

INTEGRATED PLANNING TO DEAL WITH PROCUREMENT CHALLENGES

L Meys, Opus International Consultants

ABSTRACT

As Local Authorities and private businesses are being asked for 'Financial Prudence', and to save money whilst still delivering services, more emphasis will be on better integrating and optimising internal procurement systems with the external service delivery providers.

One of the most effective ways for organisations to save money is in their procurement practices, both for professional services and physical works delivery. One of the questions is what to outsource and how? The author of this paper has had first hand knowledge of Alliancing, Design and Construction Contracts, Professional Service Panel Contracts, and the more traditional NZS3910 contracts. With this knowledge this paper presents the various factors of preparing a robust longer term procurement strategy. A strategy which optimises the in-house skills with the external providers. This is one important way to meet the challenges of cost savings in today's economic climate and looking beyond to the days of economic recovery.

KEYWORDS

Procurement strategies, Optimising cost savings through procurement, Water Industry Procurement Manual.

1 INTRODUCTION

The transportation industry now has a large, well documented procurement manual (effective as at July 2009). The first question is should we have a Procurement manual for the water industry? If the answer is yes, a second question is whether the NZTA Procurement manual is acceptable for use in the water industry? If it is, then how would this be implemented. If it's not, in what areas is it not applicable and who would decide this and create an alternative manual?

The foreword in the NZTA procurement manual by the NZTA Chief Executive states "a strategic approach to procurement is essential to obtaining the best value for money spent". Also "The framework and tools will help approved organisations develop a fit for purpose, long term procurement strategy". The author would suggest this is true for the water industry as well as the transportation industry.

This paper therefore aims to provide a framework for discussion of the differing aspects which the water industry organisations need to consider to develop business procurement and project procurement strategies.

It is proposed that one of the most effective ways for water organisations to save money, and at the same time develop healthy, well resourced and capable consultancy and contracting industries, is through the development of two procurement strategies. The first is for the business as a whole and the second for the type of contractual arrangements to be used for the delivery of projects.

The diagram below identifies procurement as a matrix of business and contractual considerations.

		Procurement Business Considerations					
		Type of Business Rooding/ Water etc	Asset Management	Operational Management	Capital Works Programme	In-house delivery/ outsourcing	Local/ Regional/ National Delivery
Procurement Contractual Types	Staged Delivery (DBB) Professional Services						
	<ul style="list-style-type: none"> • Direct Commission • Lowest Price Conforming • Purchase Nominated Price • Price Quality • Quality Based 						
	Staged Delivery (DBB) Physical Works						
	<ul style="list-style-type: none"> • Direct Commission • Lowest Price Conforming • Purchase Nominated Price • Price Quality • Quality Based 						
	Partnering						
	PSMC						
	D&B DBO						
	Alliancing						
PPPs							

It is suggested that procurement practices in the water industry during these times of recession must continue to take into account the impact both in the short and longer term. This is both at a business level and at a project level.

The move away from sustainability language to one more of ‘Financial Prudence’ can be seen as a move away from longer term thinking towards one more of immediate financial imperatives. Although the emphasis may be on the short term there must be consideration of financial well being over the long term.

This paper will address firstly the different issues within each procurement contractual type, and secondly, will address the considerations to be taken into account to establish an overall business procurement strategy. A summary of the key issues will conclude the paper.

2 CONTRACTUAL PROCUREMENT TYPES

2.1 PPPs

The LGA 2002 allows almost all forms of procurement contracts but limits the term to no more than 15 years. This fact together with current limits on Local Authorities requiring them to maintain control of pricing and management means that PPPs are currently not a viable option.

