

Report on the Appraisal of Options

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### **DOCUMENT CONTROL SHEET**

Version	Date	Status
1	23/9/16	Non-financial appraisal (only) content updated
2	30/9/16	Financial appraisal added by SaTH.
		Economic summary completed.
3	10/10/2016	Minor corrections following review by Programme Board
4	27/10/2016	Amended to reflect revised OBC capital costs
5	7/11/2016	Clarification of impact of capital costs added in response to
		feedback from NHS Telford and Wrekin CCG





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## 1.0 EXECUTIVE SUMMARY

The purpose of this report is to present the results of the process to appraise the remaining shortlisted options for acute hospital services. Those results are set out in summary here, and discussed in detail in subsequent sections.

- In the **non-financial analysis**, Option C1 ranked 1<sup>st</sup> over Option B by a margin of 21.1%. The analysis demonstrates that, although various changes to the weighting and/or scoring of options could reduce that margin, no single analysis undertaken prompts a switch in ranking;
- In the **financial analysis** conversely, Option B ranked 1st over Option C1 by a margin of 0.8%;
- In the **overall economic analysis** which combines the result of the financial and non-financial analysis, it was found that Options B and C1 score significantly higher than Options A and C2. Depending on the methodology used, Option C1 outperforms Option B by a margin of either 10.2% (50:50 weighting of combined scores¹) or 25.7% (cost per benefit point).

Table 1: Results of Economic Appraisal

Results of Economic Appraisal							
Weighted Scores (50:50)	Option A	Option B	Option C1	Option C2			
Non-Financial Weighted	26.2	39.5	50.0	21.9			
Financial Weighted	45.7	50.0	49.6	49.3			
Combined Score	71.9	89.5	99.6	71.2			
Margin below 1 <sup>st</sup>	-27.8%	-10.2%	0.0%	-28.5%			
Rank	3	2	1	4			
Cost per Benefit Point	Option A	Option B	Option C1	Option C2			
Cost per benefit point	2434.40	1476.92	1175.04	2696.20			
Margin above 1 <sup>st</sup>	107.2%	25.7%	0.0%	129.5%			
Rank	3	2	1	4			

On the basis of these analyses, therefore, Option C1 appears to be the option that offers the greatest value for money, including in respect of the 'no change' option (Option A).

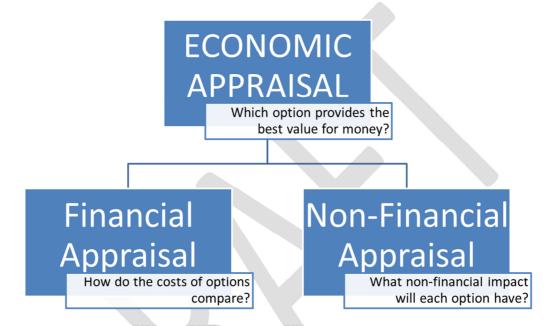
<sup>&</sup>lt;sup>1</sup> Further weightings have been tested as part of the sensitivity analysis but with no change in ranking (see Appendix D).



## 2.0 INTRODUCTION

## 2.1 Appraisal Process

The appraisal process consists of three parts and these are each briefly described below. It was endorsed by Programme Board in April 2015 and confirmed (with some minor enhancements) in April 2016. It reflects the guidance set out in the DH Capital Investment Manual and HM Treasury's *The Green Book: Appraisal and Evaluation in Central Government*.



#### **Financial Appraisal**

At the shortlisting stage there was an overarching affordability criterion which reflected the relatively high level information that was available at that point. That criterion has now been subsumed into the financial appraisal undertaken by the Technical Team using data provided by SaTH.

The financial appraisal covers capital, lifecycle and revenue costs, and is summarised in terms of:

- Net Present Cost (NPC) the total future costs of the project over a number of years expressed in terms of today's prices,
- Equivalent Annual Cost (EAC) the average annual impact at today's prices.

The analysis considers periods of both 30 years and 60 years.

#### **Non-financial Appraisal**

The remaining criteria from the shortlisting process—accessibility, quality, workforce and deliverability—provide the framework for this appraisal.



Full descriptions of the options were developed which addressed all four criteria. The criteria were weighted for importance, and the appraisal panel

#### **Economic Appraisal**

This final appraisal combines the outputs of the financial and non-financial appraisals in order to assess the overall value for money offered by each option.

There are a number of standard methodologies recommended by HM Treasury which can be used at that stage, alone or in combination. This report covers two approaches

#### a) Weighting financial and non-financial scores

A non-financial score for each option is derived from the weighted total of the score for each non-financial criterion, giving a maximum of 100 'benefit points'. A financial score is derived from awarding 100 points to the option with the lowest EAC. More costly options are awarded points in inverse proportion to this.

The two scores for each option are then combined, and the impact of different financial and non-financial weightings can be tested. Weightings used in this analysis are 25:75, 50:50 and 75:25.

#### b) Calculating the cost of each non-financial benefit point

Here, the NPC is converted into an EAC for each option, and a cost per benefit point is calculated. The option with the lowest cost per benefit point would be the preferred option.

## 2.2 Options

Initially, over 40 ideas were developed by an evaluation panel for how the programme's clinical model could be delivered. This panel then grouped these ideas into 13 scenarios.

At shortlisting, the panel appraised those scenarios and made a recommendation to Programme Board which reflected the five options which had scored most highly. The Board accepted this recommendation and, in addition, —

- Accepted that the 'do minimum' also needed to be included on the shortlist as required by national guidance; and
- Agreed that two 'obstetric variants' should also remain under consideration pending further clarity being gained about the relative location of consultant-led obstetrics services and the proposed Emergency Centre.

The resultant eight options were then developed in terms of physical solutions and associated revenue and capital costs.

At its meeting in August 2015, the Board was advised that:

a) The options involving a new site (D, E1, E2, F) were not affordable, and;



b) The remaining options (B, C1, C2) were potentially affordable in that they would cover their own costs and contribute to the Trust's underlying financial position.

The Board therefore agreed to recommend to Sponsor Boards that the new site options be excluded from further consideration. At the same time, work was undertaken to test previously excluded options. Board accepted the conclusion that the result of the shortlisting process had been robust.

As a result, the revised shortlist was reduced to four options. This recommendation has been approved by all Sponsor Boards, and it is these remaining options (summarised below) which this report addresses.

An appraisal was conducted in September 2015 but the Programme was unable to move forward at that point due the wider financial position in the local health economy.

As a result, SaTH was asked to develop solutions which addressed its most pressing workforce challenges, and to do so within the resource available locally. This present appraisal addresses the same four options but has considered them in terms of the revised delivery solutions developed by SaTH.

	Princess Royal Telford	Royal Shrewsbury Hospital
Α	No change	No change
В	EC UCC LPC W&C	DTC UCC LPC
$C_1$	DTC UCC LPC	EC UCC LPC W&C
$C_2$	DTC UCC LPC W&C	EC UCC LPC
EC Emergency	Centre DTC Diagnostic & Trea	tment Centre
UCC Urgent Care	Centre LPC Local Planned Car	e W&C Women & Children's Services



## 3.0 NON-FINANCIAL APPRAISAL

#### 3.1 Panel

Programme Board agreed in 2015 that the non-financial appraisal should be undertaken by a larger group than used for the shortlisting to enable a wider and more balanced representation. It maintained the approach of asking for nominations from those bodies which are sponsor or stakeholder members of the Programme (except those conflicted by a subsequent scrutiny role). However, instead of a single member from each organisation, the following distribution was agreed. This reflected a request from the Core Group that sponsor members should have a greater representation than stakeholder members and that, given that the focus of the appraisal is exclusively on acute options, there should be additional representation from SaTH.

