 1.6.12** There would be amendments to the merge and diverge layouts at all of the junctions, which would be implemented using road markings and signing.
- 1.6.13** The existing Variable Speed Limit would continue to operate along the existing M4 between J24 (Coldra) and J28 (Tredgar), but with a maximum speed limit of 60 miles per hour imposed at the Brynglas Tunnels.
- 1.6.14** New or diverted lengths of highway, public rights of way and private means of access would be provided to replace those affected by the Scheme. This would require new, improved or extended overbridges and underbridges. Five new public bridleways and one new public footpath would be created.

1.6.15 A Scheme Assessment Report (SAR) has been published for the proposed Scheme which summarises the proposals in non-technical languages.

1.6.16 The cost estimate for the Scheme is £1,093m based upon Quarter 4 2015 prices and excluding VAT and inflation. The project would be funded through a combination of UK Government borrowing and the Welsh Government's capital transport budget.

1.7 Land Acquisition and Compensation

1.7.1 The land-take and rights to be acquired as shown in the draft Compulsory Purchase Order are the minimum necessary to construct, mitigate, operate and maintain the proposed scheme. Land required only during the construction period for temporary works such as traffic diversions has been separately identified as part of the publication of the draft Compulsory Purchase Order. In the Construction and Engineering Proofs of Evidence Mr Barry Woodman and Mr Ben Sibert will respectively identify why certain land is required permanently and temporarily during the construction period. In the Environment Proof of Evidence Dr Peter Ireland will explain why land is required for essential environmental mitigation.

1.7.2 The provisions of the Acquisition of Land Act 1981 would apply as explained in the Public Notice.

1.7.3 The new section of motorway would run through a mix of agricultural land, industrial land, woodland, and residential land, and would require approximately 721 hectares of land in total (including temporary land for construction and environmental mitigation). This includes areas of environmental and historical interest.

1.7.4 The Scheme would pass over the Newport Docks which are owned and operated by Associated British Ports (ABP). The River Usk Crossing viaducts would allow access beneath for ABP's land and water based operations.

1.7.5 The Scheme would have effects upon SSSI sites on both the Caldicot and Wentlooge Levels, and the River Usk (Lower Usk) SSSI and the River Usk SAC, and the development of the proposals has sought to minimise the area of land required. To conserve and enhance the Gwent Levels SSSIs, mitigation land would be provided as part of the Scheme mitigation measures.

1.7.6 Exchange land would be provided for small areas of common land and allotments that would be required.

1.7.7 Twelve residential buildings would require demolition as a result of the Scheme, five of which are already in Welsh Government ownership, including one Grade II listed building namely Woodland House (known locally as 'the Vicarage') in Magor.

1.7.8 Prior to the Public Local Inquiry, the Welsh Ministers intend to make an application to Monmouthshire County Council under section 10 of the Planning (Listed Buildings and Conservation Areas) Act 1990 for the demolition of the Grade II listed building at Magor.

1.7.9 As explained by the Inspector at the Pre Inquiry Meeting (held on 18 July 2016) particular aspects of entitlement to and quantum of compensation are not for consideration at the Public Local Inquiry. These matters would be dealt with if the Welsh Ministers, after considering the Inspector's Report, decide to make the Orders, and Notices to Treat and Enter onto land were served. Compensation would then be negotiated by the Valuation Office Agency, which acts on behalf of the Welsh Government. If agreement could not be reached, affected parties could refer their case to the Upper Tribunal (Lands Chamber) for determination.

1.7.10 As part of the engagement with those affected by the draft Compulsory Purchase Order the Welsh Government has already provided information on proposed boundary treatments and access track construction to various landowners/tenants and/or their Agents. Liaison with those affected by the draft Compulsory Purchase Order will continue. Matters of accommodation works would be discussed with affected parties during detailed design.

1.8 Traffic

1.8.1 A traffic model has been developed in accordance with industry guidance, using traffic count, road side interview and mobile phone data. This model is used to consider how the south east Wales highway network would operate with and without the Scheme, both when the new section of road would first be open and in the longer term future.

1.8.2 The Traffic Forecasting Report provides forecasts for different future scenarios, with and without the Scheme. The traffic forecasts that have been prepared are based on traffic growth projections from the National Trip End Model (NTEM) and have been developed in accordance with Guidance in WebTAG Unit M4.

1.8.3 The traffic modelling, forecasting and traffic impacts of the Scheme will be detailed in the Traffic Proof of Evidence by Mr Bryan Whittaker.

1.8.4 Evidence will be presented to demonstrate that the new section of motorway would address the current and future congestion problems on the M4 around Newport.

1.8.5 The Scheme would provide sufficient capacity and resilience to the network by taking up to about half of all traffic and most of the Heavy Goods Vehicles (HGVs) from the existing M4 to the new section of motorway. Through traffic would use the new section of motorway, whilst the existing M4 would continue to carry traffic connecting north of Newport, such as to the A4042 and A449.

1.9 Economics

1.9.1 The economic assessment indicates that the economic benefits of the Scheme exceed the costs, such that the Scheme represents value for money. The economic performance of the Scheme has been assessed by comparing the costs of the Scheme with the benefits that the Scheme would deliver. The costs include both the construction costs and the future maintenance costs. The benefits considered include journey time savings, vehicle operating costs and changes in accident costs.

- 1.9.2** The economic assessment of the Scheme will be detailed in the Economics Proof of Evidence by Mr Stephen Bussell.
- 1.9.3** Evidence will be presented to demonstrate that there is a strong economic case for the Scheme. When taking into account wider economic benefits, the benefits of the Scheme are expected to outweigh the costs by a ratio of almost three to one.
- 1.9.4** The Scheme would also result in improved journey time reliability and would reduce the costs of delays due to traffic incidents. The effects of this are not quantifiable but are expected to be of significant benefit to the Welsh economy.
- 1.9.5** The scheme would have a positive impact on the economy of South Wales. The construction of a scheme of this nature would have economic impacts in its own right, and whilst employment effects of the Scheme are temporary, the investment in training associated with the scheme is expected to have a lasting positive impact on the construction sector in the region.
- 1.9.6** Once operational, the scheme will reduce transport costs for business and provide businesses in Wales with improved access to domestic and international markets. The Scheme would reduce journey times and improve access to key residential and employment sites. For residents of South Wales, the Scheme would reduce journey times and improve access to employment opportunities.
- 1.9.7** Overall, the Scheme is expected to improve perceptions of Wales as a place to visit and do business, and stimulate new investment.

1.10 Engineering Design

- 1.10.1** The engineering design of the Scheme will be detailed in the Engineering Proof of Evidence by Mr Ben Sibert.
- 1.10.2** The Scheme is designed to current highway standards with appropriate relaxations and departures from standards to enable the route to fit within the existing environment, topography, local road network and other constraints.
- 1.10.3** Evidence will be presented to demonstrate that the Scheme has been designed taking into account all relevant national and local policies, plans and standards. Wherever reasonably possible the route goes through brownfield land, contaminated land, or areas next to development land, so as to:

- a) Minimise land requirements that may include property demolition;
- b) Minimise land take from the Gwent Levels, which are protected areas or SSSIs;
- c) Minimise impact on the Docks Way Landfill Site, reducing risk of pollution problems;
- d) Minimise impacts on Newport Docks; and
- e) Minimise impact on utilities, which would reduce costs, hazards and disruption to supply.

1.11 Port of Newport and Shipping

- 1.11.1** Matters of port economics, shipping and matters of impacts of the Scheme on the operation of the port will be detailed in the Port Economics Proof of Evidence by Mr Andrew Meaney and in the Shipping Proof of Evidence by Mr Jonathan Vine.
- 1.11.2** Matters of engineering over the Newport Docks will be detailed in the Engineering Proof of Evidence by Mr Ben Sibert.
- 1.11.3** The Scheme would pass over the Newport Docks which are owned and operated by Associated British Ports (ABP).
- 1.11.4** The River Usk Crossing viaducts would allow access beneath for ABP's land and water based operations.
- 1.11.5** The new bridge across the River Usk and Newport Docks would be a 440m main span cable-stayed bridge (a similar type of structure to the Second Severn Crossing). Clearance would allow for the passage of ships, with a minimum clearance of 25.5m above the docks being provided. Those ships that will not be able to pass beneath the bridge will still be able to be accommodated within the South Dock. In addition, alternative charter arrangements will be able to be made, with different ships to those currently used being able to access north dock, notwithstanding the construction of the bridge.
- 1.11.6** Engagement with ABP (and others) has been ongoing since the early 1990s in order to try to remove or minimise the impacts of the Scheme on the Port of Newport. More recent negotiations have explored the Welsh Government's proposals to utilise the spare capacity in the South Dock, alongside reviews of suggested revised alignments and access/easement arrangements.
- 1.11.7** In addition, the provision of the new Docks Way motorway junction would provide journey time and accessibility benefits to the users and operators of the Port of Newport, and contribute to making this area more attractive for investment with associated commercial and economic benefits. Therefore, operational considerations need to be balanced against the benefits of improved transport links to Newport Docks.

1.11.8 Evidence will be presented on the impact of the Scheme on Docks operations and shipping using the Port of Newport. The Welsh Government is awaiting information on the various assertions made in ABP's objection to the draft Orders. The Welsh Government will present evidence to demonstrate that there will be no serious detriment to ABP and the Port of Newport. Furthermore, any adverse impacts on ABP and the Port of Newport are outweighed by the benefits of the Scheme to users (including businesses at the Port) and by wider public interest.

1.12 Environment

1.12.1 The environmental assessment of impacts and effects of the Scheme, including consideration of the construction phase, together with mitigation measures are reported in detail in the Environmental Statement (ES). A Non-Technical Summary (NTS) is included in Volume 1 of the ES and as a free-standing document, summarising the proposals in non-technical languages.

1.12.2 An overview of the approach to environmental assessment and the likely impacts of the Scheme on the environment will be detailed in the Environment Proof of Evidence by Dr Peter Ireland.

1.12.3 The development of the environmental appraisal and assessment of appropriate mitigation measures has been the subject of regular meetings and dialogue with representatives of Natural Resources Wales, Cadw, the relevant Local Authorities, and other stakeholders as part of the consultation process for project development. Comments received have been used to develop the ES.

1.12.4 Evidence will be presented to demonstrate that particular consideration has been given to the impact of the proposed Scheme on the Gwent Levels Sites of Special Scientific Interest (SSSIs) and River Usk (Lower Usk) SSSI and Special Area of Conservation (SAC).

1.12.5 The Scheme has been designed to include extensive mitigation and enhancement measures, in line with the environmentally focused objectives of the Welsh Government. It will be submitted at the inquiry that residual adverse environmental effects of the proposed new section of motorway, taking into consideration all of the proposed mitigation, are outweighed by the significant social, economic and environmental benefits that the Scheme would bring to Newport, the wider Cardiff region and Wales as a whole.

1.13 Air Quality

1.13.1 The effect on air quality due to the Scheme has been assessed in accordance with appropriate guidance and is reported in Chapter 7 of the ES. A separate Health and Equalities Impact Assessment, included in the ES as Appendix 5.4 to Chapter 5, has also been carried out.

1.13.2 Details on the existing and predicted air quality conditions will be described in the Air Quality Statement of Evidence by Dr Michael Bull.

1.13.3 Evidence will be presented to demonstrate that with the Scheme in place, air quality within four of Newport's AQMAs would improve significantly, whilst all seven of those assessed would experience improvements. On a wider regional scale air quality is also predicted to improve, which will also lead to a consequential improvement in the health of the population.

1.13.4 Locally, within 200m of the new section of motorway, increases in air pollutants are predicted but would remain well within the relevant air quality objectives given the existing low level of pollutant concentrations in those areas. Predicted increases in nitrogen deposition on habitats would not have a significant adverse effect.

1.13.5 Dust effects arising during construction of the Scheme would be controlled through the implementation of normal mitigation measures, ensuring no significant impact.

1.14 Cultural Heritage

1.14.1 The effect of the Scheme on the local historic environment has been assessed in accordance with appropriate guidance and is reported in Chapter 8 of the ES. The historic environment includes archaeological sites, historic buildings and historic landscapes.

1.14.2 The cultural heritage effects of the Scheme will be detailed in the Cultural Heritage Proof of Evidence by Mr Mick Rawlings.

1.14.3 Evidence will be presented to demonstrate that measures have been included as part of the Scheme design to help mitigate effects on heritage assets during operation including consideration of materials and finishes, landscape planting and noise attenuation in the form of a thin surfacing system on the carriageway. It is acknowledged that the construction and/or operation of the new section of motorway would have a likely significant adverse long-term effect on the Gwent Levels Landscape of Outstanding Historic Interest.

1.14.4 A programme of further archaeological investigation would be implemented for buried archaeological remains providing information which can be communicated through appropriate media to the widest possible audience and an archaeological watching brief kept during construction. Detailed archaeological recording of historic buildings to be demolished as part of the Scheme would also be undertaken, as well as further examination of documentary material to provide information regarding the historical development of the landscape which would be affected by the new section of motorway.

1.15 Landscape & Visual

1.15.1 The visual impact of the Scheme has been assessed in accordance with appropriate guidance and is reported in Chapter 9 of the ES during the construction period, the Opening Year (2022) and fifteen years after opening (Design Year: 2037).

1.15.2 The landscape and visual effects of the Scheme will be detailed in the Landscape and Visual Impact Proof of Evidence by Mr Nick Rowson.

1.15.3 Evidence will be presented to demonstrate that the landscape design strategy which has been devised for the new section of motorway will help ensure that the Scheme:

- a) Reflects the landscape character through which the proposed new section of motorway passes, including land use, topography, heritage and landscape pattern; and
- b) Gives careful consideration to the integration of new structures into a sensitive landscape throughout the design process with careful selection of materials and planting treatments.

1.16 Ecology

1.16.1 Chapter 10 of the ES provides a detailed and comprehensive assessment of the effect of the Scheme on ecology.

1.16.2 The ecological effects of the Scheme will be described in the Ecology and Nature Conservation Proof of Evidence by Dr Keith Jones. Further detailed evidence will be provided by Mr Martin Scott on ornithology, Mr Richard Green on bats, and Ms Joanne Wilson on dormice and water voles.

1.16.3 The proposed new section of motorway would pass through European and nationally designated sites and other habitats that support protected and notable species.

1.16.4 The Gwent Levels are designated as a series of Sites of Special Scientific Interest (SSSI) primarily because of their reed and ditch habitats, the aquatic vegetation, insect and invertebrate species that those habitats support, and for the presence of the Shrilc carder bee. The route corridor also supports other wildlife including badger, birds, bats, dormouse, great crested newt and other amphibians, otter, reptiles and water vole.

1.16.5 It is acknowledged that the construction and/or operation of the new section of motorway would have a likely significant adverse long-term effect on the series of SSSIs, and on nine locally designated Sites of Interest for Nature Conservation (SINCs) due to habitat loss of grazing marsh, lowland mixed deciduous woodland, hedgerows, saltmarsh, and open mosaic habitats on previously developed land. Species potentially significantly affected in the long term include the Shrilc carder bee and other terrestrial invertebrates, otter and Cetti's warbler.

1.16.6 Neither the Newport Wetlands National Nature Reserve and RSPB Reserve, nor the Magor Marsh and Great Traston Meadows Gwent Wildlife Trust Nature Reserves would be significantly affected.

