

Executive summary

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Terms of reference

1.1 We have been appointed by Belfast City Council (the “Council”) to undertake an economic appraisal of the need for a replacement vehicle refuelling station within the Duncrue Complex, Duncrue Road, Belfast.

Background

1.2 The Council currently operates its own vehicle refuelling station within the Duncrue Complex. The existing refuelling station is nearing the end of its operational life and the Council is currently considering how refuelling facilities should be provided in future. As well as the replacement of the existing underground fuel storage tanks and pumps, it is proposed that a new software system be introduced to manage the storage and the dispensing of diesel fuel and lubricants to the Council’s fleet of vehicles. It is a requirement of the replacement refuelling facilities that they should be able to accommodate the refuelling needs of any diesel vehicle.

Strategic context

1.3 The strategic context for a new refuelling station includes the Council’s Corporate Plan (2007 – 2008) (the “Plan”). The activities set out in the Plan are focused around three key areas, including “*meeting the needs of local people through the effective delivery of quality, customer focused services.*” The Plan states that the Council will continue to improve the delivery of its services to meet the needs of the people who use them and to provide best value in the delivery of its services.

1.4 The replacement of the ageing fuel pumps, pump canopy, fuel management system and storage tanks at the Duncrue Complex is being undertaken to limit the potential risks of accidents arising from the storage and the distribution of highly flammable material. The work will limit the risk of service delivery being affected through the breakdown of the aging equipment and the resultant inability to refuel the refuse collection vehicles.

1.5 The proposed project supports the Council’s objective of creating a clean and attractive city by ensuring that its fleet of cleansing vehicles can be refuelled to undertake street cleansing and refuse collection duties. The facilities at Duncrue Street also refuel vehicles from other Services and Departments within the Council, including Parks and Facilities Management Vehicles and hence they are crucial to the delivery not only of Cleansing but of other services within the Council.

1.6 The main reason for undertaking the Project is not to achieve cost savings but to limit the potential health and safety risks associated with the handling and the storage of highly flammable material and the environmental risks of leakages from the existing storage tanks. The Council does not require a licence to operate the refuelling station since it dispenses only diesel fuel (but not petrol).

1.7 While the Council exercises control over the availability of fuel through its participation in an Office of Government Commerce (“OGC”) contract, it could exercise further control over the availability of fuel through the operation of an efficient and effective refuelling station.

Needs

1.8 The need to provide replacement vehicle refuelling facilities has been assessed through consideration of the following:

- a) Duncrue Fuel Station Options Report (RPS Consulting Engineers – December 2007);
- b) Ground Investigation Factual Report (Ground Check Ltd – 29 April 2008); and
- c) specification of replacement fuel management system (with pumps).

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1.9 The needs assessment includes a review of the following:

- a) fuel procurement arrangements;
- b) number and type of vehicles to be refuelled;
- c) volume of fuel, oils and additives to be dispensed;
- d) volume of fuel, oils and additives to be stored; and
- e) extract from the follow-up audit report dated 19 July 2006.

1.10 RPS Consulting Engineers (the consultant team appointed by the Council to design, to specify and to manage the replacement of the existing underground diesel fuel storage tanks and the completion of the associated works at the Duncrue refuelling station) completed the Duncrue Fuel Station Options Report (the “Report”) in December 2007. The Report considered the options available to the Council and how they related to the Council’s cost, programme and statutory requirements.

1.11 The Report states that the Environment and Heritage Service (“EHS”) consider that it would be preferable to construct surface storage tanks. It also states that the Planning Service has requested that a planning application be made to regularise the redevelopment of the refuelling station.

1.12 The Report recommends that the existing underground diesel storage tanks be replaced with bunded surface storage tanks (i.e. tanks within tanks) and that the existing tanks be decommissioned by filling them with benolite slurry and leaving them in situ (this would reduce the potential volume of hazardous materials that would require to be disposed off site, but would also provide a relatively stable stratum upon which the new tanks could be constructed).

1.13 The results of the Ground Investigation Factual Report completed by Ground Check Ltd on April 2008 are reflected in the construction cost estimates set out in **Section VI**.

