

BEFORE THE MANAWATU-WANGANUI REGIONAL COUNCIL

UNDER Resource Management Act 1991

IN THE MATTER of submissions on the Manawatu-Wanganui Consolidated Regional Policy Statement, Regional Plan, and Regional Coastal Plan for the Horowhenua, Manawatu, Rangitikei, Ruapehu, Tararua, and Wanganui District Councils

AND

IN THE MATTER of hearings by the Manawatu-Wanganui Regional Council regarding the Manawatu-Wanganui Consolidated Regional Policy Statement, Regional Plan, and Regional Coastal Plan – Water

EVIDENCE OF DAVID JAMES BRIDGES

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INTRODUCTION

1. My full name is David James Bridges. I am the Principal Engineer of Good Earth Matters Consulting Limited, an environmental engineering, asset management, planning and resource management consultancy practice based in Palmerston North and Christchurch.
2. My professional qualifications are Bachelor of Engineering (Civil), New Zealand Certificate of Town Planning and a Post Graduate Diploma of Business Administration. I am a Chartered Professional Engineer (CPEng) and a Fellow of the Institute of Professional Engineers of New Zealand (FIPENZ). I am also a certified independent Hearings Commissioner.
3. I have been engaged in environmental engineering and resource management practice for 31 years, with particular emphasis on wastewater, water, stormwater, and solid waste management. This practice has included investigation and auditing of environmental compliance, advising on options for achieving environmental compliance, preparing assessments of environmental effects to support resource consent applications and undertaking detailed design, construction, commissioning and compliance auditing of infrastructure capital projects.
4. My directly relevant experience includes 20 years experience consenting takes and discharges, designing and managing infrastructural upgrades, managing compliance and auditing performance of infrastructure upgrades for the public and private sector in the Manawatu-Wanganui region and throughout the lower North Island and South Island. Currently, I am directly responsible for some 10 - 12 takes or discharges at various stages of the investigation, consenting or implementation phase, comprising both private and public sector works.
5. I confirm that I have read and am familiar with the Code of Conduct for Expert Witnesses in the Environment Court Consolidated Practice Note (2006). I have approached the preparation of this evidence in the same way that I would for the Environment Court. I agree to comply with the Code of Conduct.

6. The evidence I am about to give is within my area of expertise and represents my best knowledge about this matter. To my knowledge, I have not omitted any material facts that might alter or detract from the opinion expressed here.

SCOPE OF EVIDENCE

7. My evidence will cover aspects of the submissions made by the Manawatu, Tararua, Horowhenua, Rangitikei, Wanganui and Ruapehu District Councils and Palmerston North City Council ("the TAs") in respect of the Manawatu-Wanganui Regional Council's Proposed "One Plan" ("the One Plan") as follows:
 - Integration;
 - Importance of a whole of catchment approach whilst avoiding a one size fits all approach;
 - Providing for reasonable and foreseeable community use;
 - Provision of specific status for community infrastructure;
 - Consideration of alternatives;
 - Apportioning, restricting and suspending of takes; and
 - Use of common catchment expiry dates.

INTEGRATION

8. As creatures of statute, territorial authorities have statutorily defined obligations and responsibilities. In respect of water these are contained in statutes including the Resource Management Act 1991, the Health Act 1956 and the Local Government Act 2002 ("LGA'02").
9. It is my experience that the Ministry of Health is focussed on public health; territorial authorities must be alert to issues of affordability (rates), while Regional Councils are focussed on ecological issues.
10. In my view, regional planning documents that do not sufficiently provide for existing community infrastructure as part of the existing natural and physical environment, place an undue financial burden on communities.

11. By way of illustration, at times of low flow the continuation of surface water takes for community water supplies may be in conflict with consent conditions, unless those conditions have been drafted with due regard to the need for ongoing supply when on occasion, optimal flow for ecological purposes cannot be maintained. In my experience, this can be particularly acute in older rural communities throughout the Manawatu-Wanganui region with which I am particularly familiar. I acknowledge that making adequate provision in plans for such circumstances should not preclude an opportunity to use the resource in an effective and efficient manner in accordance with best practice.
12. By way of illustration, in times of low flow, the TAs must continue to meet their obligations under section 130(2) of the Local Government Act 2002 and continue with surface water takes for community water supplies. Those takes may, however, be in conflict with consent conditions and the provisions of the RMA (section 5). A Regional Policy Statement and Regional Plan reflecting best practice will recognise and provide for such eventualities in a manner that is both affordable and sustainable for the community concerned.
13. The policy framework should allow for:
 - (a) Community well being, in particular the provision of infrastructure, as an issue of regional significance, which needs to be addressed on a catchment wide, as opposed to a site specific, basis;
 - (b) The management of resources through planning, as opposed to management through consents;
 - (c) A relationship between social, health related, economic, and ecological goals, which should be better addressed through the policies and plan provisions of the Proposed "One Plan";
 - (d) Balance, which must be achieved in light of the four well beings (for example s10(b) LGA'02) and the need to provide for sustainable communities.
 - (e) A clear distinction between goals (things to be strived for over time) and policies to be applied during the currency of a particular plan.

