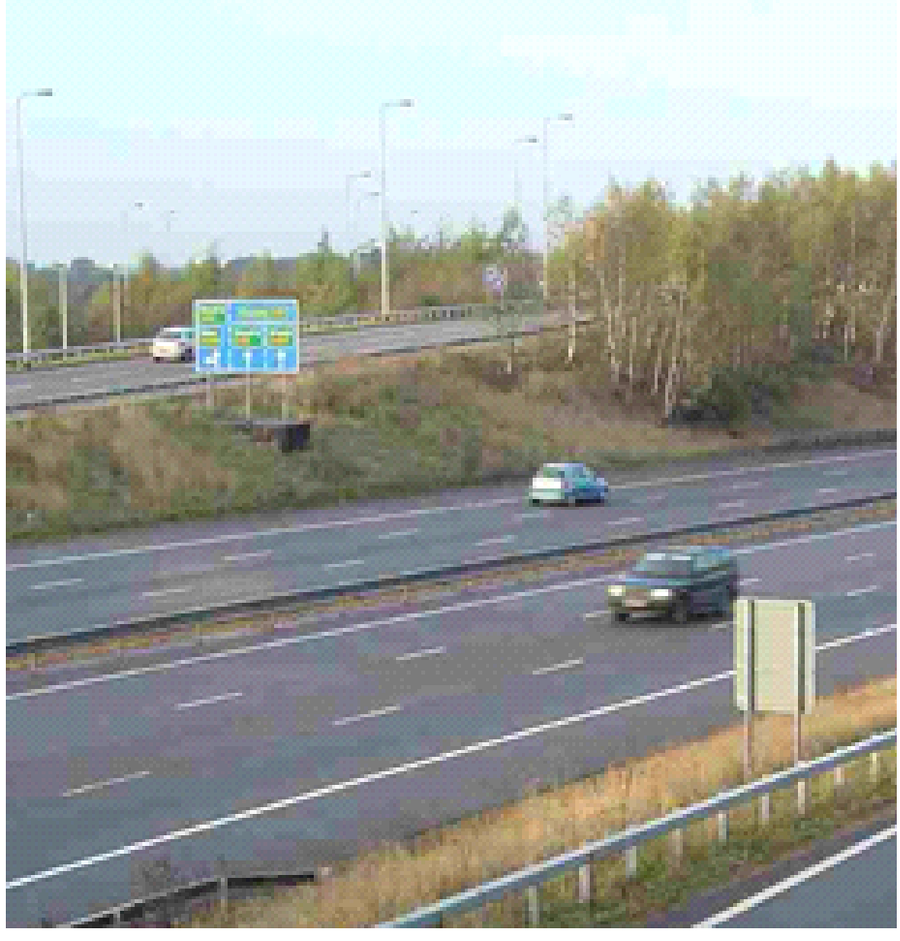
Construction of the M40 Junction 15 (Longbridge Roundabout) Bypass



This case study looks at the resource efficiency measures that are being undertaken as part of the construction of a bypass for Junction 15 of the M40 to link the A46 to the M40.

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Summary

This case study provides an example of good practice resource management. The project team worked together to ensure that the environmental and social aspects of sustainability were identified and are being addressed to minimise their impacts within the project. The case study shows how local materials and materials produced on site are both recycled and reused with an overall reduction of carbon emissions.

The scheme was awarded a CEEQUAL rating of excellent in recognition of its overall approach to sustainability and minimising the impact of the scheme on the environment.

Introduction

The case study illustrates the incorporation of the resource efficiency aspects of sustainability into a highway construction scheme. This includes activities undertaken to reuse and recycle material on site and to reduce carbon emissions on site.

This scheme was commissioned by the Highways Agency. Morrison Construction is the managing contractor and Hyder Consulting are the designers under an Early Contractor Involvement (ECI) contract.

Description of the scheme

The scheme involves the construction of a new bypass for Junction 15 of the M40. Currently, the A46 and the A429 link to the M40 at the Longbridge roundabout at Junction 15. This roundabout has a traffic flow over 75,000 vehicles a day and has been the site of 68 accidents in the last four years. The new bypass links the A46 to the M40 further west of the junction, avoiding the Longbridge roundabout. The site is situated in a green belt area close to Sherbourne village.

The work commenced in March 2008 and is due to be completed by March 2010. Works consists of constructing a 2.1 km dual carriageway, including a four span bridge to take the bypass across the M40, underpasses for pedestrians, cyclists and farm traffic and a roundabout connecting the bypass and the A46. Improvements are also being made to the existing roundabout at Junction 15 which includes widening of the approaches to four lanes, installation of traffic lights and modifications to signing and road lighting. As part of the construction, the Budbrooke Accommodation Bridge will be demolished.

How the resource efficiency issues are being addressed

At the design stage, the project team focussed on reducing the material transported to site. This is in line with the HA's aim for sustainable construction to minimise resource use.

- A large volume (700,000 m^3) of fill was required for the construction of the bypass and, at the design stage, planning permission was applied for and obtained to excavate borrow pits close to the construction site. This has enabled the fill to be obtained locally and removed the need for suitable material to be imported. The two main borrow pits are adjacent to the scheme while the other three are a short distance away on direct routes to the site that avoid residential areas. This has resulted in a reduction in the carbon emissions associated with transporting the material to site and minimised disruption for local residents.
- In addition to this, all topsoil that was removed in order for the new construction to begin, has been recycled and will be reused on site throughout the scheme.

Economic benefits of resource efficiency

As this scheme is still under construction, it is too early to say what the economic benefits of resource efficiency will be, but with the introduction of Site Waste Management Plans (SWMPs) the real economic benefits of resource efficiency and management will emerge.

Conclusions

This case study on the M40 bypass illustrates how actions taken to reduce the amount of material transported to the construction site and to reuse and recycle topsoil has reduced the carbon emissions associated with the case study. Further benefits of resource efficiency may be realised upon completion of the scheme in 2010.