EQUALITY IMPACT ASSESSMENT

Describe and explain the impact of the proposal on people with protected characteristics as described in the Equality Act 2010.

The provisions within the Environment (Air Quality and Soundscapes) (Wales) Bill apply to everyone, including disadvantaged groups. The health effects of airborne pollution depend on how much people are exposed to and for how long. Airborne pollution affects people in different ways with risks and impacts changing over a lifetime. Children and young people, older people, and those with heart or lung problems are more likely to be affected. Therefore, improvements to air quality can deliver benefits to those with certain protected characteristics such as those with impairments, pregnant women, people living in areas of high deprivation (which in turn could affect ethnic minorities and those with impairments or health conditions disproportionately). Our research demonstrated those with certain protected characteristics will benefit more from improvements in air and soundscape quality.

Globally, air pollution is considered as the fourth highest cause of death among all health risks, exceeded only by high blood pressure, diet and smoking. In 2018, on average every inhabitant of a European city suffered a welfare loss of over € 1,250 a year owing to direct and indirect health losses associated with poor air quality, equivalent to 3.9% of income earned in cities. Disadvantaged groups in UK are directly affected by this welfare loss. Evidence indicates that those on the lowest incomes are more likely to be adversely affected by poor air quality and noise levels at home. The proposals for the Environment (Air Quality and Soundscapes) (Wales) Bill will have beneficial health impacts on these groups in the long term. However, we have considered some negative impacts on lowincome households through the Bill and how these could be mitigated.

Fixed Penalty Notices (FPNs) could be seen to have a disproportionate impact on low-income groups. However, the FPNs will be issued as a last resort with guidance and behaviour change being the focus of anti-idling policy. This includes the inclusion of anti-idling measures in a package of complementary measures designed to reduce airborne pollution.

In terms of the approach to enforcement, it will remain the case that an authorised local authority Enforcement Officer who has reasonable cause to believe a driver is committing a stationary idling offence on the public highway may require the driver to switch off the engine. A person failing to comply will be liable on summary conviction to a fine not exceeding level 3 on the standard scale. So it will continue to be the case that local authority Enforcement Officers are likely to ask idling motorists to switch off their engines. In this way, it will remain the case that the practical effect of the current anti-idling regulations will be that drivers can <u>potentially</u> avoid having to pay the penalty if they comply with the request to desist from engine idling.

Establishing any future Clean Air Zone using proposals within this Bill may have impacts on disadvantaged groups. As each scheme would be unique, impacts would have to be considered in detail at the point of developing individual scheme proposals. Before any

scheme was introduced there would be a full public consultation. Consideration will be given to mitigatory actions which may be needed to help address negative impacts on specific groups that may arise from an individual scheme, including help with financial burdens.

Our research identified mainly positive impacts resulting from our policy proposals as set out in the table below. Additionally, we have used the information gleaned from our research to shape our policy proposals, modifying where necessary to take account of any identified impacts on protected groups or people who might be socio-economically disadvantaged as a result.

The Clean Air Plan includes a section on "improving air quality to protect the health and well-being of current and future generations". This is supported by a range of commitments and actions (which include those relating to the Environment (Air Quality and Soundscapes) (Wales) Bill). The actions will be supported by a range of statistical, data and behavioural measures to assess impact and change. Assessment of progress against these actions will be conducted throughout the duration of the Clean Air Plan.

During implementation of the Bill, specific frameworks to measure the impact will be developed to assess the impacts following implementation.

Better air and soundscape quality will lead to higher recreational quality of green spaces in and around the cities. Disabled people and people from lower socioeconomic status who do not own a vehicle or who are unable to access long range public transport to beauty spots will be able to enjoy local recreational spaces with improved air quality environment.

