

Appraisal approach

One method of assessing the potential value for money of a project is to carry out a cost-benefit analysis (CBA). This method attempts to place a monetary value on the full economic costs and benefits of a proposal, irrespective of who bears them. We then compare the benefits and costs to estimate a Net Present Value (NPV). If the NPV is greater than 0 (i.e. benefits are greater than costs), it is reasonable to approve a project. In practice, we might expect the NPV to be higher than 0 to justify the prioritisation of this project over competing uses of a limited public budget.

In the case of the Durand proposal we are able to determine with some certainty what the costs will be. However, there is far less certainty over the scale of the potential benefits. Assessing a project's impact on attainment is a key element of any education CBA. A rise in attainment leads to productivity increases in the future. In turn, we can attach a monetary benefit to productivity increases, captured by higher life-time earnings. This is a standard approach used by the Department.

To estimate the monetary benefits we need to have a robust estimate of the size of the likely attainment increase. In other words, we need to be able to predict how well these pupils will perform by attending the Durand Academy, compared to what would happen if they attended a local school. In the case of a single school, we do not have enough information to make a robust assumption about how well these pupils will perform, so a standard CBA is infeasible.

Instead of a standard CBA we have used an adapted approach known as 'break-even' analysis. This allows us to estimate the attainment increase required to ensure that a project's benefits are *at least* as high as its costs. In other words, we calculate how large attainment increases would have to be in order for the project to have an NPV of at least 0. The table below summarises the difference between break-even analysis and economic appraisal.

	% Change in Attainment	Monetary Benefits
Break-even analysis	<i>Output from the model</i>	Input assumption (equal to costs)
CBA/economic appraisal	Input assumption (based on evidence)	Output from the model

The output – or break-even point – should help to inform a judgement on how likely this project is to deliver VfM. If the required attainment increases are deemed both feasible and likely, it would be reasonable to approve the project. The attainment increases are, however, merely indicative of the scale required to deliver VfM. They should not be seen as a hard 'approval rule' or used to measure the success of the project.

Key points

- To justify all of the costs of the project – i.e. those incurred by both the Department and Durand – attainment in the boarding school would have to be between **5.9 percentage points and 8.9pp higher than in comparable schools** (i.e. schools with a similar pupil intake). At GCSE level, for

example, this means that at least an *extra* seven of the school's 125 exam-takers have to achieve five good GCSEs each year, compared to what would have happened had they not attended the school. 5.9pp is the break-even point if Durand delivers on its cost plan to the penny; while 8.9pp is the required improvement if the highest-cost scenario comes to pass.

- To put this in context, **research shows that early sponsored academies increased their pupils' attainment in GCSEs by 3pp** in the first two to seven years. This means that the number of pupils achieving five good GCSEs in early sponsored academies was 3pp higher than in comparable schools. The required impact of this boarding school is 2-3 times greater than the average impact of early sponsored academies in their first two to seven years.
- We looked at the improvements made by 75 sponsored academies which were open in 2009. 52 of these schools improved results by at least 8.9pp between 2009 and 2012, but only one school from a starting point as high as Durand's (65%) in 2009. The average achievement of these schools in 2009 was 35%.
- It is important to consider the background of Durand's proposed pupil intake. These **pupils' prior attainment and family background will affect Durand's ability to deliver attainment increases**. If Durand's intake would otherwise do poorly, the academy can more easily improve attainment. In 2012, 65% of pupils who went to Durand Primary achieved 5+A*-C including English and maths in existing secondary schools, compared to the Inner London average of 60.8%. If this represented an average of the performance that could be expected from Durand boarding school's prospective pupils in existing schools, between 70.9% and 73.9% of Durand boarding school's pupils would need to get 5+A*-CEM for the project to offer VfM. However, the numbers will vary (eg depending on pupil in-take) and it is the case that performance of Durand Primary's former pupils at Key Stage 4 was lower than 65% in previous years – see Annex B.
- **The performance of Durand Primary**, as measured by value added, **is promising and has put the school in the top 25% nationally in 2010, 2011 and 2012** (see Annex C). Former Durand Primary pupils' performance between leaving primary school and doing GCSEs was at or just below what was expected of them given their performance in primary school (Annex B). Although this is too small a sample from which to infer judgments, this could suggest that pupils' progression drops off once they leave Durand Primary.
- The project's **capacity to deliver value for money is closely linked to Durand's ability to deliver low-cost boarding provision**. Approximately half of the net present costs associated with the project relates to these costs. The project might provide other benefits that would reduce the required increase in attainment. These could include **savings on foster care**, increases in competing schools' attainment and savings on the economic costs of crime. Without detailed information on the proposed pupil intake, it is not possible to monetise these benefits. However, they should be considered when assessing VfM as these benefits would reduce the size of the required attainment increases.
- Finally, this Durand proposal is for **an innovative approach** to raising the attainment of pupils from an area of disadvantage from which the government and others will be able to learn lessons to apply more widely. It is arguable, therefore, that some additional financial risk is justified in order to secure this opportunity.

