



Submissions Report
Water Supply Augmentation Project

August 2010

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Table of Contents



- Executive Summary i**
 - Aim of this Report.....i
 - Backgroundi
 - Processi
 - Submissions Report ii
- Aim of this Report 1**
- Background..... 1**
 - History..... 1
 - Integrated Water Cycle Management Strategy (IWCM) 1
 - Water Supply Augmentation Project..... 1
 - Process 2
 - Water Augmentation Options 2
 - Water Supply Augmentation Options Report..... 2
 - Community consultation 3
- Public Participation 3**
 - Submissions..... 4
 - Submissions received..... 4
 - Issues raised 8
 - Public information sessions..... 9
 - Tweed Heads Public Information Session 9
 - Murwillumbah Public Information Session 9
 - Pottsville Public Information Session..... 9
 - Issues raised 9
 - Community Working Group..... 10
 - CWG Report..... 10
 - Issues raised 10
- Discussion 11**
 - Summary of issues and responses 11
 - Detailed issues and responses 14
 - Methodology 15
 - Issues and responses table 15
- Appendices 49**
- Appendix A – Detailed Issues Table 50**
- Appendix B –Notes from Public Information Sessions..... 87**



Executive Summary

Aim of this Report

This report consolidates all feedback on the Water Supply Augmentation project received by Council from the Tweed community between October 2009 and May 2010.

Background

The Water Supply Augmentation project aims to ensure the ongoing security of the Tweed's water supply in the face of projected population growth.

Council's Demand Management Strategy highlighted that despite significant reductions in per capita water use (40% since 1992 plus equivalent planned future reductions) ongoing population growth will cause the existing water supply capacity to be exceeded.

The Water Supply System will require augmentation, probably some time between 2018 and 2023, depending on actual population growth and the success of demand management.

Process

A staged process has been followed which aims to ensure a wide range of options is considered, and that decisions are made based on information commensurate to the risks associated with that particular phase. The process aims to provide Council with the information and confidence it requires at each phase to make decisions that will reduce future risks.

Water Supply Augmentation Options Report

A Water Supply Augmentation Options study is being undertaken to determine the best way to augment the water supply to meet the Shire's needs until the end of the planning period in 2036. The first stage Coarse Screen Report identified nine options for analysis and ranked these options using multi criteria analysis (MCA).

The current phase 'Fine screen' assessment will determine which of the above options may be suitable for augmenting the water supply and which are not. The Fine Screen Report is informed through detailed studies and information from a comprehensive Community Consultation. The detailed information has been sourced through:

- Additional consultants reports focusing on environmental, cultural heritage, planning, and costing issues
- Consultation with stakeholder groups including potentially affected landholders, the Aboriginal community, government agencies, and community groups
- Consultation with residents and the Tweed community through a comprehensive six month process; including facilitation of an independent Community Working Group
- Improving ways for the community to provide feedback and submissions through a designated email address and Freecall 1800 number

This report consolidates all feedback on the Water Supply Augmentation project received by Council from the Tweed community between October 2009 and May 2010.

Community Consultation

The community was informed about the proposal and their feedback sought through the following avenues:

- Daily News advertisement on 28 January 2010, Tweed Link advertisements and articles on 26 January, 9 February and 16 February 2010, and media releases 12 January, 2 February 2010 inviting comments from the community and inviting the community to attend information days at Tweed Heads, Murwillumbah and Pottsville.
- A Community Working Group comprising of key representatives from the community met five times over a four month period to debate and discuss issues. The CWG produced a report of recommendations which informed the process.
- Council has attended regular meetings with the Aboriginal Advisory Committee and the Aboriginal Community.
- Three Community Information Sessions were held from 2pm to 7pm at:
 - Tweed Heads, Wednesday 10 February 2010
 - Murwillumbah, Thursday 18 February 2010
 - Pottsville, Tuesday 23 February 2010
- Free call 1800 telephone line enabling the public to have their questions answered and to take the effort out of writing a submission by making a 30 second verbal submission.
- Designated email address WaterTSC@tweed.nsw.gov.au to enable the community to contact Council's Water Unit directly.
- An Interested Parties Register to keep people and organisations informed of developments either by email or regular post. Over 100 people are registered and 13 circulars have been distributed.
- Council has made presentations to community groups including the Murwillumbah Rotary, the River Catchment Catch-up, the Aboriginal Advisory Committee, an open meeting of the Aboriginal Community, the Tweed River Committee, and Government Agencies.
- Multiple factsheets and reports to inform the community
- All factsheets and reports available online or at Council offices and libraries
- The date for submissions was extended following a request by the Community Working Group (CWG) to allow additional time for the community to make submissions

Submissions Report

Public feedback

There has been substantial public interest and feedback during this phase of community consultation and public exhibition, although compared to the overall populace the response is still very low, and it is unclear whether responses are representative of the views of the Shire's community.

Council has received community feedback from:

- A total of 159 submissions were received. One hundred and forty-six (146) of these were received by 30 April 2010 and another thirteen (13) submissions were accepted as late submissions.
- A total of approximately 40 members of the community who attended the three information sessions (Tweed Heads, Murwillumbah and Pottsville) to discuss water issues including demand management.

-
- The Community Working Group provided recommendations regarding the options and Council's approach.
 - Over 60 phone calls were received by the 1800 Freecall telephone service centre relating to demand management issues.

Issues raised

Issues raised by these respondents included concerns about:

- Population growth, population projections and the carrying capacity of the Tweed
- New developments should be required to be more sustainable.
- More focus on demand before supply: Water substitution and alternative water sources should be pursued, and Council to support rebates and retrofits.
- Better education, higher water pricing, and communication of water use required. Meter individual dwellings in Retirement Villages and Multi-Unit Complexes
- An independent review of Council's approach to water required
- The adequacy of the CWG and community consultation. The need for a mechanism to better engage the broader community.
- The appropriateness of the starting point for the consultation process
- Understanding that there is a need for augmentation. Each of the four options has benefits and disadvantages

The full report provides further detail on these issues.

Responses to issues raised

Many of the submissions repeated or raised similar issues. Council received 159 submissions, containing over 1000 individual matters or issues. The CWG report and the Community Information Sessions also raised a number of similar matters for consideration.

Due to the volume of issues raised, they were paraphrased and grouped for presentation purposes. In many instances the text is a combination of the most representative and significant wording from individual submissions. The name of entities that raised the same or similar issue were recorded next to the paraphrased text. This produced a list of some 400 issues which are contained in Appendix A.

These issues were then grouped further under header issues according to content (header issues are in grey in Appendix A). The full list of 97 header issues is contained in the discussion section of this report.

Upon review of the complete list of issues raised, the major issues of significance have been consolidated in the table below. High level responses and discussion to these issues are also provided.