Record of Impacts by protected characteristic:

Protected characteristic or group	What are the positive or negative impacts of the proposal?	Reasons for your decision (including evidence)	How will you mitigate Impacts?
Age (think about different age groups)	Positive	Poor air quality and noise can adversely affect health by exacerbating underlying health issues or causing new health issues. The Welsh Government also recognises that there are unique issues around children's exposure to airborne pollutants. Poor air quality can affect children's physical and cognitive development. Long term health issues can prevent children from attending school which can damage a child's future prospects. Long term health issues can persist well into adulthood. Air pollution also has an adverse effect on older people, in particular in terms of respiratory and cardiovascular diseases. Reducing air pollution will have a positive impact on the health of older people. Evidence Improvements in air quality: whose lungs benefit? European Respiratory Journal 2019; Ulrike Gehring, Gerard H. Koppelman¹	N/A

¹ https://erj.ersjournals.com/content/53/4/1900365

- Air pollution and myocardial infarction in Rome: A casecrossover analysis. *Epidemiology*. 2003; 14: 528-535.
 Zanobetti A, Schwartz J.²
- The effect of particulate air pollution on emergency admissions for myocardial infarction: A multicity case-crossover analysis. *Environ Health Perspect.* 2005; 113: 978-982.³
- Systemic Inflammation and lung function in young, healthy adults Thorax. 2007 Dec; 62(12): 1064–1068; Hancox RJ, Poulton R, Greene JM, Filsell S, McLachlan CR, Rasmussen F, Taylor DR, Williams MJA, Williamson A, Sears MR⁴
- Concentrated ambient air particles induce mild pulmonary inflammation in healthy human volunteers. Am J Respir Crit Care Med. 2000; 162(3 Pt 1): 981-988. Ghio AJ, Chong Kim, Devlin RB⁵
- The effects of air pollution on hospitalizations for cardiovascular disease in elderly people in Australian and New Zealand cities. Environ Health Perspect. 2006; 114:

² http://europepmc.org/abstract/MED/14501267

³ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1280336/

⁴ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2094275/

⁵ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2094275/

		 1018-1023. Barnett AG, Williams, GM, Schwatrz J, Best TL, Neller AH, Petroeschevsky AL, Simpson RW⁶ Particulate air pollution and hospital admissions for cardiac diseases in potentially sensitive subgroups Epidemiology. 2012 May; 23 (3):473-81; Colais P, et al⁷ Clean Air Day 2020: Air pollution and children's learning (philips.co.uk) 	
Disability (consider the social model of disability ⁸ and the way in which your proposal could inadvertently cause, or could be used to proactively remove, the barriers that disable people with different types of impairments)	Positive	People with lung disease such as asthma and chronic obstructive pulmonary disease (COPD), which includes chronic bronchitis and emphysema, will benefit from being able to breathe cleaner air. Fewer pollutants result in less irritation and potential reaction to pollutants. Improvements in air quality have the potential to increase physical and recreational activity with associated benefits to mental well-being. High levels of Particulate Matter are associated with cardiovascular morbidity. Cleaner air will lead to fewer cases of cardiovascular conditions and will lower the mortality average age.	N/A

⁶ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1513338/

⁷ https://journals.lww.com/epidem/fulltext/2012/05000/Particulate_Air_Pollution

⁸ Welsh Government uses the social model of disability. We understand that disabled people are not disabled by their impairments but by barriers that they encounter in society. Ensuring that your proposal removes barriers, rather than creating them, is the best way to improve equality for disabled people. For more information, go to the intranet and search 'social model'.

Improved soundscape quality will have positive effect on neurodiverse conditions, hearing conditions such as tinnitus and mental health.

Evidence

- Ambient air pollution and cardiovascular emergency department visits in potentially sensitive groups. Am J Epidemiol. 2007; 165: 625-633. Peel JL, Metzger KB, Klein M, Flanders WD, Mulholland JA, Tolbert PE.⁹
- Health effects of fine particulate air pollution: Lines that connect. J Air Waste Mange Assoc. 2006; 56: 709-742.
 Pope CA III, Dockery DW.¹⁰
- Research Priorities for Airborne Particulate Matter: IV. Continuing Research Progress. Washington, DC: The National Academies Press, 2004.¹¹
- Cleanair4health
- The Health Benefits of Cleaner Air | Airdri Group

