
Evidence in support of policy

Wirral Intelligence
Service & Public
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1.0 Introduction

1.1 This document provides evidence, which indicates that controls on **Hot Food Takeaways (Use Class A5)** could be justified through a planning policy in the future Local Plan for Wirral as part of the Borough's current 2020 Plan to reduce local obesity levels.

1.2 This would contribute to achieving the Council's Spatial Vision in the emerging Local Plan through which Wirral will continue offer a high quality of life as an attractive place to live an active, sustainable, productive safe and healthy lifestyle in plan period to 2035. Council departments including Public Health, Licensing, Environmental Health, Planning and Education are working towards a **robust and cohesive** approach to address the Borough's overweight and obesity issue through which healthy and active lifestyles will be encouraged, and the consumption of unhealthy food discouraged.

2.0 National Policy Background

2.1 The purpose of the planning system is to contribute to the achievement of sustainable development for meeting current needs without comprising the ability of future generations to meet their own needs. Economic, social and environmental objectives need to be pursued in mutually supportive ways so opportunities for net gains to help build a strong economy, support vibrant healthy communities and contribute to environmental protection.

Planning policies and decisions should aim to achieve healthy, inclusive and safe places to support and enable healthy lifestyles especially where this would address identified local health & wellbeing needs. For example, through the provision of safe accessible green infrastructure, sports facilities, local shops, access to healthier food, allotments and layouts that encourage walking and cycling. Refer to parts 2 and 8 of the National Planning Policy Framework (NPPF).

2.2 Further context on Health & Wellbeing is provided in the National Planning Practice Guidance (NPPG), which indicates that planning can influence the built environment to improve health and reduce obesity and excess weight in local communities. Local planning authorities can consider bringing forward, where supported by an evidence base, local plan policies and supplementary planning documents, which limit the proliferation of certain use classes in identified areas, where planning permission is required. In doing so, evidence and guidance produced by local public health colleagues and Health and Wellbeing Boards may be relevant.

Local planning authorities and applicants could have regard to the following issues:

- proximity to locations where children and young people congregate such as schools, community centres and playgrounds;
- evidence indicating high levels of obesity, deprivation and general poor health in specific locations;
- over-concentration and clustering of certain use classes within a specified area;
- odours and noise impact; traffic impact ; refuse and litter

NPPG Paragraph: 006 Reference ID: 53-006-20170728 - Revision date: 28 07 2017

3.0 Scope

3.1 Policy CS27 'Food & Drink Uses in Existing Centres & Parades' in the emerging Local Plan already includes provision to have regard to wider social, health and economic impacts. This could be modified to seek additional controls through planning applications for use as hot food takeaways within Use Class A5 which for example includes **kebab shops, fried chicken shops, fish and chip shops, pizza shops, drive through premises** and other premises that primarily sell **hot food for consumption off the premises**. Any additional guidance on how the policy should be implemented could be included in a Supplementary Planning Document (SPD's) for town centre uses. The production of the Local Plan and SPDs will be subject to public consultation in line with the Council's Statement of Community Involvement and must follow statutory procedures set out in national legislation.

4.0 Local Health Concerns in Wirral

4.1 Statistics, produced by Public Health England on an annual basis since 2013, show there has been no significant sign of the rate of obesity reducing in Wirral and the **Active Lives Survey (2016/17)** showed that **63.3%** of the Borough's adult population are overweight including obese which higher than the national average (61.3%).

4.2 There is concern about the rise of childhood obesity and the implications of such obesity persisting into adulthood. The risk of obesity in adulthood and risk of future obesity-related ill health are greater as children get older. The National Child Measurement Programme (NCMP) measures the height and weight of children in Reception class (aged 4 to 5) and year 6 (aged 10 to 11), to assess overweight and obesity levels in children within primary schools. Defining children as overweight or obese is a complex process, given that children of different ages and sexes grow and develop at different rates. **Nationally, Public Health England refers to overweight and obesity together as 'unhealthy weight'**.

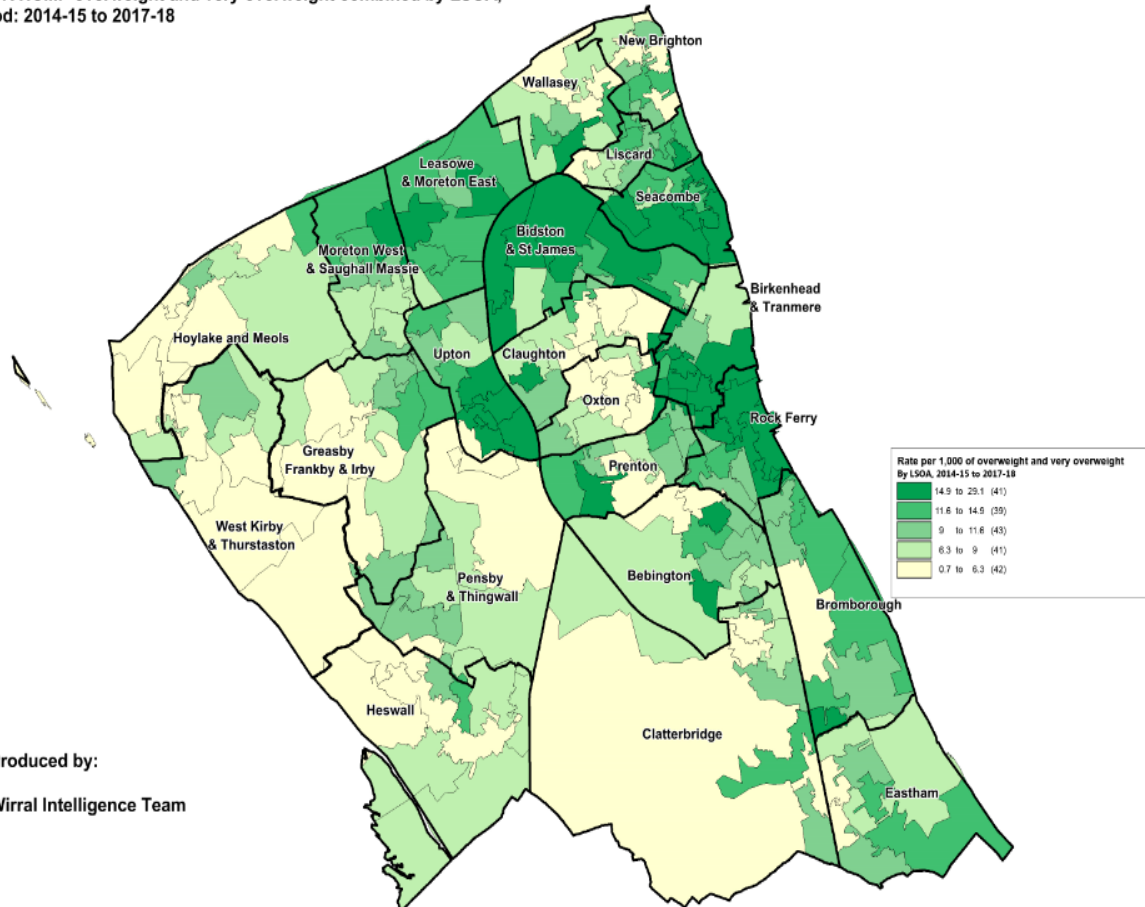
Obesity doubles in Wirral school children between reception and Year 6 (this is also true nationally and regionally) from 10.8% of children, to 20.6% of children. Based on the latest published NCMP data from 2017/18, at the age 4/5, one in ten Wirral children are obese. By the age of 10/11, one in five are obese [5].

