

# Integration of Circular Economy principles into road infrastructure projects

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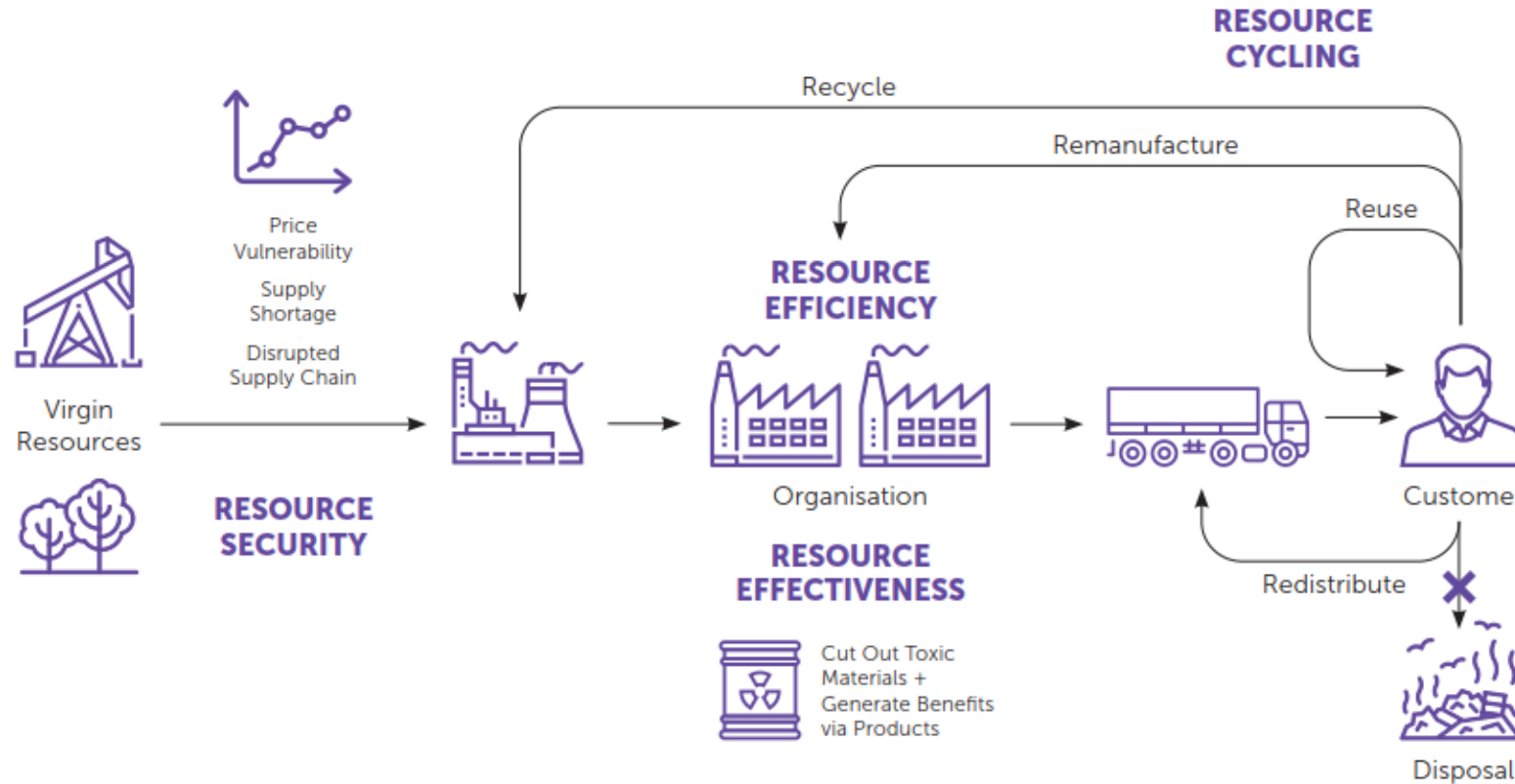
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# The Circular Economy

*“A circular economy is one that is restorative by design, and which aims to keep products, components and materials at their highest utility and value, at all times.”*