1.14 The Council has prepared a detailed specification of the replacement fuel management system (with pumps), including a description of the existing refuelling operations. The detailed specification is reflected in the targets which have been set for the Project (*see Section IV*).

1.15 Under the OGC contract, 20,000 litres of white diesel are delivered to the Duncrue Complex every Thursday. In addition, 5,000 litres of red diesel are delivered every three weeks. Should the regular monitoring of fuel stocks determine that they are unacceptably low, a “top-up” is arranged.

1.16 Cleansing Services estimate that 330 vehicles will require to be refuelled at the replacement refuelling facility. The types of vehicle to be refuelled currently range from mini shovels and vans to refuse collection vehicles and sweepers. The Council anticipates no major changes to its vehicle fleet numbers for the foreseeable future.

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1.17 The total volume of white and red diesel fuel dispensed during each of the last three years (together with the Council's projected future annual refuelling requirement) is as follows:

Description:	Diesel (white) (litres)	Diesel (red) (litres)	Total (litres)	Annual increase (%)
Actual:				
2005 – 2006	1,075,763	93,418	1,169,181	n/a
2006 – 2007	1,095,101	94,907	1,190,008	1.8
2007 – 2008	1,106,945	90,249	1,197,194	0.6
Projected:	1,129,084	92,054	1,221,138	2.0

1.18 The average annual increase in the volume of fuel dispensed during each of the last two years is 1.2%.

Engine and hydraulic oils dispensed

1.19 The total volume of engine and hydraulic oils dispensed during each of the last three years (at the Council's vehicle workshop), together with the projected future annual requirement (at the new refuelling facilities) is as follows:

Description:	Engine oil (litres)	Hydraulic oil (litres)	Total (litres)	Annual increase (%)
Actual:				
2005 – 2006	7,115	11,812	18,927	n/a
2006 – 2007	6,513	6,201	12,714	(32.8)
2007 – 2008	7,374	5,911	13,285	4.5
Projected:	7,521	6,029	13,550	2.0

1.20 A total capacity to dispense 52 litres of oils each working day is projected.

Storage capacity

1.21 The existing and projected future fuel, oils and additive storage capacity is as follows:

Description:	Existing storage capacity (litres)	Projected storage capacity:	
		(litres)	(weeks usage)
Diesel (white)	54,400	54,200	2.5
Diesel (red)	9,000	9,000	5.1
Engine oil	1,250	1,350	9.3
Hydraulic oil	1,350	1,350	11.6
Ad Blue	5,000	5,000	n/a

1.22 The projected storage requirements (in terms of the number of week's usage on hand) appear realistic.

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1.23 The upgrade of the existing fuel management system was recommended in the follow-up audit report dated 19 July 2006 as follows: “*The functionality of the Baltor system should be reviewed. Management should ensure that the system is still “fit for purpose”. Where it is not, consideration should be given to upgrading the system or to developing compensating controls to overcome system weaknesses.*”

Summary

1.24 The need to replace the existing vehicle refuelling facilities at the Duncrue Street Complex has been determined by reason of the existing facilities being at the end of their estimated useful lives and also by the recognised deficiencies in the existing fuel management system.

Objectives

Outcomes

- 1.25 The desired outcomes for the Project are:
- a) the reduction of the risk of the failure of the existing vehicle refuelling facilities at the Duncrue Complex (particularly the underground storage tanks and fuel pumps);
 - b) the enhancement of the existing vehicle refuelling facilities at the Duncrue Complex, (particularly the fuel management system);
 - c) the uninterrupted delivery of all key Council services which are dependent on Council vehicles (such as refuse collection and disposal, street cleansing, the provision of indoor and outdoor leisure and recreational facilities, community services and health and environmental services);
 - d) the continued achievement of Council service targets for waste collection, street cleansing and the maintenance of public parks and cemeteries; and
 - e) the reduction of the carbon emissions from the Council’s vehicle fleet.

Outputs

- 1.26 The desired outputs are:
- a) greater fuel efficiency;
 - b) improved accountability;
 - c) lower fuel expenditures;
 - d) reduced waste;
 - e) environmental concerns addressed; and
 - f) good reporting.

