Edinburgh Glasgow Improvement Programme

Final Business Case

October 2013

Ernst & Young LLP

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Building a better working world

This final business case has been compiled by Ernst & Young LLP. The Investment Case (Section 1), Management Case (Section 4) and, where appropriate, the supporting appendices were prepared by Transport Scotland. The remaining sections were prepared by Ernst & Young LLP.

The work performed by Ernst & Young LLP has been supplemented by other advisors to Transport Scotland, in particular the analysis in relation to the procurement of rolling stock.

The work of Ernst & Young LLP in connection with this outline business case is of a different nature to that of an audit. The final business case is based on our review of data and information received from Transport Scotland. We have not sought to verify the accuracy of this data or the information.

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Abbreviations

BCR	Benefit: Cost Ratio
CEC	City of Edinburgh Council
CP	Control period
DECC	Department for Energy and Climate Change
DfT	Department for Transport
E&G	Edinburgh and Glasgow
EALI	Economic Activity and Location Impacts
EGIP	Edinburgh Glasgow Improvements Programme
EMU	Electrical Multiple Unit
ETS	EU Emissions Trading Scheme
EU	European Union
FBC	Final Business Case
FGD	Framework Governance Document
FReM	UK Government Financial Reporting Manual
FSR	First ScotRail
GB	Great Britain
GDP	Gross Domestic Product
GRIP	Network Rail's Guide to Railway Investment Projects
IDM	Investment Decision Maker
IFRS	International Financial Reporting Standards
IIB	Infrastructure Investment Board
ITT	Invitation to Tender
MGDD	Manual of Government Deficit and Debt
Mph	Miles per hour
NPD	Non Profit Distribution
NPV	Net Present Value
NR	Network Rail
OB	Optimism Bias
OBC	Outline Business Case
OLE	Overhead Line Equipment
OJEU	Official Journal of the European Union
ORR	Office of Rail Regulation
The Packages	A group of projects which have been packaged together
The Projects	The individual projects that comprise the Infrastructure Programme
PEP	Programme Execution Plan
PIC	Public Interest Company

PMG	Programme Management Group
PQQ	Pre Qualification Questionnaire
PVB	Present value of benefits
PVC	Present value of costs
QRA	Quantified Risk Assessment
RAB	The Network Rail Regulated Asset Base
RMT	Rail Management Team
ROSCO	Rolling Stock Company
RPG	Rail Policy Group
SFT	Scottish Futures Trust
SG	Scottish Government
SLC	Service Level Commitment
SMART	S – specific M – measurable A – attainable R – relevant T – timed
SoPC	Standardisation of PFI Contracts
SPFM	Scottish Public Finance Manual
SBP	Strategic Business Plan
SPV	Special Purpose Vehicle
SRO	Senior Responsible Officer
S&T	Signalling and Telecoms
STAG	Scottish Transport Appraisal Guidance
STPR	Strategic Transport Projects Review
TAWS	Transport and Works (Scotland) Act 2007
TOC	Train Operating Company
TPO	Transport Planning Objective
TS	Transport Scotland
TSA	Train Service Agreement
TSSSA	Technical Support and Spares Supply Agreement
VAT	Value Added Tax
VFM	Value for Money
WEBs	Wider Economic Benefits

Executive summary

Introduction

The Edinburgh Glasgow Rail Improvement Programme (EGIP) is a comprehensive programme of improvements to Scotland's railway infrastructure, station facilities, rolling stock and service provision, which will provide a major boost to the wealth of Scotland and its long term economic sustainability.

As a key component of the Scottish Government Control Period 5 (CP5) electrification programme, EGIP will deliver a step change improvement to journey times and the passenger experience across the central Scotland rail corridor. Passengers will travel on longer, faster, greener electric trains with easier access to the network through improved station facilities. The redevelopment of Haymarket and Queen Street Stations will transform two of Scotland's most iconic stations into spacious, modern, fully accessible, 21st century transport hubs with significant retail and other inward investment opportunities.

The EGIP Final Business Case (FBC) seeks approval of the Transport Scotland (TS) Investment Decision Making (IDM) Board to invest £742m (outturn prices) for Phase 1 of EGIP. Investment including Stirling and Phase 2 totals £1.1bn. This paper summarises the key findings of the FBC.

EGIP performs well against the objectives and as assessed in the Investment, Commercial, Financial and Management Cases. EGIP meets the affordability criterion in Control Period 5 (CP5). Moreover, given the aspiration to deliver high speed rail on a new route between Glasgow and Edinburgh, there is a need to "future proof" the network by providing the necessary capacity and journey time improvements in the short term while avoiding the duplication of capital spend on two direct services between the cities.

On 4 July 2012, the Minister for Transport and Veterans announced details of EGIP and the Scottish Government's intention to phase the EGIP delivery programme enabling a more affordable and achievable implementation plan which will still deliver the programme's aims and ensure the best value for the public purse.

Phase 1 (2014-19): based on 4 trains per hour (tph) with longer trains and extended platforms at Queen Street Station the first £742m phase electrifies the core Edinburgh Glasgow via Falkirk line, the Cumbernauld lines in time for the Commonwealth Games and delivers the new Edinburgh Gateway Station with connection to Fife line services.

Phase 2 (2025 onwards): other elements of the current EGIP Programme including the infrastructure for 6tph and a new connection between the Glasgow line and Edinburgh Gateway station could all be delivered in later phases subject to affordability and other considerations including High Speed Rail (HSR) and wider capacity issues.

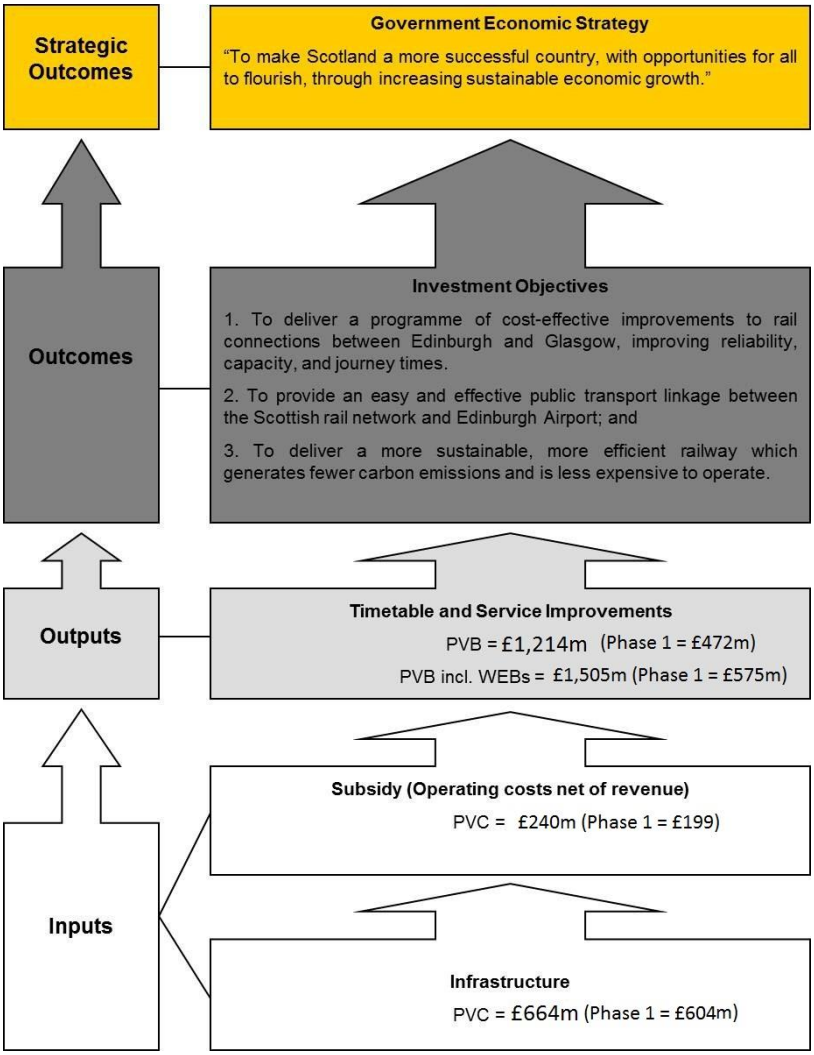
The Investment Case

The Investment case establishes the rationale and investment objectives for the intervention. It sets out how EGIP will meet the investment objectives and contribute to the Scottish Government's (SG) Economic Strategy (GES).

Delivering the strategic objects

The diagram overleaf illustrates how EGIP will meet the investment objectives and contribute to the GES.

Figure 1- Delivering EGIP strategic objectives



As indicated by the diagram, the present value benefits (PVB), both direct and indirect, are forecast to exceed the present value costs (PVC).

Economic Benefits

The Programme overall – taking into account Phases 1 and 2 – has a Benefit Cost Ratio (BCR) of 1.3 (1.7 including wider economic benefits). Phase 1 on its own has a BCR of 0.7 or 0.8 (including wider economic benefits). The investment case indicates that the overall programme will perform well against the investment objectives, with the estimated benefits exceeding the cost. Phase 1 delivers required additional capacity and journey time benefits within affordability constraints in CP5 while future proofing against the aspiration to deliver high speed rail on a new route between Glasgow and Edinburgh.

It should be noted that Queen Street Station accessibility and ambience benefits to all passengers using the station, public realm and retail benefits have not been taken into account in the economic analysis.

The Commercial Case

The commercial case sets out the procurement strategy and the value for money case for EGIP.

Procurement Strategy

Infrastructure work package

The agreed procurement strategy for the delivery of the infrastructure is for Network Rail (NR) to perform the role of Delivery Organisation, taking overall responsibility for the delivery of EGIP. This is considered to be most appropriate as they will own the assets procured and they are best placed to manage the complex interface and issues associated with EGIP.

The work delivery package will be delivered by a three party alliance comprising NR and up to two contractors, one civils / infrastructure contractor and one Overhead Line Equipment (OLE) contractor.

Procurement risks will be managed by:

- An incentivised target price mechanism between NR and the alliance contractors
- Robust scrutiny of the deliverability of the works package by the ORR.

Rolling stock

In late 2012, TS officials, assisted by advisors, carried out an analysis of the optimal procurement route for the rolling stock required by EGIP. Following the analysis to identify the procurement route which bore the least perceived risk (and carried the greatest potential risk transfer opportunity); the Minister for Transport and Veterans confirmed his agreement that the procurement of the required new rolling stock to operate EGIP services should be carried out through the 2015 ScotRail franchise procurement.

Bidders will be asked to set out their overall rolling stock strategy for procuring, leasing, cascading and re-furbishing rolling stock (in tandem with infrastructure and timetable changes) to provide the required capacity.

With the rolling stock now being procured by the franchisee, the risk will lie with the franchisee and not with TS. The franchisee will require to manage the rolling stock risks and this will be done as part of their procurement.

Value for Money

EGIP presents a significant number of issues and challenges to TS, in terms of delivering the planned improvement in service provision, meeting the challenges of the engineering complexity and the level of financial resources required for successful delivery. Against this background, TS has recognised that demonstrating value for money (VFM) is critical to the development and success of EGIP.

While NR is best placed to deliver the Programme, TS recognises the VFM implications of contracting with a monopoly owner and operator. TS however notes that EGIP will be delivered in a regulated framework and will rely on the role of the Office of Rail Regulation (ORR). The ORR will provide assurance through its review of the delivery package and the determination of an efficient expenditure schedule.

VFM will also be driven through the target price mechanism. The final details of the mechanism are still to be agreed between NR and TS.

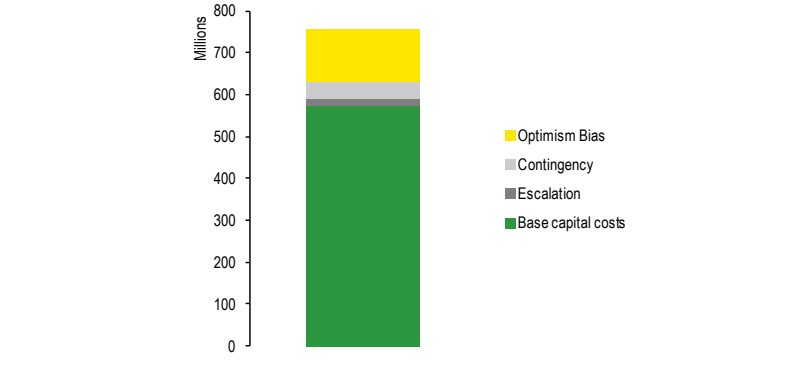
The Financial Case

The financial case summarises the cost and revenue implications of EGIP and details the proposed financing costs. The preferred financing route for EGIP is the use of NR's Regulated Asset Base (RAB).

Construction costs

The construction cost assumptions for the delivery of EGIP Phase 1 is currently assumed to be £742m (outturn prices). This number comprises base capital costs as well as an allowance for contingency, escalation[1] and optimism bias (OB). This is illustrated below.

Figure 2: Infrastructure capital spend: Phase 1



Source: Network Rail, Transport Scotland, *FBC cost sheet as revised 160813.xlsx*

This shows that the base capital expenditure is £560m, contingency is £37m, escalation is £19m with optimism bias (OB) of £126m.

Programme costs

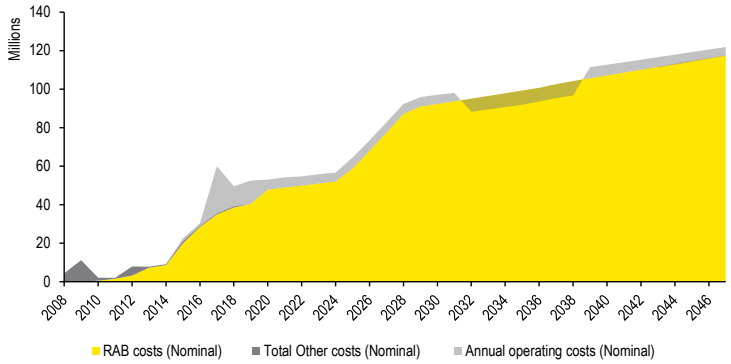
Procuring the infrastructure through NR's RAB offers TS the benefit of spreading the cost over an extended period. It also means that TS incurs financing costs in addition to the capital expenditure. Based on the current financing assumptions, return on the RAB of 4.31%, no amortisation of enhancements, amortisation of renewals over a 30 year period, the total expenditure for EGIP Infrastructure Phase 1, including financing payments for the construction and 30 year operating programme (ie, to 2046/47), is forecast to be £1.871bn, with inflation calculated from a base date of March 2013.

The NPV of TS payments for EGIP (Phase 1), over the 30 year operating period, is £525m calculated to a base date of March 2008.[2]

The Figure 3 below illustrates EGIP expenditure through construction and for the 30 year operational period from 2018.

[1] Escalation is the term NR use to describe inflation.
[2] *NPVs calculated using 6.09% discount rate per HM Treasury Guidance*

Figure 3: EGIP Phase 1 programme expenditure



Source: Network Rail, Transport Scotland, FBC cost sheet as revised 160813.xlsx, *Transport Scotland,* TS Sunk costs_110613.xlsx, *Transport Scotland*, TS Construction and operating dates _110613.xlsx, subsidy impact update_081013.xls

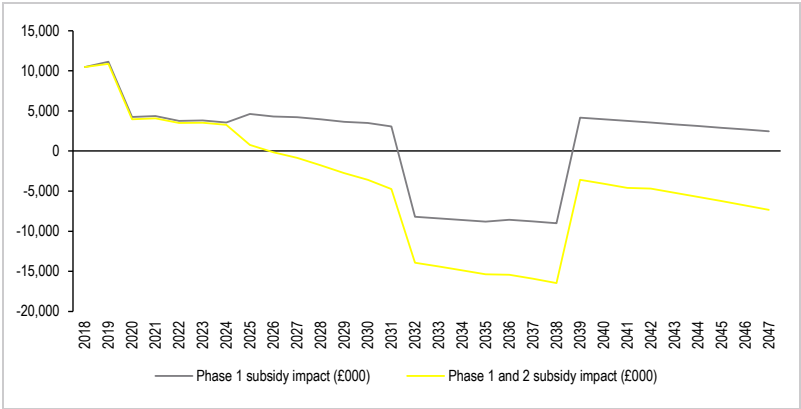
These assumptions are based on the ORR's draft determination of NR's outputs and funding for 2014-19 (12 June 2013). This proposes setting the return on the RAB to 4.31% and an alternative amortisation approach for Control Period 5 (2014-19). The exact detail of this approach is to be confirmed, and its application will not be finalised until October 2013, but initial indications suggest that it may lead to a reduction in financing costs. The amortisation approach adopted is used as a proxy for the draft determination approach still to be confirmed.

Impact on the franchise subsidy

The operating costs of the ScotRail franchise will increase as a result of the new EGIP timetable because more train services per day will be operated than in the current timetable. The additional services will require more trains and additional train crew to operate them. The number of miles operated by the total ScotRail train fleet also increases substantially.

Figure 4 below illustrates the subsidy impact for the 30 year operational period from 2018 for Phase 1 and Phase 1 and 2.

Figure 4: EGIP subsidy impact



Source: Atkins, Transport Scotland, 5108201 0110 EGIP Operating Costs v1.0 130430.docx, Subsidy impact_update_081013.xlsx

This indicates that for Phase 1 the subsidy requirement is forecast to decrease, with a negative subsidy between 2032 and 2038 before increasing from 2039. For Phase 1 and 2 the subsidy decreases and although increases from 2039, it remains a negative subsidy from 2026.

