

## Audit Summary Report

									<b>IN PHASE 4</b>
<b>PCM Link</b> 99331	<b>Road/Location</b> A50, Stoke-on-Trent						<b>Area</b> 9		
<b>PCM Link modelled NO<sub>2</sub> concentrations (µg/m<sup>3</sup>)</b>									
Year	2018	2019	2020	2021	2022	2023	2024	2025	2026
PCM Modelled NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )	<b>42</b>	<b>40</b>	38	36	33	32	30	28	27
HE Monitored NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )	<b>49</b>	<b>44</b>	<b>41</b>	39	37	35	33	31	30
<b>Qualifying Feature</b>									
Satellite imagery indicates Public Access within 15m of the PCM link.									
<b>Air Quality Monitoring?</b>									
No									
<b>Is the Air Quality Monitoring within 10m, to support Phase 3 decision?</b>									
Yes									
<p>Due to a lack of monitoring data in this area, Highways England installed a diffusion tube north of the eastbound carriageway in a location considered representative of the qualifying feature. This monitoring data was not available at the time of submitting Draft Version 1 of the Phase 3 assessment (Commission No. 1), and it was subsequently recommended to stop assessment of this link at the end of Phase 3 based on modelling data alone.</p> <p>However, concentrations were monitored above the annual mean NO<sub>2</sub> concentration of 40µg/m<sup>3</sup> in 2019 and, whilst the monitoring location is slightly closer to the PCM link than the footpath (7m compared to 13m), distance corrected calculations indicate concentrations at the qualifying feature to still be in excess of the limit value. Therefore, based on this new monitoring data, this PCM link has been reassessed and mitigation measures have been reviewed as part of this assessment.</p>									
<b>Mitigation required?</b>									
Yes									
<b>Possible Mitigation Options</b>									
<b>KEY:</b>	✘ - Not possible			✓ - Possible			? - More research required		

Option	Feasible to bring compliance forward?	Summary
<b>Source – reducing emissions from the SRN</b>		
Electric vans	<b>x</b>	<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 speed limit of 50mph along this PCM link, it has been calculated that 250 electric vans would equate to an NO<sub>2</sub> reduction of between approximately 0.1µg/m<sup>3</sup> and 0.2µg/m<sup>3</sup> along this link. As such, the implementation of this measure would not achieve an earlier compliance date.</p>
Traffic Management	<b>x</b>	<p>Possible traffic management options for this section of the A50 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.</p> <p>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.</p> <p>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.</p>
Speed Management of 60mph	<b>x</b>	The existing speed limit along the A50 is 50mph. Consequently, speed management would not be appropriate for this part of the network.
Bus Retrofit	<b>x</b>	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 <sub>2</sub> concentrations along this PCM link and would not support limit value compliance with in the shortest timescale possible. Therefore, this measure is not being taken forward.
HGV Retrofit	<b>x</b>	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.

<b>Pathway – preventing the emissions reaching receptors</b>		
9.5m high barrier	✘	<p>Emerging evidence based on air quality monitoring research undertaken by Highways England indicates a 2 – 5µg/m<sup>3</sup> reduction in annual mean NO<sub>2</sub> concentrations behind a 9.5m overhanging barrier.</p> <p>This PCM link has been reviewed and based on professional judgement it is not considered possible to build a barrier at this location because of the physical constraints.</p>
Tunnels / canopies, Bypass	✘	<p>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 indicative modelled compliance date.</p>
<b>Receptor – dealing with concentrations at the affected receptors</b>		
Any other local measures	✘	<p><b>Footpaths</b></p> <p>A footpath within 15m of this PCM link is located to the north of the eastbound carriageway within a retail park. A review of the existing footpaths has identified that there is no potential alternative route for footpath mitigation.</p>
	✘	<p><b>Low Friction Road Surfacing</b></p> <p>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<sub>x</sub> 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.</p>
<b>Summary</b>		
<p>This audit report has identified:</p> <ul style="list-style-type: none"> <li>• Whilst HE verified modelling indicates that there are no exceedances of the limit value from 2018, air quality monitoring has identified exceedances over recent years at locations considered representative of relevant receptors along the PCM link. Therefore, the PCM Link will be taken forward for mitigation measures to be implemented.</li> <li>• 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.</li> </ul>		
<b>Recommendation</b>		
<p>Air quality monitoring undertaken in 2019 has identified exceedances of the limit values along PCM link 99331.</p>		

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.

**It has been concluded, there are no viable measures currently available to Highways England to help attain limit value compliance in a shorter timescale than modelled annual mean NO<sub>2</sub> concentrations for this SRN PCM link.**

A workshop is therefore to 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**