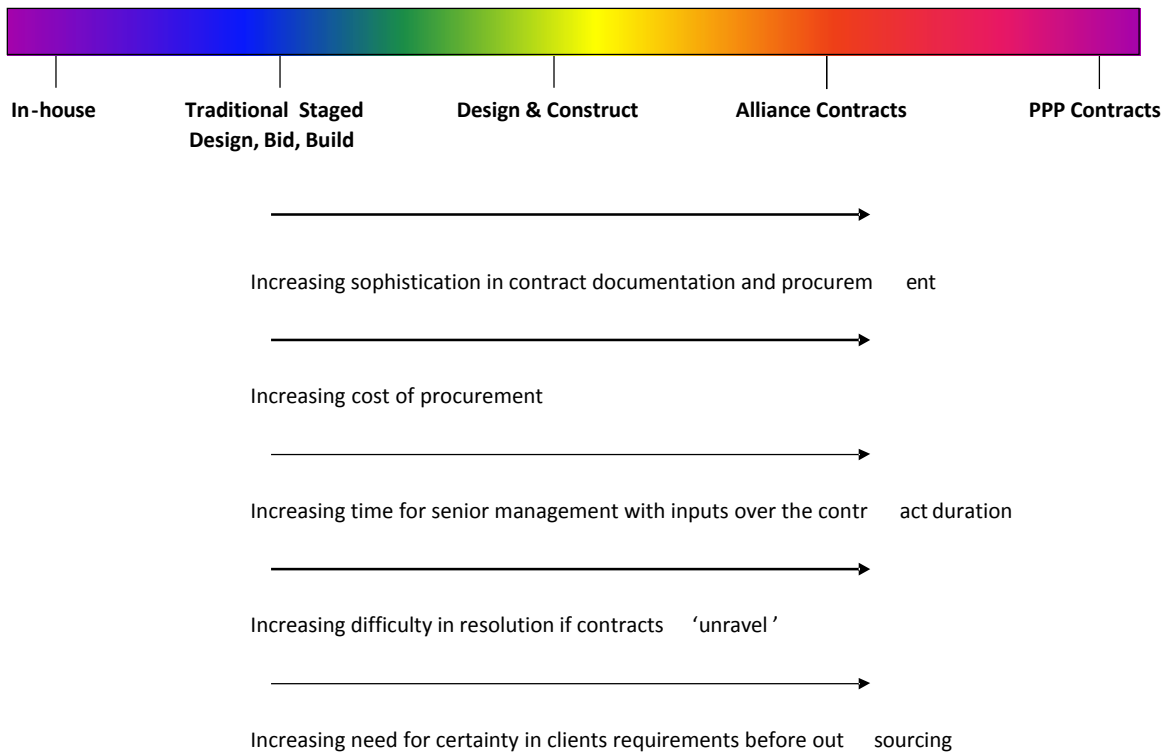
However with recent talk of a local body 'bond bank' and the possible reforms of the LGA 2002, it is possible that PPPs may become an option for the future.

This paper is not an attempt to provide a definitive list of benefits and disadvantages of PPP contracts. Several library bookshelves are full of books, reports and papers on this subject.

There are however some basic concepts that central or local government need to address before progressing with any PPP infrastructure project. It is suggested that the following points be included in a more comprehensive set of considerations that would be used by local government before choosing PPP as a procurement form of delivery.

- Whatever the mix of private or public funding of water services, the overall lifecycle costs of service delivery need to be minimised through optimised decision making.
- As well as the financial well-beings issues, the social, cultural and environmental risks need to be managed and communicated to the community in a transparent manner.
- A regulatory environment of some sort needs to remain in place over a PPP to encourage limiting of water use and discourage excessive pricing from a monopoly supplier.
- Good stewardship, renewals of consents, demand management and environmental considerations to name but a few should remain the responsibility of the Local Authority and not be outsourced to private commercial interests.
- Outsourcing under a PPP procurement style often requires outsourcing controls over pricing but does not need to include outsourcing of ownership. For example in the latter case, considerations of the true value of a water treatment plant may arise. The consent to extract water may be of more value than solely from the capital value of the plant itself.
- PPPs for utility infrastructure usually require some sort of service revenue stream over a 25, 35 year or greater time period. The contractual obligations on a Local Authority to ensure the continuation of the revenue stream often limits the ability of the governing bodies to build further infrastructure if the need arises. This may limit the ability of Councils to provide cost effective solutions for future generations or to provide infrastructure led initiatives to encourage growth according to changed strategic growth patterns (for example SmartGrowth in the Tauranga region).
- Central and Local Authority debt funding is most often the cheapest source of money in comparison to the interest rates charged to privatised PPP investors. For the overall delivery costs to remain cheaper for a PPP other factors must overcome these higher interest rates.
- All private sector businesses require a rate of return over their investments. For PPP infrastructure projects over long time frames these costs can be very high. These large additional costs need to be compared to the lower project costs if funding was derived from other sources.
- Innovation, effectiveness and efficient operational maintenance and delivery is often derived from combining the skills and knowledge of the clients, consultants and contractors. Apart from PPP, other forms of delivery such as Alliancing and Design Build encourage and allow this combination of skills.

