Welcome

M4
Upgrade to smart motorway junctions 3 to 12
Smart motorways

Smart motorways are a technology driven approach to the use of our motorways, increasing capacity and relieving congestion while maintaining safety. Smart motorways help make journey times more reliable.

Technology is installed to monitor and manage traffic flow and the hard shoulder is used for traffic, either permanently (known as ‘all lane running’) or at peak times.

As well as the additional capacity from the extra lane, the technology manages traffic using variable speed limits to smooth traffic, reducing frustrating stop-start flow and improving journey reliability.

It is also used to support the response to incidents, using the signs and signals to close any lane in advance of the incident scene.

Drivers are enjoying the benefits of smart motorways across the country and our motorways continue to be some of the safest in the world.

Color code to status of scheme
Operational – In construction – Planned

Details correct as of December 2018
M4 junctions 3 to 12 smart motorway

We are improving the busy 32-mile (51km) stretch of the M4 between junction 3 near Hayes and junction 12 near Theale, by upgrading it to an all lane running (ALR) smart motorway.

This scheme is the longest smart motorway scheme in England to date. The M4 carries an average of 130,000 vehicles per day. The smart motorway technology will enable variable speed limits to improve journey times and ease congestion.

The project involves:

Key changes to the motorway:

All lane running

- Between junctions 3 and 12 the hard shoulder will be converted to a permanent traffic lane, so that there are four lanes available for use by road users. Between junctions 4 and 4b, there will be five lanes.
- Where a hard shoulder does not currently exist, the motorway will be adapted to create a minimum of four lanes.

Through junction running

- This enables a consistent number of lanes to pass through the junction, reducing the need for vehicles staying on the motorway to change lane. Through-junction running will be in place at junctions 4, 6, 7, 8/9 and 11 and at the Reading motorway service area.

Bridge works

To accommodate the new smart motorway:

- 11 bridges carrying local traffic over the motorway will need demolition and replacement.
- Several bridges that carry the motorway over roads, railways and rivers will need widening.
- Several subways and culverts that run under the motorway will also need work in order to accommodate the upgrade.
- Local side roads connecting to the replaced bridges will need re-aligning.
- Junctions and slip-roads needed for traffic joining and leaving the improved motorway will need changing.

You will also see:

- Construction of emergency areas.
- Installation of communication systems, closed circuit television (CCTV) and electronic systems to allow automated speed control and congestion management with human oversight.
- Works to accommodate essential utilities such as water, gas and electricity.
- A new concrete central reservation, barriers and environmental mitigation works to improve safety and reduce noise.
A smart motorway has technology installed to monitor and manage traffic flow. It is important that you understand the signs and comply.

When lanes are closed, signs display a Red X showing which lanes cannot be used.

- Signals in the verge or above the carriageway inform you of the speed limit, any lane closures and provide information on road conditions such as severe weather.

- Sensors and CCTV allow us to detect and monitor congestion and incidents, so we can set appropriate speed limits and manage incidents effectively.

- Speed limits vary and are applied at times of congestion, to prevent stop-start conditions. If no speed limit is shown the national speed limit applies.
Smart motorways are an effective way to provide more capacity on our busiest motorways while maintaining safety at less cost than traditional widening schemes, meaning better value for the tax payer.

All lane running, which involves permanent conversion of the hard shoulder as a live lane for traffic to use, provides an opportunity to modernise and improve far more of our motorways than under previous approaches.

The approach also supports economic growth, as the M4 is a strategic part of both the English and Welsh road network, connecting London to South Wales. Currently the M4 is one of the most congested stretches of motorway in Britain.

By varying the speed limit, we can help to avoid stop-start traffic, so that you are more likely to get to where you need to be on time.

Variable mandatory speed limits displayed in a red circle mean it is the law to follow the speed limit indicated. They are a key feature of smart motorways and are used when traffic volumes increase. The monitoring sensors we use activate lower speed limits to smooth congestion and keep you moving.

We use 60, 50 and 40mph limits on all types of smart motorways. When no speed limit is shown the national speed limit of 70mph is in place.

The most up-to-date evidence from Highways England shows the latest generation of smart motorways are performing well, in line with expectations and have successfully increased capacity by a third and improved journeys.

