

Strategic Asset Management Plan

Summary for the Core Valleys Lines

May 2022



TRAFNIDIAETH CYMRU
TRANSPORT FOR WALES

A summary of our first Strategic Asset Management Plan

Welcome to our first Strategic Asset Management Plan. We'd welcome your thoughts and contributions to our next plan, so please get in touch. <https://tfw.wales/help-and-contact>



Foreword

Alexia Course

Transport Operations Director



In March 2020, Transport for Wales (TfW) became the owner of the Core Valleys Lines (CVL) rail infrastructure assets. Since the transfer of assets, TfW has been responsible for the maintenance and management of track, signalling, bridges, earthworks and drainage.

Our responsibilities will likely grow as we progress and our teams are dedicated to ensuring the safe and efficient management of our assets to create a better rail network.

Our first Strategic Asset Management Plan (SAMP) highlights our asset management objectives and informs our stakeholders, partners, sponsors, and customers of our duty to maintain and upgrade our infrastructure assets. Our SAMP is a key component of our asset management framework and outlines the actions that are required to ensure that our asset management objectives are achieved and align with our organisational objectives.

The Welsh Government has set out its vision and requirements in Llwybr Newydd: the Wales Transport Strategy 2021, in which the transformed rail network plays a vital role.

We have significant physical infrastructure work to do to overhaul our rail network to get it ready for our new faster, greener, more frequent and resilient rail service.

We're dedicated to minimising our impact on the environment and climate change and our assets play a key role in helping us achieve our goals.

I want to assure you that while we're working hard to improve the network, we're doing all we can to minimise disruption caused by the work we'll be undertaking and that we'll regularly engage with our communities about the progress we're making as work continues.



Philip Rawlings

Head of Rail Asset Management



I am pleased to introduce TfW's first SAMP which describes our strategic approach to managing our infrastructure assets.

The SAMP has a pivotal role in the asset management document hierarchy and outlines the high level, strategic actions that are required to ensure that the asset management objectives are achieved.

This gives both our organisation and our suppliers certainty that asset management activities are contributing effectively to the achievement of overall organisational objectives.

TfW is a relatively new asset owner and our portfolio currently includes a wide variety of assets. This includes track, signalling, bridges, earthworks and drainage although that is likely to evolve in the future. Data is an important asset itself, and is key to understanding our physical assets and how we use them, both in the short and longer term.

Asset management is a balance of available investment against asset performance and risk and the asset data and suitable tools and skills are needed to ensure we get that balance right.

A large part of the management of our assets over the long term is going to be understanding and mitigating the impact of climate change. TfW is already taking significant steps on de-carbonisation, through electrification of the CVL, however long-term adaptation requirements for the CVL and resilience of our assets needs careful consideration.

Introduction

In March 2020, the railway infrastructure that makes up the CVL transferred ownership from Network Rail (NR) to Tfw.

With this change of ownership, we became responsible for the management of the CVL rail infrastructure assets and for the delivery of our ambitious transformation programme.

We're enhancing the CVL network to accommodate our new greener, faster and more frequent services and providing a modern, turn-up-and-go service between Treherbert, Merthyr Tydfil, Aberdare, Rhymer and Cardiff Bay.





