A12 Suffolk's Energy Gateway Outline Business Case

Suffolk County Council

Financial Case

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Contents

1. Introduction

1.1 Suffolk's Energy Gateway

A12 Suffolk's Energy Gateway (SEGway) comprises an improvement to the 4.5 mile (7 km) section between the B1078 at Wickham Market and the A1094 at Saxmundham in East Suffolk. It:

- Joins two sections of existing dual carriageway through a new offline alignment segregated from local roads.
- Bypasses the four communities of Marlesford, Little Glemham, Stratford St. Andrew and Farnham currently subject to all the adverse impacts of traffic.
- Incorporates upgrades to sub-standard junction layouts at both the B1078 and A1094 intersections.
- Enables an increase in local walking and cycling to essential services and the countryside.
- Starts construction in April 2021 and opens to the public in April 2023.

Option LB1d comprises a Dual Carriageway (70mph speed limit) version of the above.

Option LB2s comprises a Single Carriageway (60mph speed limit) version of the above.

1.2 Purpose of the Financial Case

The Financial Case concentrates on the affordability of the proposal, its funding arrangements and technical accounting issues. Value for money is scrutinised in the Economic Case.

The Financial Case is discussed under the following headings:

- Methodology including assumptions
- Overall Scheme costs
- Sunk costs
- Investment costs
- Inflation
- Base costs
- Maintenance costs
- Conclusion.
- Quantified Risk Assessment (QRA)
- Optimism bias
- Expenditure profile
- Funding arrangements
- Funding approval
- Alternative funding arrangements

Further detail is provided in the following Appendices and Annexes that sit alongside the Financial Case:

- Appendix A – Scheme Cost Report
- Appendix C – Independent Surveyor's report
- Appendix B – Preparation of Costs for Financial Case and Economic Case Spreadsheet
- Appendix D – Quantified Risk Assessment
- Appendix E – SB5 Blue Route Options - Cost Estimate Review & Update
- Appendix F – Scheme Costs for One and Two Village Bypasses
- Appendix G – Land Valuation Report

1.3 Limitation Statement

The sole purpose of the report is to support the business case for the A12 Suffolk's Energy Gateway scheme. The document should be read in full with no excerpts to be representative of the findings. It has been prepared exclusively for Suffolk County Council, Suffolk Coastal District Council, Waveney District Council and the Department for Transport and no liability is accepted for any use or reliance on the report by third parties.

2. The Financial Case

2.1 Methodology including assumptions

An extensive costing exercise has been completed for the two options for the A12 Suffolk's Energy Gateway (SEGway) scheme. This exercise estimated the outturn scheme costs (at 2017 Q4 prices) for the following two options:

- Long dual carriageway (also known as LB1d)
- Long single carriageway (also known as LB2s).

These cost estimates have been prepared in line with TAG Unit A1.2 (July 2017) and the DfT's Appraisal Cost Proforma Summary Sheet and are based on the following:

- The **Investment Cost** estimate has initially been prepared using an elemental method for the major elements of the Works (Method of Measurement for Highway Works) that reflects our understanding of the proposed scheme. The rates used reflect construction projects of a similar size and nature and are at current day prices (4th Quarter 2017). These include land costs which have been calculated in Appendix G – A12 SEGway Valuation Report.
- Compensation costs payable under Part 1 of the Land Compensation Act 1973 have not been included in accordance with the guidance notes within the DfT pro-forma.
- The **Base Cost** estimate has been calculated by inflating the Investment Cost to Real Costs to reflect inflation. This has been calculated using the BCIS General Civil Engineering Cost Index, assuming preparation between 2018 and 2020, with start of works in April 2021 with completion in April 2023. Inflation has been calculated year on year.
- **Maintenance costs** for the new road and its assets have been calculated using QUADRO software.
- A **Quantified Risk Assessment** has been undertaken to derive the QRA P (Mean) value.[1] This has then been applied to the Base Cost to derive the Risk Adjusted Cost.
- **Optimism Bias** has not been applied to the Scheme Costs for the Financial Case. Optimism Bias is instead applied to the Scheme Cost in the *Economic Case*. TAG Unit A1.2 notes that the P values produced by the QRA, such as the P (Mean) and P80, are more appropriate in establishing 'contingencies' at the relevant project and portfolio levels within the Financial Case.

Further details on the methodology used to derive the scheme investment costs, including details of the assumptions and exclusions that were applied, is provided in the *Summary Cost Estimate Report* which is included as an Appendix A. The *Independent Surveyor's report* that should be read alongside this is included as Appendix B.

The Scheme Cost in Appendix A was completed with a mid construction point inflationary estimate (using the BCIS indices referenced above) prior to obtaining more detail on the profiling of costs across the project's construction period. To provide a more nuanced cost profile for the Financial Case and Economic Case and meet the requirements of TAG A1.2, a scheme delivery programme was developed (see Appendix A of the Management Case) and this enabled the costs to be profiled between 2018 and 2023, and thereby allow inflation to be calculated on an annual basis. This has resulted in the scheme cost used in the Financial case and Economic Case. The preparatory spreadsheet to calculate these costs can be found in Appendix C.

