

Tram Project Board

27 August 2008

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Transport Edinburgh
Edinburgh Trams
Lothian Buses

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Overview

Jim McEwan

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Safety and Quality

- Project Safety AFR to date – 0.10
- MUDFA AFR to date – 0.22
- The revised Carillion RIDDOR report has been received by **tie** and recommendations will be accepted in P5. There are 10 recommendations in total, 8 are complete.
- Audit carried out on MUDFA Assurance Process with particular focus on reinstatement. Key issues identified and presented w/c 8 Sept and action plans underway with fully detailed report.

Organisation	Year to Date AFR
Scottish Water Solutions	0.28
May Gurney Integrated Services	0.16
Carillion Civils	0.22
Carillion Infrastructure	0.26

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MUDFA

GOOD	BAD
Embargo clearance completed for 1 August.	Assurance for reinstatement highlighted as weakness.
Haymarket Phase 1 commenced 18 August – on time.	Traffic Management Plan not yet advanced with sufficient notice and quality.
Traffic management @ Gogar commenced and works undertaken to plan.	Overall, programme is now predicting an end date of March 2009 with potential impacts on INFRACO
Productivity rates improving but still work to do	At risk of 2009 completion <ul style="list-style-type: none"> • Haymarket (poss Dec 08) • Mound (Feb 09) • St Andrews Sq (End Mar 09)
Production and programme action plan agreed with Carillion and underway.	Management Framework to be strengthened.

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MUDFA Performance Issues

- Chairman and Project Director meeting with Carillion Commercial Director, D Holmes on 23 July to escalate concerns over productivity and response.
- Follow up held 4 August and 11 August with S Cocliff (Utilities MD) and D Holmes on insufficient and disappointing response.
- Gullies reinstatement issue identified and remedial actions implemented with Carillion (including audit on 12/13 August).
- Production and Programme solutions reviewed and returned 14 and 20 August – underway now and being fully implemented by 5 Sept 2008.
- Proposals included significant reinforcement of management capability and focus at MUDFA.

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Tramco

- Preliminary design milestone certified
- Programme for mock-up remains on schedule for next review end of September
- Anticipated delivery of mock-up to Edinburgh in December 2008
- To be located initially at Central Bus Garage Annandale Street for consultation purposes
- Available in 2009 for use in marketing and public events
- Systems integration first milestone due in late Autumn 2008



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Design and Consents

- Prior & technical approvals progressing well, however historic delays still having some impact on programme
- Conversion of approved designs into IFC's slow but picking up (39/49 delivered for 1a)
- Current "hotspots" include Forth Ports, roads technical approvals – both expected to be resolved in P6
- Roads & drainage approvals remain difficult due to information submitted to CEC but progress being made to resolve high impact locations
- Last months hot spots resolved by issuing instructions on Murrayfield and Shandwick Place to change design which are being implemented

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INFRACO

Good	Bad
Resource mobilisation well underway – new Construction Manager, engineering Manager, Traffic Manager, HQSE Manager	Number of construction milestones not achieved
Road surveys and coring complete and reports being prepared.	Mobilisation
Traffic Management continues to progress well with a number of schemes approved	Package contractors not appointed although Farrans and Barr working under a letter of intent
Site office establishment expected to be completed by mid September	Work Package Plans for September works being developed too slowly
Work Package Plans being developed for remaining demolitions and building warrants approved early by CEC	
Systems developments and integration work underway	

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Overall Programme

- Number of strands in play affecting programme currently – design, MUDFA, INFRACO late mobilisation
- All have potential to delay the overall revenue service date
- Work ongoing through to early September to bring programme back on track and eliminate initial delays due to design and slow mobilisation
- Conflicts with MUDFA being worked through to align Rev 07 and ensure work-arounds
- **tie** exploring with INFRACO improvements to programme logic and productivity rates to mitigate impacts
- Revised programme expected for September TPB which expects to recover revenue service date of July 2011

