

3Ts Hospital Redevelopment Programme

Full Business Case

Economic Case



February 2016, v13

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Introduction

The FBC Economic Case - Requirements

1. The FBC Economic Case requirements are twofold:
 - demonstrate the Preferred Option remains the Trust's choice and that Capital Costs remain within acceptable limits; and
 - reconfirm that the preferred procurement route is publicly funded and that PFI does not demonstrate better value-for-money.
2. Value-for-money is tested using discounted cashflows, ie. the Generic Economic Model (GEM) and the monetisation of non-financial benefits, as per the extant guidance in this area.

The OBC Economic Case – Conclusion

3. The Outline Business Case (OBC) appraised six options, including two 'Do Minimum' options and a Private Finance Initiative (PFI) option, which was based on Partial Indexation of the Shadow Unitary Payment for inflation changes. Partial Indexation was fairly new to the Healthcare sector in 2011/12, when the OBC was submitted. Previously, Full Indexation contracts meant that the whole of the Unitary Payment increased annually with inflation.
4. The OBC Economic Case was also the first business case of a significant size to require a monetary value to be placed on its non-financial benefits. This exercise used Department of Health guidance, *Additional Value-for-Money Requirement for NHS Major New Build Schemes* (December 2010), and included measuring some benefits using Quality-Adjusted Life Years¹ (QALYs). The business case included both a Traditional methodology and a Monetisation method of scoring and ranking the qualitative non-financial benefits of each option.
5. The OBC's option appraisal used the government's 'Generic Economic Model' (GEM) Excel tool, but because some of the non-financial benefits used QALYs in their measurement, a different cost of capital had to be used to the normal GEM process. The monetisation therefore had to be undertaken through a separate Discounted Cashflow Excel tool. The results of both tools were then combined to provide a Net Present Value (NPV) and Equivalent Annual Value (EAV) for each option.
6. The ranking of both NPV and EAV data showed the Publicly Funded 'preferred option' was better value-for-money than the PFI comparator. The PFI comparator was the next best option, and was ranked as such due to projected additional capital costs of a PFI option (being 4% on the public sector comparator to reflect the tendency of PFI projects to increase up-front capital costs to reduce overall life-cycle and ongoing maintenance costs) and the timing of benefit realisation (being a circa 2 year delay between the start on site for the publicly funded option and a PFI option given that a full PFI procurement would need to be commenced if this was selected as the preferred procurement route).
7. The design of the 3Ts facilities was effectively frozen in September 2011 to allow Planning Consent to be obtained from Brighton & Hove City Council, which was secured in January 2012 and the decision formally released in March 2012 upon agreement of the Section 106 Planning Agreement with the Planning Authority. Since then there has been no change to the external sizing, or gross internal floor area and minimal change to the internal design of the planned buildings. This is described in "Commercial Case: The Building".
8. The OBC was refreshed and approved by NHS South East Coast (Strategic Health Authority) in July 2011 and then re-approved in March 2012 by NHS South of England (SHA Cluster). The overall business case was approved by the Department of Health and HM Treasury in May 2014.

¹ The Quality-Adjusted Life Year (QALY) is a measure of disease burden, including both the quality and quantity of life lived. The QALY is often used in cost-utility analysis to calculate the ratio of cost to QALYs saved for a particular healthcare intervention.

9. In the OBC, the Do Minimum schemes provide the lowest Capital Cost and lowest Net Present Cost, but when combined with benefits these schemes are ranked last, and Option 1 stands out as the Preferred Option. This is the case under both the traditional method of Cost/Benefit Analysis and the new method involving monetisation of benefits. A summary of the outputs of the Economic Analysis at OBC is provided as an appendix to this chapter.
- 10.. There was generally little difference between the new build options (1, 3 and 5), the main differentiator (reflected in the non-financial benefits scoring) was the order in which key elements in the programme were delivered and how well each option fitted strategically with the Trust's key objectives and those of its partners in the Local Health Economy.
11. The economic appraisal demonstrated that Option 1 delivered greatest benefits at least cost of all the options and was therefore the Preferred Option at OBC.
12. From an Equivalent Annual Cost (EAC) perspective, Option 1 delivers the second lowest EAC at £569.1m (only just behind the Do Minimum A option) and is therefore the Preferred Option. The monetisation of non-financial benefits reinforces the Option 1 as preferred since it has the highest Net Present Value and highest Equivalent Annual Value. The Do Minimums results are still Net Present Costs and Equivalent Annual Costs because of the lack of benefits these options deliver. Option 1 therefore remains the Preferred Option.
13. The PFI NPC and EAC is only slightly behind the preferred option, but PFI cannot deliver the benefits to the same timetable as the preferred option, and this is demonstrated through the monetisation of non-financial benefits. The preferred option is therefore Option 1, procured through a public funded route.