2.2 Scheme Costs

The estimated capital costs of the scheme options at 2017 prices but excluding optimism bias, client costs and non-recoverable VAT, is summarised in **Table 2.1** below. The scheme costs currently include a £9,556,892 allowance for risk with an allowance for inflation of £19,390,735 for the long dual scheme and £12,086,007 for

[1] P-values are used in hypothesis testing – i.e. in risk assessments and statistics to help decision makers understand the range in possible numerical impacts (in this case financial) associated with the probability of an event occurring. The lower p-value the more likely the alternative hypothesis is (i.e. the event not occurring).

the long single scheme. The level of inflation has been calculated based on the BCIS General Civil Engineering Cost Index using appropriate inflation indices from 4th Quarter 2017 (Index 154.6) to the relevant year that the costs are likely to be incurred.

Route	Total Costs
LB1d – Long dual carriageway	**£133,439,290**
LB2s – Long single carriageway	**£88,333,228**

Table 2.1: Total costs (2017 prices) – excluding optimism bias, client costs and non-recoverable VAT

2.3 Sunk Costs

In line with guidance set out within WEBTAG Unit A1.2, only the costs which will be incurred subsequent to the economic appraisal and the decision to go ahead should be considered. 'Sunk' costs, which represent expenditure incurred prior to the scheme appraisal and which cannot be retrieved, should not be included.

Project development costs incurred by Suffolk County Council to date are considered sunk and have consequently been excluded from both the economic and financial cases.

2.4 Investment Costs

Investment costs have been split into the following categories for the two scheme options:

- Construction
- Land and property (excluding Part 1 compensation)
- Preparation, administration, supervision & testing.

Category	Investment Cost Estimate (2017 prices)
Construction	£91,537,044.28
Land and property	£3,800,914.00
Preparation, administration, supervision & testing	£9,153,704.43
Total	**£104,491,662.71**

Table 2.2: Investment costs (Long dual carriageway) excluding inflation

Category	Investment Cost Estimate (2017 prices)
Construction	£57,485,305.94
Land and property	£3,479,189.00
Preparation, administration, supervision & testing	£5,725,833.77
Total	**£66,690,328.71**

Table 2.3: Investment costs (Long single carriageway) excluding inflation

2.5 Inflation

Inflation for each of the components and years from 2017 Quarter 4 are shown below:

Period	Indices	Accumulative Inflation increase	Status
2018 to 2019	154.6 – 157.4	1.79%	
2019 to 2020	154.6 – 163.1	5.52%	
2020 to 2021	154.6 – 170.9	10.52%	
2021 to 2022	154.6 – 179.4	16.05%	
2022 to 2023	154.6 – 188.2	21.74%	Assumed based on forecast
2023 to 2024	154.6 – 197.6	27.83%	Assumed based on forecast

Table 2.4: Inflation. Source: BCIS General Civil Engineering Cost Index, November 2017

2.6 Base Costs

Base costs are calculated by applying inflation to the investment costs at an appropriate rate based on when the costs will be incurred. Again the base costs have been split in to the three categories.

The total base cost for the LB1d long dual carriageway scheme (excluding risk and optimism bias) is **£123,882,399.**

Category	Base estimate (£, 2017 prices)
Construction	£109,766,041.18
Land and property	£4,200,632.80
Preparation, administration, supervision & testing	£9,915,723.68
Total	**£123,882,397.66**

Table 2.5: Base costs (Long dual carriageway) including inflation

The total base cost for the LB2s long single carriageway scheme (excluding risk and optimism bias) is **£78,776,336.**

Category	Base estimate (£, 2017 prices)
Construction	£68,728,769.20
Land and property	£3,845,073.96
Preparation, administration, supervision & testing	£6,202,492.76
Total	**£78,776,335.93**

Table 2.6: Base costs (Long single carriageway) including inflation

Further details on the methodology used to derive the scheme costs are provided in the *Summary Cost Estimate Report* which is included in the Appendix A.

2.7 Maintenance Costs

The SEGway scheme will require maintenance work which will create costs that would not be present if the scheme was not built. Maintenance costs for the scheme have been estimated based on the capital cost (e.g. people and machinery) of maintenance. The cost has been estimated using the typical maintenance profiles provided in the QUADRO manual, based on the road's length, flow and carriageway standard. There is also an inclusion within the estimate for the costs to inspect and maintain the road's structures.

Table 2.7 below shows the costs of maintaining SEGway once constructed, with separate costs for both the dual and single carriageway scheme options.