Importantly, the schemes are meeting or exceeding their safety objectives. The overwhelming majority of drivers are complying with the Red X signals that are used to indicate lane closures and that more people are complying with the speed limit.
Emergency areas

- Emergency areas provide an area of relative safety following a breakdown.
- There will be 38 highly visible emergency areas within the M4 junctions 3 to 12 smart motorway scheme.
- Places of relative safety will be every 1.12 miles on average and no more than 1.6 miles apart. If you are driving at 60mph you will pass one approximately once every 90 seconds.

There is an emergency telephone in each emergency area for motorists’ use. This connects you to Highways England’s Regional Control Centre and pinpoints your location.

Where possible it is recommended that you attempt to come off the motorway at a service area, or onto a local road.

The use of an emergency telephone helps us to pinpoint a driver’s location.
Incident management

- Incidents such as collisions and breakdowns are managed by Highways England’s Regional Control Centres (RCCs).
- If the collision or breakdown means vehicles are unable to get off the carriageway or reach an emergency area, we can use technology to close any lane on the motorway.
- The RCC sets signs to inform other road users about what is happening and manage traffic so that the people involved in the incidents are protected and an access route is cleared for emergency vehicles.
- They then continue to monitor traffic conditions throughout each incident and reopen lanes as soon as it is safe to do so.

- We are working closely with the emergency services to develop best practice as these major improvements are rolled out on our motorways.
- If you have to stop in a live traffic lane, put your hazard warning lights on to help other drivers see you and help our control room staff spot you on CCTV. If you are in the left-hand lane and it is safe to do so, exit the vehicle via the left-hand door. Wait behind the barrier if possible and call 999.
- If you cannot exit the vehicle, do not feel it is safe to do so or there is no other place of relative safety, remain in the vehicle. Keep your seat belt on and dial 999.
Red X signs

- Red X signs are used for safety reasons to close lanes:
  - to protect road users who may have broken down or been involved in an incident.
  - to provide access and protection for the emergency services, our traffic officers and our road workers.
- If you see a Red X symbol on a gantry sign over or at the side of the motorway it means that the lane is closed for one or more of these reasons.
- Driving in a lane with a Red X symbol is illegal and dangerous and drivers must not use this lane.
Vegetation clearance

The removal of trees and plants along the motorway is an unavoidable part of the project. We need to rebuild and/or re-profile the embankments in some areas and install new technology and structures in others. This unfortunately cannot be done if all vegetation is retained.

In terms of local wildlife, ecological surveys were undertaken across the scheme in 2016, 2017 and 2018 in order to inform the requirements of the Development Consent Order (DCO) for the project.

Prior to clearance each area must be fully inspected by a licensed ecologist who will then grant permission to proceed or ask for more surveys.

Noise mitigation is not provided by the vegetation. The project will be installing new or upgraded environmental noise barriers and/or visual screening fences in several locations, followed by replanting of trees and shrubs once the embankment works are complete.
As part of the DCO planning process, a full Environmental Impact Assessment was carried out and has been used to inform the design of the project. This included assessments and design of mitigation where needed for:

- Air quality
- Cultural heritage
- Landscape and visual
- Ecology and nature conservation
- Geology and soils
- Materials and waste
- Noise and vibration
- Effects on all travellers (drivers, passengers, cyclists, horse riders, pedestrians)
- Community and private assets (including residents, local authorities, statutory utilities such as gas and water)
- Road drainage and the water environment

During the examination of the DCO application, further environmental protections were requested and planning requirements attached to the consent.

Planned protections include:

- The provision of new environmental (noise) barriers
- Upgrading of existing environmental (noise) barriers
- Lower noise surfacing across the whole scheme
- Provision of artificial badger sets
- Provision of bird and bat boxes
- Provision of habitats for reptiles and great crested newts
- Provision of ledges at appropriate structures to allow safe passage of otters under the motorway
- Provision of permanent fencing to prevent otters and badgers gaining access to the motorway
- New landscaping of the highways embankment
- Air quality monitoring in agreed locations
What work is planned?

This is the longest smart motorway project in England to date (32 miles, 51km). Work on the motorway started in July 2018 and is expected to be completed in March 2022.

We started construction between junctions 8/9 and 10 in July 2018 and began enabling work on four bridges between junctions 8/9 and 7. The more complex section of the scheme, progressing east from junctions 8/9 towards junction 3, will commence in May 2019. This section includes significant structures work, including the replacement of 11 bridges.

We have carefully planned the work to minimise disruption to our drivers and communities, however this timetable may change. Any changes will be published on our project web pages.

Indicative timetable of works planned

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<td>May 20</td>
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<td>May 19</td>
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<td>Dec 20</td>
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<td>May 20</td>
<td>Mar 22</td>
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We will need to set up a number of construction compounds along the M4.