Changes from the OBC

Capital Costs Compared with OBC

14. The most significant change since the OBC numbers were estimated in 2011/12 is the effect that changes in the UK economy are having on Construction Inflation rates. The PUBSEC (Tender Price Index of Public Sector Building Non-Housing) indices indicate a 16.8% change in prices between the OBC and Full Business Case (FBC) numbers. When the OBC was produced, the Location Factor used was 6%, which was consistent with the factor for the South East promulgated by Department of Health Estates. This is no longer published and therefore at FBC stage the Department for Business Innovation & Skills (BIS) location factor, which is published alongside the PUBSEC indices, has been used. The Location Factor changed from 6% at OBC stage to 16% at FBC stage for the Brighton & Hove area. (Documents on Pubsec Indices and Location Factors are appended, along with a report by Turner & Townsend on key changes).
15. The following table shows the Capital Costs based on PUBSEC 173 (from the approved OBC) together with an updated position based on the current index of PUBSEC 202 (September 2014). This is then compared with the target Guaranteed Maximum Price (GMP) and the latest view on Trust-side costs.
16. The difference between PUBSEC 173 and PUBSEC 202 is mainly due to greater demand of services and materials but is also driven by the capacity, experience and capability of contractors and their supply chain. In a rising market, contractors and their supply chain will have limited capacity to take on more work and will focus on projects with less inherent risk. As such, competition throughout the market has dropped significantly since the start of 2014.

Table 1 – Comparison of Capital Costs

| | OBC (Pubsec 173) | OBC (Pubsec 202) | FBC Target Cost |
|-----------------------|---------------------|---------------------|--------------------|
| Works | 207,665 | 265,351 | 251,854 |
| Fees | 40,182 | 51,345 | 48,493 |
| Non Works | 28,102 | 29,248 | 29,248 |
| Equipment | 29,700 | 31,694 | 31,694 |
| Contingencies | 17,650 | 22,555 | 19,807 |
| Optimism Bias | 6,852 | 5,399 | 3,383 |
| Inflation adjustments | 28,752 | 35,298 | 35,362 |
| Sub-Total | 358,903 | 440,890 | 419,841 |
| VAT | 61,210 | 75,375 | 65,736 |
| TOTALS | 420,113 | 516,265 | 485,577 |

Note: All values are in £'000s

PUBSEC 173 based on 2011/12. PUBSEC 202 based on September 2014.

17. The passage of time means the latest view for an OBC would be PUBSEC 202 (September 2014), and this provides a better comparison with latest market views and the proposed GMP (or Target cost) shown above. The above comparison demonstrates that the overall FBC Capital Costs, based on the Principal Supply Chain Partner's (PSCP) view of a GMP which has been market tested, would align with expectations of an OBC based on today's indices. Appropriate cost forms are appended including the Cost Forms for the target price of £485.6m, but based on PUBSEC 173.
18. The figure of £485.6m has been used to determine the affordability of the project to the Trust in the Financial Case and has been the subject of a robust market testing and tendering exercise by the PSCP.
19. The movements between headings are considered in the following table.

Table 2 – Explanation of movement in Capital Costs

| Cost Heading | Reasons for movement |
|---------------|--|
| Works | <ul style="list-style-type: none"> • Inflation increases between 2011/12 and 2014/15 • Increase in Location Factor from 6% to 16% • Increase in electrical power (new sub-station) requirements • Increase for 'air quality mitigation measures' for Energy Centre flues |
| Fees | <ul style="list-style-type: none"> • Inflation increases between 2011/12 and 2014/15 • Prolonged approval process |
| Equipment | <ul style="list-style-type: none"> • Increase due to changes in how IT is delivered in region |
| Contingency | <ul style="list-style-type: none"> • Increase in line with inflationary change • Reduction due to Risks being more clearly defined as design becomes more certain |
| Optimism Bias | <ul style="list-style-type: none"> • Reduction recognises more certainty in Stage 1 expectations. • Residual balance aligned with Stage 2 and 3 where scope may change with passage of time. |
| VAT | <ul style="list-style-type: none"> • Follows above with Fees assumed to be fully recoverable. • Further abatement opportunities |