Category	Estimate (2017, undiscounted)
Maintenance (capital costs) – without scheme case	£7,931,000
Maintenance (capital costs) – Long dual carriageway	£18,693,600
Maintenance (capital costs) – Long single carriageway	£9,672,000
Net increase in Maintenance (capital costs)	
LB1d - Long dual carriageway	£10,762,600
LB2s - Long single carriageway	£1,741,000

Table 2.7 Maintenance Costs (undiscounted) over 60-year appraisal period

The maintenance costs have been estimated for the 60-year appraisal period in 2017 prices and do not include an allowance for inflation.

The maintenance cost of SEGway is partially off-set by a reduction in the maintenance required on the existing routes through the Four Villages of Marlesford, Little Glemham, Stratford St. Andrew and Farnham due to a reduction in traffic.

Table 2.7 shows that the net cost of maintaining SEGway over and above existing Suffolk County Council maintenance commitments is estimated to be between £1.7 million and £10.8 million over the 60-year appraisal period depending on the option chosen.

2.8 Quantified Risk Assessment

Risk workshops were held on 6 September 2017 and 4 October 2017 in Ipswich including representatives from Suffolk County Council, Suffolk Coastal District Council and Jacobs. These workshops enabled participants to identify and quantify all known risks associated with the scheme to enable Quantitative Risk Analysis (QRA).

The QRA was undertaken in order to determine the amount of risk to be applied to the base costs of the Scheme and is based on industry knowledge and experience from other, similar schemes which have been constructed. The QRA includes all types of risk which could affect the cost of the Scheme such as planning delay, political decisions, legislative delays etc.

The latest version of the QRA, as updated at the risk workshop held in September and October 2017, can be found in the *Quantified Risk Assessment Report Output (Appendix D)* with a summary of the risks, their probability and their probability adjusted impact on cost included in Table 2.8 below. Only those risks with a probability adjusted monetary impact in excess of £100,000 are shown to provide clarity. This includes low risks, medium risks and high risks, which are colour coded as follows, with this based on the probability, cost and time impacts (the criteria is included in the Quantified Risk Assessment Report):

Low Risk	Medium Risk	High Risk

Risk No.	Description	Risk Management	Probability	Probability adjusted risk
0001	Private sector funding at risk if Sizewell C delayed	Approach taken and documented in the Management Case and Financial Case removes this risk so that the scheme can be delivered in advance of Sizewell C. The approach also provides a mechanism to secure funding from EDF on approval of its DCO (or other means) and thereby reduce the contribution from the public purse. Suffolk County Council and local partners will liaise with EDF every 3 to 6 months through the Energy Coast Delivery Board and other mechanisms	**75%**	**193,750**
0003	Unspoiled countryside - failure to achieve stakeholder agreements	Early engagement with stakeholder consultees, before consenting stage, mitigate for environmental impact through design, legally review planning docs to assure not subject to challenge at enquiry	**30%**	**432,500**
0010	Contractor availability push up contractor rates	carry out earliest engagement as possible Pre tender presentation	**15%**	**237,500**
0011	Stakeholder negotiation increases scope	Early engagement and consultation prior to planning and focus on specific groups	**15%**	**237,500**

Risk No.	Description	Risk Management	Probability	Probability adjusted risk
0012	Higher than anticipated costs related to land purchase or access route agreement	Review the proposed route and confirm expected requirements Review impacts on scheme's value for money statement	30%	475,000
0014	Backfill material make-up unknown and may contain materials hazardous to health	Assess requirements and calculate level removable waste, review best option to reduce removal of waste from site	30%	162,500
0015	Unexpected ground conditions - hard ground - dissolution of underlying Chalk Soft and loose compressible / low bearing or ground that is aggressive to buried concrete"	Ground investigation (GI), reassessment of design if surveys are different to expected Undertake route specific detailed GI to target site-wide ground characterisation prior to tender. Undertake location specific supplementary GI to specifically target structures, earthworks and ground risk. Assure all findings are included in Prequalification Questionnaire issued to contractors so that the ownership of risk sits with contractor in contract	30%	1,225,000
0016	Flood plain becomes saturated	Monitor weather patterns and plan works around when likely flooding will occur	20%	273,333
0026	Ecology mitigation restricts working periods	Assess possible ecology requirements assure they are taken into account through programme development	20%	143,333
0043	Preliminary design study indicates unknown groundwater conditions.	Undertake route specific Detailed GI to target site-wide ground characterisation prior to tender. Undertake location specific Supplementary GI to specifically target structures, earthworks and ground risk. Transfer to contractor through contract negotiations"	50%	316,667
0044	Preliminary desk study indicates potential local instability associated with 'Head' superficial deposits (fragmented materials which have moved downstream following geological weathering)	Undertake route specific Detailed GI to target site-wide ground characterisation prior to tender. Undertake location specific Supplementary GI to specifically target structures, earthworks and ground risk. Transfer to contractor through contract negotiations	25%	158,333
0045	Greater than anticipated excavation in hard materials	Undertake route specific detailed GI to target site-wide ground characterisation prior to tender	30%	475,000