When looking at the results of the NCMP geographically by Lower Super Output Areas (LSOA) the data has been combined for four years as the numbers are too small to report for one year only. The following maps have pooled data from 2014/15 to 2017/18 (4 pooled years). The maps show 'unhealthy weight' (combined measure of overweight and very overweight), which again, makes the data more robust.

Map 1a & 1b: Distribution of unhealthy weight in Wirral children by age and Lower Super Output Area, 2014/15–2017/18

Reception (age 4/5)

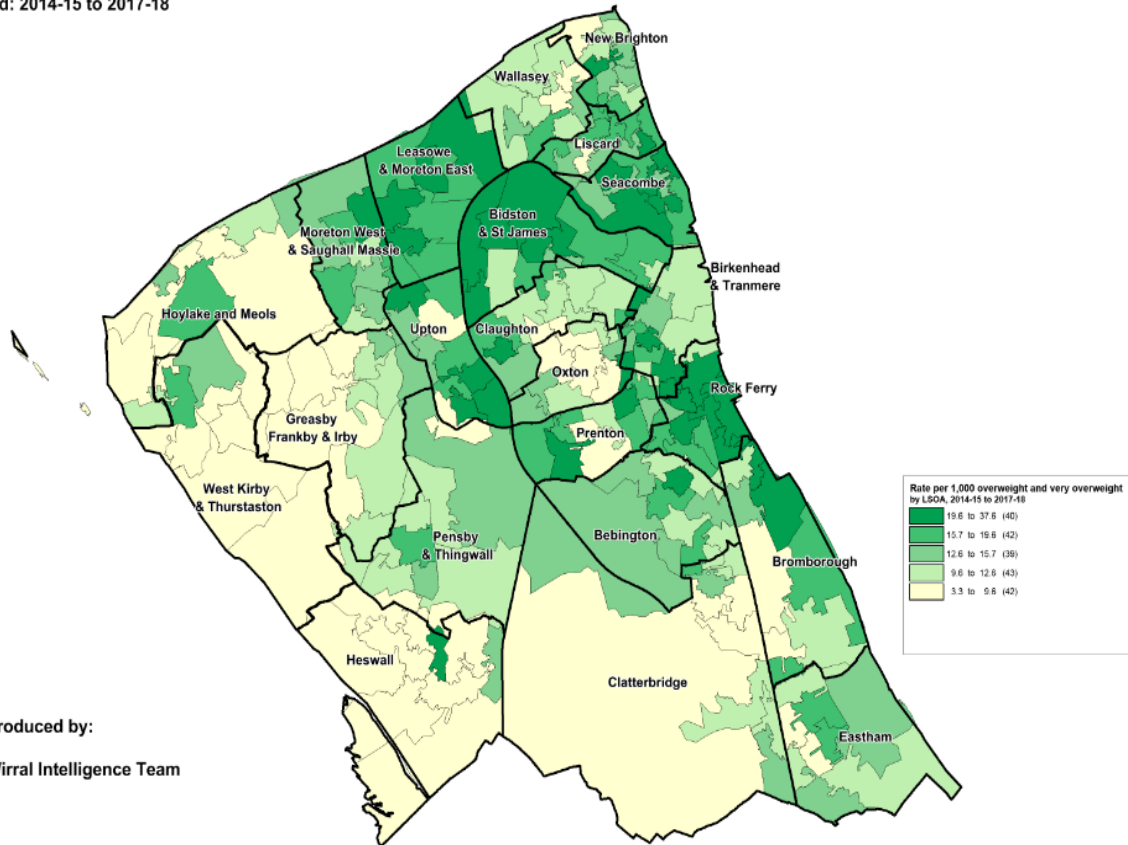
Year R NCMP overweight and very overweight combined by LSOA, Period: 2014-15 to 2017-18



Produced by:
Wirral Intelligence Team

Year 6 (age 10/11)

Year 6 NCMP overweight and very overweight combined by LSOA,
 Period: 2014-15 to 2017-18



Produced by:
 Wirral Intelligence Team

Source: Wirral Intelligence Service 2018 using, [NCMP, 2018](#)

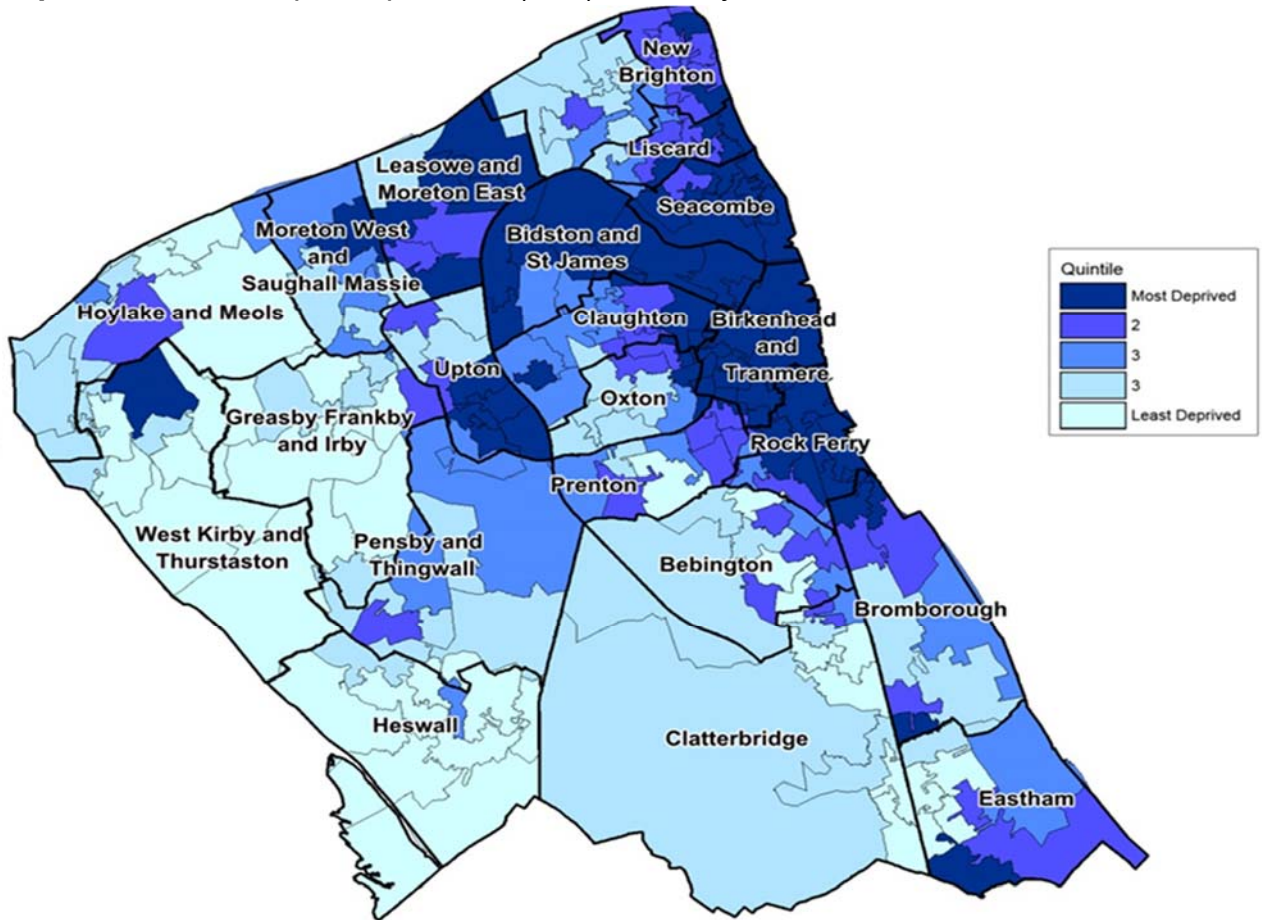
Note: LSOA is 206 geographies made up of 1500 average populations.