1.16.7 Welsh Government is under a legal duty to take reasonable steps to further the conservation and enhancement of the flora and fauna by reason of which the Gwent Levels are designated as SSSI. It is recognised that without appropriate mitigation the Scheme could have a significant adverse impact on many habitats and protected species found along the route.

- 1.16.8** Having consulted with Natural Resources Wales (NRW) strategies have been developed for drainage and re-en mitigation to minimise impacts on the SSSIs and a range of mitigation measures have been proposed. These measures are either integral to and embedded within the Scheme design or would be provided as additional mitigation.
- 1.16.9** Whilst earlier options considered and consulted upon by the Welsh Government included some that passed through the middle of the Gwent Levels, the proposed route now takes an alignment at the northern edge of the Gwent Levels.
- 1.16.10** Taking into account various physical constraints, including the Gwent Levels themselves, the alignment is as far north as possible to minimise impacts on the Sites of Special Scientific Interest, whilst being to the south of Newport and without having a significant detrimental effect on the existing residential areas of Duffryn and those proposed on the former steelworks site at Llanwern.
- 1.16.11** A Pre-Construction Environmental Management Plan has been developed and sets out the means by which the various construction activities would be managed to comply with the relevant environmental legislation and best practice to minimise effects. It includes measures to protect the water environment and existing resources, such as rights of way, and to reduce noise, air quality and ecological impacts.

1.17 Contamination

- 1.17.1** The design of the Scheme has been subject to an assessment of land contamination and also a remediation strategy has been developed to deal with known and potentially contaminated material following current UK guidance. This is described within Chapter 11 of the ES and supporting information is provided in ES Appendix 11.1 (Land Contamination Assessment Report) and ES Appendix 11.2 (Outline Remediation Strategy Report).
- 1.17.2** The contamination effects of the Scheme will be detailed in the Contamination Proof of Evidence by Mr Andy Clifton.
- 1.17.3** Evidence will be presented to demonstrate that the design of the embankment has been undertaken using the sustainable principle of retention and re-use of contaminated materials within the Scheme, provided that such materials do not result in unacceptable risks to human health or controlled waters. The potential risks of contaminants leaching from materials placed within the embankment have been assessed as low and this is described throughout Chapter 16 of the ES including Sections 16.7.10-20 and Tables 16.22 to 16.24.

1.17.4 By reusing and, where necessary treating, contaminated material on site, the Scheme has been designed to avoid the need to dispose of large quantities of contaminated materials off site and importing considerable volumes of clean materials, which is less sustainable and more expensive. A Land Contamination Management Strategy (ES Appendix 11.3) that sets out the principles of how contaminated materials will be managed and regulated has been agreed with Natural Resources Wales and the relevant Local Authorities. The final remediation scheme will also be agreed with Natural Resources Wales and the Local Authorities prior to construction commencing.

1.18 Noise & Vibration

1.18.1 The effect of a changed noise regime due to the Scheme has been assessed in accordance with appropriate guidance and is reported in Chapter 13 of the ES. A separate Health and Equalities Impact Assessment, included in the ES as Appendix 5.4 to Chapter 5, was also carried out.

1.18.2 The noise and vibration effects of the Scheme will be detailed in the Noise and Vibration Proof of Evidence by Mr Phil Evans.

1.18.3 Evidence will be presented to demonstrate that the new section of motorway would reduce congestion on and noise effects from the existing M4. Based on the predicted noise change, a greater number of receptors would experience a noise decrease rather than a noise increase.

1.19 Land Use, Community and Recreation

1.19.1 The land use, community and recreation effects of the Scheme will be detailed in the Land Use, Community and Recreation Proof of Evidence by Ms Julia Tindale. Evidence will include the effects of the Scheme on agricultural land and farm holdings.

1.19.2 Evidence will be presented to demonstrate that new or diverted lengths of highway, public rights of way and private means of access would be provided to replace those affected by the Scheme. The Scheme includes the provision of new and improved facilities for pedestrians, cyclists and equestrians.

1.19.3 Exchange land would be provided for small areas of common land and allotments that would be required.

1.20 Water Quality and Flooding

1.20.1 Chapter 16 of the ES provides a detailed and comprehensive assessment of the effect of the Scheme on the water environment. This assessment considers the effects on water quality, physical hydrology, hydrogeology and flood risk that are associated with the construction of the new section of motorway.

1.20.2 The water quality effects of the Scheme will be detailed in the Water Quality Proof of Evidence by Mr Richard Graham.

1.20.3 A Flood Consequences Assessment has been undertaken to assess the impact of the new section of motorway on fluvial and tidal flood risk within the locality. Matters included within the Flood Consequences Assessment of the Scheme will be detailed in the Proof of Evidence of Mr Mike Vaughan, including pluvial and fluvial flooding. Matters of tidal flooding effects of the Scheme will be detailed in the Tidal Flooding Proof of Evidence by Dr Paul Canning.

1.20.4 Evidence will be presented to demonstrate that:

- a) An assessment of fluvial flood risk has been based on extensive flood modelling of the Gwent Levels and around the wider corridor of the new section of motorway. The assessment has concluded that the construction of the new section of motorway will have no significant adverse effect on flood risk within the locality.
- b) With regard to tidal flooding, the Severn Estuary Shoreline Management Plan 2 (SMP2) was approved by Welsh Ministers on 26 November 2014 and establishes the policy of 'Hold the Line' for the Gwent Levels. The proposed M4 motorway can only have adverse effects on tidal flooding if the sea defences are breached by wave action or overtopped.
- c) The Severn Estuary Flood Risk Management Strategy (SEFRMS) prepared by the Environment Agency (EA) sets out the work and projects necessary to implement SMP2 policy; responsibility for this has now passed to Natural Resources Wales (NRW) on the creation of that organisation. Flood defence improvements carried out or being planned in accordance with the SEFRMS will provide flood protection for the Gwent Levels against a 0.1% (1 in 1000) tide up to the year 2030.
- d) Continued improvements to sea defences beyond 2030, which are consistent with Welsh Government policy to "Hold the Line", set out in the Severn Estuary Shoreline Management Plan 2, would ensure that the Gwent Levels and hence the Scheme would remain free of tidal flood risk against a 0.1% tide beyond the year 2030. The business case for continued funding of the SEFRMS over the 100 year life of the Scheme is compelling in view of the reduced flood risk to people, property, infrastructure, designated sites, archaeology and historic landscapes.
- e) During the construction period, temporary drainage has been designed and will be installed to ensure that the proposed works will not cause unacceptable consequences in the locality.
- f) Operational road drainage has been designed to accommodate a 1 in 100 year plus climate change rainfall event. The drainage infrastructure is capable of capturing, conveying and releasing surface water run-off from the new highway within discharge limits which have been agreed with NRW.

1.20.5 Evidence will be presented at the inquiry to demonstrate that the project is justified in this location and that it would not increase the potential adverse impacts of a flood event, thus satisfying the relevant tests for an exception to the aim of Planning Policy Wales to direct development away from areas at flood risk. The policies in PPW cover development of all scale and type and it is logical that there will be exceptions.

1.21 Carbon

1.21.1 A Carbon Report has been produced for the Scheme and this is included as part of the ES as Appendix 2.4.

1.21.2 The Carbon effects of the Scheme will be detailed in the Carbon Proof of Evidence by Mr Tim Chapman.

1.21.3 Evidence will be presented to demonstrate that the estimated carbon emissions from the construction of the Scheme are a small fraction of the total emissions and that the use of the proposed new section of motorway would result in a marginal reduction of user carbon emissions.

1.22 Construction

1.22.1 Subject to satisfactory completion of the statutory procedures, the Early Contractor Involvement (ECI) Contractor would proceed to detailed design and construction of the proposed Scheme. Construction would be expected to take approximately 42 months.

1.22.2 The early involvement of a contractor has allowed the project to benefit from a continuous improvement of the designs and mitigation strategies, with the construction methodology inputs and production efficiency considerations. The construction scenario presented in the Buildability Report (Appendix 3.1 to the ES) provides an example of the level of detail that has been achieved through the early integration of the Contractor. The construction team brought robust experience in all construction and technical fields and large scale project experience.

1.22.3 Evidence on the construction aspects of the Scheme will be detailed in the Construction Proof of Evidence by Mr Barry Woodman.

1.22.4 Evidence will be presented to demonstrate that the ECI phase has allowed the team to challenge each other to make optimal use of all land impacted by the project and selecting it with a holistic perspective of environmental, SSSI, social, economic and technical impacts, with a particular focus on environmental mitigation, earthworks strategy, temporary works, temporary land and major bridge construction.

1.22.5 The design has been reviewed by a team of experienced construction engineers coordinating the technical decisions to produce a coherent design suitable for implementing modern, state of the art and economical construction techniques.

1.23 Sustainable Development

1.23.1 The M4 Corridor around Newport Scheme is considered to be the long term, sustainable solution to the social, environmental and economic problems associated with this main gateway into Wales.

1.23.2 Proposals for a Cardiff Capital Region Metro system are being progressed by the Welsh Government in parallel with the Scheme, which forms part of the Welsh Government's aspirations for a sustainable integrated transport network.

1.23.3 The Welsh Government is subject to the duties relating to sustainable development set out in the Well-being of Future Generations Act 2015 (the 2015 Act). A Sustainable development report has been prepared.

1.23.4 Consideration of the proposals in relation to the Welsh Government's sustainable development principles and other relevant policies will be detailed in the Sustainable Development Proof of Evidence by Mr John Davies MBE.

1.23.5 Evidence will be presented examining the extent to which the development of the M4 Corridor around Newport Plan adhered to the sustainable development principle now set out in the 2015 Act, concluding that the selection of the Plan did accord with the five ways of working now set out in that Act. Evidence will also be presented showing how the Scheme would contribute to the seven well-being goals of the 2015 Act.



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Datganiad Achos – Rhan I



Llywodraeth Cymru

**Coridor yr M4 o amgylch
Casnewydd**

Datganiad Achos – Rhan I

Cyhoeddiad | Awst 2016

Mae'r adroddiad hwn yn ystyried cyfarwyddiadau
a gofynion penodol ein cleient.

Nid yw wedi'i fwriadu ar gyfer unrhyw drydydd parti ac ni ddylai
unrhyw drydydd parti ddibynnu arno ac ni dderbyniwn
unrhyw gyfrifoldeb ar ran unrhyw drydydd parti.

Rhif y gwaith 242707

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Atgyfeiriwch at ddogfennau Datganiad Achos Rhan II a III ar gyfer Gwrthwynebiadau a'r Rhestr o Dystiolaeth, sydd ar gael yn Saesneg yn unig.

Cyflwyniad

O dan Ddeddf Priffyrdd 1980, Deddf Caffael Tir 1981 a'r Rheoliadau perthnasol, mae angen cynnal Ymchwiliad Lleol Cyhoeddus i'r achos dros Gynllun Coridor yr M4 o amgylch Casnewydd a gynigir a'r gwrthwynebiadau i Gynllun drafft a Gorchmynion drafft Llywodraeth Cymru, lle ceir gwrthwynebiad statudol o hyd.

Felly, caiff tystiolaeth ei chyflwyno a'i chyfeirio er mwyn rhoi'r achos dros y Cynllun arfaethedig a mynd i'r afael â'r gwrthwynebiadau sy'n weddill drwy ddangos eu bod yn angenrheidiol, yn gyflawnadwy, yn ddymunol, yn gymesur a bod achos cymhellol er budd y cyhoedd.

Cyflwynir y Datganiad Achos hwn mewn tair rhan:

1. Trosolwg o'r Cynllun a'i ddatblygiad, gan amlinellu'r dystiolaeth i gyfiawnhau penderfyniad Llywodraeth Cymru i gyhoeddi'r Gorchmynion drafft.
2. Crynodeb o'r gwrthwynebiadau i'r Gorchmynion drafft cyhoeddedig a ddaeth i law ac amlinelliad o ymateb Llywodraeth Cymru i'r gwrthwynebiadau hynny.
3. Rhestr dros dro o'r dogfennau y cyfeirir atynt yn y dystiolaeth gan Llywodraeth Cymru er mwyn ategu ei hachos.

1 Trosolwg

1.1 Cwmpas y Dystiolaeth

1.1.1 Bydd Prif Dyst Llywodraeth Cymru, Mr Matt Jones BEng CEng MICE yn ei dystiolaeth yn yr Ymchwiliad Lleol Cyhoeddus, yn cyflwyno achos Llywodraeth Cymru dros ei chynigion ar gyfer Coridor yr M4 o amgylch Casnewydd yn fanwl. Yn benodol, caiff tystiolaeth ei chyflwyno i esbonio materion yn fanwl gan gynnwys:

- a) Y Gorchmynion Drafft Cyhoeddedig
- b) Cefndir i'r Cynigion
- c) Yr Angen am Gynigion y Cynllun Drafft Cyhoeddedig
- d) Amcanion y Cynllun Arfaethedig
- e) Disgrifiad o'r Cynllun Arfaethedig
- f) Caffael Tir ac lawndal

1.1.2 At hynny, bydd Llywodraeth Cymru yn dibynnu ar y Tystion Arbenigol canlynol i baratoi tystiolaeth i fynd i'r afael â'r pynciau canlynol:

- a) Mr Bryan Whittaker (Traffig)
- b) Mr Stephen Bussell BSc (Anrhyd) MIED (Economeg)
- c) Mr Ben Sibert BEng CEng FICE MIStructE MCIHT (Dyluniad Peirianyddol)
- d) Mr Andrew Meaney BSc MSc (Economeg y Porthladd)
- e) Mr Barry Woodman BSc (Anrhyd) MBA CEng FICE FIHE MCIHT (Adeiladu)
- f) Dr Peter Ireland MA (Rhydychen), D.Phil (yr Amgylchedd)
- g) Mr Nick Rowson BSc (Anrhyd) Hort BLD CMLI MIHort (Tirwedd a Gweledol)
- h) Mr Mick Rawlings BA (Anrhyd) MCIfA(Treftadaeth Ddiwylliannol)
- i) Ms Julia Tindale BSc Anrhyd Aelod o Gymdeithas Gwyddor Pridd Prydain (Defnydd Tir, Cymuned a Hamdden)
- j) Mr Andy Clifton BSc (Anrhyd) MSc CEng FGS CEnv CSci (Halogi)
- k) Dr Michael Bull BSc DIC PhD CEng CEnv CSci FIAQM MIEnvSc MICHemE (Ansawdd Aer)
- l) Mr Tim Chapman FICE FIEI FREng (Carbon)
- m) Mr Phil Evans BSc (Anrhyd) MSc MIOA FGS (Sŵn a Dirgrynu)
- n) Mr Richard Graham BSc (Anrhyd) MSc FGS (Ansawdd Dŵr)
- o) Dr Paul Canning BEng (Anrhyd) PhD CEng MICE (Llifogydd Llanw)
- p) Mr Mike Vaughan BEng (Anrhyd) Exon CEng CWEM MICE MCIWEM (Asesiad o Ganlyniadau Llifogydd)
- q) Dr Keith Jones BSc PhD MRSB CBiol (Economeg a Chadwraeth Natur)
- r) Ms Joanne Wilson BSc MSc MCIEEM CEnv (Pathewod a llygod dŵr)
- s) Mr Richard Green BSc MCIEEM CEnv SocEnv (Ystlumod)
- t) Mr Martin Scott BSc (Adareg)
- u) Mr Jonathan Vine MNI (Llongau)
- v) Mr John Davies MBE BSc MRTPI (Datblygu Cynaliadwy)