Risk No.	Description	Risk Management	Probability	Probability adjusted risk
0046	Lack of inclusion of Geotextile in earthworks construction	Undertake route specific detailed GI to target site-wide ground characterisation prior to tender, and where necessary include allowance in design	**25%**	**104,167**
0047	Increase in requirements for environmental mitigation	Ensure adequate environmental surveys are carried out and measures included in design above those already anticipated	**25%**	**583,333**
0048	Utilities diversions	Carry out C3 / C4 enquiries during preliminary design	**75%**	**1,125,000**
0051	Accuracy of estimate for the scheme are based on the preliminary design and are calculated using rates from previous similar type of schemes	Include adequate risk and Optimism bias allowances	**20%**	**1,033,333**

Table 2.8 Summary of the Quantified Risk Assessment (Risks in excess of £100,000)

@risk software was then used to perform a Monte Carlo risk analysis of all the identified risks. This generated a QRA report (Appendix D) with a P (Mean) value of **£9,556,892.68 (i.e. £9.56 million).** This risk allowance has been included in the scheme costs for both the long dual carriageway and long single carriageway options as all the risks identified have been considered common to each scheme.

The total base cost for the long dual carriageway scheme (including risk) is therefore **£133.4 million.**

Category	Estimate (2017 prices)
Base cost	£123,882,398
Risk	£9,556,892
Total	**£133,439,290**

Table 2.9: Long dual carriageway base costs including risk

The total base cost for the long single carriageway scheme (including risk) is therefore **£88.3 million.**

Category	Estimate (2017 prices)
Base cost	78,776,336
Risk	£9,556,892
Total	**£88,333,228**

Table 2.10: Long single carriageway base costs including risk

2.9 Optimism Bias

As outlined in the *Economic Case*, for the purposes of the economic appraisal which has been undertaken, the base costs (including risk) have been uplifted to include optimism bias at a rate of 25%. We have applied 25% rather than the minimum of 15% as suggested in WebTAG Unit A1.2 for the OBC stage to reflect the further work still required on design to take the scheme to planning.

For the purposes of the Financial Case, optimism bias has not been included due to the fact that the scheme costs have been derived from a relatively well-developed highways design and are inclusive of a risk allowance of £9.56 million (which equates to approximately 7 to 11% of the total scheme costs depending on the scheme option). This approach is in line with TAG Unit A1.2 paragraph 3.5.3.

2.10 Expenditure Profile

Table 2.11 to Table 2.14 provide a breakdown of the anticipated expenditure profile (in £s and %s respectively) for the long dual carriageway and long single carriageway scheme options

Cost Element	Total	Development			Construction		
		2018	2019	2020	2021	2022	2023
Construction	118,138,093.29				42,394,631.94	69,986,314.54	5,757,146.82
Land & property	4,548,267.47			4,548,267.47			
Preparation, administration, supervision & testing	10,752,928.89	3,046,416.33	2,624,039.85	2,738,387.14	1,145,978.51	1,198,107.06	
Total	133,439,289.66	3,046,416.33	2,624,039.85	7,286,654.61	43,540,610.45	71,184,421.60	5,757,146.82

Table 2.11: Expenditure profile for the long dual carriageway scheme option (£) – scheme cost inclusive of inflation and risk

Cost Element	Total	Development			Construction		
		2018	2019	2020	2021	2022	2023
Construction	88.53%				31.77%	52.45%	4.31%
Land & property	3.41%			3.41%			
Preparation, administration, supervision & testing	8.06%	2.28%	1.97%	2.05%	0.86%	0.90%	
Total	100.00%	2.28%	1.97%	5.46%	32.63%	53.35%	4.31%

Table 2.12: Expenditure profile for the long dual carriageway scheme option (%)

Cost Element	Total	Development			Construction		
		2018	2019	2020	2021	2022	2023
Construction	76,966,558.27				29,885,956.88	45,897,788.32	1,182,813.07
Land & property	4,343,650.50			4,343,650.50			
Preparation, administration, supervision & testing	7,023,019.16	1,994,648.30	1,715,601.12	1,787,127.74	746,517.25	779,124.75	
Total	88,333,227.93	1,994,648.30	1,715,601.12	6,130,778.24	30,632,474.13	46,676,913.07	1,182,813.07

Table 2.13: Expenditure profile for the long single carriageway scheme option (£) – scheme cost inclusive of inflation and risk

Cost Element	Total	Development			Construction		
		2018	2019	2020	2021	2022	2023
Construction	87.13%				33.83%	51.96%	1.34%
Land & property	4.92%			4.92%			
Preparation, administration, supervision & testing	7.95%	2.26%	1.94%	2.02%	0.85%	0.88%	
Total	100.00%	2.26%	1.94%	6.94%	34.68%	52.84%	1.34%

Table 2.14: Expenditure profile for the long single carriageway scheme option (%)

In summary, scheme construction costs will be incurred between 2021 and 2023.

