

EDINBURGH TRAM PROJECT
P80 Risk Allocation Report
Current Period End

24-Apr-09

Sim Run P80 1A+1B 52079.56 £k

Risk Mean Sum
46614.73 £k

Total Allocation
Phase 1A
47756.30

WBS Item	Allocated Risks				Impact Assessment 08 Feb 2008			Exposure Period		No of Periods	Sim Run Risk Mean	P80 Risk Allocation	P80 Risk Allocation 1A	Utilised for Risk Exposure	
	Risk ID	Cause	Risk Event	Effect	Prob	Current Impact Assessment			Start						End
					%	Min	Most Likely	Max							
3 Design	tbc	Late and/or inadequate IFC submissions for which tie/CEC are held responsible	Design delay leading to prolongation claim from designer	Additional Cost	90.00%	900	1000	1100	01-May-09	31-Dec-10	21	900.0173	1005.52989	804.42	
3 Design	336	Adequate scope and extent of noise and vibration prevention measures/requirements are not provided to SDS; Specifications relating to Tram noise provided by Tramco are optimistic.	Design assumptions lead to Tram noise and vibration measures being inadequate during operation	Tram design requires to be re-worked; Post construction elements need to be adjusted or re-constructed or additional noise and vibration measures need to be incorporated.	10.00%	100	500	1000	01-Jan-07	31-Dec-10	22	52.55	58.71	46.97	
3 Design	tbc	Utility positions differ from design/design not complete	Redesign required to be carried out	Additional cost. Potential delay claim from contractor	95.00%	40	115	150	01-May-09	31-Dec-10	21	96.5909531	107.9146928	86.33	
3 Design	990	SDS are behind programme with design review certificates and tie have decided not to extend programme period to account for this.	CEC carry financial impact of uncertified designs provided to Infraco	Modifications required to the designs post-contract award resulting in additional costs	50.00%	500	750	1000	13-Aug-07	31-Mar-10	13	375.26	419.25	335.40	
3 Design	279		Third party consents including Network Rail consents are denied or delayed. (Temporary Works and Stray Current Monitoring)	Delay to programme; Risk transfer response by bidders is to return risk to tie; Increased out-turn cost if transferred and also as a result of any delay due to inflation.	50.00%	1000	1250	1500	03-Jul-06	31-Oct-09	7	624.55	697.76	627.99	
1 GENERAL/OVERALL	169	Concurrent major projects in Edinburgh	Other major projects in Edinburgh interface with Tram	Delay in sequence in certain areas, Additional interface project management costs.	50.00%	100	300	500	01-Mar-07	30-Jun-11	29	150.96	168.65	134.92	
1 GENERAL/OVERALL	343	General delay to programme with various causes which are attributable to tie	Delay to completion of project and claim from contractors	Increased out-turn cost due to delay plus revenue loss	90.00%	10000	12000	13000	01-May-09	23-Jul-11	29	10499.00	11729.84	9383.87	
7.3 Infraco	974	Inaccurate Topo Survey results	Increase in levels of Spoil Excavation	Increased Cost & Programme extension	80.00%	2600	3000	3300	14-May-07	31-Dec-10	22	2373.54	2651.80	2651.80	
7.3 Infraco	952	Scope of works relating to Wide Area Modelling (WAM) have not been agreed with SDS because they consider this to be out with the scope of their contract.	Uncertainty about extent of construction works required on road network relating to Wide Area Modelling issues.	Potential claim from SDS to deal with additional design work; Potential construction costs to deal with WAM issues (difficult to quantify without design) over and above those already included.	95.00%	0	2000	3000	03-Jul-06	31-Dec-09	9	1582.94	1768.51	1768.51	
7.3 Infraco	931	Utilities assets uncovered during construction that were not previously accounted for; unidentified abandoned utilities assets; known redundant utilities; unknown live utilities; unknown redundant utilities.	Unknown or abandoned assets impacts scope of Infraco work	Re-design and delay as investigation takes place and solution implemented; Increase in Capex cost as a result of additional works.	90.00%	500	750	1000	01-Oct-07	31-Jul-10	17	675.33	754.50	603.60	
7.3 Infraco	172	Area of possible contamination and unstable ground (unlicensed tip) has been highlighted during desk study immediately to east of Gogar Burn - investigation for CERT project indicates that this consists of building rubble and domestic waste.	Tramway runs through area of possible contamination and special foundation (surcharge/soil nailing) is required to cope with unstable ground	Increase in costs to provide special foundation solution	95.00%	950	1200	1500	01-Jan-07	31-Dec-10	22	1155.99	1291.51	1291.51	
7.3 Infraco	105	Encountering archaeological finds/burials/munitions during construction	Exhumation of archaeological finds/burials	Delay in construction programme	85.00%	300	500	700	28-Sep-07	31-Jul-10	17	424.79	474.59	427.14	
7.3 Infraco	318	Failure to make arrangements with Utilities for the phasing of necessary connections; Utility Company operational constraints	Utility connections cannot proceed as planned	Potential delay to start of Infraco works in certain sections	50.00%	100	250	500	04-Apr-07	31-Jul-10	17	140.94	157.47	125.97	

