Merthyr Tydfil County Borough Council

# LOCAL FLOOD RISK MANAGEMENT STRATEGY

## Strategic Environmental Assessment
## Environmental Report

001
MARCH 2024

PUBLIC

Merthyr Tydfil County Borough Council

# LOCAL FLOOD RISK MANAGEMENT STRATEGY

## Strategic Environmental Assessment Environmental Report

**TYPE OF DOCUMENT (VERSION) PUBLIC**

**PROJECT NO. 70113899**

**OUR REF. NO. 001**

**DATE: MARCH 2024**

Merthyr Tydfil County Borough Council

# LOCAL FLOOD RISK MANAGEMENT STRATEGY

## Strategic Environmental Assessment Environmental Report

WSP

1 Capital Quarter
Tyndall Street
Cardiff
CF10 4BZ

Phone: +44 2920 769 200

WSP.com

# QUALITY CONTROL

| Issue/revision | First issue | Revision 1 | Revision 2 | Revision 3 |
|---|---|---|---|---|
| Remarks | Draft for MTCBC | Final for Consultation | Post Consultation Updates | |
| Date | December 2023 | December 2023 | March 2024 | |
| Prepared by | Sarah Utting<br>Keri Sheppard | Sarah Utting<br>Keri Sheppard | Keri Sheppard | |
| Signature | | | | |
| Checked by | Rachel Drabble | Rachel Drabble | Charlotte Town | |
| Signature | | | | |
| Authorised by | Katie Dean | Katie Dean | Katie Dean | |
| Signature | | | | |
| Project number | 70113899 | 70113899 | 70113899 | |
| Report number | 001 | 002 | 003 | |

# CONTENTS

## *TABLES*

## *FIGURES*



## *APPENDICES*

# 1 INTRODUCTION

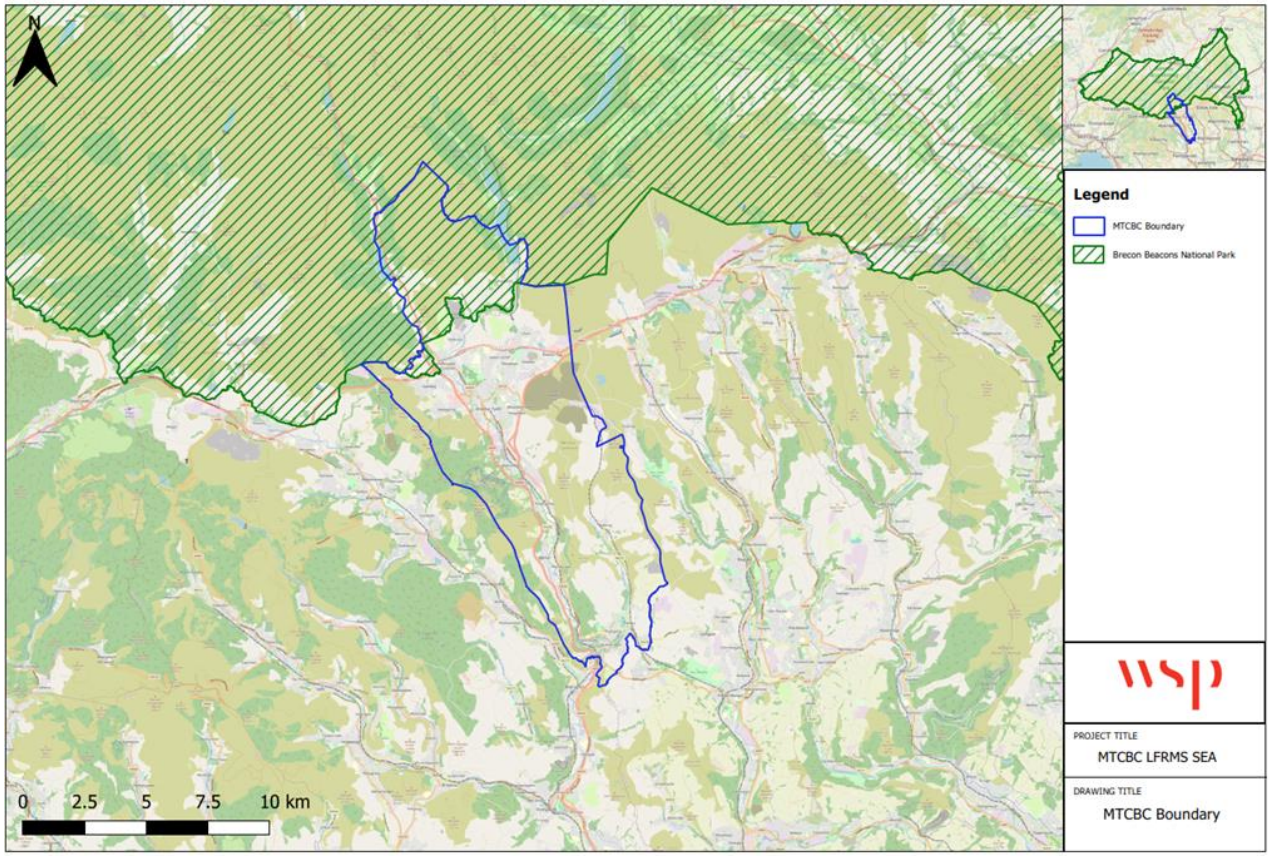
1.1.1 Merthyr Tydfil County Borough Council (MTCBC) is in the process of preparing a new Local Flood Risk Management Strategy (hereafter referred to as the 'LFRMS'). This will replace the existing MTCBC LFRMS[1], which was agreed in 2013.

1.1.2 The LFRMS will cover MTCBC's administrative boundary, including an area within the Bannau Brycheiniog National Park, as shown in **Figure 1-1**.

1.1.3 The LFRMS will focus on local sources of flood risk but will also acknowledge and consider other sources of flood risk (including larger watercourses and sewers) and other associated Risk Management Authorities.

1.1.4 This LFRMS will be MTCBC's second Local Strategy. Whilst they previously published a Local Strategy and Flood Risk Management Plan separately, this new LFRMS integrates the two documents into one. This reduces complexity and enables MTCBC to communicate and manage local flood risk more effectively.

**Figure 1-1 - MTCBC's Administrative Boundary**



## 1.2 LOCAL FLOOD RISK MANAGEMENT STRATEGY

1.2.1 The Flood and Water Management Act 2010[2] provides for better and more comprehensive management of flood risk for people, homes and businesses, whilst helping to safeguard communities from rises in surface water and protecting water supplies.

1.2.2 The Act defines 'local flood risk'; as that arising from:

- Surface runoff;
- Groundwater; and
- Ordinary watercourses (including risks from lakes, ponds, or other areas of water that flow into an ordinary watercourse.

1.2.3 The Act states that Lead Local Flood Authorities (LLFA) are required to develop, maintain, apply and monitor a strategy for local flood risk management in its area.

1.2.4 MTCBC is the LLFA for the administrative area of Merthyr Tydfil and have determined that a Strategic Environmental Assessment (SEA) is required for their LFRMS, having considered the requirements of the Environmental Assessment of Plans and Programmes (Wales) Regulations 2004[3].

1.2.5 The National Strategy for Flood and Coastal Erosion Risk Management in Wales[4] (hereafter referred to as the 'National Strategy') outlines the strategy for national flood risk management across Wales. The National Strategy sets out five overarching objectives for the management of flood and coastal erosion risk in Wales:

- Improving our understanding and communication of risk;
- Preparedness and building resilience;
- Prioritising investment to the most at risk communities;
- Preventing more people becoming exposed to risk; and
- Providing an effective and sustained response to events.

1.2.6 The LFRMS must be consistent with the National Strategy which will ensure that the objectives set out within the National Strategy are delivered through the work of all the Risk Management Authorities in Wales.

[1] Merthyr Tydfil County Borough Council, Local Flood Risk Management Strategy, 2013. Available at: https://www.merthyr.gov.uk/media/1472/mtcbc-local-flood-risk-management-strategy-lfrms.pdf (Accessed 10/10/2023)
[2] Flood and Water Management Act 2010. Available at: https://www.legislation.gov.uk/ukpga/2010/29/contents (Accessed 10/10/2023)
[3] Welsh Statutory Instruments 2004 No. 1656, The Environmental Assessment of Plans and Programmes Regulations 2004. Available at: https://www.legislation.gov.uk/wsi/2004/1656/made (Accessed 01/11/2023)
[4] Welsh Government, The National Strategy for Flood and Coastal Erosion Risk Management in Wales, 2020. Available at: https://www.gov.wales/sites/default/files/publications/2021-03/the-national-strategy-for-flood-and-coastal-erosion-risk-management-in-wales.pdf (Accessed 10/10/2023)

## 1.3 PURPOSE OF THIS REPORT

1.3.1 MTCBC has commissioned WSP to undertake a SEA of the LFRMS.

1.3.2 SEA is used to describe the application of environmental assessment to plans and programmes in accordance with the European Council Directive 2001/42/EC (SEA Directive) which is transposed in Wales through the Environmental Assessment of Plans and Programmes (Wales) Regulations 2004 (SEA Regulations)[5].

1.3.3 SEA is mandatory for plans (including strategies) and programmes which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste or water management, telecommunications, tourism, town and country planning or land use, and which set the framework for future development consent of projects listed in the Environmental Impact Assessment Directive 85/337/EEC[6] and the Town and Country Planning (Environmental Impact Assessment) Regulations[7].

1.3.4 SEA is an iterative process of gathering data and evidence, assessment of environmental effects, developing mitigation measures and making recommendations to refine plans or programmes in view of the predicted environmental effects.

1.3.5 This report sets out the second stage of the SEA process following on from the Scoping Report which determined the issues to be included in the SEA. This report sets out:

- Information on the LFRMS (**Section 2**);
- The methodology used for the SEA (**Section 3**);
- A summary of the issues and opportunities identified during scoping (**Section 4**);
- The results of the SEA (**Section 5** and **Section 6**);
- Cumulative effects (**Section 7**);
- Mitigation, enhancements and monitoring (**Section 8**)
- Recommendations (**Section 9**); and
- Next Steps (**Section 10**).

[5] Welsh Statutory Instruments 2004 No. 1656, The Environmental Assessment of Plans and Programmes Regulations 2004 [online] available at: https://www.legislation.gov.uk/wsi/2004/1656/made
[6] Environmental Impact Assessment Directive (85/337/EEC) 2014 Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0052&from=EN
[7] The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 Available at: http://www.legislation.gov.uk/uksi/2017/571/introduction/made

# 2 MERTHYR TYDFIL COUNTY BOROUGH COUNCIL LOCAL FLOOD RISK MANAGEMENT STRATEGY

## 2.1 INTRODUCTION

2.1.1 MTCBC published their first Local Strategy in 2013, setting out their overarching approach to managing local flood risk. Alongside their Local Strategy, they published a Flood Risk Management Plan (FRMP). The FRMP developed the objectives and high-level actions outlined in their Local Strategy into a more detailed plan for managing flooding in our communities.

2.1.2 Whilst MTCBC previously published a Local Strategy and FRMP separately, this new Local Strategy aims to integrates the two documents into one. This reduces complexity and enables us to communicate and manage local flood risk more effectively.

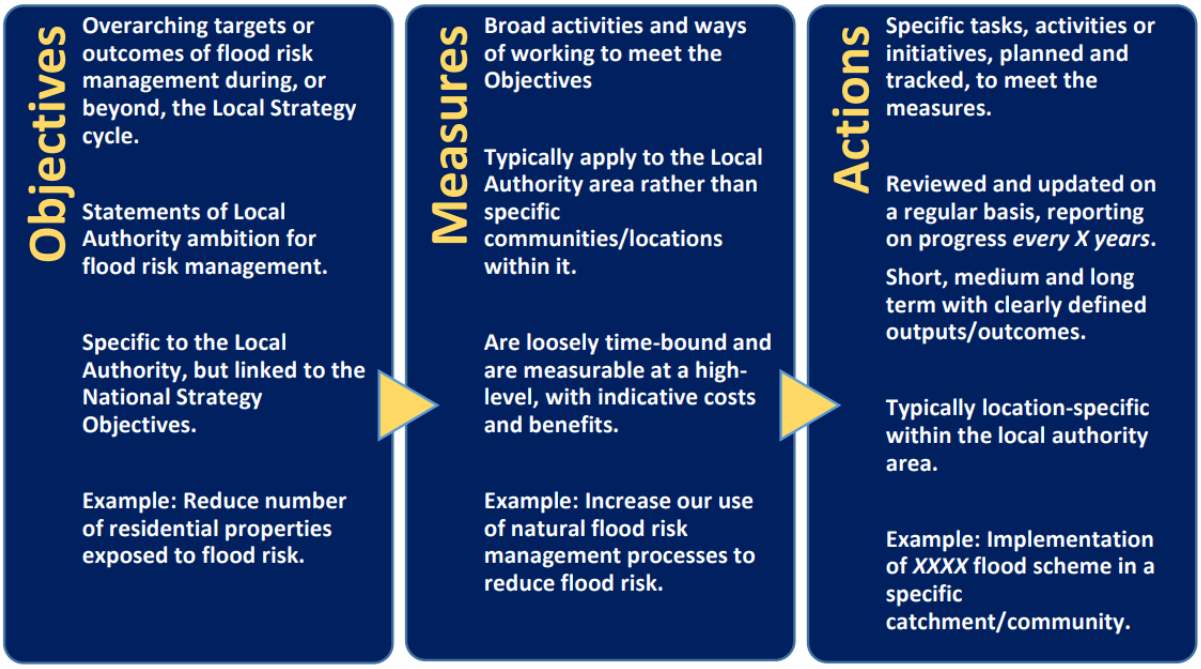
2.1.3 The new LFRMS will explain how flooding will be managed across our MTCBC, consistent with the objectives, measures and related policies and legislation set out in the National Strategy.

2.1.4 The LFRMS and Action Plan will be reviewed by Welsh Government and published in April 2024. The Action Plan will be an evolving document which will be reviewed and updated annually. The Strategy document itself, will be renewed every six years, in line with Welsh Governments National Flood Risk Management Strategy.

## 2.2 OBJECTIVES AND MEASURES

2.2.1 The LFRMS sets out the flood risk management Objectives, Measures and Actions. These three groupings provide different levels of detail on how flood risk will be managed. The meaning of each is summarised in Figure 2-1 below.

**Figure 2-1 – LFRMS Objectives, Measures and Actions**



2.2.2 The LFRMS has five overarching objectives, which are as follows:

- LFRMS Objective 1 – Improving our understanding and communication of risk;
- LFRMS Objective 2 – Preparedness and building resilience;
- LFRMS Objective 3 – Prioritising investment to the most at risk communities;
- LFRMS Objective 4 – Preventing more people becoming exposed to risk; and
- LFRMS Objective 5 – Provide an effective and sustained response to flood events.

2.2.3 These objectives align with the National Strategy for Flood and Coastal Erosion Risk Management, which are as follows:

- National Objective A: Improving our understanding and communication of risk;
- National Objective B: Preparedness and building resilience;
- National Objective C: Prioritising investment to the most at risk communities;
- National Objective D: Preventing more people becoming exposed to risk; and
- National Objective E: Providing an effective and sustained response to events.

2.2.4 **Figure 2-2** below shows the alignment between the national objectives and the LFRMS overarching objectives.

**Figure 2-2 – LFRMS Objectives Alignment with National Strategy Objectives**

| MTCBC Local Strategy Objectives | National Strategy Objectives | | | | |
|---|---|---|---|---|---|
| | A | B | C | D | E |
| Improve our understanding of risk | • | • | | | |
| Preparedness and communication | • | • | | | |
| Reduce surface water flooding to the highest risk communities | | | • | • | |
| Provide an effective and coordinated response to flood events | | | | | • |

2.2.5 The Strategy proposes a number of measures to outline how MTCBC intends to meet the objectives outlined above, in order to reduce the present and future risk of flooding in the County Borough. The measures have been organised by the following categories:

- Development planning and adaptation;
- Forecasting, warning and informing;
- Studies, assessments and plans;
- Outreach, awareness and engagement;
- Preparedness and response;
- Land and environmental management; and
- Asset management and maintenance.

2.2.6 The proposed measures have been set out in Table 2-1.

**Table 2-1 – LFRMS Proposed Measures**

| Measure | Description |
|---|---|
| ***Development Planning and Adaptation*** | |
| 1: Local Planning Authority (LPA) | MTCBC propose to work with the LPA to improve the early-stage consideration of flood risk by developers at Master Planning stage or earlier. This will be achieved through collaborating with the LPA on the development of masterplans for Strategic Development Sites, and inputting to potential Supplementary Planning Guidance (SPGs) strategies to help guide smaller developments toward better allocation of space for flood risk management and biodiversity. |
| 2. SuDS (sustainable drainage system) Approval Body (SAB) | There is scope for better integration between the LPA and the SAB when considering the flood risk to and from a development. This may be captured in the LDP review, through the development of SPGs and improved sharing of information between the SAB and LPA at application stage. |
| ***Forecasting, Warning and Informing*** | |
| 3. Warnings and Forecast | MTCBC will continue to work with colleagues in emergency planning and communications to ensure that public warnings and information about flood emergencies are the best they can be.<br>Warnings for surface water flooding are difficult to provide due to the rapid and unpredictable nature of surface water flooding. As technology and flood modelling improves the LLFA will keep abreast of solutions that become available for surface water flood forecasting and consider their benefit and suitability for use in Merthyr Tydfil. |
| 4. Flood Monitoring | Numerous past flooding events have been caused by issues with culvert intakes, such a blockages or capacity issues. As a result there are 23 monitoring stations installed on high risk culvert intakes across the Borough.<br>These monitoring stations have been unreliable and MTCBC therefore propose to improve this system in terms of both hardware and software. Following further catchment analysis proposed by this strategy, MTCBC intend to expand the monitoring system to include other high risk intakes. |
| ***Studies, Assessments and Plans*** | |
| 5. Understanding Flood Risk | Improving our understanding of existing flood risk across the Borough will enable MTCBC to better identify high risk areas. MTCBC will endeavour to carry out independent flood modelling and challenge the flood mapping with the data owner where contradictions occur. Flood modelling will be undertaken so that these improvements can be reflected in the national flood maps. |
| 6. Flood Modelling and Surveys | Flood modelling will be used to inform future projects and interventions to ensure the schemes are located in the most effective locations for risk reduction. The use of |

| Measure | Description |
|---|---|
| | modelling will also ensure that proposed schemes can be assessed against potential climate change impacts. |
| 7. Groundwater | MTCBC will aim to improve the provision of information available to developers to reduce the likelihood of new homes being built in areas of groundwater risk without appropriate drainage. Pioneering work was carried out by the Environment Agency and The Coal Authority in North East England to develop Mining and groundwater constraints categories for development with regard to drainage and SuDS. This work can used for reference. |
| 8. Historical Flooding | MTCBC will build a GIS based database of historic flooding aggregated from local sources and other Risk Management Authorities (RMAs). This will support the identification of flood alleviation schemes and help to improve our understanding of flood risk in the Borough. |
| ***Outreach, Awareness and Engagement*** | |
| 9. Flood Awareness and Education | MTCBC has a duty under the Civil Contingencies Act (2004) to warn and inform its residents of risks before, during and after an incident. Despite previous engagement activity by councils, Welsh Government and other RMAs, the level of public awareness of flood risk remains low.<br>The following activities will be used to improve flood awareness and education:<br>▪ Presentations in schools<br>▪ Community drop-in events<br>▪ Increased community engagement during development and construction of flood defence projects<br>▪ Training for MTCBC staff on flood risk and climate change |
| 10. Flood Risk Responsibilities | MTCBC will continue to engage with riparian owners of high risk assets and will reassess the identification of these owners following asset risk assessment exercises undertaken as part of this strategy development.<br>As part of awareness and education activities outlined in Measure 9, there will be information on flood risk responsibilities including the Council's, the publics and other RMAs. See Section 5 for details of flood risk responsibilities. |
| 11. Partnership Working | Partnership working is important for RMAs working towards shared goals and lends itself well to flood risk management. It builds co-operation and provides an effective platform for information sharing and shared working.<br>MTCBC will work with NRW who propose to use partnership working to develop a Strategic Flood Masterplan, a holistic long term flood risk management strategy, for the River Taff Catchment. |
| 12. Flood Response Plan | To increase awareness of the Emergency Response Flood Plan internally it is proposed that Local Authority periodically arranges a simulated flood response event. This will help staff to be aware and confident in their roles for emergency response and assist with reviewing the Emergency Response Flood Plan. |

| Measure | Description |
|---|---|
| 13. Community Resilience | Knowing what to do before and during a flood is critical to this and therefore MTCBC will support raising awareness. There are a number of methods available to improve preparedness including community and individual flood plans; education events or workshops with residents and schools; and webpages or flyers.<br><br>Property Flood Resilience (PFR) measures are a key part of community resilience. They aim to reduce the ingress of floodwater to a property or minimise the impacts and aid rapid recovery if water does get in to the property. MTCBC will provide more information to residents on PFR through the website and community engagement. |
| 14. Holistic Flood Response and Recovery | MTCBC needs to be equipped to deal with the mental health impacts of flooding in order to support effective and enduring recovery from flooding. We propose to encourage first responders from MTCBC to work with Psychological Department colleagues in Rhondda Cynon Taff to provide psychological first aid during severe flooding so that we can provide the most effective response possible. We will endeavour to work with the Health Board and other Risk management Authorities (RMAs) towards offering a check-in support service. |
| 15. Investigating Flood Event | There is no threshold for Section 19 reporting in statute so an expectation has been set by Welsh Government that Section 19 reports are to be undertaken where 20 or more homes in one area experience internal flooding. MTCBC will endeavour to complete Section 19 reports within three months of the flood event.<br><br>As the LLFA, MTCBC will investigate all flooding incidents that they are aware of occurring within the borough and record internally in line with measure 16. This record will include extent and source of flooding where possible. |
| 16. Recording of flood events | Complete an accurate record of all scales of flooding provide a valuable resource for understanding flood risk across the Borough. MTCBC propose to develop an internal system for recording any scale and source of flooding. Ensuring that it is easy to record an event and that this can be done by any necessary council department. |
| ***Land and Environmental Management*** | |
| 17. Natural Flood Management (NFM) | The Council will work with MTCBC's Countryside and Energy teams to ensure that NFM schemes deliver multiple benefits in terms of flood risk management, climate change mitigation and ecological benefit including water quality. The LLFA will also work with these teams to encourage the incorporation of NFM in ecology and land management led projects. |
| 18. Mineral Extraction | MTCBC intend to continue delivering these schemes and propose to ensure that land drainage and flood risk engineers have input on all schemes so that the flood risk benefit can be maximised. Natural flood risk management techniques will be considered as complimentary measures where appropriate.<br><br>The Council propose to improve our knowledge of the interaction of groundwater and audits and to work with the Coal Authority to deliver schemes where audits are causing flood risk issues.<br><br>The council's flood risk team will be a part of the working group involved in the discussions around the restoration of the mine site. The minimising of flood risk from the site will be a priority. |

| Measure | Description |
|---|---|
| 19. Flood Risk and Climate Change | MTCBC propose to include climate change and adaptation in our flood risk education (Measure 9) to support communities to plan for the future. MTCBC's awareness of flood risk and climate change will be increased through workshops from other RMAs (e.g. NRW) followed by internal dissemination. |
| ***Asset Management and Maintenance*** | |
| 20. Flood Risk Management Schemes | MTCBC propose to develop a programme of flood risk management schemes to target the communities at highest risk and set out how these schemes will be delivered over this strategy cycle. |
| 21. Flood Risk Asset Register and Record | There is no formal method for identifying assets that have a 'significant effect' so the Council will use flood history, vulnerability and flood modelling where appropriate to determine these assets. The asset record will continue to be expanded and MTCBC will utilise its role in flood risk investigation, SAB application assessments, Planning and Ordinary Watercourse Consenting to identify new assets proactively.<br>MTCBC currently has a GIS based asset database which is to be reviewed and improved allowing scope for improved asset recording, inspections and flooding incidents. |
| 22. Flood Asset Maintenance | Maintenance of flood risk assets is a key part of flood risk reduction. Numerous flooding incidents are caused by blockages to intakes and channels or highway drainage systems. A robust maintenance regime can help to reduce risk from blockages and extend the lifetime of flood risk assets. |

# 3 METHODOLOGY

## 3.1 INTRODUCTION

3.1.1 SEA is a systematic process that is undertaken during the preparation of a plan. Its role is to promote sustainable development by assessing environmental, social, and economic impacts, as well as mitigating any potential adverse effects that the plan might otherwise have.

## 3.2 STRATEGIC ENVIRONMENTAL ASSESSMENT

3.2.1 The SEA process is carried out during the preparation of local plans and spatial development strategies. Its role is to promote sustainable development by assessing the extent to which emerging plans will help to achieve relevant environmental, economic, and social objectives.

3.2.2 SEA is used to describe the application of environmental assessment to plans and programmes in accordance with the SEA Regulations.

3.2.3 SEA is mandatory for plans and programmes which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste or water management, telecommunications, tourism, town and country planning or land use, and which set the framework for future development consent of projects listed in Annex I or II to Council Directive 85/337/EEC[8].

3.2.4 **Table 3-1** below sets out the SEA process.

**Table 3-1 - SEA Stages**

| SEA Stages | SEA Stages and Tasks | Purpose |
|---|---|---|
| ***Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope*** | | |
| A1 | Identifying other relevant plans, programmes and environmental protection objectives to identify SEA objectives. | To establish how the Plan or programme is affected by outside factors, to suggest ideas for how any constraints can be addressed, and to help. |
| A2 | Collecting baseline information | To provide an evidence base for environmental problems, prediction of effects, and monitoring; to help in the development of SEA objectives. |
| A3 | Identifying environmental problems | To help focus the SEA and streamline the subsequent stages, including baseline information analysis, setting of the SEA objectives, prediction of effects and monitoring. |

[8] Official Journal of the European Communities, Council Directive of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment (85/337/EEC). Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31985L0337&from=EN (Accessed 01/11/2023)

| SEA Stages | SEA Stages and Tasks | Purpose |
|---|---|---|
| A4 | Developing SEA objectives | To provide a means by which the environmental performance of the Plan or programme and alternatives can be assessed. |
| A5 | Consulting on the scope of SEA | To ensure that the SEA covers the likely significant environmental effects of the Plan or programme. |
| ***Stage B: Developing and refining alternatives and assessing effects*** | | |
| B1 | Testing the Plan or programme objectives against the SEA objectives | To identify potential synergies or inconsistencies between the objectives of the Plan or programme and the SEA objectives and help in developing alternatives. |
| B2 | Developing strategic alternatives | To develop and refine strategic alternatives. |
| B3 | Predicting the effects of the Plan or programme, including alternatives | To predict the significant environmental effects of the Plan or programme and alternatives. |
| B4 | Evaluating the effects of the Plan or programme, including alternatives | To evaluate the predicted effects of the Plan or programme and its alternatives and assist in the refinement of the Plan or programme. |
| B5 | Mitigating adverse effects | To ensure that adverse effects are identified, and potential mitigation measures are considered. |
| B6 | Proposing measures to monitor the environmental effects of plan or programme implementation | To detail the means by which the environmental performance of the Plan or programme can be assessed |
| ***Stage C: Preparing the Environmental Report*** | | |
| C3 | Preparing the Environmental Report | To present the predicted environmental effects of the Plan or programme, including alternatives, in a form suitable for public consultation and use by decision-makers. |
| ***Stage D: Consulting on the draft plan or programme and the Environmental Report (Current Stage)*** | | |
| D1 | Consulting the public and Consultation Bodies on the draft plan or programme and the Environmental Report | To give the public and the Consultation Bodies an opportunity to express their opinions on the findings of the Environmental Report and to use it as a reference point in commenting on the Plan or programme.<br>To gather more information through the opinions and concerns of the public. |

| SEA Stages | SEA Stages and Tasks | Purpose |
|---|---|---|
| D2 | Assessing significant changes (current stage) | To ensure that the environmental implications of any significant changes to the draft plan or programme at this stage are assessed and taken into account. |
| D3 | Making decisions and providing information | To provide information on how the Environmental Report and consultees' opinions were taken into account in deciding the final form of the Plan or programme to be adopted. |
| ***Stage E: Monitoring the significant effects of the plan on the environment*** | | |
| E1 | Developing aims and methods for monitoring | To track the environmental effects of the Plan to show whether they are as predicted and to help identify adverse effects. |
| E2 | Responding the adverse effects | To prepare for appropriate responses where adverse effects are identified. |

## 3.3 ENVIRONMENTAL REPORT METHODOLOGY

3.3.1 Stage D2 (this stage) comprises the assessment of the final LFRMS Plan, against the SEA Appraisal Framework objectives identified within the Scoping Report (Stage A). This Report incorporates the consultation responses received on the LFRMS and SEA from Natural Resources Wales, Cadw and other stakeholders. Responses received and the actions taken have been set out in **Appendix C**. .

3.3.2 As per the SEA regulations, the SEA also needs to consider and compare all reasonable alternatives as the LFRMS evolves and assess these against the baseline environmental, economic and social characteristics of the county borough. Reasonable alternatives are the different realistic options considered by the plan-maker in developing the policies in the plan.

3.3.3 As there are no proposed alternative measures, the SEA has considered the plan's previous interventions as reasonable alternatives.

3.3.4 This Environmental Report has therefore covered the assessment of the following:

- Compatibility assessment of the objectives;
- Proposed measures; and
- Alternative measures.

## 3.4 COMAPATABILITY ASSESSMENT

3.4.1 Testing the compatibility of the LFRMS's Objectives against the SEA Appraisal Framework help to identify both potential synergies and inconsistencies. This information can help in developing and refining the objectives of the Local Plan. See Section 5 for further details.

## 3.5 ASSESSMENT OF EFFECTS

3.5.1 The assessment of measures has considered the following effects:

- Overall effect significance (negative, positive, uncertain, potential for both negative and positive effect or negligible)
- Magnitude of effects (high, medium, low):
    - High: Likely total loss of or major alteration to the receptor in question. The effects are predicted to be permanent and irreversible.
    - Medium: Partial loss of/alteration/improvement to one or more key elements/features/characteristics of the receptor in question. The effects are predicted to be medium-long term but often reversible.
    - Low: Minor loss/alteration/improvement to one or more key elements/features/characteristics of the receptor in question. The effects are often predicted to be reversible and short term.
- Nature of effect (direct, indirect)
- Spatial Extent (local, regional, national)
- Reversibility of effect:
    - Reversible: The receptor can return to baseline condition without significant intervention
    - Irreversible: The receptor would require significant intervention to return to baseline condition
- Duration (short, medium or long term):
    - Short term: 1-3 years
    - Medium term: 4-6 years (this strategy cycle)
    - Long term: 6-10 years (beyond the LFRMS period).

3.5.2 **Table 3-2** sets out the key to effects and significance that will be used within the assessment.

**Table 3-2 – Key to Effects and Significance**

| Effect Significance | Key |
|---|---|
| Potential for significant positive effects | ++ |
| Potential for minor positive effects | + |
| Potential for minor negative effects | - |
| Potential for significant negative effects | -- |

| Effect Significance | Key |
|---|---|
| Uncertain effects – Uncertain or insufficient information on which to determine the appraisal at this stage | ? |
| Potential for both positive and negative effects | +/- |
| Negligible / No effect | 0 |
| Magnitude (High, Medium or Low) | H / M / L |
| Nature of effect (direct / indirect). | D / I |
| Spatial Extent (local – borough wide / regional – South Wales / national - Wales) | L / R / N |
| Reversibility of effect (reversible / irreversible) | R / I |
| Permanence (Permanent / Temporary) | P / T |
| Duration (short / medium / long term). | ST / MT / LT |

3.5.3 It should be noted that where uncertain and negligible effects have been identified, it has not been possible to determine the nature of effect, the spatial extent, the reversibility or the duration of effect. In this instance, these cells have been left blank.

## 3.6 CUMULATIVE EFFECTS

3.6.1 The SEA Regulations require that cumulative effects are considered when identifying likely significant effects. Therefore, a number of plans and policies (local, regional and national) have been reviewed for potential cumulative effects in addition to potential cumulative effects that could occur alongside the implementation of the draft LFRMS.

3.6.2 In addition, the assessment of sites has considered the cumulative effects of neighbouring development sites, including those beyond the borough boundary.

3.6.3 The assessment of cumulative effects has been identified in **Section 7** of this report.

## 3.7 MITIGATION, ENHANCEMENT MEASURES AND MONITORING

3.7.1 The SEA Regulations require that mitigation measures are considered to prevent, reduce or offset any significant adverse effects on the environment as a result of implementing the plan. The measures are known as ‘mitigation’ measures.

3.7.2 Mitigation measures have been identified in relation to the assessment of policies, place visions, site allocations and site alternatives. These include both proactive avoidance of adverse effects and actions taken after potential effects have been identified. These are set out in **Section 8** of this report.

3.7.3 **Section 8** also includes enhancement measures, which aim to optimise positive impacts and enhance sustainability. The mechanism for delivery will ensure the promotion, prevention, reduction and offset of any significant adverse effects or enhancement opportunities on the environment.

3.7.4 The SEA Regulations also require that monitoring is undertaken on a plan so that the significant effects of implementation can be identified, and remedial action imposed. The purpose of the monitoring is to provide an important measure of the sustainability outcome of the final strategy, and to measure the performance of the plan against sustainability objectives and targets. Monitoring is also used to manage uncertainty, improve knowledge, enhance transparency and accountability, and to manage sustainability information.

## 3.8 ASSUMPTIONS AND LIMITATIONS

3.8.1 The preparation of the LFRMS alongside the SEA has allowed an iterative process of assessment and refinement in the narrative and policies within the Plan. Therefore, some of the recommendations set out in this report may already have been addressed in the LFRMS.

3.8.2 The assessment of objectives and measures have been undertaken as a desk-based exercise using the baseline information from the Scoping Report. No site visits have been undertaken specifically for the purposes of the SEA.

3.8.3 WSP have ensured that effects are predicted accurately; however, this can be challenging given limited understanding of precisely how the strategy will be implemented. Given uncertainties there is inevitably a need to make some assumptions, however, these are made carefully and explained in detail within the assessment text.

3.8.4 In some instances, given reasonable assumptions, it is not possible to predict ‘significant effects’, but it is possible to comment on the potential positive and negative effects of the draft plan and its alternatives in more general terms.

# 4 IDENTIFICATION OF ISSUES, OPPORTUNITIES AND SEA OBJECTIVES

## 4.1 INTRODUCTION

4.1.1 This section sets out the sustainability issues and opportunities for the LFRMS and the SEA Appraisal Framework, against which the Local Plan has been assessed.

4.1.2 A Scoping Report, in support of the emerging LFRMS, was produced by WSP in October 2023, which initiated the SEA process (see **Table 3-1**). This report reviewed relevant legislation, plans, and programmes baseline, identified baseline information as well as key issues and opportunities for the Local Plan and identified an assessment framework. The review of plans policies and programmes can be found in **Appendix A** and the full baseline is recorded in **Appendix B**)

4.1.3 This report was consulted on with the Statutory Consultees (Natural Resources Wales and Cadw) as well as the Welsh Government and details on their consultation comments can be found in **Appendix C**. The baseline information used within the SEA Scoping Report is set out in **Appendix B**.

## 4.2 REVIEW OF PLANS POLICIES AND PROGRAMMES

4.2.1 A plan may be influenced in various ways by other plans, policies or programmes, or by external environmental protection objectives such as those laid down in policies or legislation. These relationships enable the Responsible Authority to take advantage of potential synergies and to deal with any inconsistencies and constraints.

4.2.2 The Scoping Report undertook an initial review of policies, plans, programmes, strategies and initiatives that may have an impact on the preparation of relevant policies being reviewed as part of the LFRMS update. This review has informed both the development of the LFRMS and the SEA framework.

4.2.3 Full details on the review of plans, policies and programmes is set out in **Appendix A**.

## 4.3 SUSTAINABILITY ISSUES AND OPPORTUNITIES

4.3.1 The Scoping Report set out a number of issues and opportunities for the LFRMS, for each of the SEA topics scoped into the outlined in the Scoping Report. Those topics scoped into the SEA have been outlined in **Table 4-1** below.