Issue	Response
<p>Issues 1 - 4</p> <p>Population Issues</p> <ul style="list-style-type: none"> - population restrictions / carrying capacity - population projections used - population is pushing augmentation 	<p>A number of population planning issues outside of the scope of the project were raised, including determining the region's carrying capacity and restricting population growth. These would need to be addressed by the relevant local, state and federal planning instruments.</p> <p>The accuracy of population projections was questioned. Council's projections were based on the sum of development area staging over the next 30 years and is considered more reliable than using annual percentage growth rates.</p> <p>Augmentation is required due to population growth. Council has a responsibility to provide an ongoing water supply and to ensure it gains approvals for a preferred augmentation option before more water is needed. It should be noted that the timing of the implementation will be based on monitoring of actual future population and water demand.</p>
<p>Issues 5 – 7.</p> <p>Sustainability of new developments</p>	<p>Current planning and competition laws may serve to limit a councils' ability to mandate self sustaining communities or development.</p> <p>These issues would not preclude an individual developer from making a voluntary decision to build a self sustaining development, however Council can only work with developers to pursue options over and above the regulations in an opportunistic way.</p>
<p>Issues 8 - 10</p> <p>Demand Management actions should be implemented and Council should take these into account when formulating options for the future of Tweed's water supply.</p>	<p>This approach is the basis of Council's Integrated Water Cycle Management (IWCM) Strategy to produce a balanced and integrated water strategy.</p> <p>Demand has been looked at first. Supply is only being looked at because a supply short-fall was identified during the focus on Demand Management. Demand management will continue to be an important part of Council's approach.</p> <p>At the same time Council must plan for the earliest date the additional water supply capacity would be required (between 2018-2027). If it is found that future demand management is more effective than what has been predicted, then augmentation of the system can be postponed until such time it is required.</p>

Issue	Response
<p>Issues 12- 26 and 87 - 90</p> <p>Lack of consensus on the most appropriate method(s) and interest for water substitution / alternative sources:</p> <ul style="list-style-type: none"> - dual reticulation (third pipe) water recycling - high volume rainwater tanks - indirect potable water recycling - stormwater reuse - greywater reuse 	<p>Council has assessed the feasibility of each of these alternatives plus grey/blackwater (4th pipe) and decentralised sewerage. Based on triple and quadruple bottom line assessments, these alternatives are less sustainable and have higher risks than the options recommended in the Demand Management Strategy and Supply Augmentation projects.</p> <p>Notwithstanding, the DMS recommends Council pursue opportunistic prospects where possible. Opportunities will depend on developments proposed and will be assessed by Council.</p>
<p>Issues 54- 61 and 96 - 97</p> <p>Lack of consensus on Council's approach and on the most appropriate method(s) to augment the water supply in terms of reduced environmental, social and economic impacts.</p>	<p>The range of views and responses highlight the difficult nature of the decision that must be made by Council. There is no perfect solution, and all options have positive and negative impacts.</p> <p>The MCA methodology is ideal for these complex assessments containing 'grey areas' where clear-cut decisions difficult. The MCA assesses all of the advantages and disadvantages against a quadruple bottom line to determine the overall best option.</p> <p>Council's cautious and staged approach aims at providing the best available data in order to make an informed decision to move to the next stage.</p>
<p>Issues 64 - 72</p> <p>Mixed response to raising Clarrie Hall Dam, but generally greater support than the other options.</p>	<p>Impression in the community that raising Clarrie Hall Dam is least environmentally damaging since the impacts have mainly already occurred.</p> <p>Option is generally acceptable as long as demand management measures are put in place and approvals process ensures adequate mitigation measures.</p> <p>Landholders are concerned they won't be treated fairly.</p>
<p>Issues 73 - 77</p> <p>Mixed response to constructing Byrrell Creek Dam, but generally far less support than the other options.</p>	<p>The community generally considers construction of Byrrell Creek Dam to have too high Social, Cultural Heritage & Environmental problems to be considered an option.</p> <p>The little support received focussed on benefits such as improved security through alternative rain catchment, Council owns most of the land, clean catchment surrounded by State and National Parks.</p>

Issue		Response
Issues 78 – 82 and 91	Mixed response to constructing a pipeline to SEQ, but generally concern regarding the details of any relationship with SEQ.	<p>The community has concerns that SEQ is eager to take water from Tweed, use of desalinated water has large energy requirements, and there is no guarantee the water will be available for the Tweed when required (ie during drought).</p> <p>However, the SEQ option does not consider sending water from the Tweed into Queensland, and any interbasin transfer would need to be looked at carefully and satisfy relevant State (and potentially Federal) government regulations.</p>
Issues 83 - 86	Mixed response to the contingency option ranging from opposition to preference over inundation of irreplaceable rural areas	<p>The community has concerns that while including a contingency option is good planning, the current option is flawed and could have impacts on agriculture. However any use of groundwater would be in accordance with strict licensing requirements set by State government agencies to ensure the sustainable use of the resource.</p> <p>Some in the community prefer pipeline and localised groundwater extraction in urbanising areas rather than inundating irreplaceable rural areas.</p>
Issues 90 -95	External issues have not been considered.	<p>Environmental considerations were taken into account in the assessment of options, with environmental considerations included in six of the ten MCA criteria. The analysis is based on option sustainability under a quadruple bottom line assessment.</p> <p>The studies investigating alternatives such as rainwater, recycling and stormwater accounted for flow-on effects such as potential benefits due to reduced discharges to receiving waters.</p>
Issues 32 – 35	Use of education, promotion, pricing signals and rebates. More user-friendly format.	<p>Education and promoting water savings and restrictions are key recommendations from the DMS.</p> <p>An "inclining block tariff" approach to pricing is recommended in the DMS and is in line with Council policy and best practice.</p> <p>Rebates for rainwater tanks were considered non cost-effective. Shower head rebates and home water audits are proposed as part of the DMS.</p>

Issue	Response
<p data-bbox="193 253 225 763">Issues 42 – 45, 47 – 56 and 60 - 62</p> <p data-bbox="244 253 619 636">Independent review of Council’s position, particularly:</p> <ul data-bbox="244 376 619 636" style="list-style-type: none"> - population projections - climate change considerations - range of options - consideration of external environmental impacts 	<p data-bbox="663 253 1493 427">Given that all work to date has been carried out and cross-checked by a range of service providers recognised as experts in the water field, it is difficult for Council to justify further significant expenditure to have reviews carried out by additional experts.</p> <p data-bbox="663 450 1401 517">The approach to population projections is described above.</p> <p data-bbox="663 539 1493 719">Climate change modelling was taken into account to determine the Tweed’s water supply capacity. Namely, modelling carried out by SE QLD and Rous Water which show that the secure yield in those adjacent regions could be reduced by between 7-15%.</p> <p data-bbox="663 741 1433 842">A number of independent experts and government authorities were involved in determining the maximum possible range of options for consideration.</p> <p data-bbox="663 864 1401 999">Alternatives were assessed on an industry standard approach using Triple and Quadruple Bottom Line approaches taking into consideration non-economic factors such as environmental benefits and impacts.</p>
<p data-bbox="193 1043 225 1357">27 – 31, 36 – 41 & 49</p> <p data-bbox="244 1043 608 1144">Mixed response to CWG, community consultation and starting point.</p>	<p data-bbox="663 1043 1493 1323">The consultation process represented a major undertaking for Council, both in terms of time and resources. Feedback has been forwarded to Council’s Marketing and Communication section for consideration in Council’s Community Engagement Strategy. An observer from Southern Cross University provided an independent viewpoint of the process, and was generally supportive of Council’s approach.</p>

Aim of this Report

This report consolidates all feedback on the Water Supply Augmentation project received by Council from the Tweed community between October 2009 and May 2010.

The report:

- describes the historical context to Council's Water Supply Augmentation project
- lists the issues raised by the Tweed community regarding the project
- combines related issues in a summary table
- outlines how these will be / have been addressed by Council
- provides responses to issues where appropriate

Background

History

Integrated Water Cycle Management Strategy (IWCM)

Council's approach to water management has included a combination of focussed demand management and securing water supplies. Council's Integrated Water Cycle Management Strategy (IWCM 2006) incorporates 18 specific Strategy Actions.