1. Costs and benefits – assumptions

Capital costs

We have used the costs detailed by Balfour Beatty for Durand Academy in March 2013. This cost plan outlines a total cost of £18.8m, excluding the sixth-form building costs. £16.4m will be funded by the EFA.

We have calculated a high-cost scenario that is 24% higher than Balfour Beatty's estimates. Here we are following HM Treasury's *Green Book* guidance by applying 'optimism bias' to the capital costs. Research for HMT by Mott McDonald, which forms part of the *Green Book*, showed that actual capital costs for public projects were, at the top end, 24% higher than that estimated at the first stage of appraisal. Applying optimism bias accounts for the risk that there will be a budget overrun on the capital costs. All figures in Table 1 are in today's prices.

Table 1: Total project costs of the project

	Low scenario	High scenario (Low +24%)
EFA	£16.4m	£20.3m
Durand	£2.4m	£3.0m
Total	£18.8m	£23.3m

Revenue costs

We only consider the extra costs required as a result of the approval of the project, which are the boarding costs funded by Durand. We do not consider per pupil revenue costs from the Department (i.e. GAG). Whichever schools would otherwise have admitted the pupils who are now going to Durand would receive the same per-pupil amount as Durand would if the project were approved. However, there may be an additional transitional revenue cost depending on when new pupils start at the new boarding facility (when Durand will receive their per pupil funding) and whether or not the 'exporting' schools have already received their funding for these pupils. We have not estimated these costs here.

Durand has estimated boarding costs at £2,051 per pupil per year. Separately, the principal of Wymondham College provided EFA with an estimate of boarding costs.

Table 2: Estimates of revenue costs

	Durand	Melvyn Roffe model
Total cost	£2,051	£4,156
Adjusted cost		£2,628

Boarders will stay overnight from Monday to Thursday only, with an extended school day. As such, the boarding costs should be lower in Durand. The Melvyn Roffe cost estimates cover a 68-hour week, while for Durand there are expected to be 43 hours of boarding supervision. We reduced Melvyn Roffe's estimate by 37% to reflect the difference in hours and get a comparable rate for Durand of £2,628. We have chosen this figure as the cost in our high-cost scenario. Given the scale

of the difference between Durand’s estimates and the higher estimate, it is important to take into account the risk that Durand will not be able to deliver on their low-cost plan. Table 3 presents the annual cost of boarding for the whole school, when full, in current prices.

Table 3: Annual revenue costs per pupil and for the entire school

	Low scenario	High scenario
Per pupil	£2,051	£2,628
Whole school (at full capacity)	£769,125	£985,522

Other costs

New buildings create future maintenance requirements. Consistent with industry standards, we have used 2.5% of the building’s value as an estimate of annual maintenance costs. As this is an estate-wide assumption, we phase the requirement in to reflect the fact that the boarding school’s buildings are new or refurbished and will not require this level of maintenance in their early years.

New school buildings will have additional on-going environmental impacts, due to extra CO² output. This is caused principally by electricity generation. We monetise the cost of the average CO² output per school using the non-traded costs of carbon and estimates of air quality damage from electricity generation (in accordance with the approach recommended by DECC). In current prices, this cost is £3.74 per m² per year.