**Table 4-1 - Scope of SEA**

| SEA Topic | Scoped In? | Reasoning |
|---|---|---|
| Population and Equalities | In | There is potential for both positive and negative effects on population and equalities and human health as a result of the LFRMS. Due to the overlapping nature of these topics with regards to flood risk, it is proposed that one SEA objective will cover both topics. |
| Human Health | In | |

| SEA Topic | Scoped In? | Reasoning |
|---|---|---|
| Economy | In | The LFRMS has potential to have significant impact on local business and the local economy so this is scoped in. |
| Biodiversity | In | There is potential for both positive and negative effects on biodiversity as a result of the LFRMS. |
| Landscape and Townscape | In | There is potential for both positive and negative effects on landscape and townscape as a result of the LFRMS. |
| Historic Environment | In | There is potential for both positive and negative effects on the historic environment as a result of the LFRMS. |
| Water Environment | In | There is potential for both positive and negative effects on the water environment as a result of the LFRMS. |
| Air Quality and Greenhouse Gas Emissions | Out | The LFRMS is unlikely to have a significant impact on air quality and greenhouse gas emissions so this is scoped out. |
| Climatic Factors | In | There is potential for both positive and negative effects on climatic factors as a result of the LFRMS. |
| Material Assets | In | There is potential for both positive and negative effects on material assets as a result of the LFRMS. |

4.3.2 The key issues and opportunities for each of these topics have been summarised in **Table 4-2** below.

**Table 4-2 – Key Issues and Opportunities**

| SEA Topic | Issues and Opportunities |
|---|---|
| Population and Equalities | ▪ There is anticipated to be a population growth by 2030.<br>▪ With an increasing ageing population across the MTCBC area, there is likely to be additional strain on the region's services and infrastructure, including during flood events.<br>▪ There are opportunities to reduce and manage flood risk for the elderly and rural communities.<br>▪ The LFRMS should aim to reduce and manage flood risk<br>▪ Development will need to support future demographic changes.<br>▪ There is often an inequality in terms of social deprivation and flood risk exposure from all sources of flooding |
| Human Health | ▪ The population of is expected to continue to increase which may place additional strain on services and infrastructure.<br>▪ The main health risks of flooding which include drowning, serious injury from falling into fast-flowing water, carbon monoxide inhalation, stress and infections from contact with floodwater. |

| SEA Topic | Issues and Opportunities |
|---|---|
| | ▪ There are a variety of secondary stressors that flooding can introduce on individuals.<br>▪ There are large disparities for life expectancy between the most and least deprived areas.<br>▪ The LFRMS should ensure that the flood prevention measures meet the demands and needs of the future population.<br>▪ The LFRMS needs to balance the costs and benefits of flood defences. |
| Economy | ▪ The employment rate has increased, and the economic activity rate has decreased, indicating economic growth.<br>▪ The COVID-19 pandemic has put pressure on the local economy by placing pressure on the delivery of public services and preventing businesses from operating and residents from working.<br>▪ MTCBC provided grant support to local businesses and social enterprises during the pandemic.<br>▪ There is the potential for increased strain to support non-working age people as the population of those aged 65 and over increases.<br>▪ The Welsh Government provided financial support to local businesses recovering from the floods caused by Storm Ciara and Dennis.<br>▪ There is opportunity to support the growing economy and achieve MTCBC's 2020-2035 economic vision, particularly in the aftermath of the pandemic, by protecting local businesses from flooding.<br>▪ The LFRMS should reduce and manage flood risk on local businesses. |
| Biodiversity | ▪ Wales is now one of the most nature-depleted countries globally<br>▪ Climate change and reduced water quality will put strains on terrestrial and aquatic ecosystems<br>▪ There is a need to increase ecosystem resilience<br>▪ Flooding can have adverse impacts on biodiversity including causing drowning, disease proliferation and habitat destruction<br>▪ Extreme flood events have been shown to negatively impact freshwater ecosystems.<br>▪ Floods increase surface run-off which introduces more soil, organic matter and pollutants into water courses<br>▪ Plant biomass and the abundance of both vertebrates and invertebrates can be dramatically reduced by extreme floods<br>▪ Invasive Non-native Species (INNS), pests and pathogens have the ability to spread, causing damage to other biodiversity. MTCBC has issues with Phytophthera ramorum, Rhododendron ponticum, and Chalara fraxinea (ash dieback).<br>▪ The LFRMS should consider the severity of the current environment and biodiversity baseline of all parts of society and place emphasis on improving current water quality and future biodiversity in MTCBC.<br>▪ The LFRMS will need to adhere to MTCBC's future biodiversity goals and mitigate any potential impacts on habitats leading to biodiversity loss.<br>▪ The LFRMS should incorporate nature based solutions and work towards biodiversity net gain. |
| Landscape and Townscape | ▪ Climate change may have an impact on landscape features such as drying out reservoirs, reducing the volume of water in rivers and increasing the frequency and intensity of flood events.<br>▪ The expected population growth will be driving the need for additional homes and facilities. |

| SEA Topic | Issues and Opportunities |
|---|---|
| | ▪ There are land management issues in the National Park particularly on biodiversity from agricultural change, local development, climate change and the spread of invasive non-native species.<br>▪ There is also a need to have regard for the purposes of Bannau Brycheiniog National Park and it's setting. These are to conserve and enhance natural beauty and the enjoyment of the Park's Special Qualities, which include Dark Skies and Tranquillity<br>▪ The LFRMS will need to ensure that it protects MTCBC's unique landscape and townscape, including both the rural and urban environments.<br>▪ The LFRMS should support opportunities for nature base solutions which incorporate green/blue infrastructure and can provide new recreation assets for the community. |
| Historic Environment | ▪ Future growth and development have the potential to affect the survival, fabric, condition and setting of cultural heritage assets (both above and below ground).<br>▪ An increase in rainfall, extreme weather events and flooding may result in irreplaceable damage, degradation and/or erosion of heritage and archaeological sites<br>▪ The LFRMS should promote the management and maintenance of historic and cultural assets and improve the climate resilience of cultural sites, ensuring the maintenance of distinctive characteristics.<br>▪ The LFMS should aim to enhance the understanding and appreciation of the significance of heritage assets. |
| Water Environment | ▪ The effects from climate change on increased flooding and drought on MTCBC's water sources.<br>▪ Potential for the use of groundwater sources, which could affect nearby receptors that are dependent upon groundwater, including groundwater dependent terrestrial ecosystems, watercourses, and existing groundwater abstractions.<br>▪ Reduced water quality could have significant adverse effects on dependant ecosystems.<br>▪ The physical and chemical quality of water resources is an important aspect of the natural environment and can be adversely affected by pollution associated with surface water runoff from new or existing transport infrastructure, as well as by changes to waterbodies which can affect their quality as a habitat.<br>▪ The legacy of the industrial past present challenges which affect water quality<br>▪ The LFRMS should seek to incorporate mitigation strategies such as sustainable urban drainage systems (SUDs) and green infrastructure (GI) in order to adapt to climate change and counteract flood risk. GI can also reduce surface water runoff and have water quality co-benefits.<br>▪ There is a need to improve/restore geomorphology in order to improve habitat and natural processes.<br>▪ The LFRMS has the opportunity to be detrimental or beneficial to implementing WFD mitigation measures.<br>▪ Opportunities to work collaboratively on nature based solutions for wider benefits, including flood risk. |
| Climatic Factors | ▪ The risk from greater flood events remains a key climate risk to infrastructure in MTCBC with a greater risk from future predicted heavy precipitation within the winter months.<br>▪ The extent of future climate change will be strongly affected by the amount of greenhouse gases emitted.<br>▪ The risk of future flooding events will cause significant infrastructure damage. |

| SEA Topic | Issues and Opportunities |
|---|---|
| | ▪ Future precipitation changes will have significant impacts on human health and wellbeing and the natural capital in MTCBC.<br>▪ The LFRMS needs to protect against current and future climatic flooding.<br>▪ The Strategy will need to plan for and implement/facilitate climate change adaptation, in respect of rising temperatures and extreme weather events, particularly heavy rainfall/flooding and heat to maximise resilience. |
| Material Assets | ▪ The growing population and associated need for development is likely to increase the use of soil and land use.<br>▪ Opportunities to make use of previously developed land (brownfield land) and to reduce the prevalence of derelict land.<br>▪ There is a need to minimise the consumption of resources, including energy and material assets.<br>▪ Future climate change and increases in precipitation will likely result in increased risk to the built environment, and infrastructure assets and systems.<br>▪ The incorporation of green infrastructure present opportunities for carbon sequestration.<br>▪ There is a need to minimise the potential impact of flooding on transport and other critical infrastructure, both at present and in the future.<br>▪ There is also a need to protect and enhance geology, geomorphology, mineral resources and the quality of soils within Merthyr Tydfil.<br>▪ There is a need for the LFRMS to protect and enhance existing flood infrastructure to extend its lifespan.<br>▪ There is potential for nature based solutions to include future access to the environment and provide new permissive routes. |

## 4.1 SEA APPRAISAL FRAMEWORK

4.1.1 The SEA Appraisal Framework objectives provided in Table 4-3 relate solely to SEA issues 'scoped in' to the assessment (refer to Table 4-2). The SEA objectives and associated indicators have been derived from the baseline data, issues and opportunities and the review of other relevant plans, policies and programmes.

**Table 4-3 - SEA Framework**

| SEA Topic | SEA Objective | Supporting Appraisal Questions – Will the policy/ intervention… |
|---|---|---|
| Population and Equalities<br>Human Health | **SEA1:** To increase and enhance flood protection as well as awareness and understanding to meet both the current and future demographic changes and protect and enhance human health, quality of life and wellbeing. | ▪ Support future population growth?<br>▪ Protect and enhance recreational amenity and public access?<br>▪ Will avoid negative effects on human health or quality of life, e.g. noise and air pollution?<br>▪ Support community engagement initiatives?<br>▪ Reduce levels of distress caused by flooding?<br>▪ Reduce levels of inequalities in terms of exposure to flooding? |
| Economy | **SEA2:** To increase understanding and awareness of flood risk, and increase resilience of local businesses and the local economy businesses and the local economy. | ▪ Provide greater protection to businesses and owners?<br>▪ Reduce economic damage?<br>▪ Increase awareness and understanding for business owners?<br>▪ |
| Biodiversity | **SEA3:** To protect, enhance and provide resilience to habitats, species and valuable ecological networks that contribute to ecosystem functionality, contributing to net benefit in biodiversity. | ▪ Cause damage to locally, nationally and internationally designated sites?<br>▪ Maintain and enhance biodiversity?<br>▪ Seek opportunities for net benefit for biodiversity?<br>▪ Prevent fragmentation of habitats and promote ecological networks?<br>▪ Result in developments which will improve biodiversity on site?<br>▪ Result in the increase of invasive non-native species?<br>▪ Increase resilience to habitats, species and valuable ecological networks |
| Landscape and Townscape | **SEA4:** To protect and enhance MTCBC's townscapes and landscapes, including both the rural and urban environments. | ▪ Respect, maintain and strengthen local character and distinctiveness?<br>▪ Respect, maintain and strengthen the Special Qualities and setting of the Bannau Brycheiniog National Park?<br>▪ Achieve high quality sustainable design?<br>▪ Improve the quality and condition of the townscape and landscape? |

| SEA Topic | SEA Objective | Supporting Appraisal Questions – Will the policy/ intervention… |
|---|---|---|
| | | ▪ Enhance the quality, extent and accessibility of greenspaces?<br>▪ Enhance Dark Skies and Tranquillity? |
| Historic Environment | **SEA5:** To protect and enhance the historic environment, including heritage assets (designated and non-designated) and their unique settings. | ▪ Conserve and/or enhance heritage assets, their setting and the wider historic environment?<br>▪ Respect, maintain and strengthen local character and distinctiveness? |
| Water Environment | **SEA6:** To maintain and enhance the quality of surface and groundwater. | ▪ Support the protection and enhancement of water bodies?<br>▪ Improve Water Framework Directive (WFD) status of waterbodies?<br>▪ Effect water quantity and availability?<br>▪ Decrease the number of heavily modified water bodies, where possible, implementing mitigation measures on those designated as flood risk? |
| Climatic Factors | **SEA7:** Ensure that MTCBC is resilient to the effects of climate change and development supports low carbon energy efficient design.<br>**SEA8:** To reduce the risk and vulnerability to flooding. | ▪ Increase the overall resilience of the county borough to the effects of climate change?<br>▪ Affect the resilience of assets and infrastructure to climate change?<br>▪ Increase levels of embodied carbon?<br>▪ Reduce the risk of flooding? |
| Material Assets | **SEA9:** Minimise the potential impact of flooding to transport and other critical infrastructure, both at present and in the future.<br>**SEA10:** To protect and enhance MTCBC geology, geomorphology, mineral resources and the quality of soils. | ▪ Support the use of sustainable materials?<br>▪ Minimise the amount of waste?<br>▪ Make use of existing infrastructure?<br>▪ Will it avoid damage to geologically important sites?<br>▪ Protect agricultural land?<br>▪ Protect and enhance public rights of way?<br>▪ Protect and enhance the transport network?<br>▪ Protec and enhance critical infrastructure?<br>▪ Will it protect, maintain and enhance the health and function of soils? |

# 5 COMPATIBILITY ASSESSMENT OF OBJECTIVES

## 5.1 INTRODUCTION

5.1.1 This section assesses the compatibility of the Objectives against the SEA Appraisal Framework objectives.

5.1.2 The Objectives have been individually tested against the SEA Appraisal Framework objectives to identify both potential synergies and inconsistencies. This information can help in developing and refining the objectives of the LFRMS.

5.1.3 **Table 5-1** below sets out the key to appraisal, whilst **Table 5-2** overleaf sets out the findings of the compatibility testing of the LFRMS objectives.

**Table 5-1 – Key to Compatibility Assessment**

| Effect | Key |
|---|---|
| Compatible | ✓ |
| Incompatible/ potential conflict | x |
| No relationship | 0 |
| Uncertain relationship | ? |

5.1.4 The objectives are as follows:

- LFRMS Objective 1 – Improving our understanding and communication of risk;
- LFRMS Objective 2 – Preparedness and building resilience;
- LFRMS Objective 3 – Prioritising investment to the most at risk communities;
- LFRMS Objective 4 – Preventing more people becoming exposed to risk; and
- LFRMS Objective 5 – Provide an effective and sustained response to flood events.

**Table 5-2 – Compatibility Assessment**

| Objective | SEA1 | SEA2 | SEA3 | SEA4 | SEA5 | SEA6 | SEA7 | SEA8 | SEA9 | SEA10 |
|---|---|---|---|---|---|---|---|---|---|---|
| LFRMS Objective 1 – Improving our understanding and communication of risk | ✓ | ✓ | 0 | 0 | 0 | 0 | 0 | ✓ | ✓ | 0 |
| LFRMS Objective 2 – Preparedness and building resilience | ✓ | ✓ | ✓ | ? | ? | ✓ | ✓ | ✓ | ✓ | ? |
| LFRMS Objective 3 – Prioritising investment to the most at risk communities | ✓ | ✓ | ✓ | ? | ? | 0 | 0 | ✓ | ✓ | ? |
| LFRMS Objective 4 – Preventing more people becoming exposed to risk | ✓ | ✓ | ✓ | 0 | 0 | 0 | 0 | ✓ | ✓ | 0 |
| LFRMS Objective 5 – Provide an effective and sustained response to flood events | ✓ | ✓ | 0 | 0 | 0 | 0 | 0 | ✓ | ✓ | 0 |

## 5.2 COMPATIBILITY ASSESSMENT FINDINGS

5.2.1 Table 5-2 above shows that none of the objectives have resulted in any incompatible findings. Unsurprisingly, SEA8 (reduce the risk of flooding) was the most compatible, showing alignment with all proposed objectives. Similarly, due to the protection offered from flooding and cross-cutting nature of flood risk, SEA1 (population and human health) has been deemed to be compatible with all LFRMS objectives.

5.2.2 SEA2 (economy) SEA9 (transport and critical infrastructure) is also considered to be compatible with all objectives, as they will increase understanding, preparedness and resilience, which is likely to offer greater protection to both businesses (and business owners) as well as critical infrastructure.

5.2.3 Objective 2 ‘Preparedness and building resilience’ was the most compatible objective, demonstrating alignment with almost all objectives as it is assumed that this objective will ensure that all aspects of the environment and community will be prepared for protected from flood risk.

5.2.4 SEA3 (Biodiversity) is considered to be compatible with LFRMS objectives 2, 3 and 4 by implementing and promoting nature-based solutions and working with communities to implement them. Biodiversity, ecosystem resilience, water quality, soil quality and function, mental health and physical health, carbon sequestration are some of the multiple benefits that nature-based solutions can deliver alongside flood risk benefits.

5.2.5 However, due to the high-level nature of these objectives, it is not clear whether these will support infrastructure, which could result in the loss of land and/or the degradation of the landscape and townscape character and the historic environment. Due to this, uncertain effects have been identified for landscape and townscape (SEA4), historic environment (SEA5) and soils (SEA10).

# 6 ASSESSMENT OF MEASURES

## 6.1 INTRODUCTION

6.1.1 The assessment of the LFRMS measures are summarised below and presented in full in **Appendix D.** A matrix approach has been used for the assessment which has used the significance criteria identified in **Table 6-1** below.

6.1.2 **Table 6-2** overleaf provides an overview on the performance of the LFRMS measures against each SEA objective and **Table 6-3** outlines significant effects based on each SEA objective. For the purpose of the SEA, significant effects are deemed to be the following:

- Significant Positive effects;
- Significant Negative effects; and
- Uncertain effects.

6.1.3 Further details on the insignificant effects i.e., minor positive, minor negative, mixed and neutral effects are detailed in **Appendix D**. The Appendix also sets out the nature of effects such as magnitude, spatial extent and duration.

**Table 6-1 – Significance of Effect**

| Effect Significance | Key |
|---|---|
| Potential for significant positive effects | ++ |
| Potential for minor positive effects | + |
| Potential for minor negative effects | - |
| Potential for significant negative effects | -- |
| Uncertain effects – Uncertain or insufficient information on which to determine the appraisal at this stage | ? |
| Potential for both positive and negative effects | +/- |
| Negligible / No effect | 0 |

## 6.2 ASSESSMENT OF MEASURES

6.2.1 Table 6-2 sets out the overview of effects from the assessment of measures.

**Table 6-2 – Overview of Effects**

| Measure | SEA1 | SEA2 | SEA3 | SEA4 | SEA5 | SEA6 | SEA7 | SEA8 | SEA9 | SEA10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1: Local Planning Authority (LPA) | + | + | + | + | 0 | 0 | 0 | + | + | 0 |
| 2. SuDS Approval Body (SAB) | + | + | + | ? | ? | + | + | ++ | + | ? |
| 3. Warnings and Forecast | + | + | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 |
| 4. Flood Monitoring | + | + | 0 | ? | ? | + | + | ++ | + | 0 |
| 5. Understanding Flood Risk | 0 | + | + | 0 | 0 | + | 0 | + | + | 0 |
| 6. Flood Modelling and Surveys | 0 | 0 | 0 | 0 | 0 | 0 | + | + | + | 0 |
| 7. Groundwater | + | + | 0 | 0 | 0 | + | 0 | + | 0 | 0 |
| 8. Historical Flooding | + | + | 0 | 0 | 0 | 0 | 0 | + | + | 0 |

| Measure | SEA1 | SEA2 | SEA3 | SEA4 | SEA5 | SEA6 | SEA7 | SEA8 | SEA9 | SEA10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 9. Flood Awareness and Education | + | + | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 |
| 10. Flood Risk Responsibilities | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | + | 0 |
| 11. Partnership Working | 0 | + | 0 | 0 | 0 | 0 | + | ++ | + | 0 |
| 12. Flood Response Plan | + | + | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 |
| 13. Community Resilience | + | + | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 |
| 14. Holistic Flood Response and Recovery | ++ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15. Investigating Flood Event | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 |
| 16. Recording of flood events | + | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 |
| 17. Natural Flood Management (NFM) | + | 0 | ++ | + | ? | + | + | + | + | ++ |

| Measure | SEA1 | SEA2 | SEA3 | SEA4 | SEA5 | SEA6 | SEA7 | SEA8 | SEA9 | SEA10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 18. Mineral Extraction | 0 | 0 | 0 | 0 | 0 | + | 0 | + | 0 | 0 |
| 19. Flood Risk and Climate Change | +/- | +/- | + | + | ? | + | + | + | + | + |
| 20. Flood Risk Management Schemes | + | + | ? | ? | ? | ? | ? | ++ | ++ | ? |
| 21. Flood Risk Asset Register and Record | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 |
| 22. Flood Asset Maintenance | + | + | 0 | 0 | 0 | 0 | + | + | + | 0 |

6.2.2 Table 6-3 sets out the summary of findings from the assessment of measures.

**Table 6-3 – Assessment of Measures – Summary of Findings**

| SEA Objective | Summary |
|---|---|
| SEA1: Population, Equalities & Human Health | SEA1 has resulted in a number of minor positive effects. These effects have the potential to the support and protection of the health and wellbeing of the boroughs current and future demographics, with measures focusing of reducing flood risk in high risk areas, engaging and educating the local communities on flood risk and implementing schemes to reduce the risk of floods such as SuDS, culvert maintenance schemes and improved responses to flooding.<br>Measures 1 and 6 specifically ensure future developments are directed away from flood risk areas.<br>In addition, there is the potential for minor negative impacts on the health and wellbeing of future populations if flood defences are no longer reliable. |
| SEA2: Economy | SEA2 has resulted in a number of minor positive effects. This is generally due to measures that aim to increase understanding of flood risk (Measure 5) to improving warning systems (Measure 3), and natural flood management schemes such as SuDS (Measure 2). When combined, these measures have the potential to help business owners prepare for the event of flood, allowing them to protect their assets and reduce the damage caused by flooding.<br>However, there is the potential for minor negative impacts on local businesses and the local economy if flood defences are no longer reliable. |
| SEA3: Biodiversity | Of the 22 measures, one significant positive and three minor positive effects have been identified on SEA3. These measures help protect and contribute to ecosystem functionality and present opportunities for biodiversity net gain.<br>Measures 1 and 2 specifically aim to incorporate SuDS at proposed developments within MTCB.<br>Uncertain effects have arisen where it is unclear how individual developments and flood risk management schemes plan to incorporate green infrastructure and biodiversity net gain as there is not enough detail provided. |
| SEA4: Landscape & Townscape | SEA4 has resulted in three minor positive effects. This is generally utilising Natural Flood Management schemes such as SuDS to protect and enhance the rural and urban environments within MTCB by reducing the risk of flooding. |

| SEA Objective | Summary |
|---|---|
| | Uncertain effects have arisen as it is uncertain how green infrastructure and landscaping will be implemented at individual developments in the future or how the design of monitoring stations and hard engineering will affect the townscape and landscape setting. |
| SEA5: Historic Environment | |
| SEA6: Water Environment | Of the 22 measures, seven have resulted in minor positive effects on SEA6. This is generally due to measures that aim to incorporate SuDS and NFM which have the potential to help reduce flooding and restore natural sediment processes.<br>Uncertain effects have arisen in measure20, where it is not yet known how proposals may impact the quality of groundwater. |
| SEA7: Climate Resilience | SuDS and their positive impact to the local climate. Additionally, the provision of flood risk modelling has the potential to |
| SEA8: Flood Risk | Out of the 22 measures, SEA8 has resulted in four significant positive effects. Aims within these measures have the potential to reduce flood risk in high-risk areas, improved culvert maintenance, raise awareness and develop real time monitoring of flood risk. |
| SEA9: Transport & Infrastructure | One significant positive effect has been identified for measure 20 where aims help to reduce the risk and vulnerability of |

| SEA Objective | Summary |
|---|---|
| SEA10: Geology & Soils | The majority of measures have resulted in negligible effects on SEA10. A significant positive effect has been identified where measure 17 (Natural Flood Management) has the potential to work with MTCB countryside team to incorporate NFM in land management led projects.<br><br>A minor positive effect has been identified in measure 19 where the incorporation of NFM schemes could help to enhance and maintain soil resources in and improve and restore poor quality land.<br><br>Two measures have resulted in uncertain effects, which have been attributed to the unknown nature of the scale of potential schemes and the land required and potential loss of valuable agricultural land and important geological sites. |

## 6.3 ASSESSMENT OF REASONABLE ALTERNATIVES

6.3.1 The LFRMS did not generate any specific alternative options, therefore, the SEA has considered the continuation of the existing strategy as a reasonable alternative.

6.3.2 The main assessment has been outlined in **Table 6-3** overleaf. Overall, the existing strategy has performed similarly to the proposed LFRMS, as many of the objectives and measures overlap and ultimately will ensure flood protection. Significant positive effects are likely to remain for SEA1 (population, equalities and health) and SEA8 (flood risk) through the continuation of this strategy.

6.3.3 Where the two strategies differ slightly is through the inclusion of hard engineering interventions such as the construction of channel and culverts, within the existing strategy. Although 'soft engineering' solutions will be preferred the assessment still identified a greater level of uncertainty, when compared to the proposed new strategy. These are generally associated with temporary adverse construction effects and longer-term effects from potential land take and degradation of the existing setting. This has resulted in uncertain effects on landscape and townscape (SEA4), the historic environment (SEA5) and geology and soils (SEA10).

6.3.4 Although options could result in land take, due to the 'Habitats Monitoring' measure there is potential for the existing strategy to still provide protection to valuable habitats and species, hence the potential for both positive and negative effects. The new proposed strategy doesn't include its own objective on improving biodiversity, but it is woven into the 'natural flood management' and 'local planning authority'. These may not offer as much protection as the previous strategy.

6.3.5 SEA2 (economy) has also resulted in uncertain effects. Overarching objective 1 aims to reduce community disruption by reducing the number of residential and commercial properties affected by the risk of flooding, however, the strategy doesn't set out any specific measures to support local businesses. It is not clear how local businesses will be supported.

6.3.6 Overall, as the new strategy include less hard measures and a greater level of detail on the proposed measures, it has more potential to result in a greater number of positive effects on the SEA objectives.

**Table 6-4 – Assessment of Alternatives**

| SEA Objective | Sig. Effect | Summary |
|---|---|---|
| SEA1: Population, Equalities & Human Health | ++ | The strategy includes a high-level strategy to take action to reduce social, economic and environmental impact due to flooding. More specific objectives (such as objective 10 – preparedness and objective 14 – risk assessment) specifically aim to reduce the impacts of flooding on the local population and human health. The strategy supports community engagement to support overall awareness and preparedness. |
| SEA2: Economy | ? | Overarching objective 1 aims to reduce community disruption by reducing the number of residential and commercial properties affected by the risk of flooding, however, the strategy doesn't set out any specific measures to support local businesses. It is not clear how local businesses will be supported. |
| SEA3: Biodiversity | +/- | Proposed measures have been designed to give high priority to those that will likely improve biodiversity. The 'SuDS' measure aims to provide habitats for wildlife in urban areas and opportunities for biodiversity enhancement. The existing 'Habitats Monitoring' measure aims to monitor the change (reduction, increase, improvement of natural habitats) in line with the local Biodiversity Action Plan. These measures are likely to contribute to biodiversity net gain, however, measures do also include hard defences, which could result in the damage and degradation of biodiversity. There is no mention of biodiversity net gain. |
| SEA4: Landscape & Townscape | ? | The 'SuDS' measure aims to provide habitats for wildlife in urban areas and opportunities for biodiversity enhancement. This in turn could provide enhancements to the landscape and townscape setting. However, the strategy doesn't recognise he potential implications that flooding can cause to the landscape and townscape setting, in particular the importance of the Bannau Brycheiniog National Park. The introduction of hard engineering solutions could adversely affect the setting of the landscape and townscape. |
| SEA5: Historic Environment | ? | The 'Historic Assets' objective aims to undertake surveys to establish what measures, where practicable, will be required in order to provide additional resistance from the entry of flood water to historic assets in a manner which is sympathetic to their architectural and historic interest. This will also draw upon the existing database of recorded historic assets, prior to any commencement of works. Although great protection will be given the historic environment, the strategy still aims to introduce infrastructure that has potential to adversely affect the setting of the historic environment. |
| SEA6: Water Environment | + | Overarching objective 3 aims to 'protect and improve water quality'. This objective is supported by a number of measures which are aimed at improving water quality such as 'SuDS' and 'Sustainable and Strategic Development Planning'. These are however, focussed more on surface water quality rather than groundwater. |

| SEA Objective | Sig. Effect | Summary |
|---|---|---|
| SEA7: Climate Resilience | + | The strategy will offer resilience to climate change, however some measures (such as 'channel construction and maintenance' and 'culvert construction and maintenance') may include high levels of embodied carbon during construction. However, maintenance will be preferred over total replacement/ construction, which could preserve the existing infrastructure. |
| SEA8: Flood Risk | ++ | All measures aim to reduce the risk of flooding from all sources, increasing the resilience/ decreasing the vulnerability to flooding. |
| SEA9: Transport & Infrastructure | + | Overall objective 1 aims to 'reduce disruption to critical infrastructure or prepare plans to allow the operations to be maintained'. There is not any specific measure that deals with the protection of critical infrastructure, however, it is likely that as all measures aim to reduce the risk of flooding and increase resilience, infrastructure will likely be protected. |
| SEA10: Geology & Soils | ? | There is potential for the Strategy to influence land management for flood risk benefit, which includes the reduction of fertiliser and other changes in farming practice. The effects this may have on overall soil quality is not clear. It is also not clear if interventions which may come forward would result in the loss of high quality agricultural land or geologically important sites. |

# 7 CUMULATIVE EFFECTS

## 7.1 INTRODUCTION

7.1.1 The SEA Regulations require that cumulative effects are considered when identifying likely significant effects. Cumulative effects arise, for instance:

- Where several individual measures have a combined effect on an objective; or
- Where several measures each have insignificant effects but together have a significant effect.

7.1.2 The significance of cumulative effects resulting from a range of activities, or multiple incidences of one activity, may vary based on factors such as the nature of the proposed sites and policies and the sensitivity of the receiving communities and environment.

7.1.3 This section therefore presents the findings of the following:

- Consideration of how different proposed measures within the MTCBC may interact and cause cumulative effects on a receptor (Intra-project effects); and
- How the proposed measures within LFRMS could cause cumulative effects in association with other plans, policies and projects in the surrounding area (Inter-project effects).

## 7.2 INTRA-PROJECT EFFECTS

7.2.1 The SEA assessment of both policies and strategic sites drew out potential intra-project cumulative effects. These have been identified in **Table 7-2** below.

7.2.2 **Table 7-1** below outlines the key to effects for intra-project cumulative effects.

**Table 7-1 – Key to Cumulative Effects**

| Effect | Key |
|---|---|
| Positive cumulative effect | + |
| Negative cumulative effects | - |
| Mixed cumulative effects | +/- |
| Uncertain cumulative effects | ? |
| No overall cumulative effects | 0 |

**Table 7-2 – Intra-Project Effects**

| SEA Objective | Effect | Summary of Effects |
|---|---|---|
| SEA1: Population, Equalities & Human Health | + | The increased level of protection offered across the proposed measures is likely to give rise to cumulative increase in protection offered to current and future populations. |
| SEA2: Economy | + | The increased level of protection offered across the proposed measures is likely to give rise to cumulative increase in protection offered to current and future developments |
| SEA3: Biodiversity | ? | The level of infrastructure required to for some schemes and the ratio of hard to soft engineering is not yet known.<br>If multiple hard engineering schemes are required, there is potential for a cumulative loss of land and therefore potential habitats (permanent negative effect). Construction activities are also likely to temporarily adversely affect nearby habitats and species through noise, disruption and loss of visual amenity due to the presence of construction plant and activities.<br>Soft engineering solutions have the potential to give rise to a cumulative increase in the levels of green infrastructure and habitats. |
| SEA4: Landscape & Townscape | ? | The level of infrastructure required to for some schemes and the ratio of hard to soft engineering is not yet known.<br>If hard engineering schemes are required, construction is likely to temporarily adversely affect the landscape and townscape setting, through noise, disruption and loss of visual amenity due to the presence of construction plant and activities. Longer term permanent effects may also be caused by the potential loss of visual amenity from poorly designed schemes.<br>Soft engineering solutions have the potential to give rise to a cumulative increase in the levels of green infrastructure. |
| SEA5: Historic Environment | +/- | Multiple measures in combination could provide a cumulative increase in protection to the historic environment. However, the location and level of infrastructure required for some schemes and the ratio to hard to soft engineering is not yet known. There could be a cumulative degradation of the historic environment if multiple insensitive schemes were to come forward. |
| SEA6: Water Quality | ? | There is potential for an adverse intra-cumulative effect on water quality from construction works, through potential pollution from surface water run-off and dust spoiling which may cause issues with suspended solids, mobilisation of pollutants, and eutrophication.<br>However, this is dependent upon the ratio of hard to soft engineering options that may come forward. If NFM are favoured, delivery of multiple schemes could help to improve water quality as many of the mechanisms by which NFM measures help reduce flooding also work to restore natural sediment processes and improve water quality. |

| SEA Objective | Effect | Summary of Effects |
|---|---|---|
| | | These can help to mimic natural regulatory processes which can help to maintain and improve water quality |
| SEA7: Climate resilience and energy efficiency | +/- | Depending on the number and type of schemes that come forward there is potential for a cumulative increase in embodied carbon, particularly if a high number of hard engineering schemes were to come forward.<br>Conversely, increased resilience to flooding will help to ensure that infrastructure is given greater resilience to the effects of climate change. Delivery of multiple schemes and measures may cumulatively increase resilience. |
| SEA8: Flood Risk | + | The increased level of protection offered across the proposed measures is likely to give rise to cumulative increase in protection from flood risk. |
| SEA9: Transport & Infrastructure | + | The increased level of protection offered across the proposed measures is likely to give rise to cumulative increase in protection offered to critical and transport infrastructure. |
| SEA10: Geology & Soils | ? | The level of infrastructure required for some schemes and the ratio of hard to soft engineering is not yet known.<br>If multiple hard engineering schemes are required, there is potential for a cumulative loss of land and therefore potential valuable agricultural land and geological sites.<br>Soft engineering solutions have the potential to give rise to a cumulative increase in the levels of protection to valuable agricultural land and help to improve soil quality. |

## 7.3 INTER-PROJECT EFFECTS

7.3.1 **Table 7-3** below outlines the sources of potential inter-cumulative effects, whilst **Table 7-4** details the cumulative effects identified for each of the SEA Topics in relation to these policies and plans. This uses the same key to effects as set out in **Table 7-1** above.

**Table 7-2 – Sources of Inter-Cumulative Effects**

| Policy or Plan | Plan Details |
|---|---|
| **Replacement Local Development plan, 2020** | The Replacement Local Development plan provides the local planning policy framework for the area until 2031. It is the basis for land use planning decisions in the County Borough, excluding the Bannau Brycheiniog National Park. |
| **South east Wales Valley's Local Transport Plan** | Jointly produced by Blaenau Gwent, Caerphilly, Merthyr Tydfil, Rhondda Cynon Taf and Torfaen County Borough Councils, the plan sets out the local authorities' priorities for transport schemes in the five year period 2015 to 2020, and their medium and longer term aspirations up to 2030. |
| **Decarbonisation Plan 2023-2030** | The provides a framework for working towards net zero carbon emissions in the county up to 203. The document is separated into six key theme areas with accompanying Action Plans. These include buildings and estate planning, mobility and transport, procurement, outsourced services, land management and governance. |
| **Neighbouring Local Plans** | Local plans in neighbouring local authorities (Caerphilly, Rhondda Cynon Taf) influence cross-boundary development improvements. Note: While Powys is a neighbouring LA, the LDP does not cover the Bannau Brycheiniog National Parc. Therefore, there is a separate one for the Brecon Beacons.<br><br>The plans include:<br>▪ Caerphilly Local Development Plan up to 2021 (Adopted 2010) and its review in 2021;<br>▪ Rhondda Cynon Taf LDP up to 2021 (Adopted 2011) and its review in 2020;<br>▪ Bannau Brycheiniog National Parc LDP (2007-2022 and beyond),<br>▪ Powys LFRMS (2013-2017); and<br>▪ Rhondda Cynon Taf LFRMS 2013. |

**Table 7-4 – Inter-Project Cumulative Effects Summary**

| SEA Objective | Replacement Local Development plan | South East Wales Valley's Local Transport Plan | Decarbonisation Plan 2023-2030 | Neighbouring Local Plans | Summary of Effects |
|---|---|---|---|---|---|
| SEA1: Population, Equalities and Health | +/- | 0 | + | +/- | There are some positive cumulative effects due to mitigation measures such as SuDs and ensuring new developments are not within a high flood risk zone, which will help to increase and enhance flood protection.<br>There is a potential for negative cumulative effects due to the increased strain on existing community health facilities resulting from the increased demand from new populations.<br>The provision and improvements to the public realm, transport infrastructure and open spaces and carbon reduction plans, will result in positive effects on the health and wellbeing of the population in the region. This is because access to greenspace and active travel options can provide better mental health and wellbeing outcomes including reduced levels of depression, anxiety and enhanced quality of life, as well as helping to bind communities together, reduce loneliness, and mitigate the negative effects of air pollution and excessive noise. |
| SEA2: Economy | +/- | 0 | 0 | +/- | There are potential negative cumulative effects due to increased development causing increased risk to surface water runoff. However, positive cumulative effects would increase levels of flood protection by incorporating permeable surfaces and SuDs |
| SEA3: Biodiversity | +/- | +/- | + | +/- | Potential for cumulative loss, damage or fragmentation of statutory and non-statutory sites and habitats due to the provision of housing developments and transport infrastructure. Although it is assumed that protected species would be mitigated at a project level, there are wider impacts on biodiversity.<br>Positive cumulative effects may result through biodiversity net gain over multiple plans. These are likely to be driven by policies where green infrastructure is incorporated in design |

| SEA Objective | Replacement Local Development plan | South East Wales Valley's Local Transport Plan | Decarbonisation Plan 2023-2030 | Neighbouring Local Plans | Summary of Effects |
|---|---|---|---|---|---|
| | | | | | to increase biodiversity and if biodiversity is lost on site, mitigation measures will improve the quality and management of the rest of the site or deliver off-site compensation of better biodiversity value.<br>Further positive cumulative effects will result from the development of sustainable transport schemes. This will increase access to active transport and public transport modes, reducing the use of a private car, and therefore reducing greenhouse gas emissions, journey times and congestion, resulting in increased tranquillity and air quality. |
| SEA4: Landscape & Townscape | +/- | +/- | + | +/- | The provision of public realm improvements through the Local Plans and transport plans could help to increase and improve the open space offering as well as the setting of the county's townscape and landscape. This will result in positive cumulative effects; however, multiple developments could result in a cumulative loss of open spaces. |
| SEA5: Historic environment | + | +/- | 0 | + | There is the potential for temporary negative cumulative effects on the historic environment from multiple housing developments and transport schemes in Merthyr Tydfil and neighbouring counties.<br>During construction of these developments there is the potential for disturbance to the historic environment due to noise and air pollution.<br>Positive cumulative effects will also result from the development of sustainable transport schemes. This will increase access to public transport modes, reducing the use of private cars, and therefore reducing greenhouse gas emissions, journey times and congestion, resulting in increased tranquillity and setting of the historic environment.<br>Further potential positive effects could result due to the improved access to the historic environment by improved transport schemes, including improved active transport links which could present opportunities to generate activity and vitality. |

| SEA Objective | Replacement Local Development plan | South East Wales Valley's Local Transport Plan | Decarbonisation Plan 2023-2030 | Neighbouring Local Plans | Summary of Effects |
|---|---|---|---|---|---|
| SEA6: Water Quality | + | 0 | 0 | + | There is potential for cumulative increase in impacts on surface water and groundwater, particularly from physical alteration as a result of development. Drainage and water quality measures are likely to be specific to each development. Mitigation measures for developments will be run by policy in the local plans. |
| SEA7: Energy Efficiency | + | + | + | + | Positive cumulative effects have the potential to result from new and improved developments and infrastructure, from low carbon and energy efficient design, which is resilient to the effects of climate change. Climate change adaptation measures are likely to be specific to each local plan. |
| SEA8: Flooding | +/- | 0 | 0 | +/- | The addition of increased use of hard standing surfaces as part of the proposed housing provision and transport developments will increase surface water runoff, therefore, resulting in potential negative effects on flooding.<br>However, the proposed developments are likely to incorporate permeable surfaces and SUDs which will help to reduce flood risk if implemented county-wide. Plans will also ensure to develop away from areas with flood risk. |
| SEA9: Critical Infrastructure | + | 0 | 0 | + | Local development plans will incorporate the use of SuDs to new developments to mitigate flooding and diverting surface water runoff. This would have positive cumulative effects on transport and other critical infrastructure. |

| SEA Objective | Replacement Local Development plan | South East Wales Valley's Local Transport Plan | Decarbonisation Plan 2023-2030 | Neighbouring Local Plans | Summary of Effects |
|---|---|---|---|---|---|
| SEA10: Geology & Soils | + | - | 0 | + | There are positive cumulative effects as local development plans promote the efficient use of land soils and minerals through re-use and restoration, especially with new developments. However, there may be temporary negative cumulative effects due to construction and potential land take of new housing and transport developments and infrastructure. |

# 8 MITIGATION, ENHANCEMENT & MONITORING MEASURES

## 8.1 MITIGATION AND ENHANCEMENT MEASURES

8.1.1 Mitigation of significant negative effects of the plan and enhancement of positive effects are a key purpose of SEA. The SEA Regulations require that mitigation measures are considered to prevent, reduce or offset any significant adverse effects on the environment of implementing the plan. The measures are known as 'mitigation' measures. Mitigation measures include both proactive avoidance of adverse effects and actions taken after potential effects are identified.

8.1.2 The mitigation measures proposed in **Table 8-1** are designed to avoid or reduce the effects identified as potentially negative through the policy assessments on the SEA Objectives. The table also includes enhancement measures, that aim to optimise positive impacts and enhance sustainability.

**Table 8-1 – Mitigation, Enhancement and Monitoring**

| IIA Objective | Mitigation/ Enhancement | Mechanism |
|---|---|---|
| SEA1: Population, equalities and health | Communication should not be limited to social media. Measures should ensure that all groups are reached inclusively and in a timely manner. Consideration should be given to those who may not have access or the knowledge to access the internet and/or a smart phone. | Within the LFRMS<br>Scheme level HIA |
| SEA1: Population, equalities and health<br>SEA2: Economy | Best practice mitigation measures e.g., noise and air quality management, should be implemented to minimise effects during construction on the local population. Active engagement with the local community should be undertaken prior to the commencement of any construction activities. | Construction Environmental Management Plan (CEMP)<br>Community Engagement Plan<br>Scheme level HIA |
| SEA1: Population, equalities and health<br>SEA3: Biodiversity | NFM solutions should present opportunities for new areas of green infrastructure and green space which can be accessed by the local community. | Within the LFRMS<br>Scheme level HIA<br>Scheme level design<br>Project level environmental assessment |
| SEA3: Biodiversity | Schemes should incorporate the biodiversity net gain where possible.<br>Opportunity to work with natural processes to manage flood risk and enhance biodiversity and ecosystem resilience through habitat creation, green engineering and natural management techniques, in line with Section 6 duty and resilience of ecosystems duty. | Within the LFRMS<br>Scheme level design<br>Project level environmental assessment |

| IIA Objective | Mitigation/ Enhancement | Mechanism |
|---|---|---|
| SEA3: Biodiversity | Scheme design should aim to minimise the environmental effects by 'designing to avoid' potential habitat features that may be of local, national and international importance. Habitat loss should be avoided, but where this can't be avoided, habitats will be reinstated upon completion of construction, and compensatory habitat should be considered to replace damaged or lost habitat. | Scheme level design<br>Project level environmental assessment<br>CEMP<br>Biodiversity Management Plan |
| SEA4: Landscape & Townscape<br>SEA5: Historic Environment | Measures should incorporate Construction Industry Research and Information Association's (CIRIA) guidance on SuDS design to ensure high-quality design that will minimise the effects on the historic environment | Scheme level design<br>Project level environmental assessment |
| SEA4: Landscape & Townscape<br>SEA5: Historic Environment | Developments should be well-designed and screened to ensure that their effects on the local townscape, landscape and historic setting are minimised. | Scheme level design<br>Project level environmental assessment |
| SEA5: Historic Environment | Careful consideration should be given to the potential presence of heritage assets (particularly buried archaeology) when finalising proposals for pipeline routing. Where required, a programme of trial trenching and archaeological recording should be undertaken. | Archaeological/ heritage surveys<br>CEMP |
| SEA6: Water Quality | Care should be taken during construction regarding the potential for contaminants such as silt, concrete or fuel oil to pollute water courses via surface run off. All construction activities should be undertaken in accordance with relevant best practice pollution prevention guidance.<br>Pollution Incident Control Management Plans should be developed to limit adverse effects arising from pollution events.<br><br>Nature based solutions and natural flood management offer an opportunity to restore heavily modified channels to natural processes. Therefore, the current statement isn't correct. Where waterbodies might be classified as a HMWB as a result of their function as a flood risk asset, there are still opportunities to deliver mitigation measures to help achieve Good Ecological Potential. | CEMP<br>Pollution Incident Control Management Plan |
| SEA6: Water Quality | NFM should also avoid heavily modified channels. | Scheme level design |

| IIA Objective | Mitigation/ Enhancement | Mechanism |
|---|---|---|
| | Potential to contribute to improving ecological status of water bodies by identifying synergies between flood and coastal erosion risk management solutions and WFD measures. | Project level environmental assessment |
| SEA6: Water Quality | Schemes should be design and carefully located to try and avoid intrusive works such as piling which could mobilise contaminants.<br><br>Dependent on the nature of proposed flood risk schemes, natural hydromorphological functions could be impacted, resulting in negative effects. | Scheme level design/ optioneering<br><br>Project level environmental assessment |
| SEA7: Climate resilience and energy efficiency | Schemes should incorporate sustainable design measures to reduce overall levels of embodied carbon. The use of renewables for the energy supply during construction and operation will be investigated, as well as the use of materials with lower embodied carbon. | Scheme level design<br><br>Project level environmental assessment |
| SEA10: Geology and soils | Schemes should be directed away from areas of valuable agricultural land and/or important geological sites and reduce mobilisation of contaminants. | Scheme level design<br><br>Project level environmental assessment |

## 8.2 MONITORING MEASURES

8.2.1 The SEA Regulations require that monitoring is undertaken on a plan so that the significant effects of implementation can be identified, and remedial action imposed. The purpose of the monitoring is to provide an important measure of the sustainability outcome of the final plan, and to measure the performance of the plan against sustainability objectives and targets. Monitoring is also used to manage uncertainty, improve knowledge, enhance transparency and accountability, and to manage sustainability information.