The assets and key statistics of the Core Valleys Lines



90
platforms



1
tunnel



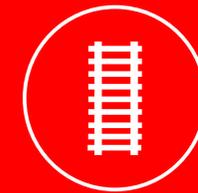
284
bridges



56
stations



2,117
pieces of
telecoms equipment



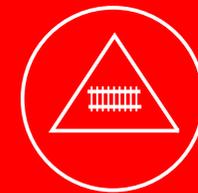
180km
of track



3,214
drains

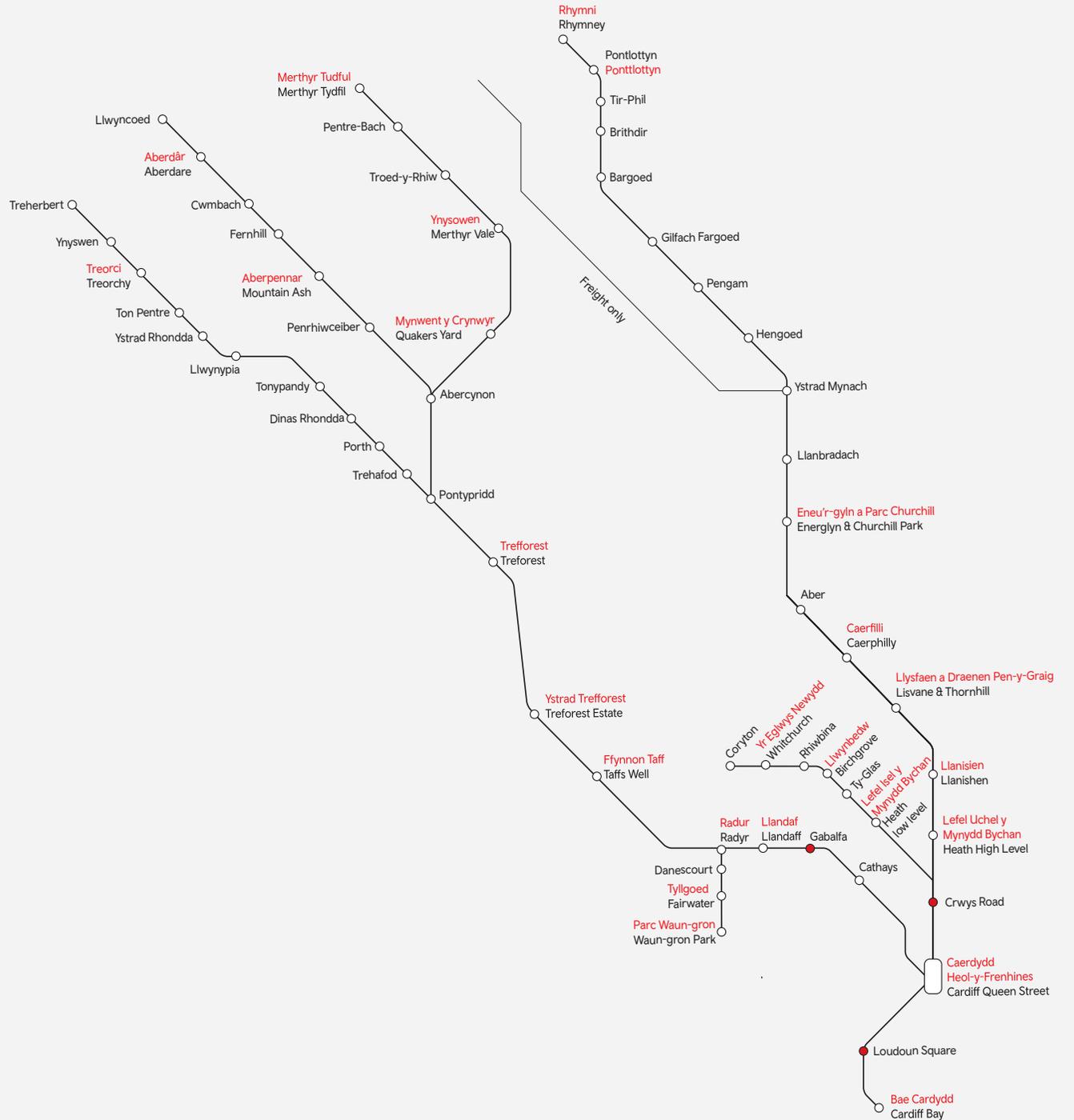


150km
of earthworks



34
level crossings

Core Valleys Lines network after transformation



● Potential new stations



To meet our management responsibilities, we've procured an Infrastructure Manager (IM) for day-to-day asset management, such as inspections and maintenance, while retaining responsibility for investment decisions and the long-term stewardship of the assets.

We're an 'informed infrastructure client' of the services provided by the IM while retaining our own set of asset management responsibilities. This is a unique arrangement in the UK, which relies on good collaboration, and a 'joined-up' approach, between TfW and the IM. The IM services are provided by Amey Infrastructure Wales Limited (AIWL).

The Welsh Government has set out its vision and requirements in Llwybr Newydd: the Wales Transport Strategy 2021, in which the transformed CVL plays a fundamental role.

At the highest level, the Welsh Government requires the CVL to be safe, reliable and managed sustainably:

- Safe for passengers, employees and the public at large.
- Reliable, so that rail travellers can have confidence in the rail timetable. This is particularly important in the context of multi-modal journeys, where the reliability with which connecting services can be made is important.
- Managed sustainably, to ensure economic use of resources, longevity of the railway and long-term value for the taxpayer and traveller.