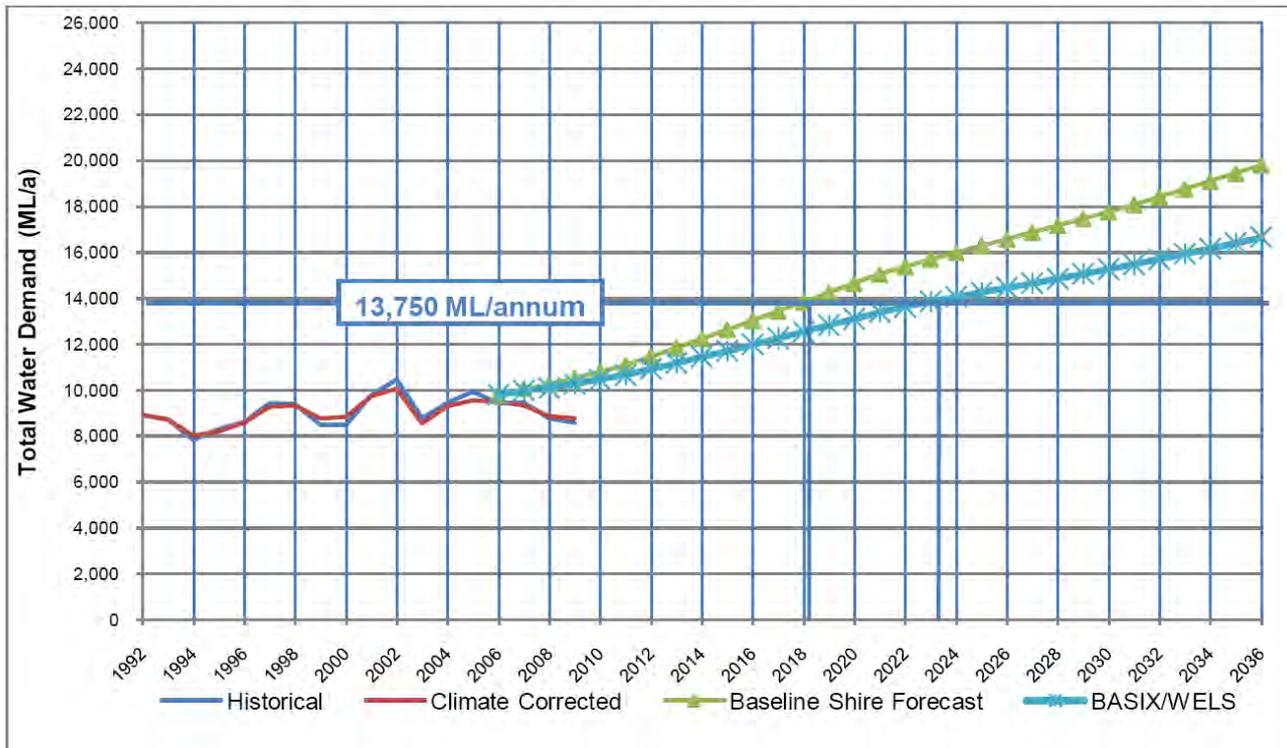
Action 1 of the IWCM aims at investigating ways to reduce potable water use, decrease water extractions from the environment, and increase the amount of water supplied from alternative sources such as water recycling and rainwater tanks. Council has been successful in reducing per capita water use by approximately 40% since the 1990's. The Demand Management Strategy (DMS) proposes ways to further reduce residential and non-residential demand and increase the amount of rainwater and recycled water utilised.

Action 7 of the IWCM focuses on improving the security and increasing the amount of water supplied. The results of Council's Demand Management Strategy highlighted that despite significant reductions in per capita water use ongoing population growth will mean that the existing water supply capacity will be exceeded.

Water Supply Augmentation Project

The Water Supply Augmentation project aims to ensure the ongoing security of the Tweed's water supply in the face of projected population growth.

Planning suggests the Water Supply System will require augmentation some time between 2018 and 2023, depending on actual population growth and the success of demand management.



Projected growth in Tweed Shire Annual Water Demand

Process

A staged process has been followed which aims to ensure a wide range of options is considered, and that decisions are made based on information commensurate to the risks associated with that particular phase. The process aims to provide Council with the information and confidence it requires at each phase to make decisions that will reduce future risks.

Water Augmentation Options

Water Supply Augmentation Options Report

A Water Supply Augmentation Options study is being undertaken to determine the best way to augment the water supply to meet the Shire’s needs until the end of the planning period in 2036. The first stage Coarse Screen Report identified nine options for analysis and ranked these options using multi criteria analysis (MCA).

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- Additional consultants reports focusing on environmental, cultural heritage, planning, and costing issues
- Consultation with stakeholder groups including potentially affected landholders, the Aboriginal community, government agencies, and community groups
- Consultation with residents and the Tweed community through a comprehensive sixth month process; including facilitation of an independent Community Working Group
- Improving ways for the community to provide feedback and submissions through a designated email address and Freecall 1800 number

Options are being assessed based on their affects to social, environmental, governance and economic criteria.

Community consultation

Council has informed the community about the recommendations of the Coarse Screen Report and feedback has been sought through the following avenues:

- Daily News advertisement on 28 January 2010, Tweed Link advertisements and articles on 26 January, 9 February and 16 February 2010, and media releases 12 January, 2 February 2010 inviting comments from the community and inviting the community to attend information days at Tweed Heads, Murwillumbah and Pottsville.
- A Community Working Group comprising of key representatives from the community met five times over a four month period to debate and discuss issues. The CWG produced a report of recommendations which informed the process.
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- Council has made presentations to community groups including the Murwillumbah Rotary, the River Catchment Catch-up, the Aboriginal Advisory Committee, an open meeting of the Aboriginal Community, the Tweed River Committee, and Government Agencies.
- Multiple factsheets and reports to inform the community
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Public Participation

There has been substantial public interest and feedback during this phase of community consultation and public exhibition, although compared to the overall populace the response is still very low, and it is unclear whether responses are representative of the views of the Shire's community.

Council has received community feedback from:

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- A total of approximately 40 members of the community who attended the three information sessions (Tweed Heads, Murwillumbah and Pottsville) to discuss water issues including demand management.
- The Community Working Group provided recommendations regarding the options and Council's approach.
- Over 60 phone calls were received by the 1800 Freecall telephone service centre relating to demand management issues.

A number of submissions related to demand management issues, and the issues raised are referred to and dealt with in the Demand Management Strategy Submissions Report.

Submissions

Submissions received

Submissions were received from various sectors and geographical locations within the community as shown in the table below.

AREA	NUMBER
Murwillumbah, South Murwillumbah, Burringbar, Stokers Siding, North Tumbulgum, Reserve Crk, Farrants Hill	28
Uki, Byangum, Eungella, Smiths Creek	32
Commissioners Creek, Doon Doon	4
Byrrill Creek, Mt Burrell, Kunghur	20
Limpinwood, Pumpenbil, Tyalgum, Chillingham, Nobbys Creek	15
Fingal Head, Hastings Point, Kingscliff, Cudgera, Cudgen, Chinderah, Pottsville	18
Tweed Heads, Banora Point, Bilambil Heights, Terranora, Carool	14
Outside of Tweed Shire	12
Email only (no address)	6
Form only (no address)	1
CWG members (Individual comments from CWG Report)	10
CWG Report	1
TOTAL	159

Submissions were received from the following groups and individuals:

No.	Surname	Correspondence Details	Doc No.
1	Armfield, Gregory William	Email dated 7 March 2010	13723350
2	Baker, David	Email dated 30 April 2010	15723973
3	Barnett, Jade	Email dated 30 April 2010	15735878
4	Barnett, Kellie	Email dated 30 April 2010	15738046
5	Barron, Leonie Cheryl	Email dated 30 April 2010	15734849
6	Beltrame, Terry	Form 9 March 2010	13782563
7	Berg, David	Form 25 March 2010	14275524
8	Blackwell, Emily	Email dated 30 April 2010	15878842
9	Name withheld upon request	Form 3 May 2010	15887507