8.2.2 The aim of monitoring is to check whether the plan is having the significant effects that were predicted in the SEA, and to deal with any unforeseen problems. Those remaining significant effects (albeit uncertain effects) that remain following the implementation of the mitigation and enhancement measures above include the following:

- **SEA3 (Biodiversity):** Potential loss of and fragmentation of habitats from the construction of flood defence schemes.
- **SEA4 (Landscape and Townscape):** Potential degradation of the landscape and townscape from the construction of flood defence schemes.
- **SEA5 (Historic Environment):** Potential loss of heritage assets (including archaeological remains) and deterioration of the historic setting from the construction of flood defence schemes.
- **SEA6 (Water Quality):** Potential degradation of groundwater quality **SEA7 (Energy Efficiency):** The uptake in low carbon energy efficient design.
- **SEA10 (Geology and Soils):** Potential loss of agricultural land from the construction of flood defence schemes.

8.2.3 It should be noted that these uncertain effects are generally where limited scheme information is currently available.

8.2.4 Table 8-2 below sets out those monitoring measures which could be suitable in monitoring those uncertain residual effects outlined above. Additional monitoring measures have also been included to monitor the potential significant positive effects of the LFRMS.

8.2.5 MTCBC will be responsible for undertaking monitoring.

**Table 8-2 – Proposed Monitoring Measures**

| SEA Objective | What could be measured? | Mechanism |
|---|---|---|
| SEA3: Biodiversity | The number of new schemes achieving biodiversity net gain<br>The ratio of hard to NFM schemes | Scheme level design<br>Annual monitoring |
| SEA4: Landscape and Townscape | Loss or damage to landscape character and features of designated sites (e.g. AONBs/ Brecon Beacons).<br>Area of blue and green infrastructure created<br>The ratio of hard to NFM schemes | Scheme level design<br>Annual monitoring |

| SEA Objective | What could be measured? | Mechanism |
|---|---|---|
| SEA5: Historic Environment | Number of developments within a conservation area.<br>Number of historic assets (including buried heritage) lost and/or discovered.<br>Number of heritage assets benefiting from flood protection. | Scheme level design<br>Annual monitoring |
| SEA6: Water quality | WFD water quality | Scheme level WFD risk assessment |
| SEA7: Energy Efficiency | Number of schemes that promote energy efficiency.<br>Number od schemes that make use of existing infrastructure. | Scheme level design |
| SEA10: Geology and Soils | Area of greenfield land disturbed or lost.<br>% of agricultural land lost. | Scheme level design<br>Annual monitoring |
| ***Additional Monitoring Measures*** | | |
| SEA1: Equalities and Human Health | The number of properties benefiting from flood protection<br>% increase of green/blue infrastructure | Scheme level design<br>Annual monitoring |
| SEA2: Economy and Businesses<br>SEA8: Flood risk<br>SEA9: Critical Infrastructure | The number of properties benefiting from flood protection<br>The number of businesses benefiting from flood protection<br>The number of critical infrastructure assets benefiting from flood protection | Annual monitoring |
| SEA10: Geology and Soils | % of land that is restored and improved | Annual monitoring |

# 9 RECOMMENDATIONS

9.1.1 This section sets out the recommendations identified throughout the SEA assessment. It should be noted that these are different from the mitigation measures outlined in **Section 8** above, as they focus on potential changes to the LFRMS, rather than measures identified in response to significant effects.

9.1.2 These changes have been considered by MTCBC following consultation and have been included as part of the final LFRMS. **Table 9-1** below outlines these recommendations.

**Table 9-1 – SEA Recommendations**

| Item | Recommendation |
|---|---|
| General | If known, it is recommended that the LFRMS include the indicative programme of flood risk management schemes and the types of schemes to be delivered. |
| Strategy objectives | The overarching objectives are lacking in detail, which has resulted in some uncertain effects with the SEA objectives. Providing further details on what the objectives could entail would increase the overall compatibility. |
| Measure 1 | This measure could also be linked to Local Development Plan to ensure that flood risk is a key consideration at the strategic plan level as well as integrated in the site selection criteria. |
| Measure 2 | It is recommended that the measure includes an insurance of 'high quality design' to ensure that SuDS are well incorporated into the natural and historic environment and don't detract from these settings. |
| Measure 2 | This measure should also make it clear as to whether it also includes rural SuDS as their management is slightly different to urban SuDS. |
| Measure 3 | This measure should also consider detailing other communication measures which may be used to reach those members of the community that may not have access to social media. |
| Measure 9 | This measure could also include refresher workshops to ensure the community continue to be well informed and do not become complacent to the risks. |
| Measure 17 | The measure could include further details on the types of NFMs proposed. |
| Measure 19 | It is recommended that the 'relocation' element of the measures is detailed further as it is not entirely clear whether this is the whole community and/or applies to existing or proposed developments. |
| Measure 20 | The measure could also outline a criterion/ threshold as to when hard engineering solutions would be considered e.g., after all NFM solutions have been considered, the value/ importance of the asset that requires protecting etc. |
| Measure 22 | It is recommended that the measure provides further details on what is meant by 'Improved amenity benefit of well-maintained assets'. |

# 10 NEXT STEPS

10.1.1 In accordance with the SEA Regulations, the SEA Report must be made available at the same time as the draft plan or programme, as an integral part of the consultation process, and the relationship between the documents clearly indicated.

10.1.2 MTCBC sought the views of statutory bodies and other stakeholders on the results of the SEA, in order to ensure that the SEA provided a robust assessment of the LFRMSS. The ER has been updated in light of comments received during consultation.

10.1.3 Once the LFRMS is adopted, an SEA Statement will be produced to document this process and will include a record of the comments received on both the LFRMS and SEA Environmental Report, and the actions taken as well as setting out how the SEA has influenced the development of LFRMS.

# Appendix A

## REVIEW OF PLANS, POLICIES & PROGRAMMES

**Table A-1 - Relevant Plans, Policies, Strategies and Programmes – Population and Human Health**

| Document | Key Messages/ Issues |
|---|---|
| ***National*** | |
| The Equality Act, 2010 | The Equality Act 2010 legally protects people from discrimination in the workplace and in wider society. It is against the law to discriminate against anyone because of:<br>▪ Age;<br>▪ Being or becoming a transsexual person;<br>▪ Being married or in a civil partnership;<br>▪ Being pregnant or having a child;<br>▪ Disability;<br>▪ Race including colour, nationality, ethnic or national origin;<br>▪ Religion, belief or lack of religion/belief;<br>▪ Sex; and<br>▪ Sexual orientation. |
| Planning Policy Wales, 2021 (Edition 11) | Planning policies, proposals and decisions must seek to promote sustainable development and support the well-being of people and communities across Wales. Planning authorities should ensure that social, economic, environmental and cultural benefits are considered in the decision-making process. Applicants should provide evidence that they have considered reasonable opportunities to deliver environmental and social benefits as part of schemes. |
| Future Wales, The National Plan 2040 | "The regional approach will recognise that different parts of Wales work differently to each other, with distinct underlying characteristics and challenges. Inequalities in the four regions will be addressed by building stronger links between public services, communities and business. Each region will be encouraged to build on their existing strengths and pursue opportunities to achieve greater prosperity and well-being". |
| Well-being of Future Generations (Wales) Act 2015 | The Act puts in place seven well-being goals. The Act makes it clear the listed public bodies must work to achieve all of the goals:<br>▪ A prosperous Wales<br>▪ A resilient Wales1 |

| Document | Key Messages/ Issues |
|---|---|
| | ▪ A more equal Wales<br>▪ A Healthier Wales<br>▪ A Wales of cohesive communities<br>▪ A Wales of Vibrant Culture & Thriving Welsh Language<br>▪ A Globally Responsible Wales<br><br>This is about ensuring that future generations have at least the same quality of life as we do now. The act provides for better decision-making by ensuring that public bodies:<br><br>▪ take account of the long term<br>▪ help to prevent problems occurring or getting worse<br>▪ take an integrated approach<br>▪ take a collaborative approach<br>▪ consider and involve people of all ages and diversity |
| Build Back Fairer: The Covid-19 Marmot Review, 2020 | The Marmot Review identified that the levels of social, environmental and economic inequality in society are damaging health and well-being. This report identifies that as the UK emerges from the pandemic it would be a mistake to attempt to re-establish the status quo that existed before the pandemic.<br><br>The reductions in car traffic during the pandemic resulted in cleaner air and reduction in emission of greenhouse gases. Walking and cycling as modes of transport became both necessary and desirable. As the pandemic is brought under control and public transport again becomes safe, a future for our cities based on reduction in vehicle traffic and made safe for walking and cycling in addition to public transport is a future we can both imagine and realise.<br><br>Building Back Fairer requires a sizeable reduction in private car use and greater active travel and use of public transport. Efforts to support this are required urgently and would help to reduce Greenhouse Gas Emissions and lead to a more sustainable environment. |
| The Strategy for Older People in Wales: Living Longer, Ageing Well (2013-2023) | The Strategy for Older People in Wales identified a vision to make Wales a great place to grow old. The Strategy aims to address the barriers faced by older people in Wales today and to ensure that well-being is within the reach of all. The vision is:<br><br>▪ That all older people in Wales have the social, environmental and financial resources they need to deal with the opportunities |

| Document | Key Messages/ Issues |
|---|---|
| National Assembly for Wales (2014) Social Services and Well Being (Wales) Act 2014 | The Social Services and Well-being (Wales) Act 2014 is an Act of the National Assembly for Wales that reforms social services law and aims to improve the well-being of people who need care and support and carers who need support. It provides a legal framework for care and support in Wales, based on core principles of co-operation, partnership, and outcomes.<br><br>The Act imposes duties on local authorities, health boards and Welsh Ministers that require them to work to promote the well-being of those who need care and support, or carers who need support.<br><br>The principles of the Act are:<br><br>■ The Act supports people who have care and support needs to achieve well-being<br>■ People are at the heart of the new system by giving them an equal say in the support they receive<br>■ Partnership and co-operation drives service delivery<br>■ Services will promote the prevention of escalating need and the right help is available at the right time |
| Welsh Government (2016) Strategic Equalities Plan | ■ Objective 1 – Design and delivery of public services<br>■ Objective 2 – Advice, information and advocacy<br>■ Objective 3 – Employment, skills and pay<br>■ Objective 4 – Reducing harassment and abuse<br>■ Objective 5 – Engagement and participation in decision-making<br>■ Objective 6 – Strengthening community cohesion<br>■ Objective 7 – Reducing poverty and improving living conditions<br>■ Objective 8 – Welsh Government as an exemplar employer |
| The Socio-economic Duty, 2021 | The Socio-economic Duty aims to encourage better decision making and ultimately deliver better outcomes for those who are socio-economically disadvantaged. This statutory guidance is aimed at helping those public bodies who are captured by the Duty (“public bodies”) to deliver the requirements of the Duty. |
| Welsh Government (2017) Prosperity for All: The National Strategy | The strategy sets out a vision and actions covering each of the key themes in the Programme for Government – Prosperous and Secure, Healthy and Active, Ambitious and Learning, and United and Connected. It also identifies 5 priority areas which have the<br><br>■ Early years<br>■ Housing<br>■ Social care |

| Document | Key Messages/ Issues |
|---|---|
| | ▪ Mental health<br>▪ Skills |
| South Central Wales Area Statement | Area Statements were launched in 2020 and the South Central Wales Area Statement – which consists of five key themes – sets out to address the legacies of the past along with the challenges and opportunities of the future, exploring ways we can work together to protect, value and embrace the natural environment while also putting it at the heart of the decision-making process, in line with the Welsh Government's Natural Resources Policy of 2017.<br><br>The connecting people with nature theme states:<br>*"There is a pressing need to ensure we maintain and improve people's connection to, and appreciation of, the natural world. Unfortunately, it is all too easy for communities to become physically and mentally disconnected from nature. Expansive grey urban infrastructure can often, quite literally, act as a barrier. Over the coming years, significant urban growth is scheduled to take place across South Central Wales. It is our vision that people are surrounded by good quality environment, at the same time protecting, managing and maintaining our unique urban/rural blend"* |
| ***Local*** | |
| MTCBC First Replacement Local Development Plan 2016-2031 | The LDP vision and objectives provide an over-arching context for the plan that shows how economic, social, cultural and environmental considerations are balanced to deliver the sustainable development of MTCB up to 2031. The vision is to strengthen Merthyr Tydfil's position as the regional centre for the Heads of the Valleys within the Cardiff Capital Region, to encourage a sustainable level of population growth and be a place to be proud of where:<br><br>▪ People learn and develop skills to fulfil their ambitions;<br>▪ People live, work, have a safe, healthy and fulfilled life; and<br>▪ People visit, enjoy and return. |
| MTCBC Strategic Equality Plan 2020-2024 | The Equalities Vision for Merthyr Tydfil is: "A place where diversity is valued and respected and everyone can participate, flourish |

| Document | Key Messages/ Issues |
|---|---|
| Cwm Taf Morgannwg Public Services Board – Well-being Assessment and Well-being Plan 2023-2028 | The Cwm Taf Morgannwg Public Services Board (PSB) brings together key local partners in the Merthyr Tydfil, Bridgend and Rhondda Cynon Taf local authority areas.<br>The overarching theme of the Well-being Plan is 'A More Equal Cwm Taf Morgannwg' and that drives every aspect of the Public Services Board's work. The two objectives are:<br>• Healthy Local Neighbourhoods – A Cwm Taf Morgannwg where our communities are inclusive, feel cohesive and people feel safe, supported, and valued.<br>• Sustainable and Resilient Local Neighbourhoods – A Cwm Taf Morgannwg where we understand and respond to the risk of climate change to our communities. To do this we must value, manage and enjoy our green and blue spaces responsibly. |

**Table A-2 - Relevant Plans, Policies, Strategies and Programmes - Human Health**

| Document | Key Messages/ Issues |
|---|---|
| ***National*** | |
| Build Back Fairer: The Covid-19 Marmot Review, 2020 | The Marmot Review identified that the levels of social, environmental and economic inequality in society are damaging health and well-being. This report identifies that as the UK emerges from the pandemic it would be a mistake to attempt to re-establish the status quo that existed before the pandemic.<br>The reductions in car traffic during the pandemic resulted in cleaner air and reduction in emission of greenhouse gases. Walking and cycling as modes of transport became both necessary and desirable. As the pandemic is brought under control and public transport again becomes safe, a future for our cities based on reduction in vehicle traffic and made safe for walking and cycling in addition to public transport is a future we can both imagine and realise.<br>Building Back Fairer requires a sizeable reduction in private car use and greater active travel and use of public transport. Efforts to support this are required urgently and would help to reduce Greenhouse Gas Emissions and lead to a more sustainable environment. |

| Document | Key Messages/ Issues |
|---|---|
| Planning Policy Wales, 2021 (Edition 11) | |
| Welsh Government (2012) Together for Mental Health: A Strategy for Mental Health and Wellbeing in Wales | Together for Mental Health is a cross-Government Strategy setting out goals for improving mental health and mental health services in Wales. It is the first Mental Health Strategy that covers all ages; children and young people, adults of working age and older people. It looks to promote the mental wellbeing of all people in Wales and to ensure that people with mental health problems and mental illness get the support they need. This should be through an approach, which helps them to recover and looks at all the areas of a person's life.<br><br>The Strategy has six outcomes:<br><br>▪ The mental health and wellbeing of the whole population is improved.<br>▪ The impact of mental health problems and/or mental illness on individuals of all ages, their families and carers, communities and the economy more widely, is better recognised and reduced.<br>▪ Inequalities, stigma and discrimination suffered by people experiencing mental health problems and mental illness are reduced.<br>▪ Individuals have a better experience of the support and treatment they receive and have an increased feeling of input and control over related decisions.<br>▪ Access to, and the quality of preventative measures, early intervention and treatment services are improved and more people recover as a result.<br>▪ The values, attitudes and skills of those treating or supporting individuals of all ages with mental health problems or mental illness are improved. |
| National Assembly for Wales (2014) Social Services and Well Being (Wales) Act 2014 | The Social Services and Well-being (Wales) Act 2014 is an Act of the National Assembly for Wales that reforms social services law and aims to improve the well-being of people who need care and support and carers who need support. It provides a legal<br><br>The Act imposes duties on local authorities, health boards and Welsh Ministers that require them to work to promote the well-<br><br>▪ The Act supports people who have care and support needs to achieve well-being<br>▪ People are at the heart of the new system by giving them an equal say in the support they receive |

| Document | Key Messages/ Issues |
|---|---|
| | ▪ Partnership and co-operation drives service delivery<br>▪ Services will promote the prevention of escalating need and the right help is available at the right time |
| The Active Travel (Wales) Act (2013) | The Active Travel (Wales) Act 2013 has been described as the world's first legislation to promote Active Travel. The Act became a duty in September 2014 and places a statutory requirement on local authorities to continuously improve routes for walkers and cyclists and to prepare maps identifying current and potential future routes.<br>By connecting key sites such as workplaces, hospitals, schools and shopping areas with traffic free routes and cycle lanes, the Act aims to encourage people to rely less on their cars when making short journeys.<br>The Act aims to make active travel the most attractive option for shorter journeys. On the basis that enabling more people to undertake active travel will mean more people can enjoy the health benefits of active travel, help reduce greenhouse emissions, tackle poverty and disadvantage and help our economy to grow. |
| Public Health Wales Strategic Plan 2023-2026 | The Strategic Plan sets out the actions that will be delivered over the first three years of the new strategy Working Together for a<br>▪ Influencing the wider determinants of health<br>▪ Promoting mental and social well-being<br>▪ Promoting healthy behaviours<br>▪ Supporting the development of a sustainable health and care system focused on prevention and early intervention<br>▪ Delivering excellent public health services to protect the public and maximise population health outcomes<br>▪ Tackling the public health effects of climate change |
| Welsh Government (2016) Active Travel Action Plan for Wales | The Active Travel Act focuses on walking and cycling as a mode of transport, i.e. for purposeful journeys. Purely recreational walking and cycling were not covered by the Act. The Welsh Government strongly supports recreational walking and cycling and cycle sport. Many of the actions included in the Active Travel Action Plan will benefit recreational or competitive walking and cycling just as much as active travel journeys. The Vision of the plan is 'for people in Wales, we want walking and cycling to become the preferred ways of getting around over shorter distances'. |
| Public Health (Wales) Act 2017 | The Bill sets out a series of proposals in priority areas of public health policy. The Bill affirms the Welsh Government's |

| Document | Key Messages/ Issues |
|---|---|
| | restricting the use of nicotine inhaling devices in some public places. The Bill also benefits from already having received rigorous<br><br>▪ *Tobacco and nicotine products*<br>▪ *Special procedures*<br>▪ *Pharmaceutical services*<br>▪ *Provision of toilets* |
| South Central Wales Area Statement | The improving health theme states:<br>*"The physical environment that surrounds us affects our health: the air that we breathe; our access to clean water; our choices about what to eat and drink; how much physical activity we do, and where we choose to do it. Lesley Griffiths, Minister of Environment, Energy and Rural Affairs in the Welsh Government, has said that "successful placemaking is key to creating sustainable places where people can lead active and healthy lives, and be proud to say where they come from." Creating sustainable places is a priority for the Welsh Government and the planning process is a key in the door to us all leading healthier lifestyles. However, in order to open that door and realise the potential benefits, our health has to become a central part in placemaking "* |
| ***Local*** | |
| MTCBC First Replacement Local Development Plan 2016-2031 | The LDP vision and objectives provide an over-arching context for the plan that shows how economic, social, cultural and environmental considerations are balanced to deliver the sustainable development of MTCB up to 2031. The vision is to strengthen Merthyr Tydfil's position as the regional centre for the Heads of the Valleys within the Cardiff Capital Region, to encourage a sustainable level of population growth and be a place to be proud of where:<br>▪ People learn and develop skills to fulfil their ambitions;<br>▪ People live, work, have a safe, healthy and fulfilled life; and<br>▪ People visit, enjoy and return. |

| Document | Key Messages/ Issues |
|---|---|
| MTCBC Statement of Well-being 2023-2028 | As part of the well-being duty under the Well-being of Future Generations (Wales) Act 2015, the Council is required to publish its well-being objectives. The Statement of Well-being lays out the Council's objectives for the next five-year cycle:<br>▪ An Aspirational Merthyr Tydfil focused on learning – 'We will strengthen how we enable people to grow and reach their potential.'<br>▪ A Healthier Merthyr Tydfil – 'We will empower people to live independent and dignified lives.'<br>▪ A Safe and Prosperous Merthyr Tydfil – 'We will support how our economy recovers and grows; ensuring people feel safe in their local area.'<br>▪ A Clean and Green Merthyr Tydfil – 'We will support the creation of a clean and green environment now and in the future.' |

**Table A-3 - Relevant Plans, Policies, Strategies and Programmes - Economy**

| Document | Key Messages/ Issues |
|---|---|
| ***National*** | |
| Future Wales: The National Plan 2040 | Future Wales – the National Plan 2040 is Wales's national development framework, setting the direction for development in Wales to 2040. It is a development plan with a strategy for addressing key national priorities through the planning system, including sustaining and developing a vibrant economy, achieving decarbonisation and climate-resilience, developing strong ecosystems and improving the health and well-being of communities. |
| Planning Policy Wales, 2021 (Edition 11) | Planning policies, proposals and decisions must seek to promote sustainable development and support the well-being of people and communities across Wales. Planning authorities should ensure that social, economic, environmental and cultural benefits are considered in the decision-making process. Applicants should provide evidence that they have considered reasonable opportunities to deliver environmental and social benefits as part of schemes. |
| UK Industrial Growth Strategy, 2017 | The Industrial Strategy sets out a long-term plan to boost the productivity and earning power of people throughout the UK. It sets out how the UK Government is working towards building a Britain fit for the future – how they will help businesses create better higher-paying jobs in every part of the UK with investment in the skills, industries and infrastructure of the future. |

| Document | Key Messages/ Issues |
|---|---|
| | The strategy includes five foundations:<br>■ Ideas: the world's most innovative economy<br>■ People: good jobs and greater earning power for all<br>■ Infrastructure: a major upgrade to the UK's infrastructure<br>■ Business environment: the best place to start and grow a business<br>■ Places: prosperous communities across the UK<br>The UK Government will use this strategy to work with industry, academia and civil society over the coming years to build on the UK's strengths, make more of untapped potential and create a more productive economy that works for everyone across the UK. |
| The Clean Growth Strategy, 2017 | This Strategy sets out a comprehensive set of policies and proposals that aim to accelerate the pace of "clean growth", i.e. |
| Welsh Government (2010) Economic Renewal: A New Direction | Economic Renewal: A New Direction is underpinned by two important principles: the need to take a whole Government approach to economic development and the importance of a clear role for the Assembly Government in which it takes a more strategic and enabling approach focussing on supporting an environment for growth which benefits all firms. These two principles are being applied through five priorities:<br>■ Investing in High Quality and Sustainable Infrastructure<br>■ Making Wales a More Attractive Place to do Business<br>■ Broadening and Deepening the Skills Base<br>■ Encouraging Innovation<br>■ Targeting the Business Support we Offer |
| Welsh Government (2017) Prosperity for All: economic action plan | The purpose of the Economic Action Plan is to support delivery of Prosperity for All – the national strategy for Wales. The Plan<br>The Plan drives the twin goals of growing the economy and reducing inequality. It sets out a number of ambitious proposals |

| Document | Key Messages/ Issues |
|---|---|
| Welsh Government (2021) Manufacturing future for Wales: framework | The Plan is underpinned by the pursuit of three outcomes:<br>1. A **prosperous economy** which requires a steady focus on resilience and a capacity for transformation. We need to strengthen the foundations of the economy with a diverse yet inter-related economic base of outward-looking firms with positive innovation performance, good productivity levels and a workforce equipped with the skills for a changing world.<br>2. A **green economy** which demands high levels of circularity, where resources are kept in use adding economic value and where waste is avoided. This economy is integral to a low carbon society, so we need to invest in low-carbon and climate resilient infrastructure, renewable energy projects, whole system thinking/design and sustainable homes.<br>3. An **equal economy** which means investing in the productive potential of all people in communities. We need to build ambition, encourage learning for life, improve our understanding of behaviours and attitudes and support people to make the most of their potential. Our regional approach will support a fair distribution of opportunities and we will continue to demand and champion fair work. |
| ***Local*** | |
| MTCBC First Replacement Local Development Plan 2016-2031 | The LDP vision and objectives provide an over-arching context for the plan that shows how economic, social, cultural and environmental considerations are balanced to deliver the sustainable development of MTCB up to 2031. The vision is to strengthen Merthyr Tydfil's position as the regional centre for the Heads of the Valleys within the Cardiff Capital Region, to encourage a sustainable level of population growth and be a place to be proud of where:<br>▪ People learn and develop skills to fulfil their ambitions;<br>▪ People live, work, have a safe, healthy and fulfilled life; and<br>▪ People visit, enjoy and return. |
| MTCBC Economic Vision 2021-2035 | The report sets out the economic vision for the County Borough of Merthyr Tydfil for the next 15 years. The Economic Vision is "To create an environment that supports the growth of our businesses and attracts new businesses to invest; to equip all of our people with the skills and knowledge to have a job or start a business; to support our community organisations to thrive; and, to attract more visitors to enjoy our remarkable Borough."<br>The Core Ambitions for the local economy are:<br>▪ **Creating Economic Diversity**: diversify the local economy and increase resilience to future challenges by assisting the creation of the right type of businesses supported by the right type of business infrastructure.<br>▪ **Establishing Destination Merthyr**: prioritise the growth of the visitor economy by building on the unique outdoor adventure offer, outstanding natural landscape and world-renowned culture and heritage. |

| Document | Key Messages/ Issues |
|---|---|
| | ▪ **Education and Training**: equip the community with the skills and knowledge needed to thrive in the economy of tomorrow and will provide businesses and prospective investors with the confidence that Merthyr Tydfil is the place to start and grow a<br>▪ **Modern Homes and Great Places**: provide modern energy efficient homes that ensure all local people have a safe place to call home and create places for people that are green, attractive and have a character that is distinctive to Merthyr Tydfil.<br>businesses with the platform to grow and ensure that all residents can better access employment and training opportunities.<br>▪ **Public and Community Services**: be entrepreneurial and innovative in how public services are delivered and manage public<br>▪ **Natural Resources and Low Carbon Economy**: protect and enhance the natural resources for the benefit of current and |

**Table A-4 - Relevant Plans, Policies, strategies, and Programmes – Biodiversity**

| Document | Key Messages/ Issues |
|---|---|
| ***International*** | |
| Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979) | The convention has three main aims which are stated in Article 1:<br>▪ To conserve wild flora and fauna and their natural habitats;<br>▪ To promote cooperation between states; and<br>▪ To give particular attention to endangered and vulnerable species including endangered and vulnerable migratory species. |
| Conservation of Natural Habitats and Wild Fauna & Flora (the 'Habitats Directive') (1992) | The identification of a European network of Sites of Community Importance (SCIs) to be designated as Special Areas of Conservation (SACs). A SA would need to report on any potential effects on SACs and all development plans should aim to avoid adverse effects on them. |

| Document | Key Messages/ Issues |
|---|---|
| EU (2011) EU Biodiversity Strategy to 2020 – towards implementation | Aimed at halting the loss of biodiversity and ecosystem services in the EU by 2020, the strategy provides a framework for action over the next decade and covers the following key areas:<br>▪ Conserving and restoring nature;<br>▪ Maintaining and enhancing ecosystems and their services;<br>▪ Ensuring the sustainability of agriculture, forestry and fisheries;<br>▪ Combating invasive alien species; and<br>▪ Addressing the global biodiversity crisis. |
| EU (2013) 7th Environment Action Programme (EAP) to 2020 | The 7th EAP guided EU environmental policy up to 2020 and set ambitions for 2050. The Programme set the following as a<br><br>The 7th EAP reflects the EU's commitment to the preservation of biodiversity and the ecosystem services it provides for both its<br><br>The Programme highlights that integrating the value of ecosystem services into accounting and reporting across the Union and |
| The Convention on Biological Diversity's (CBD's) Strategic Plan for Biodiversity 2011-2020 | This plan provides an overarching framework on biodiversity, for all biodiversity-related conventions, the entire United Nations system and all other partners engaged in biodiversity management and policy development.<br>The plan consists of five strategic goals of which 20 further Aichi goals which include:<br>▪ Strategic Goal A: Address the underlying causes of biodiversity.<br>▪ loss by mainstreaming biodiversity across Government and society.<br>▪ Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use.<br>▪ Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity.<br>▪ Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services.<br>▪ Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building. |
| Ramsar Convention on the Conservation on Wetlands of International Importance (1971) | ▪ The designation of wetlands of international importance as Ramsar sites;<br>▪ The promotion of the wise use of all wetlands in the territory of each country; and<br>▪ International co-operation with other countries to further the wise use of wetlands and their resources. |

| Document | Key Messages/ Issues |
|---|---|
| | |
| Kunming-Montreal Global Biodiversity Framework (GBF) | The 15th Conference of Parties to the UN Convention on Biological Diversity adopted the “Kunming-Montreal Global Biodiversity Framework” (GBF) which includes four goals and 23 targets for achievement by 2030.<br><br>The implementation of the Kunming-Montreal Global Biodiversity Framework will be guided and supported through a comprehensive package of decisions also adopted at COP 15. This package includes a monitoring framework for the GBF, an enhanced mechanism for planning, monitoring, reporting and reviewing implementation, the necessary financial resources for implementation, strategic frameworks for capacity development and technical and scientific cooperation, as well as an agreement on digital sequence information on genetic resources.<br><br>In adopting the Kunming-Montreal Global Biodiversity Framework, all Parties committed to setting national targets to implement it, while all other actors have been invited to develop and communicate their own commitments. At the next meeting of the Conference of the Parties in 2024 in Türkiye, the world will take stock of the targets and commitments that have been set. |
| UNEP and ELD, State of Finance for Nature, 2022 | biodiversity loss, land degradation and climate change. The SFN 2022 report reveals that if the world wants to halt biodiversity loss, limit climate change to below 1.5C and achieve land degradation neutrality by 2030, current finance flows to NbS must |
| ***National*** | |
| The Environment Act (2021) (only some sections relate to Wales) | |
| HM Government, 25 Year Environment Plan, 2018 | The 25 Year Environment Plan outlines the UK Government’s ambition to leave our environment in a better state than we found it and the steps proposed to take to achieve that ambition. |

| Document | Key Messages/ Issues |
|---|---|
| | The Plan includes ten key targets of which two focus on biodiversity.<br><br>Thriving plants and wildlife:<br><br>■ Restoring 75% of our one million hectares of terrestrial and freshwater protected sites to favourable condition, securing their wildlife value for the long term;<br>■ Creating or restoring 500,000 hectares of wildlife-rich habitat outside the protected site network, focusing on priority habitats as part of a wider set of land management changes providing extensive benefits;<br>■ Taking action to recover threatened, iconic or economically important species of animals, plants and fungi and where possible to prevent human-induced extinction or loss of known threatened species in England and the Overseas Territories;<br>■ Increasing woodland in England in line with our aspiration of 12% cover by 2060: this would involve planting 180,000 hectares by end of 2042.<br><br>Enhancing biosecurity:<br><br>■ Managing and reducing the impact of existing plant and animal diseases; lowering the risk of new ones and tackling invasive non-native species;<br>■ Reaching the detailed goals to be set out in the Tree Health Resilience Plan of 2018;<br>■ Ensuring strong biosecurity protection at our borders, drawing on the opportunities leaving the EU provides; and<br>■ Working with industry to reduce the impact of endemic disease. |
| HM Government, Environmental Improvement Plan 2023 | The 25 Year Environment Plan set out the ambition to refresh the plan every five years, a commitment set into law in the Environment Act 2021. This document continues to use the ten goals set out in the 25 Year Environment Plan, however, 'Thriving Plants and Wildlife' has since become the apex goal. It outlines the progress made so far and how Defra intends to deliver the framework and vision of the 25 Year Environment Plan. |
| Wildlife and Countryside Act (as amended 1981) | The Wildlife and Countryside Act 1981 consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the conservation of wild birds (Birds Directive) in Great Britain (NB Council Directive 79/409/EEC has now been replaced by Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version).<br><br>The Act provides for the notification and confirmation of Sites of Special Scientific Interest (SSSIs) and the protection of wildlife. |

| Document | Key Messages/ Issues |
|---|---|
| Environmental Damage (Prevention and Remediation) (Wales) Regulations 2009 | for. They are based on the 'polluter pays principle' so those responsible prevent and remedy environmental damage, rather than<br><br>▪ Damage to species and habitats;<br>▪ Damage to water; or<br>▪ Risks to human health from contamination of land. |
| Wales Biodiversity Framework (2010) | The Nature Recovery Plan puts nature at the heart of decision-making, by increasing the resilience of natural systems (ecosystems), and by taking specific action for habitats and species. It sets out how Wales will deliver the commitments of the EU Biodiversity Strategy and the UN Convention on Biological Diversity to halt the decline in biodiversity by 2020 and then reverse that decline.<br><br>The plan builds on ground-breaking new legislative framework: The Well-being of Future Generations (Wales) Act, which looks at the long-term impacts of decisions and to works to meet the seven Well-being Goals, including increasing the resilience of ecosystems, while the Environment (Wales) Bill enshrines the principles of the UN's Convention on Biological Diversity in law by adopting an ecosystems approach to how we manage natural resources in future. |
| Environment (Wales) Act (2016) | The Act brought in a new duty to replace the existing biodiversity duty (in the Natural Environment and Rural Communities Act<br><br>The new Section 6 duty takes this further, requiring all public authorities, when carrying out their functions in Wales, to seek to |
| Planning Policy Wales, 2021 (Edition 11) | Planning policies, proposals and decisions must seek to promote sustainable development and support the well-being of people and communities across Wales. Planning authorities should ensure that social, economic, environmental and cultural benefits |

| Document | Key Messages/ Issues |
|---|---|
| | are considered in the decision-making process. Applicants should provide evidence that they have considered reasonable opportunities to deliver environmental and social benefits as part of schemes.<br><br>As stated in Section 6.2 planning authorities should adopt a strategic and proactive approach to green infrastructure and biodiversity by producing up to date inventories and maps of existing green infrastructure and ecological assets and networks. |
| South Central Wales Area Statement | *"We need to value what we have and protect it. Our ecosystems are under threat on several fronts; inappropriate land*<br><br>*"In South Central, working with our partners, we now understand where to focus our efforts to build resilience within ecosystems,* |
| State of Natural Resources Report (SoNaRR) for Wales 2020 | SoNaRR assesses Wales's sustainable management of natural resources and sets out a range of opportunities for action. The Bridges to the Future section proposes a transformational approach for how Wales can bridge the gap between where it is now and where it needs to be to achieve a sustainable future. SoNaRR assesses sustainable management of natural resources (SMNR) against the four long-term aims of SMNR. These are: safeguarded and enhanced natural resources, resilient ecosystems, healthy places for people, and a regenerative economy. |
| ***Local*** | |

| Document | Key Messages/ Issues |
|---|---|
| Merthyr Tydfil Nature Recovery Action Plan (2019-2024) | The Environment (Wales) Act 2016 (Section 6, Subsection 1) introduced an enhanced biodiversity and resilience of ecosystems duty (the S6 duty) for public authorities in the exercise of their functions in relation to Wales. The MTNRAP sets out the measures undertaken by MTCBC to comply with the S6 duty. The High Level Statement of the MTNRAP is:<br>'Throughout our operations we will (where possible) seek to maintain and enhance the diversity of our natural environment to make it resilient and able to support the social, economic, health and well-being of local communities, both for enjoyment and for its own inherent value'. |
| Bannau Brycheiniog Nature Recovery Action Plan (2019-2024) | The Nature Recovery Action Plan (NRAP) is primarily intended to guide the work of the Bannau Brycheiniog National Park Local Nature Partnership (LNP), a new collaboration which is open to all who want to contribute.<br>The core ambition of this Plan is to:*'Help reverse the decline in biodiversity by focussing on developing resilient ecological networks (in other words "nature recovery networks") which are more diverse, greater in extent, in better ecological condition and better joined up'* |

**Table A-5 - Relevant Plans, Policies, strategies, and Programmes – Landscape and Townscape**

| Document | Key Messages/ Issues |
|---|---|
| ***International*** | |
| European Landscape Convention 2000<br>(Became binding March 2007) | The Council of Europe Landscape Convention promotes the protection, management and planning of the landscapes and organises international co-operation on landscape issues.<br>Specific measures include:<br>▪ raising awareness of the value of landscapes among all sectors of society and of society's role in shaping them;<br>▪ promoting landscape training and education among landscape specialists, other related professions and in school and university courses;<br>▪ the identification and assessment of landscapes;<br>▪ analysis of landscape change, with the active participation of stakeholders;<br>▪ setting objectives for landscape quality, with the involvement of the public; and |

| Document | Key Messages/ Issues |
|---|---|
| | ▪ the implementation of landscape policies through the establishment of plans and practical programmes. |
| ***National*** | |
| Planning Policy Wales, 2021 (Edition 11) | Planning policies, proposals and decisions must seek to promote sustainable development and support the well-being of people and communities across Wales. Planning authorities should ensure that social, economic, environmental and cultural benefits are considered in the decision-making process. Applicants should provide evidence that they have considered reasonable opportunities to deliver environmental and social benefits as part of schemes.<br><br>Planning authorities should provide for the conservation and, where appropriate, enhancement of local landscapes. Planning Policy Wales advocates the use of LANDMAP assessments to inform development management decisions, landscape character assessment, design and landscape sensitivity studies. |
| Valued and Resilient: The Welsh Government's Priorities for Areas of Outstanding Natural Beauty and National Parks | This statement contains four goals for the Areas of Outstanding Natural Beauty and National Parks in Wales:<br><br>First, that they are Valued Places which reach out beyond traditional audiences and engage a more diverse cross section of Welsh society to feel they have a stake in these national landscapes.<br>Second, that they contain Resilient Environments where the value of nature is enhanced and the decline in biodiversity is reversed. This is important for both its intrinsic value, and to ensure lasting benefits to society. The areas must become exemplars for the sustainable management of natural resources, with the Authorities and partnerships championing action to halt the decline in biodiversity.<br>Third, that they support Resilient Communities. The relationship between people and the environment has shaped these landscapes and their communities. The economic and social resilience of these communities is integral to the purpose of designation.<br>Finally, the AONB partnerships and National Park Authorities must adopt Resilient Ways of Working, where they champion collaborative approaches to maximise the benefits and tackle the challenges faced in these landscapes. |
| ***Local*** | |
| Bannau Brycheiniog National Park Authority Local Development Plan 2007-2022 | Relevant Policies include:<br><br>SQ4 Landscape - To ensure that all future development will protect and enhance the beautiful and varied character of the Landscape. |

| Document | Key Messages/ Issues |
|---|---|
| | SP1 National Park Policy Development in the National Park will be required to comply with the purposes and statutory duty set<br><br>b) provides for, or supports, the understanding and enjoyment of the special qualities of the National Park in a way that does not |
| MTCBC's Open Space Strategy, 2016 | The Strategy will be used to inform and help interpret the Council's local development plan (LDP) policies relating to the provision of open space in new developments and the protection of existing open space. It will also be used to inform the site-management of open spaces, and as a mechanism for directing funding to appropriate sites where improvements to the quantity, quality and accessibility of open spaces can be made. The Strategy will ensure a coordinated approach is taken to meeting MTCBC's open space needs and protecting and developing the County Borough's network of open spaces. |
| MTCBC's Special Landscape Areas, 2018 | The Special Landscape Areas define areas of high landscape importance within the Merthyr Tydfil County Borough Area, outside |