1.1.3 Rhoddir trosolwg o achos Llywodraeth Cymru dros bob un o'r pynciau uchod yng ngweddill yr adran hon.

1.2 Gorchmynion Drafft Cyhoeddus

1.2.1 Cyhoeddwyd y Gorchmynion drafft canlynol:

Gorchmynion Drafft	Dyddiad Cyhoeddi	Cyfnod Diwedd Gwrthwynebiadau
Cynllun Traffordd yr M4 (Cyffordd 23 (Man i'r Dwyrain o Fagwyr) i'r Gorllewin o Gyffordd 29 (Cas-Bach) a Ffyrdd Cysylltu) a Thraffordd yr M48 (Cyffordd 23 (Man i'r Dwyrain o Fagwyr) Ffordd Gysylltu) 201-	10 Mawrth 2016	4 Mai 2016
Gorchymyn Cefnffordd Llundain i Abergwaun (Man i'r Dwyrain o Fagwyr i Gas-bach) 201-	10 Mawrth 2016	4 Mai 2016
Cynllun Traffordd yr M4 (Man i'r Gorllewin o Fagwyr i Fan i'r Dwyrain o Gas-bach) a Thraffordd yr A48(M) (Man i'r Gorllewin o Gas-bach i Laneirwg (Amrywio Cynlluniau Amrywiol) 201-	10 Mawrth 2016	4 Mai 2016
Gorchymyn Traffordd yr M4 (Cyffordd 23 (Man i'r Dwyrain o Fagwyr) i Fan i'r Gorllewin o Gyffordd 29 (Cas-Bach) a Ffyrdd Cysylltu) a Thraffordd yr M48 (Cyffordd 23 (Man i'r Dwyrain o Fagwyr) Ffordd Gysylltu) a Chefnffordd Llundain i Abergwaun (Man i'r Dwyrain o Fagwyr i Gas-Bach) (Ffyrdd Ymyl) 201-	10 Mawrth 2016	4 Mai 2016
Gorchymyn Prynu Gorfodol (Traffordd yr M4 (Cyffordd 23 (Man i'r Dwyrain o Fagwyr) i Fan i'r Gorllewin o Gyffordd 29 (Cas-bach) a Ffyrdd Cysylltu) a Thraffordd yr M48 (Cyffordd 23 (Man i'r Dwyrain o Fagwyr) ffordd gysylltu) a Chefnffordd Llundain i Abergwaun (Man i'r Dwyrain o Fagwyr i Gas-bach) 201 Gweinidogion Cymru-	24 Mawrth 2016	4 Mai 2016

1.2.2 Mae Datganiad Amgylcheddol wedi'i baratoi sy'n nodi prif effeithiau amgylcheddol y Cynllun ac yn disgrifio'r mesurau arfaethedig i osgoi, unioni neu leihau'r effeithiau a gwella'r amgylchedd lle y bo'n ymarferol. Cynhaliwyd Asesiad o'r Effaith Amgylcheddol (AEA) yn unol ag Adran 105A o Ran VA o Ddeddf Priffyrdd 1980 (fel y'i diwygiwyd) a Chyfarwyddeb 2011/92/EU a chan ystyried gofynion Cyfarwyddeb 2014/52/EU.

1.2.3 Rhoddwyd gwybodaeth i Weinidogion Cymru ar ffurf Datganiad drafft i Lywio Asesiad Priodol (SIAA) o oblygiadau Coridor yr M4 o amgylch Casnewydd (M4CaN) i Safleoedd Ewropeaidd fel sy'n ofynnol o dan Reoliad 61 o Reoliadau Gwarchod Cynefinoedd a Rhywogaethau 2010 (fel y'u diwygiwyd) (y 'Rheoliadau Cynefinoedd'). Yn unol â'r canllawiau a nodir yn y Llawlyfr Dylunio ar gyfer Ffyrdd a Phontydd (DMRB) HD44/09 (yr Asiantaeth Briffyrdd, 2009), mae'r ddogfen honno yn rhoi'r wybodaeth angenrheidiol i Weinidogion Cymru er mwyn cynnal Asesiad Priodol.

1.2.4 Cyhoeddwyd y Datganiad Amgylcheddol a'r SIAA ar 10 Mawrth 2016 a daeth y cyfnod ar gyfer sylwadau i ben ar 4 Mai 2016.

- 1.2.5** Mae'r Cynllun arfaethedig wedi'i ddylunio drwy gyfeirio at y safonau a nodir yn y Llawlyfr Dylunio ar gyfer Ffyrdd a Phontydd (DMRB). Cafodd y gwaith o baratoi'r Gorchmynion drafft, y Datganiad Amgylcheddol a'r Datganiad i Lywio Asesiad Priodol ei lywio gan y safonau hyn, ochr yn ochr ag adroddiadau cysylltiedig eraill ar drafndiaeth, datblygu economaidd a datblygu cynaliadwy. Cafodd yr adroddiadau hynny eu llywio hefyd gan waith datblygu blaenorol ac arolygon ac asesiadau mwy diweddar, gan gynnwys materion amgylcheddol, cymdeithasol, economaidd a datblygu cynaliadwy.
- 1.2.6** Yn ogystal â'r Gorchmynion drafft uchod, cyhoeddwyd hysbysiad ffurfiol o'r bwriad i gaffael tir comin a hawliau dros dir comin er mwyn cael tystysgrif yn unol ag Adran 19 a paragraff 6 o atodlen 3 o'r Ddeddf Caffael Tir 1981. Cyhoeddwyd hefyd hysbysiad ffurfiol o'r bwriad i gaffael tir rhandir er mwyn cael tystysgrif yn unol ag Adran 19 o Ddeddf Caffael Tir 1981. Cyhoeddwyd y ddau hysbysiad ar 24 Mawrth 2016 a dechreuwyd eu cyfnod ar gyfer gwrthwynebiadau i ben ar 4 Mai 2016.
- 1.2.7** Mae Hysbysiadau Cyhoeddus a gyflwynir ar y cyd â'r Gorchmynion drafft a'r Datganiad Amgylcheddol wedi'u cynnwys yn y dogfennau wedi'u hadneuo canlynol:
- Yr Hysbysiad Cyhoeddus yn cyhoeddi bod y Cynllun drafft uchod, a'r Gorchmyn Llinell, Ffyrdd Ymyl ac Amrywio wedi'u cyhoeddi;
 - Yr Hysbysiad Cyhoeddus yn cyhoeddi bod y Gorchmyn Prynu Gorfodol drafft uchod wedi'i gyhoeddi;
 - Yr Hysbysiad Cyhoeddus yn cyhoeddi bod y Datganiad Amgylcheddol a'r SIAA wedi'u cyhoeddi
- 1.2.8** Cyhoeddwyd y dogfennau canlynol hefyd:
- Datganiad Esboniadol ar gyfer y Gorchmynion drafft; a
 - Datganiad o'r Rhesymau ar gyfer y Gorchmyn Prynu Gorfodol drafft.
- 1.2.9** Ers i'r Gorchmynion drafft a'r Datganiad Amgylcheddol a gyflwynwyd ar y cyd â hwy gael eu cyhoeddi ar 10 Mawrth 2015, mae dyluniad y Cynllun wedi parhau i ddatblygu ac mae'r rhai y mae'r Gorchmynion drafft yn effeithio arnynt o bosibl wedi cael cyfle i wneud sylwadau pellach arnynt. Mae'r prosesau hyn wedi golygu bod gwybodaeth newydd ar gael a allai ddylanwadu ar yr Asesiad o'r Effaith Amgylcheddol fel y'i nodwyd yn y Datganiad Amgylcheddol. Felly, caiff Datganiad Amgylcheddol Atodol ei gyflwyno i helpu i sicrhau bod yr holl wybodaeth berthnasol yn cael ei dal a'i lledaenu mewn un gyfrol, er mwyn sicrhau bod y wybodaeth amgylcheddol gyfredol llawnach ar gael yn yr Ymchwiliad Lleol Cyhoeddus.
- 1.2.10** Darperir y Datganiad Amgylcheddol Atodol yn wirfoddol i gynorthwyo'r Ymchwiliad drwy wneud y canlynol:
- rhoi mwy o eglurder ynglŷn â rhai agweddau amgylcheddol ar y Cynllun cyhoeddedig;
 - darparu gwybodaeth a/neu ddata newydd;
 - gwneud mân gywiriadau;

- d) darparu asesiad amgylcheddol o newidiadau dylunio sy'n ei gwneud yn ofynnol i gyhoeddi Gorchymyn drafft atodol neu addasiad sylweddol i Orchymyn drafft sy'n bodoli eisoes.

1.2.11 Caiff y Datganiad Amgylcheddol Atodol ei gyhoeddi tua 6 i 8 wythnos cyn dechrau'r Ymchwiliad Lleol Cyhoeddus. Bydd ar gael i'w weld ar wefan y prosiect a manau adneuo cyhoeddus. Caiff Hysbysiad Cyhoeddus sy'n cyhoeddi bod y Datganiad Atodol wedi'i gyhoeddi ei gyhoeddi yn y wasg.

1.2.12 Mae'r sylwadau a'r gwrthwynebiadau gan y rhai y mae'r Gorchymynion drafft yn effeithio arnynt wedi arwain at nifer o fân newidiadau i'r Cynllun. Ar ôl trafodaethau â pherchenogion tir yr effeithir arnynt a'r rhai sydd â budd yn y tir, bydd angen newid y Gorchymyn Ffyrdd Ymyl drafft a'r Gorchymyn Prynu Gorfodol drafft. Ar y cyfan, mae'r newidiadau hyn yn ymwneud â datrys materion Ffyrdd Mynediad Preifat a threfniadau amgen ar gyfer meddiannu tir megis gwaith tirlunio hanfodol a manau lliniaru drwy blannu. Awgrymwyd newidiadau i'r Gorchymyn Ffyrdd Ymyl Drafft hefyd gan yr Awdurdodau Lleol sy'n ymwneud â Hawliau Tramwy Cyhoeddus, Ffyrdd Mynediad Preifat a hydroedd priffordd leol. Ymgynghorwyd â phartïon perthnasol yn y newidiadau hyn.

1.2.13 Gan fod y dyluniad wedi'i ddatblygu ymhellach ers cyhoeddi'r Gorchymynion drafft, efallai gai Bencroft Lane ei hailainio i wella trefn y gyffordd ar y gyffordd newydd arfaethedig ym mhen dwyreiniol y Cynllun. Byddai hyn yn gofyn am dir ychwanegol ac efallai byddai'n destun Gorchymyn Prynu Gorfodol Atodol, y bwriedir ei gyhoeddi ym mis Medi 2016.

1.2.14 Efallai gai Gorchymyn Cynllun Drafft Atodol ei wneud ynghylch mordwyaeth yn ystod adeiladu.

1.2.15 Gwnaed newidiadau i gyffordd Docks Way a ffyrdd cyswllt cyffordd Glan Llyn ynghyd â newid eu dynodiad o ffordd Arbennig Gefnffordd. Mae'r drefn ddiwygiedig ar dir a nodwyd yn y Gorchymynion drafft presennol a chaiff eu priod Gynllun a Gorchymynion Ffyrdd Ymyl a Llinell eu newid.

1.2.16 Drwy gyfarfodydd/gohebiaeth amrywiol mae Llywodraeth Cymru wedi cael ei hysbysu o newidiadau i wybodaeth am ddeiliaid, tenantiaethau, prydlesau, cyfeiriadau, rhifau plotiau, hawliau mynediad, buddiannau mewn tir a pherchenogion tir. At hynny, mae newidiadau i berchenogaeth eiddo wedi cael eu diweddarau. Mae Addasiadau hefyd yn arfaethedig I fynd I'r afael a gwrthwynebiadau. Caiff tystiolaeth i esbonio'r newidiadau ei chyflwyno yn yr Ymchwiliad Lleol Cyhoeddus.

1.2.17 Darperir y rhestr o newidiadau arfaethedig i'r Gorchymynion drafft yn Atodiad A.

1.2.18 Cyhoeddodd Llywodraeth Cymru ei bod yn bwriadu cynnal Ymchwiliad Lleol Cyhoeddus ar 30 Mehefin 2016 a chynhaliwyd Cyfarfod Cyn yr Ymchwiliad ar 18 Gorffennaf 2016 yn unol â Rheolau Priffyrdd (Gweithdrefn Ymchwiliadau) 1994 a Rheolau Prynu Gorfodol gan Weinidogion (Gweithdrefn Ymchwiliadau) (Cymru) 2010. Caiff hysbysiad cyhoeddus ynglŷn â'r Ymchwiliad Lleol Cyhoeddus a'i fanylion ei gyhoeddi yn y wasg cyn dechrau'r Ymchwiliad Lleol Cyhoeddus.

1.2.19 Bydd yr Ymchwiliad Lleol Cyhoeddus yn ystyried pob ymateb i'r cynigion cyhoeddedig. Yna, bydd yr Arolygydd Annibynnol yn cyflwyno ei ganfyddiadau i Weinidogion Cymru, gan nodi ei ganfyddiadau o ffaith, casgliadau ac argymhellion.

