

Walleys Quarry Community Impact Study_Stage 2 Follow-Up Work

Final Report

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1 Introduction

1.1.1 Following the completion of the Walleys Quarry Community Impact Study (CIS) at the end of 2024, a number of follow-up activities were identified by Staffordshire County Council (SCC) for further exploration. These related to:

- further analysis and engagement around the impacts of Walleys Quarry on young people and education (as identified in Recommendation 5 of the CIS)
- exploration of approaches to developing a Longitudinal Health Survey (as identified in Recommendation 2 of the CIS)
- consideration of opportunities for ongoing community engagement in the vicinity of the Walleys Quarry site, including exploration of opportunities for the continuation of the Community Steering Committee that was established during the CIS.

1.1.2 It is important to note that this work was completed prior to the recent announcement of Walleys Quarry Limited entering liquidation. The Environment Agency website states that ‘Liquidators appointed have disclaimed the permits held by Walleys Quarry Ltd, and title to the landfill site. The EA has discretionary powers under Regulation 57 EPR to arrange for steps to be taken to remove a risk of serious pollution. The Environment Agency is able to use the financial provision provided by WQL in accordance with its environmental permit to fund these steps. The Environment Agency is not responsible for the site, but is arranging for steps to be taken there under its discretionary powers.’ This has most significant impact on the section of the report relation to opportunities for continuation of the Community Steering Committee established during the CIS and this section has been amended to reflect the current situation.

1.1.3 This report summarises the findings from each of the above areas of activity. The structure of this report is as follows:

- **Section 2** – sets out the findings from further data analysis and engagement work relating to children and young people
- **Section 3** – provides information relating to developing a Longitudinal Health Survey for Walleys Quarry including review of good practice, potential structure and survey mechanisms, inclusion of approaches to assessing mental health and wellbeing over time, approach to sampling, and survey design.
- **Section 4** – identifies potential approaches to ongoing community engagement, the advantages / disadvantages associated with each, and the recommended approach.

2 Impacts on Young People and Education

2.1 Overview

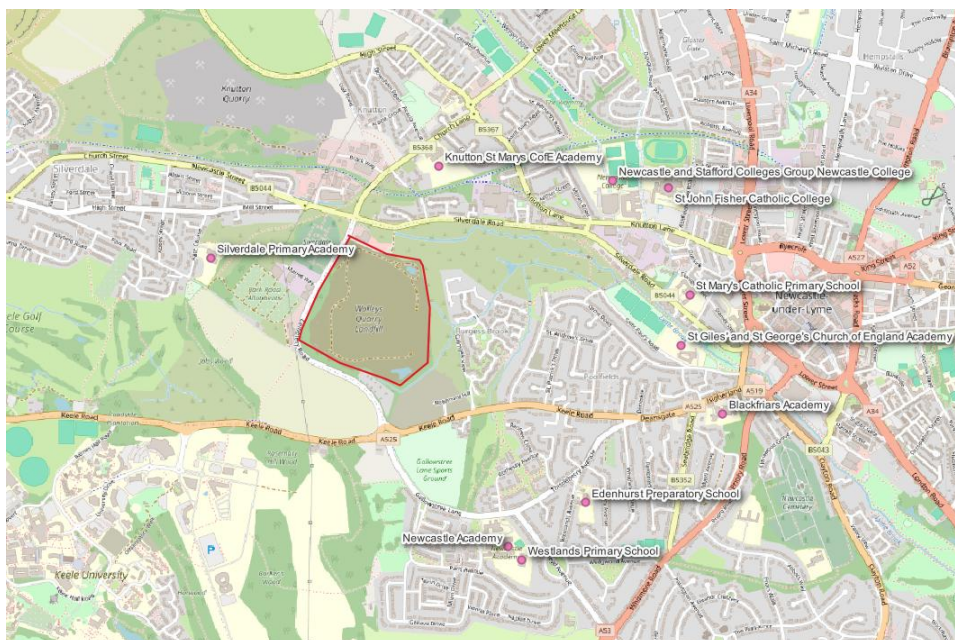
- 2.1.1 Recommendation 5 of the CIS highlighted young people as a group that has been affected adversely by multiple situations over the last few years, firstly by the Covid-19 pandemic and then subsequently as a result of odour emissions from the landfill site, with evidence suggesting that this has affected their daily lives. Engagement activities undertaken as part of the CIS included interviews with teachers / staff at primary and secondary schools in the vicinity of the landfill site. These discussions highlighted particular ways in which young people were perceived to have been impacted over the last few years as a result of the odours and specifically relating to potential impacts on their health, wider wellbeing and quality of life.
- 2.1.2 Local schools have raised concerns about the landfill site's impact on education, highlighting that the ongoing situation may exacerbate existing challenges related to attendance and attainment. For students already struggling academically or socially, health-related absences linked to Walleys Quarry could worsen disparities in educational outcomes. Additionally, the disruption caused by absenteeism may have placed a strain on teachers and school resources, as they work to help affected students catch up on missed learning.
- 2.1.3 Following review of the CIS and acceptance of the report and its recommendations, it was identified that further analysis and engagement with children and young people was appropriate in order to identify how this group may have been affected. This task therefore comprises an analysis of data relating to absence and attainment levels at schools potentially affected by odour emissions from the Walleys Quarry landfill site, together with further engagement with staff and pupils at affected schools. The purpose of the task is to review data, try to untangle the effect of Covid-19 on attainment and attendance and consider benchmark or comparator schools elsewhere in Staffordshire.

2.2 Approach

- 2.2.1 Further investigation of the impacts of the Walleys Quarry landfill site on young people and education has comprised the following steps:
- identify potentially affected schools within the vicinity of Walleys Quarry and their key characteristics, together with schools further away from the landfill site that may be appropriate as benchmark / comparator schools
 - understand national and Staffordshire-wide trends relating to education attainment and attendance levels
 - use relevant data sources e.g. Department for Education data to review attendance and attainment across potentially affected and benchmark / comparator schools
 - engage with learners and staff at both primary and secondary schools in the vicinity of Walleys Quarry landfill site through a series of face-to-face sessions. For primary school children, these have focused on Year 5 and Year 6 pupils, with particular attention to experiences of the place where they live, their daily experience and (if mentioned) how odour emissions from the landfill site have made them feel. For secondary school and sixth-form pupils, we have focused on representatives of particular groups (e.g. Eco-Council / Year Council).

- 2.2.2 Schools within an approximate 1km radius of the Walleys Quarry landfill site are shown in Figure 2.1. It is noted that schools within this radius include Edenhurst Preparatory School; this is an independent school and has been included on the figure below for completeness but the focus for data analysis and engagement has focused on schools within the state sector only.

Figure 2.1 Schools within a 1km radius of Walleys Quarry



- 2.2.3 The key characteristics of these schools (e.g. pupil numbers, Special Educational Needs and Disabilities (SEND) and pupils eligible for free school meals) are listed in **Error! Reference source not found..**

Table 2.1 Key Characteristics of schools within a 1km radius of Walleys Quarry for academic year 2024/2025

School	Primary / Secondary	Distance from Walleys Quarry	School capacity	No. Pupils	SEND	% of pupils eligible for free school meals
Knutton St Mary CoE Academy	Primary	300m	300	186	Not recorded	33.9%
Silverdale Primary Academy	Primary	400m	210	150	Not recorded	33.3%
Newcastle Academy	Secondary	600m	647	412	Not recorded	37.6%
Newcastle and Stafford Colleges Group	Further Education	700m	Not recorded	Not recorded	Not recorded	Not recorded

School	Primary / Secondary	Distance from Walleys Quarry	School capacity	No. Pupils	SEND	% of pupils eligible for free school meals
Newcastle College						
Edenhurst Preparatory School	Primary	800m	300	170	1 under SEN/EHC plan 10 not under SEN/EHC plan	Not recorded
Westlands Primary School	Primary	800m	220	Not recorded	Not recorded	Not recorded
St Mary's Catholic Primary School	Primary	900m	455	408	Not recorded	20.8%
St Giles' and St George's Church of England Academy	Primary	900m	420	357	Not recorded	29.4%
St John Fisher Catholic College	Secondary	1km	981	1,094	Not recorded	20%
Blackfriars Academy	Academy special converter	1km	120	118	-	40%

For comparison purposes, we have also looked at attainment and attendance data for schools further away from the landfill site (a distance of between 2.5km and 3km), illustrated on Figure 2.2. Finally, we have reviewed data for a primary and a secondary school located within a similarly deprived community within Staffordshire, but at a further distance from the landfill site ('benchmark schools' as illustrated on Figure 2.3). Data relating to the key characteristics of all comparator / benchmark schools is provided in

2.2.4 Table 2.2.

Figure 2.2 Location of comparator schools

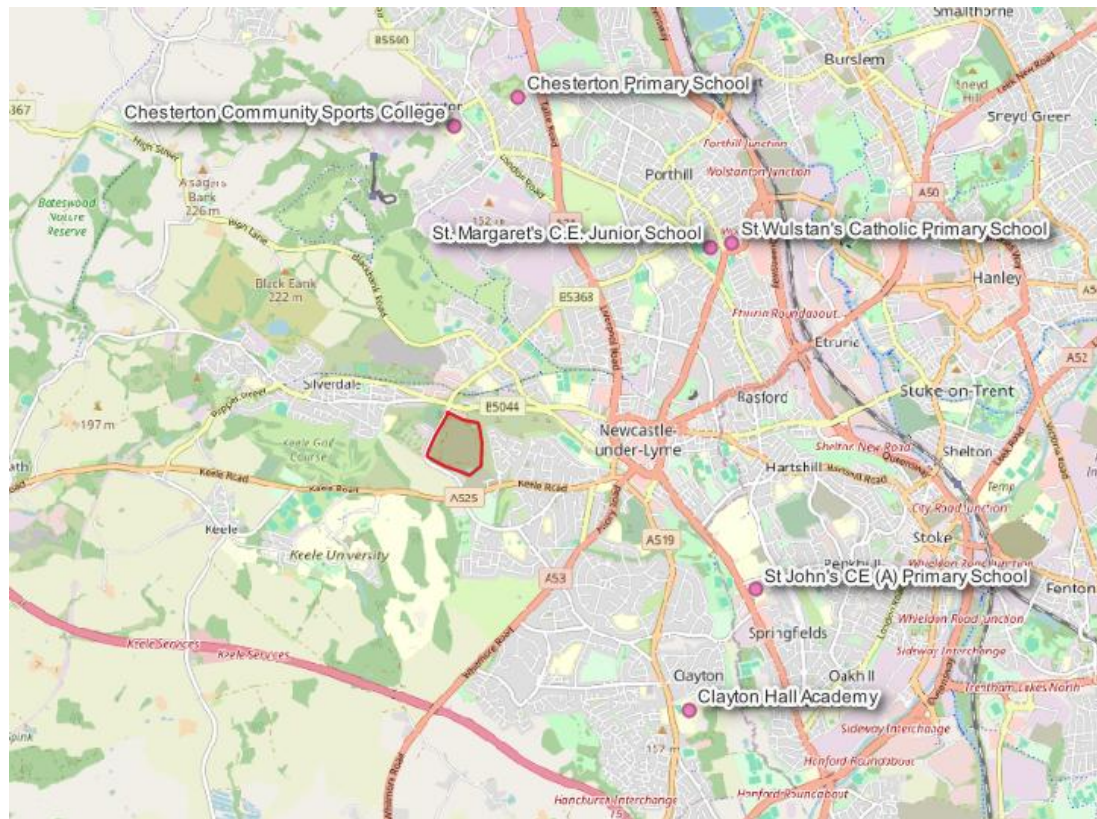


Figure 2.3 Location of benchmark schools

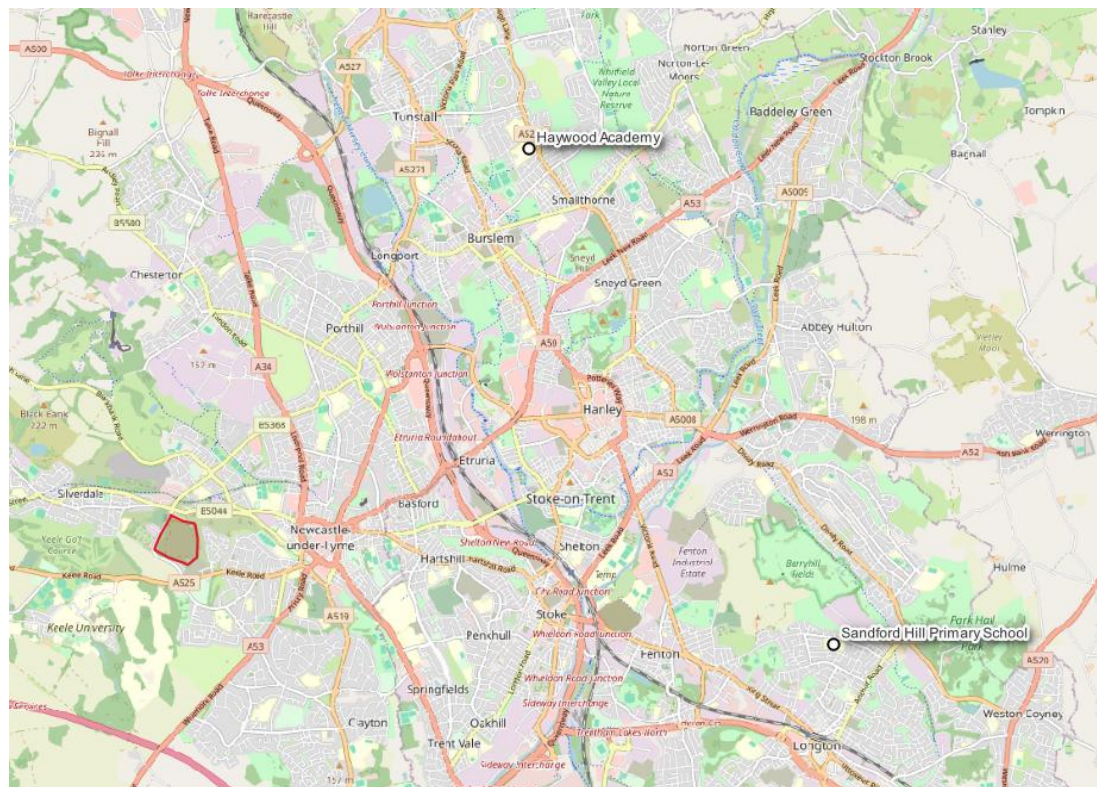


Table 2.2 Key characteristics of comparator / benchmark schools for academic year 2024/2025

School	Primary / Secondary	Distance from Walleys Quarry	School capacity	No. Pupils	SEND	% of pupils eligible for free school meals
Comparator Schools						
Chesterton Community Sports College	Secondary	2.6km	870	886	Not recorded	29.3%
St. Margaret's C.E. Junior School	Primary	2.7km	240	231	Not recorded	8.2%
St John's CE (A) Primary School	Primary	2.8km	354	315	Not recorded	24.1%
St Wulstan's Catholic Primary School	Primary	3km	420	410	Not recorded	10.5%
Clayton Hall Academy	Secondary	3km	1,000	790	Not recorded	17.2%
Benchmark Schools						
Haywood Academy	Secondary	6.1km	1,050	1,160	Not recorded	40.5%
Sandford Hill Primary School	Primary	7.9km	480	453	Not recorded	36.2%

2.2.5 Limitations accounted with the research process followed include:

- Edenhurst Preparatory School has been excluded from the scope of assessment. This is due to the fact that Key Stage 2 data for independent schools are not publicly available.
- Key Stage 2 data is not publicly available for the academic years 2020-2021 and 2021-2022.
- Both attainment and absence data for 2019-2020 are not publicly available.
- Progress 8 score (banding) data is not publicly available for the academic year 2021-2022.
- Pupil absence data is not publicly available for the academic years 2023-2024, 2020-2021, and 2019-2020.

- Reasonable efforts have been made to obtain school attainment and absence data, which are not publicly available, from Staffordshire County Council.

2.3 National and Staffordshire-wide Trends

National Trends – Education Attainment

- 2.3.1 Between 2020 and 2024, education attainment levels in the UK have reflected several key trends, shaped by both longstanding socio-economic patterns and significant disruptions, such as the COVID-19 pandemic and subsequent recovery efforts. Disruptions to learning during school closures and the cancellation of statutory assessments in 2020 and 2021 heavily impacted attainment, particularly for disadvantaged pupils. The reinstatement of formal assessments in 2022 provided insight into the extent of learning loss and recovery.
- 2.3.2 For pupils in Key Stage 1 (KS1), which is the first stage of primary school (children aged five to seven), outcomes from 2022 onwards revealed a decline in the proportion of pupils meeting expected standards in reading, writing, and mathematics compared to pre-pandemic levels. Reading remained the strongest subject, showing the fastest recovery by 2024. Writing and mathematics have faced more significant challenges, with fewer pupils achieving expected outcomes. The attainment gap for disadvantaged pupils widened during the pandemic and has remained a persistent issue. Gender disparities also persist, with girls outperforming boys in reading and writing, while performance in mathematics is more balanced. Schools have tended to focus on phonics and foundational literacy and numeracy skills to address these gaps.
- 2.3.3 At Key Stage 2 (KS2), which is primary education covering the Years 3 to 6 (children aged 7 to 11), the first post-pandemic Standard Assessment Tests (SATs) in 2022 showed a drop in the proportion of pupils achieving the expected standard in reading, writing, and mathematics combined. By 2024, recovery was evident, particularly in reading, which remains a strength. Mathematics showed steady improvement, supported by government-funded tutoring and mastery approaches. Writing, however, remains a weaker area, with slower recovery rates.
- 2.3.4 Students in Key Stage 3 (KS3), which covers pupils aged 11 to 14 (Years 7 to 9), have faced challenges in ensuring a smooth transition from primary school, especially for pupils affected by the pandemic during their KS2 years. As highlighted above, the disruption to foundational learning in Years 5 and 6 resulted in knowledge gaps in core subjects such as English, mathematics, and science, which have impacted KS3 progress. Despite improvements by 2024, inconsistencies remain, particularly in schools in deprived areas. Transition support from KS2 to KS3 and curriculum adjustments at the start of secondary school have been central to recovery efforts. However, the long-term impact of the pandemic on KS3 attainment, particularly in subjects requiring cumulative knowledge such as science, remains a concern.
- 2.3.5 Key Stage 4 (KS4), which covers pupils aged 14 to 16 (Years 10 and 11), has seen significant fluctuations in attainment trends between 2020 and 2024 due to the pandemic's disruption to GCSE examinations. In 2020 and 2021, formal GCSE exams were cancelled, and grades were awarded based on teacher assessments. This led to higher than usual grade distributions and concerns over grade inflation. The return of formal GCSE exams in 2022 marked a turning point, with results showing a slight decline compared to the teacher-assessed grades of the previous two years. However, this was expected as grading standards returned to pre-pandemic levels. By 2024, GCSE outcomes had largely stabilised, though challenges remain in addressing the learning loss caused by the pandemic. Mathematics and English, key GCSE subjects, have shown some recovery, supported by interventions such as the National Tutoring Programme (NTP) and additional government funding

for tutoring programs. However, disadvantaged pupils, particularly those eligible for free school meals, continue to perform below their peers. The disadvantage gap, which widened during the pandemic, has been slow to close, despite targeted interventions. STEM (science, technology, engineering, and mathematics) subjects have shown steady improvement, reflecting efforts to promote STEM education through curriculum adjustments and funding initiatives. However, performance in modern foreign languages (MFL) remains a concern, with fewer pupils opting for these subjects and lower attainment levels overall.

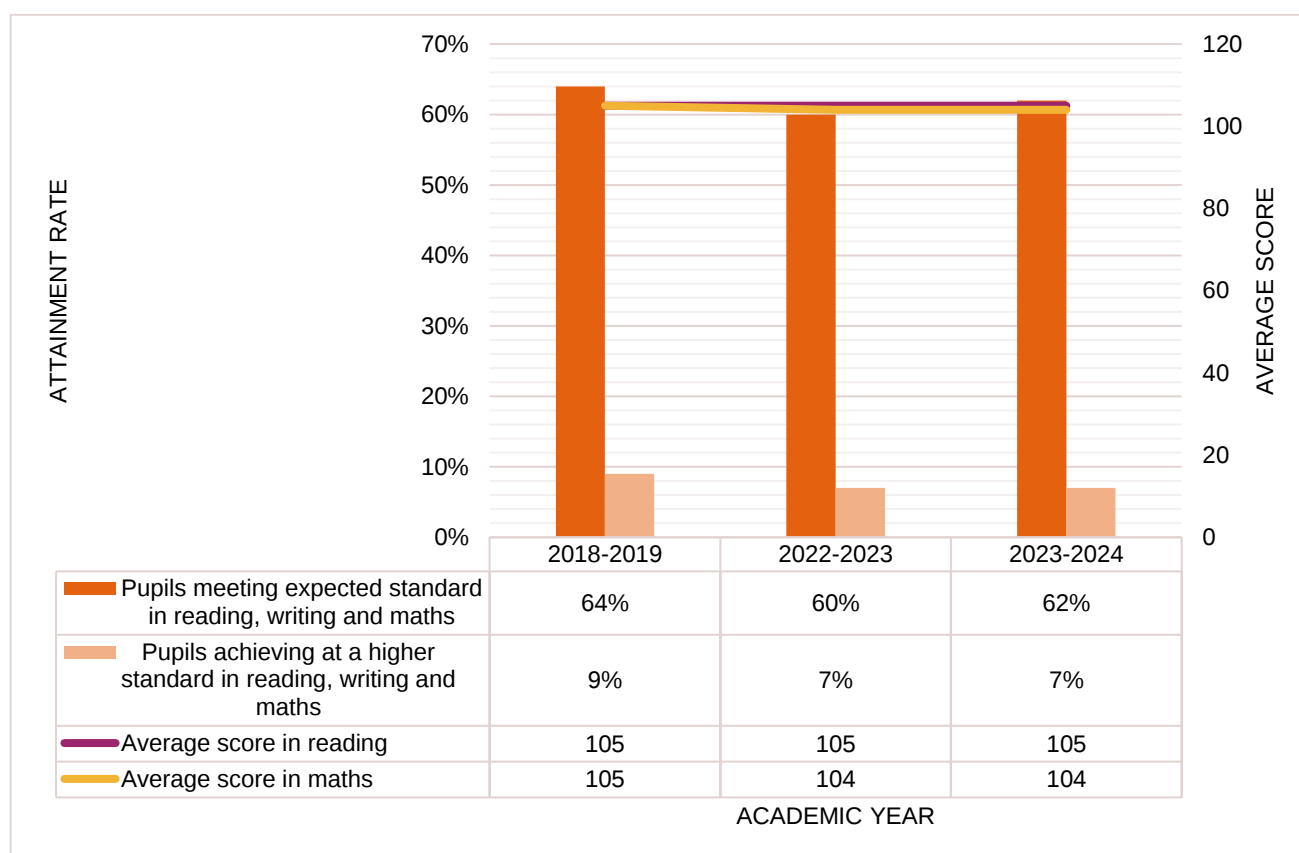
- 2.3.6 A similar situation has applied at A-level, with grades in 2021 and 2021 awarded based on teacher assessments, resulting in record numbers of high grades, with a significant increase in the proportion of students achieving A* and As. While these grades reflected teacher judgements, they raised concerns about grade inflation and inconsistencies across schools and regions. Disadvantaged students were disproportionately impacted, as access to resources and support during remote learning varied widely. The return of formal A-level examinations in 2022 marked a shift toward normality. However, performance dipped slightly compared to the teacher-assessed grades of 2020 and 2021, as grading standards began transitioning back to pre-pandemic levels. This adjustment aimed to restore credibility to the system without penalising students who had experienced disrupted learning. Despite this, the attainment gap between disadvantaged students and their peers widened further, reflecting the unequal impact of the pandemic. By 2023 and 2024, A-level attainment trends began to stabilise, with results returning closer to pre-pandemic standards. Core subjects like mathematics, English, and science showed steady performance, while STEM subjects benefited from targeted government initiatives and increased interest.
- 2.3.7 The attainment gap for disadvantaged pupils and those with Special Educational Needs and Disabilities (SEND) remains a persistent issue. Recovery efforts, while showing progress, have been uneven across schools and regions. Schools in deprived areas have reported greater challenges in supporting pupils, particularly in subjects requiring cumulative knowledge. Mental health and wellbeing have also impacted attainment, with many pupils struggling with anxiety and disengagement following the pandemic. Schools have increasingly had to provide pastoral support alongside academic recovery.

