“Smart M4”
What’s not to like?

Smart M4 Summary

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friends of the earth Reading

M4 Junctions 3-12: Smart Motorway

Highways England to spend up to **£862 million** by 2022 **increasing capacity of M4** between J3 and J12 by 23% - from 130,000 to 160,000 vehicles per day.

They say: “Smart motorways help relieve congestion by **converting the hard shoulder to a running lane** and using technology to monitor traffic flow and vary the mandatory speed limits to keep traffic moving smoothly”

More traffic and no hard shoulder -> happiness?

‘Smart Motorway’ =
‘Controlled Motorway’ + ‘All Lane Running’

‘Controlled Motorway’ implies:

- Gantries with cameras and variable signs
- Detection ‘loops’ in road to monitor traffic flows
- **Mandatory variable speed limits** with improved detection and enforcement
- Some capacity for peak traffic growth because of speed controls (and perhaps with lower emissions per vehicle because of speed controls)
- Potentially **greater safety** because of speed controls and vehicle and incident detection
- Potential to use gantries and cameras for road user charging

‘All Lane Running’ – ALR - implies:

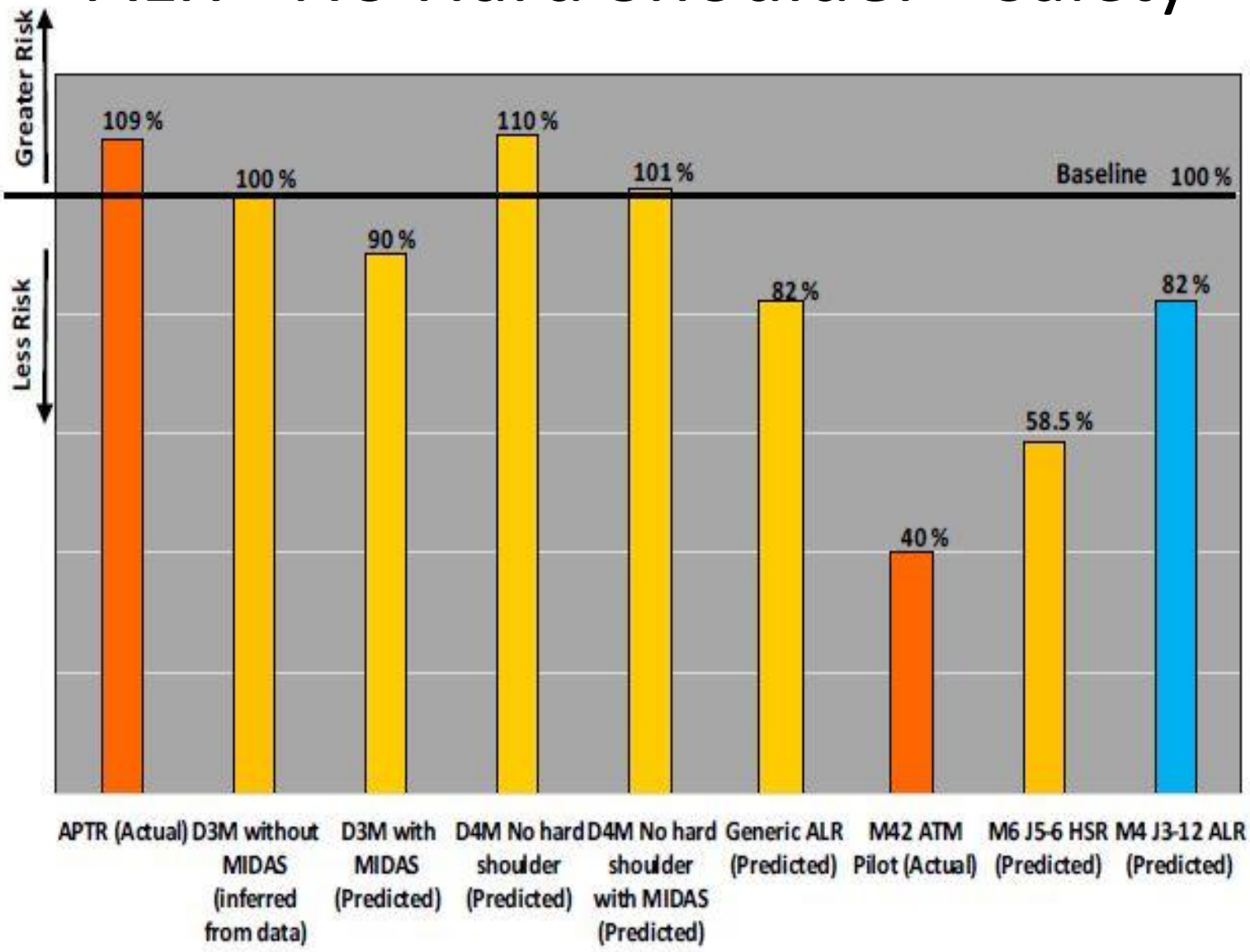
- Big civil engineering costs – perhaps £500 million – and construction delays
  - **replacing 11 overbridges** – no hard shoulder at present
  - widening M4 over some underbridges and culverts.
  - 32 new **‘emergency refuge areas’** – 2.5 km apart
- Increased risks of serious accidents compared to ‘managed motorway’ with a hard shoulder
- Increased risks of delay or congestion if a lane is blocked because a vehicle cannot reach an ‘emergency refuge area’
- Hard shoulder not available to take traffic during incidents or resurfacing.
  - Longer delays?
  - Emergency vehicles counter-flow?

