Audit Summary Report

									IN PHASE 3
PCM Link 81374			**Road/Location** A38, Plymouth						**Area** 1
PCM predictions of NO_2 concentrations (µg/m^3)									
Year	2018	2019	2020	2021	2022	2023	2024	2025	2026
PCM Modelled NO_2 Concentration (µg/m^3)	**42**	**40**	38	36	34	32	30	29	27
HE Verified Modelled NO_2 Concentration (µg/m^3)	**60**	**57**	**55**	**52**	**48**	**45**	**42**	**40**	37
HE Verified Modelled NO_2 Concentration (µg/m^3) with 60mph Speed Limit	**58**	**55**	**52**	**49**	**46**	**43**	**40**	38	35
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 2026. Therefore, mitigation measures were 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 70mph 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 introduction of a 60mph speed limit along this PCM link has been evaluated and the results are shown in the section of this report titled 'PCM predictions of NO_2 concentrations'. Based on these results, delivery of this measure would lead to an approximate reduction of 2µg/m^3 in annual mean NO_2 concentrations, meaning the PCM link would achieve compliance with the limit values one year earlier. A feasibility study looking at the deliverability of a 60mph speed limit along the length of this PCM link was commissioned in Autumn 2019. Air quality monitoring is to be deployed on the footpath alongside the A38 to confirm NO_2 concentrations before determining whether the speed limit is to be implemented.
Bus Retrofit	✗[2]	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 1,676 HGVs travelling along this link. Theoretically, a HGV retrofit scheme could reduce annual mean NO_2 concentrations by 0.3µg/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 and public car parking spaces are located within 15m of the 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 2026, therefore the PCM Link has been taken forward for the developed mitigation measures to be implemented.
- A feasibility study was commissioned to determine the viability of potential local traffic management measures. The study found that no viable local traffic management measures solutions for this SRN PCM link.
- Based on indicative reductions in NO_2, the introduction of a 60mph speed limit on this link could help to achieve compliance in a shorter timescale. A feasibility study is underway, including the deployment of air quality monitoring, to determine whether the speed limit is to be implemented.

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 81374 up until the year 2026.

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, delivery of this measure could lead to a reduction of 2µg/m³ in annual mean NO_2 concentrations; 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 that a speed limit reduction has the potential to bring forward compliance with the limit values. A feasibility study into a 60mph speed limit along this PCM link is currently underway, including the deployment of air quality monitoring, to determine whether the speed limit is to be implemented.

Supporting Activities

Additional air quality monitoring to be commissioned to measure NO_2 concentrations alongside this PCM link prior to the implementation of the speed limit reduction.

JAQU Comments

[1] Legal requirement to make a Temporary Traffic Regulation Order

[2] Requires JAQU to deliver