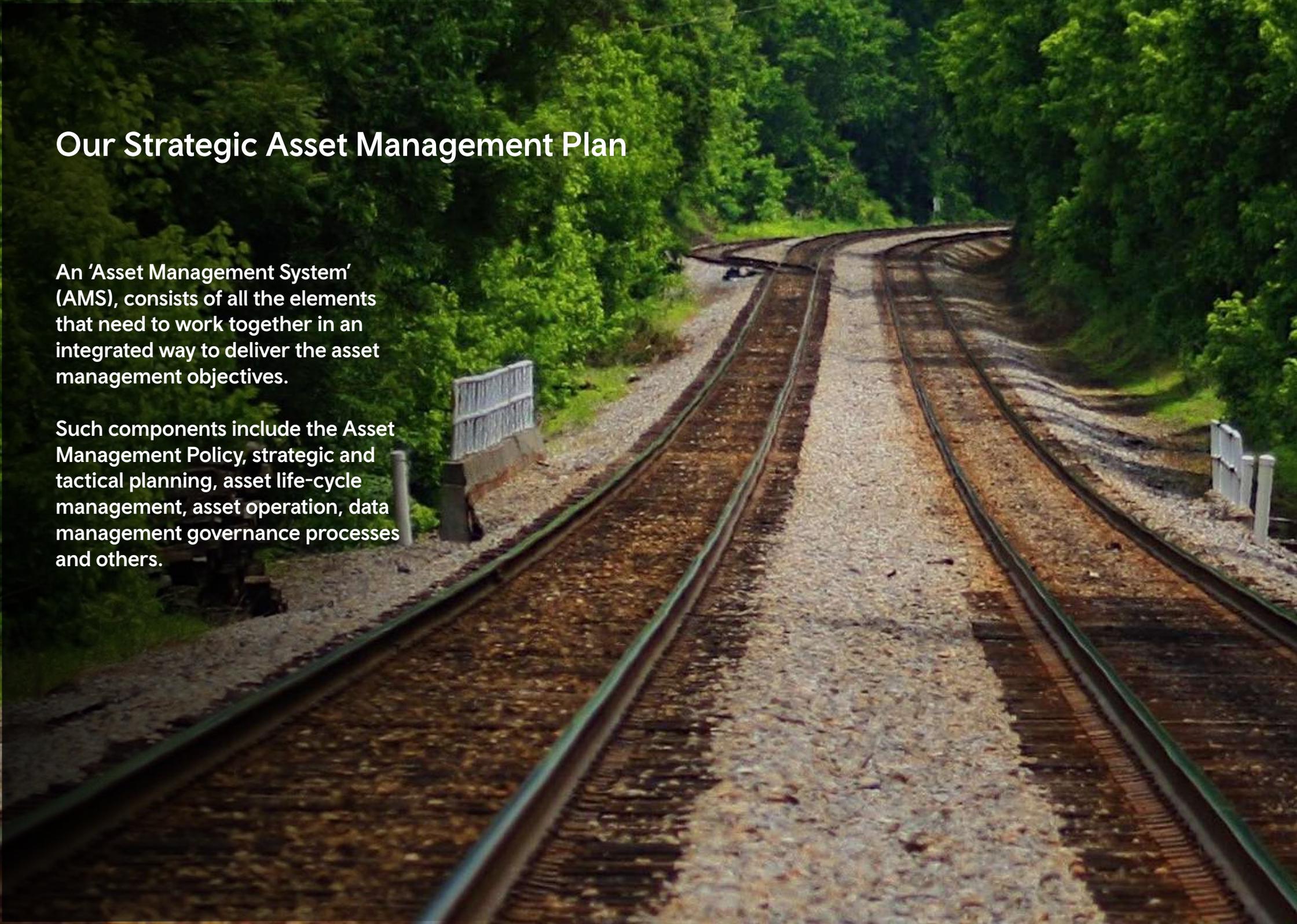
What is asset management?

The Standard ISO 55001 ('Asset Management Systems – Requirements') defines asset management as 'the coordinated activity of an organisation to realise value from its assets'.

Assets exist to deliver a service, and the starting point in any asset management strategy is to acquire an understanding of customers' and other stakeholders', needs.