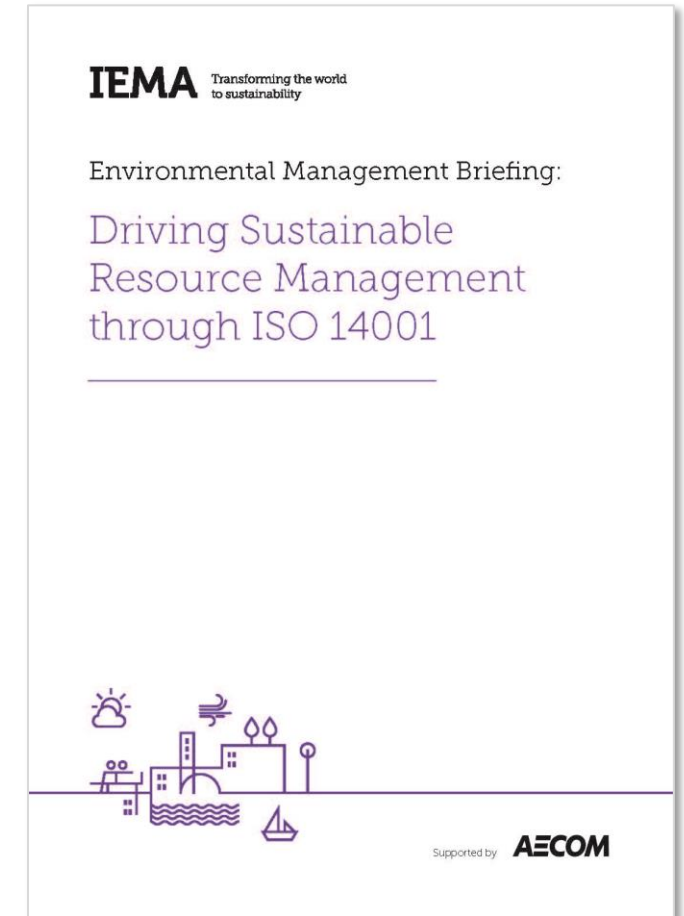
Ellen MacArthur Foundation, 2013

# The Circular Economy



## Resource Management – Working Towards a Circular Economy

From IEMA, Environmental Management Briefing: Driving Sustainable Resource Management through ISO 14001 (2017)





