

Audit Summary Report

IN PHASE 3													
PCM Link 57767	Road/Location A38, Derby								Area 7				
PCM predictions of NO₂ concentrations (µg/m³)													
Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
PCM Modelled NO ₂ Concentration (µg/m ³)	41	39	37	35	33	31	30	28	27	26	25	24	23
HE Verified Modelled NO ₂ Concentration (µg/m ³)	70	67	64	60	57	54	51	48	46	44	42	41	39
Qualifying Feature													
Satellite imagery indicates Sensitive Receptors (residential gardens) 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 was undertaken at a location representative of relevant 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, however; this is not representative of the PCM Link.</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 2030. Therefore, mitigation measures have been 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 40mph along this PCM link, it has been calculated that 250 electric vans would equate to an NO₂ reduction of less than 0.1µg/m³ along this link. As such, the implementation of this measure would not achieve an earlier compliance date.</p>	
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 existing speed limit along the A38 is 40mph. Consequently, no reduction in speed limit would provide any improvement in NO ₂ concentrations along this link.	
Bus Retrofit	✘²	A review of bus movements along this section of the A38 has identified approximately 2 bus journeys per day along this PCM link. The Euro standard of the buses making these journeys are unknown. However, if they did require retrofitting, the 2 journeys per day would not support any measurable reduction in annual mean NO ₂ concentrations along this PCM link and therefore would not support delivery of compliance with the Air Quality Directive in the shortest timescale possible.	
HGV Retrofit	✘	A review of traffic data for this PCM link has identified approximately 6,230 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	✘	<p>Emerging evidence based on from air quality monitoring research undertaken by Highways England indicates a 2 – 5µg/m³ reduction in annual mean NO₂ concentrations behind a 9.5m overhanging barrier.</p> <p>Following a review of the PCM link, construction of a barrier has been</p>	

		dismissed due to unsuitable road geometry.
Tunnels / canopies, Bypass	?	The current programme to build a tunnel, canopy or bypass is estimated to be at least between 5 – 10 years. As the verified air quality modelling now shows exceedances of the limit values along this PCM link up to and including the year 2029, further work will be required to assess whether a tunnel, canopy or bypass could be a viable option.

Receptor – dealing with concentrations at the affected receptors

Any other local measures ³	?	<p>Public Access</p> <p>Footpaths are located within 15m along the length of this PCM link. A review of the footpaths has identified a potential alternative route for one of the current footpaths parallel to the A38, with a proposed Air Quality Walking Route along Greenwich Drive North. A feasibility study was commissioned in Autumn 2019 to whether the alternative route is viable. It was determined that this PCM link is part of the A38 Derby Junctions scheme. Review of the scheme design indicates that the footpaths will be set further back from the road following completion of the project, which removes them as qualifying features. Following a recent judicial review challenge to the Development Consent Order (DCO) for this scheme, a new DCO will be required which is anticipated to be re-issued later in 2021. There may be a need to review possible measures for this link.</p> <p>Low Friction Road Surfacing</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 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.</p>
	x	

Summary

This audit report has identified:

- Air quality monitoring has identified exceedances in recent years at a number of locations considered representative of relevant receptors along the PCM link.
- HE verified modelling indicates that there are exceedances of the Limit Value up until the year 2030.
- 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.
- A possible Air Quality Walking Route has been identified as a complementary measure and a feasibility study commissioned to determine whether this alternative route is viable. It was determined that this PCM link is part of the A38 Derby Junctions scheme and the footpaths are to be set further back from the road following completion of the project, which removes them as qualifying features. However, following a recent judicial review challenge to the Development Consent Order (DCO) for this scheme, a new DCO will be required which is anticipated to be re-issued later in 2021. There may be a need to review possible measures for this link.

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 57767 up until the year 2030.

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 40mph 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.

As a complementary measure, alternative footpath routes have been considered. It was determined that this PCM link is part of the A38 Derby Junctions scheme and following completion of the project the footpaths are to be set further back from the road, which removes them as qualifying features. Following a recent judicial review challenge to the Development Consent Order (DCO) for this scheme, a new DCO will be required which is anticipated to be re-issued later in 2021. There may be a need to review possible measures for this link.

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.

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

² Requires JAQU to deliver

³ Subject to legal consideration of proposed local options