1.3 Cefndir

- 1.3.1** Ers dechrau'r 1990au, mae cryn dipyn o waith asesu ac ymgynghori wedi'i wneud i ddatblygu ateb a ffefrir i broblemau trafndiaeth sy'n gysylltiedig â'r M4 o amgylch Casnewydd.
- 1.3.2** Yn sgil ymgynghoriad yn 1993 a 1994, cyhoeddwyd Llwybr a Ffefrir ar gyfer Ffordd Liniaru'r M4 gan Ysgrifennydd Gwladol Cymru ar y pryd ar 12 Gorffennaf 1995. Cyhoeddwyd Hysbysiad TR111 ar yr un diwrnod hefyd, a ddiogelodd goridor at ddibenion cynllunio. Cyhoeddwyd Hysbysiad TR111 diwygiedig yn 1997 i ystyried datblygiadau lleol o bwys.
- 1.3.3** Rhwng 1997 a 2006, cynhaliwyd astudiaethau i ystyried opsiynau eraill megis gwella trafndiaeth gyhoeddus ac arweiniodd adolygiad cynhwysfawr o lwybrau at gyhoeddi fersiwn ddiwygiedig bellach o Hysbysiad TR111 yn 2006. Ystyriodd y llwybr diwygiedig ddeddfwriaeth amgylcheddol a oedd yn effeithio ar Safleoedd o Ddiddordeb Gwyddonol Arbennig (SoDdGAau) ymhlith cyfyngiadau eraill.
- 1.3.4** Yn 2009, cyhoeddwyd nad oedd y Cynllun a oedd yn dilyn y Llwybr a Ffariwyd yn fforddiadwy gan Ddirprwy Brif Weinidog Cymru ar y pryd. Yn lle hynny, sefydlwyd rhaglen Mesurau Gwella Coridor yr M4 i ystyried a datrys problemau o ran capasiti, diogelwch a chydnerthedd ar hyd coridor yr M4 yn ne-ddwyrain Cymru.
- 1.3.5** Drwy fentrau, gan gynnwys trafodaethau rhwng Llywodraeth Cymru a Thrysorlys EM/Adran Drafndiaeth, crëwyd cyfleoedd ariannu posibl ar gyfer prosiectau seilwaith Llywodraeth Cymru. O ganlyniad, penderfynodd Llywodraeth Cymru ailystyried atebion i ddatrys y problemau o ran trafndiaeth ar draffordd yr M4 o amgylch Casnewydd.
- 1.3.6** Cafodd yr opsiynau, a oedd yn cynnwys opsiynau Rhaglen Mesurau Gwella Coridor yr M4, opsiynau traffordd a mesurau cyflenwol, eu harfarnu ymhellach. Daeth yr arfarniad i'r casgliad y dylid datblygu rhan newydd o draffordd tair lôn ddeuol i'r de o Gasnewydd, yn ogystal â mesurau cyflenwol.
- 1.3.7** Daeth yr opsiynau hyn yn sail wedyn dros ddatblygu Cynllun ac Asesiad Amgylcheddol Strategol drafft, a chynhaliwyd ymgynghoriad cyhoeddus arno rhwng mis Medi a mis Rhagfyr 2013.
- 1.3.8** Gan ystyried ymatebion i'r ymgynghoriad a'i asesiadau cysylltiedig, penderfynodd Llywodraeth Cymru fabwysiadu ei Chynllun ar gyfer Coridor yr M4 o amgylch Casnewydd ym mis Gorffennaf 2014. Cyhoeddwyd Hysbysiad TR111 diwygiedig ym mis Gorffennaf 2014 i ddiogelu llwybr diwygiedig a ffefrir ar gyfer rhan newydd o'r draffordd i'r de o Gasnewydd.
- 1.3.9** Penodwyd Costain-Vinci a Taylor Woodrow Joint Venture ym mis Mawrth 2015 o dan Gontract 'Ymwneud Cynnar gan Gontractwr' i ddatblygu'r Cynllun. Darperir dyluniad peirianyddol gan Arup-Atkins Joint Venture a chymorth amgylcheddol gan RPS.
- 1.3.10** Ym mis Mawrth 2016 cyhoeddwyd y Gorchmynion drafft ar gyfer y Cynllun, ochr yn ochr â Datganiad Amgylcheddol, Datganiad i Lywio Asesiad Priodol, ac adroddiadau cysylltiedig.

1.3.11 Ers hynny ac ar ôl ystyried cyflwyniadau ar y Gorchmynion drafft, gwnaed gwaith i baratoi addasiadau a gwybodaeth amgylcheddol atodol (gweler adran 4.9 i 4.12 o'r Datganiad hwn).

1.3.12 Caiff tystiolaeth ei chyhoeddi i nodi hanes y Cynllun a gwaith datblygu blaenorol yn fanylach.

1.4 Yr Angen am y Cynigion Drafft Cyhoeddiedig

1.4.1 Mae'r M4 o amgylch Casnewydd yn llwybr o bwys strategol ac mae'n hollbwysig i economi Cymru. Mae'n rhan o'r Rhwydwaith Trafnidiaeth Traws-Ewropeaidd ac yn borth i Gymru, gan gludo pobl a nwyddau i gartrefi, diwydiant a chyflogaeth. Mae'n rhoi mynediad i borthladdoedd a meysydd awyr ac yn gwasanaethu diwydiant twristiaeth Cymru.

1.4.2 Fodd bynnag, nid yw traffordd bresennol yr M4 rhwng Magwyr a Chas-bach yn cyrraedd safonau dylunio traffyrdd modern ac eto mae mwy o draffig yn ei defnyddio na'r hyn a fwriadwyd yn wreiddiol.

1.4.3 Dyluniwyd yr M4 rhwng Cyffyrdd 28 a 24 yn wreiddiol fel 'Ffordd Osgoi Casnewydd' yn y 1960au. Mae gan rai rhannau o'r draffordd aliniadau (llethrau a throeon) nad ydynt yn cyrraedd y safonau presennol ar gyfer traffyrdd ac mewn mannau nid oes llain galed. At hynny, ceir cyffyrdd rheolaidd, sy'n arwain at lawer o symudiadau igam-ogam gyda cherbydau yn cyflymu, yn arafu ac yn newid lôn dros bellter cymharol fyr.

1.4.4 Y rhannau o'r M4 o amgylch Casnewydd lle ceir y traffig mwyaf yw'r rhai rhwng Cyffyrdd 27 a 29, gyda rhwng 4,300 a 5,300 o gerbydau yn teithio i'r naill gyfeiriad a'r llall yn ystod yr oriau brig a thros 100,000 o gerbydau y dydd ar y rhannau hynny.

1.4.5 Mae tagfeydd, gyda digwyddiadau mynych, yn codi bob dydd ar y draffordd bresennol yr M4 rhwng Cyffyrdd 23 a 29. Mae rhai rhannau o'r draffordd, yn enwedig rhwng Twnelau Bryn-glas a Chyffordd 29 (Cas-bach), yn nesáu at gapasiti oriau brig yn rheolaidd o dan amodau presennol. Mae capasiti cyfyngedig Twnelau Bryn-glas yn creu tagfa ar y draffordd yn ystod oriau brig yn rheolaidd, ac mae'r traffig sy'n aros i adael y draffordd yng Nghyffyrdd 26 a 28 yn aml yn ymestyn i'r brif linell, gan waethygu'r problemau a achosir gan aliniad gwael y draffordd rhwng y cyffyrdd hyn.

1.4.6 Paratowyd rhagolygon traffig ar gyfer y blynyddoedd rhagolwg 2022 (y flwyddyn y bydd y rhan newydd arfaethedig o'r draffordd i'r de o Gasnewydd yn agor) a 2037 (y flwyddyn ddylunio). Mae'r dull gweithredu a ddefnyddiwyd i ddatblygu'r rhagolygon ac ymgymryd â gwaith modelu galw amrywiadwy yn unol â'r canllawiau a nodir yng nghanllawiau arfaethedig WeITAG Llywodraeth Cymru sydd, yn eu tro, yn cyfeirio at ganllawiau modelu a ddarparwyd gan WebTAG yr Adran Drafnidiaeth.

1.4.7 Mae'r rhagolygon traffig yn nodi y bydd twf traffig yn y dyfodol yn arwain at dagfeydd difrifol ar draffordd bresennol yr M4.

1.4.8 Dylid nodi bod y model yn cynrychioli amodau gweithredu nodweddiadol diwrnod arferol. Felly, nid yw'n ystyried amodau ar yr adegau hynny pan fydd digwyddiad ar y rhwydwaith a'r tarfu, y tagfeydd cynyddol a'r amseroedd teithio cynyddol sy'n codi o ganlyniad i hynny.

- 1.4.9** Caiff rhagor o fanylion am yr amodau traffig presennol ac amodau traffig a ragwelir ar gyfer y llwybr yn ogystal â data gwrthdaro eu disgrifio'n fanylach yn y Broflen Dystiolaeth sy'n ymwneud â Thraffig gan Mr Bryan Whittaker.
- 1.4.10** Dywed y gymuned fusnes yn Ne Cymru fod tagfeydd ar lwybr presennol yr M4, yn enwedig o amgylch Casnewydd, yn rhwystro twf economaidd. Lle bo tagfeydd yn cynyddu, mae'n gost ar fusnesau, cymudwyr a defnyddwyr sydd yn ei thro yn cael effaith ar ein heconomi a'n cymdeithas. O ran cymudwyr, mae tagfeydd yn arwain at amseroedd teithio hirach i'r gwaith. Mae hyn yn lleihau mynediad at gyfleoedd cyflogaeth.
- 1.4.11** Mae trigolion Casnewydd sy'n byw'n agos at lwybr presennol yr M4 yn profi ansawdd aer gwael i draffig y draffordd. Allan o naw Ardal Rheoli Ansawdd Aer a ddynodwyd gan Gyngor Dinas Casnewydd, mae pedair yn gysylltiedig â'r M4.
- 1.4.12** Mae'r twf mewn traffig ar hyd traffordd bresennol yr M4 o amgylch Casnewydd hefyd yn gwaethygu llygredd sŵn, gan effeithio ar gymunedau preswyl cyfagos. Mae gan Casnewydd amrywiaeth o Ardaloedd Blaenoriaeth o ran Cynllunio Camau Gweithredu i Fynd i'r Afael â Sŵn, gan gynnwys ar hyd llwybr presennol yr M4.
- 1.4.13** Mae'r cyd-destun deddfwriaethol a pholisi perthnasol ar gyfer y Cynllun mewn perthynas â thrafnidiaeth yn cynnwys:
- Cynllun Gofodol Cymru (Diweddariad) 2008;
 - Cymru'n Un: Cysylltu'r Genedl – Strategaeth Drafnidiaeth Cymru 2008;
 - Cynllun Buddsoddi yn Seilwaith Cymru i Hybu Twf a Swyddi 2012;
 - Cynllun Trafnidiaeth Cenedlaethol Cymru 2010 a Chynllun Cyllid 2015;
 - Polisi Cynllunio Cymru (Argraffiad 8) 2016;
 - Blaenraglen Cefnffyrdd 2009;
 - Cynllun Coridor yr M4 o amgylch Casnewydd 2014.
- 1.4.14** Mae Cynllun Gofodol Cymru 2008 yn nodi fframwaith strategol i lywio ymyriadau datblygiadau a pholisi yn y dyfodol yng Nghymru. Mae'n pwysleisio pwysigrwydd cysylltiadau allanol â Chaerdydd, Bryste, Llundain ac yn rhyngwladol er mwyn denu mewnfuddsoddiad a gweithlu hyfedr sy'n ennill cyflogau uchel. Mae'n nodi bod angen lleihau tagfeydd ar draffordd yr M4 o amgylch Casnewydd fel mater strategol allweddol.
- 1.4.15** Cymru'n Un: Cysylltu'r Genedl, Strategaeth Drafnidiaeth Cymru yw strategaeth Llywodraeth Cymru ar gyfer trafndiaeth. Nod datganedig Strategaeth Drafnidiaeth Cymru yw "hyrwyddo rhwydweithiau trafndiaeth cynaliadwy sy'n gwarchod yr amgylchedd ac eto'n cryfhau bywyd economaidd a chymdeithasol ein gwlad." Noda "er bod llawer o rwydwaith y ffyrdd yn rhydd rhag tagfeydd am rhan fwyaf o'r diwrnod, ceir problemau sylweddol ar y llwybrau strategol megis yr M4 ac mewn canolfannau trefol" ac "Yn ne Cymru, mae'r M4 rhwng y pontydd dros Afon Hafren ac Abertawe'n gysylltiad hollbwysig ac mae lefel y traffig arni'n uwch o lawer na'i chapasiti."

- 1.4.16** Hyrwyddir y cynigion ar gyfer Coridor yr M4 o amgylch Casnewydd gan Lywodraeth Cymru fel rhan bwysig o'i Chynllun Buddsoddi yn Seilwaith Cymru sydd wedi pennu cyfeiriad clir ar gyfer buddsoddi cyfalaf yng Nghymru sy'n cefnogi twf a swyddi.
- 1.4.17** Cyhoeddwyd y Cynllun Trafnidiaeth Cenedlaethol (NTP) yn gyntaf ym mis Mawrth 2010. Mae Pennod 4 o NTP 2010 yn ymwneud â'r coridor o'r dwyrain i'r gorllewin yn y de. Noda fod yr M4 rhwng Casnewydd ac Abertawe yn goridor allweddol i economi de Cymru. Noda fodd bynnag ei bod yn gweld tagfeydd yn ystod oriau brig ac, mewn manau, gall gael ei chau heb fod llwybrau priodol amgen ar gael. Felly, un buddsoddiad a dargedwyd gan yr NTP yw gwella dibynadwyedd, amseroedd teithio a diogelwch ar hyd coridor y ffordd o'r dwyrain i'r gorllewin yn ne Cymru (t.27). Noda NTP 2010 ymhellach (t.28) mai cymudwyr sy'n rhoi'r pwysau mwyaf ar y rhwydwaith, yn enwedig lle mae traffig lleol hefyd yn defnyddio'r rhwydwaith traffyrdd ar gyfer teithiau byr. Noda y caiff ei defnyddio, mewn nifer o leoliadau, at ddiben na chafodd ei chynllunio ar ei gyfer, sy'n gwaethgu'r broblem a gall achosi risg gynyddol o wrthdaro.
- 1.4.18** O dan Ymyriad 91 o NTP 2010 mae Llywodraeth Cymru yn ymrwmo i gyflwyno pecyn o fesurau gyda'r nod o wella effeithlonrwydd yr M4 yn y de-ddwyrain, gan gynnwys gwelliannau trafndiaeth gyhoeddus, gan wneud y defnydd gorau posibl o'r draffordd a gwneud y rhwydwaith yn fwy cydnerth.
- 1.4.19** Ym mis Rhagfyr 2014, cyhoeddwyd Cynllun Trafnidiaeth Cenedlaethol Drafft ar yn 2015 a chynhaliwyd ymgynghoriad arno. Yna, cyhoeddwyd Cynllun Cyllid Trafnidiaeth Cenedlaethol ym mis Gorffennaf 2015, ar ôl i ymatebion i'r ymgynghoriad ddod i law o blaid cynllun symlach a oedd yn canolbwyntio'n fwy ar helpu i roi ffocws newydd yn y cynllun ar amserlenni, cyllidebau a ffynonellau tebygol o gyllid ar gyfer cynlluniau sy'n cael eu cyflawni gan Lywodraeth Cymru. Mae amserlen gyflawni wedi'i darparu ac o dan gynlluniau ffyrdd newydd i'w hadeiladu mae A8 wedi'i gynnwys fel a ganlyn: "Gwelliannau i goridor yr M4 o gwmpas Casnewydd – rhan newydd o draffordd i'r de o Gasnewydd a mesurau ategol i gynnwys; ailddosbarthu'r M4 presennol rhwng Magwyr a Chas-bach, cyswllt rhwng yr M48 a'r B4245 a seilwaith addas ar gyfer beicwyr a cherddwyr".
- 1.4.20** Mae prosiect Coridor yr M4 o amgylch Casnewydd yn rhan hanfodol o weledigaeth Llywodraeth Cymru, a pholisiau cysylltiedig, ar gyfer system drafndiaeth integredig effeithlon yng Nghymru.
- 1.4.21** Ochr yn ochr â'r Cynllun, mae Llywodraeth Cymru yn datblygu Metro Dinas-Ranbarth Caerdydd. Mae'r Metro yn ceisio gwella hygyrchedd safleoedd cyflogaeth lleol, cyfleusterau addysgol a gwasanaethau o fewn y Rhanbarth ac mae'n ategu'r cynigion ar gyfer Coridor yr M4 o amgylch Casnewydd.
- 1.4.22** Mae astudiaethau wedi dangos mai prin iawn fyddai effaith gwasanaethau trafndiaeth gyhoeddus newydd neu well ar leihau traffig ar yr M4. Felly anelir buddsoddiad mewn mesurau trafndiaeth gyhoeddus at gyflawni manteision ehangach i'r rhanbarth yn hytrach na lleihau traffig ar y draffordd. Fodd bynnag, ystyrir bod mesurau gwella trafndiaeth gyhoeddus yn y dyfodol o bosibl yn ategu datrysiad traffordd.
- 1.4.23** Caiff ei ddangos bod y Cynllun yn gyson â strategaeth Llywodraeth Cymru i fynd i'r afael â'r problemau ar yr M4 o amgylch Casnewydd, ac mae'n rhan hanfodol o'i pholisi ar gyfer rhwydwaith trafndiaeth cynaliadwy.