No.	Surname	Correspondence Details	Doc No.
10	Bolton, Kay	Form 25 March 2010	14275551
11	Bonar, Robert James	Email dated 30 April 2010	15730617
12	Bram, Nigel	Email dated 29 April 2010	15723892
13	Brodie, Steven	Email dated 25 April 2010	15679877
14	Budd, Derek K	Letter dated 5 November 2010	8598286
15	Caldera Environment Centre Inc	Letter received 3 May 2010	15934285
16	Caldera Environment Centre Inc - E. Hopkins	Letter received 3 May 2010	15934286
17	Caldera Environment Centre, Hopkins	Written submission	21252504
18	Campbell, William T	Email dated 26 February 2010	13338282
19	Carroll, Rob; Nimbin Environment Centre	Email dated 6 May 2010	16225705
20	Clarke	Written submission	21201194
21	Combined Tweed Rural Industries Association - Col Brooks	Letter dated 2 March 2010	13495860
22	Cooney, Graeme	Email dated 31 January 2010	12174467
23	Cornford, Robyn Elizabeth	Email dated 25 February 2010	13283995
24	Costello	Written submission	21202225
25	Cox, Margaret	Form dated 9 March 2010	13785816
26	Cudgen Progress Association	Written submission	11315157
27	Curtis, Wendy A	Email dated 30 April 2010	15922993
28	Davies G	Verbal submission	13730093
29	Name withheld upon request	Written submission	21202230
30	Dawe, Geoffrey Raymond	Form 11 December 2009	9887731
31	Dawe, Geoffrey Raymond	Letter dated 30 April 2010	15923002
32	Dawson, Samuel K	Email dated 30 April 2010	15723970
33	Duckworth	Written submission	21102672
34	Ehrlich, Ari	Email dated 30 april 2010	15878844
35	Eriksen, Diana Ruth	Email - attached to a Form - dated 25 April 2010	15676686
36	Evans	Written submission	10240178
37	Findlay, Elspeth	Email dated 1 May 2010	15878838
38	Fingal Head Coastcare	Written submission	21963352
39	Fuhrmann, Klaus	2nd Form dated 3 May 2010	15887523
40	Fuhrmann, Klaus	Form dated 3 May 2010	15887501
41	Gardner, Joanna	Letter dated 30 April 2010	15934351
42	Gardner	CD submission	21203309
43	Name withheld upon request	Form dated 24 March 2010	14236842
44	Graf, Roger	Email dated 19 February 2010 and email dated 10 November 2009 (to the General Manager for his information)	13123637
45	Graf, Roger	Email dated 30 April 2010	15740196
46	Haffer, Li	Email dated 30 April 2010	15734829
47	Hastings Point Progress Association,	Email dated 10 November 2009	8640479
48	Hastings Point Progress Association,	Email dated 29 April 2010	15690637
49	Havier, Mircalla Jadis	Email dated 30 April 2010	15735879
50	Hay, Jodie	Letter dated 26 April 2010	15983557

No.	Surname	Correspondence Details	Doc No.
51	Hayes, Jenny	Form 25 March 2010	14275519
52	Header, Susie	Email dated 30 April 2010	15735877
53	Header, Susie	Form dated 25 March 2010	14275521
54	Hollingsworth, Kim	Email dated 30 April 2010	15741467
55	Hollingsworth, Kim	Written submission	15741465
56	Name withheld upon request	Form dated 5 March 2010	13595094
57	Hoopmann, Robyn	Letter received 3 May 2010	15934352
58	Hudson, Deborah	Email dated 27 April 2010	15679889
59	Ingram	Written submission	21203313
60	Ipsen, Anthony	Email dated 29 April 2010	15723895
61	Jack, Elizabeth	Email dated 28 April 2010	15642351
62	Jack E	Written submission	21203313
63	Jack, Marie	Email dated 29 April 2010	15729572
64	Jack, Megan	Email dated 29 April 2010	15723897
65	Jack, Megan	Form dated 8 March 2010	13738559
66	James, Rhonda	Email dated 29 April 2010, Letter dated 27 April 2010	15723893
67	Kaye, Paulene	Letter dated 29 April 2010	15922999
68	Klaus	Written submission	21203313
69	Lanham Enterprises Pty Ltd	Form dated 30 March 2010, Letter dated 22 March 2010	14482610
70	Luca	Written submission	21203313
71	Lucas, Marie-Helene	Email dated 28 April 2010	15642350
72	Martin, Lisa	Email dated 29 April 2010	15683196
73	Mayfield, T H	Email dated 30 April 2010	15738061
74	Mayfield	Written submission	21203313
75	McConville, Stuart	Email dated 30 April 2010	15727449
76	McCormick, Fiona Dr	Email dated 30 April 2010	15738044
77	Mcinerney, Andrew	Letter received 3 May 2010	15934353
78	McNamara, Michael	Email dated 30 April 2010	15738059
79	McQueen, Bruce	Form dated 30 April 2010	15729530
80	Meath, Carol and Michael	Email dated 30 April 2010	15734850
81	Menzies, David	Email dated 26 April 2010	15679881
82	Merchant, Ellen Joyce	Email dated 30 April 2010	15738043
83	Milligan, James and Jennifer	Email dated 27 April 2010	15679883
84	Moore, Christine	Email dated 30 April 2010	15730611
85	Morrison, John	Email dated 29 April 2010	15723889
86	Murray, Tweed Heads Environment Group Inc	Written submission	21203313
87	O'Reilly, John	Email dated 30 April 2010	15878841
88	O'Toole, Brian Desmond	Form 11 Jan 2010 - containing letter that was received 29 December 2009	11315212
89	Outridge, Margo	Letter received 30 April 2010	15934350
90	Outridge, Mary Blane	Letter received 30 April 2010	15934348
91	Outridge, Mary Lou	Letter received 30 April 2010	15934349
92	Name withheld upon request	Form dated 28 April 2010	15634921
93	Pearce, Suzanne E	Form dated 9 March 2010	13773903
94	Pearson, Jenny	Letter received 30 April 2010	15934354
95	Pidgeon, Marcia	Email dated 8 March 2010	13731179
96	Piper, Mark	Email dated 23 February 2010	13175423

