Powys CC Brecon Campus - Economic Analysis

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Option 1 Do Nothing' - refurbish school, leisure faculties & college.		
	Undiscounted (£'000s)	**Net Present Value (£'000s)**
Refurbishment Capital Cost	-£19,303	-£18,976
Opportunities Foregone	-£6,976	-£5,873
Revenue/Current Cost	-£388,675	-£170,132
Lifecycle Costs	-£19,360	-£5,980
Risk Retained	-£6,560	-£6,449
Optimism Bias	-£2,056	-£2,021
Total costs	**-£442,929**	**-£209,431**
Less: cash releasing benefits	£0	£0
Costs net cash savings	-£442,929	-£209,431
Total	**-£442,929**	**-£209,431**

Option 4 New build Brecon High School 11-18		
	Undiscounted (£'000s)	**Net Present Value (£'000s)**
New Build Capital Cost	-£11,991	-£10,462
Refurbishment Capital Cost	-£19,303	-£18,976
Opportunities Foregone	-£6,976	-£5,873
Revenue/Current Cost	-£388,675	-£170,132
Lifecycle Costs	-£19,488	-£6,019
Risk Retained	-£2,479	-£2,163
Optimism Bias	-£844	-£736
Total costs	**-£449,755**	**-£214,362**
Less: cash releasing benefits	£0	£0
Costs net cash savings	-£449,755	-£214,362
Total	**-£449,755**	**-£214,362**

Appendix 1: Monte Carlo Simulation

Option 7 Establish new single sited secondary school to replace Brecon HS and Gwernyfed HS 11 – 18		
	Undiscounted (£'000s)	**Net Present Value (£'000s)**
New Build Capital Cost	-£20,473	-£17,863
Refurbishment Capital Cost	-£11,001	-£10,815
Opportunities Forgone	-£2,670	-£2,248
Revenue Cost	-£372,285	-£163,752
Lifecycle Costs	-£16,658	-£5,145
Project Risk	-£2,527	-£2,204
Optimism Bias	-£872	-£761
Total costs	**-£426,485**	**-£202,789**
Less: cash releasing benefits	£5,807	£2,492
Costs net cash savings	-£420,678	-£200,297
Total	**-£420,678**	**-£200,297**

Option 10 Establish new build Lifelong Learning Campus to include a new secondary school 11 – 18, replacing Brecon HS and Gwernyfed HS, & new Vocational College		
	Undiscounted (£'000s)	**Net Present Value (£'000s)**
New Build Capital Cost	-£45,423	-£39,633
Opportunities Forgone	-£2,670	-£2,248
Lifecycle Costs	-£19,078	-£5,879
Revenue Cost	-£371,400	-£163,408
Project Risk	-£3,030	-£2,644
Optimism Bias	-£1,553	-£1,355
Total costs	**-£443,155**	**-£215,167**
Less: cash releasing benefits	£5,807	£2,492
Costs net cash savings	-£437,347	-£212,675
Total	**-£437,347**	**-£212,675**

Appendix 1: Monte Carlo Simulation

Option 11 Establish new build Lifelong Learning Campus to include a new secondary school 11 – 16, replacing Brecon HS and Gwernyfed HS & new Sixth Form/Vocational College.		
	Undiscounted (£'000s)	**Net Present Value (£'000s)**
New Build Capital Cost	-£45,423	-£39,633
Opportunities Forgone	-£2,670	-£2,248
Lifecycle Costs	-£19,078	-£5,892
Revenue Cost	-£364,210	-£160,609
Project Risk	-£3,030	-£2,644
Optimism Bias	-£1,553	-£1,355
Total costs	**-£435,965**	**-£212,381**
Less: cash releasing benefits	£12,783	£8,365
Costs net cash savings	-£423,182	-£204,016
Total	**-£423,182**	**-£204,016**