Overall affordability

The financial analysis indicates:

- The total capital spend in outturn prices is expected to be £742m including an allowance for optimism bias
- The total nominal costs for the construction and 30 year operating programme (ie, to 2046/47) are expected to be £1.871bn. The NPV (discounted to 2008) of these payments is expected to be £525m
- The RAB payment (nominal) in the first full year of operation (2018/19) is expected to be £46m with annual payments over the first 30 years averaging £57m
- The annual payments within the 30 year period are affordable as they do not exceed the current affordability assumptions.

TS will work with NR and the ORR to review and identify opportunities to reduce capital cost and improve the efficient delivery of EGIP.

The Management Case

The management case presents the key management principles and processes for EGIP. This has been jointly produced and agreed, as a bespoke arrangement specifically for EGIP, between TS, NR and the ORR and sets out the processes and procedures to be applied within the existing regulatory framework. The parties agree that the Framework Governance Document (FGD) describes an appropriate governance structure for EGIP. The FGD forms the core of the EGIP Project Execution Plan (PEP) which has been prepared in line with Audit Scotland recommendations and TS good practice.

Delivering EGIP will require a robust management and governance structure. This has been recognised by all parties. A robust EGIP specific structure has been developed; this clearly identifies the respective roles and responsibilities of each party. A specific programme team within TS, supported by external advisors, is in place. A detailed schedule will be used by NR to monitor and report the progress of EGIP, with key milestone dates identified.

The ORR will hold NR to account on their regulatory responsibilities and will provide assurance and opinion on a range of issues including deliverability and efficient price. Communication strategies are in place and a consultation process for involving wider stakeholders has been developed.

Conclusion and next steps

This document sets out the FBC and presents the evidence for approval to invest £742m (outturn prices) for Phase 1 of EGIP. Further details of each case are presented in the remainder of the report.

The next steps to approval and commencement of the project include:

- Review and confirmation of the affordability position — October 2013
- Finalise the FBC — October 2013
- Authorisation from IDM to Proceed to Contract — December 2013

▸ Final submission to Minister / Cabinet Secretary for approval	December 2013
▸ Agreement to endorse the Commercial Submission	January 2014

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1. The Investment Case

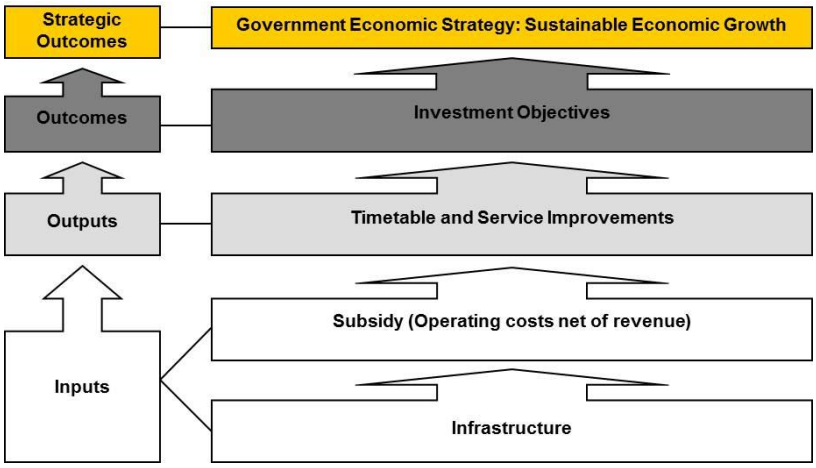
1.1 Introduction

This section sets out the Investment Case for EGIP, with particular focus on the strategic fit. The purpose of the Investment Case is to:

- Establish the rationale and the objectives of the intervention
- Demonstrate why the proposed Programme is the most suitable method for meeting the objectives
- Set out how EGIP contributes to the objectives of Scottish Government.

The figure below summarises how EGIP delivers its strategic outcomes, the remainder of the investment case provides the detailed analysis.

Figure 5 - Summary of delivering EGIP strategic outcomes



1.2 The Strategic Vision

The Government Economic Strategy (2011) sets out the core purpose for the Scottish Government:

> *To make Scotland a more successful country, with opportunities for all to flourish, through increasing sustainable economic growth.*

The strategy also sets the following objectives for transport:

- Making connections across, within and to/from Scotland better
- Improving reliability and journey time
- Maximising the opportunities for employment, business, leisure and tourism.

There is also a focus on delivering real benefits to businesses and communities while ensuring VFM.

This purpose is supported by the six Strategic Priorities for Scotland:

1. Learning, skills and well-being
2. Supportive business environment
3. Infrastructure development and place
4. Effective government
5. Equity
6. Transition to a Low Carbon Economy.

The aim of EGIP is to support the Scottish Government's Purpose by delivering a more supportive business environment, improved infrastructure and more efficient government in a sustainable manner.

1.3 Summary of the Strategic Business Case findings

The Strategic Business Case for EGIP was fast tracked as part of the Strategic Transport Projects Review (STPR) and reported in the summer of 2007.

1.3.1 Problems and opportunities identified by the Strategic Business Case

The key opportunities and problems for the network identified by the Strategic Business Case were:

- Edinburgh and Glasgow are the main economic drivers of the nation, therefore there is an opportunity to make best use of the synergies between the cities and enhance their respective catchment areas for business by improving rail connections between the two cities.

- Edinburgh Waverley, Glasgow Central and Queen Street stations are currently operating at or near full line capacity at peak times. This is having a knock on impact on performance: only 82% of Edinburgh Glasgow trains were on time in 2006/7 (defined by the public performance measure).

There is an opportunity to create a link between the rail network and the tram line to provide improved access to Edinburgh Airport by public transport.

1.3.2 Objectives of the Strategic Business Case

To address these problems and opportunities identified above, the following investment objectives were set:

- **Investment Objective 1:** To deliver a series of cost-effective improvements to strengthen the connectivity between the centres of Edinburgh and Glasgow through:
  - Reducing rail journey times between the city centres of Edinburgh and Glasgow
  - Increasing rail system capacity between Edinburgh and Glasgow
  - Improving the attractiveness of rail travel experience
  - Improving the reliability of rail services between Edinburgh and Glasgow.
- **Investment Objective 2:** To provide an effective linkage between the rail network and Edinburgh Airport.

During the development of the business case, these were refined into the SMART[3] Transport Planning Objectives (TPO), with targets including a journey time of around 35 minutes. The

[3] Specific, Measurable, Achievable, Relevant and Time Related.

following packages were selected from a long list of possible solutions as being best able to meet these targets:

Package B3 – *Two additional hourly services between Glasgow Central and Edinburgh*

In the short term, an additional hourly service via Shotts, with in the medium term an additional hourly service via Carstairs, which will provide 300 additional seats per hour; and

Package C3 – *Enhanced electrified service between Glasgow Queen Street and Edinburgh*

Providing six trains per hour between Glasgow and Edinburgh with a fastest journey time of 37 minutes

The assessment made at the time of the Strategic Transport Projects Review was that the Programme packages made a positive contribution to all of the objectives on this basis the Programme progressed to the development of the outline business case.

1.4 Summary of the Outline Business Case findings

The Outline Business Case (OBC) provided a detailed assessment against the investment objectives, taking into account a variety of future demand growth scenarios. The analysis calculated a core BCR of 0.8, which increased to 1.7 with the realisation of high levels of demand growth and wider economic and social benefits.

Following the detailed assessment, it was shown that EGIP made a positive contribution to all of the investment objectives. On this basis EGIP was progressed.

1.5 Development of the Final Business Case

Since the completion of the OBC there have been significant developments with EGIP. The new hourly Edinburgh – Glasgow via Carstairs service was introduced in December 2012 and in January 2013 Network Rail awarded a contract for the delivery of the electrification of the Cumbernauld to Glasgow Queen Street line.

Transport Scotland engaged Jacobs to undertake a strategic review of EGIP in April 2012. Jacobs were tasked with assessing whether all the proposed infrastructure was required to meet the TS outputs and if there was an alternative solution that would provide an opportunity meet the capacity / demand requirements with reduced infrastructure cost.The Jacobs Review identified a new option which would deliver increased capacity by lengthening platforms as part of the Queen Street redevelopment. This provided the opportunity for a phased approach to the EGIP delivery programme, resulting in a more affordable and achievable implementation plan.

Phase 1 (2014-18): based on 4 trains per hour (tph) with longer trains and the redevelopment of Queen Street Station, the first £742m phase electrifies the core Edinburgh Glasgow via Falkirk line, the Cumbernauld lines in time for the Commonwealth Games and delivers the new Edinburgh Gateway Station with connection to Fife line services.

Phase 2 (2025 onwards): other elements of the current EGIP Programme including the infrastructure for 6tph and a new connection between the Glasgow line and Edinburgh Gateway station could all be delivered in later phases subject to affordability and other considerations including High Speed Rail (HSR) and wider capacity issues.

This phasing will enable delivery of the programme in a more affordable way given current fiscal constraints. It means also that the programme is “future-proofed” given the aspiration of delivering a high speed service on a new route between Glasgow and Edinburgh. This will allow Ministers to take a view at a later date around EGIP Phase 2 and high speed between the two cities. If the high speed option is chosen, this will open up significant opportunities for improved local services on the current Edinburgh Glasgow line via Falkirk.

In order to demonstrate the Investment Case, a robust and detailed economic assessment of the phased programme has been undertaken. The approach adopted incorporates 11 constituent parts to the assessment, as set out below.

1. Set objectives for EGIP
2. Calculate economic benefits
3. Summarise EGIP costs
4. Calculate economic activity and location impacts (EALI) appraisal
5. Calculate impact on patronage, revenues and subsidy
6. Crowding analysis
7. Environmental assessment
8. Calculate economic appraisal indicators
9. Sensitivity testing
10. Appraisal against transport planning objectives
11. Conclusions

Each part of the assessment is set out in turn below.

1.6 Set objectives for EGIP

The first stage of developing the FBC was to review the OBC, confirm that the need for an intervention still existed, and that the study objectives remained valid. Although new opportunities have arisen from the redevelopment of Glasgow Queen Street, the investment objectives remain as follows:

Investment Objective 1: To deliver a programme of cost-effective improvements to rail connections between Edinburgh and Glasgow, improving reliability, capacity and journey times.

Investment Objective 2: To provide an easy and effective public transport linkage between the Scottish rail network and Edinburgh Airport.

Investment Objective 3: To deliver a more sustainable, more efficient railway which generates fewer carbon emissions and is less expensive to operate.

In particular, given that rail demand has continued to increase through the economic downturn, the capacity element of objective 1 may become critical with significant crowding in the peak. The following sections provide detail on the latest performance of the preferred packages against these objectives.

1.7 Calculate economic benefits

Various methodological changes have been made in moving from the OBC to the FBC, including the following:

- 2010 price base and base year for discounting (previously 2002) in line with appraisal guidance
- Capital and operating costs updated

- Significant “sunk” costs have been removed from consideration (see 1.8)

- 2010 price base and base year for discounting (previously 2002) in line with appraisal guidance
- Decongestion benefits through mode shift updated in line with new evidence
- Demand / revenue uplifted to reflect higher actual demand in recent years than in the transport model

The economic benefits of EGIP have been calculated through the use of a detailed modelling exercise. Two different types of economic benefits have been calculated: standard passenger and operator benefits, and wider economic benefits (WEBs). Wider economic benefits are an emerging area of transport economics, and are generally accepted as being less certain than standard benefits. They have therefore been presented separately.

Since the Jacobs Review, more detailed timetabling analysis has been conducted. This indicates that Phase 1 can deliver a fastest journey time of 42 minutes both ways between Glasgow and Edinburgh city centres in the off-peak, with current analysis showing that this increases to 44 minutes in the peak periods.

With the introduction of Phase 2 in 2025, the fastest journey time is expected to fall to 37 minutes, with the Edinburgh Glasgow via Falkirk services also seeing an increase in train frequency from 4tph to 6tph.

The detailed timetabling has identified areas where there may be a knock-on impact on some non-EGIP services. This is common in major infrastructure works, however, work is currently being undertaken to minimise and eliminate these disbenefits. With the elimination of these disbenefits through further timetabling work the present value of benefits associated with EGIP, presented below, can be expected to increase.

Modelling of the economic benefits has been carried out using the Transport Model for Scotland (TMfS05A[4]), a strategic, multi-modal model which allows testing of how transport interventions and / or potential land-use changes may affect demand for transport and the impacts this may have on accessibility, the economy and the environment. The results from TMfS05A have been uplifted by 13.1% in order to take into account differences in the forecast demand growth between 2005 and 2017 and recent observed data.

The results of the economic modelling are presented in the table below. All figures are in standard discounted 60 year 2010 market prices.

Table 1 - Appraisal of economic benefits from EGIP (£m)

Benefit	Overall	Phase 1
User benefits		
Standard passenger benefits	1,143	411
Decongestion benefits	43	19
Rolling stock benefits	24	24
Total	**1,210**	**454**
Private Sector Impacts		
Revenue	405	143
Operating costs	(626)	(335)
Subsidy/surplus	240	199

[4] TMfS05A has been used rather than TMfS07 and the Central Scotland Transport Model 2012 (CSTM12) as the zoning in TMfS07 is not sufficiently granular, while CSTM12 is not completed yet.

Total	**19**	**7**
Environmental benefits	66	57
Indirect Taxation	(82)	(45)
Present Value of Benefits	**1,214**	**472**
Wider economic benefits	291	103
Present Value of Benefits including wider economic benefits	**1,505**	**575**

NB. Figures may not sum in some cases due to rounding.

The table illustrates that the overall programme has a significant positive benefit associated with it, with the present value of benefits equalling £1,214m, increasing to £1,505m when the WEBs are included.

It should be noted that the results above do not include any calculation of the benefits associated with the redevelopment of Glasgow Queen Street nor the reduction in discomfort from increased train capacity. Crowding benefits are discussed in more detail in section 1.11. Welfare benefits arising from the redevelopment of Glasgow Queen Street are expected to be significant as customers will enjoy new facilities and station capacity.

1.8 Summarise programme costs

The costs to Government over the appraisal period are shown in the table below. Optimism bias has been applied to all capital costs, in line with the Scottish Transport Appraisal Guidance (STAG) and the development of a Quantified Risk Assessment (QRA). The costs presented are in standard discounted 2010 market prices.

Table 2 - Appraisal of costs of EGIP (£m)

Cost to Government	Overall	Phase 1
Construction costs	664	504
Subsidy/surplus[5]	240	199
Present Value of Costs	**904**	**703**

Note that the costs used for the economic analysis differ from those presented in the Financial Case due to significant sunk costs. In accordance with HM Treasury Green Book guidance, “costs of goods and services that have already been incurred and are irrevocable should be ignored in an appraisal”[6].

1.9 Calculate economic activity and locational impacts (EALI) appraisal

The locational impacts of EGIP are expected to be slight. In general, there will be a relocation of employment and population toward Edinburgh, Glasgow and Stirling.

1.10 Calculate impact on patronage

Table 3 shows the estimated impact of the introduction of Phase 1 and Phase 2 of EGIP on passenger demand for ScotRail. With the introduction of the timetable changes in 2019 passenger journeys are forecast to increase by 2.1%, while the introduction of Phase 2 in 2025

[5] Subsidy/surplus values are included as standard under both benefits and costs in accordance with HM Treasury Green Book guidance that they represent transfer payments which, though altering the distribution of income or wealth, do not give rise to direct economic costs.
[6] HM Treasury (2010) Green Book - https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/179349/green_book_complete.pdf.pdf

is forecast to increase passenger journeys by 6.9%. Please note these uplifts apply to total ScotRail demand, not just demand on the affected lines.

Table 3 - Forecasts of passenger journeys on all ScotRail services

	Passenger journeys (million)
Current values (2012-13)	83.3
2019 no EGIP	97.3
2019 with Phase 1	99.4
2025 no Phase 2	110.3
2025 with Phase 2	117.8

1.11 Crowding analysis

Analysis of capacity has been undertaken for the Edinburgh to Glasgow via Falkirk mainline, which undergoes the largest change in train services as a result of EGIP. This indicates that Phase 1 of EGIP alleviates the forecasted overcrowding which would otherwise be experienced on the current peak services between Glasgow and Croy and Edinburgh. The analysis has been undertaken using 2012 count data for a typical weekday and has been grown at approximately 2% p.a., using current seating capacity – a conservative estimate relative to Network Rail's Route Utilisation Strategy (RUS) forecast of 2.5% growth p.a.

The analysis has been undertaken using 2012 count data for a typical weekday and has been grown at approximately 2% p.a., using current seating capacity. It is important to note that crowding is defined here as the number of passengers in excess of the number of seats. However, industry guidance in the Passenger Demand Forecasting Handbook[7] begins to apply crowding penalties at above 60% capacity, reflecting factors such as passenger preferences for space on a train and inconvenience if travelling in a large party, with family and/or luggage. As previously noted, crowding benefits have not been fully calculated for this programme. The impact of crowding on suppressing demand has been captured within TMfS05A, however, the economic welfare benefits associated with less crowding have not been estimated. Consequently, by increasing train capacity, EGIP will deliver economic welfare benefits associated with a reduction in passenger discomfort. Given these benefits, it can be expected that the overall present value of benefits of EGIP will be higher than calculated within this analysis.