Table 2: Non-financial Appraisal Panel

	SPONSOR/STAKEHOLDER MEMBERS	REPRESENTATION
1.	Shropshire Clinical Commissioning Group	2 clinicians, 1 manager
2.	Telford & Wrekin Clinical Commissioning Group	2 clinicians, 1 manager
3.	Powys Teaching Health Board	2 clinicians, 1 manager
4.	Shrewsbury and Telford Hospital NHS Trust	8 clinicians, 4 managers
5.	Shropshire Community Health NHS Trust	2 clinicians, 1 manager
6.	Shropshire Patient Group	3 patients (1 had to leave
		early before scoring)
7.	Telford & Wrekin Health Round Table	3 patients
8.	Healthwatch Shropshire	3 patients
9.	Healthwatch Telford & Wrekin	3 patients
10.	Powys Patients (via PtHB)	3 patients
11.	Powys Council	1 social care
12.	Shropshire Council	1 social care
		1 public health
13.	Telford and Wrekin Council	1 social care
		1 public health
14.	West Midlands Ambulance Service NHS FT	1 clinician
15.	Welsh Ambulance Services NHS Trust	1 clinician
16.	Robert Jones & Agnes Hunt Hospital NHS FT	1 clinician
17.	South Staffs & Shropshire Healthcare NHS FT	1 clinician
18.	LMC/GP Federation	1 clinician
19.	Shropshire Doctors' Cooperative Ltd	1 clinician (not nominated)
20.	NHS England	1 commissioner

The full panel was convened on 23<sup>rd</sup> September 2016 at Shrewsbury Town Football Club, and fifty members were in attendance, along with technical advisors, members of the programme team and observers from the Joint HOSC and Powys Community Health Council. The names of panel members are listed in *Appendix A*.



#### 3.2 Evidence

The panel was supplied with evidence which addressed the four non-financial criteria. This was supplied to the panel in advance of the appraisal (both electronically and in hard copy), and presentations of the evidence were made on the day. Substantial time was also set aside to enable panel members to seek clarification about the evidence provided.

#### **Accessibility**

The travel time analysis for this criterion was based on actual activity levels at SaTH during 2015-16. This enabled an assessment to be made of the travel time from each full postcode to each hospital site.

It models the impact of each option in terms of that historic activity, to show what the impact would have been were the configurations described in each option to have been in place. It is broken down into the following categories:

- Urgent Care
- Emergency Care
- Complex Planned Care
- Non-complex Planned Care
- Outpatients
- Women's and Children's Services.

For attendances at the EC, road travel times only are presented since admission is expected to be by ambulance only; for DTC, road and public transport times are presented. Both reflect off-peak conditions (9a.m. to 4 p.m.) when the bulk of activity takes place.

The focus of this analysis is on the differential impact of each option - that is, the marginal change that would result from implementing options B, C1 and C2 by comparison with Option A (the 'do minimum').

This impact is further broken down in terms of nine geographic localities and, so far as has been possible from the available data, of groups with protected characteristics (e.g. gender, ethnicity, age and deprivation).

A narrative summary of the analysis is provided in the option templates, and the detailed data tables and maps can be found in the appendices for cross-referencing.

Maps show the differential effects of assuming all activity continues to take place on a SaTH site. To reflect patient choice, data tables also show the impact of travelling to a nearer alternative provider.

Shaded areas on the maps reflect the average travel time for each Lower Super Output Area



(LSOA), each of which has a population of between 1,000 and 3,000. It is important that panel members are mindful of the relative geographic size of LSOAs since there is no material difference between a large red rural area and a small red urban area.

#### Quality

There were two main components in relation to the quality criterion. The first concerned the impact of the options on time critical journeys to EC; the second summarised the impact of each option on the three quality domains of safety, effectiveness and patient experience.

#### a) Care of patients with time-critical conditions

Data is provided on time-critical ambulance conveyance times by locality. This information relates to 'Red 1' (West Midlands Ambulance Service) and 'Category A' (Welsh Ambulance Service) with a handful of additional incidents where the chief complaint was recorded as Red 1, Cardiac Arrest or Life Threatening Illness. These are considered, at point of triage, as being the most time critical episodes of ambulatory care.

#### b) Other clinical quality considerations

Summary tables providing an indication of the potential impact of each option in terms of the three quality domains were developed. The key considerations addressed were the favourable and adverse impacts of:

- i) Consolidating emergency and planned services on single sites;
- ii) Whether or not consultant-led obstetric activity is co-located with EC; and
- iii) The extent of new or significantly refurbished facilities, and the physical disposition of services within each site, which might also be considered to have an impact on both patient and staff experience.

#### **Workforce**

Clinical workforce shortages are an increasingly critical element of the programme's case for change.

The impact of these shortages were set out in relation to Option A. For the other options, the potential of each option to improve recruitment and retention was summarised.

#### **Deliverability**

For this criterion, the estates work required to deliver each option was summarised, drawing on work undertaken by external technical advisors. Outline plans and timescales were presented to the panel workshop.

Beyond physical deliverability, there are also differential issues in terms of the acceptability of each option to the public and other stakeholders, with supporting evidence from a stratified telephone survey.



## 3.3 Weighting Criteria

The panel was asked to assign a relative weighting to each criterion. To inform this, the panel was presented with the weightings agreed in the shortlisting process and in the 2015 appraisal, and with a weighting derived from the public telephone survey.

Panel members agreed to use the same weighting used in the 2015 appraisal:

**Table 3: Agreed Non-financial Weightings** 

<b>Evaluation Criteria</b>	Shortlisting 2015	Appraisal 2015	Public Survey 2015	Public Survey 2016	agreed weighting
ACCESSIBILITY	29.0% (2)	25.1% (3)	26.4% (2)	25.8% (3)	25.1%
QUALITY	32.3% (1)	31.2% (1)	27.5% (1)	27.1% (1)	31.2%
WORKFORCE	27.4% (3)	27.3% (2)	26.4% (2)	27.0% (2)	27.3%
DELIVERABILITY	11.3% (4)	16.3% (4)	19.7% (4)	20.1% (4)	16.3%
					100.0%

Additional weightings were used to test the sensitivity of the results, and these are set out in **Appendix B**.

## 3.4 Scoring Options

Panel members were asked to score each of the four options against each of the four criteria using a range of 1-7, where a higher number indicated a stronger performance against a criterion.

Panel members recorded their own scores initially, and these were then combined and weighted to produce initial weighted totals. The totals were presented back to the panel which was then invited to discuss any areas of particular divergence in scores.

Following discussion, panel members were given the opportunity to revise any of their scores if they wished to. None chose to.

#### 3.5 Non-Financial Results

The following table summarises the results of the non-financial appraisal. Detailed results can be found in *Appendix B*.