- Increasing sophistication and costs of procurement tend to occur as we move from in-house delivery through to different models of outsourcing as per the diagram below.



- As the skills in PPP contracts reside overseas, the costs of obtaining professional advice are high and not necessarily dependent on the size of the project. The percentage cost of procurement will be very high for smaller sized infrastructure projects. It is suggested that most potential PPPs would need to be greater than \$100m to achieve the economics of scale. Accordingly, very few, if any, water industry projects would be of sufficient size to warrant proceeding with a PPP procurement option.

2.2 ALLIANCING

As per the diagram above, an Alliance requires a greater level of sophistication in approach than most other forms of procurement. Currently there is only one Alliance contract which has been priced and delivered in the water industry in NZ. This is the Metrowater Clear Harbour Alliance contract.

The author was part of the winning consortium which responded to the initial request for tender, and which went through the full procurement process. He is on the leadership team delivering the project. The following are some observations as to the appropriateness of Alliance contracts, and the details of the procurement process.

- It cost Opus over \$100k to bid the Alliance project. If Opus had lost the bid it would have taken another project of between \$0.5M to \$1.0M in fees just to break even. These high costs can be a disincentive for consultants to bid for Alliance contracts.
- Metrowater incurred considerable external and internal costs in preparing for the Alliance contract. This included using external providers for:
 - Alliance coaching facilitators
 - Alliance documentation preparation and facilitation at procurement worksh ops

- Probity auditors
 - Legal review of documentation
 - External Alliance auditors.
- As per PPP projects, Alliance projects need to be large projects in order to achieve the economies of scale for the procurement costs.
 - The initial project was approximately \$50M, and is for sewer separation of an area of central Auckland. If the outcomes of this first project were successful, then consideration would be given to negotiating with the Alliance team an additional area of similar size. In this way part of the investment in establishing the Alliance would be utilised over a project of approximately \$100M in size. (Note that although the Clear Harbour Alliance has been very successful, the changes within the Auckland Super City environment has precluded the opportunity to negotiate this further follow on work).
 - There need to be clear reasons for the choice to procure using an Alliance form of delivery. There were several areas where Metrowater required a higher standard of service than previous levels of delivery for sewer separation work. One of the reasons for progressing with an Alliance model of delivery was to achieve high levels of service in:
 - Health and Safety
 - Customer care and better community relations
 - Improved consenting delivery
 - Improved Stakeholder relations (including with ACC)
 - Improved traffic management
 - Innovative design and construction solutions for sewer separation.

The Alliance is delivering on all of the above due to the focus placed on these from the start of the procurement process all the way through to project delivery.