Staffordshire Trends – Education Attainment

- 2.3.8 School attainment data for Staffordshire generally aligns with UK averages, but there are notable variations influenced by local socio-economic and regional factors. At the primary school level, Staffordshire's attainment levels in core subjects such as reading, writing, and mathematics have been broadly consistent with the national average, particularly in assessments like Key Stage 2 results. However, pockets of underperformance exist in areas with higher levels of socio-economic deprivation, reflecting a trend seen across the UK where disadvantaged pupils tend to achieve lower outcomes compared to their peers.
- 2.3.9 At secondary school level, Staffordshire's GCSE attainment levels have also been comparable to national averages, particularly in metrics like the percentage of students achieving a Grade 4 or above in English and Mathematics. However, the attainment gap between disadvantaged pupils and their peers has again remained a challenge, mirroring the national picture. Staffordshire has made efforts to address this gap through targeted interventions, such as pupil premium funding and tutoring initiatives, but progress has been incremental.

2.3.10 Average attainment levels for KS2 for schools in Staffordshire is shown in Figure 2.4.

Figure 2.4 Average attainment levels for Key Stage 2 in Staffordshire over time¹



2.4 National and Staffordshire-wide Trends: Attendance Levels

National Trends – Education Attendance Levels

2.4.1 From 2020 to 2024, primary and secondary school attendance levels in the UK were significantly influenced by the COVID-19 pandemic and its aftermath, highlighting both challenges and emerging trends. The pandemic brought unprecedented disruptions to school attendance in 2020 and 2021, with widespread school closures, remote learning, and subsequent efforts to return to in-person education. During lockdowns, attendance was limited to children of key workers and vulnerable students, while others engaged in online learning, leading to a decline in physical attendance and raising concerns about the long-term impact on academic progress, social development, and mental health. When schools reopened, attendance levels initially struggled to recover due to ongoing public health concerns, parental hesitancy, and the emergence of new COVID-19 variants. Additionally, rising rates of absenteeism were noted, particularly among disadvantaged and vulnerable students, exacerbating existing inequalities in education access. Persistent issues such as digital exclusion during remote learning periods further widened the attainment gap, as students from low-income families faced greater barriers to consistent engagement.

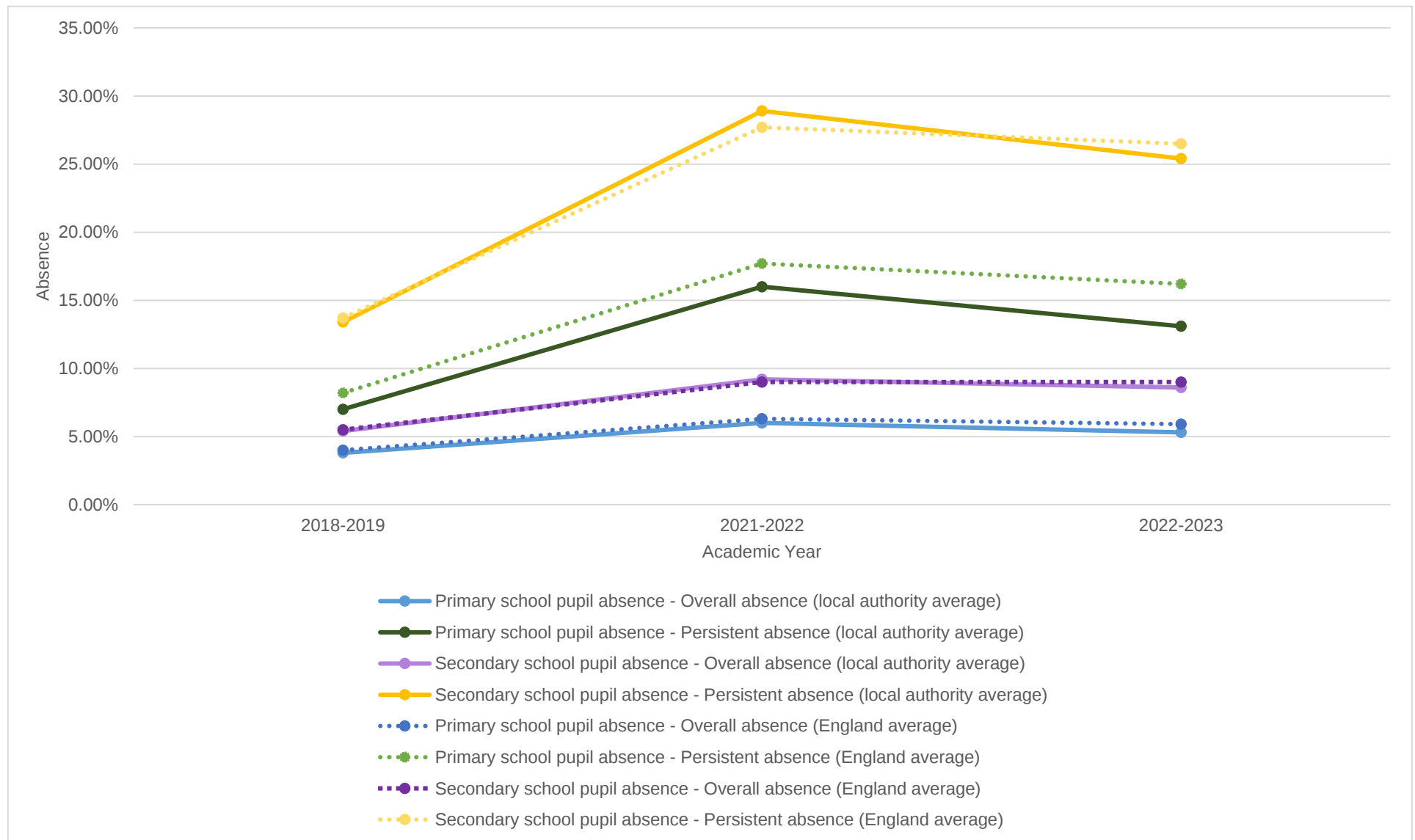
¹ Attainment score for Key Stage 2 in Staffordshire is not publicly available for academic year 2021-2022, 2020-2021 and 2019-2020.

- 2.4.2 By 2022, efforts to improve attendance included government-led campaigns to promote the importance of regular attendance, targeted interventions to support families facing challenges, and increased funding for pastoral and mental health support within schools. However, 'persistent absenteeism' (defined as missing 10% or more of school sessions) remained a growing concern, with data indicating higher rates of absenteeism compared to pre-pandemic levels. Factors contributing to this trend included mental health challenges among students, anxiety about returning to school environments, and lingering disruptions from the pandemic. Moreover, regional disparities in attendance levels became increasingly evident, with schools in economically disadvantaged areas reporting higher absenteeism rates.
- 2.4.3 From 2023 onwards, a gradual stabilisation in attendance patterns began to emerge, though challenges persisted. Schools adopted more flexible and individualised approaches to tackle absenteeism, including improved communication with families, early intervention strategies, and partnerships with local authorities to address complex barriers to attendance, such as housing instability and financial hardship. Enhanced mental health services, including the integration of school-based counsellors and well-being programmes, also played a role in encouraging attendance by addressing underlying issues. The rise of hybrid and flexible learning models, while not universally implemented in primary and secondary education, influenced discussions about modernising education delivery to better accommodate students with unique needs or circumstances.
- 2.4.4 Despite these efforts, attendance levels in some demographics – such as SEND students and those from low-income households – has remained below national averages, underscoring the need for sustained support. By 2024, attendance rates had largely improved compared to the immediate post-pandemic period, but they had not fully returned to pre-2020 levels, with certain systemic challenges like regional inequalities and socio-economic barriers continuing to influence attendance trends.

School Absenteeism in Staffordshire

- 2.4.5 School absenteeism data for Staffordshire has shown some alignment with national trends in the UK, but certain local factors have created variations in attendance levels compared to the UK average. Similar to the rest of the country, Staffordshire experienced a significant rise in absenteeism rates during and after the COVID-19 pandemic, with persistent absenteeism becoming a key concern. Staffordshire followed the same pattern as the rest of the UK (i.e. persistent absenteeism rose sharply during the pandemic and remained elevated in the years that followed, with rates exceeding pre-2020 levels). Higher levels of absenteeism have been reported particularly among vulnerable and disadvantaged students, again, in line with national statistics.
- 2.4.6 Regional disparities and local socio-economic factors have played a role in Staffordshire's attendance trends. Schools in rural areas of Staffordshire, for example, have faced unique challenges, such as transportation issues and limited access to mental health and well-being services, which may have exacerbated absenteeism compared to urban areas. Additionally, Staffordshire's attendance rates have been affected by the broader national trend of increased mental health issues among students, which significantly impacted school attendance.

Figure 2.5 Average School Absenteeism in Staffordshire and England



2.5 Schools in the Vicinity of Walleys Quarry – Data Analysis

2.5.1 An analysis of attainment levels and absence data has been conducted using data published by National Statistics² to assess the primary and secondary schools located within 1km of the Walleys Quarry landfill site, together with comparator and benchmark schools.

Primary Schools

- 2.5.2 The attainment data presented in **Error! Reference source not found.** highlights a significant variation in performance across the selected primary schools during the academic year 2022-2023. The proportion of pupils meeting the expected standards in reading, writing, and maths ranged from 55% to 81%, representing a 26% difference. Similarly, Figure 2.7 illustrates a 34% discrepancy in attainment during the 2018-2019 academic year, with rates varying from 50% to 84%.
- 2.5.3 For primary schools located within 1km of Walleys Quarry, St. Mary's Catholic Primary School recorded the lowest attainment rate in 2022-2023, with 55% of pupils meeting expected standards, followed closely by Knutton St. Mary's Church of England Academy at 57%. Both schools performed below the local authority and England averages. In contrast, comparator schools (i.e. St John's CE (A) Primary School and St Wulstan's Catholic Primary School) achieved higher attainment scores compared to schools within 1km of Walleys Quarry. However, it is worth noting that some schools within 1km of the landfill, outperformed the benchmark school (i.e. Sandford Hill Primary School).
- 2.5.4 Table 2.3 and **Error! Reference source not found.** shows that although Knutton St. Mary's Church of England Academy, located approximately 300m from Walleys Quarry landfill, exhibited the second-lowest attainment rate in 2022-2023, Silverdale Primary School, situated roughly 400m from the landfill, performed above both local authority and England averages. Silverdale Primary School achieved higher scores in both the proportion of pupils meeting the expected standard and those achieving a higher standard in reading, writing, and maths.

Table 2.3 School attainment and absence data for the two closest primary schools

Year	Primary school	Pupils meeting expected standard in reading, writing and maths	Pupils achieving at a higher standard in reading, writing and maths
2022-2023	Knutton St Marys CofE Academy	57%	0%
	Silverdale Primary Academy	68%	9%
	Staffordshire average	60%	7%
	England average	60%	8%

² National Statistics (2025). Compare school performance service. Available at: <https://www.compare-school-performance.service.gov.uk/download-data>

Year	Primary school	Pupils meeting expected standard in reading, writing and maths	Pupils achieving at a higher standard in reading, writing and maths
2018-2019	Knutton St Marys CofE Academy	50%	7%
	Silverdale Primary Academy	71%	5%
	Staffordshire average	64%	9%
	England average	65%	11%

- 2.5.5 Based on the data presented, no clear link can be established between school performance and the presence of odour. Similarly, deprivation does not appear to be a contributing factor to school performance or attendance, as both Knutton St. Mary's Church of England Academy and Silverdale Primary School report similar percentages of pupils eligible for free school meals. Furthermore, while St Margaret's CE Junior School and St John's CE (A) Primary School demonstrate significantly higher performance in school attainment when compared to the local authority and England averages, their proportion of pupils eligible for free school meals are 8.2% and 24.1% (see Table 2.2), respectively. This suggests that other underlying factors may be influencing the observed discrepancies in educational outcomes and attendance rates. Potential factors may include variations in school teaching quality and access to resources.
- 2.5.6 Notably, Knutton St. Mary's Church of England Academy also recorded the lowest attainment rate in the 2018-2019 academic year (pre-COVID-19), with only 50% of pupils meeting the expected standards in reading, writing, and maths. Furthermore, the percentage of pupils achieving a higher standard declined significantly post-COVID-19 at the school, falling from 7% in 2018-2019 to 0% in 2022-2023.
- 2.5.7 In addition to attainment discrepancies, an increase in pupil absence rates was observed across all schools, as well as within local authority and England averages, when comparing data from 2018-2019 (pre-COVID-19) to 2022-2023. This trend suggests a broader issue potentially influencing educational outcomes and attendance. This may include changes in behaviour and routines following the COVID-19 pandemic.

Figure 2.6 Primary school attainment and absence data for the academic year 2022-2023

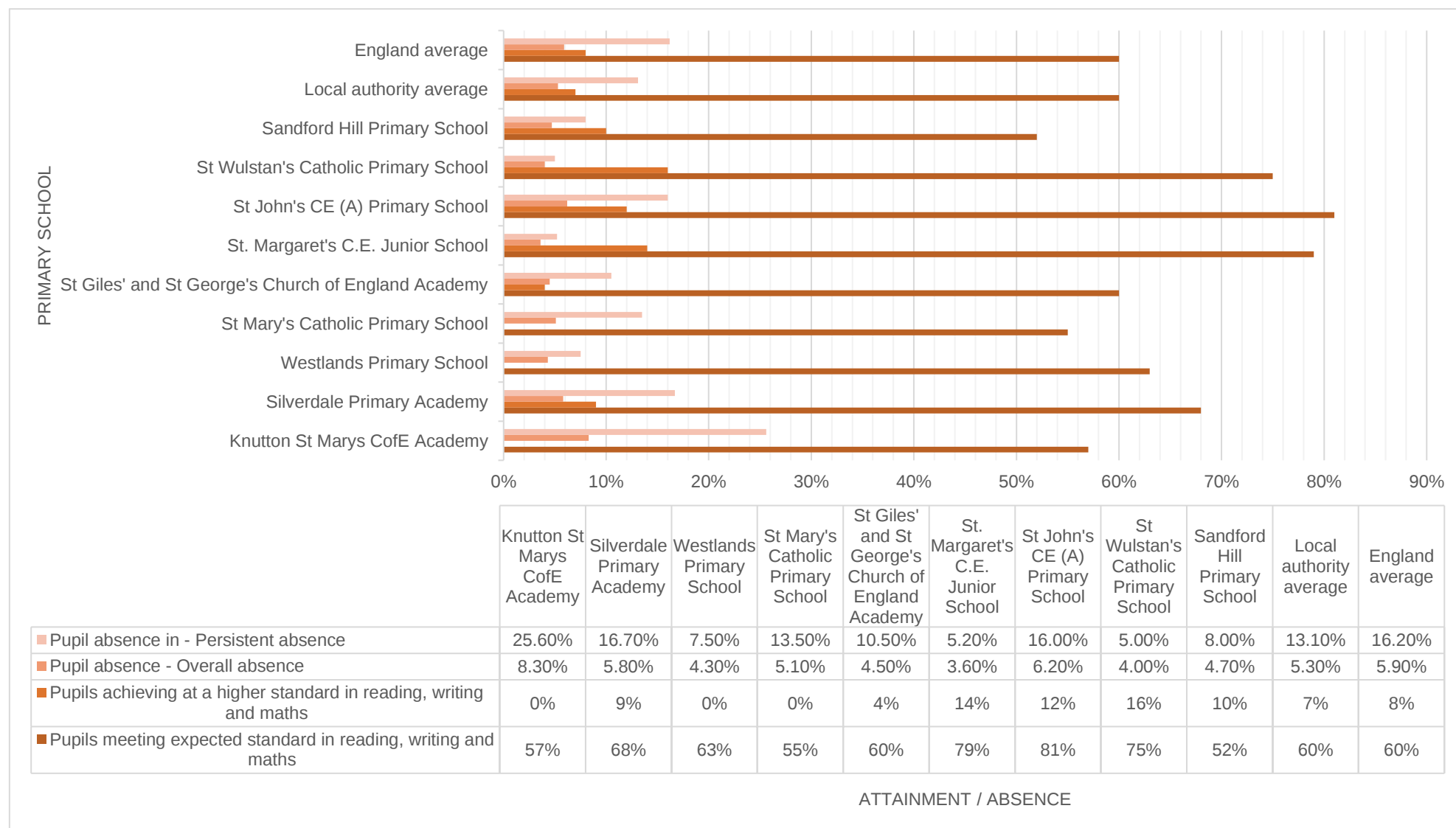
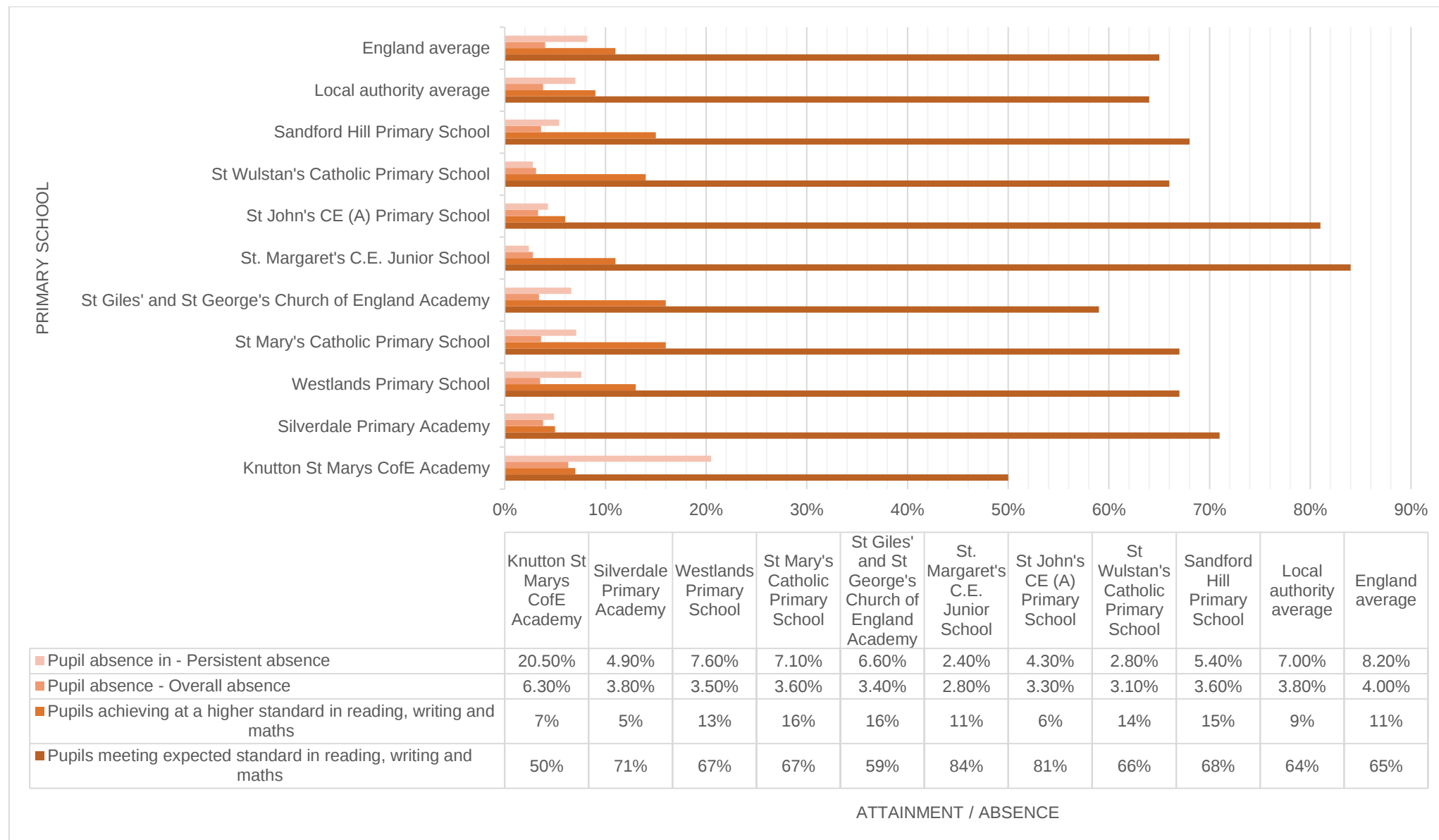


Figure 2.7 Primary school attainment and absence data for academic year 2018-2019

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Secondary Schools

- 2.5.8 The data presented in Figure 2.8, Figure 2.10 and Figure 2.12 illustrate variations in attainment scores across the selected secondary schools for the academic years 2022-2023, 2021-2022, and 2018-2019. Blackfriars Academy, located approximately 1km from Walleys Quarry landfill, recorded significantly lower attainment scores in both 2022-2023 and 2021-2022 compared to other schools (but noting this is a mixed special school for children with a range of physical, learning, medical and sensory needs).
- 2.5.9 Among the three secondary schools located within 1km of Walleys Quarry landfill, one school, St John Fisher Catholic College, exhibited attainment scores similar to the comparator schools (i.e. Chesterton Community Sports College and Clayton Hall Academy). Additionally, two secondary schools within 1km of the landfill, St John Fisher Catholic College and Newcastle Academy, demonstrated attainment scores comparable to the benchmark school (i.e. Haywood Academy). When compared to England averages, attainment scores across all selected secondary schools were largely similar. Therefore, it is not evident that a clear link can be established between school performance and the presence of odour from Walleys Quarry landfill.
- 2.5.10 The A-level average points data presented in Figure 2.14 shows slight fluctuations in performance over the years when compared to the England average. Newcastle and Stafford Colleges Group Newcastle Academy, located approximately 700m from Walleys Quarry landfill, consistently outperforms the England average in 2023-2024 and 2022-2023, with the exception of 2018-2019 (pre-COVID-19). In contrast, St John Fisher Catholic College, located approximately 1km from Walleys Quarry landfill, consistently performs below the England average across all academic years. Again, there is no clear evidence linking school performance and Walleys Quarry operations / environmental impacts specifically.
- 2.5.11 Similar to the patterns observed in primary schools, pupil absence rates have increased across all selected secondary schools, as well as local authority and England averages, when comparing data from 2018-2019 (pre-COVID-19) to 2021-2022 and 2022-2023, as shown in Figure 2.9, Figure 2.11 and Figure 2.13. This trend is consistent across the datasets and suggests broader systemic issues potentially influencing attendance rates over time, including factors such as post-pandemic behaviour changes.