We've been trying to tell you!

Did you know about this?

- 'Information Exercise' – March 2013 – July 2014
- Public Exhibitions – March/April 2014
- Formal Consultation – pre-Christmas 2014
- Preliminary Meeting – Maidenhead – August 2015
- Examination – September 2015 to 3rd March 2016
  - Mostly conducted via written representations and rebuttals
  - Two sets of technical debates
  - Four 'Open Floor Hearings' in November
  - Two rounds of site visits by Examining Authority
- **Report with Minister - decision by 3rd September**.

ALR - No Hard Shoulder - Safety



ALR - No Hard Shoulder - Safety (cont.)

So ‘Smart M4’ is expected to be:

- 8% Lower risk than at present (with MIDAS)
- Much higher risk than a 3-lane motorway with hard shoulder and Active Traffic Management
- Significantly higher risk than a 3-lane motorway with Dynamic Hard Shoulder Running

Transport Select Committee reported on ALR in June 2016 – was very critical.

Transport Select Committee report ALR - No Hard Shoulder - Safety (cont.)

Emergency services were very critical.

Evidence looked at safety implications – including delays in getting emergency services to incidents when there is no hard shoulder and risks of vehicles halting in active lane.

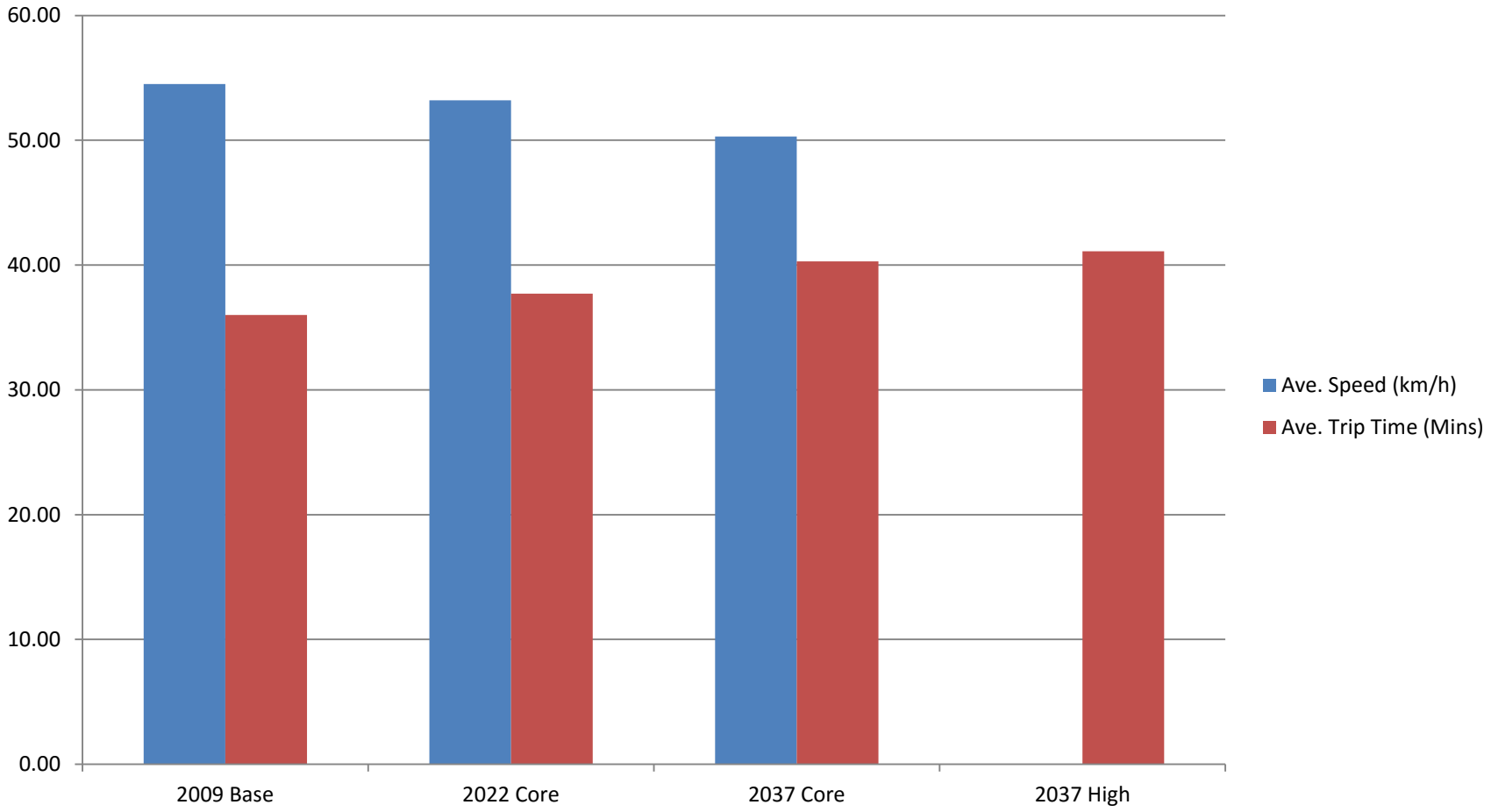
The Committee has concluded “The Department should not proceed with a major motorway programme on the basis of cost savings while major safety concerns continue to exist.”

ALR - No Hard Shoulder - Safety (cont.)

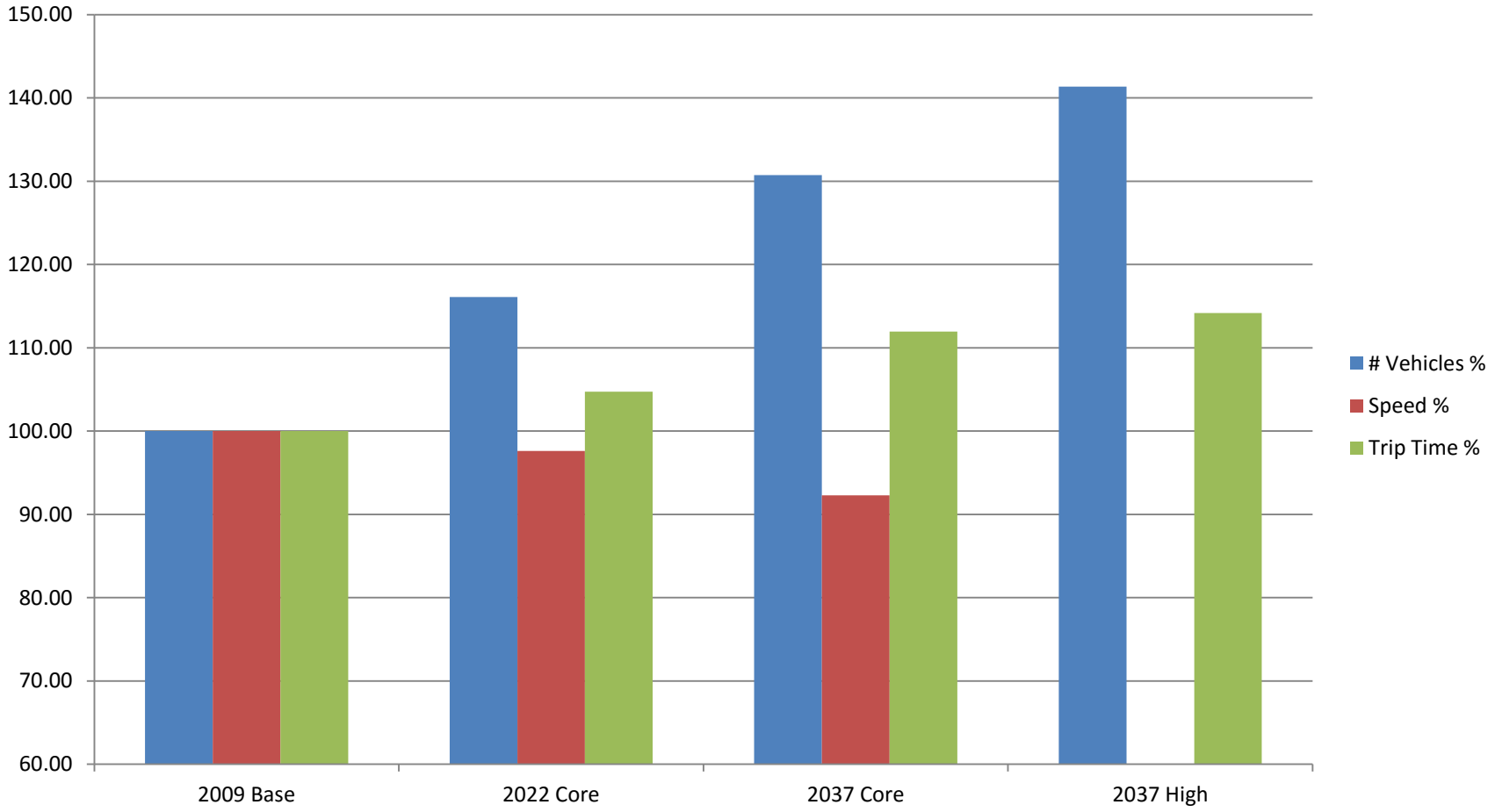
Reading Borough Council "accepts that the M4 requires extra capacity to accommodate the additional traffic that will be generated by the committed and allocated development along the M4 corridor.