**Table A-6 - Relevant Plans, Policies, strategies, and Programmes – Historic Environment**

| Document | Key Messages/ Issues |
|---|---|
| ***International*** | |
| UNESCO, The World Heritage Convention, 1972 | This convention sets out a framework for the identification and designation of cultural or natural heritage sites of 'outstanding universal value' as World Heritage Sites. |
| The Valetta Convention, 1992 | This convention outlines protection measures for archaeological heritage assets, including the development and maintenance of an inventory of sites. The aim of this convention is to protect sites for future study, outlines the requirements to report 'chance finds', as well as controlling excavations.<br>The input of expert archaeologists into the making of planning policies and decisions is also required under this convention. |
| Convention for the Protection of the Architectural Heritage of Europe, Granada (1985) | The main purpose of the Convention is to reinforce and promote policies for the conservation and enhancement of Europe's heritage. It affirms the needs for European solidarity with regard to heritage conservation and is designed to foster practical co-operation among the Parties.<br>The convention considers comprising the following permanent properties, which are stated in Article 1:<br>Monuments: all buildings and structures of conspicuous historical, archaeological, artistic, scientific, social or technical interest, including their fixtures and fittings;<br>Groups of buildings: homogenous groups of urban or rural buildings conspicuous for their historical, archaeological, artistic, scientific, social or technical interest, which are sufficiently coherent to form topographically definable units; and<br>Sites: the combined works of man and nature, being areas which are partially built upon and sufficiently distinctive and homogenous to be topographically definable and are of conspicuous historical, archaeological, artistic, scientific, social or technical interest. |
| ***National*** | |
| Welsh Government (2010) Valuing the Welsh Historic Environment | In February 2010, ECOTEC Research and Consulting Ltd was commissioned by the Valuing our Environment Partnership to undertake research to assess the value of the Welsh historic environment. Overall, the study helps to make the case for |

| Document | Key Messages/ Issues |
|---|---|
| | investment in the Welsh historic environment by demonstrating the public value of heritage assets across Wales and the need for adequate protection, investment and access provision. |
| Planning (Listed buildings and Conservation Areas) Act 1990, as amended by the Historic Environment (Wales) Act 2016 | This is an Act relating to special controls in respect of buildings and areas of special architectural or historic interest. It establishes the legal basis for the designation, protection and management of listed buildings in Wales.<br><br>The Welsh Ministers, acting through the Welsh Government's Historic Environment Service (Cadw), compile lists of buildings of special architectural or historic interest. Listed building consent is required for works that affect the character of a listed building; unauthorised works constitute an offence. In addition, the 1990 Act gives powers to local authorities to take action to preserve deteriorating listed buildings.<br><br>Local planning authorities may also designate areas of special architectural or historic interest as 'conservation areas' under the 1990 Act. There are restrictions on certain works to buildings and trees within conservation areas.<br><br>In addition to amending aspects of the 1990 Act, the Historic Environment (Wales) Act 2016 includes a number of stand-alone provisions. One places a duty upon the Welsh Ministers to compile and maintain a statutory list of historic place names in Wales. Another requires the Welsh Ministers to compile and keep up to date a historic environment record for each local authority area in Wales. |
| Ancient Monuments and Archaeological Areas Act 1979, as amended by the Historic Environment (Wales) Act 2016 | Where Ancient Monuments occur on agricultural land the following Act influences the extent of public control to ensure the protection of scheduled ancient monuments.<br><br>The Ancient Monuments and Archaeological Areas Act 1979, as amended by the Historic Environment (Wales) Act 2016, provides the legal framework for the designation, protection and management of scheduled monuments in Wales. The Welsh Ministers, acting through the Welsh Government's Historic Environment Service (Cadw), compile and maintain a Schedule of monuments of national importance. It is an offence to damage a scheduled monument or to undertake works without appropriate consent.<br><br>The 1979 Act also regulates the acquisition or guardianship of ancient monuments by the Welsh Ministers or local authorities and public access to such monuments.<br><br>In addition to amending aspects of the 1979 Act, the Historic Environment (Wales) Act 2016 includes a number of stand-alone provisions. One places a duty upon the Welsh Ministers to compile and maintain a statutory list of historic place names in Wales. Another requires the Welsh Ministers to compile and keep up to date a historic environment record for each local authority area in Wales. |

| Document | Key Messages/ Issues |
|---|---|
| Planning Policy Wales, 2021 (Edition 11) | The planning system must take into account the Welsh Government's objectives to protect, conserve, promote and enhance the |
| The Historic Environment (Wales) Act 2023 | This is the first consolidated legislation in the Welsh Government's initial five-year programme to improve the accessibility of Welsh law. This historic piece of legislation provides fully bilingual, orderly and accessible law for the effective protection and management of our unique historic environment so that it can continue to contribute to the well-being of Wales and its people. |
| Historic Environment and Climate Change in Wales Sector Adaptation Plan (2020) | The Historic Environment Group (HEG) has prepared this plan to help raise awareness of the risks and opportunities of climate change for the historic environment of Wales and the need for adaptation. The objective of the plan is to encourage collaboration |
| ***Local*** | |
| Merthyr Tydfil Built Heritage Strategy and Action Plan (2008) | ▪ The need to produce a management plan for the Merthyr Tydfil and Gelli-gaer historic landscapes;<br>▪ The need to designate a number of new Conservation Areas;<br>▪ The need to raise the quality of assessment of Listed Buildings applications and to increase the responsibility on owners of |

| Document | Key Messages/ Issues |
|---|---|
| | ▪ The need to re-survey Locally Listed Buildings in the Borough;<br>▪ The need to establish a sound policy base to safeguard the heritage of the Borough;<br>▪ The need to extract funding to improve monuments and buildings;<br>▪ The need to increase community involvement in conservation and heritage; and<br>▪ The need to make conservation an integral part of economic regeneration. |
| Bannau Brycheiniog National Park Authority Local Development Plan 2007-2022 | Relevant policies include:<br>▪ Policy 15 Listed Buildings<br>▪ Policy 16 Demolition of Listed Buildings<br>▪ Policy 17 The Setting of Listed Buildings<br>▪ Policy 18 Protection of Buildings of Local Importance<br>▪ Policy 19 Development affecting Conservation Areas<br>▪ Policy 20 Historic Parks and Gardens<br>▪ Policy 21 Historic Landscapes<br>▪ Policy 22 Areas of Archaeological Evaluation |

**Table A-7 - Relevant Plans, Policies, strategies, and Programmes – Water Environment**

| Document | Key Messages/ Issues |
|---|---|
| ***International*** | |
| Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy ("The Water Framework Directive") | The main aims of the Water Framework Directive (WFD) are to:<br>▪ prevent deterioration and enhance status of aquatic ecosystems, including groundwater<br>▪ promote sustainable water use<br>▪ reduce pollution<br>▪ contribute to the mitigation of floods and droughts<br>The WFD requires the creation of River Basin Management Plans (RBMPs).<br>Statutory objectives are set for Scottish waters through River Basin Management Planning. These objectives are based on ecological assessments and economic judgments. The plans cover all types of water body, e.g., rivers, lochs, lakes, estuaries, coastal waters and groundwater. |
| Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks | Requires Member States to assess if all water courses and coastlines are at risk from flooding, to map the flood extent and assets and humans at risk in these areas and to take adequate and coordinated measures to reduce this flood risk. |
| Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration | This Directive establishes a regime which sets groundwater quality standards and introduces measures to prevent or limit inputs of pollutants into groundwater. The directive establishes quality criteria that takes account local characteristics and allows for further improvements to be made based on monitoring data and new scientific knowledge. |
| ***National*** | |

| Document | Key Messages/ Issues |
|---|---|
| The Environment Act (2021) | The Environment Act, which became law in 2021, acts as the UK's new framework of environmental protection. The Environment Act allows the UK to enshrine better environmental protection into law. It provides the Government with powers to set new binding targets, including for air quality, water, biodiversity, and waste reduction.<br>Objectives for targets under consideration<br>▪ reduce pollution from agriculture, in particular phosphorus and nitrate<br>▪ reduce pollution from wastewater, in particular phosphorus and nitrate<br>▪ reduce water demand<br>▪ improve the quality of habitat on land, including freshwater and coastal sites, expressed through the condition of our protected sites (SSSIs)<br>improve the overall status of species populations on land and in freshwaters |
| Flood Risk Regulations (2009) | The Flood Risk Regulations 2009 was created to transpose the EU Floods Directive (Directive 2007/60/EC) into domestic law in England and Wales. The Floods Directive provides a framework to assess and manage flood risks in order to reduce adverse consequences for human health, the environment (including cultural heritage) and economic activity. |
| Flood and Water Management Act (2010) | The Flood and Water Management Act 2010 requires Risk Management Authorities to:<br>▪ co-operate with each other<br>▪ act in a manner that is consistent with the National Flood and Coastal Erosion Risk Management Strategy for Wales and the local flood risk management strategies developed by Lead Local Flood Authorities<br>▪ exchange information.<br>Risk Management Authorities have flexibility to form partnerships and to act on behalf of one another. |
| Dŵr Cymru (2019) Final Water Resources Management Plan | The Plan looks out across 30 years from 2020 to 2050 to assess any risks in Welsh Water's ability to supply sufficient water to meet the demand from our customers, taking account of the above factors. The Plan sets out a strategy of 'Enough Water For All' within the "Welsh Water 2050" Vision. |
| Welsh Government (2020) National Strategy for Flood and Coastal Erosion Risk Management in Wales | The Flood and Water Management Act 2010 sets out how Welsh Ministers must develop, maintain and apply a National Strategy for Flood and Coastal Erosion Risk Management (FCERM) in Wales.<br>This Strategy sets out how Wales intends to manage the risks from flooding and coastal erosion across Wales over the next 10 years, whilst strengthening and clarifying roles and responsibilities. It sets out the policies and direction for all Welsh Flood Risk |

| Document | Key Messages/ Issues |
|---|---|
| | Management Authorities to follow, with measures to explain how this will be achieved, which can be considered as its action plan.<br><br>The Welsh Government considers FCERM as a priority area, this is set out through the Strategy and via the Programme for Government commitments.<br><br>The National Strategy sets out five overarching objectives for the management of flood and coastal erosion risk in Wales:<br><br>■ Improving our understanding and communication of risk;<br>■ Preparedness and building resilience;<br>■ Prioritising investment to the most at risk communities;<br>■ Preventing more people becoming exposed to risk; and<br>■ Providing an effective and sustained response to events. |
| The Water Resources (Control of Agricultural Pollution) (Wales) Regulations 2021 | for silage making, storage of silage effluent and for slurry storage systems. They replace the Water Resources (Control of |
| The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 | The Water Framework Directive (WFD) Regulations are an important mechanism for assessing and managing the water environment in the UK.<br><br>The Directive aims for “good status” of all ground and surface water (rivers, lakes, transitional water, and coastal waters). Under the WFD Regulations, a river basin management plan must be prepared for each river basin district. The plan includes environmental objectives and a summary of the programmes of measures required to achieve those objectives. |
| NRW Flood Risk Management Plans | These Flood risk management plans (FRMPs) set out how we will manage flood risk in key areas across Wales over the next six years (2023 – 2029). The plans explain the priorities and actions that we propose to manage the risk of flooding at a National |

| Document | Key Messages/ Issues |
|---|---|
| NRW South Central Wales Place Flood Risk Management Plan | The South Central Wales Place section provides information about the level of risk at a local scale and describes what NRW have planned for the communities that they are most concerned about. It sets out 14 priorities:<br>■ Priority 1: Respond to the climate and nature emergencies by seeking innovative practices, promoting adaptation and preparing for future change.<br>■ Priority 2: Develop and deliver catchment approaches to reduce flooding and contribute to ecosystem resilience, working with partners and stakeholders where possible and appropriate.<br>■ Priority 3: Improve community resilience to current and future flood risk. Work with partners to support communities to become more aware and take action to mitigate their own flood risk.<br>■ Priority 4: Seek and take opportunities for enhancement to the health and wellbeing of communities, biodiversity and the environment, and the wider benefits they provide, to support NRW's response to the Nature Emergency.<br>■ Priority 5: Increase resilience of flood risk management assets, to reduce the impacts of current and future flood risk.<br>■ Priority 6: Improve effectiveness of our key products and services, including our digital services, to provide improved services to the public.<br>■ Priority 7: Continuously improve our understanding and communication of current and future flood risk (including climate change) so that decisions are based upon the best available evidence and information.<br>■ Priority 8: Provide an effective and sustained response to flood events, working in collaboration with Risk Management Authorities and Professional Partners where required.<br>■ Priority 9: Continually improve our flood warning service to enable people to take effective action in response to flooding. 23 Priority 10: Provide effective planning advice on flood risks and consequences to reduce inappropriate development in areas at risk of flooding.<br>■ Priority 11: Prioritise our work on a risk basis in alignment with Welsh Government's National FCERM Strategy and develop our evidence base to secure future investment in flood risk management.<br>■ Priority 12: Promote, support and implement nature-based solutions where appropriate to reduce the risk and impacts of flooding and to deliver wider ecosystem benefits.<br>■ Priority 13: Undertake our strategic oversight role to understand all sources of flood risk on a national basis to inform investment and optimise how we plan work including with other partners. Priority 14: Ensure we have an FCERM workforce with the appropriate capabilities and skills required to meet our priorities and respond to future challenges. |
| The Water Act 2014 | The Water Act 2014 is the Legislation that drives the management of our water resources. The Water Framework Directive is mentioned in the document, but this relates more to water quality rather than resources. |
| ***Local*** | |

| Document | Key Messages/ Issues |
|---|---|
| South East Valleys Management Catchment Plan | ▪ Prevent deterioration in status Water body status will not be allowed to deteriorate from the current reported status.<br>▪ Achieve the objectives for protected areas Achieve the standards set by the relevant directive under which they were<br>▪ Aim to achieve good overall status for surface and ground waters Implement measures to achieve good overall status where |
| Taff and Ely Opportunity Catchment, 2021 | The third cycle River Basin Management Plan (RBMP) established ten Opportunity Catchments across Wales. Opportunity Catchments (OpC) have been agreed as the delivery mechanism for the third cycle River Basin Management Plans (RBMP) (2021- 2027). The focus of OpC is to maximise multiple benefits for waterbodies, health and well-being, delivered through partnership working. OpC are a delivery mechanism to integrate RBMP with other work streams and to deliver the Natural Resources Plan priorities, such as delivery through nature-based solutions. Area Statements provide an important local steer having identified the local challenges and opportunities for each area. The Taff and Ely is one such OpC.<br>Key areas for the Taff and Ely OpC are:<br>▪ Collaboration<br>▪ Physical modification<br>▪ Urbanisation<br>▪ Restoring natural processes |
| South East Valleys Abstraction Licensing Strategy Area, 2017 | environment, society and the economy, both now and in the future. We face a number of challenges which will have an impact on our water resources and the ways we manage them. These include population growth, an increased demand for water and<br>This Licensing Strategy sets out how water resources are managed in the South East Valleys river catchments. It provides |
| Severn River Basin Management Plan 2021-2027 | The Severn RBD FRMP is a joint plan prepared by the Environment Agency and Natural Resources Wales in partnership with 5 LLFAs. The FRMP includes information relating to ‘main rivers’ (larger rivers and streams which are marked on an official document called the main river map), the sea and reservoirs for the whole river basin district. |

| Document | Key Messages/ Issues |
|---|---|
| | The Environment Agency lead on the Severn RBD FRMP. Natural Resources Wales work with the Environment Agency, and partners, to ensure that the appropriate collaborative arrangements are in place for planning and managing the cross-border catchment for the Severn river basin district.<br><br>The summary of the Welsh part of the Severn river basin management plan describes:<br><br>▪ the current state of the water environment<br>▪ pressures affecting the water environment<br>▪ environmental objectives for protecting and improving the waters<br>▪ the programme of measures and actions needed to achieve the objectives<br>▪ progress since the 2015 plan |
| Bannau Brycheiniog National Park Authority Local Development Plan 2007-2022 | development and procedures for adoption and maintenance have been approved by the relevant drainage body. This will be tied |

**Table A-8 - Relevant Plans, Policies, strategies, and Programmes – Air Quality and Greenhouse Gases**

| Document | Key Messages/ Issues |
|---|---|
| ***International*** | |
| Kyoto Protocol to the UN Framework Convention on Climate Change (1992) Doha Amendment to the Kyoto Protocol (2012) | Developed countries commit themselves to reducing their collective emissions of six key greenhouse gases by at least 5%. Each country's emissions target must be achieved by the period 2008-2012. Doha Amendment saw parties commit to reduce GHG emissions by at least 18 percent below 1990 levels in the eight-year period from 2013 to 2020. |
| The Paris Agreement, 2015 | Aims to limit the global warming change to below 2°C above pre-industrial levels. However, countries aim to limit the increase to |
| ***National*** | |
| The Environment Act (2021) | ▪ reducing the annual mean level of fine particulate matter (PM2.5) in ambient air (as required by the Environment Bill)<br>▪ in the long-term, reducing population exposure to PM2.5 |
| The Climate Change Act, 2008 | Improve carbon management and help the transition towards a low carbon economy in the UK.<br>Demonstrate strong UK leadership internationally, showing the commitment to taking shared responsibility for reducing global emissions in the context of developing negotiations on a post-2012 global agreement at Copenhagen in 2009.<br>Greenhouse gas emission reductions through action in the UK and abroad of at least 80% by 2050, and reductions in CO2 emissions of at least 26% by 2020, against a 1990 baseline. |

| Document | Key Messages/ Issues |
|---|---|
| Air Quality Standards (Wales) Regulations (2010) | These Regulations implement for Wales Community legislation on ambient air quality assessment and management and limit values for air quality. These Regulations implement Directive 2008/50/EC on ambient air quality and cleaner air for Europe, and Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air. |
| Welsh Government (2010) Climate Change Strategy for Wales | The Climate Change Strategy and accompanying Delivery Plans on Emission Reduction and Adaptation, set out how the Welsh Government intends to limit greenhouse gas emissions and adjust to changes in the climate. The Climate Change Strategy Delivery Plan for Emission Reduction sets out the policies and programmes to meet Wales' target to reduce greenhouse gas emissions by 3% per year in areas of devolved competence. |
| Clean Air for Wales Bill (2023) | The Clean Air Act for Wales is a key commitment in the Clean Air Plan for Wales: Healthy Air, Healthy Wales. It will facilitate better work across local and national government and with stakeholders to improve air quality and reduce the impacts of air pollution on human health, nature, the environment, and our economy. |
| South Central Wales Area Statement | The improving air quality theme states:<br>*"As the most densely populated part of the country, criss-crossed by major transport arteries and featuring many traffic 'hotspots', it stands to reason that issues surrounding air quality simply cannot be ignored in South Central Wales. That said, transport isn't the only contributory factor. Changes in agricultural practices have played a part, as has industry and wildfires that occur at certain times of the year.*<br>*In common with the other themes in this Area Statement, South Central Wales is proposing that a more joined-up approach be taken towards countering poor air quality, developing new ways of working both internally and with strategic partners in order to improve air quality everywhere, not just in or around those most polluted 'hotspots'"* |
| ***Local*** | |
| MTCBC Air Quality Action Plan 2018- 2020 | The Air Quality Action Plan (AQAP) has been produced as part the council's statutory duties required by the Local Air Quality Management framework. The AQAP outlines the action to improve air quality in Merthyr Tydfil.<br>Key priorities for action:<br>▪ Priority 1 – Local road traffic emissions |

| Document | Key Messages/ Issues |
|---|---|
| | ▪ Priority 2 – General town traffic emissions |
| Bannau Brycheiniog National Park Authority Local Development Plan 2007-2022 | Policy 14 Air Quality - Proposals for development will only be permitted where it is proven that no detrimental impact, individually or cumulatively will be had on air quality. Proposals for development which are likely to impact negatively on air quality or are potentially polluting will not be permitted unless mitigation measures to avoid the impact are provided. |

**Table A-9 - Relevant Plans, Policies, strategies, and Programmes – Climatic Factors**

| Document | Key Messages/ Issues |
|---|---|
| ***International*** | |
| Kyoto Protocol to the UN Framework Convention on Climate Change (1992) Doha Amendment to the Kyoto Protocol (2012) | Developed countries commit themselves to reducing their collective emissions of six key greenhouse gases by at least 5%. Each country's emissions target must be achieved by the period 2008-2012. Doha Amendment saw parties commit to reduce GHG emissions by at least 18 percent below 1990 levels in the eight-year period from 2013 to 2020. |
| The Paris Agreement, 2015 | Aims to limit the global warming change to below 2°C above pre-industrial levels. However, countries aim to limit the increase to 1.5°C to reduce the impacts of global warming. The EU has committed to a binding target of a reduction of at least 40% in greenhouse gas emissions by 2030 compared to 1990. |
| ***National*** | |
| Welsh Government (2010) Climate Change Strategy for Wales | The Climate Change Strategy and accompanying Delivery Plans on Emission Reduction and Adaptation, set out how the Welsh Government intends to limit greenhouse gas emissions and adjust to changes in the climate. The Climate Change Strategy |

| Document | Key Messages/ Issues |
|---|---|
| | Delivery Plan for Emission Reduction sets out the policies and programmes to meet Wales' target to reduce greenhouse gas |
| Welsh Government (2019) Prosperity for All: A Climate Conscious Wales | The Plan seeks to communicate what action the Welsh Government are taking across a wide range of topics to make change happen, under the theme of climate change adaptation. Prosperity for All: A Climate Conscious Wales shows how the Welsh Government are taking action, over the next five years, to address the areas of greatest risk, which will be achieved by:<br>▪ protecting people, communities, buildings and infrastructure from flooding;<br>▪ protecting water supplies from drought and low river flows;<br>▪ tackling land management practices that exacerbate climate risks;<br>▪ managing risks to ecosystems and agricultural businesses. |
| Environment (Wales) Act (2016) | The Act places a duty on Welsh Ministers to set targets for reducing greenhouse emissions and also to set carbon budgets. This |
| ***Local*** | |
| MTCBC Decarbonisation Plan 2023-2030 | ▪ MTCBC Buildings and Estate Planning<br>▪ Mobility & Transport<br>▪ Procurement<br>▪ Outsourced Services<br>▪ Land Management<br>▪ Governance |

| Document | Key Messages/ Issues |
|---|---|
| Bannau Brycheiniog National Park Authority Local Development Plan 2007-2022 | SP4 Climate Change - All proposals will be required to demonstrate where relevant how the development will; a) be resilient and adaptable to the likely effects of climate change. b) limit and mitigate the causes of climate change; and c) contribute to the aim of carbon neutrality. |

**Table A-10 - Relevant Plans, Policies, strategies, and Programmes – Geology and Soils**

| Document | Key Messages/ Issues |
|---|---|
| ***National*** | |
| Welsh Assembly (2012) Contaminated Land (Wales) (Amendment) Regulations 2012 | The Regulations make provision, in relation to Wales, for the identification and remediation of contaminated land under Part 2A of the Environmental Protection Act 1990.<br>They identify categories of sites ("special sites"), including land which is contaminated land by radioactive substances in, on or under that land. |
| ***Local*** | |
| MTCBC Contaminated Land Inspection Strategy | The strategy provides details of procedures for liaison with regulatory bodies such as the Environment Agency (Wales), and for consultation with other bodies such as businesses and voluntary organisations. The roles and responsibilities within the Council for the development of the strategy and for the identification and inspection of contaminated land are also identified. |
| Bannau Brycheiniog National Park Authority Local Development Plan 2007-2022 | Policy 13 Soil Quality Development proposals must demonstrate that they adhere to good practice on the sustainable use and management of soil in development and construction through adherence to DEFRA's Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. Developments which have an unacceptable adverse impact on soil quality will not be permitted. |

| Document | Key Messages/ Issues |
|---|---|
| | Policy SP3 Environmental Protection – Strategic Policy All proposals for development or change of use of land or buildings in the National Park must demonstrate that the proposed development does not have an unacceptable impact on, nor detract from, or prevent the enjoyment of;<br>i) soil and air quality (see Policy 13 and 14).<br>j) Agricultural Land of Grade 1,2,3a |

**Table A-11 - Relevant Plans, Policies, strategies, and Programmes – Material Assets**

| Document | Key Messages/ Issues |
|---|---|
| ***National*** | |
| The Environment Act (2021) | The Environment Act, which became law in 2021, acts as the UK's new framework of environmental protection. The Environment Act allows the UK to enshrine better environmental protection into law. It provides the Government with powers to set new binding targets, including for air quality, water, biodiversity, and waste reduction.<br>Objectives for targets under consideration:<br>▪ increase resource productivity<br>▪ reduce the volume of 'residual' waste we generate |
| Environment (Wales) Act (2016) | The Act introduces new powers, to increase the amount of materials for recycling, improve the quality of materials available for recycling and making sure that materials that could have been recycled aren't wasted. The new powers enable the Welsh<br>▪ Require business and other waste producers such as the public sector to make sure that clean, recyclable materials are<br>▪ Require waste collectors to collect recyclable wastes by means of separate collection. |

| Document | Key Messages/ Issues |
|---|---|
| | ▪ Ban the burning of recyclable materials in incineration plants.<br>▪ Ban the disposal of food waste to sewers by businesses and the public sector. |
| Wales Transport Strategy, Welsh Government (2010) Towards Zero Waste One Wales: One Planet. The Overarching Waste Strategy Document for Wales | The Strategy details high level outcomes, policies and targets, and forms part of a suite of documents that together comprise the national waste management plan for Wales. It sets out a long term framework for resource efficiency and waste management between now and 2050. The Strategy aims to achieve the following outcomes:<br>▪ A sustainable environment, where the impact of waste in Wales is reduced to within our environmental limits by 2050. This means that waste production and management will only be at 'One Planet' levels.<br>▪ A prosperous society, with a sustainable, resource efficient economy.<br>▪ A fair and just society, in which all citizens can achieve their full human potential and contribute to the wellbeing of Wales through actions on waste prevention, reuse and recycling.<br>The following milestones have been set:<br>▪ 2025: Towards zero waste<br>▪ 2050: Achieving zero waste |
| Welsh Government (2012) Sustaining a Living Wales: A Green Paper on a New Approach to Natural Resource Management in Wales | ▪ improve the resilience and diversity of our environment and its supporting biodiversity;<br>▪ provide simpler and more cost-effective regulation;<br>▪ offer greater certainty for decision-makers. |
| Welsh Government (2016) Energy Efficiency in Wales: A Strategy for the Next 10 years 2016-2026 | The Strategy will drive actions to deliver against the goals set out in the Well-being of Future Generations (Wales) Act: tackling poverty and the global threat of climate change, building resilience for communities, boosting green growth in the economy and addressing the health inequalities caused by poor energy efficiency. The vision for a more energy efficient Wales by 2025 is:<br>'We want to ensure that Wales is in the best possible position to realise its full energy efficiency potential and become a major exporter of energy efficiency technology and know-how.' |
| Welsh Government (2017) Natural Resources Policy | The Policy is focused on setting out how to improve the natural resources are managed, and identifies 3 national priorities for the<br>▪ Delivering nature-based solutions - working more effectively with nature to tackle our big challenges. |

| Document | Key Messages/ Issues |
|---|---|
| | ▪ Increasing renewable energy and resource efficiency – and setting out a clear pathway for investment in these areas.<br>▪ Taking a place-based approach – to respond to local needs and opportunities. |
| Gethin, Merthyr Vale and Allen's Estate Forest Resource Plan | These forests are situated in within the county councils or Merthyr Tydfil and Rhondda Cynon Taf. The area covers 1364 Hectares. The surrounding boundaries are mainly farmland with some private woodlands.<br>Key objectives of the plan include:<br>▪ Maintaining timber production – This will remain a key driver for these forests. The opportunities to diversify species will be used where appropriate and will enhance the sustainability of the forests. Native woodlands will be restored and expanded to create better connectivity and landscape value.<br>▪ Recreation - Generally the forests are open to quiet recreational pursuits ie walking, cycling. This will be maintained and considered during all forest operations. Bike Park Wales have a management agreement with NRW to maintain and manage the downhill bike trails. This is beneficial to recreation and tourism in and around the Gethin forest. The forests in this plan are used by locals for walking and cycling.<br>▪ Key habitats – The areas throughout the resource plan have been highlighted for natural reserves (UKWAS designation) and meet with the criteria. Also, within the Gethin forest there are a known newt population within the quarry ponds. These habitats are taken into account within the plans and connectivity will be noted by local forestry planning teams.<br>▪ Management systems – much of the forests are the first rotation conifer crops. Where there has been a good thinning regime, the preferred method management is via Low Impact Silviculture System (LISS), this will take advantage of natural regeneration of the new crops or possibly under-planting. Clearfell system will be used as appropriate and will need to be used due to the crops status (unthinned, exposure, soils etc.) near the bike trails.<br>▪ Access to smaller woodlands – Limited access to manage the woodlands are noted in this plan. This is with the district to programme, finance and consult with the relevant authorities. Without this access timber felling or restoring native woodlands are limited. |
| Brecon Beacons National Park (South) Forest Resource Plan | These forests are situated in within the Brecon Beacons National Park Authority. The area covers 3454 Hectares. The surrounding boundaries are the Brecon Beacons and farm land. There are a number of major public roads and landscape will be<br>▪ Maintaining timber production – This will remain a key driver for these forests. The opportunities to diversify species will be used where appropriate and will enhance the sustainability of the forests. Ancient and native woodlands will be restored and |

| Document | Key Messages/ Issues |
|---|---|
| | ▪ Recreation - Generally the forests are open to quiet recreational pursuits, such as walking and cycling. This will be maintained and considered during all forest operations. Garwnant Visitor centre is situated within Coed Taf Forest; the waterfalls within Gwaun Hepste are both hot spots for recreation and tourism.<br>▪ Key habitats – The areas throughout the resource plan have been highlighted for natural reserves (UKWAS designation) and meet with the criteria. The plans indicate Long term retentions and areas of minimum intervention to enhance these habitats.<br>▪ Management systems – Much of the forests are the first rotation conifer crops. Where there has been a good thinning regime, the preferred method management is via Low Impact Silviculture System (LISS), this will take advantage of natural regeneration of the new crops or possibly under-planting. Clearfell system will be used as appropriate and will need to be used due to the crops status (unthinned, exposure, soils etc).<br>▪ Access to smaller woodlands – Limited access to manage the woodlands are noted within this plan. This is with the district to programme, finance and consult with the relevant authorities. Without this access, timber felling or restoring native woodlands are limited. |
| Brecon Beacons (Central) National Park Forest Resource Plan | Brecon Beacons (Central) forest resource plan amounts to 2335 hectares comprising 8 distinct forest blocks; Talybont, Coety, Taf Fechan, Buckland, Dyffryn Crawnon, Llanddetty, Treberfedd and Cwm Glaisfer. The design unit is located completely within the Brecon Beacons immediately south of the A40 close to the communities of Talybont-on-Usk and Llangyndir, and north of the A465 Heads of the Valleys road.<br><br>The management objectives have been agreed in order to maintain and enhance the resilience of ecosystems, and the benefits they provide. Relevant objectives include:<br><br>▪ Continue to maintain a sustainable supply of timber production through design of felling and choice of restocking species.<br>▪ Diversify the forest species composition to increase resilience to pests and disease whilst building of a robust forest for future generations.<br>▪ Increase structural diversity through LISS management where appropriate and consideration of the scale, size and timing of any clearfell avoiding the felling of adjacent coupes. Older conifer crops should be retained where possible to maintain forest structure and productive potential.<br>▪ Increase areas identified for thinning within the 5-year thinning plan to enable LISS management and PAWS restoration. Increasing the quantity of thinning will not only reduce the risk of shading for PAWS but will also reduce the need for future clear felling and stand stability can be established where possible through late transformation to Low Impact Silvicultural Systems.<br>▪ Use opportunities to locate broadleaved woodland to connect hedgerow habitats and improve resilience.<br>▪ Utilise the current road and riparian zone network for the benefit of biodiversity by creating linkages with open habitat.<br>▪ Maintain and enhance recreational use. |

| Document | Key Messages/ Issues |
|---|---|
| | ▪ Maintain open sight lines for viewpoints and along recreational routes. |
| ***Local*** | |
| MTCBC First Replacement Local Development Plan 2016-2031 | The LDP vision and objectives provide an over-arching context for the plan that shows how economic, social, cultural and environmental considerations are balanced to deliver the sustainable development of MTCB up to 2031. The vision is to strengthen Merthyr Tydfil's position as the regional centre for the Heads of the Valleys within the Cardiff Capital Region, to encourage a sustainable level of population growth and be a place to be proud of where:<br>▪ People learn and develop skills to fulfil their ambitions;<br>▪ People live, work, have a safe, healthy and fulfilled life; and<br>▪ People visit, enjoy and return. |

# Appendix B

## BASELINE

# INTRODUCTION

This appendix sets out the key baseline information for each of the SEA topics, as well as any future trends regardless of the implementation of the LFRMS. It also identifies key issues for sustainability in relation to the LFRMS, which has been used to develop an appraisal framework, detailed in the main Environmental Report

## POPULATION AND EQUALITIES

### BASELINE

The MTCBC has a total population of approximately 58,900 people9, which comprises 3.87% of the total population of South East Wales (1,522,500 people) and 1.90% of the total population of Wales (3,105,400 people). The population density is 528 people per km2, which is over three times that of the national average (150 people per km2)10.

The highest proportion of people in MTCBC are aged between 45-64 years11, who make up 26.6% of the total population. The highest proportion of people in Wales are also aged between 45-64 years and similarly make up 26.5% of the total population. The percentage of those aged 65 years and over (19%) is also similar to the regional average of 19.1% and national average of 21.5%. Since the 2011 census, there has been an increase of 13.3% in people aged 65 years and over, a decrease of 4.3% in people aged 15-64 years and an increase of 3.7% in children aged under 15 years in MTCBC12.

Within MTCBC, approximately 51.2% of the population are females and 48.8% are males13. This is comparable to the regional and national averages (both 51.1% females, 48.9% males).

According to the 2021 Census data14, 97.0% of the MTCBC population are White, 1.60% are Black, Asian and minority ethnic (BAME), 0.87% are 'Mixed/Multiple' ethnic groups, 0.39% are 'Other' ethnic groups, and 0.14% are Gypsy, Irish Traveller or Roma. The White ethnic group in MTCBC has seen an increase in population since the 2021 census to 99.8% of the total population in March 202315 which is considerably higher than the national average of 81.7%.

[9] Welsh Government, StatsWales, Population estimates by local authority and year. Available at: https://statswales.gov.wales/Catalogue/Population-and-Migration/Population/Estimates/Local-Authority/populationestimates-by-localauthority-year (Accessed 01/11/2023)
[10] Welsh Government, StatsWales, Population density (persons per square kilometre) by local authority and year. Available at: https://statswales.gov.wales/Catalogue/Population-and-Migration/Population/Density/populationdensity-by-localauthority-year (Accessed 01/11/2023)
[11] Welsh Government, StatsWales, Age distribution of population by sex and year. Available at: https://statswales.gov.wales/Catalogue/Population-and-Migration/Population/Distributions/agedistributionofpopulation-by-sex-year (Accessed 01/11/2023)
[12] Office for National Statistics, How the population changed in Merthyr Tydfil: Census 2021. Available at: https://www.ons.gov.uk/visualisations/censuspopulationchange/W06000024/ (Accessed 01/11/2023)
[13] Office for National Statistics, Population and household estimates, England and Wales: Census 2021. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationandhouseholdestimatesenglandandwalescensus2021 (Accessed 01/11/2023)
[14] Office for National Statistics, Ethnic Group, Census 2021. Available at: https://www.ons.gov.uk/datasets/TS021/editions/2021/versions/1 (Accessed 01/11/2023)
[15] Welsh Government, StatsWales, Ethnicity by area and ethnic group. Available at: https://statswales.gov.wales/Catalogue/Equality-and-Diversity/Ethnicity/ethnicity-by-area-ethnicgroup (Accessed 01/11/2023)

Between 2019 to 2020, net internal migration within MTCBC was 70 people which accounts for approximately 0.54% of the net migration between Wales and the UK (net internal migration of 12,866 people in Wales)16. For MTCBC, this is approximately the same as the previous year (77 people) but considerably lower than 2017-2018 (160 people).

The majority of the population in MTCBC have no religion (53.2%), 40.1% are Christian, 0.5% are Muslim, 0.4% have 'other' religion, 0.2% are Buddhist, 0.2% are Hindu, 0.1% are Sikh17. This is somewhat similar to the national percentages; however, the majority of the Welsh population are Christian (46.2%), followed by those with no religion (37.2%) and Muslim (6.5%).

The 2021 Census data shows that the majority of the population in MTCBC are straight or heterosexual (91.53%), 1.43% are gay or lesbian, 0.76 are bisexual, 0.13% are pansexual, 0.04% are asexual and 0.01% are queer which is similar to the percentages across Wales18.

With regard to national identity, 82.8% of the population in MTCBC considered themselves Welsh, which is noticeably higher than the national average of 62.8%19.

Looking at the Welsh Index of Multiple Deprivation (WIMD) 201920, 78% of Lower Layer Super Output Areas (LSOA)21 in MTCBC were within the 50% most deprived LSOAs in Wales, (the highest percentage of most deprived LSOAs within a local authority in Wales) and 22% of LSOAs in MTCBC were within the 10% most deprived in Wales. Only one LSOA within MTCBC was within the 10% of least deprived in Wales. Those from lower income groups are also less likely to have flood insurance.

According to the previous Census (2011 – latest available dataset), 88% of the MTCBC's population lived in areas classified as 'urban'. There is often an inequality in terms of social deprivation and flood risk exposure from all sources of flooding. The inequalities found within rural areas is generally greater than in urban areas, as these areas are also more sparsely populated and therefore their economic welfare benefits tend to be less than those of more densely populated areas.

## FUTURE EVOLUTION OF THE BASELINE WITHOUT THE LFRMS

The population of MTCBC has remained approximately the same since 2011 and remains the local authority with the smallest population in Wales. A population increase of 1.43% is expected by 2030 which

[16] Welsh Government, StatsWales, Migration between Wales and the rest of the UK by local authority, flow and period of change. Available at: https://statswales.gov.wales/Catalogue/Population-and-Migration/Migration/Internal/migrationbetweenwalesandrestofuk-by-localauthority-flow-periodofchange (Accessed 01/11/2023)
[17] Office for National Statistics, Religion, England and Wales: Census 2021. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/culturalidentity/religion/bulletins/religionenglandandwales/census2021 (Accessed 01/11/2023)
[18] Office for National Statistics, Sexual orientation, England and Wales: Census 2021. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/culturalidentity/sexuality/bulletins/sexualorientationenglandandwales/census2021 (Accessed 01/11/2023)
[19] Welsh Government, StatsWales, National identity by local authority and year. Available at: https://statswales.gov.wales/Catalogue/Equality-and-Diversity/National-Identity/nationalidentity-by-localauthority-year (Accessed 01/11/2023)
[20] Welsh Government, StatsWales, WIMD 2019. Available at: https://statswales.gov.wales/Catalogue/Community-Safety-and-Social-Inclusion/Welsh-Index-of-Multiple-Deprivation/WIMD-2019 (Accessed 01/11/2023)
[21] Lower Layer Super Output Areas (LSOA) are a geographic hierarchy designed to improve the reporting of small area statistics in England and Wales. There is a Lower Layer Super Output Area for each postcode in England and Wales.

is lower than the predicted increase across South East Wales (2.13%) and in Wales (1.62%)[22]. By 2042-2043, the population of MTCBC is projected to reach 63,538 which is an overall increase of 5.24% from 2018-2019. This is also the lowest predicted population increase amongst local authorities in Wales.

There is not projected to be much change in the number of children and young people aged 0 to 15 years old from 2018 to 2028, unlike the majority of local authorities in Wales which will experience a decrease[23]. There is projected to be an increase in the elderly population aged 65 and over. With an increasing population across MTCBC, this is likely to create additional strain on the healthcare system.