No.	Surname	Correspondence Details	Doc No.
97	Piper, Mark	Email dated 29 April 2010	15682068
98	Possenti, Paola Emma	Email dated 30 April 2010	15733811
99	Pottsville Community Dune Care	Written submission	21203313
100	Prince, Menkit	Email dated 29 April 2010	15723896
101	Purser, Shauna Lee	Email dated 29 April 2010	15723891
102	Name withheld upon request	Verbal submission	21203313
103	Ray, Bruce	Email dated 27 April 2010	15679891
104	Rich	Written submission	21203313
105	Riordan, Marion	Email dated 30 April 2010 attaching a letter dated 28 April 2010	15723898
106	Rotary Club of Kingscliff Inc	Written submission	21203313
107	Scanlan, Anthony William	Form dated 9 March 2010	13776065
108	Scorgie, Matthew	Letter received 28 April 2010	15676675
109	Sims, Melanie	Letter dated 27 April 2010	15676674
110	Sledge, Scott and Daniele Vionot	Email dated 27 April 2010	15679888
111	Sledge, Scott Dietrich	Form dated 18 November 2010	8994900
112	Sledge, Scott Dietrich	Form dated 24 November 2010, Submission dated 21 November 2010 (emailed 23 November 2010)	9283980
113	Sledge	Written submission	22100113
114	Sloane, Peter & Rosalie	Email dated 29 April 2010	15679898
115	Smith B	Written submission	21203313
116	Smith, Lindy	Letter dated 28 April 2010	15938491
117	Sonnenschein, Leslie Anne	Form dated 24 November 2010, Submission emailed 19 November 2010	9282938
118	Southern Cross University - Tweed Gold Coast Campus	Email dated 30 April 2010	15733812
119	Spragg, Robin C	Form dated 8 March 2010	13737490
120	Sta	Written submission	21203313
121	Stuart, Karen June	Email dated 30 April 2010	15723903
122	Styman, Brian	Form dated 29 April 2010	15691688
123	Summers, Brian	Email dated 30 April 2010	15723906
124	Summers, Brian	Form dated 5 March 2010	13546060
125	Symons, Peter	Letter dated 29 April 2010	15934347
126	Townsend, Janet & John	Letter dated 24 April 2010	15922996
127	Turner, Gaye Julie	Email dated 3 May 2010	15938492
128	Tweed District Residents & Ratepayers Association	Letter dated 19 April 2010	15922994
129	TweedCAN - Bush Regeneration Services	Email dated 2 May 2010 (containing a letter dated 30 April 2010)	15878836
130	Tyalgum Literary Institute & Progress Association	Form dated 18 January 2010 Letter dated 31 December 2009	11616983
131	Tyman, John L	Email dated 30 April 2010	15735876
132	Uki Village & District Residents Association	Email dated 7 May 2010, Letter dated 6 May 2010	16223559
133	Name withheld upon request	Letter dated 29 April 2010	15934346
134	Vella	Written submission	21203313
135	Name withheld upon request	Written submission	21203313
136	Walton, Daniel	Form dated 11 January 2010, Email dated 29 October 2009	11322759

No.	Surname	Correspondence Details	Doc No.
137	Watsford, Penelope Jane	Letter dated 29 April 2010	15923000
138	Weatherley, Douglas Alfred	Form dated 2 February 2010, Letter dated 22 January 2010	12226546
139	Weber	Written submission	21203313
140	Welling, Uzume	Form dated 30 April 2010	15735919
141	Whittingham	Written submission	21203313
142	Wood, David	Letter dated 26 April 2010	15676673
143	Wrem, Don	Form dated 30 April 2010	15729535
144	Wuoti, Trevor John	Email dated 16 February 2010	12839682
145	Wuoti, Trevor John	Email dated 25 April 2010	15679875
146	Wuoti, Trevor John	Email dated 25 April 2010	15679878
147	Yeomans, Andrew Frederick	Email dated 29 April 2010	15690633
148	Name withheld upon request	Verbal submission	21203313
149	Community Working Group (CWG)	CWG report 10 March 2010	13828670
150	Allsop (CWG)	CWG report 10 March 2010	13828670
151	Beck (CWG)	CWG report 10 March 2010	13828670
152	Dawson (CWG)	CWG report 10 March 2010	13828670
153	Eberhard (CWG)	CWG report 10 March 2010	13828670
154	Edwards (CWG)	CWG report 10 March 2010	13828670
155	Gardner (CWG)	CWG report 10 March 2010	13828670
156	Learmonth (CWG)	CWG report 10 March 2010	13828670
157	Lemaire (CWG)	CWG report 10 March 2010	13828670
158	Murray (CWG)	CWG report 10 March 2010	13828670
159	Thompson (CWG)	CWG report 10 March 2010	13828670

The complete set of submissions received is bound under a separate cover "Submissions and feedback received – Water Supply Augmentation Project" and is available upon request. A detailed list of submission issues is contained in Appendix A. A summary of issues and responses follows in the discussion section.

Issues raised

Major issues raised in the submissions are grouped as follows:

1. The accuracy and sustainability of future population projections used
2. New developments should be required to be more sustainable
3. Water substitution and alternative water sources should be pursued.
4. Better education and higher water pricing required.
5. An independent review required
6. Mixed responses on the adequacy of the CWG and community consultation
7. Mixed responses to the starting point for the consultation process
8. Mixed responses to the short-listed options
 - a mixture of support and objection for Clarrie Hall Dam
 - Generally unsupportive of Byrill Creek Dam
 - Generally unsupportive of SEQ pipeline

- Generally unsupportive of the components in the Emergency option

9. Improvements suggested for the MCA process

Public information sessions

Tweed Heads Public Information Session

The Public Information Session at Tweed Heads held from 2:00pm – 7:15pm on Wednesday 10 February 2010 at the South Sea Islander Room, Tweed Heads Civic Centre, Brett Street, Tweed Heads. It was attended by CWG members, Tweed Shire Council staff, and approximately 20 members of the public.

Murwillumbah Public Information Session

The Public Information Session at Murwillumbah was held from 2:00pm – 9:00pm on Thursday 18 February 2010, at the Canvas & Kettle Room, Murwillumbah Civic Centre, Murwillumbah. It was attended by CWG members, Tweed Shire Council staff, and approximately 12 members of the public.

Pottsville Public Information Session

The Public Information Session at Pottsville held from 2:00pm – 7:00pm on Tuesday 23 February 2010 at the Pottsville Environment Centre, Centennial Drive, Pottsville. It was attended by CWG members, Tweed Shire Council staff, and approximately 5 members of the public.

Issues raised

Major issues raised during public information sessions are grouped as follows:

1. Council is looking at both demand and supply sides of water.
2. New developments are not sustainable and should be required to be more sustainable
3. Water substitution and alternative water sources should be pursued. Council to support rebates and retrofits.
4. Better education, higher water pricing, and communication of water use required. Meter individual dwellings in Retirement Villages and Multi-Unit Complexes
5. Good that 40% reduction in water use since 1992, understandable that future savings will require more effort per litre saved. What additional regulations would help Council to enforce more demand management actions?
6. Water unit staff have been helpful and information is available and forthcoming.
7. CWG members should “get on with it” and not concentrate on “administrative” issues.
8. There is a need for augmentation. Four options presented are limited. Each of the four options has benefits and disadvantages
9. Options should avoid a dam at Byrill Creek, reduce extractions and discharges in the river system
10. Compensation commitments were not honoured with original Clarrie Hall Dam
11. Current planning legislation out of step with community wants. Council can't force developers to implement recycled water in new developments. Queensland can, but NSW has BASIX.

Notes from each of the public information sessions are contained in the appendices to this report. A summary of issues and responses follows in the discussion section.

Community Working Group

The Community Working Group (CWG) was primarily formed to provide information to Council regarding four shortlisted water supply augmentation options. The CWG also provided feedback on demand management issues.

CWG Report

The CWG produced a report covering these issues. It presents the views, interests and issues of members together with a summary of group recommendations. Council was presented with the report 5 March 2010. At its meeting of 16 March 2010, Council determined to publically display the report, and the report was placed on public display to provide other members of the community with additional information prior to the close of submission at the end of April. The full report is available on Council's website:

<http://www.tweed.nsw.gov.au/Water/WaterSupplyAugmentationWorkingGroup.aspx>

Issues raised

Major issues relevant to the Water Supply Augmentation which the CWG raised in its report:

1. The accuracy and sustainability of future population projections used
2. More focus on demand before supply
3. An independent review required
4. Water substitution and alternative water sources should be pursued.
5. Climate change to be taken into account
6. Costs have taken finances but not the environment into account
7. Mixed responses to the starting point for the consultation process
8. Guarded support for Clarrie Hall Dam
 - considering many impacts have already occurred and will not be avoided
 - on the condition that Council implements demand management actions
9. Strong objection (though not unanimous) for Byrrell Creek Dam
10. Generally unsupportive of SEQ pipeline
11. Generally unsupportive of the components in the Emergency option
12. Improvements suggested for the MCA process

The CWG also made a number of suggestions for future community engagement:

13. Needed a mechanism to better engage the broader community who are generally complacent unless you discuss with them directly.
14. While the CWG has learnt a lot from the process adopted, the CWG felt uncomfortable speaking on behalf of the whole Tweed community, and encourages

Council to seek additional ways to engage the whole community in this process in the future.