Table 4: Summary of Non-financial Scores

TOTALS	Agreed	Total Weighted Scores				
TOTALS	Weighting	Option A	Option B	Option C1	Option C2	
ACCESSIBILITY	25.1%	59.8	45.2	65.1	47.7	
QUALITY	31.2%	39.0	65.0	91.5	24.7	
WORKFORCE	27.3%	26.0	67.0	76.8	26.2	
DELIVERABILITY	16.3%	19.6	40.5	42.4	22.2	
	100.0%	144.4	217.6	275.8	120.8	
	RANK	3	2	1	4	
	DIFFERENCE	47.7%	21.1%	0.0%	56.2%	

A number of sensitivity analyses were undertaken to test the validity of the results. This included breaking down weighted scores in terms of the following groupings:

- Clinicians and non-clinicians (where the former includes social care and public health professionals);
- Geographic groupings (those whose organisations are solely focused on Shropshire, Telford & Wrekin or Powys plus other non-geographic organisations), and
- The type of body represented (commissioners, SaTH, other providers and public or patient representatives which included Local Authority representatives).

The following table summarises the scores from these groupings.

Table 5: Summary of Non-financial Sensitivity Analysis

Cooring Analysis	Total Weighted Scores					
Scoring Analysis	Option A	Option B	Option C1	Option C2		
OVERALL	144.4	217.6	275.8	120.8		
Clinicians	69.2	103.4	138.6	59.4		
Non-clinicians	75.2	114.2	137.2	61.4		
Shropshire	26.1	41.2	57.8	22.4		
Telford & Wrekin	33.5	67.8	49.1	31.6		
Powys	28.9	24.1	48.6	18.1		
Non-geographic	55.9	84.5	120.2	48.8		
Commissioners	32.5	46.6	51.9	25.7		
SaTH	33.6	49.2	72.4	26.7		
Other Providers	36.2	59.7	73.7	32.7		
Public/Patient	42.1	62.1	77.8	35.7		



The colour coding highlights the highest scoring options (deep green) through to the lowest scoring options (deep red). It enables an at-a-glance assessment of any areas of significant divergence between groups.

#### a) Weightings

- i) Applying equal weightings to all criteria resulted in the same ranking though with a slightly reduced margin of 19.4% between C1 and B.
- ii) Applying the weightings derived from the public telephone survey also resulted in the same ranking though with a reduced margin of 20.2% between C1 and B.
- switch the ranking. If the only criterion was Deliverability (a test applied in the previous appraisal) awarding a 100% weighting to deliverability would therefore still result in C1 coming first, albeit by a reduced margin of 4.6%.

#### b) Scoring

- i) The most significant difference in scoring between the leading options relates to the accessibility and quality criteria under which C1 scored 43.9% and 40.9%, respectively, higher than B.
- ii) Adding in scores for the Shropshire patient representative who had to leave early (using the average of other Shropshire patient representatives) very marginally increases C1's leading margin to 21.2%.
- iii) Adding in scores for the missing GP Federation representative (using the average of other GP panel members) very marginally reduces C1's leading margin to 21.0%.
- iv) C2 scored lowest across all groupings, followed by A (except in the case of Powys members where A was ranked 2<sup>nd</sup> and B 3<sup>rd</sup>).
- v) If the only scores counted are those of the CCG representatives, the outcome switches with B leading C1 by a margin of 5.2%.
- vi) If options are assessed in terms of the maximum scores awarded against each criterion, B and C1 come equal 1<sup>st</sup>.
- vii) If options are assessed in terms of the minimum scores awarded against each criterion, C1 comes 1<sup>st</sup> by a very substantial margin, indicating that the panel regarded it as the 'least worst' option as well as the best.
- viii) Finally, to test the impact of extreme scores, scores of zero and 1 were raised to 2 and scores of 7 were reduced to 6. Again, no change of ranking resulted, although C1's margin reduced to 16.8%



#### c) Change from 2015 Appraisal

- Option A scored higher than before against all criteria (Access +2, Quality +26, Workforce +16, Deliverability +2);
- ii) Option B scored lower on Access (-8), Quality (-35) and Workforce (-8) but higher on Deliverability (+22.5);
- iii) Option C1 scored higher on all criteria (Access +12, Quality +17, Workforce +17, Deliverability +34.5);
- iv) Option C2 scored lower across the board (except from Powys scorers) and replaced Option A as the lowest scoring option;
- v) The increased differential between Option C1 and Option B was most evident in the scores of representatives from provider organisations and those with no explicit geographical affiliation but
  - a. Telford and Wrekin scorers also increased their scores for both B and C1 (and more so for C1 than for B),
  - b. Shropshire scorers decreased their scores for both B and C1 (to a comparable degree), and
  - c. Powys scorers increased their scores for both B and C1 (and more so for B than for C1).

The 2015 appraisal, in recording the same preference for C1 over other options, noted that the panel appeared to have a concern about increasing the disadvantage of those who already have to travel further, especially for emergency care.

In the present appraisal, it was further noted that some of the disadvantages of the change options (B, C1 and C2) had been mitigated through the more balance site model offered in the revised delivery solutions.

The significant change in scoring for C2, resulting in it moving from 3<sup>rd</sup> to 4<sup>th</sup> ranking, reflects the new clinical evidence that had become available since last year, therefore precluding on clinical grounds the potential for women and children's services to remain at PRH under where the preferred site for EC is RSH.



## 4.0 FINANCIAL APPRAISAL

#### 4.1 Introduction

The shortlisted options have been fully evaluated in line with the requirements of Department of Health Business Case Guidance and the HM Treasury *Green Book* to assess which option represents potentially the best value for money (VfM).

The economic analysis thus:

- Covers an appraisal period that ensures a full 60-year operational use of new facilities is reflected, using a discount rate of 3.5%;
- Excludes VAT from all cash flows;
- Reflects capital cash flows at current cost levels calculated by discounting outturn cash flows by 2.5% GDP deflator;
- Makes provision where appropriate for a residual asset value to be included at the end of the appraisal period;
- No provision is made for any potential Opportunity Costs;
- Includes lifecycle costs for building and engineering elements based on standard NHS
  asset lives and replacement cycles, and lifecycle of equipment, with replacement
  occurring between 5-15 years depending upon the classification of the asset;
- Incorporates cash flows for all revenue costs;
- A quantified assessment of risk has not been undertaken;
- Assumes a price base of 2016/17.

All these cost inputs have been modelled to establish, for each option:

- The Net Present Cost (NPC) of the discounted annual cash flows over the whole appraisal period;
- The Equivalent Annual Cost (EAC), being an annualised equivalent of the NPC.

## 4.2 Cost Inputs

## 4.2.1 Capital

A capital cost assessment of the short listed options has been undertaken by Rider Hunt based on NHS Departmental Cost Allowances (DCAGs), applied to the proposed schedules of accommodation.

The costing has been undertaken in accordance with Department of Health guidance for the costing of capital schemes. Separate costs forms have been produced for the individual sites and options



with levels of optimism bias, VAT recovery and inflation assessed individually to provide more realistic costings.