- (f) Appropriate timeframes to transition to new outcomes that have been established as a consequence of adopting specific policies.
- (g) Recognition that such timeframes need, in respect of community infrastructure, to extend beyond a plan's life given the asset lives that are typically associated with such infrastructure.
- (h) Recognition that demand for the resource is not driven through averages but in terms of peaks and seasonality.

IMPORTANCE OF A WHOLE OF CATCHMENT APPROACH AND AVOIDANCE OF A ONE SIZE FITS ALL APPROACH

- 14. The Manawatu-Wanganui Regional Council ("Horizons") has interpreted a whole of catchment approach to mean that numerical standards should be applied uniformly to all freshwater bodies within a particular zone or reach irrespective of the value, or otherwise, of a specific body.
- 15. Not all water bodies are of equal significance or importance, either in terms of takes or discharges. It is the cumulative effect on the catchment as a whole that is significant. In my opinion, it is unreasonable to require all freshwater resources to meet the same water quality, environmental flows, and allocation standards, irrespective of effect on the environment as a whole.
- 16. An example that illustrates the importance of acknowledging existing community infrastructure as part of the physical and natural resource is that of the Woodville water supply, managed and operated by the Tararua District Council.
- 17. The water supply comprises a gravity take from the Mangapapa Stream at a maximum extraction rate of 72 m³/hr when the flow is greater than or equal to 0.17 m³/sec and 54 m³/hr when the flow is less than 0.17 m³/sec. Water is fed directly to the treatment plant or a detention dam. The concrete weir and intake structure was constructed in 1903 and subsequently modified/strengthened in 1938, 1967, and 1987. My personal knowledge of the system dates from 1986.
- 18. Obtaining sufficient water to meet community needs and water harvesting requirements whilst maintaining ecological flows is difficult under the current consent conditions,

particularly if low flow conditions prevail for longer than 40 - 50 days, and would be extremely problematic if the allocation provisions of the One Plan are implemented.

19. The point I wish to make is that we are dealing with a historically modified catchment, which, under the proposed provisions of the One Plan, Horizons is seeking to restore and enhance from an ecological perspective.
20. To deal with the need to maintain ecological flows, meet consent requirements, and to comply with its obligations under the LGA'02, the simplest solution for the Council is to consent a take from the Manawatu River. This would require a pumped rising main from the river to the treatment plant, a distance of 4 - 5 km. Capital cost would be of the order of \$1 - 1.25 million along with associated ongoing pumping and operational costs.
21. The outcome would be significant additional capital and operational costs to achieve compliance but without any net environmental benefit, if the effects are considered on a catchment wide basis.
22. I am of the opinion that the historic takes for community infrastructure need to be separately recognised within the One Plan and provided for through the use of grandparenting clauses and adaptive consents which require improvements over time. Such provisions will ensure that the existing environment is maintained, and over time enhanced.

PROVIDING FOR REASONABLE AND FORESEEABLE USE

23. Providing for foreseeable use raises a number of issues including:
 - What constitutes "reasonable" use?
 - What should be reserved or banked for future growth?
 - Should priorities in terms of allocation be set?
 - How should any such priorities be determined?
24. In New Zealand there is a desire to attach a "number" to reasonable use. I consider that this is too simplistic and that a much more sophisticated approach is required. Factors contributing to community well being include:

- Basic human needs;
 - Discretionary human needs;
 - Operation and maintenance of community facilities;
 - Operation and maintenance of sports grounds and recreational facilities;
 - Community landscaping and amenity provision;
 - Open public spaces;
 - Tourism and tourism based activities;
 - Age of housing stock and infrastructure;
 - Production of potable water and sewage plant operation;
 - Climate and geographic location;
 - Soil characteristics;
 - Commercial, manufacturing and industrial use;
 - Hospitality industry;
 - Community size; and
 - Provision for future growth and development.
25. Y Zhou and RSJ Tol in their paper "Economic Analysis of Domestic, Industrial and Agricultural Water Demands in China" (Water Science and Technology: Water Supply Vol 5 No 6 pp 85 - 93), investigated, among other matters, factors influencing domestic water use. They concluded that these factors included income, precipitation, temperature, available water resources, family size, water price, and geographic location. This paper is simply one example of an increasingly sophisticated approach being adopted by a number of overseas countries and reflects the extent of research being undertaken.
26. A key local government function is to provide for sustainable communities and their reasonable and foreseeable future needs. The One Plan needs to ensure through the policies and rules that local government can fulfil this statutory obligation.
27. In my view, the adoption of the Ministry of Health derived figures of 250 or 300 L/person/day as necessary to meet domestic needs is unhelpful because it focuses