# The Circular Economy



## LINEAR ECONOMY

Resource  
input

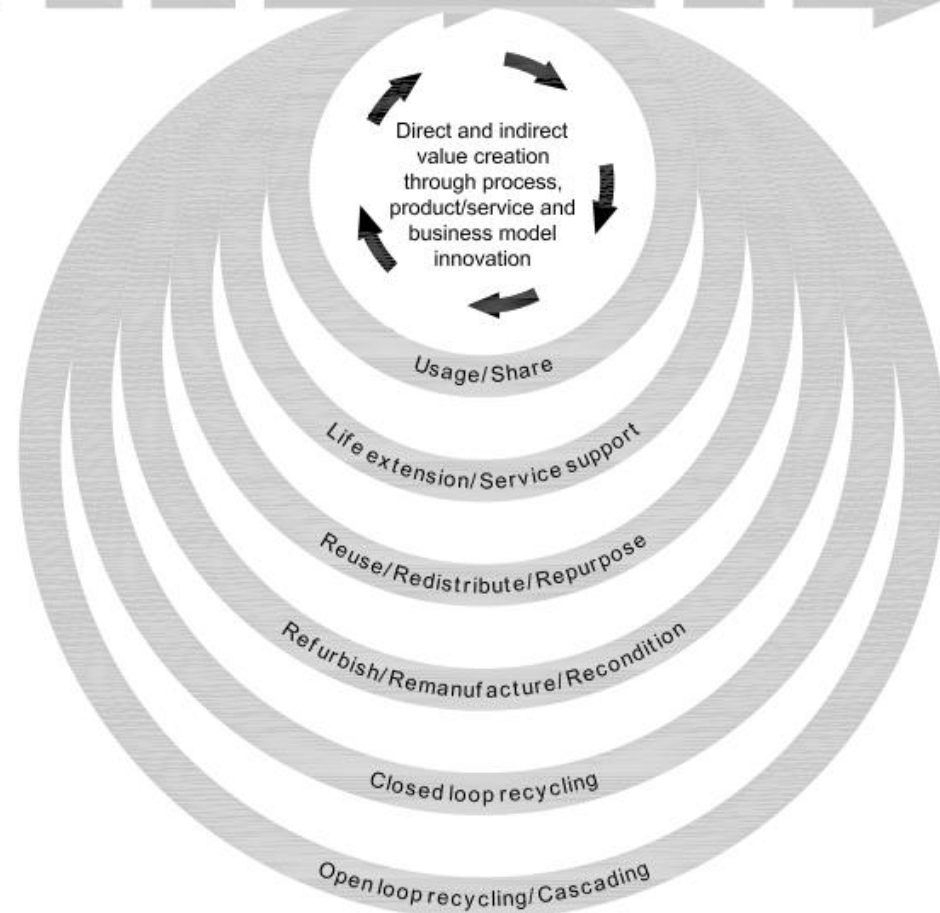
Make/use/dispose

Waste

## CIRCULAR ECONOMY

Minimal and  
responsible  
resource  
inputs

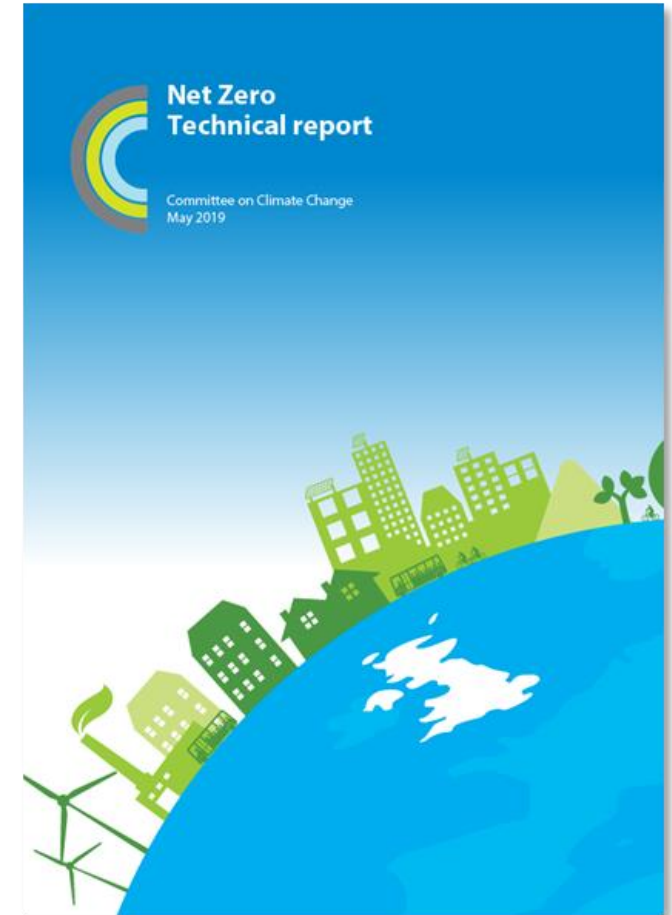
Minimal  
resource  
loss/waste



# Key benefits of the circular economy

- Improved environmental performance
- Improved delivery of service to customers:
- Secure supply of materials at a reasonable and stable price
- Creation of opportunities for new business

Benefits such as these mean that the circular economy is of interest to many infrastructure providers, including Highways England



# Highways England

- Responsible for motorways and major trunk roads in England
- Under the Government's Road Investment Strategy 2 deliver a programme of investment
- The SRN represents two percent of all roads, but about a third of all traffic and two thirds of all HGV traffic





# Highways England - Aims

We work hard to make sure our road network is:

- Free flowing
- Safe and serviceable
- Accessible and integrated

We further aim to:

- Support economic growth
- Ensure our activities result in a long term and sustainable benefit to the environment



