



Proof of Evidence

On behalf of
Stop the West Midlands Interchange

4. HEALTH IMPACT REPORT

In respect of the proposed West Midlands
Interchange



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Introduction

This evidence has been prepared by a local community group opposed to the West Midlands Interchange at Gailey, Four Ashes and Calf Heath in South Staffordshire. The community group was set up to represent the views of local residents. The group comprises of professional experts and local residents. It also has local political support from Gavin Williamson (South Staffordshire MP) and Jeremy Lefroy (Stafford MP).

‘Stop The West Midlands Interchange’ currently has over 2500 members from the neighbouring communities that will be directly or indirectly affected by the proposed development, these include the communities of Gailey, Four Ashes, Calf Heath, Hatherton, Penkridge, Brewood & Coven.

We do not propose to repeat the objections made by the professional bodies, local authorities and political leaders we are merely seeking to offer a local perspective and provide our own views on this proposal, which is supported by evidence and professional experts.

This report focuses on the Health Issues for this development at this location.

This report should be read in conjunction with the other reports being prepared by the Group on the following matters:-

- Planning and Green Belt;
- Railway Infrastructure;
- Highways;
- Environment & ecological issues;
- Tourism / recreational issues;
- Agriculture;
- Location;
- Supporting Information; and
- Answers to the Inspector’s Questions.

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SUMMARY OF OUR OBJECTIONS

- According to the Draft Clean Air Strategy 2018 air quality is the largest environmental health risk in the UK. It shortens lives and contributes to chronic illness. Health can be affected both by short-term, high-pollution episodes and by long-term exposure to lower levels of pollution.
- South Staffordshire District Council describe air quality in most of Staffs is “good”. However, there are four Air Quality Management Areas in Staffs which are close to the Air Quality Limits. Three of these are within 5 miles of the proposed development.
- The proposed development will increase air pollution and based upon CO2 figures given in parliament the 6300 HGV's will approximately produce 132 tonnes of carbon emissions every day. (For a modern HGV is around 820g of CO2 per km at 40mph = 0.82kg, Therefore 6300 HGVs a day x 0.820 x 26kms (distance of local trips) = 132184 kg of CO2 or 132 tons per day. That is ignoring 14000 car trips, which is about 54 tons). This is contrary to UK Government Policy.

It will go against the proposals of the Staffordshire Health & Well Being board which include:

- The development of a partnership agreement on Air Quality between Staffordshire County Council, Stoke-on-Trent City Council and the 8 District/Boroughs across Staffordshire.
- To agree a target for reducing Fraction of All Cause Mortality attributable to particulate air pollution in each district, city and county authority by 2020.
- To agree a target for reducing PM2.5 exposure and identify the risks affecting PM2.5.
- To maintain compliance with the 2020 EU limit value of 25ug/m2.

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1.0 HEALTH IMPACT REPORT

The Group is against this proposal for the reasons set out in this report.

1.1 Paragraph 92 b in the NPPF (Feb 2019) states that planning policies and decisions should: take into account and support the delivery of local strategies to improve health, social and cultural well-being for all sections of the community.

Paragraph 96 in the NPPF (Feb 2019) states that access to a network of high quality open spaces and opportunities for sport and physical activity is important for the health and well-being of communities.

1.2 The proposed development will increase air pollution and based upon CO₂ figures given in parliament will approximately produce 132 tonnes of carbon emissions every day calculated as below.

For a modern HGV this is around 820g of CO₂ per km at 40mph = 0.82kg
(If there are more local trips at lower speeds as is the case here this figure needs revising upwards.)

6300 HGVs a day x 0.820 x 26kms (average journey distance to conurbations) = 132184 kg of CO₂ or 132 tonnes per day. That is ignoring 14000 car trips, which is about 54 tonnes. This is contrary to UK Government Policy.

