

## Audit Summary Report

		IN PHASE 2							
<b>PCM Link</b> 48707	<b>Road/Location</b> A1 Newcastle upon Tyne	<b>Area</b> 14							
<b>PCM predictions of 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>44</b>	<b>42</b>	40	37	35	33	31	29	28
HE Indicative Modelled NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )	31	29	28	26	24	23	22	21	19
<b>Qualifying Feature</b>									
Satellite imagery indicates sensitive receptors within 15m (gardens of residential properties) of the PCM link.									
<b>Air Quality Monitoring?</b>									
Yes									
<b>Is the Air Quality Monitoring within 10m, to support Phase 2 decision?</b>									
No									
<p>Air quality monitoring has been undertaken at a number of locations representative of relevant receptors over recent years, although more than 15m away from the PCM link. NO<sub>2</sub> concentrations were monitored at 5 locations and all monitoring concentrations were below the annual mean NO<sub>2</sub> concentration of 40µg/m<sup>3</sup>.</p> <p>Although the indicative air quality modelling indicates no exceedance of the Limit Value on PCM link 48707, it is recommended that further work is carried out in Stage 3 to confirm that no mitigation is required.</p>									
<b>Mitigation required?</b>									
Mitigation measures have been considered on an interim basis until further information is available to confirm the indicative air quality modelling results.									
<b>Possible Mitigation Options</b>									

KEY:	✘ - Not possible	✓ - Possible	? - More research required
Option	Feasible to bring compliance forward?	Summary	
<b>Source – reducing emissions from the SRN</b>			
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 60mph along this PCM link, it has been calculated that 250 electric vans would equate to an NO<sub>2</sub> reduction of approximately 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	✘	<p>A panel of specialists including operations and air quality have reviewed regional traffic management options for the 86 PCM links. The panel concluded there are no obvious traffic management solutions.</p>	
Speed Management of 50mph	✓ <sup>1</sup>	<p>The existing speed limit along the A1 is 70mph. WebTRIS data has identified the daily average speed of vehicles travelling along this section of the A1 as being approximately 60mph. Consequently, the speed limit would need to be set to 50mph to provide any improvement in NO<sub>2</sub> concentrations along this link. Enforcement of this speed would result in an approximate improvement in annual mean NO<sub>2</sub> concentrations by 1.9µg/m<sup>3</sup>. Based on this high level calculation, this has the potential to bring forward compliance from 2020 to 2019 and would need to be assessed in further detail in Phase 3.</p> <p>More detailed traffic assessment at Phase 3 is required to ensure there are no unanticipated adverse traffic impacts on the local network.</p>	
Bus Retrofit	✘ <sup>2</sup>	<p><i>No bus stops:</i></p> <p>A review of this PCM link using satellite imagery has not identified any bus stops along the route. As such, it is assumed that there is minimal bus usage along this road which will result in no discernible reduction in NO<sub>x</sub> emissions and therefore, this measure is not being progressed.</p>	
HGV Retrofit	?	<p>A review of traffic data for this PCM link has identified approximately 4,970 HGVs travelling along this link. Theoretically, a HGV retrofit scheme could reduce annual mean NO<sub>2</sub> concentrations by 0.8µg/m<sup>3</sup>. 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.</p>	

<b>Pathway – preventing the emissions reaching receptors</b>		
9.5m overhanging barrier	✘	<p>Emerging evidence based on from 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 it has been determined that based on the current PCM modelling construction of the barrier would not deliver compliance in a shorter timescale.</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 reported compliance date set out in the PCM model.</p>
<b>Receptor – dealing with concentrations at the affected receptors</b>		
Any other local measures <sup>3</sup>	✘	<p>Sensitive receptors (residential properties) are located within 15m (gardens, rather than building) of this PCM link. Satellite imagery has indicated that there are more than 5 properties located along this PCM link. As such, dealing with the properties directly is not an option in this location.</p>
<b>Summary</b>		
<p>This audit report has identified:</p> <ul style="list-style-type: none"> <li>• Indicative air quality modelling and monitoring suggests that there is likely no exceedance of the Limit Value on PCM Link 48707.</li> <li>• Based on the evidence, a reduction in speed limit to 50mph along this link has the potential to bring forward compliance by one year.</li> <li>• Retrofit HGVs may also support in bringing forward compliance, however a Government led scheme is required for delivery.</li> </ul>		
<b>Recommendation</b>		
<p>It is recommended that PCM link 48707 is taken forward to Phase 3. Further work will be carried out as part of the Phase 3 assessment to confirm the outcomes of the indicative air quality modelling and whether mitigation is required or not.</p>		
<b>Supporting Activities</b>		
<ul style="list-style-type: none"> <li>• As part of the Phase 2 assessment it has been identified that there may be a need for additional air quality monitoring to help support the outcomes of the indicative air quality modelling along this PCM link. The need for any monitoring will be confirmed early in the Phase 3 assessment.</li> </ul>		
<b>JAQU Comments</b>		
<p><sup>1</sup> Requires legal input</p>		

<sup>2</sup> Requires JAQU to deliver

<sup>3</sup> Subject to legal consideration of proposed local options