Figure 2.8 Secondary school attainment data in 2022-2023³

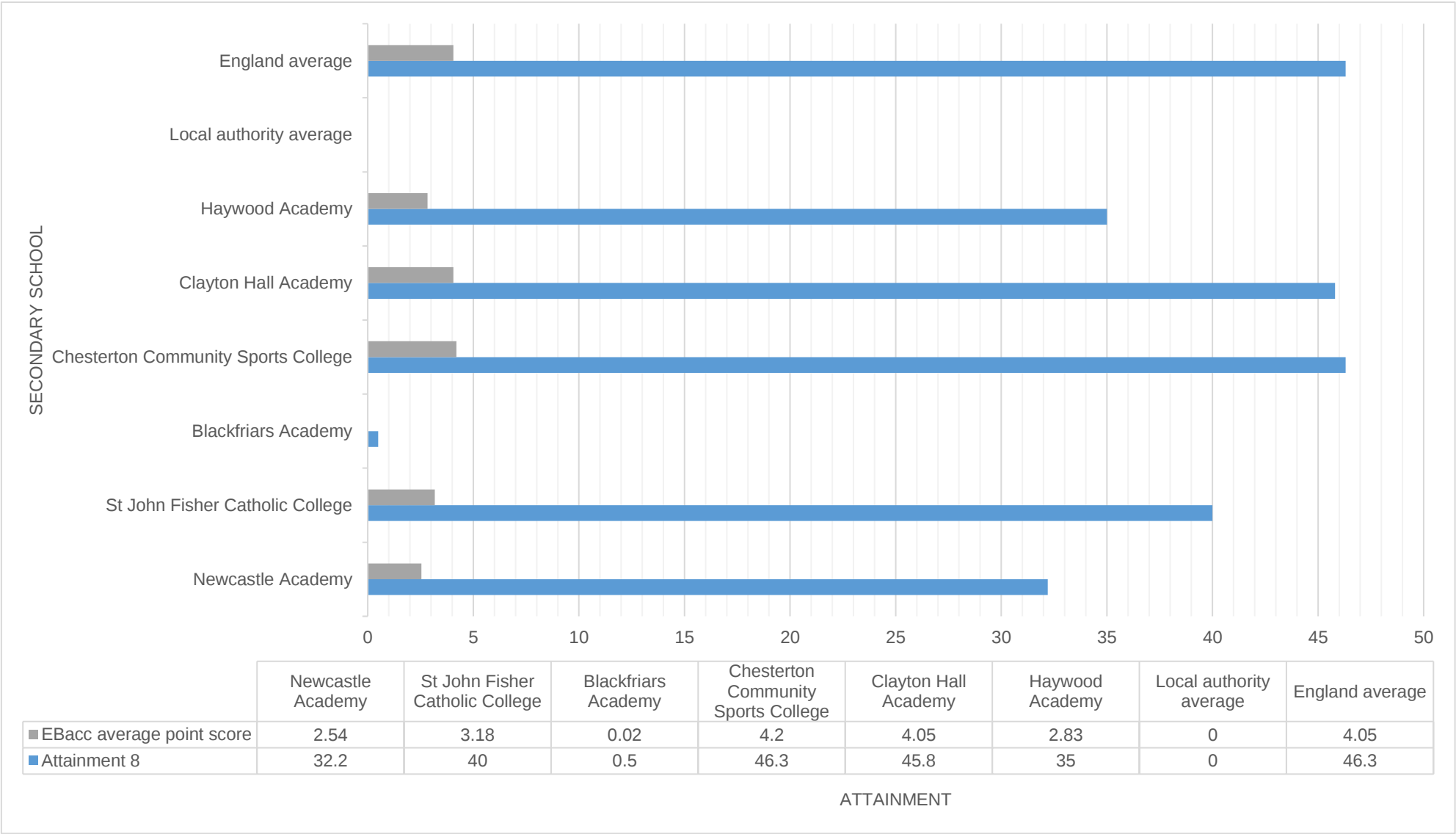


Figure 2.9 Secondary school absence data in 2022-2023

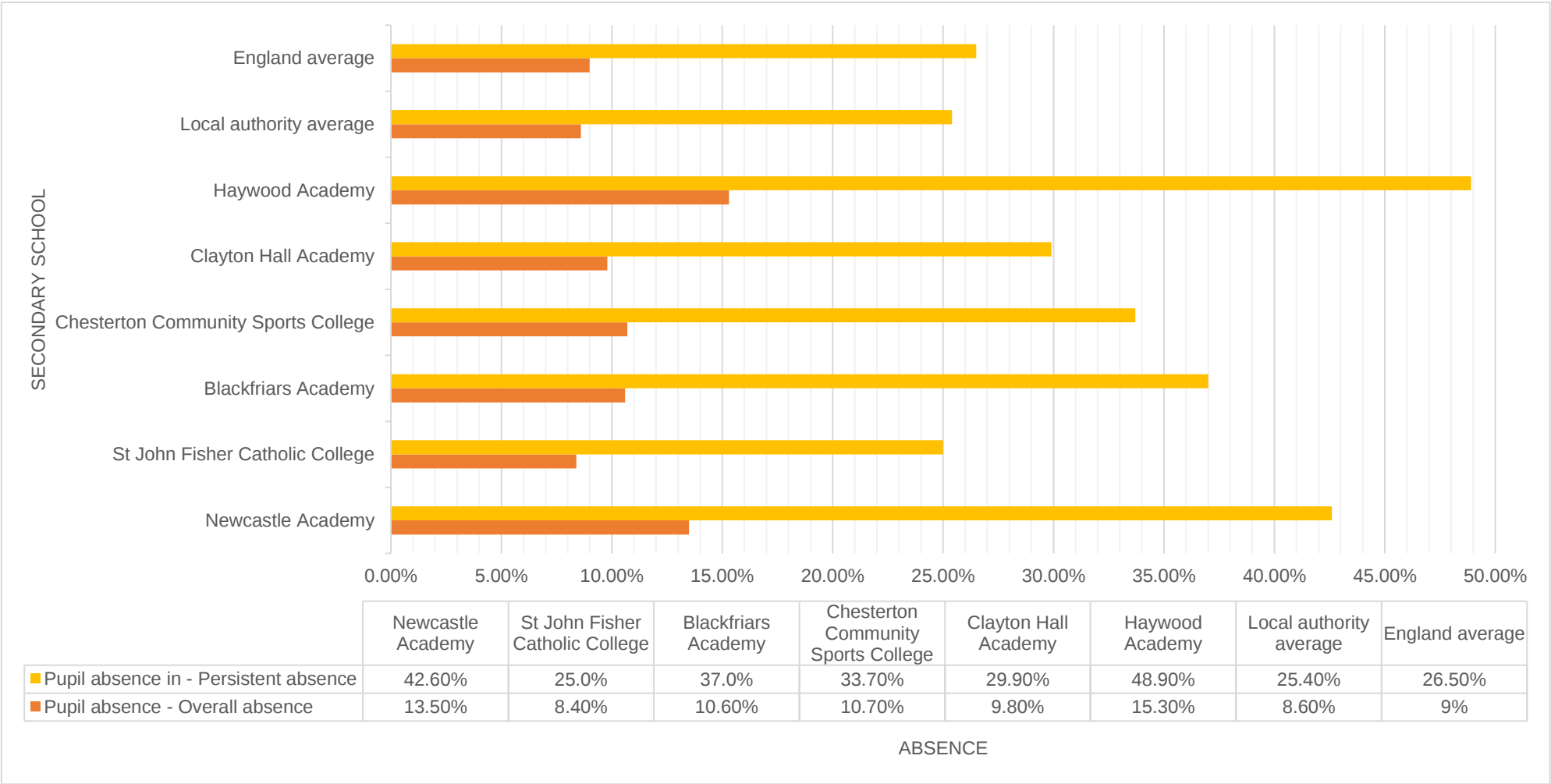
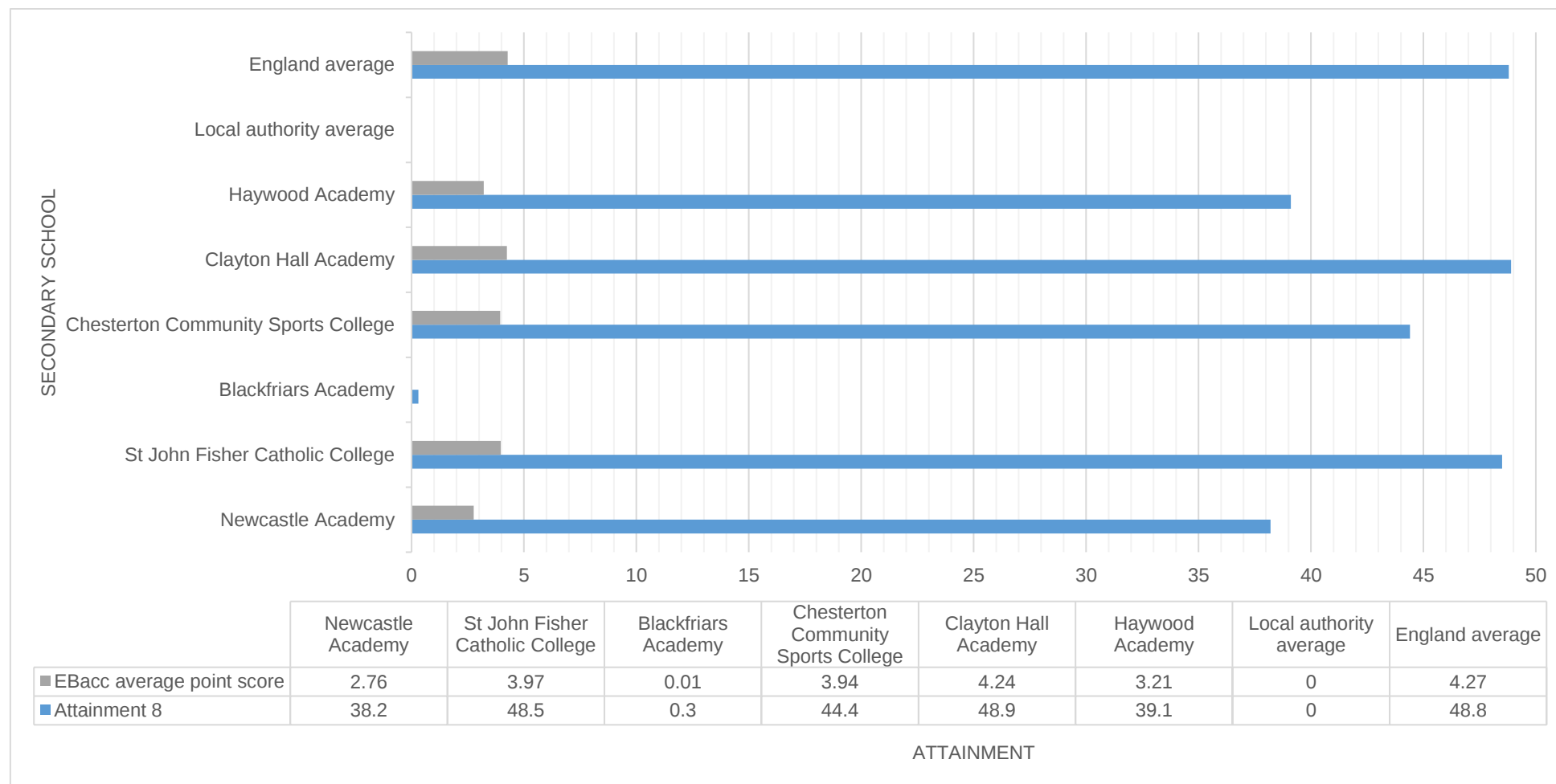


Figure 2.10 Secondary school attainment data in 2021-2022⁴



⁴ Attainment score for the local authority is not publicly available.

Figure 2.11 Secondary school absence data in 2021-2022

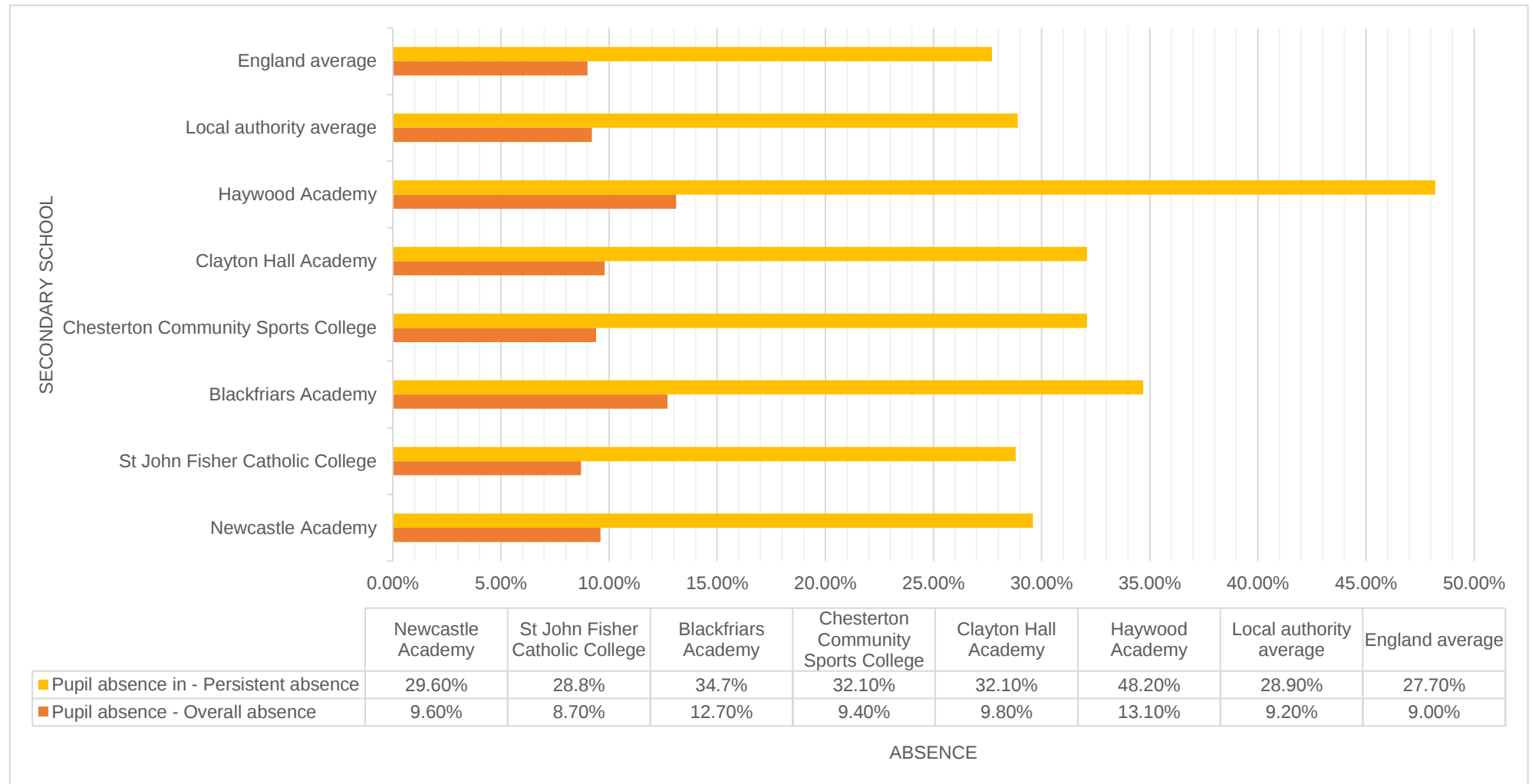
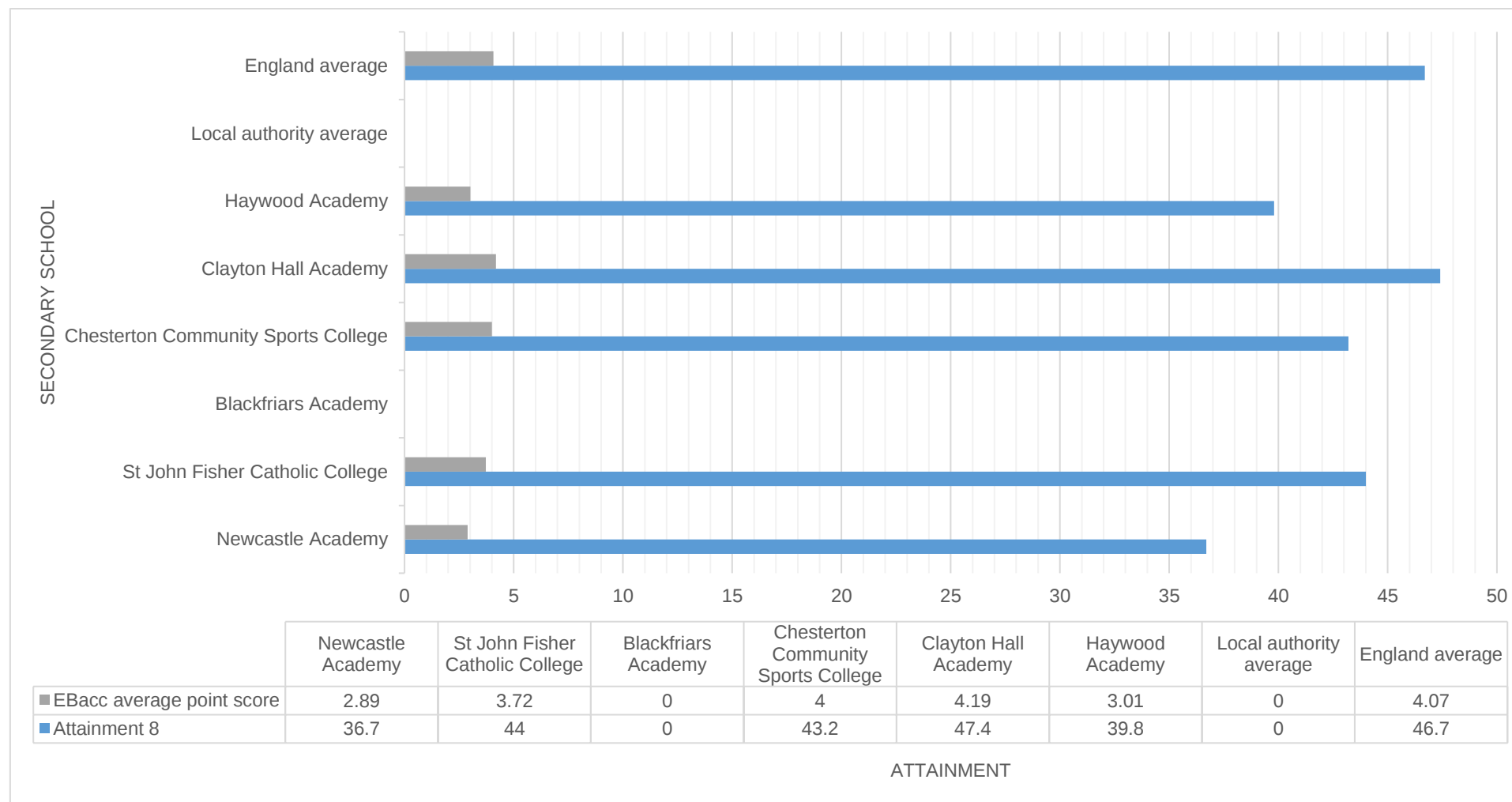


Figure 2.12 Secondary school attainment data in 2018-2019⁵



⁵ Attainment score data for Blackfriars Academy and local authority in academic year 2018-2019 is not publicly available.