- WMI Transport Assessment (Table 19) gives the number of HGV journeys to or from WMI as 6318 over 24 hour period (1 every 14 seconds).
- WMI Planning Statement states 8500 employees over 24 hours of which 83% would travel by car = 14100 car journeys.
- WMI Transport Assessment (Table 25) gives peak traffic flow (both directions A5) as 1 vehicle every 2.1 seconds and predicts 40% increase to 1 every 1.47 seconds with WMI.
- CO₂ emissions at 40mph: 50 tonne HGVs are around 900 g/km down to half that for small 2-axle 12 tonne lorries (Hansard).
- This is contrary to UK Government Policy and, therefore, should be refused.

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2.0 Air Pollution

Figures / research provided by The World Health Organisation show air pollution kills more people in the UK than other comparable countries, as shown in Table 1 below.

Table 1 – Mortality rate for air pollution for every 100,000 people.

Britain	25.7
Argentina	24.6
Mexico	23.5
Brazil	15.8
United States	12.1
Sweden	0.4

NPSNN - 5.10 - The Secretary of State should consider air quality impacts over the wider area likely to be affected, as well as in the near vicinity of the scheme. In all cases the Secretary of State must take account of relevant statutory air quality thresholds set out in domestic and European legislation.

Where a project is likely to lead to a breach of the air quality thresholds, the applicant should work with the relevant authorities to secure appropriate mitigation measures with a view to ensuring so far as possible that those thresholds are not breached.

NPSNN – 5.12 - The Secretary of State must give air quality considerations substantial weight where, after taking into account mitigation, a project would lead to a significant air quality impact in relation to EIA and / or where they lead to a deterioration in air quality in a zone/agglomeration.

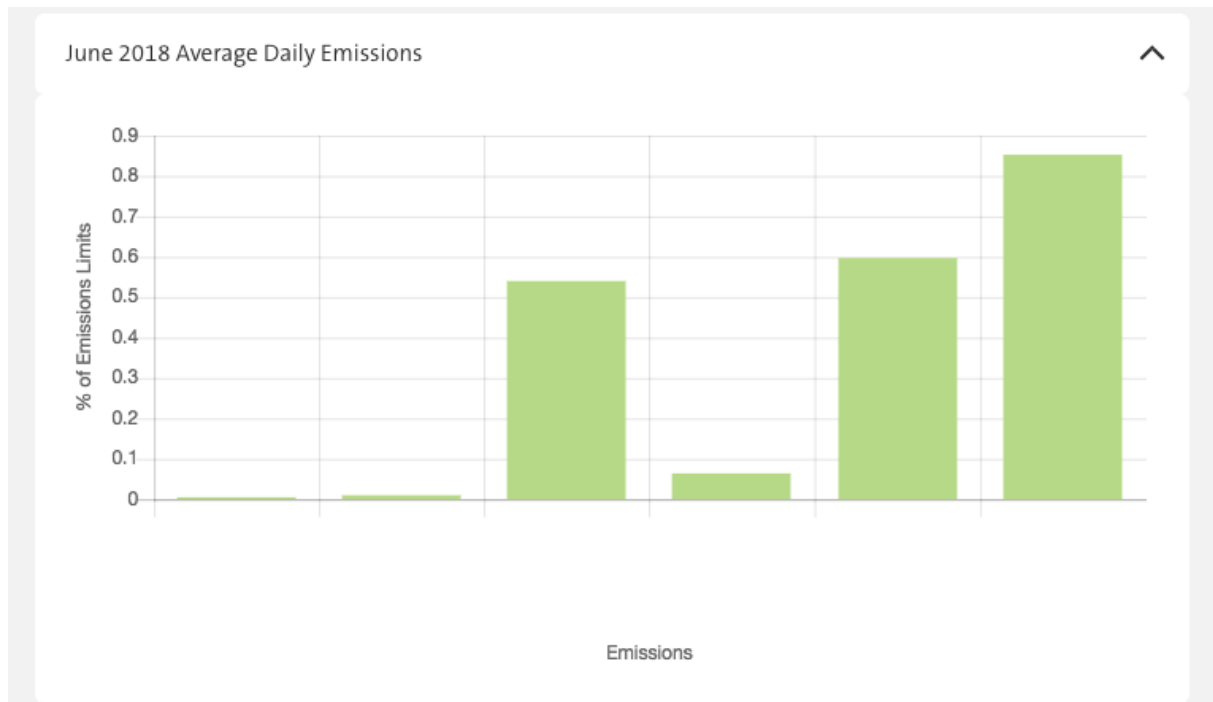
The proposed development will increase air pollution, which is contrary to UK Government Policy and, therefore, should be refused.