"However it believes the provision of the extra capacity by the removal of the hard shoulder and conversion to a smart motorway to be **inherently dangerous** which will lead to **more congestion and delays** on the local road network to the detriment of residents and businesses within the Borough."

Congestion – wide area simulation: Speed (km/h) and Trip Time (Mins)



Congestion – wide area simulation: % changes in trip numbers, speed and trip time



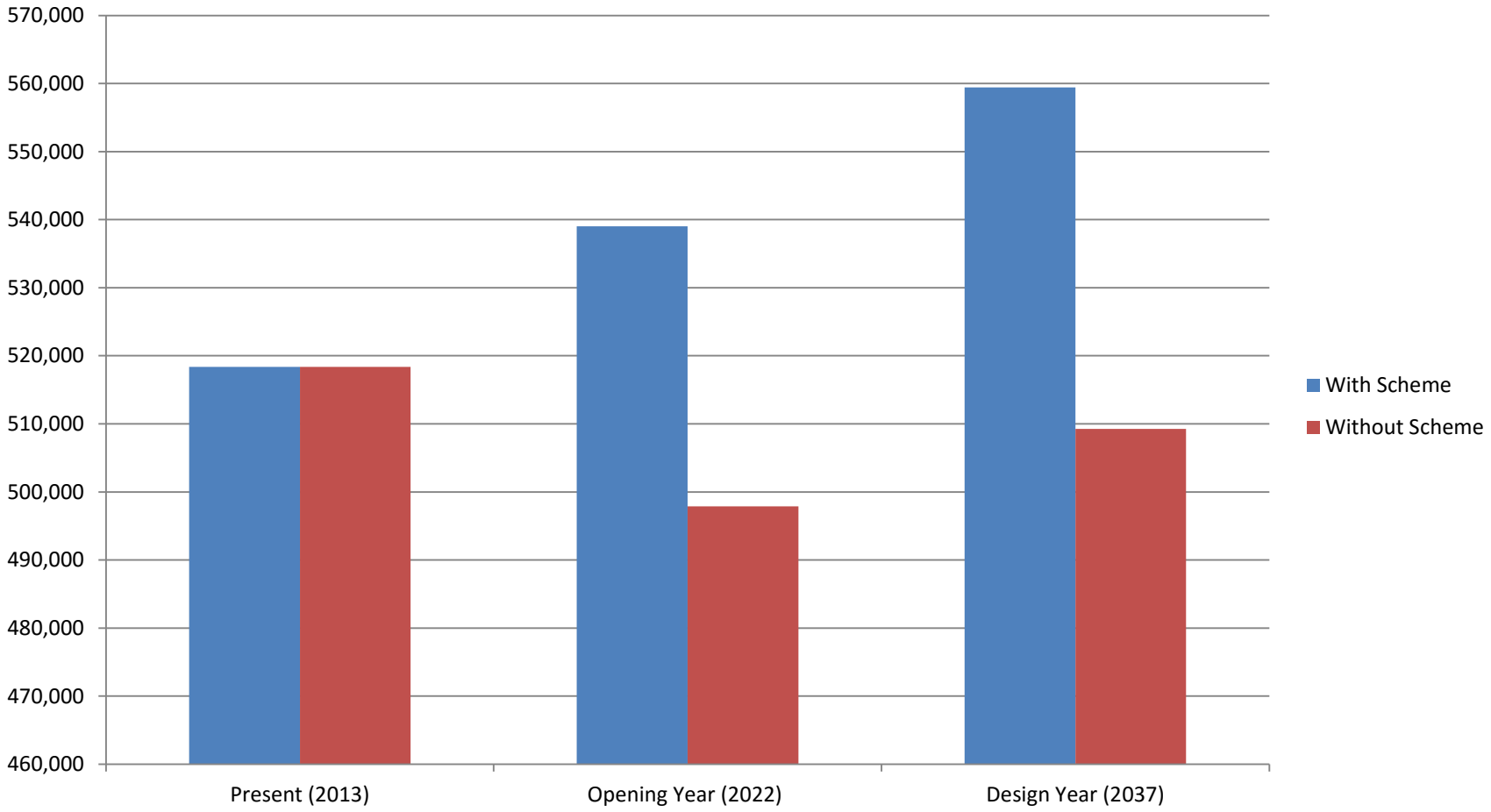
Congestion summary

Average journey time up 4 or 5 minutes!