Attainment benefits

We have used the Department’s standard approach for monetising attainment benefits.¹ These are based on a person’s lifetime productivity gains that arise from moving from below certain qualification thresholds to above them. For example, by moving above the 5+A*-C threshold at GCSE level, a person’s associated lifetime productivity increase is £101,991.²

Table 4: Productivity increase by threshold (benefit from moving from one to the next)

	5+A*-C GCSEs	2+ A levels	Degree
Lifetime productivity increase per person	£101,991	£104,747	£112,141

The school will directly affect its pupils’ GCSE results, but we also expect there to be knock-on effects on those pupils’ A Level and degree results in other schools and institutions. DfE analysis shows that there is a strong correlation between achieving 5A*-C and subsequently achieving 2+ A Levels.³ There is also a correlation between better A Level results and degree completion. The DfE analysis on progression suggests that 76% of pupils who achieve 5A*-C go on to get 2+ A Levels. DfE statistics record that 52% of Lambeth (Durand’s LA) pupils completing A Levels go on to Higher Education in the UK.⁴ We use these statistics and analysis to work out the knock-on effects of better GCSE results. Table 5 summarises how Durand could impact on the future attainment of its pupils.

¹ Internal DfE analysis using LFS 2008/09 data; degree estimate is from BIS (2011) analysis

² See the Annex A for a Q&A on how we measure attainment increases

³ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/222084/DCSF-RTP-09-02.pdf

⁴ <https://www.gov.uk/government/publications/destinations-of-key-stage-4-and-key-stage-5-pupils-2010-to-2011>

Table 5: The number of pupils who achieve thresholds for each 100 Durand helps above GCSE threshold

	5+A*-C GCSEs	2+ A levels	Degree
Number of pupils	100	76	40
Calculation	Direct impact	100 x 76%	76 x 52%

We work backwards from the required monetary benefit to obtain the break-even attainment point. From the total required monetary benefit, we calculate the number of pupils that need to rise above the GCSE threshold. We then work out what percentage point increase in attainment would result in that number of pupils moving above a threshold.

Benefits due to reduced basic need

The boarding school might help to abate basic need pressure in the local area, if the funding provided centrally and by Lambeth is not sufficient. Lambeth was allocated £23.3m in March 2013 to address basic need at both primary and secondary level.⁵ The LA was forecast to have a shortfall of 803 places at secondary level. This was calculated by comparing its May 2012 capacity to its projected 11-16 pupil numbers in 2015/16. Since that capacity data was collected, a 600-place free school has opened in the LA. It is reasonable to assume Lambeth has enough money to address the remaining need. Future basic need allocations should help Lambeth build new places to meet pupil growth beyond 2015/16.

Nevertheless, we feel it is reasonable to include potential basic need benefits in the low break-even point scenario. Lambeth’s pupil projections might be an under-forecast – or cost pressures in Inner London might result in Lambeth not being able to procure new school places at a low-enough cost. The provision of boarding places that reduces local basic need would allow Lambeth to reallocate capital to other purposes. According to the EFA’s cost multipliers for secondary school places based on the minimum floor space, creating 375 places would cost £4.6m in 2013-14 prices. We count this as a benefit in the low scenario. The high scenario includes no basic need benefits.

Fewer truants

The boarding school could plausibly reduce truancy to zero among its pupils; particularly since these pupils will be removed from their local environment. In the 2010/11 academic year, 7.4% of secondary students in Lambeth were persistent absentees.⁶ This compared to an average of 7.1% across Inner London. We have assumed that the Durand boarding school will reduce truancy to zero and there will be associated savings for society.

A report by New Philanthropy Capital in 2007 estimated the lifetime costs of truancy per pupil, excluding the loss in earnings, at £13,160 in current prices.⁷ This includes savings due to avoided crime, savings on health care and savings on education welfare officers employed by LAs.

Non-monetised costs and benefits

⁵ <http://education.gov.uk/schools/adminandfinance/schoolscapital/a00222251/capital-fund-allocations-mar-13>

⁶ <https://www.gov.uk/government/publications/pupil-absence-in-schools-in-england-including-pupil-characteristics-academic-year-2010-to-2011>

⁷ ‘Misspent Youth: The Costs of Truancy and Exclusion.’ New Philanthropy Capital, June 2007.

The project will create costs and benefits other than the ones we have monetised.

Benefits

If the boarding school admitted pupils who would otherwise be in foster care, there would be cost savings on foster care. The school might also raise attainment among schools which compete for their pupils, although these competitive effects are likely to be very small given the nature of the pupils Durand is aiming to attract. Another potential benefit is a reduction in unemployment benefits if pupils that attend Durand go on to participate in further education or move into a job as a result of better education.