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	Risk ID	Cause	Risk Event		Prob	Current Impact Assessment			Start						End
						%	Min	Most Likely							
7.3 Infraco	173	Uncertainty over extent of contaminated land/hazardous materials on route	Tramway runs through area of previously unidentified contamination/hazardous materials and material requires to be removed and/or replaced	Increase in costs to remove material to special and other tip.	90.00%	150	325	400	29-Sep-06	31-Jan-11	23	262.61	293.40	264.06	
7.3 Infraco	865	Buildings contain asbestos that was not uncovered during surveys	Asbestos found during demolition works and excavations for construction	Cost and delay during investigation and removal	90.00%	60	125	150	01-Jan-08	01-Dec-10	21	100.48	112.26	89.81	
1.1 Land & Property	352	Increase in land values	Higher land compensation claims than anticipated	Additional uplift on compensation claims	30.00%	0	2000	4500	05-Mar-07	31-Dec-10	22	643.45	718.88	718.88	
7.2 MUDFA/Utilities	164	Utilities assets uncovered during construction that were not previously accounted for; unidentified abandoned utilities assets; asbestos found in excavation for utilities diversion; unknown cellars and basements intrude into works area; other physical job	Unknown or abandoned assets or unforeseen/contaminated ground conditions affect scope of MUDFA work.	Re-design and delay as investigation takes place and solution implemented; Increase in Capex cost as a result of additional works.	90.00%	1300	1400	1500	02-Apr-07	30-Jun-09	3	1260.01	1407.73	1337.34	
7.2 MUDFA/Utilities	139	Utilities diversion outline specification only from plans	Uncertainty of Utilities location and consequently required diversion work/ unforeseen utility services within LoD	Increase in MUDFA costs or delays as a result of carrying out more diversions than estimated	85.00%	675	700	725	02-Apr-07	30-Jun-09	3	594.98	664.73	631.49	
7.2 MUDFA/Utilities	914	Required approval/acceptance turnaround time does not reflect SUC standard practice; SUCs do not have enough resource or process capability to achieve 20 day turnaround	Statutory Utility Companies unable to meet design approval/acceptance turnaround time to meet programme	Additional period required for design approval/acceptance turnaround	95.00%		100		02-Mar-07	30-Jun-09	3	95.00	106.14	100.83	
7.2 MUDFA/Utilities	1083		Indexation for programme past July 2008 for impacts on cost	Increased costs	85.00%	650	700	750	02-Mar-07	31-Jul-09	4	595.03	664.79	631.55	
7.2 MUDFA/Utilities	1084		Additional Traffic Management and enabling works to meet stakeholder constraints applied post-contract	Increased costs	90.00%	650	700	750	02-Mar-07	30-Jun-09	3	629.89	703.74	668.55	
7.2 MUDFA/Utilities	1085		Increase scope of utility diversions out with that allowed for in tender and budget allowances	Increased costs	90.00%	900	950	1000	02-Mar-07	30-Jun-09	3	854.93	955.16	907.40	
7.3 Infraco	911	Scottish Power own and maintain a cable tunnel in the vicinity of Leith Walk that may or may not interfere with Tram construction and operation; exact location and depth of tunnel is unknown; condition of tunnel is unknown.	Presence of Scottish Power tunnel in Leith Walk requires radical solution	Tunnel may have to be decommissioned and re-laid in a more suitable location; tram alignment may require to be adjusted; special foundation solution e.g. cantilever may be required; increased capex; potential for tunnel collapse during operation and	80.00%	400	500	600	02-Apr-07	30-Oct-09	7	400.28	447.21	447.21	
7.3 Infraco	932	Information handed over in draft format as part of continual design development; Downstream Tram design change that impacts on requirements; Zone of interference not defined adequately.	SDS gives wrong or insufficient information to Network Rail	Network Rail design their works inappropriately for final Tram requirements; Network Rail are unable to complete their design in time to meet programme; Cost to change design; Delay during redesign; Final works are not suitable and consequently Tram cannot	5.00%	100	300	500	02-Apr-07	30-Oct-09	7	14.92	16.67	16.67	
7.3 Infraco	134	Network Rail possessions over and above that estimate are required	Compensation paid to Train Operating Companies	Increased compensation paid to Train Operating Companies	5.00%	500	2000	4000	01-Oct-07	31-Jan-11	23	108.72	121.47	121.47	
7.3 Infraco	115	Network Rail cancels planned possessions	Planned work at interface with Network Rail is delayed	Time delay and resulting cost increase	10.00%	350	750	2000	01-Oct-07	31-Jan-11	23	101.33	113.21	113.21	