**Table 6: Capital Costs of Options** 

Costs	Option A	Option B	Option C1	Option C2
Costs	£000s	£000s	£000s	£000s
Works		123,554	153,837	145,450
Fees		16,062	19,999	18,908
Non-Works		400	400	400
Equipment		12,867	14,797	13,862
Contingencies		12,355	15,384	14,545
Optimism Bias		28,090	36,795	34,770
VAT		34,048	42,668	40,335
Total at PUBSEC 195 Reporting Level		227,376	283,878	268,270
Total at Outturn (at PUBSEC 214)		249,613	311,636	294,497

#### Key assumptions are:

- The completion on site of each option has been separately identified;
- The Cost Index at Reporting Level is defined by the Department of Health to provide a consistent means of comparison between different projects: the current PUBSEC Index level is 195 with the costs being updated to the latest index, PUBSEC 214;
- Formal indices are no longer published in respect of equipment costs therefore, the costs are based on relative percentage requirements within new build, refurbishments and backlog areas;
- Professional fees have been included at 13% across all options;
- Planning Contingencies have been incorporated at 10% across all options;
- Optimism Bias has been calculated utilising HM Treasury's and Department of Health standard template and the percentage additions reflect the relative nature of each project. For each option the optimism bias has been assessed for each site separately to make it more appropriate to the works within each site;

VAT is potentially recoverable on all construction projects and is generally related to the amount of refurbishment work but can also be recoverable against some elements of new build. For all options, recovery has been included at 100% against all fees and this is shown in the cost forms as zero VAT in accordance with the standard NHS forms.



#### 4.2.2 Revenue

Baseline 2016/17 revenue costs and forecasts for each option have been provided by SaTH as part of the analysis supporting the affordability assessment. The economic appraisal uses these figures, with the exception of the provision for inflation, in order to provide a consistent 2016/17 price base. Capital charges are also excluded from the VfM analysis.

Baseline revenue costs for 2016/17 are shown below.

Table 7: Baseline Revenue Costs 2016/17

Expenditure	Revenue Expenditure £000s
Pay	233,691
Non Pay	102,699
Total VfM	336,390

Table 8 below provides a summary of the assessed cost changes expected by 2020/21 under each of the options.

Sustainable services project changes represent:

- Additional staffing (£4.6m under Option A only);
- Workforce reductions comprise of three separate elements, new ways of working and new roles, efficiencies and savings directly related to service change and pathway redesign
- Further reductions in workforce relate to activity changes, duplicate costs and IT;
- Savings are site and option specific;
- Within the development options, there is a net savings range of some £3.2m, between Option C2 (lowest) at £11.4m and Option B (highest) at £14.6m.

Table 8: Revenue Cost (Savings) – in 2020/21 at 2016/17 price base

(Savings)/Costs	Option A	Option B	Option C1	Option C2
	£000s	£000s	£000s	£000s
Sustainable Services Project Savings	4,600	(14,589)	(14,203)	(11,377)

## 4.2.3 Opportunity Costs and Residual Values

No specific provision has been made for Opportunity Costs since:

 Full lifecycle provision has been made for all facilities including elements refurbished on a light touch basis and those simply retained as they are, as well as New Build and Major Refurbished facilities.



In respect of Residual Values, provision reflects the assumption that New Build and Major refurbished elements will be maintained to their as built standard and therefore the residual value remains.

## 4.3 Financial Analysis Outputs

### 4.3.1 Summary of VfM analysis – 60 Year Appraisal Period

Details of the economic model are attached at *Appendix C*, but the economic impact of the cash flows described in Section Financial Appraisal 4.0 is summarised in Table 9.

Table 9: Economic Costs of Options - 60 year appraisal period

	Do nothing	Option B	Option C1	Option C2		
	£000s	£000s	£000s	£000s		
Net Present Cost	9,356,590	8,555,517	8,659,431	8,705,510		
Equivalent Annual Cost	351,473	321,381	324,070	325,794		
Economic Value Marginal EAC over 1st	4	1	2	3		
Ranked	30,092	0	2,689	4,413		
% over Option First Ranked	9.4%	0.0%	0.8%	1.4%		

Table 10 below provides a summary of the marginal EAC of each option, over that for Option B, split between Capital and Revenue elements:

Table 10: Summary of EAC Variance over Option B

Option	Rank		Capital EAC Variance £000s	Revenue EAC Variance £000s	Total EAC Variance £000s	
Option C1		2	2,374	315	2,689	
Option C2		3	1,674	2,739	4,413	
Option A		0	(10,413)	40,505	30,092	

From the analysis that has been undertaken it is evident that, in economic terms:

- The cost of each of the development options (excluding Option A) falls within a relatively tight band range of just 1.4%;
- Option B is preferred by a margin of 0.8% (EAC £2.689m) over Option C1;
- The Do Nothing (Option A) is least preferred, by a margin of 9.4% (EAC £30.092m).



### 4.3.2 Sensitivity Analysis – Appraisal Period

In order to test the robustness of the economic analysis, an appraisal has also been undertaken to assess the VfM position over a 30-year appraisal period.

Cost inputs and assumptions mirror those detailed above with the exception of Residual Value, where it is assumed that 50% of the value of new/major refurbished facilities would be retained at the end of the 30-year period.

A summary of the outcome of this sensitivity is shown in Table 11:

Table 11: Economic Costs of Options – 30 Year Appraisal Period

	Do nothing	Option B1	Option C1	Option C2
	£000s	£000s	£000s	£000s
Net Present Cost	7,478,605	6,889,470	7,039,144	7,072,871
Equivalent Annual Cost	351,265	323,594	326,332	327,895
Economic Value	4	1	2	3
Marginal EAC over 1st				
Ranked	27,671	0	2,738	4,301
% over Option First Ranked	8.6%	0.0%	0.8%	1.3%

This analysis confirms that under a shorter appraisal period:

- Whilst there is less net annual revenue cost impact under Option A, it remains least preferred by a margin of 8.6%;
- Option B again remains preferred by a margin of 0.8%;

## 4.3.3 Sensitivity Analysis – Income and Expenditure

A sensitivity analysis has been undertaken relating to demography, QIPP, CIP, repatriation and sustainable services workforce reductions. It has compared initial assumptions and the percentage move required for there to be an impact on affordability on each option, this is detailed in table 13.

Table 12: Sensitivity analysis

Element of Sensitivity	Assumptions within Model	Option B1	Option C1	Option C2
Demography	2% pa	58%	85%	89%
QIPP	Net QIPP Loss £10.5m over 4 years	168%	125%	118%
CIP	£31.0m over 4 years (2.1%)	77%	92%	94%
Repatriation	Net gain of £6.0m over 4 years	-19%	57%	68%
	Option B1 Saving of £14.4m Option C1 Saving of £14.2m			
SSP Workforce	Option C1 Saving of £11.4m	66%	88%	89%



### 4.4 Financial Conclusions

On the basis of the analysis undertaken:

- Option B is preferred from a financial perspective on the basis of the figures provided;
- The Value for Money margin between all the development options is relatively close with the exception of Option A. This is the case even though there are substantial differences in the initial capital requirements of each of the change option. Once viewed from the perspective of whole life costs (as required by guidance), however, these differences become minimal. For example, although Option B has a capital requirement of £250m and Option C1 of £312m (c.25% more), the final difference in terms of equivalent annual cost is just £2.7m (0.8%)





## 5.0 OVERALL CONCLUSION

As noted in Section 2.1, two alternative methods have been used to combine the results of the Non-Financial and Financial Appraisals in order to test for robustness:

- Cost per Benefit Point;
- Weighted for Financial / Non-Financial Factors.