Figure 2.13 Secondary school absence data in 2018-2019

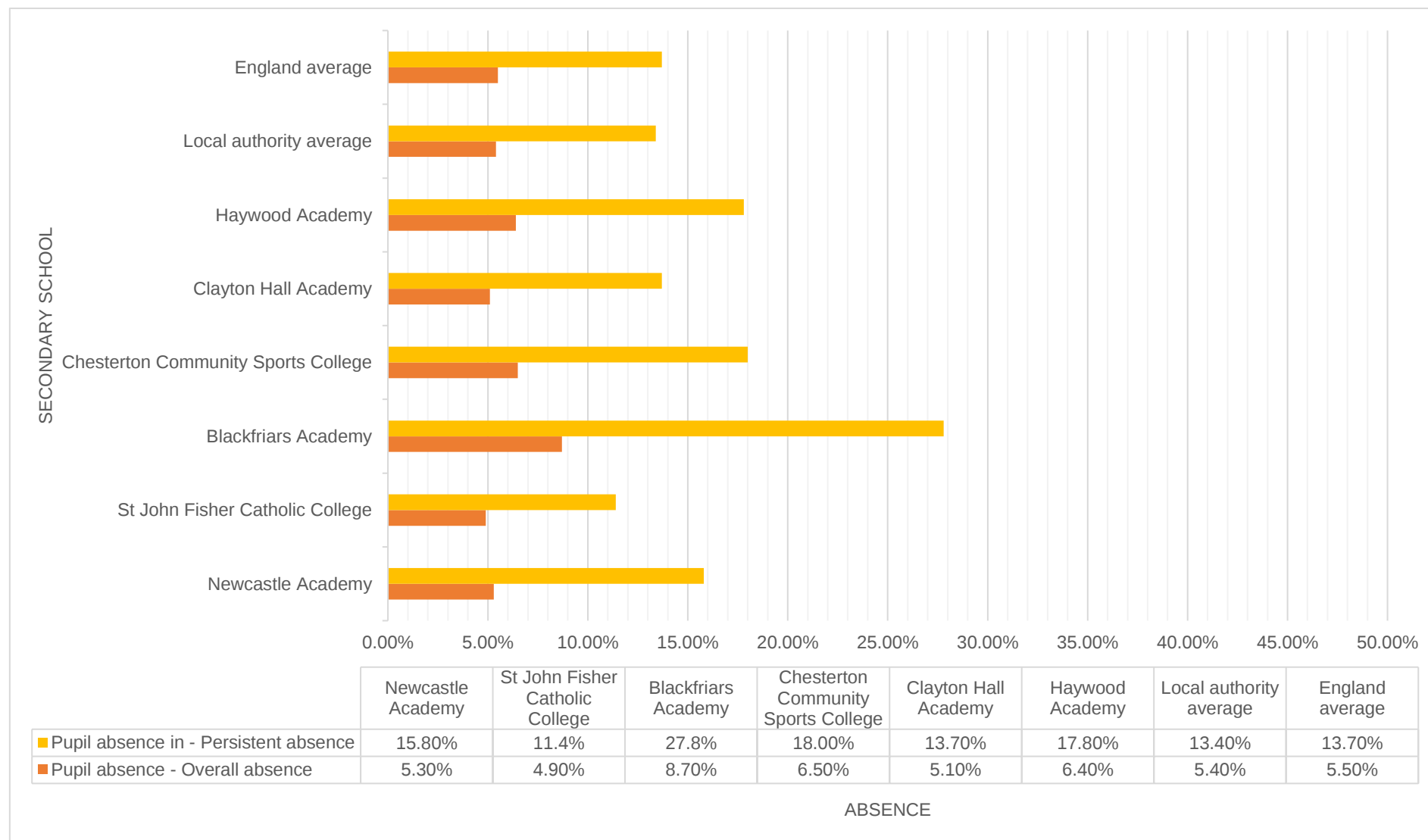
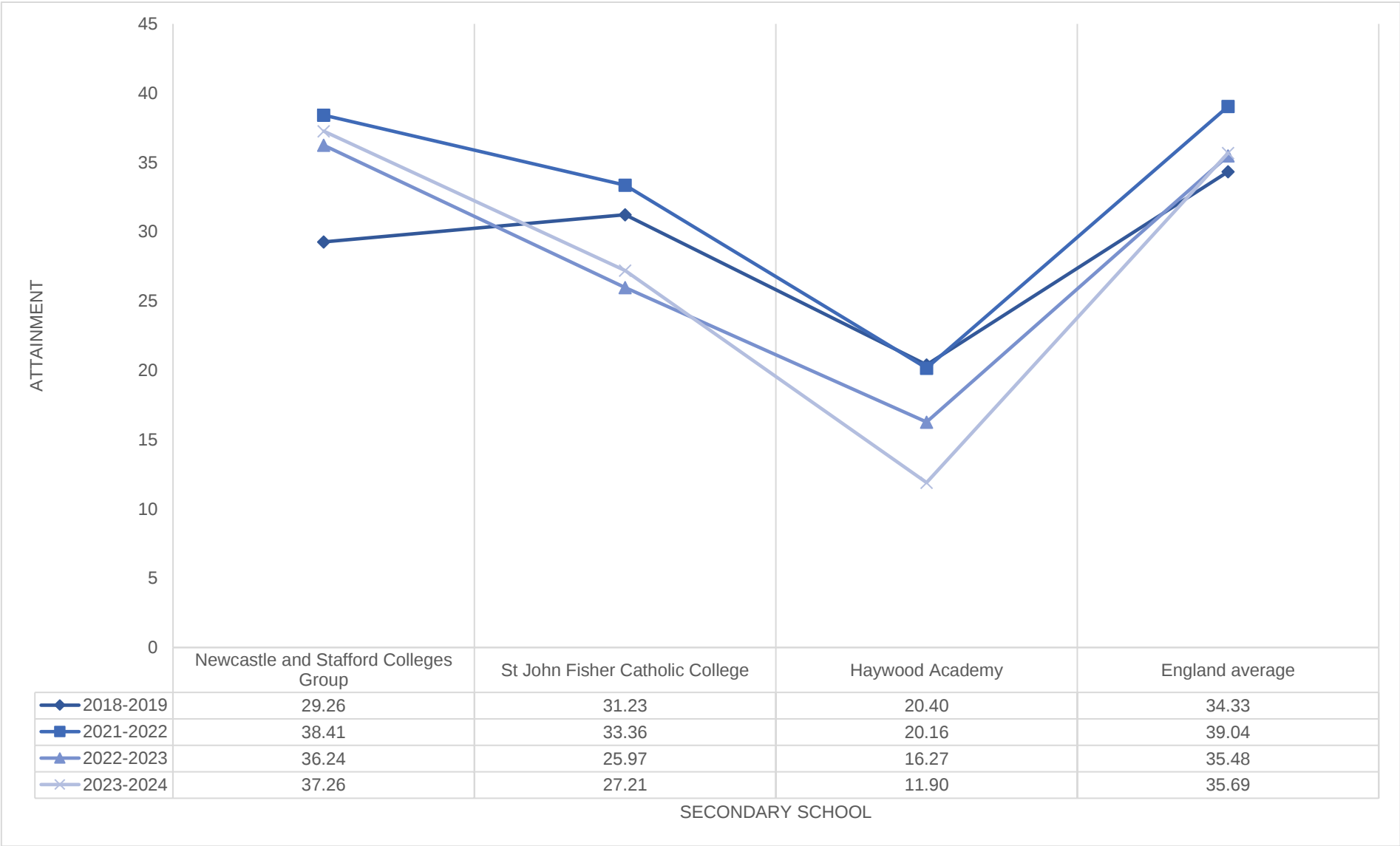


Figure 2.14 A-levels average points between 2018 and 2024 (except for the academic year 2019-2020 and 2020-2021)



- 2.5.12 No correlation has been identified between the proximity of primary schools to Walleys Quarry landfill and pupil performance. For example, while Knutton St Mary's Church of England Academy, the closest primary school located approximately 300m from the landfill, recorded the lowest attainment rates, another nearby school, Silverdale Primary Academy, situated approximately 400m from the landfill, consistently achieved attainment scores exceeding both local authority and England averages across multiple academic years. Similarly, absence rates for the selected primary schools were generally aligned with local authority and England averages, with no discernible relationship between the schools' distance from the landfill and their absence rates.
- 2.5.13 A similar trend was observed in secondary schools. For instance, Newcastle and Stafford Colleges Group Newcastle Academy, the closest secondary school to Walleys Quarry, recorded comparable attainment scores with the England averages; whilst schools at a further distance have a low attainment score, suggesting that factors beyond proximity to the landfill may be influencing performance. Additionally, no correlation was observed between the proximity of secondary schools to the landfill and their pupil absence rates.

2.6 Findings from School Engagement Activities

- 2.6.1 Engagement sessions with learners at local primary and secondary schools were planned during early 2025 in order to gather local insights from school pupils and staff in schools directly impacted by odour emissions from Walleys Quarry. Schools were contacted via phone call and email to set up face-to-face sessions. Details were provided explaining the purpose of the study and the importance of having input from pupils. Not all schools contacted have taken part in the engagement process, however we have held engagement sessions at the following schools:
- Knutton St. Marys Church of England Academy
 - St. Giles and St. George's Church of England Academy
 - St. John Fisher Catholic College
 - Westlands Primary School
- 2.6.2 Face to face sessions took place with students from the four schools during March 2025. Sessions were up to an hour and a half in length. Each session was facilitated by two Arcadis consultants. A welcoming and informal environment was created where everyone had a chance to voice their views. By using creative and interactive techniques the conversations were steered to cover a wide range of topics related to Walleys Quarry and the thoughts and feelings of learners. It was evident that most children wanted their voices to be heard and to be taken seriously. Overall, there was a sense of powerlessness and distress amongst school children and teachers present during the sessions. The information gathered in the sessions was valuable, providing further detail of the lived experiences of the children and teachers living and working in proximity to the landfill site. Key findings from the sessions are summarised below.
- 2.6.3 Pupils from all four schools expressed strong emotional responses and concerns regarding the presence and the situation of the landfill. When the students were asked to use key words to describe how they felt emotionally many individuals reported reactions including "sad", "unfair", "upset", "disgusted", "confused", "angry", "worried" and "frustrated". There was also a sense of fear particularly towards the fire that took place at the landfill site in 2024. The pupils used words such as "scared", "frightened" and "suspicious" when describing the fire.

'It makes me feel sad and angry we have to live so close to the landfill and put up with the smell'
(Year 6 pupil, Knutton St. Marys Church of England Academy)

"I feel like it shouldn't be there, the smell puts me in a bad mood and it's so unfair"

(Year 6 pupil, St Giles and St Georges Primary School)

"I could see the fire from my bedroom window, I was so scared... what if the fire spread to my house. My family were frightened, and we kept looking to see if it was spreading"

(Year 6 pupil, Westlands Primary School)

"People in my family are suspicious; rubbish is being put on fire on purpose to get rid of it"

(Year 6 pupil, Knutton St. Marys Church of England Academy)

- 2.6.4 In terms of physical health, multiple children reported feeling unwell due to the odour, including symptoms such as nausea, vomiting, coughing, sneezing, and tightness in the chest. These health impacts are particularly concerning for younger family members with some attendees expressing stress over the effects on their siblings or friends. Some of the teachers mentioned health concerns such as itchy sensitive eyes and asthma related symptoms being heightened when the odour is strong. When asked if the teachers have had to take time off school in relation to the symptoms, the teachers suggested this had not taken place.

"The smell makes me feel dizzy and gives me bad headaches, I stay in doors to try and get better"

(Year 6 pupil, Knutton St. Marys Church of England Academy)

"Sometimes the smell is so bad it makes me feel sick and my tummy hurts, I want to stay in bed all day"

(Year 6 pupil, Westlands Primary School)

"Some of the teachers are suffering from sore itchy eyes, we think this is related to the odour. I developed asthma about six years ago I do feel it's because of the quarry"

(Teacher, Knutton St. Marys Church of England Academy).

- 2.6.5 Several children expressed a sense of personal responsibility for the situation, while others felt sympathy and concern for friends, neighbours, and vulnerable groups, such as children and the elderly, who are adversely affected. There was also a feeling of helplessness amongst the pupils, where they felt there was not much they could do to make matters better.

"Why should the elderly have to live like this? I feel sad that they have to put up with the stench"

(Year 5 pupil, St. Giles and St. George's Primary School).

"My mum and nan get very stressed, me and my sister worry about my nan, what if the smell makes her poorly"

(Year 6 pupil, St. Giles and St. George's Primary School)

- 2.6.6 There is also a notable perception that the situation is unjust. A strong theme throughout the feedback was the belief that the landfill should be removed, with many children and young people questioning why it exists in their community. The participants expressed strong views towards wanting change to the current situation however felt they were 'stuck with the quarry' as no visible action is seen.

"Why did they have to put it there in the first place, it's not fair!"

(Year 6 pupil, Westlands Primary School)

"We love our home, it makes me feel we have to put up with the stench and have no choice"

(Year 7 pupil, St. John Fisher Catholic College)

- 2.6.7 One pupil expressed concerns that the presence of the landfill would lower property values and deter people from living in the area. Most of the pupils were aware that the site had been closed, however they asked questions about when the rubbish from the landfill would be removed and what the site would be used for now. The pupils expressed strong opinions towards wanting the site to be cleared, to improve the physical environment of the neighbourhood.

"The landfill has closed, where will the rubbish go, they need to get rid of it. It makes me sick just looking at it"

(Year 6 pupil, Westlands Primary School)

"I think it must put people off from buying a house here, the value of the houses has gone down"

(Year 6 pupil, St. Giles and St. George's Primary School)

- 2.6.8 Responses from pupils from St John Fisher Catholic College, Westlands Primary School and St Giles and St Georges CoE Academy suggest that the landfill odour intermittently impacts schools, particularly in outdoor areas and during specific weather conditions, wind direction and whether windows and air conditioners are open / in use. The odour issue appears to have a greater impact on Knutton St Mary CoE Academy, where parents have purchased air purifiers for use within the school. Seasonal factors also contribute to variations in odour intensity. Some pupils and teachers suggested that the odour is more noticeable during winter months compared to the summer school term. However, others suggested the opposite, expressing the view that the odour is stronger during the summer.

"It is worse in winter, and you can smell it in the playground sometimes in certain areas"

(Year 8 pupil, St. John Fisher Catholic College)

"The smell seems to be worse in the summer, especially when it's windy. It gets so bad sometimes it's disgusting"

(Teacher, Knutton St. Marys Church of England Academy).

- 2.6.9 While some individuals are more affected than others, the presence of the smell remains a concern for both teachers and students, particularly in areas of frequent activity, such as playgrounds. Some pupils at one of the schools we visited suggested that certain areas of the playground experience stronger odours compared to others, suggesting variability in how the smell spreads across the school premises. While some students are aware of and affected by the smell, others have reported not noticing it, indicating differences in individual sensitivity or exposure to the odour. The teachers made the point of the children 'just getting on with it on most days'.

"The children have had to put up with it for so long, it's sad but they just ignore it and carry-on"

(Teacher, St. John Fisher Catholic College)

"Students grew up with the smell and it is part of their life. They never know what it is like without the smell and so they just do things normally"

(Teacher, Knutton St. Marys Church of England Academy)

- 2.6.10 Some of the students live particularly close to the landfill although the number varied across the sample of participants. For instance at St John Fisher Catholic College only three students interviewed lived close to the site in comparison to the participants from Knutton St. Marys Church of England Academy where all the pupils lived in close proximity. The pupils living closer to the site suggested that the landfill odour has a pervasive impact on residential life, affecting health, social activities, and daily routines. The smell is particularly disruptive during the mornings, colder seasons, and during foggy conditions, with many students expressing frustration and distress over its effects. There was also a sense of embarrassment where residents avoid hosting parties or inviting friends over due to concerns for their guests. Some of the pupils stated that it does not deter their social activities as they are used to the odour.

"My friends are not allowed to have sleep overs, last time they came the stench made them ill. Their parents have said they are not allowed to stay over"

(Year 6 pupil, Knutton St. Marys Church of England Academy)

"When my friends come to play we can't play in the garden when the smell is strong, it makes me feel bad when they say the smell is making them feel sick"

(Year 6 pupil, Westlands Primary School)

- 2.6.11 The odour has had a direct impact on garden usage and outdoor activities, such as playing in the garden, having barbecues and hanging washing outside. Several students reported having to shorten time spent outdoors due to symptoms such as nausea and discomfort. Some of the pupils mentioned avoiding visiting relatives who live close to the landfill as the smell is overpowering. It was also stated that when family and friends do visit, they avoid opening windows during sunny days to minimise exposure to the smell.

"The landfill is at the back of my nan's house, when we visit and the smell is bad we stay indoors as it makes us feel sick. My mum says not to open the windows"

(Year 6 pupil, Westlands Primary School)

- 2.6.12 A mixture of views were reported related to impact on social interactions that take place indoors. A number of pupils stated that the odour often infiltrates homes, even with windows closed, affecting them during activities such as breakfast or family gatherings. The smell has been reported to disrupt special occasions during Christmas celebrations by one student, with families resorting to measures like lighting candles to mask the odour. Some students experience sleepless nights or wake up early due to the odour's presence.

"I remember smelling it when I opened my presents last Christmas. My parents have to put candles out during Christmas."

(Year 6 pupil, Westlands Primary School)

"All the windows were closed but we could still smell it. We all sat down to eat and the smell put us off our food"

(Year 6 pupil, Knutton St. Marys Church of England Academy)

- 2.6.13 The teachers in the school spoke about the long-term health effects of the quarry. There was a sense of concern and anxiety amongst teachers in relation to the possible health implications associated with the waste present in the landfill. The teachers spoke about these issues in the absence of the pupils.

- 2.6.14 The engagement sessions explored the comparative impact of the landfill site and its odour on the pupils focusing on their experiences in relation to the impact of the landfill when they were younger versus now. There is a consensus among students that the odour has worsened over time. Others suggested while the odour is perceived as more intense, it is reported to be less frequent in occurrence. The conversations revealed that students perceive the impact of the landfill site and its odour to have worsened over time, with stronger smells and increased restrictions on outdoor activities.

“A mix of bad to good and good to bad.”

(Year 8 pupil, St. John Fisher Catholic College)

“It’s getting worse. I can play in the garden more when I was younger.”

(Year 6 pupil, St. Giles and St. George’s Primary School)

“Getting worse. The smell is strong but less frequent.”

(Year 6 pupil, Westlands Primary School)

- 2.6.15 Both students and teachers expressed frustration that, despite community efforts such as protests and complaints, no meaningful progress has been made to address the issue. This lack of action has contributed to feelings of helplessness and dissatisfaction. Some of the children were aware of the protest held by ‘stop the stink’ mainly due to walking or driving past the site.

“We frequently rang the number to complain about the smell but we stopped as no one came back to us and no action done.”

(Teacher, Knutton St. Marys Church of England Academy)

2.7 Summary

- 2.7.1 The school attainment and absence analysis indicate that proximity to Walleys Quarry does not appear to have a measurable impact on pupil performance or absence rates for either primary or secondary schools. Variations in attainment and absence rates appear to be influenced by other factors, which may include changes in behaviour and routines following the COVID-19 pandemic.
- 2.7.2 The engagement sessions revealed a strong emotional, physical and social impact of the landfill site and its odour on pupils and teachers.
- **Emotion:** Pupils from all four schools expressed significant emotional responses, describing feelings such as sadness, unfairness, disgust, anger, and fear. Pupils and teachers also expressed frustration over the lack of resolution. A sense of helplessness and frustration was evident, with pupils questioning the landfill's existence and calling for action to remove the waste and improve the environment, whilst teachers expressed concerns over the long-term health impacts of the landfill.
 - **Physical health:** Concerns were prevalent, with symptoms such as nausea, headaches, coughing, and tightness in the chest reported by pupils, while teachers noted heightened asthma symptoms and itchy eyes. The pervasive odour disrupted daily routines on some occasions, including outdoor activities like playing in gardens, hosting barbecues, and hanging out washing, as well as indoor occasions such as family gatherings and Christmas celebrations. Teachers expressed anxiety about long-term health implications for children in the community.
 - **Social interactions:** Social interactions were also affected, with some pupils avoiding hosting friends due to embarrassment or concerns for their guests. It is noted that some pupils do not perceive the landfill odour as a significant issue that deters them from inviting friends over to play.

- **Negative perception in the media:** The majority of children spoke about the media coverage about Walleys Quarry and how they had heard negative stories in the news and social media. The pupils expressed concerns in relation to the negative image being portrayed about their neighbourhood. This has caused a sense of 'victimisation' amongst the children. It was evident that they were fully aware of the situation and held the authorities responsible for the situation, these views were informed by the conversations at home and the coverage watched on television.

2.7.3 Although no absences directly attributed to the odour from the landfill were reported during the school engagement, both pupils and teachers noted instances of absences due to symptoms such as coughing, sore throats, and chest discomfort. However, these absences may be attributed to a range of factors, not solely the impact of the odour.

3 Longitudinal Health Survey

3.1 Overview

- 3.1.1 The Stage 1 Community Impact Study recommended that a Longitudinal Health Survey be developed for the community, covering both mental and physical health. The purpose of the survey would be to monitor the health of the community over a nominated period of time and aim to provide reassurance to community members that their concerns were being taken seriously and monitored appropriately.
- 3.1.2 The operator of Walleys Quarry going into insolvency has not changed the immediate context for a longitudinal health survey, the purpose of which is for local residents to feel that their concerns are being listened to and that long-term monitoring of community health is being undertaken. Indeed, community members may consider that the value of such a survey remains as important, given that there is now likely to be more uncertainty about long-term solutions for the site as a whole.
- 3.1.3 A longitudinal health study is a research method that involves observing and collecting data from the same group of individuals or community over an extended period, often spanning years or decades. These studies aim to track changes in health, behaviours, or outcomes over time, allowing researchers to identify patterns, causes, and long-term effects of various factors like lifestyle, environment, or genetics on health. By studying the same participants or community sample repeatedly, longitudinal studies provide valuable insights into the progression of diseases, the effectiveness of interventions, and risk factors for health conditions. They are particularly useful for understanding trends and causation rather than just correlations.
- 3.1.4 The following approach has been taken with regard to developing a longitudinal health survey for the community in the vicinity of the Walleys Quarry landfill site:
- a review of other national and local longitudinal health surveys that have been, or are being, progressed in the UK or internationally, identifying key elements of approaches and any good practice or learning
 - consideration of various approaches taken to assessing mental health and wellbeing over time, including the opportunities and limitations of using the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS)
 - identification of high-level objectives and purpose of a longitudinal health survey relating to the community in the vicinity of Walleys Quarry
 - potential structure of a longitudinal health survey and mechanisms for undertaking such a survey, including likely duration, approach to sampling, participant recruitment and replacement, and survey design
 - high level costs associated with the next steps of survey development.