The Health Impact of this scheme would be reduced if it were located in a more sustainable location.

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The daily emissions to air data for the current incinerator facility at Four Ashes is as follows:

Dust (Particulates) 10mg/m³, Total Organic Carbon 10mg/m³, Hydrogen Chloride 10mg/m³, Carbon Monoxide 50mg/m³, Sulphur Dioxide 50mg/m³ and Oxides of Nitrogen 200mg/m³. (Veolia website)



3.0 Ref: Air Quality: Draft Clean Air Strategy 2018

Air quality is the largest environmental health risk in the UK. It shortens lives and contributes to chronic illness. Health can be affected both by short-term, high-pollution episodes and by long-term exposure to lower levels of pollution. There are small things we can all do that will make a big difference to emissions locally and nationally. Effective communication of health messages about air pollution can save lives and improve quality of life for many.

Cleaner air will directly benefit plants, animals and habitats as well as creating a better environment for everyone to live, work and thrive in.

4.0 Governments Proposed Actions: Draft Clean Air Strategy 2018.

- We will progressively cut public exposure to particulate matter pollution as suggested by the World Health Organisation. We will halve the population living in

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areas with concentrations of fine particulate matter above WHO guideline levels (10 µg/m³) by 2025.

- We will provide a personal air quality messaging system to inform the public, particularly those who are vulnerable to air pollution, about the air quality forecast, providing clearer information on air pollution episodes and accessible health advice.
- We will work with media outlets to improve public access to the air quality forecast.
- We will work to improve air quality by helping individuals and organisations understand how they could reduce their contribution to air pollution, showing how this can help them protect their families, colleagues and neighbours.
- We will publish updated appraisal tools and accompanying guidance this summer to enable the health impacts of air pollution to be considered in every relevant policy decision that is made.

4.1 The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion. (Air Quality Annual Status Report –2018 South Staffordshire District Council)

4.2 The South Staffordshire Sustainable Community Plan 2008-2020 set out a vision and a plan for the future that will benefit all who live and work in South Staffs. The strategy represents the vision for how South Staffordshire can be an even better place to live, work and visit and to make South Staffordshire a safe and healthy place to live.

4.3 South Staffs has prosperous villages and thriving communities, where everyone can develop their abilities to the full and pass on to future generations a better environment.

4.4 Air quality in Staffordshire and Stoke-on-Trent is a rural and urban mixture dominated by roads such as the M6, A34 and Trunk roads. Staffordshire will be affected by industrial pollutants because of our neighbouring authorities such as Wolverhampton, Stoke-on-Trent and Derby. In addition there will be significant agricultural emissions from farms located in Staffordshire.

Ref: Staffs Health & Wellbeing Board Meeting 7th Dec 2017

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5.0 Demographics

In the 2011 census the population of South Staffordshire was 108,131 and is made up of approximately 51% females and 49% males.

The average age of people in South Staffordshire is 43, while the median age is higher at 45.

Overall, 20.2% of the population are of retirement age or older which compares with 18.5% in England and Wales. The most rapidly increasing sector of the population is the 85+ age group.

The Sustainable Community Strategy consultation identified four top priorities that should be focused on. These were:

- Crime
- Health
- Quality of the local environment
- Affordable housing.

Information was gathered from local businesses and the South Staffs Council Residents Panel consisting of 1,200 local residents.

6.0 Health & Wellbeing

Priorities:

- Support older people to stay healthy and independent.
- Promote healthy lifestyles of adults and young people.
- Reduce health inequalities.