Note: Overweight and obesity together are often referred to as 'unhealthy weight'. Obesity is often now referred to as 'very overweight' <https://fingertips.phe.org.uk/profile/national-child-measurement-programme>

The link between obesity and deprivation is well documented and the maps above reflect this. There are some pockets of deprivation in Birkenhead and Tranmere and some areas of Heswall (generally affluent) which appear not to follow this general trend, but broadly speaking, 'unhealthy weight' in Wirral children in both Reception and Year 6 appears to be associated with deprivation (higher levels of overweight and very overweight shaded in dark green mostly fall into the 20% most deprived areas in Wirral).

The map below (Map 2) shows Wirral's level of deprivation according to the Index of Multiple Deprivation in 2015 for comparison. It shows that areas where unhealthy weight is prevalent correspond very well to the most deprived areas of Wirral.

Map 2: Index of Multiple Deprivation (IMD), 2015, by Wirral LSOA

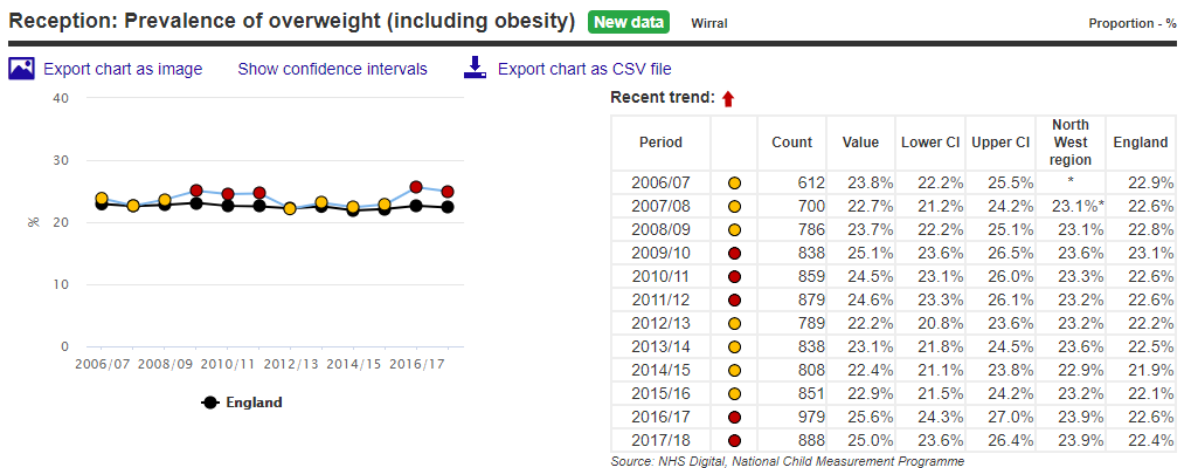


Source: Wirral Intelligence Service 2015

Note: : LSOA is 206 geographies made up of 1500 average populations.

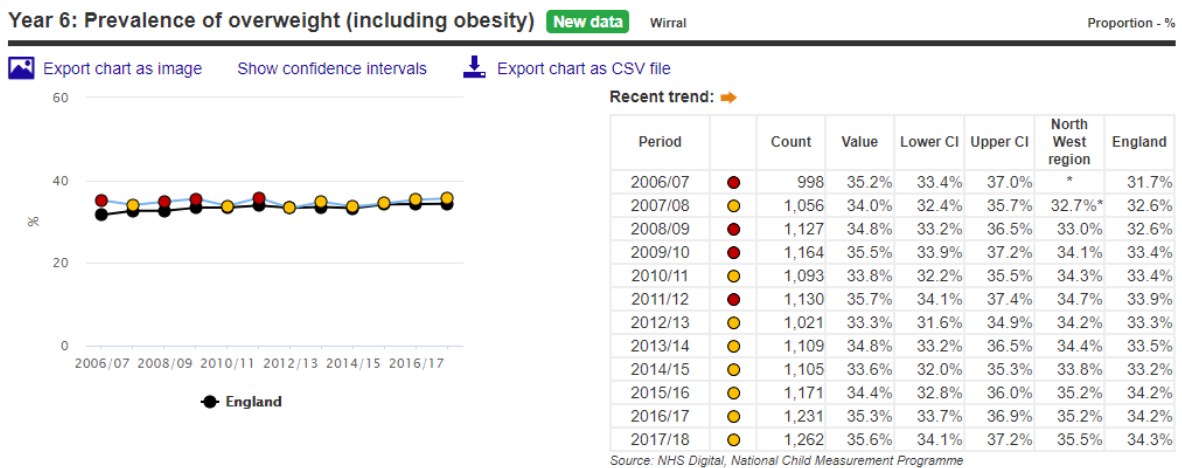
Note: Overweight and obesity together are often referred to as 'unhealthy weight'. Obesity is often now referred to as 'very overweight'

Figure 1: NCMP trend obese (Very overweight) and Overweight year reception



Source: [Public Health Outcomes Framework](#)

Figure 2: Wirral children NCMP trend obese (very overweight) and Overweight year 6



Source: [Public Health Outcomes Framework](#)

4.3 Life expectancy also varies considerably within Wirral and is, overall, lower than the England average. The inequality in life expectancy in Wirral means that men in the most deprived areas of Wirral live **11.0** years less than men in the most affluent areas, and for women, the equivalent figure is **10.1** years difference.

4.4 Typical hot food takeaways provide meals with high salt and **low nutritional value** that are directly linked to obesity, **high BMI** and **diabetes** [6]. It is estimated that health costs associated with obesity in Wirral is £63.6 million per year [7]. It is estimated that the health cost of obesity for the borough by 2020 will be **£73.1 million per year** [7].

