



Forth Road Bridge

Forth Estuary Transport Authority

Budget update 2009-10

2nd July 2009

1 Purpose of report

To advise the Authority of the Revenue and Capital budget forecast expenditure position to 31st March 2010. This report has been prepared in consultation with the Chief Engineer and Bridge Master.

2 Main Report

Forecast expenditure to grant received

2.1 The forecast over spend to grant based on Period 2 information ended 31st May is £1.541m. The total Grant-in-Aid 2009-10 is £13.055m; forecast expenditure is estimated to be £14.596m.

2.2 The estimated forecast to grant position is shown in the table below:

Expenditure type	Grant-in-Aid £'000	Forecast £'000	CFCR Adjustm't £'000	Forecast Revised £'000	Over Spend £'000
Revenue	5,048	5,888	(756)	5,132	84
Capital	8,007	8,708	756	9,464	1,457
Total	13,055	14,596	0	14,596	1,541

2.3 It should be noted that the Capital grant includes £0.780m for Revenue costs associated with Capital projects; the forecast against this element of grant is estimated to be £0.756m. An adjustment has been made between the grant headings to ensure that the spend has been reflected within the area grant funding has been received.

3 Revenue grant

3.1 The forecast over spend on Revenue grant is £0.084m. This primarily relates to a reduction in forecast external interest due to a drop in interest rates since the budget was set.

4 Capital grant

4.1 The forecast over spend on Capital grant is estimated to be £1.457m. Appendix 1 details the budget and forecast position 2009-11.

4.2 The table below details the forecast over spend per project 2009-10:

Project	Budget £'000	Forecast £'000	Variance £'000
Tower Painting/DOC	2,500	2,906	406
M9 Spur/A8000 Main Contract	380	899	519
Main Cable Dehumidification	2,287	2,916	629
Main Expansion Joint Replacement	500	252	(248)
Other Projects	2,340	2,490	150
Total	8,007	9,464	1,457

4.3 The **main** reasons the variance are as follows:

- Tower Painting - £0.406m over spend – The additional costs here relate to the dismantling project which had been anticipated to be incurred 08-9 but was delayed. It should however be noted that the overall cost of this project increased to that budgeted 2008-9.
- M9 Spur/A8000 Main Contract - £0.519m over spend - When the budget for the M9 Spur/A8000 contract was agreed there were a number of unknown outstanding issues that could not be determined at that time. These included costs relating to contractor claims, land acquisition, disturbance claims and compensation claims which currently remain subject to negotiation and litigation. These costs have now been estimated based on information provided by The City of Edinburgh Council and are forecast based on a "most likely" outcome. Further revisions will be required once claims are settled.
- Main Cable Dehumidification - £~~0.629m~~ 0.979m over spend - The additional costs are primarily due to the provision of a third gantry to accelerate the works as a result of weather related delays and the subsequent increase in site supervision and as a result of additional ducting work. This over spend is partially off-set by an under spend 2008-9 which was carried through reserves.
- Main Expansion Joint Replacement - £0.248m under spend – The estimated date for the commencement of site works has been delayed until March 2010, therefore there will be no contractor costs until this date.

5 Reserves/Funding

5.1 The Scottish Government committed to a three-year spending review settlement of £41.097m. This settlement was for financial years 2008-9 to 2010-11.

5.2 The current forecast position against this grant is estimated to be:

	2008-9 £'000	2009-10 £'000	2010-11 £'000	Total £'000
Spending Review Funding	Actual	Actual	Balance	
Revenue	7,070	5,048	4,500	16,618
Capital	6,895	8,007	9,577	24,479
Total	13,965	13,055	14,077	41,097
Actual/Forecast/Budget	Actual	Forecast	Budget/ Forecast	Total
Revenue	5,033	5,132	4,996	15,161
Capital	6,505	9,464	6,654	22,623
Total	11,538	14,596	11,650	37,784
Variance	2008-9	2009-10	2010-11	Total
Revenue	(2,037)	84	496	(1,457)
Capital	(390)	1,457	(2,923)	(1,856)
Total	(2,427)	1,541	(2,427)	(3,313)

5.3 The opening Reserve at the start of the Spending Review was £4.486m. The budget under spend for 2008-9 of £2.427 increased the Reserve to £6.913m at 31st March 2009. If we assume that the Authority will be fully funded up to the total of £41.097m then forecast expenditure against this grant would be £37.784m leaving a closing Reserve of £7.799m at 31st March 2011.

