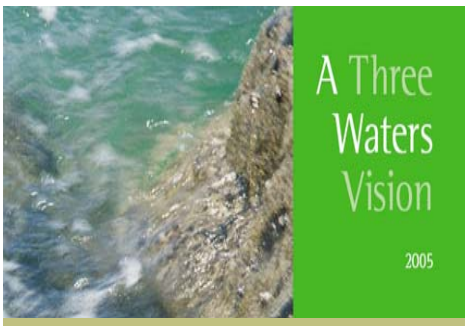
AMQ International

Strategic Asset Management

Issue 190 May 1, 2006



Auckland's Regional Water Strategy

Integrated Planning: A Solution to Regional Asset Management Problems?

Perhaps the major blockage to integrated regional planning is recognising that the challenges you are facing are not individual challenges. We started to look at this in the last issue of SAM "Renewal: Is the job now too big for us alone?"

Increasingly the future of asset management is becoming the future of regional and collaborative asset management. "To produce an asset management plan for the region might be expected to produce a long list of assets and their associated condition, age and risks, but this would add little value to understanding at a regional level. *The major differentiation between the individual approach and that of a regional plan is that of corporate governance*. " So says Simon Taylor, the Asset Management Planner for Auckland's bulk water services supplier, Watercare.

Watercare has been working hard to establish the value of regional solutions to the problems of capacity shortages and risk in water and wastewater services in the Auckland region. And they are having some success.

In this issue we look at the situation in Auckland and what they are doing about it in "Integrated Planning in Auckland" page 67

Also we ask whether looking beyond your planning period is (a) instructive (b) essential in "What if?" page 66

And we introduce Tom, GHD's quintessential Asset Manager. When we first meet Tom, he is up to his ankles in sewage. Read and Relate. "Tom's Bad Day", page 71

Enjoy and Consider!

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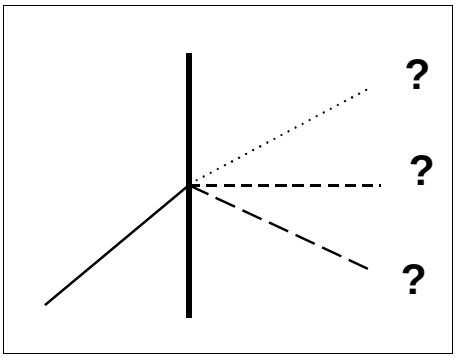
What if? (Or does Year '11' matter?)



If you were asked to prepare a forward asset program for your agency on the basis that demand would grow at 2% per annum for the next 10 years, could you do it?

What if you once we reached the end of the 10-year period, demand would continue to grow at 2%? Would your answer be any different? **What if**, demand remains stable from Year 16 on? **What if** it were to decline?

In other words, would it matter to you what the demand was outside the 10-year projection period?

Given that the assets you build now have a lifespan probably of a minimum of 30 years, and anything up to 100 years. And, given that the assets you build now create a level of expectation that is hard to change in the future, could you really be a Strategic Asset Manager and say 'No, it doesn't matter" Hardly!

So the longer-term future IS important to short to medium term planning.

If we do a ten year plan and we don't discuss, at least in general terms, what is likely to happen in ten+ years' time, we can hardly say that we are informing our communities, our decision-makers, let alone informing ourselves.

But the future is a slippery beast. It has a habit of changing shape, constantly. So how do we handle it?

The trick is not to try to pin it down to one shape—or one line, or point. But rather to look at a range of possible futures.

Is demand likely to increase/decrease/remain stable beyond the planning period? You don't have to know the answer, but you do have to do the work!

- What are the population projections? In your region?
- What are the drivers of demand for your services? Could these experience change?
- If demand is currently growing, are there limitations that may be reached—eg water supply, housing, land allocations. When could this happen?
- Is demand driven by government policy? Could this change? What might drive a change?

Develop a range of scenarios. What are the asset consequences of each?
The Asset Manager should know and advise!

Integrated Planning in Auckland

The Auckland region, with ten separate bodies involved in drinking water, wastewater and stormwater services, is having some success in taking a regional approach.

What can we learn from their experiences?

Simon Taylor, Asset Management Planner with Watercare, the bulk water and major bulk wastewater services provider in the region, writes about Watercare's work in seeking to establish a regional approach to future capacity shortages. These excerpts are from his presentation to the 9th Local Government Asset Management Conference in Auckland, April 2006.

