New Forest District Council

Clean Air Zone Draft Final Plan

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EXECUTIVE SUMMARY

In 2017 the Government published an air quality plan to reduce roadside nitrogen dioxide to ensure compliance with the EU Ambient Air Quality Directive. The Plan required a number of Local Authorities including New Forest District Council to produce their own Local Plan detailing how compliance with the Directive would be delivered in the shortest possible time.

New Forest District Council has been issued with a Ministerial Direction requiring the submission of Final Local Plan to the Secretary of State by the end of 2018. This report details the Final Local Plan for the Council.

The area identified by Government as exceeding the EU Ambient Air Quality Directive in the New Forest is a short stretch of the A35 on the boundary with Southampton City Council. The issue in the New Forest is seen as an extension of the air quality issue identified in Southampton in 2015. Whilst each Council is only responsible for the exceedance identified in their own area, New Forest District Council and Southampton City Council have been working in partnership to understand the regional issues further and formulate their own plans by following guidance laid out by Government and working with the Joint Air Quality Unit (a Government unit comprising of Department for the Environment Food and Rural Affairs and the Department of Transport) to ensure compliance is met in the shortest possible time.

Detailed and complex local air quality modelling has been undertaken in the New Forest which has determined that compliance will be met at the relevant locations by 2019 in a business as usual scenario. Furthermore, it has been concluded that the introduction of additional measures will not bring forward compliance, therefore, New Forest District Council's preferred option is to continue with a **business as usual scenario**.

However, through the Clean Air Zone project, New Forest District Council has identified additional work which will progress local air quality further including;

- Monitoring and evaluating nitrogen dioxide levels on the A35 in Totton, with particular reference to the relevant locations identified by Government;
- Developing working partnerships with interested stakeholders, other authorities including Southampton City Council and Hampshire County Council, local businesses and communities, and;
- Forwarding schemes across the district with the aim to improve local air quality.

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1.0 STRATEGIC CASE

1.1 Overview

In July 2017 the Government published the UK Plan for tackling roadside nitrogen dioxide (NO_2) concentrations¹. The Plan used national modelling to identify 28 local authorities, including New Forest District Council, who were in exceedance of the annual mean NO_2 concentration (>40µgm⁻³) in relation to the EU's Ambient Air Quality Directive (EU AAQD). The Plan required the identified local authorities to develop local plans to detail how compliance with the EU AAQD would be delivered in the shortest possible time.

The national Pollution Climate Mapping (PCM) model identified an exceedance in the New Forest on a short stretch (less than 1km) of the A35 at Totton up to the boundary with Southampton City Council on the Redbridge Causeway. Southampton City Council was named as one of five cities in the Government's 2015 Air Quality Plan² as being required to deliver compliance in the shortest possible time and has been working since then to develop a suitable scheme. The exceedance identified in the New Forest is viewed as an extension to the exceedance identified on the Western Approach in Southampton City Council in 2015². Therefore due to the close proximity of the two areas and associated exceedances, both New Forest District Council and Southampton City Council have been working very closely as part of an agreement through the Memorandum of Understanding to develop plans to deliver NO₂ compliance in the shortest time possible.

New Forest District Council was directed under the Environment Act 1995 to produce a Local Plan to identify measures to deliver compliance in the shortest time possible. The Ministerial Direction required New Forest District Council to submit an Initial Plan in the form of a Strategic Outline Case by 31 March 2018 and a Final Plan to be submitted by 31 December 2018. Southampton City Council were required as part of the 2017 Plan¹ to submit a Final Plan to Government by 15 September 2018.

Local modelling has shown that in the business as usual (baseline) scenario, New Forest study area will be compliant in 2019 without the implementation of any additional measures. This document (Final Plan) details the methodology and air quality analysis evidence leading to the conclusion that no additional measures can be implemented to bring forward compliance of the NO₂ EU AAQD. Whilst Southampton City Council and New Forest District Council remain in close working partnership on air quality, this document and the supporting evidence focuses on **New Forest District Council only**.

¹<u>https://www.gov.uk/government/publications/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2017</u>

² <u>https://www.gov.uk/government/publications/air-quality-in-the-uk-plan-to-reduce-nitrogen-dioxide-emissions</u>

Table 1 summaries the work completed to date by New Forest District Council working in partnership with Southampton City Council.

Table 1New Forest District Council completed work

Work	Date	Comments
Revised National Plan for	July 2017	28 Local Authorities required to produce a
improving roadside NO ₂		'Local Plan' to bring about compliance with
concentrations published		EU AAQD within the shortest possible time,
		including New Forest District Council
Southampton City Council	September 2017	Understanding SCC position and completed
and New Forest District		work. Devising how the authorities can work
Council Clean Air Zone		together to ensure compliance, the extent of
Partnership work starts		a CAZ and the sharing procurement.
Submission of Initial	28 November 2017	Outlining how work will be undertaken and
Feasibility Plan to		the procurement of consultants to forward
Government		local modelling assessments.
Memorandum of	Throughout 2018	Signed up to by Chief Executives from both
Understanding (MoU)		authorities
between NFDC and SCC		
Submission of Initial Plan to	29 March 2018	Joint submission report with SCC but satisfies
Government		Ministerial Direction of 31 March 2018 for
		NFDC
Extensive joint consultation	21 June 2018 - 13	Consultation includes New Forest residents
with SCC on the Preferred	September 2018	and businesses, some of whom may be
Option to ensure compliance		impacted by the preferred option being
with EU AAQD <u>within SCC</u>		considered by SCC. Consultation included
		survey, public / business meetings and media
		campaign
Submission of Final Plan to	By 31 December	Following New Forest District Council Cabinet
Government for NFDC	2018	approval

1.2 Local context

The New Forest district is a diverse environment covering 75,100 hectares (290 sq. miles) with a population of 176,500³. The District includes the New Forest (and associated New Forest National Park) covering approximately three quarters of the district and comprises protected heathlands and forests, a coastline of 64km, areas of industry, towns and villages. The industry within the District includes a refinery, one of the largest in Europe, whilst other industrial processes include a gas fired power station, a number of energy recovery facilities and chemical installations. Furthermore, there are significant areas of sand and gravel extraction in the district to support local businesses. Along Southampton Water, much of the shoreline is influenced by urban and industrial development including Southampton Port, which is operated within the neighbouring authority of Southampton City Council. As such many residents and businesses commute and operate between the New Forest district and Southampton city, contributing to the local air pollution through vehicle emissions.

Furthermore the New Forest district and New Forest National Park draws tourism from across the globe, which also generate large volumes of traffic movements. It is estimated that over 13 million day visits are made annually to the District with 96% of visitors arriving in cars or coaches⁴.

Public Health

Air pollution is a national public health priority and of all environmental factors, it has the largest impact on health in the UK. It can be attributed to over 40,000 deaths nationally and has health effects across the life course; from the underdevelopment of the unborn baby through to dementia in the later years of life. The strongest evidence of health impact is worsening symptoms of respiratory diseases and cardio-vascular disease. Furthermore, the health impact is greatest for those at higher risk; people living in areas of highest deprivation are more likely to suffer these health problems than people living in more affluent areas⁵.

Currently, nitrogen dioxide and particulates are the pollutants causing the largest health impacts in the UK. These pollutants are mostly associated with road transport. The public health outcome framework indicator for air pollution is mortality attributable to particulate matter. For the New Forest, this equates to approximately 100 deaths per year caused by long term exposure to particulate air pollution⁵.