6 Key Risks – Barry and Robert require to revise and add further if appropriate

6.1 Future bridge strengthening and improvement works~~maintenance requirements yet to be determined.~~

~~6.2 Main Cable Strength. The inspection of the main cable in 2008, determined that the cables had lost around 10% of capacity due to corrosion. A system of dehumidification is being fitted to the main cables and is expected to be fully commissioned by the end of 2009. Dehumidification is a well-tried system of preventing corrosion of steel and is already in use in the anchorage chambers of the bridge. However, its application to main cables of suspension bridges is relatively new. Such systems are being fitted to new bridges to protect them from corrosion and retrofitted to older bridges in Japan, Sweden and Denmark where corrosion has been uncovered. Whilst there is good reason to have confidence that dehumidification can slow down or halt corrosion there is no body of evidence yet available to allow an unconditional assurance to be given that this will work on Forth.~~

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~~6.26.3~~ Anchorage Investigation. A total sum of £7.188m has been allocated to this project. However, the work is likely to involve ~~involves~~ excavation in rock to expose the post-tensioning strand in the anchorage tunnels and will have to be done with extreme care to avoid damaging the strands. It is further complicated by both the proximity of the existing viaduct piers, local housing and access roads. Environmental issues are also a key risk. In addition, full scale testing of the sockets within the anchorage chambers is also being considered ~~planned~~ and access, containment and designing one off testing equipment will increase the financial risk. The project is also undergoing a peer review and this may change the nature of the investigation.

~~6.36.4~~ Replacement Bearings. Given the increase in actual tender prices against estimates recently received for the Main Expansion Joint replacement contract, there is a risk that a similar increase in cost will occur for this project. That risk will increase if only a small number of contractors apply for inclusion on the tender list.

~~6.46.5~~ Suspended Span Truss Assessment. The checking process for this assessment has commenced and may result in further strengthening work being required on the Truss.

~~6.56.6~~ Parapet Investigation. Following the successful completion of the Suspended Span Parapet testing, work on the Viaduct Parapet testing has now commenced. This work may lead to a re-evaluation of containment levels and a further assessment of the need to replace the Viaduct Parapets. A sum has been included in the Capital Plan for replacement.

~~6.66.7~~ Cable Band Bolts. £0.630m has been included in the capital plan for this work. However, until the full extent of the cracking is determined the final cost of the remedial works can not be established. Ten cracked nuts in total have been found and replaced. Once the investigation into the cause of the failures is completed, and this is expected to be in the Autumn of 2009 the five cracked nuts on the East Cable will be replaced and then examined this summer. Once this examination is completed a final report will be brought to the FETA Board, later this year.

~~6.76.8~~ Main Cable Dehumidification. The wrapping of both main cables has now been completed and the risk of further delays and subsequent costs due to weather are now low. However, an increase in cost of around £ 0.35 m been allowed for as there has been an unexpected issue with the the supply ducting at deck level.

~~6.9~~ Main Expansion Joints. The decision to delay the replacement of the main expansion joints until the opening of the Forth Replacement Crossing in 2016 was made in February 2009. Additional

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inspection and monitoring regimes to the joints including the removal of all the plate trains on a rolling programme up until 2016 will be carried out and temporary failsafe devices will be installed along with the replacement or modification of key components such as pins and springs. A new permanent access system is being procured to facilitate both the inspection and monitoring of the joints. The access system will also be used to assist in the future replacement of the joints.

However, given their age, there is still a residual risk that, in the event of an unforeseen significant failure of the joints, full replacement would have to be carried out before 2016.

There is also a risk of delay to the Forth Replacement Crossing Project and if such a delay occurred then a review of the joint replacement programme would have to be carried out.

There is a risk of further weather delays. However, a third platform has been brought to site in order to accelerate the works and the risk to a significant increase in costs remains low

6.8 Main Expansion Joints The decision to delay the replacement of the main expansion joints until the opening of the Forth Replacement Crossing in 2016 was made in February 2009. Additional inspection and monitoring regimes to the joints including the removal of all the plate trains on a rolling programme up until 2016 will be carried out and temporary failsafe devices will be installed along with the replacement or modification of key components such as pins and springs. A new permanent access system is being procured to facilitate both the inspection and monitoring of the joints. The access system will also be used to assist in the future replacement of the joints.