Targets

- 1.27 The following targets have been established:
- a) **availability** – fuel and oils to be available, as required, 24 hours per day, 7 days per week;
 - b) **storage capacity** – capacity to be provided to store 54,200 litres of white diesel, 9,000 litres of red diesel, 1,350 litres of engine oil, 1,350 litres of hydraulic oil and 5,000 litres of Ad Blue (each to be stored above ground);

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- c) **dispensing equipment** – 7 pumps to be provided, 4 of which to have a capacity to dispense up to 5,000 litres of diesel per day (the pumps to be floor standing, robust and tamper proof, able to accommodate a range of fuels (including white and red diesel), able to deliver a range of fuels at a minimum rate of fuel delivery of 70 litres per minute, fully integrated with the proposed replacement fuel management system and situated at one location);
- d) **infrastructure** – office/hut and CCTV system;
- e) **flexibility** – facilities to be designed to allow the storage and dispensing of bio diesel;
- f) **timescale** – proposed facilities to be fully operational within a four month “on-site” time (new storage tanks and replacement fuel management system to be available when required within this timescale);
- g) **deadline** – proposed facilities to be fully operational by 31 March 2009;
- h) **compatibility** – the fuel management system will be compatible with the Council’s ICT systems and strategy;
- i) **improved fuel consumption** – a 1% (£10,000) saving in annual fuel costs to be achieved by 31 March 2012;
- j) **estimated useful life** – achievement of an estimated useful life of 30 years;
- k) **core functionality** – achievement of the required core functionality requirements under the following headings:
 - i) vehicle fuelling information;
 - ii) system integration;
 - iii) security;
 - iv) reporting;
 - v) pumps;
 - vi) general; and
 - vii) technical.

Constraints

1.28 The following constraints have been identified:

- a) **technical resources** – various Council Departments are closely involved in the planning (e.g. the Architect’s Department) and the operation (e.g. the ICT Department) of the proposed replacement refuelling facility;
- b) **operational** – virtually all of the Council’s vehicles which require to be refuelled are based at the Duncrue Complex;
- c) **fleet size** – the Council’s fleet will remain at approximately 330 vehicles throughout the estimated useful life of the Project;
- d) **financial** – the Council has expressed an interest in both revenue and capital expenditure based solutions to its vehicle refuelling facilities requirement;
- e) **legal** – the Council has a statutory responsibility to provide various key services, including cleansing, to its ratepayers;

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- f) **timing** – the existing facilities have reached the end of their estimated useful lives and therefore require to be replaced as soon as possible;
- g) **location** – the site of the existing vehicle refuelling facility at the Duncrue Complex is available for reuse;
- h) **site conditions** – the Duncrue Complex is constructed on fill materials and could therefore be considered to be contaminated land; and
- i) **planning** – there is a need to submit a planning application to regularise the redevelopment.

Options

1.29 Based on the objectives and the targets outlined in *Section IV* (and also acknowledging the potential constraints noted in *Section IV*) the following “long list” of options was identified for the provision of replacement vehicle refuelling facilities at the Duncrue Complex:

- a) **Option 1 – “status quo”** – the “do nothing” option against which alternative options can be compared;
- b) **Option 2 – “do minimum – refurbishment”** – extend the estimated useful life of the existing refuelling facilities by refurbishing them and by increasing the on-going maintenance levels (this option will not satisfy the objectives for the Project);
- c) **Option 3 – “do something – replacement (underground storage tanks)”** – replace the existing refuelling facilities, including the existing underground storage tanks (this option will not be cost effective);
- d) **Option 4 – “do something – replacement (surface storage tanks)”** – replace the existing refuelling facilities (including the existing underground storage tanks) with surface tanks. (this option satisfies the objectives for the Project);
- e) **Option 5 – “do something – replacement on an alternative scale”** – replace the existing refuelling facilities with an alternative fuel storage capacity, number of fuel pumps etc (there does not appear to be a case for altering the scale of the facilities);
- f) **Option 6 – “do something – replacement, but without a fuel management system”** – replace the existing refuelling facilities, but without any fuel management system (the absence of a fuel management system is not an option);
- g) **Option 7 – “do something – replacement, but with the refuelling facilities provided and operated by a third party”** – contract the replacement of the existing refuelling facilities and the provision of the on-going vehicle refuelling service to a third party (no third party is interested in providing the refuelling facilities – see paragraphs 1.30 and 1.31 below for further details);
- h) **Option 8 – “do something – replacement at an alternative location within the Duncrue Complex”** – replace the existing vehicle refuelling facilities at an alternative location within the Duncrue Complex (no alternative location is available);
- i) **Option 9 – “do something – replacement at an alternative location outside the Duncrue Complex”** – replace the existing refuelling facilities at an alternative location outside the Duncrue Complex (an alternative location is not appropriate, even if one were available);