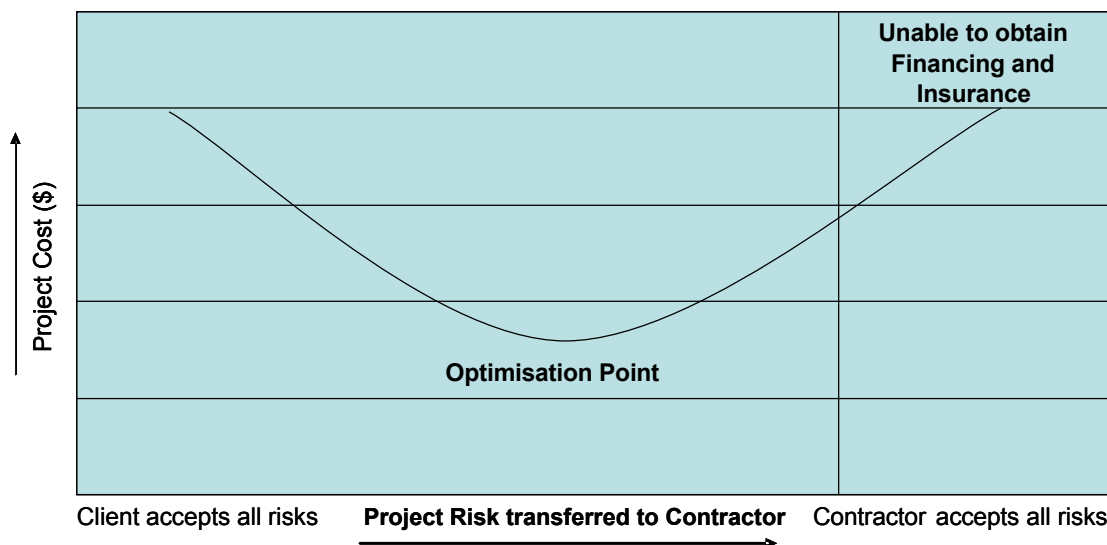
- At a previous Alliancing conference, Anin Nama from Metrowater presented his view of value for money being achieved with the alignment of business strategy, procurement method and delivery. It is evident that the Clear Harbour Alliance value for money is not just in the tangible cost savings but also in the intangibles listed above.
- To achieve an agreed Target Outcome Cost (TOC) there needed to be a reduction in the high levels of unknowns in scoping the project. A six month period was used to undertake site investigations, preliminary designs, agreement on construction techniques, and costs to deliver. \$4.6M was spent over this time in undertaking this work with the TOC estimate initially well over the \$50M mark for the first iterations and being finalised at the end at \$46.3M. An allowance for future unknowns, risks and opportunities of \$4.1M was included within this agreed TOC figure. Most of this is forecast to be needed due to various unforeseen conditions.
- Alternative Alliance procurement arrangements include competitive tendering through to the preparation of a TOC. This would have resulted in higher bidding costs and does not represent our Alliance philosophy of obtaining the best project team, to work with the client to reduce the TOC.
- Other procurement arrangements which are also called Alliancing, include an arranged marriage approach for each of the different participants. In the Author's opinion this seems to create a large risk for inter-relationships between the participants.

- One of the fundamental benefits of an Alliance contract is the establishment of a close team environment, with best for project rather than best for participating employers being called for. In order to establish this environment the author considers three things to be essential. In priority order these are:
 - Establish clear and agreed commercial win-win outcomes so that all parties understand where they sit and no competition remains within the team.
 - Choose those people who are willing to work closely with consultants, contractors and clients independent of where they come from.
 - Ensure the team members have the skills and experience to create innovation and to do their jobs well.
- The Clear Harbour Alliance has used competitive procurement processes within the agreed TOC for significant elements of work. This includes the use of sub-contractors to tender for various elements and also the competitive tendering of material supplies.

2.3 DESIGN & BUILD

- As has been documented and discussed on previous occasions the use of the Design and Build procurement method within the water industry is appropriate for some projects. The author presented a paper on this to the Ingenium Conference in 2005.
- Since 2005, there seems to be fewer projects in today's water and wastewater treatment market being procured by Design and Build. The exceptions include Dunedin City Council which has recently completed two 3 Mld water treatment plants, West Taieri and Waikouiti. Interestingly there is a trend towards using equipment suppliers as the lead contractor in these cases. For larger water treatment plants there would be little or few D&B opportunities at present with few contractors with the experience to respond to these.
- In the wastewater treatment market, Dunedin City Council, Hastings District Council, Gisborne District Council, Pukekohe District Council and Manakau Water have all chosen not to progress using the Design and Build procurement method.
- The Thames Coromandel Eastern Seaboard wastewater treatment project used Design and Build for their three plant contract and this has been successfully delivered. However another North Island council which has tried to progress two small wastewater treatment projects using Design and Build looks to be struggling with the offers received.
- In today's tight market there is even more reluctance for contractors and consultants to spend large sums of money in the preparation of a D&B tender that has limited chance of winning. As one bridging contractor once said "I much rather prefer the old days where we used the standard bridge beam manual. I made a lot more money than bidding for D & B projects".
- In the area of wastewater treatment plants there seem to be fewer opportunities than previously for D&B and perhaps only two or three contractors may be interested in tendering.
- Design, Build Operate (DBO) procurement in comparison with Design and Build procurement more efficiently includes whole of life and operational costs of the project because these are procured competitively within the overall tender price.
- Detailed consent conditions limit the ability for innovation during tendering for D&B projects.
- D&B or DBO projects all need a good set of documentation of client requirements, an experienced procurement and evaluation team and an experienced overview during construction to ensure the appropriate solution is procured and the quality of the constructed plant is achieved.

