

# M4 junctions 3 to 12 smart motorway

Environmental statement  
Non-technical summary  
March 2015



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# Introduction

The Highways Agency is an Executive Agency of the Department for Transport and is responsible for operating, maintaining and improving the strategic road network in England on behalf of the Secretary of State for Transport. We propose to improve the M4 to a smart motorway between junction 3 (Hayes) in west London, and junction 12 (Theale), near Reading, (“the Scheme”).

The M4 is the main strategic route between London and the west of England, and on to South Wales. The section between junctions 3 and 12 carries over 130,000 vehicles per day. Traffic flows are forecast to increase to 160,000 vehicles per day by 2036, which will add to the heavy congestion travellers already face.

In 2014 we published proposals to improve a 51km (32 mile) section of the M4 between junction 3 and junction 12. We have undertaken a process of consultation with the local government authorities, regulatory bodies, road users and local communities. The feedback received has been taken into account in preparing the Application for development consent.

Approval to construct the Scheme is being sought from the secretary of state for Transport through a Development Consent Order. The Development Consent Order will be examined by the Planning inspectorate which will report its findings to the secretary of state for Transport to aid his decision making.

An environmental statement has been prepared to accompany the Application, which sets out the potential effects of the Scheme on local communities and the environment, and the measures proposed to mitigate these effects. This document is the non-technical summary of the environmental statement.



## Objectives

The key objectives of the Scheme are to:

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

Figure 1: Scheme location

## Summary of the proposals

The Scheme will use the latest technology to improve journeys by monitoring traffic flow and setting speed limits accordingly in order to keep traffic moving smoothly, instead of continually stopping and starting. Information about road conditions and speed limits will be displayed to drivers on electronic road signs. The Scheme also involves converting the hard shoulder permanently to a traffic lane to create the much needed extra capacity necessary to support economic growth.

The key features of the Scheme are indicated on Figure 3.

- Replacement of overbridges that are too narrow to accommodate the improved motorway;
- Extension of underbridges, culverts and subways to accommodate the improved motorway;
- Side road realignment at overbridges and underbridge widening;
- Construction of 33 emergency refuge areas to provide a safe area in an emergency; and
- The provision of gantries and signs with lane specific, variable speed signs.