The number of births is projected to decrease by 7% whilst the number of deaths is projected to increase by 6% from 2018 to 2028.Internal and international migration in and out of the MTCBC is projected to approximately remain at 2018 levels by 2028.

In the absence of an appropriate LFRMS it is considered likely that a greater number of people would be considered to be potentially at risk of flooding. The LFRMS should ensure adequate protection and infrastructure is in place to protect both the population now and in the future, as well as take into account demographic changes, in particular an ageing population.

## ISSUES AND OPPORTUNITIES

Issues and opportunities for population and equalities and the implications for the LFRMS have been identified in **Table B-1**.

**Table B-1 - Population and Equities Issues and Opportunities**

| Issues & Opportunities | Implications for the LFRMS |
|---|---|
| ▪ There is anticipated to be a population growth by 2030.<br>▪ With an increasing ageing population across MTCBC, there is likely to be additional strain on the region's services and infrastructure, including during flood events.<br>▪ There are opportunities to reduce and manage flood risk for the elderly and rural communities.<br>▪ There is often an inequality in terms of social deprivation and flood risk exposure from all sources of flooding. | ▪ The Local Strategy should aim to reduce and manage flood risk.<br>▪ Development will need to support future demographic changes. |

[22] Welsh Government, StatsWales, Population projection components of change by local authority and year. Available at: https://statswales.gov.wales/Catalogue/Population-and-Migration/Population/Projections/Local-Authority/2018-based/populationprojectioncomponentsofchange-by-localauthority-year (Accessed 01/11/2023)
[23] Welsh Government, Statistical First Release, Local authority population projections for Wales: 2018-based (revised). Available at: https://www.gov.wales/sites/default/files/statistics-and-research/2020-08/subnational-population-projections-2018-based-280.pdf (Accessed 01/11/2023)

# HUMAN HEALTH

## BASELINE

In 2017-2019, the average life expectancy at birth in MTCBC is similar but slightly lower than the national average at 76.8 years for males and 80.7 years for females[24]. The death rate in 2021 (11.8 per 1,000 people) is approximately the same as that for Wales in the same year (11.6 per 1,000 people)[25].

As part of the 2021-2022 National Survey for Wales, respondents in MTCBC were primarily stated to be in good to very good health[26] (see **Table B-3**). In the 2021 Census, MTCBC had the second highest proportion of those reporting bad health across all local authorities in England and Wales[27]. Despite this, MTCBC experienced the largest decrease of people reporting very bad health (0.7% decrease from 3.1% in 2011).

**Table B-2 - National Survey for Wales 2020-2021 - Description of Health**

| Description of health | Percentage of respondents (%) |
|---|---|
| Good or Very Good | 68 |
| Fair | 20 |
| Bad or Very Bad | 12 |

In the same years, the population of adults aged 16 and over who reported their health as “limiting at all” was 39% which was slightly greater than the national average of 33%, and as being “limiting a lot” was 22% which was also slightly greater than the national average of 17%.

The 2021 Census reported that the highest proportion of disabled people are concentrated in the South Wales Valleys[28], with MTCBC having the third highest proportion of disabled people across all local authorities in Wales (24.2%). However, this was a decrease in proportion compared to 26.9% in 2011[29].

[24] Info Base Cymru, Life expectancy. Available at: https://www.infobasecymru.net/IAS/themes/healthandsocialcare/generalhealth/tabular?viewId=47&geoId=1&subsetId= (Accessed 01/11/2023)
[25] Info Base Cymru, Death rates. Available at: https://www.infobasecymru.net/IAS/themes/healthandsocialcare/generalhealth/tabular?viewId=31&geoId=1&subsetId= (Accessed 01/11/2023)
[26] Info Base Cymru, General health, 2020-21 onwards (National Survey for Wales). Available at: https://www.infobasecymru.net/IAS/themes/healthandsocialcare/generalhealth/tabular?viewId=2623&geoId=1&subsetId= (Accessed 01/11/2023)
[27] Welsh Government, Health, disability and provision of unpaid care in Wales (Census 2021). Available at: https://www.gov.wales/health-disability-and-provision-unpaid-care-wales-census-2021-html#:~:text=The%20proportions%20for%20both%20bad,very%20bad%20health%20(2.4%25). (Accessed 01/11/2023)
[28] South Wales Valleys consists of five local authorities which are Blaenau Gwent, Neath Port Talbot, Merthyr Tydfil, Rhondda Cynon Taf and Caerphilly.
[29] Office for National Statistics, Disability in England and Wales, 2011. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/disability/datasets/disabilityinenglandandwales2011 (Accessed 07/11/2023)

In 2021-2023, 75% of adults in MTCBC reported being overweight or obese (BMI 25+), which was higher than the national average of 62%[30]. This was an increase of 8% since 2014-2015[31]. MTCBC also has the highest percentage of children aged 4-5 years who are obese[32]. The rate of deaths due to cardiovascular diseases reported in 2020 was 306.2 per 100,000 people (European age-standardised), significantly higher than the national average of 252.0[33].

Public Health Wales identifies the main health risks of flooding which include drowning, serious injury from falling into fast-flowing water, carbon monoxide inhalation, stress and infections from contact with floodwater[34].

The percentage of adults in MTCBC who reported having mental disorders between 2021-2022 (13%) was similar but slightly more than that of previous years (11%)[35] and for Wales in the same year (10%)[36]. The UK Public Health Register acknowledges the impact flood events can have on mental health, noting that impacts are not always immediately obvious, and that stress can continue long after water levels have receded[37].

According to the Wellbeing and Population Needs Assessment Analysis of Cwm Taf Morgannwg 2022, mental wellbeing in MTCBC is below the Wales average indicating a lower level of wellbeing, and higher levels of deprivation. However, even though MBTBC is below average it is showing an increase in the level of wellbeing from 2016/17.

There are a variety of secondary stressors that flooding can introduce on individuals. These include lack of access to healthcare, new or continuing health related stressors or conditions, and lack of access to prescription medications. Secondary economic stressors such as problems with compensation, rebuilding of homes, loss of employment and/or income and loss of physical possessions can also impact mental wellbeing after a flood event.

## FUTURE EVOLUTION OF THE BASELINE WITHOUT THE LFRMS

The population of MTCBC is expected to continue growing which will come with increased strain on health services and may reduce the overall health of the population further if healthcare facilities are stretched and not performing at their optimum level. This strain on health services is likely to be further exacerbated by the expected increase in those aged 65 years and over.

[30] Info Base Cymru, Lifestyle, 2020-21 onwards (National Survey for Wales). Available at: https://www.infobasecymru.net/IAS/themes/healthandsocialcare/generalhealth/tabular?viewId=2621&geoId=1&subsetId= (Accessed 01/11/2023)
[31] Info Base Cymru, Lifestyle (Welsh Health Survey). Available at: https://www.infobasecymru.net/IAS/themes/healthandsocialcare/generalhealth/tabular?viewId=829&geoId=1&subsetId= (Accessed 01/11/2023)
[32] Info Base Cymru, WIMD 2019 health indicators. Available at: https://www.infobasecymru.net/IAS/themes/healthandsocialcare/generalhealth/tabular?viewId=2458&geoId=1&subsetId= (Accessed 01/11/2023)
[33] Info Base Cymru, Rate of age-standardised deaths. Available at: https://www.infobasecymru.net/IAS/themes/healthandsocialcare/generalhealth/tabular?viewId=1487&geoId=1&subsetId= (Accessed 01/11/2023)
[34] Public Health Wales, Health Advice: General information following a flood. Available at: https://phw.nhs.wales/services-and-teams/environmental-public-health/flooding/flooding-general-advice/ (Accessed 01/11/2023)
[35] Info Base Cymru, Medical conditions (National Survey for Wales). Available at: https://www.infobasecymru.net/IAS/themes/healthandsocialcare/generalhealth/tabular?viewId=2293&geoId=1&subsetId= (Accessed 01/11/2023)
[36] Info Base Cymru, Medical conditions, 2020-21 onwards (National Survey for Wales). Available at: https://www.infobasecymru.net/IAS/themes/healthandsocialcare/generalhealth/tabular?viewId=2624&geoId=1&subsetId= (Accessed 01/11/2023)
[37] UK Public Health Register, Health impacts on flooding. Available at: https://ukphr.org/health-impacts-on-flooding/ (Accessed 01/11/2023)

Although MTCBC has a high proportion of those with poor health in comparison with other local authorities in Wales, the general trend over previous years shows that this proportion is decreasing, suggesting that overall health is improving and could continue to improve in the future.

Climate change will have an impact on population and have implications for the management of flooding in MTCBC particularly for balancing the costs and benefits of flood defence. In the absence of an appropriate LFRMS it is considered likely that a greater number of people would be considered to be potentially at risk from flooding. This could put additional strain on the mental health of some residents who live within areas prone to flooding, from the flood itself, the aftermath and fear of flooding.

### ISSUES AND OPPORTUNITIES

Issues and opportunities for human health and the implications for the LFRMS have been identified in **Table B-3**.

**Table B-3 - Human Health Issues and Opportunities**

| Issues & Opportunities | Implications for the LFRMS |
|---|---|
| ▪ The population of MTCBC is expected to continue to increase which may place additional strain on services and infrastructure.<br>▪ The main health risks of flooding include drowning, serious injury from falling into fast-flowing water, carbon monoxide inhalation, stress and infections from contact with flood water.<br>▪ There are a variety of secondary stressors that flooding can introduce on individuals.<br>▪ There are large disparities for life expectancy between the most and least deprived areas. | ▪ The LFRMS should ensure that the flood prevention measures meet the demands and needs of the future population.<br>▪ The LFRMS needs to balance the costs and benefits of flood defences. |

## ECONOMY

### BASELINE

In the 2022-2023 period, 70.5% of those aged 16 to 64 years in MTCBC were economically active, with 66.7% in employment and 3.9% unemployed[38]. These figures are generally lower than the national averages (73.6% in employment and 3.4% unemployed), with the exception of those unemployed which is 0.5% higher in MTCBC.

The economic inactivity rate is the percentage of the population not working and not seeking nor available to work. In 2022-2023, the economic inactivity rate in MTCBC was reported to be 29.5% which is much higher than that of Wales (23.8%).For households that have at least one person aged between 16 and 64

[38] Nomis, Official census and labour market statistics, Labour Market Statistics – Merthyr Tydfil. Available at: https://www.nomisweb.co.uk/reports/lmp/la/1946157399/report.aspx?town=merthyr#tabempunemp (Accessed 01/11/2023)

years, 21.2% of households were reported to be workless in 2022, which was considerably higher than the national average of 16.6%.

The median gross weekly earnings of full-time employees in 2019 was lowest in MTCBC (£468.30) compared to all other local authorities in the South East[39]. This increased to £540.60 in 2022; however, this was significantly lower than that for Wales (£603.50).

In 2018, the proportion of the population aged 18-64 with no qualifications was highest in MTCBC at 14.8% across all local authorities in Wales. In 2019, MTCBC had the second highest population of adults aged 25-64 with no qualifications (28.2%) amongst local authorities in Wales, which is higher than the national average.

MTCBC has the second highest income deprivation in Wales with 20% living in deprived households, which is higher than the national average (16%). MTCBC has the second highest population of people in overcrowded households (7.70%), which is higher than the national average. Those from lower income groups are also less likely to have flood insurance.

Approximately 11% of all properties in Wales are currently at risk of flooding from rivers and the sea, and flood events on average are estimated to cause £200 million of damage in Wales per year[40].

In February 2020, Storm Dennis resulted in the flooding of 225 properties within MTCBC which accounted for 8.13% of properties flooded in Wales as a result of the storm[41]. The Association of British Insurers estimated that the average household flood claim from the storms was £32,000[42].

In response to Storms Ciara and Dennis, the First Minister announced that up to £10 million was being made available for the initial response to flooding caused[43]. This fund was administered by Business Wales to support businesses with the immediate costs of recovery which were not covered by insurance, in addition to helping with the cost of renting alternative space and retaining staff.

The Welsh Government also made £2.5 million available to businesses recovering from the floods. All business were able to apply for a grant of up to £2,500 to help them become fully functional as quickly as possible. This was in addition to support provided for local authorities to meet the costs of discretionary business rates relief due to flooding for up to three months where a number of business premises were affected in a concentrated location.

[39] South East Wales in this instance is comprised of ten local authorities which are Bridgend, Blaenau Gwent, Caerphilly, Cardiff, Merthyr Tydfil, Monmouthshire, Newport, Rhondda Cynon Taf, Torfaen and Vale of Glamorgan.
[40] Victoria Paris, Research Service, National Assembly for Wales, Key Issues for the Fourth Assembly, Is Wales ready for sea level rise and flooding? Available at: https://senedd.wales/media/4e0bo3aj/ki-025-english.pdf (Accessed 07/11/2023)
[41] Natural Resources Wales, February 2020 Floods in Wales: Flood Event Data Summary. Available at: https://cdn.cyfoethnaturiol.cymru/media/692376/february-2020-floods-in-wales-flood-event-data-summary-high-resolution-eng.pdf (Accessed 07/11/2023)
[42] Association of British Insurers, Insurance pay outs to help customers recover from Ciara and Dennise set to top £360 million. Available at: https://www.abi.org.uk/news/news-articles/2020/03/insurance-pay-outs-to-help-customers-recover-from-storms-ciara-and-dennis-set-to-top-360-million/ (Accessed 07/11/2023)
[43] Welsh Government, £2.5 million Welsh Government support for businesses hit by flooding. Available at: https://www.gov.wales/25-million-welsh-government-support-businesses-hit-flooding (Accessed 07/11/2023)

## FUTURE EVOLUTION OF THE BASELINE WITHOUT THE LFRMS

Over recent years, the employment rate has increased, and the economic inactivity rate has decreased in MTCBC. This is a good indication that the economy is growing and will continue to grow in the future.

The changing age structure in MTCBC is projected to alter the dependency ratio. The number of non-working age people (children and individuals of pension age 65+) is expected to increase which will increase the burden on the number of working age people (those who are 16 to 64 years old).

MTCBC's 2020-2035 economic vision is to support the growth of local businesses and attract new businesses to invest, equip individuals with the skills and knowledge to have a job or start a business, and to attract more visitors to boost the local economy. MTCBC aim to achieve this by creating a wider range of job opportunities, reducing the proportion of retail and hospitality jobs, increasing the number of jobs in priority sectors such as health, tourism and renewable energies, improving the education and training system, and promoting the natural landscape in order to attract more visitors.

The annual economic damages from flooding in Wales is predicted to increase by 18 times by 2080 compared to that from 2004, due to more frequent and severe storms which will result from climate change.

Without the LFRMS there is potential that more businesses may be at risk of flooding and overall economic damages and the impact on the local and regional economy may be higher without the implementation of new measures and interventions.

## ISSUES AND OPPORTUNITIES

Issues and opportunities for economy and the implications for the LFRMS have been identified in **Table B-4**.

**Table B-4 - Economy Issues and Opportunities**

| Issues & Opportunities | Implications for the LFRMS |
|---|---|
| ▪ The employment rate has increased, and the economic activity rate has decreased, indicating economic growth.<br>▪ The COVID-19 pandemic has put pressure on the local economy by placing pressure on the delivery of public services and preventing businesses from operating and residents from working.<br>▪ MTCBC provided grant support to local businesses and social enterprises during the pandemic.<br>▪ There is the potential for increased strain to support non-working age people as the population of those aged 65 and over increases.<br>▪ The Welsh Government provided financial support to local businesses recovering from the floods caused by Storm Ciara and Dennis.<br>▪ There is opportunity to support the growing economy and achieve MTCBC's 2020-2035 economic vision, particularly in the aftermath of the pandemic, by protecting local businesses from flooding. | ▪ The LFRMS should reduce and manage flood risk on local businesses.<br>▪ The LFRMS should help support better understanding of flood risk for business owners. |

# BIODIVERSITY

## BASELINE

There are no nationally or internationally designated ecological sites within MTCBC, however, there are seven Sites of Special Scientific Interest (SSSIs). SSSIs are highly protected to safeguard the range, quality and variety of habitats, species and geological features in all parts of Wales. There are more than 1,000 SSSIs in Wales, covering about 12% of the country's surface area[44].

Two are shared with Powys County Borough (Baltic and Tyle'r-Bont Quarries and Brecon Beacons). Three are found within the Bannau Brycheiniog National Park in the north of MTCBC (Abercriban Quarries, Daren Fach and Nat Glais Caves). A further two are found within MTCBC, but south of the Bannau Brycheiniog National Park (Cwm Glo a Glyndyrys and Cwm Taf Fechan Woodlands).

There are currently 59 Sites of Importance for Nature Conservation (SINC) distributed throughout MTCBC and one Local Nature Reserve (LNR). MTCBC Local Development Plan for 2016-2031 proposes five new SINC[45]. These are:

- Merthyr Common Central;
- Gethin Forest;
- Cefn Forest;
- St. Tydfil Forest (East); and
- St. Tydfil Forest (West).

Within MTCBC, 14 sites have been chosen as priority biodiversity sites, meaning a fundamental shift away from intensive grassland management and towards a management regime aimed at increasing biodiversity. Since the new grassland management regime has been used, >200 species of flora and >50 species of fauna have been recorded.

The Merthyr Tydfil Nature Recovery Action Plan (MTNRAP) explores the current state of biodiversity in MTCBC describing, in broad terms, the diverse range of habitats and species found. Examples of habitats found within MTCBC include:

- Native woodland;
- Ffridd;
- Heathland;
- Rhôs pasture;
- Wetland;
- Naturally re-vegetated mineral spoil areas; and
- Rivers and streams.

[45] Merthyr Tydfil County Borough Council, Merthyr Tydfil; Nature Recovery Action Plan 2019-2024. Available at: https://www.merthyr.gov.uk/media/5685/merthyr-tydfil-nature-recovery-action-plan-2019.pdf (Accessed 01/11/2023)

Section 7 of the Environment (Wales) Act 2016[46] lists living organisms of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales. The following are examples of protected species found within the MTCBC[47]:

- European Otter;
- Bats (Brown-long eared bat, common pipistrelle, Daubenton's, Lesser horseshoe bat, Natterer's bat, noctule, serotine, soprano pipistrelle and whiskered bat);
- Great crested Newt;
- Water Vole;
- Marsh Fritillary Butterfly; and
- Ley's Whitebeam.

Invasive Non-native Species (INNS), pests and pathogens have the ability to spread, causing damage to the environment, the economy, human health. The Wildlife and Countryside Act 1981[48] makes it an offence to release or allow to escape into the wild any animal, plant or micro-organism not ordinarily resident in the UK (as listed in Schedule 9 of the Act). The species causing most impact within MTCBC include Japanese knotweed, Himalayan balsam and signal crayfish.

MTCBC has been affected by Phytophthera ramorum, for example, in Gethin Woods and Cyfarthfa Park. There is a Plant Health Management Plan in place, agreed with the Animal and Plant Health Agency (which includes the regular removal of Rhododendron ponticum, one of the principal hosts of Phytophthora ramorum. In addition, Chalara fraxinea (ash dieback) has been identified around MTCBC and reported to the Animal and Plant Health Agency, Department for Environment, Food and Rural Affairs (DEFRA).

Flooding can have adverse impacts on biodiversity including causing drowning, disease proliferation and habitat destruction[49]. Extreme flood events have been shown to negatively impact freshwater ecosystems. Floods increase surface run-off which introduces more soil, organic matter and pollutants into water courses[50]. This contamination of floodwater can impact water quality and disrupt ecosystems, including fish habitats.

Increased surface run-off also exacerbates erosion within the river channel and suspended sediment will eventually settle out which can clog riverbeds and streams, smother aquatic organisms and destroy habitats. As a result, plant biomass and the abundance of both vertebrates and invertebrates can be dramatically reduced by extreme floods.

Flood events increase the chance of spreading waterborne diseases and receding floodwater can create stagnant pools of water which animals can drink from.

[46] Environment (Wales) Act 2016. Available at: https://www.legislation.gov.uk/anaw/2016/3/contents/enacted (Accessed 01/11/2023)
[47] Merthyr Tydfil County Borough Council, Merthyr Tydfil Nature Recovery Action Plan 2019-2024. Available at: https://www.merthyr.gov.uk/media/5685/merthyr-tydfil-nature-recovery-action-plan-2019.pdf (Accessed 01/11/2023)
[48] Wildlife and Countryside Act 1981. Available at: https://www.legislation.gov.uk/ukpga/1981/69/contents (Accessed 01/11/2023)
[49] National Geographic, The Many Effects of Flooding. Available at: https://education.nationalgeographic.org/resource/many-effects-flooding/ (Accessed 07/11/2023)
[50] British Ecological Society, Flooding in the UK: ecological impacts and an ecosystem approach. Available at: https://www.britishecologicalsociety.org/flooding-in-the-uk-ecological-impacts-and-an-ecosystem-approach/ (Accessed 07/11/2023)

## FUTURE EVOLUTION OF THE BASELINE WITHOUT THE LFRMS

The State of Nature report 2023[51] shows that nature is continuing to decline at an alarming rate across the UK, which is already one of the most nature-depleted countries in the world. 18% (one in six) of our species are at risk of extinction in Wales, including plants and animals such as Fen Orchid, Water Vole and Sand Lizard. The abundance of land and freshwater species has on average fallen by 20% across Wales since 1994. Of almost 3,900 species assessed, more than 2% are already extinct in Wales.

In 2021 the Welsh Government declared a nature emergency. What this means is that 17% of 3,902 species studied in Wales are at risk of extinction, with many others in decline. Natural Resources Wales' (NRW). In 2015, the Welsh Government published the Nature Recovery Action Plan for Wales[52], which set out six objectives for reversing the decline of biodiversity. These objectives have been used to develop the MTNRAP and S6 Plan.

The Biodiversity and Resilience of Ecosystems Duty Report[53] has been prepared in response to the Environment (Wales) Act 2016[54] (Section 6, Subsection 1) which introduced an enhanced biodiversity and resilience of ecosystems duty (the S6 duty) for public authorities in the exercise of their functions in relation to Wales. This action report sets out the key objectives in the borough for embedding biodiversity throughout the decision-making process.

The Environment (Wales) Act 2016 also made it a duty for NRW to produce 'Area Statements'. MTCBC, along with Rhondda Cynon Taf, Bridgend, Vale of Glamorgan and Cardiff make up the South Wales Central area. The statements will set priorities specific to each area that, in turn, will shape local NRW work programmes, contribute to national policy and direct funding streams.

Without the LFRMS, the current negative effects on biodiversity are likely to continue with flooding events expected to increase, resulting in some of the region's most important biodiversity being lost.

[51] North Wales Wildlife Trust, State of Nature 2023. Available at: https://www.northwaleswildlifetrust.org.uk/state-nature-2023#:~:text=This%20report%20shows%20that%20nature,depleted%20countries%20in%20the%20world.&text=18%25%20(one%20in%20six),Water%20Vole%20and%20Sand%20Lizard (Accessed 01/11/2023)
[52] Welsh Government, Nature recovery action plan. Available at: https://www.gov.wales/nature-recovery-action-plan (Accessed 01/11/2023)
[53] Merthyr Tydfil County Borough Council, Environment (Wales) Act 2016 Part 1 – Section 6
The Biodiversity and Resilience of Ecosystems Duty Report, 2022 [online] available at: https://www.merthyr.gov.uk/media/8892/the-biodiversity-and-resilience-of-ecosystems-s6-duty-report.pdf
[54]Environment (Wales) Act 2016 [online] available at: https://www.legislation.gov.uk/anaw/2016/3/contents/enacted

## ISSUES AND OPPORTUNITIES

Issues and opportunities for biodiversity and the implications for the LFRMS have been identified in **Table B-5**.

**Table B-5 - Biodiversity Issues and Opportunities**

| Issues & Opportunities | Implications for the LFRMS |
|---|---|
| ▪ Wales is now one of the most nature-depleted countries globally<br>▪ Climate change and reduced water quality will put strains on terrestrial and aquatic ecosystems<br>▪ There is a need to increase ecosystem resilience<br>▪ Flooding can have adverse impacts on biodiversity including causing drowning, disease proliferation and habitat destruction<br>▪ Extreme flood events have been shown to negatively impact freshwater ecosystems.<br>▪ Floods increase surface run-off which introduces more soil, organic matter and pollutants into water courses<br>▪ Plant biomass and the abundance of both vertebrates and invertebrates can be dramatically reduced by extreme floods<br>▪ Invasive Non-native Species (INNS), pests and pathogens have the ability to spread, causing damage to other biodiversity. MTCBC has issues with Phytophthera ramorum, Rhododendron ponticum, and Chalara fraxinea (ash dieback). | ▪ The LFRMS should consider the severity of the current environment and biodiversity baseline of all parts of society and place emphasis on improving current water quality and future biodiversity in MTCBC.<br>▪ The LFRMS will need to adhere to MTCBC's future biodiversity goals and mitigate any potential impacts on habitats leading to biodiversity loss.<br>▪ The LFRMS should incorporate nature based solutions and work towards biodiversity net gain. |

# LANDSCAPE & TOWNSCAPE

### BASELINE

MTCBC is located across two National Landscape Character Areas (NLCA). The purpose of these NLCAs is to help distinguish different regions of landscape identity and character in Wales.

The northern section of MTCBC falls within NLCA30 Bannau Brycheiniog and Black Mountains[55]. The highest mountain range in southern Britain can be found in this area. The Bannau Brycheiniog are made of Old Red Sandstone which have been heavily glaciated to form over-deepened valleys with smooth-sided slopes. The landscape in between upland areas consist of rough moorland

[55] Natural Resources Wales, National Landscape Character NLCA30 Bannau Brycheiniog & Black Mountains. Available at: https://cdn.cyfoethnaturiol.cymru/media/682609/nlca30-brecon-beacons-and-black-mountains-description.pdf?mode=pad&rnd=131550603372330000 (Accessed 01/11/2023)

habitats, classic limestone scenery, strong field patterns, reservoirs and blocks of conifer woodland with scattered small settlements.

The southern section of MTCBC falls within NLCA37 South Wales Valleys[56]. The site is characterised by an extensive upland plateau with deep, urbanised valleys. There are also extensive remains of heavy industry, most notably from coal mining. The urban and industrial character of these areas contrast with quieter upland settings with steep hillslopes, open moors and forests.

Coal tips are a legacy of Wales' mining past and the Welsh Government is committed to ensuring our communities are safe. In February 2020, the impact of climate change saw increased winter storms with extreme rainfall. This caused a landslip at a disused coal tip in Tylorstown, Rhondda Cynon Taf, changing the face of the landscape. In response to the Tylorstown landslide, the Welsh and UK Governments set up a joint Coal Tip Safety Taskforce. This was set up to assess the immediate status of disused coal tips in Wales.

There are four green wedges within MTCBC, these are located between Heolgerrig/Twyncarmel, Abercanaid/ Pentrebach /Troedyrhiw, Troedyrhiw/ Aberfan and Trelewis/Nelson. Green wedges are designated by LPAs as a way of protecting open land around towns and cities.

The northern extent of MTCBC lies within the Bannau Brycheiniog National Park. The National Park is characterised by grassy moorlands, heather-clad escarpments and Old Red Sandstone peaks, and includes four ranges of mountains; the Black Mountains, the Central Beacons, Fforest Fawr and the Black Mountain (Mynydd Du)[57]. The National Park is comprised of an array of nationally and internationally important habitats and species, with dynamic natural ecosystems which provides a fundamental role in the quality of life, health and wellbeing[58].

Current challenges for nature conservation and land management in the National Park includes pressure on biodiversity from agricultural change, local development, climate change and the spread of invasive non-native species.

Each National Park has a unique character, and a key role of any National Park Management Plan is to define the essence of the place that makes it special and appealing, and worthy of protection. These are known as the Park's 'special qualities' and form the key to its designation. The twelve special qualities are as follows:

- Natural beauty;
- Living patterns;
- Rugged landscape;
- Sense of place and cultural identity;
- Intimate sense of community;

[56] Natural Resources Wales, National Landscape Character NLCA37 South Wales Valleys. Available at: https://cdn.cyfoethnaturiol.cymru/media/682625/nlca37-south-wales-valleys-description-1.pdf?mode=pad&rnd=131550626704970000 (Accessed 01/11/2023)
[57] Visit Wales, Bannau Brycheiniog National Park. Available at: https://www.visitwales.com/attraction/country-park/brecon-beacons-national-park-1444213 (Accessed 07/11/2023)
[58] Bannau Brycheiniog Local Nature Partnership, A Future with Nature at it's Heart, A Nature Recovery Action Plan for the Bannau Brycheiniog National Park 2019-2024. Available at: https://www.beacons-npa.gov.uk/wp-content/uploads/BBNPA-Nature-Recovery-A4-ENG-WEB.pdf (Accessed 07/11/2023)

- Enjoyable and accessible;
- Sense of discovery;
- Sounds, sights, smells and tastes;
- Sense of discovery;
- Peace, tranquillity and darkness;
- Mosaic of diversity; and
- Living landscape.

Gethin Woodland Park is located within the south-west of MTCBC. It covers an overall area of 850ha and provides far-reaching views of the South Wales Valleys and the Brecon Beacons[59]. The woodland is popular with visitors due to its peaceful and tranquil nature. There is 21km of walking routes within the woodland that provides access for walkers, horse riders and cyclists.

The main settlements within MTCBC are Merthyr Tydfil, Aberfan, Bedlinog, Merthyr Vale, Trelewis, Troedyrhiw, Dowlais, Treharris and Quakers Yard. Tourist attractions within MTCBC are largely centred in Merthyr Tydfil, and include the Brecon Mountain Railway, Merthyr Tydfil Golf Club, Cyfarthfa Park and Castle, Merthyr Tydfil Leisure Centre and Village, and Parkwood Outdoors[60].

## FUTURE EVOLUTION OF THE BASELINE WITHOUT THE LFRMS

As the population of MTCBC continues to grow, the demand for housing will grow. To cater for the growing population, it is likely that significant development will take place to provide not only homes, but associated services required such as healthcare and education facilities as well as shops and business expansion to provide jobs.

Climate change has the potential to have an impact on landscape features. The changing climate is likely to have significant direct (e.g. changing land cover) and indirect (e.g. by influencing land use decisions) impacts on landscape character, quality and local distinctiveness. Flooding and drought events, more frequent extreme weather, coastal erosion, wildfires, diseases affecting tree cover and changing land cover, habitats and species ranges. In addition, climate change may also affect the availability of water supplies.

The Bannau Brycheiniog National Park Nature Recovery Action Plan aims to help reverse the decline in biodiversity by focussing on developing resilient ecological networks which are more diverse, in better condition and better connected. This will be achieved by improving understanding of ecological resilience within the National Park, working with partners to unify local action for nature recovery, increasing the resilience of the natural environment by protecting, restoring and creating habitats, delivering targeted action for key species and habitats, and engaging with diverse audiences about nature recovery.

Without the LFRMS, the impacts of flooding may not be as well managed across the MTCBC, placing the landscape at greater risk from flooding and erosion. This could lead to the degradation of the MTCBC's landscape and townscape character and loss of valuable green infrastructure.

[59] Woodland Trust, Gethin Woodland Park. Available at: https://www.woodlandtrust.org.uk/visiting-woods/woods/gethin-woodland-park/ (Accessed 07/11/2023)
[60] Visit Merthyr, Visit Merthyr Location Finder. Available at: https://www.visitmerthyr.co.uk/map-page/ (Accessed 07/11/2023)

## ISSUES AND OPPORTUNITIES

Issues and opportunities for landscape and townscape and the implications for the LFRMS have been identified in **Table B-6**.

**Table B-6 - Landscape Issues and Opportunities**

| Issues & Opportunities | Implications for the LFRMS |
|---|---|
| ▪ Climate change may have an impact on landscape features such as drying out reservoirs, reducing the volume of water in rivers and increasing the frequency and intensity of flood events.<br>▪ The expected population growth will be driving the need for additional homes and facilities.<br>▪ There are land management issues in the National Park particularly on biodiversity from agricultural change, local development, climate change and the spread of invasive non-native species. | ▪ The LFRMS will need to ensure that it protects MTCBC's unique landscape and townscape, including both the rural and urban environments.<br>▪ The LFRMS should support opportunities for nature base solutions which incorporate green/blue infrastructure and can provide new recreation assets for the community. |

# HISTORIC ENVIRONMENT

### BASELINE

The historic environment is a vital part of the cultural identity of Wales. It is made up of many individual historic features which are known as historic assets. Historic assets include individual historic buildings and archaeological remains, historic parks and gardens, conservation areas and townscapes, historic landscapes and World Heritage Sites. All these historic assets contribute to the distinctive character of all Welsh places and to the quality of Welsh life.

There are currently around 233 listed buildings and structures in MTCBC, ranging from viaducts to terrace houses, and smaller structures such as mile posts or pillar boxes[61]. MTCBC has 48 Scheduled Ancient Monuments (SAM). SAMs are structures, archaeological sites or ruins which have little economic use. SAMs under the Ancient Monuments and Archaeological Areas Act 1979[62] are protected by law.

In addition, there are three registered parks and gardens: Cyfarthfa Castle Park Grade II*, Aberfan Cemetery Garden of Remembrance Grade II* and Cefn Coed Cemetery Grade II.

There are currently eight conservation areas within MTCBC. A conservation area is an area of special architectural or historic interest, which MTCBC has identified worth protecting. Section 69 of

[61] Merthyr Tydfil County Borough Council, Listed Buildings. Available at: https://www.merthyr.gov.uk/resident/planning-and-building-control/historic-environment-conservation/buildings/ (Accessed 01/11/2023)
[62] Ancient Monuments and Archaeological Areas Act 1979. Available at: https://www.legislation.gov.uk/ukpga/1979/46/contents (Accessed 01/11/2023)

the Planning (Listed Buildings and Conservation Areas) Act 1990[63] gives the MTCBC the authority to designate such areas, in order to preserve, and enhance the special character of these areas. Conservation Area Appraisals and Management plans (CAAMPs) provide detailed information on the special character of conservation areas and provide guidance for development and maintenance of properties.

**Council Street and Urban Street Conservation Area- Designated December 2014**

These two streets completed in 1903 represent the earliest examples of Council housing in Merthyr Tydfil. They form an important element in the material evidence of the County Borough's social history.

**Cwmfelin Conservation Area-Designated 1973**

A particularly well preserved pre-industrial settlement, which has retained much of its rural feel.

**Cyfarthfa Park-Designated December 2009**

Cyfarthfa Park Conservation Area covers a significant part of Merthyr's industrial story; the Crawshay family, and the Cyfarthfa Ironworks.

**Dowlais Conservation Area-Designated 1998**

The largest iron works in the world which created a very significant role in the urbanisation of Merthyr Tydfil.

**Merthyr Tydfil Town Centre Conservation Area-Designated June 2009**

Merthyr Tydfil Town Centre Conservation Area covers the High Street from St Tydfil's Church to the top of Pontmorlais. The town centre retains many large 19th and early 20th Century commercial, civic, and religious buildings.

**Morgantown Conservation Area-Designated December 2009**

Early 19th Century residential development of interesting rectangular street grids adjacent to surviving rare industrial structures.

**Thomastown Conservation Area-Designated 1978**

One of the largest groups of late Georgian, and early Victorian Style buildings in Wales forming a middle class suburb.

**Treharris Conservation Area-Designated June 2009**

A planned settlement to serve Frederick William Harris' Navigation Colliery. The 19th Century settlement comprises of a strong geometric street grid, which was contained by the surrounding railways.

[63] Planning (Listed Buildings and Conservation Act) 1990. Available at: https://www.legislation.gov.uk/ukpga/1990/9/contents (Accessed 01/11/2023)

Registered Historic Landscapes are designated by Cadw for their outstanding or special historic interest in Wales. There are two Registered Historic Landscapes in MTCBC.

The Merthyr Tydfil Registered Historic Landscape is located entirely within MTCBC, occupying the natural basin at the head of the Taff valley[64]. The site is constrained by high hills and ridges on all sides with development along the basin floor. It has maintained its industrial landscape of the 18th and 19th centuries through remnants of the coal mining industry, large ironworks and water power leats. This is characterised by the early tramroads, tips, terraced industrial housing and the Ironmaster's house, Cyfarthfa Castle.

The south-eastern extent of MTCBC lies within the Gelli-Gaer Common Registered Historic Landscape[65]. The site is an area of high upland moor with isolated farms and improved, enclosed pasture with a rich diversity of archaeological sites that demonstrates a long continuity of human activity dating back to the Bronze Age.

## FUTURE EVOLUTION OF THE BASELINE WITHOUT THE LFRMS

MTCBC are in the process of producing and updating their CAAMPs, in order to improve the protection of all of MTCBC's conservation areas.

The Historic Environment (Wales) Act 2023[66] was introduced into Welsh Government on 4 July 2022, passed on 28 March 2023 and received Royal Assent on 14 June 2023 for the effective protection and management of Wales' unique historic environment so that it can continue to contribute to the wellbeing of Wales and its people.

Climate change poses a significant threat to the historic environment, including undiscovered and undesignated heritage assets. Increased warmth may encourage a rise in the number of invasive plant and animal species, which could change the character of historic and designed landscapes by reducing numbers of or killing off native flora and fauna. Hotter, drier conditions may also increase the risk of fire as well as soil shrinkage, which can lead to building subsidence, structural deformation and building collapse.

More extreme rainfall events and increase levels of flooding have potential to increase the of flood risk to historic buildings. Water saturation can damage historic buildings and designed landscapes, particularly if standing water conditions persist Cadw's publication, Flooding and Historic Buildings in Wales, provides guidance on how to prepare for flooding and recommends actions to be taken during and after a flood to minimise damage to historic buildings.

In the absence of the LFRMS, it is likely that the damage risk from increased flooding events will results in the loss and degradation of local heritage assets.

[64] Cadw, Full Reports of Registered Historic Landscape, Merthyr Tydfil. Available at: https://cadwpublic-api.azurewebsites.net/reports/historiclandscape/FullReport?lang=en&id=HLW%20(MGL)%202 (Accessed 01/11/2023)
[65] Cadw, Full Reports of Registered Historic Landscape, Gelli-Gaer Common. Available at: https://cadwpublic-api.azurewebsites.net/reports/historiclandscape/FullReport?lang=en&id=HLW%20(MGl)%204 (Accessed 01/11/2023)
[66] Historic Environment (Wales) Act 2023. Available at: https://www.legislation.gov.uk/asc/2023/3/contents/enacted (Accessed 01/11/2023)

## ISSUES AND OPPORTUNITIES

Issues and opportunities for the historic environment and the implications for the LFRMS have been identified in Table B-7.

**Table B-7 - Historic Environment Issues and Opportunities**

| Issues & Opportunities | Implications for the LFRMS |
|---|---|
| ▪ Future growth and development have the potential to affect the survival, fabric, condition and setting of cultural heritage assets (both above and below ground).<br>▪ An increase in rainfall, extreme weather events and flooding may result in irreplaceable damage, degradation and/or erosion of heritage and archaeological sites. | ▪ The LFRMS should promote the management and maintenance of historic and cultural assets and improve the climate resilience of cultural sites, ensuring the maintenance of distinctive characteristics.<br>▪ The LFMS should aim to enhance the understanding and appreciation of the significance of heritage assets. |

# WATER ENVIRONMENT

### BASELINE

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017[67] (hereafter referred to as the 'WFD Regulations') are the primary mechanism for assessing and managing the water environment in Wales, which includes all surface freshwater bodies (lakes, streams, rivers), groundwaters, associated ecosystems, estuaries and coastal waters out to one mile from low water. They transpose and implement water quality standards from the EU's 2000 Water Framework Directive and place a statutory duty on the Welsh Ministers to prevent deterioration and improve all water bodies to 'good status' by 2027[68].

Around 95% of Wales' water resources originate as surface water either from reservoir storage or river abstractions and have very little dependence on groundwater supplies. This reliance on surface waters can increase vulnerability to short periods of low rainfall as river levels change more quickly than groundwaters[69].

Wales is split into three river basin districts (RBDs) and each has its own River Basin Management Plan (RBMP) which is required under the WFD Regulations. These are:

- Western Wales District – entirely in Wales;
- Dee District – cross-border with England; and
- Severn District - cross-border with England (led by the Environment Agency).

[67] The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. Available at: https://www.legislation.gov.uk/uksi/2017/407/contents/made (Accessed 01/11/2023)
[68] Welsh Parliament, Water Quality in Wales, Research Briefing. Available at: https://research.senedd.wales/media/v3fl5zes/23-12-water-quality-in-wales.pdf (Accessed 01/11/2023)
[69] Welsh Water, Water resources. Available at: https://www.dwrcymru.com/en/our-services/water/water-resources (Accessed 01/11/2023)

For surface waters there are two separate classifications for water bodies, ecological and chemical. For a water body to be in overall good status both ecological and chemical status must be at least good. For groundwater there are two separate classifications for groundwater bodies: chemical status and quantitative status. Each must be reported in addition to the overall groundwater body status. For a groundwater body to be at good status overall both chemical status and quantitative status must be good.