Based on the results of the analysis in Sections 3.5 and 4.3, the results are as follows:

**Table 13: Overall Economic Results** 

	Option A	Option B	Option C1	Option C2
Total Weighted Non-Financial Score	144.38	217.6	275.79	120.83
Benefits Margin below 1st	-47.7%	-21.1%	0.0%	-56.2%
Benefits Rank	3	2	1	4
Total EAC (£m)	351,473	321,381	324,070	325,794
Financial Margin above 1st	9.4%	0.0%	0.8%	1.4%
Financial Rank	4	1	2	3
Cost per Benefit Point (£)	2,434.40	1,476.92	1,175.04	2696.20
Overall Margin below 1st	107.2%	25.7%	0.0%	129.5%
Overall Rank	3	2	1	4
Combined Scores (50:50)	71.9	89.5	99.6	71.2
Overall Margin below 1st	-27.8%	-10.2%	0.0%	-28.5%
Overall Rank	3	2	1	4

No material change in the results is caused by the application of the variant weightings from the non-financial appraisal.

A further sensitivity analysis has been undertaken to examine what weighting would need to be applied to the Non-Financial / Financial Results in order for Option B (the second ranked Option overall) to be preferred in Overall Terms to Option C1. This shows that, in order for the combined scores of Options B and C1 to be the same, the relative weightings for financial and non-financial analyses would need to be set at 96.2% and 3.8%, respectively.



# **APPENDIX A – NON-FINANCIAL PANEL**

ORGANISATION	REPRESENTATIVE			
Shropshire Clinical	Dr Jessica Sokolov, GP Board Member			
Commissioning Group	Dr Steve James, GP Board Member			
	Julie Davies, Director of Strategy & Redesign			
Telford & Wrekin Clinical	Dr Mike Innes			
Commissioning Group	Anna Hammond, Deputy Executive for Commissioning and Planning			
	Alison Smith, Director of Governance			
	Victoria Deakins, Lead Therapist			
Powys Teaching Health Board	Andrew Cresswell, Interim North Locality General Manager			
	Lesley Sanders			
Shrewsbury and Telford Hospital	Dr Kevin Eardley, Care Group Director - Unscheduled Care			
NHS Trust	Mr Mark Cheetham, Care Group Director - Scheduled Care			
	Ms Louise Sykes, Consultant Anaesthetist - Scheduled Care			
	Dr Subramanian Kumaran, Consultant in Emergency Medicine			
	Mr Andrew Tapp, Care Group Director - Women & Children			
	Julia Clarke, Director of Corporate Governance			
	Sarah Bloomfield, Chief Nursing Officer			
	Dr Edwin Borman, Medical Director			
	Neil Nisbet, Director of Finance			
	Victoria Maher, Director of HR			
	Debbie Jones, Radiology Care Group Manager			
	Robin Hooper, Non-Executive Director			
Shropshire Community Health	Dr Ganesh, Medical Director			
NHS Trust	Andrew Thomas, Head of Nursing & Quality for Adults			
	Tricia Finch, Head of Business & Development			
Shropshire Patient Group	Jane Niblock			
	Richard Chanter			
	Graham Shepherd			
Telford & Wrekin Health Round	Derek Hall			
Table	Janet O'Loughlin			
	Jane Pickavance			
Healthwatch Shropshire	Angela Saganowska - Healthwatch Shropshire Board member			
	Daphne Lewis – Healthwatch Shropshire Chair			
	Vanessa Barratt- Healthwatch Shropshire Board member			
Healthwatch Telford & Wrekin	Kate Ballinger – Manager			
	David Bell – Healthwatch Telford & Wrekin Member			
	Janet O'Loughlin – Member			
Powys Patients (via PtHB)	Joy Jones			
	Frances Hunt			
	Robert Wright			
Shropshire Council	Carole Croxford, Team Leader			
	Lee Chapman, Portfolio Holder for Adult Services			
Telford and Wrekin Council	Julie Smith			



ORGANISATION	REPRESENTATIVE
	Clive Jones
Powys County Council	Jen Jeffreys, Senior Manager - Older People
West Midlands Ambulance Service NHSFT	Mark Docherty, Director of Nursing, Quality & Clinical Commissioning
Welsh Ambulance Services NHS	
Trust	David Watkins
Robert Jones & Agnes Hunt	
Hospital NHS FT	David Ford, Consultant Orthopaedic Surgeon
South Staffs & Shropshire	
Healthcare NHS FT	Alison Blofield, Consultant Nurse and Clinical Director
LMC/GP Federation	(not provided)
Shropshire Doctors' Cooperative	
Ltd	Emmanuel Le Goff, Operations Director
NHS England	Richard Woosley, Assurance & Delivery Manager





# **APPENDIX B - NON-FINANCIAL SCORING**

TOTALS	Agreed	Total Weighted Scores				
IUIALS	Weighting	Option A	Option B	Option C1	Option C2	
ACCESSIBILITY	25.1%	59.8	45.2	65.1	47.7	
QUALITY	31.2%	39.0	65.0	91.5	24.7	
WORKFORCE	27.3%	26.0	67.0	76.8	26.2	
DELIVERABILITY	16.3%	19.6	40.5	42.4	22.2	
	100.0%	144.4	217.6	275.8	120.8	
	RANK	3	2	1	4	
	DIFFERENCE	47.7%	21.1%	0.0%	56.2%	

TOTALS	Equal		Total Weighted Scores			
TOTALS	Weighting	Option A	Option B	Option C1	Option C2	
ACCESSIBILITY	25.0%	59.5	45.0	64.8	47.5	
QUALITY	25.0%	31.3	52.0	73.3	19.8	
WORKFORCE	25.0%	23.8	61.3	70.3	24.0	
DELIVERABILITY	25.0%	30.0	62.0	65.0	34.0	
	100.0%	144.5	220.3	273.3	125.3	
	RANK	3	2	1	4	
	DIFFERENCE	47.1%	19.4%	0.0%	54.2%	

_000	TOTALS	Public Survey	Total Weighted Scores			
	IUIALS	Weighting	Option A	Option B	Option C1	Option C2
	ACCESSIBILITY	25.8%	61.4	46.4	66.8	49.0
	QUALITY	27.1%	33.9	56.4	79.4	21.4
	WORKFORCE	27.0%	25.7	66.2	75.9	25.9
	DELIVERABILITY	20.1%	24.1	49.8	52.3	27.3
		100.0%	145.0	218.8	274.4	123.7
		RANK	3	2	1	4
		DIFFERENCE	47.1%	20.2%	0.0%	54.9%

TOTALS		Total Weighted Scores			
TOTALS	Weightings	Option A	Option B	Option C1	Option C2
ACCESSIBILITY	0.0%	0.0	0.0	0.0	0.0
QUALITY	0.0%	0.0	0.0	0.0	0.0
WORKFORCE	0.0%	0.0	0.0	0.0	0.0
DELIVERABILITY	100.0%	120.0	248.0	260.0	136.0
	100.0%	120.0	248.0	260.0	136.0
	RANK	4	2	1	3
	DIFFERENCE	53.8%	4.6%	0.0%	47.7%



MAXIMUM	Agreed	Total Weighted Scores			
SCORES	Weighting	Option A	Option B	Option C1	Option C2
ACCESSIBILITY	25.1%	1.8	1.8	1.8	1.8
QUALITY	31.2%	1.9	2.2	2.2	1.9
WORKFORCE	27.3%	1.6	1.9	1.9	1.6
DELIVERABILITY	16.3%	1.1	1.1	1.1	1.1
	100.0%	6.4	7.0	7.0	6.4
	RANK	3	1	1	3