Monetising these benefits would require us to make assumptions about the future path of Durand's potential pupil intake. Given how difficult it is to predict this – and the potentially large effect erroneous assumptions would have on the CBA – we have not monetised the cost. However, the school's pupil intake and potential for savings should be considered when assessing the VfM of the project. Foster care savings, for example, could be a significant benefit. A 2010 report by the University of Kent (for DfE and the Department of Health) showed that annual foster care costs are approximately £37,500 in current prices.⁸ The boarding school would not substitute for an entire year's foster care, but could deliver some savings on that figure. Of course, this is only the case if foster carers forego payment while the pupils are at the boarding school. If they do, savings on foster care would reduce the required increase in attainment that Durand would have to deliver.

We have not included the savings to households (i.e. food and energy costs). Parents who have children staying in the boarding school will save on these costs while their child is away.

Costs

We have omitted the economic cost of using accommodation as part payment to staff. Part of the way Durand plans to reduce staff costs is by offering lower wages for some staff members, offset by free accommodation. Although not a financial cost, this represents the use of a resource that could be used gainfully for another purpose if it was not tied up as part payment. For example, if the accommodation could otherwise be rented at the local market value then the lost potential rental income is the economic cost. If the accommodation could otherwise be used to house more students, its economic value is equal to the savings on foster care mentioned above. Without knowledge on the ownership and planned alternative uses of the accommodation, we cannot monetise this cost.

Comparing costs and benefits

Costs and benefits in future years are expressed in today's terms using a 'discount rate'. We do this for two reasons: (1) in order to compare costs and benefits occurring at different times on a similar basis; and (2) to reflect people's tendency to attach a lower value to future costs and benefits. We follow advice from HM Treasury's *Green Book* by using an annual discount rate of 3.5% over the first

⁸ <http://www.pssru.ac.uk/pdf/uc/uc2010/uc2010.pdf>

30 years of the appraisal period and 3% thereafter. Where values are expressed in today's terms, we refer to them as *net present* costs or benefits.

When appraising other capital projects, the Department's economists have used an appraisal period of 60 years. This follows *Green Book* guidance, which states that the appraisal period should match the duration of the asset's estimated life. We have adopted the same approach in this appraisal. This means that there is 60 years' worth of attainment benefits, savings on the costs of truancy, maintenance costs, carbon costs and revenue costs. The construction costs all fall in the first five years.

2. Economic appraisal

Economic appraisals consider the total costs and benefits to all members of society as a result of the approval of a project. We include the monetised costs and benefits mentioned above.

Total Net Present Costs

- For **capital costs**, we have included all costs of building the boarding school, including those incurred by Durand. Durand's own assessment of the costs forms the lower scenario capital cost; the higher scenario is this cost plus 24% to account for optimism bias. In net present terms, we estimate that costs should be between £18.79m and £23.30m for the total project.
- **Revenue costs** for the lower scenario are those provided by Durand (£2,051 per pupil per year); the high scenario is the adjusted average from five state boarding schools calculated in section 1 (£2,628). We have calculated the discounted net present cost of having the school at full capacity for 60 years: between £18.7m and £23.95m.
- **Maintenance costs** are equal to 2.5% of the building's cost in each year. This gives a 60-year net present cost of between £8.29m and £10.28m.
- We haven't provided varied scenarios for **carbon costs**, because these are small in quantum, but we have included them for completeness. We use the £3.74 per metre squared carbon cost per year, discussed above, which works out at £171k in net present costs over 60 years.

Table 6: Low and high estimates of total net present costs

	Low scenario	High scenario
Revenue	£18.7m	£23.9m
Capital construction	£18.8m	£23.3m
Maintenance	£8.3m	£10.3m
Carbon	£0.17m	£0.17m
Total	£45.9m	£57.7m

Total Net Present Benefits

- We have calculated a fixed benefit for the **cost savings on truancy**. We assume that 7.4% of the school's pupils, who would otherwise have truanted persistently, no longer do so as a result of going to the boarding school. This benefit is worth £2.63m in net present terms over 60 years.