In 2020, 40% of the 933 surface and ground water bodies across Wales were at good or better status, a 3% improvement since 2009, while 36% of surface water bodies in the UK were in high or good status[70]. Conversely, 9% of the total number of water bodies in Wales were at poor status in 2020.

Classification is an assessment of the quality of surface waters and groundwaters undertaken at a point in time. It includes monitoring data required by the classification tools which vary from 3 to 6 years prior to the publication. It is based on operational routine monitoring points within a water body that is risk based. This classification and information on the pressures and risks to waters is the basis for planning each cycle. In each cycle of the RBMPs, Natural Resource Wales (NRW) collate all the evidence, historic and current, and produce a baseline classification.

Merthyr Tydfil falls within the Severn District, of which the River Taff is the main river that runs through it. The River Taff is one of Wales' most important rivers. It flows from its source in the Bannau Brycheiniog as two rivers, the Taf Fechan and the Taf Fawr. These join together just north of Merthyr Tydfil, from where the river continues its journey to Cardiff, joining the Severn Estuary at Cardiff Bay[71]. According to Water Watch Wales, the river has an overall moderate status[72].

[70] Natural Resources Wales, River basin management plans 2015-2021. Available at: https://naturalresources.wales/evidence-and-data/research-and-reports/water-reports/river-basin-management-plans/river-basin-management-plans-published/?lang=en#:~:text=At%20overall%20status%20across%20geographic,at%20good%20or%20better%20status (Accessed 01/11/2023)

[71] Radyr and Morganstown Community Council in partnership with Natural Resources Wales, Tackling Litter Pollution in the River Taff. Available at: https://www.radyrandmorganstown.org/uploads/1/2/3/4/123409693/taff_pollution_leaflet.pdf (Accessed 01/11/2023)

[72] Natural Resources Wales, Water Watch Wales Map Gallery. Available at: https://waterwatchwales.naturalresourceswales.gov.uk/en/ (Accessed 01/11/2023)

**Table B-8 - Number and Types of Water Bodies Baseline Third Cycle RBMP (2021-2027) for the Welsh part of the Severn RBD[73]**

| Type of water bodies | Number of water bodies | | | |
|---|---|---|---|---|
| | Natural | Artificial | Heavily modified | Total |
| **Rivers** | 202 | 11 | 23 | 236 |
| **Lakes** | 4 | 0 | 32 | 36 |
| **Coastal** | 0 | 0 | 0 | 0 |
| **Estuarine** | 1 | 0 | 2 | 3 |
| **Groundwater** | 9 | n/a | n/a | 9 |
| **Total** | 216 | 11 | 57 | 284 |

The most recent classification results indicates that 35% of water bodies achieved good or better overall status.

One of the reasons it is failing to achieve good ecological status because of declining fish populations. Many fish passage improvements have taken place along the River Taff and tributaries in recent years. The removal of the weir at Merthyr Vale sees the removal of the last significant barrier on the river to fish migration. This will provide better access to this stretch of the river and will help to boost the return of salmon and sewin to the upper reaches of the River Taff. Removing the weir will improve access to over 10km of good quality spawning habitat on the Taff Fechan and Fawr upstream of Merthyr Vale. The removal of the weir will help to restore the health of the river to good ecological status. There are several community enhancement projects being developed as a result of the weir removal.

Drinking Water Protected Areas (DrWPAs) have been designated to protect raw waters used for public supply. There are currently 125 DrWPA (Surface) and 39 DrWPA (Groundwater) in Wales.

The necessary protection is to achieve the aim of avoiding deterioration in the water quality in DrWPAs in order to reduce the level of purification treatment required. There are three lakes North of Merthyr Tydfil that feed into the River Taff which are DrWPAs the most important of these is Pontsticill Reservoir. To the East and West of Merthyr Tydfill are river catchments that are also DrWPAs.

[73] Natural Resources Wales, Welsh part of the Severn River Basin Management Plan (2021-2027) Summary. Available at: https://naturalresources.wales/media/695983/severn-rbmp-2021_2027-summary.pdf (Accessed 01/11/2023)

Significant Water Management Issues (SWMIs) are considered to be the most important issues that challenge the current and potential future uses and benefits of the water environment in each RBD. These are;

- Physical modifications – changes made by people to rivers, lakes and estuaries, for example flood defences and weirs, and changes to the natural river channels for land drainage and navigation. These modifications alter natural flow levels, may cause excessive build-up of sediment, barriers to migration and the loss of habitats.
- Pollution from rural areas – the effects of poor agricultural practice and rural land management on the water environment (also known as 'diffuse rural pollution'), causing sediment, nutrient and pesticide run-off.
- Pollution from towns, cities and transport – rainwater running over hard surfaces and carrying pollutants into waters, chemicals from contaminated land, and sewage from houses 'misconnected' to surface water drains rather than sewers (also known as 'diffuse urban pollution.
- Pollution from wastewater – wastewater can contain large amounts of nutrients (such as phosphorus and nitrates), ammonia, faecal bacteria and other damaging substances.
- Pollution from mines – contaminated water draining from mines, most of which are now abandoned, changes to the natural flow and level of water – taking too much water from rivers, canals, lakes and groundwater, means less water flowing and altering water levels can affect habitats.
- Negative effects of non-native invasive species – the effect on the health of the natural environment of plants and animals from outside the UK introduced to UK waters.

Other individual pressures that have significant impacts on the water environment include;

- Abstraction is the removal of water, permanently or temporarily, from the water environment such as rivers, lakes, wetlands, canals, reservoirs or from groundwater.
- Taking too much water from rivers, canals, lakes and groundwater causes problems for wildlife.
- The effect abstraction has on the environment depends on the amount and timing of the abstraction and the location and amount of water that may be returned after it has been used.
- Taking too much water from rivers and groundwater may result in lower flows and reduced water levels, which may not support a healthy ecology, affecting wildlife and the look of a river, as well as impacting on other water users.
- In the short term, the current actions being taken to restore sustainable abstraction are reducing the impact on some rivers. In the future, population growth and development are likely to require more water to be abstracted.
- A changing climate may affect both the demand for water and the natural resource present in rivers and groundwater in future.
- If abstraction continues at current rates (or increases) and natural water resources become depleted due to climate change, the existing impacts of abstraction on rivers, lakes, wetlands and estuaries will be magnified.

There are a number of heavily modified waterbodies (HMWB) in MTCBC. These are waterbodies that are defined as a 'body of surface. water which as a result of physical alterations by human activity is substantially changed in. character'. Those waterbodies in MTCBC include:

- Taff Fawr & Taff Fechan WR
- Taff cf Fawr/Fechan to cf Cynon urban (which include flood defence)
- Morlais Bk urban (which include flood defence)
- Taff Bargoed Flood defence

Some waterbodies might be classified as a HMWB as a result of their function as a flood risk asset. These might provide valuable social and economic benefits which it is vitally important to protect, so

they have been designated as such under Article 4.3 of the WFD. There can still be opportunities to deliver mitigation measures in HMWB to help achieve Good Ecological Potential.

MTCBC resides within the Taff Ely Opportunity Catchment. There are ten Opportunity Catchments across Wales which have been selected represented the best suite of opportunities for addressing WFD objectives and the wider sustainable management of natural resources and well-being outcomes. Opportunity Catchments will focus staff resource across NRWs functions to support partners to deliver integrated catchment management solutions.

The Welsh part of the Severn River Basin Management Plan (2021-2027)[74] identified that there are challenges around the urban environment; it has ageing infrastructure, urban diffuse pollution impacts and high flood risk. It is also subject to significant pressure from new development with significant growth. The legacy of the industrial past present challenges which affect water quality but also the physical form of the river, impacting the movement of sediments and shoal and fish migration. There is also challenge from new physical modifications from the pressure of new development and upgrading aging infrastructure. This causes further alteration to hydromorphology and disrupted natural processes.

In terms of water supply, there is a moderate to low demand for abstraction licences in these catchments. Public water supply accounts for 53% of the total annual abstraction. According to the South East Valleys Abstraction Licensing Strategy (2017), the '*main pressures on water resources are centred on several public water supply reservoirs at the top of the Taff, Rhymney, Rhondda, Cynon, and Ebbw catchments, the maintenance of Cardiff Bay and the large unlicensed dock feeder abstractions from the downstream end of the Rivers Taff and Ebbw*[75]'.

## FUTURE EVOLUTION OF THE BASELINE WITHOUT THE LFRMS

NRW aims to continue to protect and improve the quality of water in Wales, including Protected Areas and will address multiple issues across Wales which will progressively reduce the number of elements failing in water bodies and will improve the overall condition of water bodies over time. The objective across Wales by 2027 is to improve overall condition of water bodies where possible, prevent deterioration and, where resources allow, ensure that even those water bodies that do not achieve good status will be under the least pressure possible.

Local Authorities have committed to delivering measures to improve the water environment under the Programme of Measures in the River Basin Management Plans. Implementing the Programmes of Measures will involve bringing together funding from various sources and co-ordination of the activities of organisations with an interest in the use of land and water. Some measures will require

[74] NRW, Welsh part of the Severn River Basin Management Plan (2021-2027) Summary, 2022 [online] available at: https://naturalresources.wales/media/695983/severn-rbmp-2021_2027-summary.pdf
[75] NRW, South East Valleys Abstraction Licensing Strategy, 2017, [online] available at: https://cdn.cyfoethnaturiol.cymru/media/683371/sev-licensing-strategy-final-nov-17.pdf?mode=pad&rnd=131596369491970000

Local Authority implementation through the land use planning system, for example, the granting of planning permission with appropriate planning conditions and/or planning obligations[76].

Climate change could potentially have a negative effect on water quality and quantity if predictions are correct; hotter drier summers may increase the prevalence of droughts and reduce the volume of water in rivers as well as base flow, making dispersion of pollution or effluent more difficult.

New developments can also affect the water environment through the loss of floodplain, increasing flooding and demand for water resources. Meeting water supply demand over the next 25 years may be challenging. Deficits may develop across Wales by the 2050s due to climate change alone; these would be exacerbated by population growth.

## ISSUES AND OPPORTUNITIES

Issues and opportunities for the water environment and the implications for the LFRMS have been identified in **Table B-9**.

**Table B-9 - Water Environment Issues and Opportunities**

| Issues & Opportunities | Implications for the LFRMS |
|---|---|
| ▪ The effects from climate change on increased flooding and drought on MTCBC's water sources.<br>▪ Potential for the use of groundwater sources, which could affect nearby receptors that are dependent upon groundwater, including groundwater dependent terrestrial ecosystems, watercourses, and existing groundwater abstractions.<br>▪ Reduced water quality could have significant adverse effects on dependant ecosystems.<br>▪ The physical and chemical quality of water resources is an important aspect of the natural environment and can be adversely affected by pollution associated with surface water runoff from new or existing transport infrastructure, as well as by changes to waterbodies which can affect their quality as a habitat.<br>▪ The legacy of the industrial past present challenges which affect water quality | ▪ The LFRMS should seek to incorporate mitigation strategies such as sustainable urban drainage systems (SUDs) and green infrastructure (GI) in order to adapt to climate change and counteract flood risk. GI can also reduce surface water runoff and have water quality co-benefits.<br>▪ There is a need to improve/restore geomorphology in order to improve habitat and natural processes.<br>▪ The LFRMS has the opportunity to be detrimental or beneficial to implementing WFD mitigation measures.<br>▪ Opportunities to work collaboratively on nature based solutions for wider benefits, including flood risk. |

[76] NRW, Updated Local Authority services and the water environment, Advice note on the Water Framework Directive, 2017 [online] available at: https://naturalresources.wales/media/684784/20171122-final-signed-revised-wfd-advice-note-for-local-authorities.pdf

# AIR QUALITY & GREENHOUSE GASES

## BASELINE

The main source of air pollution within MTCBC is from road traffic. Since 2017 there has been an Air Quality Management Area (AQMA) in place along Twynyrodyn Road. Following public consultation and Council approval, the WG approved the action plan to reverse traffic flow along Pontmorlais High Street and Church Street as an initial action to address concentrations of $NO_2$ within the AQMA[77].

Since 2021, NO2 levels at all diffusion tube sites, including those within the AQMA, are within the annual mean objective for $NO_2$ of 40µg/m³ and remain more than 10% below the National Air Quality Objective (NAOQ) of 40µg/m³.

In 2021, an estimated 26% of greenhouse gas (GHG) emissions in the UK were from the transport sector, 20% energy supply, 18% business and 16% residential, with carbon dioxide (CO2) being the most prominent gas from these sectors. In 2021, transport accounted for 109.5 MtCO2e of GHG emissions, which represents a 10% increase from 2020, but an 11% decrease compared with 2019 figures[78]. The impact of the pandemic in 2020 caused transport emissions to fall, attributable to lockdown measures introduced.

In 2020, Welsh emissions were 34 MtCO2e, which is 39% lower than the 1990 base year levels and therefore Wales has also achieved its 2020 interim target of a 27% reduction[79]. However, Wales is not yet on track to meet its targets for the second half of this decade and beyond, as the Welsh Government has made insufficient progress on emissions reduction with the policy powers available.

MTCBC's GHG emissions baseline was calculated for the 2019/20 financial year, aligned with the Welsh Public Sector Reporting Guidance (published in May 2021). MTCBC's GHG emissions for this period were determined to be 32,572.80 tonnes CO2e[80].

## FUTURE EVOLUTION OF THE BASELINE WITHOUT THE LFRMS

The UK Clean Air Strategy outlines plans to reduce emission of pollutants and improve air quality by the year 2030[81]. This will include reductions in public exposure to particulate matter, ammonia,

---

[77] Merthyr Tydfil County Borough Council, Air Quality Progress Report 2022. Available at: https://www.merthyr.gov.uk/media/8791/2022-air-quality-progress-report.pdf (Accessed 01/11/2023)
[78] Department for Business, Energy & Industrial Strategy, 2021 UK Greenhouse Gas Emissions, Final Figures. Available at: https://assets.publishing.service.gov.uk/media/63e131dde90e07626846bdf9/greenhouse-gas-emissions-statistical-release-2021.pdf (Accessed 01/11/2023)
[79] Climate Change Committee, Progress report: Reducing emissions in Wales, June 2023. Available at: https://www.theccc.org.uk/wp-content/uploads/2023/06/Progress-Report-Reducing-emissions-in-Wales.pdf (Accessed 01/11/2023)
[80] Merthyr Tydfil County Borough Council, Decarbonisation Plan 2023-2030. Available at: https://www.merthyr.gov.uk/media/9155/merthyr-tydfil-county-borough-council-decarbonisation-plan-2023-2030.pdf (Accessed 01/11/2023)
[81] Department for Environment, Food & Rural Affairs, Clean Air Strategy 2019. Available at: https://assets.publishing.service.gov.uk/media/5c3b9debe5274a70c19d905c/clean-air-strategy-2019.pdf (Accessed 01/11/2023)

nitrogen oxides, sulphur dioxide, and non-methane volatile organic compounds. However, the 29% increase in road traffic from 1990 and 2018 and 6% increase in GHG emission from 1990 to 2017.

A ban on new petrol and diesel vehicle sales in the UK by 2035 is expected to further reduce NOx emissions. This will improve air quality, particularly across urban areas, and further the improvements to emissions reductions. Electric and hybrid vehicles are expected to become dominant (with the ban on hybrid vehicle sales in the UK by 2035).

The UK wide ban on the new petrol and diesel vehicle sales by 2035 is expected to lead to a reduction in emissions from vehicles. This will improve air quality in urban areas, which will have a positive impact on health problems associated with air pollution. As the AQMA in MTCBC is associated with vehicle emissions, the LFRMS is unlikely to have any implications on the future baseline of air quality and greenhouse gas emissions.

The Environment (Air Quality and Soundscapes) (Wales) Bill was introduced to the Senedd in March 2023, implements measures that contribute to improvements in the quality of the air environment in Wales and reduces the impacts of air pollution on human health, biodiversity, the natural environment and our economy.

Climate change is expected to cause an increase in the frequency and severity of storms and severe weather, putting MT infrastructure assets and services at an increasing risk of damage from flooding. Without the LFRMS, repair and increased infrastructure to deal with flooding, may result in increased embodied carbon.

## ISSUES AND OPPORTUNITIES

Issues and opportunities for air quality and greenhouse gases and the implications for the LFRMS have been identified in Table B-10.

**Table B-10 - Air Quality and Greenhouse Gases Issues and Opportunities**

| Issues & Opportunities | Implications for the LFRMS |
|---|---|
| ▪ The number of vehicles on the roads is likely to increase as the population rises, putting air quality at further risk of degradation.<br>▪ More severe and frequent heat episodes as a result of climate change can contribute to the worsening of air quality.<br>▪ The UK Government's plan to end the sale of all new conventional petrol and diesel cars and vans by 2030 and support for work and home-based electric charging facilities, will promote use of hybrid and electric vehicles, with positive effects for air quality.<br>▪ Development of schemes could impact traffic routes would need to consult the Local Authority Air Quality Management Plans to ensure that changes in traffic flows do not increase air quality issues.<br>▪ | ▪ Air quality and GHG are not considered to be significant to flood planning at the strategic level. There are unlikely to be any implications to the LFRMS. |

# CLIMATIC FACTORS

## BASELINE

During the most recent decade (2009-2018) the UK has been on average 0.3°C warmer than the 1981-2010 average and 0.9°C warmer than 1961-1990. All top ten warmest years have occurred since 2002. In the past few decades, there has been an increase in annual average rainfall over the UK, for which the most recent decade has been on average 5% wetter than 1961-1990 and 1% wetter than 1981-201082.

The changes in climate that the UK is already experiencing are projected to continue and intensify. In the second half of the century, the amount of change that occurs will depend strongly on how successful we are in reducing GHG emissions globally. In Wales, more intense rainfall, more flooding in low-lying coastal areas as well as hotter, drier summers are expected. The projections also foresee more extremely warm days, milder and wetter winters, less snowfall and frost as well as lower groundwater levels.

Annual temperatures in Wales are projected to rise between approximately 1.2°C and 2.2°C by the 2050s and between 1.3°C and 4°C by the 2080s from a 1981-2000 baseline average, based on the methodology set out in the tables below and depending on GHG mitigation between now and then.

Risks associated with rising temperatures, such as more extreme heatwave events causing impacts on people's health and wellbeing, are likely to become more prevalent as a result of these projections, with their magnitude depending on the degree of change that is experienced.

Temperature is a very important climate metric. Many other climate metric scales with temperature change, and temperature is associated with a range of potential impacts such as heat stress on humans and an increased need for cooling. Extremes of temperature can have major impacts on infrastructure, including transportation.

Changes in precipitation (rainfall and snowfall) can also have many impacts including flooding and drought, which may have consequences on human health, infrastructure and the natural capital of the UK. In winter, rainfall is expected to increase by approximately 6% by the 2050s and by between 7% to 13% by the 2080s from a 1981-2000 baseline, depending on global efforts to reduce greenhouse gas emissions. This is projected to lead to an increase in the likelihood of flooding of infrastructure, businesses and homes. Conversely, summer rainfall is expected to decrease by approximately 15% by the 2050s and by between 18% to 26% by the 2080s. Periods of water scarcity may become more prevalent under these scenarios, leading to possible implications in agriculture and industry, for example[83].

[82] Met Office, UK Climate Projections: Headline Findings, August 2022. Available at: https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18_headline_findings_v4_aug22.pdf (Accessed 01/11/2023)

[83] UK Climate Risk, Evidence for the third UK Climate Change Risk Assessment (CCRA3). Available at: https://www.ukclimaterisk.org/wp-content/uploads/2021/06/CCRA-Evidence-Report-Wales-Summary-Final.pdf (Accessed 01/11/2023)

Flooding remains a key climate risk to infrastructure in Wales with a greater risk of heavy precipitation. The latest climate projections indicating Infrastructure services in Wales are at risk from river, surface water and groundwater flooding as well as coastal flooding and erosion.

Surface water from the upper reaches of the catchment drains into the Taf Fawr to the west and the Taf Fechan to the east. The confluence of the two rivers is at Cefn Coed-y-cymmer and below that point the river is referred to as the Afon Taf. The south-eastern sector of the catchment drains into the Bargod Taf which joins the Afon Taf at Quakers Yard. There are two main reservoirs located partly within MTCBC. The eastern half of the Llwyn Onn Reservoir lies on the Taf Fawr in the north-west of the catchment and the Pontsticill Reservoir is fed by the Taf Fechan in the north-east[84].

Several flood events have highlighted, with increasing confidence, the magnitude of such risks and their interacting risks and consequences, such as the more recent Storm Dennis which caused severe flooding that impacted MTCBC in February 2020. Impacts of extreme weather events have been previously recorded. The impact of the event in MTCBC was that 232 properties were flooded, comprising of mainly residential and some commercial properties. In addition, three main roads were flooded[85]. Moreover, Troedyrhiw and Pentrebach are two small villages within MTCBC, which are situated east of the River Taff and the A470. Both villages are in proximity to the Taff and are at approximately the same ground level as the river, which will have contributed significantly to the level of flooding experienced.

According to NRW, MTCBC has a high risk of flooding from surface water, small watercourses and rivers which means that each year, MTCBC has a chance of flooding of greater than 1 in 30 (3.3%)[86]. A summary of the overall risk to receptors within the Merthyr Borough are outlines in **Table B-11.**

- Common contributing factors to flood risk in Merthyr Tydfil include: Climate change;
- Deficiencies in infrastructure, its management and maintenance;
- The complexity of stakeholder roles and responsibilities – and, in some instances, a lack of clarity and willingness;
- To accept responsibility; and
- A lack of understanding flood risk.

The overall risk to receptors within the Merthyr Borough are categorised as:

- High Risk (Q30) - 3% chance of flooding in a given year.
- Medium Risk (Q100) – 1% chance of flooding in a given year.
- Low Risk (Q1000) – 0.1% chance of flooding in a given year.

**Table B-11 – Summary of Overall Risk to Receptors within MTCBC**

[84] Merthyr Tydfil County Borough Council, MTCBC Flood Risk Management Plan Summary, December 2015. Available at: https://www.merthyr.gov.uk/media/1808/mtcbc-frmp-summary-english.pdf (Accessed 01/11/2023)
[85] Merthyr Tydfil County Borough Council, Flood and Water Management Act 2010, Section 19 Flood Investigation Report. Available at: https://www.merthyr.gov.uk/media/6721/storm-dennis-s19.pdf (Accessed 01/11/2023)
[86] Natural Resources Wales, Flood and Coastal Erosion Risk Maps. Available at: https://flood-risk-maps.naturalresources.wales/?locale=en (Accessed 01/11/2023)

| Risk Receptor | High Risk (3%) | Medium Risk (1%) | Low Risk (0.1%) |
|---|---|---|---|
| Residential properties at risk of flooding (depth >0.0m) | 2574 | 2652 | 5377 |
| Residential properties at risk of internal flooding (depth >0.2m) | 1908 | 2416 | 4117 |
| Essential Services (n) | 22 | 25 | 54 |
| Non-Residential Properties (n) | 321 | 334 | 535 |
| Primary/Trunk Roads (km) | 4.31 | 2.09 | 5.04 |
| Main Line Railways (km) | 0.17 | 0.05 | 0.16 |
| Sites of Special Scientific Interest (SSSI) (ha) | 9.33 | 2.21 | 6.94 |
| Sites of Interest for Nature Conservation (SINC) | 63.65 | 13.68 | 48.46 |
| Local Nature Reserves (LNR) (ha) | 0.13 | 0.01 | 0.23 |
| Ancient Woodland (ha) | 10.00 | 1.85 | 6.19 |
| Registered Parks and Gardens (ha) | 2.34 | 0.79 | 2.89 |
| Scheduled Ancient Monuments (SAM) (ha) | 2.74 | 0.32 | 1.14 |
| Listed Buildings (n) | 17 | 17 | 56 |
| Essential Settings of Regional Planning Guidance (ha) | 1.18 | 0.22 | 0.81 |

## FUTURE EVOLUTION OF THE BASELINE WITHOUT THE LFRMS

Future river and surface water climate change impacts are a major, high-level risk to all infrastructure and that, despite progress with flood defences, risks are not being managed effectively with an adaptation shortfall which will require further Government intervention.

There is a lot of uncertainty about climate change due to the many variables affecting climate predictions. It is difficult to quantify with any certainty what the changes are likely to be and average numbers are usually associated with error bands.

The Climate Change Act 2008 set up a framework within which the UK could reduce its greenhouse gas emissions and adapt to the impacts of climate change. UK Climate Projections 2018 (UKCP18) provides the latest set of climate projections and tools to access climate data.

The climate is important for water resource management because it will increase the complexity of managing water resources by affecting the amount of water available and the demand for water. Rainfall is the main source of additional water into the system, (effluent is the other major contributor and a small amount of groundwater) and temperature affects the amount of water leaving the system either directly through evaporation or indirectly through uptake from plants and animals. Lower flows and higher water temperatures can also impact on the water quality. These factors can have significant implications for water management and the LFRMS.

Climate change projections indicate an increase in extreme weather events in Wales including, heat wave, flooding, heavy snowfall, strong winds. Not only can these events affect water quality and water quantity, but they also have the potential to affect water infrastructure and Wales Water's ability to continue to provide reliable service to the population.

## ISSUES AND OPPORTUNITIES

Issues and opportunities for air quality and greenhouse gases and the implications for the LFRMS have been identified in Table B-12.

**Table B-12 - Climatic Factors Issues and Opportunities**

| Issues & Opportunities | Implications for the LFRMS |
|---|---|
| ▪ The risk from greater flood events remains a key climate risk to infrastructure in MTCBC with a greater risk from future predicted heavy precipitation within the winter months.<br>▪ The extent of future climate change will be strongly affected by the amount of greenhouse gases emitted.<br>▪ The risk of future flooding events will cause significant infrastructure damage.<br>▪ Future precipitation changes will have significant impacts on human health and wellbeing and the natural capital in MTCBC. | ▪ The LFRMS needs to protect against current and future climatic flooding.<br>▪ The Strategy will need to plan for and implement/facilitate climate change adaptation, in respect of rising temperatures and extreme weather events, particularly heavy rainfall/flooding and heat to maximise resilience. |

# MATERIAL ASSETS

## BASELINE

### Geology and Soils

The bedrock geology in MTCBC consists of Brownstones Formation sandstone and argillaceous rocks interbedded to the north[87]. Moving south, this changes to a mix of sandstone (Grey Grits Formation and Plateau Beds), mudstone (Cwmyniscoy Mudstone Formation) and limestone (Abercriban Oolite Subgroup, Dowlais Limestone Formation and Penderyn Oolite Member). Twrch Sandstone Formation consisting of interbedded sandstone and conglomerate underlies the area immediately north of Merthyr Tydfil town, whilst the town itself is underlain by sandstone from the South Wales Lower Coal Measures Formation. To the south of this, the bedrock geology changes to a combination of mudstone, siltstone and sandstone from the South Wales Lower and Middle Coal Measures Formations, and sandstone (Hughs, Brithdir and Rhondda Members).

The majority of MTCBC consists of Devensian till superficial deposits, with large areas of peat deposits in the north. Sand and gravel river terrace deposits and Devensian glaciofluvial deposits can be found along the Afon Taf in the north and south.

MTCBC is located within the northern extent of the South Wales Coalfield[88]. A series of large open-pit complexes have been exploited in this area. There is a general southwards dip across this area which is interrupted by two contrasting structures that lie approximately at right angles to each other. These consist of steeply inclined cross faults and tight steep folds associated with confined lines of parallel faults. There are some concerns over the safety of disused coal tips with 59 tips being identified as being the most high risk and requiring annual checks.

The Nant Ffrwyd Regionally Important Geodiversity Site (RIGS) is located to the north of Clwydyfagwyr within the Bannau Brycheiniog National Park and is noted to have geomorphological importance[89].

A predictive Agricultural Land Classification (ALC) map identifies that MTCBC is predominantly made up of ALC Grade 4 and 5 land[90]. Land use within the town of Merthyr Tydfil and other small villages is urban, with a large area of non-agricultural land to the south-west of this along the Mynydd Merthyr ridge. There is also likely to be small areas of ALC Grade 3b land within the south of MTCBC and unlikely to be any best and most versatile land within MTCBC.

[87] British Geological Survey, BGS Geology 50K. Available at: https://www.bgs.ac.uk/datasets/bgs-geology-50k-digmapgb/ (Accessed 01/11/2023)
[88] W. J. Barclay, K. Taylor and L. P. Thomas, Geology of the South Wales Coalfield, Part V, the country around Merthyr Tydfil. Memoir for 1:50000 geological sheet 231 (England and Wales). Available at: https://webapps.bgs.ac.uk/memoirs/docs/B01820.html (Accessed 01/11/2023)
[89] DataMap Wales, Regionally Important Geodiversity Sites (RIGS). Available at: https://datamap.gov.wales/layers/inspire-nrw:NRW_RIG_SITES (Accessed 01/11/2023)
[90] DataMap Wales, Predictive Agricultural Land Classification (ALC) Map 2. Available at: https://datamap.gov.wales/layers/inspire-wg:wg_predictive_alc2 (Accessed 01/11/2023)

In addition to this, there is a large area of peatland located in the north of the county borough. Healthy peatlands provide a range of important benefits; they store huge amounts of carbon, provide habitat for wildlife, reduce flood risk and landscapes for people to enjoy.

### Forestry

There are eight areas of forests under NRW Forestry ownership located partially or wholly within the MTCBC[91], which largely consist of conifer and young tree woodland[92]. The National Forest Inventory also identifies numerous patches of broadleaved woodland across MTCBC.

Forests have an important role not only in this sequestration of carbon, but also in the provision of timber and wood products as a low-carbon substitute for other products such as concrete and steel.

### Energy

MTCBC accounts for approximately 1% of the total annual energy consumption in Wales, the smallest percentage of all local authorities and with only 0.4TWh of non-domestic fuel use per year[93]. The majority of domestic and non-domestic energy use is gas. Electricity usage has decreased in the area by over 25% since 2005, which is a similar reduction to the national average.

Pen y Cymoedd is the largest onshore wind farm in England and Wales and is located west of MTCBC. In addition, plans for a wind farm to the north east of Merthyr Tydfil and north west of Rhymney have been officially submitted.

### Flood Management and Infrastructure

In 2012, the Welsh government and Merthyr Tydfil County Borough Council have put combined investment of £8.2M into flood protection, a new access road, bridge and footbridge that reconnect the communities of Merthyr Vale and Aberfan, and a new waste recycling centre.

Other notable programmes include:

- Merthyr Weir Gauging Station (under construction)
- Castle Street Car Park Flood Defence (Outline Business Case); and
- Penyard Road Flood Risk Management (investigation works).

In addition, much of the county borough is offered protection from culverts and channels which are predominantly associated with the highways network.

[91] DataMap Wales, NRW Forest Legal Boundaries. Available at: https://datamap.gov.wales/layers/inspire-nrw:NRW_FOREST_LEGAL_BOUND (Accessed 01/11/2023)
[92] Natural Resources Wales, Interactive Map Viewer. Available at: https://maps.cyfoethnaturiolcymru.gov.uk/Html5Viewer210/Index.html?configBase=https://maps.cyfoethnaturiolcymru.gov.uk/Geocortex/Essentials/REST/sites/External_Map_Browser/viewers/EMB_Address/virtualdirectory/Resources/Config/Default&locale=en-gb (Accessed 01/11/2023)
[93] Welsh Government, Energy Use in Wales, Second Edition. Available at: https://www.regen.co.uk/wp-content/uploads/Energy-Use-Wales-Report-Final.pdf (Accessed 01/11/2023)

### Waste

Wales generated approximately 1,498,995 tonnes of waste in 2021/22[94]. In the same year, MTCBC generated a total of 30,762 tonnes, which accounts for only 2% of national waste. Of this, only 2% of waste was sent to landfill which is 3% lower than the national average[95].

Household waste accounted for 37% of all waste collected during 2021/22[96]. The annual residual household waste produced per person is 187kg which is higher than both the regional (170kg) and national (178kg) averages[97]. A total of 44% of waste was reused/recycled which is 6% higher than the national average, and 17% was composted which is 3% lower than the national average.

There are two waste sites located in the county borough located in Aberfan and Dowlais.

### Transport

The key roads within MTCBC include the A470 which provides access from the north and south, the A4060 which provides access from the east and the A465 which provides access from the east and west.

The Taff Trail National Cycle Network (NCN) Route 8 is a 55-mile cycle route between Cardiff and Brecon which travels along a mixture of riverside paths, railway paths and forest roads[98]. The section of the Taff Trail that passes through MTCBC (NCN Route 46 and 8) lies between Cefn Coed Viaduct north of Merthyr Tydfil and Pontsticill Reservoir in the Brecon Beacons. The route follows a variety of on and off-road cycle paths to provide access for cyclists from Merthyr Tydfil, through the Bannau Brycheiniog National Park and to Brecon[99]. The Trevithick Trail NCN Route 477 is an 8.7 mile route that begins within Merthyr Tydfil and follows the route taken by Richard Trevithick's Penydarren steam locomotive[100]. The route passes several sites of historical interest, including the Trevithick Tunnel and the Taff Vale Viaduct.

## FUTURE EVOLUTION OF THE BASELINE WITHOUT THE LFRMS

Woodlands are recognised for the range of benefits and ecosystem services they provide, including producing timber, boosting tourism, supporting biodiversity, enhancing air quality and improving

[94] StatsWales, Annual waste collected for reuse/recycling/composting (tonnes) by material and source. Available at: https://statswales.gov.wales/Catalogue/Environment-and-Countryside/Waste-Management/Local-Authority-Municipal-Waste/annualwastereusedrecycledcomposted-by-material-source-year (Accessed 01/11/2023)
[95] StatsWales, Annual management of waste by management method (tonnes). Available at: https://statswales.gov.wales/Catalogue/Environment-and-Countryside/Waste-Management/Local-Authority-Municipal-Waste/annualwastemanagement-by-management-year (Accessed 01/11/2023)
[96] StatsWales, Annual waste generated (tonnes) by source. Available at: https://statswales.gov.wales/Catalogue/Environment-and-Countryside/Waste-Management/Local-Authority-Municipal-Waste/annualwastegenerated-by-source-year (Accessed 01/11/2023)
[97] StatsWales, Annual residual household waste produced per person (kilograms) by local authority. Available at: https://statswales.gov.wales/Catalogue/Environment-and-Countryside/Waste-Management/Local-Authority-Municipal-Waste/annualresidualhouseholdwasteproducedperperson-by-localauthority (Accessed 01/11/2023)
[98] Sustrans, Taff Trail – Merthyr. Available at: https://www.sustrans.org.uk/find-a-route-on-the-national-cycle-network/taff-trail-merthyr (Accessed 07/11/2023)
[99] Sustrans, Merthyr Tydfil to Brecon. Available at: https://www.sustrans.org.uk/find-a-route-on-the-national-cycle-network/merthyr-tydfil-to-brecon/ (Accessed 07/11/2023)
[100] Visit Merthyr, The Trevithick Trail – NCN Route 477. Available at: https://www.visitmerthyr.co.uk/things-to-do/trails/the-trevithick-trail-ncn-route-477/ (Accessed 07/11/2023)

physical and mental health. The Woodlands for Wales strategy sets out to plant at least 2,000ha of new woodland annually from 2020 to 2030 which is an increase of 1,570ha compared to the previous decade[101].

The Environment (Wales) Act 2016 (Amendment of 2050 Emissions Target) Regulations 2021 outlines a net-zero emissions target by 2050 for Wales[102]. The Welsh Government has set out policies and proposals to reduce carbon emissions and help it meet its statutory carbon budgets[103]. In relation to forestry, this includes increasing tree canopy cover and creating woodlands near towns and cities, ensuring that felling licences require the replanting of trees in the felled area, and increasing the annual planting rate to 4,000ha per year.

The Welsh Government also identifies that rapid decarbonisation of energy is necessary to meet national carbon targets. This includes the need for greater investment in local renewable energy generation, generation of renewable energy from waste, incentivising energy efficiency of homes through the Help to Buy scheme and setting higher energy efficiency standards for new builds. By 2030, the Welsh Government aim to generate 70% of electricity consumption from renewables.

The Welsh Government aims to reach zero waste in the country by 2050[104]. In order to achieve this, the country will be required to attain a 33% reduction in waste, 60% reduction in avoidable food waste, 92% reduction in waste sector emissions and a 75% recycling rate by 2030.

The UKCP18 headline findings project hotter drier summers, warmer wetter winters, increases in the frequency and intensity of extreme events, and an increase in sea level risk by the end of the 21st century across all areas of the UK. Significant increases in hourly precipitation extremes are expected in MTCBC[105]. This will likely result in an increase in risk to the built environment, infrastructure assets and systems, and services in the region, which could cause financial, legal and reputational impacts, amongst others.

Increased levels or rainfall may also result in waterlogging, whilst extreme heat may lead to cracking and compaction which could lead to negative impacts on agricultural land and soils.

## ISSUES AND OPPORTUNITIES

Issues and opportunities for materials and assets and the implications for the LFRMS have been identified in Table B-13.

[101] Welsh Parliament, Forestry and Woodland in Wales, Research Briefing, July 2021. Available at: https://senedd.wales/media/yvbhbee2/21-10-forestry-and-woodlands-in-wales.pdf (Accessed 01/11/2023)
[102] Welsh Statutory Instruments, 2021 No. 333 (W. 88), Climate Change, Wales, The Environment (Wales) Act 2016 (Amendment of 2050 Emissions Target) Regulations 2021. Available at: https://www.legislation.gov.uk/wsi/2021/333/made (Accessed 01/11/2023)
[103] Welsh Government, Prosperity for All: A Low Carbon Wales, 2019. Available at: https://www.gov.wales/sites/default/files/publications/2019-06/low-carbon-delivery-plan_1.pdf (Accessed 01/11/2023)
[104] Welsh Government, Beyond Recycling, A strategy to make the circular economy in Wales a reality, 2021. Available at: https://www.gov.wales/sites/default/files/publications/2021-03/beyond-recycling-strategy-document.pdf (Accessed 01/11/2023)
[105] Met Office, UKCP18 Science Overview Report, 2019. Available at: https://www.metoffice.gov.uk/pub/data/weather/uk/ukcp18/science-reports/UKCP18-Overview-report.pdf (Accessed 07/11/2023)

**Table B-13 - Materials and Assets Issues and Opportunities**

| Issues & Opportunities | Implications for the LFRMS |
|---|---|
| ▪ The growing population and associated need for development is likely to increase the use of soil and land use.<br>▪ Opportunities to make use of previously developed land (brownfield land) and to reduce the prevalence of derelict land.<br>▪ There is a need to minimise the consumption of resources, including energy and material assets.<br>▪ Future climate change and increases in precipitation will likely result in increased risk to the built environment, and infrastructure assets and systems.<br>▪ The incorporation of green infrastructure present opportunities for carbon sequestration. | ▪ There is a need to minimise the potential impact of flooding on transport and other critical infrastructure, both at present and in the future.<br>▪ There is also a need to protect and enhance geology, geomorphology, mineral resources and the quality of soils within Merthyr Tydfil.<br>▪ There is a need for the LFRMS to protect and enhance existing flood infrastructure to extend its lifespan.<br>▪ There is potential for nature based solutions to include future access to the environment and provide new permissive routes.<br>▪ |

# Appendix C

## CONSULTATION RESPONSES

The summary of consultation responses received at the Scoping stage and the actions taken have been shown in **Table C-1** below.