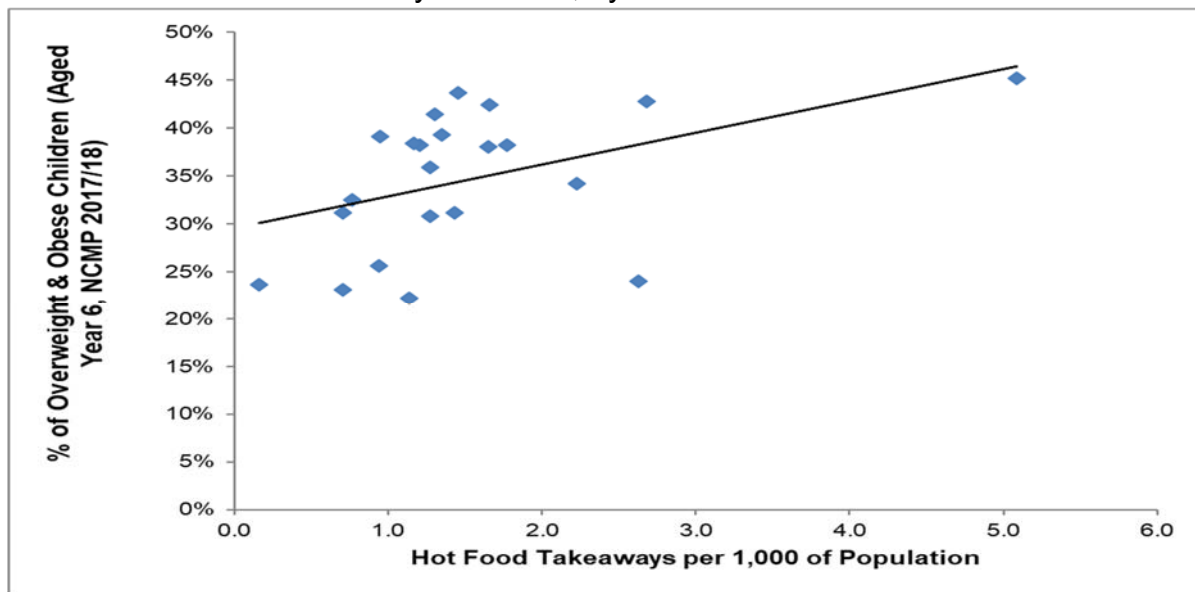
4.5 The density of hot food takeaways and general ease of access in certain areas is almost certainly a contributory factor in increased levels of obesity. Addressing this significant health issue at an early stage is vital in order to support and encourage 'strong, vibrant and healthy communities'.

4.6 Studies have concluded that **hot food takeaways** are most likely to be **concentrated in deprived areas**, with The **Royal Society for Public Health (RSPH)** suggesting; 'this increased presence may be due to increased availability of premises, less resistance to new planning applications by the community and lower rental and purchasing cost as well as **greater demand for inexpensive and calorie dense food**' [6].

4.7 This statement has particular relevance in Wirral, where around 1 in 3 residents live in areas classed as deprived (in other words, they are among the **20% most deprived** areas in the country). The highest number of hot food takeaways can be found in Birkenhead and Tranmere, Liscard, Bromborough, Hoylake and Meols and Bidston and St James wards. Three of these wards are amongst the most deprived wards in Wirral (Birkenhead and Tranmere, Liscard and Bidston and St James).

4.8 There is moderate evidence of a positive correlation between childhood obesity rates and exposure to hot food takeaways in Wirral. This means that as the **number of hot food takeaways in a ward increases**, there is an **increase in the percentage of overweight children**. Although this is not the only contributory factor, greater access and availability to hot food takeaways can only worsen this health issue. The charts below show the strength of various correlations, using data for Wirral.

Figure 3: Correlation between unhealthy weight in Year 6 Wirral children (2017/18) and rate of hot food takeaways in Wirral, by Wirral ward

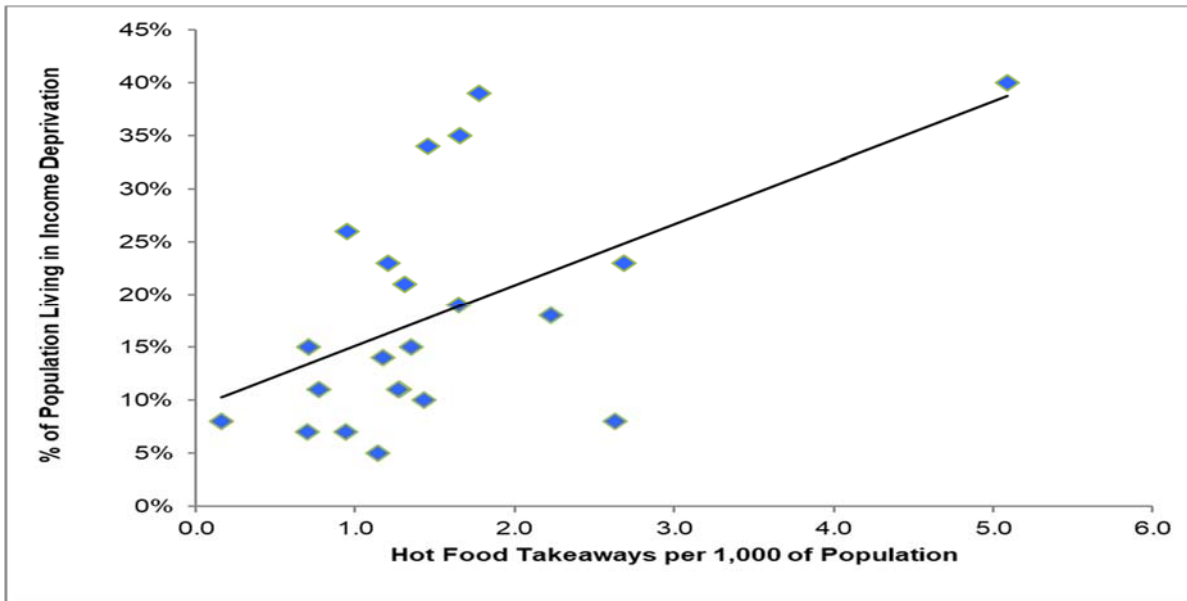


R= 0.46; p= 0.03125 ; p < 0.05

Interpretation:

Figure 3 shows that as the rate of hot food takeaways increases in Wirral, so does the rate of childhood unhealthy weight.

Figure 4: Correlation between rate of income deprivation (2015 IMD) and the number of hot food takeaways, by Wirral ward