Published local data⁶ from the 3 doctors surgeries in Totton details the prevalence of the common respiratory diseases, asthma and chronic obstructive pulmonary disease (COPD), are slightly above the national average as detailed in Table 2, and Figures 1 and 2.

³ <u>http://www.newforest.gov.uk/article/730/Facts-Figures-and-Research</u>

⁴ <u>https://www.newforestnpa.gov.uk/app/uploads/2018/01/aboutus1_keyfacts.pdf</u>

⁵<u>https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/332854/</u> PHE_CRCE_010.pdf

Table 2Reported data from GP surgeries in Totton detailing asthma and COPD
prevalence, for all ages. Comparison with the national reported figures
(2016/17)⁶

Parameter	Registered and recorded in Totton
Registered total patient list in Totton	38,061
Registered no. of asthma patients in Totton	2,554
Reported asthma prevalence in Totton	6.71%
Reported asthma prevalence in England	5.90%
Registered no. of COPD patients in Totton	805
Reported COPD prevalence in Totton	2.12%
Reported COPD prevalence in England	1.90%

Figure 1	Reported prevalence of asthma in Totton GP surgeries 2016,	/176
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⁶ <u>https://digital.nhs.uk/data-and-information/publications/statistical/quality-and-outcomes-framework-achievement-prevalence-and-exceptions-data/quality-and-outcomes-framework-qof-2016-17</u>





The local health data⁷ reports the mortality rates for various diseases, including respiratory disease. This data advises of the number of deaths where respiratory disease is the underlying cause of death.

The latest reported figures (2011-2015) for Totton advises that within the assessment period, 157 Totton residents died with respiratory disease being the underlying cause of death for all ages. This is a higher number of deaths when compared to deaths from stroke (75) and coronary heart disease (142) in Totton for the same reporting period.

To enable statistical comparisons to be made, a standardised mortality rate (SMR) is utilised. A figure of 100 is the expected number of deaths when respiratory disease is the underlying cause of death for all ages. Totton, for the period 2011-2015, has a SMR of 81.1 which equates to ~19% below what is expected and is therefore summarised as being significantly better than England which is encouraging.

However the SMR for the New Forest is 70 for respiratory disease, therefore Totton has a reported higher mortality rate for respiratory disease compared to the New Forest as a whole. Furthermore, when considering all reported diseases for Totton and the New Forest, it is only respiratory disease which is noticeably higher in Totton than elsewhere in the New Forest as shown in Table 3.

⁷ <u>http://www.localhealth.org.uk/#v=map13;l=en</u>

Indicator	Totton	New Forest	Hampshire	Expected
All causes	82.9	83.0	89.4	100
All cancers	92.8	87.1	90.7	100
All circulatory disease	77.9	83.7	87.2	100
Coronary heart disease	83.1	82.5	81.5	100
Stroke	75.8	90.8	91.7	100
Respiratory disease	81.1	70.0	82.7	100

Table 3Causes of death, all ages, SMR (2011-2015)⁷

It can be concluded from the figures presented, that GP surgeries in Totton report a slightly higher prevalence of respiratory disease (asthma and COPD) when compared to the national average. The standardised mortality rates for respiratory disease for all ages in Totton is significantly better than England however it is notably higher when compared to the rest of the New Forest.

Local air quality

Local Authorities have a statutory duty under the Environment Act 1995, Local Air Quality Management (LAQM) regime to review and assess local air quality. As such, New Forest District Council has been monitoring air pollution across the district since 2004. Three Air Quality Management Area's (AQMA's) were declared in 2005; 2 for exceedances of the annual mean objective for NO_2 in Totton and Lyndhurst and 1 for an exceedance of the 15 min mean objective for sulphur dioxide in Fawley.

Air Quality Action Plans outlined measures to reduce pollutant concentrations in pursuit of the objectives and were adopted for each area in 2008. The AQMA's in Fawley and Totton were subsequently revoked in 2013 and 2016 respectively due to reductions in sulphur dioxide emissions from the refinery (Fawley) and in nitrogen dioxide emissions on the local road network (Totton). The supporting evidence from monitoring data had shown that air quality objectives were being met, and had persistently done so over a number of years. The AQMA in Lyndhurst remains and is shown in Figure 3 in relation to Totton. The Lyndhurst Action Plan⁸ is due to be updated in 2019.

In addition, New Forest District Council submits required local air quality reports to Government (Defra) annually. The 2018 report was accepted by Government in August.

⁸<u>http://www.newforest.gov.uk/airquality</u>



Figure 3 Lyndhurst AQMA (highlighted red) for annual mean NO₂

In addition to the annually submitted local air quality reports, New Forest District Council has produced a number of additional reports as directed by the LAQM regime. A summary of these reports is shown in Table 4.

Table 4New Forest District Council Air Quality Review and Assessment in addition to
annual reports to Government

Year	Action	Description
2005	Declaration of Air Quality	Totton – NO ₂ (annual mean)
	Management Area's (AQMA's)	Lyndhurst – NO ₂ (annual mean)
		Fawley – SO ₂ (15 min mean)
2006	Modelling Report (AEA Technology)	For predicted NO ₂ concentrations concerning proposed traffic scenarios within Lyndhurst AQMA
2008	Formal adoption of Action	Totton – NO ₂
	Plans	Lyndhurst – NO ₂
		Fawley – SO_2
2008	Modelling Report	For proposed traffic scenarios within
	(AEA Technology)	Lyndhurst Air Quality Action Plan –
		recommendation to forward 2 options

Year	Action	Description
2008	Monitoring Report	6 month survey of PM_{10} in Totton and
	(AEA Technology)	Lyndhurst. No requirement for further action.
2010	Feasibility Study	Assessing transport options for Totton to
	(Hampshire County Council)	improve air quality within the Air Quality
		Management Area – concluded no feasible
		transport scheme is appropriate.
2011	Modelling Report	For proposed traffic scenarios within
	(AEA Technology)	Lyndhurst Air Quality Action Plan – some
		reductions in NO ₂ predicted but at the
		expense of vehicle flow.
2013	Revocation of AQMA	Fawley AQMA (SO ₂ 15 min mean objective)
		revoked in April 2013
2013	Progress Report	Current AQMA's in Lyndhurst and Totton (NO $_{2}$
		annual mean objective)
		On advice from air quality helpdesk to
		consider revoking Totton AQMA (NO ₂ annual
		mean objective) due to no recent
		exceedances at monitoring sites
2016	Revocation of AQMA	Totton AQMA (NO ₂ annual mean objective)
		revoked in June 2016
2018	Updating Lyndhurst Action Plan	Work started, completion due spring 2019

Current measures

In addition to the work being undertaken to improve local air quality in Lyndhurst through the Action Plan⁸, New Forest District Council is working to implement District wide measures to improve local air quality. These measures are summarised in Table 5.