The Welsh Government funds the investment in, and asset management of, the infrastructure. It also funds the trains and associated passenger services.

Our Strategic Asset Management Plan



An 'Asset Management System' (AMS), consists of all the elements that need to work together in an integrated way to deliver the asset management objectives.

Such components include the Asset Management Policy, strategic and tactical planning, asset life-cycle management, asset operation, data management governance processes and others.



Our Asset Management Policy

Our Asset Management Policy objectives set out how the CVL will be managed. It's aligned to our purpose and the Welsh Government's vision:

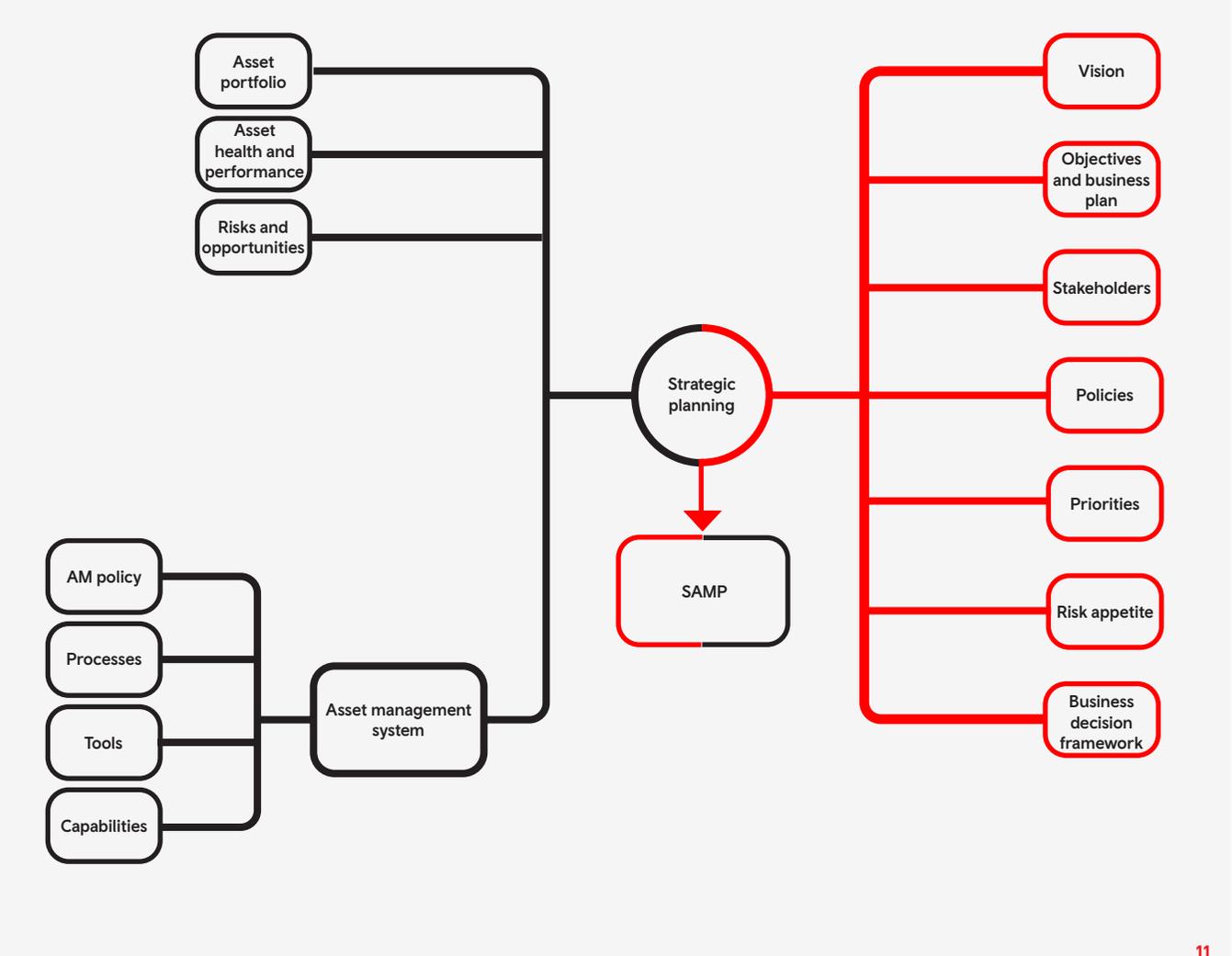
1. All asset management activities will be fully compliant with relevant legislative and statutory requirements.
2. We'll strive to reduce safety risks for passengers, the public, our workforce and the workforces of our contractors and their sub-contractors.
3. We'll promote good health and well-being for our workforce and the workforces of our contractors.
4. We'll provide a supportive and motivating working environment where our colleagues understand their role and objectives and are able to grow and succeed.
5. Where we act as an 'Informed Infrastructure Client' of asset management services, we'll ensure value-for-money through strong leadership, contract management and effective governance.
6. We'll work with our contractors to develop, operate, and continuously improve, a single, integrated Asset Management System, consistent with ISO55001.
7. We'll develop and maintain a SAMP, which sets out the funded and aspirational requirements of the Welsh Government and other stakeholders. Our SAMP will provide a clear line of sight between our Business Plan and asset management activities.
8. We will strive to understand the complex relationships between asset performance, risk and level of spend, so that the Welsh Government can make an informed decision on funding.
9. Assets, systems, and networks will be managed in accordance with sustainable development principles and the Well-being of Future Generations (Wales) Act, 2015.
10. We'll develop, maintain, and execute an evidenced and proportionate response to the challenges of Climate Change.
11. We'll drive a progressive transition from reactive asset management to a 'predict and prevent' regime, underpinned by a robust Risk-Based Management Framework consistent with our principles.
12. We'll improve our asset knowledge, understanding and decision-making capability using cost-beneficial physical and digital technologies, insightful analyses, and knowledge-sharing with other high-performing organisations.