20. The changes included in the above table were scope changes arising from design developments between OBC and FBC and therefore utilise in part the Optimism Bias at OBC stage. These were:-
- Increase in electrical power (new sub-station) requirements on RSCH site. This arises from Decant and delays in 3Ts Main Scheme, where other capital developments undertaken on the site have increased the overall load on the hospital’s electrical infrastructure.
 - Historically the Trust’s Information Technology (IT) was owned and managed by a regional organisation (the Sussex Health Informatics Service, or Sussex HIS); this responsibility has now been repatriated to the Trust. The increase in IT costs of £2m reflects the new infrastructure of the building and dovetails with the Trust’s own IT Strategy, eg. re-siting the Trust Data Centre and rolling out Voice over Internet Protocol (VoIP).
 - The 3Ts helideck will sit on an existing building (Thomas Kemp Tower) and an additional, external lift will provided dedicated access. The flues from the new Energy Centre in Stage 1 will also be incorporated into this lift shaft and therefore the fumes expelled at helideck level need to be cleaned through 'air quality mitigation measures'.
21. As shown above, there has been minimal scope change between OBC and FBC. It is a further illustration of building design flexibility that the change has been managed within the approval process. A summary report on the costed equipment schedule is appended to the Commercial Case.

Whole Life Costs Compared with OBC

22. The following table compares the Whole Life Capital Costs of the FBC with the OBC Economic Case. It excludes the Initial Capital Costs and is therefore the Life Cycle costs. This is represented as a valuation over the combined construction and operational period of 60 years, which was the basis of the calculations at OBC stage.

Table 3 - Comparison of Whole Life Cost

| | OBC Valuation | FBC Valuation |
|------------------------------|------------------|------------------|
| Life cycle costs (New Build) | 243.3 | 195.1 |

Note: All values are in £'millions

23. The above shows an overall variance of £48.2m and reflects a refinement of costs at FBC stage as greater certainty has been provided for the elements of the buildings.

Revenue Costs Compared with OBC

24. The Revenue Costs driven by this development are represented by the change in Operating Expenses and by 3Ts Transitional Costs. Operating expenses of the Trust have inevitably changed during the period between OBC and FBC, including growth, general performance and embedding annual efficiency requirements. The historic changes in Operating Expenses are considered in the Financial Case and include a review of the Trust’s performance over the past five years.
25. Transitional Costs have two elements:
- the Core Team, which is charged with the delivery of the development from the Trust perspective. The team will provide advice, guidance and support to the Trust Clinical Directorates during the implementation of the project;
 - Other Transitional Costs associated with moving into the new facilities. These are one-off costs that cannot be capitalised but enable building works, deliver and support the building commissioning, and include double-running costs and some lost income.

26. The table below compares the assessment at OBC stage with the latest outlook for Other Transitional Costs. To aid comparison, these are based on the costs for the period from start of Decant to the end of the programme.

Table 4 - Comparison of 3Ts Other Transitional Costs

| All figures £000s | OBC | FBC | Variance FBC vs OBC |
|-------------------|---------------|---------------|---------------------------|
| Decant | 4,246 | 4,183 | -63 |
| Stage 1 | 7,309 | 6,539 | -770 |
| Stage 2/3 | 3,602 | 3,203 | -399 |
| TOTALS | 15,157 | 13,925 | -1,232 |

27. The table above demonstrates that the 3Ts Other Transitional Costs have reduced from OBC. This is mainly due to more detailed work on planning for the Stage 1 commissioning period and an associated reduction in removals costs. (Further information is included in and appended to the Financial Case).
28. The Core Team costs in the OBC, as approved by NHS South of England in March 2012, totalled £16m. The outlook for Core Team costs at FBC stage is £15.1m. There are 'sunk costs' (ie. costs that are unrecoverable should the scheme not proceed) that have inevitably been incurred during the approval process, so this is not a direct comparison with the budget set in March 2012. (Further information is included in and appended to the Financial Case).
29. Other Revenue implications are factored into the Trust's Operating Expenses and these are driven by the growth in activity both in terms of repatriation of activity and 'enabled' growth. This is primarily funded through Payment by Results (PBR) income, and again the Finance Case provides more detail of these changes.
30. As per the HM Treasury Green Book² and guidance on completion of the GEM, Capital Charges are not considered in the Economic Case. These costs are considered in the overall affordability to the Trust in the Finance Case. VAT is also excluded from GEM inputs.