Table 5	Current district wide measures to improve air quality
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Туре	Action	Description	Status
Council Fleet Emissions	To increase numbers of low emission vehicles within the Council fleet	Procurement of low emission vehicles in Council fleet. A task and finish group is working to forward this measure. No current details on figures for additional vehicles and timeline.	Active
Council Fleet Emissions	Eco-safe driver training for NFDC fleet drivers	Provision of eco driving for NFDC Council fleet drivers to improve efficiency and reduce emissions	Completed
Electric vehicle charge points	Installation of electric charge points on Council owned land	Council working with Hampshire County Council scheme to review Council owned land and car parks with a view to install electric vehicle charge points by 2020	Active
Hospital bus scheme	Provision of a dedicated bus route between Totton and Southampton Hospital	Scheme under development by local Councillor with support from a local bus company.	Under development
Engagement	Council departments, New Forest National Park Authority, Local Authorities and external bodies such as Environment Agency, industry	Working in partnership to promote schemes to improve local and regional air quality, for example linking air quality and health and well-being schemes (increasing activity) by providing and promoting local walking and cycling routes	Active
Engagement	Schools	Working in partnership with Hampshire County Council to engage in sustainable transport plans, clean air walking route and local air quality monitoring schemes	Active

Туре	Action	Description	Status
Engagement	Anti-idling campaign	Campaign to reduce unnecessary engine idling at key locations around the District – currently active in Totton and Lyndhurst. Banner, signs and media campaign	Active
Engagement	Clean Air Network	To support Southampton City Council in the Clean Air Network scheme for residents and businesses within New Forest	Active
Planning policy	Air quality supplementary planning document	Setting the minimum standard for good air quality practices for new developments	Regional document under development
Council Strategy	Clean Air Strategy	A long term strategy outlining the Council's aims, objectives and actions to improve air quality across the district	To be developed
Council Strategy	Health and Wellbeing Strategy	A long term strategy outlining the Council's aims, objectives and actions to improve health and wellbeing across the district which link in to the Joint Strategy Assessment	To be developed
Sustainable travel	To implement cycling infrastructure as an extension of the western approach cycling scheme in Southampton to the A35, Totton.	This scheme is to encourage increased cycling between New Forest and Southampton, encourage active travel and reduce car trips on the A35.	Being implemented

Strategic Fit

Whilst it is acknowledged that air quality in the New Forest is generally good, New Forest District Council is committed to continued improvements to local air quality with the available resource. Being named as a second tier local authority has increased interest in the local air quality agenda (politically, and with business and the public) and highlighted additional work areas to be investigated , such as further joint working with neighbouring authorities (including Southampton) and businesses, improving education and implementing measures to lead by example.

As advised in Table 5 and through the Local Air Quality Management regime, the Council continues to contribute towards the wider public health agenda by identifying work streams where it can lead or participate in, which will improve local air quality. An Environment Strategy is to be drafted which supports the priorities in the Corporate Plan 2016-2020 and will include a specific New Forest Air Quality Strategy which covers the whole of the district.

National and local modelling

National modelling

As advised, in 2017 the Government published its' air quality plan¹ to reduce roadside NO₂. The plan named 23 (second tier) authorities, including New Forest District Council, and required the named authorities to devise their own 'local plans' to improve air quality. This section will advise on the work undertaken to determine the extent of the issue identified by Government.

The exceedance of concern is the annual mean NO_2 concentration in relation to the EU AAQD ($40\mu gm^{-3}$).

The area of concern within the New Forest is a short stretch of the A35 (less than 1km) on the boundary with Southampton City Council. The area identified by the PCM model within the New Forest is seen as an extension of the exceedances identified in Southampton in 2015. Figure 4 shows the location of the EU AAQD exceedances within the New Forest District Council and Southampton City Council boundaries as identified through the Government's Pollution Climate Mapping (PCM) model.

Figure 4





Southampton City Council was identified by Government in 2015^2 as one of 5 cities (first tier authorities) required to formulate a plan to improve local air quality. Areas in the City were identified by the Government plan as likely to exceed the EU AAQD for NO₂ in 2020, including the Western Approach (A33) which borders the A35 in New Forest. Southampton City Council has been working to improve local air quality within the City since the 2015 Plan.

Following New Forest District Council being named in 2017 as a second tier authority in the Governments updated Plan¹ (but with the identified area being determined as an extension of the issue identified in Southampton City Council) the two authorities have been working in partnership to improve local air quality and ensure compliance with the EU AAQD. This partnership working has enabled the identified issues and solutions to be viewed across both authorities with the sharing of resource, services and knowledge. Whilst both local authorities have been working together it is advised that **each authority is only responsible to ensure compliance is met in their own authority's area.**

It is important that each authority ensures any implementation of measures to deliver compliance does not negatively impact on the air quality of surrounding areas. By working closely with Southampton City Council, New Forest District Council can be confident that any implementation of measures undertaken in Southampton will **not** negatively impact on local air quality in the New Forest area.

Source apportionment

As advised, transport is likely to be the main source of NO_2 at roadside locations, and is therefore the target when reductions in NO_2 emissions are required. Local source apportionment figures for the area of interest in the New Forest are not available, however the Government Plan¹ advises as a UK national average 60% of roadside NO_x is attributed to local road traffic. This 60% contribution is further apportioned to vehicle types, with ~92% of roadside NO_x emissions from local traffic being attributed to diesel vehicles as shown in Figure 5. This information was used in the national PCM model. **Figure 5** UK national average NOx roadside concentrations apportioned by source of NOx emissions, 2015⁹



Local modelling - New Forest

Whilst the PCM model identified a short stretch of the A35 in the New Forest, the local model domain was extended to include central Totton, as shown in Figure 6 (as detailed Appendix 2 - Southampton Clean Air Zone – Air Quality Modelling Methodology Report (AQ2)). This was to determine the air quality baseline on the adjacent local road network.





⁹https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/633270/ air-quality-plan-detail.pdf

Local business as usual (baseline) results

The 2020 results represent a Business As Usual (BAU) scenario for the New Forest where only measures currently implemented to improve air quality were modelled. The local model also provides results for the annual mean NO₂ concentrations at EU AAQD relevant locations as advised in the PCM model, therefore enabling a comparison of the model output between the PCM and local models.

Figure 7 shows the locations of the reporting points within the PCM and therefore local model





A summary of the national PCM model and local model results for NO_2 within the New Forest is shown in Table 6. The locations identified are based on those provided from the national PCM model.

Table 6NFDC annual mean NO2 at EU AAQD relevant receptors (PCM and Local Model
comparison)

Census	ID location		PCM		Local Model			
U	on map (Figure 4)	NO ₂ Annual Mean (µg/m ³)	NO ₂ Annual Mean (µg/m ³)	NO ₂ Annual Mean (µg/m ³)	NO₂ Annual Mean (µg/m³)	NO ₂ Annual Mean (μg/m ³)	NO ₂ Annual Mean (μg/m ³)	
		2015	2019	2020	2015	2019	2020	
36375	1	57.3	47.7	45.0	44.1	35.8	33.7	
56960	2	32.5	28.8	27.4	49.6	38.0	35.1	
48475	3	24.2	22.1	21.2	29.2	24.3	23.1	
16341	4	43.1	36.4	34.5	39.9	32.8	31.0	
78316	5	30.0	26.0	24.6	19.0	16.6	16.0	
28356	6	27.8	24.0	22.7	23.4	19.9	19.0	
38492	7	35.0	30.7	29.2	32.2	25.8	24.2	
74832	8	21.4	18.7	17.8	30.0	25.0	23.8	

Note: Results in red show exceedances of the annual mean NO₂. Compliance concentration is 40µgm⁻³

PCM Model

The national PCM model identified;

- 1 exceedance at Location 1 (census ID 36375 A33 Redbridge Causeway) in 2015 and 2020.
- 1 exceedance at Location 4 (census ID 16341 A35 Totton Bypass) in 2015 but this is <u>compliant</u> in 2020.

Local Model

The local model identified;

- 1 exceedance at Location 1 (census ID 36375 A33 Redbridge Causeway) in 2015 but this is <u>compliant</u> in 2019.
- 1 exceedance at Location 2 (census ID 56960 A36 Commercial Road) in 2015 but this is <u>compliant</u> in 2019.