Table 4 – Detailed results from crowding analysis, Edinburgh to Glasgow via Falkirk High, without EGIP

Year	AM Peak			Inter-Peak			PM-Peak		
	No of trains	How long are people standing for in minutes?	How many people standing?	No of trains	How long are people standing for in minutes?	How many people standing?	No of trains	How long are people standing for in minutes?	How many people standing?
2012	0			0			0		
2013	1	12	1	0			0		
2014	1	12	9	0			0		
2015	1	12	17	0			1	17	2
2016	1	12	26	0			1	17	10
2017	1	12	34	0			1	17	19
2018	1	12	43	0			1	17	27
2019	1	12	52	0			1	17	36
2020	1	12	62	0			1	17	45
2021	1	12	71	0			1	17	54
2022	1	12	81	0			2	17, 28	63, 3
2023	1	12	90	0			2	17, 28	73, 11

[7] Passenger Demand Forecasting Handbook (PDFH) Chapter B6

2024	1	12	100	0			2	17, 28	83, 19
2025	2	12, 12	1, 111	0			2	17, 28	92, 28

Table 5 - Detailed results from crowding analysis, Glasgow to Edinburgh via Falkirk High, without EGIP

Year	AM Peak			Inter-Peak			PM-Peak		
	No of trains	How long are people standing for in minutes?	How many people standing?	No of trains	How long are people standing for in minutes?	How many people standing?	No of trains	How long are people standing for in minutes?	How many people standing?
2012	0			0			0		
2013	0			0			0		
2014	0			0			0		
2015	1	17	8	0			0		
2016	1	17	16	0			0		
2017	2	17, 17	5, 24	1	21	3	0		
2018	2	17, 17	13, 33	1	21	7	0		
2019	2	17, 17	21, 42	1	21	11	0		
2020	3	17, 17, 23	30, 51, 5	1	21	16	0		
2021	3	17, 17, 23	39, 60,14	1	26	20	0		
2022	3	17, 17, 23	48, 70, 22	1	26	25	1	12	3
2023	3	17, 17, 23	57, 79, 31	1	32	29	2	12, 12	1, 7
2024	3	17, 28, 23	66, 89, 39	1	32	34	2	12, 12	5, 11
2025	3	17, 28, 28	76, 99, 48	1	32	39	2	12, 12	9, 15

1.12 Queen Street benefits

To allow the introduction of longer trains to provide the required additional capacity, redevelopment of Glasgow Queen Street Station will be necessary. The Passenger Demand Forecasting Handbook (PDFH; section B8.3) suggests demand uplift percentages in response to improvements in a relatively narrow range of factors such as cleanliness, passenger information, security and waiting and retail facilities. However, the current station is already well served in relation to such facilities so these uplifts have not been applied. In consultation with DfT and Network Rail appraisal of redeveloped stations outside Scotland has comprised, in addition to the PDFH uplifts, journey time savings through reduced walk time. These will also not apply in relation to the proposal for the new Queen Street Station.

Therefore, there is no available evidence to allow the assessment of benefits in relation to the station redevelopment. However, Queen Street is one of Scotland's busiest stations, occupying a prime position on the corner of George Square and the redevelopment will align with extension of the Buchanan Galleries shopping mall. The redevelopment of the station will, thus, be likely to deliver additional benefits which have not been captured in this analysis:

It can be expected that passengers on all services into and out of Queen Street will enjoy the accessibility and "ambience" benefits of a newly redeveloped station which have not been captured.

The redevelopment of Queen Street will generate significant benefits to the public realm, given the station's position on the corner of Glasgow's iconic centrepiece, George Square.

The redevelopment will be undertaken in conjunction with the extension of the Buchanan Galleries which will offer significant retail benefits.

These benefits, if monetised, would increase the overall present value of the benefits of EGIP.

1.13 Environmental assessment

The environmental assessment covers a number of areas, including emissions (both rail and road), embodied carbon, air quality and noise assessment. Each area is covered in the following paragraphs.

1.13.1 Rail emissions

The analysis has been conducted in line with guidance from the Department for Energy and Climate Change (DECC), published in July 2009. This guidance requires that results be disaggregated by sectors within the EU Emissions Trading Scheme (ETS), such as electric trains, and those outwith, such as diesel trains.

1.13.2 Road emissions

The change in road emissions has been estimated using guidance from the Scottish Transport Appraisal Guidance (STAG) and the forecast change in car kilometres due to the introduction of EGIP.

1.13.3 Overall emissions

The results of the analysis are set out in the tables below. Decreases in carbon dioxide emissions are represented by negative numbers and increases by positive numbers.

Table 6 - Annual environmental benefits for EGIP (2019, nearest thousand)

Element	Change in electric emissions (ETS) (Megatonnes CO_2)	Change in diesel emissions (non-ETS) (Megatonnes CO_2)
Total Programme	+0.028	-0.027

The annual reduction, in 2019, (i.e. phase 1 only), of CO_2 emissions from the move from diesel to electric trains is estimated at 2,000 tonnes, representing a 1% reduction in total emissions associated with passenger rail in Scotland, or a 0.003% reduction in total Scottish emissions. It is assumed, in line with DECC guidance, that CO_2 emissions from electricity generation fall over time as electricity is produced more cleanly.

Note that changes in the ETS sectors do not impact global CO_2 emissions as final emissions from this sector are held constant by the EU ETS CO_2 cap. It is therefore assumed that other industries within the ETS reduce their energy consumption to accommodate the energy requirements of EGIP. They do, however, impact on reported Scottish emissions of CO_2.

Table 7: Impact of EGIP (Phase1&2) on UK carbon accounts over the appraisal period (Mt CO_2) ('Phase 1 only' impact in brackets from 2023 onwards and in UK Net)

Budget Period	Impact on UK carbon accounts		Contribution to Scottish Government Climate Change Commitment
	ETS (Electricity)	Non-ETS (Fossil Fuels – diesel)	
2013 – 2017	+0.04	+0.06	+0.10
2018 – 2022	+0.13	-0.13	+0.00
2023 onwards	+0.44	-1.66	-1.22
UK Net	N/A	-1.73	-1.12

1.13.4 Embodied carbon

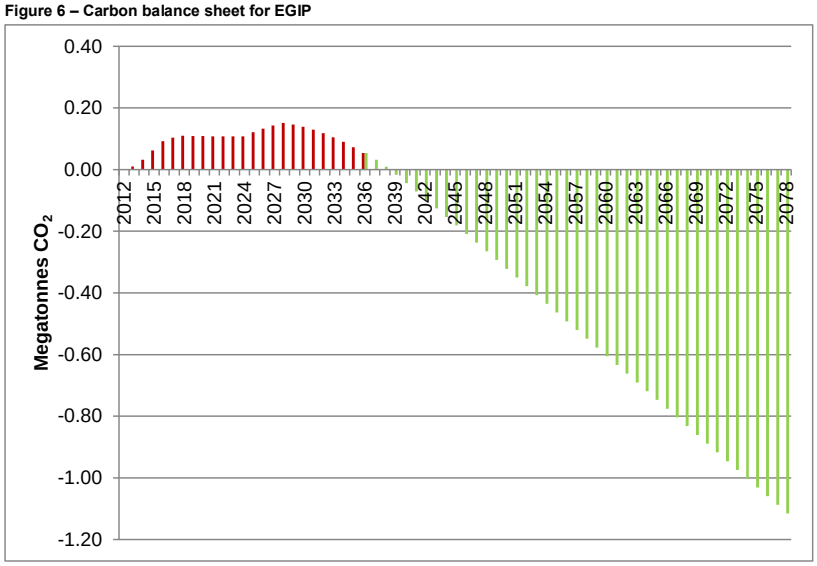
An assessment of the embodied carbon, i.e. CO_2 released in building the infrastructure and rolling stock, has been undertaken for EGIP. It should be noted that assessment of embodied

carbon emissions is at an early stage of methodological development. Embodied carbon emissions are estimated at 157,000 tonnes of CO_2 (112,000 tonnes of CO_2 for Phase 1 alone).

1.13.5 Carbon balance sheet

The carbon balance sheet for EGIP is shown in the following figure, incorporating the total CO_2 impact of EGIP in each appraisal year (including embodied carbon dioxide emissions). This shows that EGIP increases Scottish emissions until 2024, due to the construction phase, and does not contribute to a net reduction in emissions until 2036.

Figure 6 – Carbon balance sheet for EGIP



1.13.6 Air quality assessment

The tools used to derive the change in carbon dioxide emissions for EGIP can also provide data for emissions of PM_{10}, NO_X and SO_2. The results of this analysis are presented below.

Table 8 – Incremental change in annual emissions from elements of EGIP (tonnes)

Element	PM_{10}	NO_x	SO_2
Total Programme	-4.4	-176.5	+8.8

1.13.7 Noise assessment

There is not expected to be a significant impact on annoyance caused by rail noise following the introduction of EGIP. As the specification for each project develops there will be significant amount of further work undertaken in this area, including:

- Consideration of noise impact during design development
- Testing to ensure compliance against statutory environmental legislation.

This will allow the impact of noise to be continually assessed during the development of EGIP.

1.14 Calculate economic appraisal indicators

The standard appraisal indicators are presented in the tables below, also in standard discounted 2010 market prices.

Table 9 - Appraisal Indicators for EGIP

Overall	Standard results	Including wider economic benefits
Present Value of Benefits (PVB)	£1,214m	£1,505m
Present Value of Costs (PVC)	£904m	£904m
Net Present Value (NPV)	£310m	£601m
Benefit to Cost Ratio (BCR)	1.3	1.7
Phase 1	**Standard results**	**Including wider economic benefits**
Present Value of Benefits (PVB)	472	575
Present Value of Costs (PVC)	703	703
Net Present Value (NPV)	(231)	(128)
Benefit to Cost Ratio (BCR)	0.7	0.8

The BCR is the ratio of EGIP's monetised economic and social benefits against its monetary costs; it is therefore a useful indicator of the rate of return on the investment of public funds.

In the standard results, EGIP has an overall net present value of £298m and BCR of 1.3. Should the wider economic benefits be realised the business case improves, with the BCR increasing to 1.7. The BCR is less than one for Phase 1 alone.

1.15 Sensitivity testing

The timing and specification of future phases of EGIP will be dependent on wider capacity and affordability issues including High Speed Rail, and the opportunities this presents to connect Edinburgh to Glasgow. Given this, a variety of sensitivity tests have been undertaken which are outlined below:

Phase 1 42 minutes peak – The core scenario is based on a fastest Phase 1 journey time of 42 minutes in the off-peak and 44 minutes in the peak between Edinburgh and Glasgow. This sensitivity thus builds on the 'Phase 1' sensitivity, but assumes that a fastest journey time of 42 minutes can be achieved throughout the day.

Impact of High Speed Rail[8] on EGIP (Phase 1) – This sensitivity assesses the impact of the introduction of a High Speed Rail line between Edinburgh and Glasgow in 2025 on the benefits arising from phase 1 of EGIP in terms of an abstraction of journeys from EGIP towards a new High Speed Rail line. The analysis assumes that the calling pattern on the Edinburgh Glasgow via Falkirk line remains consistent with that modelled for phase 1. For the High Speed Rail line it is assumed there are 3tph with a journey time between Edinburgh and Glasgow of 30 minutes. The services have been modelled as running from Glasgow Central to Edinburgh Waverley and also included a stop at Haymarket. The passenger fare for the service has been assumed to be equal to the standard Edinburgh Glasgow fare. N.B. this assessment is NOT of the benefits of HSR, but of the high level impact on EGIP Phase 1 should HSR be progressed. The assessment undertaken here was undertaken to provide a high level estimate and the result treated with a large degree of caution. The economic case for HSR is being separately developed by Transport Scotland.

[8] Please note the model zoning is not well set up to assess High Speed Rail and so this is necessarily a high level analysis of High Speed Rail. The business case for this is in development.

Table 10: Sensitivity testing

	Standard Results		Including wider economic benefits	
	NPV	BCR	NPV	BCR
Core scenario	£310m	1.3	£601m	1.7
Phase 1 42 minutes peak	-£184m	0.7	-£73m	0.9
Phase 1 impact of High Speed Rail	-£314m	0.6	-£227m	0.7

1.16 Appraisal against transport planning objectives (TPOs)

A review of the performance of EGIP against the transport planning objectives is provided below.

1.16.1 Performance against TPO1a – Reducing rail journey times between Edinburgh and Glasgow

EGIP delivers a significant reduction in journey time between Edinburgh and Glasgow, with a fastest journey time of 42 minutes in 2019 and 37 minutes in 2025, thereby meeting the target for this objective.

1.16.2 Performance against TPO1b – Increasing rail system capacity between Edinburgh and Glasgow

EGIP provides a significant increase in train capacity between Edinburgh to Glasgow with the introduction of 7-car trains in 2017 and 8-car trains from 2019. Phase 1 improvements will be essential in order to avoid capacity constraints on peak services if rail demand continues to grow.

1.16.3 Performance against TPO1c – Improving the attractiveness of the rail experience

It is difficult to assess the performance against this objective in a quantitative manner before the service is introduced and passenger feedback is obtained; however, passenger feedback in respect of the new electric rolling stock has been highly positive.

1.16.4 Performance against TPO1d – Improving reliability

By replacing diesel trains with new more reliable electric trains the Programme should contribute positively towards this objective.

1.16.5 Performance against TPO2 – Providing an effective link from the rail network to Edinburgh Airport

Through the opening of Edinburgh Gateway station with the associated tram stop, EGIP provides a high quality interchange facility for passengers travelling to Edinburgh Airport via Fife services in Phase 1, and new connection to Glasgow being introduced in Phase 2.

1.16.6 Performance against TPO3 – Reducing carbon emissions from rail and is less expensive to operate

By electrifying 248 single track kilometres of Scotland's railways, the total programme will reduce global carbon dioxide emissions by 32,000 tonnes per year. Total emissions in Scotland associated with the railways will fall by 2,000 tonnes in 2019, rising to a reduction of 25,000 tonnes per year by 2039. The cost of operating the rolling stock is forecast to be lower for the electric trains compared to an equivalent service being run by diesel trains.

1.16.7 Summary of appraisal results

The table below gives the updated performance of the Programme against the Transport Planning Objectives, given the results of the updated assessment set out above.

Table 11 - Performance against Transport Planning Objectives

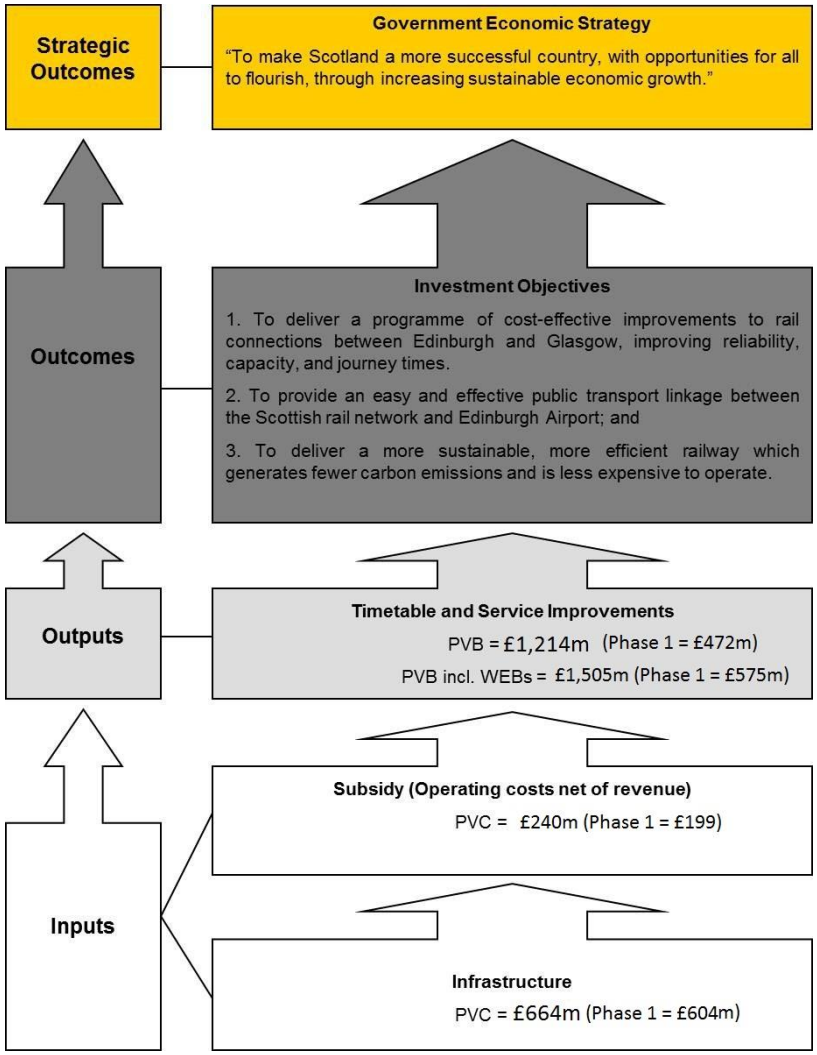
Indicator	Total Programme
TPO1a: Reducing rail journey times between the city centres of Edinburgh and Glasgow	++
TPO 1b: Improving rail system capacity between Edinburgh and Glasgow	++
TPO 1c: Improving attractiveness of rail travel experience	++
TPO 1d: Improving reliability of rail services between Edinburgh and Glasgow	++
TPO 2: An effective linkage between the rail network and Edinburgh Airport	+
TPO 3: Reducing carbon emissions from rail	+
Net benefits (£m) (Phase 1 Only)	£310m - £601m (-£231m - -£128m)
BCR (Phase 1 Only)	1.3 – 1.7 (0.7 – 0.8)

1.17 Conclusions

This Investment Case has reviewed the rationale for intervention set out in the Strategic and Outline Business Cases and considers it to remain valid. The original objectives and vision have remained consistent with those set out in the Outline Business Case.