Translating business needs into asset requirements

This is our first SAMP and is dedicated to the management of CVL assets.

In future it could readily be extended to accommodate additional assets. The SAMP covers the 10-year period from asset transfer date. Normally, a SAMP would cover a longer period. This shorter period of 10 years was considered appropriate at this time while TfW and the IM develop their respective knowledge of the assets.

The function of the SAMP is to provide context and strategic direction for the annual asset management planning process.





Strategic Asset Management Plan objectives

Our SAMP will fulfil the following objectives:

1. To provide a clear line of sight between stakeholder requirements and asset management activities on the ground.
2. To provide advice and guidance to the IM to support the development of Asset Management Plans (AMPs).



3. To drive improvements in how we fulfil our role as an 'informed infrastructure client' of the services provided by the IM, including:
 - Ensuring, and improving, visibility of the assets and the IM's activities.
 - Filling gaps in data that impact asset management effectiveness and risk.
 - Developing our digital environment and analytical capability in order to build asset knowledge and to support our Informed Client and Asset Steward roles.
 - Developing and operating effective governance over the IM's and our own business.
4. To determine an appropriate approach to Climate Change and take early steps.
5. To improve asset management decision making, ensuring decision frameworks accommodate the Well-being and Future Generations (Wales) Act 2015 appropriately.
6. Contribute to, and ensure, CVL benefits from rail research programmes and appropriate technologies.
7. To capture the foregoing within a continuously improving AMS, in line with ISO 55001.