Further clarification has been obtained from the air quality consultants, Ricardo, with regards to a possible explanation to the differences between the PCM model and local model results, particularly with regards to the exceeding road link on the PCM model which showed compliance in the local model (link ID 1 as shown in Table 6). The PCM model predicted an exceedance of the NO₂ EU AAQD in 2020 with a value of $45\mu gm^{-3}$ however the local model predicted the maximum NO₂ concentration on this road link as being significantly lower at only $34\mu gm^{-3}$.

A simple comparison of the input values in relation to vehicle flows and vehicles speed used in the national PCM model and the local model indicate why this difference arises. The input values are shown in Table 7.

Table 7	Traffic flows	and	speeds	on	PCM	link	ID36375	(ID	location	1	as	shown	in
	Figure 7)												

	PCM model	(two way flov	vs)	Local Model (two way flows)			
Parameter	AADT ¹	Car pc ²	Speed/kph	AADT ¹	Car pc ²	Speed/kph	
2015 max link	62,759	0.96	34.4	42,844	0.91	71.5	
2020 max link	63,610	0.96	34.5	68,530	0.92	64.0	
2020 max link	63,610	0.96	34.5	68,530	0.92	64.0	

Notes ¹AADT = annual average daily traffic count ²car pc = percentage of cars

The key difference is the much higher speeds estimated in the local model based on measured traffic master data. These speeds are located at a much lower point on the speed emission curve for these vehicles and hence generate much lower road emissions on these road links. There is also a lower annual average daily traffic count (AADT) in 2015 compared to the PCM model, but a similar value in 2020. The change in AADT in the local model is driven both by traffic growth and also a shift in location of the maximum concentration along the PCM road link.

Therefore, the baseline data from the local model confirms that both identified exceedances in 2015 are removed by 2019 and compliance with the EU AAQD at the PCM model locations is likely to be met. The local model also confirms the results in 2019 at the PCM modelled locations are predicted to be $38.0\mu gm^{-3}$ or less, and $35.1\mu gm^{-3}$ or less in 2020 as shown in Table 6. The local model has a margin of error of $3.3\mu gm^{-3}$ therefore no locations identified within the local model are outside the margin of error in 2020. This provides additional reassurance and confidence that by 2020 New Forest District Council will be compliant with the EU AAQD.

In addition to assessing the NO_2 concentrations at the PCM locations, the local model was extended around Totton. The results for the baseline in 2020 are shown in Figure 8 with results determined to be at or less than $35.1 \mu gm^{-3}$ in 2020.

Figure 8 Local model results for assessment area showing 2020 baseline business as usual results



Due to the local modelling showing New Forest District Council being compliant with NO_2 concentrations in 2019, it is the duty of the council to explore any measures which can be implemented to bring forward compliance in a shorter timescale.

Spending objectives

Spending objectives have been laid out to ensure the requirements of the Government Plan are met. The Primary Spending Objective of the Local Plan is to achieve compliance with the EU AAQD for annual mean NO_2 in the <u>shortest possible time</u>. All measures explored to bring forward compliance must meet this primary spending objective.

Any measures that pass the Primary Spending Objective will be taken forward and Secondary Spending Objectives will be considered. The Secondary Spending Objectives include:

- Affordability
- Achievability
- Value for money
- Distributional impacts
- Contribution to public health
- Fit with local strategies

Having considered the spending objectives and completed options appraisal of the measures (as detailed in section 2.0 Economic Case) New Forest District Council has concluded that there are no additional measures that can be implemented to bring forward compliance quicker than the business as usual (baseline) scenario.

Conclusion

Based on the results of the local air quality modelling assessment which utilised local information, air quality and transport data, it is concluded that compliance with the EU AAQD for the NO_2 annual mean will be met by 2019 without the implementation of any additional measures to reduce NO_2 concentrations.

2.0 ECONOMIC CASE

2.1 Final plan methodology

The national PCM model which identified the road of concern (the A35 within the New Forest) provided the Council with a starting point to assess local air quality. In order to better understand the issue, a more detailed model was required to provide a local level of understanding of the potential air quality issue. The aim of the local model was to;

- deliver a more accurate baseline of air quality levels in the New Forest area of concern, comparing them with the PCM model, and;
- assess any options being considered for implementation to ensure compliance with the EU AAQD and delivery of the pollutant reductions required.

In order to achieve the above, further detailed air quality modelling work with a finer resolution than the PCM model was undertaken using localised input parameters such as local emission sources, local air quality monitoring and fleet composition information. New Forest District Council procured the services of two consultants currently working on the exceedances in Southampton; Ricardo (air quality) and Systra (transport) to complete this work.

Local air quality assessment methodology

Full details of the air quality assessment methodology are provided in Appendix 2 (AQ2), (Southampton Clean Air Zone – Air Quality Modelling Methodology Report (AQ2)), however this section summaries the air quality assessment methodology.

The modelling report (AQ2) is a result of the joint working partnership with Southampton City Council and includes details of the modelling work completed within Southampton City Council's boundary.

It is advised that Southampton City Council is currently working to update the model and options appraisals detailed for the city and therefore at this time the report (AQ2) only applies to the work completed for New Forest District Council.

Dispersion model

The air quality consultants, Ricardo, utilised a modelling system known as RapidAir to undertake the local model for the New Forest. This is the same system used to model the Southampton City Council local model area.

The purpose of the local model was to obtain a finer resolution of air pollution over the assessment domain. The RapidAir model enables a 1m resolution therefore modelled results can be extracted at receptor points anywhere on each of the 1m model output grid.

The RapidAir model has been developed for urban air pollution assessment, taking into account surface roughness and road variations such as street canyons, road gradients and fly-overs. A compliance assessment, detailed in Appendix 1 (Air quality tracker table – AQ1)), has been completed to ensure the local model meets Government requirements. Further information concerning the RapidAir model is detailed in Appendix 2 (AQ2).

The local model output provides NO_2 concentrations for the base year and projects the pollutant concentrations at the same locations in subsequent years. The local model therefore provides details of any non-compliant locations within the local domain and indicates, with a business as usual scenario, in which years those locations will become compliant. If required, the local model can also be run to take into account any additional scheme's to determine if the air quality compliance will be met or brought forward at particular locations.

Assessment years

There are two key years for the air quality assessment, the base year (2015) and target compliance year (2020). The year 2015 was selected for the base year as it covers the latest air quality and transport data and is the base year for the transport model. The air quality model also assesses the interim years 2016-2019 (inclusive).

Additional local model inputs

In addition to the model set up as advised above, a number of local input parameters were required to determine the local scenario. These included vehicle emissions, other local pollution sources, weather data and local monitoring data.

The local monitoring data was as follows;

a) Road transport - vehicle emissions

Whilst contributions to local air quality are derived from multiple sources, road transport is the main source of pollution identified in the Southampton Clean Air Zone area and the focus of the local model. This local road transport information was therefore input into the air quality assessment. The local air quality model determines the emissions from vehicles on the road network by using the latest published vehicle emission rates (COPERT v5 NO_x). These emission rates are dependent on a number of factors including;

- vehicle number, presented as an annual average daily traffic (AADT) count,
- vehicle type (buses and coaches, taxi's, rigid heavy goods vehicles (HGV's), articulated HGV's, light goods vehicles (LGV's), cars and motorcycles), using traffic counts and automatic number plate recognition (ANPR) camera survey (5-11 December 2016),
- vehicle speeds,
- fuel use, and;
- Euro classification of the vehicle, obtained from ANPR camera survey.

