

Review of NI Water Capital Procurement Strategies and Efficiency Comparisons

Prepared for
Northern Ireland Authority for Utility Regulation
(UR) and Northern Ireland Water (NI Water)

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Northern Ireland Water Ltd – CPER Submission

This is the public domain version of the Reporter's submission for CPER. Items marked [x] have been excised as they are considered commercially confidential or of a sensitive nature.

We have not sought to verify or update the Reporter's report to take account of any changes since the initial submission to UR in May 2014. The Reporter's public domain commentary is therefore based on the submission to UR in May 2014.

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Contents Amendment Record

This report has been issued and amended as follows:

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1	0	Public Domain	25.06.14	JJH/JSBr	JSB

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Capital Procurement Strategies and Efficiency Comparison Review

1. Executive Summary

The Report focuses on efficiencies rather than scope savings. Scope savings, if made, will reduce cost of whatever procurement strategy is employed.

1.1 Part 1

Part 1 of this Report covers the current and planned PC15 capital procurement arrangements of the Company. It is based upon the Capita Report, entitled PC15 Capital Delivery Strategy. Issue 7 of this report dated 5 March 2014 has been included as Chapter 3: Appendix 2, Annex 1 of NI Water's PC15 Submission to UR in March 2014.

Capita Property and Infrastructure Ltd (Capita) was commissioned by NI Water in June 2013 to undertake a review of potential procurement and delivery models and strategy for the Company's capital works in PC15.

Capita has produced a report that provides accurate and meaningful context and background to the Northern Ireland water sector, the associated construction market and procurement approaches, NI Water's ability to operate within these and the opportunities to exploit them in future for the benefit of its stakeholders.

We confirmed that the Capita review covered the majority of NI Water's current and proposed capital investment areas for both maintenance and enhancement activities. The review excluded the relatively small proportion of the capital programme (around £40 million per annum) associated with Management & General assets and with expenditure on operations capital associated with scheduled and reactive maintenance of operational assets which is procured by operational managers. Capita offers suggestions on how this activity could become more efficient which look logical and sensible and which NI Water will need to consider.

Capita has drawn upon its knowledge of capital delivery models obtained from working in a number of sectors. We note that the primary source of information it has used for this review is from the water utility sector in the United Kingdom, particularly information that it had available from its advisory work with two English water companies plus its wider knowledge of water utility procurement and programme management in the UK. We concur with Capita's information it has presented on the English and Welsh WaSCs and of its assessment of the five example companies' performance in AMP5.

We provide a wider and up to date overview of the English and Welsh water sector in Part 2 of this report.

We agree with Capita that there has not been a significant change in procurement strategies in the English and Welsh water sector over the last five years and indeed many companies are planning to use similar strategies in AMP6 to AMP5, either to build on the achieved successes or on the basis that a longer timeframe is needed to realise the full potential.

The choice between frameworks and alliances in England and Wales has been dependent upon the size of the investment programme and the willingness and ability of the water company to adopt more collaborative working practices and to share risks and rewards. We agree that it is not possible to determine whether that alliancing delivers more efficiency than frameworks. Incentivisation of suppliers and the sharing of risk and rewards are becoming more commonplace and are being seen as enablers of efficiency and certainty of outcome.

Capita's information on the construction industry in Northern Ireland aligns with our understanding of the economic impact and we have no information to suggest the situation has changed materially in the year since its report was produced. We observed a similar claw-back of construction prices after the recession in the 1990s and agree that a similar effect is likely to be seen this time and probably within the PC15 period.

We also agree that this effect will have a limiting effect on NI Water's future efficiency gains. We assess this further in Part 3 of our Report.

NI Water comments that it is worth noting that a recent PwC report on the NI Economy indicated 4.9% reduction in construction employment, but also that the Procurement Managers Index 12 month average was lower than UK. However, the Procurement Managers Index 3 month average shows cost increases comparable to UK average, therefore accelerating cost.

Our efficiency considerations do not take into consideration any market claw-back, nor any inflation in price levels. By market claw-back we refer to contractors increasing tender prices above inflation to redeem any losses or constrained profit during the recessionary times. We expect the market to balance-up over time, but it may be some time before all labour is absorbed in the industry.

We consider that Capita's overview of the budgetary constraints in Northern Ireland provides a meaningful context for PC15 and the prospects for future costs in the water sector. Its report highlights the constraints to efficiency, procurement innovation and incentivisation caused by the government funding arrangements, governance pressure, legal challenge and NI Water's NDPB status. Capita's findings are supported by the information we obtained from our recent interviews with NI Water. We note that quantification of the impact of these contracts has not been undertaken either by Capita or NI Water.

Capita's findings on the procurement landscape in Northern Ireland are consistent with the information we have obtained through our recent investigations. We are unaware of any material developments since Capita undertook its work last summer.

Capita's overview of NI Water aligns with the information we obtained recently through interviews with NI Water personnel. We consider that it reflects the current position and provides relevant contextual material for subsequent consideration of capital delivery options and opportunities. We noted that Capita works for NI Water in a PC13 programme management and NEC procurement capacity so it has good knowledge of NI Water's capabilities in these respects.

We consider that Capita has presented an appropriate overview and assessment of the opportunities (and associated issues) for capital efficiency for NI Water. Its consideration and assessment of potential capital delivery models available to NI Water is logical and based mainly on the experience of the UK water sector.

We discussed Capita's findings with them particularly in relation to opportunities for the wider use of Integrated Frameworks and Delivery Teams and Alliancing. We accept Capita's conclusion that Design and Construct arrangements are likely to be the most appropriate mechanisms available to NI Water given its operating constraints.

However we also agree that NI Water needs to strengthen some of its internal processes and capabilities in order to maximize the potential efficiency opportunities. We noted that Capita acknowledges that NI Water is looking at the potential of organisational change to deliver greater efficiency (through its FOM initiative) but that the impact of FOM was not considered as part of its work, primarily because FOM was at an early stage when Capita's review was carried out.

Capita has identified that between 3% and 4% capital efficiency is possible over PC15 contingent on a number of recommendations and changes being made. Capita was keen to stress to us that its brief from NI Water was primarily to identify a suitable capital delivery model for NI Water in PC15 and that its quantification of potential efficiency savings is based upon judgment and not a rigorous assessment methodology.

The Capita Report considers that there are four possible models for NI Water in PC15. These are:

- A traditional model where the Client/consultant design and the construction works are procured by competitive tender or frameworks on schedules of rates;
- Client/consultant outline design and the construction works are procured on a Design & Construct basis by competitive tender or frameworks on schedules of rates;
- Client identifies the need and contractor/consultant JVs, procured by competitive tender, deliver the project; and

- Client identifies the need and contractor/consultant JVs, procured by competitive tender, deliver the whole programme.

The Capita Report concludes that NI Water should use some form of framework arrangement in PC15 with simplification of that used in PC13. Delivery should use a mixture Design & Construct with a more traditional procurement route adopted for simple projects and most of the minor infrastructure programme. It also suggests that NI Water should review the option with stakeholders to see which individually or in combination might be appropriate for PC15.

1.2 Part 2

Part 2 of this Report is based 10 national and international contributions from the worldwide offices of CH2MHill. The contributions covered several industry sectors and geographical areas as below:

1. England and Wales Water Sector;
2. North American Highways;
3. UK Unregulated Private Sector;
4. Australia NZ Infrastructure;
5. Scottish Water;
6. US Commuter Rail;
7. Asset Management and Planning;
8. UK Electricity;
9. England and Wales Highways; and
10. Canada Water.

Each contribution covered the following topics:

1. Location;
2. Industry Sector;
3. Governance and Regulation;
4. Funding;
5. Risk Transfer;
6. Investment Parameters;
7. Capital Procurement Strategies;
8. Operating Procurement Strategies;
9. Performance Incentivisation;
10. Supply Chain Management; and
11. Efficiency Gains and Constraints.

The contributions yielded, on aggregate, 57 Key Features, 92 Procurement Headlines and 46 Points for Consideration. There was of course some overlap in the Points for Consideration and we distilled these into opportunities that could be available to NI Water over time, but some of the more important efficiency

issues are reliant upon matters outside the control of the Company. In particular we found that the governance constraints on NI Water are the most disadvantageous to driving efficiency.

The distillation of the Points for Consideration led to the identification of 15 opportunities for improving the efficiency of NI Water's capital investment (Capex) and operational activities (Opex) over time. All initiatives and procurement models will take time to implement, and only a few could be introduced for or during PC15.

The 15 opportunities are in addition to the 4 models arising from Part 1 of this Report. The 15 opportunities are:

1. Loosening governance constraint;
2. Longer term planning, funding and implementation horizons;
3. Earlier supply chain involvement (2 years in advance of horizons);
4. Customer outcome focused (outturn rather than input driven);
5. Performance incentivisation (pain/gain);
6. Collaborative team working with the supply chain;
7. Central purchasing of main materials and equipment with just in time call-off;
8. Value driven (WLC) rather than upfront cost constrained;
9. Culture change and suiting the team to the strategy (rather than the reverse);
10. Programme approach rather than project by project;
11. Smoothing work profile and the visibility of the pipeline;
12. Sweating the assets (particularly relating to PPP);
13. The level of in-house procurement capability;
14. Good quality asset and performance information; and
15. The level of sophistication of asset management processes (asset knowledge, management and control).

As several of the opportunities could be grouped together in efficiency driving terms, we further distilled them into 10 grouped efficiency opportunities:

1. Loosening Governance Constraint;
2. Longer Term Planning and Funding;
3. Early Supply Chain Involvement;
4. Performance Incentivisation
5. Management Matters (including Collaborative Team Working, Culture Change, Asset Management Sophistication, Procurement Capacity and Capability, Asset and Performance Data, Central Purchasing and JIT and Asset Management Sophistication);
6. Value Driven (WLC)/Customer Focus;
7. Traditional Model;
8. Client/Consultant Model;
9. Client/Consultant Project JVs; and
10. Client/Consultant Programme JVs.

These 10 grouped efficiency opportunities were then examined and discussed in Part 3 of this Report.

1.3 Part 3

In Part 3 we have examined the 10 grouped efficiency opportunities, discussed their merits and possibilities of being used by the Company, and at what timings, together with the constraints that might affect implementation.

We conclude that there is considerable scope for the Company to improve its efficiency position. There are initiatives in use in the England and Wales WaSCs, and indeed wider afield, that could readily be adopted by the Company, some of which we note are already being considered by the Company in its PC15 planning and others in FOM. However we also note that the initiatives require Shareholder approval, and that there are some impediments to Shareholder acceptance.

Our assessment of the amount of potential efficiency for each initiative is based upon our industry knowledge and experience as Reporters to Ofwat, as there is little publicly available information due to its commercial sensitivity.

The main conclusion is that efficiency opportunities are available over time. Some may not be implementable in the short term, but all would be available in the longer term. We have however concluded that the Company could drive an additional efficiency in PC15, over PC13 prices, of some 10% subject to Shareholder approval.

We note however, that some efficiencies are drivers, and their impact is captured through other efficiency opportunities. These drivers are Loosening Governance Constraints, Management Matters and Value Driven (WLC)/Customer Focus.

We also note that each of the opportunities would take time to introduce, other than the Traditional Model currently in use and the Client/Consultant (Design & Construct) model; which is already being considered by the Company. The remainder are more related to the longer term than to PC15, although some could be fed-in during the PC15 period.

The key efficiency of Loosening Governance Constraint is perhaps some way into the future. The current arrangements are committed until at least 2016.

We have not included any efficiency forecasts over the longer term, but the loosening of governance constraint could allow an Alliance strategy which could have the capacity to improve the efficiency gains for PC15, as well as keeping the gains already captured. It would also release NI Water to examine the Virtual Company option. However the market place and economic drivers in 2021 may/will be different, which makes longer term efficiency views unreliable.

All the potential efficiency gains for PC15 are based on PC13 price levels and exclude the impact of any market price levels/tender price bounce-back in an improving economic climate. From our experiences in the last post-recession economic improvement (in the late 1990s/early 2000s), a bounce-back will be inevitable as contractors and suppliers seek to redeem the constrained positions imposed upon them during the recession. The degree of bounce-back and its timing can be unpredictable.

NI Water comment that there is a real negative impact on efficiency in the annual PE, as this effects the profiling of capital investment and leaves the supply chain in potential turnover doubt. It is true that part of the capital investment finance in any one year may be reduced (or indeed increased) under the PE mechanism. However this impact can be mitigated by NI Water in its procurement strategies. The potential saw tooth profile created by PE can be considered as two procurement paths. The first, capturing the efficiencies by the procurement strategies discussed in this Report, built on the assured capital investment, which has generally been at least 85% of total, unaffected by PE. The balance of investment, if permitted by PE, to be managed either through the procurement strategy or strategies adopted, or by a separate procurement strategy created for the purpose.

We suggest that the more appropriate mitigation would be through the procurement strategy or strategies in place with reserve activities that fall-in as required. Whilst these reserve activities may not capture quite

the same efficiencies as the assured capital investment, we consider that their impact would fall within the range of efficiencies note in this Report, perhaps more to the lower end of the scale rather than the central estimates.

NI Water also comments, in reference to inflationary costs, that it considers that there is a risk of double digit inflation. Here we consider differentiation has to be made between the increases in price levels generally and the impact on claw-back tender prices, where the latter could well exceed the former in percentage terms. However, we have not included the impact of inflation in any of our efficiency estimates. In any case double-digit inflation seems unlikely, except on an aggregate basis over a number of years.

NI Water also considers that it is worth noting that Irish Water released its proposed 3 year programme (CIP) which equates to €1.77 billion, and that this will have an impact on NI, as it will cause inflationary pressure due to the contiguous market becoming more attractive. Whether this turns out to be the case remains to be seen, but at best it will be another layer of inflationary pressure rather than a prime driver.

In any case NI Water have the opportunity to consider hedging the impacts of inflation by its choice of procurement strategy. Using the incentivised Client/ Consultant Model, or indeed the incentivised Contractor/Consultant JV options should, on a Cost Target basis, tend to limit inflation to general price levels rather than a series of claw-back tenders over the PC15 period.

In the longer term the loosening of governance constraint could allow the Contractor/Consultant Programme JV Model which could have the capacity to improve the efficiency gains noted above for PC15, as well as keeping the gains already captured. However the market place and economic drivers in 2021 may/will be different, which makes longer term efficiency views unreliable.

We note that all the efficiency percentages are based on PC13 price levels and exclude the impact of any market price levels/tender price bounce-back in an improving economic climate. From our experiences in the last post-recession economic improvement (in the late 1990s/early 2000s), a bounce-back will be inevitable as contractors and suppliers seek to redeem the constrained positions imposed upon them during the recession. The degree of bounce-back and its timing can be unpredictable.

In Part 3 we also introduce the concept of the Virtual Company. This approach would see NI Water retaining the prime functions of planning and control, but outsourcing to the private sector virtually (hence the name) all its activities. The retained activities would oversee the private sector activities in all its constituent parts from procurement through to the customer interface. The private sector could be procured on PC period contracts, with the necessary performance criteria and levels of service agreements, and break clauses for under performance.

At this stage such considerations are perhaps far removed from current thinking, but could be a way forward for the future, after PC15. It may be an idea to be developed overtime to see if it would have merit.

We have also discussed Benchmarking, which is a very useful tool for monitoring the comparative efficiency of any company or individual constituent, down to the level of detailed unit costs.

Ofwat in the England and Wales WaSCs produced a unit cost benchmarking process (Cost Base) that enabled each WaSC and each WOC to be cross benchmarked and graded for efficiency in both capital works and operations. This Cost Base process has now been stopped by Ofwat. In the absence of Cost Base there is no benchmarking process available externally to the Company, so the focus must be internal.

We note that Frameworks lend themselves to benchmarking, and similar asset operations can also be benchmarked as benchmarks with each other. We also note that to us there appears to be an opportunity to maximise the use of PPP/PFI assets and save on operational costs and capital maintenance on the other similar Company assets. No economic analysis on the comparative costs has been carried out to support the current use of PPP/PFI assets, which appears to be based on day to day cost, rather than long term value. We recommend that such analysis is carried out independently to ensure that the maximum value is extracted from the PPP/PFI projects, particularly as the majority of Unit Charge is fixed, and only a relatively small part is volumetrically based.

Setting-up and establishing such a benchmarking process would necessarily take time, maybe 2 years at least, but it could be working in the latter half of PC15, and being used for driving efficiencies on a best in

class basis and continuous improvement. This would not be the case with the PPP/PFI projects but the benchmarking could be used to capture the best-buy for water into supply.

We suggest that it might be useful for the Company to consider the use of an independent consultant to assist with drawing-up proposals for internal benchmarking in the furtherance of continuous improvement.

We consider that the principles of efficiencies apply equally to Base Maintenance and Capital Enhancement, as both could use the Client/Consultant Model, which, robustly incentivised, will drive efficiency over the implementation period through continuous improvement (increases in productivity), as well as capturing some efficiencies at procurement stage. We emphasise that the use of incentivisation has to be robustly and proactively driven rather than reactively administered, and that the management team has to have the appropriate skills and experience for the purpose.

We have not addressed in this Report how any efficiency savings will be applied, whether by additional investment or monetary saving of expenditure; this is a matter for the Shareholder and Regulator to decide.

This Report addresses the driving of, and improvement in, efficiencies against the current NI Water position. It does not address Gap closure with other WaSCs in the rest of UK.

Our assessments of the potential efficiency gains are summarised in four tables below. The percentage efficiencies are best estimate ranges, based on our experience in the industry and as Reporter's to Ofwat on various WaSCs. The efficiencies noted are real efficiencies (constant price levels) excluding inflation.

The efficiencies might be improvable in practice, but equally could be underachieved depending on circumstance. The possible impact is contained in our later sensitivity range.

Table 1.1: Efficiency Opportunities

No	Opportunity	Applicability	Efficiency	Grading
1	Loosening Governance Constraint	Not available in PC15, but could be available for subsequent PCs	10% PC15 N/A but could be in next PC. However we have not included this in Table 1.2 as the efficiency impact will be achievable in other initiatives rather than directly from loosening governance constraint. Loosening constraints is an enabler, and there is a need to avoid double-counting.	PC15 N/A, PC21 Good, PC27 Good
2	Longer Term Planning and Funding	<p>The change of planning horizon to the 6 year PC period has opened this opportunity, although we note there is still a 3 year review period and still the annual PE review.</p> <p>NIW comments that the annual PE effectively means that NIW's planning horizon is 1 year, not 6.</p> <p>We note in this Report the mitigation of any impact through procurement strategies and their management.</p>	3% to 4%, more likely 3%, but half rate as NIW already involved in longer term planning in PC15	Good

No	Opportunity	Applicability	Efficiency	Grading
3	Early Supply Chain Involvement	Already available, in part, in PC15	2% to 3%, more likely 2% once-off during procurement period, particularly if procuring by programme rather than project by project. However we note that NIW already involves its supply chain where it can, within the governance limitations. Consequently some efficiencies have already been captured and half rate of 1.0% included in Table 1.2.	Good
4	Performance Incentivisation	Could be available for PC15 and periods thereafter. Savings are against Target Cost suitably proactively driven	Some 5% over the PC15 period. We note that incentivisation is already used in the PPP/PFI Contracts	Good
5	Management Matters	Matching skills and capacity to the strategy drives efficiency, the converse leads to diseconomies	Through mitigation the diseconomies that could arise from mismatching management and procurement strategy (discussed earlier in this Section of the Report) can be neutralised, and the efficiencies gained.	Essential to effectiveness of other efficiency initiatives
6	Value Driven (WLC) /Customer Focus	Driving for long term value rather than controlling short term cost	Appropriate to long term assets and already in use by NIW, but the option scope used by the Company could be widened	Underpins other efficiency initiatives
7	Traditional Model	As currently used by the Company	Neutral	Average
8	Client / Consultant Model	A Design & Construct variant to the traditional model that captures the contractor's commercial nous	Some 4% to 5%, more likely 4% including the efficiencies of longer term planning and early supply chain involvement	Good
9	Contractor / Consultant Project JVs	A project based Joint Venture supply chain variant to the traditional model	Some 5% to 6%, more likely 5% including the efficiencies of longer term planning and early supply chain involvement. This is an alternative to the Client/Consultant Model and an additional 1%	Good

No	Opportunity	Applicability	Efficiency	Grading
			efficiency could be captured.	
10	Contractor / Consultant Programme JVs	A programme based Joint Venture supply chain variant to the traditional model	Some 6% to 7%, more likely 6% including the efficiencies of longer term planning and early supply chain involvement. This is an alternative to the Client/Consultant Model and an additional 2% efficiency could be captured	Good

As some of the efficiency opportunities are individually captured and others sweep in some of the otherwise individually captured efficiency opportunities we have re-expressed the PC15 opportunities of efficiency in Table 1.2 below. To make the Table effective we have assumed an annual turnover of £150 million per annum, £900 million in PC15, with the percentage efficiency calculated therefrom.

Table 1.2 expresses the more likely outcome of efficiency opportunities identified earlier in this Section of the Report and available to the Company within current governance constraints (subject to Shareholder confirmation of the use of pain/gain incentivisation).

Table 1.2: Efficiency Opportunities Timeline PC15 Year by Year Cumulative in £million

No	Opportunity	YR1	YR2	YR3	YR4	YR5	YR6	PC15	%
1	Loosening Governance Constraint	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0%
2	Longer Term Planning and Funding	4.5	4.5	4.5	0	0	0	13.5	1.5%
3	Early Supply Chain Involvement	3.0	3.0	3.0	0	0	0	9.0	1.0%
4	Performance Incentivisation	N/A	9.0	9.0	9.0	9.0	9.0	45.0	5.0%
5	Management Matters	Incl	Incl	Incl	Incl	Incl	Incl	Incl	0.0%
6	Value Driven (WLC)/Customer Focus	Incl	Incl	Incl	Incl	Incl	Incl	Incl	0.0%
7	Traditional Model	Neut	Neut	Neut	Neut	Neut	Neut	Neut	0.0%
8	Client/Consultant Model	0	4.5	4.5	4.5	4.5	4.5	22.5	2.5%
9	Contractor/Consultant Project JVs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0%
10	Contractor/Consultant Programme JVs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0%
	Total	7.5	21.0	21.0	13.5	13.5	13.5	90.0	10.0%

Notes to Table 1.2:

1. The efficiencies shown in years 1, 2 and 3 may not arise in the said years but later through the programme implementation, but the actions to create them will be in those said years.
2. Loosening Governance Constraint: as it is unlikely that governance constraint will change over PC15, and to avoid double-counting no efficiency savings have been ascribed. The efficiencies initiatives

that could arise under less constraining governance could be an Alliance (effectively the Contractor/Consultant Programme JV), although the efficiencies from pain/gain incentivisation have been included (based on programme working rather than project, the latter may produce a little less gain);

3. Longer Term Planning and Funding: NI Water is already using this approach in so far as it can;
4. Early Supply Chain Involvement: NI Water is already using this approach in so far as it can;
5. Performance Incentivisation; a key driver of improving efficiency using NEC Option C contract;
6. Management Matters; the driver of efficiency gains but the efficiencies are included in the Client/Consultant Model to avoid double-counting;
7. Value Driven (WLC)/Customer Focus: another driver but the efficiencies are included in the Client/Consultant Model to avoid double-counting;
8. Traditional Model: that currently in use by NI Water, so no efficiency additional efficiency shown;
9. Client/Consultant Model; a suggested way forward;
10. Contractor/Consultant Project JVs: additional efficiency not included, but could be captured if NI Water permitted to use it;
11. Contractor/Consultant Programme JVs: additional efficiency not included, but could be captured if NI Water permitted to use it.

For clarity we have included in Table 1.3 below the range of percentage efficiencies applicable to Table 1.2, the latter being based on most likely/central percentage estimates.

Table 1.3: Range of Efficiency Opportunities by Percentage

No	Opportunity	Central %	Range %	
			Low	High
1	Loosening Governance Constraint	0.0%	0.0%	0.0%
2	Longer Term Planning and Funding	1.5%	1.5%	2.0%
3	Early Supply Chain Involvement	1.0%	1.0%	1.5%
4	Performance Incentivisation	5.0%	5.0%	5.0%
5	Management Matters	0.0%	0.0%	0.0%
6	Value Driven (WLC)/Customer Focus	0.0%	0.0%	0.0%
7	Traditional Model	0.0%	0.0%	0.0%
8	Client/Consultant Model	2.5%	2.0%	2.5%
9	Contractor/Consultant Project JVs	0.0%	0.0%	0.0%
10	Contractor/Consultant Programme JVs	0.0%	0.0%	0.0%
	Total	10.0%	9.5%	11.0%

In response to a question from UR, we consider that there could be a range of sensitivity around the efficiency percentages, which could be +10%/-30% (percentages on percentages). The impact of the

sensitivity range, applied to the full benefit efficiency percentages from Table 1.1 is shown in Table 1.4 below.

Table 1.4: Central Efficiency Estimates and Ranges by Percentage

No	Opportunity	% Incl Table 1.2	Full Benefit	Full Benefit Range%		Full Benefit Sensitivity%	
				Low	High	Low	High
1	Loosening Governance Constraint enabling use of wider range of Procurement Strategies and included below	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2	Longer Term Planning and Funding	1.5%	1.5%	1.5%	2.0%	1.0%	2.2%
2A	Full Benefit	Not Incl	1.5%	1.5%	2.0%	1.0%	2.2%
3	Early Supply Chain Involvement	1.0%	1.0%	1.0%	1.5%	0.7%	1.7%
3A	Full Benefit	Not Incl	1.0%	1.0%	1.5%	0.7%	1.7%
4	Performance Incentivisation	5.0%	5.0%	5.0%	5.0%	3.5%	5.5%
5	Management Matters	0.0%	0.0%	0%	0.0%	0.0%	0.0%
6	Value Driven (WLC)/Customer Focus	0.0%	0.0%	0%	0.0%	0.0%	0.0%
7	Traditional Model	0.0%	0.0%	0%	0.0%	0.0%	0.0%
8	Client/Consultant Model in addition to Longer Term Planning and Early Supply Chain Involvement	2.5%	3.0%	2.5%	5.0%	1.7%	5.5%
9	Contractor/Consultant Project JVs, in addition to Client/Consultant Model	0.0%	1.0%	1.0%	1.0%	0.7%	1.1%
10	Contractor/Consultant Programme JVs in addition to Contractor/ Consultant Project JVs Model	0.0%	1.0%	1.0%	1.0%	0.7%	1.1%
	Total	10.0%	15.0%	14.5%	19.0%	10.0%	21.0%

We have addressed the impact of full efficiency benefit from the Procurement Strategies based on the central estimates in Table 1.2 (10%) in the summary of likely efficiency percentage gains in the Conclusion Section below.

1.4 Summary and Conclusion

Although there are several differences between NI Water and other water utilities in the rest of UK in the approach and philosophy to capital procurement, it seems ambitious to expect NI Water, as a government owned entity, to attain the same levels of Capex efficiency as the privatised water companies in England and Wales.

There are intrinsic institutional and financial differences (amongst others) between NI Water and the privatised water companies which cannot be addressed through regulatory levers alone and Section 2.3 of this report identifies key issues that need to be addressed to allow convergence.

Nevertheless, there are evidently a number of keener business practices that NI Water could and should adopt which would allow it to close the efficiency gap and converge on the levels of capital efficiency of its privatised counterparts. These are listed in Section 5.4 of this report and although attainment depends on recreating the incentives (through surrogate mechanisms) that privatisation would achieve, we believe the most beneficial and readily achievable improvement areas in the PC15 period and the more likely percentage gains over the 6 year period PC15 are (assuming the governance constraints and controls can be adequately addressed):

- Longer Term Planning and Funding (1.5% over six years);
- Early Supply Chain Involvement (1.0% over six years);
- Performance Incentivisation (5% over six years); and
- Client/Consultant Model (an additional 2.5% on Longer Term Planning and Funding and Early Supply Chain Involvement over six years).

For clarity we summarise the likely percentage gains below:

- The 10% efficiency shown in Table 1.2 is applicable to PC15 using an incentivised Client/Consultant Model, which with the full benefit of Longer Term Planning and Early Supply Chain Involvement could produce 13% efficiency in the longer term;
- Using alternatively the Project JV Model and capturing the longer term benefits the efficiency could rise to 14% in the longer term; and
- Using alternatively the Programme JV Model and capturing the longer term benefits the efficiency could rise to 15% in the longer term.

2. Introduction

2.1 Purpose

UR require a review of the extent to which more effective capital procurement and supply chain management (which affects capital and operational efficiencies) can reduce NI Water's costs and improve value for money to consumers.

UR is aware of its obligation to close the efficiency gap between NI Water and the privatised Water Companies in England & Wales and is seeking information from this review as to the basis of the gap, and the scope for convergence in PC15, and in the longer term. UR produced a ToR and Scope for the Audit on 24 January 2014 which we (CH2M HILL) discussed with UR on 06 and 28 February 2014, and on 19 March 2014. The discussions were very helpful in our response to the ToR and estimation of inputs. The Audit Plan is based upon the ToR and Scope, in so far as remaining applicable, and particularly the subsequent discussions.

The discussions on the ToR and Scope were followed by Audit Plans on 14, 20 and 28 February, and 21 March 2014. At the end of March 2014, UR appointed CH2M HILL, Reporter for NI Water, to carry out the Audit.

2.2 Objective

The objective of the review is to:

- Review and comment on NI Water's PC15 capital and operational efficiency forecasts (using the Capita Report of March 2014 commissioned by NI Water relating to capital efficiencies) and our own review of operational efficiencies; and
- Review NI Water's supply chain management, compare and contrast it with other water and sewerage suppliers and other industries and where appropriate suggest other opportunities that might be used to improve NI Water's efficiency with indicative efficiency gains that might be captured.

In this latter regard our Audit Plan seeks to draw upon the experiences in capital and operational efficiency of 10 CH2M HILL contributors from differing infrastructure related industry sectors and geographical regions. The sectors and regions are a combination of:

- Water and sewerage, electricity, highways, railways and the unregulated private sector; and
- England & Wales, Scotland, North America and Australasia.

From these contributions we have selected suggestions that may have merit in the future procurement of NI Water's capital works and operational activities.

Such suggestions will be considered by UR in its review of NI Water's PC15 submission and in setting efficiency targets. This is in furtherance of the longer-term objective of improving the efficiency of delivery whilst building a financially and organisationally sustainable NI Water platform to meet Ministerial objectives contained within new Departmental Social and Environmental Guidance.

UR is looking to these international infrastructure business suggestions to help inform its efficiency calculations. We caution that the value of such global comparison of procurement models in other developed economies (particularly outside EU) is limited and could lead to misleading conclusions.

In recognition of this, our review has drawn on such comparisons and made efficiency suggestions with indicative efficiency gains as appropriate, but we have noted the different economic, social, technological and legal frameworks from those of NI Water which might preclude direct comparison.

In accordance with the Audit Plan we have adopted a two-stage approach:

- Quantitative reporting: including limited benchmarking against UK comparators subject to similar frameworks (water and sewerage, highways, rail and electricity utilities); and
- Qualitative reporting: against international comparators in water and sewerage, highways and railways transport in North America and Australasia.

The Report focuses on efficiencies rather than scope savings. Scope savings, if made, will reduce cost of whatever procurement strategy is employed.

2.3 Efficiency Background

Having been NI Water's Reporter for some years, we have acquired an understanding of NI Water's supply chain management and its changes over time. NI Water has also alerted us to constraints to efficiency due to NI Water dependency on governmental budgetary approvals compared with the longer-term self-financing arrangements in the water companies / utility businesses in England & Wales and Scotland.

As a government owned company (and subject to OGC rules) NI Water has keenly stressed it operates in a very different market to other GB water companies, and indeed, but not quite so different from Scottish Water. We accept these points and that it is not yet directly exposed to the same external efficiency driving pressures such as risk/reward incentives, directly paying domestic customers, private shareholders and corporate peer pressure from neighbouring companies.

These pressures are difficult to simulate in a monopoly government public service orientated business, but this Review considered to the extent possible, how other publically owned organisations have simulated ownership and independence to address these pressures.

NI Water has also stressed that its situation is impacted by Public Expenditure constraints and its status as a non-departmental public body. One aspect of this is the difficulty in setting multi-year budgets. NI Water have also stressed the imposition of Government initiatives such as obligations under Sustainable Procurement with the need to employ directly or indirectly SMEs and SEEs. We have not seen evidence of these obligations.

There are also geographical considerations. In England in particular, whilst acknowledging that some water companies have substantial investment programmes, the market is large and open and the impact of any one company on the total market is comparatively small. Conversely NI Water's investment programme is some 15% of the NI public market, and comparatively more if the market is sliced between building and civil engineering. This, together with Ministerial employment objectives, places and gives NI Water an additional public duty in the market place.

However, there are substantial regional differences from the other UK regions which provide a rationale for lower unit costings. Notably, salary levels are generally 14% lower than the UK average, house prices have been among the most depressed in the UK and have not enjoyed the recent rebound seen in SE England (and reflected in national prices) and the Regional labour market and construction sector has remained more sluggish than other regions in the UK.

2.4 Method Statement

We carried-out the review in three interlinking and overlapping parts:

- Part 1: a review of NI Water proposals: to understand the current strategies proposed by NI Water for PC15 capital procurement, including the operational requirements, together with the efficiencies planned and the constraints there are to fully driving efficiency. This takes the form of a review of the Capita Report (noted earlier) for capital efficiencies;
- Part 2: an assessment of national and international procurement methods in practice: a review of the supply chain management of other selected comparator companies in the water and sewerage sector and other infrastructure related industries in the UK and overseas; and
- Part 3: an assessment of opportunities to close the efficiency gap: this will be the analysis of Parts 1 and Part 2 to see if there are procurement and operational practices that could be adopted by NI Water to improve efficiency/reduce cost with and without the current constraints on efficiency experienced by NI Water.

