

## **Introduction**

The Joint Transport Study for the West of England has identified a need for a new motorway junction between M4 Junction 18 and Junction 19 (Junction '18a'), and an associated link road to the A4174 Ring Road. The scheme would help tackle congestion problems in the north-east fringe of Bristol and help businesses operate more efficiently.

The Department for Transport has granted funding for a feasibility study into the M4 Junction 18a Link. South Gloucestershire Council, in partnership with Highways England (responsible for the motorways), has commissioned CH2M to undertake this study. The study will be completed in March 2018.

A round of elected representative and stakeholder engagement has been undertaken to discuss objectives, with a second round planned for June to present scheme options. Public consultation is planned for August/September. The following emerging outputs are provided to inform the Joint Transport Study.

## **Scheme Proposals**

The proposed scheme starts from a new junction ('18a') on the M4 in the Emerson's Green or Pucklechurch area, with a new or improved link road south to the A4174 Ring Road. Directly associated improvements to the M4 and Ring Road are included in both scheme options.

Other transport improvement schemes proposed in the Joint Transport Study are not included in the M4 Junction 18a scheme, but the study will consider the relationships between them.

The cost estimate for the scheme(s) ranges from £250m to £470m (outturn current prices) with the scheme options showing a very high level of direct benefits for the immediate impacted area. We would however caution that the level of traffic transference from existing parts of the network is causing some unexpected disruption and delay in places within the model. Hence whilst we predict the level of benefits to be 'high' Value for Money (with a Benefit Cost Ratio of more than 2 to 1) when scored against Department for Transport's criteria then this cannot currently be certified at this early stage of the modelling work. Funding would need to be secured from a combination of national and local sources.