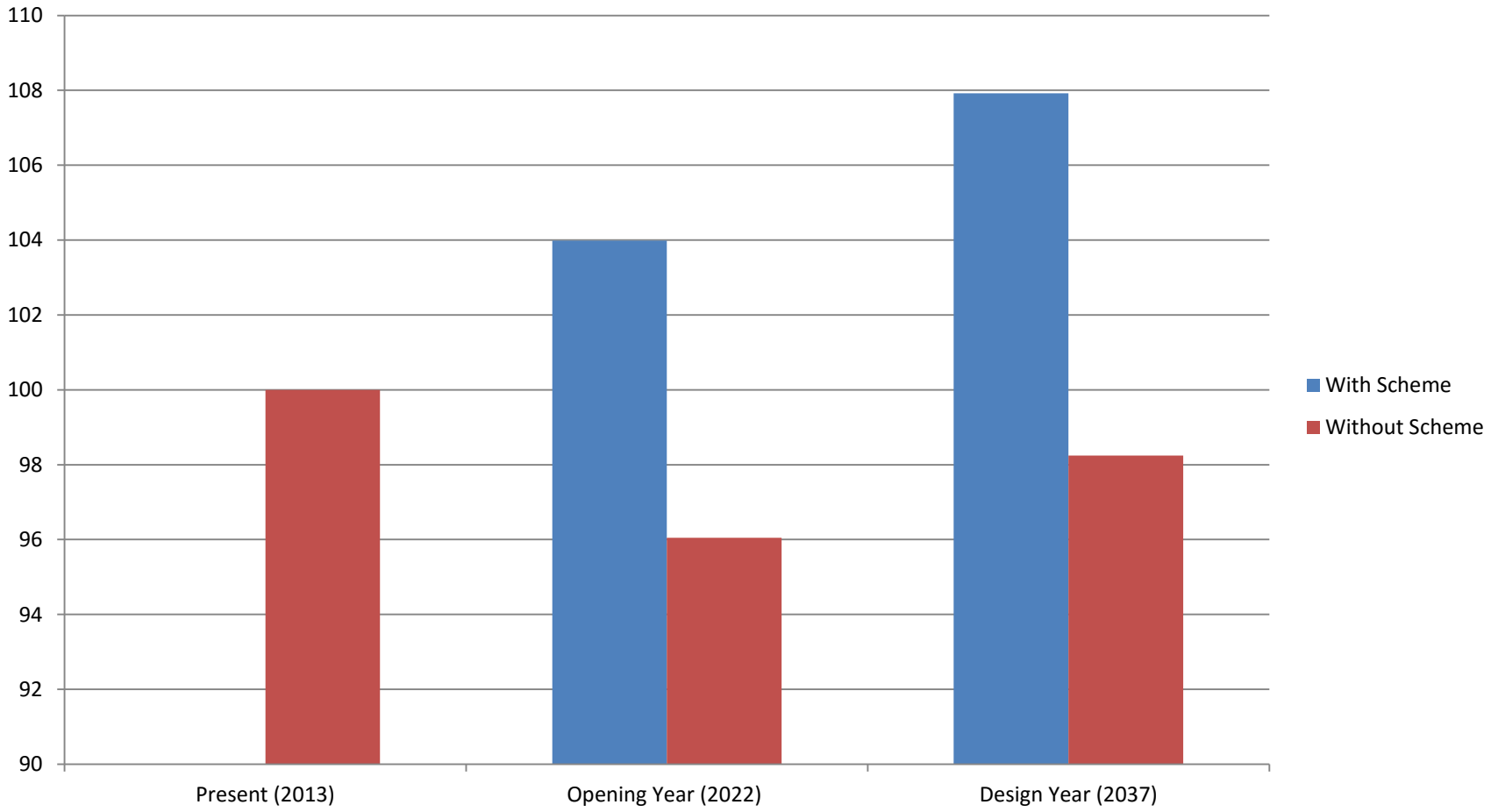
Highways England say

- “typical improvements in journey time along the extent of the M4 of 5-11%
- “increases in journey times across the wider network result from the general growth in traffic.
- “The consequences of this growth will be **a matter for the local highway authorities to address**.”

‘Regional’ Carbon Emissions – traffic simulation - tonnes per year.