NPV variable descriptive statistics after Monte Carlo Simulation

Option 1: **Variable Descriptive Statistics**	Obs Mean	Est S.Dev	Sim Mean	Sim S.Dev	Sim Min	SIM Q1	Median	Sim Q3	Sim Max	Std Error	5th %ile	95th %ile
Refurbishment Capital Costs	19,303	1,526	19,224	1,521	13,849	18,240	19,253	20,187	24,379	48	16,579	21,808
Backlog Maintenance	0	0	0	N/A	0	N/A	N/A	N/A	0	N/A	0	0
Opportunities Forgone	6,976	551	6,978	546	4,946	6,593	6,999	7,343	8,813	17	6,112	7,895
Capital Receipts	0	0	0	N/A	0	N/A	N/A	N/A	0	N/A	0	0
Risk Retained	6,560	519	6,545	511	4,895	6,198	6,566	6,891	7,900	16	5,690	7,380
Optimism Bias	2,056	163	2,056	160	1,550	1,946	2,057	2,169	2,572	5	1,785	2,316
Lifecycle Cost	19,360	765	19,341	775	17,153	18,825	19,310	19,838	22,040	25	18,076	20,573
Old Revenue	6,478	256	6,483	251	5,746	6,303	6,481	6,647	7,220	8	6,053	6,887
New Revenue	0	0	0	N/A	0	N/A	N/A	N/A	0	N/A	0	0
Removal of Surplus Places	0	0	0	N/A	0	N/A	N/A	N/A	0	N/A	0	0
School Closure	0	0	0	N/A	0	N/A	N/A	N/A	0	N/A	0	0

Option 4: **Variable Descriptive Statistics**	Obs Mean	Est S.Dev	Sim Mean	Sim S.Dev	Sim Min	SIM Q1	Median	Sim Q3	Sim Max	Std Error	5th %ile	95th %ile
New Build Capital Cost	11,991	948	12,042	954	8,622	11,454	12,020	12,608	15,115	30	10,544	13,696
Refurbishment Capital Cost	19,303	1,526	19,256	1,533	14,208	18,183	19,271	20,321	23,393	48	16,802	21,723
Opportunities Forgone	6,976	551	6,989	544	5,121	6,640	6,988	7,355	8,600	17	6,048	7,888
Capital Receipts	0	0	0	N/A	0	N/A	N/A	N/A	0	N/A	0	0
Risk Retained	2,479	196	2,472	192	1,897	2,348	2,466	2,596	3,022	6	2,162	2,799
Optimism Bias	844	67	846	66	668	800	846	890	1,042	2	733	957
Lifecycle Cost	19,488	770	19,464	754	17,143	18,967	19,471	19,969	21,639	24	18,201	20,698
Old Revenue	6,478	256	6,504	266	5,564	6,324	6,493	6,680	7,314	8	6,075	6,952
New Revenue	0	0	0	N/A	0	N/A	N/A	N/A	0	N/A	0	0
Removal of Surplus Places	0	0	0	N/A	0	N/A	N/A	N/A	0	N/A	0	0

Appendix 1: Monte Carlo Simulation

School Closure	0	0	0	N/A	0	N/A	N/A	N/A	0	N/A	0	0

Option 7: **Variable Descriptive Statistics**	**Obs Mean**	**Est S.Dev**	**Sim Mean**	**Sim S.Dev**	**Sim Min**	**SIM Q1**	**Median**	**Sim Q3**	**Sim Max**	**Std Error**	**5th %ile**	**95th %ile**
New Build Capital Cost	20,473	1,619	20,437	1,550	14,831	19,456	20,406	21,484	26,547	49	17,985	23,043
Refurbishment Capital Cost	11,001	870	11,028	866	8,529	10,446	11,031	11,633	13,531	27	9,539	12,450
Opportunities Forgone	2,670	211	2,670	208	2,059	2,523	2,670	2,813	3,300	7	2,321	3,005
Capital Receipts	0	0	0	N/A	0	N/A	N/A	N/A	0	N/A	0	0
Risk Retained	2,527	200	2,534	196	2,001	2,401	2,543	2,669	3,105	6	2,202	2,849
Optimism Bias	872	69	870	68	650	825	867	917	1,069	2	760	984
Lifecycle Cost	16,658	658	16,653	659	14,721	16,222	16,635	17,116	18,523	21	15,581	17,728
Old Revenue	6,478	256	6,490	249	5,673	6,326	6,491	6,655	7,371	8	6,078	6,886
New Revenue	6,178	244	6,185	251	5,481	6,010	6,193	6,359	6,897	8	5,776	6,586
Removal of Surplus Places	98	8	98	8	72	93	98	103	124	0	85	111
School Closure	113	9	113	9	87	107	113	119	141	0	98	127