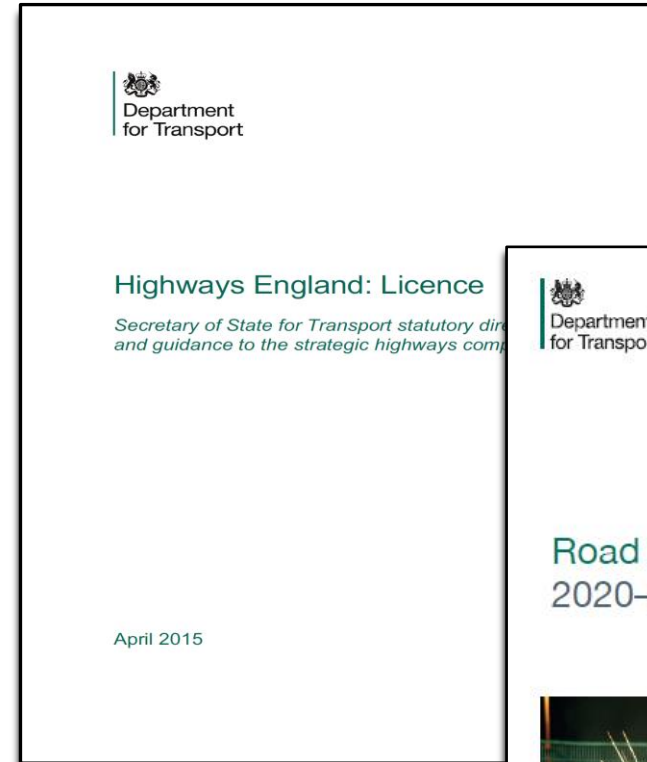
# Highways England – Circular Economy Drivers

As a government company we need to operate within the expectations of government

Circular economy:

- Aligns to License guidance to ‘factor carbon into design decisions’ and to ‘ensure the best practicable environmental outcomes... while working in the context of sustainable development and delivering value for money’

- Aligns to RIS2 performance indicators, e.g. on supply chain carbon and cost performance





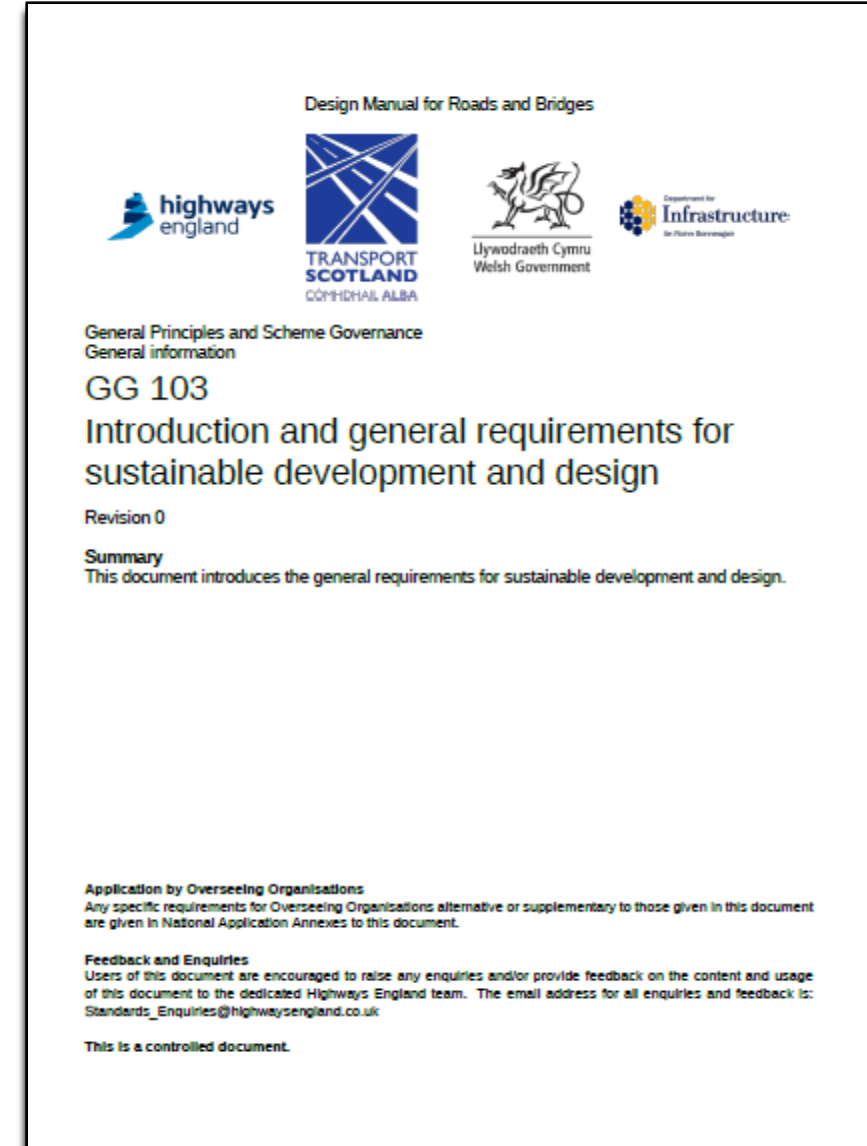
# Highways England - Corporate Commitment