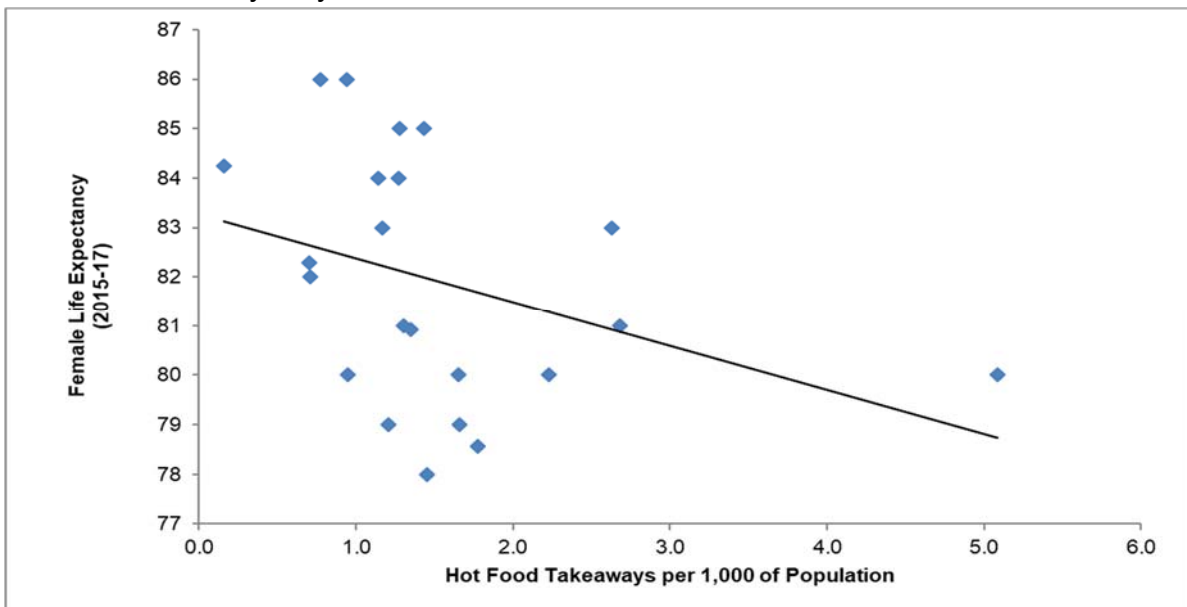


R= 0.53; p= 0.0112 ; p < 0.05

Interpretation:

As Figure 4 shows, there is a very strong, positive correlation between income deprivation (according to the 2015 IMD) and the rate of hot food takeaways in Wirral.

Figure 5: Correlation between female life expectancy (2015-17) and the number of hot food takeaways, by Wirral ward.

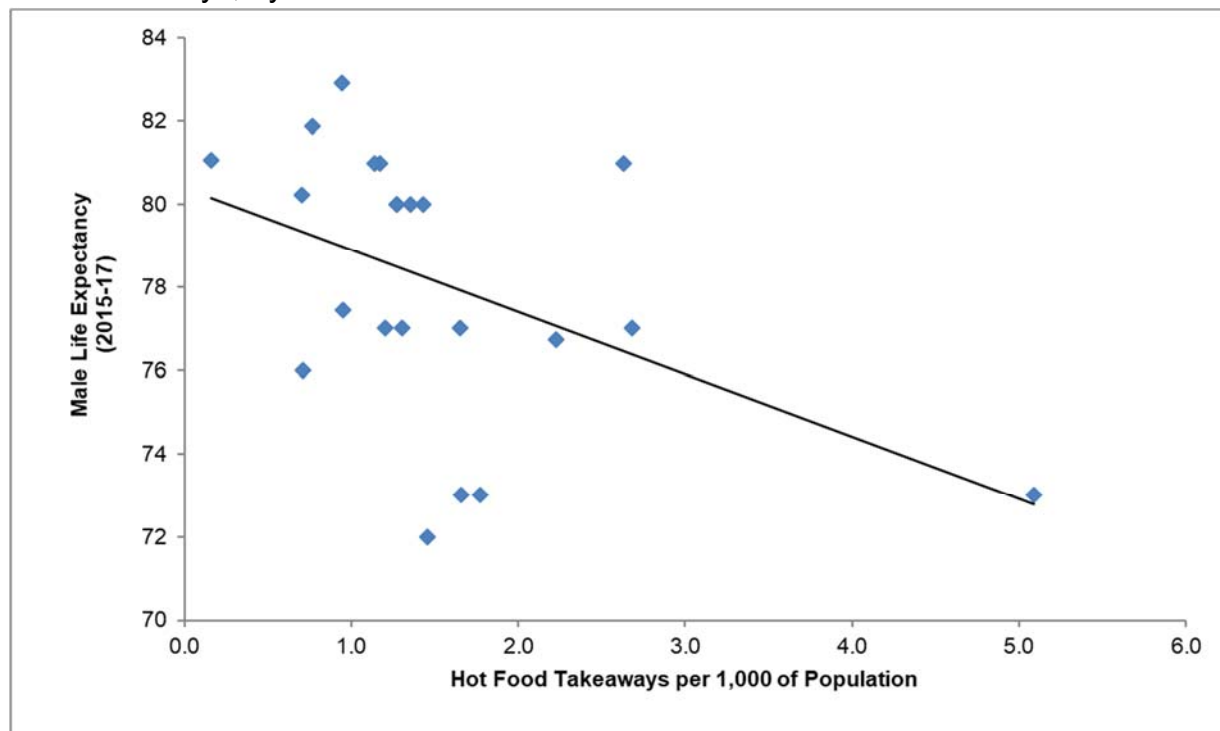


R= -0.36; p= 0.0998; p < 0.10

Interpretation:

Figure 5 shows there is a strong, negative correlation between female life expectancy and the number of hot food takeaways in Wirral, with life expectancy decreasing as the number of hot food takeaways increases.

Figure 6: Correlation between male life expectancy (2015-17) and the number of hot food takeaways, by Wirral ward.



$R = -0.46$; $p = 0.0312$; $p < 0.05$

Interpretation:

Figure 6 shows there is a strong, negative correlation between male life expectancy and the number of hot food takeaways in Wirral, with life expectancy decreasing as the number of hot food takeaways increases. This mirrors the trends seen in females (Figure 5).

4.9 Figures 3-6 provide evidence of the association between hot food takeaways in Wirral and areas with high rates of obesity and deprivation. A multi-disciplinary or whole systems approach is required to address this issue, an important aspect of which involves planning and controlling any greater proliferation of hot food takeaways.

4.10 See appendix for examples of the terminology of correlations, confidence intervals and how they are worked out and statistically relevant.

5.0 Existing Guidance, Strategies and Studies

5.1 The NHS Long Term Plan (LTP) [16] aims to relieve pressure on services and ensure sustainability for future years. The NHS LTP highlights obesity and type 2

diabetes as one of the key priorities for the NHS. The plan makes clear that people will get more tailored support.

5.2 Duncan Selbie, Chief Exec of Public Health England, welcomed the measures proposed in The Childhood obesity: a plan for action, chapter 2 [17] to help government achieve its ambition of halving childhood obesity by 2030 and significantly reduce the gap in obesity between children from the most and least deprived areas. Local action requires a sustained collaborative approach across the borough that will focus on make healthier decisions easier, providing healthier options and creating healthier environments.

5.3 The Wirral Plan outlines key pledges which local residents have highlighted as priorities [8]. This includes a pledge to support Wirral residents to live healthier lives, promoting healthy eating and tackling health inequalities including obesity.

5.4 The 2008 Government document 'Healthy Weight, Healthy Lives: a Cross-Government Strategy for England' states that 'Local authorities can use existing planning powers to control more carefully the number and location of fast food outlets in their local areas' [9]. Wirral Council could seek to use this power in through Policy CS27 in the emerging Local Plan in order to control planning applications for hot food takeaways close to secondary schools and further education colleges and other locations where children and young people are likely to congregate such as community and sports centres.

5.5 Healthy People, Healthy Places, commissioned by Public Health England, published a briefing in 2014, 'Obesity and the environment: regulating the growth of fast food outlets'. The document stresses the importance of improving the quality of food environments around schools and how a number of local authorities are producing guidance in the hope of restricting access to unhealthy uses and improving children's dietary habits [10]. The briefing references a recommendation by NICE which encourages planning authorities 'to restrict planning permission for takeaways and other food retail outlets in specific areas (for example, within walking distance of schools)' [11].

