

Audit Summary Report

									IN PHASE 3		
PCM Link	56007	Road/Location	M621, Leeds							Area	12
PCM predictions of NO₂ concentrations (µg/m³)											
Year	2018	2019	2020	2021	2022	2023	2024	2025	2026		
PCM Modelled NO ₂ Concentration (µg/m ³)	43	42	40	37	35	34	32	30	29		
HE Verified Modelled NO ₂ Concentration (µg/m ³)	45	43	41	39	36	34	33	30	29		
HE Verified Modelled NO ₂ Concentration (µg/m ³) with 60mph Speed Limit	42	40	38	36	34	32	30	29	27		
Qualifying Feature											
Satellite imagery indicates Sensitive Receptors and Public Access within 15m of the PCM link											
Air Quality Monitoring?											
Yes											
Is the Air Quality Monitoring within 10m, to support Phase 3 decision?											
No											
<p>Air quality monitoring has been undertaken at a number of locations representative of sensitive receptors over recent years, although more than 15m away from the PCM link. NO₂ concentrations were monitored below the annual mean NO₂ concentration of 40µg/m³ at all locations.</p> <p>The indicative modelling completed at Phase 2 identified there were potential exceedances of the limit values along this PCM link, therefore it was recommended that further work be carried out in Phase 3 to confirm this and consequently, mitigation measures were developed.</p> <p>The more recent verified air quality modelling completed for the Phase 3 assessment has concluded that there are exceedances of the limit values up until the year 2021. Therefore, mitigation measures were reviewed as part of the Phase 3 assessment.</p>											
Mitigation required?											
Yes											

Possible Mitigation Options				
KEY:		✘ - Not possible	✓ - Possible	? - More research required
Option	Feasible to bring compliance forward?	Summary		
Source – reducing emissions from the SRN				
Electric vans	✘	<p>Research completed for Highways England indicates that it would only be possible to bring forward a maximum of 250 electric vans over the next few years in any one location. To achieve this would require the creation of a specialist centre.</p> <p>Based on the observed speed of between 50mph and 60mph along this PCM link, it has been calculated that 250 electric vans would equate to an NO₂ reduction of between approximately 0.1µg/m³ and 0.2µg/m³ along this link. As such, the implementation of this measure would not achieve an earlier compliance date.</p>		
Traffic Management	✘	<p>A panel of specialists from the air quality team have reviewed regional traffic management options for the 86 PCM links. The panel concluded there are no possible reasonable traffic management solutions for this PCM link.</p> <p>This PCM link should be re-visited following the implementation of the M621 major project to determine if traffic management measures are still required to deliver compliance.</p>		
Speed Management of 60mph	✓ ¹	<p>The introduction of a 60mph speed limit along this PCM link has been evaluated and the results are shown in the section of this report titled 'PCM predictions of NO₂ concentrations'. Based on these results, delivery of this measure would lead to an approximate reduction of 2µg/m³ in annual mean NO₂ concentrations, meaning the PCM link would achieve compliance with the limit values one year earlier.</p> <p>A 50mph speed limit has been extended along this PCM link to cover the air quality qualifying features entirely. This measure can therefore be considered delivered and air quality monitoring will be commissioned to measure NO₂ concentrations alongside the PCM link.</p>		
Bus Retrofit	✘ ²	<p>It has been agreed with JAQU that given the incredibly small number of bus journeys on the motorway network this mitigation will result in no discernible reduction in NO_x emissions along this link and therefore, this measure is not being progressed.</p>		

HGV Retrofit	x	A review of traffic data for this PCM link has identified approximately 5,500 HGVs travelling along this link. Theoretically, a HGV retrofit scheme could reduce annual mean NO ₂ concentrations by 0.8µg/m ³ . However, no accredited retrofit system is currently available for HGVs nor is it known the mechanism for delivery. As such, it is anticipated that this measure would require a Government led scheme for delivery and Highways England is not able to progress this measure at this time.
Pathway – preventing the emissions reaching receptors		
9.5m high barrier	x	Emerging evidence based on from air quality monitoring research undertaken by Highways England indicates a 2 – 5µg/m ³ reduction in annual mean NO ₂ concentrations behind a 9.5m overhanging barrier. This PCM link has been reviewed and it has been determined that based on the current PCM modelling construction of the barrier would not deliver compliance in a shorter timescale.
Tunnels / canopies, Bypass	x	The current programme to build a tunnel / canopy or a bypass is estimated to be at least between 5 – 10 years. This means that none of these measures could be delivered earlier than the reported compliance date set out in the PCM model.
Receptor – dealing with concentrations at the affected receptors		
Any other local measures ³	x	Public Access Footpaths are located within 15m of this PCM link. A review of the existing footpaths has identified that there is no potential alternative route for footpath mitigation.
	x	Low Friction Road Surfacing Highways England has recently undertaken research looking into the difference in measured exhaust emissions for a range of vehicles driven on a section of road with the low friction road surface and hot rolled asphalt. The outcomes of the research concluded there was no statistically significant difference in measured NO _x emissions between the two road surfaces. Therefore, the empirical evidence does not support this as a measure to achieve compliance in the shortest possible timescales.
Summary		
This audit report has identified:		
<ul style="list-style-type: none"> • Air quality monitoring has identified concentrations below the limit value at sensitive receptors along the PCM link. • HE verified modelling indicates that there are exceedances of the Limit Value up until the year 2021, therefore the PCM Link has been taken forward for the developed mitigation measures 		

to be implemented.

- Based on indicative reductions in NO₂, the introduction of a 60mph speed limit on this link could help to achieve compliance in a shorter timescale. A 50mph speed limit has been extended along this PCM link to cover the air quality qualifying features entirely. This measure can therefore be considered delivered.

Recommendation

The verified air quality modelling completed for the Phase 3 assessment has concluded that there are exceedances of the limit values along PCM link 56007 up until the year 2021.

In completing the assessment for this SRN PCM link, Highways England has considered a range of measures to support compliance in the shortest possible timeframe. These measures have included speed management measures, delivery of this measure could lead to a reduction of 2µg/m³ in annual mean NO₂ concentrations; traffic management measures, however detailed investigations have concluded no viable measures would improve air quality; and a 9.5m high barrier, although it is not considered possible to build a barrier at this location due to physical constraints.

It has been concluded that a speed limit reduction has the potential to bring forward compliance with the limit values by one year. A new 50mph speed limit has been extended along this PCM link. This measure can therefore be considered delivered and air quality monitoring will be commissioned to measure NO₂ concentrations alongside this PCM link.

Supporting Activities

Additional air quality monitoring to be commissioned to measure NO₂ concentrations alongside this PCM link following the implementation of the speed limit reduction.

JAQU Comments

¹ Legal requirement to make a Temporary Traffic Regulation Order

² Requires JAQU to deliver

³ Subject to legal consideration of proposed local options