Our key stakeholders

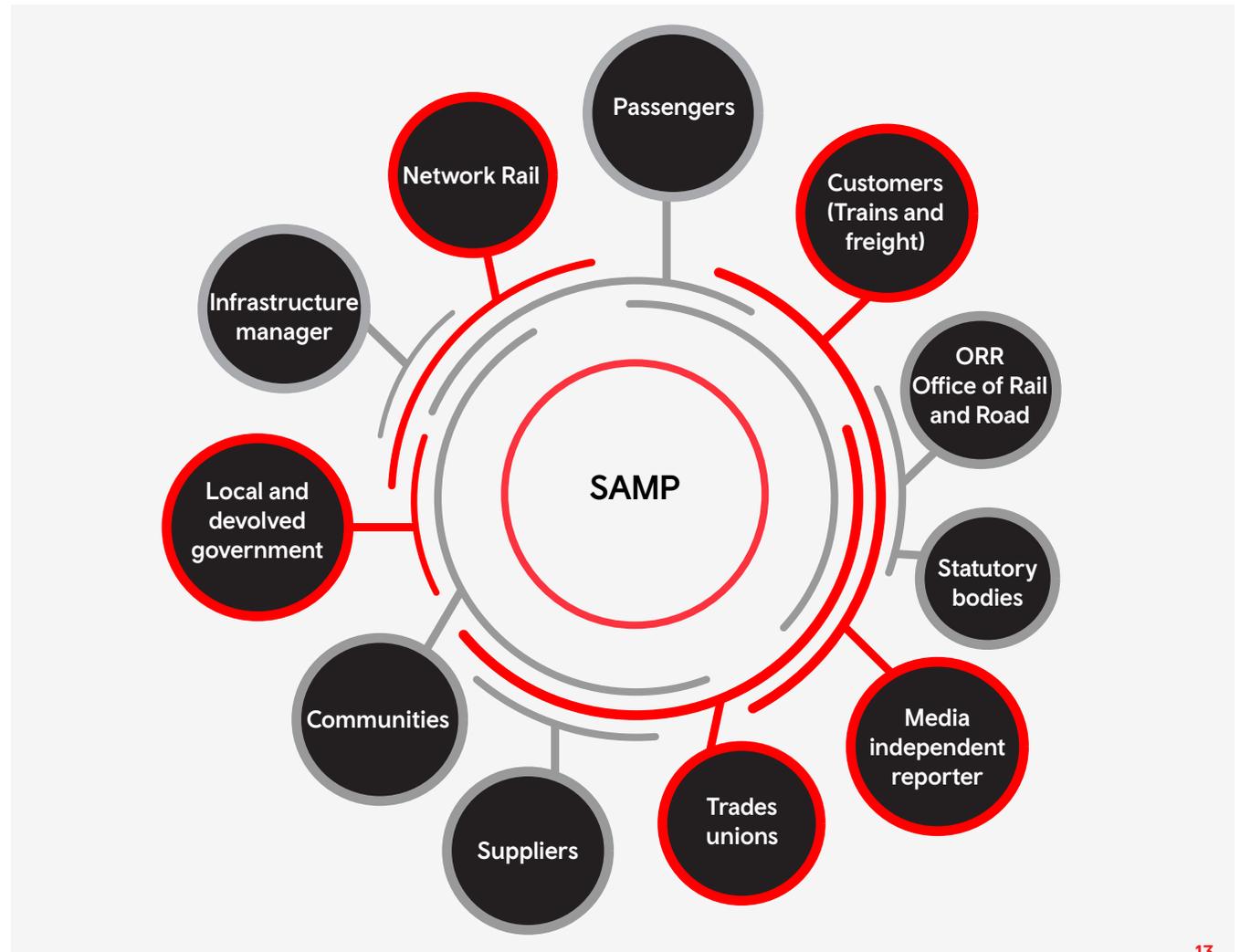
Our vision

To create customer-focused services through a safe transport network of which Wales can be proud.

Our purpose

To provide sustainable transport service that keeps Wales moving.

Our vision and purpose aligns with Llwybr Newydd: the Wales Transport Strategy 2021, which sets out aspirations for the wider transport network.





Our SAMP has been informed by engagement with TfW' leadership, departmental heads, and engineers within our Infrastructure Owner (IO) team.

By drawing on stakeholder knowledge within TfW, this engagement provided us with an initial view of stakeholder perspectives and has enabled us to develop our first SAMP.

We now want to formally to engage with our stakeholders so that the next version of our SAMP, which is planned for 2022, benefits from their direct input, views and insight.

If you'd like to contribute please contact engagement@tfw.wales. We'll send you a copy of the stakeholder analysis we've carried out to date for your review and will provide a template for your input.



Our approach

Our initial priorities are primarily concerned with addressing immediate issues, which includes issues that were inherited at asset transfer.





Our SAMP considers the CVL assets along with a range of other topics and issues, as set out in the table. The principal asset classes, together with key facts, were summarised earlier.

For each of these asset classes and major topics, our SAMP considers the current state and then sets out vision states spaced out over three time points: 2021, 2024 and 2029. These time points reflect the fact that the analysis for our SAMP was conducted during 2020.

The CVL Transformation Project will ensure that the infrastructure has the capability of meeting the demands of a significantly increased train service, and the asset management developments and activities set out in our SAMP will ensure that the CVL assets will be managed safely, economically and sustainably.