Optimism Bias at FBC

31. A workshop was held 15th September 2014 to consider Optimism Bias and the output from this workshop was factored into the Optimism Bias calculations. The outputs of the latest workshop and the Optimism Bias calculations are appended.
32. Theoretically, the Optimism Bias at an FBC stage should be close to zero. However the residual value at FBC represents the need to consider changes over the construction period and recognises that scope issues may arise as the Trust develops as a Foundation Trust and moves to completing Stage 2 of the development in 2022/23 and then Stage 3 in 2023/24.

Risk in Capital Costs at FBC

33. This process for managing risk resulted in the development of the contingency figure of £17.65m (8.5% of Works Cost) contained within the OBC (page 3 Chapter 8, and in full in appendix 8A OBC preferred option). Since OBC approval by the Trust Board of Directors in July 2009, several risk workshops have been held with the Principal Supply Chain Partner (PSCP) both during the design process and in the run-up to GMP. This led to additional construction risks being entered onto the Risk Register and ensured that the required ProCure21 (P21) joint Risk Register is up-to-date and 'owned' by both parties.

² HM Treasury (August 2014) *The Green Book: Appraisal and Evaluation in Central Government*

34. The joint Risk Register is costed with inputs from the PSCP, the Trust's independent Cost Advisors (Turner & Townsend) and members of the 3Ts project team, and also uses technical experts from Sweett Group to assess the overall risk using Monte Carlo tools and processes³. A risk assessment of likely outturn costs for the 3Ts project was undertaken in September 2014 by a Sweett Group Risk Consultant, with participation from other partners (as above).
35. The assessment included review, quantification and allocation of risks held in the P21 Risk Register and distinguished between risks and uncertainties relating to 'standard' project risk contingency and those for Optimism Bias. The assessment also included a Monte Carlo quantified cost-risk model of the risks and uncertainties relating to the 'standard' risk contingency element (ie. excluding Optimism Bias and Inflation) for the preferred option.
36. The Monte Carlo technique replaces assumed single values for key risks and inputs with distributions spanning minimum, most-likely and maximum possible values. Varying values are then sampled from these distributions in multiple iterations to produce a statistically representative range of possible output values against corresponding confidence levels for a specified target. This results in a Quantitative Risk Assessment (QRA).
37. The QRA outputs for the Trust and PSCP risks following the September 2014 workshop are appended and result in a contingency value for the FBC stage of £19.81m (shown above). The costed Risk Register is appended to the Management Case.
38. A sensitivity analysis was also produced from the Monte Carlo analysis which presented the relative correlations of inputs to the variability of the output in a ranked horizontal bar chart called a 'tornado' graph (owing to its funnel shape) to identify the primary 'drivers'. The tornado graph is a graphical representation of the top risks by sensitivity, ie. the extent to which they influence the risk exposure. The tornado graph is appended as part of the QRA appendix.
39. The 'tornado' analysis resulted in the following top drivers, in descending order of sensitivity:-
 - **Uncertainty of Pricing Departmental Cost Allowances (DCAGs).** DCAGs are usually used for the pricing of capital costs in NHS projects have been used in the development of the OBC. However there are some observed discrepancies between capital costs generated by DCAGs and the final cost: this uncertainty is not covered by contingencies and less so by Optimism Bias, which deals mainly with changes in scope. However the capital cost of the preferred option in the business case has been developed to the stage beyond that normally found in an OBC. This is based on an Elemental Cost Breakdown, which uses the agreed 1:200 drawings and building envelope to generate a more certain capital cost (based on measured areas for costs such as wall cladding, concrete structure etc.) The approval sought in this business case is based on this Elemental Cost Breakdown and therefore has a greater degree of certainty than would normally be the case. This has been done to mitigate uncertainty.
 - **Fee Variability.** This relates to the fees paid to the Design Team to progress the design. The costs in this Business Case are based on firm fee proposals to progress the design through FBC and into implementation, hence this uncertainty is also mitigated.
 - **Potential of Unidentified Scope in On-Costs.** This is covered in the point relating to uncertainty of pricing DCAGs. The scheme is based on a measured schedule of works and therefore there are few remaining uncertainties in the on-costs.