2.11 Funding arrangements

Table 2.15 outlines the intended funding arrangements for the two scheme options in the central case assumption.

Funding Source	Long dual carriageway	Long single carriageway
DfT – Large Local Majors Fund	Max of £126,767,290	Max of £83,916,228
Developer contributions	TBC	TBC
Local contribution	Min of £6,672,000	Min of £4,417,000
Total	**£133,439,290**	**£88,333,228**

Table 2.15: Funding Arrangements (central case)

The project's funding package is currently planned as comprising a minimum 5% local contribution with the remainder from Central Government. This reflects the importance of the project in terms of helping the UK to meet its clean energy and growth targets – in helping to facilitate Sizewell C, and the affordability of a local contribution for Suffolk County Council and its local partners.

However, there is the opportunity for a significantly larger local contribution once it is confirmed that the Sizewell C project goes ahead. EDF Energy supports in principle the aims and objectives of the scheme and is prepared to make a proportionate financial contribution towards the SEGway scheme, in lieu of providing an alternative highway scheme along the A12 (identified as options within EDF Energy's Sizewell C Stage consultation), which would be required to enable its delivery of the Sizewell C project. It has been accepted by Suffolk County Council that the Sizewell C project would not justify the delivery of a four village bypass as mitigation in its own right. Therefore, any contribution by EDF Energy towards the SEGway scheme would be proportionate to the level of contribution necessary to mitigate the impacts of the Sizewell C project, and is contingent on the SEGway scheme being in place to support the construction of Sizewell C. Suffolk County Council is still in discussion with EDF Energy what a proportionate mitigation for Sizewell C would be, but believes that a two village bypass would be the minimum mitigation.

As Suffolk County Council considers that the development cannot be properly mitigated with less than a bypass scheme, Suffolk County Council estimates this would result in a contribution from EDF Energy of between £12 million and £26 million towards the scheme, which would then constitute a 9-19% private sector local contribution towards LB1d or a 13.5% to 29% private sector local contribution towards LB2s, reducing the level of Central Government funding.

The impact of this on the Financial Case is shown below. The funding contribution has been calculated as a range based on the estimated costs of a one village bypass of Farnham and a two village bypass of Stratford St. Andrew and Farnham. The calculations to derive these costs are shown in Appendix F.

Funding Source	Long Dual Carriageway - Funding Range		Long Single Carriageway - Funding Range	
DfT – Large Local Majors Fund	£114,767,290	£100,767,290	£71,916,228	£57,916,228
Developer contributions	£12,000,000	£26,000,000	£12,000,000	£26,000,000
Local contribution	£6,672,000	£6,672,000	£4,417,000	£4,417,000
Total	**£133,439,290**	**£133,439,290**	**£88,333,228**	**£88,333,228**

Table 2.16: Potential Funding Arrangements (with developer contribution)

The local contribution of 5% currently proposed does not rely on EDF Energy's contribution at this stage. This would place unnecessary uncertainty on SEGway's timescales and the ability to deliver the scheme in time for the construction period of Sizewell C, given that EDF Energy is yet to submit its Development Consent Order. If and when Sizewell C receives its Development Consent Order and a positive Final Investment Decision, EDF Energy would then be in a firm position to commit funding. This would allow the local contribution to be

substantially increased by being funded through the in-lieu payment of its mitigation requirements. However, EDF Energy would be looking to progress construction of the new nuclear power station as quickly and efficiently as possible. Crucially this would be more rapidly than the time it would then take for Suffolk County Council to be given the 'green light' to design, plan and procure the construction of SEGway to successfully mitigate all the impacts of Sizewell C's construction on this part of the A12. Thus, it will be essential to progress the scheme before the outcome of a Development Consent Order and Final Investment Decision is known.

Meanwhile, Suffolk County Council continues to work closely with EDF Energy, with the aim to secure funding from them to help reduce the national and local contribution to the scheme. As demonstrated in the Strategic Case, EDF Energy is supportive of the scheme and willing to provide funding in lieu of its own mitigation. Also as demonstrated in the Economic Case, should this funding be secured then this has a beneficial impact on the scheme's value for money and importantly, the level of public funding.

This is therefore a once in a lifetime opportunity to forward fund the further development of SEGway through the design, consultation, planning, scheme orders and procurement phases. This approach helps provide the best opportunity to capture developer funding to deliver SEGway in advance of Sizewell C's peak construction.

In parallel to the above Suffolk County Council will continue to work with Suffolk Coastal District Council to explore alternative mechanisms (these could include Section 106, Community Infrastructure Levy, prudential borrowing, or a potential additional, unspecified contribution from Suffolk Coastal District Council) to raise further "local contributions" to progress the scheme if required. Further detail of these alternative arrangements would be presented in the Full Business Case.