3.2 Review of Relevant National and Local Surveys

A review of other national and local surveys that include health-related questions has been undertaken, to identify potential questions, approaches and good practices that could be incorporated into a longitudinal health study for the community surrounding Walleys Quarry. The findings are summarised in

3.2.1 Table 3.1.

Table 3.1 Summary of Review of other National and Local Surveys

Survey	Commentary
National Census (England)	A comprehensive survey conducted every 10 years to collect vital data on population, housing, and demographics. It provides detailed insights into age, ethnicity, employment, education, health, and living conditions. The data informs government policies, resource allocation, and planning for public services like healthcare, education, and infrastructure. Relevant questions relating to health cover: • self-reported general health ("How is your health in general?", with response options ranging from "very good" to "very bad") • long-term conditions – any long-term physical or mental health conditions or illnesses lasting or expected to last 12 months or more • activity limitation (if any health conditions or illnesses reduced people's ability to carry out day-to-day activities) • unpaid care – the question determines if individuals provide unpaid care to others due to long-term health conditions or problems related to old age.
Health Survey for England (Health Survey for England National Centre for Social Research)	An annual survey that provides vital data on the health, lifestyles, and well-being of people in England. Conducted by NHS Digital, it covers topics such as chronic illnesses, mental health, obesity, smoking, alcohol consumption, and physical activity. The survey collects information through interviews and health measurements, offering insights into national health trends and disparities across different demographic groups. It aims to inform public health policies, monitor progress on health objectives, and guide resource allocation. The HSE is a key tool for understanding the population's health and addressing emerging challenges in healthcare. The most recent survey (2022) included interview questions relating to: • General health • longstanding illness / limiting longstanding illness • doctor-diagnosed hypertension and diabetes • receipt of social care / social care provision • fruit and vegetable consumption • smoking, e-cigarettes and other nicotine delivery products • exposure to second-hand smoke • drinking alcohol • economic status, occupation • educational attainment • national identity / ethnic origin • self-reported height and weight measurements
General Household Survey (General Household Survey - data.gov.uk) / Integrated Household Survey	This was a long-running annual survey conducted in Great Britain from 1971 to 2007, designed to collect data on the social and economic conditions of households. It covered topics such as housing, health, education, employment, income, and family structure, providing a comprehensive picture of living standards and societal trends. The survey was instrumental in informing government policy, monitoring social changes, and understanding

Survey	Commentary
	public service needs. While the GHS ended in 2007, its role was continued by the <i>Integrated Household Survey</i> from 2008 to 2014, combining data from multiple official household surveys to provide comprehensive insights into the social and economic conditions of the population.
World Health Organisation: World Health Survey Plus Individual Questionnaire	This is a global tool designed to collect data on individuals' health, well-being, and access to healthcare. It covers key areas such as physical and mental health, chronic conditions, risk factors (e.g. smoking, alcohol use), healthcare utilisation, and social determinants of health like income and education. The survey provides standardised, comparable data to assess health systems' performance and track progress toward universal health coverage and Sustainable Development Goals (SDGs). By capturing individual experiences, it informs evidence-based policies to address health inequalities and improve global health outcomes.
Understanding Society (UK Household Longitudinal Survey)	Large-scale, ongoing study that captures detailed insights into the lives of people living in the UK. It collects data annually from tens of thousands of households, tracking changes in areas such as health, employment, income, education, family dynamics, and social attitudes. The survey provides researchers and policymakers with information about how individuals and households evolve over time, enabling a deeper understanding of societal trends and inequalities. It includes diverse groups, such as ethnic minorities, to ensure inclusivity and representativeness. The study also integrates biomarker and health data, offering a comprehensive view of physical and mental well-being.
Active Lives Survey (Sport England)	Annual study conducted by Sport England that provides detailed insights into physical activity levels and sports participation across England. It collects data from individuals aged 16 and over to understand how people engage in various forms of activity, including recreation, fitness, walking, cycling, and volunteering in sports. The survey also examines barriers to participation, motivations for being active, and the impact of physical activity on mental and physical health. With a focus on inclusivity, the survey examines differences in participation across age groups, genders, ethnicities, socioeconomic backgrounds, and disabilities.
Shropshire Schools Survey (Shropshire Schools Survey Healthwatch Shropshire).	This is a local initiative aimed at understanding the health, well-being, and behaviours of children and young people in schools across Shropshire. Conducted periodically, the survey collects data on topics such as physical and mental health, lifestyle choices (e.g., diet, exercise, and substance use), relationships, and attitudes toward school and community. The findings provide valuable insights into the challenges faced by students, helping schools, local authorities, and health services to identify areas of need and tailor support programs. The survey serves as a tool to monitor trends, promote positive behaviours, and improve outcomes for Shropshire's young people.
Avon Longitudinal Study of Parents	Also known as 'Children of the 90s', ALSPAC is a world-renowned longitudinal cohort study. It was established in 1991 to track the health and

Survey	Commentary
and Children (ALSPAC)	development of children born in the Avon area, along with their parents. The study recruited over 14,000 pregnant women and has since followed the children and their families, collecting detailed data on genetics, health, lifestyle, environment, and social factors. ALSPAC provides unique insights into how early-life factors influence health and development across the lifespan. It has contributed to breakthroughs in understanding conditions such as asthma, obesity, mental health issues, and cardiovascular diseases. The study uses questionnaires, clinical assessments, biological samples, and environmental data, creating a rich resource for researchers globally.
Born in Bradford	Similarly, another study focused at community level, this time tracking the health and development of over 13,500 children born in Bradford between 2007 and 2011. The study was established to explore how genetic, environmental, social, and cultural factors influence the health and well-being of children and families living in one of the UK's most ethnically diverse and deprived cities. Similarly to ALSPAC, it collects extensive data, including biological samples, questionnaires, and health assessments, covering areas such as physical and mental health, education, and social behaviour.

3.2.2 The above table has reviewed the content and coverage of a range of national and more local longitudinal surveys that include a focus on health (either physical, mental or both) in the UK and further afield. Good practice and learning that has been identified from these surveys includes:

- **Representativeness and inclusivity:** surveys actively recruit participants from diverse backgrounds, including ethnic minorities, disadvantaged groups, and those with varying health statuses, ensuring the data reflects the population's heterogeneity. This inclusivity allows researchers to address health disparities and understand the social determinants of health.
- **Collection of rich, multi-dimensional data:** comprehensive approach enables detailed analysis of complex interactions between genetics, lifestyle, social conditions, and health outcomes.
- **Long-term follow-up:** this is a hall-mark of some of the surveys identified, allowing researchers to study changes over the life course, such as the impact of early-life factors on adult health.
- **Commitment to community engagement:** ensuring participants remain involved, fostering trust and collaboration.
- **Contribution to evidence-based policymaking:** helping design interventions to improve public health and reduce inequalities.
- **Ethical practices:** ensuring participant privacy, informed consent, and ethical use of data to maintain integrity and transparency.

3.3 Monitoring Mental Health and Wellbeing Over Time

3.3.1 Impacts on mental health and wellbeing associated with the exposure of the population living near Walleys Quarry to odours and emissions were identified in the Community Impact Study as an area of specific concern to residents. This included in relation to the protracted nature of the situation, the feelings of frustration and helplessness experienced by individuals, anxiety about long-term health impacts for both individuals and their loved ones, and anxieties about what else might happen as a result of the site (for example another fire, or whether the site will be properly restored). It is well documented that long-term stress can have a significant impact on both physical and mental health.

3.3.2 A number of the surveys reviewed in the previous section have included questions or coverage relating to mental health and wellbeing as well as physical health status. Various approaches have been used to assessing mental health and wellbeing over time; these are summarised in Table 3.2.

Table 3.2 Mental Health Tools and Approaches Used in UK Health Surveys

Survey Name	Purpose	Mental Health Tools Used	Frequency
Health Survey for England (HSE)	Tracks health trends, including mental health and well-being in England.	Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS), General Health Questionnaire (GHQ-12).	Annual
Scottish Health Survey (SHeS)	Provides data on the health and well-being of people in Scotland.	WEMWBS, GHQ-12 for psychological distress.	Annual
National Study of Health and Wellbeing (Adult Psychiatric Morbidity Survey)	Examines the prevalence of mental health disorders among adults in England.	Clinical tools for diagnosing depression, anxiety, PTSD; questions on suicidal thoughts, self-harm, and service use.	Approximately every seven years
Mental Health of Children and Young People in England Survey	Tracks the prevalence of mental health conditions among children and young people.	Strengths and Difficulties Questionnaire (SDQ); diagnostic criteria for conditions like ADHD, depression, anxiety.	Periodic (e.g. 2017-2021)
Understanding Society (UK Household Longitudinal Study)	Explores the well-being, health, and socio-economic factors of UK households.	GHQ-12 for psychological distress; self-reported life satisfaction and happiness measures.	Annual (longitudinal)
COVID-19 Mental Health and Wellbeing Studies	Monitored the impact of COVID-19 on mental health and well-being.	ONS surveys on anxiety, loneliness, life satisfaction; COVID-19 Social Study (University College London).	Periodic during COVID-19
Community Life Survey	Tracks well-being and community engagement in England.	Life satisfaction, happiness, and anxiety measures.	Annual
ONS Opinions and Lifestyle Survey	Examines well-being alongside public attitudes and behaviours.	Measures of anxiety, happiness, and life satisfaction.	Monthly/Periodic
Young People's Wellbeing Survey (Children's Society)	Focuses on the subjective well-being of children and young people in the UK.	Questions on happiness, life satisfaction, and mental health challenges.	Annual

Survey Name	Purpose	Mental Health Tools Used	Frequency
Public Health Outcomes Framework (PHOF)	Monitors mental health and well-being indicators across local authorities in England.	Self-reported well-being questions (ONS Four Measures of Well-being); data from other surveys (e.g. HSE).	Ongoing data collection
Millennium Cohort Study	Tracks the health and well-being of children born in the UK in 2000-2001.	Strengths and Difficulties Questionnaire (SDQ); questions on life satisfaction and mental health.	Periodic waves
Big Happiness Survey (Mental Health Foundation)	Investigates people's experiences of happiness and mental well-being in the UK.	Questions on happiness, stress, and coping mechanisms.	One-off/Periodic
Active Lives Survey (Sport England)	Monitors physical activity and its impact on mental well-being in England.	WEMWBS	Annual

- 3.3.3 The above review identifies a number of tools which are regularly used, notably the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS), the Strengths and Difficulties Questionnaire (SDQ), the Rosenberg Self-Esteem Scale and the General Health Questionnaire (GHQ-12).

Warwick-Edinburgh Mental Wellbeing Scale

- 3.3.4 The **Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS)** is a widely used tool for measuring mental well-being in populations. Developed in 2006–2007 by researchers at the Universities of Warwick and Edinburgh, in collaboration with NHS Health Scotland, WEMWBS was designed to assess positive mental health (as opposed to mental illness) in adults and young people aged 13 and over. It is grounded in the concept of mental well-being as encompassing both hedonic (subjective happiness and life satisfaction) and eudaimonic (psychological functioning, self-realisation, and purpose) dimensions. The scale focuses on positive attributes, such as optimism, energy, and relationships, rather than negative symptoms like anxiety or depression.
- 3.3.5 WEMWBS has been successfully applied in various settings and contexts, from national surveys to workplace initiatives, and continues to play a vital role in understanding and promoting mental well-being globally. It has been widely adopted in public health, clinical research, and community projects for evaluating mental well-being interventions, understanding population mental health trends, and informing policy decisions. In addition to the surveys described in the previous table, WEMWBS has been used:
- to evaluate the impact of mental health interventions, such as mindfulness programmes, counselling services, and physical activity initiatives. For example, it has been applied in studies assessing the effectiveness of mindfulness-based stress reduction (MBSR) programs in improving mental well-being.
 - local authorities and community organisations have used WEMWBS to assess the effectiveness of initiatives aimed at improving community well-being, such as social prescribing programs and neighbourhood development projects.

- employers have used WEMWBS to measure the mental well-being of employees and evaluate the impact of workplace well-being initiatives, including mental health training, flexible working policies, and stress management programmes.
- WEMWBS has been utilised in schools and universities to assess the mental well-being of students and evaluate the effectiveness of interventions aimed at reducing stress and improving resilience.
- during the COVID-19 pandemic, WEMWBS was used in studies to monitor the impact of lockdowns, social isolation, and economic uncertainty on mental well-being. This data helped inform mental health support strategies during the pandemic.
- data from WEMWBS has been used to inform national mental health strategies, such as Scotland's Mental Health Strategy, which emphasises the importance of promoting mental well-being alongside treating mental illness.

3.3.6 WEMWBS primarily focuses on assessing mental wellbeing rather than physical health. While mental wellbeing is closely linked to physical health, WEMWBS does not directly capture physical health indicators such as fitness, chronic conditions, or physical symptoms. However, the interplay between mental and physical health means that improvements in one area often influence the other. For instance, better mental wellbeing (as measured by WEMWBS) may correlate with healthier lifestyle choices or reduced physical health risks. Similarly, poor physical health could indirectly impact scores through its effects on emotional states or social functioning.

3.3.7 The following sections provide further information about how WEMWBS is structured, including restrictions and limitations relating to its use.

3.3.8 WEMWBS is intended to capture an overarching construct of mental well-being. It is a self-reported questionnaire that consists of 14 positively worded statements related to mental well-being. These statements reflect thoughts and feelings experienced by participants over the past two weeks. Participants rate their agreement with each item on a five-point Likert scale, ranging from one ('None of the time') to five ('All of the time'). Scores are summed to produce a total score between 14 and 70, with higher scores indicating greater mental well-being. The scale items cover a broad range of well-being aspects, including:

- positive emotions (e.g. 'I've been feeling cheerful')
- functioning (e.g. 'I've been dealing with problems well')
- relationships (e.g. 'I've been feeling close to other people')
- self-realisation (e.g. 'I've been feeling good about myself').

3.3.9 A shorter version, the SWEMWBS (Short Warwick-Edinburgh Mental Wellbeing Scale), is also available for use. This includes seven items selected from the original. SWEMWBS is designed for use when time is limited, and while it provides slightly less detail, it retains strong reliability and validity.

3.3.10 Table 3.3 presents a summary of the likely advantages and limitations associated with the use of WEMWBS.

Table 3.3 Summary of Limitations and Advantages of WEMWBS

WEMWBS – Summary of Limitations and Advantages

Limitations	Advantages
Lack of Clinical Diagnosis – WEMWBS is not a diagnostic tool for mental health disorders (e.g., depression, anxiety); focuses on positive well-being only.	Population Monitoring – effective tool for tracking mental well-being trends in populations and identifying at-risk groups.
Self-Report Bias – subject to biases like social desirability and recall bias, which can affect the reliability of results.	Programme Evaluation – useful for assessing the effectiveness of interventions aimed at promoting resilience, happiness, and life satisfaction.
Cultural Sensitivity – reflects Western concepts of well-being; may have limited applicability in non-Western cultural contexts.	Policy Development – guides policymakers in designing initiatives to improve mental well-being (e.g. workplace or community programmes).
Population Suitability – validated for ages 13+; not suitable for younger children due to language and conceptual challenges.	Cross-Sector Applications – applicable in schools, workplaces, healthcare, and community organisations for diverse population insights.
Uni-Dimensionality – provides a single overall score, limiting insights into specific aspects of well-being (e.g. emotional vs. social well-being).	Adaptability – successfully adapted for different languages and cultural contexts with appropriate validation studies.
Time Frame – two-week recall period may not capture long-term trends or ongoing issues; short-term fluctuations may skew results.	Short Version – shorter version increases usability in time-constrained settings like large-scale surveys or clinical environments.
Sensitivity to Change – may not detect subtle or short-term improvements in well-being, particularly in small-sample studies.	Well-Being Promotion – focuses on positive mental health, aligning with public health's shift toward promoting well-being rather than treating illness.
Lack of Specificity - WEMWBS lacks the specificity to investigate variations in particular mental health conditions or symptoms, capturing instead overall wellbeing.	Integration with Other Measures – can be combined with other scales to assess both positive and negative aspects of mental health comprehensively.

3.3.11 Considering the above limitations in relation to a proposed longitudinal health survey for the community in the vicinity of Walleys Quarry, none of these are thought to be blockers to use. However there are other usage restrictions designed to control integrity and validity of use of WEMBWS outside of its clinical acceptability. These include:

- **Copyright restrictions:** WEMWBS is copyrighted and cannot be freely modified, reproduced, or used without proper authorisation. Users are required to seek permission from the copyright holders for use in research, clinical practice, or commercial applications.

- **Licensing requirements:** a license may be required for use depending on the context. While non-commercial research and evaluation purposes may be free, commercial use or large-scale studies often require formal licensing agreements.
- **Non-modification:** the scale cannot be altered or adapted in any way. Changes to wording or format can undermine its validity and reliability.
- **Training recommendations:** users are encouraged to familiarise themselves with the scale through training or guidance from the copyright holders to ensure proper administration and interpretation.

Strengths and Difficulties Questionnaire (SDQ)

- 3.3.12 This is a brief behavioural screening tool used to assess emotional and behavioural problems in children and adolescents aged 2-17. It consists of 25 questions divided into five subscales: emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems, and prosocial behaviour. The SDQ can be completed by parents, teachers, or young people themselves, offering a comprehensive perspective on a child's strengths and difficulties. It helps identify potential mental health concerns, track changes over time, and evaluate interventions. Widely used in research, clinical practice, and schools, the SDQ supports early detection and targeted support for young people's well-being.
- 3.3.13 It is not considered relevant for use in a longitudinal health survey for the Walleys Quarry community due to its primary focus on under-18s.

Rosenburg Self-Esteem Scale (RSES)

- 3.3.14 The RSES is one of the most widely used tools for measuring self-esteem in psychological research and practical applications. Developed by sociologist Dr. Morris Rosenberg in 1965, the scale consists of 10 statements designed to assess global self-worth by measuring positive and negative feelings about the self. Respondents indicate their agreement with statements (e.g. 'On the whole, I am satisfied with myself') on a four-point Likert scale ranging from 'strongly agree' to 'strongly disagree'. The scale aims to provide a unidimensional measure of self-esteem, with scores ranging from 0 to 30, where higher scores indicate higher self-esteem.
- 3.3.15 The RSES is notable for its simplicity, reliability, and validity, making it one of the most frequently utilised self-esteem measures across various populations and contexts. It is suitable for adolescents and adults and has been applied in diverse fields such as psychology, sociology, education, and health studies. The scale's psychometric properties have been widely tested, demonstrating high consistency and reliability. Its brevity and ease of administration make it particularly useful in large-scale surveys and research studies.
- 3.3.16 In the UK, the RSES has been extensively used in research and clinical settings. It has been employed in studies exploring the relationship between self-esteem and mental health, such as depression, anxiety, and self-harm, as well as in investigations of adolescent development and educational attainment. In clinical practice, the RSES is sometimes used as a screening tool to assess self-esteem in patients struggling with mental health issues or undergoing therapy. It has also been integrated into larger UK-based longitudinal studies, such as the Millennium Cohort Study and the Understanding Society survey, where self-esteem is tracked alongside other psychological and social factors.

General Health Questionnaire (GHQ-12)

- 3.3.17 This is a widely used screening tool designed to measure psychological distress and detect potential mental health issues in the general population. It consists of 12 questions assessing emotional well-being, focusing on symptoms like anxiety, depression, social dysfunction, and loss of confidence. Participants rate each item based on their recent experiences, typically over the past few weeks. The GHQ-12 is valued for its simplicity, reliability, and ability to identify individuals at risk of mental health problems. It is frequently used in research, clinical settings, and population surveys to monitor mental health trends and inform interventions.

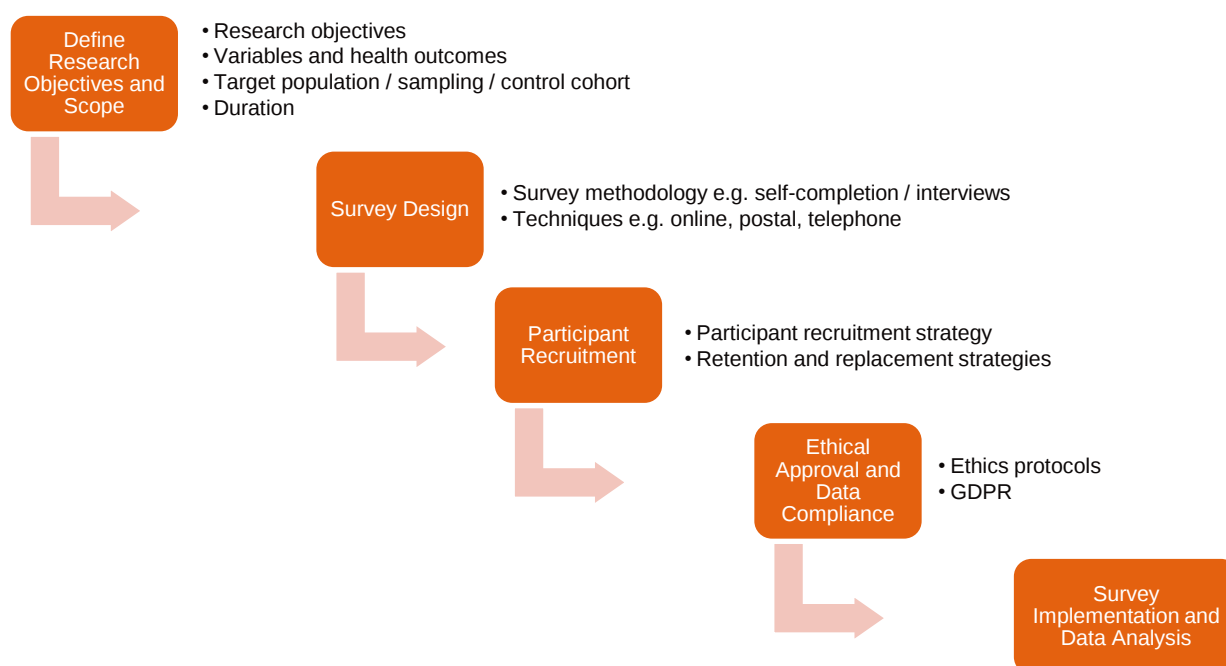
Mental Health and Wellbeing Assessment Tools – A Summary

- 3.3.18 The various tools described in this section clearly have specific advantages and strengths depending on their target population and research or clinical goals. In summary:
- **WEMWBS** excels in measuring positive mental well-being but lacks specificity for disorders. The various restrictions surrounding its use (copyright / licensing) are noted.
 - **RSES** effectively measures self-esteem but is narrow in scope, excluding broader mental health dimensions.
 - **SDQ** is ideal for assessing strengths and difficulties in children and adolescents but is less applicable to adults.
 - **GHQ-12** is a reliable screening tool for psychological distress but focuses on negative aspects rather than overall well-being.
- 3.3.19 Taking the above review into account, WEMWBS is considered to be an appropriate tool for inclusion in a longitudinal health survey assessing long-term mental health impacts associated with the Walleys Quarry landfill operation. There is scope to include not only the core WEMWBS questions / response scale but to include additional questions directly relating to context-specific matters associated with the landfill site. These are included in the draft questions referred to in the next section.

3.4 Developing a Longitudinal Health Survey for the Walleys Quarry Community

3.4.1 Figure 3.1 sets out the key steps in developing a longitudinal health survey for the Walleys Quarry community.

Figure 3.1 Steps in Developing a Longitudinal Health Survey for the Walleys Quarry Community



Define Research Objectives and Scope

3.4.2 The first steps to developing a longitudinal health survey for the community in the vicinity of Walleys Quarry relate to the identification of high-level research objectives and purpose of a longitudinal health survey relating to the community in the vicinity of Walleys Quarry.

Research Objectives

3.4.3 The following draft research objectives aim to provide a deeper understanding of the health impacts associated with the Walleys Quarry landfill site while capturing broader health trends in the Staffordshire population:

- **Objective 1: to analyse trends in the prevalence and progression of physical health conditions.** Examine the changes in the occurrence, severity, and management of key physical health conditions (e.g. respiratory issues, cardiovascular disease) within the study population, with a specific focus on potential impacts from exposure to emissions associated with the Walleys Quarry landfill site.
- **Objective 2: to assess changes in mental health status and associated factors linked to environmental stressors.** Investigate variations in mental health conditions (e.g. anxiety, depression, stress) over time, with particular attention to the psychological impacts of living near Walleys Quarry landfill site, including concerns about air quality, odour, and environmental health risks.
- **Objective 3: to evaluate the impact of stress related to environmental exposure on physical health and overall wellbeing.** Explore how stress associated with environmental factors, such as

odour from Walleys Quarry, affects physical health outcomes (e.g. immune function, respiratory health) and overall wellbeing, identifying potential mediating factors such as coping mechanisms and community resilience.