Asthma

⁹ https://academic.oup.com/aje/article/165/6/625/63845

¹⁰ https://www.ncbi.nlm.nih.gov/pubmed/16805397

¹¹ https://www.nap.edu/read/10957/chapter/9

 Long-term exposure to air pollution and asthma hospitalisations in older adults: a cohort study Thorax. 2012 Jan; 67(1):6-11; Andersen, ZJ et al¹²

Aural Diversity

• Aural Diversity online resources and infographic. Hugill, A et al (https://auraldiversity.org)

Autism

 A Systematic Review and Meta-Analysis of Multiple Airborne Pollutants and Autism Spectrum Disorder PLOS ONE DOI:10.1371/journal.pone.0161851 September 21, 2016; Juleen Lam¹³

Breast Cancer

 Association between ambient air pollution and breast cancer risk: The multi-ethnic cohort study Cancer Epidemiology; Iona Cheng et al¹⁴

Heart Disease

Long-term exposure to outdoor air pollution and incidence of cardiovascular diseases Epidemiology, 24(1), 44-53; Atkinson, Richard W. et al (2013).¹⁵

¹² https://thorax.bmj.com/content/67/1/6.long

¹³ https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0161851

¹⁴ https://www.ncbi.nlm.nih.gov/pubmed/30924138

¹⁵ https://journals.lww.com/epidem/fulltext/2013/01000/Long_Term_Exposure

Chronic Obstructive Pulmonary Disease (COPD)

- Long-term exposure to outdoor air pollution and the incidence of chronic obstructive pulmonary disease in a national English cohort Occup Environ Med. 2015 Jan; 72(1): 42–48; Atkinson RW, Carey IM, Kent AJ, Anderson HR, Cook DG¹⁶
- Air pollution and chronic obstructive pulmonary disease Respirology Vol. 17 (3) 2012; Ko, Dr. Fanny; Hui, Dr. David¹⁷

Dementia

 Long-term exposure to air pollution and first hospitalisation for dementia, occupational and environmental medicine 2018;75:A1-A2; Francesco Cerza et al ¹⁸

Diabetes

 Are diabetics more susceptible to the health effects of airborne particles? Am J Respir Crit Care Med. 2001; 164: 831-833. National Research Council. Zanobetti A, Schwartz J.¹⁹

¹⁶ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4283678/

¹⁷ https://onlinelibrary.wiley.com/doi/10.1111/j.1440-1843.2011.02112.x

¹⁸ https://oem.bmj.com/content/75/Suppl_1/A1.3

¹⁹ https://www.atsjournals.org/doi/full/10.1164/ajrccm.164.5.2012039

Gender Reassignment (the act of transitioning and Transgender people)	Neutral	Air Pollution as a Risk Factor for Type 2 Diabetes Toxicological Sciences, Volume 143, Issue 2, February 2015, Pages 231–241; Xiaoquan Rao et al ²⁰ Literature is limited on specific effects of airborne pollution on gender reassignment, the only article found discusses the changes in exposure to air pollution due to gender throughout different life stages. Health effects of air pollution are different for different sexes during their lifetime. The below report does not have evidence relating specifically to gender reassignment but does provide evidence of the different sources effecting each sex during their lives. Evidence A Growing Role for Gender Analysis in Air pollution Epidemiology Envion Health Perspect, 2010 Feb, 118(2): 167-176; Jane E. Clougherty ²¹	As we develop and deliver air quality proposals in the Bill and the Clean Air Plan for Wales, we will ensure we take account of the most recent evidence through our Clean Air Advisory Panel and other relevant expert organisations and groups to take all possible steps to mitigate any negative effects of airborne pollution on gender reassignment if identified.
Pregnancy and maternity	Positive	Improving air quality will reduce the potential impact of air pollution on the reproductive cycle and new-born children.	N/A

²⁰ https://doi.org/10.1093/toxsci/kfu250

²¹ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2831913/

There is a substantial body of evidence indicating the link between air pollution and risks to the health of both mother and unborn infant during pregnancy.

There are links between prenatal, early-life and childhood exposure to particulate matter (PM) from road traffic and reductions in lung function during childhood. The risk of term low birth weight increases as maternal exposure to PM increases.