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2.2 Transdev	888	Design, construction and/or testing does not meet Transdev requirements and gain approval from the ROGS Competent Person	Transdev refuse to operate system on safety ground or apply overly restrictive procedures that are not directly the responsibility of Infraco (ROGS Competent Person agrees with this)	Delay to commencement of service, additional cost both for delay and rectification of the issue	2.00%	3000	4500	6000	01-Apr-10	01-Jul-11	16	89.59	100.09	80.08	
2.9 TEL	889	Unsuccessful negotiation. TEL believes costs inflated too much.	Target operating costs for Phase D are not agreed.	TEL Business Case becomes undeliverable. Potential to undertake Dispute Resolution to gain agreement.	1.00%	200	300	400	04-Jan-10	01-Apr-10	3	2.88	3.22	2.58	
5 PARLIAMENTARY PROCESS/ APPROVALS	977	Legal challenge. Extension of statutory consultation process. Large number of objections. TRO process is subject to a public hearing process.	Delay in achievement of TROs due to a large number of public objections and/or a legal challenge to using a TTRO to construct Infraco.	Requirement to start construction using TTROs	90.00%	600	750	900	18-Jun-07	31-Dec-09	9	674.88	753.99	753.99	
7.3 Infraco	16	De-watering of Gogar Depot	Movement below track support zone	Costs to NR for track monitoring and any track defects arising	95.00%	50	75	150	20-Jun-07	31-Jan-10	11	87.12	97.33	97.33	
7.3 Infraco	35		Roads throughout works require full depth reconstruction	Programme impact plus additional costs. £1.5m cap applies to only 4 areas. Total exposure estimated at £3m	80.00%	2000	2250	2500	21-Jun-07	31-Dec-10	22	1800.60	2011.69	2011.69	
7.3 Infraco	1077	Lack of visibility of design changes between November 2007 and May 2008 and in general	Tramworks price based on a design which may have been altered and tie will be liable for the cost of some of these changes.	Additional cost from Tramworks to meet revised design.	90.00%	5000	12000	19825	22-Jun-07	31-Dec-10	22	11044.49	12339.28	12339.28	
7.3 Infraco	tbc	Initial costs for Burnside Rd works higher than anticipated	Cost of works at Burnside Rd exceed that allowed in project budget	Additional cost	90.00%	1500	1750	2000	01-May-09	31-Dec-09	8	1575.10	1759.75	1407.80	
7.3 Infraco	tbc		Excavation of soft, unsuitable material below Eartworks outline	Additional cost	95.00%	4600	6000	7600	01-May-09	31-Dec-10	21	5762.35	6437.90	5150.32	
7.3 Infraco	tbc		Costs associated with additional works requested by CEC planners	Additional cost	80.00%	500	2600	3500	01-May-09	31-Dec-10	21	1763.64	1970.40	1576.32	

1 GENERAL/OVERALL	9,519
1.1 Land & Property	719
2.2 Transdev	80
2.9 TEL	3
3 Design	1,901
5 PARLIAMENTARY PROCESS/ APPROVALS	754
7.2 MUDFA/Utilities	4,277
7.3 Infraco	30,504
Period 1 QRA Total (P80)	47,756
Non-delivery of VE included in Infraco price	2,000
Extent of Road Reinstatement	1,500
P1 Risk Allocation	51,256

Historic Drawdown on Risk		
Ref	Risk Drawdown	Value
COP030	MUDFA 1400 sewer SDS design changes for	-1,370,000
COP047	MUDFA	-75,000
COP050	MUDFA prelims	-1,069,000
COP053	MUDFA scope claim	-1,700,000
COP062	Infraco Asbestos	-31,316
COP063	Infraco Carrick Knowe land	-83,028
COP064	Infraco Asbestos	-5,201
COP073	Road construction details - construction methodology	-372,540
Total Drawdown		-4,706,085

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