1.5 Amcanion y Cynllun Arfaethedig

1.5.1 Mae'r Arweiniad ar Arfarnu a Chynllunio Trafnidiaeth Cymru yn ei gwneud yn ofynnol, ar y cam cynllunio, i ddull gweithredu a arweinir gan amcanion gael ei fabwysiadu. Golyga hyn fod y gwaith cynllunio yn dechrau drwy nodi problemau a chyfleoedd a phennu'r hyn sydd i'w gyflawni. Mynegir y canlyniadau yn y pen draw fel 'amcanion cynllunio trafndiaeth'. O ganlyniad i'r ymgynghoriad a gweithdai datblygu blaenorol, nodwyd problemau a phennwyd nodau ac amcanion ar gyfer Coridor yr M4 o amgylch Casnewydd.

1.5.2 Mae Llywodraeth Cymru wedi edrych yn fanwl ar y math o broblemau sy'n gysylltiedig â theithio sy'n bodoli ar Goridor yr M4 o amgylch Casnewydd, ac wedi gofyn i'r cyhoedd, rhanddeiliaid eraill a'r rhai sy'n ymwneud â rheoli trafndiaeth yng Nghasnewydd a'r cyffuniau nodi beth oedd y problemau yn eu barn hwy. Nododd y broses hon 17 o broblemau, yn ymwneud â chapasiti, cydnerthedd, diogelwch a materion datblygu cynaliadwy. Maent fel a ganlyn:

- 1) Mae mwy o draffig yn defnyddio'r M4 o amgylch Casnewydd na'r hyn a fwriadwyd yn wreiddiol, gan arwain at dagfeydd rheolaidd yn ystod oriau brig dros gyfnodau hwy.
- 2) Defnyddir yr M4 o amgylch Casnewydd fel cysylltiad cyfleus ar draws y dref i draffig lleol, heb ddigon o gapasiti ffyrdd lleol.
- 3) Nid yw cerbydau HGV yn gweithredu'n effeithlon ar y draffordd o amgylch Casnewydd.
- 4) Nid oes digon o gapasiti drwy rai o'r cyffyrdd (e.e. mae capasiti tair lôn yn lleihau i gapasiti dwy lôn).
- 5) Mae twnelau dwy lôn Bryn-glas yn gyfyngiad mawr o ran capasiti.
- 6) Ni all yr M4 ymdopi â mwy o draffig o ddatblygiadau newydd.
- 7) Anawsterau yn cynnal llifau traffig digonol ar yr M4 a llwybrau priffordd amgen pan fo amharu dros dro; ni all llwybrau amgen ymdopi â thraffig yr M4.
- 8) Mae'r system ffyrdd a rheilffyrdd ar Goridor yr M4 ac o'i amgylch yn wynebu risg gynyddol o amharu oherwydd tywydd eithafol.
- 9) Pan geir problemau ar yr M4, profir cryn amharu a thagfeydd ar y rhwydwaith priffyrdd lleol a rhanbarthol.
- 10) Mae angen gwneud cryn dipyn o waith cynnal a chadw hanfodol ar yr M4 dros y 5-10 mlynedd nesaf; bydd hyn yn cynnwys cyfyngu ar lonydd a chyflymder am gyfnodau hir, gan felly gynyddu problemau o ran tagfeydd.
- 11) Nid oes digon o wybodaeth ymlaen llaw i lywio penderfyniadau teithio pan geir problem ar yr M4.
- 12) Mae'r cyfraddau cyfredol ar gyfer damweiniau ar yr M4 rhwng Magwyr a Chasbach yn uwch na'r cyfartaledd ar gyfer traffyrdd y DU.
- 13) Nid yw llwybr presennol yr M4 yn cyrraedd safon ddigon uchel o gymharu â safonau dylunio modern.
- 14) Mae'r ffordd y mae rhai pobl yn gyrru yn achosi mwy o ddamweiniau (e.e. goryrru, aros mewn lôn benodol, gyrrwyr heb drwydded).

- 15) Nid oes digon o ddewisiadau amgen o ran trafndiaeth integredig gynaliadwy i'r sawl sy'n defnyddio ffyrdd ar hyn o bryd.
- 16) Mae sŵn traffig o'r draffordd ac ansawdd yr aer yn broblem i drigolion lleol mewn rhai ardaloedd.
- 17) Mae'r rhwydwaith trafndiaeth presennol yn cyfyngu ar dwf economaidd ac yn cael effaith andwyol ar yr economi gyfredol.

1.5.3

Mae Cynllun strategol Coridor yr M4 o amgylch Casnewydd, ac adroddiadau cysylltiedig, yn nodi mai nodau Llywodraeth Cymru ar gyfer yr M4 o amgylch Casnewydd yw:

- a) Ei gwneud hi'n haws ac yn fwy diogel i bobl gael mynediad i'w cartrefi, gweithleoedd a gwasanaethau drwy gerdded, seiclo, defnyddio trafndiaeth gyhoeddus neu ar y ffordd;
- b) Darparu rhwydwaith trafndiaeth mwy effeithlon a chynaliadwy sy'n cefnogi ac yn annog ffyniant hirdymor yn y rhanbarth a ledled Cymru, ac yn galluogi mynediad i farchnadoedd rhyngwladol;
- c) Sicrhau bod y prosiect yn cael effeithiau cadarnhaol ar bobl a'r amgylchedd, gan wneud cyfraniad cadarnhaol tuag at nodau cyffredinol Llywodraeth Cymru i leihau allyriadau nwyon tŷ gwydr a gwneud Cymru yn fwy gwydn i effeithiau newid yn yr hinsawdd.

1.5.4

Mae Cynllun Coridor yr M4 o amgylch Casnewydd yn nodi sut mae Llywodraeth Cymru yn ceisio cyflawni neu hwyluso'r nodau hyn fel rhan o'i strategaeth drafndiaeth ehangach i Dde-ddwyrain Cymru, fel y'i hamlinellwyd yn y Cynllun Trafndiaeth Cenedlaethol Wedi'i Flaenoriaethu.

1.5.5

Wrth anelu at fynd i'r afael ag un neu fwy o'r problemau, nodwyd 15 o amcanion cynllunio trafndiaeth a chytunwyd â'r cyhoedd a rhanddeiliaid eraill. Amcanion Cynllun Coridor yr M4 o amgylch Casnewydd, a'i Gynllun yw:

- 1) Teithio mwy diogel, haws a mwy dibynadwy o'r dwyrain i'r gorllewin yn Ne Cymru.
- 2) Gwell cysylltiadau trafndiaeth o fewn Cymru ac i Loegr, Gweriniaeth Iwerddon a gweddill Ewrop ar gyfer pob dull teithio ar y rhwydwaith trafndiaeth rhyngwladol.
- 3) Defnydd mwy effeithiol ac integredig o ddewisiadau amgen i'r M4, gan gynnwys rhannau eraill o'r rhwydwaith trafndiaeth a dulliau eraill o drafndiaeth ar gyfer teithiau lleol a strategol o amgylch Casnewydd.
- 4) Defnydd gorau posibl o lwybr presennol yr M4, y rhwydwaith ffyrdd lleol a rhwydweithiau trafndiaeth eraill.
- 5) Amseroedd teithio mwy dibynadwy ar hyd Coridor yr M4.
- 6) Mwy o ddewis i bawb sy'n teithio ar hyd y Coridor trafndiaeth waeth beth fo'r dull teithio rhwng Magwyr a Chas-bach, yn gymesur â'r galw am ddewisiadau amgen.
- 7) Gwell diogelwch ar Goridor yr M4 rhwng Magwyr a Chas-bach.
- 8) Gwell ansawdd aer mewn ardaloedd wrth ymyl yr M4 o amgylch Casnewydd.

- 9) Llai o darfu ar bobl gan lefelau uchel o sŵn, a achosir gan bob math o ddull trafndiaeth a thraffig ar hyd Coridor yr M4.
- 10) Llai o allyriadau nwyon tŷ gwydr fesul cilometr cerbyd a/neu unigolyn.
- 11) Gwell profiad teithio i mewn i Dde Cymru ar hyd Coridor yr M4.
- 12) M4 sy'n ddeniadol ar gyfer teithiau strategol sy'n annog llai o ddefnydd gan draffig lleol.
- 13) Gwell rheolaeth traffig yng Nghasnewydd ac o'i hamgylch ar hyd Coridor yr M4.
- 14) Mynediad haws i wasanaethau allweddol lleol a chanolfannau preswyl a masnachol.
- 15) Newid diwylliannol o ran dulliau teithio tuag at ddewisiadau mwy cynaliadwy.

1.5.6 Mae adolygiad o'r problemau, y nodau a'r amcanion ar gyfer Coridor yr M4 o amgylch Casnewydd wedi bod yn mynd rhagddo ac ymgynghorir arnynt yn ystod y gwaith datblygu. Mae'r amcanion hyn wedi darparu'r fframwaith ar gyfer arfarnu perfformiad cymharol opsiynau gwahanol ar lefel strategol, fel rhan o'r gwaith datblygu a arweiniodd at fabwysiadu'r Cynllun a'r newidiadau canlyniadol i'r dyluniad.

1.6 Disgrifiad o'r Cynllun Arfaethedig

1.6.1 Byddai gwaith y draffordd newydd arfaethedig tua 23 cilometr (km) o hyd rhwng cysylltiadau â'r draffordd bresennol a byddai'n darparu tair lôn i'r ddau gyfeiriad.

1.6.2 Byddai'r rhan newydd arfaethedig o'r draffordd tair lôn ddeuol yn gwyro oddi ar linell y draffordd bresennol i'r gogledd i Fagwyr (Cyffordd 23a), yn mynd i'r de o Gasnewydd ar draws pont newydd (440m prif rychwant) dros Afon Wysg, i gysylltu â'r gyffordd bresennol yng Nghas-bach (Cyffordd 29), a fyddai'n cael ei newid.

1.6.3 Byddai'r llwybr yn mynd drwy sawl Safle o Ddiddordeb Gwyddonol Arbennig (SoDdGA) ar Wastadeddau Cil-y-coed a Gwynllŵg a elwir yn SoDdGAau Gwastadeddau Gwent. Byddai'r llwybr hefyd yn croesi'r Afon Wysg sydd yn SoDdGA ac sydd hefyd wedi'i ddynodi fel Ardal Cadwraeh Arbennig (ACA). Wrth gyflawni ei dyletswyddau o dan Adran 28G o Ddeddf Bywyd Gwyllt a Chefn Gwlad 1981, mae Llywodraeth Cymru wedi sicrhau bod y SoDdGAau wedi bod yn ganolog i'r dulliau dylunio a lliniaru a ddefnyddir ar gyfer y draffordd newydd arfaethedig. Mae aliniad y llwybr mor bell i'r gogledd ag y bo modd er mwyn lleihau'r effaith ar y SoDdGAau.

1.6.4 Byddai cyffyrdd wedi'u haddasu ym mhen gorllewinol y Cynllun yng Nghas-bach ac yn y pen dwyreiniol ym Magwyr. Câi dwy gyffordd newydd eu darparu ar hyd llwybr y rhan newydd o'r draffordd yn Nociâu Casnewydd ac yng Nglan Llyn.

1.6.5 Byddai trawstoriad y briffordd yn draffordd tair lôn. Fel arfer, câi tair lôn a llain galed eu darparu i'r ddau gyfeiriad, wedi'u gwahanu gan lain ganol (gan gynnwys rhwystr diogelwch concrit). Câi sianeli draenio a ffensys eu darparu y tu hwnt i'r llain galed, gyda rhwystrau diogelwch lle y bo'n briodol. Byddai'r proffil nodweddiadol hwn yn amrywio wrth gyffyrdd (lle y câi ffyrdd ymuno ac ymadael eu darparu).

- 1.6.6** Câi systemau draenio ffyrdd eu darparu drwy gyfuniad o systemau pibellau, sianeli wedi'u leinio â glaswellt a sianeli concriid, a fyddai'n gollwng i gyfres o 12 ardal trin dŵr, pob un â chorsle cysylltiedig. Byddai'r ardaloedd trin dŵr hyn yn gwanhau ac yn trin y dŵr wyneb a gasglwyd cyn ei ollwng i gyrsiau dŵr sy'n bodoli eisoes.
- 1.6.7** Mae Gwastadeddau Gwent wedi'u dynodi'n gyfres o Safleoedd o Ddiddordeb Gwyddonol Arbennig (SoDdGA), yn bennaf oherwydd eu cynefinoedd ffosydd draenio, y pryfed a'r rhywogaethau infertebrata y mae'r cynefinoedd yna'n eu gefnogi, ac am y cardwenynen feinlais. Byddai'r Cynllun yn darparu hydoedd tebyg am debyg o ffosydd draenio a ffosydd mewn caeau newydd a gâi eu claddu gan y gwaith. Cynlluniwyd y ffosydd draenio a'r ffosydd mewn caeau mewn ymgynghoriad â Cyfoeth Naturiol Cymru (CNC) er mwyn sicrhau eu bod yn gydnaws â'r dirwedd bresennol. Mae'r ffosydd draenio hyn a'r ffosydd hyn mewn caeau yn cysylltu ffosydd draenio sy'n bodoli eisoes ac, ynghyd â'r coredau arfaethedig sy'n gogwyddo, byddant yn helpu i wella'r ffordd y caiff dŵr ei reoli ledled Gwastadeddau Gwent.
- 1.6.8** Mae'r cynigion ar gyfer y draffordd newydd wedi'u dylunio gyda chyflymder dylunio o 120 c.y.a. a therfyn cyflymder gorfodol o 70 m.y.a.. Mae'r terfynau cyflymder ar y naill ben a'r llall o'r rhan newydd o'r draffordd yn 70 m.y.a. fel arfer, ac eithrio manau talu tollau sy'n gysylltiedig ag Ail Groesfan Hafren.
- 1.6.9** Byddai traffordd bresennol yr M4 o Fagwyr i Gas-bach yn colli ei dosbarthiad ffordd arbennig ond byddai'n parhau i fod yn gefnffordd, a hefyd yr A48(M) rhwng Cas-bach a Llaneirwg.
- 1.6.10** Byddai gwaith ar draffordd bresennol yr M4, ar ôl dileu ei dosbarthiad ffordd arbennig, yn cynnwys gosod mesurau rheoli traffig, megis newidiadau i arwyddion traffig a marciau ffordd.
- 1.6.11** Byddai gwaith ar draffordd bresennol yr M4 hefyd yn cynnwys ailgyflunio Cyffordd 25 yng Nghaerllion a gwaith cysylltiedig i ailagor mynediad at draffordd bresennol yr M4 i'r ddau gyfeiriad.
- 1.6.12** Byddai'r newidiadau i'r drefn ymuno ac ymadael ar bob un o'r cyffyrdd, a fyddai'n cael eu gweithredu gan ddefnyddio marciau ffordd ac arwyddion.
- 1.6.13** Byddai'r Terfyn Cyflymder Newidiol presennol yn parhau'n weithredol ar hyd llwybr presennol yr M4 rhwng Cyffordd 24 (Coldra) a 28 (Tredgar), ond gyda therfyn cyflymder uchaf o 60 milltir yr awr wrth Dwnelau Bryn-glas.
- 1.6.14** Câi hydoedd newydd neu hydoedd wedi'u gwyro o briffordd, hawliau tramwy cyhoeddus a mynedfeydd preifat eu darparu i ddisodli'r rhai yr effeithir arnynt gan y Cynllun. Byddai hyn yn gofyn am drosbontydd a thanbontydd newydd, gwell neu estynedig. Câi pum llwybr ceffylau cyhoeddus newydd ac un llwybr troed cyhoeddus newydd eu creu.
- 1.6.15** Cyhoeddwyd Adroddiad Asesu Cynllun ar gyfer y Cynllun arfaethedig sy'n crynhoi'r cynigion mewn iaith annhechnegol.
- 1.6.16** Amcangyfrifir y bydd y Cynllun yn costio tua £1,093m yn seiliedig ar brisiau yn Chwarter 4 2015 heb gynnwys TAW na chwyddiant. Byddai'r prosiect yn cael ei ariannu drwy gyfuniad o fenthyciadau gan Lywodraeth y DU a chyllideb trafniadaeth cyfalaf Llywodraeth Cymru.