- **Objective 4: to identify relationships between physical and mental health outcomes influenced by environmental exposure.** Assess the interplay between physical and mental health conditions in the population, focusing on changes in health outcomes over time and how these domains interact.

Variables and Health Outcomes

3.4.4 Variables that should be included in the survey in order to capture comprehensive data over time include:

- **Demographic Information:** age, gender, ethnicity, education level, income, employment status.
- **Health Status:** self-reported health, chronic conditions (e.g. diabetes, hypertension), mental health status, and disability.
- **Lifestyle and Behaviour:** smoking, alcohol consumption, physical activity, diet, sleep patterns.
- **Healthcare Utilisation:** frequency of doctor visits, hospitalisations, medication use.
- **Environmental Factors:** exposure to pollution, housing conditions, and access to green spaces.
- **Social Determinants:** community engagement, neighbourhood safety.
- **Psychosocial Factors:** stress levels, life satisfaction, and coping mechanisms (align to WEMWBS or similar)
- **Genetic/Family History:** family history of illnesses and genetic predispositions.
- **Proximity to Walleys Quarry:** distance from WQ Landfill Site.
- **Frequency of Exposure:** how often odour is experienced (daily, weekly, etc.).

3.4.5 Sample questions for a self-completion survey aligned to the above variables can be found at Appendix B.

3.4.6 The longitudinal health survey has the potential to generate a wealth of outputs that could provide insights into population health, health behaviours, and healthcare needs over time. By repeatedly collecting data from the same individuals or communities, the survey allows for the analysis of trends, causal relationships, and predictive factors influencing health outcomes. Key outputs may include:

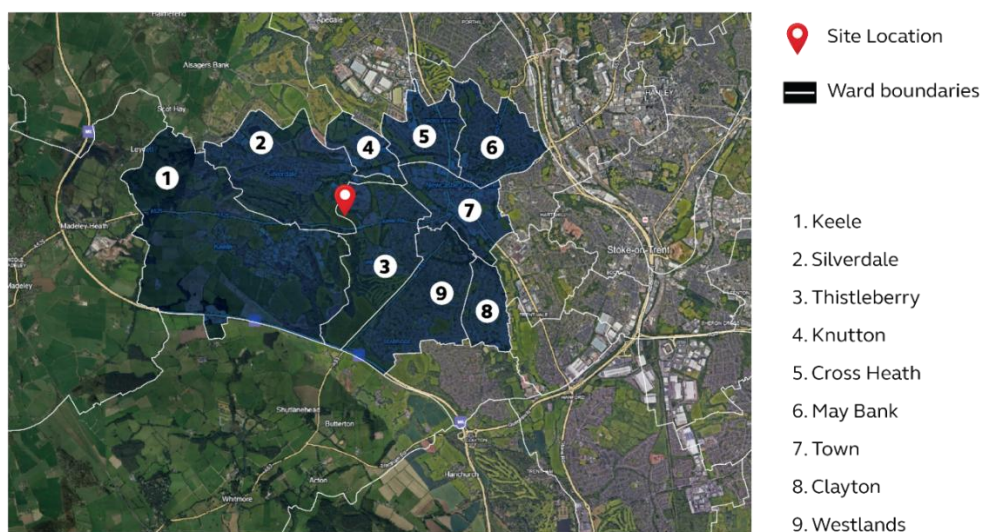
- the ability to track changes in health outcomes over time. For example insights into how conditions like diabetes, cardiovascular disease, cancer, or mental health disorders may evolve in the population; patterns in life expectancy, causes of death, and disparities in mortality rates across demographic groups; changes in the prevalence of conditions such as depression, anxiety, and stress, particularly in relation to societal or environmental change (such as related to odour emissions from Walleys Quarry).
- exploration of how **social, economic, and environmental factors** have influenced health over time. Particularly in relation to this community, the survey may identify disparities in health outcomes across different population groups.
- insights into ongoing issues relating to odour emissions on physical and mental health.
- understanding how individual health-related behaviours evolve, including dietary habits, physical activity levels, substance use, sleep patterns and how these may impact health.
- how people access healthcare (for example whether they rely on GP surgeries or pharmacies for basic healthcare).
- how health outcomes have been influenced by, for example, mental health support systems; similarly how health outcomes have been influenced by programmes aligned to Walleys Quarry specifically.

- a major strength of longitudinal data is its ability to infer causation. Likely outputs include the identification of behaviours, exposures, or genetic factors that predict the onset of chronic illnesses; and the development of models to forecast health outcomes based on demographic, behavioural, and clinical data.
- population health insights, for example emerging health issues including any rise in mental or physical health conditions together with insights about how individuals and communities recover from health setbacks.
- research and innovation – identifying opportunities for interventions like wearable health devices, telemedicine, or personalised medicine; providing a rich dataset for academic, clinical, and public health research.

Target Population

As a starting point the population of interest will be spatially defined as it relates to people living in proximity to Walleys Quarry. Figure 3.2 is taken from the Community Impact Study and comprises the study area within which the majority of impacts (including health impacts) have been identified to date. Using these wards as the boundary for the health survey would therefore also account for factors such as wind direction, topography, and other factors that

could influence air quality and odour dispersion. The nine wards have a combined population of **48,105 people** as shown



in

3.4.7 Table 3.4.

Figure 3.2 Wards located within the Vicinity of Walleys Quarry



Table 3.4 Number of Residents in Nine Wards Surrounding Walleys Quarry

Ward	Resident Population (2021 Census)	Ward	Resident Population (2021 Census)
Clayton	2,853	Silverdale	5,744
Cross Heath	5,491	Thistleberry	5,647
Keele	2,886	Town	5,606
Knutton	2,925	Westlands	8,368

May Bank	8,585	TOTAL	48,105
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3.4.8 The target population would therefore be residents living in the above nine wards. Across the population within these wards, we consider there should also be a focus on potentially more vulnerable groups including:

- families with children
- elderly individuals (65+ years)
- individuals with pre-existing health conditions.

3.4.9 Longitudinal studies can either follow the same individuals over time or survey different people from within the same geography / demographic parameters. Both approaches have distinct strengths and weaknesses depending on the goals, resources, and logistical constraints of the study. Table 3.5 provides a brief comparative analysis of each approach.

Table 3.5 Strengths and Weaknesses of Different Approaches to Longitudinal Studies

Approach	Strengths	Weaknesses
Following the same individuals over time	• Captures individual changes over time • Provides detailed insights into how health outcomes change at the individual level • Ideal for studying causation, risk factors, and the progression of disease • Enables identification of relationships between exposures (e.g. lifestyle, environment) and outcomes (e.g. health conditions) • Helps establish cause-and-effect relationships • Consistency – reduces variability in the sample population, as the same individuals are followed • Provides an opportunity to collect detailed and nuanced data over multiple time points	• Loss of participants over time due to drop-outs, death, or loss to follow-up can bias the results and reduce sample size • Retention strategies (e.g. incentives) are required, which increase costs • More expensive and logistically challenging, as it requires maintaining contact with participants over long periods • Requires robust data management systems to track individuals across survey waves • Findings may take years to emerge, as the study relies on data collection across multiple time points • The original cohort may not reflect changes in the broader population over time, limiting generalisability
Surveying different people in each period	• Avoids the challenge of maintaining contact with the same individuals over time • Reduces the need for long-term participant engagement and complex tracking systems • No risk of participant drop-out across survey waves, as new participants are recruited each period	• Cannot track changes within individuals over time, which limits insights into causation and progression of health outcomes. • Only provides cross-sectional snapshots at each survey wave • Difficult to establish cause-and-effect relationships because exposures and outcomes are not linked longitudinally

Approach	Strengths	Weaknesses
	• Cost-effective as it eliminates costs associated with retaining participants (e.g. incentives, follow-up communications) • Easier to scale if the survey needs to expand to a larger population • Reflects changes in the broader population more effectively, as new samples capture shifts in demographics, behaviours, and health outcomes • Data can be analysed and published more quickly since each survey wave is independent	• Differences in the recruited sample between waves may introduce variability, making comparisons across survey periods less reliable • Data from different waves cannot be combined into a cohesive narrative about individual health trajectories.
Hybrid approach	Some studies adopt a hybrid design , combining longitudinal tracking of a smaller cohort with cross-sectional surveys of different individuals at each wave. This provides individual-level insights while still capturing population-level trends.	

Sampling Size and Approach

- 3.4.10 Sampling ensures that the collected data represents the target population accurately, while also addressing the unique challenges of tracking individuals over time. The objective is to select a sample that reflects the diversity of the population and remains robust for repeated follow-ups over an extended period. Sampling frames are often derived from reliable sources, such as electoral registers (typically used for population-based surveys).
- 3.4.11 The sampling design determines how participants are selected. Common approaches for a longitudinal health survey might include random sampling (i.e. each person in the sampling frame has an equal chance of being included (but this approach would not ensure representativeness from across the nine wards or in terms of the identified population sub-groups)); stratified sampling (where samples are drawn proportionally from each sub-group – in this case ward or sub-population group); cluster sampling (where geographic areas known as clusters are randomly selected; although this may reduce cost and logistical complexity it may increase sampling bias); or multi-stage sampling (combination of sampling method to ensure representativeness is balanced with logistical efficiency). From these options, it is considered that a **stratified sampling approach** is likely to be the most simplistic and suitable for the Walleys Quarry survey.
- 3.4.12 Practical considerations when considering sample size obviously relate to cost and feasibility (ensuring the sample size is feasible given budgets, time frame, and resources); opportunities for 'oversampling' of hard-to-reach or high-risk groups from the outset to ensure adequate representation (and to take into account potential dropouts over time); and ethical concerns (avoiding recruiting more participants than necessary, as this may waste resources and burden participants).
- 3.4.13 In terms of sample size, this must be large enough to detect statistically significant changes over time while accounting for potential attrition (dropout of participants). Parameters for consideration are:
- Size of the community / population under consideration (48,105 across the nine wards)

- Confidence level (95% is a common value used)
- Acceptable margin of error (typically 5%)
- Estimated proportion (e.g. prevalence of disease). In the absence of prior data, an estimated proportion of around 50% ($P=0.5$) has been assumed.
- Attrition rate – longitudinal surveys typically suffer from dropouts over time. An average expected dropout rate might be around 20%. Including an appropriate attrition rate and adjusting sample size accordingly ensures that there will still be sufficient participants after a certain period of time. Frequency of data collection will affect participant fatigue and dropout rates.

3.4.14 The following formula has been used to calculate a likely appropriate sample size for the longitudinal health survey: $n = Z^2 * P * (1-P) / E^2$ where Z =confidence level, P =estimated proportion and E =margin of error. This gives a total sample size of 384. This figure has then been adjusted for the finite population within the nine wards: $n_{adj} = 384 / 1 + (384-1)/48,105$ giving a total of 381. Finally, an adjustment has been made for a 20% attrition rate using the formula $n_{final} = 381 * (1/(1-0.2)) = 476$ individuals.

Need for a Control Cohort

3.4.15 A control population essentially serves as a baseline for comparison, allowing the effects of the exposure or intervention being studied to be distinguished from other factors. It can strengthen the validity and reliability of a study, for example in the case of Walleys Quarry it could enable the differentiation of health changes directly attributable to the influence of Walleys Quarry from those caused by other factors, such as general trends in physical and mental health, socio-economic conditions, or regional factors unrelated to the site. The control group could consist of individuals who are either not exposed to odour emissions or are exposed at significantly lower levels. Comparing the exposed cohort to the control group could help in identifying differences in health outcomes, such as respiratory symptoms, stress levels, or sleep disturbances, that may be attributed to odour exposure rather than confounding variables.

3.4.16 Advantages of including a control population include:

- **Establishing a stronger case for causal inference:** by comparing the exposed group with a control population, it may be possible to establish a stronger case for causation rather than mere correlation between exposure and health outcomes.
- **Accounting for confounding factors / isolation of variables:** a control group may help account for confounding factors, such as age, socio-economic status, or pre-existing health conditions, by matching or adjusting for these factors during analysis.
- **Allows for trend comparison:** trends in health outcomes over time can be compared between the exposed and control populations to assess whether the observed changes are specific to exposure or part of a broader trend.

3.4.17 Options to select a control cohort to sit alongside the main population sample include:

- Identification of a similar population (in terms of demographic and socio-economic characteristics) in another part of Staffordshire not exposed to the effects of Walleys Quarry (and where, for example, there are no significant environmental stressors like air pollution or odour emissions). The control cohort would need to be broadly comparable in terms of age, gender, socio-economic status, and baseline health conditions. In terms of sample size for the control cohort, a similar sample size would be ideal, although a smaller sample could suffice depending on resource availability.
- If a control cohort is not considered appropriate, alternative approaches could include consideration of pre-exposure baseline data (i.e. use of historical health data from the exposed population from before the 'incident' / impact from Walleys Quarry, and this could simply serve as a comparison point); alternatively the survey sample could be stratified (in addition to by ward and

target population group) to include distance from the landfill (to accommodate changes in exposure levels between individuals depending on distance) and health outcomes compared accordingly. A further option would be to use statistical methods to control for confounding variables in the absence of a control cohort.

- 3.4.18 Potential challenges with identifying a control cohort relate not only to resource intensiveness (for example recruiting and retaining a control cohort as well as the main sample group), but also difficulties ensuring that control cohorts are truly comparable, and ethical considerations (the role that participants in the control cohort would play).

Duration of Longitudinal Study

- 3.4.19 A final consideration to be factored in at the outset of the survey (as it directly impacts planning and budgeting) relates to the overall duration – short-, medium- or long-term. Table 3.6 sets out the advantages and disadvantages associated with surveys planned for short-, medium- and long-term durations, defining these time periods and also understanding the use cases to which they are best suited.

Table 3.6 Advantages and Disadvantages of Different Time Durations and Associated Use Cases

Duration	Use Cases	Advantages	Disadvantages
Short-Term (3–5 years)	Acute health impacts or interventions Rapidly changing health conditions	Lower cost Easier participant retention Quick results	Limited ability to observe long-term trends May miss chronic disease progression
Medium-Term (5–10 years)	Moderate-term health changes Environmental or policy impacts Mental health trends	Captures meaningful changes Balances cost and data quality	May still miss full progression of chronic conditions
Long-Term (10–20+ years)	Chronic disease progression Ageing and generational health changes Long-term environmental impacts	Comprehensive data Tracks full health trajectories over time	High cost Risk of participant attrition Requires sustained funding and resources
Walleys Quarry Longitudinal Health Survey Recommendation: 10 years			
	• <i>Balances long-term impacts of environmental exposure with practical challenges such as retention and funding.</i> • <i>Captures chronic disease progression and mental health changes over time.</i>		

Survey Design

- 3.4.20 As with any other type of survey, various methods can be employed for the longitudinal health survey, each of which have different advantages, disadvantages or benefits relating to particular use cases for which they are being designed (for example different response rates, costs, appropriateness for particular target populations). The principal methods, together with the main advantages and disadvantages, are summarised in Table 3.7 overleaf.

Table 3.7 Survey Methodologies, Advantages and Disadvantages

Survey Method	Pros	Cons
Online survey (tools include e.g. SurveyMonkey, Microsoft Forms)	• Presentable questions • User friendly form / simple to create and design • Data analysis is simple, easily accompanied by visual analysis (e.g. graphs) • Cost effective and scalable • Ability to incorporate multimedia content • Scope to include automated reminders and real-time data collection	• Depending on software available to SCC there may be costs associated with multiple account users or high response numbers • No certainty that the survey has been sent to the right people • Little control over who can respond (e.g. forwarding of survey to others), with potential data skews as a result • Potential data security concerns • Requires internet access and digital literacy by participants – target population includes older people for whom this may not be the case
Survey via the Council's website	• Within SCC control as to who can complete the survey (and how many times) with an address lookup • Cost effective as not paying an external party or subscription • Data is secure and respondents likely to feel more confidence in survey purpose • Data analysis likely to be automated (to an extent) • Likelihood of a higher response rate	• Communication of the survey could be challenging • May be dependent on the features of SCC website, likely internal IT resources needed to create (not just immediate project team) • Could require manual data handling
Telephone surveys	• Maintains personal engagement • Enables clarification of questions in real-time • Reaches populations without internet access	• High labour cost • Limited to verbal responses • Risk of low response rates due to call screening (again particularly the case with older populations who may be more wary of cold calls / unknown callers)
Face to face interviews	• Likely to result in high-quality data with observed non-verbal cues • Builds rapport with interviewee – may be beneficial to reduce dropout rate / participant retention • Suitable for complex surveys or physical assessments	• Expensive and time-consuming • Potential to be logistically challenging • Risk of attrition if participants move or are unavailable

Survey Method	Pros	Cons
Postal survey	- Tailored to specifically reach the homes / individuals included in the survey - Accessible to populations without access to the internet or telephone - Participants are able to complete the survey at their own pace	- Would result in need for manual data entry - Potentially more costly – postage costs as well as resource costs for survey materials and analysis work - Lower response rates typically expected from postal surveys
Mobile app-based surveys	- Real-time data collection - Engages participants with notifications/gamification - collects passive health data (e.g. from wearable devices)	- Requires smartphone access and technical proficiency, so may not be suited to all target populations - Data security/privacy concerns - Risk of app fatigue
Clinic-based data collection (i.e. participants visit specific locations such as a community centre or health centre to complete surveys)	- Enables collection of objective health measures (e.g. blood pressure), although not likely to be relevant to Walleys Quarry survey - High data quality - Builds trust with personal interaction	- Expensive and logistically demanding - Might be limiting for participants who live further away from the centre - Risk of dropout due to travel inconvenience
Mixed-mode surveys (combines multiple methods for data collection)	- Increases accessibility - Reduces attrition with flexible response options - Compensates for weaknesses of individual methods	- Requires careful coordination - Potential to be more resource-intensive - Risk of response variation depending on method used
Administrative and linked data (combines survey responses with health records or administrative data e.g. NHS records). This approach taken by e.g. Understanding Society study.	- Reduces participant burden - Provides richer datasets with objective health outcomes - Has the potential to track participants even after dropout	- Requires complex data governance and ethical approval - Privacy/consent issues may limit participation

Participant Recruitment

- 3.4.21 Residents will need to be recruited to participate in the survey. This can be through methods such as letters, phone calls, or in-person visits. Consent from potential participants is critical, and ethical guidelines (e.g. GDPR compliance) must be followed. Incentives (e.g. vouchers or small payments) may be used to encourage participation and retention.

Retention and Replacement Strategies

- 3.4.22 Since longitudinal surveys involve repeated follow-ups, maintaining participant engagement (and thereby reducing the attrition or dropout rate) is crucial. Strategies include:
- Regular communication with participants through newsletters or other updates
 - Use of flexible data collection methods (e.g. mixed mode methods comprising online, phone, in-person methods). This can help retain interest in the survey over time
 - Building trust and demonstrating the value of participation – what are the outcomes / benefits. For Walleys Quarry, it is anticipated that there will be widespread community buy-in to a longitudinal health survey – the idea has come from within the community and there is community interest and concern about potential long-term health impacts associated with odour emissions.

Case Study: UK Biobank

The UK Biobank is one of the most successful longitudinal health surveys, and its participant recruitment and retention strategies have provided a blueprint for conducting large-scale studies. Launched in 2006, the UK Biobank aimed to collect health-related data from 500,000 participants aged 40-69 across the UK to study the interplay of genetic, environmental, and lifestyle factors in disease development. UK Biobank utilised a direct invitation system by collaborating with the NHS; eligible participants were identified through NHS records and invited via personalised letters emphasising the study's importance for advancing public health. The invitation highlighted the altruistic nature of participation, appealing to individuals' desire to contribute to medical research. Recruitment centres were strategically placed across the country to ensure accessibility, and flexible appointment scheduling accommodated participants' needs.

To maintain long-term engagement, UK Biobank invested in proactive communication strategies. Participants received regular updates on the study's progress and findings, fostering a sense of contribution and shared purpose. The study also evolved to include new data collection methods, such as follow-up questionnaires, wearable devices, and imaging studies, which kept participants engaged while minimising inconvenience. Ethical considerations, such as ensuring confidentiality and transparency, further reinforced trust and long-term commitment.

Case Study: The Avon Longitudinal Study of Parents and Children

ALSPAC utilised local networks, including healthcare professionals and prenatal clinics in the Avon region, to recruit pregnant women. The study emphasised its long-term societal benefits. Clear, engaging communication and the provision of free health assessments for mothers and babies helped boost enrolment.

To maintain engagement, ALSPAC prioritised regular communication, including newsletters and updates on the study's progress. Participants were offered personalised health insights and involved in additional sub-studies over time. Flexible scheduling of follow-ups and the use of diverse data collection methods helped sustain retention. ALSPAC remains one of the most successful longitudinal studies, producing valuable insights into health across generations.

Case Study: Shropshire Schools Survey

A local initiative designed to gather data on the health, wellbeing, and behaviours of school-aged children across Shropshire. Participation is typically coordinated through schools, which are invited to take part voluntarily. Recruitment involves engaging school leadership teams and teachers, emphasising the survey's importance in shaping local policies and interventions to support young people. Students complete the survey during school hours, ensuring accessibility and convenience. The approach benefits from being embedded within the school setting, encouraging high levels of participation among pupils. However, voluntary participation means not all schools are involved, which can lead to gaps in representation. Recruitment efforts may also face challenges in engaging schools with limited resources or competing priorities. While the approach is practical and effective within schools, it may miss certain groups of young people, for example children outside formal education, such as those who are home-schooled or excluded.

3.4.23 Common retention features in UK studies include:

- Regular communication with participants – consistent updates (e.g. newsletters, emails) to keep participants informed and engaged; personalised messages and reminders reinforce the participant's importance to the study.
- Use of incentives, e.g. small financial rewards or vouchers, personalised gifts, or access to health data are often used to retain participants.
- Participant-centric approach - emphasising the value of participants' contributions (likely to be a positive aspect of the approach for a Walleys Quarry survey).
- Community engagement – hosting events, workshops, or meetings to engage participants and create a sense of belonging to the study. Building trust in this way would be particularly important for a study relating to health impacts associated with Walleys Quarry, helping communities feel they are being listened to and fostering long-term relationships.
- Flexibility – offering multiple modes of participation (e.g. online, phone, in-person) to accommodate participants' preferences and life changes is proven to reducing attrition rates.
- Tracking and re-engagement – proactively updating contact information and reaching out to participants who miss follow-ups.
- Feedback and results sharing, providing participants with personalised health reports or summaries of study findings to demonstrate tangible benefits. Providing feedback to participants in this way has been proven in other studies (e.g. UK Biobank) to be a strong motivator for people to stay involved.