1. The organisational situation

The Auckland water region is served by Watercare, the bulk water supplier has six local network operator customers. It is owned by the city of Auckland and the district councils of the Auckland region and serves 1.16 million people

Watercare is also the major supplier, although not the only supplier of bulk wastewater services. It supplies 76% of wastewater services the remainder is provided by two district councils, serving their own constituencies.

2. Capacity Shortages in the near Future

Water

Looking out to 2028 on the medium (most likely) Statistics New Zealand population projections shows that all existing water sources will be fully utilised and a new water source will be needed – at this stage, the location and volume of this future required source is not known. This future need presents a challenge – how should the region address the need for drinking water supplies?

Wastewater

Monitoring of overflows into the environment from the wastewater system combined with modelling indicates that the region is facing a shortfall in wastewater conveyance by the early to mid 2020s. Any solution can be expected to be regional as the key volumetric problems are central to Auckland – which happens to be the location furthest from the two points of wastewater treatment. A shortage of capacity presents a potential threat to human health and the environment. As most overflows occur in the harbours it could also be argued that they present an economic threat to the region too.

Risk

Increasing supplies of water also results in increasing demand for wastewater conveyance and with the age of the water system varying across the region the degree of 'leakiness' varies. In general, the older parts of the system have greater leakages

You can access more information about Watercare and its programs at www.watercare.co.nz

3. Need for Integrated Planning

With these pressures on water, wastewater and risk, integrated planning between the water businesses becomes essential, not just to deliver the assets that are required in a timely manner, but also to explore any opportunity that might mitigate the need for capital investment in a region already demanding more assets than can be realistically afforded. Reviewing previous water industry projects indicates that the most optimistic timescale for delivery will be some 15-20 years.

4. Some of The Challenges

- With both water and wastewater service capacity needing augmentation around 2025/2028 demand management looks like a reasonable thing to explore. Should one or more councils see demand management as a break on their ability to grow and expand, what is the regional answer?
- There is spare capacity in one of the council's wastewater treatment plants, could this be utilised on behalf of the wider region? What are the logistics? What are the costs and benefits to the owning council and the wider region? If there were resistance in the owning council what is the regional answer?
- Leakage control is one element of demand management but if the most aged and therefore leaky pipes are located in just a few councils, how are the cost/benefits of leakage control to be managed. What is the regional answer?

5. Answer in Corporate Governance?

To produce an asset management plan for the region might be expected to produce a long list of assets and their associated condition, age and risks,

but this would add little value to the understanding of the relationship between those assets and the service that they deliver at a regional level.

The major differentiation between the individual approach and that of a regional plan is that of corporate governance. No matter which model for asset management is chosen the challenge facing the Auckland region requires a step change to an integrated long-term strategic planning process.

What does it take to change the governance regime?

A successful change management process has a requirement for a number of factors to exist together. This can be shown as

C + V + L > I

Where

C is the business case
V is the vision
L is legitimacy and
I is inertia

See over the page for explanation of this change equation

To achieve the Vision

(1) A new form of governance is required

For the issues which are to be dealt with in common, for the common good, a new form of reporting, approval, sign-off and responsibility—a new form of governance—will need to be determined.

and

(2) A new form of co-operation is required

Under a strict wholesaler–retailer contract, each attends to his own problems and, working to the letter of the contract, a problem with the bulk water pipe Watercare could take up to 14 hours to repair.

Watercare is now working within a new, less formal, more co-operative, working relationship with North Shore City that has potential for gains all round.

In this case the **Vision**, articulated as "A Three Waters Vision" has found common acceptance. (this document is available on the Watercare website)

And the pressures on future water supply, potable water treatment capacity at peak demands and the impending need for greater wastewater treatment capacity provide a compelling **business case** for actions of some sort.

With the acceptance of the vision by all, recommendations from external expert bodies and Watercare's shareholders, the **legitimacy** for strategic planning may have reached the point where **inertia** will be overcome.

Added to this can be the understandable reaction from the public and government should a crystallisation point, such as a drought, drinking water quality failure or major pollution event occur, coupled with the knowledge that these risks were well understood!

Examples of an integrated planning solution

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1. Water Supply – Goal: Security for North Shore City Consumers

Objective: minimise inconvenience to customers at lowest cost.

Under the existing contract, if Watercare water infrastructure fails Watercare has up to 14 hours to repair. This could mean that consumers are without supplies for up to 14 hours.