These vehicle details required for the air quality local model were provided from the transport model (provided by Systra) and are detailed further in the local transport assessment section.

b) Other sources

Pollution from other large sources was also included in the local model and these local sources were:

- Emissions from Southampton Port, including vessels and onshore port activities,
- Industrial emissions from a waste incinerator and gas power station both located at Marchwood Industrial Park in the New Forest. Both these industries are permitted to operate by the Environment Agency, and
- Local rail emissions
- c) Weather data

The 2015 meteorological dataset from Southampton Airport was assessed and used within the local model to present local weather details. Figure 9 details the wind rose from the Southampton airport dataset and shows a predominately SW wind during 2015.



Figure 9 2015 wind rose – Southampton airport

d) Local monitoring

New Forest District Council has been undertaking local monitoring of nitrogen dioxide (NO₂) over a number of years. This was due primarily to the declaration of an Air Quality Management Area (AQMA) for the likely exceedance of the annual mean NO₂ objective in central Totton. The AQMA in Totton was declared in 2005 with additional real time monitoring and passive diffusion tube monitoring set up within the town. The AQMA was subsequently revoked in 2016, however monitoring in Totton has continued.

The local (ratified) monitoring data from 2015 was used in the local model as model receptor locations and to verify the local model outputs. Figure 10 shows the local monitoring locations used in Totton in 2015. Further details of the local monitoring, including the local model (New Forest) verification are provided in Appendix 2 (AQ2, New Forest local monitoring, model verification and adjustment advised in Appendix 2).



Figure 10 Local monitoring locations in 2015

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Transport assessment methodology

Full details of the transport assessment methodology are provided in Appendix 8 (Transport Modelling Methodology Report (T3)) and Appendix 9 (Model Forecasting Report (T4)), however this section summaries the transport assessment methodology.

The modelling reports (T3 and T4) are a result of the joint working partnership with Southampton City Council and include details of the modelling work completed within Southampton City Council's area. It is advised that Southampton City Council is currently working to update their local air quality model and options appraisals detailed for Southampton City and therefore at this time the transport reports (T3 and T4) only applies to the work completed for New Forest District Council.

The transport consultants, Systra developed a Sub-Regional Transport Model (SRTM) on behalf of Solent Transport to support a wide ranging set of interventions across the region, such as forecasting changes in travel demand, public transport use, and testing impacts of transport policies and interventions. This is the basis of the transport model used in the Southampton Clean Air Zone work.

The SRTM is a suite of transport models linking a variety of components such as journey choices, road traffic routes, public transport and local economic impacts. The base year survey data (e.g. traffic counts) has been updated to 2015, and therefore this is the year used as the air quality local model base year.

As previously advised, detailed vehicle information such as vehicle numbers, vehicle types, fuel use and Euro classifications are required to input into the air quality local model to obtain reliable outputs. This local vehicle information was determined from local transport counts and an automatic number plate recognition (ANPR) camera survey undertaken between 5 and 11 December 2016. This information was used in the determination of the transport baseline data.

Figure 11 shows the survey points in New Forest and Southampton used in 2015 to collate survey data in 2015.



Figure 11 Survey points in New Forest used to update base data in 2015

The New Forest road links used in the traffic model (as provided by Systra) are shown in Figure 12.





Once the baseline data (2015) was determined, the future year's annual average daily traffic (AADT) flows and vehicle types for each of the modelled road links could be obtained from the transport model. This data was then used within the local air quality model for the New Forest.

2.2 Options appraisal

As outlined in the Strategic Case, the UK has a legal requirement to achieve compliance with the EU AAQDs (annual mean NO₂ concentration of $40\mu gm^{-3}$) in the <u>shortest possible time</u>. Therefore, any option under consideration must bring forwards compliance from the 'business as usual' situation. A 'long list' of options should be considered and assessed to create a 'short list' for further consideration to identify a preferred option to ensure the primary objective (compliance in the shortest time possible) is achieved. Only options meeting the primary objective will be taken forward into the short list for further detailed consideration against the secondary objectives (if required). Any options which fail the primary objective will be eliminated from the long list of options being considered further.

2.3 Long list

The baseline local model concluded that compliance in the New Forest would be met by 2019 in a business as usual scenario. However, an options appraisal assessment was also undertaken to determine if the implementation of any other available option(s) would bring compliance forward in the New Forest.

Through the joint partnership working with Southampton City Council a long list of options for New Forest has been considered. Table 8 advises of the long list of options for further consideration and includes the list of options being considered or currently implemented by Southampton City Council that may impact on the New Forest. Through the partnership working with Southampton, New Forest District Council has been able to assess such schemes and confirm, **if implemented, that there would be no adverse impact on air quality the New Forest.**

New Forest District Council – Final Plan

Table 8Long list of options considered for New Forest

Scope options	Business as usual in NFDC	Impact of SCC proposed current options – (1) city wide charging CAZ B	Impact of SCC proposed current options – (1a) city wide charging CAZ HGV's only	Impact of SCC proposed current options – (2) city centre charging CAZ A	Impact of SCC proposed current options – (3) Additional non- charging measures	Bus retrofit in SCC and surrounding area including Totton	SCC cycling network – Western Approach	SCC / Eastleigh taxi incentive scheme
Additional information		Current short list of c	ptions being consider	red further by SCC		Agreed or im	plemented non-charg	ing options (SCC)
Estimated date of compliance in NFDC	2019	2019	2019	2019	2019	2019	2019	2019
Shortest possible time	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Comment		All schemes due to	be implemented in 20)19 (if forwarded) but business as u	not before. Therefore sual scenario.	e nothing delivers cor	npliance before the	
Decision		Taken forward for further assessment by SCC but the scheme will not bring forward compliance for NFDC. If implemented the option would be implemented in 2019	Rejected by SCC	Rejected by SCC	Taken forward for further assessment by SCC but the scheme will not bring forward compliance for NFDC. If implemented the option would be implemented in 2019	Taken forward- by SCC. This scheme will lower emissions from buses accessing A35 in NFDC. However compliance will not be brought forward due to implementation dates in 2019	Taken forward- by SCC. This scheme will lower emissions by encouraging cycling into SCC including from NFDC and along the A35. However compliance will not be brought forward due to implementation dates in 2019	Taken forward- by SCC. This scheme has been implemented and provides funding to upgrade to lower emission vehicles. This will lower vehicle emissions from SCC and Eastleigh taxi's accessing A35 in NFDC. However compliance will not be brought forward as a stand-alone scheme due to the numbers of taxi's involved. Currently ~90 vehicles have upgraded within a year.