- The choice of D&B or DBB is not a black or white decision. The use of D&B elements can be incorporated into a traditional staged DBB contract and likewise fully designed elements can be incorporated into D&B contracts.
- The bath tub diagram below of risk vs cost shows that the appropriate allocation of risk to each party best optimises the final cost outcome.



- Water industry Design and Build projects such as water treatment and wastewater treatment projects are sophisticated and complex projects to set up, document, tender and manage. In the author's opinion, many clients, consultants and contractors underestimate these complexities, such as optimal transfer of liabilities and risk.

2.4 TRADITIONAL STAGED DESIGN BID THEN BUILD (DBB)

2.4.1 PART ONE – GENERAL ISSUES RELATING TO STAGED PROCUREMENT

- This form of procurement is still by far the most common in the New Zealand water industry.
- Traditionally a client will manage the engagement of the consultant and the consultant will manage the engagement of the contractor. It is advisable therefore for the clients to proactively consult with the consultant industry more often and the consultants to proactively consult with the contracting industry more often, so as to better understand what factors most influence better procurement practices.
- Early Contractor Involvement (ECI) is to be encouraged and has real benefits in the staged procurement method. These benefits include advice on: build-ability, construction cost for budgeting purposes and determining realistic construction programmes.

However ECI is currently not commonly used. This is perhaps due to potential commercial conflicts of interest. The author once requested feedback from a workshop attended by the major contractors in the water industry on how ECI should be set up and used. One question was to ask whether the contractor should be paid for their inputs. Their response was that any payment for their time would be very small compared to the potential to lose the forthcoming tender by having given their best ideas away to their competitors. Their preference was for ECI to be used by engaging the chosen contractor early in the design process and then to carry on into the construction phase.

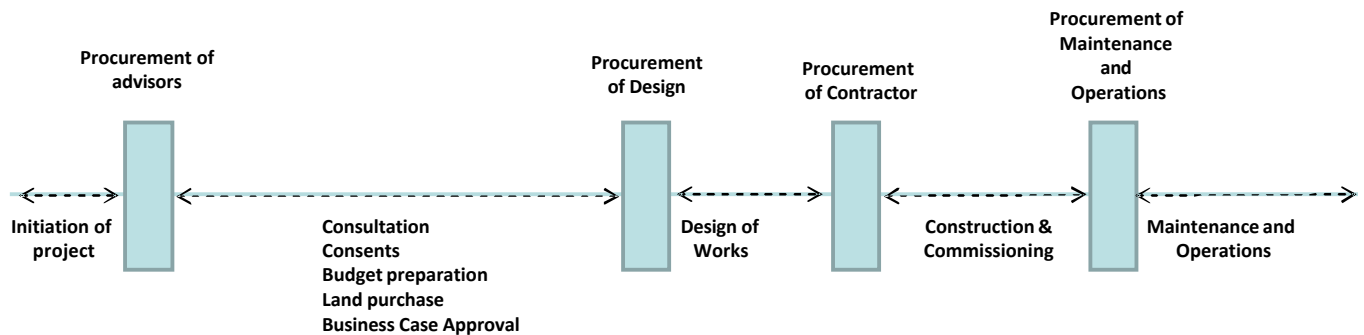
There are three client concerns with this approach:

- i. How does the client still ensure a competitive bidding process under the staged procurement approach once the project scope and design is known.
- ii. How does the client choose the best contractor at an early stage without possessing much or any commercial pricing information.

- iii. How does the client know that the proposed solution is the optimal independent physical works solution and not simply maximising the utilisation of the Contractor's particular plant and equipment.

It seems that more clarity is needed as to how ECI procurement can overcome these concerns, before it is used more frequently in NZ.