2.5 Audit Activities

The Audit commenced with further discussions with UR, and subsequent meetings with NI Water, and subsequent conference calls and meetings with UR. We give below, in Table 2.1 a list of the meetings and conference calls and the topics discussed.

Table 2.1: Meetings and conference calls during the Audit

Date	Format	Topic	Attendance
18.03.14	Meeting	PC15 capital efficiencies	NI Water
19.03.14	Meeting	PC15 efficiencies and the Capita Report	UR
19.03.14	Meeting	PPP/PFI, Goods & Services and operational procurement	NI Water
20.03.14	Conference call	Progress review	UR
27.03.14	Conference call	Audit Plan, the way forward and finalising Audit Plan	UR
03.04.14	Meeting	PC15 efficiency targets, Capita Report and Business Improvement	NI Water
11.04.14	Conference call	Progress Review	UR
14.04.14	Meeting	PC15 efficiencies and the Capita Report	NI Water & Capita
16.04.14	Conference call	Progress review and the International Contributions	UR
30.04.14	Conference call	Progress review and the Opportunities	UR
07.05.14	Meeting	Draft Report review and amendments into a Second Draft	UR
21.05.14	Meeting	Preliminary Final review and amendments into Final Report	UR

3. Part 1: PC15 NI Water Plans

3.1 Introduction to Part 1

This Part 1 of the Report is based upon the Capita Report, entitled PC15 Capital Delivery Strategy. Issue 7 of this report dated 5 March 2014 has been included as Chapter 3: Appendix 2, Annex 1 of NI Water's PC15 Submission to UR in March 2014.

Capita Property and Infrastructure Ltd (Capita) was commissioned by NI Water in June 2013 to undertake a review of potential procurement and delivery models and strategy for the Company's capital works in PC15.

The Capita brief as stated in its report was to:

- Provide an evidence based approach to selection of the strategy;
- Learn lessons from the existing frameworks and the experience of other water companies and utilities;
- Allow for the existing frameworks and their time for renewal;
- Take account of the current Northern Ireland construction market;
- Consider the risks of legal challenge;
- Consider the practicalities of implementation, including the maturity of NI Water's capability to implement different strategies, the governance and regulatory environment and customer expectations; and
- Take account of the potential for different levels of capital efficiencies with different models.

3.2 Our Review

Our review of the work undertaken by included:

- A desk-top review of the Capita report; and
- Interviews with the Capita team and report authors and the NI Water client manager for the work.

The scope of our review included:

- Undertaking a general review of the approach and methodology used for the Capita review to ensure full understanding of the key issues;
- Gaining an understanding of the extent and quality of source information used in the review;
- Examining and understanding the choice of English and Welsh companies used as benchmarks;
- Establishing whether the review covered all components of NI Water's PC15 capital programme;
- Understanding why the impact of NI Water's Future Organisational Model (FOM) was not covered by the review;
- Discuss the real impact on NI Water efficiency of the constraints imposed on them governancely and economically;
- Discussing the benefits of Integrated Frameworks and whether they could be more widely used;
- Discussing whether the resurrection of the Alliance would produce efficiencies, and to understand the impediments to implementation; and
- Examining the benefits of the Integrated Delivery Team (and IProcT) and whether could this be more widely used.

3.3 Overview of the Capita Findings

3.3.1 Capita Terms of Reference and Approach

Capita stressed to us that its brief was to identify and define at high level a suitable capital delivery model rather than a potential efficiency value or band. However it has identified that between 3% and 4% capital efficiency is possible over PC15, contingent on a number of recommendations and changes being made.

We noted that the Capita assessment was principally concerned with capital works expenditure rather than M&G and operating costs and that its review was undertaken over a relatively short period of time between June and August 2013. We established that the Capita information sources included information that it had available from its advisory work with two English water companies plus its wider knowledge of water utility procurement and programme management in the United Kingdom. We noted that Capita works for NI Water in a PC13 programme management and NEC procurement capacity.

The Capita approach to the review included a desk-top study of relevant documents and publications from Northern Ireland Government, UR and from NI Water. It references relevant Ofwat published reports on the cost performance of the English and Welsh Water and Sewerage Companies (WaSCs), HM Treasury and UK Infrastructure reports.

The Capita review also included interviews with key NI Water personnel a one-day session with a sample of NI Water suppliers including two consultants ([x] and [x]) and two contractors ([x] and [x]). We understand the invited consultants and contractors were interviewed separately (with NI Water staff present) and were encouraged to contribute openly. We were told some participants were more open than others but that the exercise yielded information that was useful for the review.

Capita's capital delivery model considerations included how capital works are contracted and incentivised, who does what and when, and the programme for delivery. We noted that the considerations excluded procurement.

A key assumption made by Capita is that NI Water will continue to operate in the same way in PC15 as it does now, and that the current governance, governance and funding arrangements will continue.

3.3.2 The Construction Industry in Northern Ireland

Capita has compiled a general overview of the construction industry in Northern Ireland. The main points identified relate to the economic recession over the last seven years and the impacts this has had on outputs, prices and the construction supply chain.

Northern Ireland was the first region in the United Kingdom to suffer an economic decline. Levels of output have steadily declined since 2007 and in 2013 were some 40% below their peak in that year (a greater decline than experienced in other parts of the United Kingdom).

Capita describes the recessionary effect on construction prices and the increased incidence of company closures, job losses and the erosion of available resources. It is suggested that the economic conditions and consequential impact on prices and wages in recent years will have contributed to some of the capital and operating efficiency gains made by NI Water.

Construction prices remain depressed. The risk of price claw-back in PC15 is highlighted elsewhere in the Capita report together with the resulting impact on NI Water's potential to achieve future efficiency gains as a result.

NI Water comments that it is worth noting that a recent PwC report on the NI Economy indicated 4.9% reduction in construction employment, but also that the Procurement Managers Index 12 month average was lower than the UK. However, the Procurement Managers Index 3 month average shows cost increases comparable to UK average, therefore accelerating cost.

Our efficiency considerations do not take into consideration any market claw-back, nor any inflation in price levels. By market claw-back we refer to contractors increasing tender prices above inflation to redeem any

losses or constrained profit during the recessionary times. We expect the market to balance-up over time, but it may be some time before all labour is absorbed in the industry.

NI Water comments that there is a real negative impact on efficiency in the annual PE, as this effects the profiling of capital investment and leaves the supply chain in potential turnover doubt. It is true that part of the capital investment finance in any one year may be reduced, but could be increased, under the PE mechanism. However this impact can be mitigated by NI Water in its procurement strategies. The potential saw tooth profile created by PE can be considered as two procurement paths. The first, capturing the efficiencies by the procurement strategies discussed in this Report, built on the assured capital investment, which has generally been at least 85% of total, unaffected by PE. The balance of investment, if permitted by PE, to be managed either through the procurement strategy or strategies adopted, or by a separate procurement strategy created for the purpose.

We suggest that the more appropriate mitigation would be through the procurement strategy or strategies in place with reserve activities that fall-in as required. Whilst these reserve activities may not capture quite the same efficiencies as the assured capital investment, we consider that their impact would fall within the range of efficiencies note in this Report, perhaps more to the lower end of the scale rather than the central estimates.

NI Water also comments, in reference to inflationary costs, that it considers that there is a risk of double digit inflation. Here we consider differentiation has to be made between the increases in price levels generally and the impact on claw-back tender prices, where the latter could well exceed the former in percentage terms. However, we have not included the impact of inflation in any of our efficiency estimates. In any case double-digit inflation seems unlikely, except on an aggregate basis over a number of years.

NI Water also considers that it is worth noting that Irish Water released its proposed 3 year programme (CIP) which equates to €1.77 billion, and that this will have an impact on NI, as it will cause inflationary pressure due to the contiguous market becoming more attractive. Whether this turns out to be the case remains to be seen, but at best it will be another layer of inflationary pressure rather than a prime driver.

In any case NI Water has the opportunity to consider hedging the impacts of inflation by its choice of procurement strategy. Using the incentivised Client/ Consultant Model, or indeed the incentivised Contractor/Consultant JV options should, on a Cost Target basis, tend to limit inflation to general price levels rather than a series of claw-back tenders over the PC15 period.

We note however, that some efficiencies are drivers, and their impact is captured through other efficiency opportunities. These drivers are Loosening Governance Constraints, Management Matters and Value Driven (WLC)/Customer Focus.

3.3.3 Current Northern Ireland Budget and Constraints

Capita references a £4billion fall in public spending over the period 2011-2015. The Comprehensive Spending Review saw a 40% decrease in capital expenditure over the period. NI Water's share of 2012-2013 capital spend is reported to be 12.6% of the entire Northern Ireland budget.

Capita also mentions a large reduction in activity in the Republic of Ireland.

The fall in public spending has had a significant impact upon the Northern Ireland construction market with resulting business closures and job losses.

3.3.4 The Procurement Landscape in Northern Ireland

Capita describes the recent and current context for procurement in Northern Ireland, which is a steadily reducing market, the loss of many skilled jobs and the erosion of available resources. Other key points noted include:

- Public Sector Procurement is increasingly managed by a Central Procurement Directorate (CPD) with extensive use of its PQQ and ITT templates;

- Project designs are significantly developed prior to Design & Construct tendering, meaning there is little scope for contractors to offer innovation; and
- PPP has fallen out of favour.

Capita suggests that mechanisms for public sector procurement including efficiency and value for money should be considered in the light of their impact on sustainable pricing, investment in equipment and training and supply chain company survival so that locally based businesses are not lost.

3.3.5 Overview of Northern Ireland Water

Capita has presented an overview of the history of NI Water and its current organisational arrangements. Reference is made to the ongoing FOM, but the scope and likely outcome of FOM has not been considered. This is understandable as FOM was in its very early stages when Capita undertook its review in the summer of 2013. Whilst high-level objectives for FOM have since been identified, FOM currently remains at the early planning stage.

Capita has also summarised NI Water's recent and current capital delivery arrangements and compares it to the WASCs in England and Wales. The main points to note are:

- Strategic Business Plan (2007-2010) (SBP): pre-existing frameworks for most work were used plus one off projects and call-off consultancy frameworks. Efficiencies were achieved mainly through removal of scope;
- PC10: significant catch-up efficiency targets for Capex and Opex were set by the Regulator. NI Water attempted the creation of an integrated delivery team Alliance but a decision to defer creation was taken due to the Comprehensive Spending Review and lack of certainty of funding. There was also the perception amongst stakeholders that Alliancing or profit sharing was not consistent with rules governing Public Expenditure and NI Water's Non-Departmental Government Body (NDGB) status. In particular it was felt that alliancing fell within DRD's definition of Novel or Contentious procurement, as detailed on NI Water's Financial and Procurement delegations and as such would not receive backing from DRD. This caused a delay in the procurement of a replacement framework. A new framework for water mains was introduced in 2010. The Integrated Wastewater Framework (IWWF) continued from the SBP period. The SBP consultancy framework lapsed in 2010;
- PC13: integrated capital delivery frameworks were eventually awarded in late 2013. Consultancy frameworks were in place from 2012;
- M&G and Operations Capital: around £39million per annum is spent on these activities and the work is procured by Operations Managers through the NI Water Operations Contract Management Centre using competitive tendering processes. Generally unit rates are used, called off as required. Capita identifies the potential for future efficiencies in these activities through use of NI Water capital delivery teams, continued training of operations staff and standardisation of specifications.

Capita highlights the main differences between NI Water and the English and Welsh WaSCs to be:

- Funding is allocated annually by DRD and reflects government budgets and constraints;
- Governance pressure to support local businesses and procurement to be open to SMEs, this has a major influence on framework procurement processes;

- Strong governance and media scrutiny and the need for transparent competition and acceptance of lowest price regardless of value for money;
- Incidents of strong legal challenges to proposed procurement arrangements; and
- The NDPB status, which constrains NI Water's ability to drive efficiency through procurement innovation and incentivisation.

3.3.6 Capita's Information Sources and WaSC Comparisons

The key information sources used by Capita included:

- Various reference documents and publications from the UK and NI Government including Smoothing Investment in the Water Sector: July 2012 and Infrastructure Procurement Route Map: A Guide to Improving Delivery Capability: January 2013;
- Ofwat WaSC efficiency data from PR09 (latest and last available information);
- Brief summaries of England and Wales WaSC AMP5 capital delivery models including distribution of activities, contract types and allocation of frameworks (based on publicly available information); and
- Suggestions from sample NI Water suppliers for PC15 with regard to efficient working and preferences for procurement mechanisms.

Capita has illustrated, as examples, five English WaSC AMP5 procurement arrangements as follows:

- Anglian Water: deemed to be capital efficient by Ofwat. Considered to have the most aggressive alliancing arrangement;
- Northumbrian Water: considered to be relatively efficient. Using a traditional framework approach;
- Wessex Water: considered to be relatively efficient. A smaller WaSC using an element of in-house contracting;
- Yorkshire Water: considered to be relatively efficient. Pioneered a framework approach in AMP3; and
- South West Water: of similar size to NI Water with similar geographic challenges. Uses an alliance model comprising two main contractors and two consultancies. Increased performance has been noted in recent years.

3.3.7 Routes to Capital Efficiency

Despite the lack of directly comparable information Capita states that NI Water believes itself to be relatively efficient compared to the English and Welsh WaSCs once local and regional factors are taken into consideration. Whilst NI Water comments that its cost base is now favourable, NI Water also accepts that there is scope for further efficiency in capital delivery.

Capita states that the challenge facing NI Water is to provide increased efficiencies whilst operating within the constraints imposed by the governance and regulatory framework, funding regime and appetite and opportunities for incentivisation.

The approaches driving efficiency for the WaSCs in England and Wales in AMP6 include:

- Incentivisation of delivery models;
- Innovation in procurement and technology;
- Packaging (bundling) of work;
- Standardisation of designs and offsite construction; and
- Smart solutions: low or no build, Totex and alternatives to Capex.

Capita considered the following opportunities for NI Water:

- Incentivisation of supply chain and NI Water staff: limited scope due to unit rates already being very low but possible rewards are available for providing efficiencies on outturn costs versus initial determination costs on the basis of additional work. However, there may be difficulties within the NI Water governance system. Workload incentives may be attractive using performance against KPIs but this would need careful definition of KPIs and strong leadership backing, appropriate training and governance;
- Greater use of innovation and specification challenge: currently fairly conservative and risk adverse approaches are in use. There is a need to balance the adoption of innovation and challenge specifications against common standards. This would require a thorough review process to minimise what is really needed to provide the required asset integrity and operability. NI Water should look to design processes, incentivisation of suppliers review processes and altering standards on a case-by-case basis;
- Consistent culture of value challenge and providing efficiency targets at project level to project staff and supply chain: this could be achieved partly through incentivisation of the supply chain and NI Water staff. Value challenge should be undertaken at the design stage including the consideration of low or no build solutions. There would be a need to engage the supply chain in seeking out opportunities for efficiencies and an Alliance model is good for this. It is noted that FOM may be considering this. NI Water's Capital Investment Appraisal System (CIAS) introduced in January 2012 aims to put more emphasis at the start of projects, into developing the right solutions and scope and training and robust value engineering are reported to be included. To be successful this would need buy-in from the whole NI Water team i.e. assets and operations. There is also a need to consider how savings would be used, e.g. reinvested in more work.

However, Capita also identifies issues and constraints to these opportunities as follows:

- All expenditure is seen as public money for which it must be accounted. Price has a relatively higher weighting than value;
- Impact on employment and SMEs. There is a belief that all suppliers should get a share;
- Payment for water services is by government funding not customers (consumers);
- Management of NI Water has less authority than in the English and Welsh WaSCs. There is also the need to comply with government processes;
- There is a history of numerous legal challenges to procurement arrangements;
- A perception exists that incentivised contracts do not work and that the contractor always wins. There is also a history of scope changes by client during construction; and

- The governance landscape and degree of influence.

3.3.8 UK Infrastructure Route Map

Capita has used the content and recommendations from the HM Treasury and Infrastructure UK Report from January 2013 entitled 'Infrastructure Procurement Route Map: a guide to improving delivery capability' to assess NI Water's current procurement characteristics and the improvement opportunities that may be open to it.

The key points that Capita considers to be relevant to NI Water taken from the Report are:

- Early visibility and commitment of work to suppliers;
- Differentiation between sponsor and client;
- Timely decision making by sponsor and client; and
- Early supplier engagement and integration of the supply chain

Capita has used the Report's scoring mechanism to assess the maturity of NI Water's procurement arrangements as follows:

- Delivery environment/complexity: NI Water deemed to be Medium/High i.e. Complex;
- Sponsor and asset management teams: NI Water is considered to have overly complex processes in place. There is a lack of uniform adoption of processes and procedures. The level of staff maturity is sometimes inconsistent with grade. The interface between asset and engineering teams is not as effective as it could be. Risk/opportunity registers are coarse and high level. There is no stringent emphasis on driving efficiency at project level in a coherent manner. There is a reactive approach to planning at year-end to meet the DRD budget. Efficiency targets are set at strategic level only. NI Water is deemed to be Level 2;
- Client/Supply Chain: NI Water is assessed to be between level 2 and 3. Some value and output tracking processes are in place and risk schedules and planning tools are in evidence. A level of maturity is not seen in the Northern Ireland market with SMEs not having the opportunity to be more innovative in approach.

As a result of these assessments, Capita suggests that NI Water should be considering Critical delivery arrangements such as prime contracting, frameworks and lead procurement.

From its knowledge of the English and Welsh water sector Capita believes that Alliancing arrangements are generally yielding the greatest efficiencies but that traditional models are also providing solid if not frontier performance. We agree with this from our knowledge and experience. We also concur with Capita's views that being decisive about approach and providing clear vision provides the greatest efficiency and that a well-run organisation can deliver efficiency without the need to invest in attaining the organisational maturity required for higher complexity models.

Having a model that is traditional but well managed is not an impediment to overall performance.

3.3.9 Potential Capital Delivery Models

Capita has assessed eight possible capital delivery models for NI Water, considering that four are possible for further consideration. A summary of its assessment is as follows:

1. Direct Labour: Not practical as significant and substantial change needed in the way NI Water operates;
2. Management Contracting: not practical as significant change would be needed in the way NI Water operates;
3. Traditional (client design and contractor tender): possible;
4. Design and Construct: possible;
5. Project feasibility, Design and Construct (client identifies need and consultant/contractor JV delivers: possible
6. Programme feasibility, Design and Construct (client identifies need and JV delivers programme: possible
7. Design, Build, Operate (client identifies need and JV builds and operates); not practical as there is currently no intention to contract out operations; and
8. PPP (aka design, build, finance and operate): not practical as there is currently no intention to contract out operations.

One-off capital procurement was also discounted because this would be an inefficient way of delivering bulk of a programme that consists of small projects.

Capita has also rejected an Alliance arrangement because of strong opposition from stakeholders.

Of the four options considered to be possibilities, Capita has then considered:

- Alignment with existing models;
- Likelihood of delivering enhanced efficiencies;
- Requirement for bespoke and incentivised contract terms;
- Provision of in-year flexibility;
- Efficiency: in terms of programme and lean delivery;
- Effectiveness: in terms of driving good outcomes and value; and
- Practicality: ease of implementation and appropriateness to type work, systems, culture and stakeholder environment.

Traditional procurement has been discounted because it is believed it would not deliver the required efficiencies and would reduce the involvement of the broader supply chain. However, some elements could be used for minor works to satisfy governance pressure for SME involvement.

Joint Ventures have been discounted because of:

- Transition from existing arrangements would be too great within the timescale considered;
- There is potential for failure due to internal and external supply chain acceptance and ability to deliver;
- JVs are not conducive to multiple suppliers in a framework environment; and
- Incentivisation is considered to be too great an obstacle in the short term.

The outcome of Capita's assessment is that Design and Construct is considered to be the best capital delivery model for NI Water in PC15. It has then considered the elements of a Design and Construct framework and has suggested the specific requirements for NI Water as follows:

- Weighting of framework contract versus call off contracts: Capita proposes a balanced framework where the contract specifies all the contract terms and conditions (including risk allocation) and the call-off contract specifies the scope of works, the price and the timetable;
- Who does what: Capita highlights that FOM needs to consider this in detail but its recommendation is to use a traditional approach with client identification of need and employing several contractors on frameworks. NI Water will need to build strong expertise in managing projects end to end and in managing the interface between asset management, designers and contractors. There will also be a need for early and clear visibility and certainty on the capital programme. NI Water comments that this is a major issue for the supply chain, as annual budgeting drives inefficiency. The mitigation of this impact is discussed earlier in this Report;
- Method of payment and reward for good performance: the proposal would be to use lump sums on larger projects (tendered and where the scope of work is well defined and the design frozen at tender stage) and schedule of rates on the rest of the programme (the majority). Incentives on schedule of rates would come from KPIs to drive competition and out-performance between suppliers. Capita suggests retendering the schedule of rates every two to three years in order to maintain competition; and
- Number and type of frameworks and number of suppliers: for Consultancy Capita's recommendation is to use several consultants covering contract supervision, feasibility studies, zonal and drainage area plans, engineering design and project management and cost management. For contractors the recommendation is to use eight contractors for minor infrastructure works, and four contractors for each of water infrastructure, waste infrastructure, large non-infrastructure and small non-infrastructure. NI Water would retain the capacity for larger projects (>£10m) to be individually tendered.

Capita highlights that NI Water will need to provide or consider:

- Good visibility of the PC15 programme;
- Definition of when traditional design and design and build will be used;
- Guidelines on when to use schedules of rates and lump sums;
- Definition of the extent of mini-tendering within frameworks and tendered rates at programme level during the framework procurement;
- Reward mechanisms for schedules of rates projects;
- The opportunity for bundling projects into mini-programmes; and
- Clear description of the delivery model and creation of robust procurement process and documentation.

Finally Capita identifies the following challenges that NI Water will face:

- The need for better visibility and earlier award of annual programmes of work;

- The need for education of stakeholders, the public and staff on value versus lowest price;
- The timing and extent of the new procurement strategy; and
- The need for improvements in NI Water internal processes and coordination for procurement, asset management, contract management, project management, staffing levels and quality, governance and culture.

3.3.10 Capita Conclusions and Recommendations

In summary Capita conclude that:

- The current capital delivery model is over complex with too many lots and suppliers;
- Historical problems with currently practiced procurement and contract management have been caused by governance requirements and public expenditure rules and focus on lowest price rather than best value;
- Efficiencies have been gained in the past but may be due to the macroeconomic environment in Northern Ireland, particularly the downward pressure on construction process and wages;
- NI Water's operating environment is significantly different to England and Wales due to funding, governance and market and economic conditions;
- PC15 should use some form of framework arrangement with simplification of that used in PC13. Delivery should use a mixture of Design and Construct with a more traditional procurement route adopted for simple projects and most of the infrastructure programme. Change within NI Water will be very important.

Whilst stressing to us that it's brief was primarily to identify a suitable capital delivery model for NI Water in PC15, Capita assesses that potential efficiencies of between 3% and 4% could potentially be achieved with PC15 but contingent on:

- Project scope, value engineering and fixed early in the process;
- Interfaces between customer services, asset management and engineering procurement should be reviewed and developed. Early identification of asset problems and needs, provision of robust asset information and engagement with project teams will be needed to drive efficiency opportunities;
- Procurement of consultants should be based on quality not lowest cost;
- Performance of consultants and contractors should be measured using appropriate and robust KPIs and linked to rewards and potential for further work; and
- Good programme visibility plus bundling of works into packages should be achieved where possible.

Our conclusions from the Capita Report are included in the Conclusion section of this Report.

4. Part 2: National and International Contributions

4.1 Introduction to Part 2

This review is based upon the experiences of our broad team, each contributing a brief review of the capital procurement strategies and supply chain management currently in use in various parts of the world and similar or related infrastructure sectors.

Our contributors have each provided a short document setting out the procurement strategies and supply chain management currently used within their industry sector and geographical location. The documents are on similar bases and are included in the Appendices to this Report. The contributions are high-level qualitative commentaries, but can be used to identify areas for further consideration separate to this review, or for elimination if not deemed to offer useful opportunities to NI Water.

We have not ascribed any direct reference to any source that is not in the public domain.

4.2 Contribution Headlines

The headlines arising from the Contributions in the Appendices are given below. We have summarised the headlines under three categories:

1. Key Features of the Sector;
2. Procurement Headlines; and
3. Points for consideration that could relate to NI Water and used in Part 3.

Appendix 1: England & Wales Water Sector

A general review of the past, current and future funding, procurement and supply chain management in the sector and the regulatory influence on the water and sewerage company's activities. There is particular focus on capital maintenance which is a key feature of NI Water for PC15.

Key Features

1. Fully private sector under regulation;
2. Revenue risk with companies including bad debts;
3. Ofwat are moving to a division between wholesale and retail services;
4. Efficiency gains kept by companies until later claw back under regulatory determinations;
5. The prime efficiency drivers are commercial gain and shareholder value;
6. Typical current efficiencies 1 to 2% per annum; and
7. Customer feedback important.

Procurement Headlines

1. Use of Target Cost contracts (NEC suite) and incentivisation (including pain/gain);
2. Risk sharing with the supply chain;
3. Alliance and frameworks used and continue to be used;
4. 5 year AMP programmes seen by companies as too short to fully drive efficiencies, longer periods, up to 10 years, would be better;
5. Increasing focus on long term value rather than short term cost; and
6. Outsourcing Opex losing favour.

Points for Consideration

1. Typical current year-on-year efficiencies 1 to 2% during AMP5;
2. Supply chain partners for capital works vary but generally rely on 3 for cross-competition and benchmarking;
3. Customer feedback important;
4. Use of Target Cost contracts (NEC suite) and incentivisation (including pain/gain);
5. Risk sharing with the supply chain;
6. Alliance and frameworks used and continue to be used;
7. 5 year AMP programmes seen by companies as too short to fully drive efficiencies, longer periods, up to 10 years would be better; and
8. Increasing focus on long term value rather than short term cost.

Appendix 2: North American Highways

A general review of the past, current and future funding, procurement and supply chain management in the sector. The general procurement is of capital works but capital maintenance and operational issues are included.

Key Features

1. Revenue generally toll based; and
2. Customer feedback relates to asset condition/appearance

Procurement Headlines

1. Traditional procurement in US has moved into Design & Construct and then to DBFO (major projects);
2. Regulation through the contract;
3. Canada has used private sector finance for some time;
4. Risk transfer on best managed basis, although there is now a general thrust to transfer risk to supply chain;
5. Lesson learned: US state governance and department constraints (despite federal pressure) through lack of understanding newer procurement strategies (and reluctance to change) whilst supply chain understands very quickly;
6. Lesson learned: need for robust management systems, and skilled people to drive them;
7. Stick (penalties) generally used rather than carrot (bonuses); and
8. Design & Construct preferred; and

Points for Consideration

1. Lesson learned: US state governance and department constraints through lack of understanding newer procurement strategies (and reluctance to change) whilst supply chain understands very quickly;
2. Lesson learned: need for robust management systems, and skilled people to drive them;
3. Penalties generally used rather than bonuses; and

Appendix 3: UK Unregulated Private Sector

A general review of the past, current and future funding, procurement and supply chain management in the supermarket infrastructure sector, with particular focus on capital maintenance and operations. A focus similar to that of NI Water in PC15.

Key Features

1. Retail supermarket chain;
2. No regulation other than law, but some voluntary codes of practice;
3. Budgeting annually;
4. Constant cost reduction demands challenge quality and reliability, finding the balance is crucial;
5. Customer feedback important but only to products sold; and
6. Driven by commercial gain and shareholder value

Procurement Headlines

1. Own procurement rules with internal audits;
2. Risk transfer wherever possible to the supply chain;
3. Use of KPIs and pain/gain;
4. Activity schedule (of rates) based;
5. Competitive tendering with BAFO, driven by financial results, construction only a part of the supply chain (unlike NI Water);
6. Value for money uses external market testing at any time;
7. Indexation not used (short term fixed price basis), annual pressure to reduce maintenance cost base;
8. Whole life principles used to close the Capex/Opex equation;
9. 15% maintenance carried out in house;
10. Frameworks (and forms of partnering) not favoured; and
11. Lean working principles employed to reduce waste and inefficiencies

Points for Consideration

1. Risk transfer wherever possible to the supply chain;
2. Use of KPIs and pain/gain;
3. Whole life principles used to close the Capex/Opex equation; and
4. Lean working principles to reduce waste and inefficiencies

Appendix 4: Australia NZ Infrastructure

A general review of the past, current and future funding, procurement and supply chain management in the sector and regulation through the contracts (highways) activities. The general procurement is of capital works but capital maintenance and operational issues are included.

Key Features

1. Government (State) Agency leads investment requirements (Roads);
2. Generally state funded, but increasing use of private sector funding (PPP) with toll revenue;
3. No regulator for roads as such but regulation compliance mandatory by law, and through the contract;
4. Paying customer revenue to the relevant public sector authority, excluding PPP (which is direct or shadow); and
5. Otherwise funding by the relevant public sector authority.

Procurement Headlines

1. Competitive tender driven (cheapest tender rather than whole life cost);
2. National (Public) procurement rules apply;
3. There is/are water and wastewater regulation/regulator;

4. Vertically integrated water/wastewater supply using local authorities (public sector) subject to regulation;
5. No set procurement strategy, open to each implementing authority to select, but emphasis on price certainty;
6. Traditional forms of contract and Design & Construct, with performance specifications;
7. PPP is used but has not found total success;
8. Alliance approach is used but with mixed results, the administration/management costs seen to negate the otherwise efficiencies;
9. Contract durations extending to 10 years to capture efficiencies;
10. Market place comparatively small and mergers and acquisitions making it even smaller; and
11. Australia and NZ generally outsource capital works.

Points for Consideration

1. Alliance approach is used but with mixed results, the administration/management costs seen to negate the otherwise efficiencies; and
2. Contract durations extending to 10 years to capture efficiencies

Appendix 5: Scotland Water Sector

A general review of the past, current and future funding, procurement and supply chain management in the sector and the regulatory influence on the water and sewerage company's activities. There is particular focus on capital maintenance which is a key feature of NI Water for PC15. Scottish Water is the nearest to NI Water in constitution (and geographically as it happens), as both are government bodies and under government constraint.

Key Features

1. Government owned;
2. Funded through Council Tax bills (domestic), direct billing (commercial/industrial);
3. Funding caps and government constraints;
4. Scottish Water is wholesale supplier to licensed providers;
5. Borrowing by Scottish Government, with annual borrowing limit; and
6. Significant investment shift from enhancement to maintenance

Procurement Headlines

1. Procurement rules as England & Wales;
2. Mainly Alliance (framework based), 5 year and 5+5 year;
3. Target cost (pain/gain) or fixed price contracts (longer term linked to COPI);
4. Some adversarial contracts giving rise to disputes, delays and mounting costs;
5. Next round, frameworks and TOM (Target Operating Model) based on the intelligent client approach (platform for securing efficiencies);
6. Self-set target for operating efficiencies 20% over forthcoming AMP;
7. Driving value/market testing by internal mini-competitions, but such interruptions seen to erode efficiencies and sustainability; and
8. Management in-house, purchase of materials and equipment in-house (competitive frameworks), operations in-house (excluding PPP).

Points for Consideration

1. Mainly Alliance (framework based), 5 year and 5+5 year;

2. Target cost (pain/gain) or fixed price contracts (longer term linked to COPI);
3. Next round, frameworks and TOM (Target Operating Model) based on the intelligent client (platform for securing efficiencies); and
4. Management in-house, purchase of materials and equipment in-house (competitive frameworks), operations in-house (ex PPP).

Appendix 6: US Commuter Rail

A general review of the past, current and future funding, procurement and supply chain management in one main metropolitan area. The review covers capital investment but there is particular focus on capital maintenance and operations which are key features of NI Water for PC15.

Key Features

1. Fares generate half operating income/revenue, balance public sector subsidy;
2. Federal support (65%) for Capex; and
3. Funding by formulaic calculation of population, average ridership and number of stations

Procurement Headlines

1. Just in time supply, with small emergency reserves;
2. Central buying of Goods & Services;
3. Bid cost driven (price), not outturn (value);
4. Inflation by indices but short-term contracts fixed price;
5. Operations in-house;
6. Planning and management in-house, capital design outsourced;
7. Traditional procurement, client designs, contractor constructs;
8. Risk averse, tried and trusted technology preferred;
9. Whole life cost increasingly used in US, but slow to start here, availability and reliability cost driven, however now moving to whole life cost, buy better, operate for less;
10. Supply chain positive incentivisation not favoured, (negative) penalties used;
11. Maintenance projects 5+1+1 years, partnering not favoured, but longer term contracts found to create efficiencies; and
12. Moving to outcome efficiencies (rather than input efficiencies), judged by reliability and accident avoidance.

Points for Consideration

1. Just in time supply, with small emergency reserve;
2. Central buying Goods & Services;
3. Operations in-house; and
4. Moving to outcome efficiencies.

Appendix 7: Asset Management and Planning

A general review of Asset Management and Planning and the advantages of a streamlined and fully co-ordinated approach on cost and efficiency.

Key Features

1. Defined as the co-ordinated activity of an organisation to realise value from its assets;
2. Uses the principles of integrated infrastructure planning, ISO 55000; Public sector regulatory controlled;
3. Two examples: Highways Agency and Network Rail;
4. Highway Agency example: principles extending into future planning, resilience and the use of more off-site construction;
5. Also in the HA example: attempting to reduce the impact of government bureaucracy and give more scope to practitioners (within predetermined investment boundaries); and
6. Network Rail example: whole life costs rather than short term cost reduction, two year trial relating to asset condition, asset maintenance, life cycle planning, programme optimisation, trade-off analysis and regional asset management plans

Procurement Headlines

1. Highways Agency example: government plans to make the HA an arm's length agency in 2015, moving from traditional input control to output driving (outcomes, product and production culture);
2. Emphasis on whole life costing (value driven) rather than cheapest input price (cost driven);
3. Emphasis on team working as cluster projects in overall programmes;
4. Move to creating longer term maintenance planning, five year horizon rather than annual, more certainty for the supply chain, more efficiencies;
5. Target efficiencies 4% per annum initially;
6. Longer term view, more decision scope, more effective, more efficient; and
7. Use of early supply chain involvement.