6.1 South Staffs is relatively affluent given that there are no nationally identified deprived electoral wards. In addition, the rural nature of the area means that many residents have poor access to essential services such as transport and health services.

6.2 Compared to other local authorities, South Staffs has a population weighted towards the over 40's. Although death rates are falling, the rates are slightly higher than the national average due to the ageing population. At present, our premature deaths are lower than the national average, suggesting that the population generally is in good health.

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6.3 Staffordshire Health & Wellbeing Board Meeting 7th December 2017.

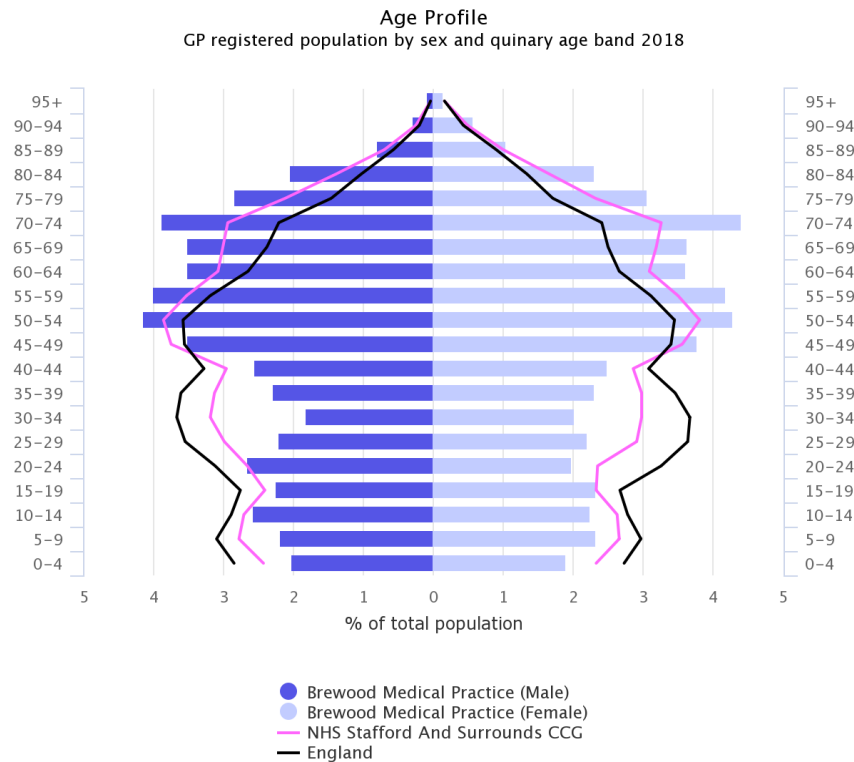
Recommendations to the Board

- Develop a partnership agreement on Air Quality between Staffordshire County Council, Stoke-on-Trent City Council and the 8 District/Boroughs across Staffordshire.
- Develop an Action Plan for Local Implementation from October 2018. This plan of work would be informed by a detailed options appraisal.
- Develop a Communications Plan for engaging and communicating with the public on air pollution. In addition the Communications Plan would need to include Business and Commerce.
- That Staffs bid for any appropriate Air Quality Grants as they become available.

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6.4 Demographics and Employment Status.

Population examples taken from 2 Medical Practices in South Staffs.