Option 10: **Variable Descriptive Statistics**	**Obs Mean**	**Est S.Dev**	**Sim Mean**	**Sim S.Dev**	**Sim Min**	**SIM Q1**	**Median**	**Sim Q3**	**Sim Max**	**Std Error**	**5th %ile**	**95th %ile**
New Build Capital Cost	45,423	3,591	45,406	3,583	35,260	43,037	45,304	47,956	57,507	113	39,561	51,211
Refurbishment Capital Cost	0	0	0	N/A	0	N/A	N/A	N/A	0	N/A	0	0
Opportunities Forgone	2,670	211	2,671	207	2,019	2,521	2,674	2,816	3,260	7	2,337	3,011
Capital Receipts	0	0	0	N/A	0	N/A	N/A	N/A	0	N/A	0	0
Risk Retained	3,030	240	3,025	231	2,336	2,858	3,029	3,198	3,706	7	2,658	3,408
Optimism Bias	1,553	123	1,551	124	1,173	1,469	1,552	1,639	1,929	4	1,352	1,756
Lifecycle Cost	19,078	754	19,070	738	16,319	18,560	19,079	19,550	21,726	23	17,893	20,291
Old Revenue	6,478	256	6,497	258	5,651	6,324	6,504	6,659	7,462	8	6,094	6,924
New Revenue	6,162	244	6,165	244	5,378	6,003	6,166	6,336	6,967	8	5,766	6,562
Removal of Surplus Places	98	8	98	8	72	93	98	103	129	0	85	111
School Closure	113	9	114	9	84	108	114	119	142	0	99	128

Appendix 1: Monte Carlo Simulation

Option 11: **Variable Descriptive Statistics**	Obs Mean	Est S.Dev	Sim Mean	Sim S.Dev	Sim Min	SIM Q1	Median	Sim Q3	Sim Max	Std Error	5th %ile	95th %ile
New Build Capital Cost	45,423	3,591	45,490	3,588	32,549	43,017	45,530	47,956	56,841	113	39,614	51,318
Refurbishment Capital Cost	0	0	0	N/A	0	N/A	N/A	N/A	0	N/A	0	0
Opportunities Forgone	2,670	211	2,674	208	1,813	2,537	2,681	2,823	3,359	7	2,336	3,005
Capital Receipts	6,976	551	6,957	548	5,356	6,612	6,962	7,344	8,496	17	6,018	7,829
Risk Retained	3,030	240	3,020	242	2,199	2,857	3,031	3,185	3,746	8	2,620	3,411
Optimism Bias	1,553	123	1,552	124	1,114	1,466	1,550	1,638	1,943	4	1,352	1,752
Lifecycle Cost	19,078	754	19,093	777	16,414	18,548	19,129	19,651	21,652	25	17,792	20,314
Old Revenue	6,478	256	6,481	256	5,722	6,304	6,483	6,658	7,395	8	6,053	6,887
New Revenue	6,030	238	6,025	237	5,260	5,868	6,026	6,186	6,690	7	5,625	6,403
Removal of Surplus Places	98	8	98	8	75	92	98	103	122	0	85	111
School Closure	113	9	114	8	84	108	114	119	137	0	100	127