5.6 Also referenced in the above Public Health England briefing is the Takeaways toolkit which was produced by the London Food Board and Chartered Institute of Environmental Health in 2012. It recommends four broad approaches that could be taken to address the proliferation of hot food takeaways in certain locations, including around schools, one recommendation is through planning measures [12]. It also highlights that any case for action should be built on an understanding of the local area and the health needs of the local population. With a high rate of childhood obesity in Wirral, action at this point is necessary.

5.7 The 2007 Government Office for Science Foresight report ‘Tackling obesity: future choices - project report (2nd edition)’ acknowledges how complex of an issue tackling the national obesity epidemic is, however is direct in stating the importance of planning and controlling the built environment around us in order to improve health and wellbeing [13]. Other mechanisms referred to in the report include education and media as well as overcoming influential barriers such as nature of work, early life experiences, economic drivers and food production and supply.

6.0 Hot Food Takeaways in Wirral

6.1 Table 1 below details existing hot food takeaways within the Borough organised by ward (July 2017).

Table 1: Number and rate of existing hot food takeaways in Wirral, per ward.

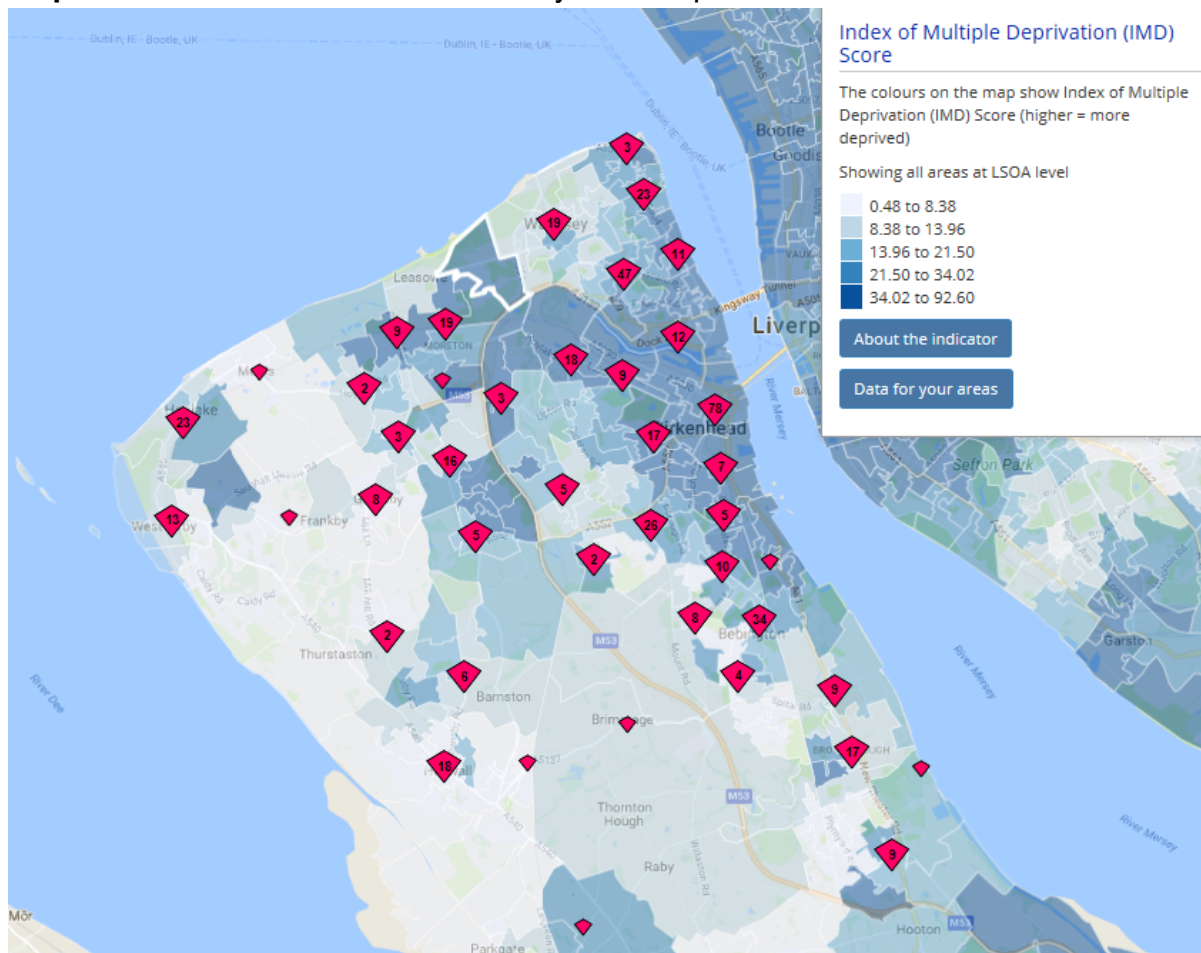
Wards	Hot Food Takeaways		
	Number	Rate per 1,000	Obese Adults %
Birkenhead & Tranmere	85	5.1	19.0%
Liscard	43	2.7	19.1%
Bromborough	35	2.6	16.4%
Hoylake & Meols	35	2.2	18.9%
Bidston & St James	28	1.8	18.9%
Seacombe	26	1.7	19.2%
New Brighton	25	1.7	19.3%
Rock Ferry	21	1.5	19.2%
Claughton	19	1.4	16.6%
Prenton	17	1.4	17.9%
Wallasey	21	1.3	18.8%
Upton	20	1.3	16.7%
Moreton West & Saughall Massie	19	1.3	16.7%
Eastham	18	1.2	18.3%
Bebington	20	1.2	18.4%
Leasowe & Moreton East	14	1.1	14.3%
Heswall	15	1.0	18.7%
Greasby, Frankby & Irby	13	0.9	14.9%
Clatterbridge	10	0.8	17.0%
Pensby & Thingwall	10	0.7	17.7%
Oxton	10	0.7	15.1%
West Kirby & Thurstaston	2	0.2	15.1%
TOTAL	506	1.6	

6.2 Wirral has an abundance of hot food takeaways, with one such premise for every 634 people. A high number of these premises are located in Wirral’s town centres in areas that are also amongst the most deprived areas of Wirral. **Around a quarter of Wirral’s existing hot food takeaways (24%) are located within 400 metres**

(approximately a five minute walk) of secondary schools and further education institutes.

6.3 The following maps detail existing hot food takeaways within the Borough and their concentration amongst areas of deprivation.