The figure below illustrates how EGIP has delivered against its objectives.

Figure 7- Delivering EGIP strategic objectives



In general, the planned programme performs well against the investment objectives, while the estimated benefits exceed the costs with an NPV of £310m and a BCR of 1.3 (or £601m and 1.7 including wider economic benefits). It should be noted that this analysis will most likely understate actual benefits as it does not currently include some of the benefits associated with the increased train capacity and the redevelopment of Glasgow Queen Street station, public realm enhancements to George Square and improvements to Glasgow's retail offering. Moreover, phasing offers the additional benefit of "future-proofing" the programme given the aspiration of delivering a high speed service on a new route between Glasgow and Edinburgh. This will allow Ministers to take a view at a later date around EGIP Phase 2 and high speed between the two cities.

2. The Commercial Case – Procurement and Value for Money

2.1 Introduction

The commercial case sets out the procurement strategy and the value for money assessment for EGIP.

The procurement strategy will focus on the mechanics of the procurement, considering the key principles, approach and risk of the process. The remainder of the section will present the value for money (VFM) case.

2.2 Procurement Scope

2.2.1 Infrastructure works

2.2.1.1 Programme

EGIP requires various projects to be procured as part of an infrastructure works programme. These have been split into four packages, summarised in Table 9.

Table 12: Infrastructure works

Electrification	
	Electrification of Route - Including Route Clearance
	Cumbernauld - Electrification
Infrastructure	
	Haymarket Station Capacity
	Croy (Platforms and Buildings work)
	Falkirk High (Platforms and Buildings work)
	Polmont (Platforms and Buildings work)
	Linlithgow (Platforms and Buildings work)
	Haymarket-Inverkeithing Signals
	Edinburgh Waverley
Stations and Depots	
	Queen Street
	Edinburgh Gateway
	Millerhill Stabling and Connection
	Eastfield Depot
Other	
	Land Estimate
	Queen Street Concourse / Station works

The allocation of the projects between packages is based on the geographical location and by common characteristics.

2.2.1.2 Timetable

The procurement procedures are required to fit within the overall programme timetable which has been developed for EGIP. The current timescale is detailed in the table below:

Table 10: Infrastructure procurement schedule

Milestone	Completion date
NR and ORR to agree Commercial Submission	December 2013
Completion of electrification of route	December 2016
Completion of infrastructure	December 2016
Completion of stations and depots	December 2016
Completion of Queen Street	March 2019
Completion of other NR projects	December 2018
Completion of TS other projects	Q4 2016

2.2.2 Rolling stock requirements

In order for the optimum use of the existing, and planned, infrastructure and to provide the required capacity, EGIP includes the procurement of 40-50 EMUs each of around 96m in length. Cars of 23m are, therefore, required rather than the more typical 20m EMU cars used in the UK. These will be compliant with all applicable standards.

In order to meet the performance requirements of the EGIP timetable (specifically the end to end journey times), the rolling stock must be compatible with NR standard 25kV overhead line system; be 100 mph capable; have a seating capacity no less than existing Class 170 Express operating on the E&G; and be capable of achieving 30 second dwell times with a minimum 15 second door open.

For the train fleet to run efficiently, and minimise empty journeys at the start and finish of each working day, a depot and stabling facility will be required for EGIP services.

2.3 Stakeholder roles

In structuring a procurement for a large and complex programme it is vital to have a clear understanding of the key stakeholders and their roles.

It is important to identify the different approaches required in respect of infrastructure works and rolling stock. Once this is established, it allows the individual works and services to be identified, procured, managed and delivered. In developing the business case the first step was to establish the various stakeholder roles, secondly the individual works and services were set out.

2.3.1 Assessment of stakeholder roles

The approach to this procurement is consistent with previous TS projects in that it differentiates between stakeholder roles and responsibilities. This is based on the premise that there are three main roles:

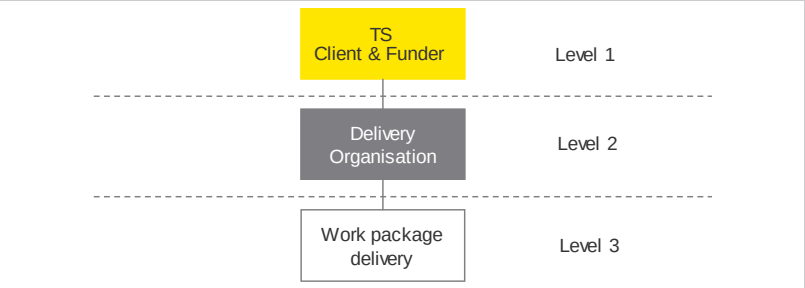
Level 1 Stakeholder (Client and Funder) – The level 1 stakeholder will be TS in its role as client and funder. The commercial documentation, protocols, etc., must reflect this overriding role.

Level 2 Stakeholder (Delivery Organisation) – The level 2 stakeholder Network Rail will be responsible for project managing the works and taking overall responsibility for the delivery of EGIP.

Level 3 Stakeholder (Work Package Delivery) – The level 3 stakeholder Contractors will be responsible for completing the construction works.

This is summarised in the following diagram:

Figure 8: Infrastructure stakeholder roles



In order to identify the most suitable party to fulfil the level 2 and 3 stakeholder roles, a value for money assessment was undertaken at the OBC stage and reviewed at FBC stage.

2.4 Infrastructure procurement

Given EGIP meets the criteria of a complex procurement, it is vital that the procurement strategy chosen will support the development of collaborative relationships between TS and suppliers. It is also fundamental that the strategy will facilitate the early appointment of the supply teams in a clear and transparent manner.

2.4.1 Procurement Structure

TS plan to structure the procurement around an alliance approach. The main stages of the procurement are:

- Select a Delivery Organisation
- Hold a Procurement Workshops for key members of the programme team, sponsors and external legal and procurement specialists
- Issue of a Pre-Qualification Questionnaire (PQQ) to pre-identified contractors
- Evaluate the PQQ results and issue an Invitation to Tender (ITT) to successful candidates
- Assess the tender returns and select the alliance members to join the delivery organisation
    - At this stage the tenders will include a fee for both the implementation and development phases to maintain competitive tension.
- Members will enter into an Alliance Development Agreement (ADA) for the development phase.
- Negotiate the final Joint Target Price with the members of the ADA and enter into the full Project Alliance Agreement (PAA)

As stated above, the alliance will initially be entered into as an ADA with the preferred contractors, before the full PAA. This approach, NR believe, will highly incentivise all parties to work together and jointly achieve the project goals. It also allows for opportunities to completed value adding work during the alliance development phase and minimises

contractual interfaces. This early involvement will reduce the risk profile and contribute to protecting the implementation programme by allowing work to commence during this development stage.

In order to ensure VFM is upheld throughout all stages of EGIP, the development stage will be undertaken at an actual cost (with a 'not to exceed' envelope'). During the development stage, a Joint Target Price will be negotiated between parties based on the fee included in the submission to ensure full VFM. This will then be agreed alongside the finalised PAA. However, during the development phase, the alliance will be entered into on a 'no commitment' basis, in the event that no agreement can be reached either on the Target Price or terms of the PAA.

2.4.1.1 This process relies on a strong Governance and reporting structure embedded within all levels and requirements of the project to ensure appropriate levels of challenge and control are exercised. Delivery Organisation

The agreed procurement strategy for the delivery of the infrastructure is for Network Rail to perform the role of Delivery Organisation, taking overall responsibility for the delivery of the programme. The other delivery organisations considered included Transport Scotland, local authorities or other contractors. NR was considered to be the most appropriate option as they will own the assets procured and is best placed to manage the complex interface and issues associated with the programme.

A detailed breakdown of NR's obligation to the programme will be determined by the Office of Rail Regulation (ORR). This will be enforced accepting that there are no statutory consent restraints, there is an efficient price for the works and incentive arrangements will be added to the RAB.

The ORR will, in addition, provide an oversight role to ensure NR deliver efficient expenditure and VFM throughout the procurement process.

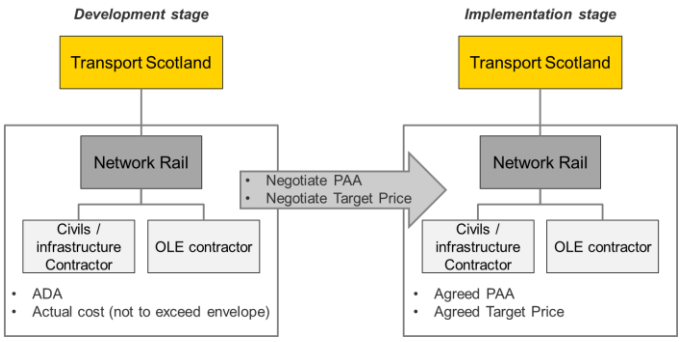
NR will also undertake procurement market testing. It has already led initial testing, which has shaped the current procurement model. This will be supplemented by further testing at various stages in the process and will form part of the ORR's review.

2.4.1.2 Infrastructure Services Alliance

As noted at 2.4.1, TS will structure the procurement around an alliance approach. The alliance will consist of three parties working together to deliver The Work Delivery Package. The parties will be Network Rail, as Delivery Organisation, and two contractors; one civils / infrastructure contractor and one Overhead Line Equipment (OLE) contractor.

The diagram below sets out the relationship between TS, NR and the Alliance.

Table 13: Infrastructure works delivery structure



The Alliance will not be a legal entity, instead, the alliance will enter into the ADA for the development stage and a PAA for the implementation stage.

The procurement will take place on a work package level; however some projects will be excluded from the initial alliance due to the complexity or timescale related to it. The allocation of these projects is shown below:

Table 14: Infrastructure works – alliance and non-alliance

Programme / project	Alliance / non-alliance
Electrification	
Electrification of Route - Including Route Clearance	Alliance /non-alliance
Cumbernauld - Electrification	Non – alliance
Infrastructure	
Haymarket Station Capacity	Non-alliance
Croy (Platforms and Buildings work)	Alliance
Falkirk High (Platforms and Buildings work)	Alliance
Polmont (Platforms and Buildings work)	Alliance
Linlithgow (Platforms and Buildings work)	Alliance
Haymarket-Inverkeithing Signals	
Stations and Depots	
Queen Street	Alliance
Edinburgh Waverley	Alliance
Edinburgh Gateway	non- alliance
Millerhill Depot & Stabling	Alliance
Eastfield Depot	Alliance
Other	
Land Estimate / acquisition	Non – alliance
Queen Street Concourse / Station works	Non – alliance

2.4.1.3 Managing interdependencies

A complication during the procurement is the relation between existing NR projects and EGIP. An example of a key interdependency for EGIP is the Stirling / Alloa / Dunblane electrification. This procurement is not part of Phase 1 of the EGIP programme however it is necessary to achieve the benefits set out in section 1.

Due to the interdependencies between projects, there are numerous combinations of works and services that could be applied to deliver the required outcomes. Therefore, at the end of the routine design stage for each project, an appraisal will be undertaken in order to select the final mix of works and services. Each option will be evaluated on criteria specific to the project. The proposed evaluation criteria, by NR, are given in the table below, with their corresponding weighting.

Table 12: Example of criteria and weightings for infrastructure works option evaluation

Criteria	Weighting
Technical/Methodology	25%
Sustainability	5%
Programme	10%
Resource	10%
Behavioural	20%
Commercial	30%

Each option will be scored against these criteria on a scale from 0 (Lowest) to 10 (highest). The option with the highest score will be selected as the preferred configuration of works and services.

2.5 Rolling Stock Procurement

In late 2012, TS officials, assisted by advisors, carried out an analysis of the optimal procurement route for the EGIP rolling stock requirement in the light of:

- Delays to date or then anticipated in either or both the commencement of the EGIP / HLOS rolling stock procurement and the franchise procurement
- The delivery or commencement dates of either
- The perceived optimal risk share/transfer and delivery schedule.

Following the analysis to identify the procurement route which bore the least perceived risk (and carried the greatest potential risk transfer opportunity), the Minister for Transport and Veterans confirmed his agreement that the procurement of the required new rolling stock to operate EGIP services (and, in due course, to convert diesel routes and services to electric services in line with HLOS electrification) should be through the 2015 ScotRail franchise procurement.

It is anticipated that bidders will be asked to set out their overall rolling stock strategy for procuring, leasing, cascading and re-furbishing rolling stock (in tandem with infrastructure and timetable changes) to provide the required capacity. This should take account of planned network improvements described in HLOS 2012, including EGIP and the subsequent electrification programme, Borders, Highland Mainline and Aberdeen-Inverness projects.

The Edinburgh Millerhill yard site and planning consent for a maintenance depot and stabling facility will be offered to the franchise bidder from which they can develop for delivery or offer alternative solutions as part of their overall fleet plan for operation of the ScotRail Franchise

2.6 Programme risks

In accordance with the Scottish Government guidance[9], TS and NR are continually reviewing both the Procurement and the Programme risks and these risks are collated in the risk register. The following table provides a summary of the five most significant risks to the infrastructure works for EGIP.

Table 15: Top five infrastructure risks

Rank	Risk title	Risk description
1	The level of passenger disruption leads to Operation change	Extent of Access required for Edinburgh to Glasgow during CP5 is unpalatable to TOC which would cause operation change
2	Secure TAWS order however additional obligations attached	Secure TAWS order however it includes additional obligations leading to scope which has not been included within the current estimate
3	Interface of Schemes around Queen Street Station	The works around Queen Street Station involve different projects e.g. the Buchanan Galleries Development, track slab and works on the station itself. This would lead to NR having to adopt an inefficient schedule of works which would cause programme delay and increase in costs.
4	The level of passenger disruption leads to a change in access strategy	The level of passenger disruption may become unacceptable to TS/TOC/ travelling public leading to a change in access strategy e.g. change in station segregation
5	Granting of statutory powers	Granting of statutory powers (works at Glasgow Queens Street station in particular) may not correlate with the programme requirements.

The table below identifies the major Programme risks.

Table 16: Major programme risks involved

Risk description

[9] http://www.scotland.gov.uk/Publications/2006/11/16102303/riskmanagement.

- Working at Queen St. whilst station remains operational with risk of disruption to travelling public
- Undertaking Winchburgh Tunnel works whilst maintaining operational line
- Timely agreement of commercial arrangements / delivery plans with TS / ORR
- Public Utility companies ability to complete required diversion works in line with NR programme
- Providing sufficient track access rights to enable timely programme delivery
- Discovery of poorer than anticipated condition of existing assets
- Unforeseen ground conditions
- Greenhill feeder station – Interface with National Grid required and timely delivery
- Statutory consents
- Environmental issues

Mitigation actions have been identified for each of the risks in this table and progress on tackling these risks is being monitored.

TS and NR have undertaken a detailed risk assessment and are continuing to monitor and mitigate the risks on an ongoing basis. This is a continual process and TS will continue to monitor and address risk throughout EGIP.

2.7 Procurement risk transfer

A key aspect of achieving value for money in procurement is the appropriate allocation of risk to the party best able to manage it. This aspect has been considered for both the rolling stock and infrastructure works.

2.7.1 Rolling stock risk transfer

As the rolling stock is being procured by the franchisee, the associated risk will lie with the franchisee and not with TS. For the franchise procurement, bidders will be asked to set out their overall rolling stock strategy, including their approach to risk management.

2.7.2 Infrastructure works risk transfer

NR seeks to transfer cost and programme risk to the contractors via a Target Price mechanism. As discussed in section 2.4.1, this involves an indicative Target Price to be included within the bid during the procurement stage and once in the development stage (which is undertaken at actual cost) a Joint Target Price is negotiated. This manages the risk as the project requirements and specifications are finalised prior to conclusion of the PAA, as NR enter into the ADA at a 'no commitment basis'.

Prior to the Joint Target Price being agreed, work will be executed at Actual Cost. All partners are then positively incentivised to minimise actual cost, drive out inefficiency and waste, and jointly pursue cost effective solutions to issues which arise.

This process should reduce the cost and programme risk to TS. However this requires an appropriate level of Governance and reporting structure embedded within all requirements to ensure appropriate levels of challenge and control are exercised. All resources used within the process should be suitably skilled and experienced.

Elements of the programme risk will be transferred from TS to NR under the RAB financing agreement.

2.8 Procurement and the role of the ORR

The process for setting the scale of Network Rail's income and, consequently, the amount of funding it will need from government over a five year control period involves the Secretary of State for Transport (for England & Wales) and the Scottish Ministers providing the Office of Rail

Regulation (ORR) who set out their requirements in high level output specifications (HLOSs) and statements of funds available (SoFAs), these state what they want to be achieved during the control period and the level of public financial resources they are making available. The HLOSs and SoFAs for CP5 (1 April 2014 to 31 March 2019) were published in summer 2012.

Network Rail then develops its strategic business plan (SBP) to show how it proposes to deliver these requirements and how much income it will need. This was submitted to the ORR in January 2013 for the next control period.