New Forest District Council – Final Plan

Scope options	Development of feasibility study for improvement cycling network from NFDC into SCC	Updating NFDC taxi policy to consider a vehicle age limit on licensed vehicles, and potential taxi incentive schemes	Hospital bus scheme	No-idling campaign	Upgrade NFDC fleet	Electric vehicle charging points	Engagement with schools and businesses to educate and communicate air quality issues	Supporting low emission transport schemes – My Journey Hampshire, Clean Air Network and Hants Lift Share	SCC / NFDC partnership working	Working with ABP on container port at Eling Wharf, Totton
Additional Options to be implemented (New Forest)				Options currently implemented (New Forest)						
Estimated date of compliance	Post 2020	Post 2020	n/a	n/a	Post 2020	Post 2020	n/a	Post 2020	n/a	n/a
Shortest possible time	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Fail
Decision	Taken forward by NFDC with HCC. Funding obtained (£50k) to produce a feasibility study to improve the local cycle network in NFDC in the Totton / Waterside area. However compliance will not be brought forward due to implementati on dates post 2019	Taken forward by NFDC to update the taxi policy (currently no age limit for licensed vehicles) to potentially introduce an age limit or link to Euro classification Also interest in implement a similar taxi incentive scheme to the SCC / Eastleigh. Compliance will not be brought forward due to implementation dates post 2019	To be taken forward by NFDC. Scheme requires forwarding for a new local bus route to transport Southampton Hospital staff between Totton and Southampton. Requires development and implementation will be post 2019	Scheme already active by NFDC. Scheme implemented in central Totton and Lyndhurst AQMA encouraging drivers to turn off their engines whilst stationary. This scheme will not impact directly on vehicles accessing the A35 which is a free flowing route. Expansion of the option is unlikely to yield a significant change in the time required.	Scheme already active by NFDC. Expansion of the option is unlikely to yield a significant change in the time required due to the number of vehicles involved.	Scheme already active by NFDC. NFDC linking with HCC scheme in install additional electric charge points on Council owned land by 2020 to reduce vehicle emissions by encouraging uptake of low emission vehicles. Implementation of this option is unlikely to yield a significant change in driver behaviour in the time required.	Scheme already active by NFDC and HCC sustainable transport scheme. Work will continue but expansion of the option is unlikely to yield a significant change in the time required.	Scheme already active by NFDC and SCC. These schemes will lower vehicle emissions by encouraging reductions in vehicle use into SCC including from NFDC and along the A35. However Expansion of the option is unlikely to yield a significant change in the time required due to the number of vehicles involved	Taken forward. This scheme will enable the two authorities to work together to achieve regional AQ improvements. However this scheme will not directly impact on compliance with the primary objective	Taken forward by NFDC. ABP owns a container port in NFDC adjacent to the A35 highlighted by the PCM model. NFDC is working with ABP to improve this site including vehicle (typically HGV) movements to and from Southampton Port

2.4 Short list

As advised above, any options which achieve compliance with the EU directive for the annual mean NO₂ objective **AND** ensure compliance is met in the shortest time possible will be taken forward into the short list.

The local model for the New Forest determined that compliance with the EU directive would be met with a business as usual scenario in 2019, therefore any additional options being taken forward into the short list would have to also ensure compliance would be met in 2019. Table 8 advises of a number of options, as detailed below.

- Business as usual;
- Option 1 city wide Class B Clean Air Zone (CAZ) through which non-compliant coaches, buses, taxis and HGV's are charged to enter the zone;
- Option 1a city wide charging CAZ for non-compliant HGV's only;
- Option 2 city centre Class A charging CAZ for non-compliant coaches, buses and taxis;
- Option 3 implementation of additional measures a non-charging CAZ;
- Bus retrofit;
- SCC / Eastleigh taxi incentive scheme, and;
- SCC cycling network improvements.

Despite the business as usual scenario delivering compliance in 2019, these options were considered as part of the short list with the joint working with Southampton City Council.

Of particular interest are the 4 options (Option 1, 1a, 2 and 3) considered by Southampton City Council to achieve their own compliance within the city. These options were also modelled in the New Forest local model to ensure if any were implemented in Southampton that there would be no adverse impact in the New Forest. The local model results are presented in Appendices 3 and 4 (AQ3).

The impact of each of the 4 proposed options for Southampton in the New Forest is similar, with an average reduction in NO_2 concentrations in the New Forest (at the PCM identified locations) of about 2%. Therefore, all the proposed Southampton options should reduce NO_2 further in the New Forest, although only slightly. However due to the date of implementation of 2019 for any of these options (Options 1, 1a, 2 and 3) compliance in the New Forest would not be brought forward, therefore these options are discounted from the short list for New Forest.

The impact of the additional Southampton options which will be or have been implemented have not been modelled further in the New Forest. These options should have a positive impact in the New Forest due to their outcome of reducing vehicle emissions, however due to the scale of the scheme (for example the taxi incentive scheme) or schemes with an implementation date in 2019 compliance in the New Forest would not brought forward compared to a business as usual scenario. Therefore these options are also discounted from the short list.

2.5 Preferred option

From the conclusions determined above, no options within the short list would achieve compliance <u>prior to</u> <u>2019</u>. This is due to;

- the time to implement additional options such as a charging CAZ in Southampton (to be implemented in 2019 if forwarded as Southampton City Council's preferred option); or,
- the current implemented schemes (i.e. the taxi incentive scheme) not being taken up to the extent that the impact would ensure compliance in the New Forest is brought forward.

As such, the preferred option for New Forest District Council to achieve compliance in the shortest time possible is a <u>business as usual scenario</u>.

2.6 Sensitivity analysis

Sensitivity analysis is a further modelled analysis technique used to determine how sensitive the proposed options are to the assumptions made within the model. On the advice of the air quality consultants (Ricardo) additional sensitivity analysis has not been undertaken for the New Forest local model. Ricardo has provided the following statement to support their advice:

The maximum NO₂ concentration in 2020 for the current baseline modelling in New Forest is 35 μ gm⁻³ on link ID56960 (road link 2 as shown in Figure 7) and is comfortably below the compliance limit value for NO₂. Any sensitivity test that would be carried out would need to change this outcome (i.e. increase concentrations) by more than 5μ gm⁻³. The key sensitivity tests recommended by JAQU on the air quality modelling of the baseline cover: adjusting the light duty fleet composition with regards the Euro 6 real driving emissions stages, adjusting fNO₂ in the NO_x to NO₂ conversion and considering gradients and canyon affects. The first 2 of these are unlikely to affect the NO₂ results by as much as 5μ gm⁻³. The latter two tests are not appropriate as there are no canyons or gradients in the areas of concern.

Given these considerations, Ricardo does not consider any of the sensitivity tests proposed would change the overall outcome of the analysis and therefore do not see any value in conducting these tests.

2.7 Conclusion

It is determined that the local model has demonstrated that a business as usual scenario in the New Forest will deliver compliance with the EU Air Quality directive for the annual mean NO₂ objective in 2019 on the PCM road links identified and throughout the model domain. This is detailed in section 2.0 above and evidenced in detail in Appendix 3 and 4 (AQ3).

The further analysis of additional options being proposed and implemented in Southampton City (to ensure compliance with their identified exceedances) and within New Forest has concluded that they will not deliver compliance earlier than 2019 in the New Forest. Therefore a business as usual scenario in the New Forest will deliver compliance in the shortest possible time, and this is the preferred option being forwarded by New Forest District Council. This is because no other option can feasibly bring forward compliance.

It should be noted that New Forest District Council is committed to continue to work in partnership with Southampton City Council to ensure options and measures being considered to achieve compliance in Southampton in the shortest possible time will not have an adverse impact on pollutant levels in the New Forest.

3.0 COMMERCIAL CASE

New Forest District Council is not submitting any evidence with regards to the Commercial Case. This is due to the preferred option being a business as usual scenario therefore no additional options are being forwarded and the Council is not seeking any additional funding to forward specific measures.

4.0 FINANCIAL CASE

4.1 Additional funding requirements

New Forest District Council is not seeking any funding to forward any additional options due to the preferred option being a business as usual scenario. As such no additional evidence is being submitted as part of the Financial Case.