Map 3: Location of Hot Food Takeaways and deprivation in Wirral

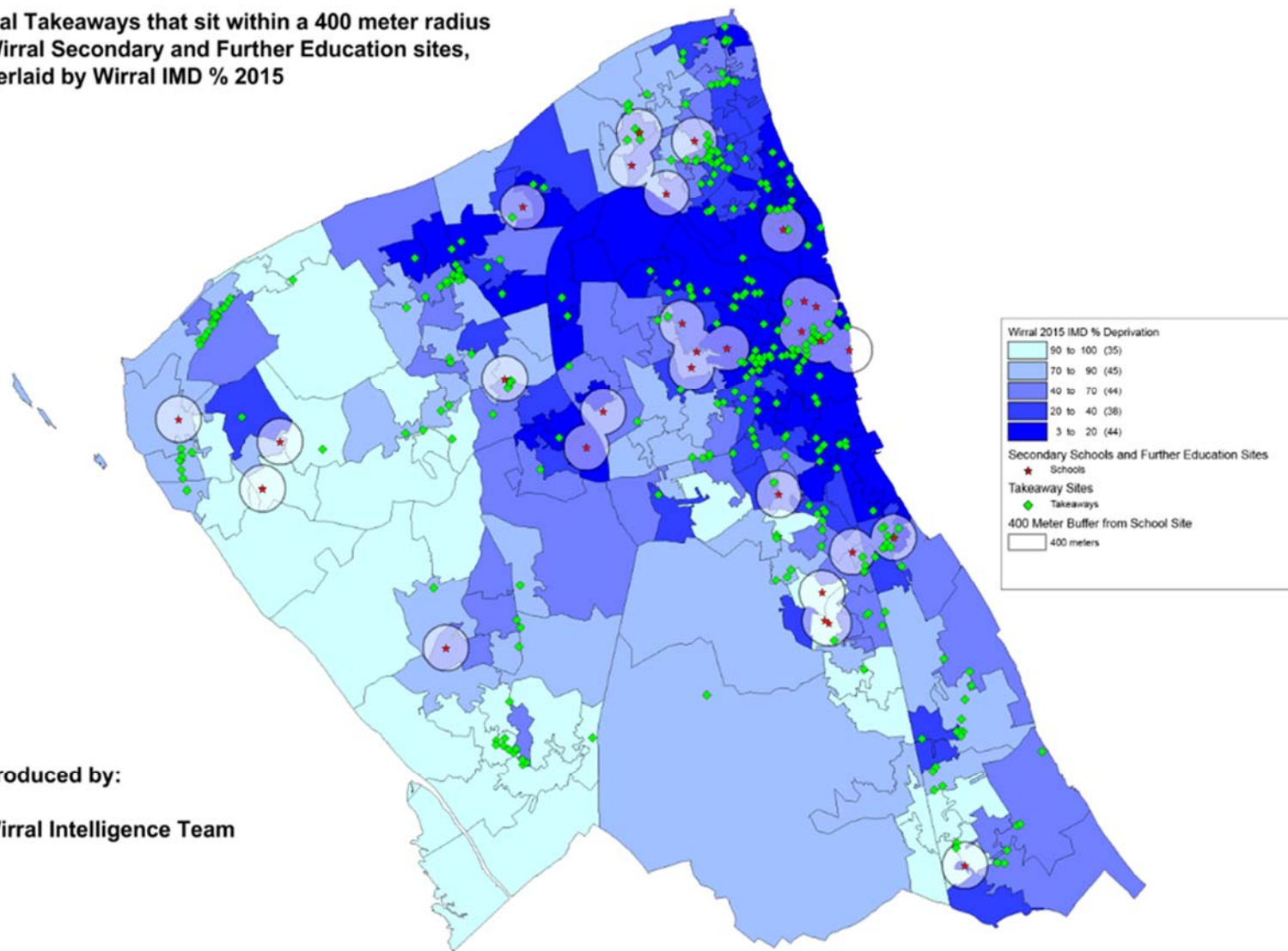


6.4 The number in the diamonds on Map 3 indicates the number of takeaways in that location. Some areas have so many takeaways they cannot all be shown clearly, so numbers have been shown for clarity.

6.5 As previously detailed, **one in four takeaways** in Wirral (121 from a total of 508), **were within 400m of a secondary school or further education sites**. Map 4 shows this information visually.

Map 4: Location of Wirral Secondary schools and further education sites, alongside hot food takeaways (background of deprivation)

Wirral Takeaways that sit within a 400 meter radius of Wirral Secondary and Further Education sites, underlaid by Wirral IMD % 2015



Produced by:

Wirral Intelligence Team

7.0 Adopted Statutory Development Plans and Supplementary Planning Documents

7.1 A number of **Core Strategies** and **Local Plans** have been adopted throughout the UK that aim to control the A5 use class based on health and wellbeing concerns. Many policies however, fail to explicitly state how this should be implemented. This has instead been guided in **Supplementary Planning Documents** (SPD examples include Barking and Dagenham, Halton, Sandwell and St Helens).

7.2 SPDs supported by an adopted plan policy have been identified as a **material consideration** in several appeals, although hold less weight than adopted Local Plan policies. In a 2010 **Judicial Review** the London Borough of Tower Hamlets was deemed to have acted unlawfully after the council's planning committee granted planning permission for a hot food takeaway close to a school; having stated that the health impact was not a material consideration [14].

7.3 In June 2015, the **Preston Local Plan** was found **sound** upon modification. Policy WB3 initially placed a 400 metre exclusion zone around secondary schools and sixth form colleges banning all new hot food takeaways regardless of location. The Inspector judged this approach as excessive and to be unsound [15]. Modifications were proposed to exempt **town and district centres** as well as to incorporate a clause which allows for new hot food takeaways within the exclusion zone, permitted that they are **subject to restricted opening times** that do not coincide with school lunch breaks [15]. Sefton is taking a similar approach.

8.0 Success at appeal

8.1 A main indicator of the relevance of planning policies and SPDs is the rate of success upon appeal to the Secretary of State. The list below indicates cases where a Planning Inspector has placed weight on health and wellbeing when considering applications for A5 uses.

a) APP/C5690/A/14/2228987 209 Lewisham Way, London, SE4 1UY

On controlling A5 uses close to schools, in areas of deprivation and with high concentrations of hot food takeaways the Inspector stated: 'I note that the health gains from this approach in isolation could in fact be limited and that there are other causes of obesity. However, when considered in combination with other local and national initiatives, resisting proposals for hot food takeaway establishments could have a meaningful impact.'

b) APP/H4315/A/11/2164087 7 Waterdale Place, Sutton, St Helens, WA9 3XN

On Hot Food Exclusion Zones, the Inspector noted: 'The objective of the SPD, to establish healthy eating habits and reduce childhood obesity, is an important one and whilst not a main issue, the proposal's failure to comply with it adds weight to my decision.'

c) APP/G5750/A/11/2162904 77 Plashet Road, London E13 0RA

On overconcentration the Inspector noted: 'The proposal would add to a local clustering and as such is contrary to Policy SP6 of the CS.' On health and wellbeing in general, the Inspector noted: 'I conclude the proposal would conflict with the Council's healthy living strategy contrary to Policy SP2 of the CS.'

d) APP/Z5060/A/10/2136264 233 Heathway, Dagenham, Essex RM9 5AN

On overconcentration the Inspector noted: 'while there is no dispute that the cumulative length of the non-retail frontages in the parade already exceeds the policy thresholds, this is not a good argument in favour of the proposal, as it could be repeated too often to the detriment of retail activity in the centre.' On health and wellbeing in general, the Inspector noted: 'the appellant is willing to accept a condition requiring its counter service to close between 15.00hours and 16.30hours each afternoon on schooldays. If enforced, it would prevent over-the-counter sales to parents and children immediately after school.'

9.0 Collaborative Responses

9.1 To address the levels of obesity in Wirral, a collaborative multi-disciplinary approach is being put in place. The following list details just some of the local and national programmes and strategies which are currently are being undertaken to tackle obesity.