The ORR then reviews the SBP in detail and carries out analysis of the input data Network Rail has used (for example on its unit costs), the planned volumes of work and proposed efficiencies, comparing it with data from other industries and other countries. Using this analysis, it releases a draft determination of the outputs it expects to be delivered and the income attributed. The draft determination for CP5 was published on 12 June 2013.

Industry parties then have the opportunity to respond to the ORR's consultation on the draft determination. The ORR considers these responses and any proposed changes, before publishing its final determination. The final determination for CP5 is due to be published on 31 October 2013.

The ORR will determine the efficient cost of the NR programme for addition to the Regulatory Asset Base (RAB) and scrutinise the deliverability of NR's programme. The ORR approval criteria is set out in the ORR's "Investment Framework consolidated policy and guidelines", dated October 2010.

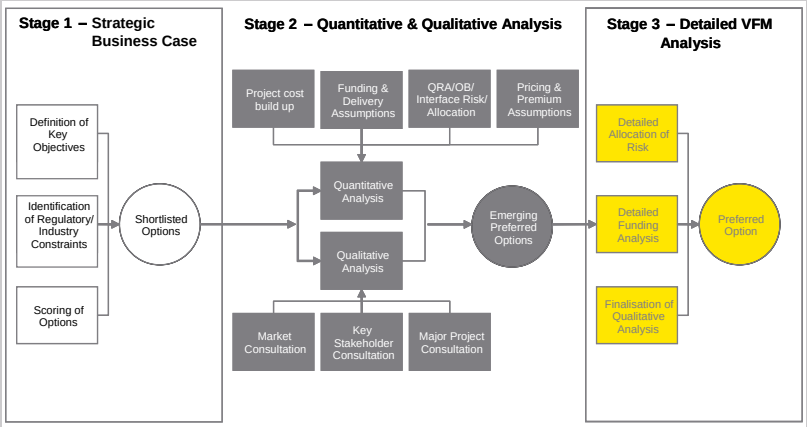
2.9 Value for money

EGIP presents a challenge to TS, in terms of delivering the improvement in service provision, meeting the challenges of the engineering complexity and the level of financial resources required for successful delivery. Against this background, TS has recognised that demonstrating value for money (VFM) is critical to the development and success of EGIP.

2.9.1 VFM methodology

The methodology for assessing VFM is consistent with the Scottish Government VFM guidance for non-NPD projects (e.g., Rail Enhancements), with the approach adopted on recent rail projects in Scotland and, where appropriate, recognises the Scottish Futures Trust (SFT) Value for Money Guidance: Capital Programmes and Projects applied in conjunction with HM Treasury Green Book principles. The methodology is summarised below.

Figure 9: Value for money methodology summary



EGIP is currently at Stage 3 of the VFM methodology and for that stage the methodology can be summarised as follows:

- A detailed allocation of risk is undertaken
- A detailed funding analysis is undertaken
- The qualitative analysis is finalised
- A preferred option is identified using agreed evaluation criteria.

2.9.1 Specific approach adopted for the EGIP Final Business Case

In order to make a robust VFM assessment, a significant amount of work was undertaken at the OBC and revised at the FBC. This work followed guidance and Best Practice set out by Scottish Government. It included:

- Establishing clear objectives for EGIP, short listing the projects that will be included within the programme and allocating each to a specific package.
- For the rolling stock procurement, a nine stage process was used to progress from a long list of options to arrive at a single preferred option. Qualitative and quantitative appraisal techniques have been employed to sift and score each option in a consistent manner, with outcomes validated by a market sounding exercise. To further develop the outline procurement strategy, a range of other procurement elements were considered.
- For the infrastructure works, completing a qualitative assessment of the party to act as Delivery Organisation.
- Updating the cost information currently available and considering the quantitative VFM implications. This is also considered in the Financial Case.

2.9.2 VFM approach: infrastructure works

For the infrastructure works:

- A robust approach to the qualitative assessment has been completed. This involved a number of workshops to score options against set criteria. The results of the exercise have been shared and commented on within TS and also with representatives of NR.
- The available cost information for EGIP was reviewed. This included the capital costs developed through the GRIP process and the operating costs. The ORR will determine the efficient cost of the NR programme for addition to the RAB and scrutinise the deliverability of NR's programme.
- The current procurement process is consequently based primarily on the detailed qualitative analysis. This indicated that NR is the preferred Delivery Organisation for EGIP. The ORR will be responsible for monitoring NR activities in this role.
- In order to ensure full compliance with the Scottish Government's VFM methodology, a checklist covering the qualitative VFM factors of viability, desirability and achievability was also completed. The results of this exercise support the conclusions drawn from the scoring exercise.

2.9.3 VFM approach: rolling stock

As noted at section 2.5, the procurement of rolling stock for an electric Edinburgh-Glasgow service will feature as part of the main ScotRail franchise specification. This will require the franchisee to procure and introduce into service the electric trains needed to provide the

Edinburgh-Glasgow electric services, the specification for which will be included in the franchise specification.

2.9.4 VFM approach: impact on the new rail franchise

The required service changes will be accommodated through the franchise process. Changes to service level commitments within the current franchise period will be accommodated through the existing Franchise Agreement procedure, for the following franchise period the requirements will be set out in the tender documentation and reflected in the final franchise agreement. The VFM implications of any such changes will be determined as part of the respective processes.

2.10 Conclusions on the Commercial Case

2.10.1 Procurement

EGIP is a challenging programme that will require a complex procurement process. This has been recognised in:

- Identifying the separate challenges that are faced in the procurement of the change in service provision, rolling stock and understanding the critical interdependencies to EGIP.
- The stakeholder roles have been identified, covering the key areas of client / funder, delivery organisation and work package deliverer.
- The different complexities and challenges faced by elements of the procurement were recognised and reflected in the long listing of procurement options considered at OBC stage.
- The procurement of the rolling stock will be undertaken by the franchisee.
- For the infrastructure works, the role of work package delivery organisation for the infrastructure works will be taken by NR. They will be responsible for procuring the individual packages. The ORR will ensure this process delivers value for money to TS. This overall process has allowed a VFM exercise to be used to select the appropriate stakeholder roles and the procurement strategy.
- The overall procurement timetable has been set, taking the programme from its current position through procurement to delivery.
- Throughout the process TS has worked with NR to identify the risks. The top risks have been identified at this time. An active montoring process is in place to allow this assessment to be continually updated during the procurement. This identifies each risk, and set out mitigation and monitoring plans.

2.10.2 VFM

- The approach adopted for the VFM assessment has been consistent with Scottish Government, Scottish Futures Trust and HM Treasury Guidance.
- EGIP presents a significant number of issues and challenges to TS, in terms of delivering the planned improvement in service provision, meeting the challenges of the engineering complexity and the level of financial resources required for successful delivery. Against this background, TS has recognised that demonstrating VFM is critical to the development and success of EGIP.
- While NR is best placed to deliver EGIP, TS recognises the VFM implications of contracting with a monopoly owner and operator. TS however notes that the Programme will be delivered in a regulated framework and will rely on the role of the ORR. The ORR will provided assurance through its review of the delivery package and the determination of an efficient expenditure.

- VFM will also be driven through the target price mechanism. The final details of the mechanism are still to be agreed and negotiations are currently underway between NR and TS.

- The required service changes will be accommodated through the franchise process. Changes to service level commitments within the current franchise period will be accommodated through the existing Franchise Agreement procedure, for the following franchise period the requirements will be set out in the tender documentation and reflected in the final franchise agreement. The VFM implications of any such changes will be determined as part of the respective processes.

- Procurement of rolling stock for an electric Edinburgh-Glasgow service will feature as part of the main ScotRail franchise specification. This will require the franchise bidder to procure and introduce into service the electric trains needed to provide the Edinburgh-Glasgow electric services, the specification for which will be included in the franchise specification.

3. The Financial Case – Programme Costs and Funding

3.1 Introduction

The purpose of this section is to summarise the cost and revenue implications of EGIP and detail the proposed financing costs. It also covers the areas of accounting treatment, taxation and the level of funding approval for EGIP.

3.2 Cost assumptions

The table below summarises the high level cost assumptions.

Table 17: Cost assumptions

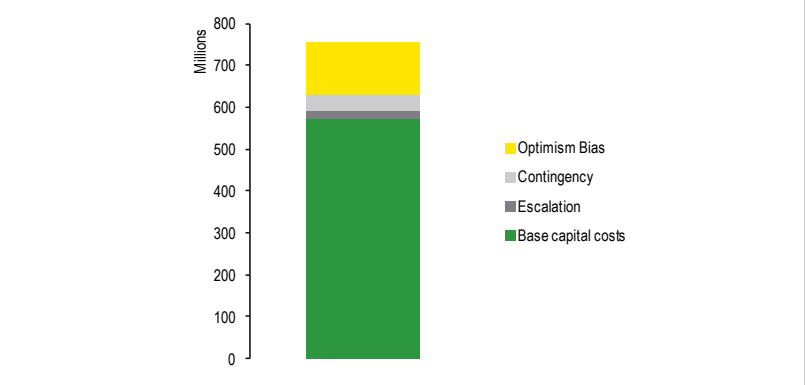
Assumption	Cost (£000)
Initial capital expenditure: Phase 1 (outturn)	£741,545
Initial capital expenditure : Stirling (outturn)	£92,810
Initial capital expenditure: Phase 2 (outturn)	£298,565
Total capital expenditure (outturn)	£1,132,920
Renewals (30 years real base date Mar 2013)	£2,500
OLE maintenance (annual real base date Mar 2013)	£840

Source: Network Rail, Transport Scotland, FBC cost sheet as revised 160813.xlsx, *Transport Scotland,* TS Sunk costs_110613.xlsx, *Network Rail,* 1304 EGIP OLE Ongoing Maintenance Renewal Forecast.xlsx

A relatively small amount has been included for renewals in the 30 year period. This is a £2.5m (real) charge in year 22. The most significant costs associated with EGIP will be the replacement of the OLE in year 45, beyond the 30 year timescale of this analysis.

The graph below illustrates the breakdown of the £742m capital expenditure costs during Phase 1.

Figure 10: Infrastructure capital spend: Phase 1



Source: Network Rail, Transport Scotland, *FBC cost sheet as revised 160813.xlsx*

This shows that the base capital expenditure is £558m, contingency is £37m, escalation is £19m with optimism bias (OB) of £126m. This is the base case of costs for the following analysis.

3.3 Timing, financial and economic assumptions

The tables below set out the timing, and quantum of the financial and economic assumptions. Through the FBC process, TS has taken a prudent approach to assumptions. As such these figures should be regarded as a down side scenario. TS are working to identify areas of cost savings and efficiencies.

Table 18: Timing and capital cost by project (Outturn price)

Project	Construction start date	Construction end date	Operations start date	Cost (£000)
TS direct funded				11,943
Electrification of Route	Apr 09	Sep 16	Dec 16	312,758
Infrastructure	Apr 10	Sep 16	Dec 16	121,351
Stations and depots	Apr 09	Sep 16	Dec 16	187,412
Queen Street	Apr 16	Mar 19	Dec 18	67,761
NR other	Apr 15	Mar 19	Dec 18	26,432
TS other	Apr 08	Sep 16	Dec 16	13,888
Stirling electrification	Apr 16	Sep 18	Dec 18	92,810
Phase 2	tbc	tbc	tbc	298,565
Total				**1,132,920**

Source: Network Rail, Transport Scotland, FBC cost sheet as revised 160813.xlsx, Transport Scotland, TS Sunk costs_110613.xlsx, Transport Scotland, TS Construction and operating dates _110613.xlsx

It is assumed that the programme will be fully operational by mid December 2018. The operations period considered within this FBC is 30 years. The preferred financing route for the Programme is the use of NR's Regulated Asset Base (RAB). The financial assumptions applied in relation to this are set out in the table below.

Table 19: Financial and economic assumptions

Financial and economic	Assumption
RPI (HMT)	2.50%
Return of RAB CP4 (real)	4.75%
Return of RAB CP5 (real)	4.31%
Return of RAB post CP5 (real)	4.60%
Real discount rate (HMT)	3.50%
Nominal discount factor (HMT)	6.09%

The model assumes a 4.75% rate of return on the RAB for the life of Control Period 4(CP4) settlement. For CP5 a rate of 4.31% has been assumed. The terms of CP5 are to be finalised in October 2013 and the ORR's draft determination, issued June 2013, proposes a rate of return of 4.31%. After CP5 the rate is assumed at 4.6%. Discussions on the rate of return has been in the range of 4.4% to 4.6%.

These assumptions have been discussed with NR but are subject to verification by NR following further modelling.

3.4 Infrastructure capital expenditure

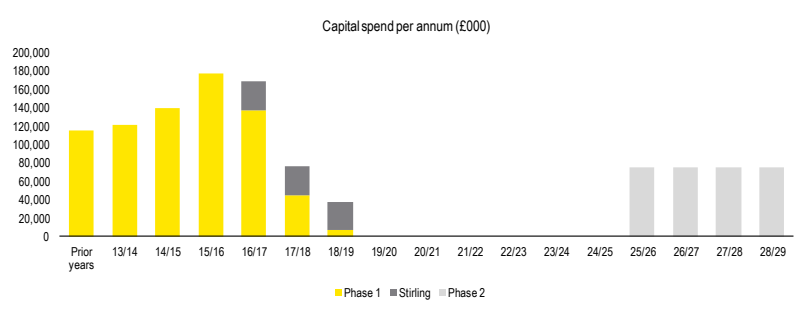
The table below summarise the annual capital spend for Phase 1. The graph summarised the spend for Phase 1, Stirling and Phase 2.

Table 20: Phase 1 capital cost profile per annum (£'000, outturn prices)

Previous years	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	Total
115,070	121,142	139,270	177,052	137,684	44,842	6,484	741,545

Source: Network Rail, Transport Scotland, FBC cost sheet as revised 160813.xlsx, *Transport Scotland,* TS Sunk costs_110613.xlsx, *Transport Scotland*, TS Construction and operating dates _110613.xlsx

Figure 11: Infrastructure capital spend per annum Phase 1, Stirling and Phase 2



Source: Network Rail, Transport Scotland, FBC cost sheet as revised 160813.xlsx, *Transport Scotland,* TS Sunk costs_110613.xlsx, *Transport Scotland*, TS Construction and operating dates _110613.xlsx

This highlights the following:

- The highest cost per annum will be incurred in 2015/16
- The general trend is that capital costs will increase to the high point at 2015/16 and then reduce each year.

3.5 The preferred financing option and payments arrangements

EGIP could be financed in several ways including NR's RAB financing, capital grant financing, private financing or a mixture of all three.

3.5.1 Private financing

During the OBC process, the private financing option was discounted as it was considered to be inappropriate due to the integration of EGIP into the current network and the ensuing difficulty for any organisation other than NR taking ownership of EGIP and the assets.

3.5.2 Capital grant financing

Under the Capital Grant financing option, the construction costs would be paid out of the existing TS public transport budget. At the OBC stage, an analysis of the financing option in comparison with RAB financing was undertaken.

Under the capital grant financing option, EGIP would call on TS to finance all of the works, services and operating costs directly from its annual budgets as the expenditure is incurred. In comparison the NR RAB financing would require that provision be made in the capital budget for the annual RAB charge from NR. This provision would be as the net effect of the increase in Track Access Charges payable by the franchise operator set to meet the required RAB return on the new networkassets. The capital grant financing route has been considered as part of

this FBC, however it has been discounted due to a number of factors including the scale of the EGIP programme and the change in SG government policy.

The Scottish capital budget allocation from UK Central government has seen a real terms cut between 2010 and 2015. In order to continue to stimulate the economy, the SG policy is now to use revenue funding to deliver projects under the current fiscal constraints imposed.

Given this position, it was concluded that RAB financing would be the most appropriate method of financing the GIP programme.

3.5.3 RAB financing

Under the RAB financing option, NR would fund the cost of construction through either third party borrowings or the utilisation of cash surpluses.

The vast majority of RAB financed infrastructure works are pre-approved by the ORR, which sets an efficient delivery price. This efficient price will be added to the RAB on delivery of the infrastructure works and NR will retain the risk and benefit of project over and under spends.

Where infrastructure works are completed without the ORR having established an efficient delivery price, a retrospective price review can be performed by the ORR. The efficient delivery price associated with such a project will be added to the RAB on commencement of the next control period; NR will retain the risk of project overspends. This efficient pricing assessment assumes that sufficient design and evaluation has been carried out to enable the calculation of a fixed price.

3.6 EGIP costs funded by RAB

The RAB calculations in the following sections are based on the following assumptions:

- The £1,133m total capital expenditure is in outturn prices (i.e., the expected cost incurred by NR in each year). Of this it is assumed that £26m will be funded directly by Transport Scotland with the remaining £1,107m being logged to the RAB
- The £1,107m includes any capitalised interest and / or indexation costs incurred by NR in the delivery of EGIP, i.e. The total nominal capital expenditure is not subject to any subsequent financing adjustments/increases
- The costs initially logged to the RAB are logged in outturn prices, including escalation, contingency and optimism bias throughout the construction period.
- Capital costs are added to the RAB in the year they are incurred.
- For the duration of EGIP, no amortisation is applied to enhancements. This reflects TS's understanding of the ORR's Draft Determination. This states that for CP5 NR's amortisation charge will equal the ORR's forecast of renewal expenditure in CP6. On the basis that there will be no renewal spend on EGIP in CP6, no amortisation is applied. Amortisation is applied to renewals over 30 years on a straightline basis. This will be reviewed as part of PR18, ahead of CP6.
- Indexation has been assumed at 2.5% per annum in line with Treasury guidance. This inflation factor has been applied to the RAB charge. It is recognised that the actual level of charge will be calculated by reference to the actual level of annual inflation in the economy in accordance with the ORR guidance.
- A 4.75% level of allowed return on the RAB is assumed throughout CP4. For CP5 a rate of 4.31% has been used in line with the ORR's Draft Determination. The terms of CP5 are to be finalised as discussed in 3.3 above. Post CP5 the rate of return is assumed at 4.6%.