Points for Consideration

1. Highways Agency example: government plans to make the HA an arm's length agency in 2015, moving from traditional input control to output driving (outcomes, product and production culture);
2. Whole life costing (value driven) rather than cheapest price (cost driven);
3. Emphasis on team working as cluster projects in overall programmes;
4. Target efficiencies 4% per annum initially;
5. Longer term view, more decision scope, more effective, more efficient; and
6. Early supply chain involvement.

Appendix 8: UK Electricity

A general review of the past, current and future funding, procurement and supply chain management in the distribution sector and the regulatory influence on the company's activities. There is particular focus on capital maintenance which is a key feature of NI Water for PC15.

Key Features

1. Sector covers electricity generation, national transmission, regional distribution and supply;
2. Privatised sector: key drivers are commercial reward and shareholder value (within regulatory parameters);
3. Distribution more matches NI Water;
4. Funding by direct tariff to suppliers, suppliers purchase from generators, pay national transmission and regional distributors;
5. Supply chain uses private sector debt;

6. Ofgem regulated but only non-competitive monopoly business (core networks etc.). Transfer pricing between asset providers and retailers in stark contrast to water sector which is vertically integrated;
7. Review period 5 years seen as too short for efficiency, moving to 8-years; and
8. Risk of supply with the supply chain; as is demand risk

Procurement Headlines

1. Performance risk with supply chain but incentivised (distribution) through pain/gain against KPIs;
2. Mainly maintenance with some extension work;
3. Contracts geared to regulatory period (with interim testing), using (partnering) frameworks, 2 to 3 each in subdivided area for cross-benchmarking, select list tender competition;
4. Uses early contractor involvement and smoothing resource levels;
5. In-house management, with some in-house resources for emergency cover;
6. Central purchasing of major materials and equipment;
7. PPP not favoured;
8. New technology a main driver of efficiency; and
9. Maintenance efficiencies in the region of 1 to 2% per annum, but low hanging fruit now picked.

Points for Consideration

1. Review period 5 years seen as too short for efficiency, moving to 8 years;
2. Performance risk with supply chain but incentivised (distribution) through pain/gain against KPIs;
3. Contracts geared to regulatory period (with interim testing), using (partnering) frameworks, 2 to 3 each subdivided area for cross-benchmarking, select list tender competition;
4. Use of early contractor involvement and smoothing resource levels;
5. In-house management, with some in-house resources for emergency cover;
6. Central purchasing of major materials and equipment; and
7. Maintenance efficiencies in the region of 1 to 2% per annum, but low hanging fruit now picked.

Appendix 9: England and Wales Highways

A general review of the past, current and future funding, procurement and supply chain management in the sector and the government influence on the Highway Agency activities. The review covers capital investment but there is particular focus on capital maintenance and operations which are key features of NI Water for PC15.

Key Features

1. Public sector, using restricted procedure tendering and PPP with competitive dialogue;
2. UK and EU procurement rules;
3. Government funding on 3 year rolling allocation;
4. Value for money based on delivery certainty and long term sustainability;
5. Large competitive supply market;
6. Potential cost savings from sweating the assets being considered; and
7. Network operations risk to supply chain except third party losses (other than contractor caused), war, rebellion etc. carriageway fair wear and tear, variations/compensation events, land, payment, public sector negligence.

Procurement Headlines

1. PPP risk transfer to supply chain except public sector variations, land, public sector negligence and payment;
2. Network contracts 5+3 year horizons;
3. Value for money tests under Treasury guidelines;
4. Asset Support Contracts using schedules of rates, primarily NEC target cost based (pain/gain);
5. 90% of contracts are Design & Construct based;
6. Targeting 20% efficiency over 5 years using programme rather than project approach;
7. Use of early supply chain involvement and collaborative working;
8. Programmes include PPP; and
9. Efficiency driving based on annual discounts for length of contract, use of target cost (pain/gain), efficiency improvement obligations, and cost saving through sweating the assets.

Points for Consideration

1. Network contracts 5+3 year horizons;
2. Asset Support Contracts, schedules of rates, NEC target cost based (pain/gain);
3. Sweating the assets (perhaps relevant to NI Water PPP);
4. Targeting 20% efficiency over 5 years using programme rather than project approach;
5. Use of early supply chain involvement and collaborative working; and
6. Efficiency driving based on annual discounts for length of contract, use of target cost (pain/gain), efficiency improvement obligations, and cost saving through sweating the assets.

Appendix 10: Canada Water

A general review of the past, current and future funding, procurement and supply chain management in one example; of not dissimilar size to NI Water. There is particular focus on capital maintenance which is a key feature of NI Water for PC15.

Key Features

1. Water rates set 3-yearly; recent increases 7+% per annum water, 13+% per annum wastewater and 5% for stormwater;
2. Funding from municipality from sales taxes;
3. Government debt based;
4. 97% projects by traditional Client design contractor construction, competitively tendered; and
5. Changes in operating practices to smooth resources and control risk.

Procurement Headlines

1. Public procurement rules and municipality policies, best value driven;
2. Only major works longer than a year;
3. Market testing through competitive tendering;
4. Planning and management in-house, design and capital works outsourced;
5. Consultants selected competitively on quality/price, former predominates;
6. Traditional procurement;
7. Goods & Services by unguaranteed quantity call-off;
8. Uses periodic performance evaluation reviews;
9. Operational efficiencies gained from reducing reliance on outsourcing;
10. Efficiencies gained from more robust reporting discipline (asset knowledge, management and control); and

11. Investment shift from new facilities to capital maintenance.

Points for Consideration

1. Operational efficiencies gained from reducing reliance on outsourcing; and
2. Efficiencies gained from more robust reporting discipline (asset knowledge, management and control).

4.3 Points for Consideration

From the 10 Contributions we summarise below the Points for Consideration raised above (in relation to NI Water). The summarised list includes 15 Points.

These are further examined in Part 3 of this Report.

1. Loosening governance constraint;
2. Longer term planning, funding and implementation horizons;
3. Earlier supply chain involvement (2 years in advance of horizons);
4. Customer outcome focused (outturn rather than input driven);
5. Performance incentivisation (pain/gain);
6. Collaborative team working with the supply chain;
7. Central purchasing of main materials and equipment with just in time call-off;
8. Value driven (WLC) rather than upfront cost constrained;
9. Culture change and suiting the team to the strategy (rather than the reverse);
10. Programme approach rather than project by project;
11. Smoothing work profile and the visibility of the pipeline;
12. Sweating the assets (particularly relating to PPP);
13. The level of in-house procurement capability;
14. Good quality asset and performance information; and
15. The level of sophistication of asset management processes (asset knowledge, management and control).

5. Part 3: Efficiency Opportunities

5.1 Introduction to Part 3

This Part 3 of the Report sets out the capital procurement strategies and supply chain management in use, or planned to be used in NI Water, and those of the various industrial sectors and geographical locations. Those in use or planned to be used by NI Water arise from Part 1 of this Report, those from various industrial sectors and geographical locations arise from Part 2 of this Report.

The procurement strategies and supply chain management are discussed and graded in an Opportunity Table to indicate the likely efficiency value to the NI Water service. This not only puts the strategies in context but also gives a Table of available opportunities. This is based upon NI Water's current cost structure, and we note where cost efficiencies might be gained from revisiting the existing management structure (including its governance and status).

The Opportunity Table expression of our findings is constructed to show the supply chain procurement and/or management opportunity, its applicability, indicative efficiency and grading. The efficiency grading is marked as good, average or poor.

The strategy availability to the Company is discussed in the commentary leading up to the Opportunity Table. The efficiency is expressed by assessed percentage bands. This approach will address the scoring and indicate the possible efficiency savings noted in the ToR and Scope. The likely delivery timing, barriers to delivery and what efficiencies are deliverable for the PC15 period and the longer-term is discussed in the commentary.

The procurement and supply chain management opportunities will include those currently in use and/or proposed by NI Water for PC15 from the Capita Report, together with those arising from our Part 2 experiences and research.

5.2 NI Water Proposals

The Capita Report considers that there are four possible models for NI Water in PC15. These are:

- A traditional model where the Client/consultant design and the construction works are procured by competitive tender or frameworks on schedules of rates;
- Client/consultant outline design and the construction works are procured on a Design & Construct basis by competitive tender or frameworks on schedules of rates;
- Client identifies the need and contractor/consultant JVs, procured by competitive tender, deliver the project; and
- Client identifies the need and contractor/consultant JVs, procured by competitive tender, deliver the whole programme.

The Capita Report concludes that NI Water should use some form of framework arrangement in PC15 with simplification of that used in PC13. Delivery should use a mixture Design & Construct with a more traditional procurement route adopted for simple projects and most of the minor infrastructure programme. It also suggests that NI Water should review the option with stakeholders to see which individually or in combination might be appropriate for PC15.

The Capita conclusion was drawn without reference to other sector and international comparisons so we have considered the opportunities for all the four possible models below.

We have included these four models in the Opportunity Table later in this Section of the Report as Opportunity Points 7, 8, 9 and 10.

5.3 Frameworks

One of the more common themes arising from the national and international contributions is the use of Frameworks, particularly for capital/base maintenance and in some respects operation activities. We have not included Frameworks as an opportunity in its own right in the Opportunity Table, but they do form part of several of the opportunities that are included. We consider that Frameworks offer advantages to both parties and can be used with early contractor involvement and collaborative working, can be cross-benchmarked and performance incentivised.

An interesting paper on Frameworks was published by Defra some years ago, which we consider still holds good and which we summarise below.

Three key trends have emerged in the WaSCs in the UK:

1. The use of longer term collaborative framework agreements has grown in the UK over the past 15 years and following the UK government's Latham and Egan initiatives, supported by the National Audit office, which referred to collaborative working as best practice;
2. A trend to construction led design with contractor's project managing programmes from solution development to commissioning is steadily replacing traditional design led construction procurement. The end to end construction process using contractor project management skills; and
3. A move from project level to programme level incentivisation with all partners sharing a common pot to encourage team rather than silo working.

The paper noted that in one company there had been a movement to:

- Integrate Operations and Capital programme delivery into a single Virtual Company;
- Share in programme level incentivisation;
- Ensure a focus on whole life costs and whole life asset stewardship; and
- Although whole life cost and value management formed a major part of the solution and design process, integrating operational and construction delivery organisations into a single unit was new, but used to meet the stiffer challenges set by the AMP processes.

The benefits to Clients were seen as:

- Cost certainty;
- Improved performance through KPIs; and
- Cost efficiency and savings

The efficiency/cost savings were driven by:

- Improved supply chain management: not only using commercial leverage but identifying suppliers costs and driving these down whilst not impacting margins;

- Economies of scale with an adequate programme horizon: construction resources can be optimised using either geographical or functional clustering. This reduces costs by optimising resource use and by avoiding “learning curve” effects;
- Value management, value engineering and value review;
- Headcount reduction following activity transfer;
- Consolidated risk management systems; and Continuous improvement culture.

The benefits to contractors were seen as:

- Collaborative management of risk;
- Incentivisation: the opportunity to beat a target cost and benefit from an incentive gain share drives efficiency; and
- It encourages regional development and local longer term employment.

5.4 Opportunities

The procurement models and strategies discussed in, and arising from Parts 1 and 2 of this Report, have been grouped into 10 opportunities. Some of the findings have a commonality with various models. These are:

- Longer Term Planning and Funding, Programme Approach and Smoothing Resource Profiles are all included in the former;
- Collaborative Team Working, Culture Change, Procurement Capacity and Capability, Asset and Performance Data, Central Purchasing and JIT and Asset Management Sophistication are all included in Management Matters; and
- Value for Money, Customer Outcome Focus and maximising Asset Use are all included in the former.

The 15 Opportunity Points for Consideration arising from Part 2 of this Report have been distilled into 6 groups, which address the commonality noted above. These 6 Opportunity Points, together with the 4 Opportunity Points arising from Part 2 of this Report provides the 10 opportunities discussed in this Part 3.

The 15 Points for Consideration (PFC) in Part 2 are grouped into the 6 opportunities as shown in Table 5.1 below.

Table 5.1: Distillation of Points for Consideration by Opportunity Table Reference (OTF)

PFC	Opportunity	OTF	No
1	Loosening governance constraint	Loosening governance constraint	1
2	Longer term planning, funding and implementation horizons	Longer term planning, funding and implementation horizons	2
3	Earlier supply chain involvement (2 years in advance of horizons)	Earlier supply chain involvement (2 years in advance of horizons)	3

PFC	Opportunity	OTF	No
4	Customer outcome focused (outturn rather than input driven)	Value Driven (WLC)/Customer Focus	6
5	Performance incentivisation (pain/gain)	Performance incentivisation (pain/gain)	4
6	Collaborative team working with the supply chain	Management Matters	5
7	Central purchasing of main materials and equipment with just in time call-off	Management Matters	5
8	Value driven (WLC) rather than upfront cost constrained	Value Driven (WLC)/Customer Focus	6
9	Culture change and suiting the team to the strategy (rather than the reverse)	Management Matters	5
10	Programme approach rather than project by project	Longer term planning, funding and implementation horizons	2
11	Smoothing work profile and the visibility of the pipeline	Longer term planning, funding and implementation horizons	2
12	Sweating the assets (particularly relating to PPP)	Value Driven (WLC)/Customer Focus	6
13	The level of in-house procurement capability	Management Matters	5
14	Good quality asset and performance information	Management Matters	5
15	The level of sophistication of asset management processes (asset knowledge, management and control)	Management Matters	5

To these 6 grouped opportunities are added the 4 opportunities arising from Part 1 of this Report to create the Opportunities Table later in this Report.

Our assessment of the amount of potential efficiency for each initiative is based upon our industry knowledge and experience supplemented by anecdotal evidence, as there is little publicly available information due to its commercial sensitivity.

The resulting 10 considerations are given and discussed below.

5.4.1 Loosening Governance Constraint

This is a key consideration in the ability of NI Water to maximise the drive for efficiency. During our discussions with the Company we asked if any econometrics were available that showed the impact of the current governance constraints on efficiency. We were informed that no such calculation had been carried out.

In the light of the dichotomy between: no real impact, more an excuse for underperforming, and real impact holding the Company back, we are surprised that no effort has been made to calculate the impact. We strongly recommend that this should be carried-out by an independent party.

In the absence of such calculation we have considered the position in which NI Water is placed as follows:

- The Shareholder, we are informed by the Company, is ill disposed to using an Alliance model, which has met with such success in England and Wales and Scotland WaSCs;
- The Shareholder, we are informed by the Company, suffers from annual PE adjustments to the FD, which can alter the available funds, up or down (usually down) by up to 15% of the capital investment. This would in any case fit uncomfortably with an Alliance;
- The Shareholder, we are informed by the Company, requires a detailed and relatively exhaustive approval process for all expenditure, not only capital investment. Whilst this gives good governance, the question is – is it overly prescriptive and entirely necessary for a Company the size of NI Water? It does slow down the procurement process and employs additional resources, some £1 million in direct staff costs we are told. This additional staff cost is but a small part of the likely cost to efficiency of the extended procurement process;
- The Shareholder, we are informed by the Company, is also ill-disposed to incentivising production, particularly in capital investment. Incentivisation is used extensively throughout the England and Wales and Scotland WaSCs, with success, or so our experience suggests; and
- The Shareholder, we are informed by the Company, requires the Company to ensure that employment is available to SMEs and SEEs. This use of the Company as an economy driver is of course socially laudable, but is not conducive to driving a hard bargain with a provider of substance needing a large critical mass for its order book.

We are not in a position to carry-out an economic analysis of these constraints in this Report, and in the absence of independent calculations, we can only assess the impact from experience.

In this regard we suggest that NI Water could improve its efficiency position as below:

- Using an Alliance model other WaSCs appear to have improved efficiency by some 1% per annum in AMP4 (with greater efficiencies achieved in previous AMPs), in a 6 year PC this could be some 6% (simple rather than compound). We acknowledge that the efficiency gains are likely to reduce over time but are equally likely to remain positive, perhaps up to some 5% (subject to any impact from a recovering economy) over the PC period and half-lives in subsequent PC periods;
- The annual PE adjustments to the FD are of less impact if an Alliance model is not used and the impact is likely to be absorbed by the Alliance estimate above. The Company can in any case plan on some 85% of its programme, although the compounding of successive funding reductions will increasingly compromise efficiency;
- The detailed and relatively exhaustive approval process for all expenditure, not only costs staff time, but slows the procurement process. It is difficult to assess the impact on efficiency but the £1 million special factor is an indication, and could be a further 1% per annum on capital investment on a similar basis to using the Alliance model discussed above;
- Incentivising production, particularly in capital investment would be part of an Alliance model, but can also be used in frameworks and indeed one-off projects. The impact of incentivising production depends very much on the proactive management process, rather the traditional reactive administration process. Without the appropriate driving management, the incentivisation can rebound and create inefficiencies. This is discussed further under Management Matters and Performance Incentivisation; and
- Employment availability for SMEs and SEEs. Frameworks have scope to achieve these aims, but an Alliance model probably has greater scope. The impact on efficiency is possibly relatively small,

depending on the procurement model adopted (one-off projects may not have quite the scope without a premium) but it is yet another constraint that has to be provided for in the procurement process.

From this simple (perhaps far too simple) review it seems that the impact on efficiency over PC15 could be as much as 10% by the end of the period. This would move NI Water much nearer the cost frontier.

However, we appreciate that there is little chance of any change in the Shareholder position in the foreseeable future, but easing the governance constraint may well be food for thought in the longer term.

To avoid the potential for double-counting efficiencies we have not ascribed any efficiency to loosening governance constraint itself, but have ascribed them to the opportunities that such loosening would enable.

5.4.2 Longer Term Planning and Funding

It is evident from the England and Wales and Scotland WaSCs and the UK Electricity sector that longer AMP/PC periods are considered to offer greater scope for driving efficiency through continuous improvement. This is a combination of smoothing the resource profiles, buying the learning curve only once and benchmarking progress and driving down the unit cost of repetitive work.

The longer term means that the appointees, subject to periodic market testing and satisfactory performance, are in for the long haul. This creates a longer term order book, better planning horizons and better sight of resourcing requirements. On the other hand it does not sit comfortably in a smaller market place, the like of NI, where those not in the team could be left out in the longer term. This does not bode well for NI Water and its broad employment role. In this light it appears that the 6-year PC15 is about the market digestible length.

The impact of continuous improvement has been discussed above relating to the Alliance and subsequent PC period half-lives. Despite the difficulties associated with NI Water adopting a longer planning and implementation horizon, and the consequent funding implications, we have populated the Opportunity Table with our view of the potential efficiency savings that might be generated.

By extending the period from the outset, rather than during the process, the capital investment providers should be able to reduce costs by some 3% to 4%, say more likely 3% (subject to any bounce-back in prices from a recovering economy) over the first 5-years and half-lives thereafter in subsequent 5-year periods up to a 15-year horizon. NI Water are already involved in longer term planning and we have carried forward to Table 5.3 half rate of 1.5% reflecting the progress that could be made towards full benefit over a longer term.

5.4.3 Early Supply Chain Involvement

It is evident from the England and Wales and Scotland WaSCs, the UK Electricity sector and several of the international contributions that early supply chain involvement promotes greater efficiency.

It allows the supply chain a greater resource planning process and promotes an exchange of ideas between the supply chain and NI Water. These exchanges, particularly involving the supply chain in needs assessment, outline design and value engineering of options, buildability and operations, can lead to greater cost effectiveness, understanding of risk and shortened delivery periods. If proactively managed rather than administered, early involvement and greater collaboration with the supply chain should enable the parties to take account of smoothing the process to each party's advantage, the principles of the Latham/Egan win/win situation.

We have discussed earlier in this Report the advantages of Early Supply Chain Involvement and Collaborative Working. We note that Collaborative Working with the supply chain generated significant efficiencies in England and Wales WaSCs in AMP3 and AMP4 (some 10% to 15% over five years).

We are given to understand by the Company that this approach is ill-favoured by the Shareholder and could be construed as offering favouritism to particular contractors and/or suppliers, particularly as any material savings would want to be kept out of the pre-tender market by the proposing contractor and/or supplier.

Our experience suggests that the commercial nous of the supply market can be used favourably if co-opted before contract award, but becomes unfavourable (to NI Water) if left to post award. It is a difficult balancing act, but one that is coped with in many sectors and geographical regions by a process of BAFO and Competitive Dialogue. These strategies are extensively used by the UK Highways Agency.

Any efficiency (cost saving) is only gained during the procurement period, and does not of itself lead to ongoing efficiency improvements during implementation. Nonetheless we have experienced such efficiency savings by using the commercial approach of the supply chain. Obviously the savings are dependent on the projects, or more particularly the programme of work, but 2% to 3%, more likely 2% saving is not out of the question. This process sweeps in cost/value engineering, but we have ignored the savings that might otherwise result from scope change. NI Water is already involved in early supply chain involvement and we have carried forward to Table 5.3 half rate of 1% reflecting the progress that could be made towards full benefit over a longer term.

5.4.4 Performance Incentivisation

It is evident from all national and international contributions that contracts must be incentivised, indeed it has been traditionally thus since time immemorial. However, traditionally it has been by negative incentivisation (damages or penalties depending on the legal jurisdiction). Whilst these are of course to be recommended it is evident from the England and Wales and Scotland WaSCs, and elsewhere, that positive performance incentivisation has great efficiency driving potential.

Positive performance incentivisation can be construed as a bonus, carrying with it the opprobrium of the popular press in relation to the banking sector. However, the positive incentivisation here is not bonus for money earned, but for money saved.

The commonly used form of positive incentivisation in England and Wales WaSCs is based upon the NEC suite of contracts, Target Cost Option C (Pain/Gain), in which the Target Cost is set at award of contract (and adjustable up and/or down by compensation events as work proceeds) and the actual cost is proactively managed. Any cost under or over target is shared between the parties (under is Gain, over is Pain). To further incentivise the process the Gain can be more towards the contractor in return for the same proportion of contractor Pain.

This approach is not paying the contractor twice for the same work that we have heard emotionally quoted (by hearsay) during our visits to the Company.

The key to success is ensuring that the management teams are proactively driving the process and not reactively administering it. The management skills, capacity and capabilities must match the strategy, if they do not then the result can be inefficiency (negative efficiency).

If the reluctance of the Shareholder to use Option C can be overcome, experience suggests that cost savings of some 10% can be driven from a long term programme of work from a reasonably sized project (over £10 million). The percentage is gross so the impact on NI Water would be half, or such other proportion as the procurement documents prescribe. This often ranges from 60/40 to 40/60 Employer/Contractor for gain, and reverse for pain, although it is not infrequent that the contractor bears all the pain. As an average it is possible to drive an efficiency of 1% per annum from this carrot/stick approach, on top of the efficiencies otherwise gained. This additional efficiency does require a programme of work over a reasonable period of time, in this case, say, a PC period.

There is of course always a risk of cost overage, but this is the case for any procurement and implementation strategy.

5.4.5 Management Matters

The key issue is ensuring that the management skills, capacity and capabilities match the procurement and implementation of the chosen strategy. Alternately the strategy chosen needs to meet the existing management skills, capacity and capabilities.

This means that either the strategy is chosen to suit the existing management, which from our observations is already well up the learning curve with frameworks and one-off larger projects using traditional and/or Design & Construct approaches. The Company has told us however that it has lost some capability in areas such as engineering design and asset management in recent years.

The Company is making progress on asset knowledge and performance data, particularly through CPMR, and through this programme and other management initiatives the Company has plans to develop a greater degree of asset management sophistication. We understand that the FOM initiative addresses these and other points in the Company's management philosophy.

The implementation of considerations arising from the FOM initiative will take time to introduce but the Company hopes that some beneficial impact will be demonstrable later in the PC15 period.

Maximising Management Input

To introduce any procurement and implementation change of any significance there will need be a commensurate change in the management skills, capacities and capabilities. This can be achieved by education and training, necessarily over time, or replacement, or by outsourcing. The latter two approaches will of course involve redundancies and recruitment. This may not sit well in the small market place of NI. One without the other can be accommodated, but both at the same time can be relatively indigestible to and in the vox populi.

Nonetheless any new procurement and implementation strategy will require change, if not to staffing levels and staffing skills, but also to the culture of the Company. The most radical change would come from using a Virtual Company model. This did not arise directly from the national and international contributions, but indirectly from Welsh Water's approach in AMP 3 and AMP4. This Virtual Company approach is discussed later in this Report.

The impact of matching management with strategy drives the efficiencies inherent in the latter, and does not produce any additional efficiency of itself. However, the converse can be true. If the management does not match the strategy then it can result in inefficiency. However, we consider that the initial change will be efficiency neutral, and efficiencies can be driven in the latter part of the programme. This suggests some 1% per annum may be delayed, giving rise to the 5% noted earlier over the PC15 period, rather than a full 6%.

Asset and Performance Knowledge

As the Company is progressing its knowledge we see this as an ongoing issue. It is in our experience essential to have a thorough knowledge of the assets, condition and performance. Without this the ability to forecast and plan investment (and operational improvements) is less effective, and therefore cost inefficient.

This knowledge is an underpinning of the choice of strategy, but does not produce efficiencies in its own right, it is a catalyst for capturing the efficiencies to be driven through the chosen strategy. In this regard NI Water is hoping that greater sophistication in asset management systems will assist driving efficiencies in capital maintenance in PC15.

NI Water comments that any improvement to management systems would be subject to the necessary funding, and this would be required to enable the process to be efficiently and effectively driven.

Collaborative Team Working

We note that the Company procures in two separate silos, Capital Works and Goods & Services. The Company also implements in two main silos, Capital Works and Operations. Whilst these divisions are understandable, our experience suggests that closer co-operation between the two, particularly Capital Works and Operations, brings increased efficiencies by lowering overall costs. Closer co-operation can assist in balancing the Capex/Opex equation to the greater benefit of programme outturn rather than project input costs.

We understand that there is now closer integration between the procurement of Capital Works and Goods & Services, under one directorate. This integration should be encouraged to continually smooth the interface between the two procurement functions. Of itself it does not produce efficiencies but is a catalyst for driving programme efficiencies during implementation. Capita considered that there are efficiencies to be gained in Operations Capital expenditure through greater integration between NI Water Operations and Capital Delivery, continued training and standardisation of specifications.

However, we note that the multi-tier purchasing governance has now become very tightly controlled, and adds cost and delay to and in the procurement processes. We have discussed this earlier in this Report (Loosening Governance (Shareholder) Constraint) and noted efficiency possibilities in that section.

Just-in-Time Purchasing

The Company has also moved towards a central purchasing facility, under Goods & Services, which covers operational purchasing but is separate from capital procurement. Purchasing is by direct order and call-off, but the principles of JIT call-off is not adopted.

These JIT principles reduce the need for plant and material storage and transfers this risk/obligation to the supply chain. On the other hand there is an increase in risk of access in emergencies. The UK electricity sector covers this by a mixture between the two, with some storage facilities retained. We understand that NI Water is moving towards a similar situation, and there is a programme being developed to reduce the number of depots and centralising emergency supplies whilst leaving the bulk of supplies with the supply chain until called-off.

There are cost savings to be made from using JIT principles, and are particularly useful in large supply markets where there is a wide range of suppliers to reduce the risk of any one failure. The NI market place is smaller and consequently adopting these principles is not so clear cut in terms of the efficiency/risk equation. We have not included any efficiencies for this in the Opportunity Table.

5.4.6 Value Driven (WLC)/Customer Focus

Currently NI Water is primarily geared to driving lowest cost at contract award. This approach is therefore cost based rather than value based. From the national and international contributions it is clear that most sectors and geographical areas are or have moved to long term value primarily through Whole Life Costing (WLC). Additionally Ofwat require the English and Welsh WaSCs to plan on the basis of total expenditure in AMP6 rather than separate capital and operating expenditure, in order to focus more on Whole Life Costs and to facilitate greater consideration of non-capital solutions.

The prime driver of creating and receiving Value for Money (VFM) can be viewed in the short term from cost, but for a long term sustainable business the better measure is long term value. This underpins Ofwat's move to Customer Focus and outcome value rather than input cost.

There is always a balance to be struck between cheap assets and high operation and maintenance cost, and expensive assets and low operation and maintenance costs. The former is a form of live now and pay later, whereas the latter can be an added investment for the future.

The balancing of the Capex/Opex equation is itself compromised by the expected asset use life. In the Private Sector commercial Appendix, the asset life may only be some 20 years, as demographics and isochrones dictate new assets in different locations, with old assets made redundant and available for

different uses. However, NI Water assets are generally long term and investing in the future control and reduction of maintenance and operation costs (in real prices) must be a better option for customers (consumers).

The change in focus from short term cost to long term value is not difficult to implement. It requires closer co-operation between capital engineering and operational management; an interface that that has in the past, in NI Water, been awkward to bridge.

This may fall under the heading of culture change, but in our view it is a question of focus rather than culture. NI Water is already considering the opportunities this refocusing could bring in its FOM initiative. This is, in our view, greatly to be encouraged. We see that it could smooth the interface and slick-up the procurement and implementation processes.

If this approach were to be coupled with a slicker and less bureaucratic expenditure approval process the Company could drive efficiencies throughout the whole process from programme (rather than project) feasibility stage through to implementation outturn value.

The efficiencies to be generated from this refocus is not capturable at the beginning of the process, but arise over the lifetimes of the assets, and depend very much on the Capex/Opex equation at outset.

However, this value driving rather than cost controlling approach will underpin the efficiencies that we have noted in other aspects of the Opportunity Table.

5.4.7 Traditional Model

This model arises from the Capita Report, where the Client (NI Water)/consultant (out sourced) design and the construction works are procured by competitive tender or frameworks on schedules of rates.

This is very much the existing model used by NI Water. Frameworks are used for most elements of the capital programme (including capital maintenance) and some operational requirements. Capital projects are generally procured using outsourced consultancy design. This approach is tried and trusted by the Company and if carried forward into PC15 would not involve any particular management change or refocusing.

From an efficiency viewpoint it is neutral.

In regard to all the Capita derived models we note that Capita discounted the Traditional Model because it considered that it would not deliver the required efficiencies and would reduce the involvement of the broader supply chain. However, some elements could be used for minor works to satisfy governance pressure for SME involvement.

5.4.8 Client/Consultant Model (Design & Construct)

This model leaves the Company to produce an outline design and the construction works are procured on a Design & Construct basis by competitive tender or frameworks on schedules of rates.

This variant on the traditional and current model transfers the detailed design from the outsourced consultant to the outsourced contractor, in turn expediting the design in-house, or through an outsourced consultant. The main change is the contractor taking the design risk rather NI Water.

From a Company management viewpoint it still checks the design, and can retain approval rights, although would compromise the risk transfer. It is a change that creates the advantage of co-opting the contractor's commercial nous on the win/win principles, but can make the tender process longer as the quality of design has to be adjudged as well as the price. This particularly raises the issue of the Capex/Opex equation, which can be crucial in driving long term VFM. It also relies upon the capital engineering and operational management interface being closed.

In our view, with suitable interface closure this would be an appropriate model for NI Water to adopt for PC15. It should, in our experience, yield an additional efficiency of some 4% to 5%, more likely 4% at award and through the programme period.

5.4.9 Contractor/Consultant Project JVs

A variant on the traditional model that transfers the design risk to the supply chain but not as contractor, subcontractor, but as a joint venture between the two. This leaves the Company in much the same position that it would be under Client/consultant model, but it does offer more opportunity for the combined supply chain to share efficiency gains if incentivised. It could add a further 1% to efficiency driving, some 5% to 6%, and more likely 5%.

Capita discounted the JV Models because:

- The transition from existing arrangements would be too great within the timescale considered;
- There would be potential for failure due to internal and external supply chain acceptance and ability to deliver;
- JVs are not conducive to multiple suppliers in a framework environment; and
- Incentivisation is considered to be too great an obstacle in the short term.

5.4.10 Contractor/Consultant Programme JVs

A variant on the Project based JV relating to the capital programme. Whilst this has the same implications as the project based JV model it could capture greater efficiency through the larger work base/value. It could add a further 1% to efficiency driving of the Contractor/Consultant Project JV Model, some 6% to 7%, more likely 6%. This Contractor/Consultant Programme JV Model would in effect be an Alliance Model.

Capita discounted JV Models as described in Section 5.4.9 above.

However, we have considered transferring more aspects of the Company's activities in the Virtual Company section later in this Report.

5.5 Opportunity Table

We have brought together the 10 opportunities in the Opportunity Table 5.2 below. In Table 5.3 we have re-expressed the efficiencies over time. Some efficiencies cannot be considered without the impact of others, significantly Management Matters and Value Driven (WLC)/Customer Focus.

Each of the opportunities would take time to introduce, other than the Traditional Model currently in use and the Client/Consultant (Design & Construct) model; which is already being considered by the Company. The remainder are more related to the longer term than to PC15, although some could be fed-in during the PC15 period. There can of course be an opportunity to review arrangements mid-term in PC15, say after three years. This could aid the implementation and transition to a particular procurement model.

The key efficiency of Loosening Governance Constraint is perhaps some way into the future. The current arrangements are committed until at least 2016.

The percentage efficiencies noted in the following Tables are best estimate ranges, based on our experience in the industry and as Reporter's to Ofwat on various WaSCs, and might be improvable in practice, but equally could be underachieved depending on arising and unforeseen circumstances, and of course, the impact of inflationary pressures (not included).

For clarity we have included in Table 5.4 the range of percentage efficiencies applicable to Table 5.3, the latter being based on most likely/central percentage estimates.

In response to a question from UR, we consider that there could be a range of sensitivity around the efficiency percentages, which could be +10%/-30% (percentages on percentages). The impact of the sensitivity range, applied to the full benefit efficiency percentages from Table 5.2 is shown in Table 5.5.