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Finance

- Estimate for Phase 1a remains at £512m
- Risk allowance reduced (£2m) in period 5 to £28.4m
- movement: drawdown for A8 sewer completed and Fastlink funding (planned).
- YTD Expenditure of £43.6m is (£6.5m) behind budget 08/09
- main impact: delay of Infraco close and mobilisation of Infraco and the delayed completion of land acquisitions
- However the outturn estimate for year 08/09 remains at £150.6m and estimate for 09/10 stands at £140.6m
- current forecast assumes any slippage is recovered by end 08/09
- A revised programme for the main construction works is expected by end Sept-08

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END

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Alastair Richards



Phase 1b and TEL Business Plan

27 August 2008

- 1) Final Business Case (FBC) and DFBC for 1a and 1a+1b respectively
- 2) Further development of the model (“Re-runs”)
 - Improvements and recalibration
 - Introduction of monetary cost trends to the mode choice forecasts
 - Tram now at 8/16tph in 2011 as well as 2031 forecast years.
 - Some changes to planning data (CEC, Spring 2007)
- 3) Revised planning assumptions (latest information from CEC)

- Base model (Original calibrated to 2006)
 - Observed matrix fully rebuilt - improved techniques and extra data
 - Minor network changes (highway and PT)
 - New highway junction model and highway speed/flow relationships
 - Recalibrated distribution and mode-choice parameters
 - Different assignment algorithm (in agreement with technical auditors)
 - Ongoing diagnosis and trouble-shooting in highway assignment

- Do-something (2011 with Tram)
 - Reflection of latest tram-highway integration designs (highway impact)
 - 15 – Improved representation of tram route (minor)
 - New tram run times (very small changes)

Other Patronage Model Assumptions - Recap



- No EARL
- Yield 75.7p per boarding in 2011 (2005 prices)
- PT Fares RPI+1% per year
- 3% fare evasion on Tram (patronage is reported but Tram yield factored x 97%)
- 75% factor included in 2011 figures for ramp-up of patronage.
- Future year bus journey times increasing from 2021 to 2031
- Interchange penalty 12.5 minutes (deterrent to multi-leg journeys)