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- j) **Option 10 – “do something – replacement, but with the refuelling facilities shared with others”** – replace the existing refuelling facilities and provide a vehicle refuelling service to others (this option is not practical);
- k) **Option 11 – “do something – replacement, with enhanced fuel management systems”** – replace the existing vehicle refuelling facilities and enhance the fuel management system (an enhanced fuel management system is an integral requirement of any “do something” option); and
- l) **Option 12 – “do something – replacement, with all maintenance undertaken “in-house”** – replace the existing refuelling facilities and undertake all maintenance thereof “in-house” (undertaking all maintenance “in-house” is likely to be risky).

1.30 In order to explore the option of the replacement refuelling facilities being provided by a third party, the Council invited Expressions of Interest for the design, the construction and the operation of a vehicle refuelling facility at the Duncrue Complex. The closing date for Expressions of Interest was Friday, 4 April 2008. The Council received one Expression of Interest in providing the required facilities. However, the interested party provided no information regarding the likely cost of providing the service.

1.31 The third party was contacted to determine if they would be interested in submitting outline cost estimates with a view to facilitating the appraisal of the “third party” option. Despite a number of attempts, no response was forthcoming. Accordingly, it was concluded that the provision and the operation of refuelling facilities at the Duncrue Complex by a third party is not an option.

1.32 On the basis of the assessment set out in **Section V** (and summarised above) the following options were short listed for detailed evaluation:

- a) **Status quo** – do nothing; and
- b) **Do something – replacement (surface storage tanks)** – replacement of the existing vehicle refuelling facilities on a “like for like” basis, together with a new fuel management system, with the new fuel storage tanks located above rather than below ground.

Monetary costs and benefits

1.33 An appraisal has been undertaken of each of the two short-listed options taking account, where possible, of each of the costs (including the opportunity cost of the resources already owned or in use) and the benefits associated with each option. The appraisal includes “quantifiable values” for the wider economic benefits that may flow from the replacement of the existing refuelling facilities, in terms of the cost savings which are projected as a result of efficiency improvements in the use of fuel.

Option 1 – “do nothing” – status quo

1.34 As this option relates to the status quo scenario, the only costs associated with it are on-going maintenance, for which £5,500 per annum has been allowed.

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Option 2 – “do something” – replacement (surface storage tanks)

1.35 The capital costs associated with this option are estimated at £435,000, which is made up as follows:

Description:	Option 2 - surface tanks (£)
Construction cost:	
Preliminaries	35,000
Temporary works	10,500
Fuel station works	42,000
Site works and drainage	49,000
Mechanical and electrical services	82,000
Builder’s works	5,000
Provisional and PC sums	74,000
Sub-total	297,500
Equipment:	
Set-up	2,250
On-board devices	61,250
6 pumps	16,500
Sub total	80,000
Professional fees (15%)	56,625
Rounding	875
Total	435,000

1.36 We have concluded that the site of the existing vehicle refuelling facility has no opportunity cost.

1.37 The annual maintenance costs are projected as follows:

Description:	2009	2010 onwards
	£	£
Operating costs	295	295
Post implementation/non maintenance support	1,695	-
Hardware maintenance	0	2,950
Total	1,990	3,245

1.38 A fuel cost saving of 1% (£10,000) per annum is targeted.

1.39 The replacement facilities have been evaluated over their estimated useful life (i.e. 30 years). There is therefore no residual value.