- For many staged procurement projects, procurement thinking starts when a design needs to be done or, having designed the project, a contractor needs to be engaged to construct the project. For some smaller staged delivered projects this works well. For most projects however, a more strategic approach to procurement is now required, or a least advisable.



The timeline in the above figure shows:

- There are potentially four separate procurement steps within the life of one capital works project.
- There is often a long period of time involved in purchasing land, gaining consents and gaining business case approvals.
- It is suggested that a procurement strategy for all phases in the lifecycle of the project be developed during this time. This enables a clearer understanding of how far the options design should go, how far the design should go, and how the maintenance/construction interface can be best managed. The project procurement strategy should be a dynamic document and reviewed during the project delivery at one or two risk workshops. These will refresh and align the team as to the best way to mitigate known and unknown project risks.
- An example of this is the process used for the TCDC Eastern Seaboard Wastewater Treatment project. An initial risk workshop was undertaken from which an initial project procurement strategy was developed. One challenge was to undertake a DBO procurement process but still work with an incumbent contractor undertaking all the Council's plant operations. In the end however a D&B project was agreed upon but with stringent tendering requirements to identify the optimal whole of life/operational cost tendered solution. Tenderers were evaluated equally on capital cost and whole of life cost. To test this, the treatment plants are being evaluated over a two year operations period to ensure that the consumables (power, chemicals, sludge production) are in line with the amounts quoted in the tender NPV. Further risk workshops throughout the project lifecycle identified other procurement issues. For example the procurement of design and construction services for the transfer sewer pipe networks to and from the new treatment plants was identified as a major project programme risk. In addition, the need for a Council biosolids disposal strategy was also identified.

2.4.2 PART 2 – PROCUREMENT OF CONSULTANT UNDER THE STAGED MODEL

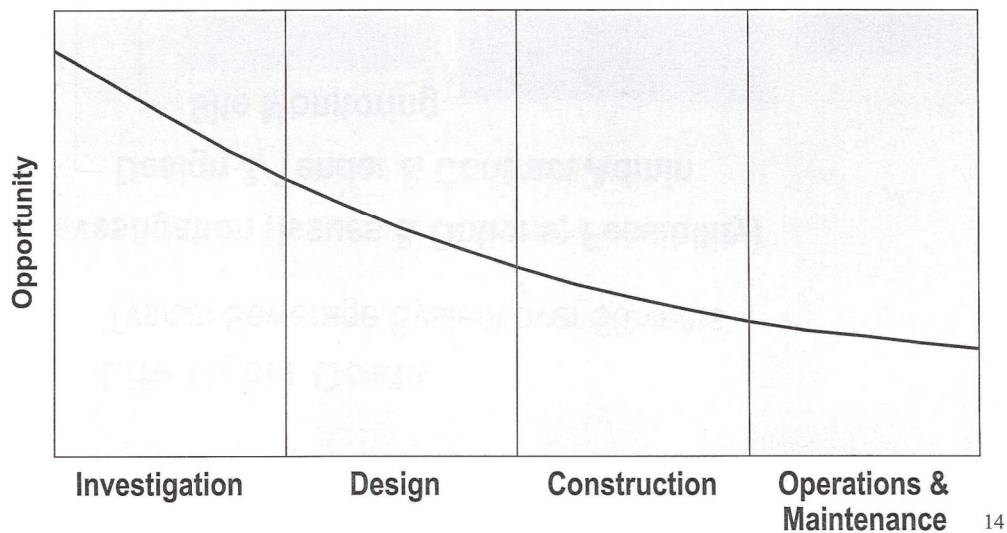
- The recently released NZTA Procurement manual allows professional services to have weightings of up to 70% on price. This together with the reduction in opportunities in the current economic climate and NZTA Managers encouraging low pricing will result in offers of service well below break even rates from many consultants.

This was of sufficient concern to senior NZTA staff that they discussed it with ACENZ. It was pointed out at that time that the consulting industry is looking for leadership from NZTA in the way their managers are engaging consultants.