Discussion

Summary of issues and responses

Upon review of the complete list of issues, the major issues of significance have been consolidated in the table below. High level responses and discussion to these issues are also contained in the table.

Issue	Response
<p>Issues 1 - 4</p> <p>Population Issues</p> <ul style="list-style-type: none"> - population restrictions / carrying capacity - population projections used - population is pushing augmentation 	<p>A number of population planning issues outside of the scope of the project were raised, including determining the region's carrying capacity and restricting population growth. These would need to be addressed by the relevant local, state and federal planning instruments.</p> <p>The accuracy of population projections was questioned. Council's projections were based on the sum of development area staging over the next 30 years and is considered more reliable than using annual percentage growth rates.</p> <p>Augmentation is required due to population growth. Council has a responsibility to provide an ongoing water supply and to ensure it gains approvals for a preferred augmentation option before more water is needed. It should be noted that the timing of the implementation will be based on monitoring of actual future population and water demand.</p>
<p>Issues 5 - 7.</p> <p>Sustainability of new developments</p>	<p>Current planning and competition laws may serve to limit a councils' ability to mandate self sustaining communities or development.</p> <p>These issues would not preclude an individual developer from making a voluntary decision to build a self sustaining development, however Council can only work with developers to pursue options over and above the regulations in an opportunistic way.</p>

Issue		Response
Issues 8 - 10	<p>Demand Management actions should be implemented and Council should take these into account when formulating options for the future of Tweed's water supply.</p>	<p>This approach is the basis of Council's Integrated Water Cycle Management (IWCM) Strategy to produce a balanced and integrated water strategy.</p> <p>Demand has been looked at first. Supply is only being looked at because a supply short-fall was identified during the focus on Demand Management. Demand management will continue to be an important part of Council's approach.</p> <p>At the same time Council must plan for the earliest date the additional water supply capacity would be required (between 2018-2027). If it is found that future demand management is more effective than what has been predicted, then augmentation of the system can be postponed until such time it is required.</p>
Issues 12- 26 and 87 - 90	<p>Lack of consensus on the most appropriate method(s) and interest for water substitution / alternative sources:</p> <ul style="list-style-type: none"> - dual reticulation (third pipe) water recycling - high volume rainwater tanks - indirect potable water recycling - stormwater reuse - greywater reuse 	<p>Council has assessed the feasibility of each of these alternatives plus grey/blackwater (4th pipe) and decentralised sewerage. Based on triple and quadruple bottom line assessments, these alternatives are less sustainable and have higher risks than the options recommended in the Demand Management Strategy and Supply Augmentation projects.</p> <p>Notwithstanding, the DMS recommends Council pursue opportunistic prospects where possible. Opportunities will depend on developments proposed and will be assessed by Council.</p>
Issues 54- 61 and 96 - 97	<p>Lack of consensus on Council's approach and on the most appropriate method(s) to augment the water supply in terms of reduced environmental, social and economic impacts.</p>	<p>The range of views and responses highlight the difficult nature of the decision that must be made by Council. There is no perfect solution, and all options have positive and negative impacts.</p> <p>The MCA methodology is ideal for these complex assessments containing 'grey areas' where clear-cut decisions difficult. The MCA assesses all of the advantages and disadvantages against a quadruple bottom line to determine the overall best option.</p> <p>Council's cautious and staged approach aims at providing the best available data in order to make an informed decision to move to the next stage.</p>

Issue		Response
Issues 64 - 72	Mixed response to raising Clarrie Hall Dam, but generally greater support than the other options.	<p>Impression in the community that raising Clarrie Hall Dam is least environmentally damaging since the impacts have mainly already occurred.</p> <p>Option is generally acceptable as long as demand management measures are put in place and approvals process ensures adequate mitigation measures.</p> <p>Landholders are concerned they won't be treated fairly.</p>
Issues 73 - 77	Mixed response to constructing Byrrill Creek Dam, but generally far less support than the other options.	<p>The community generally considers construction of Byrrill Creek Dam to have too high Social, Cultural Heritage & Environmental problems to be considered an option.</p> <p>The little support received focussed on benefits such as improved security through alternative rain catchment, Council owns most of the land, clean catchment surrounded by State and National Parks.</p>
Issues 78 – 82 and 91	Mixed response to constructing a pipeline to SEQ, but generally concern regarding the details of any relationship with SEQ.	<p>The community has concerns that SEQ is eager to take water from Tweed, use of desalinated water has large energy requirements, and there is no guarantee the water will be available for the Tweed when required (ie during drought).</p> <p>However, the SEQ option does not consider sending water from the Tweed into Queensland, and any interbasin transfer would need to be looked at carefully and satisfy relevant State (and potentially Federal) government regulations.</p>
Issues 83 - 86	Mixed response to the contingency option ranging from opposition to preference over inundation of irreplaceable rural areas	<p>The community has concerns that while including a contingency option is good planning, the current option is flawed and could have impacts on agriculture. However any use of groundwater would be in accordance with strict licensing requirements set by State government agencies to ensure the sustainable use of the resource.</p> <p>Some in the community prefer pipeline and localised groundwater extraction in urbanising areas rather than inundating irreplaceable rural areas.</p>
Issues 90 -95	External issues have not been considered.	<p>Environmental considerations were taken into account in the assessment of options, with environmental considerations included in six of the ten MCA criteria. The analysis is based on option sustainability under a quadruple bottom line assessment.</p> <p>The studies investigating alternatives such as rainwater, recycling and stormwater accounted for flow-on effects such as potential benefits due to reduced discharges to receiving waters.</p>

Issue		Response
Issues 32 – 35	Use of education, promotion, pricing signals and rebates. More user-friendly format.	<p>Education and promoting water savings and restrictions are key recommendations from the DMS.</p> <p>An "inclining block tariff" approach to pricing is recommended in the DMS and is in line with Council policy and best practice.</p> <p>Rebates for rainwater tanks were considered non cost-effective. Shower head rebates and home water audits are proposed as part of the DMS.</p>
Issues 42 – 45, 47 – 56 and 60 - 62	<p>Independent review of Council's position, particularly:</p> <ul style="list-style-type: none"> - population projections - climate change considerations - range of options - consideration of external environmental impacts 	<p>Given that all work to date has been carried out and cross-checked by a range of service providers recognised as experts in the water field, it is difficult for Council to justify further significant expenditure to have reviews carried out by additional experts.</p> <p>The approach to population projections is described above.</p> <p>Climate change modelling was taken into account to determine the Tweed's water supply capacity. Namely, modelling carried out by SE QLD and Rous Water which show that the secure yield in those adjacent regions could be reduced by between 7-15%.</p> <p>A number of independent experts and government authorities were involved in determining the maximum possible range of options for consideration.</p> <p>Alternatives were assessed on an industry standard approach using Triple and Quadruple Bottom Line approaches taking into consideration non-economic factors such as environmental benefits and impacts.</p>
27 – 31, 36 – 41 & 49	Mixed response to CWG, community consultation and starting point.	<p>The consultation process represented a major undertaking for Council, both in terms of time and resources.</p> <p>Feedback has been forwarded to Council's Marketing and Communication section for consideration in Council's Community Engagement Strategy. An observer from Southern Cross University provided an independent viewpoint of the process, and was generally supportive of Council's approach.</p>

Detailed issues and responses

Review of the complete list of issues found that many issues were referred to by multiple submissions. To enable more efficient review of all issues, these submissions were grouped together under headings based on the issues raised.