## How the Scheme will be constructed

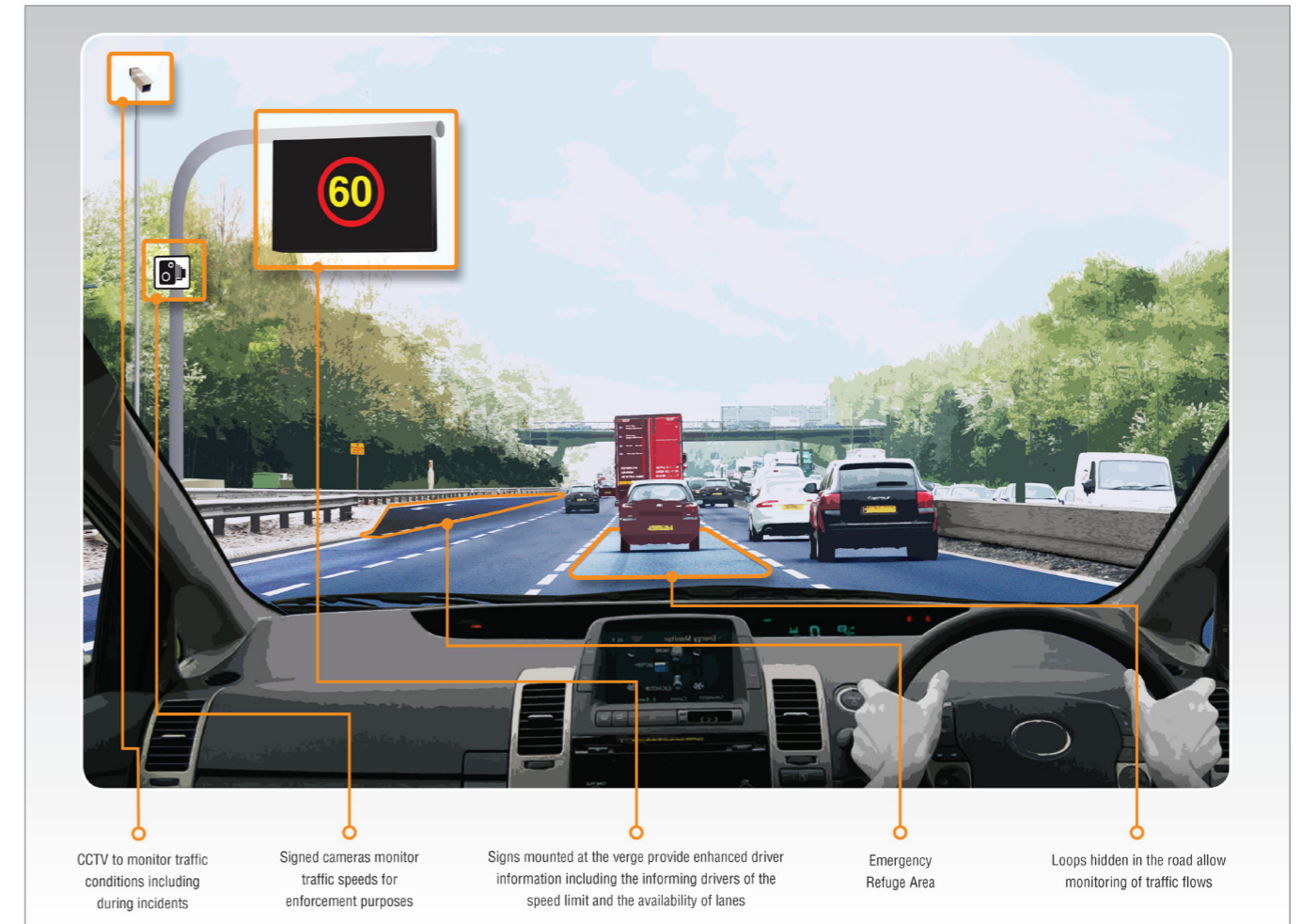
Construction will most likely progress from west to east in the following phases:

<b>Phase 1a:</b> junction 12 to 8/9	Sept 2016 - May 2018
<b>Phase 1b:</b> structures from junction 8/9 to 4b	June 2017 - Sept 2019
<b>Phase 2:</b> junction 4b to 3 and completion of the carriageway junction 8/9 to 4b	Nov 2018 - May 2021

Construction of the Scheme will require a main office compound and several smaller section compounds. Advance works will be undertaken in the verge to ensure that there are no protected species present, and to clear the necessary vegetation to create working areas.

Traffic management will be required to provide working space, while maintaining safe conditions for drivers and construction workers. Typically, this would comprise narrow lanes with a speed restriction of 50 miles per hour through the road works.

For most of the construction period, three lanes in each direction will be kept open for traffic, although closures will be required for some operations, such as demolition of overbridges.



**Figure 3: Key features of the Scheme**

## Development of the scheme

The need to provide additional capacity on the M4 has been identified through a number of studies dating from 2003. Since 2008, a number of solutions have been considered. The timeline of development of the Scheme is summarised here:

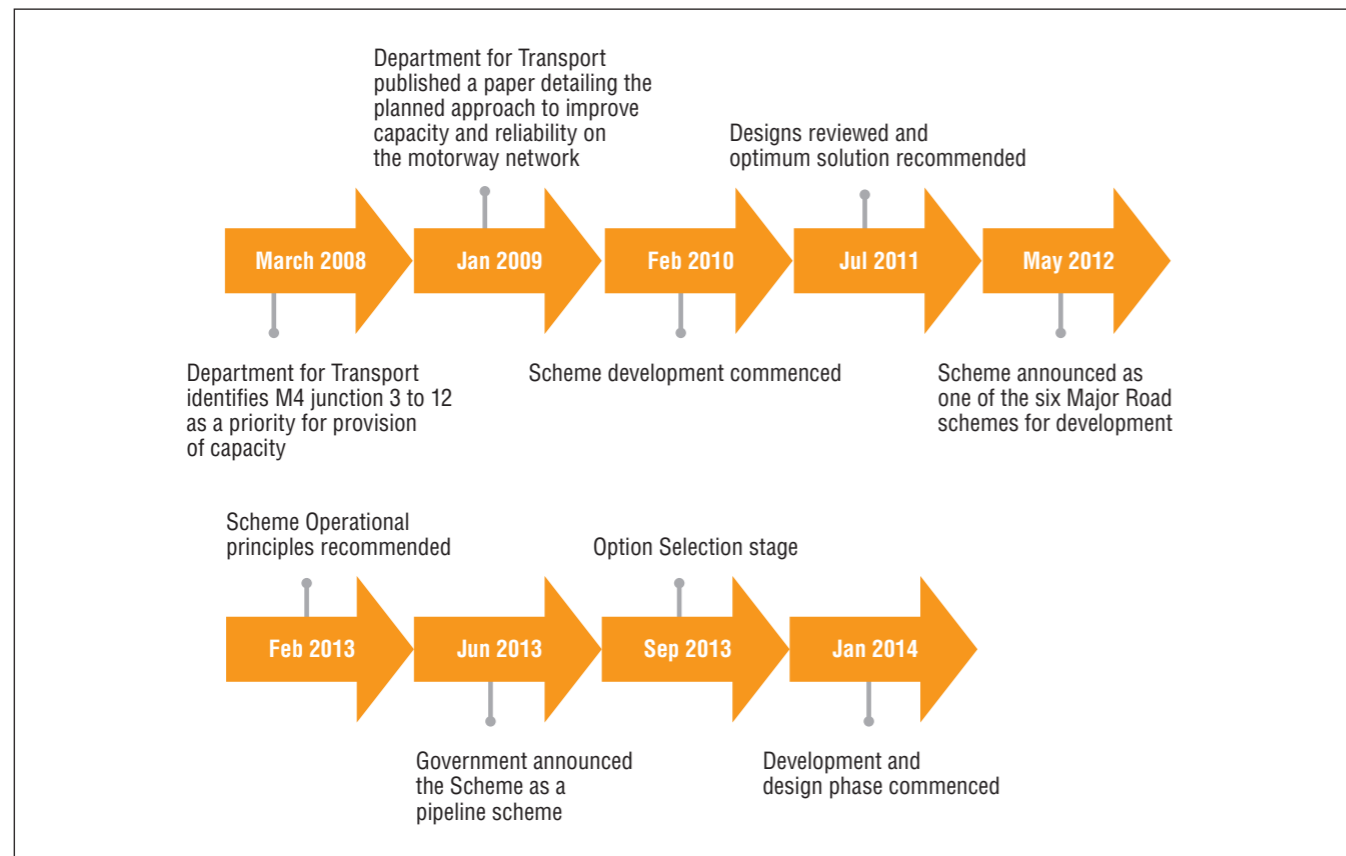


Figure 2: Scheme development timeline

## Environmental effects

The Environmental Statement contains the results of the environmental impact assessment. The main effects are summarised below. Throughout the design process, mitigation measures to reduce the environmental impacts were identified, including:

- Noise barriers to mitigate noise impacts, plus low noise surfacing;
- Vegetation lost to construction will be replanted where possible with appropriate species;
- Invasive plant species will be treated;
- Protected species displaced by works will be relocated to suitable habitats;
- Works will be timed to avoid sensitive periods for protected species.

An outline construction environmental management plan has been prepared which sets out how the contractor will manage the construction-related effects, including measures to:

- Protect sensitive environmental sites and prevent accidental pollution;
- Control construction traffic;
- Minimise noise disturbance;
- Control dust emissions.

A summary of the environmental topics addressed, the issues raised, the mitigation provided to reduce any impacts and a description of the significance of the impact is provided in Table 1.