- Savings on basic need are included in the low scenario. This £6.67m includes £4.63m in building costs plus £2.04m in net present maintenance costs over the course of the appraisal period.
- As discussed above, we have varied the scale of the potential attainment benefits in order to derive the break-even point. We estimate for the project to break even, total benefits must equal £45.9m at the lower end and £57.7m at the high end. This means that **monetised attainment benefits** must equal between £36.64m and £55.07m over the project's lifetime. The next section looks at what this means in terms of attainment increases.

Table 7: Low and high estimates of required net present benefits

	Low scenario	High scenario
GCSE attainment	£17.64m	£26.51m
A Level (knock-on attainment)	£12.72m	£19.12m
Degree (knock-on attainment)	£6.28m	£9.4m
Truancy	£2.6m	£2.6m
Savings on basic need	£6.7m	N/A
Total	£45.9m	£57.7m

Break-even attainment increases

For the low and high scenarios we have calculated the percentage increase in attainment required to ensure that monetary benefits equal costs. We estimate the attainment of pupils that attend Durand will have to increase by between 5.9pp and 8.9pp, compared to what would have happened had they not gone to Durand. In other words, between 7 and 11 of Durand's 125 exam-taking pupils would have to move above the GCSE attainment (i.e. 5 or more GCSEs at Grades A*-C including English and maths, expressed henceforth as "5+A*-CEM") threshold every year.

This applies only to pupils who wouldn't otherwise have been above the threshold. In economic appraisal, we refer to what would otherwise have happened as the 'counterfactual'. The counterfactual is hard to judge in education, as the 'otherwise' never occurs. To proxy the counterfactual, we have looked at the attainment of pupils who went to Durand Primary and studied for GCSEs in existing secondary schools. The counterfactual is important for judging a project's potential VfM: if the counterfactual attainment is low, Durand boarding school can more easily raise its future pupils' attainment.

In 2012, 65% pupils who went previously went to Durand Primary achieved 5+A*-CEM in other schools.⁹ This compares to a Lambeth average of 62.8%, an Inner London average of 60.8% and a national average of 59.4%. For the sake of illustration, we assume that 65% of Durand boarding school's pupils would achieve 5+A*-CEM in other schools – this means 81 of the school's 125 pupils. In order for the project to deliver VfM, Durand would have to ensure that between 88 and 92 of its 125 pupils get 5+A*-CEM. This equals a rate of 70.9% to 73.9% of pupils getting 5+A*-CEM in Durand boarding school. The challenge might not be that high, as the achievement of Durand Primary's former pupils at KS4 was lower in 2011 and 2010.

⁹ See Annex B for analysis of KS4 performance of former Durand Primary pupils

To bring further sensitivity into our analysis of required break-even impacts, we have varied the appraisal period from the standard 60 years. If the attainment effect persisted for only 20 years, for example, the school would have to raise pupils' attainment by between 8.5pp and 13.1pp to break even. This is because there are large up-front capital costs. The low and high break-even points, varied by years, are represented in Table 7.

Table 8: Low and high estimates of require break-even attainment, varied by years

	Low scenario	High scenario
80 years	5.7pp	8.6pp
60 years	5.9pp	8.9pp
40 years	6.5pp	9.8pp
20 years	8.5pp	13.1pp

These are substantial increases in attainment. To put them in context, research has shown that early sponsored academies increased their pupils' attainment in GCSEs by 3 percentage points in the first two to seven years.¹⁰ This means that the number of pupils in early sponsored academies achieving five good GCSEs is 3pp higher than in schools with comparable pupil intakes after two to seven years in operation.

Risks

The main risk to VfM comes from **Durand's ability to deliver on its cost plans**. Our estimates of the net present cost of the project range between £45.9m and £57.7m. If the revenue costs per pupil increase from the planned £2,051 to the high-cost scenario of £2,628, the required attainment increase would have to be 0.85pp more than otherwise. If capital costs increase from £18.12m to £23.30m, attainment will have to increase by 0.73pp more than otherwise. The closer Durand can stick to its cost plans – especially revenue – the easier it is for it to deliver VfM.

The assumption that Durand's boarding school would meet basic need also influences the break-even point range. If Lambeth LA provides the places anyway and these places do not have other positive impacts on choice and competition, Durand has to increase attainment by 1.08pp more than otherwise.