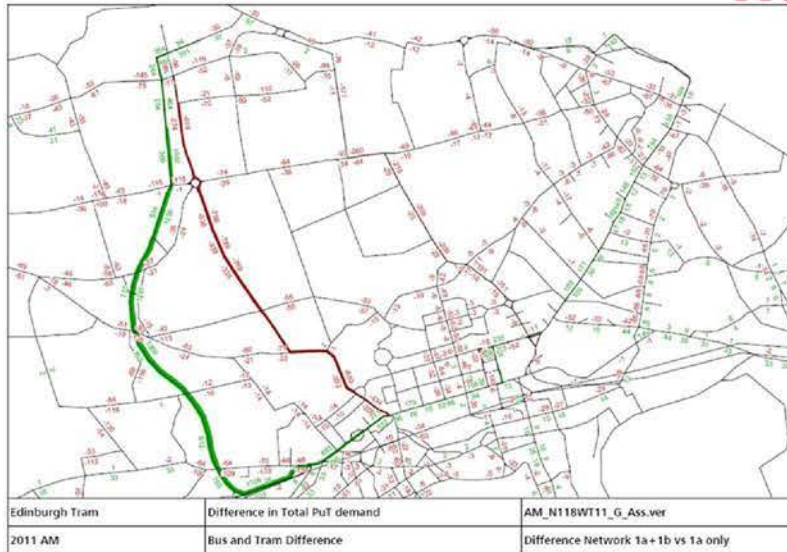
2011 AM Peak 1a and 1b tram and bus



Edinburgh Tram	Total PuT demand	AM_N118WT11_G_Ass.ver
2011 AM	Bus and Tram	

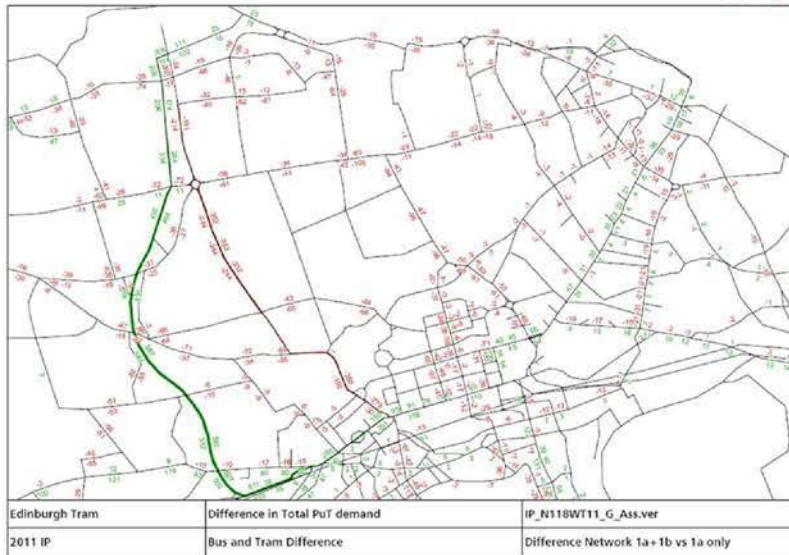
17 The width of the green line indicates the volume of passengers

2011 AM Peak change from introducing 1b



Green line shows transfer to tram
18 Red line indicates transfer from bus

2011 Inter peak change from introducing 1b



Green line shows transfer to tram
19 Red line indicates transfer from bus

2011 PM Peak change from introducing 1b



Edinburgh Tram	Difference in Total PuT demand	PM_N118WT11_G_Ass.ver
2011 PM	Bus and Tram Difference	Difference Network 1a+1b vs 1a only

Green line shows transfer to tram
20 Red line indicates transfer from bus

Investigation of Granton Base Patronage

Edinburgh
Trams



- Base Patronage Total of 8.2M
 - Based on current annualisation factors
- Refers to journeys which either
- start or end in sectors S04 and S06
- An average number of 'journeys per bus' was calculated using the current Lothian Buses bus map
 - Services split between daytime and evening
 - Daytime total multiplied by 12
 - Evening total multiplied by 6 then combined to produce a daily total
 - Annual total calculated by multiplying by 6 and 50
- This calculation provides an average figure of 15 passengers per bus who either start or end their journeys in sectors S04 and S06

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Bus Service																Total		
	8	14	16	17	19	21	23	24	27	29	32	37	38	41	42	47		
Daytime frequency per hour (One direction)	4	4	6	2	4	4	6	2	6	4	2	4	4	4	3	4	63	Buses per hour 1 direction
Evening Frequency per hour (One Direction)	2	2	2	0	2	2	2	2	2	2	0	2	0	2	2	2	26	Buses per hour 1 direction
Daily total (assuming 12 hours daytime, 6 hours evening, 2 directions)	120	120	168	48	120	120	168	72	168	120	48	120	96	120	96	120	1824	Buses per day 2 directions
Annual Total (assuming 6 days a week, 50 weeks a year)																	547200	Buses per year 2 directions
Calculated Annual Patronage from Base Model																	8200000	passengers
Average number of passengers per bus boarding or alighting in S04 or S06																	15	passengers