Methodology

Many of the submissions repeated or raised similar issues. Council received 159 submissions, containing over 1000 individual matters or issues. The CWG report and the Community Information Sessions also raised a number of similar matters for consideration.

Due to the volume of issues raised, they were paraphrased and grouped for presentation purposes. In many instances the text is a combination of the most representative and significant wording from individual submissions. The name of entities that raised the same or similar issue were recorded next to the paraphrased text. This produced a list of some 400 issues.

These issues were then grouped further under header issues according to content (refer Appendix A). The full list of 97 header issues is contained in the table below, together with detailed responses to each one.

Thus it should be noted that issues listed are not an attempt to record individual submissions word-for-word but are Council's best attempt to consolidate the number of issues, record those raising a similar issue, and enable responses to be drafted effectively.

Appendix A shows which individual comments on related topics have been grouped into header issues.

The complete set of submissions received is bound under a separate cover "Submissions and feedback received – Water Supply Augmentation Project" and is available upon request.

Issues and responses table

Responses and discussion to heading issues are contained in the table below.

No.	ISSUE	RESPONSE
	Planning Issues	
	<u>Demand Projections</u>	
1	Demand has not increased in recent years despite increasing population. Why does Council expect demand to increase in the future if the trend is towards lower usage per person?	<p>Water conservation efforts in both the residential and non-residential sectors, Council's pricing reforms, and the 2002-3 drought have meant that per capita demand has dropped significantly since 1992. The usual pattern of large initial savings followed by continued smaller savings will mean that further per capita reductions will become increasingly difficult.</p> <p>Given the anticipated continued population growth in the shire, coupled with consolidation of per capita demand (even with the adoption of the recommended demand management measures) overall demand is expected to increase to the point that the secure yield of the existing water supply sources would be exceeded.</p>
	<u>Population issues</u>	
2A	Population expectations and projections used are considered too high for the Tweed's future sustainability. The assumption that the population needs to double is flawed. The community has not given its consent to doubling the population.	<p>This is a regional planning and infrastructure issue, rather than an isolated water demand and supply issue.</p> <p>Council has determined the potential population yield from the current LEP zonings (which have not significantly changed since the first LEP revision under the EP&A Act in the late 1980's). Urban land release sites already zoned for development mean that the population of the Tweed is allowed to double in the future.</p> <p>The rate of growth was based on the characteristics of each development area and its likely staging over the next 30 years. This was considered a more reliable population projection than to simply apply a per centage growth rate each year. Population growth figures are confirmed in the "Tweed Urban and Employment Lands Release Strategy" (GHD, 2009) which was released in 2009.</p> <p>Appendix A of the Stage 1 DMS report provides a detailed explanation of how population growth was determined.</p> <p>The augmentation strategy is a response to population increases based on the population capacity of currently zoned lands. The land zoned currently zoned for development would need to be changed to reduce the predicted population level.</p>

No.	ISSUE	RESPONSE
2B	<p>There is a lot of support for a population cap, but who will determine the cut-off point and how could this be enforced? Population can't be capped, but we can control growth to levels that our environment can handle by slowly staged development. The instruments for this are the Far North Coast Regional Strategy and the TSC Urban and Employment Strategy.</p>	<p>Tweed Council can make supported representation to the State government about its views on the carrying capacity of the Tweed's threshold limits to support future populations however, ultimately it is the State government who guides the population growth in each local government area. It is Tweed Council's role to make provision for that projected population through housing, employment and service infrastructure provision.</p>
3	<p>The population debate is an issue that will not go away. It needs to be addressed by a mechanism (eg inquiry) that identifies a sustainable population level for the Tweed.</p>	<p>Determining the threshold limits to carrying capacity of a given area (LGA) cannot be done in isolation and would need to be coordinated and agreed on at a State and Federal level.</p> <p>In this situation, the Water Supply Strategy would be amended to match.</p> <p>Refer to responses to Issues 2 and 2.3</p>
4	<p>If Council's population estimates are overestimated, then augmentation could be delayed and allow development of better water saving programs in the five new major developments and infill areas.</p>	<p>Acknowledged, population growth will be monitored and projections will be updated as required.</p> <p>Council has a responsibility to provide an ongoing water supply. To this end Council needs to ensure it gains approvals for a preferred augmentation option in advance, however the timing and implementation of the preferred scheme will be dependent on actual population growth and actual water demand.</p>
<p><u>Sustainability of new housing developments</u></p>		
5	<p>New developments should be permitted only if they are sustainable, self-sufficient and are not dependent on the Shire's water grid.</p>	<p>Current planning and competition laws may serve to limit a councils' ability to mandate self sustaining communities or development.</p> <ul style="list-style-type: none"> - There is legislation that describe requirements for provision of water supply and sewer services for urban development - Council must operate within requirements of this legislation - BASIX stipulates minimum requirements for a development but restricts what additional requirements Council can mandate. - In areas currently zoned for urban development, the existing approval processes do not practically permit developments to be independent of the public water supply. <p>These issues would not preclude an individual developer from making a voluntary decision to build a self sustaining development, however Council can only work with developers to pursue options over and above the regulations in an opportunistic way.</p>

No.	ISSUE	RESPONSE
		<p>The Stage 1 Demand Management Strategy assessed options for dual reticulation and decentralised sewerage. It was found that in general dual reticulation and decentralised sewerage provided no advantage or additional advantage over the proposed implementation of BASIX, with 5,000 L water tanks and reduced infiltration gravity sewers (RIGS).</p> <p>Notwithstanding opportunities may arise for sewer mining in such greenfield areas. Such opportunities will be dependant on the style of the development proposed and the willingness of the developer. Where opportunities are identified by the developer Council will assess the proposals put forward.</p>
6	<p>New developments should be permitted only if they are sustainable and their demand on the Shire's water grid can be limited via sustainable design.</p>	<p>Refer to response to Issue 5</p>
7	<p>The proponents of Cobaki and Kings Forest initially proposed greywater recycling and dual reticulation but this was not supported by Council. Why didn't Council meet part of the costs with Leda?</p>	<p>The proponents of Cobaki Lakes proposed an alternative system with the objective of reducing the cost to sewer their development. A "four-pipe" system was proposed to collect and send "greywater" and "blackwater" to separate treatment plants. Treated greywater was to be returned to properties for non-potable residential reuse for external, toilet and cold water laundry. Treated blackwater was to irrigate public open space areas during dry periods.</p> <p>The proposal did not adequately consider:</p> <ul style="list-style-type: none"> - wet weather flows and the regulatory ramifications of this - water balances to ensure the longterm sustainability of water recycling on the site - the need for discharge/disposal of treatment by-products - access to treatment plants for operation, maintenance and odour control - contingencies should the relatively untested blackwater system prove ineffective - that the fourth pipe system would substantially increase Council's operating costs - that excessive satellite treatment plants substantially increase Council's operating costs <p>Council has a obligation to ensure developments meet all regulatory requirements, and a sustainable sewerage management system is implemented. As with any development, the proponents had the opportunity to revise their proposal to meet these requirements but did not do so.</p>