Evidence

- Examining Joint Effects of Air Pollution Exposure and Social Determinants of Health in Defining "At-Risk" Populations Under the Clean Air Act: Susceptibility of Pregnant Women to Hypertensive Disorders of Pregnancy World Medical and Health Policy, Volume 10, Issue 1, March 2018, Pages 7-54; Patricia D. Koman et al²²
- Association of Atmospheric Particulate Matter and Ozone with Gestational Diabetes Mellitus Environ Health Perspect. 2015 Sep;123(9):853-9; Hu, H et al²³
- The effects of air pollution on adverse birth outcomes Environ Res. 2014 Oct; 134: 198-204; Ha, S et al²⁴

²² https://www.ncbi.nlm.nih.gov/pubmed/30197817

²³ https://ehp.niehs.nih.gov/doi/full/10.1289/ehp.1408456

²⁴ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4262551/

		 Maternal exposure to air pollution and risk of autism in children: A systematic review and meta-analysis Environmental Pollution, 10.1016/j.envpol.2019.113307, (113307), (2019); Hee Kyoung Chun et al²⁵ Air pollution exposure in early pregnancy and adverse pregnancy outcomes: A register-based cohort study Olsson D, Mogren I, Forsberg B²⁶ https://www.theguardian.com/environment/2019/jan/11/air-pollution-as-bad-as-smoking-in-increasing-risk-of-miscarriage 	
Race (include different ethnic minorities, Gypsies and Travellers and Migrants, Asylum seekers and Refugees)	Positive	Although we did not identify specific research on air pollution and ethnic minorities in Wales, wider research indicates that improvement in air quality could positively affect the health of ethnic minorities and help to reduce health inequalities. The research also highlights that involving diverse communities and groups throughout policy inception, development and delivery is crucial. Evidence Updated Analysis of Air Pollution Exposure in London Aether ²⁷	N/A

²⁵ https://www.sciencedirect.com/science/article/pii/S0269749119314691

²⁶ https://bmjopen.bmj.com/content/3/2/e001955

²⁷ https://www.london.gov.uk/sites/default/files/aether_updated_london_air_pollution_exposure_final_20-2-17.pdf

Poligion, boliof and	None	 Effect of air pollution and racism on ethnic differences in respiratory health among adolescents living in an urban environment. Health Place 23 Sep 2013 P171-178²⁸ Associations between air pollution and socioeconomic characteristics, ethnicity and age profile of neighbourhoods in England and the Netherlands. Environmental Pollution Volume 198 March 2015, pages 201-210 Migration health research in the United Kingdom: A scoping review - ScienceDirect Inequalities experienced by Gypsy and Traveller communities: A review The relationship between socio-economic indicators and air pollution in England and Wales: implications for environmental justice SpringerLink PHW-Swansea-HEAR-technical-report-FINAL.pdf (phwwhocc.co.uk) (PDF) Migration and Health in Wales (researchgate.net) (PDF) Migration and Health in Wales (researchgate.net) Tackling inequalities faced by Gypsy, Roma and Traveller communities - Women and Equalities Committee (parliament.uk) 	
Religion, belief and non-belief	None	Request submitted for an appropriate literature search to Library Services as limited related literature found.	

²⁸ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3783902/

		https://www.sustrans.org.uk/media/7956/brum-breathes-role-of-faith-groups.pdf	
Sex / Gender	Positive	Whist we expect the Bill to have a positive impact in respect of sex / gender, we do recognise there may be some disproportionate impacts of air pollution on people working in the outdoor workplace. We do not currently have specific sex/gender statistics on this matter and will seek to either develop further evidence or take account of the best available information as we implement the Bill.	N/A
		 Long-term exposure to NO₂ and PM₁₀ and all-cause and cause-specific mortality in a prospective cohort of women Occup Environ Med. 2013 Mar; 70(3):179-86. Heinrich, J et al²⁹ Particulate air pollution and hospital admissions for cardiac diseases in potentially sensitive subgroups. Epidemiology. 2012 May; 23 (3):473-81. Colais P, et al³⁰ Every breath we take: the lifelong impact of air pollution RCP London – (Section 2.8 workplace air) 	
Sexual orientation (Lesbian, Gay and Bisexual)	Positive	There is some evidence that same sex partner households are affected by air pollutants in the form of cancer and respiratory risks to a greater extent than heterosexual partners. Evidence	N/A