MINIMUM	Agreed		Total Weighted Scores			
SCORES	Weighting	Option A Option B Option C1 Option C				
ACCESSIBILITY	25.1%	0.3	0.0	0.8	0.3	
QUALITY	31.2%	0.3	0.3	0.9	0.0	
WORKFORCE	27.3%	0.0	0.3	0.5	0.0	
DELIVERABILITY	16.3%	0.0	0.2	0.3	0.2	
	100.0%	0.6	0.7	2.6	0.4	
	RANK	3	2	1	4	
	DIFFERENCE	78.0%	70.8%	0.0%	83.8%	

CLINICIANIC	Annual Control of the	Total Weighted Scores				
CLINICIANS	Weighting	Option A	Option B	Option C1	Option C2	
ACCESSIBILITY	25.1%	29.4	20.9	32.7	23.9	
QUALITY	31.2%	18.1	31.2	45.9	10.9	
WORKFORCE	27.3%	11.8	32.5	38.8	12.0	
DELIVERABILITY	16.3%	10.0	18.8	21.2	12.6	
	100.0%	69.2	103.4	138.6	59.4	
	RANK	3	2	1	4	

NON-CLINICIANS		Total Weighted Scores				
NON-CLINICIANS	Weighting	Option A	Option B	Option C1	Option C2	
ACCESSIBILITY	25.1%	30.4	24.4	32.4	23.9	
QUALITY	31.2%	20.9	33.7	45.6	13.7	
WORKFORCE	27.3%	14.2	34.4	38.0	14.2	
DELIVERABILITY	16.3%	9.6	21.7	21.2	9.6	
	100.0%	75.2	114.2	137.2	61.4	
	RANK	3	2	1	4	



Geographic Summary	Total Weighted Scores			
	Option A	Option B	Option C1	Option C2
Shropshire	26.1	41.2	57.8	22.4
Telford & Wrekin	33.5	67.8	49.1	31.6
Powys	28.9	24.1	48.6	18.1
Non-geographic	55.9	84.5	120.2	48.8

CHRODCHIDE	Total Weighted Scores				
SHROPSHIRE	Option A	Option B	Option C1	Option C2	
ACCESSIBILITY	11.6	7.3	13.8	9.8	
QUALITY	6.6	11.9	19.4	4.4	
WORKFORCE	4.4	13.4	15.8	4.6	
DELIVERABILITY	3.6	8.6	8.8	3.6	
	26.1	41.2	57.8	22.4	
	3	2	1	4	

TELFORD & WREKIN	Total Weighted Scores				
TELFORD & WKEKIN	Option A	Option B	Option C1	Option C2	
ACCESSIBILITY	11.8	16.3	12.1	9.8	
QUALITY	10.0	20.6	16.2	8.1	
WORKFORCE	7.1	19.4	13.7	8.7	
DELIVERABILITY	4.6	11.4	7.2	4.9	
	33.5	67.8	49.1	31.6	
	3	1	2	4	

DOMAS	Total Weighted Scores				
POWYS	Option A	Option B	Option C1	Option C2	
ACCESSIBILITY	10.1	3.5	11.8	6.5	
QUALITY	8.4	7.2	15.6	4.1	
WORKFORCE	6.0	9.0	13.4	4.4	
DELIVERABILITY	4.4	4.4	7.8	3.1	
	28.9	24.1	48.6	18.1	
	2	3	1	4	

NON-GEOGRAPHICAL	Total Weighted Scores			
NON-GEOGRAPHICAL	Option A	Option B	Option C1	Option C2
ACCESSIBILITY	26.4	18.1	27.4	21.6
QUALITY	14.1	25.3	40.3	8.1
WORKFORCE	8.5	25.1	33.9	8.5
DELIVERABILITY	7.0	16.0	18.6	10.6
	55.9	84.5	120.2	48.8
	3	2	1	4



G	Total Weighted Scores				
Group Summary	Option A	Option B	Option C1	Option C2	
Commissioner	32.5	46.6	51.9	25.7	
SaTH	33.6	49.2	72.4	26.7	
Other Provider	36.2	59.7	73.7	32.7	
Patient/Public	42.1	62.1	77.8	35.7	
CCGs	19.0	29.8	28.2	17.4	

COMMISSIONED	Total Weighted Scores				
COMMISSIONER	Option A	Option B	Option C1	Option C2	
ACCESSIBILITY	12.3	9.5	12.1	9.8	
QUALITY	8.1	14.1	17.5	4.4	
WORKFORCE	6.0	15.0	14.5	6.3	
DELIVERABILITY	6.0	8.0	7.8	5.2	
	32.5	46.6	51.9	25.7	
	3	2	1	4	

SaTH	Total Weighted Scores				
Sain	Option A	Option B	Option C1	Option C2	
ACCESSIBILITY	17.1	10.3	17.3	12.6	
QUALITY	7.5	14.1	24.0	4.4	
WORKFORCE	4.9	14.8	19.9	4.9	
DELIVERABILITY	4.1	10.1	11.1	4.9	
	33.6	49.2	72.4	26.7	
	3	2	1	4	

OTHER PROVIDER	Total Weighted Scores				
OTHER PROVIDER	Option A	Option B	Option C1	Option C2	
ACCESSIBILITY	15.8	12.8	16.6	13.3	
QUALITY	10.0	18.4	24.7	6.6	
WORKFORCE	6.3	18.3	21.0	6.3	
DELIVERABILITY	4.1	10.1	11.4	6.5	
	36.2	59.7	73.7	32.7	
	3	2	1	4	

PATIENT/PUBLIC	Total Weighted Scores				
PATIENT/PUBLIC	Option A	Option B	Option C1	Option C2	
ACCESSIBILITY	14.6	12.6	19.1	12.1	
QUALITY	13.4	18.4	25.3	9.4	
WORKFORCE	8.7	18.9	21.3	8.7	
DELIVERABILITY	5.4	12.2	12.1	5.5	
	42.1	62.1	77.8	35.7	
	3	2	1	4	

CCGs		Total Weigl	hted Scores		
ccus	Option A	Option B	Option C1	Option C2	
ACCESSIBILITY	7.0	6.5	6.3	6.3	
QUALITY	4.4	8.7	9.7	3.1	
WORKFORCE	3.6	9.3	8.2	4.4	
DELIVERABILITY	4.1	5.2	4.1	3.6	
	19.0	29.8	28.2	17.4	
	3	1	2	4	