³ Monte Carol analysis involves determining the impact of the identified risks by running simulations to identify the range of possible outcomes for a number of scenarios. A random sampling is performed by using uncertain risk variable inputs to generate the range of outcomes, with a confidence measure for each outcome.

- Uncertainty of Location Factor Adjustment.** This is also covered in the point above. The capital costs have been subject to internal challenge within the PSCP supply chain. There is a high degree of certainty in the costs associated with Mechanical & Electrical Engineering (M&E) installations since they have been costed by Crown House Technologies, a PSCP subsidiary and M&E sub-contractors. This reflects the local effects of pricing major works packages.

FBC Monetised Benefits

40. The following table provides a reconciliation of benefits included in the Monetisation exercise.

Table 5 – Monetised Benefits OBC vs FBC

| Benefit description | FBC Valuation | OBC Valuation | Comments on variances |
|--|---------------|---------------|---|
| Mortality rates for trauma & 3Ts specialties | £3.1m * | £16.8m * | New baseline data and peer review shows lower expected improvements. The targets and trajectories have been recalibrated using national and international evidence (see FBC bibliography). The DH guidance on the use of QALYS has also changed slightly. These lower values are therefore considered more realistic. |
| Improved long term outcomes - stroke | £3.7m * | £1.3m * | New baseline data and peer review shows higher expected improvements. The introduction of the Stroke pathway at a national level has highlighted greater improvements are possible. |
| Access to diagnostics 24/7 | £2.5m * | £25.5m * | New baseline data and peer review shows lower expected improvements. Following discussions with clinicians and less evidence than was expected from peer reviewed journals, this has been reduced in value. |
| Improved access and clinical outcomes - trauma | £3.1m * | £4.5m * | New baseline data and peer review. |
| Compliance with NICE guidelines | In GEM | £0.8m | Part of Trust's Operating Expenses and benefit therefore within Trust's LTFM and within GEM |
| Repatriated Income Commissioner benefit | £0.3m | £1.5m | Reworking of all repat assumptions and refinement of historic providers |
| Increased Research activity | In GEM | £0.4m | Part of Trust's Operating Income and benefit therefore within Trust's LTFM and within GEM |
| Patients travel benefit | £0.3m | £0.3m | No change |
| Staff satisfaction with new premises | In GEM | £1.5m | Staff costs part of Trust's Operating Expenses and benefit therefore within Trust's LTFM and within GEM |
| Functional facility & CO2 saving | N/A | £0.3m | No benefit to be derived following discussions with Estates team's assessment that the building will be more energy efficient, but the increase in size will negate the expected benefit. |
| Flexibility/adaptability of accommodation | £0.3m | £0.3m | No change |

| Benefit description | FBC Valuation | OBC Valuation | Comments on variances |
|--|--------------------|------------------|--|
| Reduced falls | N/A | £3.0m | En-suite bathrooms reduce the falls which occur as frail elderly navigate the ward towards the shared facilities (according to the evidence). However, the introduction of single rooms could reduce the opportunities for direct observation which may counteract this positive effect. This has therefore been removed following concerns expressed by clinical staff. |
| Access to outside space | £1.2m | £1.2m | No change |
| Local economy Construction benefit | Total £1,133.3m | Total £977.8m | Inflationary change in Capital Costs |
| Other smaller benefits not captured in above | £1.0 | £2m | New baseline data and peer review. |
| Mortality rates for non 3Ts specialties | £3.0m * | N/A | Radiated benefit not measured in OBC |
| TOTALS | £1,151.8m | £1,037.2m | |

**Use Quality Adjusted Life Years (QALYs).
Note - values based on first full year effect.*

41. The changes reflect a better understanding of the evidence base; this is based on a more thorough literature review, including peer review. FBC data is also based on detailed discussions with Trust clinicians and other identified 'benefits owners' about benefits to be derived and the associated valuation, and for some benefits this has resulted in more conservative targets.
42. The changes would have affected all options in the OBC in a similar way and would not therefore have changed the overall ranking or choice of the preferred option.