Appendix 1: Monte Carlo Simulation

'What If' Scenario Analysis

	Variable Capital:	Variable Revenue:	Variable Savings
Scenario 1	Base NPV	Base NPV	Base NPV
Scenario 2	Worst Case Capital	Worst Case Revenue	Worst Case Savings
Scenario 3	Worst Case Capital	Worst Case Revenue	Expected Case Savings
Scenario 4	Worst Case Capital	Worst Case Revenue	Best Case Savings
Scenario 5	Worst Case Capital	Expected Case Revenue	Worst Case Savings
Scenario 6	Worst Case Capital	Expected Case Revenue	Expected Case Savings
Scenario 7	Worst Case Capital	Expected Case Revenue	Best Case Savings
Scenario 8	Worst Case Capital	Best Case Revenue	Worst Case Savings
Scenario 9	Worst Case Capital	Best Case Revenue	Expected Case Savings
Scenario 10	Worst Case Capital	Best Case Revenue	Best Case Savings
Scenario 11	Expected Case Capital	Worst Case Revenue	Worst Case Savings
Scenario 12	Expected Case Capital	Worst Case Revenue	Expected Case Savings
Scenario 13	Expected Case Capital	Worst Case Revenue	Best Case Savings
Scenario 14	Expected Case Capital	Expected Case Revenue	Worst Case Savings
Scenario 15	Expected Case Capital	Expected Case Revenue	Expected Case Savings
Scenario 16	Expected Case Capital	Expected Case Revenue	Best Case Savings
Scenario 17	Expected Case Capital	Best Case Revenue	Worst Case Savings
Scenario 18	Expected Case Capital	Best Case Revenue	Expected Case Savings
Scenario 19	Expected Case Capital	Best Case Revenue	Best Case Savings
Scenario 20	Best Case Capital	Worst Case Revenue	Worst Case Savings
Scenario 21	Best Case Capital	Worst Case Revenue	Expected Case Savings
Scenario 22	Best Case Capital	Worst Case Revenue	Best Case Savings
Scenario 23	Best Case Capital	Expected Case Revenue	Worst Case Savings
Scenario 24	Best Case Capital	Expected Case Revenue	Expected Case Savings
Scenario 25	Best Case Capital	Expected Case Revenue	Best Case Savings
Scenario 26	Best Case Capital	Best Case Revenue	Worst Case Savings
Scenario 27	Best Case Capital	Best Case Revenue	Expected Case Savings
Scenario 28	Best Case Capital	Best Case Revenue	Best Case Savings

Ranked Table of Scenario Results

Rank	Total NPV	S No.	Option No.	Revenue	Capital	Savings	Points
1	-£185,032	84	Option 7	Best Case Capital	Best Case Revenue	Best Case Savings	140
2	-£185,361	83	Option 7	Best Case Capital	Best Case Revenue	Expected Case Savings	139
3	-£185,772	82	Option 7	Best Case Capital	Best Case Revenue	Worst Case Savings	138
4	-£186,138	140	Option 11	Best Case Capital	Best Case Revenue	Best Case Savings	137
5	-£187,352	139	Option 11	Best Case Capital	Best Case Revenue	Expected Case Savings	136
6	-£187,624	138	Option 11	Best Case Capital	Best Case Revenue	Worst Case Savings	135
7	-£188,631	75	Option 7	Expected Case Capital	Best Case Revenue	Best Case Savings	134
8	-£189,317	74	Option 7	Expected Case Capital	Best Case Revenue	Expected Case Savings	133
9	-£189,327	73	Option 7	Expected Case Capital	Best Case Revenue	Worst Case Savings	132
10	-£192,567	131	Option 11	Expected Case Capital	Best Case Revenue	Best Case Savings	131
11	-£192,801	66	Option 7	Worst Case Capital	Best Case Revenue	Best Case Savings	130
12	-£193,393	129	Option 11	Expected Case Capital	Best Case Revenue	Worst Case Savings	129
13	-£193,422	65	Option 7	Worst Case Capital	Best Case Revenue	Expected Case Savings	128
14	-£193,489	130	Option 11	Expected Case Capital	Best Case Revenue	Expected Case Savings	127
15	-£194,000	64	Option 7	Worst Case Capital	Best Case Revenue	Worst Case Savings	126
16	-£194,266	27	Option 1	Best Case Capital	Best Case Revenue	Expected Case Savings	125
17	-£194,481	26	Option 1	Best Case Capital	Best Case Revenue	Worst Case Savings	124
18	-£195,314	28	Option 1	Best Case Capital	Best Case Revenue	Best Case Savings	123
19	-£195,977	112	Option 10	Best Case Capital	Best Case Revenue	Best Case Savings	122
20	-£196,012	111	Option 10	Best Case Capital	Best Case Revenue	Expected Case Savings	121
21	-£196,056	80	Option 7	Best Case Capital	Expected Case Revenue	Expected Case Savings	120
22	-£196,146	81	Option 7	Best Case Capital	Expected Case Revenue	Best Case Savings	119
23	-£196,637	79	Option 7	Best Case Capital	Expected Case Revenue	Worst Case Savings	118
24	-£197,213	137	Option 11	Best Case Capital	Expected Case Revenue	Best Case Savings	117
25	-£197,419	110	Option 10	Best Case Capital	Best Case Revenue	Worst Case Savings	116
26	-£197,744	17	Option 1	Expected Case Capital	Best Case Revenue	Worst Case Savings	115
27	-£198,033	135	Option 11	Best Case Capital	Expected Case Revenue	Worst Case Savings	114
28	-£198,060	136	Option 11	Best Case Capital	Expected Case Revenue	Expected Case Savings	113
29	-£198,418	122	Option 11	Worst Case Capital	Best Case Revenue	Best Case Savings	112
30	-£198,579	56	Option 4	Best Case Capital	Best Case Revenue	Best Case Savings	111
31	-£198,613	55	Option 4	Best Case Capital	Best Case Revenue	Expected Case Savings	110
32	-£198,647	54	Option 4	Best Case Capital	Best Case Revenue	Worst Case Savings	109
33	-£198,662	19	Option 1	Expected Case Capital	Best Case Revenue	Best Case Savings	108
34	-£198,840	18	Option 1	Expected Case Capital	Best Case Revenue	Expected Case Savings	107