We consider that the principles of efficiencies apply equally to Base Maintenance and Capital Enhancement, as both could use the Client/Consultant Model, which, robustly incentivised, will drive efficiency over the implementation period through continuous improvement (increases in productivity), as well as capturing some efficiencies at procurement stage. We emphasise that the use of incentivisation has to be robustly and proactively driven rather than reactively administered, and that the management team has to have the appropriate skills and experience for the purpose.

We have not addressed in this Report how any efficiency savings will be applied, whether by additional investment or monetary saving of expenditure; this is a matter for the Shareholder and Regulator to decide.

This Report addresses the driving of, and improvement in, efficiencies against the current NI Water position. It does not address Gap closure with other WaSCs in the rest of the UK.

Table 5.2: Efficiency Opportunities

No	Opportunity	Applicability	Efficiency	Grading
1	Loosening Governance Constraint	Not available in PC15, but could be available for subsequent PCs	10% PC15 N/A but could be in next PC. However we have not included this in Table 5.3 as the efficiency impact will be achievable in other initiatives rather than directly from loosening governance constraint. Loosening constraints is an enabler, and there is a need to avoid double-counting.	PC15 N/A, PC21 Good, PC27 Good
2	Longer Term Planning and Funding	The change of planning horizon to the 6 year PC period has opened this opportunity, although we note there is still a 3 year review period and still the annual PE review NIW comments that the annual PE effectively means that NIW's planning horizon is 1 year, not 6. We note in this Report the mitigation of any impact through procurement strategies and their management.	3% to 4%, more likely 3%, but half rate as NIW already involved in longer term planning in PC15	Good
3	Early Supply Chain Involvement	Already available, in part, in PC15	2% to 3%, more likely 2% once-off during procurement period, particularly if procuring by programme rather than	Good

No	Opportunity	Applicability	Efficiency	Grading
			project by project. However we note that NIW already involves its supply chain where it can, within the governance limitations. Consequently some efficiencies have already been captured and half rate of 1.0% included in Table 5.3.	
4	Performance Incentivisation	Could be available for PC15 and periods thereafter. Savings are against Target Cost suitably proactively driven	Some 5% over the PC15 period. We note that incentivisation is already used in the PPP/PFI Contracts	Good
5	Management Matters	Matching skills and capacity to the strategy drives efficiency, the converse leads to diseconomies	Through mitigation the diseconomies that could arise from mismatching management and procurement strategy (discussed earlier in this Section of the Report) can be neutralised, and the efficiencies gained.	Essential to effectiveness of other efficiency initiatives
6	Value Driven (WLC)/Customer Focus	Driving for long term value rather than controlling short term cost	Appropriate to long term assets and already in use by NIW, but the option scope used by the Company could be widened	Underpins other efficiency initiatives
7	Traditional Model	As currently used by the Company	Neutral	Average
8	Client / Consultant Model	A Design & Construct variant to the traditional model that captures the contractor's commercial nous	Some 4% to 5%, more likely 4% including the efficiencies of longer term planning and early supply chain involvement	Good
9	Contractor / Consultant Project JVs	A project based Joint Venture supply chain variant to the traditional model	Some 5% to 6%, more likely 5% including the efficiencies of longer term planning and early supply chain involvement. This is an alternative to the Client/Consultant Model and an additional 1% efficiency could be captured.	Good
10	Contractor / Consultant Programme JVs	A programme based Joint Venture supply chain	Some 6% to 7%, more likely 6% including the efficiencies of longer term planning and early supply chain	Good

No	Opportunity	Applicability	Efficiency	Grading
		variant to the traditional model	involvement. This is an alternative to the Client/Consultant Model and an additional 2% efficiency could be captured	

As some of the efficiency opportunities are individually captured and others sweep in some of the otherwise individually captured efficiency opportunities we have re-expressed the PC15 opportunities of efficiency in Table 5.3 below. To make the Table effective we have assumed an annual turnover of £150 million per annum, £900 million in PC15, with the percentage efficiency calculated therefrom.

Table 5.3 expresses the more likely outcome of efficiency opportunities identified earlier in this Section of the Report and available to the Company within current governance constraints (subject to Shareholder confirmation of the use of pain/gain incentivisation).

Table 5.3: Efficiency Opportunities Timeline PC15 Year by Year Cumulative in £million

No	Opportunity	YR1	YR2	YR3	YR4	YR5	YR6	PC15	%
1	Loosening Governance Constraint	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0
2	Longer Term Planning and Funding	4.5	4.5	4.5	0	0	0	13.5	1.5%
3	Early Supply Chain Involvement	3.0	3.0	3.0	0	0	0	9.0	1.0%
4	Performance Incentivisation	N/A	9.0	9.0	9.0	9.0	9.0	45.0	5.0%
5	Management Matters	Incl	Incl	Incl	Incl	Incl	Incl	Incl	0%
6	Value Driven (WLC)/Customer Focus	Incl	Incl	Incl	Incl	Incl	Incl	Incl	0%
7	Traditional Model	Neut	Neut	Neut	Neut	Neut	Neut	Neut	0%
8	Client/Consultant Model	0	4.5	4.5	4.5	4.5	4.5	22.5	2.5%
9	Contractor/Consultant Project JVs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0%
10	Contractor/Consultant Programme JVs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0%
	Total	7.5	21.0	21.0	13.5	13.5	13.5	90.0	10%

Notes to Table 5.3:

1. The efficiencies shown in years 1, 2 and 3 may not arise in the said years but later through the programme implementation, but the actions to create them will be in those said years.
2. Loosening Governance Constraint: as it is unlikely that governance constraint will change over PC15, and to avoid double-counting no efficiency savings have been ascribed. The efficiencies initiatives that could arise under less constraining governance could be an Alliance (effectively the Contractor/Consultant Programme JV), although the efficiencies from pain/gain incentivisation have been included (based on programme working rather than project, the latter may produce a little less gain);
3. Longer Term Planning and Funding: NI Water is already using this approach in so far as it can;

4. Early Supply Chain Involvement: NI Water is already using this approach in so far as it can;
5. Performance Incentivisation; a key driver of improving efficiency using NEC Option C contract;
6. Management Matters; the driver of efficiency gains but the efficiencies are included in the Client/Consultant Model to avoid double-counting;
7. Value Driven (WLC)/Customer Focus: another driver but the efficiencies are included in the Client/Consultant Model to avoid double-counting;
8. Traditional Model: that currently in use by NI Water, so no efficiency additional efficiency shown;
9. Client/Consultant Model; a suggested way forward;
10. Contractor/Consultant Project JVs: additional efficiency not included, but could be captured if NI Water permitted to use it;
11. Contractor/Consultant Programme JVs: additional efficiency not included, but could be captured if NI Water permitted to use it.

In the longer term the loosening of governance constraint could allow the Contractor/Consultant Programme JV Model which could have the capacity to improve the efficiency gains noted above for PC15, as well as keeping the gains already captured. However the market place and economic drivers in 2021 may/will be different, which makes longer term efficiency views unreliable.

For clarity Table 5.4 below gives the range of efficiencies by percentage applicable to the central estimates in Table 5.3.

Table 5.4: Range of Efficiency Opportunities by Percentage

No	Opportunity	Central %	Range %	
			Low	High
1	Loosening Governance Constraint	0.0%	0.0%	0.0%
2	Longer Term Planning and Funding	1.5%	1.5%	2.0%
3	Early Supply Chain Involvement	1.0%	1.0%	1.5%
4	Performance Incentivisation	5.0%	5.0%	5.0%
5	Management Matters	0.0%	0.0%	0.0%
6	Value Driven (WLC)/Customer Focus	0.0%	0.0%	0.0%
7	Traditional Model	0.0%	0.0%	0.0%
8	Client/Consultant Model	2.5%	2.0%	2.5%
9	Contractor/Consultant Project JVs	0.0%	0.0%	0.0%
10	Contractor/Consultant Programme JVs	0.0%	0.0%	0.0%
	Total	10.0%	9.5%	11.0%

Also for clarification purposes we have re-expressed Table 5.4 in Table 5.5 below showing both the range of efficiency percentages and the further range of sensitivity range percentages based on +10%/-30% as previously discussed.

Table 5.5: Central Efficiency Estimates and Ranges by Percentage

No	Opportunity	%Incl Table 1.2	Full Benefit	Full Benefit Range%		Full Benefit Sensitivity%	
				Low	High	Low	High
1	Loosening Governance Constraint enabling use of wider range of Procurement Strategies and included below	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2	Longer Term Planning and Funding	1.5%	1.5%	1.5%	2.0%	1.0%	2.2%
2A	Full Benefit	Not Incl	1.5%	1.5%	2.0%	1.0%	2.2%
3	Early Supply Chain Involvement	1.0%	1.0%	1.0%	1.5%	0.7%	1.7%
3A	Full Benefit	Not Incl	1.0%	1.0%	1.5%	0.7%	1.7%
4	Performance Incentivisation	5.0%	5.0%	5.0%	5.0%	3.5%	5.5%
5	Management Matters	0.0%	0.0%	0%	0.0%	0.0%	0.0%
6	Value Driven (WLC)/Customer Focus	0.0%	0.0%	0%	0.0%	0.0%	0.0%
7	Traditional Model	0.0%	0.0%	0%	0.0%	0.0%	0.0%
8	Client/Consultant Model in addition to Longer Term Planning and Early Supply Chain Involvement	2.5%	3.0%	2.5%	5.0%	1.7%	5.5%
9	Contractor/Consultant Project JVs, in addition to Client/Consultant Model	0.0%	1.0%	1.0%	1.0%	0.7%	1.1%
10	Contractor/Consultant Programme JVs in addition to Contractor/ Consultant Project JVs Model	0.0%	1.0%	1.0%	1.0%	0.7%	1.1%
	Total	10.0%	15.0%	14.5%	19.0%	10.0%	21.0%

We have addressed the impact of full efficiency benefit from the Procurement Strategies based on the central estimates in Table 1.2 (10%) in the summary of likely efficiency percentage gains in the Conclusion, Section 6 of this Report.

5.6 The Virtual Company

Moving on from the Contractor/Consultant Programme JV model, and bearing in mind the Welsh Water not for profit model there could be a case for NI Water to become a Virtual Company under its current government company status.

This approach would see NI Water retaining the prime functions of planning and constraint, but outsourcing to the private sector virtually (hence the name) all its activities. The retained activities would oversee the

private sector activities in all its constituent parts from procurement through to the customer interface. The private sector could be procured on PC period contracts, with the necessary performance criteria and levels of service agreements, and break clauses for under performance.

At this stage such considerations are perhaps far removed from current thinking, but could be a way forward for the future, after PC15. It may be an idea to be developed overtime to see if it would have merit.

5.7 Benchmarking

Benchmarking is a very useful tool for monitoring the comparative efficiency of any company or individual constituent, down to the level of detailed unit costs.

Ofwat in the England and Wales WaSCs produced a unit cost benchmarking process (Cost Base) that enabled each WaSC and each WOC to be cross benchmarked and graded for efficiency in both capital works and operations. This Cost Base process has now been stopped by Ofwat as it became too cumbersome and too unreliable because of all the adjustments required to seek a common base line across the sector. This avenue of benchmarking is therefore no longer available for NI Water to shadow.

In the absence of Cost Base there is no benchmarking process available externally to the Company, so the focus must be internal.

Frameworks lend themselves to benchmarking, and similar asset operations can also be benchmarked as benchmarks with each other. The frameworks by area of coverage, and here the Alliance would have proved most useful, and similarity of work types. The assets, particularly the PPP/PFI and Company operated assets, again by type but also by output.

To us there appears to be an opportunity to maximise the use of PPP/PFI assets and save on operational costs and capital maintenance on the other similar Company assets. No economic analysis on the comparative costs has been carried out to support the current use of PPP/PFI assets, which appears to be based on day to day cost, rather than long term value. We recommend that such analysis is carried out independently to ensure that the maximum value is extracted from the PPP/PFI projects, particularly as the majority of Unit Charge is fixed, and only a relatively small part is volumetrically based.

However, cross benchmarking between the similar asset types will also demonstrate the comparative costs, if properly adjusted for pumping costs and the like to a common point in the supply/catchment networks. The adjustments needed for this would need to be categorised and a methodology for calculation produced to ensure a supportable and robust common base line.

Similarly a categorisation for cross framework benchmarking (in operations as well as capital investment) would be required with a similar methodology to again provide a supportable and robust common base line.

Setting-up and establishing such a benchmarking process would necessarily take time, maybe 2 years at least, but it could be working in the latter half of PC15, and being used for driving efficiencies on a best in class basis and continuous improvement. This would not be the case with the PPP/PFI projects but the benchmarking could be used to capture the best-buy for water into supply. The wastewater treatment in Omega and Kinnegar would need further consideration as their catchments are more particular and fixed.

We suggest that it might be useful for the Company to consider the use of an independent consultant to assist with drawing-up proposals for internal benchmarking in the furtherance of continuous improvement.

6. Conclusion

6.1 Part 1

We have concluded that the Capita approach to the brief it was given by NI Water was appropriate. Capita has produced a report that provides accurate and meaningful context and background to the Northern Ireland water sector, the associated construction market and procurement approaches, NI Water's ability to operate within these and the opportunities to exploit them in future for the benefit of its stakeholders.

The Capita review covered the majority of NI Water's current and proposed capital investment areas for both maintenance and enhancement activities. The review excluded the relatively small proportion of the capital programme (around £40 million per annum) associated with Management & General assets and with expenditure on operations capital associated with scheduled and reactive maintenance of operational assets which is procured by operational managers. Capita offers suggestions on how this activity could become more efficient which look logical and sensible and which NI Water will need to consider.

Capita has drawn upon its knowledge of capital delivery models obtained from working in a number of sectors. We note that the primary source of information it has used for this review is from the water utility sector in the United Kingdom, particularly information that it had available from its advisory work with two English water companies plus its wider knowledge of water utility procurement and programme management in the UK. We concur with Capita's information it has presented on the English and Welsh WaSCs and of its assessment of the five example companies' performance in AMP5.

We agree that there has not been a significant change in procurement strategies in the English and Welsh water sector over the last five years and indeed many companies are planning to use similar strategies in AMP6 to AMP5, either to build on the achieved successes or on the basis that a longer timeframe is needed to realise the full potential.

The choice between frameworks and alliances in England and Wales has been dependent upon the size of the investment programme and the willingness and ability of the water company to adopt more collaborative working practices and to share risks and rewards. We agree that it is not possible to determine whether that alliancing delivers more efficiency than frameworks. Incentivisation of suppliers and the sharing of risk and rewards are becoming more commonplace and are being seen as enablers of efficiency and certainty of outcome. Some companies are creating alliances for the first time in AMP6.

Capita's information on the construction industry in Northern Ireland aligns with our understanding of the economic impact and we have no information to suggest the situation has changed materially in the year since its report was produced. We observed a similar claw-back of construction prices after the recession in the 1990s and agree that a similar effect is likely to be seen this time and probably within the PC15 period. We also agree that this effect will have a limiting effect on NI Water's future efficiency gains.

We consider that Capita's overview of the budgetary constraints in Northern Ireland provides a meaningful context for PC15 and the prospects for future costs in the water sector. Its report highlights the constraints to efficiency, procurement innovation and incentivisation caused by the government funding arrangements, governance pressure, legal challenge and NI Water's NDPB status. Capita's findings are supported by the information we obtained from our recent interviews with NI Water. We note that quantification of the impact of these constraints has not been undertaken either by Capita or NI Water.

We consider that Capita has presented an appropriate overview and assessment of the opportunities (and associated issues) for capital efficiency for NI Water. Its consideration and assessment of potential capital delivery models available to NI Water is logical and based mainly on the experience of the UK water sector.

Capita has identified that between 3% and 4% capital efficiency is possible over PC15 contingent on a number of recommendations and changes being made. Capita was keen to stress to us that its brief from NI Water was primarily to identify a suitable capital delivery model for NI Water in PC15 and that its quantification of potential efficiency savings is based upon judgment and not a rigorous assessment methodology.

The Capita Report considers that there are four possible models for NI Water in PC15. These are:

1. A traditional model where the Client/consultant design and the construction works are procured by competitive tender or frameworks on schedules of rates;
2. Client/consultant outline design and the construction works are procured on a Design & Construct basis by competitive tender or frameworks on schedules of rates;
3. Client identifies the need and contractor/consultant JVs, procured by competitive tender, deliver the project; and
4. Client identifies the need and contractor/consultant JVs, procured by competitive tender, deliver the whole programme.

The Capita Report concludes that NI Water should use some form of framework arrangement in PC15 with simplification of that used in PC13. Delivery should use a mixture Design & Construct with a more traditional procurement route adopted for simple projects and most of the minor infrastructure programme. It also suggests that NI Water should review the option with stakeholders to see which individually or in combination might be appropriate for PC15.

6.2 Part 2

Our national and international contributors provided 10 contributions ranging over various infrastructure sectors and geographical areas. The results have been summarised and carried forward into Part 3 for further discussion, including relevance to NI Water's current and possible future efficiency position.

The contributions yielded, on aggregate, 57 Key Features, 92 Procurement Headlines and 46 Points for Consideration. There was of course some overlap in the Points for Consideration and we distilled these into opportunities that could be available to NI Water over time, but some of the more important efficiency issues are reliant upon matters outside the control of the Company. In particular we found that the governance constraints on NI Water is the most disadvantageous to driving efficiency.

The conclusion we have drawn from the contributions and our review has led us to identify 15 opportunities for improving the efficiency of NI Water's capital investment (Capex) and operational activities (Opex) over time. All initiatives and procurement models will take time to implement, and only a few could be introduced for or during PC15.

The 15 opportunities are in addition to the 4 models arising from Part 1 of this Report. This creates a basket of 19 opportunities, although 1 of the Part 1 models is the current strategy employed in NI Water. So there are 18 other opportunities.

There is some commonality in the 18 opportunities and we have concluded that these, together with the currently used strategy, should be carried forward into Part 3 of this Report on a grouped basis. The grouping brings together various initiatives under common headings.

We have concluded that there are a resulting 10 grouped opportunities for further examination and discussion in Part 3 of this Report. These are listed below:

1. Loosening Governance Constraint;
2. Longer Term Planning and Funding;
3. Early Supply Chain Involvement;
4. Performance Incentivisation
5. Management Matters (including Collaborative Team Working, Culture Change, Asset Management Sophistication, Procurement Capacity and Capability, Asset and Performance Data, Central Purchasing and JIT and Asset Management Sophistication);
6. Value Driven (WLC)/Customer Focus;
7. Traditional Model;

8. Client/Consultant Model;
9. Client/Consultant Project JVs; and
10. Client/Consultant Programme JVs.

6.3 Part 3

The national and international contributions received from our contributors has greatly assisted our considerations of efficiency driving, not only from the England and Wales WaSCs but in the wider water and wastewater sector and from other infrastructure related utility sectors.

We have concluded that there is considerable scope for the Company to improve its efficiency position. There are initiatives in use in the England and Wales WaSCs, and indeed wider afield, that could readily be adopted by the Company, some of which we note are already being considered by the Company in its PC15 planning and others in FOM. However we also note that the initiatives require Shareholder approval, and that there are some impediments to Shareholder acceptance.

In this regard we have concluded that the Company is constrained from fully driving efficiency as the Shareholder is ill-disposed to:

- Incentivising performance through pain/gain, and relies only on pain (performance and liquidated and ascertained damages);
- Reluctant to ease the burden on the Company of the detailed and prescriptive procurement approval processes; and
- Reluctant to allow the Frameworks to become a full Alliance.

Through the Shareholder the Company is required to cater for SME and SEE employment issues and the workings of the annual PE controls have some negative affect on long term planning.

However, our findings, including Loosening Governance Constraint, have resulted in 10 grouped efficiency opportunities, the majority of which could produce additional efficiencies for NI Water over time. We refer to the majority as two are really drivers assisting the rest, these are Management Matters and Value Driven (WLC)/Customer Focus. It is fundamental to any procurement strategy that the management team and the strategy are compatible, and this must be fully considered when proposing and/or adopting any new or alternate strategy.

The main conclusion is that efficiency opportunities are available over time. Some may not be implementable in the short term, but all would be available in the longer term. We have however concluded that the Company could drive an additional efficiency in PC15, over PC13 price levels, of some 10% subject to Shareholder approval.

We have not included any efficiency forecasts over the longer term, but the loosening of governance constraint could allow an Alliance strategy which could have the capacity to improve the efficiency gains for PC15, as well as keeping the gains already captured. It would also release NI Water to examine the Virtual Company option. However the market place and economic drivers in 2021 may/will be different, which makes longer term efficiency views unreliable.

All the efficiency percentages for PC15 are based on PC13 price levels and exclude the impact of any market price levels/tender price bounce-back in an improving economic climate. From our experiences in the last post-recession economic improvement (in the late 1990s/early 2000s), a bounce-back will be inevitable as contractors and suppliers seek to redeem the constrained positions imposed upon them during the recession. The degree of bounce-back and its timing can be unpredictable.

6.4 Summary and Conclusion

Although there are several differences between NI Water and other water utilities in the rest of the UK in the approach and philosophy to capital procurement, it seems ambitious to expect NI Water, as a government owned entity, to attain the same levels of Capex efficiency as the privatised water companies in England and Wales.

There are intrinsic institutional and financial differences (amongst others) between NI Water and the privatised water companies which cannot be addressed through regulatory levers alone and Section 2.3 of this report identifies key issues that need to be addressed to allow convergence.

Nevertheless, there are evidently a number of keener business practices that NI Water could and should adopt which would allow it to close the efficiency gap and converge on the levels of capital efficiency of its privatised counterparts. These are listed in Section 5.4 of this report and although attainment depends on recreating the incentives (through surrogate mechanisms) that privatisation would achieve, we believe the most beneficial and readily achievable improvement areas in the PC15 period and the more likely percentage gains over the 6 year period PC15 are (assuming the governance constraints and controls can be adequately addressed):

- Longer Term Planning and Funding (1.5% over six years);
- Early Supply Chain Involvement (1.0% over six years);
- Performance Incentivisation (5% over six years); and
- Client/Consultant Model (an additional 2.5% on Longer Term Planning and Funding and Early Supply Chain Involvement over six years)

A fuller list is given in Tables 5.2 and 5.3 in Section 5 of this report.

For clarity we summarise the likely percentage gains below:

- The 10% efficiency shown in Table 5.3 is applicable to PC15 using an incentivised Client/Consultant Model, which with the full benefit of Longer Term Planning and Early Supply Chain Involvement could produce 13% efficiency in the longer term;
- Using alternatively the Project JV Model and capturing the longer term benefits the efficiency could rise to 14% in the longer term; and
- Using alternatively the Programme JV Model and capturing the longer term benefits the efficiency could rise to 15% in the longer term.

7. Appendices

Qualitative Review of International Procurement Arrangements

This includes 10 contributions as below.

Appendix 1: England & Wales Water Sector

1. Location

England and Wales

2. Industry Sector

Water supply and sewage disposal

The industry is vertically integrated by asset owning businesses whose activities range from abstraction to disposal. The industry's scope includes:

- Water Resources (raw water abstractions from rivers, lakes and groundwater);
- Water Treatment (treatment of raw water to potable quality);
- Water Distribution (transfer of treated water to customers);
- Sewerage (the collection of sewage from customers and transfer to treatment works);
- Sewage Treatment & Sludge Disposal (treatment of raw sewage and discharge to the rivers and the sea); and
- Customer Services (billing, customer contact, education)

The industry operates all its assets and is a major investor in capital assets - both as new build and as maintenance. This Appendix considers the extent to which procurement of external services has impacted on the efficiency of investment activities.

3. Governance and Regulation

This section focuses on the industry in England & Wales. Scottish Water is constituted on a separate legal basis.

PART A

Water company activities are defined and governed by Licences underpinned by the following key legislation:

- Water Industry Acts 1991 and 1999;
- Water Act 2003;
- Water Resources Act 1991;
- EU Water Framework Directive 2000/60/EC;
- Competition Act 1998;
- Environment Act 1995;
- Flood and Water Management Act 2010; and
- Companies Act 2006

Economic regulation is undertaken by Ofwat (price caps, efficiency targets (capital and operating), funding (cost of capital), customer service, asset serviceability, sustainability)

Water quality regulation is by the Drinking Water Inspectorate (drinking water standards)

Environmental regulation is by the Environment Agency (raw water abstraction, discharges to the environment)

Other key regulatory and legislative drivers include UK competition law, Health & Safety at Work Act 1974.

PART B

National and international procurement rules apply, particularly EU Procurement Rules.

4. Funding

The English and Welsh water companies are going commercial concerns funded by revenue received from customers (for ongoing maintenance and operations), borrowing in the private capital markets (for capital enhancements) and occasionally from shareholder cash injections.

The supply chain which is contracted to the Licenced Water Company falls wholly in the private sector although joint ventures either between providers or with the employing Licenced Water Company are not uncommon.

Ofwat constrains prices (and hence revenue) through quinquennial price reviews. Price limits are set by Ofwat for the service as a whole but this will change from 2015 where prices will be set separately for the wholesale (water supply and sewerage) and retail parts (billing) parts of the business.

Ofwat sets the cost of capital for each company at the price setting point although companies are free to borrow at whatever cost they can obtain in the market.

5. Risk Transfer

The issues of operational, compliance and financial risk are important in the context of procurement as revenue risk is taken almost wholly by the water companies. There is no opportunity for water companies to cut supplies to customers who don't or will not pay. However Ofwat may take into consideration high levels of bad debt at price reviews if actual bad debt is significantly different to the assumptions made, but this is not guaranteed.

The water companies take demand risk between price reviews. If demand, and hence revenue differs significantly from Ofwat's assumptions at price reviews then corrections may be made at the next review.

Any cost efficiency gains, both capital and operating, are kept by the water companies until the next price review when Ofwat will claw them back for the benefit of customers through lower future prices.

The water companies take regulatory performance risk. Ofwat, the DWI and EA monitor performance using targets set through a series of regulatory KPIs or water and environmental standards or consents. Ofwat is moving from output regulation to monitoring performance through outcomes focused on customers and customer service.

Project and operational output and cost risks are either taken by the water companies, the supply chain or shared between the parties depending on the nature of the contracts or delivery models entered into. Risk sharing is the most common arrangement (see later in this report).

Operation, compliance and financial risk can be transferred contractually but the Water Companies remain responsible and carry the reputational risk (which can impact on stakeholder perception and credit rating).

6. Investment Parameters

PART A

The types of investment undertaken falls into three main types: new build (major assets), capital maintenance (replacement of worn out assets) and operational maintenance (repair and cyclical replacement associated with day-to-day asset operation). The asset groupings include:

- Operation and maintenance of above and below ground assets (typically water and wastewater treatment works, pumping stations, water mains and sewers); and
- Upgrades to water mains, sewers and treatment works to meet higher demand and quality and environmental standards
- Business support facilities including offices, depots, ICT, vehicles and plant

Levels of expenditure vary between the water companies and depend typically on the number of water and sewerage connections and the impact of growth and new quality and environmental legislation. Annual capital expenditure can range from several million pounds for the smaller water only companies to nearly a billion pounds for the largest water and sewerage provider. Typical water and sewerage company annual expenditure ranges from £200m to £1bn (Capex) and £150m to £800m (Opex).

Almost all water companies have examined the correct balance of insource / outsource and form conclusions appropriate to their particular business and owners priorities. There is no common consensus or universal business model, but the prevailing philosophy is that insourced activities constitute any those for which either there is a strategic or contractual reason for retaining in-house (such as business planning) or where there is an absence of a contestable market (such as specialist maintenance).

There are many suppliers to the industry ranging from small niche consultants and contractors to multi-national civil engineering design and build consortia. Supply side contractors have always responded to the water companies' demands, for instance by forming consortia with the capability and financial strength to accommodate large contracts.

Capital procurement approaches across the water and sewerage companies typically fall into two areas:

- Single alliance with a mix of consultants and contractors; and
- Series of frameworks with single or multiple partners (often for recurrent expenditure areas) split geographically, by service area or by asset type, eg above and below ground.

These arrangements started to be introduced in AMP3 (2000 to 2005) and have been developing since then.

The water companies typically identify asset problems and needs with the alliance or framework participants required to design and construct the solutions.

Operational activities are typically undertaken in-house using direct labour or are occasionally outsourced (particularly for customer service, HR and IT support activities). Outsourcing of certain water and sewerage operations – particularly where reputational risk is at stake (e.g. call centres, meter reading) has fallen out of favour in recent years. In other operational areas some anticipated efficiencies have not been achieved or sustained or governance and control difficulties however supply side (contractors) capacity has increased dramatically in the past ten years or so particularly due to the stimulus from PFI contracts and local authority outsourcing.

Procurement strategies are discussed in more detail in Section 7 below.

The typical duration of contracts has been the regulatory period (5 years) or in some cases ten years but including mid-term performance reviews. Many AMP5 frameworks are being extended into AMP6 following satisfactory performance. Some AMP6 frameworks are for six years (with options to extend further five years) in an attempt to avoid the inefficiency caused by Ofwat's five-year price setting cycle by moving away from a culture of cyclical investment planning and investment, smoothing the investment profile, improving the visibility of future work and aiding transition.

Occasionally large capital projects are individually tendered.

Value for money is typically tested through tender competition. There is increasing focus on value rather than cost-efficiency through greater collaboration and early interaction with the supply chain participants.

Most contracts are NEC target cost (pain/gain) based upon recent costs and efficiencies with payment options to suit individual projects or asset group.

In some cases schedules of rates are used particularly for lower value maintenance activities.

Generally all contracts include provision for Compensation Events (variations).

PART B

The larger water and sewerage companies can have an impact on the regional construction sectors particularly where companies are located in areas with depressed economies and may benefit from lower costs as a result. Conversely companies concentrated in economically buoyant areas such as South East England may experience higher costs as a consequence of the pressure on design and construction resources.

In-house resources are typically used for asset and investment planning activities, performance monitoring and control and for routine operational repairs and maintenance and emergency response. The design and construction of capital works are typically handled by the framework or alliance participants but with increasing use of collaborative working with the water companies, often through co-location.

Some companies use central purchasing of plant and materials for both capital and operational purposes in order to achieve bulk purchase efficiencies.

Central purchasing of energy and chemicals is commonplace.

1. Capital Procurement Strategies

PART A

The water and sewerage companies in England and Wales use a range of capital procurement strategies as outlined in Section 6 above.

Unlike the private energy companies, the water companies in England and Wales are bound by the EC Procurement Directive, which can be cumbersome, time-consuming, expensive and bureaucratic.

PPP (DBFO) has been used occasionally in the past for specific large capital projects but has fallen out of favour in recent times because of the inflexibility caused by lock in and the lack of opportunity for long-term efficiency gains. There may be opportunities for use of PPP in the future as a result of the creation of separate retail and wholesale businesses.

The key drivers of capital efficiency are commercial gain (short term) and shareholder value.

Achieving regulatory targets through under investment results in up to five years' commercial gain (until the next regulatory price review) but there are regulatory penalties for deteriorating asset serviceability.

The influence of shareholder value is a very strong incentive and drives the strategic approach to investment and its timing.

Although external providers are able to provide similar services, for strategic and control reasons capital procurement is generally retained in-house as is programme planning, financial approvals and management of the supply chain.

There hasn't been a significant change in procurement strategies in the sector over the last five years and indeed many companies are planning to use similar strategies in AMP6 to AMP5 either to build on the successes they've achieved or they consider that a longer timeframe is needed to realise the full potential.

The tender process for the frameworks and alliances usually involve several suppliers. Tendering processes increasingly use early supply chain involvement and can commence up to two years in advance with consultation and collaboration with the supply chain to form delivery strategies. The objective of involvement with the supply chain and early establishment of alliances is to maximise opportunities to identify and deliver innovative and sustainable solutions and to identify opportunities for risk sharing and transfer.

PART B

The choice between frameworks and alliances has been dependent upon the size of the investment programme and the willingness and ability of the water company to adopt more collaborative working practices and to share risks and rewards. It is not possible to determine whether that alliancing delivers

more efficiency than frameworks. Incentivisation of suppliers and the sharing of risk and rewards are becoming more commonplace and are being seen as enablers of efficiency and certainty of outcome. Some companies are creating alliances for the first time in AMP6.

In the UK Ofwat is driving a focus on total expenditure in AMP6 (rather than separate consideration of Capex and Opex) and this change of focus is being reflected in new alliancing and framework arrangements with suppliers and water companies being required to think in the same way, particularly recognising total cost of ownership of solutions rather than just the cost of design and build. It is too early to see the impact of this but there is clearly potential for greater whole life cost efficiency.

There are also examples of water companies considering non-capital solutions particular in meeting increasing environmental requirements through collaboration and involvement with other environmental stakeholders to encourage innovation.

2. Operating Procurement Strategies (including maintenance and capital replacement)

PART A

Operational procurement strategies are outlined in Section 6 above.

As for capital, the key drivers of operational efficiency are commercial gain (short term) and shareholder value.

The influence of shareholder value is a very strong incentive and drives the strategic approach to operational efficiency.

Operating expenditure procurement services are generally retained in-house.

Typically operational activities are undertaken using in-house resources although outsourcing of some customer service, IT and HR support functions may be outsourced, often offshore.

Operational activities include day to day operation and maintenance of assets (both above and below ground) and often include small value asset repairs and replacements. Outsourcing of such operational activities is not commonplace but has been used in the past by some companies, for example Welsh Water.

The main customer service functions (billing, call centres) are typically undertaken using in-house resources although some companies have outsourced these functions in the past.

Outsourced customer and IT support contracts typically run for between three and five years and are typically procured through discrete tenders.

Procurement of goods and services is typically undertaken in-house with framework contracts with plant and equipment manufacturers and bulk purchase agreements with energy and chemical supplier's is commonplace. Some of the smaller water supply only companies participate in bulk purchase arrangements with their peers, particularly on plant and equipment, in order to achieve efficiencies they might otherwise not realise.

PART B

The decision to outsource and/or offshore is typically based upon cost grounds.

Decisions to bring outsourced arrangements back in-house have been taken on cost grounds (particularly as the cost of offshore activities has increased) although performance particularly against regulatory targets has been a consideration or if governance and control of outsourced activities has been difficult.