Option 1 (Watercare working alone, not an integrated solution) To reduce that impact Watercare could invest in a duplicate infrastructure. Costs would be of the order of $10.8m.

An alternative option

(Treat North Shore City and Watercare network as one, implementing joint operational plans.)

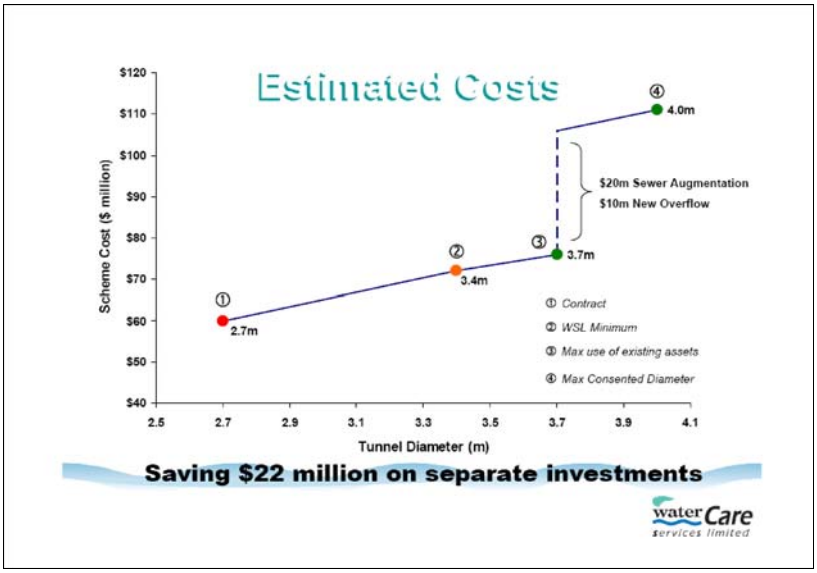
By joining the two networks, the smaller North Shore City pipes can be used to bypass any problem in the large bulk water supply pipe.

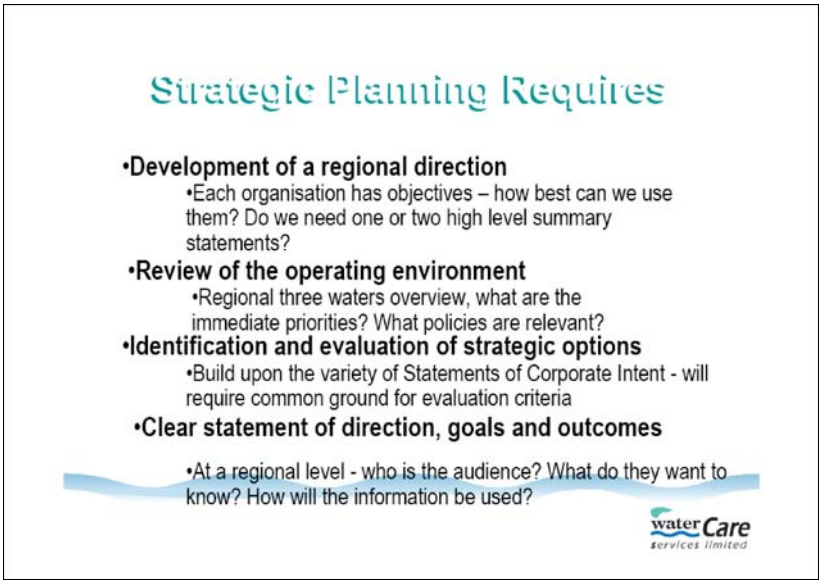
The outcome of this would be a total spend of $1.075m (Watercare $.06m and North Shore 0.475m) and consumers will not experience any loss of service should Watercare infrastructure fail. Thus a tangible benefit of operating one system saving potentially $9.7m.

What could be achieved by extending this to the whole of Auckland

The Hobson Bay sewer replacement.

The ageing sewer across the Hobson Bay (100 years old, held together with bailing wire and sprouting trees) is due for replacement. The choice of replacement was less about the type of asset to be built, as this is to be a tunnel, but more around the diameter of the tunnel construction that allowed Metrowater to redesign their wastewater overflow mitigation programme and therefore save money. Estimates of construction costs for separate programs of investment (Watercare's replacement of the ageing sewer and Metrowater's redesign) exceeded that of a modified design that would accommodate both organisations' needs.