4.2 Current funding

New Forest District Council has some funds available from the grant awarded to second tier named Authorities in 2017 to complete Feasibility Plans to deliver their Local Plan. This funding has been utilised to date to fund the local modelling work and officer resources. The remaining budget (~£28,000) has been highlighted to fund a real time analyser set up and operational costs as part of the planned evaluation and monitoring regime to ensure compliance with the EU AAQD is met on the A35 (as detailed in the Management Case section 5.0). It is anticipated that a real time analyser will be operational until 2023, unless it is deemed appropriate to extend the monitoring period.

New Forest District Council is intending to utilise one of our current NO_x real time analysers in the new site on the A35. Due to upgrades of our NO_x analysers, the Council will have 3 analysers available for its sites (Lyndhurst, Totton (central) and A35). As such the following costs have been obtained for set-up and operation of a new real time analyser on the A35:

- Set-up costs to include base, cabinet, air conditioning unit, data set-up £11,000 (funded through current grant funding)
- Site maintenance and data management for 4 years (as per existing contracts) £10,000 (funded through current grant funding)
- Local service officer for 4 years (either supplied under maintenance contract or New Forest District Council officer)

£3,200 - £4,800 (funded through current grant funding)

5.0 MANAGEMENT CASE

5.1 Delivering the preferred option

It has been concluded that a business as usual scenario will deliver compliance with the EU AAQD in the shortest time possible. This does not mean that New Forest District Council will not undertake any further work and therefore a management case for a business as usual scenario is required.

Partnership working

Partnership working has been vital throughout the Clean Air Zone process, not only at a local Government level but with local residents and businesses to access resources, knowledge and views in order to forward a variety of options. Through the Clean Air Zone work New Forest District Council has developed working partnerships which will be continued to ensure the business as usual scenario successfully delivers compliance and also to forward further schemes which improve local air quality. The working partnerships include:

Southampton City Council

It is noted that New Forest District Council and Southampton City Council are quite different authorities in terms of type (District and Unitary) and location (rural and city centre) however we share the common issue of traffic related air pollution, particularly from residents and businesses accessing Southampton city. During the Clean Air Zone process New Forest District Council has worked well with Southampton City Council undertaking local modelling work, developing potential options to improve local air quality and an extensive consultation exercise. This working partnership will continue at the relevant level (typically Service and Team Managers) to ensure compliance is met in both authorities and beyond by sharing resources and knowledge, and developing and delivering regional consistency with the overall aim to improve local air quality.

Hampshire County Council

As a District Authority, New Forest support Hampshire County Council who led on delivering transport and public health schemes. Throughout the Clean Air Zone process this partnership working has developed and will be continued in order to design and implement future local schemes, such as the cycling feasibility scheme for the Totton area, as well as collaborating further with public health colleagues and assessing the local health impact due to air quality.

Local residents and businesses

Through the joint consultation with Southampton City Council it was apparent that local residents and businesses are interested in and passionate about local air quality. It is the intention that future engagement with these groups will continue throughout the development of a New Forest Air Quality

Strategy and in developing local schemes such as improving transport links and encouraging the uptake of public transport.

Monitoring and evaluation

New Forest District Council needs to ensure the concentrations of NO₂ are compliant with the EU AAQD, as determined by the local model in a business as usual scenario. As such it is essential that monitoring in Totton is undertaken and the results compared against the local model, to evaluate whether the local model is performing as advised and therefore compliance will be met. Furthermore local monitoring data can be used to feed into any future local modelling assessments which can cover a larger area than the monitoring work alone.

From the PCM model, the PCM road link identified within the New Forest exceeding the EU AAQD is detailed in Figure 7 as road link 1 which has a link length of 800m. Discussions have been progressing to ensure monitoring and evaluation is undertaken correctly. New Forest District Council has started work with Ricardo (air quality consultants), ESU 1 (air quality equipment suppliers) and Southampton City Council to ensure the correct monitoring is undertaken in the most appropriate locations (avoiding microclimate environments) to enable the collation of robust and reliable data representing the local area. It is proposed that the monitoring will include the use of diffusion tubes throughout Totton (in addition to the current local monitoring regime) and a real time analyser located on the A35 (should a suitable location be identified) as close to the identified exceedance in the PCM model as possible. Funding is currently available to install and operate the analyser for 4 years as advised in the Financial Case (section 4.0) above.

In accordance with Government Guidance¹⁰ the operation of a real time analyser on the A35 relies on a maintenance engineer and data management team to ensure the data produced is robust. New Forest District Council currently operates 3 real time analyser sites within its district and holds contracts with maintenance and data management contractors. The current contracts, which run until 2020 with a potential plus 2 years, allow the addition of further analysers, therefore the proposed A35 analyser can be added onto the current analyser contracts held by New Forest District Council.

In the interim, New Forest District Council has undertaken some additional monitoring in Totton using diffusion tubes which (after appropriate correction in accordance with Guidance¹⁰) give an annual mean NO_2 concentration for the monitoring location. Considering the road link of concern is link 1 (as shown in Figure 7) the local monitoring undertaken to date has concentrated along the A35 (roadside) between PCM road links 1 and 4.

The monitoring locations are shown in Figure 13 as locations 32, 33, 34 and 35 alongside additional local monitoring sites in Totton. It was not possible to install a secure monitoring site within road link 1 on the Redbridge Causeway bridge due to no appropriate street furniture being available to ensure a monitoring position of 2-4m and when diffusion tubes were placed in a lower position they were stolen from site. The other monitoring sites installed are able to provide some indication to NO₂ concentrations along the A35.

¹⁰ https://laqm.defra.gov.uk/documents/LAQM-TG16-February-18-v1.pdf



Figure 13 New Forest PCM road locations and local diffusion monitoring sites

The annual results (to date, after local bias correction for 2018 and distance adjustment to 4m) are shown in Table 9.

Table 9	Local diffusion monit	oring results	2018 (03.01.18 -	- 30.10.18)
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Site	NO_2 annual mean / µgm ⁻³
32	29.2
33	40.1
34	34.8
35	39.2

When the monitoring results are rounded to the whole number (as expected for the reporting of annual mean air quality figures) all the monitoring results to date show compliance with the EU AAQD for the monitoring period during 2018.

It is noted that 2 sites (33 and 35) are reporting a being close to the EU AAQD, however monitoring for the whole of 2018 has not been completed to date (only 83% of data has been collated over 2018). The monitoring results should therefore only be viewed as indicative at the monitoring sites. The PCM and local model both conclude that nitrogen dioxide roadside concentrations within the model domain will decrease year on year, therefore it would be expected that the monitored nitrogen dioxide concentrations at these locations will decrease and therefore compliance with the EU AAQD will be met.

<u>Resource</u>

New Forest District Council will still have to deliver a business as usual scenario to ensure compliance is met in the New Forest. As advised above further work will be required, for example monitoring and evaluating NO_2 concentrations on the PCM road links in Totton and forwarding partnership work to improve local air quality.

In order to deliver and maintain the required work, New Forest District Council will ensure sufficient officer resource is delivered within the Environmental and Regulation Service. Currently there is no requirement to increase officer numbers to undertake and deliver this work, and it is not envisaged to change in the future. However, if circumstances do change, the Council will consider an increase in officer resource where deemed appropriate. With regards to the funding of a real time analyser on the A35, further detail is provided in the financial case (section 4.0).

Project Risks

Whilst a business as usual scenario should have limited risks in order to ensure compliance with the EU AAQD, there are some risks to note;

- Failure to achieve AAQD compliance within the timescale
 - The local model clearly advises compliance with the EUAAQD will be met by 2019, however monitoring and evaluation may not provide the supporting evidence that determines compliance is met. This could be due to;
 - inaccuracies in the local model;
 - changes in the local vehicle fleet;
 - planned road works unaccounted for in the local model; or,
 - other pollutant sources which were not accounted for in the model.