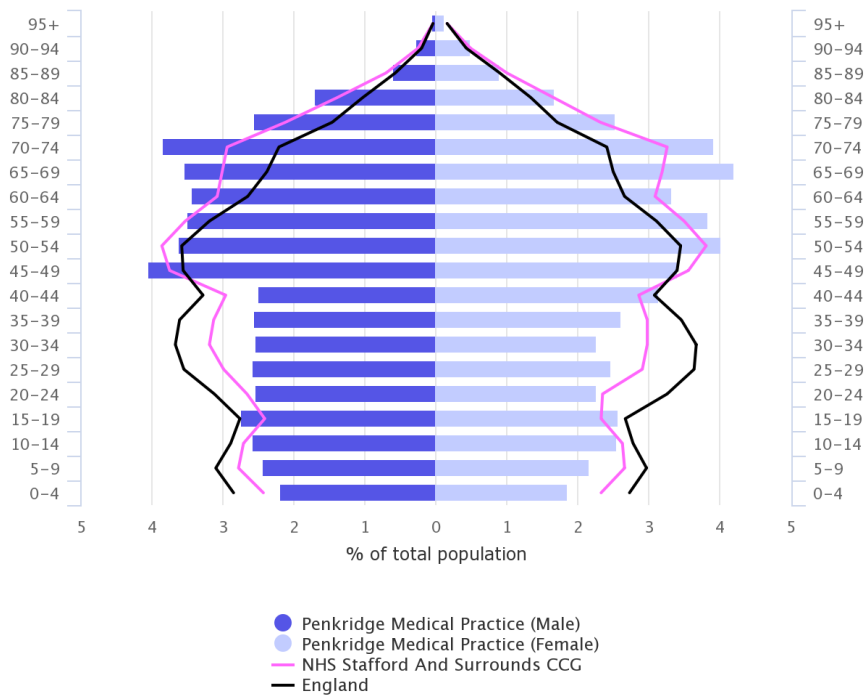
Registered Persons	
Brewood Medical Practice	10,521
NHS Stafford And Surrounds CCG	10,649 (average)
ENGLAND	8,035 (average)

M83009 - Brewood Medical Practice

QOF achievement	530.7 (out of 559)
Life expectancy (Male)	81.5 years
Life expectancy (Female)	84.6 years
% having a positive experience of their practice	90.0%
Deprivation	
Second least deprived decile	
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<div style="display: flex; justify-content: space-between; font-size: small;"> More deprived Less deprived </div>	

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Age Profile
GP registered population by sex and quinary age band 2018



Registered Persons

Penkrige Medical Practice	9,849
NHS Stafford And Surrounds CCG	10,649 (average)
ENGLAND	8,035 (average)

M83045 - Penkrige Medical Practice

QOF achievement	555.4 (out of 559)
Life expectancy (Male)	81.9 years
Life expectancy (Female)	83.8 years
% having a positive experience of their practice	79.7%

Deprivation

Second least deprived decile



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Unemployed % 2017/18 Stafford & Surrounds CCG

Area	Value	Lower	Upper
England	3.9	3.8	3.9
NHS Stafford And Surrounds CCG	2.3	1.7	3.1
M83009 - Brewood Medica...	1.7	0.5	5.4
M83024 - Castlefields	0.6	0.1	5.4
M83092 - Crown Surgery	1.4	0.3	6.2
M83020 - Cumberland Hou...	4.7	2.4	9.2
M83070 - Gnosall	0.0	0.0	3.4
M83022 - Hazeldene Hous...	0.9	0.2	4.9
M83049 - Holmcroft	0.8	0.2	4.1
M83069 - Mansion House...	0.0	0.0	2.1
M83057 - Mill Bank	4.6	2.1	9.7
M83045 - Penkridge Medi...	0.8	0.1	4.2
M83036 - Rising Brook	12.3	7.5	19.5
M83044 - Stafford Healt...	5.0	2.5	9.9
M83052 - Weeping Cross...	0.8	0.2	2.9
M83050 - Wolverhampton...	0.0	0.0	2.6

Source: GP patient survey

7.0 The Impact Of Air Pollution

7.1 During the 50 years following the Clean Air Act 1956 -1968 a more insidious form of air pollution appeared linked to the emissions from the increasing number of motor vehicles and other forms of transport on our roads, rail and sea that are all dependent on the combustion of petrol and diesel fuels. Population-based studies as well as modern biological science have revealed highly potent toxic effects of chronic exposure to 'modern-day pollutants', not only on the lungs but also on the heart and broader cardiovascular system. It is further being recognised that the systemic effects of pollutants extend beyond the cardiopulmonary system to affect many other organs, increasing the risk of disease that begins from conception and persists across the lifecycle.