As mentioned in Section 7, the regulatory drive towards consideration of total expenditure in investment planning and appraisal, is likely to result in greater integration of capital and operational activities and increased consideration of Opex solutions.

3. Contracts and Performance Incentivisation

PART A

The main forms of capital works contract adopted in the sector are described in Section 6 above. It is noted that the duration of frameworks and alliances is increasing from the traditional five years (matching the regulatory price setting cycle) to six or even ten years with interim performance reviews. Longer term contracts are anticipated to deliver greater efficiency by smoothing investment profiles and creating longer term visibility of investment needs and opportunities for batching equipment procurement and standardisation of designs.

Performance incentivisation is typically through pain/gain mechanisms measured against both regulatory and contract KPIs.

There is a continued shift between AMP5 and AMP6 towards asset maintenance rather than enhancement expenditure and towards a larger number of smaller value projects. This should create greater scope for the standardisation of solutions and integration of the supply chain.

4. Supply Chain Management

The water and sewerage companies, using in-house resources occasionally supported by external contract and cost specialists, handle most procurement processes and contract implementation monitoring. This includes the procurement of operational plant and equipment, energy and chemicals.

Many of the larger alliance arrangements in place in AMP5 and for AMP6 include a programme management partner whose role is to manage the alliance and drive efficiency. Cost consultants, whose role is to monitor and benchmark costs and to drive efficiency may also form part of the alliance. All alliance partners share in any efficiency gains.

5. Efficiency Gains and Constraints

PART A

Efficiency gains in the sector have come from organisational change and new procurement arrangements involving collaborative working and the sharing of risk and rewards with suppliers.

Procurement initiatives such as alliancing, frameworks and early contractor involvement have assisted in smoothing contractor resource profiles and enabling the benefits of new technology savings to be incorporated at early stages.

These are highly prized contracts and very competitive with winning bidders often offering substantial discounts for increased volumes. The water companies are benefitting from the fruits of the competitive process rather than haggling at tender stage. It is important for the water companies to make the packages of work as attractive as possible to promote fierce competition and secure keen prices. There is often a step change in unit costs when new contracts come into force.

Capital and operating investment and the associated supply chain have become more effective over time aided by improved asset investment and management planning techniques based upon risk that have been adopted by the water companies in response to regulator pressure.

Additionally, more robust investment reporting and monitoring processes driven by regulatory reporting requirements and shareholder purposes have improved the monitoring and control of investment.

The annual reporting to Ofwat up to 2009 and the regulator's review and reporting of performance at sector level indicate efficiency gains made by the sector in recent years. This information suggests that capital and operating efficiencies have been in the range of 1 to 3% per annum over the last five years measured in real prices with the greatest gains having been made by the companies deemed by Ofwat to be less efficient. This follows even higher efficiencies achieved in prior years.

PART B

The greater use of alliancing arrangements plus a change in focus to total costs, greater standardisation of project work and shift to maintenance type activity suggest that future efficiency gains may be in the region of 1 to 2% per annum, measured in real prices. There are risks of increasing cost base prices as the economy improves and contractors are presented with greater work opportunities but much AMP6 work has already been procured at this point in time.

Appendix 2: North American Highways

1. Location

USA and Canada

2. Industry Sector

Highway infrastructure: the following note takes a high-level look at alternative procurement of highway infrastructure in North America, with a more in-depth look at one particular administration, followed by some general lessons learned. This note deals principally with procurement of new infrastructure rather than monetisation of existing facilities.

3. Governance and Regulation

Varies between States but in principle governed by State and Federal Procurement Rules, not too dissimilar from European Procurement Rules. The Federal Highway Administration (FHWA) controls development in the USA.

4. Funding

A mixture of traditional State or Federal funding, but now increasingly the use of toll fees by DBFO, with risk of use taken by the private sector; with some subsidy in some cases.

5. Risk Transfer

The principal issue to be considered when approaching alternative financing procurement is the apportionment of project risks between the owner, the designer, the builder and the maintainer. A basic tenet is that risk should lie with the party best able to manage it, and where a party is no more able to manage than another, it should lie where it does not attract a risk premium. For example, the existence of unknown hazardous materials risk should properly lie with the owner, as the contractor is no better placed to manage that risk than the owner, and would include a risk premium in their price to cover it. Understanding issues such as this have been the challenges to developing alternative financing projects; and a clear lesson learned is the necessity for education of the parties involved in the process: politicians, overseeing organisations, and industry.

6. Investment Parameters

Multi US\$ billion, but see examples later.

7. Capital Procurement Strategies

Until fairly recently, transportation infrastructure in North America was procured through traditional design-bid-build (DBB) processes, where the owner procured a designer to fully develop the design prior to holding a competitive tender for construction. The benefit of this process was that the owner knew exactly what he was getting and the contractors were comfortable bidding on what they felt was an equitable basis. However, the downsides to DBB procurement are:

- Long delays while designs were developed;
- Designs are not always the most cost effective;
- Design risk and associated delay rests with the owner/designer;
- Performance of the finished product was the responsibility of the owner;
- Innovation benefits were not realised; and,
- Perhaps most importantly of all, the best value for money was not achieved.

Whereas the UK and other parts of the world had experienced a progression from DBB through Design-Build (DB) to Design-Build- Finance-Operate (DBFO) models, the US in particular had experienced resistance to the DB model, chiefly as a result of legislative constraints on the procurement of design.

In the 2000s, several US states began to see the benefits of procuring transportation infrastructure using alternative methods of procurement, from a value and innovation perspective and from an affordability perspective.

Although the Federal Government in the US, through the Federal Highway Administration (FHWA), encouraged the use of alternative methods of procurement, each state had to introduce its own enabling legislation, which meant that politics played a major part in the adoption of alternative financing approaches throughout the US, even though many of the projects were improvements to interstate highways that are federally funded. Thus, responsibility for developing alternative finance projects lies with state and local governmental bodies with encouragement from federal government, leading to a varied approach throughout the country. However, as the same advisors tend to be involved across many administrations, a similar approach has developed, albeit with local peculiarities towards certain risks.

In Canada, alternative financing has been the norm for many years for vertical infrastructure such as hospitals, schools and government buildings. However, its use for transportation infrastructure has been limited, with some provinces only introducing it to 'horizontal' infrastructure in recent years. Each of Canada's provinces has an infrastructure agency tasked with procuring alternative financed projects. Again, this leads to province-specific approaches again with cross pollination by advisors. The Canadian Federal Government also embraces alternative procurement, where the federal government has responsibility for infrastructure, for example there are currently two major bridge crossings of the St Lawrence Seaway contemplated to be procured using a DBFO approach.

8. Operating Procurement Strategies

See examples later.

9. Contracts and Performance Incentivisation

See examples later.

10. Supply Chain Management

See examples later.

11. Efficiency Gains and Constraints

Alternative procurement is becoming the norm in North America for significant projects. Few projects under \$500m are procured using private financing, as the costs associated with such financing negate the savings to be made. However, DB is definitely preferred even where innovative financing is not viable.

It cannot be stressed enough that an owner contemplating alternative procurement should avail themselves of lessons learned on other procurements, including experience of construction, and operations and maintenance; and must utilise experienced resources.

Examples of the approach taken by Texas are provided below.

Texas

Legislation was passed in the early 2000's that enabled the use of alternative financing in the procurement of infrastructure in general, and highways in particular. There was an attraction for Toll concession projects that could provide desperately needed infrastructure at little or no cost to the State.

Although the legislation provided for a whole range of alternative procurement options, the early projects focussed on mega-corridor comprehensive development agreement projects (CDAs) where multi-modal corridors incorporating highways; truck lanes; high speed, commuter and freight rail and utilities were to be delivered with one concessionaire under a master development agreement, and known as Trans Texas Corridors (TTC). Two projects were let – the TTC35 (487 miles) and the I69-TTC (643 miles) that followed the lines of Interstates 35 and 69 respectively.

The bids for the TTC projects were to include early-deliverable projects. The TTC35 early-deliverable project was the SH130 Segments 5 & 6, providing a 40-mile four-lane divided (including future expansions) tolled highway facility. This project is the southern extension of the initial SH130 Segments 1-4 that was being

constructed using one of the first DB projects in Texas. TX had concluded that the Traffic and Revenue (T&R) for Segments 5&6 would not justify its construction for at least fifteen years; however, the executed contract provided a concession fee of \$25M to Texas Department of Transportation (TxDOT). The concession fee would increase if the posted speed limit was increased above the 70mph norm, up to \$100M at 85mph. The concessionaire bears the entire T&R risk.

At the time of letting the TTC contracts, the environmental clearance process had not been concluded. The environmental process included public consultation. Ultimately, the environmental process was side-lined by governance opinion being swayed by a small but vocal minority, and influential landowners, such that legislation was changed to limit the use of CDA procurement in 2007. The TTC concepts were just too big for the stakeholders to accept. The environmental effort was not wasted, though, as it can be used to develop aspects of the corridor in years to come. It is a good illustration that some projects can be just too big.

However by 2009, it was realised that there was no feasible alternative to afford the much needed infrastructure and limited concessions were made in the 2009 Legislature. DB projects started appearing along with Availability Payment (AP) DBFO projects. Texas currently has several multi \$billion alternative procurement highway projects under contract, ranging from 52-year full concession projects through AP projects and DB projects with 15-year Capital Maintenance Agreements (CMAs). All of them were procured using processes almost identical to the Dialogue Process that will be familiar to EU procurement agencies.

While the TTC procurements were ongoing, other projects had been procured using alternative procurement strategies:

- The IH 635 Lyndon B Johnson Freeway (LBJ) is a loop interstate around Dallas. It suffers from severe congestion at peak periods, which are getting longer each year. There had been a project planned for many years to increase the capacity; however, funding for the project had never been available. There was significant local support for the project; however two significant constraints were that the project could be no higher nor no wider than the existing highway. Using the new CDA legislation TxDOT procured this project under a full concession DBFO with the concessionaire taking the T&R risk. Furthermore, this is to be a fully dynamic tolling facility, where a guaranteed minimum speed of 50mph is to be achieved by increasing and decreasing the toll rates in real time in response to traffic volumes. The construction value of this project is \$2.4Bn, and the contract was concluded with a \$489M construction subsidy. Construction is well under way;
- The DFW Connector project is a 'funnel' to the NW of Dallas in the area of DFW airport. It is a complex set of interchanges and connectors that was let as a DB project. As with the SH130 1-4 DB project, an optional 15 year (3x5 year) capital maintenance agreement (CMA) was incorporated in the contract, in an attempt to encourage design and construction that was fit for purpose. Desiring a programmatic approach to procurement, the documents used for this project pulled heavily on documents used for the other DBFO projects in Texas, and were perhaps not as well suited for a DB as they should have been. Construction is complete;
- The SH 121 (now the Sam Rayburn Tollway) travels across the North West of the Dallas - Fort Worth area. This project illustrated how politics can play a significant part in procurement. Responsibility for toll roads in the Dallas area lies with the North Texas Tollway Authority (NTTA). For TxDOT to procure and operate toll roads in this area, it must first achieve an understanding from NTTA that NTTA are not interested in developing the project. This was achieved for SH121, and so TxDOT proceeded with the procurement as a full concession DBFO. The winning bid included a significant concession fee. NTTA reneged on their agreement and with local governance pressure forced TxDOT to cancel the procurement, and immediately enter into a contract with NTTA for the project, with an even higher concession fee (\$3.3bn). Time will tell if the T&R will support such a large concession fee and the construction cost (around \$1.4Bn). These events put the Texas alternative procurement programme into a degree of disrepute;
- North Tarrant Express (NTE) is a project made up of five segments (with sub-segments) of interstate in the Fort Worth Area that was procured as master development agreement CDA. A significant

difference here was that the public funds amount or subsidy was fixed. Bidders were to state how much of the project they could build based on the public funds amount and their view of the T&R. The project is a toll concession DBFO. Subsequent sections of the project would be developed as T&R permitted. The successful bidder agreed to build Segments 1 and 2W. Subsequent negotiations within the scope of the contract has added Segments 3A and 3B. Construction of Segments 1 and 2W is almost complete and about to start on 3A. Construction of 3B was started last year);

- US99 Grand Parkway in the Houston area and IH 35E in the North Dallas area are worth including here, as there was a degree of uncertainty about the method of their procurement. The former was urgently needed as a significant employer intended to relocate their global headquarters in the area, but only on the condition that the US 99 was built. The latter was a section of the strategically important IH 35 that was congested and beyond its residual life. As a result of governance influence, the procurement commenced with DB and DBFO with availability payments (AP) and DBFO toll concession all as options. The two biggest challenges with proceeding with the three options for procurement simultaneously were: that the bidder profiles for the various types of procurement differ; and the challenge of comparing bids for the three different strategies. Fortunately, the preferred method of procurement was settled before requests for proposals (RFPs) were issued, although the challenges had been addressed such that a three-option procurement could have been concluded; and
- Loop 1604 in El Paso was a short spur serving a military base. This was procured as a DBF, with the contractor being reimbursed using a form of shadow tolling over a ten-year period. This form of procurement was subsequently prohibited by the Texas Legislature.

Lessons Learned

The most significant lesson learned in the Texas alternative procurement programme was the importance of education. Education of politicians as to what alternative procurement in all its forms means; education of the public as to the benefits and limitations of alternative procurement; and education of industry, both the department of transport managing the projects and the bidders. Without such education and understanding, the projects stand a poor chance of successful procurement and implementation. The most important of these is education of those implementing the projects, as they are often drawn from a background of rigid oversight with retained risk, and are uncomfortable with the risk transfer and perceived lack of control.

There is always a temptation within procurement agencies to create template documents. However, within a programme of alternative procurements lessons learned from the early projects take some time to filter through to subsequent procurements. It is therefore vital that advice is sought from people with direct experience of alternative procurement projects and their implementation. Regular lessons learned workshops are crucial to the development of an alternative procurement programme.

Robust Quality Management Systems (QMS) are vital to successful alternative procurement projects. There is a tendency to pay lip-service to QMS and administrators are often not familiar with the concepts. Great attention should be made to proposed quality plans, as they are the only means by which the owner can be confident that the project will be built to correct standards and certifiable.

A scale of consequences for poor performance must be included. Without them, or difficult to apply consequences, will result in the contractor not responding to non-compliance in a satisfactory manner. Having consequences that are draconian are no more effective than having no consequences at all, as administration staff are reluctant to use them. A scale of liquidated damages in the form of Non-compliance points has proved useful, as the points themselves engender liquidated damages, and the points accrue where there is persistent non-compliance to prompt further action in the form of improvement plans, increased audit and oversight and other sanctions.

The importance of a fully detailed schedule may not be immediately apparent with alternative procurement, but is in fact as important, if not more so, as it is in conventional procurement. This is particularly so where the contractor's cash flow on the project is dependent on completion or revenue. It is

vital that any associated WBS is logical and specific, and that a resource loaded schedule is submitted prior to commencement of work.

Performance specification is not always clearly understood by those writing technical specifications, and it is important that technical documents are reviewed by resources that understand risk transfer from both a legal and technical point of view.

Experience in many jurisdictions had shown that an active steering group of legal, technical and financial advisors is highly beneficial to the success of an alternative procurement project.

Appendix 3: UK Unregulated Private Sector

1. Location

UK nationwide – this geographic area is the subject of this pro-forma response. Internationally, the business also operates in various continents throughout the world but these operations will not be covered here.

2. Industry Sector

Retail supermarket chain. Asset base primarily includes buildings and fabric, heating and electrical facilities, internal store equipment (refrigeration, heating and ventilation, air conditioning, lifts etc.) and external wastewater, landscaping and electrical services on site premises.

3. Governance and Regulation

PART A

This is a private operation under UK law. No regulatory regime such as Ofwat. H & S at Work Act 1974 and UK competition law are the primary legal drivers. Grocery Supply Code of Practice is complied with across all aspects of assets and products procurement as an advisory regime but the Board has directed compliance with such a requirement.

PART B

Company have developed their own procurement rules and regulations set by head of procurement and these vary between the different departments due to the variety of applications and need (e.g. new building structures, all internal and external equipment and replacement, food purchasing, mechanical and electrical equipment etc.). There are internal audits once per year on all departmental procurement practices.

4. Funding

Private, quoted stock market business, with all products sold in a totally competitive market. All budgeting annually. No 5 year horizon even for the asset base. Contract lengths vary to suit circumstances although they are mostly annual following the budget cycle but sometimes they can be as long as 3 years if this realises economies of scale, price and efficiencies. Longer horizons are generally not suited due to market change and unforeseeable risks over time.

5. Risk Transfer

All contracts are drawn up by the client with minimal self-risk (negotiated by contract/legal team). Some special contracts/agreements with subsidiary fully owned companies such as for specialist facilities building and plant maintenance services are negotiated as single source and as such TUPE (transfer of undertakings) applies, which remains a specific client risk. All maintenance contracts are generally paid monthly pro-rata against the lump sum or as schedule of activities by evidenced tasks completed in the period. All maintenance contracts include KPIs which link directly to over performance fee payments and conversely a % of contract value can be withheld due to under performance. Construction contracts are based on schedules of rates with no performance incentivisation - yet. There are current efforts in place to bring construction contracts up to the same standard and control as for capital maintenance.

6. Investment Parameters

PART A

Annual capital expenditure including new build equipment fit out and capital replacement is approx. £480 - £530m/year (excludes new building costs). £1.6bn all in total capital/ year including new buildings, land etc. Maintenance £120m/year and capital replacement approx. £80m/year. Staff operating costs not available. Duration of contracts and type of assets as described previous.

200 contractors nationally on capital and replacement paid directly per year. Also further 200 contractors nationally paid directly on maintenance each year. Internally this procurement has just been moved for management by a centralised Group procurement team. Minimum of 3 contractors and max number unlimited for contractors at tender stage selected from pre-qualified list (20+ is not uncommon) – but some

specialist plant or equipment may only have a few suppliers who can qualify in the UK so tendering numbers limited. Numbers normally tendering will depend on Regional view of past performance and which contractors operate strongly in what areas. The client is in a very strong position to decide what it wants due to value/size of contracts commanding high levels of bidding enthusiasm. Demand for the work allows some supply contracts to be tendered quite robustly with a secondary BAFO after selecting the most advantageous top initial bids.

Value for money is achieved by tendering from a position of market strength with pre-qualified and known contractors/suppliers and by using an external market test facility on all rates in all the maintenance contracts which can be called for at any time in the duration of the contract.

All variations and extras for maintenance are taken off the schedule of rates. Inflation indexing not used, with pressure to reduce supplier/contractor costs year on year. A tough environment for contractors/suppliers.

The client sees it is an imperative that all assets avoid closed loops between the supply/install and then the operation and maintenance such that the suppliers are not allowed to protect competitive access to any following maintenance works. Contractor selection is by PQQ and they complete on line submissions for evaluation for inclusion on the approved lists.

PART B

No issues from client's perspective with regard to market capacity.

Subsidiary Maintenance Company supplies approx. 15% of annual need. Construction is all contracted out using an in house construction management team with management support from consultants and architects.

For all new builds, the client procures and supplies its own equipment for the new build contractor to fit out so it is in line with equipment standards and policy, thus benefitting consistency of equipment, supply continuity, purchasing power, and whole life costs and spares availability.

7. Capital Procurement Strategies

PART A

Outsourcing levels are as mentioned above. Capital maintenance and new build fit out covered in next section.

As previous, new build contracts require effort to bring up to the same standard as achieved in capital maintenance and day to day maintenance.

PART B

Covered previously.

There is a large movement of staff between the competitors in capital and maintenance procurement and operations and this gives rise to similarities of process across competitors such that the sector does not find it easy to develop new ways of delivering and operating. Constant cost reduction demands inevitably challenge quality and reliability and finding the balance is crucial.

8. Operating Procurement Strategies (including maintenance and capital replacement)

PART A

Frameworks are rarely used except where regular and specialist ad hoc call off arrangements demand such use.

Maintenance and capital replacement contracts have had substantial changes in the last 5 years. Firstly, there has been decisions made to add new build equipment procurement within the same team as capital replacement and maintenance of equipment and plant etc. as explained previously, secondly the need to scope exactly what the client wants by formalising in tighter better structured contracts and thirdly the

introduction of a KPI performance and penalty regime. All these have been brought about by the constant pressure to reduce costs, improve quality of work and improve contractor performance and reliability.

PART B

Already covered previously.

9. Contracts and Performance Incentivisation

PART A

Already covered generally in previous responses.

Apart from bringing the lessons learnt from capital maintenance procurement into construction contract procurement, it is doubtful that in the foreseeable future that incentivisation introduced to date will develop much further. The business overall is very focused on retail and product sales and does not see itself as an asset manager – which it however clearly is. Reducing expenditure is a constant pressure and the risk that has to be managed is that these pressures mitigate against quality and reliability of the asset base. It's noticeable that there are no asset managers in senior management and the concept of partnering with contractors/suppliers is not a readily accepted philosophy in the higher echelons of the business.

PART B

Covered as much as possible already.

10. Supply Chain Management

Excluding buildings fabric construction procurement which is routinely standard and managed by an in house construction team with external support, initial internal equipment procurement, its replacement and its maintenance is highly organised in house (including the subsidiary specialist maintenance company) for the reasons and benefits outlined in previous sections.

Largely covered in previous sections.

11. Efficiency Gains and Constraints

PART A

Lean Six Sigma process improvement has been applied last year to supply factories, repair processes and delivery from warehousing so as to take waste and inefficiencies out of the process and reduce wasted time and therefore costs. Efficiencies have been secured, particularly on the capital maintenance and maintenance costs procurement and effort is now being directed at the construction procurement. Actual efficiency numbers are confidential. National procurement with nationally available contractors is securing better value as opposed to smaller larger numbers of regional contractors. The 200 capital maintenance and maintenance contractors paid at present is seen as too many, largely due to legacy arrangements and the view is that this will reduce in the next few years to approx. 100 with a longer term plan 5 year plus to reduce further to approx. 50.

Cost reduction pressures will never change, although there is a realisation that year on year price reductions may have hit the bottom and in order not to compromise on quality and reliability, costs may have to turn upwards in the future. The nature of the asset base is not foreseen to change although there is likely to be an increase in smaller outlets thus spreading the asset base more widely over a larger number of sites the UK.

Capital replacement and equipment new build contracts are set up by service type e.g. refrigeration plant, lifts, heating ventilation and A/C, landscaping and external drainage and pumps with remote monitoring and this will not change in the foreseeable future.

PART B

Covered already in previous sections or as above.

Capital maintenance success is measured through KPI trend improvements, as well as via a keen eye on costs.

Customer feedback is focused on products in the main and has minimal bearing on the performance of the asset base, except if anything goes wrong or breaks down. This is a noticeably different feature to the current move in the England and Wales water sector to increase customer involvement.

Otherwise further information is not available.

Appendix 4: Australia NZ Infrastructure

1. Location

The geographic coverage of this response is Australia and New Zealand (ANZ). Regulatory and market conditions in these two countries are similar enough for these to be considered common in the context of providing high-level observations.

2. Industry Sector

Industry Sectors covered by this response are Transportation (Roads) and Water/Wastewater. This response presents general learnings gained from direct procurement options analyses undertaken for our clients and the findings of our internal research into procurement approaches in the Region.

3. Governance and Regulation

The governance and regulatory environments for the two sectors covered by this review vary significantly and have therefore, been addressed separately below. There has however, been significant research into public infrastructure procurement in-general and recent guidelines developed by organisations like the Australian Procurement and Construction Council and Infrastructure Partnerships Australia have influenced procurement practices across all public infrastructure.

Roads

PART A

Transportation agencies in Australia and New Zealand (ANZ), at both the federal and State level, exist under legislative mandate imposed by respective Transportation Acts in these countries. In both countries, legislation assigns accountability for the safe, efficient and effective management of the road network to a specific agency (and specific role within that agency, in most cases). This accountability places an upper limit on the level of risk that can be transferred to the private sector, regardless of the procurement approach.

New Zealand legislation requires a high level of service-level transparency for roads, with community expectations required to be captured and reported against through the Long Term Community Consultation Planning process. Similar legislation has been implemented in some Australian States (the Victorian Road Management Act, for example) and is likely to be taken up across the country, with time.

In ANZ, Procurement rules at the federal (National) level can be categorised in the following broad objective categories:

- Value for Money
- Encouraging Competition
- Efficient, Effective, Economical and Ethical Procurement
- Accountability and Transparency in Procurement
- Procurement Risk Management
- Procurement Methodology

ANZ National transport procurement rules are well documented and readily available from publically accessible websites. Guidelines that inform appropriate arrangements for the implementation and oversight of these rules are equally available. In these guidelines, strong emphasis is placed on assuring an audit trail of rule compliance, with a large proportion of the rules defining documentation/notification/reporting requirements.

ANZ State Transport Agency procurement rules generally follow and support the current federal approach and to a lesser extent, so do Local Authority rules and practices. Unlike New Zealand, most procurement

planning and oversight in the Australian Transport sector has historically been transferred to State Agencies unless there was a requirement for cross-jurisdictional collaboration. This trend is changing however, as larger and more integrated transport schemes become the norm. The organisational response to this trend has been that the Federal Government has steadily been developing its procurement capability and most States now have an “umbrella” transport agency, with oversight of large and/or multi-modal transport initiatives.

In the 80s, New Zealand underwent a rapid and wholesale privatisation of public infrastructure, driven by concerns about future funding sustainability. This rapid change necessitated rapid development of procurement capability across all public infrastructure markets. The combination of necessity, the lack of size-driven inertia and some strong leaders in the transport sector has resulted in a highly integrated and well documented approach covering all aspects of the procurement cycle and that that is well understood by industry.

Procurement / governance arrangements closely mirroring those previously developed by the UK Office of Government and Commerce (OGC) are commonplace at the National (New Zealand) State and larger Local Authority level and in particular “Gateway”-style approaches to procurement assurance.

PART B

There is no regulatory body with oversight of Road Sector procurement in Australia and New Zealand, but there are a number of peak bodies that advocate on procurement. There are however, regulations that apply to specific design and safety aspects of roads, the latter of which are enforced by the Police.

Water

ANZ Legislation related to water is vested in specific or generic resource management or health Acts, with oversight of these acts generally provided by the Health or Environment Departments in each jurisdiction. These Acts cover: the protection of drinking water supplies; drinking water standards; and water quality requirements for water and wastewater outlets/outfalls.

The controlling Agencies publish procurement guides, one example of which is the New Zealand Department of the Environment Sustainable Procurement Guide. These guidelines are generally recognised by the Regulatory body in each jurisdiction and reflected in the procurement policies and guidelines implemented by each water authority. The Melbourne Water Sustainable Procurement Policy and Sydney Water's Water Procurement Guidelines – including its Urban Growth Procurement Guidelines – are good examples of the authority-level procurement approach in ANZ.

The procurement “rules” embodied in the guidelines developed are relatively consistent, both across the water sector and with public infrastructure procurement rules for public infrastructure in-general. Typical procurement objectives are reflected in the Sydney Water Procurement Policy objectives, as follows:

- Achieving best value for money;
- Providing an efficient and effective procurement process;
- Demonstration of probity, equity and transparency; and
- Adoption and adherence to the NSW Code of Practice for Procurement.

PART B

Water regulation is administered in New Zealand by the Regional Councils, which have the power to set and audit drinking water quality and environmental impact of the (primarily) District Council-based water authorities. There is currently no economic regulation in New Zealand.

District Water Authorities are responsible for providing evidence of compliance and the level of regulatory scrutiny applied is generally a function of individual plant / asset criticality.

The water and road sector reform agenda is set in Australia by the Coalition of Australian Governments (COAG), with the National Water Commission responsible for driving this reform and providing advice to Government on water issues through the regular publication of position statements.

In Australia, dedicated public sector regulatory bodies are responsible for water regulation. These Regulators generally have control at a State level and cover all public water infrastructure regardless of ownership. The extent of economic regulation varies significantly from State to State with price setting powers greatest in Victoria, New South Wales and the Australian Capital Territory. Of four remaining States and Territories, three are reviewing regulatory arrangements and one is in transition. In all instances, there is a proposed or planned increase in economic regulation.

Water regulators all have the power to audit or review at both the process level and the outcome level, in line with their mandate. The water authority being reviewed must cooperate and provide any material or substantiation required to meet the requirements of the review. Typically these reviews are managed by the regulator, but executed by a third party – commonly by an appropriately qualified consultant. The regulator has the power to direct any improvements and/or changes necessary to address the recommendations of any reviews.

Only regulators with an economic oversight mandate have the power to directly influence water authority pricing and procurement practices.

4. Funding

Roads

Both the Australian and the New Zealand federal and state road/transport sector are funded primarily through receipts of car registrations and a proportion of fuel excise taken by the government.

The allocation of funding varies between Australia and New Zealand. The Australian Federal Government defines allocations in to the States in Australia; whereas in New Zealand funding is more transparently allocated from a Road Fund presided over by a quasi-government board. The Road Fund Board makes allocative decisions based on transparent and robust economic analysis framework.

Australian and New Zealand road funding at the local level is provided through rating, with National or State co-funding provided for strategic road links. Most road agencies publish either annual or multi-year forward programs of work and budget allocations (at varying levels of detail) to inform industry of up-coming opportunities.

A small proportion of the Australian road network is owned and/or operated by private consortia and this proportion is expected to increase with time. Funding for these specific road links / facilities generally forms part of the conditions of the contract entered into, but largely fall into two broad categories of volume pricing or availability funding, with road user tolling as the exclusive fee collection mechanism.

Water

The New Zealand water sector is vertically integrated, with a single District entity providing all water and wastewater services on an area basis. The Australian water sector is multi-tiered and water / wastewater charges are passed down through the water supply-chain from bulk-water through to distribution/collection.

In all cases, end users generally pay the full cost recovery of the water supply and treatment services, with an appropriate margin, which may be subject to regulatory scrutiny. This is the case even for Australian local authorities managing water services, as their corporatized financial structures annex water service costs and receipts to their water businesses.

Transaction costs that are incurred between water authorities for bulk water supply and increasingly for water recycling, are captured in the tariffs levied to end users. Recently, the economic regulator in Victoria intervened, when a bulk water authority tried to pass-on the costs of a failed desalination plant to retail water authorities it supplied. With public discontent at the significant increase of water price inflation over CPI, increased scrutiny is being placed on the appropriateness planned capital works and rulings like this are becoming more commonplace.

The end user tariffs are generally levied on two-part basis, with a service component covering fixed / establishment costs (typically tied to a minimum level of supply/treatment) and a volume component for the actual water supplied or treated above this minimum supply level. The level of rigour and transparency applied to the determination of these tariffs by water authorities varies significantly.

5. Risk Transfer

There is no procurement approach to risk that dominates in ANZ. Each entity typically develops an approach based on their assessment of which party is best able to manage the service level / delivery / oversight risks. This approach would generally take into account:

- Current and planned internal management / delivery capability and capacity;
- Industry accessibility, delivery capability and capacity;
- Potential cost efficiencies (delivery and economies of scale);
- The ability to leverage new methodologies/technologies; and
- Financial capacity and broader access to funding.

The fundamental tenant underpinning these considerations is that effective risk management will deliver increased price certainty (due to reduced tendered contingencies) and cost savings through the application of optimised mitigation measures.

Rather than identify what the risks are, it is more informative to briefly present a number of procurement approaches applied in ANZ and briefly how these have address specific risks:

Standard, Client Specified Works or Services (Lump Sum)

The client carries responsibility for funding the works or services. The client retains the risk that the services or the works have not been being specified appropriately or do not adequately cover the required scope. Changes in specification and/or scope are generally costly, because there is no competitive tension applied to their cost determination.

Design and Construct Works (Lump Sum)

Design and construct limits the risks of design variations by placing the onus of scoping, detailed design and costing on the provider, typically based on a client-supplied reference design. Theoretically, this enables the provider to design the works in a manner that is optimised to its resources and that considers all constructability issues, lowering the provider's risks.

The client carries the risk of funding the works.

The provider carries the risk of resourcing the works to meet the cost estimate built-up from its design, which is deemed to be exhaustive, in terms of scope.

Client Performance-Specified Works of Services (Lump Sum)

These contracts define specific performance outcomes that the services or works are required to achieve leaving the approach to meet the performance criteria up to the provider.

The client carries the risk of funding the services or works. Because these contracts are longer-term and generally of significant scale, expenditures are generally planned, pre-approved and "locked-in".

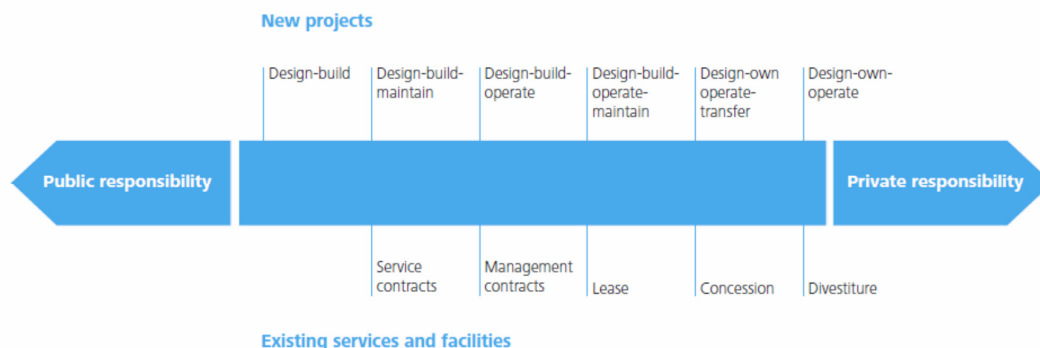
The client retains the risk of the specified performance measures being inappropriate and also of them being locked-in over the contract term. There is however a lower exposure to variation risks. The client also carries the risk of assuring that the performance has been achieved, both during the contract and at completion.

The provider carries the risk of meeting the performance criteria for the lump sum, but can minimise risks through the increased scope for technical / methodological innovation enabled by this form of contract.