Ethical Approval and Data Compliance

- 3.4.24 There are several key aspects to ensure the study complies with ethical standards and protects participants. First, informed consent is critical; participants must fully understand the purpose, duration, risks, and benefits of the study, as well as their right to withdraw at any time. For surveys involving vulnerable groups, such as children or individuals with disabilities, additional safeguards must be in place, including parental or guardian consent. Data protection and confidentiality are paramount, particularly for sensitive health information, requiring robust measures to secure participant privacy in line with UK GDPR regulations. Longitudinal studies must account for the ongoing nature of consent, ensuring participants are kept informed about the study's progress and any changes. Ethical considerations also include ensuring appropriate support for participants experiencing distress (for example providing counselling or referrals for participants with identified physical or mental health conditions) and addressing potential biases in sampling or recruitment. Approval should be sought from an accredited research ethics committee.

3.5 Summary of Suggested Approach and Defining Success

- 3.5.1 The previous section has outlined the various steps and stages in developing a longitudinal health survey for the community in the vicinity of Walleys Quarry; as will have been seen there are many options to be considered in terms of approach and methodology. Table 3.8 summarises the suggested approach in relation to specific aspects which has then been used as a basis for identifying indicative costs and timescales as practical next steps.

Table 3.8 Summary of Suggested Approach for a Longitudinal Health Survey

Aspect	Suggested Approach
Approach to longitudinal assessment – the same or different individuals	The rationale for the longitudinal health study is to enable causation, risk factors, and disease progression to be studied as well as the identification of relationships between exposures (e.g. lifestyle, environment) and outcomes (e.g. health conditions). Surveying the same individuals over a period of time would provide more accurate information for this purpose.
Survey method	Highest level of success most likely to be associated with a multi-mode survey dissemination / method – online self-completion components combined with telephone interviews to reduce self-completion bias / inaccuracy and extend success rates.
Sample size	Approximate sample size of 476 individuals (rounded to 500 individuals for simplicity at this stage). Sample to be divided across nine wards within the vicinity of Walleys Quarry, with sample size stratified to include higher proportions from wards closer to the former landfill site. Sample also stratified according to groups of interest (families with children, older people and people with pre-existing health conditions).
Control cohort	No separate geographic control cohort identified; assumed that control mechanisms can be incorporated into the survey sample through consideration of exposure levels to odour emissions from the landfill site. Further comparative analysis can be provided annually through review of regional (Staffordshire) and national (UK) health and socio-economic data.
Survey duration and timescales	Baseline survey of individuals undertaken in Year 1, with repeat surveys undertaken annually for a duration of ten years to identify longer-term physical and mental health impacts.
Data Analysis	Use statistical and spatial analysis to: • compare health outcomes between case and control groups (noting mechanisms for identifying control cohort described above) using multivariable regression models • adjust for potential confounders such as age, gender, socio-economic status, lifestyle / smoking habits • analyse trends in health outcomes over time • use spatial analysis to correlate health outcomes with proximity to landfill site / exposure information and use GIS to map hotspots for health concerns.

Defining Success

3.5.2 Consideration has been given to what 'success' might look like for the survey. This can be expressed in various ways including:

- **High participation and retention rates** across the target population group and sub-groups, thereby ensuring robust, representative data over time, and minimising bias.
- Collecting **accurate, high-quality data** on health behaviours, outcomes, and determinants, enabling **meaningful analysis** of trends and causal relationships.
- The **community feel reassured** by a robust approach taken to health monitoring over time. **Trust is built** between the community and partner organisations – community concerns are heard and have been acted upon. Feedback of high-level survey findings will be an important element of maintaining trust – this is where context may be particularly valuable from a control cohort or aligning with change of time in the Staffordshire or England populations to ensure the community understands what survey findings mean. There may be some scepticism initially amongst members of the public about the study's purpose or in relation to transparency of feedback / survey findings.
- Potential to **identify areas for intervention**, leading to improvements in public health services. Engaging stakeholders, such as healthcare providers, policy makers, researchers (e.g. Keele University) to **actively use the findings in decision-making** or as a basis for further research.

3.6 Practical Next Steps – Resource Implications

3.6.1 Table 3.9 sets out the main elements of establishing the Walleys Quarry Longitudinal Health Survey (Year 1 set-up).

Table 3.9 Summary of Main Cost Elements for Walleys Quarry Longitudinal Health Survey – Year 1

Cost Element	Details	Cost Commentary
Confirmation of Approach to Survey Planning and Design	Review of contents and options set out in this report with respect to a longitudinal health survey, specifically in relation to confirmation of research objectives, variables, approach to sampling etc.	Potential external costs related to obtaining ethical approval from relevant board or ethics committee.
Early Engagement	Confirmation of approach and methodology with stakeholders e.g. community groups, health organisations.	Undertaken as part of ongoing community engagement approach.
Pilot Survey	Testing the survey on a smaller group of participants to refine methodology and ensure validity (e.g. 25 people – 5% of total sample)	Assume 25no. 1hr telephone interviews plus interviewer training and review sessions.
Participant Recruitment Costs	• Outreach and engagement – advertising, community engagement, and informational campaigns to recruit participants within the defined target area. Door-to-door surveys, voluntary sign-ups	Outreach, advertising and screening costs dependent on budget – low budget option e.g. £5,000, high budget option up to £15,000 Low budget option (no financial incentive) through to high budget option

Cost Element	Details	Cost Commentary
	- via social media, local community groups, and healthcare providers - Incentives – confirm approach to providing either monetary (e.g. gift cards or vouchers) or non-monetary incentives (e.g. health reports, merchandise such as water bottles) to encourage participation and reduce attrition over time. - Screening of potential participants – verifying eligibility of participants, which may involve initial health assessments or consultations.	(nominal £25 incentive cost per participant, based on assumed 500 participants, i.e. £12,500)
Data Collection Costs	- Resource costs associated with interviewers, supervisors, and other staff involved in data collection. - Training costs for staff to ensure consistency, accuracy, and ethical conduct during data collection. - Data collection materials (e.g. questionnaires, software)	Assume resource costs for 500no. interviews (up to 1hr per interview) based on £20 per hour staff cost (low budget). Low budget assumes no materials costs or additional software requirements. Low budget total for data collection costs £10,000 High budget (includes external interviewers / training up to £50,000)
Data Management and Processing Costs	- Costs of entering and cleaning raw data to ensure accuracy and consistency. - Software tools for managing, analysing, and visualising data (e.g. SPSS). - Systems to audit and validate collected data, ensuring reliability. - Secure storage solutions, especially for sensitive health data, which may require specialised servers or cloud solutions.	Staff cost relating to data entry and analysis. Low budget assumes no cost required for data management or storage systems. Low budget £10,000 High budget up to £40,000
Year 1 Reporting	- Produce Year 1 Report (Baseline). - Review whether survey amendments are required / seek feedback from participants. - Establish processes and procedures for repeat surveys Yr 2 onwards.	Reporting and review costs assumed to be minimal (up to £5,000 depending on staff resource).

3.6.2 Ultimately, costings will depend on the approach decided upon by SCC / partner organisations and resources available (e.g. utilising SCC staff resources; application for grant funding to cover survey preparation and costs; or out-sourcing key tasks to a third party or similar).

3.6.3 However to aid this process:

- a low-budget estimate for **Year 1 set up and survey costs** is considered to be in the **range of £35,000 to £50,000**.
- for a more extensive survey (for example using external resources and application of financial incentives to ensure participation), a higher budget estimate would likely **exceed £100,000**.

3.6.4 For both options there are likely to be contingencies required, for example in relation to software requirements / data management. Estimated costs associated with repeating the survey in subsequent years (assuming that this is with the same individuals) are summarised in Table 3.10.

Table 3.10 High-level Costs Associated with Subsequent Survey Years

Element	Details	Estimated Cost (£)
Annual revisit / set-up / data collection, analysis and reporting	Similar to for Year 1 minus survey planning / design costs and minus participant recruitment costs.	Low budget £30,000 High budget £75,000
Annual Participant Retention Costs	• Costs to maintain participant engagement over time, such as regular communication, updates, or additional incentives: - Reminders and updates – sending periodic reminders about upcoming follow-ups via emails, phone calls, text messages, or in the post. Consider personalised communications where possible). Newsletters (printed or digital) to inform participants about the study's progress and findings. More frequent contact increases costs but can improve retention. - Dedicated communication channel – e.g. setting up a helpline or email address for participants to ask questions or provide updates regarding their availability. - Contact maintenance – regularly updating contact information for participants to ensure effective communication (e.g. verifying phone numbers, addresses, and emails). - Ongoing incentives – monetary or non-monetary approach at each follow-up point. - Engagement – e.g. hosting events such as workshops, webinars, or community gatherings to maintain participant interest. - Feedback – mechanisms by which participants can provide feedback on their experiences during the	Low budget assumes no incentive payments, notional budget attached to newsletter preparation / managing communication channel (£5,000 per annum) High budget assumes £12,500 annual incentive payment (based on £25 per participant) in addition to communications as above

survey and implementing changes based on participant feedback to improve satisfaction (thereby informing learning for future survey years).

- Conducting surveys to understand why participants dropped out and adjusting strategies accordingly.
- Vulnerable populations (e.g., elderly, low-income) may require additional support to ensure retention.

3.7 Practical Next Steps – Timescales for Implementation

- 3.7.1 In terms of timescales for implementation, Figure 3.3 provides an indicative suggestion for Year 1 survey set-up and undertaking the baseline survey. Extended periods have been included for the participant recruitment stage as this could be time-consuming to identify, select and screen appropriate participants.

Figure 3.3 Timescales for Survey Set-up Year 1

Task	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7
Detailed Survey Design							
Pilot Survey							
Participant Recruitment							
Year 1 Survey							
Data Processing							
Year 1 Reporting							

- 3.7.2 Subsequent annual surveys could be built around a regular cycle – e.g. May / June review and preparation stage followed by a September / October survey stage and culminating in reporting prior to the end of the year. Establishing a routine process and timescales by which the surveys would be updated and progressed helps with participant retention (people know what to expect and when) and also provides consistency of factors that might affect people differently at different times of the year (for example avoiding winter months and July / August for undertaking surveys due to how people feel and / or availability).

4 Continued Community Engagement

- 4.1.1 The Community Steering Committee (CSC) proved to be an effective vehicle during the preparation of the Community Impact Study as a mechanism by which we could discuss impacts of odour emissions over time. The Terms of Reference established for the CSC included that the group would not only play a role in the development of the Community Impact Study, providing input to key stages of the project, but that it would also be a consultative forum providing Staffordshire County Council and their partner organisations with community feedback on planned community engagement activities.
- 4.1.2 Across the three CSC meetings held during the period of the initial commission, discussions focused on engagement that had taken place with the community by individual partner organisations over time, what had worked well / not so well, and what opportunities there might be for improvement. The importance of ongoing effective community engagement is likely to be emphasised by both the continued odour emissions from the landfill site (noting that there had been some improvement in recent weeks, but that in January 2025 there were over 4,500 complaints to the EA in a single week as a result of the smell), the recent liquidation of Walleys Quarry Ltd and associated uncertainty about next steps beyond the short-term actions identified by the Environment Agency, and also the fact that the Walleys Quarry Liaison Committee has effectively stopped in its current form since the liquidation of Walleys Quarry Ltd.
- 4.1.3 The Community Impact Study recommended that the CSC should continue in some form to act as a conduit between SCG partners and the community, potentially advising on mechanisms for ongoing engagement. As part of the additional work, we have considered what options might be available for ongoing community engagement, including exploration of opportunities for continuation of the CSC.

4.2 Options

- 4.2.1 The various options for ongoing community engagement are summarised in Table 4.1.

Table 4.1 Options for Ongoing Community Engagement

Option	High-level Description
Option 1	Partner organisations e.g. SCC, NuLBC, EA are individually responsible for community engagement relevant to their areas of interest. Feedback takes place via the SCG. The CSC established for the purposes of the Community Impact Study is disbanded.
Option 2	Community engagement is co-ordinated by a lead partner organisation (e.g. NuLBC). Other partners undertake community engagement relevant to their areas of interest but as part of an overall co-ordinated strategy. Feedback takes place via the SCG. The CSC established for the purposes of the Community Impact Study is disbanded.
Option 3	The Community Steering Committee is retained / adapted for use as a vehicle to support ongoing community engagement (e.g. sense-check approaches, disseminate information, community mouthpiece). The CSC operates independently; link to partner organisations via the Chair / Secretary of the CSC.
Option 4	The Community Steering Committee is retained or adapted for use as a vehicle to support ongoing community engagement (e.g. sense-check approaches, disseminate information, community mouthpiece). Formal support is provided to the CSC by one or more partner organisations to assist with effective operation (e.g. secretariat support, meeting facilitation).

- Option 5 Additional community representation is sought from the Community Steering Committee attendees to join a rebranded 'Walleys Quarry Liaison Committee' to act as additional community representatives and this is used as the main conduit for community engagement. This format would enable organisations to provide information and discussion regarding the site moving forward; attendees would include representation from organisations such as the UKHSA.
-

Table 4.2 Summary Table for Community Engagement Options

Option	Strengths	Weaknesses	Lead Partner
Option 1 – Partner organisations e.g. SCC, NuLBC, EA are individually responsible for community engagement relevant to their areas of interest. Community Steering Committee disbanded.	- Organisations play to their strengths and communicate information relevant to their technical areas. - Residents understand where and how to engage with organisations currently (e.g. EA webpage) and are familiar with processes.	- No co-ordinated approach to community engagement. Engagement activities likely to be <i>ad hoc</i> e.g. public meetings, online engagement. - Risk of key, overarching messages being lost or weakened. - Frustrations may arise in relation to consistency of messaging/frequency of engagement. - Perpetuates existing perceived weaknesses by the community in terms of trust and information sharing. - Resource implications of community engagement may affect individual organisations differently and result in different levels of engagement.	No lead partner – organisations act individually
Option 2 – Community engagement is co-ordinated by a lead partner organisation. Community Steering Committee disbanded.	- An overarching communication strategy across partner organisations / SCG helps to develop consistency of approach and messaging to the community. - A visible lead partner organisation inspires community trust. - Organisations play to their strengths and communicate information relevant to technical areas. - Residents understand where and how to engage with organisations currently (e.g. EA webpage) and are familiar with processes.	- Although more co-ordinated, there is a risk that engagement does not align with community needs, focus likely to remain on information-sharing at key points. - Perpetuates existing perceived weaknesses by the community in terms of trust and information sharing. - Resource burden placed on a single organisation to act in co-ordination role.	SCG identify a lead organisation to co-ordinate cross-partner community engagement activity
Option 3 – the Community Steering Committee is retained and adapted for	- Independent voice for the community. - Continuation of the group which would enable partner organisations to engage directly with community representatives as required.	- How does the independent voice differ from current community groups (e.g. Stop the Stink). - Perceptions that the CSC does not appropriately represent the community as a whole / no stakeholder organisation representation.	Partner organisation identified to act as main link with the CSC

Option	Strengths	Weaknesses	Lead Partner
use as a vehicle to support ongoing community engagement. The CSC operates independently / no formal support provided.	- CSC can be adapted to be more representative of the community (cross-section geographically, demographics, organisations, voice). - CSC would be able to advise on engagement gaps, methods and opportunities. - Able to gather and communicate community issues direct to partner organisations. - Potential for longer-term engagement as the situation evolves e.g. route to discuss wider community concerns, site restoration stages / end-uses.	- Wider community awareness required as to the presence and role of the CSC otherwise it will not be able to truly 'represent' the community. - Some resource implication likely for partner organisation. - Negative perceptions as to the role of the CSC – talking shop / protest group / role and purpose. Need for clarity as to purpose and function of the group. - Challenge around longevity / sustainability of group without formal mechanisms or support from partner organisations.	
Option 4 – The Community Steering Committee is retained and adapted for use as a vehicle to support ongoing community engagement. Formal support provided by a partner organisation.	- Creation of a more formal mechanism by which partner organisations can engage directly with community representatives. - CSC can be adapted to be more representative of the community (cross-section geographically, demographics, organisations, voice). - CSC able to advise on engagement gaps, methods and opportunities. - Potential to generate trust in partner organisations by enabling greater access and transparency / information-sharing (but acknowledging there will still be restrictions). - Potential for longer-term engagement as the situation evolves e.g. route to discuss wider community concerns, site restoration stages / end-uses.	- Option will only be effective if the CSC is perceived to appropriately represent the community as a whole. - Wider community awareness required as to the presence and role of the CSC otherwise it will not be able to truly 'represent' the community. - Negative perceptions as to the role of the CSC – talking shop / protest group / role and purpose. Need for clarity as to purpose and function of the group. - Resource implications associated with facilitating and supporting an adapted CSC e.g. secretariat role. - Additional resource implications for NULBC if managing and facilitating CSC and also a rebranded WQLC meeting if that continues in some form.	NuLBC most appropriate organisation to manage and facilitate the CSC
Option 5 – Additional community representation is sought for a	- Revised structure which has representation from the community and partner organisations. - Perception of group likely to be improved following dissolution of WQLC and rebranding of group in new guise.	Identification of new community members could be difficult due to perceptions of the WQLC, but scope to overcome as further information about liquidation and the purpose of the new group is understood amongst the community.	Likely to be NULBC

Option	Strengths	Weaknesses	Lead Partner
rebranded Walleys Quarry Liaison Committee.	• Enables direct communication with the operator. • No additional resource implications. • Engagement and commitment for meeting from organisations/existing members. • Other advantages may be similar to those identified for Option 4 now that WQL no longer involved in the Committee due to liquidation (e.g. potential to generate trust in partner organisations).	• Small numbers means that not likely to be representative of community views without wider community mechanism.	

4.3 Further Exploration of Options 4 and 5

- 4.3.1 Options 1 and 2 do not rely on the creation or continuation of a community organisation. Option 3 is considered unlikely to be a viable option as an effective community engagement in this guise as it is unlikely to be formally recognised by partner organisations. Options 4 and 5 – retention and adaptation of the Community Steering Committee and a rebranded WQLC are explored further in this section. Aspects common to both options relate to membership, structure, potential Terms of Reference and regularity of meeting. For Option 4, there are additional considerations relating to the level of input and oversight from a partner organisation and potential resource implications. In addressing some of these points, feedback has been sought from previous members of the CSC, particularly in relation to membership and structure.

Purpose / Terms of Reference

- 4.3.2 The Terms of Reference of the Community Steering Committee identified the following purpose for the group:

'The CSC will play a role in the development of the Community Impact Study, providing input to key stages of the project including the research process and validation of key findings. In addition, the CSC will be a consultative forum that will provide Staffordshire County Council and their partner organisations with community feedback on planned community engagement activities. The CSC will comprise a cross-section of community representatives, will work to build trust with partner organisations, develop consensus where possible and help to inform ongoing monitoring and mitigation associated with the Walleys Quarry site.'

- 4.3.3 In extending the remit of the CSC beyond the Community Impact Study, the purpose of the group would become more focused on the **consultative forum aspect**, enabling local residents to **raise issues** and **discuss the impacts** of the site. The CSC would help to **co-ordinate resident's views and questions** to the local authority / EA / other partner organisations as relevant about current and future issues and opportunities (e.g. ongoing monitoring, next steps for the site / restoration). Attendance at group meetings by representatives of partner organisations (in an information-sharing capacity) would also be important. Note that for Option 4, this would be an additional meeting for partner organisations.

- 4.3.4 A revised Terms of Reference could therefore include the following purpose for the group:

'The CSC will be a consultative forum comprising a cross-section of community representatives. The group will co-ordinate the views and questions of local residents as they relate to Walleys Quarry and provide a forum at which residents can raise issues and discuss potential concerns about the site. The group will provide informal advice to organisations such as Staffordshire County Council, Newcastle-under-Lyme Borough Council, the Environment Agency and others as to opportunities for meaningful community engagement. The CSC will work to help build trust with decision-making organisations, develop consensus where possible and help to inform ongoing monitoring, mitigation and future restoration activities associated with the Walleys Quarry site.'

- 4.3.5 Other important aspects of the Terms of Reference would relate to conduct of the group, including for example:

- The Committee will be quorate when five Committee members are present. Meetings will not be open to the general public, either in whole or in part.
- The Chair will schedule the dates / timings of meetings.

- The Chair will prepare an agenda in advance for each meeting, seek input from CSC members to the agenda, and confirm individual agenda items at the start of each meeting.
 - The agenda and any relevant papers for the meetings will be sent out to attendees a minimum of one week in advance. Notes of any action points shall be taken at all meetings and will be circulated to those present for agreement.
 - The Committee will operate solely in an advisory and consultative capacity, to enhance knowledge and understanding. For the avoidance of doubt the Committee has no power to make decisions on behalf of partner organisations.
 - It is expected that positive participation and a collaborative approach is taken to meetings.
- 4.3.6 The group should ideally be set up on a task and finish basis, so that it can clearly identify that it is separate from, and not in competition with or influenced by, existing community groups and democratic processes.
- 4.3.7 From the previous CSC meetings it was evident that the members of the group wanted to be involved in writing / developing the terms of reference. It is recommended that draft Terms of Reference are placed on the agenda of the first meeting and scrutinised / agreed by all members to ensure buy-in.
- 4.3.8 Given the emotive nature of the issues surrounding Walley's Quarry, there would also be benefit in the group jointly producing a **set of shared values** to ensure an inclusive and coherent process is adopted. The Nolan Principles are a good starting point for discussion (these have statutory effect in s28(1) of the Localism Act 2011) and cover:
- selflessness
 - integrity
 - objectivity
 - accountability
 - openness
 - honesty
 - leadership.
- 4.3.9 The committee would need to decide how conflicts of interests are dealt with. This would normally involve identifying the conflict of interest and the person or persons affected and taking steps to ensure they are not involved in discussion on the subject of the conflict.

Membership

- 4.3.10 Membership of the Community Steering Committee was identified through a screening process to ensure selection of a range of individuals from the various residential areas surrounding the Walleys Quarry landfill site. Through the online survey circulated as part of the Community Impact Study, around 60 people initially expressed interest in being members of the Committee; respondents were contacted to ask basic details including road / area within which they lived and whether they were affiliated to a particular community group (e.g. Stop the Stink or other). This information was subsequently used to draw up a potential short-list of CSC candidates who were then approached to confirm whether they would still be interested. A group of 12 people were selected and met on three occasions across the duration of the original commission.

4.3.11 The potential future role of the CSC was discussed at the third meeting and members have also been approached as part of the current exercise to understand appetite and opportunity for continued community engagement. In terms of membership, CSC members have broadly considered that representation of the CSC could be expanded from the current 12 members to include other interested parties such as:

- representatives from GP surgeries
- local MP
- local councillors from different political parties
- headteachers / representatives from schools
- local businesses.