7.2 Air pollution plays a role in many of the major health challenges of our day, and has been linked to cancer, asthma, stroke and heart disease, diabetes, obesity, and changes linked to dementia.

Ref: Every Breath We Take – The lifelong impact of air pollution RCP Feb 2016

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7.3 Particulate matter (PM) comes from natural and man-made sources including traffic emissions.

PM less than 10micrometers in diameter (PM10) pose health concerns as they can be inhaled into and accumulate in the respiratory system.

There is clear evidence that PM2.5 (particulate matter with aerodynamic diameter of 2.5um or less) has a significant impact on human health, including premature mortality, allergic reactions and cardiovascular diseases. PM less than 2.5 are referred to as fine particles and are believed to pose the greatest health risks, as they can lodge deeply into the lungs and also pass into the bloodstream. PM2.5 is the pollutant that has the biggest impact on public health and on which the Public Health Outcomes Framework indicator 3.01 is based.

7.4 The Royal College of Physicians review of Feb 2016 found that long term exposure to air pollution impairs lung function growth in children and that outdoor exposure is linked to lung cancer in adults. Within Staffordshire it is estimated that 5% of all

deaths can be attributed to exposure to PM2.5, compared to 5.3% across England (40,000 deaths annually).

In 2012 the International Agency for Research on Cancer of World Health Organisation classified diesel exhaust as a known human carcinogen (Group 1)

7.5 These health impacts have all been linked to the main pollutants.

- **Lung** Suppresses normal lung growth in children. Accelerates lung function decline or an ageing lung in adults and a known cause of lung cancer. Also linked to onset of asthma.
-

- **Pancreas** Linked to onset of type 2 diabetes in adults.
-

- **Heart** Linked to the development of cardiovascular diseases, such as a stroke and heart disease, including atherosclerosis (furring of the arteries). Can also exacerbate existing conditions.
-

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- **Brain** Exposure of pregnant women found to affect to fetal brain growth. Also impacts mental and physical development in children and cognition in adults.

Ref: Every Breath We Take- Royal College of Physicians

7.6 PM2.5 Mortality in Staffs

In Staffs the % estimated annual number of deaths attributable to PM2.5 in adults over 30 during 2012 -2016 was 4.9%.

Estimated number of deaths by local authority area attributable to PM2.5 within Staffordshire for adults over 30 - 2012 to 2016

District/County	2012			2013			2014			2015			2016		
	Deaths - all cause persons 30+	%	Estimated attributable deaths	Deaths - all cause persons 30+	%	Estimated attributable deaths	Deaths - all cause persons 30+	%	Estimated attributable deaths	Deaths - all cause persons 30+	%	Estimated attributable deaths	Deaths - all cause persons 30+	%	Estimated attributable deaths
Newcastle-under-Lyme	1218	4.6	60	1295	4.9	60	55	4.7	60	55	4.2	50	1291	4.7	60
Stafford	1195	4.6	50	1261	4.9	60	65	4.8	60	60	4.7	60	1254	4.8	60
East Staffordshire	966	4.8	60	1097	5.1	60	55	5.1	50	55	4.8	50	1065	5.6	60
South Staffordshire	1162	4.8	60	1102	5.1	60	55	5	50	55	4.7	60	1128	5.1	60
Lichfield	953	5	50	1050	5.1	50	50	5	50	50	4.6	50	1044	5.5	60
Staffordshire Moorlands	1020	4.2	40	1085	4.7	50	45	4.5	50	45	4	40	1110	4.6	50
Cannock Chase	844	4.8	40	787	5.1	40	45	5.1	40	45	4.6	40	879	5.4	50
Tamworth	553	5.2	30	592	5.5	30	35	5.4	30	30		30	615	6	40
Stoke on Trent	2386	4.9	115	2412	5.2	125	2318	5.0	115	2479	4.9	110	2454	5.0	120
Staffordshire County	7911	4.7	372	8269	5	420	400	4.9	400	390	4.5	390	8386	5.2	430

8 Source Public Health England www.fingertips.phe.org.uk- Public Health Outcomes Framework Indicator 3.01

7.7 District, county and city authorities within Staffs have proposed to take the following actions:

- To agree a target for reducing Fraction of All Cause Mortality from PM2.5 in each district, city and county authority by 2020.