- It is suggested that prolonged tendering by the consultant industry below break even is damaging to the sustainable long term health of the engineering profession as a whole. This occurred after the 1989 stock market crash.
- The wider industry expects professional engineering services that are:
 - Efficient - no wastage
 - Effective - the right solution to the right problem
 - Fair - fair reward to the profession for the value they provide
 - Sustainable - sufficient skilled engineers in the future
- The consulting industry has for many years advanced the argument that the procurement of professional services be primarily on a quality rather than cost basis.

As per the diagram below, the effort put in during the investigation and design phases provide the greatest return on investment to positively influence whole of life cycle costs of a project.

Opportunity to Influence Life Cycle Costs



Using a hypothetical project and choosing the following external cost to a client:

Land purchase	\$200k
Consents and consultation	\$800k
Consultants design and monitoring costs	\$500k
Physical works costs	\$5.0M
Ongoing operational/maintenance costs	\$5.0M

TOTAL \$11.5M

A low tendered consultant's fee of \$300k instead of \$500k represents a \$200k OR 1.8% saving of the total project cost. However this saving may well result in higher capital, operations or maintenance costs.

- Often it is the uninformed politicians or members of the community who drive expectations that lowest cost at the tender box for professional services gives the best value. It is up to the engineering profession to educate these lay people about the other factors to be considered.
- A major trend in the procurement of professional services is the establishment of consultant panels. These panel contracts provide many benefits for both the clients and consultants. These include:
 - the ability to change scope and embrace changes more easily
 - development of better understanding of client needs
 - development of a consistent set of project control procedures
 - the ability to take the learnings from one project into the next
 - the ability to identify future programmes of work early on so that sufficient appropriate resourcing is available when required.

The mutual commitment of resource availability and future work programmes has however come unstuck in several of these panel arrangements. With the downturn in future projected workloads from many Local Authorities, the premise of minimum levels of revenue to support the established teams is not fulfilled.

2.4.3 PART 3 – PROCUREMENT OF CONTRACTORS UNDER THE STAGED MODEL

- The engagement of Early Contractor Involvement has already been addressed elsewhere in this paper.
- There are now more options for the engagement of Contractors than there has been in the past. As well as the choice of procurement options summarised in this report's introduction (and as expanded on in the NZTA procurement manual), there are now options including NZS3910 Contract Conditions, New Engineering Contracts (NEC) and various FIDIC contract conditions. Which of these is used depends on the type of project and the experienced procurement practitioners knowing the pros and cons of each option.
- Countries such as the UK and South Africa seem to benefit from having a standard set of technical specifications which are included in physical works tenders. The benefit for the Contractor is that they become familiar with these requirements, understand how to best meet the standards, and do not have to worry about missing something deep within a large tender document. New Zealand would benefit from such an approach but there are few mechanisms which the water industry could avail themselves of in order to achieve this.
- A difficult decision for many clients is what size tender packages to put out to the contracting market. As many projects can be done more cheaply by smaller contractors, there is often a wish to continue to support smaller local contractors. This is balanced by the wish to reduce the interface risks within a larger project. An overview of the future programme of work will assist in balancing these conflicting requirements.
- On 16th July 2009, the Western Australia Water Corporation held an industry briefing. This provided an excellent overview of their capital works projections for the next four years. This information is often well presented in the New Zealand market through the publication of the Council's LTCCPs. In addition many Councils take the time to hold briefing sessions with the contracting and consulting industries. This practice should be encouraged and information collated in regional summaries of forthcoming work over the next three years.

- Managers of contracting businesses take their responsibilities regarding the Health and Safety of their staff and the public very seriously. It is possible that some clients and consultants during their procurement processes underestimate the importance of the Contractor to be allowed to fully recover their costs in encouraging good Health and Safety practices on their work sites.