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35	-£198,846	121	Option 11	Worst Case Capital	Best Case Revenue	Expected Case Savings	106
36	-£199,664	120	Option 11	Worst Case Capital	Best Case Revenue	Worst Case Savings	105
37	-£200,229	72	Option 7	Expected Case Capital	Expected Case Revenue	Best Case Savings	104
38	-£200,253	71	Option 7	Expected Case Capital	Expected Case Revenue	Expected Case Savings	103
39	-£200,297	57	Option 7	Base NPV	Base NPV	Base NPV	102
40	-£200,388	70	Option 7	Expected Case Capital	Expected Case Revenue	Worst Case Savings	101
41	-£201,194	10	Option 1	Worst Case Capital	Best Case Revenue	Best Case Savings	100
42	-£201,471	102	Option 10	Expected Case Capital	Best Case Revenue	Expected Case Savings	99
43	-£201,512	8	Option 1	Worst Case Capital	Best Case Revenue	Worst Case Savings	98
44	-£201,606	9	Option 1	Worst Case Capital	Best Case Revenue	Expected Case Savings	97
45	-£201,880	103	Option 10	Expected Case Capital	Best Case Revenue	Best Case Savings	96
46	-£202,427	101	Option 10	Expected Case Capital	Best Case Revenue	Worst Case Savings	95
47	-£202,882	47	Option 4	Expected Case Capital	Best Case Revenue	Best Case Savings	94
48	-£203,618	46	Option 4	Expected Case Capital	Best Case Revenue	Expected Case Savings	93
49	-£203,622	45	Option 4	Expected Case Capital	Best Case Revenue	Worst Case Savings	92
50	-£203,706	128	Option 11	Expected Case Capital	Expected Case Revenue	Best Case Savings	91
51	-£204,017	113	Option 11	Base NPV	Base NPV	Base NPV	90
52	-£204,076	62	Option 7	Worst Case Capital	Expected Case Revenue	Expected Case Savings	89
53	-£204,157	63	Option 7	Worst Case Capital	Expected Case Revenue	Best Case Savings	88
54	-£204,272	127	Option 11	Expected Case Capital	Expected Case Revenue	Expected Case Savings	87
55	-£204,343	126	Option 11	Expected Case Capital	Expected Case Revenue	Worst Case Savings	86
56	-£204,703	61	Option 7	Worst Case Capital	Expected Case Revenue	Worst Case Savings	85
57	-£205,882	25	Option 1	Best Case Capital	Expected Case Revenue	Best Case Savings	84
58	-£206,307	78	Option 7	Best Case Capital	Worst Case Revenue	Best Case Savings	83
59	-£206,605	23	Option 1	Best Case Capital	Expected Case Revenue	Worst Case Savings	82
60	-£206,637	76	Option 7	Best Case Capital	Worst Case Revenue	Worst Case Savings	81
61	-£206,779	24	Option 1	Best Case Capital	Expected Case Revenue	Expected Case Savings	80
62	-£206,816	109	Option 10	Best Case Capital	Expected Case Revenue	Best Case Savings	79
63	-£206,825	92	Option 10	Worst Case Capital	Best Case Revenue	Worst Case Savings	78
64	-£207,069	37	Option 4	Worst Case Capital	Best Case Revenue	Expected Case Savings	77
65	-£207,180	77	Option 7	Best Case Capital	Worst Case Revenue	Expected Case Savings	76
66	-£207,184	94	Option 10	Worst Case Capital	Best Case Revenue	Best Case Savings	75
67	-£207,356	107	Option 10	Best Case Capital	Expected Case Revenue	Worst Case Savings	74
