

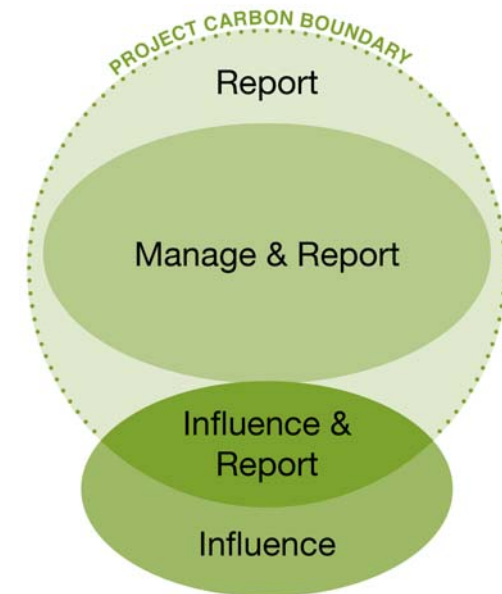
Carbon Management Framework for Major Infrastructure Projects

This framework is a first step towards effective, whole-life management of carbon in major infrastructure projects. Companies and groups that use the framework will be helping the UK achieve its carbon reduction targets whilst delivering long-term assets more efficiently.

The framework is designed to help clients or project leaders to tailor their processes towards the identification, management and reduction of carbon within their projects. The document guides the user through a project's lifecycle, identifying and understanding:

- Who the project participants are and their contribution to the project carbon;
- Defining the project boundary to decide which carbon sources to consider;
- The categorisation of carbon within the project boundary to identify where carbon can be managed, influenced and reported;
- The quantification of carbon;
- Carbon management and reduction strategies; and
- Creating a feedback loop for lessons learnt and information sharing.

The project framework aligns itself to the project management processes most commonly used in road and rail infrastructure projects. The framework considers **whole-life carbon** by managing carbon in the pre-design, design and construction activities, whilst continually considering the carbon that also arises during the maintenance, operation, use and decommissioning activities.

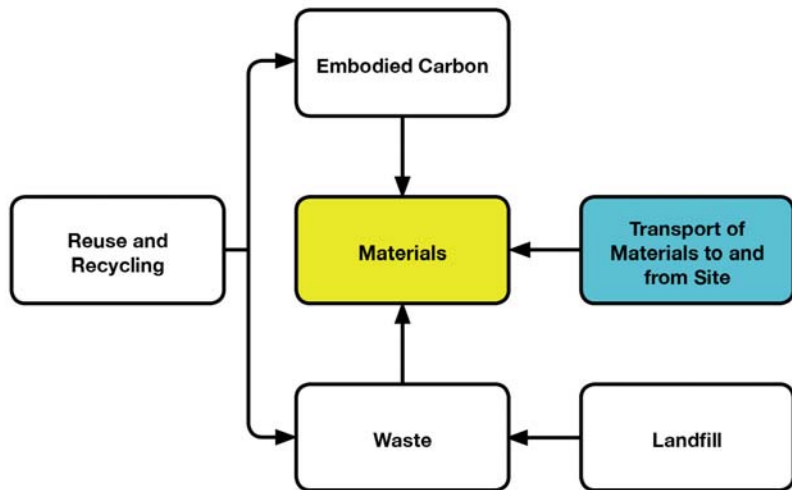


The focus must then be on the most significant, most controllable and most reducible carbon emissions associated with the project in order to maximise carbon emission reductions. The figure above demonstrates categorisations of how carbon can be **managed, influenced or reported**.

Comprehensive and consistent

The framework provides guidance on developing a carbon boundary to identify which sources of carbon should be considered for carbon reduction. Setting the boundary is in accordance with the GHG Protocol and accounts for Scopes 1, 2 and 3.

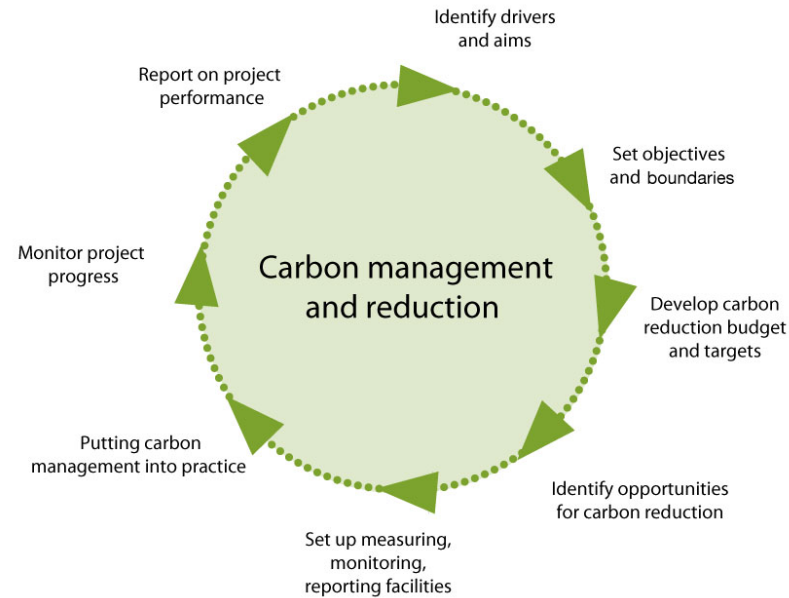
The quantification of carbon is based upon five 'carbon spiders' that represent key project components: materials; plant and equipment; utilities; change in land use; and transport. The carbon spiders enable a project to be broken down into manageable parts identifying how carbon sources can be categorised and what carbon sources should be considered for quantification. This allows a carbon forecast to be undertaken, with carbon assessments undertaken to help refine the anticipated carbon emissions.



Using the carbon spiders to break down a full project and quantify different parts enables carbon opportunities to be highlighted and risks exposed. The ability to influence and reduce absolute carbon is greatest at the early design stages and having carbon estimates at this stage is critical.

Putting ideas into practice

The framework builds upon identifying, understanding and measuring significant sources of carbon, with the ultimate aim of carbon reduction through effective planning and management.



Carbon management needs to become a formal requirement embedded into project systems, supported by an awareness, understanding and education to establish a culture within clients and partners that is focused on carbon reduction.

Project Team:

Harry Garnham	Highways Agency
Euan Greenoak	Network Rail
Prath Kaneri	Network Rail
Chris Kennedy	Balfour Beatty
Helen Jamieson	Highways Agency
Sue Leckie	Atkins
Margot Mear	Atkins

For more information, please contact: Lorna Pelly | l.pelly@forumforthefuture.org

A full copy of framework available is available here: www.forumforthefuture.org/project/carbon-management-for-infrastructure