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Note on Edinburgh Tram TEE and PSC results, impacting on NPV, BCR figures

Purpose

To draw attention to a serious issue in the calculation of headline economic values in the Edinburgh Trams business Case (and STAG appraisal).

Priority – High – Action is required by TIE

Background

1. This note refers to the TEE analysis and Public Sector Cost (PSC) tables reported in full in the STAG appraisal (p.154/5 and 202/3) which generate the Net present Value (NPV) and Benefit Cost Ratio (BCR) results reported in DFBC in section 4.44. The discussion below applies to both the Phase 1A and Phase 1A+1B analysis and, it is assumed, all other BCR and NPV calculations.

Discussion

2. As a minor point the impact on TEL revenue and expenditure shown in the PSC calculations should appear under Local rather than Central government impacts.
3. The major issue is that in the TEE tables have a zero entry for User charges for both Consumers and Business. This is at odds with the TEL revenue gains and the separate impacts on private sector providers. The Increase in overall expenditure on PT must be reflected in User Charges.
4. This correction is complicated in that the User charge figure is an economic welfare measure and will generally not directly match the net (private and TEL) revenue changes. Simplistically, the “rule of a half” applies to new PT trips whilst the actual change in expenditure applies to existing PT users. Some indicative results from the available information are given in Annex A.
5. Additionally, it is difficult to determine where the additional revenue comes from. It was understood that the Tram pricing was identical to existing bus services. As such, it would appear that the additional revenue must come from non-PT users but this is difficult to reconcile with information provided within the DFBC and elsewhere.

Implications

6. It is clear that the correction of the error will have a negative impact on the economic case for the Edinburgh Trams. It is difficult to be precise with the information available but best estimates suggest that the BCR for Phase 1a will fall from 1.10 to

the region of 0.63 and the BCR for Phase 1a+1b will fall from 1.63 to the region of 1.16.

Actions required

7. The discrepancy in the treatment of User Charges must be explained and corrected.
8. An explanation of the TEL revenue figures would be useful.

Annex A

Worst Case - All revenue from existing users		Likely - 20% new users under rule of a half							
Best - All revenue from new users under rule of half									
TEE		Phase 1A				Phase 1A+1B			
		TIE	Worst	Likely	Best	TIE	Worst	Likely	Best
User Benefits									
Travel Time		403,135	403,135	403,135	403,135	695,266	695,266	695,266	695,266
User charges		0	-175,703	-158,133	-87,852	0	-226,912	-204,221	-113,456
VOC		26,435	26,435	26,435	26,435	33,691	33,691	33,691	33,691
Sub Total		429,570	253,867	271,437	341,719	728,957	502,045	524,736	615,501
Private Sector Impacts									
Investment costs		-389,880	-389,880	-389,880	-389,880	-460,335	-460,335	-460,335	-460,335
Operating costs	Tram								
	Bus								
	Rail								
Revenues	Tram								
	Bus	9,943	9,943	9,943	9,943	-2,229	-2,229	-2,229	-2,229
	Rail	-54,057	-54,057	-54,057	-54,057	-12,506	-12,506	-12,506	-12,506
	OSP	0				0			
Grant/Subsidy		389,880	389,880	389,880	389,880	460,335	460,335	460,335	460,335
Developer Contribution		0				0			
Sub Total		-44,114	-44,114	-44,114	-44,114	-14,735	-14,735	-14,735	-14,735
PVB		385,456	209,753	227,323	297,605	714,222	487,310	510,001	600,766
PSC									
Local Government									
Investment Costs		0	0			0	0		
Operating and Maintenance		0	-120,008	-120,008	-120,008	0	-154,291	-154,291	-154,291
Grant Subsidy payments		0	0			0	0		
Revenues		0	219,817	219,817	219,817	0	241,647	241,647	241,647
Indirect tax		0	0			0	0		
Central Government									
Investment Costs		0	0			0	0		
Operating and Maintenance		-120,008	0			-154,291	0		
Grant Subsidy payments		-389,880	-389,880	-389,880	-389,880	-460,335	-460,335	-460,335	-460,335
Revenues		219,817	0			241,647	0		
Indirect Tax		-49,486	-49,486	-49,486	-49,486	-63,097	-63,097	-63,097	-63,097
Total		-339,557	-339,557	-339,557	-339,557	-436,076	-436,076	-436,076	-436,076
Accidents		-11,897	-11,897	-11,897	-11,897	-5,225	-5,225	-5,225	-5,225
TOTAL PVB		373,559	197,856	215,426	295,708	708,997	482,085	504,776	595,541
NPV		34002	-141701	-124130.7	-53849.5	272921	46009	68700.2	159465
BCR to government		1.10	0.58	0.63	0.84	1.63	1.11	1.16	1.37