Public Private Partnerships (PPPs)

PPPs can cover client a range of project models (and to a much lesser extent, services) as detailed below:

Figure 1: the PPP continuum: degree of public sector responsibility



Source: The National Council for Public Private Partnerships

They have one characteristic in common: they are debt-funded by the private sector, with the cost of capital, ongoing operations and debt recovered over an extended period. This recovery can be levied directly to the client, but more typically is recovered from end users of the completed facility through tolls or tariffs.

The private sector entity carries all risks of delivery and commonly, of ownership for the completed facility, including the risk that agreed payment streams cover all costs incurred over the term of the contract.

The client carries the risks of limited operational control in instances where the PPP proponent has taken ownership. In ANZ this has been an issue, because some PPP contracts have not been drafted with transfer of asset stewardship requirements top-of-mind. In these instances, there have been examples of commercial considerations impacting end users and the general community, where these impacts have not formed part of the formal contract performance parameters.

In the Australian experience, there have been a number of instances where the client has also carried the governance risk of a PPP project being perceived to have “failed”. This has particularly been the case for roads, where volume-based toll revenues have not met expectations or for water, where tariffs levied by PPP proponents have resulted in significant cost increases to end-users to maintain financial sustainability.

Alliance and Relational Contracts

Alliance contracts and relational contracts seek to bring together in one team, all of the parties most effective at managing all of the risks of a given project or venture, including client representatives. Collaboration is the hallmark of these contracts and also their key success factor, as team members need to “pull together” to ensure all risks are identified and mitigated. Alliances in particular are maturing, with formal guidelines provided by ANZ Government agencies on the development, payment mechanisms and governance arrangements required for these contracts. Application of these guidelines generally comes at the cost of increased administrative overhead, potentially offsetting any contract efficiency / risk management savings.

The client minimises project risks by having all risk “owners” at the table and actively contributing. This is particularly beneficial with highly complex projects or projects covering multiple interests / jurisdictions as it streamlines decision-making.

Pricing risk is theoretically “shared” by all parties, with a collaboratively developed target out-turn cost (TOC) agreed up-front and a reasonable level of flexibility to adjust prices in-delivery, through the contract governance arrangements. How any TOC upside/downside is dealt with under the contract (i.e. the “pain / gain” arrangements) has a significant bearing on both team dynamics and contract outcomes.

Delivery risk is also shared by all parties, as issues that are identified are raised, discussed and addressed by the collaborative contract team.

In execution, there is a risk that client decision-making authority is diluted in instances where either client representation is not in the majority or there is no client veto mechanism in the contract governance arrangements. For program-based relational contracts (maintenance for example) delivered by multiple teams, there is also a significant risk of losing vital portfolio performance intelligence if contract teams are given too much autonomy to develop program performance regimes.

6. Investment Parameters

Roads

PART A

Total annual road expenditures at the State level (Australia) and National Level (New Zealand) range from AU\$50 million to AU\$5.5 billion, with an indicative CAPEX / OPEX split in the order of 88% / 12%. This split has been impacted in recent times by increased capital spending in response to disaster relief works for flood repairs in the Eastern States of Australia.

The total road asset base in Australia and New Zealand is ageing, with an across-the-board trend of underfunding renewals and maintenance. This trend has increased demand for capital funding and there exists significant opportunities to release funding through whole-of-life cost optimisation across funding streams.

Procured works and services in the road sector include: capital creation, augmentation and renewal projects; rehabilitation schemes and increasingly, whole-of-network maintenance contracts. With in-excess of 20 Tier 1 providers, local industry is well positioned to carry out all forms of capital works from a capability and a capacity perspective. The local Tier 1 contractors vary significantly in market approach, with some offering turn-key, vertically integrated services and some taking a managing contractor role, leveraging the services of smaller and specialised sub-contractors. There is an increasing representation of international contractors bidding for large transport projects as-well.

There is currently a shortage of second-tier contractors in the ANZ market, largely as a result of acquisitions and mergers. In some jurisdictions, client procurement rules have promoted the inclusion of mid-tier sub-contractors in large (typically alliance) contract teams as a mechanism for building capability and also to increase market competition.

The pool of suitable providers for the more specialist maintenance contracts comprises 5 key players, with strong representation from New Zealand based contractors. Mobilisation, bid costs and lack of local network knowledge have made it difficult for international or smaller-scale contractors to bid for these services.

For capital works, the trend of contract size is increasing and as a result, the typical capital works program delivered under a non-concession contract is now multi-year. For PPP's the average concession period is 20 – 30 years, trending towards the latter to increase the incentives for whole of life cost optimisation in the contract O&M program. Dedicated road maintenance contracts are generally let in a range from 3 to 10 years, with the former generally coming with an option for multi-year contract roll-over. Early contractor involvement (ECI) mechanisms are sometimes employed to collaboratively refine designs and establish the contract price. The primary savings driver in this approach is that the client retains ownership of the design and can take it to the open market if the contractor-developed price is unsatisfactory.

There is limited consistent guidance in the ANZ marketplace on the approach to determining value for money. In-general there is a strong correlation between the level of client prescription in the services procured and the focus on price as the key determinant of value. As this prescription decreases, greater emphasis is placed on provider capability / experience and the resulting ability to contribute to the decision-making processes during contract execution. This price focus is similarly applied where the works or services being procured can be readily and tangibly linked to achievement of road agency's prescribed performance outcomes.

One approach that is commonly utilised in ANZ to promote consideration of value is the two-part tender, where bidders are short-listed based on tender non-price parameters first and the successful proponent is determined based on the lowest price within the short-listed bidders.

The mechanism for tracking and applying price influences in-delivery is relatively mature in ANZ, with well-defined indices for construction costs and transparent mechanisms for the determination of input cost influences. These indices and algorithms are sector-specific, developed/endorsed by industry peak bodies and are generally written into the contract conditions. As these factors are agreed up-front by both parties, there is minimal scope for dispute and as a result, the client accepts most substantiated payment adjustments (accepting downward adjustments are unlikely to be claimed). For lump sum contracts, there is a presumption that the provider accepts (and has allowed its price for) price fluctuation risks.

PART B

As local contracting firms are predominantly multi-sector, Client expenditures on road services is significant, but not dominant component of overall construction expenditure. This is particularly the case in Australia in the last five years, where construction in the resources sector has just undergone a significant period of expansion. In the current market, road expenditures represent approximately 6% of the total AU\$255 billion construction market.

As indicated earlier, virtually all New Zealand road works and services are outsourced. The National road agency NZTA, Regional and District Councils provide the contractual frameworks for delivery and administration of the contracts is also largely outsourced.

In Australia, most capital delivery, a reasonable proportion of road network planning and approximately half of all O&M delivery is still undertaken by the public sector. There is however, increasing governance and financial pressure for this work to be transferred to the private sector. Current trends would indicate that the vast majority of road services will be performed by the private sector in the next decade, with the only exceptions being remote network areas where private delivery is not commercially viable.

With the average road construction project increasing in contract scale and complexity, the cost of bidding new capital is also increasing and the field of credible bidders decreases. AU\$1 billion contracts are commonplace and the typical field of bidders, which includes international consortia, is generally in the order of seven to ten. Network operation and maintenance contracts are also becoming the norm in ANZ and because these generally require significant program forecasting, they are relatively expensive to bid. As a result, minimum contract revenues in excess of AU\$30 million are typically required for consortia to cover the costs of bidding without impacting potential contract savings or reducing margins to unsustainable levels.

Water and Wastewater

PART A

New Zealand's average National water expenditure comprises NZ\$605 million in operational spending (including maintenance) and NZ\$390 million in capital spending. In Australia, a national figure is difficult to establish, but in capital cities total expenditures are in the order of AU\$2 billion, comprising AU\$840 million in capital, AU\$535 million in maintenance and AU\$625 million in operational spending. A summary of operating and capital expenditures by property and utility size is provided below to provide an indication of the Australian operating context:

Table 2.10 Average water and sewerage operating expenditure per property by utility size
Dollars

<i>Utility size by number of connected properties</i>	<i>2005-06</i>	<i>2006-07</i>	<i>2007-08</i>	<i>2008-09</i>	<i>2009-10</i>
100 000+	468	487	517	561	594
50 000 to 100 000	614	660	650	694	703
20 000 to 50 000	690	692	720	685	742
10 000 to 20 000	801	809	815	842	867

Source: adapted from NWC and WSAA (2011).

Table 2.11 Average water and sewerage capital expenditure per property by utility size
Dollars

<i>Utility size by number of connected properties</i>	<i>2005-06</i>	<i>2006-07</i>	<i>2007-08</i>	<i>2008-09</i>	<i>2009-10</i>
100 000+	360	412	483	677	741
50 000 to 100 000	445	899	956	878	635
20 000 to 50 000	490	862	1 102	1 014	842
10 000 to 20 000	1 202	1 116	831	922	975

Source: adapted from NWC and WSAA (2011).

The pool of water / wastewater works and services providers comprises a sub-set of the providers identified and some additional, internationally-based, specialist water services providers ([x], [x], [x]). There is generally less vertical integration within these providers and far more extensive use of specialist sub-contractors, reflecting the specialist nature of some of the work contracted. Pure design contracts are typically delivered by one provider, but all other contracts generally comprise three or more delivery partners. The total field of Tier 1 providers in the market would be in the order of 30-40 and the number of second tier and specialist providers would easily be triple that number.

For capital projects in the water sector, design build operate (DBO) is the preferred treatment plant contract mechanism, with project alliances for more complex green-field or upgrade projects. In collection and distribution, separate design, supervision and construction contracts are commonly let, with the first two generally under lump sum and the latter, under schedule of rates. Increasingly, water authorities are letting contracts for operation and/or maintenance of water infrastructure on an asset or facility basis, often including "low risk" capital works in their scope.

PPPs in the water sector are in their infancy with a limited number of projects being let (see figure below). With the exception of the Melbourne Water Maintenance Service contracts which did not continue as PPPs, all of these projects are very early in their terms and it is too early to comment on their success.

TABLE 2.01 • Public-private partnerships

Development and Capacity (Megalitres per day)	Consortium	Client	Contract
Prospect Water Filtration Plant (3,000)	Australian Water Services, Ondeo-Suez (France), Lend Lease	Sydney Water	25 year BOOT
Macarthur Water Filtration Plant (265)	United Utilities (UK), Tenix	Sydney Water	25 year BOOT
Woronora, Illawarra water filtration plants (370 combined)	Wyuna Water (Veolia Water) (France)	Sydney Water	25 year BOOT
Yan Yean Water Treatment Plant (400)	United Utilities (UK), Tenix	Melbourne Water	25 year BOOT
Melbourne maintenance services	(1) Theiss (2) Serco (3) Tenix	Melbourne Water companies (x3)	5+ year service contracts
Complex \$AU90 million upgrade of Cronulla Sewage Treatment Plant	Bovis Lend Lease, Australian Water Services, CH2M HILL Australia, Sinclair Knight Merz	Sydney Water	DBO – operations and performance for 1 year before and 2 years after completion
Management of Adelaide's water system	Veolia Water, Thames Water, KBR	SA Water	15.5 years service contract. (Industry development condition)
10 water filtration plants for SA Riverland Region	United Utilities (UK), AMP, Bechtel	SA Water	15 year BOOT

Some ECI contracts have been trialled in Australia, but only in civil works oriented contracts for pipelines and dams. By all accounts, these projects have met expectations, but have not been embraced by clients as a result.

The comments made on determination of value for money in the road sector apply equally in the water sector, as there are similar influences and drivers. The major difference would be that regulatory compliance requirements arguable increase the level of prescription when procuring works or services and as a result, biases assessment approaches towards price.

Comments already made on for roads on indexation, input cost influences and client willingness to pay are also equally relevant in the water sector.

Individual water authorities generally retain responsibility for strategic water planning and the setting of macro budget allocations, albeit with varying levels of consultant advice. Design of capital works is commonly undertaken by external parties as either a discrete work package or as part of a turn-key scheme.

Water clients retain responsibility for strategic asset planning, but there is a very recent trend of including some of the support functions of this process in outsourced maintenance contracts. Clients also have oversight of hydraulic modelling generally delivered by consultants. Most design work is undertaken by third parties and like roads, this work is carried-out either discretely or as part of a design-build package.

The client supply of materials to construction contracts does not generally occur as this would complicate any latent defect period in the contract, transferring risks back to the client.

There is no consistent approach to maintenance outsourcing in the sector. Remote regional water authorities are more likely to retain internal maintenance function both because of the financial marginal return opportunities and also to provide community employment. Urban water authorities often retain maintenance capability to support critical or “niche” equipment, but there is an increasing trend of expanding private sector maintenance delivery across the board. Maintenance delivery mechanisms include schedule of rates and alliances, with the latter preferred for the level of control retained by the client.

There is a high level of competition in the service / works delivery market and the number of bidders are always high enough to provide a suitable level of price tension (ie. 5+). The number of bidders is generally a function of the level of specialisation required for the works/services being contracted and also market conditions. Economic downturn tends to drive bid numbers up. Some years ago, there was a “gap” in the local maintenance delivery market, but this has been filled both by new entrants from Europe and also through development of local provider skills.

The factors influencing bid costs are the same as they are for the road sector, with the same need for revenue “critical mass” to drive a competitive number of bidders and an appropriate return on investment without impacting contract price. Any procurement that requires proponents to assess long-term needs, should all sufficient time for these needs to be accurately assessed or contract financial or operational

success will suffer. For any contract with a long-term operate / maintain component bid time should range from 3 to 6 months.

7. Capital Procurement Strategies

PART A

Procurement strategy in both the water and road sector is driven by a need to cost-effectively deliver required (or mandated) service levels and to manage both business and operational risks. In the both sectors capital and operational budgets are constrained – either directly or indirectly – by available revenues and the governance fall-out of price rises above CPI. In this environment, clients are compelled to investigate opportunities to improve service delivery efficiency and procurement is one area of investigation. The road sector is also subject to the influences of governance ideology, with divergent partisan views held on public and private sector economic efficiencies.

Beyond these macro-drivers, the risk considerations presented earlier and repeated below still represent the main considerations in a client procurement strategy.

- Current and planned internal management / delivery capability and capacity;
- Industry accessibility, delivery capability and capacity;
- Potential cost efficiencies (delivery and economies of scale);
- The ability to leverage new methodologies/technologies; and
- Financial capacity and broader access to funding.

In the ANZ experience, an additional consideration that is often overlooked is the establishment cost of any given procurement approach. Many large, long-term contracts require a high level of administration and appropriate business systems to support this function. With the increasing focus on collaborative contracts, there is a need to accurately capture track contract status/performance both for corporate reporting reasons and to support the governance arrangements. The systems required to achieve this accuracy – whether provided in-house, or as part of the contract – come at a significant cost that needs to be considered when deciding a procurement approach.

PPPs will continue to be considered for large, facilities that are required immediately to meet demand and that can be more efficiently funded through the private sector than through direct debt. Whilst PPPs are being used for other reasons, the basis for their adoption is questionable.

Many of these larger contracts require a high level of pre-contract effort to develop specifications and/or contract performance parameters and to put together the contracts themselves. Contracts that have a high level of pre-decision engagement like relational contracts and ECIs need to be resourced with suitable qualified personnel.

Another driver of procurement strategy is extent of control the client is willing to hand-over to a third party. There have been a number of examples in ANZ of unsuccessful contracts where works or services have been poorly delivered and the client's hands have been tied because of contractual conditions. The increasing consideration of collaborative contracts is, in the opinion of the writer, the direct response to clients wishing to retain control, whilst leveraging private sector capacity, knowledge and experience. An added benefit of these collaborative contracts is that through them, clients retain direct delivery knowledge and do not lose their ability to be an informed buyer, with time.

ECI has been successfully employed in the road sector and in-fact, has been developed beyond the approach generally employed in the UK. The concept of client retention of contractor IP to place tension on price is sound and does reduce the level of contract pre-planning required. In execution however, the challenge has been to ensure that ECI proponents articulate their proposed designs in a format that is both exhaustive and that could be readily transferred to another party. Not surprisingly, every ECI contract that we are aware of being let has been awarded to a short-listed proponent. It could be concluded that the collaborative nature

in which the design is developed and the fact that transfer of the design to another partner will require another round of procurement may bias this form of contract towards the short-listed proponent(s), undermining any theoretical price tension.

PART B

For procurement of works or services where the works have a significant influence on operational or business performance outcomes, it is good practice to ensure that any contract transfers responsibility for achieving these outcomes to the provider. In the ANZ water and road sectors, this is not always the case: particularly for collaborative contracts; and to a lesser extent, for alliances. The issue with collaborative contracts is that the contract performance metrics and their threshold values are often able to be developed by the team, with little regard for existing corporate performance measures or for any parallel contract offering the same works/services.

Regulatory requirements are universally captured in contract specifications, regardless of the form of contract being applied. The implications of non-compliance to the client however, are generally not consistently “cascaded” to the provider within the punitive measures of the contract terms.

There is no standardised procurement approach in the road or water sectors that mirrors the AMP6 approach in the UK. Beyond the guidelines provided by the various government departments and to lesser extent, the regulators, road and water clients set their own procurement agenda. The drivers for this agenda have been covered in the preceding sections.

Whole of life cost optimisation is a fundamental objective of any contract with a long-term operation phase, as they elevate the importance of facility constructability and maintainability at the time of design. Performance specified contracts enable the consideration of a number of works strategies to meet the performance criteria, all of which will have a different whole-of-life cost implication. It follows that whole of life cost optimisation and cost innovation in-general is common under performance specified contracts and there are real benefits as long as the performance criteria are valid.

There have been many attempts in ANZ to incentivise bidders to reveal innovation prior to award, with ECI arguably being the most effective. The ANZ experience with ECI has already been discussed, but in general the potential for revealing commercially valuable intellectual property with no reward does not provide the correct environment for this knowledge transfer to occur.

Give an understanding of the choice of strategy; say to match its risks and incentives, including those flowing from its regulator and its owners/funders.

8. Operating Procurement Strategies (including maintenance and capital replacement)

PART A

The client rationale for operational procurement closely follows those for capital procurement. In this section, we will only present points of difference.

The major trends in operational procurement in the ANZ water and roads market are:

- An increasing proportion of internal operation and maintenance function is being outsourced;
- Operational outsourcing started with discrete activities or programs delivered under lump sum or schedule of rates, but is becoming more holistic in scope;
- There is a trend towards dividing operational delivery mechanisms into low risk, transactional activities with fixed cost contracts and high-risk/critical activities with relational contracts;

The primary drivers for operations and maintenance outsourcing in ANZ are:

- Increasing downward pressure on operational budgets;
- The drive for operational efficiency and client difficulties in mounting business cases for increased internal operational (human) resources;
- Increased ability to quantify / substantiate operational costs;

- Increasing private sector capability in operations and maintenance;
- Governance ideology.

Whilst dedicated operations and maintenance contracts are becoming more commonplace for brownfield facilities, design-build-operate contracts will continue to be employed for greenfield facilities or larger upgrades, generally with funding provided by the private sector as-well (PPPs).

The trend towards collaborative operations and maintenance contracts is driven by the need for flexibility in the setting of asset service levels and need for corporate ownership (and therefore, control) of contract outcomes. In the road sector, this control is necessary because accountability for road performance sits with the road agency (and indeed a specific person within that agency) as a legislative imperative. For water authorities, this control is required because the authorities are generally accountable to the regulators.

PART B

Operations procurement strategy choice drivers are the same as those already presented for capital procurement strategy.

9. Contracts and Performance Incentivisation

PART A and B

There is a wide range of contract forms applied in the water and road sectors and no real consistency in the procurement approach taken, even with a specific organisation. Similarly, contract terms and performance incentive regimes vary significantly. Some key learnings from the last five years are:

- Adversarial contracts are on the decline, with fixed-dollar contracts now including some mechanisms for collaboration;
- Alliance contracts and PPPs will be the dominant contract form for large water and road projects into the future;
- Partnering contracts are increasing for reasons of client control, client knowledge capture/retention and performance flexibility;
- Contract terms, where applicable, are increasing to promote whole-of-life cost outcomes; and
- Medium term contracts are generally only applied where a new contract concept is being tested.

Contract performance management is generally still in its infancy in the ANZ road and water markets. The road performance specified maintenance contracts (PSMS) in New Zealand are very mature, but the relentless focus on cost reduction in these contracts may be driving a significant capital and rehabilitation liability across the road network. This highlights the risks of ring-fencing specific activities and the need to think holistically when developing contract performance measures.

Contract performance management frameworks currently in-use employ both commercial and increasingly, contract extension incentives. Commercial incentives work best when the upside and downside potential is aligned with contract risks and the proponent's ability to manage them. Refinement of this alignment is the main focus of future development.

Alliancing in ANZ is now very structured, with clear guidelines in-place for development of and delivery under these forms of contract. There remains however, a reasonable level of flexibility in the specification of alliance contract performance regimes, particularly in the parameters around the critical relationship metrics. Whilst the mechanisms of TOC development are well embedded, the sharing of TOC savings and over-runs requires careful consideration to achieve the best outcome for all parties. Any misalignment will result in client over-payment in one extreme and could impact contractor sustainability in the other. Some issues with ANZ alliance performance metrics include:

- Not setting the mean value of performance parameters correctly;

- Casting the range of performance parameters too narrowly;
- Not weighting individual performance parameters correctly in the overall contract performance equation;
- Rewarding things that should be expected (i.e. Staff inductions);
- Highly complex and opaque performance weighting structures; and
- Misalignment of contract performance objectives and corporate performance objectives.

The mechanisms of contract extension are generally more opaque and there is significant room for improvement, but also significant benefit potential. Best practice in ANZ would indicate that this method of incentivisation is most effective in collaborative operations contracts, when the factors influencing extension are focused on sustainability and business improvement. Put another way, the incumbent earns the right to continue as long as they continue to add value to the business.

10. Supply Chain Management

Procurement development and implementation is generally managed in-house in the ANZ water and road sectors and this is expected to continue, with specialist support provided consultants. The only exception to this is the short term implementation of Program Management Office arrangements (PMOs) implemented to build client capability in the management of future contracts.

There are no incentivisation schemes currently in-place for any of these support contracts.

11. Efficiency Gains and Constraints

Roads and Water

PART A and B

In ANZ sector, many claims have been made about the efficiency of various procurement methodologies and of road network management contracting in-particular. From direct experience, these claims have been difficult to either verify or refute, because different outcomes can be derived depending on the scope of cost considerations being measured. For example, significant savings in road maintenance investment have been reported as a result of contracting-out network maintenance in New Zealand, but real savings cannot be established unless the quantum of minor capital, rehabilitation expenditures, support-system development costs and all contract administration costs are known.

What is clear is that the availability of, industry familiarity with and consistent application of a streamlined and robust procurement approach, will drive cost savings (i.e. Careful setup of the procurement framework has a high downstream return on investment).

PPPs in ANZ have not so-much provided internal efficiency benefits, but may derive service-level efficiencies by enabling clients to bring-forward service-levels with private funding that would otherwise be delayed if internal funding were to be used. The “financial” efficiencies of bringing forward these service levels can be significant and may equate to a net saving of 10% to 20%.

Alliances in ANZ have had mixed fortunes, but have been generally successful for complex projects where price expectations were high and the formalisation of stakeholder collaboration represented a benefit, rather than an additional and potentially unnecessary project cost. There have been some instances as-well, where relationship-based contracts have been utilised to not only achieve good operational outcomes, but to maintain or augment lost technical capacity within the business. This is a trend that it is hoped will increase as private operations contracts increases, so that client remain informed buyers of road services and retain the ability to control costs.

The expectation for performance specified contracts was that they would realise savings by providing a means for accessing industry innovation and anecdotally, savings of 10% over internal delivery are entirely feasible. Whilst savings have been made on-the-ground with this contract form, the ANZ operational and

governance environment has proven to be too dynamic to lock-in performance (and expenditures) over 10 years or more and still deliver stakeholder value. Reducing the term or breaking the term into review “chunks” however, risks minimising whole-of-life cost planning. These contracts really need a transparent and robust performance framework to be effective and such a framework requires a monitoring regime that potentially eats into potential savings.

The increased prevalence of operational contracting in both the water and road sectors has ensured that operations and maintenance practices necessary to maintain the defined performance parameters have been funded. This may not have been the case when the same function had been delivered internally and as a result, the lives of the assets being maintained will be prolonged. It follows that the renewal cycle for these assets will also be prolonged, as will the return interval for replacement. There is limited data available to quantify what the financial benefit of this is, but with it will be significant. The implementation of robust asset management processes and support systems is the best way to quantify and realise this benefit and at the same time, provide valuable intelligence on asset performance to improve future investment decisions.

Appendix 5: Scotland Water Sector

1. Location

Scotland: Scottish Water is a statutory public corporation formed in 2002 to provide water and sewerage services across Scotland. Unlike in England and Wales, water and sewerage provision in Scotland continues as a public corporation accountable to the public through the Scottish Government. This places Scottish Water, as a utility, in a similar business ownership environment to NI Water.

Scottish Water is the fourth largest water and wastewater service provider in the UK and at £1.1bn turnover is one of the largest businesses in Scotland.

2. Industry Sector

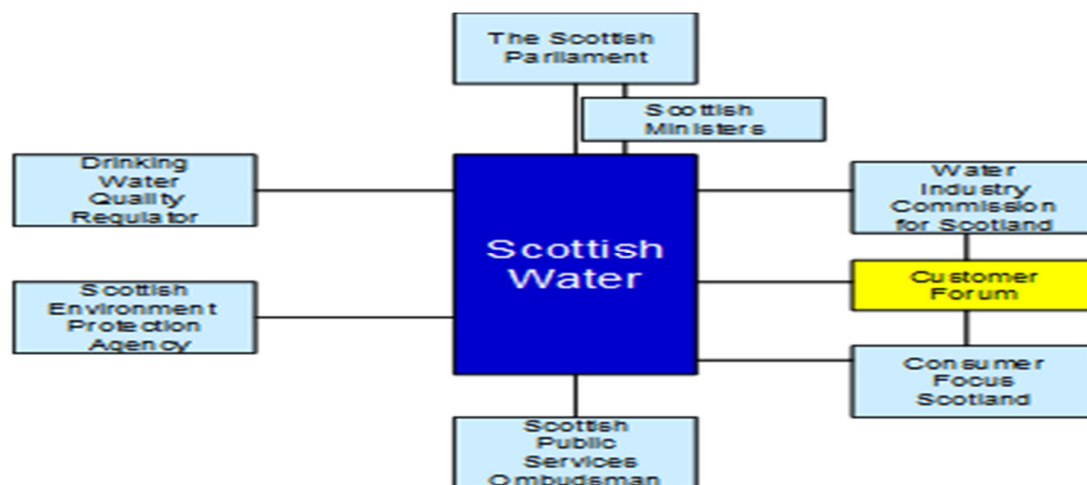
Public Sector: Water & Sewerage

3. Governance and Regulation

PART A

The legal framework in Scotland differs from that in England and Wales. Quality and environmental legislation is enacted in Scotland with a different interpretation from England and Wales. Scottish Ministers establish the statutory framework that is used to regulate Scottish Water and the water industry in Scotland. Ministers set their objectives for the water industry in Scotland and these will be delivered and financed in six year tranches (previously 5 years).

A number of stakeholders play a part in ensuring that the Scottish Water industry meets its obligations to customers. As a brief summary, Scottish Water works closely with the following:



- The Scottish Parliament: Holds SW & Ministers to account and regularly calls executives to its committees to give progress updates.
- Scottish Ministers: Set the objectives and appoint the Chair & non-executive directors.
- Water Industry Commission for Scotland: Economic regulator. Sets charges and reports on costs & performance.
- Scottish Environment Protection Agency: Responsible for environmental protection and improvement.
- Drinking Water Quality Regulator: Responsible for protecting public health by ensuring compliance with drinking water quality regulations.
- Customer Forum: Brings the customers voice to the table in determining future service levels, investment priorities, for water and waste water services.

- Consumer Focus Scotland: For the first time, give people a say in setting water prices and what the big priorities should be when reinvesting these water charges.
- Scottish Public Services Ombudsman: The final stage for complaints about public services in Scotland.

Scottish Water procurement activities are regulated largely through legislation and as such follows EU legislative compliance as detailed within the Utilities Directive. All purchases that equate to, or exceed, the EU threshold for the Public Utilities Directive are treated in accordance with the EU Legislation.

Scottish Water is unique in the Scottish public sector in having an independent economic regulator, Water Industry Commission for Scotland (WICS). The WICS is a non-departmental public body with statutory responsibilities. Its mission is to manage an effective regulatory framework which encourages Scottish Water to provide a high-quality service and value for money to customers.

The WICS has a statutory duty to promote the interests of customers, achieved principally by setting prices for water and sewerage services that deliver Ministers' objectives for the water industry at the lowest reasonable overall cost. The price setting process will now take place every six years with rolling review of SW Delivery Plan every 3 years.

In November 2014 the WICS will publish the Final Determination, which sets charge caps for the regulatory control period 2015-21. The milestones for SR15 are set out below:

Date	Milestone
June – September 2012	Scottish Government issues draft Objectives and Principles of Charging (now complete)
November 2012	SW publishes draft 25 years Strategic Projections (now complete)
October 2013	SW issues final 25 year strategic projections and business plan for the 2015-21 period (now complete)
April 2014	SW, WICS, Customer Forum and the quality regulators and negotiation on the business plan
June 2014	WICS publishes draft determination for consultation
September 2014	Scottish Government issues final Objectives and Principles of Charging
November 2014	WICS publishes final determination
January 2015	SW decides whether to accept the Final Determination or seek referral to the Competition Commission
March 2015	SW publishes Delivery Plan for the 2015-2021 period

The current SR15 strategic review is significantly different from the last strategic review. The table below contrasts the differences in key principles and approach between the last strategic review (SR10) and this one (SR15).

SR10 Approach	SR15 Approach
WICS consulted on levels of service and set levels of customer service expectations.	SW take full ownership of its strategy and undertake meaningful engagement with customers regarding levels of service, bills and investment priorities.
SW undertook willingness to pay surveys to support the investment plan.	The proposed regulatory framework should give customers a greater opportunity to influence the outcomes in the price review - leading to a more effective customer involvement.
WICS used comparative benchmarking with England and Wales (Ofwat data) to assess the levels of efficient costs for Scottish Water.	WICS expect Scottish Water to undertake its own benchmarking to establish what can be achieved and better understand the economic costs of the industry. WICS do not intend to use previous methodologies as it believes that these are no longer suitable.
5 year business plan.	Longer term 25 year projections with a near term business plan that aligns to these and that allows for investment that has a longer payback period.
Joint working between first and second draft business plans to better understand key inputs to the price control.	Expectation of joint working and potential for agreement of the key inputs and assumptions prior to submission of the strategic projections and business plan.

4. Funding

Scottish Water is subject to incentive based regulation by WICS. The current five year (future six year) price review sets the price that Scottish Water charge for water and wastewater services. The combination of regulated price caps and firm constraints on borrowing from the Scottish Government creates a clearly defined limit on financing available to Scottish Water. Scottish Water obtains its funding from two sources.

1. Charges for services, to domestic, business and license providers.

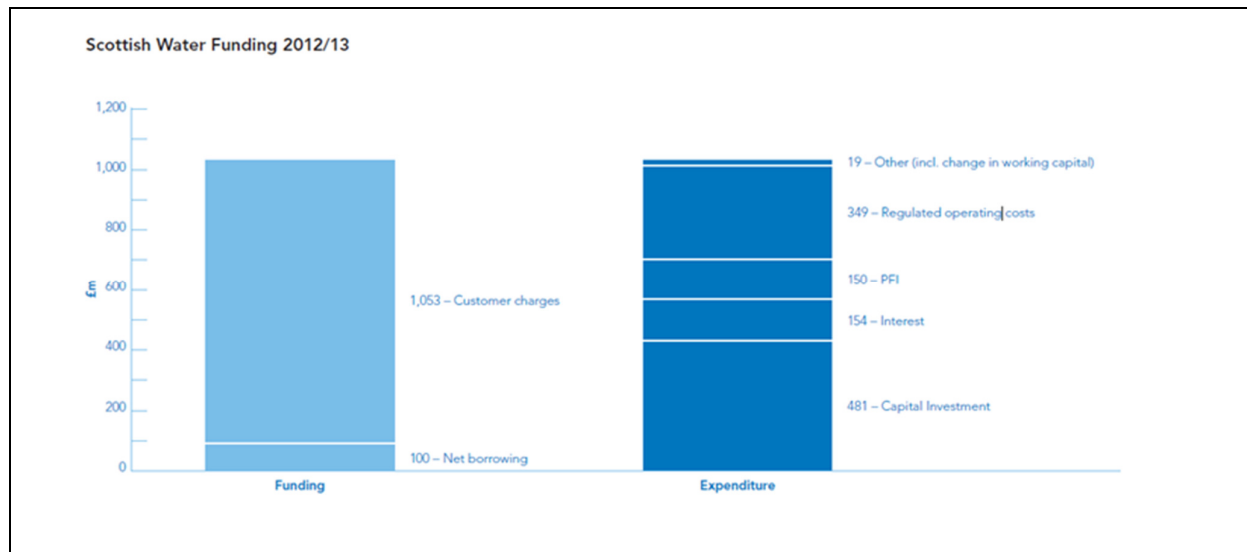
The charges for domestic customers are recovered by the local authorities on behalf of Scottish Water through Council Tax bills. The charge for the average household bill in Scotland (around £339) is expected to stay well below the average bill of the private water companies in England and Wales. Last year Scottish Water customers paid less than customers of all of the private water companies.

Legislation established a legal framework for retail competition in the water industry in Scotland for non-household customers. The Water Industry Commission has a duty under the legislation to licence entrants into the market. Since April 2008 Licensed Providers have entered the commercial market and offer services (provision of water and waste water, billing and invoicing, customer service, complaints handling) to non-household customers.

Scottish Water acts as the Wholesale Supplier in the market and provide water and waste water services in bulk to Licensed Providers on an equal footing. At present Scottish Water retains the majority share of the retail market.