SAMP topics		
Executive summary	Track	Asset management system: Maturity Strategy and planning Asset life cycle People and organisation Governance Risk
Asset policy	Off track	
SAMP objectives	Structures/Ops property	
Stakeholder analysis	Command and control systems	
Safety	Level crossings	
Demand	Geo-technical	
Efficiency	Electrification and plant	
Infrastructure performance	Land	Suppliers
Standards	Technology and data	Climate change and environment

Key issues

Each of the asset classes has different requirements, based on their role and the state when the assets transferred from Network Rail to TfW. The asset class visions are therefore quite detailed and asset specific.

Over the next pages, we set out some of the key challenges and opportunities that have been identified in our SAMP. These tend to be high-level and relate to the CVL asset portfolio as a whole.





1. Climate change

The operation of the railway is impacted today by flooding, high winds, and extreme high and low temperatures. All these factors will be exacerbated by climate change.

- Flooding of the railway is a particular problem in the valleys due to geography and increasing rainfall. To address flooding, a first step is to understand the drainage systems in the valleys.

A good understanding of the railway drainage systems is necessary – but it is not sufficient as there is also a need to understand the role of rivers and the interface with drainage systems on the land surrounding the railway.

An important early step will be to improve our data on drainage, and to collaborate with Natural Resources Wales, Network Rail, academia, and other stakeholders to develop a more holistic understanding of drainage systems.

- We have initiated discussions with Cardiff University to explore the possibility of developing a model of the drainage systems that impact the CVL, and to deploy this to support asset management decision-making and climate adaptation planning.

- Adaptation strategies will vary; for example, in the case of electrical equipment, they may involve improved protection from water ingress or the raising of equipment off the ground.

For the drainage system, it may prove necessary to increase its capacity and capability by, for example, installing wider diameter pipes. Such a strategy could most readily be implemented at the time of asset renewal.

However, until we have developed our understanding of the drainage system, and the pace at which climate change will place increasing demands on this system, we don't know whether linking capacity

improvements with normal renewal times will address this problem quickly enough.

2. Working within an allocated budget

As is so often the case for companies that have a portfolio of assets to manage over the long term, Network Rail has worked within an allocated budget for many years.

This has led to the need for prioritisation and some difficult choices about where to spend money. The cumulative effect of years of low prioritisation is that the condition of parts of the CVL is relatively poor.

An important asset management challenge is to progressively improve the condition of such assets to an appropriate and sustainable level.

3. Asset data

During asset transfer, there were significant areas where the associated asset data was incomplete and/or the data quality was not fit for purpose.

Complete and good quality data sits at the heart of objective decision-making, and our SAMP places high importance on this asset data 'gap' being filled as quickly and efficiently as possible, especially for those assets with the least complete data.

4. Transformation

The transformation project represents a significant investment. It will lead to a doubling of train services, together with the introduction of a new fleet of electric vehicles.

From an asset management perspective, transformation creates several challenges and opportunities. For example, it is important to align the project with day-to-day asset management activities to avoid work conflicts and duplication. Adopting a collaborative approach will help ensure that opportunities for efficiencies are realised.

From an opportunity perspective, some of the new trains will be fitted with sophisticated track monitoring equipment, which will enable the provision of rich and up-to-date data to support asset management.



5. Technology

The potential for improvements in the efficiency and effectiveness of asset management from carefully chosen technologies is considerable.

In addition to mechanisation, such as track laying equipment, the opportunities stemming from 'digital enablement' are increasingly attractive as a stream of new innovations become available and technology prices fall.

The general class of technologies referred to as the 'Internet of Things' (IoT) includes intelligent instruments and sensors that can greatly improve our ability to understand asset condition and behaviour.

In the case of bridges, traditional inspection techniques have relied on 'static' examinations. However, by carefully distributing low-cost accelerometers around the bridge, we believe it will be possible to develop an understanding of

how a bridge responds to the dynamic loading of trains, wind etc., thereby potentially identifying structural issues that would not otherwise be detected.