3 BUSINESS PROCUREMENT CONSIDERATIONS

- Current legislation allows efficient delivery of engineering services between client, consultant and contractor organisations.
- Most forms of procurement delivery are currently allowable except for some financial aspects limiting possible PPP contracts.
- Local Authorities throughout the country outsource to external providers without perceived limitations but still retain the overall responsibility of providing services to the communities.
- Most Local Authorities find it beneficial to differentiate their procurement philosophies between delivery of asset maintenance management services and delivery of asset development services (capital works projects).
- Asset Development Services usually are for discrete projects with known objectives, fixed timetables and fixed budgets. These are readily outsourced to Alliances, Design Build, Target Cost or traditional staged Design Bid Build contracts.
- Local Authorities throughout New Zealand outsource their asset maintenance management services using a broad range of outsourcing strategies. These range from retaining all services in-house to outsourcing most asset maintenance needs, in order to avail themselves of private sector skills and efficiencies.
- In all circumstances there is a balance to be struck between retaining both ‘smart client’ skills and accessing the benefits of private sector skills and efficiencies.
- In order to consider outsourcing long term maintenance services, Local Authorities must first have good knowledge of the service level required and there must be limited levels of unknowns. Any variation of requirements within an existing contract term is usually obtained by paying a premium over services procured in a competitive market.
- Most long term contracts within Local Authorities are currently limited to around 10 years. When using a 10 year time horizon Councils should have:
 - i. a good understanding of the asset’s existing performance and condition
 - ii. a good understanding of future demographic changes anticipated throughout the term of the contract
 - iii. a good understanding of future communities expectation of levels of service, and willingness ability to pay
 - iv. robust, repeatable, measurable and meaningful Key Performance Measures and, from a reasonable period of historical data, know what these cost to deliver
 - v. no political or management changes of direction which could change asset usage patterns within the term of a contract
 - vi. the ability to prevent monopoly pricing regimes which may be seen by the community as their being held to ransom over the long term.

- Overall the preparation of the LTCCPs has shown that there is a good understanding of asset/community needs over the first five years with less understanding over the next five years. The author would suggest that there is only a limited understanding and a high level of unknowns for contracting out beyond 10 years.
- NZTA has requested each Council (RTA) to provide an overarching procurement strategy for roading delivery for the NZTA to approve. There is a risk that by default this Council procurement strategy will be used without appropriate changes for procurement of water, parks and reserves and property portfolios. It is suggested therefore that where necessary, Council's business procurement strategies be adapted. An example of this could be the criteria under which a Council would procure external services without going out to tender.
- Most clients in New Zealand have outsourced the provision of services for delivery of capital works projects. The bundling or not of some or all of the capital work programme needs to be part of an overall business procurement strategy. In deciding on the merits of outsourcing or not, it is suggested that clients discuss what works and what does not with other clients, and with consultants and contractors working in existing panel contracts. Independent agents who do not undertake the work themselves may not be in touch with all the issues to be considered.

4 SUMMARY

The suggestion that a strategic approach to procurement leads to best value for money spent will probably engender universal support.

There are good reasons why an overall procurement strategy for the delivery of a capital works programme should be developed. It is not clear however whether this strategy should lead the direction of an overall business procurement strategy or whether it is the overall strategy that should lead the capital works strategy. The answer to this may differ from business to business.

The considerations for preparing a procurement strategy are well laid out in the new NZTA procurement manual and augmented by comments and experiences from this paper. It is suggested however that some attempt to review the NZTA document as to its applicability to the water industry be made and differences in approach be identified.

Most of the procurement practices will remain with the traditional staged DBB approach for the foreseeable future. Very few PPPs, Alliances or even D&B projects will be procured in the New Zealand water industry in the near future. There is a need to calibrate some overseas models with New Zealand's industry's requirements. Specialist and experienced advice for sophisticated procurement techniques should be sought if considering the use of any of these methods.

The economic recession is placing pressures on client organisations, consultancies and contractors. The laws of supply and demand mean that lower tenderer prices will occur, however procurement practices should try to discourage the very low tendering as this is detrimental to the industry as a whole.

Using procurement practices as a blunt instrument will lower our sights.

“If you pay peanuts – you get monkeys”

Good procurement practice is more an art form than a science. Procurement strategies need to encourage the more lofty ideals of the profession as captured in this quote by Einstein.

“Scientists investigate that which is.

Engineers create that which has never been”

ACKNOWLEDGEMENTS

Don Young and Alan Hulley “The Cost of Procurement”, Ingenium Procurement Symposium 2007.

Luke Meys “Design & Build – Is it the Delivery Method of Choice”, Ingenium Conference 2005.

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