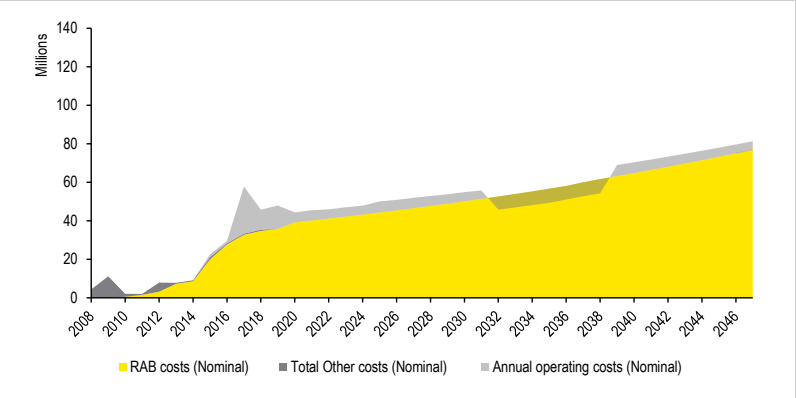
3.7 Phase 1 Outturn expenditure

The total outturn expenditure for EGIP Infrastructure Phase 1, including financing payments over the 30 year life of the programme, is expected to be £1.871bn. This is calculated from a base date of March 2013.

The NPV of TS payments for EGIP, over the 30 year operating period is £525m calculated to a base date of March 2008.[10]

The following graph illustrates EGIP expenditure through construction and for the 30 year operational period from 2018.

Figure 12: EGIP Phase 1 programme expenditure



Source: Network Rail, Transport Scotland, FBC cost sheet as revised 1860813.xlsx, *Transport Scotland,* TS Sunk costs_110613.xlsx, *Transport Scotland*, TS Construction and operating dates _110613.xlsx, *Atkins, Transport Scotland,* 5108201 0110 EGIP Operating Costs v1.0 130430.docx, subsidy impact_update_081013.xlsx,

The graph shows interest being paid during the construction period up to 2014 when the deferred RAB account will be logged to the RAB. From then on capital costs are logged to the RAB annually. There is no amortisation of capital costs, as noted above. The payments up to year 2025 are detailed in the table overleaf.

[10] *NPV calculated using 6.09% discount rate per HM Treasury Guidance*

Table 21: EGIP Phase 1 payments 2008 - 2025

Nominal costs (£000)	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17
RAB	-	13	517	1,514	3,170	7,270	8,573	19,932	27,700
Non RAB eg, TS capital funded	4,401	11,154	1,560	500	4,715	500	513	1,051	538
Incremental franchise operating costs	-	-	-	-	-	-	-	1,516	1,304
Annual total	**4,401**	**11,167**	**2,077**	**2,014**	**7,885**	**7,770**	**9,085**	**22,498**	**29,542**
Nominal costs (£000)	**17/18**	**18/19**	**19/20**	**20/21**	**21/22**	**22/23**	**23/24**	**24/25**	**25/26**
RAB costs	32,710	34,755	35,773	39,135	40,113	41,116	42,144	43,198	44,278
Non RAB eg, TS capital funded	552	566	-	-	-	-	-	-	-
Incremental franchise operating costs	24,504	10,470	12,108	5,232	5,377	4,810	4,883	4,650	5,765
Annual total	57,766	45,790	47,881	44,367	45,490	45,926	47,027	47,848	50,043

Source: Network Rail, Transport Scotland, FBC cost sheet as revised 160813.xlsx, *Transport Scotland*, TS Sunk costs_110613.xlsx, *Transport Scotland*, TS Construction and operating dates _110613.xlsx, *Atkins, Transport Scotland,* 5108201 0110 EGIP Operating Costs v1.0 130430.docx, EGIP FBC - subsidy impact.xlsx

With amortisation on renewal costs only, the annual payment in the first full year of operation (2018/19) is £46m. Payments rise gradually and average £57m over the programme.

This currently meets the affordability assumptions.

3.8 Phase 2 expenditure

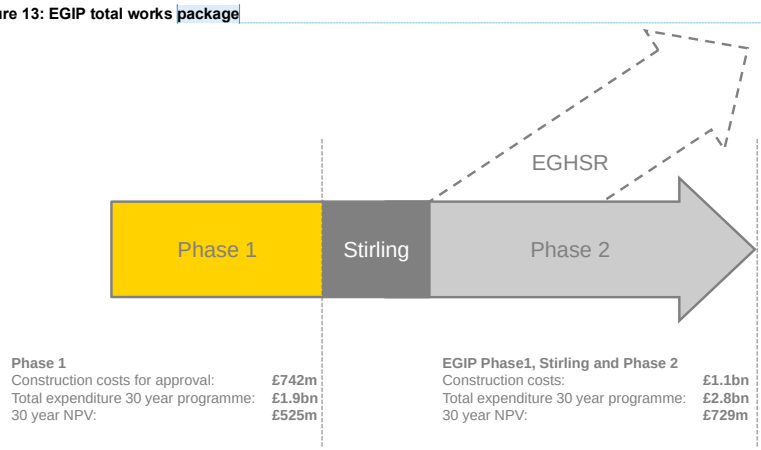
In addition to the Phase 1 works included in the analysis above, there will be additional works required for the electrification of the Stirling / Alloa / Dunblane route. This is not part of the EGIP Phase 1 programme but is a key interdependency. This work is required to enable the benefits detailed within the investment case to be realised. A Phase 2 programme of infrastructure work has also been considered. This is planned to cover the Edinburgh to Glasgow line should the potential of High Speed Two (HS2) in central Scotland not materialise. This is required to enable the move from 4tph to 6tph. The decision on further intervention is still being progressed.

This FBC seeks approval to invest in Phase 1 of EGIP and the financial analysis set out above presents the financial case for the Phase 1 works. However the Investment Case at section 1 presents the economic base case including the works required for the electrification of the Stirling / Alloa / Dunblane rout and the Phase 2 programme of infrastructure.

The diagram overleaf illustrates the phasing of EGIP, including the total costs for the Investment base case and the Phase 1 costs for which approval is sought.

Figure 13: EGIP total works package

Commented [z1]: Construction Cost should be £1.13bn



Source: Network Rail, Transport Scotland, FBC cost sheet as revised 160813.xlsx, *Transport Scotland,* TS Sunk costs_110613.xlsx, *Transport Scotland*, TS Construction and operating dates _110613.xlsx, *Atkins, Transport Scotland,* 5108201 0110 EGIP Operating Costs v1.0 130430.docx, EGIP FBC - subsidy impact.xlsx

Note: Construction costs are at a outturn prices with a base date of March 2013, total expenditure over 30 year programme base date March 2013, 30 NPV calculated to bae of March 2008

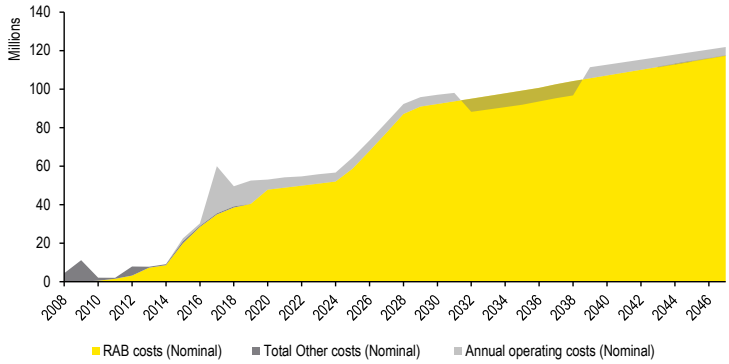
The total expenditure for EGIP Infrastructure Phase 1, Stirling and Phase 2, including financing payments over the 30 year life of the programme, is expected to be £2.83bn. This is calculated from a base date of March 2013.

The NPV of TS payments for the Full Programme, including Stirling, over the 30 year operating period is £729m calculated to a base date of March 2008.[11]

The following graph illustrates the programme expenditure through construction and for the 30 year operational period from 2018. The graph and details below show the operating costs for phase 1 and phase 2.

[11] *NPV calculated using 6.09% discount rate per HM Treasury Guidance*

Figure 14: EGIP Phase 1, Stirling and Phase 2 programme expenditure



Source: Network Rail, Transport Scotland, FBC cost sheet as revised 1860813.xlsx, *Transport Scotland,* TS Sunk costs_110613.xlsx, *Transport Scotland*, TS Construction and operating dates _110613.xlsx, *Atkins, Transport Scotland,* 5108201 0110 EGIP Operating Costs v1.0 130430.docx, subsidy impact_update_081013.xlsx,

3.9 Franchise subsidy – impact on operating costs

Train services on the EGIP routes currently cost around £50m per annum to operate (this excludes costs paid separately to Network Rail to provide the track and signalling). Farebox revenue from passengers using the services covers the cost of operating the services.

The operating costs of the ScotRail franchise will increase as a result of the new EGIP timetable because more train services per day will be operated than in the current timetable. The additional services will require more trains and additional train crew to operate them. The number of miles operated by the total ScotRail train fleet also increases substantially. Fuel, track access and train maintenance costs are all based on the number of miles operated and therefore will also increase. Electric trains are less expensive to operate per mile than diesel trains, however, because more miles are being operated per day, there is a net increase in cost despite the price differential.

In order to use the train fleet efficiently, stabling locations are required in order to minimise the number of empty journeys, at the start and end of services each day. Stabling yards incur some fixed costs per year in order to cover utilities and equipment maintenance, as well as staff to empty the train toilet tanks and move the trains within the yard so they can be cleaned.

Since privatisation of the rail industry in the 1990's, new trains have been leased by train operators rather than purchased outright. The review of procurement options for the new EGIP trains considered a variety of funding options and concluded that the franchisee should procure the required stock.

It is estimated that EGIP will increase the steady state annual operating cost for the ScotRail franchise to £21m in 2019 (nominal) in the first full operating year. This sum includes the cost of leasing the new electric trains, the additional staff required to operate and maintain them and the fuel, material and track access charges which will be incurred as they run. Fixed costs arising from operating the stabling yards are also included in this total. Substantial costs will be incurred prior to the new services starting, as staff are recruited and trained and the new trains are commissioned and tested.

The operating costs for EGIP include rolling stock costs, infrastructure costs, staff, and other costs. The infrastructure costs include the cost to run the new electric trains. At the time of producing the FBC the number of trains assumed appears to be in excess of what will actually be required. TS is currently working with Atkins to update the assumptions, however for the FBC the current assumptions have been used. It is expected that savings will be made on this cost base, particularly on infrastructure costs.

3.10 Revenue

The operating costs are offset by an increase in revenues. Once the new services are introduced, passengers will take some time to change their travel behaviours and the full revenue forecast will take some years to achieve. However in addition to this ramp up, external factors such as the performance of the economy will influence how the revenue grows over time. The forecast revenue for a steady state year (without ramp up and growth because of external factors) in 2019 is £10m.

The revenue figure represents the anticipated additional income from ticket sales expected to be received from increased passenger journeys. The scale of this revenue increase contains a significant degree of uncertainty as the Transport Model for Scotland is not specifically designed for detailed revenue analysis and the results are highly sensitive to the assumptions used.

3.11 Net operating position

EGIP will have an impact on the amount that is paid by TS in respect of the operating costs for the section of the network that is covered by EGIP. The overall impact on the operating position will be the net effect of changes in the operating costs incurred and the revenues received.

The net impact of EGIP on TS's operating costs in 2019 is an increase of £11.13m in the subsidy payment.

It should be noted that the subsidy impact moves each year, so the first year is not indicative of the cost of future years. The following table illustrates the increase / (decrease) in estimated subsidy payment for the period from 2019-2028.

Table 22: Increase in estimated subsidy payments (£m, nominal prices)

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Change in subsidy	**11.13**	**4.23**	**4.35**	**3.76**	**3.81**	**3.55**	**4.64**	**4.32**	**4.22**	**3.96**

Source: Transport Scotland, subsidy impact update 081013.xlsx

The graph below summarises the subsidy impact for the 30 year operational period from 2018.

Figure 15: EGIP subsidy impact for Phase 1 and Phase 1 and 2

Source: Atkins, Transport Scotland, 5108201 0110 EGIP Operating Costs v1.0 130430.docx, EGIP FBC - subsidy impact.xlsx

This indicates that for Phase 1 the subsidy requirement is forecast to decrease, with a negative subsidy between 2032 and 2038 before increasing from 2039. For Phase 1 and 2 the subsidy decreases and although increases from 2039, it remains a negative subsidy from 2026. Overall, the subsidy requirement is forecast to decrease over the period of the economic appraisal. The typical subsidy varies over the appraisal period, with the fluctuations caused by a step change increase in lease costs when trains are replaced as they become life expired. The overall scale of the change in the subsidy contains a degree of uncertainty as it relates to potential future outcomes that will be influenced by a range of factors.

3.12 Target price mechanism

The target price mechanism will ensure that risks are adequately managed and incentivise NR to deliver the programme in an efficient and timely manner. The mechanism is still under negotiation between NR and TS. A target price will be agreed and the treatment of any gains or losses will be defined within the mechanism.

The current target price arrangements offered by NR are detailed in the table below.

Table 23: NR Proposed target price arrangements

Delivery cost	Gain / pain share
Delivery cost under target price	NR and TS share Gain 50/50
Delivery cost up to and including 15% over target price	NR and TS share Pain 50/50
Delivery cost above 15% over target price	TS solely incur Pain

Source: NR, ORR submission

These arrangements have not been agreed. A range between 10% and 30% based on the risk ownership matrix may be more appropriate to EGIP.

Continuous monitoring of costs as EGIP progresses will provide early indications if the Target Price is likely to be exceeded. In such circumstances Network Rail will work with Transport Scotland to discuss and agree what actions can be taken to bring EGIP back within the Target Price.

3.13 Financial risk and Optimism Bias

There is a demonstrated, systematic tendency for project appraisers to be overly optimistic. This tendency is known as Optimism Bias (OB) – a worldwide phenomenon that affects all types of projects, including transport, in both the private and public sectors. To redress this

tendency, practitioners should make explicit adjustments for this bias when appraising projects. However, in current transport appraisal guidance it is only provided for cost risk adjustment.

The capital and operating costs detailed above include an adjustment that has been made to cover OB and financial risk. As the procurement progresses, it will become easier to identify the quantifiable risks associated with EGIP. Therefore the allowance for risk increases over time whilst the allowance for OB decreases.

A detailed analysis of EGIP has been undertaken and the level of OB is detailed in the table below.

Table 24: EGIP Programme OB level

Package / project	OB level
Electrification	
Electrification of Route - Including Route Clearance	18%
Cumbernauld - Electrification	0%
Infrastructure	
Infrastructure - pre July 12 Development Scope	0%
Haymarket Station Capacity	0%
Edinburgh Waverley	40%
Croy (Platforms and Buildings work)	40%
Falkirk High (Platforms and Buildings work)	40%
Polmont (Platforms and Buildings work)	40%
Linlithgow (Platforms and Buildings work)	40%
Haymarket-Inverkeithing Signals	18%
Stations & Depots	
Queen Street	40%
Edinburgh Gateway	18%
Millerhill Depot & Stabling	40%
Eastfield Depot	50%
Queen Street Concourse / Station works	50%
Other NR	40%

Source:Transport Scotland, FBC cost sheet 160813.xls

3.13.1 Financial risk

As the programme matures it is planned to enhance the assessment of the risks included in the risk register to include a quantitative assessment of the range of potential impacts of the risks in terms of both cost increase and time delay.

The quantitative assessment will indicate the confidence level that TS has of the risk exposure of EGIP. This analysis will be undertaken on the EGIP level cost plan and at Work Package level when sufficient detail is available. Where an agreed cost plan exists, the level of uncertainty within that plan will also be included in the analysis.

Where an agreed baseline schedule exists, a quantified analysis of the uncertainty and risk associated with that schedule will be undertaken. This analysis will include the range of impacts that individual risks could have on EGIP and the level of uncertainty within the activity durations themselves. This analysis will be undertaken on the EGIP level schedule and at work package level when sufficient detail is available.

3.13.2 Optimism Bias

The proposed approach to OB management will be in accordance with STAG guidelines. The current OB estimate was established on completion of GRIP stage 3 of each project. The OB estimate will be revisited at major milestones in the project lifecycle; the plan will be to synchronise this with completion of each GRIP stage.

The drawdown of OB will be managed through with the revision of the project cost plan at the end of each GRIP stage and through the target price mechanism. At the end of each stage, the OB factors will be examined in line with the level of detail and intelligence known on the project. As the detailed options begin to emerge for EGIP, the delivery scope will begin to solidify. As this process develops, it is expected the Optimism Bias figure will reduce and crystallise as items of scope within the cost plan. This process will be managed though the project change control procedure.