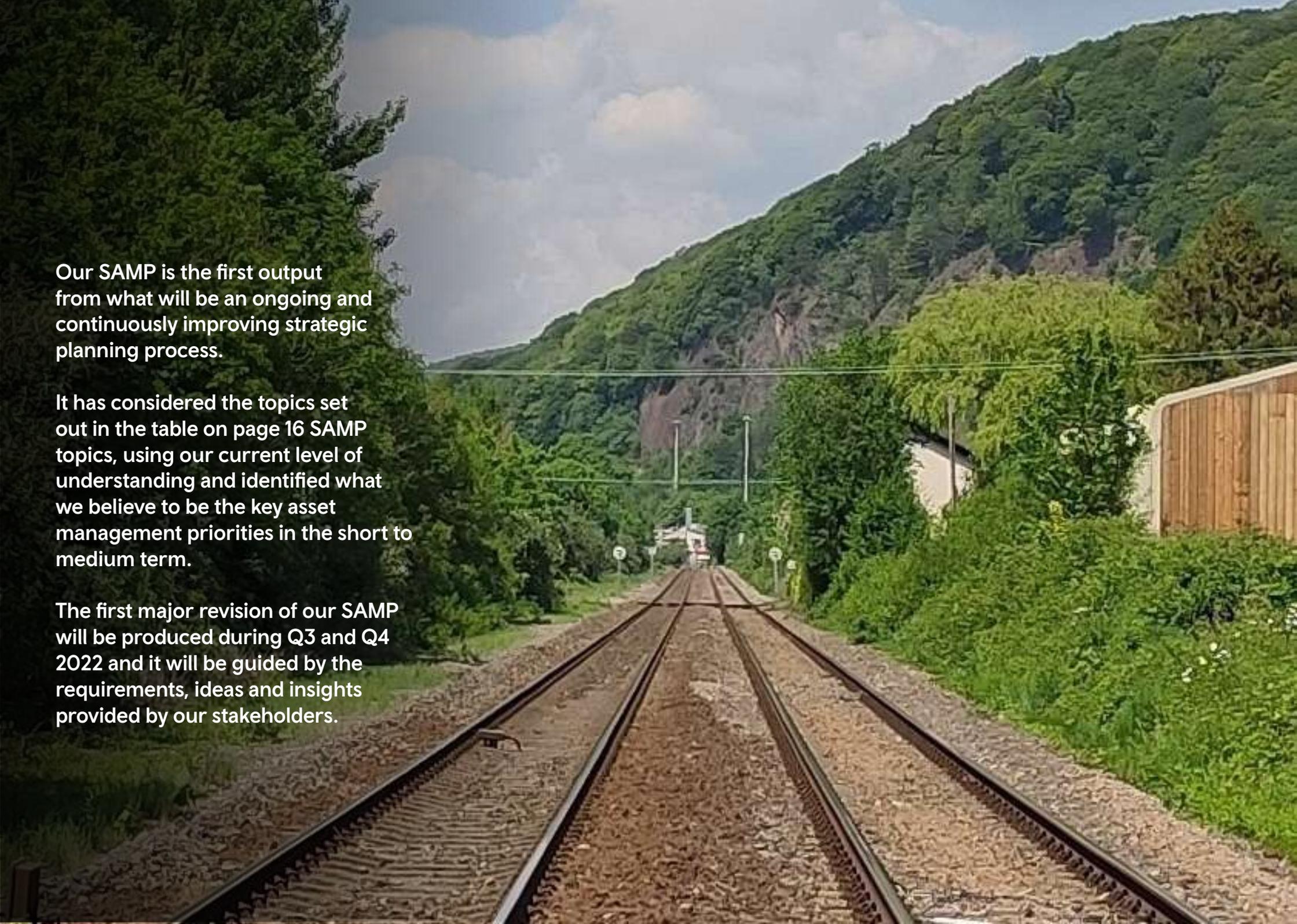
In a similar way, the SAMP also identifies the value that IoT sensor technologies such as stress gauges and water level meters could bring to earthworks and drainage.

The scope of digital enablement within asset management is very wide and continues to widen. Drones can play a key role in cost-effective asset surveillance and data collection.

Artificial Intelligence (AI) can assist by automating labour-intensive pattern-recognition activities, such as analysing videos to spot issues on and around the track.

AI will also have an important role in the development of our understanding of asset degradation and performance. Many

of the future improvements in the asset management of the CVL will be as a result of the collection and smart analysis of richer and more dynamic data sources.



Our SAMP is the first output from what will be an ongoing and continuously improving strategic planning process.

It has considered the topics set out in the table on page 16 SAMP topics, using our current level of understanding and identified what we believe to be the key asset management priorities in the short to medium term.

The first major revision of our SAMP will be produced during Q3 and Q4 2022 and it will be guided by the requirements, ideas and insights provided by our stakeholders.



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