Audit Summary Report

									IN PHASE 4
PCM Link	36007		**Road/Location**	M1, Rotherham				**Area**	12
PCM predictions of NO_2 concentrations ($\mu g/m^3$)									
Year	2018	2019	2020	2021	2022	2023	2024	2025	2026
PCM Modelled NO_2 Concentration ($\mu g/m^3$)	**44**	**42**	**40**	37	35	34	32	30	29
HE Verified Modelled NO_2 Concentration ($\mu g/m^3$)	**46**	**45**	**43**	**41**	39	37	36	34	33
HE Verified Modelled NO_2 Concentration ($\mu g/m^3$) with 60mph Speed Limit	**43**	**41**	39	38	36	34	33	32	30

Qualifying Feature

Satellite imagery indicates Sensitive Receptors within 15m of the PCM link

Air Quality Monitoring?

Yes

Is the Air Quality Monitoring within 10m, to support Phase 3 decision?

No

Air quality monitoring has been undertaken at a number of locations, while not representative of sensitive receptors along the PCM Link, indicates exceedances of the Limit Value.

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.

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 2022. Therefore, mitigation measures have been reviewed as part of the Phase 3 assessment.

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	✗	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. Based on the observed speed of 70mph along this PCM link, it has been calculated that 250 electric vans would equate to an NO_2 reduction of approximately 0.2µg/m^3 along this link. As such, the implementation of this measure would not achieve an earlier compliance date.
Traffic Management	✗	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.
Speed Management of 60mph	✓[1]	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 NO_2 concentrations'. Based on these results, delivery of this measure would lead to an approximate reduction of 3µg/m^3 in annual mean NO_2 concentrations, meaning the PCM link would achieve compliance with the limit values two years earlier. A feasibility study looking at the deliverability of a 60mph speed limit along the length of this PCM link was commissioned in Autumn 2019. This 60mph speed limit was implemented on the 28th September 2020.
Bus Retrofit	✗[2]	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 NOx emissions along this link and therefore, this measure is not being progressed.
HGV Retrofit	✗	A review of traffic data for this PCM link has identified approximately 11,730 HGVs travelling along this link. Theoretically, a HGV retrofit scheme could reduce annual mean NO_2 concentrations by 1.8µg/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	✗	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	✗	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]	✗ ✗	**Public Access** There are no footpaths within 15m along the length of this PCM link. **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 NOx 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		
• Air quality monitoring has identified exceedances at a number of locations along the PCM link, although these cannot be considered representative of relevant receptors. • HE verified modelling indicates that there are exceedances of the limit value up until the year 2022, therefore the PCM Link has been taken forward for the developed mitigation measures to be implemented. • Based on indicative reductions in NO_2, the introduction of a 60mph speed limit on this link could help to achieve compliance in a shorter timescale. A feasibility study looking at the deliverability of this was commissioned in Autumn 2019, with the 60mph speed limit being implemented on the 28th September 2020.		
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 36007 up until the year 2022. 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 1µg/m^3 in annual		

mean NO_2 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. A 60mph speed limit was implemented in September 2020. This measure can therefore be considered delivered and air quality monitoring will be commissioned to measure NO_2 concentrations alongside this PCM link.**
Supporting Activities
Additional air quality monitoring to be commissioned to measure NO_2 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