2.12 Funding approval

Suffolk County Council's Section 151 Officer has provided a declaration as part of the Large Local Majors OBC Cover Sheet. Suffolk County Council's Section 151 Officer will again provide a signed declaration outlining Suffolk County Council's ongoing financial commitment to the scheme once the tender costs for the scheme are known. This letter will subsequently be included within the scheme's Full Business Case.

2.13 Alternative funding arrangements

There are no other identified funding strategy options at this stage.

3. Conclusion of the Financial Case

Through the work undertaken across the five components that make up the Outline Business Case for SEGway, the preferred option is LB1d – long dual carriageway. This option is estimated to cost £133.4 million, based on 2017 prices, including risk adjustments and excluding sunk costs. The net increase in capital maintenance costs associated with the preferred SEGway scheme are estimated to be £10.8 million (in 2017 prices) over a 60-year appraisal period.

Option LB2s will be taken forward to the Full Business Case stage as the Low-Cost Alternative in view of the relative affordability of the proposal, medium value for money and good fit with the scheme objectives. This option is estimated to cost £88.3 million, based on 2017 prices, including risk adjustments and excluding sunk costs. The net increase in capital maintenance costs associated with the Low-Cost Alternative SEGway scheme are estimated to be £1.7 million (in 2017 prices) over a 60-year appraisal period.

SEGway will be funded through a combination of Large Local Majors Fund and a local contribution from Suffolk County Council. The project's funding package is currently planned as comprising a minimum 5% local contribution with the remainder from Central Government. This reflects the importance of the project in terms of helping the UK to meet its clean energy and growth targets – in helping to facilitate Sizewell C, and the affordability of a local contribution for Suffolk County Council and its local partners.

However, there is the opportunity for a significantly larger local contribution once it is confirmed that the Sizewell C project goes ahead. EDF Energy supports in principle the aims and objectives of the scheme and is prepared to make a proportionate financial contribution towards the SEGway scheme, in lieu of providing an alternative highway scheme along the A12 (identified as options within EDF Energy's Sizewell C Stage consultation), which would be required to enable its delivery of the Sizewell C project. It has been accepted by Suffolk County Council that the Sizewell C project would not justify the delivery of a four village bypass as mitigation in its own right. Therefore, any contribution by EDF Energy towards the SEGway scheme would be proportionate to the level of contribution necessary to mitigate the impacts of the Sizewell C project, and is contingent on the SEGway scheme being in place to support the construction of Sizewell C. Suffolk County Council is still in discussion with EDF Energy what a proportionate mitigation for Sizewell C would be, but believes that a two village bypass would be the minimum mitigation.

As Suffolk County Council considers that the development cannot be properly mitigated with less than a bypass scheme, Suffolk County Council estimates this would result in a contribution from EDF Energy of between £12 million and £26 million towards the scheme, which would then constitute a 9-19% private sector local contribution towards LB1d or a 13.5% to 29% private sector local contribution towards LB2s, reducing the level of Central Government funding.

The local contribution of 5% currently proposed does not rely on EDF Energy's contribution at this stage. This would place unnecessary uncertainty on SEGway's timescales and the ability to deliver the scheme in time for the construction period of Sizewell C, given that EDF Energy is yet to submit its Development Consent Order. If and when Sizewell C receives its Development Consent Order and a positive Final Investment Decision, EDF Energy would then be in a firm position to commit funding. This would allow the local contribution to be substantially increased by being funded through the in-lieu payment of its mitigation requirements.

However, EDF Energy would be looking to progress construction of the new nuclear power station as quickly and efficiently as possible. Crucially this would be more rapidly than the time it would then take for Suffolk County Council to be given the 'green light' to design, plan and procure the construction of SEGway to successfully mitigate all the impacts of Sizewell C's construction on this part of the A12. Thus, it will be essential to progress the scheme before the outcome of a Development Consent Order and Final Investment Decision is known.

Meanwhile, Suffolk County Council continues to work closely with EDF Energy, with the aim to secure funding from them to help reduce the national and local contribution to the scheme. As demonstrated in the *Strategic Case*, EDF Energy is supportive of the scheme and willing to provide funding in lieu of its own mitigation. Also as demonstrated in the *Economic Case*, should this funding be secured then this has a beneficial impact on the scheme's value for money and importantly, the level of public funding.

Suffolk County Council and local partners consider this to be a once in a lifetime opportunity to forward fund the further development of SEGway through the design, consultation, planning, scheme orders and procurement phases. This approach helps provide the best opportunity to capture developer funding to deliver SEGway in advance of Sizewell C's peak construction.