²⁹ https://oem.bmj.com/content/70/3/179.lon

³⁰ https://journals.lww.com/epidem/fulltext/2012/05000/Particulate_Air_Pollution

		 Environmental Injustice and Sexual Minority Health Disparities: A National Study of Inequitable Health Risks from Air Pollution among Same-Sex Partners. Soc Sci Med October 2017, 191, pages 38-47³¹ 	
Marriage and civil partnership	None	Request submitted for an appropriate literature search to Library Services. No related literature found.	
Children and young people up to the age of 18	Positive	The Welsh Government recognises that there are unique issues around children's exposure to air pollutants and noise. Poor air quality can affect children's physical and cognitive development. Long term health issues can prevent children from attending school which can damage a child's future prospects. Long term health issues can persist well into adulthood. Noise can affect learning both directly and through poor sleeping.	N/A
		 Association between air pollution and lung function growth in southern California children: Results from a second cohort. Am J Respir Crit Care Med. 2002; 166: 76-84. Gauderman WJ, Avol E, Gilliland F, Vora H, Thomas D, Berhane K, McConnell R, Küenzli N, Lurmann F, Rappaport E, Margolis H, Bates D, Peters J.³² 	

³¹ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5623125/

³² https://www.ncbi.nlm.nih.gov/pubmed/12091175

- Childhood Asthma: Diagnosis and Treatment. Wim M van Aalderen³³
- The influence of ambient coarse particulate matter on asthma hospitalization in children: Case-crossover and time-series analyses. *Environ Health Perspect*. 2002; 110: 575-581 Mei Lin, Yue Chen, Richard T. Burnett, Paul J Villeneuve, Daniel Krewski.³⁴
- An association between fine particles and asthma emergency department visits for children in Seattle. Environ Health Perspect. 1999; 107: 489-493., Norris G, YoungPong SN, Koenig JQ, Larson TV, Sheppard L, Stout JW.³⁵
- Air quality and pediatric emergency room visits for asthma in Atlanta, Georgia. Am J Epidemiol. 2000; 151: 798-810. Tolbert PE, Mulholland JA, Macintosh DL, Xu F, Daniels D, Devine OJ, Carlin BP, Klein M, Butler AJ, Nordenberg DF, Frumkin H, Ryan PB, White MC³⁶
- Effects of ambient air pollution on symptom sseverity and medication use in children with asthma *Ann*

³³ https://www.nejm.org/doi/full/10.1056/NEJMoa040610

³⁴ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1240873/

³⁵ https://www.ncbi.nlm.nih.gov/pubmed/10339450

³⁶ https://www.ncbi.nlm.nih.gov/pubmed/10965977

Allergy Asthma Immunol. 2003; 91: 346-353. Slaughter JC, Lumley T, Sheppard L, Koenig JQ, Shapiro, GG.³⁷

- An analysis of the association between respiratory symptoms in subjects with asthma and daily air pollution in Spokane, Washington. *Inhal Toxicol*. 2004; 16: 809-815; Peel JL, Tolbert PE, Klein M, Metzger KB, Flanders WD, Knox T, Mulholland JA, Ryan PB, Frumkin H.³⁸
- Ambient air pollution and respiratory emergency department visits. *Epidemiology*. 2005; 16: 164-174.
 Szyszkowicz M, Kousha T, Castner J, Dales R³⁹
- Association between neighbourhood air pollution concentrations and dispensed medication for psychiatric disorders in a large longitudinal cohort of Swedish children and adolescents BMJ Open 2016; 6:e010004. Anna Oudin et al⁴⁰
- World Health Organization. Regional Office for Europe. (2011). Burden of disease from environmental noise: quantification of healthy life years lost in Europe. World