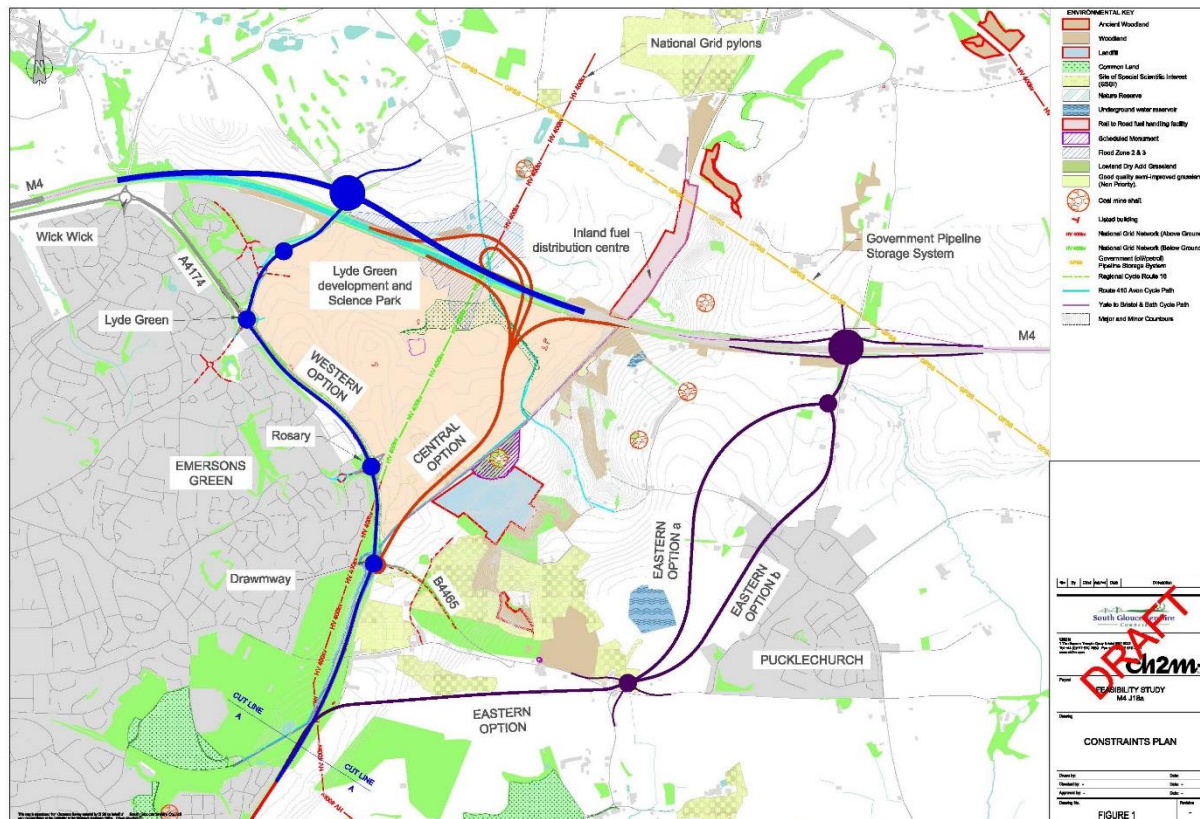
## **Need for the Scheme**

The M4, M32, A4174 and other routes in the north-east fringe of Bristol are well known for congestion, delays and incidents. Completed at least two decades ago, the strategic highways are unable to cope with the volume of traffic that now uses them during peak periods.

The Joint Transport Study recognises the need for the scheme, which is supported by many elected representatives and a diverse range of stakeholders, including major employers and the wider business community.

## Route Options

Two potential locations for a junction and link have been identified:



- **'Western'**
  - A new all-movement motorway roundabout junction north of the M4 at Westerleigh Road
  - The M4 realigned northwards
  - Dualling and grade-separation of Westerleigh Road between the Ring Road and the new motorway junction
  - Improvement of Ring Road Lyde Green, Rosary and Dramway Roundabouts
- **'Eastern'**
  - A new all-movement motorway roundabout junction at Westerleigh Road, B4465 north of Pucklechurch
  - A new dual carriageway link road to the north-west of Pucklechurch (Two alternative alignments are suggested)
  - To a new grade-separated junction on the Ring Road between Dramway and Siston Hill Roundabouts
  - Improvement of the Dramway Roundabout

Both scheme options need improvements to the M4 between Junction 19 and the new Junction 18a, plus significant improvements to all junctions on the Ring Road from Dramway down to and including the A4 Hicks Gate junction.