An element of the OB calculation is an assessment of the level of risk knowledge and quantification on the project. It is anticipated that on completion of GRIP stage 4, EGIP will undertake a quantified risk assessment. Therefore, the cost plan after completion of GRIP stage 3 will include a provision for quantified risk in addition to an OB allowance. The emergence of a quantified risk allowance will be one of the factors that help the project reduce the OB estimate thus reducing any possibility of double-counting. As this work is progressed, TS will look to maximise opportunities for mitigation, and where possible, elimination of risk. This process will look to reduce the overall programme cost.

3.14 Accounting treatment

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The following paragraphs consider the potential accounting treatment for EGIP for TS. At this stage of development it is only possible to provide an indicative analysis of the potential accounting treatment. This is provided to help in understanding the accounting issues for TS in respect of EGIP.

As EGIP develops it is the intention to form a more detailed position on the accounting treatment. This will be discussed with TS's auditors, Audit Scotland, with whom the final opinion on the accounting treatment rests.

3.14.1 Rolling stock

As was noted in the Commercial Case, the rolling stock will now be procured as part of the refranchise process. Bidders will be asked to set out their overall rolling stock strategy to provide the required capacity.

The terms of the arrangement will determine how TS accounts for it. A detailed analysis of the potential accounting treatment for the rolling stock is included at Appendix A. This analysis assumes that a Section 54 Undertaking supports the procurement. Under this case, TS would not recognise any measurable transaction when the franchisee holds the risk of meeting the amounts payable for the rolling stock from its resources (including farebox and TS annual grant). TS would only recognise a transaction when and to the extent that no franchisee is appointed. As the franchise procurement progresses TS should review the accounting treatment in line with the rolling stock strategy of the franchisee.

The terms of the arrangements will determine whether this is accounted for as a service concession or as a leasing arrangement. A detailed analysis of the potential accounting treatment for the rolling stock is included at Appendix A. As the franchise procurement progresses TS should review the accounting treatment in line with the rolling stock strategy of the franchisee.

3.14.2 Network Rail position for infrastructure assets

NR has a regulatory requirement to report in the manner of a listed company. It therefore prepares annual accounts in accordance with International Financial Reporting Standards. EGIP is expected to be accounted for on the balance sheet of NR. They will be responsible for raising the finance for the infrastructure works and for managing their completion. The capital cost of the works will be added to the RAB and the cost recovered from TS by way of annual charges. NR will therefore recognise the infrastructure asset on their balance sheet.

Currently, the Office of National Statistics ('ONS') classifies NR as a private sector entity, meaning that its balance sheet is excluded from the United Kingdom's fiscal aggregates. This exclusion means that no UK Government department (including the Scottish Government) is

required to make any capital budgetary provision for activity accounted for on NR's balance sheet. We understand from the ONS's forward work plan as at September 2013 that the ONS will reconsider NR's classification due to an expected change to the underlying statistical principles ('ESA 95') that European Community Legislation requires it to apply.

If the infrastructure asset arrangement remains unchanged but NR is reclassified to the public sector, TS may need to make budgetary provision for NR funded capital expenditure. This need will depend on whether TS capital budgets are flexed to reflect this change and how newly public sector classified NR budgets are developed to and managed by the Scottish Government.

3.15 Value Added Tax

The following paragraphs of the business case consider the VAT implications of EGIP. These cover the situation where works are undertaken by NR for the majority of the programme and the implications should TS undertake works directly. Each situation is considered in turn.

3.15.1 Network Rail delivered projects

In Section 1.1 the procurement structure for EGIP that delivers value for money involves NR undertaking the work package delivery role. Under this structure:

- TS commissions NR to undertake the works and service through the existing Regulatory Settlement.
- NR will contract with third party providers (for example construction and engineering contractors) to undertake the works.
- The third party contractors will charge the cost of the works to NR, and be paid by them.
- In turn NR will finance the cost of the works from their own borrowings. Once the works are completed the costs will be added to the RAB and recharged to TS over the operating period.

Providing the works are undertaken under NR's regulatory settlement there will be no supply for VAT purposes by NR to TS.

This treatment is based on several key assumptions, that:

1. NR does not operate under any special VAT regime and therefore must follow the 'normal' rules for charging output tax on their taxable supplies and recovering input tax incurred on related costs.
2. NR is a fully taxable body as the charging for Track Access Charges to the rail industry for provision of rail infrastructure by NR is a taxable business activity. We would recommend that this is confirmed as if this is not the case VAT recovery may be restricted.

In the circumstances outlined above, VAT will be charged by the third party contractors to NR for the works and services provided and subject to the fully taxable status of NR this VAT will be fully recoverable. As there is no business supply from NR to TS there will be no VAT charged from NR to TS.

3.15.2 Costs incurred directly by Transport Scotland

Any VAT on costs contracted for directly by TS is expected to only be recoverable to the extent that they are included in the Treasury List of Contracted out Services (COS) List. Currently VAT on repair and maintenance to existing civil engineering works will be recoverable under COS but any new rail infrastructure works would not. Currently it is not envisaged that TS would undertake any of EGIP works directly or let any contracts for the delivery of services to TS.

The treatment of VAT is a complex area, and given the size of EGIP, the impact of the appropriate treatment could be significant in terms of affordability. Should there be any change from the procurement structure outlined above the VAT position will be reviewed.

3.16 Funding Approval

Future Investment Authority for EGIP infrastructure projects will be requested in accordance with the proposed breakdown of authority packages as shown in the table below. The Investment Decision Making (IDM) Board will be the appropriate authorising body for these packages. Investment papers will include clear recommendations for the application of delegated authority (e.g., to the Head of Rail Projects) for variations of scope and cost within each package.

The anticipated funding authorisation schedule is shown in the following table:

Table 25: Funding Authorisation Schedule

	Funding (£m)	Comment
Authorised to date		
Authorised in advance of FBC	201	
Electrification of the main Edinburgh Glasgow route	474	Includes OB
Redevelopment of Queen Street Station	67	Forecast authority date June 2014
Phase 2	TBC	TBC

Prior to any submission being made to the IDM board, the submission must be reviewed to ensure that the relevant technical, specialist and policy colleagues have been consulted. Completion of the IDM checklist is a mandatory requirement for any papers seeking investment decision. Any papers submitted without a fully completed checklist will not be considered by the Board/IDM/RPG. This ensures that the relevant part(s) of the IDM checklist have been completed and that all necessary assurances have been provided.

The minimum additional assurances which the TS / IDM Board or RPG will seek prior to approving papers submitted for their consideration are:

- The necessary finance is in place.
- The proposal has been appraised and is compliant with approved guidance and assurance processes (SPFM[12], STAG, etc.).
- Where the proposal concerns an ongoing programme, Boards will also seek assurance that EGIP is progressing in line with its original aims and objectives and that it remains consistent with current policy thinking.
- Where appropriate Boards will also require assurance that the relevant independent gateway review has been completed.

All papers must be carefully reviewed to ensure that the necessary assurances are in place.

[12] Scottish Public Finance Manual.

3.17 Financial dependencies

TS has considered the impact that external issues may have on the progression of EGIP. These financial dependencies are detailed in the following table:

Table 26: Summary of financial dependencies

Financial dependency	Mitigation
The cost of construction may be significantly higher than estimated due to increases in material or labour costs	Various levels of OB have been added to all capital costs. This has been derived from the level of development of the programme. The level of OB will decrease as the procurement progresses to account for the increased level of certainty in the estimated costs.
The inflation assumptions may be incorrect. If this assumption is incorrect then the outturn prices may be higher (or lower) than the current estimates.	This dependency is also covered by the optimism buffer that has been included in the capital cost estimates.
There is a potential interface risk with CEC's tram works at Edinburgh Gateway and Haymarket interchange	CEC and TS are currently developing an integrated programme.

All dependencies will be included within NR's SBP and the ORR determination. This will ensure that all dependencies are managed by NR and monitored and reviewed by the ORR.

3.18 Conclusions on Financial Case

The financial case has demonstrated:

- The total capital spend in outturn prices for phase 1 is £742m. Including Stirling and Phase 2 the total capital spend is £1,133m.
- The total nominal costs for the construction and 30 year operating programme is £1.9bn for Phase 1; including Stirling and Phase 2 the total is £2.8bn.
- The NPV (to 2008) for Phase 1 is £525m; with Stirling and Phase 2 this rises to £729m
- The RAB payment, for Phase 1, in the first year of operation is £46m and averages £57m across the 30 year payment period

This meets the current affordability assumptions.

- The RAB payment, including Stirling and Phase 2, for the first year of operations is £50m, and averages £89m over the 30 year period.
- The assumptions included within this financial case are recognised as the worst case. TS will continue to investigate opportunities to reduce the overall costs.

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4. The Management Case – Implementation and delivery

The purpose of this section is to identify the team that will deliver the Programme and confirm that they have the appropriate level of skills and experience. It clearly outlines the Programme management framework, and how the Programme governance will work with the Project governance plans to ensure EGIP meets its objectives.

4.1 Roles of the Principal Partners

The structure and organisation of EGIP is designed around a collaborative approach between the three principal partners, i.e., Transport Scotland (TS), First ScotRail (FSR) and Network Rail (the Tripartite organisation). The principle parties will be supported by the Office of Rail Regulation (ORR) who in their capacity as independent rail regulator will oversee and assure programme deliverability and efficient price issues.

The roles of the constituent members of the 'tri-partite organisation' and ORR are summarised in the tables below:

Table 27: The Tripartite Organisation

Organisation	Summary roles
Transport Scotland (TS)	As the national transport agency for Scotland and the principal funder of the programme, Transport Scotland will act as programme sponsor for the overall programme. Transport Scotland owns the business case and is accountable for ensuring that appropriate overall programme reporting, monitoring and project control procedures are in place. Transport Scotland are also responsible for the procurement and delivery of appropriate rolling stock through the franchise procurement process.
Network Rail (NR)	As the owner and operator of Britain's rail infrastructure, Network Rail is responsible for the delivery of the Programme work packages and for the successful integration of all programme deliverables. They will ensure that appropriate project reporting, monitoring disciplines and procedures have been established to ensure that they fulfil their role and comply with their obligations and responsibilities to both the rail regulator and TS as client. Notwithstanding NR's own internal reporting requirements, they are to comply with and adhere to Transport Scotland's governance and period reporting requirements. As a member of the EGIP Programme Board; NR also has responsibilities at board level as defined in the Programme Board Remit.
Scotrail Franchisee (currently First ScotRail (FSR))	First ScotRail are the current Scotrail Franchisee. They operate the Scottish rail passenger franchise and are responsible for the delivery of the strategic timetabling exercise. They are to ensure that all necessary Programme reporting, monitoring disciplines and procedures are in place to comply with their obligations and responsibilities and will comply with requirements of Transport Scotland's governance and period reporting process. They are also members of the EGIP programme board and have responsibilities as defined within the board remit. NB. At the time of writing the Scotrail Franchise is being prepared for refranchising with a new Franchisee to be in place by March 2015 at which point the incoming Franchisee will therefore assume the responsibilities currently assigned to First Scotrail.

Table 28: The Office of Rail Regulation

Organisation	Summary roles
The Office of Rail Regulation (ORR)	As rail regulator ORR have a responsibility to ensure that Network Rail as the owner and operator of the national railway manages the network efficiently and in a way that meets the needs of its users. The tripartite will be supported by the ORR, who in their capacity as independent rail regulator will: ▸ Establish NR's obligations for EGIP (including those required to deliver the NR Programme and fulfil other roles undertaken by NR for EGIP) in accordance with Clause 5 and will monitor and hold NR to account through the provisions of its Network Licence. ▸ Opine and provide assurance on a range of issues including deliverability and efficient cost.

4.2 Structure of Transport Scotland Approach

As the principal funder and Strategic sponsor of EGIP, TS will lead the overall programme of works. TS own the business case and are responsible for ensuring that Programme reporting, monitoring disciplines and project control procedures are in place and are implemented.

EGIP is managed at a high level via the EGIP Board and the Programme Management Group (PMG). The membership of the PMG and EGIP Board reflects the tri-partite relationship (on this Programme) between TS, NR and First ScotRail.

In addition to responsibility for the delivery of the Programme work packages NR are also responsible for the successful integration of all programme deliverables through the EGIP Systems Integrator (SI) and Systems Integration Authority (SIA).

The Governance and Reporting structure for EGIP is identified in the diagram below. This diagram shows the various sub-groups who are directed by and report to the PMG, the Programme Board and ultimately the TS Board.

The following organisation chart illustrates the relationship between these parties.

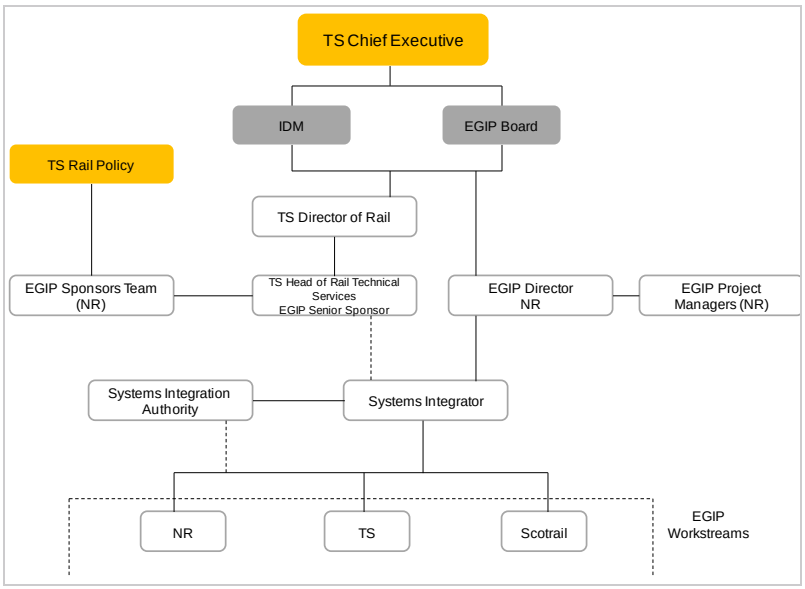

Table 27 sets out the principle strategic decision making bodies within the EGIP organisation and their roles and responsibilities.

Table 29: EGIP Decision making bodies – roles and responsibilities.

Decision maker	Role
TS Chief Executive	As Accountable Officer The Chief Executive of Transport Scotland, is responsible and accountable for decisions on the Agency's capital investment programme.
TS IDM	The Chief Executive is supported by the TS Investment Decision Making Board (IDM) in making capital investment decisions in respect of EGIP.
EGIP Board	The EGIP Board is the body charged to lead the management of EGIP. Chaired by the Chief Executive of Transport Scotland, the overarching responsibility of the Board is to monitor progress and budget on the Programme, to give clear direction to the Programme Sponsor, Project Director and the EGIP team, and to facilitate the realisation of the programme objectives. The Chair reports to the Strategic Board and the Minister.
	To avoid any potential conflict of interest arising from the Board's tripartite constitution (The Chief Executive is also the Investment Decision Maker (IDM) for Transport Scotland), investment authority issues will not be considered by the Programme Board. However the Board can make recommendations regarding value for money, efficiency and programme objectives. Investment authority issues will be referred to the TS IDM board for consideration in line with TS governance procedures. TS IDM board provides advice to the Investment Decision Maker (Chief Executive TS) who will issue instructions to the Project Owner and Project Management Board when any significant

Decision maker	Role
	amendments to the Outline Business Case, the brief, the timetable or the budget become necessary.
TS Director of Rail	The Director of Rail is responsible for the ScotRail franchise, the funding relationship with NR and the delivery of all TS's Rail Projects. Has delegated authority for changes or variations that: ▸ Impact on capital cost of between £1m-£5m. (Changes resulting in an increase in capital cost greater than this will be referred to the Transport Scotland IDM board for a decision). ▸ Changes or variations that will impact on key project milestones by 1 month or greater – with reference to IDM for decision where appropriate. ▸ Changes in design that will affect the functionality or capability of the railway – reference to IDM for decision where appropriate. ▸ Changes that will impact on the overall business case for the Railway – reference to IDM for decision where appropriate.
EGIP Senior Responsible Owner (Transport Scotland – Head of Rail Technical services)	The role of the EGIP Senior Sponsor is to realise the EGIP strategic objectives and benefits set out in the EGIP Business Case and to maintain and provide clear strategic leadership via appropriate governance, commercial and contractual arrangements. Defines the EGIP client requirements. Is owner of the EGIP Business Case (BC) and opines to the EGIP Board on strategic issues, realisation of the BC and efficacy of system integration. Has delegated authority for changes or variations that impact on the project capital cost up to £1m in value or will impact on key project milestones by up to 1 month.
EGIP Project Director (Network Rail)	The role of the EGIP Programme Director (NR) is to Manage the delivery of the Network Rail EGIP delivery programme as defined in the client requirements; ensuring delivery on time, on budget and to the required specifications. Reports to the EGIP Board providing assurances regarding EGIP cost, quality, programme and system integration matters.
EGIP Systems Integrator	The Systems Integrator provides advice and assurance on the functional and programme specifications, advising on whether they are compatible with the efficient delivery of the outputs. The Systems Integrator agrees with the output specification, not the commercial specification. Forming part of the client / NR sponsor relationship and accountable to the EGIP Project Director (NR) on a day to day basis the Systems Integrator also reports independently to the EGIP Senior Sponsor. The Systems Integrators' remit is to : ▸ Address physical, functional, non-functional, and operational and maintenance needs across the programme and ensure that the interdependencies between the elements of EGIP are managed effectively. ▸ Ensure effective integration at the industry (railway) level; eg integration of the infrastructure projects with the 'other national projects' (e.g. GSM-R, IEP etc.), rolling stock, maintenance and operations.