68	-£207,526	108	Option 10	Best Case Capital	Expected Case Revenue	Expected Case Savings	73
69	-£207,723	38	Option 4	Worst Case Capital	Best Case Revenue	Best Case Savings	72
70	-£207,882	36	Option 4	Worst Case Capital	Best Case Revenue	Worst Case Savings	71
71	-£207,915	93	Option 10	Worst Case Capital	Best Case Revenue	Expected Case Savings	70
72	-£208,060	132	Option 11	Best Case Capital	Worst Case Revenue	Worst Case Savings	69
73	-£208,174	133	Option 11	Best Case Capital	Worst Case Revenue	Expected Case Savings	68
74	-£208,175	134	Option 11	Best Case Capital	Worst Case Revenue	Best Case Savings	67
75	-£209,060	15	Option 1	Expected Case Capital	Expected Case Revenue	Expected Case Savings	66
76	-£209,239	16	Option 1	Expected Case Capital	Expected Case Revenue	Best Case Savings	65
77	-£209,431	1	Option 1	Base NPV	Base NPV	Base NPV	64
78	-£209,569	14	Option 1	Expected Case Capital	Expected Case Revenue	Worst Case Savings	63
79	-£209,808	53	Option 4	Best Case Capital	Expected Case Revenue	Best Case Savings	62
80	-£209,841	119	Option 11	Worst Case Capital	Expected Case Revenue	Best Case Savings	61
81	-£209,907	52	Option 4	Best Case Capital	Expected Case Revenue	Expected Case Savings	60
82	-£210,077	51	Option 4	Best Case Capital	Expected Case Revenue	Worst Case Savings	59
83	-£210,560	69	Option 7	Expected Case Capital	Worst Case Revenue	Best Case Savings	58
84	-£210,584	118	Option 11	Worst Case Capital	Expected Case Revenue	Expected Case Savings	57
85	-£210,624	117	Option 11	Worst Case Capital	Expected Case Revenue	Worst Case Savings	56
86	-£210,802	68	Option 7	Expected Case Capital	Worst Case Revenue	Expected Case Savings	55
87	-£211,080	67	Option 7	Expected Case Capital	Worst Case Revenue	Worst Case Savings	54
88	-£212,293	7	Option 1	Worst Case Capital	Expected Case Revenue	Best Case Savings	53
89	-£212,521	5	Option 1	Worst Case Capital	Expected Case Revenue	Worst Case Savings	52
90	-£212,537	100	Option 10	Expected Case Capital	Expected Case Revenue	Best Case Savings	51
91	-£212,653	6	Option 1	Worst Case Capital	Expected Case Revenue	Expected Case Savings	50
92	-£212,675	85	Option 10	Base NPV	Base NPV	Base NPV	49
93	-£212,857	99	Option 10	Expected Case Capital	Expected Case Revenue	Expected Case Savings	48
94	-£213,287	98	Option 10	Expected Case Capital	Expected Case Revenue	Worst Case Savings	47
95	-£214,148	42	Option 4	Expected Case Capital	Expected Case Revenue	Worst Case Savings	46
96	-£214,330	44	Option 4	Expected Case Capital	Expected Case Revenue	Best Case Savings	45
97	-£214,342	125	Option 11	Expected Case Capital	Worst Case Revenue	Best Case Savings	44
98	-£214,362	29	Option 4	Base NPV	Base NPV	Base NPV	43
99	-£214,497	43	Option 4	Expected Case Capital	Expected Case Revenue	Expected Case Savings	42
100	-£214,977	124	Option 11	Expected Case Capital	Worst Case Revenue	Expected Case Savings	41