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6.10 Improvements to Deck Half Joints. A sum of £0.401 m has been included for this work in 2009/10 to 2011/12. This is to carry out a trial erection of an improved detail at the orthotropic deck half joints. These joints occur every 18 metres and the original detail is causing both structural problems and issues with ride quality. The maintenance of the existing detail is taking up more and more time and resources. The cost of replacing all 768 number of these joints has not been allowed for as further discussion will be required following the trial.

6.11 Suspended Spans -Underdeck Access. The existing steel and aluminium access system is almost 30 years old and is likely to need considerable remedial work or complete replacement at some stage in the near future. A sum of £0.100m has been included for investigation into either replacement or remedial work. The cost of replacement is likely to be significant but has not yet been allowed for in the plan.

6.8

6.86.12 A8000/M9 Spur – Currently a number of matters have still to be concluded that may impact on the final cost of the scheme. Forecasts built in are currently based on “Best-Case” settlement assumptions.

6.96.13 It should be noted that the main key financial risks remain the condition of the Main Cable and the Anchorages. Investigations are continuing into both elements and as results from these investigations become available then the level of risk can be evaluated. No allowance has been made in the Capital Plan for the replacement of the Main Cables or the Anchorages.

7 Conclusions

- (i) The Reserve balance at 31st March 2009 is £6.913m. The anticipated over spend 2009-10 of £1.541m would reduce this Reserve to £5.372m at 31st March 2010. Should current Capital Plan forecasts remain consistent and Revenue costs come in around budget then it would be anticipated that the Reserve could increase by a further £2.427m to £7.799m at 31st March 2011.
- (ii) A number of key risks exist that may impact on the Reserve balance.

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(iii) The financial position will continue to be closely monitored during 2009-10 and further reports will be prepared for future meetings.

8 Recommendation

It is recommended that the Authority note the contents of this report.

DONALD McGOUGAN
Treasurer

Appendices	Appendix 1 - Capital Plan 2009-12
Contact/tel	Toby MacDonald: 0131 469 3078
Background Papers	Held at offices of the Treasurer



Forth Road Bridge

Forth Estuary Transport Authority

Appendix 1

CAPITAL PLAN 2009-11

Projects	Type	Budget		Forecast		Variance	
		2009-10 £'000	2010-11 £'000	2009-10 £'000	2010-11 £'000	2009-10 £'000	2010-11 £'000
Tower Painting/Dropped Objects Canopy	C	2,500	250	2,906	250	406	0
M9 Spur extension / A8000 upgrade	C	100	100	899	154	799	54
Main Cable Dehumidification	C	2,287	290	2,916	290	629	0
Main Expansion Joint Replacement	C	500	400	252	750	(248)	350
Other Projects							
Vehicle Replacement	C	20	30	20	30	0	0
Parking Areas Landscaping & reconstruction	C	250	0	200	30	(50)	30
Toll Equipment Residual	C	0	0	1	0	1	0
Resurface Main/Side Spans North	C	0	0	1	0	1	0
Resurface Viaducts and North Approaches	C	0	475	50	250	50	(225)
Main Cable Acoustic Monitoring	C	70	70	200	70	130	0
Viaduct Barrier Replacement	C	0	0	0	0	0	0
Viaduct Bearing Replacement	C	300	3,700	613	3,700	313	0
Truss End Linkages	C	20	500	38	50	18	(450)
Tower Wind Barriers	C	75	1,500	10	50	(65)	(1,450)
Suspended Span Gantry Refurbishment	C	200	0	200	0	0	0
South Anchorage & Storage Area	C	200	0	1	0	(199)	0
Main Towers Cathodic Protection (Piers)	C	250	0	250	0	0	0
Replace Weigh in Motion System	C	125	0	50	0	(75)	0
Improvements to Deck Half Joints	C	20	20	51	300	31	280
High Mast Light Replacement	C	0	0	20	50	20	50
Cable Band Bolt Replacement	C	30	300	30	300	0	0
North Approach Rock Cut Stabilisation	C	0	0	0	0	0	0
Main Cable Investigation	R	0	0	0	0	0	0
Parapet Investigation	R	300	20	300	20	0	0
Bridge Specific Assessment Live Load	R	30	0	30	0	0	0
Susp. Span Truss Assessment & Strengthening	R	50	0	74	50	24	50
Anchorage Investigation	R	350	800	300	100	(50)	(700)
Main Cable Replacement/Augmentation Study	R	0	0	2	0	2	0
Contingencies / Minor Works	R	330	210	50	210	(280)	0
Total Revenue Schemes		8,007	8,665	9,464	6,654	1,457	(2,011)

C = Capital Projects R = Revenue costs