Evidence to support the local model, including model verification and assumptions are provided in Appendices 1, 2, 3, 4 and 5 (AQ1, AQ2, AQ3 and Analytical Assurance Statement), the details of the local model and the assumptions have been thoroughly assessed. Furthermore, to date, JAQU has been advised of the local model assumptions and the modelling outcomes have been accepted.

The evaluation of nitrogen dioxide concentrations using a real time analyser and partnership working with other agencies including Southampton City Council and Hampshire County Council will ensure any potential risks of failure to achieve compliance with the EU AAQD such as significant changes in fleet composition or higher than expected monitoring results are identified early and appropriate mitigation measures can be actioned. Appropriate mitigation measures could include

the delivery method of planned roadworks to reduce congestion along the A35 over long periods and working together to identify changes in fleet composition which may result in unexpected monitoring data.

• Lack of resource

There is a risk that officer resource allocated to air quality, may reduce following the delivery of the Final Plan, particularly since this work to date has been undertaken as part of normal officer workloads. However, it is vital the Clean Air Zone work, including working partnerships, is maintained and forwarded. The Governance structure needs to keep the Clean Air Zone and local air quality high on the Council's agenda to ensure the momentum behind local air quality is maintained and resource levels are appropriate to deliver the required work. As such management regularly meets (typically on a monthly basis) to discuss workloads and resource, and this will include the requirement to deliver the air quality agenda.

• Negative impact on NO₂ concentrations in New Forest due to Southampton City Council's preferred option

There is a risk that the preferred option implemented by Southampton City Council may have a detrimental impact on the NO₂ roadside concentrations in New Forest. However, Southampton City Council would not propose a preferred option for sign off by the Secretary of State which would result in a worsening of NO₂ concentrations in the New Forest. Furthermore, the local modelling work undertaken modelled 4 charging Clean Air Zone options and none of these options resulted in a worsening of NO₂ in the New Forest. These models in fact delivered a slight reduction in concentrations on the modelled New Forest links of ~2%. Southampton City Council and New Forest District Council continue to work together on any proposals for new schemes considered in Southampton and therefore any potential impact on surrounding routes into the New Forest would be identified at the design stage. As such this risk is deemed to be negligible.

5.2 Governance

The Governance structure for New Forest District Council to deliver compliance with the EU AAQD is illustrated in Figure 14.

The Senior Manager responsible for the project is the Service Manager for Environment and Regulation and the Project Manager is the Environmental Protection Team Manager. The project manager has been responsible for delivery of the project in line with key milestones and reporting results and findings to the Service Manager. Both managers are members of Southampton Clean Air Implementation Project Board which has the purpose of ensuring a shared, continued and focused effort to implement the chosen solution for a Clean Air Zone in Southampton. The Board provide oversight and scrutiny for the Clean Air Zone Project Board to ensure that outcomes and benefits are realised within the agreed parameters.

Figure 14 identifies the decision making structure within the Authority. Progress on the air quality project has been fed back to the Environment Overview and Scrutiny Panel on a quarterly basis. Decisions have been taken through the Executive Management Team to the Portfolio Holder and Cabinet prior to submission of key documents (namely the Initial Plan and draft Final Plan) to JAQU and the Secretary of State.

Figure 14 Governance structure to deliver compliance with EU AAQD (New Forest)



5.3 Consultation

A joint consultation exercise was undertaken with Southampton City Council from 21 June to 13 September 2018. The aim of the consultation was to communicate the proposals for Southampton City Council's preferred option of a charging city wide Class B CAZ and ensure residents, businesses and stakeholders could make comments and raise any impacts the proposals could have. The consultation also gave respondents the opportunity to propose alternative suggestions for consideration which they felt could achieve the objective in a different way.

The consultation specifically targeted residents and businesses in Totton and parishes along Southampton water (as well as Southampton businesses and residents), due to the potential impact a charging CAZ would have on local businesses within the New Forest (a Class B CAZ would have charged non-compliant taxi's, buses, coaches and HGV's entering the city).

The consultation ran for 12 weeks and included media coverage, public and targeted meetings, a detailed questionnaire and leaflet campaign. There were over 9309 written responses to the Clean Air Zone consultation with 19% of these originating from New Forest residents and businesses.

Whilst the consultation focused on the preferred option for Southampton City Council, the comments and views of New Forest residents and businesses have highlighted the importance of public engagement on local air quality and the impact potential schemes could have on individuals and businesses. Generally, there was widespread support for improving local air quality and an understanding of the public health implications of air pollution. There were a range of views on how to improve local air quality and these ranged from the Local Authority doing nothing and improvement happening naturally to a charging scheme which targeted all non-compliant vehicles.

As a result of the consultation and the significant interest shown with the number of responses, New Forest District Council will build future engagement with those groups and key contacts who took part in the consultation process. The Council will continue to work with the local community to develop realistic local plans which improve air quality and public health.

Definitions

Abbreviation	Definition
Business Case	SCC and NFDC must produce a business case that supports the preferred option using the HM
	Treasury Green Book Five Case Model. Developing the business case will require
	consideration of a range of options taking into consideration the feasibility study (AQ and
	economic modelling) alongside their deliverability (e.g. how possible is the option to
	implement).
CAZ	Clean Air Zone, a geographical area where specific measures are taken to improve local air
	quality.
DEFRA	Government Department for the Environment, food and rural affairs
EU AAQD	European Union Ambient Air Quality Directive
Feasibility Study	Work undertaken to determine what air quality improvement measures (e.g. a charging CAZ)
-	are feasible to deliver and assess the impact they will have.
Final Local Plan	A term to describe the Council's overall plan to improve local air quality to an extent that
	reaches compliance with the EU AAQD requirement (this may include a charging CAZ, non-
	charging CAZ or other measures).
JAQU	Joint Air Quality Unit (DEFRA and DfT)
Local model	A model with a higher resolution when compared to the PCM model to determine a more
-	accurate local air quality assessment
National Plan/UK	DEFRA's plan for tackling roadside concentrations of NO ₂ (latest publication July 2017,
AQ Plan	previous iteration in 2015).
Option	A scenario or group of measures that undergo air quality modelling to determine impact (e.g.
	Citywide Class A Charging CAZ)
Preferred Option	The option which meets all objectives of the local plan, i.e. delivers compliance with the EU
	AAQD within the shortest possible time, increases likelihood of compliance and best meets
	the strategic, economic, commercial, and financial and management needs of the Local Plan.
PCM model	Pollution Climate Mapping Model. The model Government used nationally to identified roads
	which exceeded the EU AAQD

Appendices

Important note;

The appendices include joint reports with Southampton City Council. Southampton City Council is currently reviewing the work completed to date for Southampton and therefore the joint reports (AQ2, AQ3, T2, T3 and T4) should only be read in relation to New Forest District Council only.

Appendix 1	Air Quality Tracker Table (AQ1)
Appendix 2	Air Quality Modelling Methodology (AQ2)
Appendix 3	Air Quality Results Report (AQ3)
Appendix 4	Air Quality Baseline and Options Results (AQ3 – Appendix 4)
Appendix 5	Analytical Assurance Statement
Appendix 6	Transport Modelling Tracker (T1)
Appendix 7	Transport Calibration Validation Report (T2)
Appendix 8	Transport Modelling Methodology Report (T3)
Appendix 9	Transport Model Forecasting Report (T4)

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