# **APPENDIX C - ECONOMIC MODEL**

V	New Capital at Current - Land	Land Calan	Opportunity		Lifecycle	Lifecycle New	Lifecycle		Davi.	Nan Davi	Other	Total	Tatal sasts		Net Present
<b>Year</b> 0	& Works	Land Sales	Costs	Value	New Works	Equipment	Existing 9,768	<b>CAPITAL</b> 9,768	-	Non Pay 104,683		Revenue 336,390	Total costs 346,158	Factor 1.0000	Cost 346,158
1							9,768			104,983					
2							9,768	9,768	234,581	105,283	-2,765		346,866	0.9335	
3							9,768			105,260	-3,193	337,348			
4							9,768	-		105,560			352,302		
5							9,768	-		105,560			352,302		
6 7							9,768	-		105,560	-3,607		352,302		
8							9,768 9,768	-	405	105,560 105,560					
9							9,768	_	ADDITION DESIGNATION OF THE PARTY OF THE PAR	105,560			352,302		
10							9,768	- 400		105,560	-3,607		352,302		
11							9,768	450000000		105,560	-3,607		352,302		
12							9,768	9,768		105,560	-3,607	342,534	352,302	0.6618	233,147
13							9,768	9,768	240,581	105,560	-3,607	342,534	352,302	0.6394	225,263
14							9,768			105,560	-3,607		352,302		
15							9,768			105,560					
16							9,768			105,560					
17 18							9,768 9,768			105,560 105,560	-3,607 -3,607		352,302 352,302		
19							9,768			105,560	-3,607		352,302		
20							9,768			105,560	-3,607		352,302		
21							9,768			105,560					
22							9,768			105,560	-3,607		352,302		
23							9,768	9,768	240,581	105,560	-3,607	342,534	352,302	0.4533	159,693
24							9,768			105,560			352,302		
25							9,768			105,560			352,302		
26							9,768			105,560	-3,607		352,302		
27 28							9,768 9,768			105,560			352,302 352,302		
29							9,768			105,560 105,560			352,302		· · · · · ·
30							9,768			105,560					
31							9,768			105,560	-3,607		352,302		
32							9,768			105,560					
33							9,768	9,768	240,581	105,560	-3,607	342,534	352,302	0.3213	113,210
34							9,768			105,560			352,302		
35							9,768			105,560	-3,607		352,302		
36 37							9,768			105,560	-3,607		352,302		
38							9,768 9,768			105,560 105,560			352,302 352,302		
39							9,768			105,560	-3,607		352,302		
40							9,768			105,560					
41							9,768	9,768	240,581	105,560			352,302	0.2440	
42							9,768	9,768	240,581	105,560	-3,607	342,534	352,302	0.2358	83,065
43							9,768			105,560	-3,607		352,302		
44						<b>P</b>	9,768			105,560	-3,607		352,302		
45							9,768			105,560					
46 47							9,768 9,768								
47							9,768								
49							9,768								
50							9,768								
51							9,768								
52							9,768	9,768	240,581	105,560	-3,607			0.1671	
53							9,768	9,768	240,581	105,560	-3,607	342,534	352,302	0.1615	56,895
54							9,768			105,560					
55							9,768								
56 57							9,768			105,560					
57 58							9,768 9,768	_		105,560 105,560					
59							9,768	-							
60							9,768	-							
61							9,768	-							
62							9,768			105,560					
63							9,768	-							
64							9,768	-							
65							9,768	_							
66							9,768	9,768	240,581	105,560	-3,607	342,534	352,302	0.1033	36,379
Total	0		0	0	0		654,456		16,094,028				23,581,058		



Year	New Capital at Current - Land & Works	Land Sales	Opportunity Costs	Residual Value	Lifecycle New Works	Lifecycle New Equipment	Lifecycle Existing	TOTAL CAPITAL	Pay	Non Pay	Other	Total Revenue	Total costs	Discount Factor	Net Present Cost
0							8,821	15,821							
1							8,821	58,821				330,097			
2							8,821 8,821	84,821 84,821	234,581 235,281			324,382 317,808			
4							8,821		221,392						
5	20,000						8,821	28,821	221,392	105,560	-30,123	296,829	325,650	0.8420	
6					-40,352		8,821								
7							8,821								
8							8,821 8,821		221,392 221,392						
10							8,821	_	221,392						
11						5,768		14,589				296,829			
12							8,821	8,821	221,392	105,560	-30,123	296,829	305,650	0.6618	202,27
13							8,821	8,821	221,392						
14							8,821	8,821							
15 16						26,532	8,821 8,821	Annanatan	221,392 221,392					0.5969 0.5767	
17						20,332	8,821		221,392						
18							8,821					296,829			
19							8,821	8,821							
20							8,821	8,821	221,392						
21 22						36,187	8,821 8,821	45,009	221,392 221,392			296,829 296,829			
23							8,821	8,821 8,821	221,392						
24							8,821	_	221,392						
25							8,821					296,829			
26						26,532		400							
27							8,821	8,821	221,392			296,829			
28 29							8,821 8,821		221,392 221,392			296,829 296,829			
30							8,821	8,821							
31						63,446		72,268							
32							8,821	8,821	221,392	105,560	-30,123	296,829	305,650	0.3326	101,656
33							8,821	8,821							
34							8,821	8,821	221,392						
35 36			-4			56,952	8,821 8,821	8,821 65,773	221,392 221,392			296,829 296,829			
37						30,932	8,821	8,821							
38							8,821	8,821				296,829			
39							8,821	8,821	221,392	105,560	-30,123	296,829	305,650	0.2614	79,901
40						-	8,821	8,821	221,392						
41			1			5,768		14,589							
42							8,821 8,821	8,821 8,821					305,650 305,650		
44							8,821	8,821	221,392						
45							8,821	8,821	221,392			296,829			
46						26,532	8,821	35,353	221,392	105,560	-30,123	296,829	332,183	0.2055	68,253
47			4				8,821	8,821							
48 49	700						8,821 8,821								
50							8,821								
51						36,187									
52							8,821								
53							8,821								
54							8,821								
55 56						04 240	8,821 8,821								
56 57						84,210	8,821 8,821								
58							8,821								
59							8,821								
60							8,821	F							
61						5,768		-							
62							8,821	P.							
63 64							8,821 8,821								
65							8,821								
66				-137,547		80,023		_							



Year	New Capital at Current - Land & Works	Land Sales	Opportunity Costs	Residual Value	Lifecycle New Works	Lifecycle New Equipment	Lifecycle Existing	CAPITAL		Non Pay				Discount Factor	Cost
0							8,500 8,500	15,500 58,500			-1,984 -8,767	336,390 330,097	351,890 388,597		
2							8,500	84,500				324,382	408,883		
3							8,500	146,500				317,808	464,308		
4							8,500	28,500				297,215	325,715		
5	20,000						8,500	28,500			-30,123	297,215	325,715	0.8420	274,24
6							8,500	8,500				297,215	305,715		
7					-52,933		8,500	-44,433				297,215	252,782		
8							8,500	8,500				297,215	305,715		
9 10							8,500	8,500				297,215	305,715		
11							8,500 8,500	8,500 8,500			-30,123 -30,123	297,215 297,215	305,715 305,715		
12						7,432		15,933				297,215	313,148		
13						.,	8,500	8,500	-		-30,123	297,215	305,715		
14							8,500	8,500				297,215	305,715		
15							8,500	8,500	221,778	105,560	-30,123	297,215	305,715	0.5969	182,47
16							8,500	8,500	221,778	105,560	-30,123	297,215	305,715		
17						34,189		42,689			-30,123	297,215	339,904		
18							8,500	8,500				297,215	305,715		
19 20							8,500 8,500	8,500 8,500			-	297,215 297,215	305,715		
21							8,500	8,500			-30,123 -30,123	297,215	305,715 305,715		
22						46,631	8,500	55,131	-	100000000000000000000000000000000000000		297,215	352,346		
23						10,031	8,500	8,500	-		-30,123	297,215	305,715		
24						4	8,500	8,500				297,215	305,715		
25							8,500	8,500	221,778	105,560	-30,123	297,215	305,715	0.4231	129,36
26							8,500	8,500			-30,123	297,215	305,715		124,98
27						34,189		42,689			-30,123	297,215	339,904		
28							8,500	8,500				297,215	305,715		
29 30							8,500 8,500	8,500 8,500			-30,123 -30,123	297,215 297,215	305,715 305,715		
31							8,500	100000000000000000000000000000000000000				297,215	305,715		
32						81,756		T 1000				297,215	387,471		
33							8,500					297,215	305,715		
34							8,500	8,500	221,778	105,560	-30,123	297,215	305,715	0.3105	94,91
35							8,500		221,778	105,560	-30,123	297,215	305,715	0.3000	91,70
36							8,500				-30,123	297,215	305,715		
37						73,387	8,500					297,215	379,103		
38			-41				8,500	- 14 004 004 00F			-30,123	297,215	305,715		
39 40							8,500 8,500					297,215 297,215	305,715 305,715		
41							8,500	-				297,215	305,715		
42						7,432		15,933				297,215	313,148		
43						,	8,500	8,500				297,215	305,715		
44							8,500	8,500	221,778	105,560	-30,123	297,215	305,715	0.2201	67,28
45							8,500		221,778	105,560	-30,123	297,215	305,715	0.2127	65,01
46							8,500	2010010				297,215	305,715		
47		Br.				34,189	8,500				-30,123	297,215	339,904		
48 49							8,500 8,500	8,500 8,500			-30,123	297,215	305,715		
50							8,500						305,715 305,715		
51							8,500					297,215	305,715		
52					<u> </u>	46,631						297,215	352,346		
53							8,500						305,715		
54							8,500	8,500				297,215	305,715	0.1560	47,70
55							8,500						305,715		
56							8,500					297,215	305,715		
57						108,513						297,215	414,228		
58					<b>/</b>		8,500						305,715		
59 60			1				8,500 8,500					297,215 297,215	305,715 305,715		
61							8,500						305,715		
62						7,432		-					305,715		
63						7,432	8,500					297,215	305,715		
64							8,500					297,215	305,715		
65							8,500						305,715		
66							8,500						305,715		
67				-177,242		103,117	8,500	-65,625	221,778	105,560	-30,123	297,215	231,590	0.0998	23,10
	311,000		0		-52,933				15,131,217						8,659,43