1.7 Caffael Tir ac Iawndal

- 1.7.1** Mae'r tir a'r hawliau i'w caffael fel y'u dangosir yn y Gorchymyn Prynu Gorfodol drafft yn cyfateb i'r lefel sy'n ofynnol i adeiladu, lliniaru, gweithredu a chynnal y cynllun cyhoeddus. Mae tir sydd ond ei angen ar y cam adeiladu ar gyfer gwaith dros dro fel gwyradau traffig wedi'i nodi ar wahân fel rhan o'r broses o gyhoeddi'r Gorchymyn Prynu Gorfodol drafft. Yn y Proflenni Tystiolaeth ynglŷn ag Adeiladu a Pheirianneg bydd Mr Barry Woodman a Mr Ben Sibert yn nodi yn y drefn honno pam bod angen darnau penodol o dir yn barhaol a thros dro yn ystod y cyfnod adeiladu. Yn y Broflen Dystiolaeth sy'n ymwneud â'r Amgylchedd, bydd Dr Peter Ireland yn esbonio pam bod angen tir ar gyfer camau lliniaru amgylcheddol hanfodol.
- 1.7.2** Byddai darpariaethau Deddf Caffael Tir 1981 yn gymwys fel yr eglurir yn yr Hysbysiad Cyhoeddus.
- 1.7.3** Byddai'r rhan newydd o draffordd yn mynd drwy gymysgedd o dir amaethyddol, tir diwydiannol, coetir a thir preswyl, a byddai angen tua 721 hectar o dir i gyd (gan gynnwys tir dros dro ar gyfer adeiladu a mesurau lliniaru amgylcheddol). Mae hyn yn cynnwys ardaloedd o ddiddordeb amgylcheddol a hanesyddol.
- 1.7.4** Byddai'r Cynllun yn mynd dros Ddociau Casnewydd sy'n eiddo i gwmni Associated British Ports (ABP) ac a weithredir ganddo. Byddai traphontydd Croesfan Afon Wysg yn sicrhau y gellid cyrraedd gweithrediadau tir a dŵr ABP o dan y draffordd.
- 1.7.5** Byddai'r Cynllun yn effeithio ar SoDdGAau ar Wastadeddau Cil-y-coed a Gwynllŵg, ac ar SoDdGA yr Afon Wysg (Gwaelod y Wysg) ac ACA yr Afon Wysg, ac wrth ddatblygu'r cynigion, ceisiwyd cyfyngu i'r eithaf ar yr ardal o dir sydd ei hangen. Er mwyn cadw a gwella SoDdGAau Gwastadeddau Gwent, darperid tir lliniaru fel rhan o fesurau lliniaru'r Cynllun.
- 1.7.6** Darperir tir cyfnewid ar gyfer darnau bach o dir comin a rhandiroedd y byddai eu hangen.
- 1.7.7** Byddai angen dymchwel 12 o adeiladau preswyl o ganlyniad i'r Cynllun, y mae pump ohonynt eisoes o dan berchenogaeth Llywodraeth Cymru, gan gynnwys un adeilad rhestredig Gradd II, sef Tŷ Woodland (a elwir yn lleol fel 'y Ficerdy') ym Magwyr.
- 1.7.8** Cyn yr Ymchwiliad Lleol Cyhoeddus, mae Gweinidogion Cymru yn bwriadu gwneud cais i Gyngor Sir Fynwy o dan adran 10 o Ddeddf Cynllunio (Adeiladau Rhestredig ac Ardaloedd Cadwraeth) 1990 i ddymchwel adeilad rhestredig Gradd II ym Magwyr.
- 1.7.9** Fel yr esboniodd yr Arolygydd yn y Cyfarfod Cyn yr Ymchwiliad (a gynhaliwyd ar 18 Gorffennaf 2016), ni chaiff agweddau penodol ar yr hawl i iawndal na maint yr iawndal eu hystyried yn yr Ymchwiliad Lleol Cyhoeddus. Byddid yn ymdrin â'r materion hyn, pe bai Gweinidogion Cymru, ar ôl ystyried Adroddiad yr Arolygydd, yn penderfynu gwneud y Gorchymynion, a'r Hysbysiadau i Drafod Telerau a Chael Mynediad iddo yn cael eu cyflwyno. Yna byddai iawndal yn cael ei negodi gan Asiantaeth y Swyddfa Brisió, sy'n gweithredu ar ran Llywodraeth Cymru. Os na ellid dod i gytundeb, gall y sawl yr effeithir arnynt atgyfeirio eu hachos i'r Uwch Dribiwnlys (Siambwr Tiroedd) am benderfyniad.

1.7.10 Fel rhan o'r broses o ymgysylltu â'r sawl y mae'r Gorchymyn Prynu Gorfodol yn effeithio arnynt, mae Llywodraeth Cymru eisoes wedi rhoi gwybodaeth am driniaethau ffiniau arfaethedig ac adeiladu traciau mynediad i berchenogion tir /tenantiaid amrywiol a/neu eu Hasiantau. Bydd yn parhau i gydgyssylltu â'r rhai y mae'r Gorchymyn Prynu Gorfodol drafft yn effeithio arnynt. Câi materion sy'n ymwneud ag adeiladwaith hwylustod eu trafod â'r partion dan sylw yn ystod y broses ddylunio fanwl.

1.8 Traffig

1.8.1 Cafodd model traffig ei ddatblygu yn unol â chanllawiau'r diwydiant, gan ddefnyddio cyfrif traffig, cyfweiliadau ymyl ffordd a data ffonau symudol. Defnyddir y model hwn i ystyried sut y byddai rhwydwaith priffyrdd de-ddwyrain Cymru yn gweithredu gydag a heb y Cynllun, pan fyddai'r rhan newydd o'r ffordd ar agor yn gyntaf ac yn y tymor hwy.

1.8.2 Mae'r Adroddiad Rhagamcanu Traffig yn rhoi rhagolygon ar gyfer senarios gwahanol yn y dyfodol gydag a heb y Cynllun. Cafodd y rhagolygon traffig eu paratoi'n seiliedig ar amcanestyniadau o dwf mewn traffig o'r Model Pen Taith Cenedlaethol (NTEM) a'u datblygu yn unol â'r Canllawiau yn WebTAG Uned M4.

1.8.3 Caiff y modelu traffig, y rhagolygon a'r effeithiau ar drafft eu nodi'n fanwl yn y Broflen Dystiolaeth sy'n ymwneud â Thrafftig gan Mr Bryan Whittaker.

1.8.4 Caiff tystiolaeth ei chyflwyno i ddangos y byddai'r rhan newydd o'r draffordd yn mynd i'r afael â phroblemau tagfeydd ar hyn o bryd ac yn y dyfodol ar yr M4 o amgylch Casnewydd.

1.8.5 Byddai'r Cynllun yn darparu digon o gapasiti a chydnerthedd i'r rhwydwaith drwy fynd â hyd at hanner yr holl drafftig a'r rhan fwyaf o Gerbydau Nwyddau Trwm oddi wrth lwybr presennol yr M4 i'r rhan newydd o'r draffordd. Byddai traffig trwodd yn defnyddio'r rhan newydd o'r draffordd, a byddai llwybr presennol yr M4 yn parhau i gludo traffig sy'n teithio i'r gogledd o Gasnewydd, er enghraifft i'r A4042 a'r A449.

1.9 Economeg

1.9.1 Mae'r asesiad economaidd ynnodi bod buddiannau economaidd y Cynllun yn fwy na'r costau, fel y mae'r Cynllun yn cynnig gwerth am arian. Aseswyd perfformiad economaidd y cynllun drwy gymharu costau'r Cynllun â'r buddiannau y byddai'r Cynllun yn darparu. Mae'r costau yn cynnwys y costau adeiladu a'r costau cynnal a chadw yn y dyfodol. Ymhlith y buddiannau a ystyriwyd mae arbed amser teithio, costau gweithredu cerbydau a newidiadau mewn costau damweiniau.

1.9.2 Caiff asesiad economaidd y Cynllun ei nodi'n fanwl yn y Broflen Dystiolaeth sy'n ymwneud ag Economeg gan Mr Stephen Bussell.

1.9.3 Caiff tystiolaeth ei chyflwyno i ddangos bod achos economaidd cadarn dros y Cynllun. Wrth ystyried buddiannau economaidd ehangach, disgwylir i fuddiannau'r Cynllun fod yn fwy na'r costau, yn ôl cymhareb o bron dri i un.

- 1.9.4** Byddai'r Cynllun hefyd yn arwain at amseroedd teithio mwy dibynadwy ac yn lleihau costau oedi a achosir gan ddigwyddiadau traffig. Nid oes modd meintioli effeithiau hyn ond disgwylir iddynt fod o fudd sylweddol i economi Cymru. Bydd y Cynllun yn cael effaith bositif ar economi De Cymru. Bydd adeiladu cynllun o'r fath hon yn cael effeithiau economaidd, a tra bydd effeithiau cyflogaeth y Cynllun dros dro, disgwylir i'r buddsoddiad mewn hyfforddiant sydd yn gysylltiol a'r cynllun i gael effeithiau positif parhaus ar y sector adeiladu yn yr ardal.
- 1.9.5** Pan yn weithredol, bydd y cynllun yn lleihau costau trafndiaeth i fusnesau and yn darparu mynediad gwell i farchnadoedd domestig a rhyngwladol i fusnesau yng Nghymru. Bydd y Cynllun yn lleihau amseroedd teithio ac yn gwella mynediad i safleoedd preswyl a cyflogaeth allweddol. I breswylwyr yn Ne Cymru, bydd y Cynllun yn lleihau amseroedd teithio ac yn gwella mynediad i gyfleoedd cyflogaeth.
- 1.9.6** Dylid nodi bod y buddiannau trafndiaeth a aseswyd yn gonfensiynol yn tanamcangyfrif effaith economaidd lawn y Cynllun. Bydd adeiladu cynllun o'r fath yn cael effeithiau economaidd yn ei rinwedd ei hun, ac er bod effeithiau'r cynllun ar gyflogaeth yn rhai dros dro, disgwylir i'r buddsoddiad mewn hyfforddiant sy'n gysylltiedig â'r cynllun gael effaith gadarnhaol barhaol ar y sector adeiladu yn y rhanbarth.
- 1.9.7** Yn gyffredinol, disgwylir i'r Cynllun wella canfyddiadau o Gymru fel lle i ymweld ag ef a chynnal busnes ac ysgogi buddsoddiad newydd.

1.10 Dyluniad Peirianyddol

- 1.10.1** Caiff dyluniad peirianyddol y Cynllun ei nodi'n fanwl yn y Broflen Dystiolaeth sy'n ymwneud â Pheirianeg gan Mr Ben Sibert.
- 1.10.2** Mae'r Cynllun wedi'i ddylunio'n unol â safonau priffyrdd cyfredol gydag enghreifftiau priodol a llacio ar y safonau neu wyro oddi wrthwynt er mwyn i'r llwybr weddu i'r amgylchedd, y topograffi a'r rhwydwaith ffyrdd lleol presennol a chyfyngiadau eraill.
- 1.10.3** Caiff tystiolaeth ei chyflwyno i ddangos bod y Cynllun wedi'i ddylunio i ystyried pob polisi, cynllun a safon genedlaethol a lleol berthnasol. Lle bo'n rhesymol bosibl, mae'r llwybr yn mynd drwy dir llwyd, tir halogedig, neu ardaloedd drws nesaf i dir datblygu, er mwyn:
- Lleihau gofynion tir a all gynnwys dymchwel eiddo;
 - Lleihau faint o dir a feddiannir o Wastadeddau Gwent, sy'n ardal warchoddedig neu'n SoDdGA;
 - Lleihau'r effaith ar Safle Tirlenwi Docks Way, gan leihau'r risg o broblemau llygredd;
 - Lleihau'r effeithiau ar Ddociau Casnewydd;
 - Lleihau'r effaith ar gyfleustodau, a fyddai'n lleihau costau, peryglon ac amharu ar gyflenwadau.