Full Business Case Update

The following tasks will need to be undertaken in order to update the Financial Case:

- *The introduction should be verified and any new information included in an update, for example if the approach to assessing affordability has been changed since the Outline Business Case.*
- *Update sensitivity and Risk Profile with any changes made since the Outline Business Case.*
- *Costs should be revisited and updated accordingly for both the Preferred Option and Low-Cost Alternative.*
- *Funding arrangements confirmed including evidence of any third party funding, such as from EDF Energy in relation to Sizewell C.*
- *The status of the Low Cost Alternative – Option LB2s – should be clarified.*

Appendix A. Detailed Cost Breakdown

Please refer to the standalone Scheme Cost report enclosed in the *Outline Business Case – Financial Case folder.*

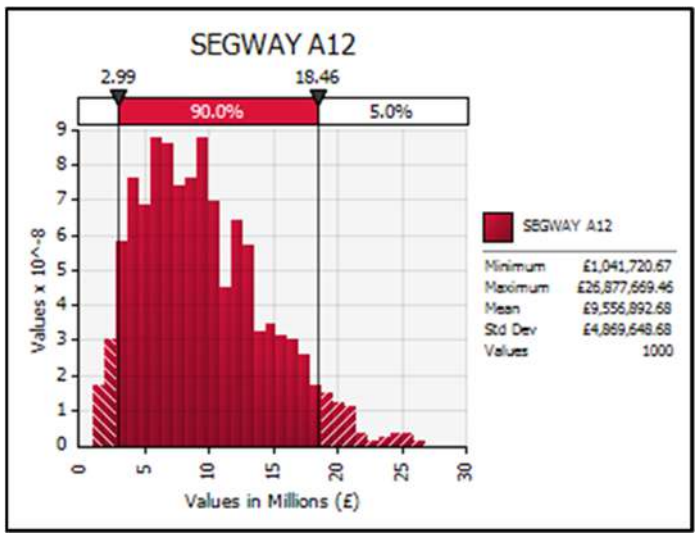
Appendix B. Independent Surveyor's Report

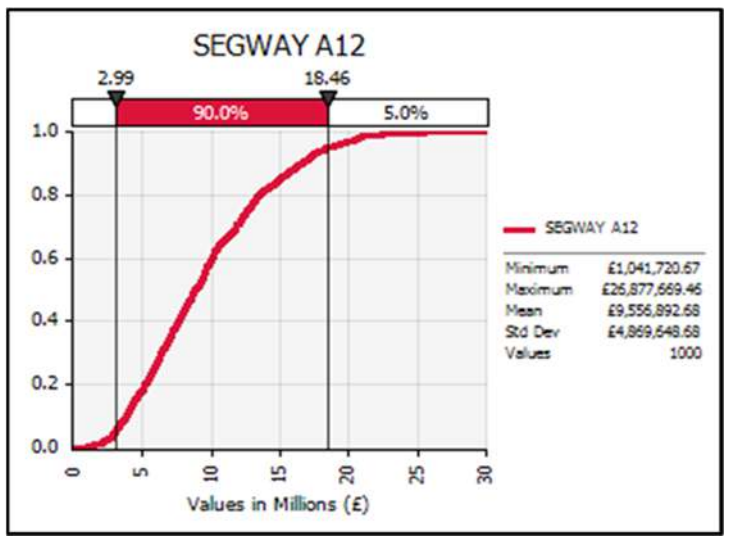
Please refer to the standalone Independent Surveyor's Report enclosed in the *Outline Business Case – Financial Case folder.*

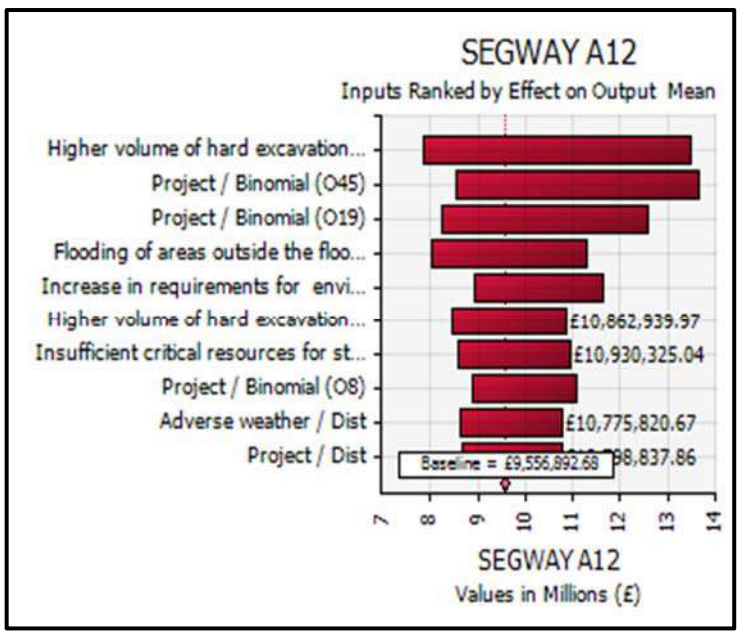
Appendix C. Preparation of costs for the Financial Case and Economic Case Spreadsheet

Please refer to the standalone spreadsheet contained in the *Outline Business Case - Financial Case* folder. An identical version of this file is also enclosed in the *Outline Business Case - Economic Case* folder.