It is also important to consider **Durand's ability to fund capital and revenue costs from non-GAG income**. Boarding costs will be funded entirely from Durand's own income. At Durand's estimates, these costs will be almost £800,000 per year once the school is full. Durand will also fund approximately £2m of the capital investment. If Durand cannot meet these costs, there is a danger that the boarding facility will become financially unviable without more funding or that the school would have to divert funding from GAG. The latter scenario may raise **risks to the school's ability to deliver the attainment increases required to justify investment**.

Other risks to VfM include the school's **ability to deliver an excellent education**.

We looked at sponsored academies which have been open for at least five years. 75 of these academies have results going back to 2009 at GCSE level. We compared the percentage getting

¹⁰ Machin, S. and Veroit, J. (2010) *Academy schools: who benefits?* Centrepiece, Autumn 2010.

5+A*-CEM in 2009 with the percentage in 2012. Of the 75 schools, 59 of these schools had increased by 5.9pp; 52 had increases of at least 8.9pp. However, these schools started from a low base; on average, the 59 schools had 35% of their pupils achieving 5+A*-CEM in 2009.

This shows that sizeable attainment improvements are possible. However, these schools started at a low base and this is merely a measure of improvement over three years. In addition, we have not controlled for changes in the nature of pupil intake; some of the increases in attainment could be down to the school attracting more able pupils rather than improving its education. By contrast, the research that found an average 3pp increase after the first two to seven years controlled for pupil background.

The Department needs to be confident that sizeable improvements in attainment are possible. 5.9pp is the minimum improvement in attainment required so that benefits at least equal cost. At 5.9pp, however, the project is cost-benefit neutral. Higher attainment benefits are desirable. The progress of pupils in Durand Primary, as measured by performance in 2010, 2011 and 2012 is promising.¹¹ Pupils' progress in each of these years puts Durand in the top 25% nationally for value added between Key Stage 1 (end of Year 2) and Key Stage 2 (end of Year 6).

We should also examine the possibility that **the school might close down** – a worst-case scenario. The long-term viability of the project should be considered: the longer the school remains open, the less of an effect it needs to have on pupils' attainment each year to break even. If there is a danger of the boarding school being closed after only 20 years in existence, it would have had to deliver attainment increases of at least 8.5pp for each cohort in order to break even. However, if the school remains open for 80 years, the required attainment increase could be as low as 5.7pp for each cohort.

¹¹ See Annex C

Annex A – Measuring and valuing attainment increases

In the appraisal we measure attainment increases in terms of percentage point increases in the number of the school's pupils getting five good GCSEs. Here is a short Q&A about some of the important issues raised by measuring attainment in this way.

What is a percentage point increase?

A percentage point (pp) change is different to a percentage (pct) change. Percentage points are used to compare two percentage values. Percentage changes are used to calculate changes in levels.

Percentage point change: Imagine data in the last year showed that 50% of pupils achieved five good GCSEs. This year, there was a 10pp increase. This means that 60% of pupils achieved five good GCSEs this year.

Percentage change: By contrast, if attainment increases by 10pct on last year's level, attainment this year would be 55%. $50\% \text{ times } 10\text{pct} = 5\%$. $5\% \text{ plus } 50\% \text{ equals } 55\%$.

What does it mean for Durand to have to improve its pupils' attainment by 10pp?

If 50% of the pupils who attend Durand would otherwise (i.e. if these pupils were in another school) have got five good GCSEs, 60% of them have to pass that threshold in Durand in order for the project to offer value for money. This is the case in each year of the appraisal. Attainment does not have to increase by 10pp every year; it just has to remain 10pp higher than what would otherwise have happened.

Why do we use thresholds to measure attainment?

Thresholds are widely recognised and understood as a measure of success of a school, so they offer ease of understanding and comparison. We also use them for a technical reason: the Labour Force Survey collects data on thresholds achieved rather than individual grades. Data from the LFS was used as part of the research to estimate the productivity returns to education. In order to match attainment increases to productivity increases, we use thresholds.

Is the measure of productivity benefits accurate?

The actual return for the pupil who just about gets five good GCSEs is probably lower than the return for the pupil who gets all A*s. In this sense, we might be overestimating the monetary benefits in our appraisal. On the other hand, we are not measuring the benefits to pupils whose attainment increases but who do not move over a threshold. This includes the pupil who would otherwise have got all Bs but now gets all A*s. In this sense, we are underestimating benefits. These effects are assumed to balance one another out and we're happy that the benefit is roughly right.