- Manufactured Capital - circular economy' is one of the five key elements of Highways England's Sustainable Development Strategy
- Includes high level vision and ambition for circular economy
- Supported by an action plan with commitment to demonstrate circular economy principles within pilot projects



# Highways England – Circular Economy in Standards

- We updated our Design Manual for Roads and Bridges (DMRB) to include circular economy
- GG103: Introduction and General Requirements for Sustainable Development and Design
- 12 goals of sustainable development for all design, including ‘be resource efficient and reflect a circular approach to the use of materials’
- LA110: Material Assets and Waste requires evidence of a series of design and mitigation measures for material assets and waste in assessment
- ‘Shall’ requirements and ‘Should’ advisories will ensure that circular economy principles become embedded in project design



# Influence and Opportunities



- Design plays a critical role in the shift to a circular economy by influencing the way we make, consume and dispose of products.
- Ideally sustainability should be embedded as early as possible.
- Many decisions with resource implications throughout the life of a scheme occur during design.
- Integrating circular economy into standards and focusing on design stages of projects has been particularly important.



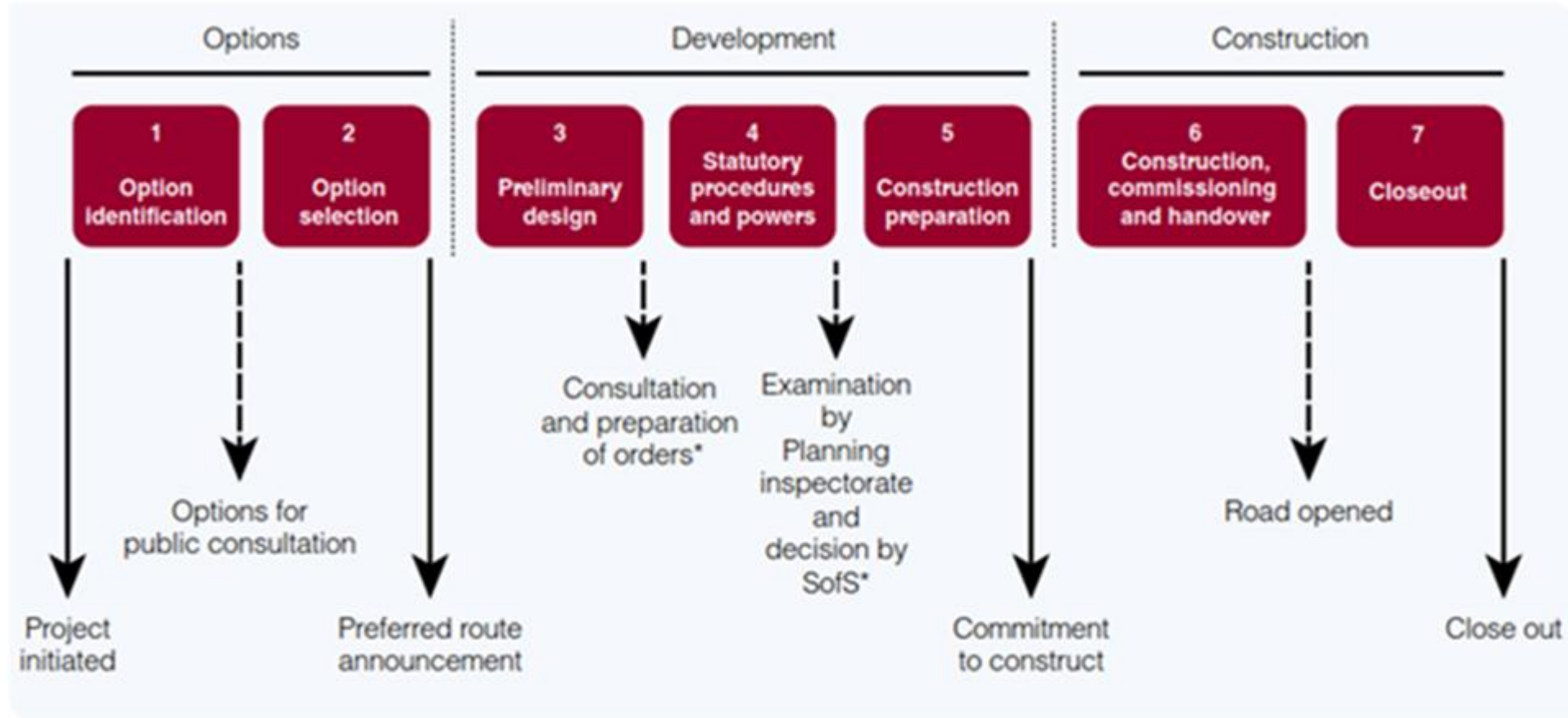
## Highways England's approach to the circular economy