Appendix D. QRA Report Extract







Simulation Summary Information	
Workbook Name	SEGWAY A12 @risk applied register 10-11-17.xlsx
Number of Simulations	1
Number of Iterations	1000
Number of Inputs	80
Number of Outputs	1
Sampling Type	Latin Hypercube
Simulation Start Time	13/11/2017 16:03
Simulation Duration	00:00:02
Random # Generator	Mersenne Twister
Random Seed	1940816515

Summary Statistics for SEGWAY A12			
Statistics		**Percentile**	
Minimum	£1,041,720.67	**5%**	£2,987,595.40
Maximum	£26,877,669.46	**10%**	£3,785,683.70
Mean	£9,556,892.68	**15%**	£4,378,590.44
Std Dev	£4,869,648.68	**20%**	£5,180,443.37
Variance	2.37135E+13	**25%**	£5,795,605.88
Skewness	0.672789567	**30%**	£6,369,766.57
Kurtosis	3.060114731	**35%**	£6,968,038.02
Median	£8,784,204.18	**40%**	£7,615,506.11
Mode	£9,526,289.73	**45%**	£8,223,130.36
Left X	£2,987,595.40	**50%**	£8,784,204.18
Left P	5%	**55%**	£9,504,489.14
Right X	£18,462,490.59	**60%**	£10,046,192.99
Right P	95%	**65%**	£10,753,469.58
Diff X	£15,474,895.20	**70%**	£11,812,110.72
Diff P	90%	**75%**	£12,631,479.10
#Errors	0	**80%**	£13,481,864.39
Filter Min	Off	**85%**	£15,011,150.13
Filter Max	Off	**90%**	£16,626,851.77
#Filtered	0	**95%**	£18,462,490.59

Change in Output Statistic for SEGWAY A12			
Rank	**Name**	**Lower**	**Upper**
1	Higher volume of hard excavation / Binomial	£7,880,002.06	£13,469,637.45
2	Project / Binomial (O45)	£8,528,178.69	£13,671,748.61
3	Project / Binomial (O19)	£8,262,127.67	£12,578,011.03
4	Flooding of areas outside the flood plains / Dist	£8,012,370.42	£11,309,707.48
5	Increase in requirements for environmental mitigation / Binomial	£8,912,816.68	£11,637,068.07
6	Higher volume of hard excavation / Dist	£8,469,303.58	£10,862,939.97
7	Insufficient critical resources for statutory bodies / Dist	£8,602,296.52	£10,930,325.04
8	Project / Binomial (O8)	£8,904,418.71	£11,079,331.94
9	Adverse weather / Dist	£8,630,889.00	£10,775,820.67
10	Project / Dist	£8,668,301.08	£10,798,837.86

Appendix E. SB5 Blue Route Options - Cost Estimate Review & Update

Please refer to the standalone report enclosed in the *Outline Business Case – Financial Case folder.*

Appendix F. Scheme Costs for One and Two Village Bypasses

Cost Element	SB1 North Cost (£)	SB5s Cost (£)
Construction	£8,088,523	£17,509,804
Project / Design Team Fees	£1,739,033	£3,764,608
Other Development Costs	£337,755	£506,814
Inflation (7.6%)	£772,878	£1,655,373
Risk (10%)	£1,093,819	£2,343,660
Total	**£12,032,008**	**£25,780,259**

The scheme costs for SB5s have been derived from Appendix E - SB5 Blue Route Options - Cost Estimate Review & Update. This involved a high level review and a cost update on the estimates prepared by AECOM (in June 2014) for the two SB5 Blue route options (Single carriageway & Dual carriageway) for the bypass to the villages of Farnham & Stratford St Andrew.

These costs have been updated on a proportionate basis, taking the resulting percentage increases in components of the SB5s cost and then applying these to AECOM's previous cost estimate for SB1 North, alongside the same assumptions around inflation (7.06031%) and risk (10%). The 2014 cost and resulting revision for the purposes of providing an indicative lower developer contribution cost range for this Financial Case and Economic Case are shown below.

Cost Element	SB1 North Cost (£) 2014	Percentage Increase	SB1 North Cost (£) 2017
Construction	£6,048,221	34%	£8,088,523
Project / Design Team Fees	£1,300,368	34%	£1,739,033
Other Development Costs	£307,050	10%	£337,755
Inflation	£1,531,128		£772,878
Risk	£765,564		£1,093,819
Total	**£9,952,330**		**£12,032,008**

Appendix G. Land Valuation Report

Please refer to the standalone report enclosed in the *Outline Business Case – Financial Case folder.*