What does this mean for the estimated percentage point increases in attainment?

The required increases represent the magnitude of the effect the boarding school will have to have on its pupils' attainment. The project might break even with higher or lower attainment impacts, but we feel that our estimates reflect the scale of the challenge.

Annex B – Progress of former Durand pupils between Key Stage 2 and Key Stage 4

We looked at the National Pupil Database (NPD) to track the progress of Durand Primary's former pupils between Key Stage 2 and GCSEs. We looked at raw scores – i.e. the percentage of those pupils getting 5+A*-CEM – and 'Best 8 Value Added'. Value added is a measure of expected progress of a pupil given their prior attainment at KS2. If attainment changes as expected between KS2 and KS4, value added equals 1,000. If value added is greater than 1,000, a pupil has made bigger gains than expected – and vice versa. Value added scores range between 900 and 1,100.

- In 2012 there were 83 pupils at the end of Key Stage 4 who had been in Durand Primary for KS2 assessment. The School Census for January 2007 shows a total of 87 pupils, so we have tracked 95% of the pupils who left Durand in 2007. Of the 83 pupils, **65%** got 5+A*-C including English and Mathematics in 2012. This is **higher than both the Lambeth average of 62.8% and the national average of 59.4%**. The average value added for the 83 pupils was 1,000.
- In 2011 there were 78 pupils at the end of KS4. There were 84 pupils in Durand at the end of 2006, so we have tracked 93% of these pupils. Of the 78 pupils, **57%** got 5+A*-CEM. This was **lower than the Lambeth average of 61.1% and the national average of 59%**. The average value added for the 78 pupils was 975.
- In 2010 there were 86 pupils at the end of KS4. 90 pupils took KS2 assessments at Durand in 2005, of which we have tracked 96%. Of the 86 pupils, **55%** got 5+ A*-CEM. This was **higher than both the Lambeth average of 53% and the national average of 53.5%**. The average value added for the 86 pupils was 993.

What does this tell us?

We see **no systematic difference between the achievement of Durand's former pupils and the Lambeth and national averages** in these three years. In two of the three years Durand's former pupils do better than both averages and in one year the pupils do worse than both averages. Three years is a short period and it is difficult to infer any pattern with certainty. As the cohort sizes are quite small (between 80 and 90), one person moving above or below the threshold results in a greater than 1pp change in the proportion of pupils getting 5+ A*-CEM. This explains the volatility in scores across the three years – from 55% to 57% to 65%.

The average of former Durand pupils' value added was 993 in 2010, 975 in 2011 and 1000 in 2012. Therefore, the **progress that these pupils made between Key Stage 2 and Key Stage 4 was at or slightly below what was expected**. If this effect was persistent over time, it could be said that Durand Primary's pupils are not making the expected progress once they leave Durand. It would also make it easier for Durand to deliver the required attainment increases to justify the project.

Annex C – Performance in Durand Primary School

We looked at the improvement in Durand Primary’s pupils’ results between KS1 and KS2 – i.e. between Year 2 SATs and Year 6 SATs. The value added measure between KS1 and KS2 gives us an idea of average progression amongst Durand’s pupils *relative* to other schools nationwide in that year. This value added measure centres around 100. If it is above 100, pupils progressed more than expected given their performance at KS1; if below 100, they did not progress as much as expected. A measure between 98.9 and 100.9 is regarded as broadly average. 1 point is equal to a term’s progress. For example, pupils in a school with a value added score of 101 made, on average, an extra term of progress between KS1 and KS2 over what was expected.¹²

For Durand, the KS1-KS2 value added figures in 2010, 2011 and 2012 are in Table 9. **These scores put Durand into the top 25% of schools nationally in terms of its pupils’ progress between KS1 and KS2.** If Durand can perform in the same way at secondary level, these results suggest it could do a better job at improving its former pupils’ performance than other schools did (as in Annex B).

Table 9: KS1-KS2 pupil progression in Durand Primary, 2010-2012

	Combined	English	Maths
2012	101	100.6	101.4
2011	102.3	101.6	103.1
2010*	102.1	N/A	N/A

*This is contextual value added (CVA), which also takes pupil characteristics, such as ethnicity and FSM into account. These characteristics have been ignored since 2010.

¹² See [here](#) for official Departmental notes on KS1-KS2 VA.