1. Minimising demand for primary resources and maximising the reuse of resources already in use on the network. Reutilising resources in as high a value applications as is possible.
2. Being innovative; working with suppliers to find new ways to deliver a more resilient and adaptable network – seeking efficiency and value for money.

# Highways England's approach to the circular economy

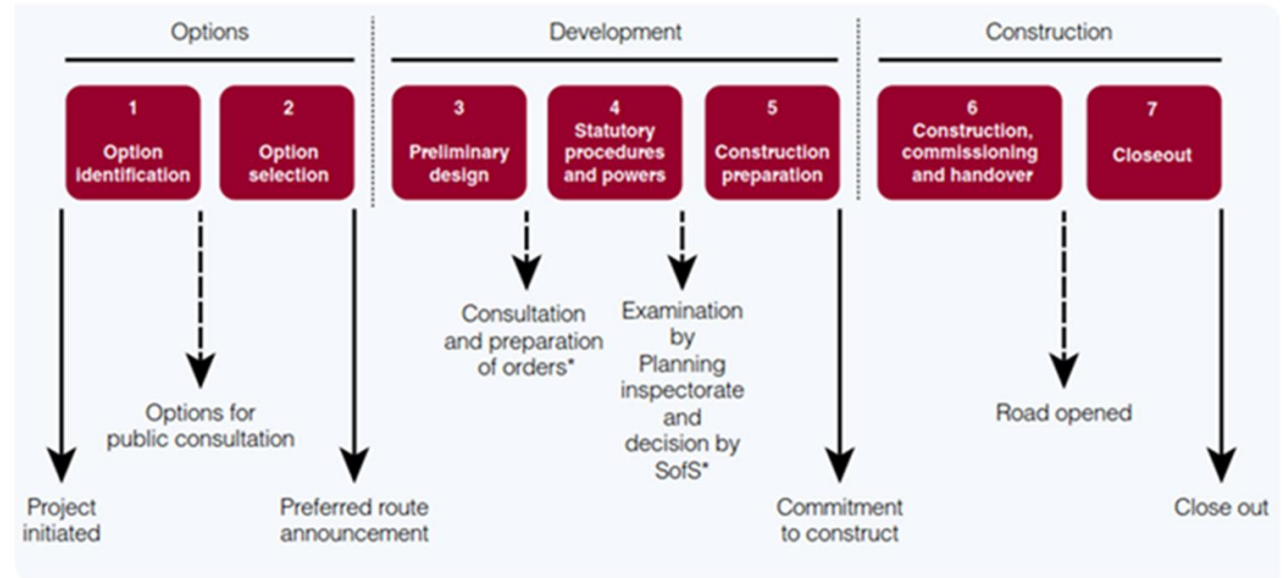
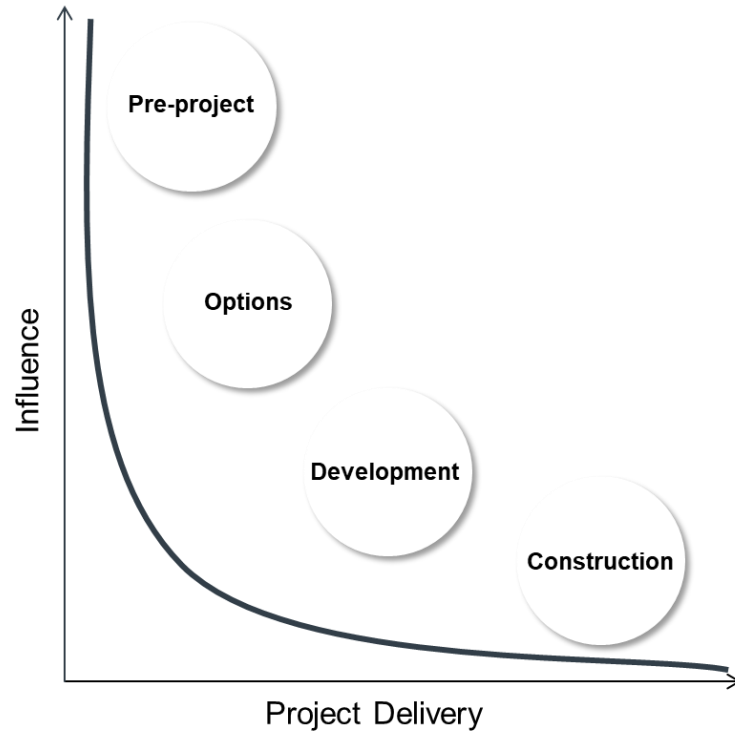
3. Working to achieve security of supply; working with others to improve the stability and predictability of demand for high performance products and services. Enabling suppliers to invest in innovative approaches and secure long-term partnerships with wider supply networks, their staff and wider communities;
4. Supporting the objectives of Biodiversity 2020, seeking to reverse biodiversity loss and, in the longer term, delivering biodiversity gains; and
5. Adoption of a natural capital approach to capture the value of the off road land holding.

