Audit Summary Report

									IN PHASE 3
PCM Link 75422			**Road/Location** A50, Stoke-on-Trent					**Area** 9	
PCM Link modelled NO_2 concentrations (µg/m^3)									
Year	2018	2019	2020	2021	2022	2023	2024	2025	2026
PCM Modelled NO_2 Concentration (µg/m^3)	**46**	**44**	**42**	39	37	35	33	31	30
HE Verified Modelled NO_2 Concentration (µg/m^3)	**46**	**43**	**41**	38	36	33	31	30	28
Qualifying Feature									
Satellite imagery indicates Public Access within 15m of the PCM link									
Air Quality Monitoring?									
No									
Is the Air Quality Monitoring within 10m, to support Phase 3 decision?									
No									
Although the indicative modelling completed at Phase 2 identified there were likely no exceedances of the limit values along this PCM link, 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 2021. 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 60mph 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	✗	Possible traffic management options for this link were discussed in a workshop held during late 2018 into early 2019. The outcomes of the workshop indicated that there may be the possibility for local traffic management measures to help support improvements in air quality. A feasibility study was commissioned in Autumn 2019 to investigate in more detail whether the proposed local traffic measures would deliver changes in traffic that in turn would lead to improvements in air quality and support compliance with the limit values in the shortest timescales possible. However, following detailed investigations to support the feasibility study, it has been concluded that there are no viable local traffic management measure solutions that could be delivered for this SRN PCM link capable of improving air quality.
Speed Management of 60mph	✗[1]	The existing speed limit along the A50 is 50mph. Consequently, it would not be appropriate to consider speed management on this part of the network.
Bus Retrofit	✗	A review of bus movements along this section of the A50 has identified 70 journeys are made per day along this PCM link. The Euro standard of the buses making these journeys are unknown. However, if they did require retrofitting, the 70 journeys per day would not support any measurable reduction in annual mean NO_2 concentrations along this PCM link. Indicative modelling suggests a bus retrofit could reduce annual mean NO_2 concentrations by 0.01µg/m^3 and therefore would not support delivery of compliance with the Air Quality Directive in the shortest timescale possible. Therefore, this measure is not being taken forward.
HGV Retrofit	✗	A review of traffic data for this PCM link has identified approximately 7,400 HGVs travelling along this link. Theoretically, a HGV retrofit scheme could reduce annual mean NO_2 concentrations by 1.3µg/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	×	**Public Access** Footpaths are located within 15m along the length of this PCM link. A review of the existing footpaths has identified that there is no potential alternative route for footpath mitigation.
	×	**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		
This audit report has identified: • 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. • Highways England have reviewed all available mitigation measures and unfortunately none were found to be viable on this PCM link, as described above. We are now looking to organise a workshop with the local authority to see if there are any other viable measures that could be considered.		

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 75422 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, however the speed limit along this link was already 50mph and no further reduction would improve air quality; 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. **Following the completion of the feasibility study, it has been concluded there are no viable measures currently available to Highways England to help meet limit values in a shorter timescale than modelled. However, Highway England continues to investigate whether there are new or emerging ideas and / or technologies that could be considered, alongside any measures put forward by Government for the SRN.** A workshop will be held with the local authority to determine whether any other viable measures could be considered to help support compliance with limit values along this PCM link in the shortest timescales possible.
Supporting Activities
• Additional air quality monitoring has been identified for this link as part of the SRN PCM link evaluation strategy. • Workshop to be held with the local authority.
JAQU Comments
[1] Legal requirement to make a Temporary Traffic Regulation Order