**Table 1: Environmental effects**

Topic	Environmental issue	Mitigation to reduce the impact	Significance of effect
Air quality	Dust and emissions from construction activities and machinery.	Contractor's good practice would suppress dust and minimise emissions from construction plant and vehicles.	Not significant with mitigation
	Changes in emissions due to changed vehicle flows once the Scheme is open would mean that a small number of properties experiencing above air quality objectives are predicted to experience an adverse effect.	No mitigation required.	Not significant overall as only a small number of properties are predicted to be affected.
Cultural heritage	Archaeological remains in previously undisturbed ground could be affected.	Undertake a watching brief during the earthworks and take measures to record and preserve any remains discovered during the works.	Neutral to slight adverse.
	Archaeological remains in previously undisturbed ground could be affected – construction compound 5.	Geophysical survey and archaeological evaluation trenching to identify any archaeological remains that may be present.	Potential for moderate adverse effects.
	There may be a change to the setting of a small number of cultural heritage assets, as a result of changes in vegetation and infrastructure, and changes in traffic noise.	Where appropriate, replacement planting will be provided to minimise effects on the setting of assets. Low noise surfacing will be installed on all carriageways, and additional noise barriers will be provided.	Slight adverse to moderate.
Landscape	The new infrastructure, such as signs and gantries, will introduce new visible elements into the landscape.	Where appropriate, replacement planting will be provided to minimise effects on the landscape or on visual amenity.	Neutral on the landscape of the North Wessex Downs Area of Outstanding Natural Beauty (AONB). Typically neutral in the wider landscape with localised slight adverse impact in the vicinity of the Thames at Bray.
	There are numerous visual receptors, such as residential dwellings and public rights of way, in the vicinity of the Scheme, and the views from some will be affected.		Neutral on the visual amenity of the AONB. Typically slight adverse outside of the AONB, but moderate adverse for two receptors.
Ecology and nature conservation	Some loss of habitat will occur as a result of the Scheme. Construction works may result in disturbance to species, including incidental injury or mortality. Air quality or fresh water pollution could affect designated sites, or other flora and fauna.	The Agency will seek agreement with Natural England for any works that could affect designated sites or protected species, including mitigation proposals such as translocation. Licences in respect of protected species will be sought from Natural England where required. Where possible, the Agency will replant with appropriate native species to restore and enhance habitats.	Neutral.
Geology and soils	Potential issues may arise from contaminated soils next to the highway, land instability and a reduction in the variety of rock and soil types in the vicinity of the Scheme	No significant permanent effects are anticipated. Therefore, no mitigation required.	Neutral.
Materials	The Scheme will require the use of primary materials such as aggregate and lime and would generate waste.	Materials would be sourced locally where possible, and the Agency would reduce demand for natural resources and waste management by reusing and recycling material won on site where viable.	Slight adverse.

Topic	Environmental issue	Mitigation to reduce the impact	Significance of effect
Noise and vibration	Noise caused by construction activities.	Contractor's good practice would control noise emissions from construction activities, including plant and vehicles, and ensure that local residents are kept informed.	Slight adverse during construction.
	Noise impact at dwellings surrounding the Scheme as a result of changes in traffic flows.	Low noise surfacing will be provided across all lanes of both carriageways for the full extent of the Scheme. Additional noise barriers will be provided where impacts have been identified by the assessment.	Slight beneficial in the short term and neutral in the long term.
Effects on all travellers	Disruption may occur to road users, pedestrians, cyclists and equestrians during construction, particularly replacement of structures.	Temporary traffic management on the M4 and on surrounding roads as needed. Diversion routes will be agreed with the local authority.	Slight adverse.
	Additional driver information and traffic management technology will reduce the likelihood of severe congestion and improve journey time reliability, therefore helping to alleviate driver stress.	No mitigation required.	Beneficial.
	Effects on pedestrians, cyclists, equestrians etc.	No permanent changes would occur.	Neutral.
Community and private assets	Small areas of temporary and permanent land take will be required to construct the Scheme.	The Scheme has been designed to minimise the amount of land-take needed. Continued consultation will be undertaken with landowners, occupiers and agents where necessary.	Slight to moderate adverse effect on a small number of landowners.
	Construction nuisance on the amenity of residents and businesses – for example impacts from construction dust, impaired views and noise and disturbance during construction.	Contractor's good practice measures would minimise disruption and impacts on amenity from construction activities.	Slight to moderate adverse.
	Impact of the Scheme on utilities infrastructure.	The Scheme has been designed to minimise the impact on the apparatus of utility companies where possible. Appropriate construction techniques will be used where possible.	Slight to moderate adverse.
	Improvements to journey times and reliability.	No mitigation required.	Large beneficial effects to local businesses, residents and visitors.
Road drainage and the water environment	The Scheme design includes replacement of existing drainage system.	Additional storage will be provided to ensure discharge rates to surface waters do not increase.	Neutral
	Construction works to overbridges within the floodplains could potentially impact upon the existing flood levels and flood volumes.	Floodplain compensation will be provided to ensure flood risk to the Scheme and third parties is not increased.	