During construction, narrow lanes and reduced speed restrictions will be put in place to create a smooth and safe flow of traffic through the works and to protect workers. Additionally, traffic management barriers will be needed. Three narrow lanes will be available for road users during peak hours.

Wherever possible, noisier works will be undertaken during daytime hours. Core working hours will be from 08:00 to 19:00 on weekdays (excluding bank holidays) and from 07:00 to 16:00 on Saturdays.

There will be temporary closures of the carriageways at night on some occasions. In these instances, clearly signed diversions will be put in place.

If you live near the motorway, your view of the M4 between junctions 3 and 12 may change during construction as we will need to remove some vegetation to build the new smart motorway infrastructure. We will be replanting where we can to help to screen views of the motorway.

The work will involve installation of gantries and monitoring equipment, new drainage systems, safety barriers, construction of emergency areas and carriageway resurfacing.

The construction of the scheme will be governed by the Construction, Design and Management Regulations, and we will be a member of the Considerate Constructors scheme which will help ensure that we are a good and responsible neighbour.

Further details will be provided on the project website pages as they become available both before and during construction.
Much of the M4 was originally built as a two-lane dual carriageway, and has been upgraded over the years.

11 bridges over the motorway need to be replaced to make room for a new lane where there is no existing hard shoulder. These are shown on the map below.

To limit disruption, seven of the new bridges will be built next to the existing ones, before the old ones are demolished - including at Huntercombe Spur for example. However, where there is not enough space for this, some bridges will be demolished first, then a new bridge built in the same place.

Where the motorway passes over, for example, the River Thames at Bray and the railway line to Windsor, we will need to widen bridges to support the new smart motorway.

Two subways, including at Sipson, and several culverts that run under the motorway will also need work in order to accommodate the upgrade.

Some weekend closures will be required for bridge works. Full details will be communicated and posted on our project webpages well in advance.
Smart motorway M4 junctions 3 to 12

Contact us

If you would like to know more about the M4 junctions 3 to 12 smart motorway scheme you can contact us using the details below:

Email the project at: M4J3to12SmartMotorways@highwaysengland.co.uk

Call the Highways England national switchboard on: 0300 123 5000

Write to: M4 J3-12 Smart Motorway, Highways England, 2 Colmore Square, Birmingham B4 6BN

Visit www.trafficengland.com or follow @HighwaysSEAST on Twitter for live and future traffic information.

You can also find further information on our project webpages:

www.highwaysengland.co.uk/m4j3to12
https://m4j3to12smartmotorway.commonplace.is/

Community engagement

We will also be holding pop-up exhibitions at shopping centres, supermarkets, business parks, and major employment locations during Spring and Summer 2019 and engagement activity will continue throughout the project. Details of this will be posted on our webpages.

During construction, there will be a Public Liaison Officer dedicated to the scheme.
Driving safely through our roadworks

We understand that roadworks can be frustrating, but they are an essential element of any road upgrade project. We plan for works to proceed in the safest and most cost-effective way, with minimum disruption to road users. The traffic management we have installed on the M4 to allow work to take place comprises three narrow lanes plus signs and signals to keep you informed of planned work.

To ensure the safety of road users and our workforce, there is currently a speed limit of 50mph through the works. Automatic Number Plate Recognition (ANPR) cameras are used to monitor the average speed of traffic over a section of road, or network of roads. It is used in the UK, including on the M4 to control speeds and to safely manage vehicle traffic speeds through roadworks where narrow lanes are installed. The 50mph speed limit through our roadworks is legally enforceable so please do not exceed this as you may receive a penalty notice.

Just because workers aren’t visible, it doesn’t mean they are not present. This is especially true when operations take place at night, but also applies when visibility is restricted by works vehicles and equipment.

What if I break down in the roadworks?

If you can’t reach a motorway service area or leave the motorway at the next junction:

- Put your hazard warning lights on to help other drivers see you and help our control room staff spot you on CCTV. Traffic passing through road works is monitored 24/7.
- If you are in the left-hand lane and it is safe to do so, exit the vehicle via the left-hand door. Wait behind the barrier if possible. If you cannot exit the vehicle, do not feel it is safe to do so or there is no other place of relative safety, remain in the vehicle. Keep your seat belt on and dial ‘999’.
- We offer free recovery in the roadworks area so you will be picked up by our recovery team and your car will be taken to a suitable safe place to be attended to.