Revised TEL Financial Model

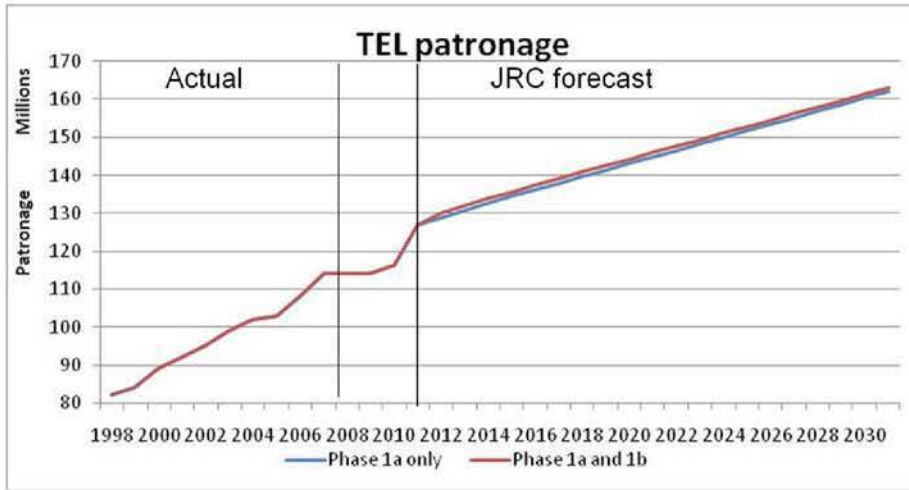


- General Costs
 - RPI increased from 3% to 4.5%
- Tram Costs Updated Based on:
 - Renegotiated DPOFA Costs (December 2007)
 - Financial Close Infrastructure and Tram Maintenance Costs (May 2008)
 - Revised business rates (increased from £300k to £600k)
 - Initial service in 2011 6/12 trams per hour (tph) on Phase 1a
 - 2012 8/16 tph in peak 6/12 tph off-peak on Phase 1a + 1b
 - 2013 8/16 tph all day on Phase 1a + 1b
 - Electricity (+2% above RPI)
- Bus Costs
 - 2008 Wage settlement built in (thereafter 1% above RPI)
 - 2008 Pension costs built in
 - 2008 Fuel costs built in
 - Ongoing Fuel Inflation (+3.5% above RPI)

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- Effects of the roadworks to patronage estimated to 2010
- 2008 Fares increases built in (thereafter +1% above RPI)

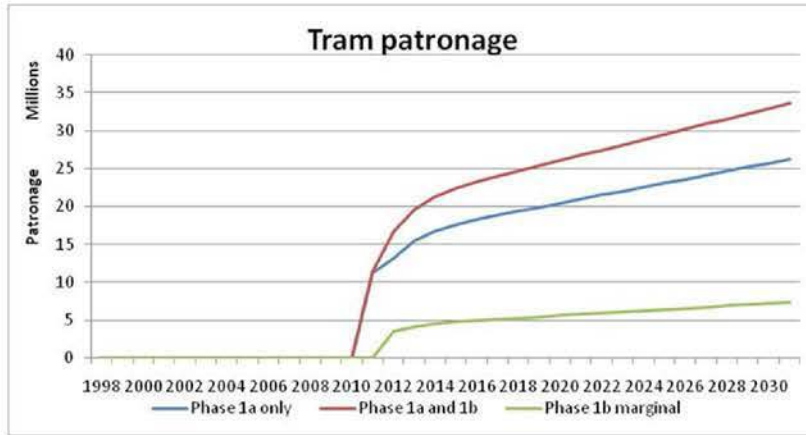
TEL Patronage – 1b small in absolute TEL terms



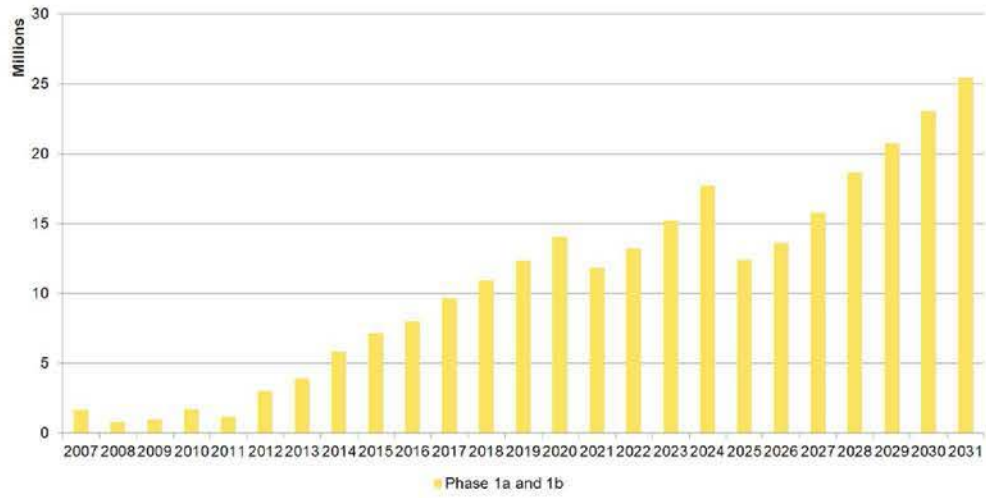
Tram patronage



Increase on phase 1a of around 25%



TEL Net profit after tax and dividend



How does the profit and loss compare with FBC?