³⁷ https://www.sciencedirect.com/science/article/abs/pii/S108112061061681X

³⁸ https://www.researchgate.net/publication/51366198

³⁹ https://www.ncbi.nlm.nih.gov/pubmed/29459308

⁴⁰ https://bmjopen.bmj.com/content/6/6/e010004

		Health Organization. Regional Office for Europe. https://apps.who.int/iris/handle/10665/326424	
Low-income households	Positive	Evidence indicates that those on the lowest incomes are more likely to be adversely affected by poor air quality and noise levels at home. Deprivation and poor health influences can combine to make people less able to cope with or adapt to air pollution exposure, risks and impacts may be worse compared with elsewhere. The proposals for the Environment (Air Quality and Soundscapes) (Wales) Bill will have beneficial health impacts on these groups in the long term. Evidence • Fine particulate air pollution and mortality in nine California counties: results from CALFINE. Environ Health Perspect. 2006: 114: 29-33; Ostro B, Broadwin R, Green S, Feng WY, Lipsett M. ⁴¹ • The Impact of Components of Fine Particulate Matter on Cardiovascular Mortality in Susceptible Subpopulations. Occup Environ Med. 2008; 65(11): 750-6. Ostro B, Feng WY, Broadwin R, Malig B, Green S, Lipsett M. ⁴² • The Health and Socioeconomic Impact of Trafficrelated Air Pollution in Scotland. University of St Andrews Hyland, J. (2017). ⁴³	N/A

⁴¹ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1332652/

⁴² https://oem.bmj.com/content/65/11/750

⁴³ https://research-repository.st-andrews.ac.uk/handle/10023/11734

 Updated Analysis of Air Pollution Exposure in London Aether ⁴⁴ Inequalities in exposure to nitrogen dioxide in parks and playgrounds in Greater London International Journal of Environmental Research and Public Health, Vol 16 No 17 2019, pp1-11; Sheridan, Charlotte E et al 	
 National Survey for Wales 2017-18 and 2021-22- 	

⁴⁴ https://www.london.gov.uk/sites/default/files/aether_updated_london_air_pollution_exposure_final_20-2-17.pdf

⁴⁵ https://www.mdpi.com/1660-4601/16/17/3194

Human Rights and UN Conventions

UN Convention on the rights of the child

The effect in relation to the UN Convention on Rights of the Child are addressed in the Children's Right Impact Assessment to the Bill.

Human Rights

Having reviewed the Human Rights Act 1998, there are no circumstances in which any proposals for the Environment (Air Quality and Soundscapes) (Wales) Bill would have any impact, either positive or negative, upon the rights contained therein, other than the provisions set out in the table below.

Human Rights	What are the positive or negative impacts of the proposal?	Reasons for your decision (including evidence)	How will you mitigate negative Impacts?
Article 6: Right to a fair trial	The Welsh Government consider that Article 6 is engaged, but that there is no negative impact on Article 6 rights.	Any provisions in the Bill creating a criminal offence, extending the penalty for a criminal offence, or creating a civil sanction, will potentially engage Article 6. For the reasons in the fourth column, the requirements of Article 6 are satisfied.	In the case of Criminal offences created by the Bill, the potential offender will have the right to have their case heard in a Magistrates court, satisfying the requirements of Article 6. In the case of a civil sanction, the recipient of a notice of intent will have the right to object to service of the notice, with a right of appeal against the imposition of a sanction to the First Tier Tribunal.

Article 1 of the First protocol to the European Convention on Human Rights: protection of property (A1P1) New smoke control provisions inserted into the Clean Air Act 1993 by section 16 of the Bill, may in certain circumstances, impact negatively on an individual's enjoyment of their property.

The positive impact of the proposal is that the provisions will have the effect of reducing smoke emission and therefore air pollution, in smoke control areas. A1P1 is potentially engaged by virtue of the new smoke control provisions inserted into the Clean Air Act 1993 by the Bill, in so far as the provisions affect a person's use of solid fuel in certain circumstances.

Any potential interference with enjoyment of property is justified because the potential benefits to the community (environmental and human health) of any restrictions on smoke emission and the use of solid fuel, outweigh the likely disbenefits to individuals.