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Tom's Bad Day

By Roger Byrne, GHD

It is twilight. Night is coming on fast. A light rain is falling; the temperature is in the 40's. Tom is standing in the mud in an over-grown field looking at his Jones Street lift-station. Raw sewage is flowing out of the pump station and across the street. An old pick-up truck has slid in the flowing sewage, swerved off the road and has hit the power pole up at the corner. The power is out. The police have been called and are starting to direct traffic. Tom is expecting a reporter to show up at any moment with a camera crew. Small electric generators are adding their whine to the din as temporary lighting is being hooked up.

Tom's emergency response crews are standing about with glum faces. The crew is waiting for an electrician who knows how to connect a large generator to the lift-station's motor control center. The generator has not yet arrived. While they wait, they would like to connect their small gas-powered pumps to the force main to divert the sewage from the storm drain, but the piping connections cannot be found in the field truck and the right fittings are not in inventory back at the warehouse. June, the Field Superintendent, calls Red, the local plumbing supply storeowner, and asks the owner to open his store to furnish the fittings.

Meanwhile the size of the violation builds as the sewage flows into the storm drain and from there into the river. Tom winces as he notes to himself that the river is the sole water supply for Anders, a small downstream community. To make matters worse, Tom just got a radio call advising him that AgriCrop, an up-stream local industry – and the major employer in the area – has just reported wastewater backups.

This, unfortunately, is the fourth major failure of a pump station in 18 months. Each of the other three failures resulted from equipment failures – an electrical problem in a control panel in one case, and a variable speed drive failure in another. The third failure resulted from the rupture of a section of the force main from a 50-year-old pump station. Each of these failures resulted in significant wastewater spills into storm drains that connect to the river. Two also caused wastewater backups into businesses and homes – both of which made the six o'clock news!

Tom has been a City employee for 16 years. He joined the City as a Supervisor, was promoted to Plant Manager after 5 years, and has been the Utility Director for just under 3 years. The City Manager that promoted Tom retired shortly thereafter, and the new City Manager's performance will be evaluated and the renewal of his employment contract will be addressed by the City Council in about 6 months. Both the City Manager and Tom took heat from the City Council about the two most recent pump station failures. Some Council members have asked why the utility maintenance program is not what it should be, and one even proposed that an outside management audit be conducted so the City could "fix its utility management problems."

The City's utility rates are reasonably competitive, and the City Council is proud of the fact that they have "held the line on rates" for four straight years. At a recent City Manager staff meeting, the Finance Director expressed concern that utility system failures may adversely impact the bond rating for a key bond issue

planned for next year. The treatment plants for which Tom is responsible have been meeting permit requirements – just barely in some months - but the Plant Managers have submitted CIP project requests for significant additions, modifications and replacements and have justified these on the basis of unit age and anticipated permit requirement changes.

Tom has noticed an appreciable increase in the number and severity of sanitary sewer overflows in the collection system, and is concerned about SSO & CMOM compliance. He is also concerned that enforcement actions are looming as a result of the previous pump station failures. Since he became Director, Tom has been limited to annual O&M budget increases that merely added minor inflation allowances to previous year's budgets. Thus far, his requests to the Budget Director for capital improvement projects have faired pretty well – due largely to the fact that they were small, he suspects - but additional projects will likely trigger the need for rate increases.

Tom knows that he is "under the gun," and that this lift-station failure will serve to "turn up the heat." Tom's discussion with the City Manager early the next morning confirms this. Following that discussion, Tom calls an ad hoc staff meeting where he demands answers. Unfortunately, all he gets is more bad news.

The maintenance budget for this year is already 12% over-expended – with two months to go before the fiscal year ends. This emergency will likely put the whole department in the red. On top of that, his two most senior field people are leaving – one just won the lottery, the other is taking early retirement due to illness.

Tom has a sleepless night. It's been a bad month. In fact, if the truth were known, it's not been such a hot couple of years. Tom realizes that things are simply getting out of hand. It's clear that he and his team are simply not in control of the system – events are overrunning him and his management team. He knows he must take action, or he is certain that someone else will. But what action? He finally nods off thinking, "We can not keep doing things the same old way and expect different results… and I can not be the first person to ever face and solve these kinds of problems. I've got great people… but our infrastructure keeps failing…!"

There must be a better way of running a utility!

Watch for the next installment!