Cumulative effects have also been considered. It is predicted that the construction of the Scheme will not lead to significant cumulative effects with other reasonably foreseeable developments. The assessment has also assessed compounding effects on people or the environment from interacting environmental impacts, such as changes in air quality and adverse impacts on views. Relatively few entities will be affected by more than one type of impact, so the risk of compounding effects is not considered to be significant due to the low number of locations where such cumulative effects occur.

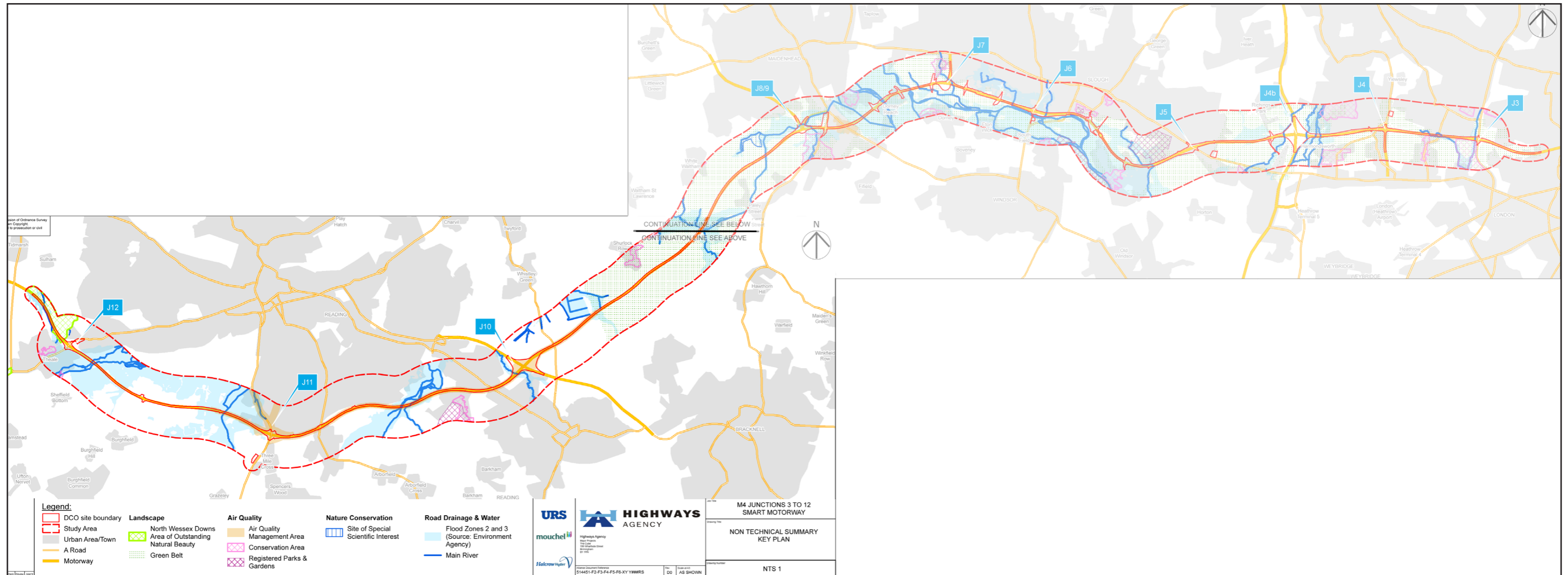


Figure 4: Key environmental designations

## Next steps

Following submission of the Application for development consent, the Planning Inspectorate will consider, on behalf of the Secretary of State for Transport, whether the Application should be accepted for examination. If accepted, the documents accompanying the Application will be publicly available on the Planning Inspectorate's website. Interested parties will be able to make relevant representations about the Scheme and its potential impacts. Representations received by the Planning Inspectorate will be considered as part of the examination into the Application.