simplistically on basic human needs. Further, it has been based on the existence of new developments with typically small sections (500 - 600 m²), new reticulation, and dwellings containing water efficient, low consumption appliances.

28. There is a significant disconnect between the communities that the Ministry of Health derived figures purport to represent and the communities within this Region. These communities are typically characterised by their age, the age of their infrastructure, the age of their housing stock, typical section size (1/4 acre), and an absence of water efficient devices.
29. A key issue is the lack of accurate and informative data on actual usage. For example for one water take that renewal of consent was being sought 3 years of data, when analysed provided only 3 months of data that could be relied upon.
30. In my view, it would be extremely helpful for the One Plan to provide guidance as to the processes that could be used to identify reasonable use and foreseeable needs. One size will not fit all. Further, in my experience, smaller rural Councils (as opposed to large metropolitan authorities) will face particular difficulty if this does not occur. Their infrastructure and population base neither warrants nor can afford the arbitrary application of 'numerical' thresholds for allocation and such an approach will jeopardise their future economic and community sustainability.
31. In my opinion, providing for communities' reasonable and foreseeable needs is of fundamental importance. To do so requires all of the factors listed in paragraph 33 to be provided for. This requires consideration of values and a judgement to be made concerning the allocation of water. The policy framework needs to allow for and reflect this.
32. The TAs only have a limited number of tools to manage or influence demand including auditing of large users, charging, pressure management and water restrictions. My experience in 2008 in Dannevirke and Eketahuna indicates that restrictions and education programmes have a very limited effective timeframe before use reverts to or exceeds normal levels.
33. Unfortunately identifying a "reasonable" per capita consumption figure for community water supplies, and consenting takes to match this number, achieves little, because the

Councils have such limited tools available for reducing demand to that level if they exceed it.

34. The argument for a "number" is that "surplus" resource can be allocated for more efficient use by others. However, if allocation to others means that a community has to invest heavily in water harvesting or the development of alternative sources of supply then a full and comprehensive analysis is required to establish whether in fact the reallocation is effective, achievable, and sustainable from a community perspective, and over what timeframe.
35. In the case of the Dannevirke water take from the Tamaki River, the average demand is below the currently consent daily volume but greater than the proposed core allocation and the reasonable use as per the One Plan is 12% below the current average demand.
36. If the Council wishes to make up the shortfall it needs to find an additional source of supply or undertake water harvesting. The cost of doing so is likely to be of the order of \$2-4 million.
37. It appears to me that a more relevant approach to managing demand and land use development would be to recognise infrastructure capacity (not actual usage) as the current position (in respect of the use of natural and physical resources) and use this as the baseline for the allocation of natural and physical resources for community use.
38. Feilding Township is a useful illustration. In the last 3 or so years it has lost 2 wet industries and that capacity has not been taken up by others. If a "use it or lose it" approach is adopted, the Council has no ability to attract and cater for new wet industries or indeed any growth and development.
39. The way forward, in my view, is to adopt an approach similar to that taken by Environment Waikato and "grandparent" takes and discharges, consent community infrastructure for the maximum allowed duration of 35 years, build in allowances for growth that are guaranteed as of right, and recognise the provision for and operation of community infrastructure as a controlled activity. The other side of the equation is that the Local Authorities need to progressively improve the effectiveness and efficiency of their systems.