Phase 1a + 1b

Phase 1a only

Phase 1a + 1b

TEL Business Plan 2006									FBC Dec 2007									TEL Business Plan 2008								
*Patronage trips based									*Patronage bookings based									*Patronage bookings based								
Tram in service	Pre-tram			1a only			Phase 1a + 1b			Tram in service	Pre-tram			Phase 1a only			Tram in service	Pre-tram			Phase 1a and 1b					
Tram service pattern	n/a	1a/a	6/12	6/12	6/12	6/16	6/16	6/16	Tram service pattern	n/a	1a/a	6/12	6/12	6/16	6/16	Tram service pattern	n/a	1a/a	6/12	6/16	6/16	6/16				
Year	2006	2016	2011	2011	2012	2016	2021	2021	Year	2006	2016	2011	2012	2016	2021	Year	2006	2016	2011	2012	2016	2021	2021			
Patronage (Fax m)									Patronage (Fax m)							Patronage (Fax m)										
Bus	108	117	112	110	112	121	128	140	Bus	108	117	113	115	125	133	Bus	108.0	116.2	115.5	113.3	114.2	119.3	129.5			
Tram	9	8	11	13	16	21	26	35	Tram	9	8	11	12	16	21	Tram	9.0	8.0	11.2	16.7	21.3	29.7	39.6			
Total TEL patronage	109	117	123	123	128	144	154	175	Total TEL patronage	109	117	124	129	144	154	Total TEL patronage	109.0	116.2	126.8	130.0	135.5	149.0	169.2			
Bus revenues (£m)									Bus revenues (£m)							Bus revenues (£m)										
Farebox	82	102	101	99	104	132	169	229	Farebox	82	102					Farebox	82.0	107.1	112.4	116.2	145.1	196.2	267.6			
Other	8	7	7	7	7	4	16	13	Other	8	7					Other	8.0	7.2	7.5	7.8	9.6	17.8	18.1			
Total Bus revenues	88	109	108	106	111	141	179	252	Total Bus revenues	88	109					Total Bus revenues	88.0	114.3	119.9	124.1	154.7	214.0	285.7			
Tram revenues									Tram revenues							Tram revenues										
Farebox	0	0	10	12	16	26	36	63	Farebox	0	0					Farebox	0.0	10.6	18.4	28.7	43.1	92.5				
Other	0	0	1	1	1	1	1	2	Other	0	0					Other	0.0	0.6	0.7	1.2	1.4	1.9				
Total tram revenues	0	0	11	13	17	27	37	65	Total tram revenues	0	0					Total tram revenues	0.0	0.6	1.2	17.4	30.6	44.6	94.4			
Total TEL revenues	88	109	119	119	128	168	216	317	Total TEL revenues	88	109	119	128	167	216	Total TEL revenues	88.0	114.3	131.1	141.5	184.6	254.6	400.1			
Operating costs (£m)									Operating costs (£m)							Operating costs (£m)										
Bus			103	102	107	131	164	207	Bus							Bus			107.5	111.7	140.5	190.8	263.2			
Tram			17	19	20	20	31	45	Tram							Tram			17.2	20.5	27.9	41.3	74.3			
TEL head office									TEL head office							TEL head office			2.0	2.3	2.5	3.1	4.5			
Total TEL operating costs			120	121	127	151	195	312	Total TEL operating costs			120	126	156	194	312	Total TEL operating costs			126.7	134.5	170.7	235.2	442.0		
Interest / lease payments									Interest / lease payments							Interest / lease payments			0.0	0.0	0.0	0.0	0.0			
Pre tax operating profit / (loss)			-1	-2	1	17	21	46	Pre tax operating profit / (loss)			-1	2	11	22	44	Pre tax operating profit / (loss)			4.4	7.0	13.9	19.3	38.1		
Tram lifecycle costs					1	2	2	2	Tram lifecycle costs					1	2	2	Tram lifecycle costs			1.2	2.0	3.0	5.4	10.7		
National taxation					3	4	14	14	National taxation					3	4	12	National taxation			2.0	2.0	2.0	2.0	2.0		
Dividend payments					3	3	1	1	Dividend payments					3	3	5	Dividend payments			2.0	2.0	2.0	2.0	2.0		
Principal payments									Principal payments								Principal payments			0.0	0.0	0.0	0.0	0.0		
Net TEL cash surplus / (deficit)			-1	-2	1	4	16	24	Net TEL cash surplus / (deficit)			-1	2	4	11	25	Net TEL cash surplus / (deficit)			-1.2	3.0	8.0	11.9	25.4		