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- To agree a target for reducing PM2.5 exposure.
- To maintain compliance with the 2020 EU limit value of 25ug/m2
- To include Public Health Outcome Framework Indicator 3.01 (fraction of mortality attributable to particulate air pollution) in the Staffs and District Authority and City Council Joint Strategic Needs Assessment for 2018/2019 onwards and to report progress to the relevant Health & Wellbeing Boards.
- To continue to identify the risks affecting PM2.5 which need to be addressed at a national level. Ref: 2018 Air Quality Annual Status Report – South Staffs Council

8.0 Remediation Works and Potential Risks to Human Health

Remediation Safeguarding Report Paragraph 10

Out of nine groundwater monitoring wells within the SIG Land there was one location with exceedances of groundwater human health volatilisation screening criteria. No human health risk assessment has been undertaken to assess potential risks that might be posed to human health after the proposed West Midlands Interchange development has been completed (i.e.future site occupants).

9.0 Respiratory Disease Prevalence in Staffs. (General Practice Profiles – fingertips.phe.org)

COPD (Chronic Obstructive Pulmonary Disease) QOF Prevalence all ages 2017/18

Area	Value	Lower	Upper
England	1.9	1.9	1.9
NHS Stafford And Surrounds CCG	1.7	1.6	1.8
M83009 - Brewood Medica...	1.7	1.5	2.0
M83024 - Castlefields	1.6	1.3	1.9
M83092 - Crown Surgery	1.4	1.2	1.7
M83020 - Cumberland Hou...	1.0	0.8	1.2
M83070 - Gnosall	1.4	1.2	1.7
M83022 - Hazeldene Hous...	1.7	1.4	2.0
M83049 - Holmcroft	2.5	2.2	2.8
M83069 - Mansion House...	1.7	1.5	1.9
M83057 - Mill Bank	1.7	1.5	2.0
M83045 - Penkridge Medi...	1.9	1.6	2.1
M83036 - Rising Brook	2.1	1.9	2.5
M83044 - Stafford Healt...	2.6	2.3	2.9
M83052 - Weeping Cross...	1.2	1.0	1.3
M83050 - Wolverhampton...	1.7	1.5	2.0

Source: QOF

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ASTHMA QOF Prevalence all ages 2017/18

Area	Value	Lower	Upper
England	5.9	5.9	5.9
NHS Stafford And Surrounds CCG	6.1	6.0	6.2
M83009 - Brewood Medica...	6.8	6.3	7.3
M83024 - Castlefields	6.9	6.3	7.5
M83092 - Crown Surgery	5.7	5.2	6.2
M83020 - Cumberland Hou...	5.4	5.0	5.8
M83070 - Gnosall	6.1	5.6	6.7
M83022 - Hazeldene Hous...	6.0	5.5	6.6
M83049 - Holmcroft	7.0	6.5	7.5
M83069 - Mansion House...	7.3	6.8	7.7
M83057 - Mill Bank	5.8	5.4	6.3
M83045 - Penkridge Medi...	5.7	5.3	6.2
M83036 - Rising Brook	6.1	5.7	6.6
M83044 - Stafford Healt...	5.4	5.0	5.9
M83052 - Weeping Cross...	5.8	5.5	6.2
M83050 - Wolverhampton...	5.2	4.8	5.7

Source: QOF

Research published in February 2016 (European Respiratory Journal) says that babies born to mothers exposed to air pollution from traffic sources during pregnancy have an increased risk of developing asthma before they reach their fifth birthday. In the study of 9000 children, the effect was greater in low birth weight children.