4.3.12 To ensure effective working relationships (too many people can reduce effectiveness and be difficult to manage) it is recommended that the CSC should comprise no more than **20 people** at any one time. Note that for Option 5 (a rebranded WQLC) the number of people is likely to be considerably fewer.

4.3.13 Representatives from decision-making organisations such as NuLBC, SCC, the EA and the UKHSA should be invited as appropriate to attend meetings in order to build relationships with the community directly, share information and respond to queries / concerns. Meaningful input and engagement from these organisations will be imperative to show commitment, help individual agencies understand how their work is being received by the community and developing trust.

Frequency and Timing of Meetings

4.3.14 The frequency of meetings needs to achieve the right balance between usefulness and burden. Meetings too frequently will likely result in members dropping away due to burdensome time commitments and too infrequently will prevent relationship-building and momentum. An appropriate balance is considered to be quarterly (although there is benefit also in holding two meetings within 6 weeks of each during the first quarter to establish the group and working structures etc.). To suit availability, meetings will most likely be during early evening and at a convenient, regular location (e.g. Newcastle-under-Lyme Fire Station has proved to be an appropriate, accessible location that the majority of people can easily get to).

Input and Oversight from a Partner Organisation

4.3.15 Options 4 and 5 are similar in terms of how the community organisation could be structured and in turn the level of involvement from partner organisations. Both options would be structured such that formal support is provided by a partner organisation (likely NuLBC). This could involve secretariat support (for example scheduling meetings, organising venues, assisting with agenda and minute circulation) in addition to regular attendance by a representative of the supporting partner organisation and then ad hoc attendance at meetings by representatives of other partner organisations as required.

4.3.16 Advantages and disadvantages of partner organisations providing formal support to the CSC include:

- Resources from the Council may enhance the organisation's capacity and credibility, encouraging further partnerships and community engagement.
- Potential to foster awareness and education about wider concerns and issues.
- Dependency on funding or resources may make the group vulnerable if support is reduced or withdrawn.

- Potential for misalignment with CSC goals or objectives due to influence of political or national priorities.

4.3.17 The most appropriate partner organisation to provide formal support is likely to be **NuLBC**, simply because of the focus of the local authority on community-level engagement. If Option 4 were selected, it is noted that NuLBC would likely have a duplicate role with the CSC and a rebranded WQLC, which is unlikely to be acceptable from a resource perspective.

Potential Resource Implications

4.3.18 Resource implications are summarised in Table 4.3.

Table 4.3 Potential Resource Implications Associated with Support of CSC

Resource Type	Description	Indicative Level of Resource
Start-up	Initial resourcing to establish CSC e.g. invitation / screening process for new members / communication materials as part of the process of expanding the CSC / screening potential candidates.	Staff resource – 5no. staff days £1,500 communication materials
Financial Support	Funding to cover administrative costs.	Low (<£500 per annum)
Physical Space	Meeting venues or facilities for community activities and events. Assume these would be in the Fire Station (and free of charge therefore to community groups, but included should this change or an alternative venue be sought).	Low / Not required
Staff Resource	Attendance at meetings as appropriate (quarterly)	Attendance - 4no. 2hr meetings per annum (6no. in Yr1) Preparation and follow-up – 1day per quarter
Materials (e.g. stationery, refreshments)	Costs of administrative materials should this be necessary, although focus on paper-free and resource-light.	Low (<£500 per annum)
Training and Development	Opportunity for capacity building of members of the CSC if required. Unlikely to be a feature of the group but may be potential in the longer-term.	Not required in short- to medium-term
Marketing and Communication	Support for raising awareness, promoting activities, and engaging the community effectively should this be required	Nominal resource e.g. annual leaflet drop to 5,000

	(e.g. leaflet distribution if it was appropriate for this to be administered via the CSC themselves).	households (approx.) £1,500
Community Engagement	Resources to encourage participation, gather feedback, and ensure inclusivity within the group.	Assumed to form part of earlier staff resource row

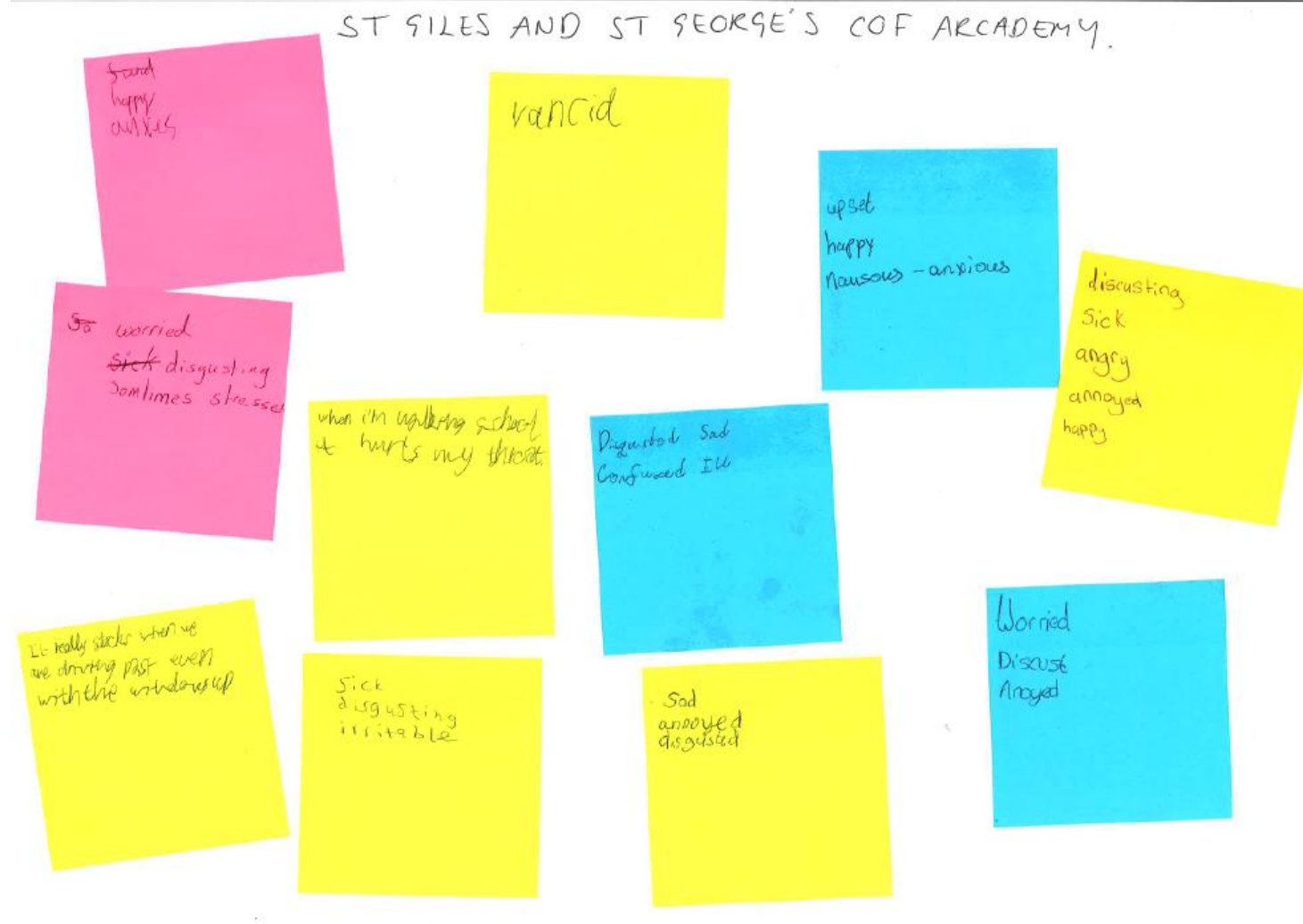
5 Summary

- 5.1.1 This report has built on aspects of the Community Impact Study prepared in relation to the Walleys Quarry Landfill site in 2024, specifically in relation to undertaking further analysis and engagement around the impacts of Walleys Quarry on young people and education; exploration of approaches to developing a longitudinal health survey (one of the recommendations in the Community Impact Study) and finally considering opportunities for ongoing engagement. The report has been prepared in the midst of changing circumstances, notably the recent announcement of Walleys Quarry Limited entering liquidation. Whilst this does not affect the sections relating to education and the longitudinal health survey, it has an impact on potential opportunities for ongoing community engagement and the report has endeavoured to reflect this in the options proposed.
- 5.1.2 In relation to young people and education, the analysis of attainment and absence data for schools within 1km of the landfill and benchmark schools further away did not find any clear evidence linking proximity to Walleys Quarry with poorer school performance or attendance rates. However, several broader factors, such as post-COVID-19 behavioural changes and socio-economic conditions, were identified as potential contributors to variations in outcomes.
- 5.1.3 Engagement sessions with students and teachers revealed significant emotional, physical, and social impacts. Pupils expressed strong feelings of sadness, frustration, and helplessness about the landfill's odour, which they described as disruptive to their daily lives and outdoor activities. Teachers shared concerns about health symptoms, such as asthma and itchy eyes, which they believed were linked to the odour. The odour was also reported to affect social interactions, household activities, and mental well-being, with students noting embarrassment about hosting friends or family. Many expressed frustration over the lack of visible action to address the landfill's impacts, despite community protests.
- 5.1.4 The report has reviewed various options and approaches informed by best practice to prepare a longitudinal health survey which monitors the long-term physical and mental health impacts on residents in the vicinity of Walleys Quarry. Recommendations have been made in relation to optimum timespan for the survey, participant numbers, recruitment options, research objectives and survey methodology. Low and high budget cost options have been identified both for Year 1 survey set up and survey period, and for repeat surveys during subsequent years.
- 5.1.5 Finally, the report has considered options for ongoing community engagement, following on from the establishment of a Community Steering Committee as part of the initial Community Impact Study work. The importance of continued engagement particularly during the short- to medium-term, given the changing circumstances at Walleys Quarry with WGL entering liquidation, has been noted. A preferred approach revolves around potentially rebranding the Walleys Quarry Liaison Committee and incorporating attendance from the CSC to provide renewed vigour, appropriate representation and a fresh start. Resource requirements are relatively minimal but success will depend on building trust, ensuring inclusivity, and maintaining transparent communication.

Appendix A

Post-It Notes Comments Collated During School Engagement

Appendix A 1 Comments from Year 6 pupils from St Giles and St George's CoE Academy on their feelings about Walleys Quarry landfill



Post-It Notes Comments Collated During School Engagement

Appendix A 2 Comments from Year 6 pupils from Westlands Primary School on their feelings about Walleys Quarry landfill

disgusted
happy its closed
up setting

- Disgusting
- Sick
- Thanks for closing it

The
3 words are:

- Horrible
- I am glad it is closed.
- It hurts my family.

Thank you for closing it.
Happy
~~disgusting~~ awful

The words I feel
about Walley's
Quarry:

- disgusted
- annoyed
- wants to cover my nose

Angry
Happy Its closed
Disturbed

Post-It Notes Comments Collated During School Engagement

Appendix A 3 Comments from Year 5 and Year 6 pupils from Knutton St. Marys CoE Academy on their feelings about Walleys Quarry landfill

Knutton

gives me a headache
horrible
disliking

Disgusted
Juries
SICK

Disgusted
horrible
~~sick~~
ill

1. Disgusted
2. sick
3. lazy

Sick, Horrible,
Dizzy.

Disgusted,
Sick, horrible

Monstrous
Disgust
Headache

Sick and Disappointed
bored.

Disappointed
Sick feel
Bored

roving
Said
sick

it's some like
should
6 - piece chris
M.C. nigg

Post-It Notes Comments Collated During School Engagement

Appendix A 4 Comments from St. John Fisher Catholic College Eco Stewardship group (pupils and teachers) on how young people can be involved in the landfill issue

St John Fisher Catholic College

Reuse plastic or
reduce plastic uses

reduce plastic that's
in everyday things
like swapping plastic
fruit bags to
wood ones.

- Trying to change the
smell of it like
get rid of it.

- Trying to get rid
whatever smell that
harmful friend can
allow to walk again.

HAVE MORE
FREE RECYCLING
LIKE GARDEN
WASTE, TWO
BINS FOR PAPER
ETC.

I believe that ^{IDS} you
could possibly move
it somewhere that
does not have
houses or schools near.
So then people will
not be affected.
You should be able
to have a free
brown bin for text etc..

- Build the Quarries in remote
areas
- Manage the Quarries properly

- I think I am good
with people and have
good people skills so
I can talk to the people
who live near them and
ask them about how
they want to change and
what changes should be
made because they generally
know more and have knowledge

By ~~separating~~ separating
plastics from the other
stuffs and reduce
plastic uses for
the good environment

~~Don't litter~~
I think we should
stop littering.

Protest
to spread
awareness.
maybe make a
newspaper about
it.

For the
Environment
Agency to
enforce their
powers.

Don't litter it bad
for environment

Appendix B

Longitudinal Health Survey – Draft Questions for a Self-Completion Survey

Introductory text / preamble about the survey – its purpose, benefits, duration.

Text relating to confidentiality / GDPR / ethical considerations.

A. Demographic Information

What is your age? *(Please select the appropriate range)*

- ☐ Under 18
- ☐ 18-24
- ☐ 25-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55-64
- ☐ 65-74
- ☐ 75 or older

What is your gender?

- ☐ Male
- ☐ Female
- ☐ Non-binary
- ☐ Prefer not to say
- ☐ Other (please specify): _____

What is your ethnic background? *(Please select the option that best describes you)*

- ☐ White (e.g. British, Irish, Other)
- ☐ Mixed/Multiple ethnic groups (e.g. White and Black Caribbean, White and Asian)
- ☐ Asian/Asian British (e.g. Indian, Pakistani, Bangladeshi, Chinese, Other)
- ☐ Black/Black British (e.g. African, Caribbean, Other)
- ☐ Other ethnic group (e.g. Arab, Other)
- ☐ Prefer not to say

What is the highest level of education you have completed?

- ☐ No formal education
- ☐ Primary education
- ☐ Secondary education (e.g. GCSEs, O-levels)
- ☐ Further education (e.g. A-levels, vocational qualifications)
- ☐ Undergraduate degree (e.g. BA, BSc)
- ☐ Postgraduate degree (e.g. MA, MSc, PhD)
- ☐ Other (please specify): _____

What is your approximate annual household income before tax? *(Please select the appropriate range)*

- ☐ Less than £10,000
- ☐ £10,000-£19,999
- ☐ £20,000-£29,999
- ☐ £30,000-£39,999
- ☐ £40,000-£49,999
- ☐ £50,000 or more
- ☐ Prefer not to say

Which of the following best describes your current employment status?

- ☐ Employed full-time
- ☐ Employed part-time
- ☐ Self-employed
- ☐ Unemployed and looking for work
- ☐ Unemployed and not looking for work
- ☐ Retired
- ☐ Student
- ☐ Stay at home
- ☐ Unable to work due to disability or illness
- ☐ Other (please specify): _____

B. Health Status

How would you rate your overall health?

- ☐ Excellent
- ☐ Very good
- ☐ Good
- ☐ Fair
- ☐ Poor

Do you currently experience any ongoing health concerns that affect your daily life?

- ☐ Yes
- ☐ No

Have you been diagnosed with any of the following chronic conditions? (Select all that apply)

- ☐ Diabetes
- ☐ Hypertension (high blood pressure)
- ☐ Heart disease
- ☐ Asthma or other respiratory conditions
- ☐ Arthritis
- ☐ Chronic pain
- ☐ Other (please specify): _____
- ☐ None of the above

If diagnosed, are your chronic conditions currently being managed with medication, treatment, or lifestyle changes?

- ☐ Yes, fully managed
- ☐ Yes, partially managed
- ☐ No, not managed
- ☐ Not applicable

Do you have any physical or mental disabilities that impact your ability to carry out daily activities? (Select all that apply)

- ☐ Mobility issues
- ☐ Vision impairment
- ☐ Hearing impairment
- ☐ Cognitive or learning disabilities
- ☐ Mental health-related disabilities
- ☐ Other (please specify): _____
- ☐ None

Mental Health – WEMWBS [note that WEMWBS is **copyrighted** by the University of Warwick and NHS Scotland. Permission must be obtained prior to use and the appropriate licensing procedures followed].

Include the standard 14 WEMWBS statements, together with the Likert scale response format to ensure measurement of overall mental wellbeing across survey waves:

1. I've been feeling optimistic about the future.
2. I've been feeling useful.
3. I've been feeling relaxed.
4. I've been feeling interested in other people.
5. I've been feeling good about myself.
6. I've been feeling close to other people.
7. I've been feeling confident.
8. I've been able to make up my own mind about things.
9. I've been feeling loved.
10. I've been interested in new things.
11. I've been feeling cheerful.
12. I've been able to deal with problems well.
13. I've been thinking clearly.
14. I've been feeling like I have energy to spare.

Participants respond to each statement using a **5-point Likert scale**, indicating how often they have experienced each feeling over the past two weeks:

- 1 = None of the time
- 2 = Rarely
- 3 = Some of the time
- 4 = Often
- 5 = All of the time

Additional questions relating to context-specific mental health and wellbeing:

Thinking about the odour emissions you've experienced in the past, how strongly do they influence your current feelings about your environment?

Likert Scale: 1 = Not at all, 2 = Slightly, 3 = Moderately, 4 = Severely, 5 = Extremely

How often do you find yourself worrying about the possibility of odour emissions reoccurring in the future?

Likert Scale: 1 = Never, 2 = Rarely, 3 = Occasionally, 4 = Frequently, 5 = Very frequently

Have odour emissions affected your ability to sleep in the past two weeks?

Likert scale: 1 = Not at all, 2 = Slightly, 3 = Moderately, 4 = Severely, 5 = Extremely.

Have you felt stressed or anxious because of odour emissions in the past two weeks?

Likert scale: 1 = Not at all, 2 = Slightly, 3 = Moderately, 4 = Severely, 5 = Extremely.

Have odour emissions affected your ability to concentrate or focus on daily activities in the past two weeks?

Likert scale: 1 = Not at all, 2 = Slightly, 3 = Moderately, 4 = Severely, 5 = Extremely.

Have odour emissions affected your ability to spend time outdoors or engage in social activities in the past two weeks?

Likert scale: 1 = Not at all, 2 = Slightly, 3 = Moderately, 4 = Severely, 5 = Extremely.

C. Lifestyle and Behaviour

Do you currently smoke tobacco or use nicotine products (e.g., cigarettes, e-cigarettes, vaping)?

- ☐ Yes, daily
- ☐ Yes, occasionally
- ☐ No, but I used to smoke
- ☐ No, I have never smoked

If you smoke, how many cigarettes or nicotine products do you use per day? (Skip if not applicable)

- ☐ Less than 5
- ☐ 5-10
- ☐ 11-20
- ☐ More than 20

Do you currently consume alcohol?

- ☐ Yes
- ☐ No

If yes, how often do you drink alcohol?

- ☐ Daily
- ☐ 2-3 times per week
- ☐ Once a week
- ☐ Less than once a week
- ☐ Never

How often do you engage in moderate physical activity (e.g., brisk walking, cycling, gardening) lasting at least 30 minutes?

- ☐ Daily
- ☐ 3-5 times per week
- ☐ 1-2 times per week
- ☐ Rarely
- ☐ Never

How often do you engage in vigorous physical activity (e.g., running, aerobics, swimming) lasting at least 30 minutes?

- ☐ Daily
- ☐ 3-5 times per week
- ☐ 1-2 times per week
- ☐ Rarely
- ☐ Never

How many portions of fruits and vegetables do you eat on a typical day? (One portion = roughly 80g or a handful)

- ☐ None
- ☐ 1-2 portions
- ☐ 3-5 portions
- ☐ More than 5 portions

How often do you consume processed or fast food (e.g., ready meals, takeaway, snacks)?

- ☐ Daily
- ☐ 3-5 times per week
- ☐ 1-2 times per week
- ☐ Rarely
- ☐ Never

Do you follow a specific diet (e.g., vegetarian, vegan, keto, low-carb)?

- ☐ Yes (please specify): _____
- ☐ No

On average, how many hours of sleep do you get per night?

- ☐ Less than 4 hours
- ☐ 4-6 hours
- ☐ 6-8 hours
- ☐ More than 8 hours

Do you have difficulty falling asleep or staying asleep?

- ☐ Yes, often
- ☐ Yes, sometimes
- ☐ Rarely
- ☐ Never

Do you feel rested when you wake up in the morning?

- ☐ Always
- ☐ Often
- ☐ Sometimes
- ☐ Rarely
- ☐ Never

D. Healthcare Utilisation

How often do you visit your GP?

- ☐ Never
- ☐ Less than once a year
- ☐ 1-2 times per year
- ☐ 3-5 times per year
- ☐ More than 5 times per year

Do you regularly visit any specialists (e.g., cardiologist, dermatologist, psychiatrist)?

- ☐ Yes
- ☐ No

If yes, how often do you visit specialists? (Skip if not applicable)

- ☐ Less than once a year
- ☐ 1-2 times per year
- ☐ 3-5 times per year
- ☐ More than 5 times per year

Have you been hospitalised in the past 12 months?

- ☐ Yes
- ☐ No

If yes, how many times have you been hospitalised in the past 12 months?

- ☐ Once
- ☐ 2-3 times
- ☐ More than 3 times

What was the reason for your most recent hospitalisation? (Open-ended)

Do you currently take any prescribed medications?

- ☐ Yes
- ☐ No

Are you currently using any over-the-counter medications or supplements (e.g., vitamins, painkillers)?

- ☐ Yes
- ☐ No

E. Social Determinants: community engagement, neighbourhood safety.

On a scale of 1 to 10, how safe do you feel in your community during the day and at night?

Have you or someone in your household experienced a crime (e.g., theft, assault) in the past year? (Yes/No)

Do concerns about community safety affect your mental health or daily stress levels? (e.g., Always, Often, Sometimes, Rarely, Never)

Do you trust your neighbours to look out for each other's safety? (Yes/No/Somewhat)

Have you changed any habits or routines due to concerns about safety in your community? (e.g., avoiding certain areas, staying indoors, etc.) (Yes/No)

F. Genetic/Family History

Has anyone in your immediate family (parents, siblings, or children) been diagnosed with a chronic illness, such as diabetes, heart disease, cancer, or autoimmune disorders? (Yes/No)

Are you aware of any genetic conditions or predispositions in your family (e.g., inherited blood disorders, or other hereditary diseases)? (Yes/No)

Have you discussed your family's medical history with a healthcare provider to understand your potential health risks? (Yes/No)

Have you made any changes to your lifestyle (e.g., diet, exercise, regular screenings) due to concerns about illnesses in your family history? (Yes/No)

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