2. Borrowing from the Scottish Government to support capital expenditure.

Scottish Ministers set Scottish Water's (consolidated) borrowing limit at £100million for 2012/13.



5. Risk Transfer

Funding Risks: limited risk. Bulk of programme funded by customer charges which are set for the regulatory period. Potential loss of income from retail competition but unlikely to be a serious threat. Net borrowing may be affected by Scottish Government available funding which will be lower in 2015 to 2021. Impact of inflation can affect the Determination which is linked to inflation mechanisms such as COPI and RPI.

Demand: limited risk. Customer base remains fairly secure in Scotland. Potential for some of the larger industrial customers to buy from others through retail competition. By 2035, Scotland's population is expected to grow by 10% overall and the number of households by 21%, as well as some movement in the population from the west to the east of Scotland. Scotland's population is continuing to age, with a 50% increase in over 60s projected by 2035. There is a current reduction in business users' water demand and expect this to continue in the short to medium term.

Performance Risk: potential for loss of funding if poor performance can be demonstrated. Scottish Water (SW) moving towards top quartile performance when compared with other water companies in England & Wales.

Physical Risk: limited risk. SW operating in a fairly stable environment with all major asset improvements now undertaken. Asset capital maintenance programme continues on an ongoing basis.

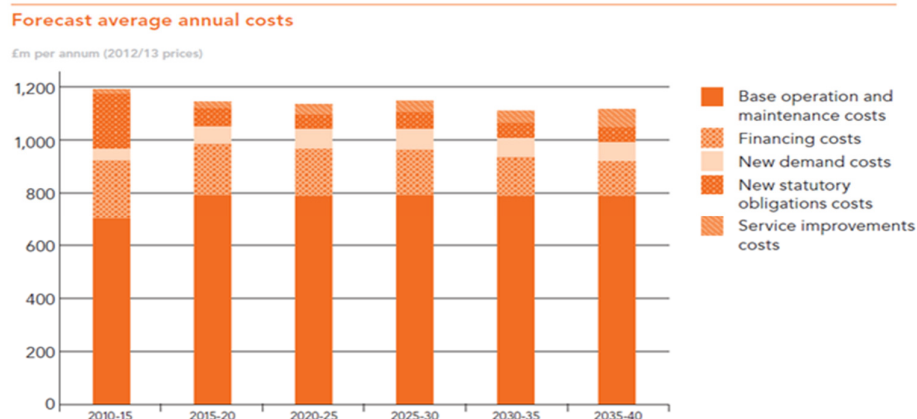
Legislation Risk: a number of pieces of both European and Scottish legislation; such as the Water Framework Directive and Water Resources (Scotland) Bill mean that continued investment will be required to meet new standards. The Scottish Government has ambitious plans to develop Scotland as a Hydro Nation. This has the potential to further use Scotland's valuable water resources to support economic growth.

Governance, Economic and Regulatory Environment Risk: there will always be a requirement for essential water and waste water services in Scotland. With pressures on public spending likely to remain for several years to come, the level of borrowing available from the Scottish Government for future water and waste water services could be lower. Regulation will continue to evolve assuring customers of the quality of Scottish Water's service and performance. Potential risk if Scotland independence moves forward.

6. Investment Parameters

PART A

Most of SW's annual expenditure is currently spent on maintaining existing service levels for customers and paying interest costs for historic investment in services. Around two thirds of annual costs are spent on operations and maintenance. Since 2002, SW has reduced its operating costs by approximately 40%. Forecasts of annual costs are shown in the table below;



The current SR10 regulatory programme (2010-2015) has seen investment of £2.5 billion over the five year period. It is envisaged that this average level of investment of between £450 million and £500 million per annum will continue in SR15 (2015-2021) subject to draft and final determination.

A significant part of the current and new investment programme is concerned with upgrading of existing assets as opposed to new builds. There has been a significant shift towards capital maintenance rather than major enhancement-type investments. Key service improvements in the next regulatory period relate to resilience of supplies, Drinking Water Quality, Internal and external flooding from sewers.

Under the current SR10 procurement model Scottish Water has one principal partner Scottish Water Solutions 2 (SWS) who are contracted to deliver the SR10 non-infrastructure programme. The remaining part of the capital programme is delivered through their internal Capital Investment Delivery (CID) arm. Both SWS and CID are able to use SW's supply chain framework partners which includes Contractor Delivery Partners (CDPs) and Consultant Service Providers (CSPs). It is widely recognised that there are too many CDPs and CSPs on the current frameworks which has limited the ability to apply proper partnering principles.

These contracts are typically for the duration of the regulatory period (5 years) with mid-period reviews with the flexibility for further extensions if required.

The main feature of the current model has been the use of mini competitions amongst CDPs and CSPs which was seen as a mechanism to drive value for money on individual contracts. SW recognise that the way in which they have interacted with their supply chain through mini-competition and short term transactions has not delivered the efficiency they require and has potentially eroded the sustainability of the supply chain.

SW adopt target (pain/gain) or fixed price contracts as the norm and are willing to pay for compensation events where these are properly demonstrated and evaluated. Inflation on longer term contracts has been allowed for through COPI indices. SWS2 have applied a more adversarial form of contract control which has led to a number of significant disputes.

PART B

SW is delivering one of the largest investment programmes in the UK water industry supporting some 5,000 construction jobs which equates to around 30% of the Scottish Construction Industry sector.

SW uses its in house resources for asset management, project management and specialist support services (planning, environmental, land matters, utility services).

SW also retain control of the supply chain for materials and equipment supplies. These frameworks are mandatory for all parties working on behalf of SW.

Operations are not outsourced apart from the Wastewater PFI schemes which have been running for some 15 years.

Supplier Procurement Process: The appointment of framework partners is normally run on a regulatory period basis (5 years or sometimes 5+5 years basis). Cost of getting onto frameworks can be very high and is borne by supplier. Typically 3 bidders/one successful appointment. On frameworks the SR10 model is to mini-competition all work.

7. Capital Procurement Strategies

PART A

Current SR10 procurement strategy described in response to 6.

SR15 Delivery Model

Target contracting Model (TCM)

Scottish Water is proposing 4 principal delivery routes within its SR15 delivery model. This is based around Scottish Water retaining the role of Intelligent Client (with control of supply chain) and the appointment of 3 Major Alliance Partners. SW intend to procure Tier 1 delivery partners and rural frameworks to support the delivery of the alliances. The alliance partners will provide expertise, guidance, support and resources in programme management, design, planning and delivery (including a significant proportion of self-delivery) as follows:

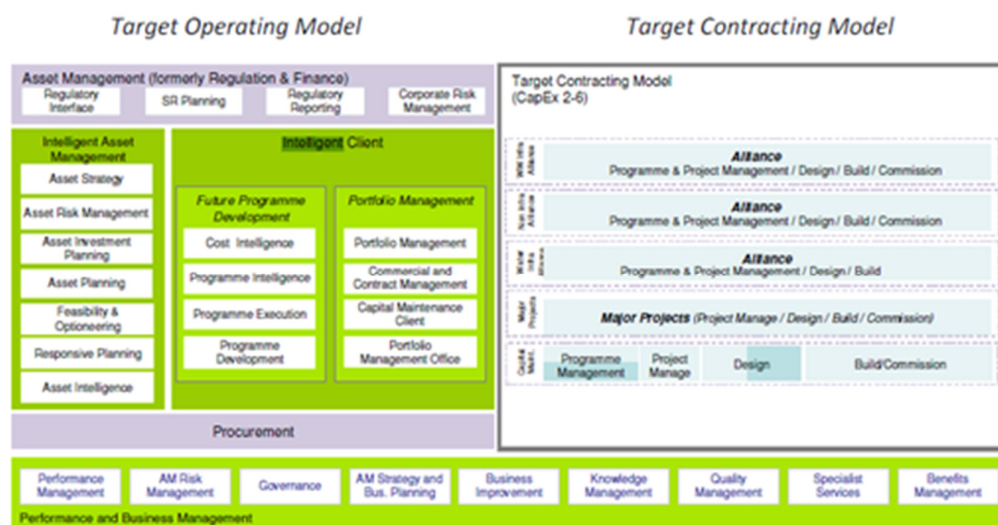
- a. Non-Infrastructure Alliance (wastewater and water treatment): anticipated volume of work is estimated at £100 -125M per annum with the alliance awarded on a 6+6 year basis (2015-21 and 2021 – 2026). SW had intended to award this programme to the existing Scottish Water Solutions 2 consortium (comprising a JV of [x], [x], [x] and [x]) as a rollover of the SR10 arrangements but negotiations have now broken down resulting in SW launching a new procurement process in line with their Target Contracting Model (TCM) strategy .
- b. Wastewater Infrastructure Alliance (wastewater conveyance and storage): anticipated volume of work is estimated at £60M per annum with the alliance awarded on a 6+6 year basis (2015-21 and 2021 – 2026). [x]/[x] have been appointed as preferred bidder.
- c. Water Infrastructure Alliance (raw and potable water conveyance and storage): anticipated volume of work is estimated at £60M per annum with the alliance awarded on a 6+6 year basis (2015-21 and 2021 – 2026). [x]/[x] have been appointed as preferred bidder.
- d. Managed Programme; anticipated volume of work is estimated at around £100million per annum which will include a high level of capital maintenance work with SW anticipating using any of the above alliances or specialist contractor/suppliers to deliver this work as best suits. There will also be several one off major reputational projects that will be tendered separately with a total value of circa £90million. It is envisaged that these will be tendered to the open market. The Managed Programme team will also be responsible for all feasibility and optioneering work in development of solutions.

Target Operating Model (TOM)

- a. The TOM will develop Scottish Water's Intelligent Asset Management capabilities and Intelligent Client capabilities. The latter will be very important to the success of the TCM, as the interface with the supply chain. Through strengthening of cost and programme intelligence SW should better understand what projects should cost and how long should be allowed for delivery. SW will develop longer term relationships with the supply chain and in particular with alliances that are tailored to deliver specific programmes of work.
- b. The TOM defines, at a strategic level, the capabilities required to effectively undertake end-to-end asset management within Scottish Water.
- c. The Intelligent Asset Management (IAM) capability will convert the aspirations of the SW vision into tangible strategies and plans that can be delivered at an affordable cost, and within acceptable risk limits. Mature strategies and plans will set the context for all short-term tactical targets and plans thereby enabling a significant behavioural shift.

d. The Intelligent Client (IC) capability will be accountable for the efficient delivery of the investment programme. The IC will be accountable for working together with the supply chain to ensure that the investment programme is delivered on time, to quality and as efficiently as possible. The nature of that relationship is considered key to the successful delivery of the SR15 investment programme.

The Intelligent Client will create the platform for securing future efficiency by preparing programme execution strategies (PESs) in advance of a regulatory period, something which is a fundamental change to the way SW have operated in the past. PES preparation for the SR15 programme is defines how the significant sub-programmes of work will progress from concept to delivery.



PART B

SW Frontier Programme was developed with the objective of establishing SW efficiency position amongst the best performing UK water companies. They are seeking an overall 20% efficiency from the current SR10 regulatory period in line with the challenges set by the financial regulator. Interestingly Totex has not featured heavily in the procurement cycle to date.

8. Operating Procurement Strategies (including maintenance and capital replacement)

PART A

See response to 7. SW intend that Operations (including Customer Services) will remain as an in-house function. The only exception to this is the Major Wastewater PFI schemes which are run by separate concession companies. It is unlikely that these will be renewed at the end of their 25 year life span.

Capital Maintenance improvements will be delivered through the Managed Programme or Alliance partners although SW will retain control of these requirements through the Intelligent Client function.

PART B

SW deem that the Customer Services function should not be out sourced as this remains the key interface with their customers and therefore allows them to control the major risks to the business.

9. Contracts and Performance Incentivisation

The new SR15 model is a structured long term strategic partnering approach based on 6 year duration with option of a further 6 year extension based on good performance. These are target cost type contracts although SW does not take an actual share in the Alliances. The high level commercial principles:

- A tailored pain/gain model for each alliance with the correct risk/reward balance;
- Key performance measures that link payment to matters such as cost base efficiencies, customer satisfaction, Health and Safety and on time delivery;

- (c) A lump sum management fee to incentivise out performance and reduce fee on fee;
- (d) Set levels of self-delivery that provide optimum efficiency whilst maintaining secondary capacity in the market place;
- (e) Integrated incentivisation measures across the wider supply chain; and
- (f) Indexation provision that matches our regulatory position. (Indexing changing from COPI to CBI)

10. Supply Chain Management

SW manages procurement and the implementation process in house. They have a mature procurement team that have achieved CIPS gold standard accreditation. Procurement follows EU Utilities Directive Negotiated procedures in line with Public Contracts Scotland tendering procedures.

Most contracts for capital delivery are based on the ECC form of contract. Incentivisation parameters are set out in response to question 9. This model is likely to be in place for the next 12 years.

One area that SW is very keen to promote within their supply chain partners is the principle of volume discount whereby monies are paid back to SW on an annualised basis depending on the turnover by the individual material or equipment supplier.

11. Efficiency Gains and Constraints

No access is available to this data; which is not in the public domain.

Appendix 6: US Commuter Rail

1. Location

North America: USA, Washington DC, Maryland, and Virginia, Washington Metropolitan Area Transit Authority (WMATA).

2. Industry Sector

Railways: Urban rapid transit system railcars serving the Washington, D.C. metropolitan area.

The Washington Metropolitan Area Transit Authority (WMATA) operates the Washington Metro rapid transit system. The system services the city of Washington D. C., and the suburbs in the Commonwealth of Virginia and the State of Maryland. Metro opened on March 27, 1976 and presently consists of 86 stations and 106.3 miles (171.1 km) of track. With an average of about one million trips each weekday, Metro is the second busiest rapid transit system in the USA.

3. Governance and Regulation

Unique system for the USA because it combines three separate local governances, Washington DC, the Commonwealth of Virginia, and the State of Maryland as well as the U.S. Federal Government. All four occupy seats on WMATA's Board of Directors.

4. Funding

Fares and other revenue, fund 57.6% of the Metro's daily operations, while State and Local Governments fund the remaining 42.4%. Since the Metro's inception, the Federal Government has provided grants for 65% of the system's capital costs. The Metro is unusual among major USA public transportation systems in having no dedicated source of funding. Instead, each year WMATA must ask each local jurisdiction to contribute funding, which is determined by a formula that equally considers three factors:

1. Population density, per the 2000 Census;
2. Average weekday ridership;
3. Number of rail stations in each jurisdiction.

5. Risk Transfer

The prime risks are increased costs required to maintain and upgrade an aging urban rapid transit system. This is driven by system safety and rider frustration with schedule delays due to maintenance. The former risks are with the Municipalities, the latter risk is taken by the operator.

6. Investment Parameters

PART A

Investment Value

The Capital Expenditures are some US \$900 million per year. Operating Expenditures are some US\$1,500 million per year.

Type of Work

New work includes the Silver line, using 7000 series railcars: 428 new railcars to replace 30 year old cars. WMATA also buys some 100 buses per year. Maintenance investment includes replacing some 60 miles of rail over 6 years.

Supply Chain

WMATA has storage and distribution of materials valued at over \$34 million at ten storerooms throughout Maryland, Virginia, and the District of Columbia. Over 63,000 parts in stock in Metro Supply Facility (MSF)

and 23 satellite storerooms. WMATA operates a Just in Time approach from major vendors and provision of consumables.

WMATA procures approximately \$500 million in new purchases to include 200 contracts and 10,000 purchase orders per year. FAI First Article Inspection for new supplier, new part/component, changes.

Value for Money

WMATA do not operate any formal Value for Money tests; mainly first past the post select list competition annually, plus specific tenders for major works.

WMATA utilizes bid or proposal costs, not out-turn costs. WMATA negotiates any directed change costs. No inflation costs allowed for duration of original contract.

Price Escalation

For escalation on options: WMATA utilizes as a standard the US Department of Labor, Bureau of Labor Statistics, Producer Price Index Industry, Data; Industry and Product: Railroad rolling stock manufacturing.

PART B

Expenditure in the Regional Market

Impact on regional market greatly varies depending on time frame. Very significant during the 1970-1990 time frame when the Metro system was being built. Today WMATA is still significant with completion of the Silver Line in 2014 and its continuous maintenance and rebuilding programs.

Resources

WMATA uses in-house resources to operate and maintain its bus and railcar fleets, and performs significant on-going maintenance on track. Major rebuilding or maintenance track work projects are contracted out.

Planning and Design

Planning is done in-house. Most design and engineering is outsourced. Major rebuilding or maintenance work is outsourced. Operations are done in-house.

Supplier Procurement

On major projects such as new railcars there will typically be 3-4 bidders, and their cost to bid will usually exceed one million US dollars. The bidding process takes about one year. For supply chain materials there could be from 1-6 bidders, and their costs can be minimal to tens of thousands of US dollars depending on the item and the contract value.

7. Capital Procurement Strategies

PART A

Overview

WMATA is required to obtain full and open competition through the use of competitive procurement processes. For major procurements such as railcars WMATA utilizes Best Value competitive negotiation process. Award will not necessarily be to the lowest priced offer nor the highest rated technical offer, but to the combined offer which offers the best value to WMATA, price and other factors considered.

PART B

Strategy Choice

WMATA is generally risk adverse, seeking technology is not the newest, but technology that is the latest proven technology in current use elsewhere.

Procurement Practice

Life Cycle Cost (LCC) has gained a lot of popularity in the USA, but not at WMATA. WMATA supports Washington DC, the nation's Capital, where most of its capital funding originates. It also has a high volume

of daily riders and week-end tourists that depend on the systems reliability. Availability and reliability of service is considered much more important than total expenditures or LCC. Reliability is far more important than innovation.

8. Operating Procurement Strategies (including maintenance and capital replacement)

PART A

Current Strategy

Essentially all Operations are performed by in-house personnel.

PART B

Strategy Choice

WMATA is generally risk adverse, so necessary funding to provide solid, reliable Operations is allocated by the government owners/funders. In-house and contractor incentives have been minimal and have not proved to be effective.

9. Contracts and Performance Incentivisation

PART A

Forms of Contract

WMATA generally uses fixed priced contracts for a US Federal government required maximum of 5 years, with one 5 year option. Recently the US Federal government upped the 5 year maximum to 7 years. Thirty years ago WMATA found it had an adversarial relationships with its contractors, which it ended at that time.

Partnering has been used by WMATA for ten years, but its effects have been minimal in that it does not alter the contractual relationship between the parties. WMATA does not provide significant incentives in fixed priced railcar contracts. WMATA has provided incentives in Service type contracts, but generally found they do not work.

PART B

Incentivisation

WMATA delivery schedules are aggressive, so there is no chance for early delivery. WMATA uses the disincentive of Liquidated Damages (LDs) for late delivery.

10. Supply Chain Management

Implementation and Procurement of supply chain parts will remain in-house. WMATA is moving to large contracts instead of previously used small Purchase Order process. Long term, large contracts create incentives and efficiencies resulting in lower prices.

11. Efficiency Gains and Constraints

PART A

Efficiencies

WMATA is moving to large contracts instead of previously used small Purchase Order process. Long term, large contracts create incentives and efficiencies resulting in lower prices.

Changes in Operating Practices

Every time WMATA changes executive management its new leaders change WMATA's practices to suit what they know from the previous jobs and experience; which is not conducive to long term efficiency from continuous improvement.

Robust Investment Reporting

In discussion yes, in practice no. More, larger, and complex reporting and monitoring is constant, but in reality becomes too complex to be of practical use.

PART B

Efficiency Gains

Best efficiency in practice has been found to be summarized as, Do less, accomplish more, or to focus on results.

Efficiency or Success Measurement

Most important, best in class, has been measured in reliability and on time service, with no accidents due to emphasizing safety.

Opex/Capex Efficiencies

Operational Excellence results in lowered Operational Expense. Buying the best, proven technology results in Capital Efficiency in that it requires less maintenance, lasts longer, and has a lower Life Cycle Cost, LCC.

Appendix 7: Asset Management and Planning

Asset management can be defined as the co-ordinated activity of an organisation to realise value from its assets. In essence, it is concerned with the information flows required facilitate effective decision making and optimising these processes through continuous improvement.

The underpinning principles have evolved over the last 30 years and are now becoming expected normal practice. However, there has been a recent surge of interest in asset management frameworks from across a number of different sectors, driven predominantly by:

- Treasury commitments to more long term and integrated infrastructure investment programmes (e.g. via Infrastructure UK's National Infrastructure Plans);
- Growing regulatory pressure for asset intensive organisations to embed 'whole-life-costing' approach to managing and procuring new infrastructure; and
- The launch of ISO 55000 standard for asset management.

Thought leaders in asset management are now considering the opportunities presented by the convergence of asset management with other strategic themes such as BIM, future proofing, infrastructure resilience and off-site construction.

The following two case studies describe examples of how asset management principles are currently being embedded within major UK transportation infrastructure organisations; these are both being implemented against the backdrop of major restructuring and transformation programmes.

Example 1: Highways Agency, UK

The Highways Agency (HA) is radically changing the way that it is organised and, in turn, the associated role it expects for its supply chain partners. The HA is to become an 'arms-length' public company by April 2015. It will be set up as a government owned public sector Company but on private sector commercial lines and will deliver the biggest ever infrastructure upgrade, including resurfacing of 80% of the strategic road network by 2021. The anticipated expenditure is £10.7bn of capital investment and £6.1bn for maintenance.

The HA is also changing the way that it undertakes delivery; moving away from the more traditional project control stages and emphasising the need for an outcomes, product and production focused culture.

The HA wants to see consultants and contractors working together to break the schemes down into products that can then be (theoretically) mass produced and delivered through a production type approach. This brings into play the HA's desire to see more elements designed so that they can be constructed offsite with all of the quality, time and cost savings that modular construction brings. This also fits well with HA's drive towards running their projects as clusters of projects within overarching programmes and the efficiencies that delivers.

There will be a period of transformation, which will address issues like capability, capacity and culture change. The HA are running a change programme for their staff for collaborative working and busting bureaucracy. Being in the civil service, many of the day to day decisions about operating the network are taken on behalf of the HA by ministers. Going forward the HA will be taking more of those decisions themselves.

These changes are paving the way for a more asset management centric company that will be able to undertake longer term planning. It will have a five year spending allocation and the ability to move money between years; creating far more flexibility around the existing annualised funding constraints. This will provide longer term certainty of work volumes and incentivise efficiency savings through the supply chain.

Whilst delivering the transformation, they are targeting several key outcomes including a 4% year on year reduction in delivery costs, which sits alongside asset lifecycle optimisation.

Complimentary to the reforms outlined above, the HA has commenced a two year trial, working in partnership with its supply chain operators, to develop the necessary tools, processes and behavioural incentives to facilitate the transformation. This comprises a phased programme of initiatives, covering:

- Development of asset condition and performance metrics;
- Asset maintenance, replacement, upgrade policies;
- Lifecycle planning models: optimising the timing of asset repair/replacement;
- Programme optimisation: batching of interventions into schemes;
- Trade-off analysis: strategic appraisal of alternative investment scenarios across asset classes; and
- Production of a regional Asset Management Plan

This initiative is realising significant improvements, such as understanding cross-asset interrelationships and identifying opportunities for sharing scheme access to increase productivity. The emerging new approach is adopting sensitivity and criticality analysis to facilitate the migration to risk-based asset management decision making processes.

Example 2: Network Rail

Whilst Asset Management is now a fairly well-established discipline, there are still challenges to embed its principles across the wider organisation. Asset Management preaches 'whole-life-costs', whereas the default mind set of the remainder of the organisation is typically short term 'cost reduction'.

Network Rail and the Regulator (ORR) recently acknowledged the importance embedding whole-life costing considerations into the procurement of major capital investment programmes. They subsequently embarked on an initiative to ensure all projects seeking investment authority through the Network Rail Investment Regulations had a business case based on WLC option assessments.

Network Rail set up a working forum to bring leading practice experience and solutions to the issue. The output is a guidance manual that was endorsed by Investment Panel and set out principles around WLC aligned to Network Rail's project governance process (GRIP).

The guidance manual sets out the requirements for applying WLC principles throughout each project control stage; from business case approval, through procurement and design, to delivery and handover. This is now embedded within Network Rail's Business Critical Rules framework.

For the majority of renewals projects and simple enhancements projects WLC assurance can be demonstrated through compliance with the relevant Asset Policies. Where a more detailed assessment is required, the manual provides the guidance on how to assess those costs.

The approach and philosophy within the manual is consistent with that set out in Network Rail's own 'Clienting Guidelines' and the roles and responsibilities as set out in the GRIP.

The outcome from this initiative is the ability for Network Rail to make better decisions that deliver long term efficiency and effectiveness. By considering WLC correctly and making decisions more explicit, the overall cost of the railway will reduce for all its stakeholders. Embedding this also means Network Rail have an opportunity to drive more value by involving the supply chain in the early development of WLC options on projects. This, in turn, will make a significant contribute to their control period 5 and beyond.

Appendix 8: UK Electricity

1. Location

UK generally but with main focus on England, Scotland and Wales

2. Industry Sector

Energy/power sector; Electricity

The supply chain comprises:

- Electricity generation (power stations and power sources ex works);
- National transmission (from power source to the regions of use);
- Distribution (the network of supply cables from national transmission to the customer); and
- Supply (the purchase of power and sale to customers)

The focus of this contribution is on Distribution as it is the most compatible part of the Electricity supply that accords with asset creation and maintenance experienced by NI Water.

3. Governance and Regulation

PART A

National regulation by Ofgem; of similar standing to Ofwat and UR.

PART B

Public procurement rules apply, particularly the Utility Procurement Rules, as for NI Water.

4. Funding

Apart from certain aspects of future power generation the Electricity supply sector is funded by direct tariff paying customers; government bodies, industrial, commercial and domestic.

The supply chain is in the private sector, having been privatised from the public sector in a similar way to the water and sewerage companies in England and Wales.

The electricity supply chain companies can and do borrow money in the private for capital and operational investment; again, just as the water and sewerage companies do in England and Wales.

The funding process is:

- Customer paying tariffs to supply companies;
- Supply companies purchase power from generators;
- Supply companies pay national transmission fees; and
- Supply companies pay distributors fees for use of the effectively regional monopoly networks.

The capital investment and operating costs (and tariffs) is controlled by Ofgem in a process similar to that adopted by Ofwat and UR.

Each part of the supply chain is subject to discrete regulatory price control; company by company.

As for water and sewerage the price reviews have been quinquennially based; up to now. Ofgem has now extended the review period to 8 years. This extension is to account for perceived efficiency constraints in a 5 year review. These constraints relate to economic periods for investment risk and reward (and capturing economies of scale), and training periods for new staff.

5. Risk Transfer

Primarily the risk of supply lies with the supply chain. There is national risk for overall generation capacity, but within that the supply chain takes the risk of providing power to customers. This includes ensuring

transmission and distribution networks have sufficient capacity and alternate/by-pass supply routes to cover breakdowns in transmission lines, and of course emergency resources to speedily repair.

Demand risk is also taken by the supply chain; mainly the supply companies in the front line, but this is passed up the chain through trading agreements.

Funding risk is taken by the customers through regulatory tariffs and obligations to pay or be cut-off (unlike the water and sewerage companies in England and Wales). Interestingly there is no right of cut-off for water and sewerage in UAE, but non-payment leads to power cut-off, which in a hot climate means no a/c. This has proved a great incentive.

Performance risk is taken by the supply chain and monitored on a pain/gain mechanism against regulatory KPIs.

The main KPIs relate to:

- Quality of supply;
- Load Index (network demand capacity and security capacity); and
- Asset health (the driver of investment).

6. Investment Parameters

PART A

Annual expenditure across the sector is £multi-billion. There are very few companies in the Electricity sector that are directly comparable with the annual investment profile of NI Water; most being larger. However, by type the distribution companies are not too dissimilar.

The type of work is primarily maintenance of assets, but includes some new extension works. The assets are in three main categories:

- Below ground cabling;
- Above ground cabling; and
- Substations.

A further subdivision applies for transmission cabling at (and above) and below 33kv; where differing expertise is required.

There are no production assets; these all being in the generation activity of the sector.

The number of main providers in the supply chain are typically 2, but may in the future be 3; divided geographically, to allow benchmarking between the two/three. Each main supply chain provider has its own supply chain, but large use or expensive capital items such as cabling or grid transformers are centrally bought by the company to maximise economies of scale.

The typical duration of contracts has been the regulatory period plus an extension option of varying length. It is expected that the durations will now be 8+Option years; but the option for subdividing the times in half for interim market testing is being considered.

The main test for value for money is through select list competition; although WLC and historic performance criteria are used at the selecting the tender list stage. Generally the contracts are procured on schedules of rates and indexed over time by RPIx. A variety of standard forms are used from NEC to bespoke contracts.

To avoid the risk of cost creep through lengthy indexation there is provision for market testing through re-tendering; and for large projects to be individually tendered. These later, because of their shorter timescales, tend to be fixed price. All contracts provide for variations (compensation events), but generally major variations are avoided through the schedule of rates approach.

PART B

Each distribution company's impact on the regional construction sector is not seen as significant as NI Water's on the NI market; and indeed is of small significance to overall construction resources.

In-house resources are used for management and for maintenance and emergency teams; some capital works are reserved for in-house resources to retain competencies and ability to respond to major events (e.g. faults and storm damage).

Some distribution companies still retain larger in-house resources for better, or more direct control, whilst others are largely outsourced. As an average one third of capital activity may be in-house, with two-thirds outsourced.

The responsibilities for planning and design are retained by the distribution companies, but as mentioned earlier, some major use materials (and plant) are centrally purchased, both for capital and operational purposes. The majority of in-house resources relate to operational use rather than capital investment, but this is by average and company's strategies vary in this regard.

In the tender process for the main suppliers there are usually some 7 tenderers, 6 plus a reserve for drop-outs. Tendering processes use supply chain involvement and BAFO, tend to be stated 2 years before needed (sweeping in early contractor involvement), with the main tender process over 4 to 6 months. All tendering costs are borne by tenderers.

7. Capital Procurement Strategies

PART A

The main points of a strategy overview are given earlier. The significant change is regulator driven with an 8-year investment horizon, rather than 5 years. Distribution companies are again reconsidering the mix of in-house-v-outsourced resources; this is based on considerations of direct control-v- control by contract, the latter having in-built scope for tenderer and supplier manoeuvring.

Outsourcing is usually on a framework basis with the main supplier contract having provision for internal competition in the supply chain.

The use of PPP procurement does not fit, as there are no production assets involved in the distribution companies.

PART B

The choice of strategy is based on matching risk and reward, including incentivisation (pain/gain, not just pain).

The key drivers are:

- Commercial reward;
- Regulatory influence; and
- Shareholder value.

Direct customer influence is one step removed through the supply companies. Undershooting regulatory targets equals greater profit, as does under investment but there are regulatory penalties for deteriorating assets, quality of supply and network capacity.

The influence of shareholder value is a very strong incentive and drives the strategic approach to investment and its timing. This latter particularly relates to debt and its servicing.

Procurement services are generally retained in-house but some companies out-source the drawing-up of tender documents and contracts, particularly any bespoke forms.

Technological improvements that bring efficiencies are brought out between the company and the supply chain at tender stage and during implementation. These are one of the main areas of saving as discussed later.

8. Operating Procurement Strategies (including maintenance and capital replacement)

PART A

Operational procurement strategies are discussed earlier.

PART B

See earlier in this contribution.

9. Contracts and Performance Incentivisation

PART A

As discussed earlier the main forms of contract adopt some partnering approaches and they try to avoid the adversarial traps of historic procurement strategies. Incentivisation (pain/gain not just pain) is generally used. This is measured against both the regulatory and additional company KPIs.

PART B

See the various sections above, and the discussions on incentivisation and risk and reward.

10. Supply Chain Management

See the various sections above, and the discussions on the management of the procurement and implementation process, and if the contractual arrangements.

11. Efficiency Gains and Constraints

PART A

The majority of efficiency gains have come from new technology, and with it new ways of working. Generally the distribution market is more efficient than it was, some of which are still being generated from the change from public to private sector and the drivers from regulation and commercial needs, particularly shareholders and shareholder value.

Procurement initiatives such as early contractor involvement and frameworks have assisted in smoothing contractor resource profiles and enabling the benefits of new technology savings to be incorporated at early stages.

The more robust investment and maintenance reporting demanded by regulators and for shareholder purposes has had the effect of slicking-up the processes and earlier strategic thinking.

PART B

The efficiency gains appear to be in the region of 1 to 2% per annum, measured in real prices. The sustainability relies on continuing technological improvement, but will be compromised by ever increasing cost base prices as the financial market improves and contractors seek to claw-back the constraints of the past 5 years. Generally all the low-hanging efficiency fruit has been picked.

Most efficiency is driven through asset.

Appendix 9: England and Wales Highways

1. Location

England and Wales

2. Industry Sector

Roads and highways: Highways Agency; Welsh Assembly

3. Governance and Regulation

England (Trunk Roads and Motorways)

Public Sector: UK and EU Public Procurement Regulations.

The Highways Agency (HA) normally uses the restricted or competitive dialogue; rarely, if ever, the open procedure.

Apart from PPP projects, restricted procedure is used for major works, major renewals and area operation & maintenance.

The Competitive Dialogue procedure was used for their PPP projects (such as M25) and traffic technology/management schemes.

Wales (Trunk Roads and Motorways)

Public Sector: UK and EU Public Procurement Regulations

4. Funding

England (Trunk Roads and Motorways)

The funding is provided by Government to HA with 3 year rolling allocations for all its requirements including costs arising from running HA and those costs associated with:

- Research, maintaining standards;
- Procurement;
- Traffic technology and managed motorways; and
- Operation, maintenance, renewals and upgrading the English trunk roads and motorways network.

PPP projects

The private sector provides the funding to execute the project usually over a 30 years period. The public sector provides for the costs of procurement together with payments to be made to the PPP consortia throughout the contract period (usually up to 30 years). Payments to the consortia are generally, subject to indexation, fixed annual payments with deductions for poor performance.