PROVISION OF SPECIFIC STATUS FOR COMMUNITY INFRASTRUCTURE WITHIN THE ONE PLAN

40. The One Plan establishes an environmental bottom line for the allocation of natural and physical resources. How the balance of the physical and natural resources are used and/or made available through allocation systems is a matter that should be determined by the community through consideration of values and priorities.
41. The One Plan as it currently stands has the potential to create significant tensions between Regional and Territorial Authorities in the exercise of their various statutory and regulatory functions.
42. The TAs commend Horizons for initiating the development of the One Plan as an enabling document for the region, with a key focus on achieving environmental outcomes that will support the region's economic and social goals. The concern is how these goals can be achieved in a manner that is both affordable and sustainable for the community as a whole. This matter has not been addressed in the One Plan.
43. A key role of the TAs is to construct, operate and manage infrastructure so as to provide agreed levels of service in the most cost effective manner for both present and future generations. In undertaking this role, the TAs' staff must:
 - Support their Council's role as steward of infrastructure on behalf of its community; and
 - Ensure, that in doing so, the social, economic, environmental and cultural well being of communities is promoted.
44. Given the essential nature of infrastructure, the long term nature of communities' investments, and the need to provide for both the present and future well being of the communities being served, the provision of community infrastructure requires a special status within Regional Policy Statements and Plans.
45. Given that, as a matter of law, the TAs are unable to cut off, suspend or stop providing an existing water service, and given that they have limited tools with which to control demand, other than through indirect means, a precautionary approach is required in

terms of how best to allow for the use of natural and physical resources for community consumption.

46. I am of the view that this can best be achieved by acknowledging community infrastructure by way of separate status within the One Plan, and providing for priority of allocation of community infrastructure ahead of all other allocations, after allowing for environmental flows.

EFFICIENT CONSUMPTIVE USE

47. There is a significant lack of clarity around what may or may not constitute efficient consumptive use. The emphasis appears to be on what I refer to as technical efficiency and ignores an integrated approach to consideration of effects and outcomes. For example, if freshwater is allocated for irrigation and to intensive land use, a degradation of the freshwater resource may be a consequence of this decision. This may not represent an overall efficient consumptive use of the resource.
48. Further, if a consequence of allocation is to require the community to invest significantly in additional infrastructure to meet existing consumptive needs this also may not represent an efficient overall use of resources.
49. The team, that I led, that developed an economic growth strategy for the Tararua District Council identified that the greatest economic benefits for a region arose from attracting manufacturing and processing industries. Conversely, intensification of land use or changes in land use were least effective in generating an overall economic benefit. Availability and access to community infrastructure was clearly a strong driver in terms of community sustainability.
50. As discussed in paragraph 38 above, Feilding has lost 2 wet industries (Feltex and McCains) in recent years. The Manawatu District Council needs to retain the ability to attract and provide for replacement processors, but also agrees that excess water should be made available for short term beneficial use by others.
51. I suggest that the One Plan set out a transparent framework and process, which takes account of the economic, ecological and community benefits and costs, for evaluating efficient use and for determining efficient consumptive use. Such a methodology needs

to take account of individual community situations as opposed to a one size fits all, and reflect the matters identified by me in paragraph 24 of this evidence.

52. Consider Mangaweka Township for example. The township has approximately 60 residents and its existing infrastructure is aged and in poor condition. Average water consumption on a per capita basis is 750 L/person/day, which by all standards is considered high.
53. To renew the infrastructure and drive efficiency of use would incur significant cost to the community, but, in terms of integrated management of the resource, it would make absolutely no difference. Mr Kirby elaborates on this in his evidence.
54. My understanding is that an Environment Waikato model of grandparenting existing takes, as discussed in the preceding section above, together with a periodic review process, would allow resources not required to be allocated to others on a short term basis, but would guarantee that those resources would be available within the consented framework when required. This seems to me to be a pragmatic and effective process that the "One Plan" should embrace.

CONSIDERATION OF ALTERNATIVES

55. I understand and acknowledge the science underpinning the environmental baseline and ecological flows and do not dispute it. I am concerned with how the science is being interpreted and applied, particularly in the instance of historical takes in sub-catchments ,which are heavily modified.
56. A recent case handled by my office involved a variation of a consent to take water for the Eketahuna community.
57. The water supply concerned has been relied upon by that community for about 80 years. A continuation of the take at the historically consented levels will not cause a degradation of the environment. This coupled with the fact that there are no readily available alternatives such as groundwater begs the question of what in fact are the issues that need to be addressed. Indeed, the Council has progressively been eliminating leakage and ensuring the farm takes are operated within the terms of the consent. The consequence is that there has been a net improvement in the environment through a reduced take.