1.11 Porth Casnewydd a Llongau

- 1.11.1** Caiff materion sy'n ymwneud ag economeg y porth, llongau ac effeithiau'r Cynllun ar y ffordd y mae'r porth yn gweithredu eu nodi'n fanwl yn y Broflen Dystiolaeth sy'n ymwneud â'r Porth gan Mr Andrew Meaney ac yn y Broflen Dystiolaeth sy'n ymwneud â Llongau gan Mr Jonathan Vine.
- 1.11.2** Caiff materion sy'n ymwneud â pheirianeg dros Ddociau Casnewydd eu nodi'n fanwl yn y Broflen Dystiolaeth sy'n ymwneud â Pheirianeg gan Mr Ben Sibert.
- 1.11.3** Byddai'r Cynllun yn mynd dros Ddociau Casnewydd sy'n eiddo i gwmni Associated British Ports (ABP) ac a weithredir ganddo.
- 1.11.4** Byddai traphontydd Croesfan Afon Wysg yn sicrhau y gellid cyrraedd gweithrediadau tir a dŵr ABP o dan y draffordd.
- 1.11.5** Byddai'r bont newydd ar draws Afon Wysg a Dociau Casnewydd yn bont ceblau â phrif rychwant o 440m (strwythur tebyg i Ail Groesfan Hafren). Byddai cliriad yn galluogi llongau i fynd o dan y groesfan, gyda chliriad o 25.5m o leiaf uchlaw lefel dŵr y dociau. Bydd y llongau hynny na allant fynd o dan y bont yn gallu cyrraedd Doc y De o hyd. At hynny, bydd modd gwneud trefniadau siarter amgen, gyda llongau gwahanol i'r rhai a ddefnyddir ar hyn o bryd yn gallu cyrraedd doc y gogledd, er gwaethaf y gwaith o adeiladu'r bont.
- 1.11.6** Bu ymgysylltu ag ABP (ac eraill) ers dechrau'r 1990au er mwyn ceisio dileu neu leihau effeithiau'r Cynllun ar Borth Casnewydd i'r eithaf. Mae cyd-drafodaethau mwy diweddar wedi ystyried cynigion Llywodraeth Cymru i ddefnyddio'r capasiti dros ben yn Noc y De, ochr yn ochr ag adolygiadau o aliniadau diwygiedig a awgrymwyd a threfniadau mynediad/hawddfaint.
- 1.11.7** At hynny, byddai cyffordd newydd ar y draffordd yn Docks Way yn cynnig buddiannau i ddefnyddwyr a gweithredu Porth Casnewydd o ran amseroedd teithiau a hygyrchedd, ac yn cyfrannu at wneud yr ardal hon yn fwy atyniadol i fuddsoddwyr gyda'r buddiannau masnachol ac economaidd cysylltiedig. Felly, mae angen cydbwysu ystyriaethau gweithredol â buddiannau cysylltiadau trafniadaeth gwell â Dociau Casnewydd.
- 1.11.8** Caiff tystiolaeth ei chyflwyno ar effaith y Cynllun ar weithrediadau'r Dociau a'r llongau sy'n defnyddio Porth Casnewydd. Mae Llywodraeth Cymru yn aros am wybodaeth ynglŷn â'r gwahanol honiadau a wnaed yng ngwrthwynebiad ABP i'r Gorchmynion drafft. Bydd Llywodraeth Cymru yn cyflwyno tystiolaeth i ddangos na fydd unrhyw niwed difrifol i ABP na Phorth Casnewydd. Yn bellach i hyn, bydd buddiannau'r Cynllun i ddefnyddwyr (gan gynnwys busnesau yn y Porth) ac yn ôl budd mwy cyffredinol y cyhoedd yn gorbwysu unrhyw effeithiau andwyol ar ABP a Phorth Casnewydd.

1.12 Yr amgylchedd

- 1.12.1** Nodir asesiad amgylcheddol o effeithiau'r Cynllun, gan gynnwys ystyried y cam adeiladu, ynghyd â mesurau lliniaru, yn fanwl yn y Datganiad Amgylcheddol. Ceir Crynodeb Annhechnegol yng Nghyfrrol 1 o'r Datganiad Amgylcheddol ac fel dogfen ar wahân, sy'n crynhoi'r cynigion mewn iaith annechnegol.

- 1.12.2** Caiff trosolwg o'r dull asesu amgylcheddol ac effeithiau tebygol y Cynllun ar yr amgylchedd eu nodi'n fanwl yn y Broflen Dystiolaeth sy'n ymwneud â'r Amgylchedd gan Dr Peter Ireland.
- 1.12.3** Mae'r broses o ddatblygu'r arfarniad amgylcheddol ac asesu mesurau lliniaru priodol wedi cael ei thrafod mewn cyfarfodydd rheolaidd a thrwy ddeialog â chynrychiolwyr Cyfoeth Naturiol Cymru, Cadw, yr Awdurdodau Lleol perthnasol, a rhanddeiliaid eraill fel rhan o'r broses ymgynghori i ddatblygu'r prosiect. Defnyddiwyd y sylwadau sydd wedi dod i law i ddatblygu'r Datganiad Amgylcheddol.
- 1.12.4** Caiff tystiolaeth ei chyflwyno i ddangos bod effaith y Cynllun arfaethedig ar Safleoedd o Ddiddordeb Gwyddonol Arbennig Gwent (SoDdGAau) ac SOdDGA Gwaelod yr Afon Wysg ac Ardal Cadwraeth Arbennig Afon Wysg wedi cael ystyriaeth benodol.
- 1.12.5** Mae'r Cynllun wedi'i ddylunio i gynnwys mesurau lliniaru a gwella helaeth, yn unol ag amcanion Llywodraeth Cymru sy'n canolbwyntio ar yr amgylchedd. Bwriedir argymhell yn yr ymchwiliad y bydd y manteision cymdeithasol, economaidd ac amgylcheddol sylweddol y byddai'r Cynllun yn eu cynnig i Gasnewydd, rhanbarth ehangach Caerdydd a Chymru gyfan yn gorbwyso effeithiau amgylcheddol andwyol gweddilliol y rhan newydd arfaethedig o'r draffordd.
- 1.13** **Ansawdd Aer**
- 1.13.1** Aseswyd yr effaith ar ansawdd aer oherwydd y Cynllun yn unol â chanllawiau priodol a chyflwynir adroddiad ar hyn Mhennod 7 o'r Datganiad Amgylcheddol. Hefyd, cynhaliwyd Asesiad o'r Effaith ar Iechyd a Chydraddoldebau ar wahân, sydd wedi'i gynnwys yn y Datganiad Amgylcheddol fel Atodiad 5.4 i Bennod 5.
- 1.13.2** Caiff manylion yr amodau ansawdd aer presennol a'r rhai a ragwelir eu disgrifio yn y Datganiad o Dystiolaeth ynglŷn ag Ansawdd Aer gan Dr Michael Bull.
- 1.13.3** Caiff tystiolaeth ei chyflwyno i ddangos y byddai ansawdd aer o fewn pedair AQMA yng Nghasnewydd yn gwella'n sylweddol pe bai'r Cynllun ar waith, tra bydd gwelliannau i'w profi yn y saith safle a gafwyd eu asesu. Ar raddfa ranbarthol ehangach rhagwelir y bydd ansawdd aer hefyd yn gwella a fydd yn arwain at wella iechyd y boblogaeth o ganlyniad i hynny.
- 1.13.4** Yn lleol, o fewn 200m o'r rhan newydd o'r draffordd, rhagwelir y bydd llygryddion aer yn cynyddu ond y byddant yn unol ag amcanion ansawdd aer perthnasol o bell ffordd o ystyried y crynodiadau llygryddion lefel isel yn yr ardaloedd hynny. Ni fyddai'r cynnydd a ragwelir mewn gwaddodion nitrogen ar gynefinoedd yn cael effaith andwyol sylweddol.
- 1.13.5** Câi effeithiau llwch yn ystod cam adeiladu'r Cynllun eu rheoli drwy roi mesurau lliniaru arferol ar waith, gan sicrhau na fydd unrhyw effaith sylweddol.

1.14 Treftadaeth Ddiwylliannol

- 1.14.1** Aseswyd effaith y Cynllun ar amgylchedd hanesyddol lleol yn unol â'r canllawiau priodol a chyflwynir adroddiad ar hyn ym Mhennod 8 o'r Datganiad Amgylcheddol. Mae'r amgylchedd hanesyddol yn cynnwys safleoedd archeolegol, adeiladau hanesyddol a thirweddau hanesyddol.
- 1.14.2** Caiff effeithiau treftadaeth ddiwylliannol y Cynllun eu nodi'n fanwl yn y Broflen Dystiolaeth sy'n ymwneud â Threftadaeth Ddiwylliannol gan Mr Mick Rawligns.
- 1.14.3** Caiff tystiolaeth ei chyflwyno i ddangos fel rhan o ddyluniad y Cynllun er mwyn helpu i liniaru effeithiau ar asedau treftadaeth yn ystod y cam gweithredu, gan gynnwys ystyried deunyddiau a gorffeniadau, gwaith plannu tirlunio a mesur lleihau sŵn ar ffurf system gosod arwyneb tenau ar y lôn gerbydau. Cydnabwyd y byddai adeiladu ac/neu gweithredu yr adran newydd o draffordd yn debygol i gael effaith niweidiol hirdymor ar Dirlun o Ddiddordeb Hanesyddol Eithriadol Gwastadeddau Gwent.
- 1.14.4** Câi rhaglen o waith ymchwilio archeolegol pellach ei rhoi ar waith i nodi olion archeolegol claddedig drwy ddarparu gwybodaeth y gellir ei chyfleu drwy gyfryngau priodol i'r gynulleidfa ehangaf posibl a chynhelid briff gwyllo archeolegol yn ystod y cam adeiladu. Hefyd, byddai'r adeiladau hanesyddol a oedd i'w dymchwel fel rhan o'r Cynllun yn destun gwaith cofnodi archeolegol manwl a châi deunydd dogfennol ei archwilio ymhellach er mwyn darparu gwybodaeth am ddatblygiad hanesyddol y dirwedd y byddai'r rhan newydd o'r draffordd yn effeithio arni.

1.15 Tirwedd a Gweledol

- 1.15.1** Aseswyd effaith weledol y Cynllun yn unol â chanllawiau priodol a chyflwynir adroddiad ar hyn ym Mhennod 9 o'r Datganiad Amgylcheddol yn ystod y cyfnod adeiladu, y Flwyddyn Agoriadol (2022) a phymtheg mlynedd ar ôl agor (Blwyddyn Ddylunio: 2037).
- 1.15.2** Caiff effeithiau ar dirwedd ac effeithiau gweledol y Cynllun eu nodi'n fanwl yn y Broflen Dystiolaeth sy'n ymwneud â'r Effaith Weledol gan Mr Nick Rowson.
- 1.15.3** Caiff tystiolaeth ei chyflwyno i ddangos bod y strategaeth dylunio tirwedd a luniwyd ar gyfer y rhan newydd o'r draffordd yn helpu i sicrhau bod y Cynllun yn:
- Adlewyrchu cymeriad y dirwedd y mae'r rhan newydd arfaethedig o'r draffordd yn mynd drwyddi, gan gynnwys defnydd tir, topograffeg, treftadaeth a phatrwm y dirwedd;
 - Ystyried cynllun strwythurau newydd a sut i'w hintegreiddio mewn tirwedd sensitif yn ofalus drwy gydol y broses ddylunio gan ddewis deunyddiau a thriniaethau plannu yn ofalus.

1.16 Ecoleg

- 1.16.1** Mae Pennod 10 o'r Datganiad Amgylcheddol yn cynnwys asesiad manwl a chynhwysfawr o effaith y Cynllun ar ecoleg.

- 1.16.2** Caiff effeithiau ecolegol y Cynllun eu disgrifio'n fanwl yn y Broflen Dystiolaeth sy'n ymwneud ag Ecoleg a Chadwraeth Natur gan Dr Keith Jones. Caiff mwy o dystiolaeth manwl ei ddarparu gan Mr Martin Scott ar adaryddiaeth, Mr Richard Green ar ystlumod, a Mrs Joanne Wilson ar pathewod a llygod y dwr.
- 1.16.3** Byddai'r rhan newydd arfaethedig o'r draffordd yn mynd drwy safleoedd sydd wedi'u dynodi'n genedlaethol a chan yr UE a chynefinoedd eraill sy'n cefnogi rhywogaethau a warchodir a rhywogaethau nodedig.
- 1.16.4** Mae Gwastadeddau Gwent wedi'u dynodi'n gyfres o Safleoedd o Ddiddordeb Gwyddonol Arbennig (SoDdGA), yn bennaf oherwydd eu cynefinoedd ffosydd draenio, y llystyfiant dyfrol, rhywogaethau pryfed ac anifeiliaid di-asgwrn-cefn y mae'r cynefinoedd hynny'n eu cynnal, ac oherwydd presenoldeb y Gardwenynen Feinlais. Mae coridor y ffordd hefyd yn cefnogi bywyd gwylt arall megis moch daear, adar, ystlumod, pathewod, madfallod dŵr cribog ac amffibiaid eraill, dyfrgwn, ymlusgiaid a llygod dŵr.
- 1.16.5** Cydnabyddir y byddai adeiladu a/neu weithredu rhan newydd o'r draffordd yn debygol o gael effaith hirdymor andwyol sylweddol ar y gyfres o SoDdGAau, ac ar naw Safle o Diddordeb Cadwraeth Natur a ddynodwyd yn lleol oherwydd colli cynefin corstir pori, coetir collddail cymysg iseldir, gwrychoedd, morfa heli a chynefinoedd mosäig agored ar dir a ddatblygwyd yn flaenorol. Mae'r rhywogaethau yr effeithir arnynt yn sylweddol o bosibl yn yr hirdymor yn cynnwys y Gardwenynen Feinlais ac anifeiliaid di-asgwrn-cefn eraill y tir, dyfrgwn a theloriaid Cetti.
- 1.16.6** Nid effeithir yn sylweddol ar Warchodfa Natur Genedlaethol Gwlyptiroedd Casnewydd, Gwarchodfa'r RSPB nac ar Warchodfeydd Natur Ymddiriedolaeth Bywyd Gwylt Gwent yng Nghors Magwyr a Dolydd Great Traston.
- 1.16.7** Mae gan Lywodraeth Cymru ddyletswydd gyfreithiol i gymryd camau rhesymol i warchod a gwella'r fflora a'r ffawna y dynodwyd Gwastadeddau Gwent fel Safleoedd o Ddiddordeb Gwyddonol Arbennig o'u herwydd. Cydnabyddir, heb fesurau lliniaru priodol, y gallai'r Cynllun gael effaith andwyol sylweddol ar sawl cynefin a rhywogaeth a warchodir a geir ar hyd y llwybr.
- 1.16.8** Ar ôl ymgynghori â Cyfoeth Naturiol Cymru (CNC), datblygwyd strategaethau, ar gyfer camau lliniaru ffosydd draenio er mwyn lleihau'r effeithiau ar y SoDdGAau i'r eithaf a chynigiwyd ystod o fesurau lliniaru. Mae'r mesurau hyn naill ai'n rhan annatod o ddyluniad y Cynllun ac wedi'u hymgorffori ynddo neu byddent yn cael eu darparu fel mesurau lliniaru ychwanegol.
- 1.16.9** Er bod opsiynau cynharach a ystyriwyd gan Lywodraeth Cymru ac y cynhaliwyd ymgynghoriad yn eu cylch wedi cynnwys rhai a aeth drwy ganol Gwastadeddau Gwent, mae'r llwybr arfaethedig bellach yn dilyn aliniad ar ymyl ogleddol Gwastadeddau Gwent.
- 1.16.10** O ystyried y gwahanol gyfyngiadau ffisegol, gan gynnwys Gwastadeddau Gwent eu hunain, mae'r aliniad mor bell i'r gogledd ag y bo modd er mwyn lleihau effeithiau ar y Safleoedd o Ddiddordeb Gwyddonol Arbennig i'r eithaf, ond i'r de o Gasnewydd ac nid yw'n cael unrhyw effaith andwyol sylweddol ar ardaloedd preswyl presennol Dyffryn na'r rhai a gynigir ar yr hen waith dur yn Llanwern.

1.16.11 Mae Cynllun Rheoli Amgylcheddol Cyn Adeiladu wedi'i ddatblygu ac mae'n nodi'r ffordd y câi'r gwahanol weithgareddau adeiladu eu rheoli er mwyn cydymffurfio â'r ddeddfwriaeth amgylcheddol berthnasol ac arfer gorau i leihau'r effeithiau i'r eithaf. Mae'n cynnwys mesurau i ddiogelu'r amgylchedd dŵr ac adnoddau presennol, megis hawliau tramwy, a lleihau effeithiau sŵn, effeithiau ar ansawdd aer ac effeithiau ecolegol.