‘Regional’ Carbon Emissions – traffic simulation - % changes.



Carbon Emissions summary

Emissions rising to 2037 with scheme – traffic growth!

Numbers depend heavily on assumptions about vehicle fleet – electric, hydrogen, hybrid etc. - as well as on numbers of trips, speeds, and distances travelled.

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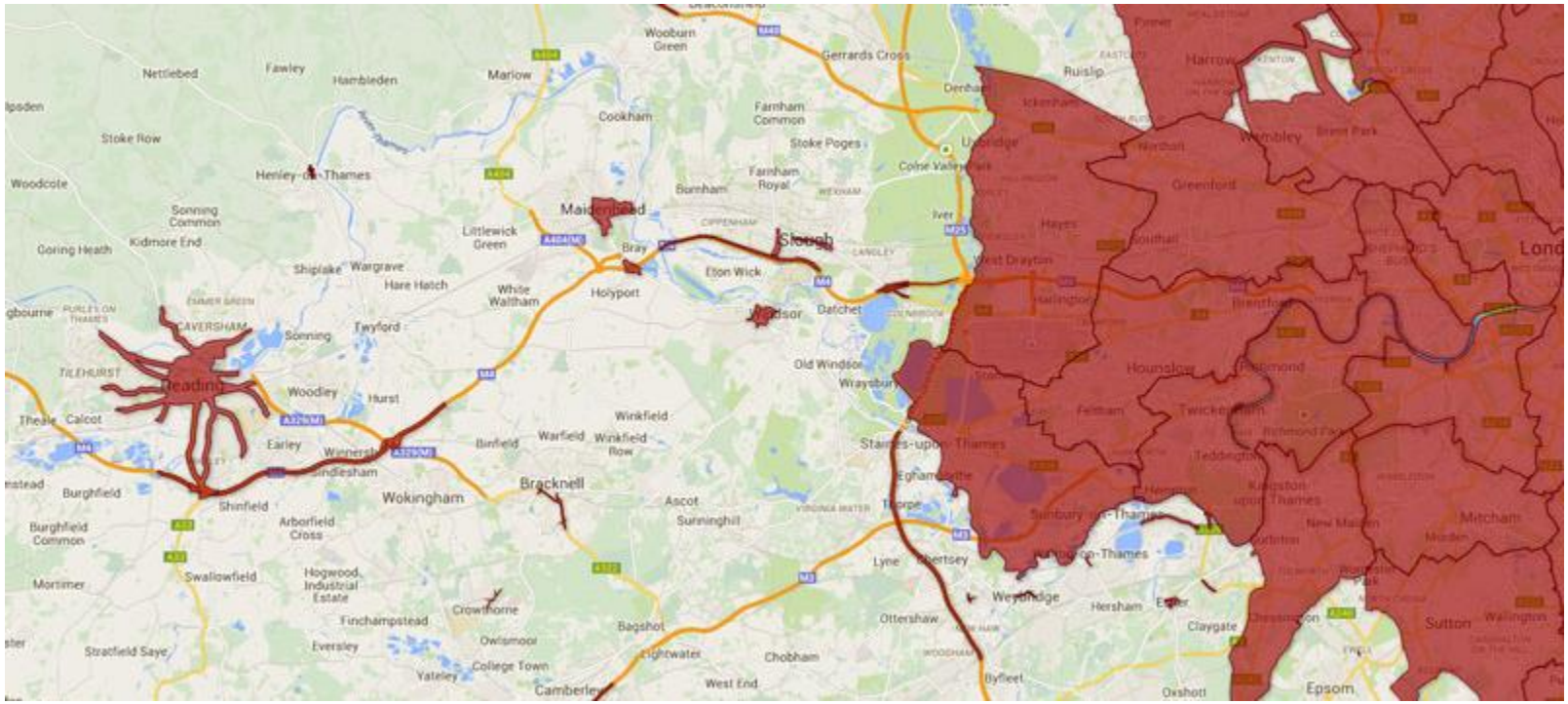
National policy statement for national networks says

