## **Audit Summary Report**

								IN PH	IASE 3
<b>PCM Link</b> 80427		Road	Road/Location		A1 Gateshead			Area	14
PCM predictions of NO	2 concentra	itions (µ	g/m³)					I	
Year	2018	2019	2020	2021	2022	2023	2024	2025	2026
PCM Modelled NO <sub>2</sub> Concentration (µg/m³)	50	47	44	41	38	36	34	32	31
HE Verified Modelled NC Concentration (µg/m³)	53	51	49	47	44	42	40	38	36
Qualifying Feature						1			
Satellite imagery indicates Sensitive Receptors and Public Access within 15m of the PCM link.									
Air Quality Monitoring?	•								
Yes									
Is the Air Quality Monit	oring within	n 10m, to	suppoi	rt Phase	3 decisi	on?			
No									
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 below the annual mean NO <sub>2</sub> concentration of 40μg/m³ at all locations considered representative of sensitive receptors.									
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 to and including the year 2025. Therefore, mitigation measures have been reviewed as part of the Phase 3 assessment.									
Mitigation required?									
Yes									
Possible Mitigation Options									
KEY:	× - Not po	ssible	~	- Possi	ble	? - M	ore rese	arch red	quired

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 50mph along this PCM link, it has been calculated that 250 electric vans would equate to an NO <sub>2</sub> reduction of approximately 0.1µg/m³ 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	<b>x</b> <sup>1</sup>	The existing speed limit along the A1 is 50mph. Speed limit reduction would therefore not be appropriate for this part of the network.		
Bus Retrofit	<b>x</b> <sup>2</sup>	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 NOx emissions and therefore, this measure is not being progressed.		
HGV Retrofit	×	A review of traffic data for this PCM link has identified approximately 5,110 HGVs travelling along this link. Theoretically, a HGV retrofit scheme could reduce annual mean NO <sub>2</sub> concentrations by 0.8µg/m³. 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 - preven	ting 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/m³ reduction in annual mean NO₂ concentrations behind a 9.5m overhanging barrier.  A feasibility study undertaken has determined that it is not technically possible to build a barrier alongside this PCM link due to the narrow verge.			
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 – dealin	g with concentration	ons at the affected receptors			
Any other local measures <sup>3</sup>	?	Public Access  Footpaths are located within 15m along the length of this PCM link. A review of these footpaths has identified two potential alternative Air Quality Walking Routes and a feasibility study was commissioned in Autumn 2019 to determine whether these routes are viable.  The footpath between Chiltern Gardens and West Way has an alternative route a few metres further back from the A1; however, the findings of the feasibility study have concluded that this route is not a viable option.  The footpath between Dunston Road and Ellison Road has an alternative Air Quality Walking Route through the park. The feasibility study concluded that monitoring of the footway is required prior to local authority consideration of an alternative walking route.  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:

- Air quality monitoring has identified concentrations below the limit value at a number of locations representative of relevant receptors over recent years, although more than 15m away from the PCM link.
- HE verified modelling indicates that there are exceedances of the Limit Value up until the year 2025.
- 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, although monitoring of this footpath is required before local authority consideration of an alternative walking route.

## 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 80427 up until the year 2025.

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 is 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.

A possible Air Quality Walking Route has been identified as a complementary measure, although monitoring of this footpath is required before local authority consideration of an alternative walking route.

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, including monitoring of the footpath.
- Workshop to be held with the local authority.

## **JAQU Comments**

- <sup>1</sup> Legal requirement to make a Temporary Traffic Regulation Order
- <sup>2</sup> Requires JAQU to deliver

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