1.17 Halogi

1.17.1 Mae dyluniad y Cynllun wedi cael ei asesu o ran halogi tir a hefyd mae strategaeth adfer wedi'i datblygu i ymdrin â deunydd hysbys a halogedig o bosibl yn unol â chanllawiau presennol y DU. Disgrifir hyn ym Mhennod 11 o'r Datganiad Amgylcheddol a rhoddir gwybodaeth ategol yn Atodiad 11.1 i'r Datganiad Amgylcheddol (Adroddiad Asesu Halogiad Tir) ac Atodiad 11.2 i'r Datganiad Amgylcheddol (Adroddiad Strategaeth Adfer Amlinellol).

1.17.2 Caiff effeithiau halogi'r Cynllun eu nodi'n fanwl yn y Broflen Dystiolaeth sy'n ymwneud â Halogi gan Mr Andy Clifton.

1.17.3 Caiff tystiolaeth ei chyflwyno i ddangos bod dyluniad yr arglawdd wedi'i lunio drwy ddefnyddio egwyddor gynaliadwy cadw ac aildefnyddio deunyddiau halogedig yn y Cynllun, ar yr amod nad yw deunyddiau o'r fath yn arwain at risgiau annerbyniol i iechyd dynol na dyfroedd rheoledig. Aseswyd bod y risgiau posibl y bydd halogyddion yn trwytholchi o ddeunyddiau a osodir yn yr arglawdd yn isel a disgrifir hyn ym mhob rhan o Bennod 16 o'r Datganiad Amgylcheddol gan gynnwys Adrannau 16.7.10-20 a Thablau 16.22 i 16.24.

1.17.4 Drwy aildefnyddio a, lle y bo angen drin deunydd halogedig ar y safle, mae'r Cynllun wedi'i ddylunio i osgoi'r angen i waredu cyfeintiau mawr o ddeunyddiau halogedig oddi ar y safle a mewnfario cyfeintiau sylweddol o ddeunyddiau glân, sy'n llai cynaliadwy ac yn fwy costus. Cytunwyd ar Strategaeth Rheoli Halogiad Tir (Atodiad 11.3 i'r Datganiad Amgylcheddol) yn nodi'r egwyddorion ynglŷn â sut y caiff deunyddiau eu rheoli a'u rheoleiddio â Cyfoeth Naturiol Cymru a'r Awdurdodau Lleol perthnasol. Bydd angen cytuno ar y cynllun adfer terfynol â Cyfoeth Naturiol Cymru a'r Awdurdodau Lleol hefyd cyn bod y gwaith adeiladu yn dechrau.

1.18 Sŵn a Dirgrynu

1.18.1 Aseswyd effaith cyfundrefn sŵn newydd o ganlyniad i'r Cynllun yn unol â chanllawiau priodol a chyflwynir adroddiad ar hyn ym Mhennod 9 o'r Datganiad Amgylcheddol. Hefyd, cynhaliwyd Asesiad o'r Effaith ar Iechyd a Chydraddoldebau ar wahân, sydd wedi'i gynnwys yn y Datganiad Amgylcheddol fel Atodiad 5.4 i Bennod 5.

1.18.2 Caiff effeithiau sŵn a dirgrynodd eu nodi'n fanwl yn y Broflen Dystiolaeth sy'n ymwneud â Sŵn a Dirgryndod gan Mr Phil Evans.

1.18.3 Caiff tystiolaeth ei chyflwyno i ddangos y byddai'r rhan newydd o'r draffordd yn lleihau tagfeydd ar draffordd bresennol yr M4 ac effeithiau sŵn ohoni. Yn seiliedig ar y newid mewn lefelau sŵn a ragwelir, mae mwy o dderbynyddion yn debygol o brofi gostyngiad mewn lefelau sŵn yn hytrach na chynnydd.

1.19 Defnydd Tir, Cymuned a Hamdden

- 1.19.1** Caiff effeithiau defnydd tir, cymuned a hamdden y Cynllun eu nodi'n fanwl yn y Broflen Dystiolaeth sy'n ymwneud â Defnydd Tir, Cymuned a Hamdden gan Ms Julia Tindale. Bydd y dystiolaeth yn cynnwys effeithiau'r cynllun ar dir a daliadau amaethyddol.
- 1.19.2** Caiff tystiolaeth ei chyflwyno i ddangos y byddai hydoedd newydd neu hydoedd wedi'u gwyro o briffordd, hawliau tramwy cyhoeddus a ffyrdd mynediad preifat eu darparu yn lle'r rhai yr effeithir arnynt gan y Cynllun. Mae'r Cynllun yn cynnwys darparu cyfleusterau newydd a gwell i gerddwyr, beicwyr a marchogwyr.
- 1.19.3** Darperir tir cyfnewid ar gyfer darnau bach o dir comin a rhandiroedd y byddai eu hangen.

1.20 Dŵr, Ansawdd a Llifogydd

- 1.20.1** Mae Pennod 16 o'r Datganiad Amgylcheddol yn cynnwys asesiad manwl a chynhwysfawr o effaith y Cynllun ar yr amgylchedd dŵr. Mae'r asesiad hwn yn ystyried yr effeithiau ar ansawdd dŵr, hydroleg ffisegol, hydroddaeareg a pherygl llifogydd sy'n gysylltiedig â'r gwaith o adeiladu'r rhan newydd o'r draffordd.
- 1.20.2** Caiff effeithiau'r Cynllun ar ansawdd dŵr eu nodi'n fanwl yn y Broflen Dystiolaeth sy'n ymwneud ag Ansawdd Dŵr gan Mr Richard Graham.
- 1.20.3** Cynhaliwyd Asesiad o Ganlyniadau Llifogydd i asesu effaith y rhan newydd o'r draffordd ar y perygl o lifogydd afonol a llanwol yn yr ardal leol. Caiff materion sydd wedi'u cynnwys yn yr Asesiad o Ganlyniadau Llifogydd y Cynllun eu nodi'n fanwl ym Mhroflen Dystiolaeth Mr Mike Vaughan, gan gynnwys llifogydd glawol ac afonol. Caiff materion ynglŷn ag effeithiau llifogydd llanwol y Cynllun eu nodi'n fanwl yn y Broflen Dystiolaeth sy'n ymwneud â Llifogydd Llanwol gan Dr Paul Canning.
- 1.20.4** Caiff tystiolaeth ei chyflwyno i ddangos y canlynol:
- Mae asesiad o berygl llifogydd afonol wedi'i seilio ar waith modelu llifogydd helaeth a wnaed mewn perthynas â Gwastadeddau Gwent a choridor ehangach y rhan newydd o'r draffordd. Mae'r asesiad wedi dod i'r casgliad na fydd adeiladu'r rhan newydd o'r draffordd yn cael unrhyw effaith andwyol sylweddol ar berygl llifogydd yn yr ardal leol.
 - O ran llifogydd llanwol, cymeradwywyd Cynllun Rheoli Traethlin Aber Afon Hafren 2 (SMP2) gan Weinidogion Cymru ar 26 Tachwedd 2014 ac mae'n pennu'r polisi o 'Dal y Lilnell' ar gyfer Gwastadeddau Gwent. Dim ond os bydd yr amddiffynfeydd rhag y môr yn gorlifo neu os bydd tonnau yn eu torri y gall draffordd arfaethedig yr M4 gael effeithiau andwyol.
 - Mae Strategaeth Rheoli Perygl Llifogydd Aber Afon Hafren (SEFRMS) a baratowyd gan Asiantaeth yr Amgylchedd yn nodi'r gwaith a'r prosiectau fydd eu hangen i weithredu polisi SMP2; mae cyfrifoldeb am hyn bellach wedi'i drosglwyddo i Cyfoeth Naturiol Cymru ar adeg creu'r sefydliad hwnnw. Bydd gwelliannau i amddiffynfeydd rhag llifogydd sy'n mynd rhagddynt neu sydd yn yr arfaeth yn unol â'r SEFRMS yn diogelu Gwastadeddau Gwent rhag llifogydd yn erbyn llanw 0.1% (1 o bob 1000) hyd at y flwyddyn 2030.

- d) Byddai gwelliannau parhaus i amddiffynfeydd môr y tu hwnt i 2030, sy'n gyson â pholisi Llywodraeth Cymru i 'Dal y Llinell' a nodwyd yng Nghynllun Rheoli Traethlin Aber Afon Hafren 2, yn sicrhau y byddai Gwastadeddau Gwent ac felly'r Cynllun yn parhau i fod yn rhydd rhag perygl llifogydd llanwol yn erbyn llanw 0.1% y tu hwnt i'r flwyddyn 2030. Mae'r achos busnes dros barhau i ariannu'r SEFRMS dros oes 100 mlynedd y Cynllun, yn un cymhellol o ystyried y perygl llifogydd is i bobl, eiddo, seilwaith, safleoedd dynodedig, archeoleg a thirweddau hanesyddol.
- e) Yn ystod y cyfnod adeiladu, mae system draenio dros dro wedi'i dylunio a chaiff ei gosod er mwyn sicrhau na fydd y gwaith arfaethedig yn achosi canlyniadau annerbyniol yn yr ardal leol.
- f) Mae system draenio ffordd weithredol wedi'i dylunio er mwyn darparu ar gyfer glawiad 1 mewn 100 mlynedd â newid yn yr hinsawdd. Mae'r seilwaith draenio yn gallu dal, cludo a rhyddhau dŵr ffo wyneb oddi ar y briffordd newydd o fewn terfynau gollwng y cytunwyd arnynt â Cyfoeth Naturiol Cymru.

1.20.5 Caiff tystiolaeth ei chyflwyno i'r ymchwiliad i ddangos bod cyfiawnhad dros y prosiect yn yr ardal hon ac na fyddai'n cynyddu effeithiau andwyol posibl achos o lifogydd, a thrwy hynny ei fod yn bodloni'r profion perthnasol ar gyfer eithriad i nod Polisi Cynllunio Cymru o gyfeirio datblygiadau i ffwrdd oddi wrth ardaloedd lle ceir perygl llifogydd. Mae'r polisiau yn PCC yn cwmpasu datblygiadau o bob maint a lleoliad ac mae'n rhesymegol y bydd eithriadau.

1.21 Carbon

1.21.1 Mae Adroddiad Carbon wedi cael ei baratoi ar gyfer y Cynllun ac mae wedi'i gynnwys fel rhan o'r Datganiad Amgylcheddol fel Atodiad 2.4.

1.21.2 Caiff effeithiau carbon y Cynllun eu nodi'n fanwl yn y Broflen Dystiolaeth sy'n ymwneud â Charbon gan Mr Tim Chapman.

1.21.3 Caiff tystiolaeth ei chyflwyno i ddangos bod yr allyriadau carbon a amcangyfrifir a fydd yn deillio o adeiladu'r Cynllun yn gyfran fach o gyfanswm yr allyriadau ac y byddai'r defnydd o'r rhan newydd arfaethedig o'r draffordd yn arwain at ostyngiad bach iawn yn allyriadau carbon defnyddwyr.

1.22 Adeiladu

1.22.1 Yn amodol ar gwblhau'r gweithdrefnau statudol yn foddhaol, byddai'r Contractwr Ymwneud Cynnar gan Contractwr yn bwrw ati i weithio ar fanylion dylunio ac adeiladu'r Cynllun arfaethedig. Disgwylid y byddai gwaith adeiladu yn cymryd tua 42 mis.

1.22.2 Mae ymwneud contractwr ar gam cynnar wedi'i gwneud yn bosibl i ddyluniadau a strategaethau lliniaru'r prosiect gael eu gwella'n barhaus, gyda mewnbynnau ynglŷn â'r fethodoleg adeiladu ac ystyriaethau o ran effeithlonrwydd cynhyrchu. Mae'r senario adeiladu a gyflwynwyd yn yr Adroddiad Adeiladwyedd (Atodiad 3.1 i'r Datganiad Amgylcheddol) yn enghraifft o'r manylder a sicrhawyd drwy integreiddio'r Contractwr ar gam cynnar. Cynigiodd y tîm adeiladu brofiad cadarn o bob maes adeiladu a thechnegol a phrofiad o brosiectau ar raddfa fawr.

- 1.22.3** Caiff tystiolaeth ynglŷn â'r agweddau adeiladu ar y Cynllun eu nodi'n fanwl yn y Broflen Dystiolaeth sy'n ymwneud ag Adeiladu gan Mr Barry Woodman.
- 1.22.4** Caiff tystiolaeth ei chyflwyno i ddangos bod Ymwneud Cynnar gan Contractwr wedi galluogi'r tîm i herio ei gilydd i wneud y defnydd gorau posibl o'r holl dir yr effeithir arno gan y prosiect, gan ei ddewis gan edrych yn gyfannol ar effeithiau amgylcheddol, cymdeithasol a thechnegol ac effeithiau ar SoDdGAau, gan ganolbwyntio'n benodol ar waith lliniaru amgylcheddol, strategaeth cloddwaith, gwaith dros dro, tir dros dro a gwaith adeiladu pontydd mawr.
- 1.22.5** Mae'r dyluniad wedi cael ei adolygu gan dîm o beirianwyr adeiladu profiadol sy'n cydgysylltu'r penderfyniadau technegol er mwyn paratoi dyluniad cydlynol sy'n addas ar gyfer defnyddio'r technegau adeiladu modern, darbodus a mwyaf diweddar.

1.23 Datblygu Cynaliadwy

- 1.23.1** Ystyrir mai prosiect Coridor yr M4 o amgylch Casnewydd yw'r ateb cynaliadwy, hirdymor i'r problemau cymdeithasol, amgylcheddol ac economaidd sy'n gysylltiedig â'r brif ffordd i mewn i Gymru.
- 1.23.2** Mae cynigion ar gyfer system Fetro Prifddinas-Ranbarth Caerdydd yn cael eu datblygu gan Lywodraeth Cymru ochr yn ochr â'r Cynllun, sy'n rhan o uchelgais Llywodraeth Cymru ar gyfer rhwydwaith trafndiaeth integredig cynaliadwy.
- 1.23.3** Mae Llywodraeth Cymru yn ddarostyngedig i'r dyletswyddau sy'n ymwneud â datblygu cynaliadwy a nodir yn Neddf Llesiant Cenedlaethau'r Dyfodol 2015 (Deddf 2015). Mae adroddiad ar ddatblygu cynaliadwy wedi'i baratoi.
- 1.23.4** Caiff ystyriaeth o'r cynigion mewn perthynas ag egwyddorion datblygu cynaliadwy Llywodraeth Cymru a pholisïau perthnasol eraill eu nodi'n fanwl yn y Broflen Dystiolaeth sy'n ymwneud â Datblygu Cynaliadwy gan Mr John Davies MBE.
- 1.23.5** Caiff tystiolaeth ei chyflwyno sy'n ystyried i ba raddau roedd y gwaith o ddatblygu Cynllun Coridor yr M4 o amgylch Casnewydd wedi cadw at yr egwyddor datblygu cynaliadwy a amlinellir bellach yn Neddf 2015, gan ddod i'r casgliad bod y Cynllun a ddewiswyd yn unol â'r pum ffordd o weithio a nodir bellach yn y Ddeddf honno. Caiff tystiolaeth ei chyflwyno hefyd sy'n dangos sut y byddai'r Cynllun yn cyfrannu at saith nod llesiant Deddf 2015.