58. Groundwater and water harvesting are being promoted strongly as alternatives to surface water takes for community infrastructure. In Eketahuna's case, there are no known ground water resources. Even if these were for cost reasons alone the Council would wish to retain a surface take as the community's primary water source. Mr Richard Kirby addresses the matter of surface water takes vis a vis groundwater takes in his evidence for the TAs.
59. With regard to water harvesting, this is potentially a viable, albeit expensive strategy. There are two significant issues, in my opinion, that proponents of water harvesting neglect to consider.
60. The first is that, ideally, water harvesting needs to occur during "normal" flows to avoid sediment accumulation in the impoundment dams.
61. The Almadale intake, which takes water from the Oroua River for the Feilding township water supply, illustrates the above point well. The take passes through a settling pond/impoundment area before flowing to the treatment plant. The accumulated silts have to be removed at regular intervals of 6-18 months depending on river conditions. This accumulation is significant and could be expected to be typical of any water harvesting regime from surface waters in the region.
62. The second is that impoundment water requires intensive management, particularly if the source water is nutrient rich promoting algal blooms in the impoundment dam. Impoundment dams also tend to attract wild fowl, adding to the nutrient load and contributing faecal contamination. Nutrients are a specific management issue because there are long periods when the water is not "turned" over and there is significant potential for nutrient accumulation.
63. I am generally supportive of water harvesting as a management tool. However, if Horizons views water harvesting as a viable management tool it needs to be provided for within the allocation framework, and in a manner that optimises its viability and sustainability. This requires a clear understanding of the how and when mechanisms for water harvesting.

64. In my view the optimal range for water harvesting falls within the range of the variable ecological flows that the One Plan is seeking to preserve through its allocation framework.

APPORTIONING, RESTRICTING AND SUSPENDING OF TAKES

65. Apportioning, restricting, and suspending takes at times of low flow is a very problematic issue for the TAs. There is no disagreement that all parties must minimise use at times of low flow.
66. However, short of shutting off the supply and the use of tools such as pressure management, the TAs have very limited options for managing demand. Those tools that exist rely upon the co-operation and willingness of the general public being supplied with the service.
67. The other issue is that the One Plan focuses on average consumption and norms. Unfortunately peak demands typically coincide with low flows.
68. The challenge for the region is to create a regulatory and management environment that does not result in TAs being regularly in breach of consent conditions. The bottom line is that the TAs can not suspend supply.
69. My experience is that demand management initiatives will result in a short term drop in demand (typically over a 2-3 week period) but after that the demand creeps back up. Although the timeframes are different this is very similar to the response to the introduction or change in waste disposal charges.
70. As stated elsewhere in my evidence, I am of the view that the way forward is for existing takes to be grandparented and aligned with demand management, and demand reduction strategies developed on a community by community basis.
71. My colleague Ms Annette Sweeney will amplify and expand on the allocation challenges presented by the One Plan provisions as they currently stand.

USE OF COMMON CATCHMENT EXPIRY DATES

72. As I have discussed elsewhere in my evidence, I believe that community infrastructure should be provided for by way of specific status within the One Plan. If this is adopted and a similar approach taken to that of Hamilton City in respect of consent duration, then the issue of common catchment expiry dates is not relevant.
73. If the Commissioners do not see merit in providing specific status for community infrastructure then I am of the strong view that community infrastructure should be specifically excluded from common catchment expiry dates.
74. The only reason for having common catchment expiry dates is to rework the allocation regime, which is only necessary if objectives, policies, and rules are inadequate.
75. The implication for the TAs is one of cost and uncertainty for activities that, under statute, they are required to continue to provide.
76. Individual applications must be heard and assessed on their merits. In my view the use of common catchment expiry dates will simply create a drawn out and costly exercise that requires all parties to cross submit in order to protect their individual rights. In the particular case of community infrastructure this would be an unwarranted and expensive pathway.
77. The recent experiences with New Zealand Pharmaceuticals, PPCS, and Horowhenua District Council (Shannon) discharges indicate that the views expressed above are real.

CONCLUSIONS

78. It is noted that Regional Council officers are recommending amendment to the policy and rule framework in some areas to provide more certainty for community infrastructure.
79. However, significant concerns exist around the priority to be afforded community infrastructure, the aspirational goals, as highlighted in Ms Barton's evidence, the determination of values and the manner in which they will be applied or interpreted, the process for providing for reasonable and foreseeable use and consideration of alternatives.

80. I suggest that:
- a. Community infrastructure be afforded separate status within the RPS and Regional Plan.
 - b. Existing takes and discharges be "grandparented" and linked to timelines for continuous improvement of environmental outcomes which reflects best practice for cohort communities.
 - c. Community infrastructure, subject to performance be able to be granted 35 year consents within an adaptive consent condition framework.
 - d. Methodologies as opposed to hard number be adopted for determining what constitutes actual and reasonable use.
81. I am firmly of the view that the way forward is for existing takes to be grandparented and aligned with demand management and demand reduction strategies which are developed on a community by community basis.

David Bridges
19 October 2009