Risks

1.40 A risk register has been drafted. The risks associated with each option are considered below.

Option 1

1.41 The main risk associated with Option 1 is that the Council experiences critical failure of one of the key elements of the existing vehicle refuelling facilities, resulting in closure and serious implications for the Council’s vehicle fleet, in terms of its ability to continue to operate, at least in the short term.

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Option 2

1.42 The main risks associated with Option 2 are as follows:

- a) temporary difficulties regarding the dispensing of fuel at the Duncrue site during the course of the construction of the replacement refuelling facilities;
- b) the facilities are constructed on a scale that is in excess of that actually required;
- c) further work has to be undertaken to enable the replacement facilities to meet new legislative requirements regarding the operation of vehicle refuelling facilities; and
- d) the facilities become technically obsolete before the end of their planned useful life.

1.43 The risks may be managed as follows:

- a) robust planning and management of the running of the temporary facilities to be provided during the course of the construction of the replacement vehicle refuelling facilities;
- b) robust on-going assessment of the type and the extent of the Council’s future vehicle requirements, including the impact thereon of the RPA;
- c) regular monitoring of relevant legislation on an on-going basis; and
- d) robust tendering procedures, to include an assessment as to the likelihood of premature obsolescence of the equipment being tendered.

1.44 We adjusted the estimated capital costs for optimism bias and the result is as follows:

Description:	Option 1	Option 2
	£’000	£’000
Project cost (Section VI)	0	435
Optimism bias @ 9.24%	0	40
Adjusted project cost	0	475

Non-monetary costs and benefits

1.45 The short list of options has been evaluated on a qualitative basis using a weighting and scoring approach. The results are as follows:

Objective	Weight	Option 1 Do nothing Status quo	Option 2 Do something Surface tanks
Reduced risk of failure	20	0	9
Reduced carbon emissions	20	0	5
Improved accountability	20	0	10
Reduced waste	20	0	5
Improved reporting	20	0	10
	100		
Weighted score		0	780
Rank		2	1

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1.46 While Option 2 should significantly reduce the risk of the failure of the refuelling facility, it should also facilitate significant improvements in reporting and hence accountability.

Net Present Cost

1.47 The Net Present Costs are summarised as follows:

Description:	NPV/ (NPC) £'000	Rank
Option 1 – “Do nothing” – status quo	(61)	1
Option 2 – “Do something” – surface tanks	(403)	2

1.48 The Net Present Cost of Option 2 reflects the associated capital costs (£475,000).

1.49 We have examined by how much the Council’s annual expenditure on fuel would have to fall to reduce the Net Present Cost of Option 2 to zero. The outcome is that annual fuel costs would have to fall by 4.6% (in addition to the target annual fuel cost saving of 1% (£10,000)).

Financing

1.50 The proposed sources of funding for the Project are noted as follows:

Source of funding:	Option 1 £'000	Option 2 £'000
Belfast City Council	0	475
Total	0	475

1.51 We understand that the Council will meet the full cost of constructing the replacement refuelling facilities.

1.52 Project management, benefits realisation, procurement, public relations, monitoring and evaluation are each considered in *Section X*.

Preferred option

1.53 The outcomes of the quantitative and qualitative analyses are summarised as follows:

Option	Quantitative analysis		Qualitative analysis		Overall ranking
	NPC £'000	Ranking	Weighted score	Ranking	
Option 1 - “Do nothing” – status quo	(61)	1	0	2	2
Option 2 - “Do something” – surface tanks	(403)	2	780	1	1

1.54 The overall outcome is that Option 2 is the preferred option, reflecting the significant benefits associated with it, as a result of an investment totalling £475,000.

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Conclusions and recommendations

1.55 On the basis of this appraisal, Option 2, “do something” – replacement (surface storage tanks), is the preferred option. It is recommended that the Council:

- a) submits a planning application to regularise the redevelopment;
- b) updates and reviews the draft risk register throughout the course of the Project;
- c) prepares and updates a project timetable on a regular basis;
- d) draws up a public relations strategy for the Project;
- e) implements a meeting structure involving the Consultant Team and other members of the professional team;
- f) establishes a series of key performance indicators (“KPIs”) against which progress can be monitored;
- g) obtains written monthly progress reports from the Consultant Team; and
- h) monitors the performance of the replacement facilities on an on-going basis.

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