FBC Confirmed Option

43. There has been little material change in the scope of the facilities proposed, or the overall valuation of the benefits which will accrue as a result of its implementation since the OBC was approved on the basis of a publicly funded solution. This remains the case at FBC: the preferred option for implementation is as set out in "Commercial Case: The Building", funded publicly.

FBC PFI Outlook

44. All major projects are required to test the potential for a PFI or PFI-style procurement. This methodology is available to the Trust and has a significant track record of delivery in the health sector. Since the OBC was prepared, two significant PFI schemes have secured financial close: North Bristol and Royal Liverpool & Broadgreen. In December 2012, HM Treasury launched an updated version of PFI, known as 'PF2'. The pilot PF2 scheme in the NHS is the Midland Metropolitan Hospital project at Sandwell & West Birmingham Hospital NHS Trust which is currently in procurement.
45. The key methodologies for assessing whether PFI is suitable for such a project is set out in the *Value-for-Money Assessment Guidance* published in November 2006 by HM Treasury, and Treasury's *Value-for-Money Assessment for PFI – Guidance for NHS Build Schemes*, dated November 2008.
46. There are two key parts to this assessment: the quantitative analysis, which looks at the likely PFI costs of a major procurement, and the qualitative analysis, which looks at a wide range of other factors. The quantitative assessment or the PFI VFM Test has subsequently been withdrawn by HM Treasury, but the qualitative assessment remains extant and is appended.

47. The Trust has used the GEM as a proxy for the quantitative assessment: the key difference being timing of the public-funding and PFI options, and the resultant difference in starting to realise the benefits of the programme. The two aspects, taken together, provide public sector organisations with a *framework* for decision-making about the most suitable way of procuring major infrastructure projects. It should be noted that under PFI there would still need to be Public Dividend Capital (PDC) made available to the Trust to meet Trust side costs like Fees and Equipment.

Conclusion of the FBC Qualitative Analysis

48. The Trust, in considering this analysis, could not definitively come to the conclusion based on the questions within the test that one procurement methodology (PFI or ProCure21) held a definitive advantage over the other.
49. It should be noted that, commonly, around 50% of the proposed risk transfer under a PFI procurement relates to the construction period: PFI incentivises building contractors to deliver a new facility on time, to cost and to a carefully agreed quality standard. PFI has a significant track record in this regard.
50. However, it is also possible to achieve the same effect under a publicly funded ProCure21 procurement. Under the ProCure21 national framework, the contract used is the *Engineering and Construction Contract, 2nd edition (Option C: target contract with activity schedule)*.
51. This would allow the Trust to enter into a Guaranteed Maximum Price (GMP), and the PSCP its supply chain would be contractually bound to deliver the new facilities to time, cost and quality. All prices negotiated with or secured by tendering from sub-contractors would be shared with the Trust on a transparent open-book basis. At the end of the construction period, the Trust would share any savings on an agreed basis.
52. The Trust could determine little advantage in one procurement method over another based on the quantitative test. However a key differentiator for the Trust is the *time* it would take to deliver the project under the alternative procurement routes.

FBC Public Sector Comparator (PSC) Outlook

53. The following table shows by Stage of development the annual cashflows of the preferred option and Public Sector Comparator (PSC).

Table 6 – Annual Cashflows of PSC

| | £000s | Decant | Design | Stage 1 | Stage 2 | Stage 3 |
|-----------------|----------------|---------------|---------------|----------------|----------------|--------------|
| Sunk costs | 34,533 | 8,738 | 25,795 | 0 | | |
| 2014/15 | 22,914 | 13,406 | 9,229 | 279 | | |
| 2015/16 | 28,368 | 11,538 | 5,069 | 11,761 | | |
| 2016/17 | 61,517 | | 1,992 | 59,525 | | |
| 2017/18 | 90,430 | | 1,992 | 88,437 | | |
| 2018/19 | 83,864 | | 234 | 83,630 | | |
| 2019/20 | 49,258 | | 234 | 47,200 | 1,824 | |
| 2020/21 | 26,199 | | 234 | | 25,965 | |
| 2021/22 | 42,302 | | 234 | | 42,047 | 21 |
| 2022/23 | 38,694 | | | | 37,748 | 946 |
| 2023/24 | 7,500 | | | | 0 | 7,500 |
| OUT-TURN | 485,577 | 33,682 | 45,013 | 290,831 | 107,584 | 8,467 |