- "It is very unlikely that the impact of a road project will, in isolation, affect the ability of Government to meet its carbon reduction plan targets.
- **"**any increase in carbon emissions is not a reason to refuse development consent"

Air Quality:

Existing Air Quality Management Areas – locations where targets likely to be exceeded. Not only along M4 but on approach roads.



Air Quality summary

Highways England simulations (locations near M4 only) show air quality marginal +/- to legal requirements in some places in 2022 and show small changes to 2037 which they claim are ‘not significant’.

Counter-argument is that their model assumes Euro 6 standards reduce emissions a lot from 2014 and there is an alternative official model – which they have not used – which would show a worse case.

Noise: is ‘better’ good enough?

Following early representations to the Examination there was an **‘Enhanced Noise Mitigation Study’** and it is now proposed to install additional ‘low noise surfacing’ and to add or improve some noise barriers.

It is claimed “the Scheme is predicted to result in a beneficial effect in terms of noise … with generally negligible or minor noise reductions within the Scheme.”

But: ‘low noise surfacing’ degrades over time and noise barriers have negligible effect on properties over 300 m away.

Noise - summary

WHO Night Noise Guidelines 2009 give 40 dB(A) as the target level for outside noise, but with 55 dB(A) as an interim target – the Significant Observed Adverse Effect Level (SOAEL). In day-time the SOAEL is 63 dB (A)

At present some properties have night-time noise levels simulated at over 70 dB(A).

Highways England measures will achieve some improvement over present state – especially for worst-affected properties - but will not achieve anywhere near 55 dB (A) let alone 40 dB(A) for all.

Noise – thousands above target level

Residential Properties at or above the SOAEL		
Scenario	Daytime	Night-time
2022 Do-Minimum	3548	6325
2037 Do-Minimum	3098	4730
2022 - enhanced mitig.	2539	3868
2037 - enhanced mitig.	2707	4093

Future Trends?

Future will not be as simulated:

- Digital World – more ‘Remote Working’
- Automation threatens 15 million jobs – changes in demand for peak hour movement?
- Pricing-in carbon and air quality leading to changes in vehicle technology, travel modes, and volume of traffic
- Reduction in migration to SE England?
- Driverless vehicles +/- ??!!

Change of plans #1

Persuade politicians it's not worth it!

Cost – Environmental damage - Safety

- All-Lane Running – No!
  - Save £500m?
  - Avoid years of roadworks!
  - Safety first!
- Controlled Motorway – Yes!

  Speed controls and accident detection to improve safety, capacity, emissions and noise

Change of plans #2

- Demand management:
  - Carbon pricing - Congestion charging
- Reclaim M4 from local commuters for long-distance traffic – it's a STRATEGIC road!
- Decentralise from London and South-East – environmental footprint is 29 times land area!
- Localisation agenda …
- Public transport – improved options

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BUT it's government policy: Under the NN NPS, enhancements to the existing national road network will: include implementing *"smart motorways to increase capacity and improve performance"*.

Join our mailing list to be involved in the next stages of the campaign!

www.readingfoe.org.uk/m4 e-mail: m4@readingfoe.org.uk