



M3 junction 9 to 14 smart motorway

Environmental Summary

2019



Environmental Summary

This Environmental Summary is designed to act as a high-level overview of the key environmental issues on the M3 junction 9 to 14 smart motorway.

The full document can be accessed on the scheme website:

www.highwaysengland.co.uk/projects/m3-junctions-9-to-14-smart-motorway/

Introduction

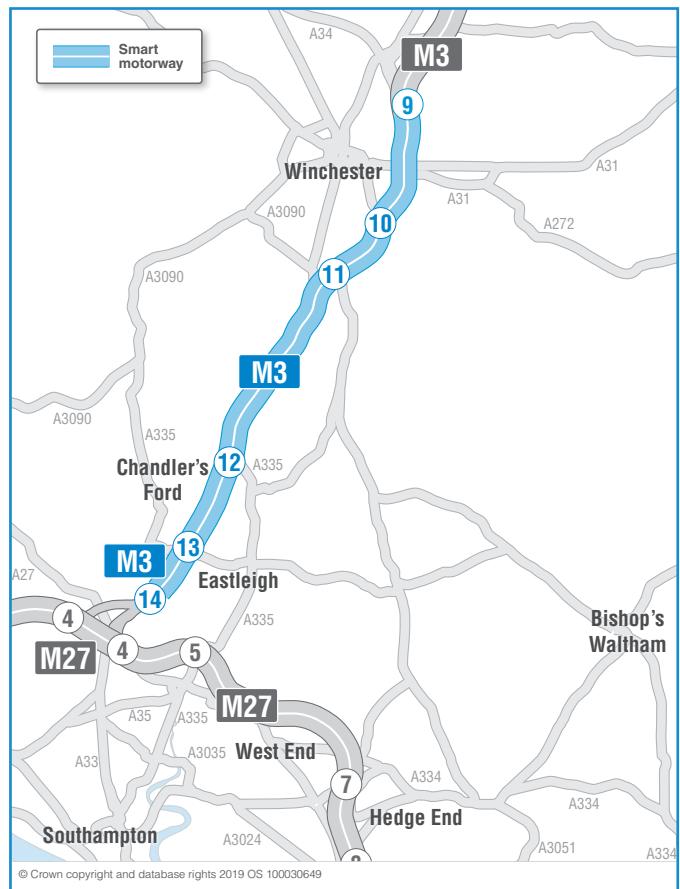
The M3 motorway is a key part of the strategic road network and provides a vital economic link from the Midlands (via the A34) and London to the major ports of Southampton and Portsmouth on the south coast (via the M27).

Junctions 9 to 14 of the M3 are located in southern Hampshire, England between Winchester and Southampton.

This route is heavily used by cars and freight, and faces congestion during peak travel hours caused by the volume of traffic using the network. In 2036, this section of the M3 (junction 9 to 14) is forecast to carry an average of between 63,000 and 86,000 vehicles per day, which is an increase of 20,000 vehicles compared 2015. Adding this additional infrastructure will enable forecast levels of traffic to flow freely on this section of the M3.

The total scheme length is approximately 16 kilometres. The upgrade to a smart motorway between junctions 9 to 14 would deliver the following benefits for road users:

- An additional motorway lane to increase traffic capacity and reduce motorway congestion
- More reliable journey times
- Additional technology on the road to manage incidents and to prevent and reduce delays.



Environmental context

Smart motorways generally have far less of an impact on the environment than traditional road-widening schemes as no additional land is required for the upgrade. However, there are a number of environmentally sensitive areas located either within or adjacent to the scheme and protecting these important environmental features is paramount and has shaped the design accordingly. These environmental features include:

- Two Sites of Special Scientific Importance (SSSI) are located within the works area, the River Itchen SSSI and St Catherine's Hill SSSI
- The River Itchen Special Area of Conservation (SAC) crosses the scheme
- Ten areas of ancient woodland are located within or immediately adjacent to the scheme
- Five Scheduled Monuments are within 300m of the scheme
- Seven Grade II listed buildings are within 300m of the scheme
- Three conservation areas are within 1km of the scheme
- Two Registered Park and Gardens (Compton End and Cranbury Park) are located adjacent to the scheme
- The scheme is partially within the South Downs National Park

- Nineteen noise Important Areas (nIA) are located within 300m of the scheme
- Two main rivers (River Itchen and Monks Brook) and one ordinary watercourse (a tributary of Monks Brook) cross the scheme
- Two groundwater Source Protection Zones for potable water supplies cross the scheme

To ensure that no significant effects from the scheme impact the environment, a non-statutory environmental assessment was completed. This is known as an Environmental Assessment Report (EAR).

The scheme design has been informed by environmental surveys, including noise, ecology and arboricultural, to minimise environmental impacts and retain valuable features. The design has also been changed and amended to avoid environmental receptors (i.e. people or habitats) and reduce the environmental effects.

The Environmental Assessment Report (June 2019) presented the results of our environmental assessment work, and concluded that the scheme would not result in any significant effects on the environment either during construction or when the smart motorway becomes operational.

A summary of each topic assessed within the EAR and is set out on the next pages.

Air Quality

Road schemes have the potential to cause changes to both local air quality and regional air quality during construction and once the scheme is open to traffic, through construction dust, particulate matter and nitrous oxide emissions.

The assessment study area included sensitive receptors within 200m of the affected road links for operation and sensitive receptors within 200m of the construction works. Sensitive receptors that were considered included Air Quality Management Areas, sites designated for nature conservation, and people. The effects of the M3 junction 9-14 smart motorway were assessed in combination with the M27 junction 4-11

smart motorway to consider a 'worst case scenario' from an air quality perspective when compared to the current situation.