**Table C-1- Summary of Scoping Consultation Responses**

| Date | Consultee | Comment | How this has been addressed? |
|---|---|---|---|
| 13/12/23 | Cadw | A SEA Scoping Report has been produced by WSP and this has identified that there could be both positive and negative effects on the historic environment as a result of the LFRMS. It is therefore identified the issues and opportunities along with a SEA Objective and supporting appraisal questions that will need to be answered in the SEA. We concur that these are appropriate. | Noted – general comment, no action required. |
| 13/12/23 | Cadw | Appendix A of the scoping report contains a review of relevant plans, policies and strategies that will need to be considered in the SEA. We note that Table A-6 relating to the Historic Environment does not mention the Historic Environment (Wales) Act 2023, although this is mentioned in Section 5.7.9 of the main scoping report. This Act should therefore be added to Table A-6 of Appendix A. | Table A-6 has been updated to include reference to the Historic Environment (Wales) Act 2023 |
| 19/12/23 | NRW | Breacon Beacons National Park is now called Bannau Brycheiniog National Park, so references need to be updated throughout the document. | References to the Breacon Beacons has been amended throughout |
| 19/12/23 | NRW | Suggest deletion of reference to saltmarsh as not relevant to MTCBC and suggest focus is on habitats referenced in the MTCBC NRAP | Reference removed. |
| 19/12/23 | NRW | Suggest “Ensure tall buildings are designed acceptably and situated in appropriate areas” is amended to | Reference removed. |

| Date | Consultee | Comment | How this has been addressed? |
|---|---|---|---|
| | | "Ensure development is designed" to make more relevant. | |
| 19/12/23 | NRW | Suggested additions to key messages:<br>• consider other issues from MTCBC's Green Infrastructure Assessment<br>• there is also a need to have regard for the purposes of Bannau Brycheiniog National Park and it's setting. These are to conserve and enhance natural beauty and the enjoyment of the Park's Special Qualities, which include Dark Skies and Tranquillity | Added to Table 4-2 within the ER |
| 19/12/23 | NRW | This section should refer to the Water Framework Directive – WFD Advice Note for Local Authorities | Added to Table 4-2 within the ER |
| 19/12/23 | NRW | Add in Public Rights of Way, other access routes and associated structures such as footbridges. | Incorporated as part of the baseline rather than a key message from PPP review. |
| 19/12/23 | NRW | Suggestion to include baseline information about the population and properties at risk of flooding within MTCBC, and from what source of flooding. Including any key infrastructure at risk of flooding (hospitals, schools, utilities etc), including consideration of access. | This has been included as part of the baseline for 'Climatic Factors' |
| 19/12/23 | NRW | Suggestion to include baseline information about existing flood alleviation schemes (MTCBC schemes or all RMA scheme) | This has been added to 'Material Assets'. |
| 19/12/23 | NRW | Evidence in Public Health Wales report regarding flood disadvantage includes "those living in social rented | Information has been added to the Population and equalities baseline. |

| Date | Consultee | Comment | How this has been addressed? |
|---|---|---|---|
| | | accommodation are more likely to be on lower incomes and are less likely to have flood insurance”<br><br>Suggestion to consider baseline of housing type within MTCBC to guide objectives within SEA and LFRMS. | Baseline has not been added on housing type given the high-level nature of this plan. |
| 19/12/23 | NRW | Section should reference and be informed by the Cwm Taf Morgannwg PSB Well-being Assessment and Plan | The Cwm Taf Morgannwg PSB Well-being Assessment and Plan has been incorporated into the baseline. |
| 19/12/23 | NRW | 5.2.9 - Would be beneficial to expand on this and compare to areas at risk of flooding | This information is not readily available and due to time constraints we have not expanded on this point. |
| 19/12/23 | NRW | 5.2.10 - If including this statement, would be beneficial to include a breakdown in the population living in rural and urban environments in MTCBC.<br><br>There are significant challenges for social deprivation and flood risk exposure in urban settings too, so would be clear on challenges in each setting.<br><br>A 2017 report for Joseph Rowntree Foundation may be a relevant evidence source for baseline and climatic factors: Flood vulnerability, risk and disadvantage: A report by Sayers and Partners for the Joseph Rowntree Foundation: June 2017 | Statistics on rural/urban populations have been added. |
| 19/12/23 | NRW | Need to include baseline information for recreation, including access to green and blue space. Such as long distance footpaths, cycle paths, angling etc. Including this in the baseline should then promote the need to protect and enhance existing networks and included in the issues and opportunities. | Recreational routes have already been included as part of the landscape and townscape baseline.<br><br>The Cwm Taf Morgannwg PSB Well-being Assessment and Plan has been incorporated into the baseline. |

| Date | Consultee | Comment | How this has been addressed? |
|---|---|---|---|
| | | Section should reference and be informed by the CTM PSB Well-being Assessment and Plan | |
| 19/12/23 | NRW | Would challenge statement “Despite this, Public Health Wales identifies that distress is usually temporary and only a minority of people are at risk of going on to develop a mental disorder”, and reference D5.3P6.2-Flooding-Eng-final.pdf (phwwhocc.co.uk) where PHW state that “Flooding can cause death and injury, and there is strong evidence of long term and severe impacts on mental health and wellbeing.” | Statement removed. |
| 19/12/23 | NRW | Economy - Section should reference and be informed by the CTM PSB Well-being Assessment and Plan | The CTM PSB Well-being Assessment and Plan has been reviewed, however, much of the data within this report has now been superseded by Nomis data. |
| 19/12/23 | NRW | Flood risk statistics for MTCBC should also be provided (as suggested under 5.2 Population and Equalities baseline) | Flood risk has been focused within the ‘climate factors’ section. |
| 19/12/23 | NRW | Should be reference to Welsh Government’s declaration of a Nature Emergency. | Reference added to future baseline. |
| 19/12/23 | NRW | Should be a stronger emphasis on the Section 6 Duty which requires public authorities, in carrying out their functions, to ‘seek to maintain and enhance biodiversity in the exercise of functions in relation to Wales, and in so doing promote the resilience of ecosystems, so far as consistent with the proper exercise of those functions’. | Incorporated into the Biodiversity baseline. |

| Date | Consultee | Comment | How this has been addressed? |
|---|---|---|---|
| 19/12/23 | NRW | Consideration is needed on Ecosystem Resilience and the DECC framework - Diversity, Extent, Condition & Connectivity of ecosystems. Connectivity of habitat / networks needs including in particular. It should give an overview of all habitats present and recognise the importance of watercourses as green infrastructure. | Given the strategic nature of the plan, detail on all individual habitats has not been included within the baseline.<br>Better consideration has been given to ecosystem resilience. |
| 19/12/23 | NRW | Reference should be made to the South Central Area Statement, notably the Restoring Ecological Resilience theme, and South Central's ecosystem profiles | Added. |
| 19/12/23 | NRW | Other gaps are:<br>• Peatland (please see relevant ecosystem profile and the Welsh Peatland Data Portal \| Wales Environmental Information Portal (arcgis.com))<br>• Potential impact to fish not discussed and should be included. Section 7 Species from the Environment Wales (2016) Act, Brown Trout, European Eel and Atlantic Salmon should be included. There are several legislative drivers which there are statutory requirements to have regard and should be highlighted in the SEA – SAFFA 1975, Eel Regs 2009 and Environment Wales Section 7 species. This is in addition to the WFD requirement to ensure all aspects of the water environment are protected and, where necessary, restore water bodies in order to reach good status, and to prevent deterioration. | Peatlands has been added under the soils section of 'Material Assets'.<br>Potential implications to fish has been discussed under the WFD subsection of the 'Water Environment' baseline. |
| 19/12/23 | NRW | 5.5.3 - Correction needed, MTCBC adopted the LDP covering 2016-2031 in 2020 | Amended |

| Date | Consultee | Comment | How this has been addressed? |
|---|---|---|---|
| 19/12/23 | NRW | 5.5.5 - Good reference to Merthyr local Nature Recovery Action Plan, would also suggest that the Bannau Brycheiniog National Park Nature Recovery Action Plan is mentioned and considered within the Biodiversity section. | This has been included as part of the PPP review. |
| 19/12/23 | NRW | 5.5.13 - Correction is needed as SoNaRR 2020 does not include European designated site monitoring, this is a statutory duty under Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales, not Environment (Wales) Act 2016. | Removed. |
| 19/12/23 | NRW | Wales NRAP has a later action plan for 2020-21 | Updated |
| 19/12/23 | NRW | Vale of Glamorgan is missing as one of the five Local Authority areas covered by the South Central Area Statement. | Added |
| 19/12/23 | NRW | 5.5.16 - Suggested amendment to language used, as biodiversity can be lost, but ecosystem services cannot be 'lost'. They can be reduced from a loss of biodiversity and fail to meet human needs. | Amended text. |
| 19/12/23 | NRW | Table 5-5 - There is a typo (deplete should be depleted).<br>The issues and opportunities need to be made much more specific and relevant to the LFRMS and should reference the S6 biodiversity duty.<br>Risks posed by water quantity is missing from Issues & Opportunities (though is mentioned earlier in the document) | Typo has been amended.<br>Table 5-5 has been updated to be more specific and include water quantity risks and nature base solutions. |

| Date | Consultee | Comment | How this has been addressed? |
|---|---|---|---|
| | | There are opportunities to consider nature based solutions for FRM benefits and to improve connectivity of habitats and networks. | |
| 19/12/23 | NRW | Landscape - At present this section is high level. Please refer to LANDMAP - the Welsh landscape baseline (all layers) for more detail on landscape character and management issues and recommendations. | Added additional detail where appropriate. This section will, however, remain high level. |
| 19/12/23 | NRW | 5.6.3 - Build upon history of coal mining in the area and include reference of disused coal tips in baseline data for MTCBC: Coal tip safety | Added additional information on coal tips and their safety. |
| 19/12/23 | NRW | 5.6.12 - Refer to LANDMAP, Landscape and a Changing Climate for implications of climate change on landscape. | Added additional detail to the future baseline sub-section. |
| 19/12/23 | NRW | Refer to Future Bannau - Dyfodol y Bannau, the management plan of the Bannau Brycheiniog National Park for key issues and opportunities for the Park's Special Qualities. | Key issues and special qualities have been incorporated into the baseline. |
| 19/12/23 | NRW | Would suggest that the issues, opportunities & implications listed should be:<br>• use LANDMAP and other reports noted to inform other landscape issues and opportunities<br>• consider an important additional opportunity for landscape in this area is around nature recovery at a landscape scale to improve ecosystem resilience, as set out in the South Central Area Statement and ecosystem profiles | Issues and opportunities have been updated accordingly in line with additional information. |

| Date | Consultee | Comment | How this has been addressed? |
|---|---|---|---|
| | | • refer to issues and opportunities arising from the Local Authority Green Infrastructure Assessment, the MTCBC Open Spaces Strategy 2016 and MTCBC Special Landscape Area report. | |
| 19/12/23 | NRW | 5.7.6 - Build upon history of coal mining in the area and include reference of disused coal tips in baseline data for MTCBC: Coal tip safety | Coal tip safety has been included within the landscape and townscape section. |
| 19/12/23 | NRW | Table 5-7 -Add considerations from Historic Environment and Climate Change Sector Adaptation Plan (gov.wales) | Included as part of the PPP review |
| 19/12/23 | NRW | Current emphasis is on Wales-wide issues, would be beneficial to focus in on water quality and water quantity issues for MTCBC.<br>• There is no mention of Opportunity Catchments – this is a focus for the current RBMP – the Taff (and Ely) are focus catchments. For an overview of the Taff and Ely Opportunity Catchment please refer to the Welsh part of the Severn RBMP 21-27 summary. (page 50)<br>• Local Authorities have a statutory duty to deliver WFD objectives and contribute towards achieving Good Ecological Status / Potential (GES/P). All projects being undertaken in the fluvial, estuarine or coastal environment must undergo WFD compliance assessment. This should be considered and referenced, please refer to WFD Advice Note for Local Authorities | There is limited specific data to MTCBC hence taking a more regional/national approach.<br>Opportunity catchments have been added.<br>More emphasis has been added to the statutory duty Local Authorities have to deliver WFD, including reference to the advice note. |
| 19/12/23 | NRW | The main reason for not achieving good status is physical modification (irrespective of whether this is in natural or HWMB). Physical modifications are not just about fish passage but is a core element to the function | Physical modifications have been added to the baseline and 'key issues and opportunities. |

| Date | Consultee | Comment | How this has been addressed? |
|---|---|---|---|
| | | of watercourses alongside water quality and quantity. Maintaining and in most cases in MTCBC waterbodies there is a need to improve/restore geomorphology in order to improve habitat and natural processes.<br><br>Without restoration of geomorphology habitats for fish and invertebrates cannot be sustained or present or can lead to increased erosion and deposition which can impact flooding and water quality. This is not currently considered at any point in the SEA. There is a summary in the RBMP on physical Modifications and Morphology. | |
| 19/12/23 | NRW | The HMWB in MTCBC have not been mentioned:<br><br>o Taff Fawr & Taff Fechan WR<br><br>o Taff cf Fawr/Fechan to cf Cynon urban (which include flood defence)<br><br>o Morlais Bk urban (which include flood defence)<br><br>o Taff Bargoed Flood defence (LA flood ladder) | Heavily modified waterbodies have been included as part of the baseline. |
| 19/12/23 | NRW | Some waterbodies might be classified as a HMWB as a result of their function as a flood risk asset. These might provide valuable social and economic benefits which it is vitally important to protect, so they have been designated as such under Article 4.3 of the WFD. There can still be opportunities to deliver mitigation measures in HMWB to help achieve Good Ecological Potential. Where FRMP measures are delivered in a HMWB, must seek opportunities to deliver mitigation measures identified for the HMWB. | Added to baseline. |

| Date | Consultee | Comment | How this has been addressed? |
|---|---|---|---|
| 19/12/23 | NRW | Please refer to Water Watch Wales to explore the detail and the Reasons for Failure (RNAGs) in the waterbodies in MTCBC in order to assess potential impact. | Due to the high-level nature of the SEA, the reasons for failure of individual waterbodies have not been included. A more general overview which incorporates the key issues has been deemed more appropriate. |
| 19/12/23 | NRW | Please refer to the South East Valleys Abstraction Licensing Strategy Area to add additional information for baseline information, issues and opportunities regarding water quantity. | Additional information from the South East Valleys Abstraction Licensing Strategy has been added to the baseline. |
| 19/12/23 | NRW | Suggest more emphasis on the lack of water availability, especially linked to climate change risks and the increase likelihood of drought and prolonged dry weather in the future.<br><br>There are water availability issues in the catchments in MTCBC. These are driven by existing licensed abstraction and the effect of reservoirs in the headwater catchments, impacting river flows. Water is no longer available for consumptive licencing; therefore, new consumptive abstractions will not be issued in these catchments. For existing consumptive licences, a variation to increase the abstraction quantity will not be issued. Applications for non-consumptive purposes will be dealt with on a case by case basis. These river catchments are in the Restoring Sustainable Catchment (WFD) Programme.<br><br>We are working with licences holders in these catchments to address identified flow issues. | Incorporated the impacts of climate change and water availability. |
| 19/12/23 | NRW | Please refer to the Freshwater Ecosystem Profile to add additional information for baseline information, issues and opportunities. | The effects on freshwater ecosystems has been covered within the ‘biodiversity’ section. |

| Date | Consultee | Comment | How this has been addressed? |
|---|---|---|---|
| 19/12/23 | NRW | 5.8.11 Typo (Merthyl Tydfill)<br>Suggest details given to those important for MTCBC, e.g., Pontsticill Reservoir. | Typo amended<br>Reservoirs added. |
| 19/12/23 | NRW | A LFRMS has the opportunity to be detrimental or beneficial to implementing WFD mitigation measures. FRM activities do contribute to WFD failures due to physical modifications so there should be an issue/opportunity for the LFRMS to make efforts address this. Opportunities to work collaboratively on nature based solutions for wider benefits, including flood risk, should be listed as an opportunity. | Opportunities added |
| 19/12/23 | NRW | Any flood alleviation plans that could impact traffic routes would need to consult the Local Authority Air Quality Management Plans to ensure that changes in traffic flows do not increase air quality issues.<br>The report does acknowledge the current trend in electric vehicles which should also contribute to reduced NOx emissions in the communities.<br>It is also important to note that there is emerging legislative controls being introduced by Welsh Government via The Environment (Air quality and Soundscapes) Bill that will introduce new air quality targets within Wales.<br>Please refer to The Clean Air Plan for Wales (gov.wales), which references considerations for people and health, including population groups in the 'most' deprived areas being at greater risk. | The Environment (Air Quality and Soundscapes) (Wales) Bill has been added.<br>The Clean Air Plan for Wales has been incorporated into the PPP review. |

| Date | Consultee | Comment | How this has been addressed? |
|---|---|---|---|
| 19/12/23 | NRW | Carbon sequestration hasn't been considered or referenced as an issue or opportunity. | Included under the 'forestry' sub-section of Material Assets |
| 19/12/23 | NRW | Specify (as has done later in 5.11.14.), that although overall precipitation levels will decrease over the summer months, there will still be high intensity rainfall events, and may be more impactful following drought. | Noted – no change necessary |
| 19/12/23 | NRW | Include risk of landslides and coal tips, refer to PHW-Climate-Change-HIA. Include risk of wildfire, refer to PHW-Climate-Change-HIA | Included under the 'landscape and townscape' section |
| 19/12/23 | NRW | Some key infrastructure areas are currently not included:<br>• Transport infrastructure, including highways, public transport infrastructure and sustainable travel.<br>• Energy infrastructure<br>• Utilities<br>• Waste management<br>• MTCBC Flood Risk Assets (including alleviation schemes)<br>• Housing (refer to Merthyr Tydfil Replacement Local<br>Development Plan 2016 – 2031). Also refer to CIRIA's Code of practice for property flood resilience (C790), including the CoP for PFR: guidance for local authority planners (C790d) | Move some information from other sections into Material Assets.<br>Additional information provided. |

| Date | Consultee | Comment | How this has been addressed? |
|---|---|---|---|
| 19/12/23 | NRW | Build upon history of coal mining in the area and include reference of disused coal tips in baseline data for MTCBC | Added additional baseline on coal tip safety. |
| 19/12/23 | NRW | Add Public Rights of Way, access routes and associated structures to issues and opportunities | This has been moved from the 'landscape and townscape' topic and incorporated into the baseline for material assets. |
| 19/12/23 | NRW | SEA1: Suggestion to change to "To increase understanding and awareness of flood risk to meet both the current and future demographic changes and protect and enhance human health, quality of life and wellbeing."<br>British Red Cross report 'Every time it rains' explores people's experiences and perceptions of flooding in the UK. It identifies key findings regarding low awareness of flood risk among those living in areas that are at risk of, and highly vulnerable to and other barriers (social, economic) to preparedness. Priorities for action are also identified. | SEA1 objective has been amended to '***SEA1:*** *To increase and enhance flood protection as well as awareness and understanding to meet both the current and future demographic changes and protect and enhance human health, quality of life and wellbeing'.* |
| 19/12/23 | NRW | SEA2: Suggestion to change to "To increase understanding and awareness of flood risk, and increase resilience of local businesses and the local economy" | SEA2 objectives has been amended to*' To increase understanding and awareness of flood risk, and increase resilience of local businesses and the local economy'* |
| 19/12/23 | NRW | SEA3: Section 6 duties should be noted here, should be Net Benefit for Biodiversity, instead of Biodiversity Net Gain.<br>Current focus is on protected sites and species, it needs to focus on protecting and enhancing the attributes of Ecosystem Resilience. | SEA3 objective has been amended as follows *'To protect, enhance and provide resilience to habitats, species and valuable ecological networks that contribute to ecosystem functionality, contributing to net benefit in biodiversity'.*<br>Additional questions include: |

| Date | Consultee | Comment | How this has been addressed? |
|---|---|---|---|
| | | Impacts on Ecosystem Resilience can be monitored through impacts on its 4 measurable attributes – Diversity, Extent, Condition & Connectivity of ecosystems.<br>Invasive non-native species and plant health should also be considered in supporting appraisal questions. | Seek opportunities for net benefit for biodiversity?<br>Result in the potential increase of invasive non-native species?<br>Increase resilience to habitats, species and valuable ecological networks |
| 19/12/23 | NRW | SEA4: Remove reference to NI and replace with MTCBC<br>Add to objective 'and the Special Qualities and setting of the BBNP'.<br>Include objective around taking a catchment wide approach and considered nature based solutions.<br>Remove 'Seascape' from the supporting appraisal questions, and include suggested:<br>• Enhance the quality, extent and accessibility of greenspaces<br>• Enhance Dark Skies and Tranquillity | Additional questions include:<br>Respect, maintain and strengthen the Special Qualities and setting of the Bannau Brycheiniog National Park?<br>Enhance the quality, extent and accessibility of greenspaces?<br>Enhance Dark Skies and Tranquillity?<br>Seascape removed.<br>Reference to NI removed. |
| 19/12/23 | NRW | SEA6: Suggest water quantity issues should also be considered in the objective, considering the increased likelihood of drought and prolonged dry weather in the future.<br>Greater clarity is needed regarding WFD compliance, as compliance is a legal minimum, so should aim be to improve WFD status of waterbodies. | Appraisal questions have been amended to:<br>Improve WFD status of waterbodies?<br>Effect water quantity and availability?<br>Increase the number of heavily modified water bodies? |
| 19/12/23 | NRW | SEA7 and SEA9: Both objectives are for infrastructure – suggest that they be merged, or they should be more distinct. | SEA9 remains the same. SEA7 has been amended to the following *'Ensure that MTCBC is resilient to the effects of climate change and development supports low carbon energy efficient design'.* |

| Date | Consultee | Comment | How this has been addressed? |
|---|---|---|---|
| | | Include Public Right of Way and structures in SEA9. | Public rights of way have been added to the appraisal question for SEA9 - |
| 19/12/23 | NRW | SEA8: There are no supporting appraisal questions for SEA8, and the objective seems too broad. Suggest deletion and concentrate on SEA1 and SEA2, unless there is a specific objective. | Supporting appraisal questions have been included:<br>Support the use of sustainable materials?<br>Minimise the amount of waste?<br>Make use of existing infrastructure?<br>Will it avoid damage to geologically important sites?<br>Protect agricultural land?<br>Protect and enhance public rights of way?<br>Protect and enhance the transport network?<br>Protec and enhance critical infrastructure?<br>Will it protect, maintain and enhance the health and function of soils including peatland resource?<br>Respect the role that soils play in storing carbon?<br>SEA8 has remained. |
| 19/12/23 | NRW | SEA10: Suggestion to consider soil carbon stores. | See additional appraisal questions listed above. |
| 19/12/23 | NRW | Please could you clarify the timescales in next steps for the Environment Report? As would expect feedback from SEA Scoping Report consultation would help to develop to report. | The next steps section of the Environmental Report provides further details. The comments received on the Scoping Report have been incorporated into the SEA assessment as detailed in this table. |
| 19/12/23 | NRW | NERC Act is now superseded by Wales Environment Act Section 6 Duty | This has been removed. |

| Date | Consultee | Comment | How this has been addressed? |
|---|---|---|---|
| 19/12/23 | NRW | This should also include reference to Section 7 species and habitats of principal importance | This has been added. |
| 19/12/23 | NRW | Welcome reference to the WFD, though reference should be made to the 2017 regulations as done in 5.8.1 - Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 | This has been amended. |
| 19/12/23 | NRW | Incorrectly references National Flood and Coastal Erosion Risk Management Strategy for England, rather than for Wales. | This has been amended. |
| 19/12/23 | NRW | NRW have made a number of suggestions for inclusion of additional documents within the PPP review. | Where appropriate, documents have been added to the PPP review. |

The summary of consultation responses received for the Environmental Report and the actions taken have been shown in **Table C-2** below. It should be noted that no responses were received from Cadw.

**Table C-2- Summary of Environmental Report Consultation Responses**

| Date | Consultee | Comment | How this has been addressed? |
|---|---|---|---|
| 2/2/2024 | NRW | Table 4-2 Population and Equalities<br>Part A: Suggest there is a wider focus to reduce and manage flood risk, given 88% population is urban.<br>Part B: Duplication of "The local strategy should aim to reduce and manage flood risk" and "Development will need to support future demographic changes". | Table 4-2 has been updated. |
| 2/2/2024 | NRW | Duplication of “There are large disparities for life expectancy between the most and least deprived areas.” and “The LFRMS should ensure that the flood prevention measures meet the demands and needs of the future population. | Noted -Amended |
| 2/2/2024 | NRW | Table 4-3 SEA3 Biodiversity<br>In Biodiversity, the question “Result in the potential increase of invasive non-native species?” could imply this is a target, rather than to decrease the number of INNS, would suggest re-wording. | The word ‘potential’ has been removed. |
| | | SEA3 “To protect, enhance and provide resilience to habitats, species and valuable ecological networks that contribute to ecosystem functionality, contributing to net benefit in biodiversity” has been listed with uncertain. Would question if it could be considered as compatible with LFRMS Objective 2 – Preparedness and building resilience,<br>LFRMS Objective 3 – Prioritising investment to the most at risk communities, and LFRMS Objective 4 – Preventing more people becoming exposed to risk. By implementing and promoting nature- | Uncertain effects have been added to the key. The compatibility assessment has been updated accordingly. |

| Date | Consultee | Comment | How this has been addressed? |
|---|---|---|---|
| | | based solutions, and working with communities to implement them, biodiversity, ecosystem resilience, water quality, soil quality and function, mental health and physical health, carbon sequestration are some of the multiple benefits that nature based solutions can deliver alongside flood risk benefits.<br>If kept as uncertain, would need to be added to the key in Table 5-1. | |
| 2/2/2024 | NRW | From the Assessment of Measures, it's not clear that the actions have not yet taken place, and it's referring to future potential – would suggest rephrasing. | Wording has been changed throughout this section. |
| 2/2/2024 | NRW | Table 8-1 – Mitigation Measures:<br>Suggestions of mechanisms not noted:<br>• Project level environmental assessments are not listed as a mechanism for any of the impacts. They would be a way to provide project specific mechanisms to identify mitigation and enhancement opportunities.<br>• Health Impact Assessments also provide an opportunity to understand populations and communities, the social vulnerabilities in order to prioritise and assess the potential direct and indirect impacts on population groups of a specific scheme.<br>• MTCBC LFRMS's Action Plan<br>Suggestions of enhancements not noted:<br>• Opportunity to work with natural processes to manage flood risk and enhance biodiversity and ecosystem resilience through habitat creation, green engineering and natural management techniques, in line with Section 6 duty and resilience of ecosystems duty | Table 8-1 has been updated to incorporate these suggestions. |

| Date | Consultee | Comment | How this has been addressed? |
|---|---|---|---|
| | | • Potential to contribute to improving ecological status of water bodies by identifying synergies between FCERM solutions and WFD measures<br><br>SEA6: Water Quality<br><br>• Nature based solutions and natural flood management offer an opportunity to restore heavily modified channels to natural processes. Therefore, the current statement isn't correct. Where waterbodies might be classified as a HMWB as a result of their function as a flood risk asset, there are still opportunities to deliver mitigation measures to help achieve Good Ecological Potential.<br><br>• Dependent on the nature of proposed flood risk schemes, natural hydromorphological functions could be impacted, resulting in negative effects. | |
| 2/2/2024 | NRW | Monitoring is critical to understanding the impacts of the plan, especially as the results will help to influence and drive the next iteration of the LFRMS. In the current draft, monitoring is also only considered for areas with all significant effects without mitigation in place, our view is this should be considered for all areas with all significant effects.<br><br>To determine if the assessment's predictions of environmental effects were accurate, if the plan is contributing to the achieving of the desired objectives, whether mitigation measures are performing as expected, if there are any unforeseen adverse or beneficial effects. It is also not clear who is responsible for the proposed monitoring measures. | Additional monitoring measures have been added to Table 8-2. It has been outlined that MTCBC will be responsible for undertaking monitoring. |
| 2/2/2024 | NRW | "Those from lower income groups are also less likely to have flood insurance" should be included in paragraph above (focused on the WIMD) and also referenced in the Economy section. | Noted - amended |

| Date | Consultee | Comment | How this has been addressed? |
|---|---|---|---|
| 2/2/2024 | NRW | Please note that abstraction and impoundment licenses which may be required for various measures noted in the LFRMS. Find out if you need a water abstraction or impoundment licence<br><br>A licence from NRW may be required for flood defence activities or any new flood defence measures – temporary or full i.e., dust suppression for construction of new flood defences. The same would apply to the potential requirement for any impoundment licences. If more than 20 cubic metres of water is to be abstracted per day from a surface water source (e.g., stream or drain) or from underground strata (via borehole or well) for any particular purpose then an abstraction licence from Natural Resources Wales is likely to be required.<br><br>There is no guarantee that a licence will be granted as this is dependent on available water resources and existing protected rights. Abstractions from these sources under 20 cubic metres per day do not require an abstraction licence.<br><br>If a watercourse, ditch or stream is to be impounded then an impounding licence is likely to be required from Natural Resources Wales. There may be opportunity for any works to come under our low-risk impounding policy, there is further information on our website Low risk impoundments or we have a Position Statement which we can share which provides more details around interventions associated with restoring natural processes. | Whilst this will be applicable for schemes coming forward from the LFRMS, this is not relevant to include as part of the baseline. This will be considered by MTCBC. |
| 2/2/2024 | NRW | Appendix B – Baseline - Water Environment – page 121<br><br>Typo – Opportunity Catchment (not Operational Catchment) | Noted - Amended |
| 2/2/2024 | NRW | Feedback was given during SEA Scoping Stage to “include baseline information about the population and properties at risk of flooding within MTCBC, and from what source of flooding. Including | The baseline has been updated to reflect this information. |

| Date | Consultee | Comment | How this has been addressed? |
|---|---|---|---|
| | | any key infrastructure at risk of flooding (hospitals, schools, utilities etc), including consideration of access".<br><br>It has been noted that this has been addressed as part of the baseline for 'Climatic Factors' but the flood risk statistics remain unchanged. "According to NRW, MTCBC has a high risk of flooding from surface water, small watercourses and rivers which means that each year, MTCBC has a chance of flooding of greater than 1 in 30 (3.3%)".<br><br>More detail is provided within the LFRMS which provide MTCBC's flood risk analysis figures or contact us if you would like Local Authority level statistics for present day risk. | |
| 11/1/2024 | Public Questionnaire | The report is too long and not in plain English if you are an academic it's fine. Seeing as nothing has been started, I don't see it as being effective | A NTS has been provided which summarises the ER in plain language. SEA is undertaken at the plan level rather than the project level. |
| 13/1/2024 | Public Questionnaire | Again, make sure everyone can understand it! Plain and simple comes to mind | A NTS has been provided which summarises the ER in plain language. |

# Appendix D

## ASSESSMENT OF MEASURES

# Quality Control

| Issue/revision | First issue | Revision 1 | Revision 2 | Revision 3 |
|---|---|---|---|---|
| Remarks | Draft for MTCBC | Final for Consultation | Post Consultation Updates | |
| Date | November 2023 | December 2023 | March 2024 | |
| Prepared by | Sarah Utting<br>Keri Sheppard | Sarah Utting<br>Keri Sheppard | Keri Sheppard | |
| Signature | | | | |
| Checked by | Rachel Drabble | Rachel Drabble | Rachel Drabble | |
| Signature | | | | |
| Authorised by | Katie Dean | Katie Dean | Katie Dean | |
| Signature | | | | |
| Project number | 70113899 | 70113899 | 70113899 | |
| Report number | 001 | 002 | 003 | |

# Contents

# 1 Introduction

1.1.1 This Appendix sets out the detailed findings of the assessment of the LFRMS objectives and measures.

1.1.2 A matrix approach has been used for the assessment which has used the significance criteria identified in Table 1-1 below. The performance of the LFRMS objectives and measures against each SEA and Table 2-1 to Table 2-22 show the summary of significant effects based on each SEA objective and measure.

1.1.3 The assessment of the LFRMS has considered the following:

- Overall effect significance (negative, positive, uncertain, potential for both negative and positive effect or negligible);
- Magnitude of effects (high, medium, low);
- Nature of effect (direct, indirect);
- Spatial Extent (local, regional, national);
- Reversibility of effect:
  - Reversible: The receptor can return to baseline condition without significant intervention;
  - Irreversible: The receptor would require significant intervention to return to baseline condition;
- Permanence (permanent, temporary); and
- Duration (short, medium or long term) – Short term: 1-3 years, Medium term: 4-6 years (up to the end of the plan period) Long term: 6-10 years (beyond the plan period).

**Table 1-1 - Significance of Effect**

| Effect Significance | Key |
|---|---|
| Potential for significant positive effects | ++ |
| Potential for minor positive effects | + |
| Potential for minor negative effects | - |
| Potential for significant negative effects | -- |
| Uncertain effects – Uncertain or insufficient information on which to determine the appraisal at this stage | ? |
| Potential for both positive and negative effects | +/- |
| Negligible / No effect | 0 |
| Magnitude<br>High (H) – Likely total loss of or major alteration to the receptor in question. The effects are predicted to be permanent and irreversible.<br>Medium (M) – Partial loss of/alteration/improvement to one or more key elements/features/characteristics of the receptor in question. The effects are predicted to be medium-long term but often reversible.<br>Low (L) - Minor loss/alteration/improvement to one or more key elements/features/characteristics of the receptor in question. The effects are often predicted to be reversible and short term. | H / M / L |
| Nature of effect (direct / indirect). | D / I |
| Spatial Extent (local – borough wide / regional – South Wales / national - Wales) | L / R / N |
| Reversibility of effect (reversible / irreversible) | R / I |
| Permanence (Permanent / Temporary) | P / T |
| Duration (short / medium / long term). | ST / MT / LT |

# 2 Assessment of Measures

## 2.1 Working with the Local Planning Authority (LPA).

The assessment of the LFRMS objective to continue working with the LPA to develop robust planning policy relating to flood risk and drainage is presented in Table 2-1.

**Table 2-1 – Local Planning Authority Measure Assessment**

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA1: Population, Equalities & Human Health** | + | L | I | L | R | T | MT | Collaborating with LPAs at an early stage to ensure that flood risk is considered fully at the master planning or potentially earlier, will ensure that development is directed away from areas of high flood risk. This will help to ensure that residents of new developments are offered greater flood protection. Better collaboration may lead to developments which may offer better protection to the local community, reducing levels of stress and anxiety. |
| **SEA2: Economy** | + | L | I | L | R | T | MT | Collaborating with LPAs at an early stage to ensure that flood risk is considered fully at the master planning or potentially earlier, will ensure that development is directed away from areas of high flood risk. This will help to ensure that businesses included as part of new developments will be offered greater flood protection. |
| **SEA3: Biodiversity** | + | L | D | R | R | P | LT | Better collaboration with LPAs could lead more joined up thinking in early planning stages which could see better integration of green infrastructure and biodiversity net gain. Additionally, the integration of proposed SuDS will help to ensure better flood protection for habitats and contribute to biodiversity net gain.. |
| **SEA4: Landscape & Townscape** | + | L | D | L | R | P | LT | Better collaboration with LPAs could lead more joined up thinking in early planning stages which could see better integration of green infrastructure and landscaping. Additionally, the integration of proposed SuDS will help to ensure better flood protection for the townscapes. |
| **SEA5: Historic Environment** | 0 | | | | | | | No effects identified. |
| **SEA6: Water Environment** | 0 | | | | | | | No effects identified. |
| **SEA7: Climate Resilience** | 0 | | | | | | | No effects identified. |
| **SEA8: Flood Risk** | + | L | I | L | R | T | MT | Ensuring that flooding is considered earlier within the planning process and the integration of SuDS, will help to reduce the risk and vulnerability of new populations. |
| **SEA9: Transport & Infrastructure** | + | L | I | L | R | T | MT | Ensuring that flooding is considered earlier within the planning process will help to reduce the risk and vulnerability of new infrastructure. |
| **SEA10: Geology & Soils** | 0 | | | | | | | No effects identified. |
| **Potential Cumulative/ Synergistic Effects** | No cumulative effects identified. | | | | | | | |
| **Mitigation and Enhancement Measures** | No mitigation or enhancement measures identified. | | | | | | | |

## 2.2 SuDS Approval Body (SAB)

The assessment of the LFRMS objective for the SAB to approve, adopt and maintain sustainable drainage systems is presented in Table 2-2.

**Table 2-2 – SuDS Approval Body Measure Assessment**

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA1: Population, Equalities & Human Health** | + | M | I | L | I | P | LT | Incorporating SuDS in future developments will have positive effects on the health and wellbeing future demographics due their natural elements. Additionally, the principles of SuDS will reduce the flood risk to these demographics; therefore providing flood protection. |
| **SEA2: Economy** | + | L | I | L | I | P | LT | Incorporating SuDS in future developments will have positive effects on local businesses and the economy as it will reduce the flood risk to local businesses if incorporating in the surrounding areas, therefore providing protection against the potential damages of flooding. This measure may also contribute to increasing the overall attractiveness of the area. |
| **SEA3: Biodiversity** | + | M | D | L | I | P | LT | Positive effects are anticipated if well designed SuDS are incorporated into future developments as they would encourage and enhance the biodiversity in the built environment and contribute to ecosystem functionality. |
| **SEA4: Landscape & Townscape** | ? | | | | | | | The incorporation of SuDS into future developments will help to reduce the effects of flooding on the local townscape and landscape. Some elements of SuDS could add to sustainable design, maintain and strengthen local character and the public realm by enriching the aesthetic and recreational value of a development. However, if designed poorly, there is a chance that they may detract from the townscape and landscape setting. As the design and location of the SuDS is not yet known, uncertain effects have been identified. |
| **SEA5: Historic Environment** | ? | | | | | | | This measure could give rise to a number of new SuDS which could, if poorly designed, lead to the deterioration of the historic environment and potential loss of heritage assets. There is potential for SuDS to provide protection to heritage assets. Uncertain effects have been identified as it will come down to individual scheme level design and location. |
| **SEA6: Water Environment** | + | M | D | L | I | P | LT | The provision of SuDS would have positive impacts on the water quality near future developments by reducing sediment and contaminants from runoff near settlements. This would provide further benefits to water quality of downstream water bodies. |
| **SEA7: Climate Resilience** | + | L | I | L | I | P | LT | The implementation of SuDS near future developments may help to reduce and mitigate the effects of climate change by helping to reduce flood risk. SuDS also trap water which adds to cooling through evaporation. Additionally, the plants and vegetation that feature in SuDS design can absorb carbon dioxide thereby reducing atmospheric carbon and reducing the temperature of the surrounding atmosphere. |
| **SEA8: Flood Risk** | ++ | H | I | L | I | P | LT | The use of SuDS is considered an effective and natural method in flood prevention as they collect, attenuate and slow the flow of surface water, thus reducing the pressure on drainage systems during periods of high rainfall and reducing the impacts of flooding. This would have a significant, positive impact on reducing the vulnerability to flooding in the future. |
| **SEA9: Transport & Infrastructure** | + | L | I | L | I | P | LT | Incorporating SuDS in future developments will have positive impacts on critical infrastructure by reducing flooding and providing some protection to the potential damages caused by flooding. |
| **SEA10: Geology & Soils** | ? | | | | | | | The incorporation of SuDS can help to improve the management of soil quality by reducing the loss of soil and nutrients. However, it is not clear whether the 'rural' SuDs will be included as part of this measure, or if it will just apply to new developments. |
| **Potential Cumulative/ Synergistic Effects** | There is potential for positive cumulative effects from the implementation of more SuDs through the approval board which could give rise to positive effects on SEA1, SEA2, SEA3, SEA6 and SEA8. However, if poorly designed, there is potential for adverse effects on both SEA4 and SEA5. | | | | | | | |
| **Mitigation and Enhancement Measures** | SEA4/5/10: Measures should incorporate Construction Industry Research and Information Association's (CIRIA) guidance on SuDS design to ensure high-quality design that will minimise the effects on the historic environment. | | | | | | | |

## 2.3 Forecasting, Warning and Informing.

The assessment of the LFRMS objective to continue to work with supporters and colleagues to provide early warnings and information on surface water flooding is presented in Table 2-3.

**Table 2-3 – Forecasting, Warning and Informing Measure Assessment.**

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA1: Population, Equalities & Human Health** | + | L | D | R | R | P | LT | The continued support from MTCBC toward the providers of flood warning systems will have minor positive effects on current and future demographics through the provision of continued public warnings and information on flood emergencies.<br>Communicating through social media has the ability to reach a wider number of people in high-risk areas and reduce potential negative impacts to these communities caused by flooding. This also has the potential to provide positive impacts on a regional scale by communicating through social media, alerting neighbouring counties of flood events within the borough. The use of traditional communication methods will provide inclusivity in correspondence, benefitting all members of the community. |
| **SEA2: Economy** | + | L | D | R | R | P | LT | The continued support from MTCBC toward the providers of flood warning systems will have minor positive effects on existing businesses through the provision of continued public warnings and information on flood emergencies.<br>Communicating through social media has the ability to reach a wider number of people in high-risk areas who would help in alerting others and reduce potential negative effects to businesses caused by flooding. Business owners are likely to benefit from advanced warnings by having time to prepare and implement protective measures that may help to reduce damages. This also has the potential to provide positive effects on a regional scale by communicating through social media, alerting neighbouring counties of flood events within the borough. |
| **SEA3: Biodiversity** | 0 | | | | | | | No effects identified. |
| **SEA4: Landscape & Townscape** | 0 | | | | | | | No effects identified. |
| **SEA5: Historic Environment** | 0 | | | | | | | No effects identified. |
| **SEA6: Water Environment** | 0 | | | | | | | No effects identified. |
| **SEA7: Climate Resilience** | 0 | | | | | | | No effects identified. |
| **SEA8: Flood Risk** | + | L | D | R | R | P | LT | The continued support from MTCBC toward the providers of flood warning systems will have minor positive impacts on current and future demographics through the provision of continued public warnings and information on flood emergencies.<br>Communicating through social media has the ability to reach a wider number of people in high-risk areas and reduce potential negative impacts to these communities caused by flooding. This also has the potential to provide positive impacts on a regional scale by communicating through social media, alerting neighbouring counties of flood events within the borough. It should however be noted that this method of communication could exclude some groups, particularly older groups or those lower income groups who may not have access to smart phones or the internet. |
| **SEA9: Transport & Infrastructure** | 0 | | | | | | | No effects identified. |
| **SEA10: Geology & Soils** | 0 | | | | | | | No effects identified. |
| **Potential Cumulative/ Synergistic Effects** | No cumulative effects identified. | | | | | | | |
| **Mitigation and Enhancement Measures** | SEA1: This measure should also include other forms of communication to ensure that all members of the community are informed in a timely manner. | | | | | | | |

## 2.4 Flood Monitoring

The assessment of the LFRMS objective to improve and expand the monitoring system to include other high-risk intakes is presented in Table 2-4.