Decision maker	Role
	▸ To submit proposals to the PMG and board that could drive whole life, whole system efficiencies into the programme and reduce costs to the client and funder. Is responsible for providing necessary assurances to EGIP Senior Sponsor regarding efficacy of system integration against EGIP client requirements. Reports periodically to EGIP board via EGIP Project Director.
EGIP Systems Integration Authority (SIA)	The SIA is a forum of key EGIP stakeholders from both within and outwith the immediate programme team to : ▸ Review and endorse the introduction of change to the controlled infrastructure, property and rolling stock, and its interfaces ▸ Provide senior level industry oversight and guidance to EGIP, and identify opportunities between EGIP and other route based works for collaborative and efficient working. ▸ Support collaborative working across industry partners in delivery of the infrastructure programmes and timetable changes ▸ Provide a forum to allow senior leaders within the industry to raise issues of concern to EGIP and seek assurance that these concerns are being addressed.
EGIP Programme Management Group (PMG)/Programme Review Group (PRG)	

4.2.1 Integrated Delivery

The structure and organisation of EGIP is designed around a collaborative approach between the tripartite organisations, i.e., TS, NR and First ScotRail.

The Programme Board and the PMG/PRG comprise of members of the tri-partite organisation and the membership of the various sub-groups contain representatives from TS, NR and FSR.

4.2.2 Programme Team

A specific team has been assembled by TS for the delivery of EGIP. The following table summarises the EGIP roles within TS.

Table 30: TS Programme Roles for EGIP

EGIP programme roles	
Role	**Title**
Principal Funder	Scottish Ministers
Investment Decision Maker (IDM)	TS Chief Executive (as advised by the TS Board)
Programme Owner	TS Director Rail
Programme Senior Sponsor/Senior Responsible Owner (SRO)	TS Head of Rail Technical services
Project Sponsors team	TS B-grade Project/Commercial Managers

The core TS EGIP Team is led by the EGIP Senior Sponsor. To support this team, TS have a number of Framework Consultants to provide professional services such as Legal, Procurement and Public Relations. These are summarised below:

Table 31: Specialist Advisors

Specialist area	Advisor
Financial/Business Case	Ernst & Young LLP/MVA
TAWS and associated Legal advice	Network Rail

4.2.3 Reporting and monitoring

Significant parts of the EGIP governance procedures are dedicated to ensuring that authorised expenditure levels remain within budget and that standard reporting procedures relating to Programme, Cost, Quality, and Health & Safety are set in place and are regularly monitored. This is achieved through the various standard period reports (Week 2 Report, Monthly Board Reports, PMG Reports and Quarterly Panel Reviews) in line with the EGIP reporting regime.

The governance structure for EGIP (Appendix I).is based on a 4-weekly reporting cycle.

Progress is represented graphically in the Programme schedule (received as part of the PRG / PMG Report) and in tabular format via the schedule of key milestones. Variances from the established baseline are highlighted in the programme and also replicated in the schedule of milestones where movement is shown via a Red, Amber or Green coding system; Red being defined as a significant risk to 'Final Delivery' unless addressed, Amber meaning overrun but not yet critical and a low risk to 'Final Delivery' and Green identifying that that particular milestone is due for completion on time. Refer to Appendix H for the current schedule of key milestones.

The EGIP SI reports periodically to both the PMG and the EGIP Board (via the EGIP Project Director (Network Rail) providing advice and assurance on functional and programme specifications, advising on whether they are compatible with the efficient delivery of the outputs. The SI is also responsible for providing necessary assurances to EGIP Senior Sponsor regarding efficacy of system integration against EGIP client requirements.

4.3 Involvement of ORR

Section 3 of this business case identified the use of RAB as the preferred financing option. This approach brings the involvement of the ORR, through which EGIP becomes a Customer Reasonable Requirement under Licence Condition 7. Therefore, TS will have recourse to ORR enforcement action should NR fail to deliver the programme. This approach also has the added advantage of seeking ORR input into pricing and commentary on VFM.

4.4 Capacity to Deliver

TS, as Client and Funder for EGIP have the overriding responsibility to the Scottish Ministers for the delivery of EGIP. TS have appointed an in-house team to strategically manage the Programme. The current structure of this team is depicted the diagram at Appendix J. The EGIP Team will evolve throughout the lifecycle of EGIP, adapting to the demands of the Programme.

Following an assessment of the options available for the Delivery Organisation role, TS subsequently appointed NR as the principal Delivery Organisation and systems integrator for EGIP. NR was considered the most suitable Delivery Organisation, primarily due to its role as owner and operator of the rail network and also due to the fact that it has an established track record for undertaking and successfully completing projects of this complexity and nature.

TS as Client and Funder for EGIP have identified their client requirements to NR who as Delivery Agent, have responsibility for delivering the TS client requirements.

4.5 Programme schedule

The programme schedule for the respective is the responsibility of Network Rail. The schedule will be NR's fully integrated programme for the delivery of the TS client requirements:

Transport Scotland Deliverables

- Rolling Stock
  - Supply Electric Rolling Stock to deliver EGIP journey time requirements of 42 minutes and make best use of extended platforms at Queen Street Station

Network Rail Deliverables

- Core E&G
  - Deliver all necessary infrastructure to facilitate full 7 car electric services on the Edinburgh to Glasgow via Falkirk High route in time for the December 2016 timetable change
  - Deliver any additional electrification necessary (using the HLOS rolling electrification programme) to facilitate electrified E&G services with a 42 minutes fastest journey time between Edinburgh Waverley and Glasgow Queen Street on the current 3 call stopping pattern in time for December 2018
- Cumbernauld Services
  - Electrify the Cumbernauld route to enable the introduction of electric services in time for Commonwealth Games 2014
- Edinburgh Gateway
  - Construct a multi modal station at Edinburgh Gateway to link the heavy rail network with the Edinburgh Tram Network, thus providing connectivity to Edinburgh Airport to be delivered in time for December 2016 timetable change
- Haymarket Station
  - Construct Haymarket Station in accordance with the agreed Delivery Plan dated 19/12/11.
  - Queen Street
  - Redevelop station concourse to accommodate full 8 car 23m E&G electric train services and interface with Buchanan Galleries by March 2019
  - Engage directly with new ScotRail franchisee to manage disruption to passengers during the construction phase
- Depot
  - Support the construction of a depot in the Millerhill area

ScotRail Deliverables

- Core E&G
  - Deliver timetable that maintains the current 4 trains per hour clock face departures for electrified E&G services with a 42 minutes fastest journey time between Edinburgh Waverley and Glasgow Queen Street via Falkirk High on the current 3 call stopping pattern in time for December 2018

- Minimise detrimental alterations to other existing services and journey times and where possible facilitate enhancements

- Queen Street
  - Engage directly with Network Rail to minimise disruption to passengers during the construction phase

- Cumbernauld Services
  - Develop and introduce the interim Cumbernauld timetable in May 2014
  - Return existing Cumbernauld services to Queen Street High Level Station as on completion of EGIP by December 2017

System Integrator

- Develop an integrated programme that delivers the client Requirements
- Infrastructure capable of electric services operating on the core E&G in 7 car 23m formations for December 2016
- Edinburgh Gateway operational in December 2016
- Electric timetable with journey time improvements on the 4tph core E&G for December 2017
- Queen Street Station redeveloped to accommodate 8 car 23m formations by March 2019
- Electric timetable for central belt that delivers 42 minute journey time by December 2018

The NR schedule will be a fully integrated programme of EGIP activities. NR will manage, monitor and report progress against critical path and agreed milestones through compliance with the EGIP periodic reporting and governance processes.

4.6 Benefits Realisation

The EGIP team has compiled a record of the benefits that will be realised by each of the packages within the following areas:

- Capacity
- Reliability
- Future Journey Time/Reliability
- Patronage
- Carbon Footprint
- Connectivity

The benefit contribution to these areas from each of the packages is shown at Appendix K.

4.7 Stakeholder and communications

Stakeholder and Communication management will be a critical activity in ensuring successful delivery outcome for EGIP.

Clear roles and responsibilities will be crucial in establishing successful, coordinated communications and stakeholder engagement throughout the life of the Programme. This clarity will be key in ensuring the respective teams are clear about their roles and can work together to ensure effective communications throughout the Programme. This should also cover broader communications such as handling of public and elected members' correspondence, briefings, public meetings, project branding, etc.

TS, NR and First Scotrail will agree the communications and stakeholder strategy for approval through the EGIP Board covering the following:

- A statement of roles and responsibilities under each category.
- A regular reporting format that will allow the EGIP board to have clarity and visibility on activity and progress and agreement on board attendance for communications.
- A clear meetings structure that fits within the overall governance structure to allow all partners to have visibility and clarity on activity and progress on each strand of activity.

A comprehensive communications strategy for the Programme will then be developed around this agreement to set out the principles of communication for throughout the life of the Programme.

A suite of key messages, lines to take and detailed Q&A has been prepared and is maintained regularly. This will guide and complement any future joint or individual communication strategies the specific organisations may develop for their constituent pieces of work.

The EGIP communication plan supports Transport Scotland and the Scottish Government's strategic responsibilities and the development of their promotional opportunities by:

- identifying appropriate opportunities
- enabling and facilitating activities where reasonably practical
- identifying opportunities for more collaborative working to demonstrate a more joined up and efficient approach to our communication activities to the public.

4.7.1 Governance

Each organisation, in discharging its responsibilities, undertakes to keep the other partners adequately informed and not to act independently and or without prior discussion.

Network Rail shall co-ordinate the Communications Plan for the Programme. Each of the partners will be responsible for the development of their elements.

Co-ordination and agreement of activities will be through the tripartite Communications Group meeting which will take place every four weeks

The general approach for detailing the likely roles for each organisation is set out below:

4.7.2 Transport Scotland is best positioned to manage:

- Wider issues relating to Government policy, Transport Strategy and matters of a Ministerial nature or relating to Ministerial objectives. Issues relating to the procurement and provision of rolling stock and changes to / impact on the Franchise. Presenting the strategic benefits of the programme and their fit within the overall Government purpose of; Sustainable Economic Growth.

4.7.3 Network Rail is best positioned to manage:

- Formal legislative processes and requirements, statutory responsibilities and consultations regarding planning applications and applications of the Transport & Works Act (TAW's), etc.

- Stakeholder involvement at a local level with matters relating to infrastructure works, construction, landowners, etc. Raising awareness and engaging with relevant communities / stakeholders about the delivery programme, its progress and impact. It will also be responsible for community engagement as part of any statutory requirements.

4.7.4 Scotrail is best positioned to manage:

- Communicating passenger benefits surrounding day-to-day operation and timetable information.

4.8 Conclusions on management case

Delivering EGIP will require a strong management and governance structure. This has been recognised by all of the key parties to the Programme. A robust Programme specific structure has been developed, this clearly identifies the respective roles and responsibilities of each party. A specific programme sponsors team within TS, supported by external advisors, is in place. A detailed schedule will be used by NR to monitor and report the progress of the project, with key milestone dates identified. ORR will hold NR to account re their regulatory responsibilities and will provide assurance and opinion on a range of issues including deliverability and efficient price. Communications strategies are in place and a consultation process for involving stakeholders has been developed.

Appendix A Rolling stock accounting treatment

The following paragraphs consider the potential accounting treatment for the Programme for TS under the UK Government Financial Reporting Manual ('FReM') and under ESA 95 for National Accounts purposes. At this stage of development it is only possible to provide an indicative analysis of the potential accounting treatment. This is provided to help in understanding the accounting issues for TS in respect of the Programme. The analysis of the potential accounting treatment is not an accounting opinion and is not to be relied upon to determine the actual accounting in any particular case. The actual accounting will need to be determined by the relevant accounting officer of TS and discussed and agreed with the auditors in respect of accounting under the FReM. For National Accounts purposes the classification under ESA 95 will be determined by the Office of National Statistics and we note that they are responsible for developing their own views and that we can give no assurance that they would agree with the analysis below.

As EGIP develops it is the intention to form a more detailed position on the accounting treatment. This will be discussed with TS's auditors, Audit Scotland, with whom the final opinion on the accounting treatment rests.

Rolling stock

The terms of the arrangements will determine whether this is accounted for as a service concession or as a leasing arrangement under the FReM. In summary, if the criteria for a service concession are met then it will not be regarded as a leasing arrangement. The treatment under ESA 95 will also depend on whether it is regarded as a service concession or as a lease arrangement. If it is a lease the treatment under ESA 95 will follow the accounting under the FReM whereas if it is regarded as a service concession the Manual of Government Deficit and Debt (MGDD) (the implementation guidance for ESA 95) sets out specific guidance for the treatment of service concessions.

Accounting under the FReM

The arrangements will be a service concession under the FReM where the following criteria are met:

a. the assets in question are regarded as infrastructure – while there is no specific definition of infrastructure for this purpose a fleet of trains is likely to fall within the scope,

b. the grantor (public sector body) controls or regulates what services the operator must provide with the assets, to whom it must provide them and at what price, and

c. the grantor controls – any significant residual interest in the assets at the end of the term of the arrangement (or where the asset is used for its entire useful life such that there is little or no residual interest the arrangement is treated as if the grantor controls the residual interest).

Accordingly, for arrangements where the grantor pays for the assets and these payments are set out in the contract and the grantor controls the residual interest it is expected that they would be regarded as service concessions.

However, where the payments for the assets are between private sector parties and these are agreed between the parties the arrangements are likely to be regarded as a lease between the parties.

Where an arrangement is a service concession the public sector grantor will record a liability based on the present value of the amounts allocated for the payment of the assets and the assets at their fair value.

Where there is a lease between private sector parties the public sector will not record a liability or asset for the lease. Where there is a lease it is necessary to classify the lease as an operating lease or as a finance lease. Under an operating lease – lease payments are expensed as they are incurred and no liability for future lease payments is recorded. Under a finance lease the present value of the future lease payments is recorded as a liability. Therefore to the extent that SG is not obliged to make lease payments there is no amount to record.

However, where there is a Section 54 agreement that extends over the life of the assets SG may be required to treat the arrangement as a finance lease that it is party to with a liability recorded as in such a case it would be required (albeit on a contingent basis) to pay the lessor, throughout the life of the assets, if a lessee could not be procured to lease the assets.

It is noted that proposals to change lease accounting are expected to eliminate the distinction between finance leases and operating leases and to require all lease payments to be recorded on balance sheet at the present value of the lease payments required to be made.

ESA 95 treatment

As noted above if the arrangement is regarded as a lease between two private sector parties then the ESA 95 treatment will be expected to follow the FReM accounting. However, if the arrangement is regarded as a service concession then the treatment will follow the MGDD. In summary, if the arrangement is a concession as described in the MGDD (a situation where SG is not paying for the assets directly) then the assets are likely to be off balance sheet unless SG provides a financial guarantee for the private sector debt or provides a revenue guarantee. A Section 54 agreement for the whole life if the assets could well be regarded as a revenue guarantee.

If the arrangement is regarded as a PPP arrangement (where SG is the main payer for the assets) the asset will be off balance sheet for SG as long as the private sector takes construction risk and either availability risk or demand risk in respect of the assets.

The assets can be considered as non government assets only if there is strong evidence that the private sector is bearing most of the risk attached to the specific partnership. In this context the risk assessment should focus on the following three main categories of risk:

- Construction risk: (covering events like late delivery, meeting defined specifications and additional costs).
- Availability risk: (covering volume and quality of output).
- Demand risk: (covering variability of demand).

The assets should be classified as off balance sheet for SG if both of the following conditions are met:

- The private sector bears the construction risk.
- The private sector bears at least one of either availability or demand risk.

If these conditions are met the contract is treated as similar to the treatment of an operating lease in ESA 95; it would be classified as the purchase of services by government.

If the conditions are not met then the assets are to be classified as on balance sheet for SG.

In a borderline case it is appropriate to consider other criteria, and notably what happens to the asset at the end of its life in terms of which party bears the residual value risk.

In addition, before concluding it is necessary to consider the financing arrangements. If government is providing more than 50% of the funding for the assets during construction, then

the assets will be regarded as government assets. As well as funding through loans and grants government guarantees for any private sector funding need to be considered. Where the majority of the value of the assets is covered by government guarantees the asset is recorded on the government balance sheet. A combination of funding and guarantees above 50% will also result in the assets being treated as government assets. The Section 54 arrangements are likely to be regarded as guarantees for this purpose.

Costs incurred directly by transport Scotland

Any VAT on costs contracted for directly by TS is expected to only be recoverable to the extent that they are included in the Treasury List of Contracted out Services (COS) List. Currently VAT on repair and maintenance to existing civil engineering works will be recoverable under COS but any new rail infrastructure works would not. Currently it is not envisaged that TS would undertake any of the Programme works directly or let any contracts for the delivery of services to TS.

The treatment of VAT is a complex area, and given the size of EGIP, the impact of the appropriate treatment could be significant in terms of affordability. Should there be any change from the procurement structure outlined above the VAT position will be reviewed.

NPD agreement

In the event that TS enter into an NPD agreement in respect of the rolling stock, TS would likely be required to recognise the assets related to the contract on its balance sheet. However, no asset would be recognised within the National Accounts so long as sufficient risk transfer could be achieved as set out in ESA 95 and the Manual of Government Deficit and Debt ('MGDD').

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