The effects reported in the environmental statement are based on the preliminary design for the Scheme. Detailed design will commence following the submission of the Application for development consent. However, the assessment in the environmental statement has been undertaken on the basis of a worst case scenario and the findings of the environmental statement will be regularly reviewed against the detailed design to ensure that any changes do not worsen or introduce any new effects on the environment.

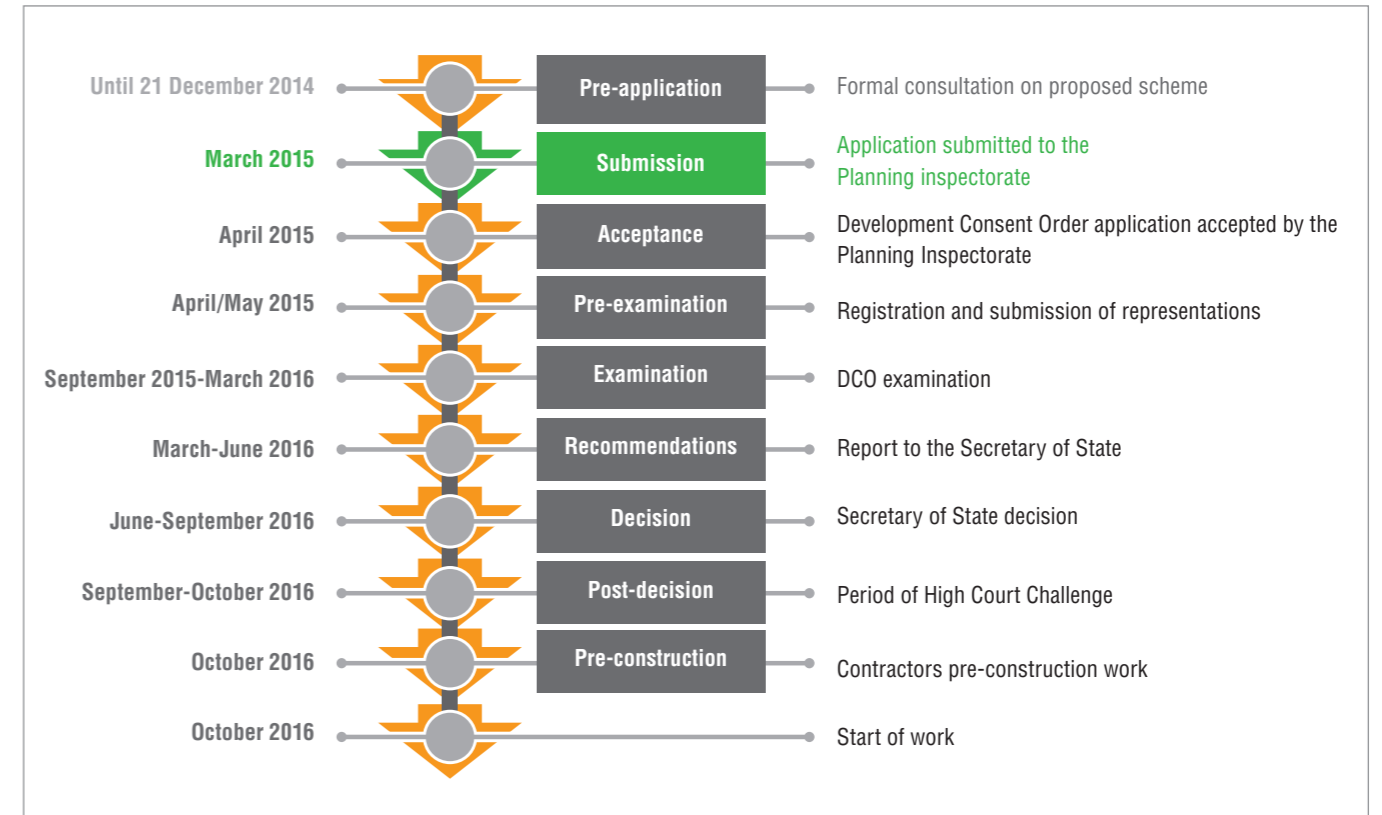


Figure 5: Timeline for consideration of the Application



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