# Highways England Circular Economy Pathfinder Projects





# Circular Economy Pathfinder Projects



# The A303 Circular Economy Pathfinder Project – Stage 3

Stage 3, Sept 2017 – June 2018:

- Raise awareness
- Identify and record opportunities
- Identify and collaborate with stakeholders
- Identify actions to facilitate integration of opportunities within scheme development



# The A303 Circular Economy Pathfinder Project – Stage 4

July 2019 – February 2020, as stage 3 and:

- Identify actions to facilitate integration of opportunities within scheme development
- Support the consideration of circular economy during procurement
- Support the consideration of metrics for the monitoring and evaluation of the Scheme's net benefit





# The A303 Circular Economy Pathfinder Project – Stage 5

Starting March 2020, as stage 4 with focus on:

- Evaluation of contractual clauses
- Application of circular economy metrics
- Working with contractors to identify and help realise new opportunities.



# The A14 Circular Economy Pathfinder Project

- First pathfinder project at A14 Cambridge to Huntingdon Scheme;
- 'Design for Resource Efficiency' workshop to identify opportunities through design;
- Development of an Integrated Delivery Team Earthworks Strategy.





# The A303 Circular Economy Pathfinder Project





# The A303 Circular Economy Pathfinder Project





# Circular Economy Opportunities



# Summary

- 1) Ensure everyone speaks the same language and understands the rationale and objectives.
- 2) Identify and work with the key stakeholders.
- 3) Ideas / opportunities don't have to be original to have value.
- 4) Look for opportunities to share learning between projects.
- 5) It's going to take time and the 'right approach' will evolve over time.

# Further Opportunities for Circular Economy

**Circular economy has a key role to play in achieving Net Zero carbon and enhancing natural capital**

- Highways England already monitor and report on the carbon associated with construction, including the embedded carbon in materials
- The Committee on Climate Change has recognized the key role that circular economy plays in reducing carbon
- Working with natural cycles will help deliver future sustainability benefits, such as biodiversity net gain

**Highways England cannot move to the circular economy in isolation**

- Increasingly we must work in collaboration with others to deliver circular economy gains
- For example, Highways England work with other infrastructure providers through MIROG





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