10.0 Proximity to traffic pollution – health outcomes.

Children living near traffic related pollution are more likely:

- To have reduced lung function
- To get new cases of asthma
- To have respiratory symptoms (bronchitis)

Mothers are more likely

- To have premature or low birth weight babies.

Adults are more likely to

- Die from stroke and heart disease (especially if they have diabetes) and lung cancer.

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The elderly are more likely to

- Suffer cognitive decline.

Ref: McConnell R et al 2005, 2010, Gauderman WJ et al, 2007, Maheswaran R and Elliot P, 2003, Kan et.al. 2003-4, Gatto NM et al 2013, Weuve J et al, 2012, Kan H et al, 2008

Long term exposure to PM2.5, even at low levels is related to an increased risk of mortality attributable to diabetes. These findings have considerable public health importance given the billions of people exposed to air pollution and the worldwide growing epidemic of diabetes.

Ref: Sun et al 2009 2013, Rajapolalan 2012, Liu, 2013

11.0 Emerging Research and Pregnancy

- Prenatal exposure to PAH's (polycyclic aromatic hydrocarbons) is associated with obesity in childhood.
- Living near traffic pollution when pregnant may increase the risk of having a child that develops autism.

Ref: Rundle et al 2012, Volk H et al 2012 -13

12.0 Noise Health Effects

Are the physical and psychological health consequences of regular exposure, to consistent elevated sound levels. Elevated industrial and environmental noise can cause hearing impairment, hypertension, ischemic heart disease, annoyance and sleep disturbance. Changes in the immune system and birth defects have also been attributed to noise exposure.

*Ref: Münzel, Thomas; Schmidt, Frank P.; Steven, Sebastian; Herzog, Johannes; Daiber, Andreas; Sørensen, Mette (February 2018). "Environmental Noise and the Cardiovascular System". *Journal of the American College of Cardiology*. **71** (6): 688–697.*

Kerns, Ellen; Masterson, Elizabeth A.; Themann, Christa L.; Calvert, Geoffrey M. (2018-03-14). "Cardiovascular conditions, hearing difficulty, and occupational noise exposure within US industries and occupations". *American Journal of Industrial Medicine*. **61** (6): 477–491.

Passchier-Vermeer W, Passchier WF (March 2000). "Noise exposure and public health". *Environmental Health Perspectives*. 108 Suppl 1 (Suppl 1): 123–31.

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Ref: ***Freight & National Passenger Operators Route Strategic Plan Feb 2018***

Network Rail

Planning protection for freight site usage P33

With the above in mind, the FNPOR refers to issues with the imposition of environmental restrictions (eg noise and hours of activity) as a problem that can fundamentally undermine the utility of the site.”

This development will be in very close proximity to residential properties whereby environmental restrictions may need to be applied because of any unsociable hours of operation and noise levels and public health should be a priority and protected from such environmental factors.

13. Conclusion.

The health of the public, especially those who are the most vulnerable, such as children, the elderly and the sick, is at risk from air pollution and other environmental factors connected with this development. We cannot risk an increase in air pollution; we cannot risk increased traffic on our roads, because of the rural nature of our area, our elderly population and the transport issues to access medical services.

The loss of a sense of community represented by village life is known to have significant detrimental effects on wellbeing. The proposed development would result in a severe loss of openness and would encroach into the countryside.

Mental health of what are currently rural communities will be badly impacted by the intrusion of a 24/7 operation.

The culture of South Staffs takes on many different forms; through libraries, sport, and leisure activities, the built environment, architecture and design, creative industries, tourism and even cultural heritage sites. It is also increasingly important to acknowledge other elements of our culture such as education, health, transport and the environment in which we live.

The current pollution rating at ST19 is

1 out of 6 (good)

A rating of **1** means there is a **low chance** of average nitrogen dioxide levels exceeding the annual legal limit. The air in your area is generally clean, although there may still be some high concentrations of NO₂ located close to major roads.

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This is **the same as the average for South Staffordshire**, which is **1 out of 6**(good).

Source: MappAir100 by EarthSense