**Table 2-4 – Flood Monitoring Measure Assessment**

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA1: Population, Equalities & Human Health** | + | M | I | R | R | P | LT | The provision of an improved monitoring system will have positive effects on the current and future demographics and help to reduce the potential negative effects on vulnerable people by providing real time monitoring of flood risk. This would provide improved observations on water levels in high-risk areas and therefore enable better responses to any culvert blockages, reducing the risk flooding within these communities. Real time water level updates could also enable communities to be warned sooner in the event of flooding, thus providing increased protection to the quality of life and wellbeing of people. |
| **SEA2: Economy** | + | M | I | R | R | P | LT | The provision of an improved monitoring system will have positive effects on local businesses and economy and help to reduce the potential negative effects on key business infrastructure thus reducing economic damage by providing real time monitoring of flood risk.<br>This would provide improved observations on water levels in high-risk areas and therefore enable better responses to any culvert blockages, reducing the risk flooding within these communities. Real time water level updates could also enable business owners to be warned sooner in the event of flooding, thus providing increased protection to existing businesses. |
| **SEA3: Biodiversity** | 0 | | | | | | | No effects identified. |
| **SEA4: Landscape & Townscape** | ? | | | | | | | The inclusion of new hardware at monitoring stations have the potential to adversely affect the townscape and landscape setting. It is not clear on the design of monitoring stations and how expansive works would be, hence uncertain effects have been identified. |
| **SEA5: Historic Environment** | ? | | | | | | | The inclusion of new hardware at monitoring stations have the potential to adversely affect the setting of heritage assets. It is not clear on the design of monitoring stations and how expansive works would be, hence uncertain effects have been identified. |
| **SEA6: Water Environment** | + | M | D | L | I | P | LT | Blockages to culverts can reduce groundwater recharge and can give rise to stagnant water issues. Better monitoring of culverts may help to detect these issues earlier on, lessening the potential impacts on groundwater quality. |
| **SEA7: Climate Resilience** | + | M | D | L | I | P | LT | Better monitoring of culverts is likely to reduce the risk of surface water flooding. Given that culverts are often associated with roads, it is considered that this will help to reduce levels of flooding on the highway network. There is some uncertainty on the use of energy efficient design, however, upgrading existing infrastructure is likely to reduce levels of embodied carbon. |
| **SEA8: Flood Risk** | ++ | H | D | L | I | P | LT | There are significant positive effects anticipated as improved monitoring systems with real time data will allow for advanced warnings of potential flooding, thus significantly reducing the risk of flooding. |
| **SEA9: Transport & Infrastructure** | + | L | I | L | R | P | LT | Some minor positive effects are anticipated as an indirect result of the improved monitoring system which could provide advanced warning to flood events. |
| **SEA10: Geology & Soils** | 0 | | | | | | | No effects identified. |
| **Potential Cumulative/ Synergistic Effects** | No cumulative effects identified. | | | | | | | |
| **Mitigation and Enhancement Measures** | SEA4/5: Upgrades to monitoring stations should be well designed and/or well screening to ensure that they have minimal effects on the surrounding townscape, landscape and historic environment. | | | | | | | |

## 2.5 Improve our Understanding of Flood Risk.

The assessment of the LFRMS measure for understanding flood risk is presented in **Table 2-**.

**Table 2-5 – Understanding Flood Risk Measure Assessment**

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA1: Population, Equalities & Human Health** | 0 | | | | | | | No effects identified. |
| **SEA2: Economy** | + | L | I | L | I | P | LT | Positive effects are anticipated on local businesses and the economy as areas of increased flood risk are better identified, allowing for better flood mechanisms and flood responses can be implemented, thus helping to protect local businesses and the economy by reducing the risk of flooding. |
| **SEA3: Biodiversity** | + | L | I | L | I | P | LT | Some minor positive effects are anticipated as an increased understanding of ecological pressures within high flood risk catchments can enable better mechanisms to protect habitats and biodiversity. |
| **SEA4: Landscape & Townscape** | 0 | | | | | | | No effects identified. |
| **SEA5: Historic Environment** | 0 | | | | | | | No effects identified. |
| **SEA6: Water Environment** | + | L | I | L | R | P | LT | Some minor positive effects are anticipated as an understanding of water quality pressures within high flood risk catchments increased. This can improve flood risk management and therefore water quality in the borough. |
| **SEA7: Climate Resilience** | 0 | | | | | | | No effects identified. |
| **SEA8: Flood Risk** | + | L | D | L | I | P | LT | Understanding of existing flood risk through catchment analysis and modelling will help to reduce the risk of flood and therefore the number of people vulnerable to flooding. |
| **SEA9: Transport & Infrastructure** | + | L | D | L | I | P | LT | Understanding of existing flood risk through catchment analysis and modelling will help to reduce the risk of flood and therefore provide better understanding of the potential key infrastructure that may be at risk of flooding. This could lead to better protection of transport and critical infrastructure. |
| **SEA10: Geology & Soils** | 0 | | | | | | | No effects identified. |
| **Potential Cumulative/ Synergistic Effects** | No cumulative effects identified. | | | | | | | |
| **Mitigation and Enhancement Measures** | No mitigation or enhancement measures identified. | | | | | | | |

## 2.6 Using Surveying and Modelling to Increase our Understanding of Flood Risk

The assessment of the LFRMS measure to use survey data and modelling techniques to better understand our flood risk is presented in Table 2-6.

**Table 2-6 – Using Surveying and Modelling to Increase our Understanding of Flood Risk Measure Assessment**

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA1: Population, Equalities & Human Health** | 0 | | | | | | | No effects identified. |
| **SEA2: Economy** | 0 | | | | | | | No effects identified. |
| **SEA3: Biodiversity** | 0 | | | | | | | No effects identified. |
| **SEA4: Landscape & Townscape** | 0 | | | | | | | No effects identified. |
| **SEA5: Historic Environment** | 0 | | | | | | | No effects identified. |
| **SEA6: Water Environment** | 0 | | | | | | | No effects identified. |
| **SEA7: Climate Resilience** | + | L | I | L | R | P | LT | The use modelling for future developments is anticipated to have positive impacts on the effects of climate change and decrease the vulnerability of future infrastructure against flood risk. |
| **SEA8: Flood Risk** | + | L | I | L | I | P | LT | The use of modelling on future developments would ensure schemes are developed in areas with reduced risk of flooding, therefore reducing the vulnerability to flooding. |
| **SEA9: Transport & Infrastructure** | + | L | I | L | I | P | LT | The use of modelling on future developments would ensure the infrastructure of future developments developed are in areas with reduced risk of flooding, therefore providing some minor protection against flooding. |
| **SEA10: Geology & Soils** | 0 | | | | | | | No effects identified. |
| **Potential Cumulative/ Synergistic Effects** | No cumulative effects identified. | | | | | | | |
| **Mitigation and Enhancement Measures** | No mitigation or enhancement measures identified. | | | | | | | |

## 2.7 Improve our Knowledge and Information of the Risks of Groundwater Flooding

The assessment of the LFRMS measure to improve our knowledge and information of the risks of groundwater flooding is presented in Table 2-7.

**Table 2-7 – Improve our Knowledge and Information of the Risks of Groundwater Flooding Measure Assessment**

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA1: Population, Equalities & Human Health** | + | M | I | L | I | P | LT | Minor positive effects are anticipated as an increased understanding of groundwater flooding will improve awareness and management, therefore adding to the protection of human health and wellbeing. This would benefit new developments in the future by avoiding the allocation of new homes being built in groundwater flood risk areas. A better understanding of the role of groundwater flooding in landslides will help ensure greater protection against flooding for current and future developments. |
| **SEA2: Economy** | + | L | I | L | I | P | LT | Minor positive effects are anticipated as an increased understanding of groundwater flooding will improve awareness and management, therefore adding to the protection of human health and wellbeing. This would benefit new developments in the future by avoiding the allocation of new business complexes being built in groundwater flood risk areas. A better understanding of the role of groundwater flooding in landslides will help ensure greater protection against flooding for current and future businesses. |
| **SEA3: Biodiversity** | 0 | | | | | | | No effects identified. |
| **SEA4: Landscape & Townscape** | 0 | | | | | | | No effects identified. |
| **SEA5: Historic Environment** | 0 | | | | | | | No effects identified. |
| **SEA6: Water Environment** | + | L | I | L | I | P | LT | Minor positive effects could arise as a better understanding of groundwater flooding continues. Developing further knowledge on how mining and groundwater interact with one another could also help to improve groundwater quality. Further knowledge may also lead to an understanding of how pollutants are mobilised in groundwater flooding, thereby having the potential to improve groundwater quality. |
| **SEA7: Climate Resilience** | 0 | | | | | | | No effects identified. |
| **SEA8: Flood Risk** | + | L | I | L | I | P | LT | Minor positive effects are anticipated as a better understanding of groundwater flooding continues, the number of people at risk of flooding and the risk for future demographics, would be reduced, particularly in new development areas. |
| **SEA9: Transport & Infrastructure** | 0 | | | | | | | No effects identified. |
| **SEA10: Geology & Soils** | 0 | | | | | | | No effects identified. |
| **Potential Cumulative/ Synergistic Effects** | No cumulative effects identified. | | | | | | | |
| **Mitigation and Enhancement Measures** | No mitigation or enhancement measures identified. | | | | | | | |

## 2.8 Historical Flooding

The assessment of the LFRMS measure to use historical flooding data to support the identification of flood alleviation schemes and improve our understanding of flood risk is presented in Table 2-8.

**Table 2-8 – Historical flooding Measure Assessment**

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA1: Population, Equalities & Human Health** | + | L | I | L | I | P | MT | More complete historic flood data will allow MTCBC to determine the extent and potential mechanisms and cause of flooding. Improved partnership between emergency services and MTCBC will also ensure better levels of safety for residents during flood events. |
| **SEA2: Economy** | + | L | I | L | I | P | MT | More complete historic flood data will allow MTCBC to determine the extent and potential mechanisms and cause of flooding. This could help to ensure business owners are better informed on the potential risk flooding poses. Better preparedness may also help reduce the overall cost and financial burden flooding causes for the local economy. |
| **SEA3: Biodiversity** | 0 | | | | | | | No effects identified. |
| **SEA4: Landscape & Townscape** | 0 | | | | | | | No effects identified. |
| **SEA5: Historic Environment** | 0 | | | | | | | No effects identified. |
| **SEA6: Water Environment** | 0 | | | | | | | No effects identified. |
| **SEA7: Climate Resilience** | 0 | | | | | | | No effects identified. |
| **SEA8: Flood Risk** | + | L | I | L | I | P | MT | By developing flood alleviation schemes, MTCBC can identify areas susceptible to flooding and help to reduce the number of people vulnerable to the effects of flooding. More complete historic flood data will allow MTCBC to determine the extent and potential mechanisms and cause of flooding |
| **SEA9: Transport & Infrastructure** | + | L | I | L | I | P | MT | By developing flood alleviation schemes, MTCBC can identify areas susceptible to flooding and help to protect critical infrastructure from the potential flood damage. More complete historic flood data will allow MTCBC to determine the extent and potential mechanisms and cause of flooding |
| **SEA10: Geology & Soils** | 0 | | | | | | | No effects identified. |
| **Potential Cumulative/ Synergistic Effects** | No cumulative effects identified. | | | | | | | |
| **Mitigation and Enhancement Measures** | No mitigation or enhancement measures identified. | | | | | | | |

## 2.9 Improve Flood Awareness and Education

The assessment of the LFRMS measure to improve flood awareness and education is presented in Table 2-.

**Table 2-9 - Improve Flood Awareness and Education Measure Assessment**

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA1: Population, Equalities & Human Health** | + | L | I | L | I | P | LT | Increasing flood awareness and community engagement is likely to have minor, positive effects on the health and wellbeing of current and future demographics in the borough, by being better prepared in the event of flooding. Additionally, the provision of multiple communication techniques will help ensure that all groups within the community are informed . |
| **SEA2: Economy** | + | L | I | L | I | P | LT | Increasing flood awareness and community engagement is likely to have minor, positive effects on local businesses and the local economy in the borough, by being better prepared in the event of flooding. |
| **SEA3: Biodiversity** | 0 | | | | | | | No effects identified. |
| **SEA4: Landscape & Townscape** | 0 | | | | | | | No effects identified. |
| **SEA5: Historic Environment** | 0 | | | | | | | No effects identified. |
| **SEA6: Water Environment** | 0 | | | | | | | No effects identified. |
| **SEA7: Climate Resilience** | 0 | | | | | | | No effects identified. |
| **SEA8: Flood Risk** | + | L | I | L | I | P | LT | Increased levels of awareness and education may help to reduce the overall vulnerability to flooding and ensure the community is better prepared. |
| **SEA9: Transport & Infrastructure** | 0 | | | | | | | No effects identified. |
| **SEA10: Geology & Soils** | 0 | | | | | | | No effects identified. |
| **Potential Cumulative/ Synergistic Effects** | No cumulative effects identified. | | | | | | | |
| **Mitigation and Enhancement Measures** | No mitigation or enhancement measures identified. | | | | | | | |

## 2.10 Inform on Flood Risk Responsibilities

The assessment of the LFRMS measure to continue to engage, inform and communicate flood risk responsibilities is presented in Table 2-10.

**Table 2-10 – Flood Risk Responsibilities Measure Assessment**

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA1: Population, Equalities & Human Health** | 0 | | | | | | | No effects identified. |
| **SEA2: Economy** | 0 | | | | | | | No effects identified. |
| **SEA3: Biodiversity** | 0 | | | | | | | No effects identified. |
| **SEA4: Landscape & Townscape** | 0 | | | | | | | No effects identified. |
| **SEA5: Historic Environment** | 0 | | | | | | | No effects identified. |
| **SEA6: Water Environment** | 0 | | | | | | | No effects identified. |
| **SEA7: Climate Resilience** | 0 | | | | | | | No effects identified. |
| **SEA8: Flood Risk** | + | L | D | L | R | T | MT | Engaging with riparian owners will help to reduce flood risk in high-risk areas and thus reduce the number of people at risk. |
| **SEA9: Transport & Infrastructure** | + | L | D | L | R | T | MT | The LFRMS will continue to engage with riparian owners of high-risk assets and will reassess the identification of these owners following asset risk assessment exercises undertaken as part of this strategy development. Riparian owners may include owners of key infrastructure (such as highways), for which better asset risk assessment could help to ensure a greater level of protection. |
| **SEA10: Geology & Soils** | 0 | | | | | | | No effects identified. |
| **Potential Cumulative/ Synergistic Effects** | No cumulative effects identified. | | | | | | | |
| **Mitigation and Enhancement Measures** | No mitigation or enhancement measures identified. | | | | | | | |

## 2.11 Partnership Working

The assessment of the LFRMS measure to continue to engage in partnership working is presented in Table 2-11.

**Table 2-11 – Partnership Working Measure Assessment**

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA1: Population, Equalities & Human Health** | 0 | | | | | | | No effects identified. |
| **SEA2: Economy** | + | L | I | R | R | T | MT | Better joined up thinking with other RMAs as well as NRW, DCWW and the Welsh Government, could result in larger more innovative projects. These may help to reduce the economic losses from flooding across the region and present potential job opportunities. |
| **SEA3: Biodiversity** | 0 | | | | | | | No effects identified. |
| **SEA4: Landscape & Townscape** | 0 | | | | | | | No effects identified. |
| **SEA5: Historic Environment** | 0 | | | | | | | No effects identified. |
| **SEA6: Water Environment** | 0 | | | | | | | No effects identified. |
| **SEA7: Climate Resilience** | + | H | D | N | R/I | P/T | ST/LT | Better collaboration will ensure that there will help to ensure that infrastructure will be more resilient to the effects of climate change. |
| **SEA8: Flood Risk** | ++ | H | D | N | R/I | P/T | ST/LT | Working in partnership with other RMAs, NRW, DCWW and the Welsh Government, will help to ensure that there will be improved information sharing on flooding and provide opportunities for the delivery of joined up innovative projects, that may benefit more people beyond MTCBC. The Strategic Flood Masterplan will also provide a holistic long term flood risk management strategy for the River Taff Catchment. |
| **SEA9: Transport & Infrastructure** | + | H | D | N | R/I | P/T | ST/LT | Better collaboration will ensure that there will be greater protection for critical and transport infrastructure. |
| **SEA10: Geology & Soils** | 0 | | | | | | | No effects identified. |
| **Potential Cumulative/ Synergistic Effects** | Better collaboration between RMAs may ensure that development is more joined up and could reduce the transboundary cumulative effects between RMAs and reduce the effects of potential insensitive developments on one another. | | | | | | | |
| **Mitigation and Enhancement Measures** | No mitigation or enhancement measures identified. | | | | | | | |

## 2.12 Flood Response Plan

The assessment of the LFRMS measure for the flood risk plan is presented in Table 2-12.

**Table 2-12 – Flood risk plan Measure Assessment**

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA1: Population, Equalities & Human Health** | + | L | I | L | I | P | LT | Some minor positive effects are anticipated for the health and wellbeing of the future demographics in the borough as responses to flooding are improved and effective communication with MTCBC flood response partners are maintained. This will help reduce damage caused by flooding. |
| **SEA2: Economy** | + | L | I | L | I | P | LT | Some minor positive effects are anticipated for local businesses and the local economy in the borough as responses to flooding are improved and effective communication with MTCBC flood response partners are maintained. This will help reduce damage caused by flooding. |
| **SEA3: Biodiversity** | 0 | | | | | | | No effects identified. |
| **SEA4: Landscape & Townscape** | 0 | | | | | | | No effects identified. |
| **SEA5: Historic Environment** | 0 | | | | | | | No effects identified. |
| **SEA6: Water Environment** | 0 | | | | | | | No effects identified. |
| **SEA7: Climate Resilience** | 0 | | | | | | | No effects identified. |
| **SEA8: Flood Risk** | + | L | D | L | R | T | MT | Increased levels of awareness and education may help to reduce the overall vulnerability to flooding and ensure the community is better prepared. |
| **SEA9: Transport & Infrastructure** | 0 | | | | | | | No effects identified. |
| **SEA10: Geology & Soils** | 0 | | | | | | | No effects identified. |
| **Potential Cumulative/ Synergistic Effects** | No cumulative effects identified. | | | | | | | |
| **Mitigation and Enhancement Measures** | No mitigation or enhancement measures identified. | | | | | | | |

## 2.13 Continue to Support our Community Resilience

The assessment of the LFRMS measure to continue supporting community resilience is presented in Table 2-13.

**Table 2-13 Community Resilience Measure Assessment**

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA1: Population, Equalities & Human Health** | + | L | I | L | I | P | MT | Minor positive effects are anticipated for human health and wellbeing through the implementation of community and individual plans, particularly in areas where flood defences are not possible. In addition, increased awareness programmes will help to build community resilience and potentially reduce flood risk as people will be more prepared in the event of a flood. |
| **SEA2: Economy** | + | L | I | L | I | P | MT | Minor positive effects are anticipated for local businesses and the local economy through the implementation of community and individual plans, particularly in areas where flood defences are not possible. In addition, increased awareness programmes will help to build community resilience and potentially reduce flood risk as business owners will be more prepared in the event of a flood. |
| **SEA3: Biodiversity** | 0 | | | | | | | No effects identified. |
| **SEA4: Landscape & Townscape** | 0 | | | | | | | No effects identified. |
| **SEA5: Historic Environment** | 0 | | | | | | | No effects identified. |
| **SEA6: Water Environment** | 0 | | | | | | | No effects identified. |
| **SEA7: Climate Resilience** | 0 | | | | | | | No effects identified. |
| **SEA8: Flood Risk** | + | | | | | | | Minor positive effects are anticipated through the implementation of community and individual flood plans, particularly in areas where flood defences are not possible and thus with increased vulnerability. In addition, increased awareness programmes will help to build community resilience and potentially reduce the risk and vulnerability to flooding as people will be more prepared in the event of a flood. |
| **SEA9: Transport & Infrastructure** | 0 | | | | | | | No effects identified. |
| **SEA10: Geology & Soils** | 0 | | | | | | | No effects identified. |
| **Potential Cumulative/ Synergistic Effects** | No cumulative effects identified. | | | | | | | |
| **Mitigation and Enhancement Measures** | No mitigation or enhancement measures identified. | | | | | | | |

## 2.14 Holistic Flood Response and Recovery

The assessment of the LFRMS measure improve our holistic flood response and recovery is presented in Table 2-.

**Table 2-14 – Holistic Flood Response and Recovery Measure Assessment**

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA1: Population, Equalities & Human Health** | ++ | L | D | L | R | T | MT | Positive effects are anticipated on the health and wellbeing of the future demographics in the borough through the provision of psychological first aid for people during severe flooding. This will help to reduce the levels of stress and anxiety caused by flooding as well as providing additional support following flood events. |
| **SEA2: Economy** | 0 | | | | | | | No effects identified. |
| **SEA3: Biodiversity** | 0 | | | | | | | No effects identified. |
| **SEA4: Landscape & Townscape** | 0 | | | | | | | No effects identified. |
| **SEA5: Historic Environment** | 0 | | | | | | | No effects identified. |
| **SEA6: Water Environment** | 0 | | | | | | | No effects identified. |
| **SEA7: Climate Resilience** | 0 | | | | | | | No effects identified. |
| **SEA8: Flood Risk** | 0 | | | | | | | No effects identified. |
| **SEA9: Transport & Infrastructure** | 0 | | | | | | | No effects identified. |
| **SEA10: Geology & Soils** | 0 | | | | | | | No effects identified. |
| **Potential Cumulative/ Synergistic Effects** | No cumulative effects identified. | | | | | | | |
| **Mitigation and Enhancement Measures** | No mitigation or enhancement measures identified. | | | | | | | |

## 2.15 Investigating Flood Events

The assessment of the LFRMS measure to investigate flood events is presented in Table 2-15.

**Table 2-15 – Investigate Flood Events Measure Assessment**

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA1: Population, Equalities & Human Health** | 0 | | | | | | | No effects identified. |
| **SEA2: Economy** | 0 | | | | | | | No effects identified. |
| **SEA3: Biodiversity** | 0 | | | | | | | No effects identified. |
| **SEA4: Landscape & Townscape** | 0 | | | | | | | No effects identified. |
| **SEA5: Historic Environment** | 0 | | | | | | | No effects identified. |
| **SEA6: Water Environment** | 0 | | | | | | | No effects identified. |
| **SEA7: Climate Resilience** | 0 | | | | | | | No effects identified. |
| **SEA8: Flood Risk** | + | L | I | L | I | P | ST | Some minor, positive impacts are anticipated as an improved understanding of flood risk in MTCBC will indirectly help to reduce flood risk and the number of people vulnerable to flood risk. |
| **SEA9: Transport & Infrastructure** | 0 | | | | | | | No effects identified. |
| **SEA10: Geology & Soils** | 0 | | | | | | | No effects identified. |
| **Potential Cumulative/ Synergistic Effects** | No cumulative effects identified. | | | | | | | |
| **Mitigation and Enhancement Measures** | No mitigation or enhancement measures identified. | | | | | | | |

## 2.16 Recording of flood events

The assessment of the LFRMS measure to record the scale and source of flooding is presented in Table 2-16.

**Table 2-16 – Recording of Flood Events Measure Assessment**

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA1: Population, Equalities & Human Health** | + | L | I | L | I | P | MT | Some minor positive effects are anticipated as an improved understanding of flood risk will better protect the health and wellbeing of vulnerable demographics in the future. This measure will help to increased ability to direct funding to high risk communities. |
| **SEA2: Economy** | 0 | | | | | | | No effects identified. |
| **SEA3: Biodiversity** | 0 | | | | | | | No effects identified. |
| **SEA4: Landscape & Townscape** | 0 | | | | | | | No effects identified. |
| **SEA5: Historic Environment** | 0 | | | | | | | No effects identified. |
| **SEA6: Water Environment** | 0 | | | | | | | No effects identified. |
| **SEA7: Climate Resilience** | 0 | | | | | | | No effects identified. |
| **SEA8: Flood Risk** | + | L | I | L | I | P | MT | Some minor positive effects are anticipated as an improved understanding of flood risk will help to reduce the vulnerability of flood risk in the future. |
| **SEA9: Transport & Infrastructure** | 0 | | | | | | | No effects identified. |
| **SEA10: Geology & Soils** | 0 | | | | | | | No effects identified. |
| **Potential Cumulative/ Synergistic Effects** | No cumulative effects identified. | | | | | | | |
| **Mitigation and Enhancement Measures** | No mitigation or enhancement measures identified. | | | | | | | |

## 2.17 Natural Flood Management (NFM)

The assessment of the LFRMS measure of Natural Flood Management is presented in Table 2-17.

**Table 2-17 – Natural Flood Management Measure Assessment**

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA1: Population, Equalities & Human Health** | + | L | I | L | I | P | LT | It is anticipated that there will be some minor, positive effects on the health and wellbeing of future demographics in MTCBC as the provision of Natural Flood Management (NFM) will help to reduce surface water flood risk. NFM may also present opportunities for new areas of green infrastructure and green space which may have additional benefits for the health of the local community. |
| **SEA2: Economy** | 0 | | | | | | | No effects identified. |
| **SEA3: Biodiversity** | ++ | L | I | L | I | P | LT | The implementation of NFM schemes will provide multiple benefits to ecosystem functionality and will support biodiversity net gain by working with MTCBC partners. |
| **SEA4: Landscape & Townscape** | + | L | I | L | I | P | LT | The provision of NFM schemes in both urban and rural areas will provide some protection to MTCBC's townscapes and landscapes by helping to reduce surface flood risk. NFM are likely to be more widely accepted by the community and they can be better incorporated into the natural landscape as well as the urban setting. These measures have potential to therefore enhance the townscape and landscape setting. |
| **SEA5: Historic Environment** | ? | | | | | | | This measure could give rise to a number of new NFM, if poorly designed, lead to the deterioration of the historic environment and potential loss of heritage assets. It could also result in the loss of unknown/buried assets. Uncertain effects have been identified as it will come down to individual scheme level design. |
| **SEA6: Water Environment** | + | L | I | L | I | P | LT | Incorporating NFM can help to improve water quality compared to harder engineering solutions. Many of the mechanisms by which NFM measures help reduce flooding also work to restore natural sediment processes and improve water quality. These can help to mimic natural regulatory processes which can help to maintain and improve water quality. |
| **SEA7: Climate Resilience** | + | L | I | L | I | P | LT | The use of NFMs are likely to help to reduce levels of construction and operational embodied carbon in comparison to harder engineering options. The flood protection offered from these measures will also help to ensure that infrastructure will be resilient to the effects of climate change. |
| **SEA8: Flood Risk** | + | M | D | R | I | P | LT | Positive effects are anticipated in reducing the risk and vulnerability to flooding through the provision of NFM schemes. |
| **SEA9: Transport & Infrastructure** | + | M | D | R | I | P | LT | Positive effects are anticipated in reducing the risk and vulnerability of flooding on critical infrastructure through the provision of NFM schemes. |
| **SEA10: Geology & Soils** | ++ | M | D | R | I | P | LT | By incorporating NFM in land management led projects and working with MTCBC delivery partners, it is likely that a reduction in flood risk will help to enhance and maintain soil resources. It could result in help to improve and restore poor quality land and reduce any detrimental risk to important geodiversity sites. |
| **Potential Cumulative/ Synergistic Effects** | There is potential for positive cumulative effects from the delivery of multiple NFMs through the addition of greenspace, ecological enhancements and habitats. | | | | | | | |
| **Mitigation and Enhancement Measures** | SEA1: NFM should present opportunities for new areas of green infrastructure and green space which can be accessed by the local community. | | | | | | | |

## 2.18 Mineral Extraction

The assessment of the LFRMS measure of mineral extraction is presented in Table 2-18.

**Table 2-18 – Mineral Extraction Measure Assessment**

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA1: Population, Equalities & Human Health** | 0 | | | | | | | No effects identified. |
| **SEA2: Economy** | 0 | | | | | | | No effects identified. |
| **SEA3: Biodiversity** | 0 | | | | | | | No effects identified. |
| **SEA4: Landscape & Townscape** | 0 | | | | | | | No effects identified. |
| **SEA5: Historic Environment** | 0 | | | | | | | No effects identified. |
| **SEA6: Water Environment** | + | L | I | R | R | T | MT | Mining can have adverse effects on groundwater quality. The proposed joined up working between the management of coal tips and the reduction of flood risk, may also help to increase understanding on water quality and could improve water quality. |
| **SEA7: Climate Resilience** | 0 | | | | | | | No effects identified. |
| **SEA8: Flood Risk** | + | L | I | R | R | T | MT | A greater understanding between flood risk and mining could help to reduce the overall vulnerability of flooding from this source. |
| **SEA9: Transport & Infrastructure** | 0 | | | | | | | No effects identified. |
| **SEA10: Geology & Soils** | 0 | | | | | | | No effects identified. |
| **Potential Cumulative/ Synergistic Effects** | No cumulative effects identified. | | | | | | | |
| **Mitigation and Enhancement Measures** | No mitigation or enhancement measures identified. | | | | | | | |

## 2.19 Flood Risk and Climate Change

The assessment of the LFRMS measure of flood risk and climate change is presented in Table 2-19.

**Table 2-19 – Flood Risk And Climate Change Measure Assessment**

| SEA1: Population, Equalities & Human Health | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA2: Economy** | +/- | L | D/I | L | R/I | P | LT | Positive effects are identified through increased flood defences as well as climate change and flood risk awareness workshops for communities. However, if flood defences can no longer be increased and relocation is necessary to manage the future impacts of climate change, there may be negative impacts on the health and wellbeing of the population. |
| **SEA3: Biodiversity** | +/- | L | D/I | L | R/I | P | LT | Positive effects are identified through increased flood defences as well as climate change and flood risk awareness workshops for communities, including business owners. However, if flood defences can no longer be increased and relocation is necessary to manage the future impacts of climate change, there may be negative effects on local businesses and the local economy. |
| **SEA4: Landscape & Townscape** | + | L | I | L | I | P | LT | The incorporation of NFM schemes as part of delivery of this measure will provide multiple benefits to ecosystem functionality and could present opportunities for biodiversity net gain. |
| **SEA5: Historic Environment** | + | L | I | L | I | P | LT | The incorporation of NFM schemes as part of delivery of this measure could provide some protection to MTCBC's townscapes and landscapes by helping to reduce surface flood risk. NFM are likely to be more widely accepted by the community and they can be better incorporated into the natural landscape as well as the urban setting. These measures have potential to therefore, enhance the townscape and landscape setting. |
| **SEA6: Water Environment** | ? | | | | | | | The incorporation of NFM schemes as part of delivery of this measure could give rise to a number of new NFM, and if poorly designed, could lead to the deterioration of the historic environment and potential loss of heritage assets. It could also result in the loss of unknown/buried assets. Uncertain effects have been identified as it will come down to individual scheme level design. |
| **SEA7: Climate Resilience** | + | L | I | L | I | P | LT | The incorporation of NFM schemes as part of delivery of this measure could help to improve water quality compared to harder engineering solutions. Many of the mechanisms by which NFM measures help reduce flooding also work to restore natural sediment processes and improve water quality. These can help to mimic natural regulatory processes which can help to maintain and improve water quality. |
| **SEA8: Flood Risk** | + | L | I | L | R | T | MT | A better understanding of the effects of climate change will help provide improved resilience of infrastructure to the effects of flooding. |
| **SEA9: Transport & Infrastructure** | + | L | I | L | R | T | MT | Minor, positive effects are anticipated through flood risk and climate workshops which may reduce flood risk vulnerability. |
| **SEA10: Geology & Soils** | + | L | I | L | R | T | MT | A better understanding of the effects of climate change will help provide improved resilience of infrastructure to the effects of flooding. |
| **SEA1: Population, Equalities & Human Health** | + | M | D | R | I | P | LT | The incorporation of NFM schemes as part of delivery of this measure could help to enhance and maintain soil resources in and improve and restore poor quality land. |
| **Potential Cumulative/ Synergistic Effects** | No cumulative effects identified. | | | | | | | |
| **Mitigation and Enhancement Measures** | No mitigation or enhancement measures identified. | | | | | | | |

## 2.20 Flood Risk Management Schemes

The assessment of the LFRMS measure of flood risk management schemes is presented in Table 2-20.

**Table 2-20 – Flood Risk Management Schemes Measure Assessment**

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA1: Population, Equalities & Human Health** | + | H | D | L | I | P | LT | It is anticipated that there will be some minor, positive effects on the health and wellbeing of future population in MTCBC as the provision of flood management schemes will help to reduce flood risk from all sources. Depending on the size of the scheme, there could be potential for adverse effects during construction for example, from loss of amenity and noise and vibration. |
| **SEA2: Economy** | + | H | D | R | I | P | LT | It is anticipated that there will be some minor, positive effects on existing and proposed businesses in MTCBC as the provision of flood management schemes will help to reduce flood risk from all sources. Reducing the risk of the flooding will also help to reduce the financial loss from flooding, benefitting the wider economy. Depending on the size of the scheme, there could be potential for adverse effects during construction. |
| **SEA3: Biodiversity** | ? | | | | | | | Uncertain effects are identified. It is not clear how the proposed flood risk management schemes will help protect and enhance ecosystems and biodiversity net gain in MTCBC. Schemes could result in the loss of valuable habitats and species. However, the measure does state that it has the potential to provide protection to areas important to nature such as designated sites. Effects will be very much dependent upon implementation. |
| **SEA4: Landscape & Townscape** | ? | | | | | | | There is potential that hard engineering solutions could adversely affect the townscape and landscape setting. This could be both temporarily during construction but may also have longer term visual amenity effects if designed insensitively. Effects will be very much dependent upon implementation. |
| **SEA5: Historic Environment** | ? | | | | | | | At this stage it is not clear what the measures may entail. There is potential that hard engineering solutions could adversely affect the setting of heritage assets (including unknown buried archaeology). However, the measure does state that it has the potential to provide protection to areas important to culture such as scheduled ancient monuments. Effects will be very much dependent upon implementation. |
| **SEA6: Water Environment** | ? | | | | | | | There is potential for hard engineering solutions to improve the quality of surface and groundwater, through the overall reduction in flooding. However, some measures such as culverts and piling can also have detrimental effects on groundwater quality. Effects will be dependent upon the schemes that come forward. |
| **SEA7: Climate Resilience** | ? | | | | | | | Harder engineering solutions are likely to have high levels of embodied carbon. The use of energy efficient design, including the use of renewables is not known at this stage. |
| **SEA8: Flood Risk** | ++ | H | D | R | I | P | LT | Positive effects are anticipated from the development of flood risk management schemes to help reduce the risk and vulnerability to flooding. |
| **SEA9: Transport & Infrastructure** | ++ | H | D | R | I | P | LT | Positive effects are anticipated from the development of flood risk management schemes to help reduce the risk and vulnerability of critical infrastructure to flooding. |
| **SEA10: Geology & Soils** | ? | | | | | | | The scale of potential schemes and land required is unknown and it could therefore require the loss of valuable agricultural land and important geological sites. |
| **Potential Cumulative/ Synergistic Effects** | No cumulative effects identified. | | | | | | | |
| **Mitigation and Enhancement Measures** | SEA3: Schemes should incorporate the requirements for biodiversity net gain. | | | | | | | |

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| | SEA4/5: Schemes should be well designed and/or well screened to ensure that they have minimal effects on the surrounding townscape, landscape and historic environment.<br>SEA5: Measures should incorporate Construction Industry Research and Information Association's (CIRIA) guidance on SuDS design to ensure high-quality design that will minimise the effects on the historic environment.<br>SEA7: Schemes should incorporate sustainable design measures to reduce overall levels of embodied carbon.<br>SEA10: Schemes should avoid the loss of valuable agricultural land and important geological sites. | | | | | | | |

## 2.21 Flood Risk Asset Register and Record

The assessment of the LFRMS measure of Flood Risk Asset Register and Record is presented in Table 2-21.

**Table 2-21 – Flood Risk Asset Register and Record Measure Assessment**

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA1: Population, Equalities & Human Health** | 0 | | | | | | | No effects identified. |
| **SEA2: Economy** | 0 | | | | | | | No effects identified. |
| **SEA3: Biodiversity** | 0 | | | | | | | No effects identified. |
| **SEA4: Landscape & Townscape** | 0 | | | | | | | No effects identified. |
| **SEA5: Historic Environment** | 0 | | | | | | | No effects identified. |
| **SEA6: Water Environment** | 0 | | | | | | | No effects identified. |
| **SEA7: Climate Resilience** | 0 | | | | | | | No effects identified. |
| **SEA8: Flood Risk** | + | L | I | L | I | P | MT | Some minor positive effects are anticipated as an improved understanding of flood risk will help to reduce the vulnerability of flood risk in the future. |
| **SEA9: Transport & Infrastructure** | 0 | | | | | | | No effects identified. |
| **SEA10: Geology & Soils** | 0 | | | | | | | No effects identified. |
| **Potential Cumulative/ Synergistic Effects** | No cumulative effects identified. | | | | | | | |
| **Mitigation and Enhancement Measures** | No mitigation or enhancement measures identified. | | | | | | | |

## 2.22 Flood Asset Maintenance

The assessment of the LFRMS measure of flood asset maintenance is presented in Table 2-22

**Table 2-22 – Flood asset maintenance Measure Assessment**

| SEA Objective | Significance | Magnitude | Nature of Effect | Spatial Extent | Reversibility | Permanence | Duration | Description of Potential Effects |
|---|---|---|---|---|---|---|---|---|
| **SEA1: Population, Equalities & Human Health** | + | L | I | L | R | T | MT | Minor, positive effects are anticipated from flood asset maintenance, by reducing the risk of flood to the current and future population , which would have indirect, positive impacts their health and wellbeing. The measure also aims to improved amenity benefit of well-maintained assets, which could include additional community benefits. |
| **SEA2: Economy** | + | L | I | L | R | T | MT | Minor, positive effects are anticipated from flood asset maintenance, by reducing the risk of flood and therefore providing some minor protection to local businesses and business owners. In addition, better maintenance could help to reduce the financial loss from flooding, benefitting the wider economy. |
| **SEA3: Biodiversity** | 0 | | | | | | | No effects identified. |
| **SEA4: Landscape & Townscape** | 0 | | | | | | | No effects identified. |
| **SEA5: Historic Environment** | 0 | | | | | | | No effects identified. |
| **SEA6: Water Environment** | 0 | | | | | | | No effects identified. |
| **SEA7: Climate Resilience** | + | L | I | L | R | T | MT | Better maintenance of assets could ensure that the lifespan of assets is increased, reducing the need for replacement. They could also increase the overall efficiency of the measure. This could remove the need for costly and carbon intensive solutions. |
| **SEA8: Flood Risk** | + | L | I | L | R | T | MT | By regularly maintaining flood assets, the vulnerability and risk of flooding is reduced. |
| **SEA9: Transport & Infrastructure** | + | L | I | L | R | T | MT | Better maintenance of assets could ensure that critical infrastructure is better protected and maintained, particularly as this measure includes highway drainage systems. |
| **SEA10: Geology & Soils** | 0 | | | | | | | No effects identified. |
| **Potential Cumulative/ Synergistic Effects** | No cumulative effects identified. | | | | | | | |
| **Mitigation and Enhancement Measures** | No mitigation or enhancement measures identified. | | | | | | | |

1 Capital Quarter
Tyndall Street
Cardiff
CF10 4BZ

**wsp.com**