Note: All figures £000s

54. The sunk costs shown above are to the end of 2013/14. The future cashflows are converted into inputs for the GEM by removing VAT and contingency balances. The Optimism Bias (OB) is presented separately in the GEM and due to the length of construction programme is assigned to Stage 2 cashflows.
55. As per OBC, other GEM inputs include Retained Estate capital expenditure, Life Cycle costs of the New Build, Service Costs (Operating Costs from Trust LTFM), Building Running Costs and Transitional Costs. The Financial Case highlights the changes in 3Ts specific costs. Apart from Capital Costs and their consequences, there is no real difference between OBC and FBC stage. However, Service Costs have grown since they are based on the Trust's Operating Expenses and these follow Trust performance and activity, which has also seen growth over the past few years. The Financial Case includes more information on Trust's financial history.

The FBC Outputs

Generic Economic Model and Monetisation of Benefits

56. The below table shows the summary outputs of the GEM, which is appended together with the summary outputs of the Monetised Benefits.

Table 7 – Monetised Benefits OBC vs FBC

| Option Appraisal Measure | Preferred Option | PFI (Partial) |
|--------------------------|------------------|---------------|
| Risk Adjusted NPC | 17,775 | 17,747 |
| Rank | 2 | 1 |
| Monetised Benefits NPV | -12,804 | -12,474 |
| Rank | 1 | 2 |
| Total NPC / (NPV) | 4,971 | 5,273 |
| Rank | 1 | 2 |
| Equivalent Annual Cost | 645.9 | 639.9 |
| Rank | 2 | 1 |
| Monetised Benefits EAV | -465.3 | -449.8 |
| Rank | 1 | 2 |
| Total EAC / (EAV) | 180.6 | 190.1 |
| Rank | 1 | 2 |

*Note: NPC = Net Present Cost. NPV = Net Present Value.
EAC = Equivalent Annual Cost. EAV= Equivalent Annual Value. All values are £'millions.*

57. The PFI comparator for FBC purposes has again been based on Partial Indexation, so that only certain elements of Unitary Payment increase with inflation.
58. As can be seen, the PFI is ranked second in four of the six measures and this is where the GEM has been used. Both the GEM's Risk Adjusted NPC and the Equivalent Annual Cost (EAC) are close and could be viewed as marginal.
59. As per OBC, the key scores that matter are net of benefits and in this the choice of Preferred Option is far from marginal. The overall effect is therefore in favour of the Preferred Option (public funding) as set out above.

60. The key aspect to this ranking is the timing of benefits. As described above, two years has been added to the assumed PFI timetable, but this timing could be a significant under-estimate (by at least one year based on the available evidence), also given the timings of the Local and General Elections in 2015.
61. In summary, although the GEM would suggest PFI marginally represents Value for Money (VfM), the overall Economic Case, when the value of the wider benefits to be accrued are taken into account, confirms the preferred option of procurement through public funding as VfM and this includes using the already-established P21 route with the PSCP Laing O'Rourke.
62. The Economic Case does not take into consideration the overall affordability and this must be the overriding consideration. If the Trust went down a PFI route, the Trust has limited funds out of which it would have to meet:
 - existing Operational Capital needs e.g. Equipment replacement, backlog maintenance, quality improvements and service developments;
 - loan repayments;
 - Unitary Payments (UP).
63. The estimated PFI UP for 3Ts would be £29.3m post Stage 1 and £39.0m post Stage 3. The Trust simply could not afford to meet both current Operational Capital requirements and Unitary Payments at this level.