	New Capital at					Lifecycle									Net
Year	Current - Land & Works	Land Sales	Opportunity Costs	Residual Value	Lifecycle	New Equipment	Lifecycle Existing	TOTAL CAPITAL	Pay	Non Pay	Other	Total Revenue	Total costs	Discount Factor	
0		Luna Sales	COSES	Value	New Works	Equipment	8,561				-1,984		351,950		
1							8,561	58,561	233,881	104,983	-8,767	330,097	388,657	0.9662	
2							8,561				-15,481		408,943		
3							8,561 8,561						447,368 328,602		
5							8,561						328,602		
6							8,561						308,602		
7					-50,022		8,561						258,580		
8							8,561						308,602		
9							8,561 8,561						308,602 308,602		
11							8,561						308,602		
12						7,024					-		315,626		
13							8,561				-30,123		308,602		
14							8,561						308,602		
15 16							8,561 8,561						308,602 308,602		
17						32,309							340,911		
18						32,303	8,561						308,602		
19							8,561	40000					308,602		
20							8,561	Annahund			-30,123		308,602		
21						44.000	8,561	1000000000					308,602		
22 23						44,066	8,561 8,561	10000			-30,123 -30,123		352,668 308,602		
24							8,561						308,602		
25							8,561	8,561	224,604	105,560	-30,123	300,042	308,602	0.4231	
26							8,561						308,602		
27						32,309							340,911		
28 29							8,561 8,561	The contraction of the contracti					308,602 308,602		
30							8,561	100000000000000000000000000000000000000			-30,123		308,602		
31							8,561						308,602		
32						77,260							385,862		
33							8,561						308,602		
34 35							8,561 8,561	8,561 8,561					308,602 308,602		
36							8,561						308,602		
37						69,351	8,561						377,953		
38							8,561	8,561	224,604	105,560	-30,123	300,042	308,602		
39			14				8,561						308,602		
40 41						<b>—</b>	8,561 8,561						308,602		
41						7,024		8,561 15,584					308,602 315,626		
43						,,,,,,	8,561						308,602		
44							8,561	8,561	224,604	105,560	-30,123	300,042	308,602	0.2201	67,924
45							8,561						308,602		
46						22.200	8,561						308,602		
47 48						32,309	8,561 8,561	40,869 8,561			-30,123 -30,123		340,911 308,602		
49							8,561						308,602		
50							8,561						308,602		
51							8,561						308,602		
52						44,066							352,668		
53 54							8,561 8,561						308,602 308,602		
55							8,561						308,602		
56							8,561					,	308,602		
57						102,545				105,560	-30,123		411,147		
58							8,561						308,602		
59 60			1				8,561 8,561						308,602 308,602		
61							8,561						308,602		
62				407		7,024							315,626		
63						,	8,561						308,602		
64							8,561						308,602		
65							8,561						308,602		
66 67				-167,494		97,446	8,561 8,561						308,602 238,554		
0/				-107,494		97,446	0,501	-U1,468	424,004	100,000	-30,123	500,042	230,354	0.0538	8,705,510



# **APPENDIX D – OVERALL SENSITIVITY**

COMBINED expresse	ed as Cost/	Benefit Point (£)	2434.40	1476.92	1175.04	2696.19
		1st	1175.0	1175.0	1175.0	1175.0
		Margin Costs/Benefits above 1st	107.2%	25.7%	0.0%	129.5%
		Rank	3	2	1	4
COMBINED SCORES	- LOW COS	T WEIGHTING	Α	В	<b>C1</b>	C2
Non-Fin Weighting	75.0%	Non-Financial Weighted	39.3	59.2	75.0	32.9
Cost Weighting	25.0%	Financial Weighted	22.9	25.0	24.8	24.7
		Combined Score	62.1	84.2	99.8	57.5
		1st	99.8	99.8	99.8	99.8
		Margin Combined Score below 1st	-37.7%	-15.6%	0.0%	-42.4%
		Rank	3	2	1	4
COMBINED SCORES	- 50/50 WE	IGHTING	Α	В	<b>C1</b>	C2
Non-Fin Weighting	50.0%	Non-Financial Weighted	26.2	39.5	50.0	21.9
Cost Weighting	50.0%	Financial Weighted	45.7	50.0	49.6	49.3
		Combined Score	71.9	89.5	99.6	71.2
		1st	99.6	99.6	99.6	99.6
		Margin Combined Score below 1st	-27.8%	-10.2%	0.0%	-28.5%
		Rank	3	2	1	4
COMBINED SCORES	- HIGH COS	ST WEIGHTING	Α	В	<b>C1</b>	C2
Non-Fin Weighting	25.0%	Non-Financial Weighted	13.1	19.7	25.0	11.0
Cost Weighting	75.0%	Financial Weighted	68.6	75.0	74.4	74.0
		Combined Score	81.7	94.7	99.4	84.9
		1st	99.4	99.4	99.4	99.4
		Margin Combined Score below 1st	-17.8%	-4.7%	0.0%	-14.5%
		Rank	4	2	1	3
COMBINED SCORES	- HIGH COS	ST WEIGHTING	Α	В	C1	C2
Non-Fin Weighting	3.8%	Non-Financial Weighted	1.979	2.982	3.780	1.656
Cost Weighting	96.2%	Financial Weighted	87.982	96.220	95.422	94.917
	A	Combined Score	89.961	99.202	99.202	96.573
		1st	99.202	99.202	99.202	99.202
		Margin Combined Score below 1st	-9.3%	0.0%	0.0%	-2.6%
		Rank	4	1	1	3





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