Revised profit and loss for Phase 1a and 1b



TEL Business Plan 2008

* Patronage, boardings based

Tram in service	Pre-tram		Phase 1a and 1b				
	n/a	n/a	8/12	8/16 pks	8/16	8/16	8/16
Tram service pattern	2008	2010	2011	2012	2016	2021	2031
Patronage (Pax mt)							
Bus	108.0	116.2	115.5	113.3	114.2	119.3	129.5
Tram	0.0	0.0	11.3	10.7	23.3	20.7	33.6
Total TEL patronage	108.0	116.2	126.8	130.0	137.5	146.0	163.2
Bus revenues (£m)							
Farebox	82.0	107.1	112.4	116.2	145.1	198.2	367.6
Other	6.0	7.2	7.5	7.8	9.6	11.8	18.1
Total Bus revenues	88.0	114.3	119.9	124.1	164.7	210.0	385.7
Tram revenues							
Farebox	0.0	0.0	10.6	16.6	28.7	43.1	92.5
Other	0.0	0.0	0.6	0.7	1.2	1.4	1.9
Total tram revenues	0.0	0.0	11.3	17.4	30.0	44.6	94.4
Total TEL revenues	88.0	114.3	131.1	141.5	184.6	254.6	480.1
Operating costs (£m)							
Bus			107.5	111.7	140.3	190.8	363.2
Tram			17.2	20.5	27.9	41.3	74.3
TEL head office			2.0	2.3	2.4	3.1	4.5
Total TEL operating costs			126.7	134.5	170.7	235.2	442.0
Interest / lease payments			0.0	0.0	0.0	0.0	0.0
Pre tax operating profit / (loss)			4.4	7.0	13.9	19.3	38.1
Tram lifecycle costs							
National taxation			1.2	2.0	3.9	5.4	10.7
Dividend payment			2.0	2.0	2.0	2.0	2.0
Principal payments			0.0	0.0	0.0	0.0	0.0
Net TEL cash surplus / (deficit)			1.2	3.0	8.0	11.9	25.4