Wirral Council Policies, Programmes and Strategies

- The Wirral Plan: A 2020 Vision. <https://www.wirral.gov.uk/about-council/wirral-plan-2020-vision>
- Wirral Residents Live Healthier Lives, 2016-2020.
- Wirral's Strategy for Children, Young People and Families, March 2016.
- Cheshire & Merseyside Sustainability & Transformation Plan (STP). November 2016.

Other Policies, Programmes and Strategies

- Childhood obesity: applying All Our Health <https://www.gov.uk/government/publications/childhood-obesity-applying-all-our-health/childhood-obesity-applying-all-our-health>
- Childhood obesity: a plan for action, chapter 2 (2018) <https://www.gov.uk/government/publications/childhood-obesity-a-plan-for-action-chapter-2>
- Action for Children (2017). Eat Better Start Better. Voluntary food and drink guidelines for Early Years settings in England. <https://www.actionforchildren.org.uk/resources-and-publications/information-guides/eat-better-start-better/>
- Feeding in the First Year of Life (2018) <https://www.gov.uk/government/publications/sacn-report-on-feeding-in-the-first-year-of-life>

- Healthy Weight, Healthy Lives: a Cross-Government Strategy for England
- Children's Food Campaign
- Healthy Schools Programme and Healthy School Status
- Change4Life www.nhs.uk/change4life/about-change4life
- UK Active: <http://ukactive.com/>
- Mind, Exercise, Nutrition and Do it!: <http://www.mendfoundation.org/home>

10.0 Conclusion

10.1 Obesity in Wirral is a major issue that can have an adverse impact on the health and wellbeing of thousands of local people at increased risk for serious health conditions, with increasing costs for local health providers each year. Addressing obesity has therefore become a **key priority** for the Council. The rate of obesity amongst children in the Borough is higher than national average and a **collaborative approach** is necessary in order to tackle this epidemic. Unhealthy food is a principle cause of obesity, and the content, relatively low-cost and ease of access for such food is a significant cause for concern.

10.2 The study of how the built environment can influence our diets is an emerging one, however there is a strong indication that hot food takeaways tend to **cluster in areas of deprivation**. Although hot food takeaways are not the only factor in increasing obesity rates amongst children in Wirral, it remains the case that those Wirral wards with the **highest levels of childhood obesity** and deprivation also have the **highest number of hot food takeaways**. While other measures, through health education, food and advertisement standards can help to influence the type of food that is consumed, in encouraging greater availability of unhealthy food in areas where young people can congregate would undermine Councils aims to enable people to have healthy active lives conflict with local, regional and national strategic aims.

10.3 It is recommended that **controls on hot food takeaways** in areas of **overconcentration** and **close to educational establishments through planning Policy CS27** be proposed for adoption **in the emerging Local Plan** for implementation.

References

1. Department for Communities and Local Government, National Planning Policy Framework, March 2012; Paragraph 23.
2. DCLG, National Planning Policy Framework, March 2012; Paragraph 69.
3. DCLG, National Planning Practice Guidance, Health and wellbeing, March 2014, 53-002-20140306.
4. Public Health England. Health Profile for Wirral. Available online at: <https://fingertips.phe.org.uk/profile/health-profiles> (accessed 12/09/18)
5. Public Health England. NCMP Local Authority Profile: Wirral. <https://fingertips.phe.org.uk/profile/national-child-measurement-programme> (accessed 13/12/18)
6. Royal Society for Public Health, Health on the High Street, March 2015
7. Wirral JSNA: Adult Obesity. April 2017.
8. Wirral Plan: A 2020 Vision. <https://www.wirral.gov.uk/sites/default/files/all/About%20the%20council/Wirral%20Council%20Plan%20-%20a%202020%20Vision.pdf> (accessed 20/02/18)
9. Department of Health and Department for Children, Schools and Families, Healthy Weight, Healthy Lives: a *Cross-Government Strategy for England*, January 2008
10. Public Health England, Healthy people, healthy places briefing: *Obesity and the environment: regulating the growth of fast food outlets*, March 2014, p.6-7
11. National Institute for Care Excellence, NICE guidelines [PH25]: *Cardiovascular disease prevention*, June 2010, Recommendation 11
12. Mayor of London, Chartered Institute of Environmental Health, Takeaways toolkit
13. Government Office for Science, Foresight, *Tackling Obesities: Future Choices – Project Report*
14. [2010] All ER (D) 72 (Jun): R (on the application of Copeland) v Tower Hamlets London Borough Council
15. The Planning Inspectorate, Report to Preston City Council: [Report on the Examination into the Preston Local Plan \(2012-2016\)](#)
16. The NHS Long Term Plan (2019). <https://www.longtermplan.nhs.uk/>
17. Childhood obesity: a plan for action, chapter 2 (2018). Public Health England. <https://www.gov.uk/government/publications/childhood-obesity-a-plan-for-action-chapter-2>

Appendix

What is a Correlation Coefficient (R value)

1 - A number between +1 and -1 calculated to show how interdependent two variables or sets of data are

2 - A value of exactly 1 means there is a perfect positive relationship between the two variables. For a positive increase in one variable, there is also a positive increase in the second variable

3 - A value of exactly -1 means there is a perfect negative relationship between the two variables. This shows the variables move in opposite directions; for a positive increase in one variable, there is a decrease in the second variable

4 - A value between 0 and 1 means that there is a positive correlation between the two variables however the strength of the relationship varies in degree based on the value of the correlation coefficient for example 0.7 is a positive strong correlation whereas 0.2 is a positive weak correlation. (This also applies for negative relationships where example figures are *-1)

5 - A value of exactly 0 means there is no relationship between the two variables.

6 - P values are used to determine the statistical significance of a correlation coefficient where a P-value is less than 0.05 the data is statistically significant

Data Monitoring table

Data	Frequency	Published	Latest Version Available
NCMP	Annually	Data published in the final quarter of the calendar year	2017/18
IMD	3/4 years	12/18 months after IMD collected	2015
Life Expectancy	Annually	December	2015/17

What is a Confidence Interval

Confidence interval method	Wilson Score method
Confidence interval methodology	<p>A confidence interval is a range of values that is used to quantify the imprecision in the estimate of a particular indicator. Specifically it quantifies the imprecision that results from random variation in the measurement of the indicator. A wider confidence interval shows that the indicator value presented is likely to be a less precise estimate of the true underlying value.</p> <p>The Wilson Score method¹ gives very accurate approximate confidence intervals for proportions and odds based on the assumption of a Binomial distribution. It can be used with any data values, even when the denominator is very small and, unlike some methods, it does not fail to give an interval when the numerator count, and therefore the proportion, is zero. The Wilson Score method is the preferred method for calculating confidence intervals for proportions and odds, but it can also be used for rates, as long as the event rate is low (relatively rare events within the population) as the Binomial distribution is a very good approximation to the Poisson distribution when the event rate is low. The method is described in detail in APHO Technical Briefing 3: Commonly used public health statistics and their confidence intervals.²</p> <p>¹ Wilson EB. Probable inference, the law of succession, and statistical inference. <i>J Am Stat Assoc</i> 1927;22:209-12.</p> <p>² Eayres D. APHO Technical Briefing 3: Commonly used public health statistics and their confidence intervals York: APHO; 2008.</p>