The Absolute Value for Money test

64. The 'Absolute Value for Money test' looks at the incremental benefits and compares them to the incremental or relevant costs, to ensure that benefits are at least 4 times the value of costs. At OBC, the test was that benefits should be at least 2.4 times the value of costs.
65. This Benefit/Cost ratio has been identified by HM Treasury as a key test for approval of major business cases to ensure that there is an appropriate overall economic return for the investment being proposed.
66. The incremental benefits are provided above as the NPV of the monetised benefits and therefore the relevant costs must be measured as a NPC. The NPC of the relevant costs equates to £984m and therefore the benefits must be at least 4 times (4x) higher, or be a NPV of at least £3,936m. The NPC of relevant costs is appended.
67. The monetised benefits are valued at a NPV of £12,804m which equates to a ratio of benefits to costs of 13x. This clearly passes the Absolute VFM test.
68. The benefits valued using QALYs clearly influence the above ratio and therefore it makes sense to test how sensitive the results are. The table below shows how far the QALY benefits need to be reduced before there is an adverse impact on the Absolute VFM.

Table 8 – Sensitivity of QALY benefits

| QALY valued Benefit | Calculations Explained | Base Case | Sensitivity : QALY benefit (drivers/events) reduced by : | | | | | |
|--|--------------------------|----------------|--|---------------|---------------|---------------|---------------|---------------|
| | | | 20% | 40% | 50% | 70% | 80% | 100% |
| Mortality rates for trauma & 3Ts specialties | A | -2,369 | -1,895 | -1,422 | -1,185 | -592 | -474 | 0 |
| Improved long term outcomes - stroke | B | -2,825 | -2,260 | -1,695 | -1,412 | -706 | -565 | 0 |
| Access to diagnostics 24/7 | C | -1,914 | -1,531 | -1,148 | -957 | -478 | -383 | 0 |
| Improved access and clinical outcomes - trauma | D | -2,369 | -1,895 | -1,422 | -1,185 | -592 | -474 | 0 |
| Mortality rates for non 3Ts specialties | E | -2,278 | -1,823 | -1,367 | -1,139 | -570 | -456 | 0 |
| Total NPV | F = Sum of A to E | -11,755 | -9,404 | -7,053 | -5,878 | -2,939 | -2,351 | 0 |
| Other Benefits NPV | G | -1,049 | -1,049 | -1,049 | -1,049 | -1,049 | -1,049 | -1,049 |
| Total NPV (Incremental Benefits) | H = F+G | -12,804 | -10,453 | -8,102 | -6,927 | -3,988 | -3,400 | -1,049 |
| GEM NPC | I | 17,775 | 17,775 | 17,775 | 17,775 | 17,775 | 17,775 | 17,775 |
| Deduct NPC of existing costs | J | 16,791 | 16,791 | 16,791 | 16,791 | 16,791 | 16,791 | 16,791 |
| NPC of Relevant Costs | K = I - J | 984 | 984 | 984 | 984 | 984 | 984 | 984 |
| Incremental Benefits / Relevant Costs - should be > 4x | H / K | 13.0x | 10.6x | 8.2x | 7.0x | 4.1x | 3.5x | 1.1x |

69. It can be seen that the QALY benefits need to be reduced by +70% before there is an adverse effect on the Absolute VFM ratio.
70. As indicated many of the benefit targets have been reduced from OBC level so the FBC data is viewed as conservative. Add to this the above Absolute VFM ratio and the fact that the 'conservative' QALY data would have to reduce by +70% before there is an adverse impact, shows that the 3Ts economic case is robust.

Summary

| Summary Points | |
|----------------|---|
| 1. | There is generally little to choose between the PFI and Preferred Option when using the GEM outputs but under the GEM the PFI route scores as Value for Money. |
| 2. | The Monetisation of benefits showed that the Preferred Option delivered greater benefits over the period with PFI being two years behind in delivery of benefits. The Preferred Option therefore ranked higher than PFI. |
| 3. | The overall picture favours the Preferred Option as it delivers greater benefits to costs than the PFI route and the ranking showed this. |
| 4. | Affordability remains the key issue for the PFI route as the Unitary payment would have to be funded by either an increase in Surplus from operations e.g. more income or more CIPs, or be funded from limited Capital resources which would have an adverse effect on the safe delivery of services. |
| 5. | The delivery of benefits to the same timetable is again the issue for the PFI route. The preferred option is therefore to procure through a public funded route and as per approved OBC (version 17 dated January 2012) the preferred funding route remains 100% Public Dividend Capital. |
| 6. | The Absolute Value for Money is shown by the benefits to cost ratio, which at 13:1, is well above the 4:1 requirement and it would take a +70% reduction in the conservative QALY assumptions before there is an adverse effect. This demonstrates the robustness of the Economic Case. |