Area network renewals, operation and maintenance

The funding is provided by the Government to HA for these contracts and included in its 3 year rolling budget.

Major renewals, upgrading, traffic technology and managed motorways

Again the funding for these schemes is included within the 3 year budget allocation.

Wales (trunk roads and motorways)

The Welsh Assembly Government has responsibility for maintaining, operating and improving the trunk road and motorway network in Wales. This network comprises some five per cent of all roads in Wales, but carries over one third of all traffic. The A55 and A483 in the north, and the M4, A465, A40 and A477 in the south form part of the Trans-European road network. The trunk road and motorway network are Government funded.

5. Risk Transfer

England (trunk roads and motorways)

PPP projects

Note: there are Compensation Events in PPP roads contract but they are mostly events which arise due to Public Sector breaches or failure to act.

Public sector	Private sector	Shared
Variations	Generally all risks except public sector risks and includes but not limited to those below:	Protesters' actions
Land: rights of access or acquired for the contract	Resources (financial, human, materials, plant, equipment etc.)	Some legislation post award, not taxation
Negligent conduct of Public Sector employees	Performance	Savings on construction costs (M25 only)
Payments to private sector	Physical conditions	
	Claims or Losses of any person arising from the execution of the contract	
	Disclosed data - provided by Public Sector	
	Injurious affection	
	Defects in existing road	
	Human Rights Act	

Area network (operation, renewals and maintenance) including major works/renewals

Public sector	Private sector	Compensation events
Third party losses or claims other than those caused by contractor	All risks other than those allocated to the Public Sector	Variation of network area or traffic technology
Loss or damage to the network caused by war, rebellion etc., general strikes etc., radioactivity		Change to contract information (with some exclusions)
Loss, damage or wear to the network other than due to contractor		Employer required modifications to contractor systems or methods of providing services
Variations		Employer prevents access to or use of part of network reasonably required by contractor
Land – rights of access or acquired for the contract		Employer fails to provide defined service information within a set period
Monthly payments to private sector		Employer requirement to stop or not to start an element of the services
		Employer requirement to deal with historical pieces/articles of value found in areas adjacent to the network

<i>Public sector</i>	<i>Private sector</i>	<i>Compensation events</i>
Negligent conduct of Public Sector employees		Third party defects which affect the services to be provided by the contractor
		"unforeseen" physical conditions
		Employer's risk event
		Change in law other than could have been contemplated at contract signature
		Employer resolution of contract ambiguity or inconsistency
		Several other events such as employer breach of contract etc.

6. Investment parameters

England (trunk roads and motorways)

Annual expenditure

Please refer to a copy of HA's budget for years 2011 to 2015 in 6.1 Part B.

Types of work

Upgrading the network (improvement schemes, managed motorways, traffic technology, major works such as new trunk roads or increase number of lanes on motorways.

Operation and maintenance of the network including asset management - renewals, cleaning, repairs, maintenance, traffic management, incident support, snow and ice clearance etc.

Number of providers

Many technology and other suppliers (including some legal and financial advisers) together with a significant number of UK, European and international:

- Large and medium sized civil engineering contractors; and
- Civil engineering consultants.

Durations of contracts

PPP projects: 30 years

(Area Support Contracts (ASC): Area Network renewals, operation and maintenance – 5 years + up to 3 years earned extensions (quarter year) for good performance.

Major works/renewals (such as upgrading motorways from 3 to 4 lanes): usually delivered within 3 years of commencement.

Value for money tests

Regardless of the procurement route, the HA estimates the costs of the works/services to be tendered taking into account the assessment of associated risks and such base-line estimates are then compared with the tender prices when they are submitted.

HM Treasury PPP guidelines suggests that when it has been established/approved that the PPP procurement route will deliver best value and there has been an effective tender competition then, there is no need to compare the submitted tenders against a public sector comparator. However, as stated earlier HA, does carry out such comparison.

Price escalation

PPP: apart from M25, construction costs for all HA's PPP projects were essentially lump-sum prices and unchanged after construction i.e. outturn = tender cost.

In terms of compensation events, the risks are almost entirely with the PPP contractor and without employer instructed changes there are few opportunities for contractor claims. There are compensation events but they are generally restricted to failure to act or breaches by the employer plus limited force majeure events.

Due to the period (30 years) of these contracts, tenderers are allowed to submit their proposals for price escalation indexation formula subject to certain limitations.

Bid costs are not repaid except under exceptional circumstances such as the Public Sector decides not to proceed with award after competitive bids have been submitted.

Area network

Compensation events are included in these contracts and identified in the table above.

Generally, these are new types of contracts (Asset Support Contracts) which are current and no detailed outturn costs are available. The existing Managing Agent Contracts are being replaced by ASC.

Input costs are generally actuals but using a cost component schedule based on the NEC target cost contract.

The contract includes on using the General Index of Retail Prices as published in Table 3.5 of the Central Statistical Office publication Monthly Digest of Statistics.

Major works/renewals

Compensation events similar to ASC.

Normally carried out as target cost contracts (based on NEC) with specified percentage sharing of cost savings and overruns. Some of these contracts include Early Contractor Involvement (ECI).

The contracts usually provide for compensation for price escalation.

England (trunk roads and motorways)

More than 90% of HA's expenditure is through contracts with its supply chain and includes for the design, planning, maintenance, renewal, upgrading etc. of 4300 miles of motorways and all-purpose trunk roads. HA's expenditure represents a small but significant proportion of England's construction sector (see its budget for years 2011 to 2015 below). Building and civil engineering contracts awarded in December 2013 was £6bn (source construction index) and Highways Agency expenditure (annual £2-3bn) represents less than 5% of total annual spend on all UK construction.

HA's traffic officer service (in-house) provides HA's management of operations (in cooperation with the emergency services) at incidents/accidents but the supply chain provides the clearing, repairs and temporary traffic management.

PPP procurement process is very costly to both HA and its bidders: it would not be unusual for the total cost for all bidders to exceed £10m. A two stage process has been used to reduce time and costs to all parties with the number of bidders reduced to three prior to the "competitive dialogue stage". The whole process from requests for prequalification to contract award/financial close can be up to 2 years.

Capital, renewals, operation and maintenance procurement processes: the costs to bidders is insignificant compared with PPP – much less than £1m/bidder. Typical number of bidders for example for framework contracts is 5 and the duration depends on complexity but several months rather than years as the PPP process.

Wales (trunk roads and motorways)Annual Expenditure

Approximately £170m per annum on motorways and trunk roads (Welsh Assembly Government (WAG) budget 2014/2015).

Types of work

Same as England and Wales

Number of providers

The trunk road and motorway highways maintenance contracts in Wales are the responsibility of the 3 Trunk Road Agents who act on behalf of the Welsh Assembly Government. They are the North Wales Trunk Road Agency (NWTRA), Mid Wales Trunk Road Agency (MWTRA) and South Wales Trunk Road Agency (SWTRA).

Durations of contracts

PPP: (A55) 30 years

Maintenance contracts: 2 years.

Price escalation

PPP project (A55) includes a price escalation clause.

Maintenance contracts: The annual inflation is based on the All Items Retail Price Index which is in line with the Conditions of the Agreement within the Welsh Assembly Government Maintenance Agreement document. This is agreed on an annual basis. The previous 12 months All Items RPI figure is derived considering the previous 12 months figures. This takes into account both positive and negative inflation.

Improvements: generally based on NEC target cost contracts with escalation. The next proposed step is a procurement process for a framework contract to facilitate major improvement works for Motorway and Trunk Road tunnels.

The transport projects and improvement schemes are carried out through the employment of consulting engineers, agent authorities and contractors.

7. Capital procurement strategies

England (trunk roads and motorways)

The three key objectives of HA's procurement policy are value for money, (certainty of) delivery and sustainability (ref: Sustainable Development Plan for 2012-2015). Achievement of those objectives is aided by HA's selection process of the most capable and best-performing suppliers who provide value for money, delivery and sustainability.

By 2014-15, HA is committed to reduce the cost of capital major projects by 20 per cent against baseline estimates. In order to achieve such savings, the HA is implementing measures that will transform the way major projects are delivered, changing the way HA works, using a programme approach rather than 'project by project'. This will be underpinned by the three principles of integration, collaboration and programme management.

The HA intends to develop common, standardised solutions that can be delivered consistently across projects, employ lean principles for managed motorway projects and streamline the technical handover process from construction into operation.

Collaboration of the key parties in the delivery process is key to delivering better solutions as teams work closely together, supported by common and focused objectives. The HA intend to buy goods and commodities at best value through category management contracts and supply chain procurement. By aggregating common category requirements (such as gantries) across Agency spend, and working more

closely with extended tiers of the chain, the HA anticipates generating increased value through greater efficiencies and lower unit costs.

The HA intend to manage risk across its programme, develop its planning capability to optimise project schedules and continue to capture project costs to ensure delivery of real value on future projects.

In terms of PPP, there appears to be no HA express policy for future PPP projects.

The latest procurement strategies are to achieve Government requirements for a reduction in overall spending from £3.2bn in 2010/11 to £2.1bn in 2014/15.

In the case of traffic technology/management, the HAs intend to change from a reactive to a proactive forward-looking approach to deliver better value for money by shaping the market including by preparing standards which specify plug and play technology which could be delivered by several suppliers.

In terms of major works/renewals, the HA intends to deliver a 20% reduction in base-line estimates. The contracts (including PPP) require partnering, innovation, continuous improvement and whole life considerations. The contracts provide for a sharing of construction cost savings (including M25 PPP; see earlier). Innovations would be subject to HA's acceptance of any proposed alternative standards or methods of working etc. and any target cost would take into account any associated risks.

8. Operating procurement strategies

England (trunk roads and motorways)

Driving down costs is a priority of HA and it has introduced a new contract form, namely the Asset Support Contract (ASC) for its Area Network maintenance/operation/renewals contracts. Its purpose is to deliver a more affordable outcome with outcome-based specifications and the use of category management. The HA has developed an integrated asset management information system to more effectively prioritise the programme of asset renewals.

The main driver for the new strategy (ASC) is to achieve Government spending cuts. NAO in its report (see section 11 below) the previous generation of contracts (Managing Agent Contracts - MAC) for not providing value for money. ASC's overall cost effectiveness will be assisted by HA's asset management system which will aid early intervention (patch and repair) rather than major renewals. In addition, there are incentives to enable savings – see section 9.1 below.

Wales (trunk roads and motorways)

A WAG response to an FOI question stated: It is highly likely that new highways maintenance contracts of greater than 2 years duration will be procured in the coming 3 years. However, the precise timing is dependent upon the review and renewal of the Agency Agreements between the current Trunk Road Agents and the Welsh Assembly Government.

9. Contracts and Performance incentivisation

England (trunk roads and motorways)

The contracts require partnering, continuous improvement, construction cost (except PPP) and innovation savings to be shared. The latest PPP M25 project is an exception as it incorporated a sharing of any savings (upside only for Public Sector) in construction costs. The M25 construction cost savings cannot be completely finalised until 10 years post construction but are expected to be significant in many £10millions.

PPP projects incentivise delivery by the construction payment schedule which in the earlier PPP roads projects precluded any payment until the construction was complete and ready to be opened to traffic.

All the contracts have extensive performance measures with appropriate specified remedial actions for poor performance. As stated earlier, selection of suppliers will be dependent on its past performance for certainty of delivery, value for money and sustainability.

ASC contracts are for 5 years contract period with possible further extensions (earned in quarter year increments for very good performance but may be lost for subsequent poor performance) up to 3 years.

However, ASC contracts are expected to provide significant savings on predecessor contracts; they include:

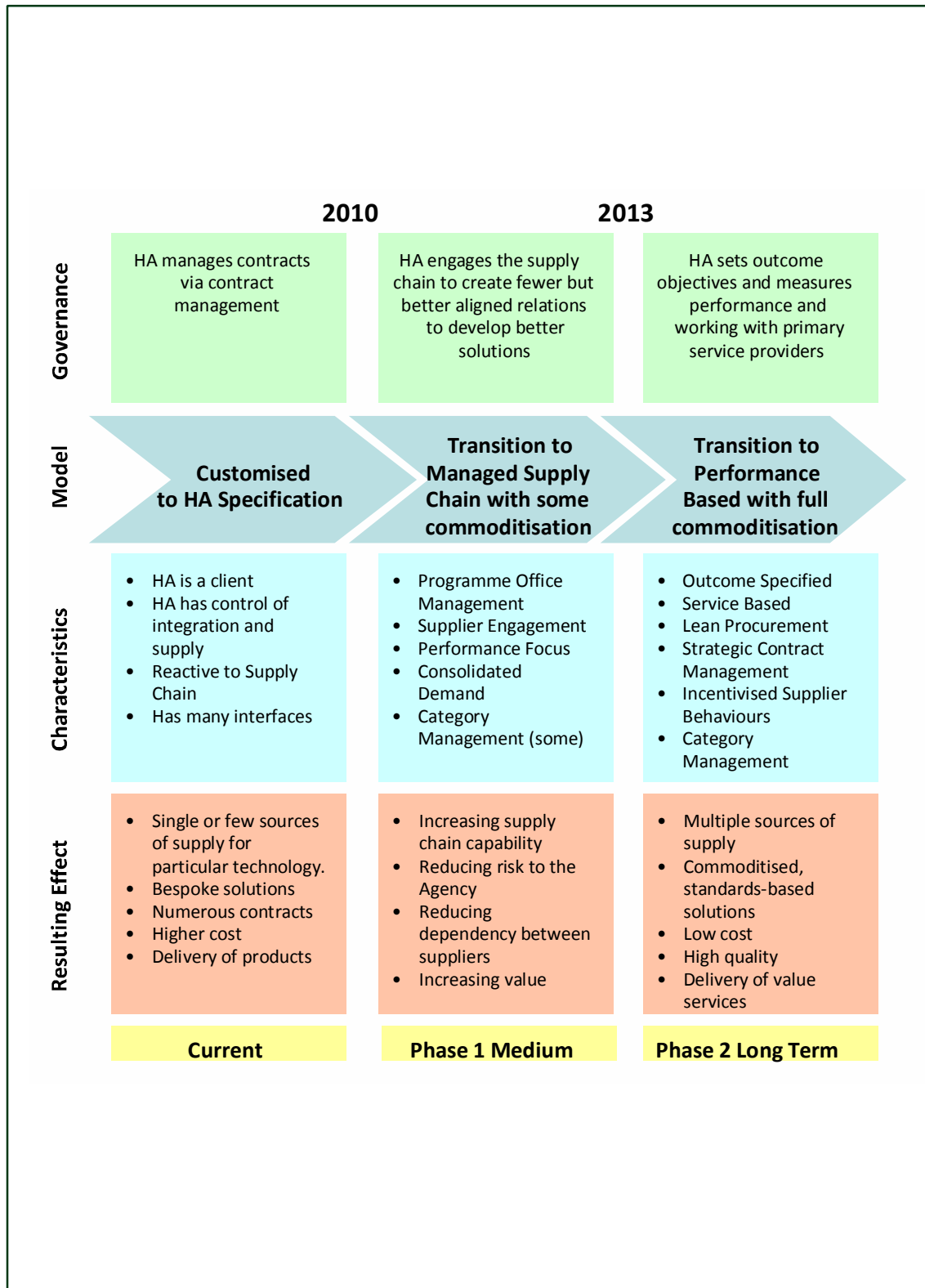
- Contractors commit to annual discounts throughout the contract period;
- Schemes (less than GBP5m) carried out by contractor are based on target cost with specified percentage sharing of actual cost savings/overruns;
- Contractor is required to submit efficiency improvements with 50/50 sharing of resultant reductions to lump sum fees;
- Contractor proposed innovation; 50/50 share of resultant actual savings; and
- HA's approval required for renewal schemes which have reached the end of their economically viable life; in other words sweating the asset or not replacing the asset before it needs to be replaced. The HA asset management information system will be key to determine the need for replacement.

10. Supply chain management

More than 90% of HA's expenditure is through contracts with its supply chain. The HA is committed to procuring solely from those suppliers which demonstrate that they are good employers, recognise people values, foster diversity within their workforce, show commitment to safety plus are the most capable and best-performing suppliers. HA intends to work more closely with suppliers to drive value through supply chains

The HA uses its supplier recognition scheme to identify suppliers who provide leading performance and customer service. The HA contracts include performance measures which determine the performances of its suppliers - past performance will increasingly determine suppliers future work opportunities.

In terms of traffic technology, the HA is committed to improving its supply chain management and procurement which, in the past, have had to be developed on a reactive basis due to the speed of change. Now the HA is developing a strategy to change its traffic and technology procurement and supply chain management as summarised below.



There will be two phases to enable the change namely:

Traffic technology; Phase One:

1. Review all contracts for specialist technology requirements to reduce overall number of contracts, to identify options for the Agency to novate and/or consolidate the contracts prior to contract renewal or change.

2. Engage with the industry to build on the Traffic Technology Procurement vision in order to encourage and understand how the supply chain can add value and move quickly in the Agency's direction of travel.
3. Engage with Department for Transport (DfT), Local Authorities, standards and technology organisations. The Agency will work with DfT, Local Authorities (LAs), OGC Buying Solutions, Highways Efficiency Liaison Group, County Surveyors Society and others, to identify opportunities for lowering cost through aggregating demand and alignment of approaches.
4. Identify existing bulk supply arrangements, particularly with limited net value and higher risk. Where such contracts are due for renewal the Agency will explore the feasibility of the management of supply directly by the supply chain. Where such contracts are not due for early renewal we will look for opportunities for early termination or voluntary transfer to lead suppliers.
5. Review contracts to include performance targets and measurement. The review will consider retrofitting arrangements to existing contracts and ensure that all future contracts include performance targets and incentivisation developed from the Agency's Motivating Success Toolkit.
6. Identify and produce a plan to better manage and apportion risk with the supply chain, particularly in relation to arrangements involving specialist suppliers. It will encourage lead suppliers to consider how they can more effectively manage the Agency's requirements,
7. Ensure Procurement Planning is integral to the development of the Traffic Technology Strategy. This will ensure that all technology initiatives take "whole life" considerations into account; these will include supply chain risks, as well as the most appropriate procurement route.
8. Engage with suppliers to define an Industry Architecture that supports standards-based commodity technology, allows value added services and facilitates supply chain integration and flexibility. The Architecture will complement the Agency's Enterprise Architecture
9. Identify early opportunities for commoditisation. The Agency will explore opportunities during Phase 1 to switch from customised or specialised technology to more generic technology with increased security of supply and lower cost.
10. Develop the best contract model for delivering a Managed Supply Chain and Managed Services. The Agency will work with the lead suppliers to consider the appropriateness of alternative, innovative contract models including 'Construction Management Frameworks' and 'Alliances.'

Traffic technology; Phase 2:

1. Secure or renew traffic technology contracts with outcome based performance targets. The Agency will develop services based contracts that include performance targets and payments based on outcomes.
2. Review all new or renewed traffic technology contracts for opportunities to use commoditised products and services. The procurement and use of standards based products and services will become more common and will be procured within the supply chain. Where the Agency continues to procure directly it will aim to procure commodity products and services available from more than one supplier.

11. Efficiency gains and constraints

Highways Agency's budget has been cut from 3.2bn in 2010-2011 to 2.1bn in 2014-2015 hence the need to carry out significant cuts in its spending/procurement. The policy of increasing capacity by adding an extra

lane on motorways has changed to improving capacity by making use of the hard shoulder and traffic management technology.

In 2012-13 HA's planned administration budget is 16 per cent lower than the opening prior year budget, and by the end of the spending review period the budget reduces by over 20 per cent which equates to a 30 per cent in real terms. HA's business is closely aligned with the work of the Cabinet Office's Efficiency and Reform Group. They do this through collaborating with key parties in the delivery process, aligning business areas with the supply chain, category management contracts and supply chain procurement.

Area Network: efficiency gains

NAO report in respect of Managing Agent Contracts states: "Since the introduction of a new type of maintenance contract in 2001 by the Highways Agency there have been some improvements in the quality and delivery to budget of maintenance on England's motorways and trunk roads. However, according to a report by the National Audit Office, costs have risen, with those for routine maintenance increasing since 2002-03 by 11 per cent above inflation. Expenditure on planned maintenance has risen overall by 5.5 per cent above inflation.

It is not possible to estimate precisely the extent to which unit costs for planned maintenance have risen between 2002-03 and 2008-09 because of the Agency's lack of management information. Using the limited data available, the NAO has estimated a 70% increase in the cost of road resurfacing. This does not take account of other road renewal activity such as lighting and barriers. The Agency's own estimate of spending on resurfacing indicates an increase of 17% (between 2004-05 and 2008-09). The NAO was unable to validate this, and the true figure is likely to lie between the two estimates.

By using Managing Agent Contractor (MAC) contracts, the Highways Agency appoints a private supplier to be responsible for the design and delivery of road maintenance in a particular area of England for a period of four or five years, with the option to extend this to seven years.

Today's report identifies shortcomings in the way the Agency manages these contracts. The Agency has focused on checking that the private companies are complying with the contractual requirements rather than the costs or the quality of the work done. The Agency is only now beginning to exploit the good visibility of costs within these contracts, for example to establish the unit costs of items within jobs, so that it can challenge contractors' costings and establish benchmarks for continuous improvement. The NAO found considerable variations between geographic areas in the unit costs of surfacing, white lining and traffic management. The Agency has also not pursued minimising the whole life costs of maintenance work as strongly as it might.

The Highways Agency has a diminishing number of staff with the skills necessary to manage the MAC contracts. It needs staff with skills in engineering and commercial management (such as quantity surveyors) to manage risks, costs and contractors' performance and challenge contractors' design specifications. The Directorate of the Agency which manages these contracts has lost more than 50 engineering staff over the past five years and only had four quantity surveyors at the time of the review.

The MAC contract process has attracted a good number of bids for recent competitions, but an increasing proportion of bidders fail to meet the quality threshold, limiting price competition. A smaller supplier base would increase the risk to value for money."

The next tranche of Managing Agent Contracts included some changes to improve value for money but the results have yet to be published. However, as stated earlier, HA has introduced a new form of Area Network contract (i.e. ASC) which progressively replaces the MAC. The new contract, with its incentives and more asset management focussed, should enable savings to be made the extent of which is difficult to assess.

However, M25 PPP project provided a significant saving over the base-line estimate for maintenance and renewals; mainly because the PPP contractor introduced an early intervention policy (patch and repair) rather than the more costly asset renewal policy included in the base-line estimate. The new ASC expressly requires assets to reach the end of their economically viable life before renewal. With better asset

management information, later asset renewal and the incentives included in the ASC, it is not unreasonable to consider savings will be made but to a much lesser degree than the M25 example.

Major works/renewals

NAO report (19 November 2010) PPP M25 states: "The Agency's cost model was up to 27 to 43 per cent higher than the bids. The main difference was that operational and maintenance costs in bids from the two remaining bidders were substantially lower than the Agency's lowest estimate.

The Agency assumed that the operation and maintenance costs, which account for around 65 per cent of the costs, would be the same as it had previously incurred. This did not consider the scope for further efficiencies in either the privately financed or conventional options. The Agency doubted that it could achieve efficiencies in conventional procurement.

The Agency based its calculations for conventional procurement on its old 1990s contracts which were competitively procured but subject to significant overruns. The Agency subsequently benchmarked its conventional procurement estimate against the total cost of road widening works in its new contract for the M1 Junctions 6A to 10. We have some reservations about the robustness of this comparison because of the overruns in the 1990s contracts and the fact that construction cost rates within the M1 costs were lower than those in the Agency's calculations.

The pessimistic base-line construction cost estimate (£976m) was approximately 7% higher than the PPP contractor's tender price (£900m approx.). However, the construction cost savings agreement in the M25 contract is likely to increase the saving by several more percentage points.

It is not impossible that the Agency's intention to make savings of 20% against base-line construction cost estimates is achievable when taking into account the policy of procuring as programme of projects rather than project by project and the introduction of category management. Such savings may prove difficult to achieve especially as the economy and construction demand picks up.

Increasing motorway capacity by having hard shoulder running will reduce the costs of increasing motorway capacity/per km – in its M25 report, NAO estimated that having hard shoulder running instead of motorway widening, "there were potential construction and financing savings to consider of £400-£700 million (12-21 per cent) over the private finance widening".

Appendix 10: Canada Water

1. Location

Canadian Water & Wastewater Utility.

2. Industry Sector

The Example City operates Water Treatment Plants.

3. Governance and Regulation

For most part, the rules governing public procurement processes are established by the New West Partnership Trade Agreement (NWPTA), the Agreement on Internal Trade (AIT), Competitive Bid Law and City Policies. The primary objective is to ensure the City provides fair, open and transparent business opportunities to all companies across Canada to ensure best value for the City.

NWPTA applies to procurement by Municipalities and other publicly funded bodies. It requires open and non-discriminatory (public) procurement, where the anticipated costs are at or above the following thresholds (in Canadian dollars):

- \$75,000 or greater for goods;
- \$75,000 or greater for services; and
- \$200,000 or greater for construction

NWPTA is a signed agreement between Provincial Governments of BC, Alberta & Saskatchewan to provide access in each province to business opportunities in all 3 Provinces. It is based on the principles of free movements of goods, services, investment and people within Canada.

AIT encourages interprovincial trade by addressing obstacles to the free movement of goods, services, investment and people within Canada. A significant part of the agreement relates to procurement, and the elimination of local bias which may act to restrict equal access to business opportunities for all interested Canadian suppliers.

In addition, there are a number of City of Policies that have been developed to ensure the City obtains value for money and that City employees do not take any actions that contravenes procurement law or regulations or otherwise puts the Corporation at risk.

4. Funding

Water Rates are set for a 3 year period e.g. at the end of November 2011, City Council finalized water and wastewater rates for 2012-2014, with the new rates coming into effect on Jan. 1, 2012.

Typical rate increases:

- Water: an increase of 7.6 per cent for 2012, 7.5 per cent for 2013, and 7.4 per cent for 2014;
- Wastewater: an increase of 13.5 per cent for 2012, 13.5 per cent for 2013, and 13.5 per cent for 2014; and
- Stormwater: an increase of 4.9 per cent for 2012, 4.9 per cent for 2013, and 4.9 per cent for 2014.

The Utilities net operating and capital budget is funded by revenue from sales of goods and services.

Some Municipal Funding available for Storm Water projects.

The Water, Wastewater & Storm Utilities are responsible for \$34bn of assets

5. Risk Transfer

On a best managed basis.

6. Investment Parameters

PART A

2014 Budget Figures

Operating Budget:

- Revenues = \$564,095,000;
- Expenditures= \$592,562,000
- Recoveries = \$28,467; and
- FTE's = 1,211

Capital Budget = \$236m

Performance Measures (2010 Actual)

Approx. Total Debt. = \$1.4bn

Water Utilities Capital Maintenance financed with cash 21%

Water Utilities Debt to Equity Ratio = 70/30

Replacement and new for both Network and Production Assets

97% of projects are delivered by design, bid, and build with only a very small proportion by Construction Management.

Typical duration of contracts; depends on size and complexity. Majority by number are less than 1 year. By value these projects would be multiyear e.g. Wastewater Treatment Plant upgrade.

Typically carry 10% contingency to cover unknowns.

PART B

Planning is generally done in house but with support from external consultants. Generally consultants are hired via Qualification Based Selection. Number of bidders is very much based on size & complexity of projects. Cost to bidders is unknown

7. Capital Procurement Strategies

Have used Construction Management on larger projects, generally due to tight completion deadlines.

Consultants are hired via Quality Based Selection. Consultants assist in the preparation of RFP's to prequalify contractors. Construction tender issued to preselected contractors. General approach is design, bid, and build, due to concerns over alternative processes resulting in potentially poorer quality solution. Some federal incentives available to encourage P3 for Wastewater Treatment Plants, but city can borrow money cheaply, so no incentive to pursue P3's.

The procurement process is referred to as the RFx process, commonly used RF x documents are:

- Request for Proposal (RFP);
- Request for Tender (RFT);
- Request for Information (RFI);
- Request for Quotation (RFQ);
- Request for Pre-qualification (RFPQ);
- Request for Standing Offer (RFSO); and
- Expression of Interest (EOI)

Request for Information (RFI)

Used for goods or services of any value where the City has an idea and is looking for the best approach to execute it. The intent is to source technical or commercial data for possible inclusion in a follow-up process. A contract will not be initiated at the end of this process.

Request for Proposal (RFP)

Used for goods or services of any dollar value where requirements and specifications are not clearly defined, the vendor is considered the expert, a high degree of flexibility is required and negotiations may be required. Evaluation is based on a set of agreed to evaluation criteria. A contract is intended to be formed at the end of the process for which a formal legal agreement may be required.

Request for Quotation (RFQ)

Used when goods or services are of a low-dollar value and low risk to the City, requirements and specifications are clearly defined, the City is considered the expert and the award criteria is heavily weighted to price.

Request for Tender (RFT)

Used where goods or services are of high value and/or high risk, requirements and specifications are clearly defined, the City is the expert, and award criteria is heavily weighted to price. A contract is intended at the end of the process for which little flexibility is required and a formal legal agreement may be required.

Request for Prequalification (RFPO)

Used to establish the abilities of a vendor and to ensure that the vendor meets. The City's minimum qualifications for providing the required goods or services. Used to create bid lists and may be used when requirement is repetitive or could be project specific. A contract will not be initiated at the end of this process.

Expression of Interest (EOI)

Used to develop a list of potential bidders by gauging public interest in an expected future procurement. A contract will not be initiated at the end of this process.

Request for Standing Offer (RFSO)

A formal, competitive procurement tool, where potential vendor(s) offer to provide goods and/or services under set terms and conditions, as required.

The City's procurement policies specify that the Utility must purchase from a contracted vendor, if one exists, for the required goods or services. This helps ensure the City complies with the terms and conditions of established contracts. If a specific vendor or a pre-qualified list exists, a public Rfx process may not be required, which will not only saves time, but also provides the assurance that only appropriately qualified vendors will be able to submit a bid for projects.

Vendor Classifications:

- Exclusive Contracted Vendor (ECV): Departments must purchase the required good or service from the ECV;
- Non-Exclusive Contracted Vendor (NECV): Departments Units have the choice to purchase the required good or service from one of the NECV;
- Source List Vendor: Source list vendors have been determined by the City to meet minimum standards (e.g., WCB, safety certification, environmental, technical) but are not contracted by the City. Departments may purchase a good or service from a source list vendor if the procurement value of the total project scope (including multi-year or multi-phase requirements) does not exceed the NWPTA dollar thresholds; however, purchases must be made in accordance with the applicable City procurement policies; and
- Pre-qualified Vendors (Contractors): There are a number of pre-qualified lists for different procurement needs, and there are very specific criteria for a vendor to be added to a pre-qualified list. When a pre-qualification list is first created, request for Pre-Qualification (RFPQ) documents are posted on the City's and MERX websites.

Standing Offers, which is a formal, competitive procurement tool, where potential vendor(s) offer to provide goods and/or services under set terms and conditions, as required. This means that a commitment is established with vendor(s) but there is no obligation to purchase until a statement of requirements or call-up is requested against the Standing Offer. The process is based on:

- Vendors competing to establish a Standing Offer with the City;
- A Standing Offer is not a contract, and there is no guarantee of service. It is an offer by the vendor to provide services within a defined scope of work which can include an agreed price, if, as, and when required;
- The City is under no obligation to enter into a contract, but must procure with the vendor(s) under the terms of the Standing Offer any work that is within the scope of the Standing Offer; and
- Standing Offers are useful when the extent and timing of the work are unknown and where there is a need for the City to act quickly.

Single sourcing: the practice of deliberately sourcing a procurement item from a single vendor instead of going out to the marketplace. An example would be an unforeseeable emergency situation which, for safety reasons, must be addressed more quickly than a competitive procurement process would permit.

Sole sourcing: The practice of deliberately sourcing a procurement item from a vendor that is the only available firm able to fulfil the procurement need. An example would be the requirement to purchase a replacement piece of equipment that is only available from one manufacturer.

An alternative to proceeding with a Single or Sole Source would be to conduct a limited competitive process in which you evaluate submissions from a limited group of vendors on pre-established criteria and award to the highest scoring submission.

For consulting type work, the City generally practices Qualification Based Selection (QBS) where no fees are requested during the initial procurement. This involves a two stage process, first stage is selecting the highest rated consultant based on qualifications, and the second stage is the negotiation of the fee structure. In the event that the City is unable to agree on the fee structure, there is the option to go to the next highest rated proponent. The negotiations with the first proponent must be formally terminated by Supply before negotiations commence with the second highest rated proponent.

All Professional Service Provider (PSP) appointments over \$250,000 have to comply with Council Policy. The Policy requires appointments over this threshold to be circulated to Council members for a period of 10 working days after the successful proponent has been identified, and before the Purchase Order is issued.

8. Operating Procurement Strategies (including maintenance and capital replacement)

See above.

9. Contracts and Performance Incentivisation

Any procurement over \$75,000 is eligible for a performance evaluation. Any procurement over \$1,000,000 is required to have a vendor performance form completed at the end of the project by the Project Manager or Department Owner. Interim performance evaluations are also used depending on the complexity / time frame of the procurement. A completed Vendor Performance Evaluation Review form is sent to the purchasing Department, identifying good, acceptable and substandard performance. It describes in detail all examples of good or sub-standard performance.

Sub-standard performance is defined as a rating of 2 or less (from a set list of scores/descriptors) on any question, point, factor or criteria on the Vendor. This includes:

- Poor safety or environmental standards exhibited by the vendor; and
- Anything less than acceptable performance of a contract by the vendor.

Performance is evaluated in relation to delivery against the specifications, terms and conditions, supplementary or special conditions, and any agreed deliverables.

10. Supply Chain Management

See above.

11. Efficiency Gains and Constraints

2012 – 2013: a reduced reliance on consulting services for utility infrastructure planning generated a savings of \$425 thousand.