Phase 1b incrementally to Phase 1a

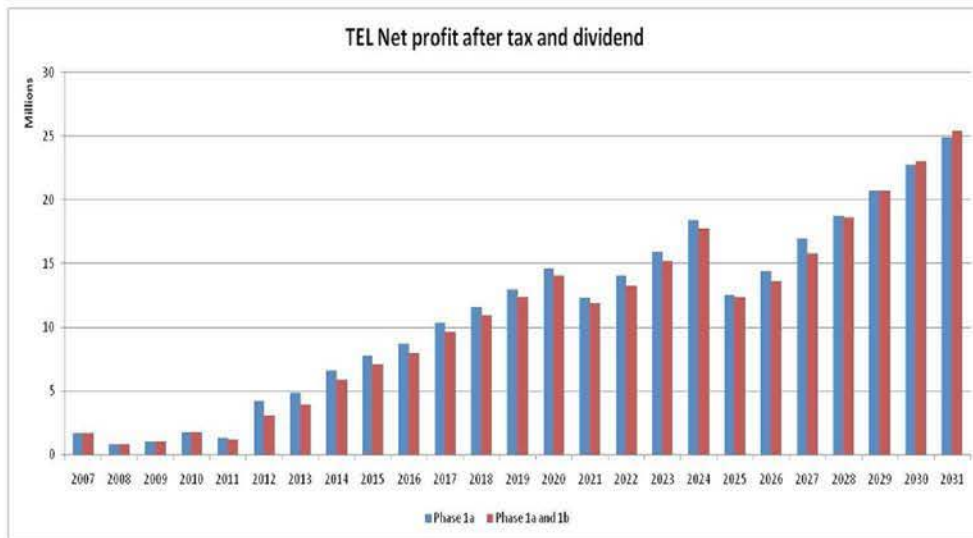


TEL Business Plan 2008

* Patronage: boardings based

Tram service pattern	Pre-tram		Phase 1b marginal				
	n/a	n/a	6/12	8/16 pks	8/16	8/16	8/16
Year	2006	2010	2011	2012	2016	2021	2031
Patronage (Pax m)							
Bus	0.0	0.0	0.0	-2.4	-3.7	-4.5	-5.4
Tram	0.0	0.0	0.0	3.5	4.5	5.7	7.3
Total TEL patronage	0.0	0.0	0.0	1.1	1.2	1.1	0.9
Bus revenues (£m)							
Farebox	0.0	0.0	0.0	-2.4	-4.7	-7.6	-18.1
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Bus revenues	0.0	0.0	0.0	-2.4	-4.7	-7.6	-18.1
Tram revenues							
Farebox	0.0	0.0	0.0	3.4	6.1	9.2	20.1
Other	0.0	0.0	0.0	0.1	0.3	0.3	0.4
Total tram revenues	0.0	0.0	0.0	3.5	6.4	9.5	20.6
Total TEL revenues	0.0	0.0	0.0	1.1	1.6	1.9	2.4
Operating costs (£m)							
Bus			0.0	0.0	-0.8	-1.8	-6.9
Tram			0.1	2.6	3.4	4.4	8.7
TEL head office			0.0	0.0	0.0	0.0	0.0
Total TEL operating costs			0.1	2.7	2.6	2.6	1.8
Interest / lease payments			0.0	0.0	0.0	0.0	0.0
Pre tax operating profit / (loss)			-0.1	-1.6	-1.0	-0.7	0.7
Tram lifecycle costs							
Notional taxation			0.0	-0.4	-0.3	-0.2	0.2
Dividend payment			0.0	0.0	0.0	0.0	0.0
Principal payments			0.0	0.0	0.0	0.0	0.0
Net TEL cash surplus / (deficit)			-0.1	-1.1	-0.7	-0.6	0.6

TEL net profit with and without Phase 1b



- Reduction in buses after Phase 1b opens
 - loss of bus passengers but integration plan maintains bus services
- Timing of introduction of Phase 1b
- Timing of increasing service patterns
- Lifecycle costs
- Tram electricity price sensitivity
 - For every 1% above RPI adds approximately £100k in the early years
- Tram labour cost sensitivity
 - For every 1% above RPI adds approximately £310k in the early years

Patronage Forecasts (DRAFT)



Phase 1a only

	2011 k pax pa		2011 AM 8/16 trams IP 6/12 trams	2011 AM & IP 6/12 trams
	DFBC	New model Revised Planning		
Tram	10,942	11,808	11,380	11,279
Δ TEL	3,176	2,118	1,990	2,040

2031	k pax pa		Increased Bus Journey Time
	DFBC	New model Revised Planning	
	25,515	23,644	26,300
	7,707	4,899	5,934

Phase 1a+1b

	2011 k pax pa		2011 AM 8/16 trams IP 6/12 trams	2011 AM & IP 6/12 trams
	DFBC	New model Revised Planning		
Tram	13,738	14,911	14,356	13,702
Δ TEL	3,844	3,109	2,955	2,724

2031	k pax pa		Increased Bus Journey Time
	DFBC	New model Revised Planning	
	33,790	29,799	33,612
	9,655	6,109	6,864

Phase 1b incrementally

	2011 k pax pa		2011 AM 8/16 trams IP 6/12 trams	2011 AM & IP 6/12 trams
	DFBC	New model Revised Planning		
Tram	2,796	3,103	2,976	2,423
Δ TEL	667	991	966	684

2031	k pax pa		Increased Bus Journey Time
	DFBC	New model Revised Planning	
	8,275	6,155	7,311
	1,948	1,210	929