The construction of the scheme is unlikely to result in significant adverse effects with the rigorous application of best practice mitigation measures, including the monitoring of dust emissions during construction. The operation of the scheme would result in both adverse and beneficial effects as a result of the redistribution of traffic from roads within urban areas, with the majority of receptors experiencing an imperceptible change in air quality. The assessment concluded that these effects were not significant and no mitigation would be required during operation.



Biodiversity

The scheme runs through urban and semi-rural areas bisecting the Twyford Down, intersecting the River Itchen and heavily wooded areas including ancient semi-natural woodland. There is suitable habitat for protected species within the scheme area and seven ecologically designated sites are present within the study area of the scheme.

Biodiversity surveys have determined the presence of protected species within the scheme area and the potential for effects on the designated sites has been considered. The vegetation clearance required for the scheme could physically harm protected species and

cause the severance of habitat. The mitigation for this has involved relocating infrastructure and changes to the design of the scheme to minimise the vegetation clearance, applying for protected species licences, and producing a sensitive working methodology for the Contractor to abide by.

A slight adverse effect is anticipated upon habitats, protected species and the River Itchen SSSI, due to vegetation clearance and the disturbance from additional light and noise during construction. However, these are temporary and not considered significant. Once operational, the scheme is not considered to result in any significant effects.



Cultural Heritage

The construction of roads has the potential to physically damage cultural heritage assets and the operation can affect the setting of cultural heritage assets. Fifteen designated heritage assets have been identified of high value/sensitivity within 300m of the scheme. These assets comprise five Scheduled Monuments, seven grade II* listed buildings, two Conservation Areas and one grade II* listed Registered Park and Garden.

Temporary slight adverse effects are anticipated upon five of these assets during construction. Permanent slight adverse effects are anticipated to result from the construction of the scheme due to the scheme being constructed close to or within the footprint of cultural heritage assets. During operation, the scheme would have slight permanent adverse effects on the setting of the nine designated heritage assets. The effects during operation and construction are not considered to be significant.

Landscape and visual effects

The construction of the scheme would result in localised vegetation loss to accommodate additional infrastructure.

Vegetation would be removed only where essential to construct the scheme and to allow for clear lines of visibility and safety requirements.

A Landscape Masterplan has been developed to provide planting that mitigates for vegetation removed to construct the scheme. This planting would help to soften views of the road and associated infrastructure.

The landscape assessment considered a one-kilometre study area to identify any landscape areas or sensitive visual receptor groups that could be affected by the scheme. The South Downs

National Park and the Itchen Valley Landscape Character Areas are the major landscape receptors considered, with 27 visual receptors also included.

During construction, there are likely to be slight adverse effects as a result of the temporary construction activities. However, it is anticipated that with mitigation planting to be implemented along the highway boundary, over time highway vegetation would return to maturity and baseline screening would be restored. Ongoing engagement with South Downs National Park and other key stakeholders has enabled a proactive approach to limiting impacts through design and mitigation measures. The scheme is therefore not considered to result in significant effects during construction or operation.



Noise

The M3 junction 9-14 is a source of noise for the local community, highlighted by the fact there are 19 nIA's within the 300m study area for the scheme. The EAR identified 12,622 dwellings and 583 other sensitive receptors, including community facilities, places of worship and medical facilities, within the operational study area.

The noise assessment firstly involved establishing the baseline noise levels through computer noise modelling, Defra's noise mapping and noise monitoring that was undertaken along the scheme extent. Potential construction noise levels were predicted using typical road construction equipment in accordance with the guidance. The potential operational noise levels were determined using modelling software to predict noise levels at residential properties and other potentially sensitive receptor locations.

To ensure no significant effects would occur during construction, an Outline Environmental Management Plan details the requirement for monitoring of construction noise levels, and the replacement of any noise barriers which are to be removed during construction. The scheme would incorporate new low-noise road surfacing in lanes 1 and 4 to mitigate against any potentially significant noise effects during operation.

The assessment concluded a slight adverse impact on noise levels during construction, but following the mitigation measures outlined above, this would not be significant. During operation it is also considered there would be no significant effects despite the use of the existing hard shoulder moving the source of noise closer to the nearest noise sensitive receptors, as this would be off-set by the installation of new low noise surfacing on the carriageway of the M3 from junction 9-14.

Road Drainage and the Water Environment

The assessment considered surface water and groundwater receptors within one kilometre of the scheme with further receptors downstream being included where necessary. The main receptors considered within the assessment for surface water were the River Itchen, Monks Brook and Flood Zone 3 (which has a high probability of flooding) that encroaches the scheme. From a groundwater perspective the Source Protection Zone 1 and the Chalk designated as a Principal Aquifer are the main receptors.

Southern Water and the Environment Agency have been engaged with to ensure all of their concerns surrounding the impacts of the scheme have been considered. A number of mitigation measures have been put in place including the relocation and redesign of assets requiring excavation, best practice methodology, the application for a Bespoke Environmental Permit for Flood Risk Activities and the installation of sedimentation devices.

With the mitigation and design measures in place the scheme is not expected to give rise to significant effects during either construction or operation.



Conclusion

The EAR provides the assessment of likely effects as a result of the proposed scheme and has concluded that it is unlikely to result in significant effects during either construction or operation.

A number of engagement exercises and workshops have been undertaken with statutory environmental bodies such as the Environment Agency, South Downs National Park and others to ensure that the scheme design has taken into full consideration the constraints and limitations that are presented within the scheme boundary. Design and mitigation measures have been proposed as a result of the environmental assessments and ensure that significant adverse effects are avoided.

