

2 PROPOSED DEVELOPMENT

2.1 Summary of proposed development

2.1.1 The Scheme is some 51km (32 miles) in length, between junctions 3 and 12, and will have a number of principal elements:

- a) conversion of the hard shoulder to a permanent running lane and, where no hard shoulder is in place at present, the construction of a new lane. This will mainly take place between junction 4b and junction 8/9.
- b) replacement of overbridge structures (bridges over the motorway) where portals are too narrow to accommodate the improved motorway.
- c) extension of underbridges (bridges under the motorway) and other structures such as culverts and subways to accommodate the improved motorway.
- d) changes to junctions and slip roads needed to accommodate traffic joining and leaving the improved motorway, and to allow use of the hard shoulder as a running lane, as well as allowing "through junction running" ("TJR");
- e) provision of new gantries and signs to allow the motorway to function as a smart motorway with a variable speed limit, and to provide messages to road users; and
- f) other infrastructure needed for the improved motorway, such as Emergency Areas ("EAs"), enhanced communication systems, closed circuit television ("CCTV") and electrical supplies, as well as works to accommodate statutory undertakers' apparatus and other parties who may be affected by the Scheme.

2.2 Aims and objectives of the Scheme

2.2.1 The Scheme involves improving both carriageways along approximately 51km (32 miles) of the M4 to a smart motorway between junction 3 and junction 12 and other works in that section of the M4. The Scheme's objectives are to:

- a) reduce congestion, smooth the flow of traffic to improve journey times and make journeys more reliable.
- b) support and enhance the role of the M4 as a major national and inter-urban regional transport artery.
- c) support the economy and facilitate economic growth within the regions, by providing much needed capacity on the motorway.
- d) continue to deliver a high level of safety performance of the network using smart motorway techniques; and
- e) deliver environmental improvements and mitigation where appropriate and required.

2.3 Environmental objectives

- 2.3.1 In addition to the objectives listed above, the Agency has an overall objective of ensuring “the best practicable environmental outcomes across all our activities, while working in the context of sustainable development and delivering value for money” (Ref 5).
- 2.3.2 Where environmental impacts are predicted as a result of the Scheme, which may be adverse, the Scheme seeks to address these. In the first instance, environmental impacts should be avoided altogether. However, this is not always possible. In such circumstances, mitigation measures have been adopted to reduce, and where appropriate, remedy any significant adverse impacts identified, with compensation measures being provided if and where required. Adverse environmental effects of the Scheme have been avoided and minimised where possible by way of:
- a) the Scheme design and the adoption of appropriate working practices.
 - b) incorporating appropriate measures during the detailed design process; and
 - c) the Outline Environmental Management Plan ("EMP") which includes a Construction and Environment Management Plan ("CEMP") (Appendix 4.2) and is included in the ES, Document Reference 6.1.