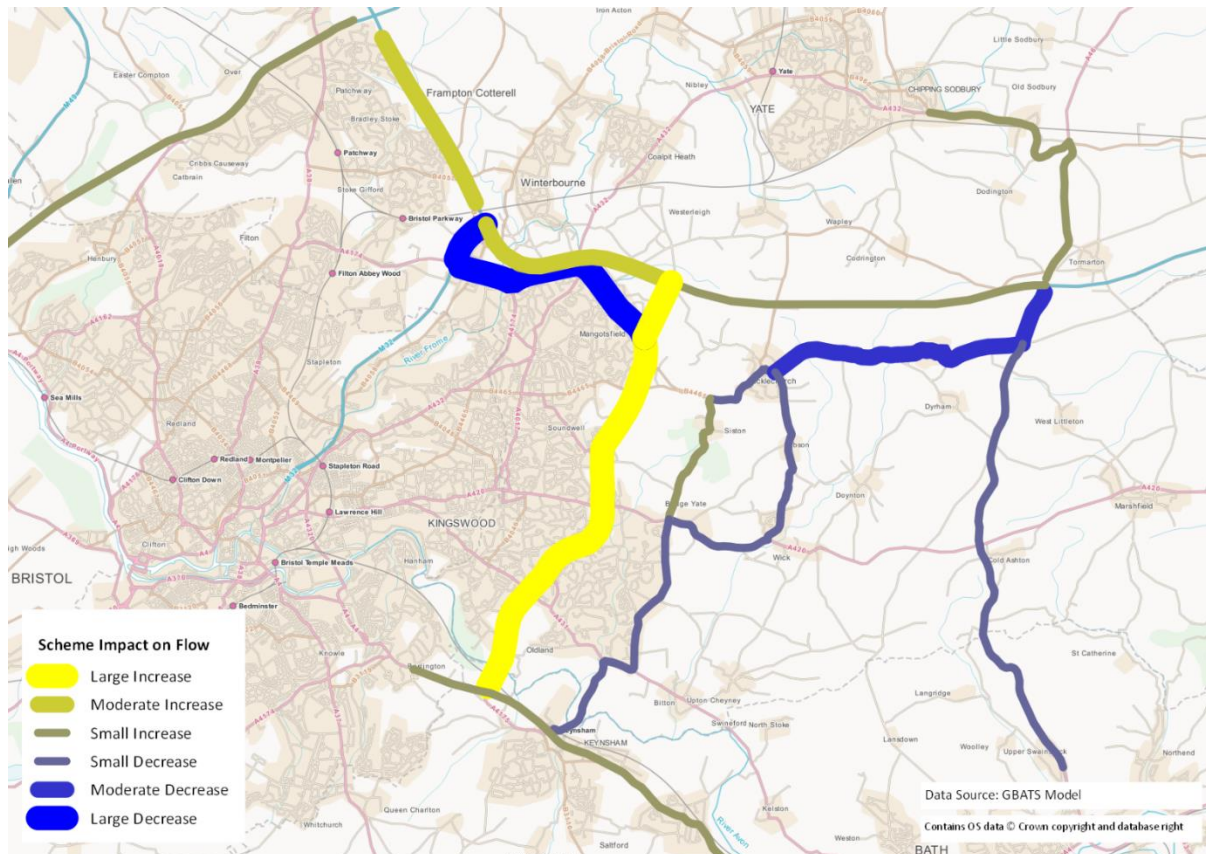
A third 'central' option that would have run through the ongoing Lyde Green development is not viable because of the adverse impacts on new and planned homes.

### Impact of the Scheme

A set of objectives for the schemes has been agreed with local elected representatives and stakeholders. Preliminary analysis shows the two proposed scheme options would meet most of the objectives to varying degrees:

| Objective  | How scheme options meet objectives  |
|--|---|
| Relieve congestion to M4 J19 and M32 J1, and on the A4174 corridor   | All schemes demonstrate considerable congestion benefits.   |
| Improve safety by reducing congestion related collisions on M4 J19 and M32 J1, and on the A4174 corridor   | All options remove the congestion between M32 J1 and M4 J18 thus removing queuing from the motorway.  |
| Unlock the economic potential in the north east Bristol Fringe, particularly within Science, Technology and Innovation sectors                   | All options improve access to the North East Fringe employment sectors.   |
| Improve network resilience and journey time reliability  | Major improvements to resilience and reliability. Diversion route created using new link.   |
| Minimise the impact of traffic/infrastructure to the natural environment and, where possible deliver opportunities for environmental enhancement | All options have an adverse impact. This is being assessed and appropriate mitigation will be considered. Impacts vary across the options this is part of the option evaluation process.                          |
| Protect and enhance access for non-car modes   | All current non-car facilities are being maintained and where practicable improved. Major reduction of bus delay and variability along entire A4174 corridor due to reduced general delays and higher capacities. |

The traffic impact of both options are similar and are summarised below.



Main traffic impacts include:

- A4174 south of scheme expected to increase by 25-30%
- A4174 between scheme and M32 decreases 10% (Opt3) to 27% (Opt1)
- M4 between J19 & J20 increases 5-10%
- Slight to moderate decreases in rural roads to east of Bristol
- Improved access to M4 (mainly westbound) from the north
- Reduced journey times to the M4
- Additional traffic on some local roads north of the M4 (until other schemes proposed in the Joint Transport Study such as the Yate Link and MetroBus provide alternatives)

It is acknowledged that not all the impacts of the scheme would be positive:

- All options would need Green Belt land, especially the 'East' Option
- There would be disruption to road users and neighbouring properties during construction
- All options would have an impact on the natural environment, which will require mitigation

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