No.	ISSUE	RESPONSE
	Demand Management Strategy	
	<i>Proposed Demand Management Actions</i>	
8	The interdependencies between demand and supply need to be taken into account by Council when formulating recommendations for the future of the Tweed's water.	<p>This approach is supported and taken into account by TSC in the Integrated Water Cycle Management (IWCM) Strategy.</p> <p>The IWCM process rigorously investigates supply options as well as the options for demand reduction and recycling to produce a balanced and integrated water supply strategy.</p> <p>Whilst demand reduction and recycling will extend the time before bulk water supply becomes critical, there is a need to act now to progress the approval process for augmenting the water supply source.</p>
9	The Demand Management Strategy is just a mechanism for TSC to meet legislative requirements to build a dam.	<p>The preparation of a Water Demand Management Strategy (DMS) is an integral part of the Tweed Integrated Water Cycle Management Strategy on the demand side of the equation. The NSW Government has legislated conditions on the demand side involving water use efficiencies.</p> <p>Supply is being looked at because a supply short-fall was identified during the focus on Demand Management. This involves increasing the supply and will involve a process of approvals in a legislative framework prior to implementation.</p> <p>It is worth noting that the combined Demand Management and Water Supply Augmentation options represent a significant reduction in per person water demand than what is currently occurring.</p> <p>Council is continuing to proactively plan for further future water usage reductions, whilst ensuring the reliability of water supply for the Tweed's future population.</p>
10	All demand management actions should be implemented before augmentation is considered. Time must be allowed for them to take effect, The timeframe for a decision on augmentation is too short.	<p>Installation of water efficient appliances and rainwater tanks has been made mandatory in all new developments. Installations are also encouraged for existing homes, and Council is saving water by increasing the amount of recycled water used each year. But these measures will only delay the need to augment the current water supply system – they are not a substitute for water supply augmentation.</p> <p>Monitoring of demand management measures is an important part of tracking the</p>

No.	ISSUE	RESPONSE
		<p>performance of councils initiatives for demand management.</p> <p>Planning to augment the water supply will take time, and to ensure the Tweed is ready, planning is required now. Council must plan for the earliest date the additional water supply capacity would be required (between 2018-2027). If it is found that future water use is less than what has been predicted, then augmentation of the system can be postponed until such time it is required.</p>
	Demand Management – infrastructure issues	
	<u>Infrastructure Upgrades</u>	
11	<p>Tweed’s water reticulation is energy and cost inefficient and should not be exacerbated with new developments based on a similar approach. Full ecological costs associated with new developments should be factored into government planning including s94 and s64 developer contributions.</p> <p>All dwellings should be individually metered.</p>	<p>Tweed's water reticulation system is operated as efficiently as possible.</p> <p>Assessment of options (both in the Demand Management Strategy and the Water Augmentation Options) has taken into account the ecological costs through the TBL assesment, which is normal industry practice for these types of studies.</p> <p>The s64 developer contribution plans were revised by council in 2007 and were prepared in accordance with the Guidelines for Developer Charges for Water Supply, Sewerage and Stormwater issued by the Minister for Land and Water Conservation (now Department of Water and Energy) in December 2002. The s94 are not related to water and sewerage supply.</p> <p>These guidelines were based on a Determination issued by the Independent Pricing and Regulatory Tribunal (IPART) in September 2000.</p> <p>Ideally all dwellings should be individually metered, however there are historical and practical reasons as to why all sub-lots and multiple occupancy sites are not. TSC is currently investigating ways to improve the sub-metering of these existing and future sites.</p>
	<u>High volume rainwater collection</u>	
12	<p>That Council should make high volume rainwater collection for primary source of water compulsory in all new developments. A minimum of 10,000-20,000L tanks should be required in residential and 40,000L for non-residential (even 7,500-10,000 gallon</p>	<p>10 - 20 kL would not provide a reliable supply. For a Greenfield single family residential property, a 100 kL tank or greater connected to 300 m2 of roof area would be required to meet 100% of the family’s demand. A rural property may have the space for numerous tanks and connected roof area (eg large sheds) but this is not feasible on a suburban block.</p>

No.	ISSUE	RESPONSE
	prescribed).	Currently the disadvantages of using rainwater tanks to supply all of a household's demand far outweigh the advantages due to the lack of water security (much higher probability of running dry than the existing reticulated system) and economics of large stand alone rainwater tanks in areas where potable supply is available.
13	Council has determined that a household of 4 requires 120,000L tank capacity to be self-sufficient. We could aim for 20,000L per household to supplement the reticulated supply enough to ensure existing infrastructure is adequate and avoid the need for new dams. Town water supply should only be as a backup.	<p>Tank sizes that supplement the reticulated supply (ie are not self-sufficient) can provide benefits by reducing average potable water use, treatment requirements, and stormwater runoff.</p> <p>However, supplementary rainwater tanks do not avoid the need to augment the town water supply system.</p> <p>The reason is that the town water supply continues to be used as a back-up, so Council effectively remains the "supplier of last resort" during extended dry periods. When the supplementary tanks run dry Council will need to supply water as if the tanks did not exist (including to rural residential properties as is currently the case). The town system therefore needs to be sized to meet this demand, and augmentation of the system is not avoided.</p>
14	Promotion and funding of rainwater tanks is unacceptable to public health due to risks from Dengue fever. Existing tanks should be maintained through professional service providers reporting back to Council.	<p>Tweed is not a dengue risk area. "Local transmission of dengue has not been reported in NSW for decades." (NSW Health web-site, http://www.health.nsw.gov.au/publichealth/infectious/diseases/dengue.asp).</p> <p>Public health risks associated with rainwater tanks were highlighted in Technical Note 2: Large Stand Alone Rainwater Tanks (MWH, Feb 2010) prepared for the CWG. On this basis TSC recommends that rainwater is used for non-potable applications such as toilet flushing, outdoor use and cold water use in washing machines where potable water supply is available.</p>
15	High volume rainwater collection (self-sufficiency) can be accommodated by ensuring the size of blocks of land is large enough and by using space saver tanks and bladders.	Refer to responses to Issues 12 and 13. Space-saver devices can maximise the volume of water that can be stored in available areas, however they do not change the volume of water required to be stored, and so there is a limit to how much additional water can be stored on an average suburban block. Depending on the type of system used and its accessibility, space-saver storages can also create issues in terms of cost, system longevity, and ease of installation and maintenance.

No.	ISSUE	RESPONSE
	<u>Water substitution</u>	
16	That Council should make all new developments self sustainable (energy and water).	Refer to response to Issue 5.
17	That Council should make water substitution methods compulsory in all new developments, in particular recycling water (effluent reuse) through dual reticulation, greywater reuse, and stormwater harvesting as they are in Pimpama/Coomera and Ballina.	<p>Council needed to have a full commitment in place to recycle water prior to conditioning developments accordingly. Such a commitment would require not only changes in policies and standards but an approved financial commitment to providing the necessary infrastructure when required. Otherwise Council could be challenged in the Land and Environment Court.</p> <p>Options such as these were examined in detail as part of the Demand Management Stage 1 report. It found that these options did not score well in the Triple Bottom Line assessment. Their capital and operation costs were also high. For these reasons, Council has not committed to implementing these options at this point in time. However the DMS recommended they be pursued on an opportunistic basis where possible.</p>
18	Promotion of independence and self-reliance, through on-site water collection and recycling, would help foster a sense of attachment to place and a feeling of unity to others in the community.	<p>Promotion is a powerful tool but does not guarantee a higher take-up rate of participants, particularly with members of the community who prefer the convenience of reticulated systems managed by the relevant water authority and who are prepared to pay for that service.</p> <p>The NSW Government's 'Basix' energy rating scheme makes provision and requirements for water reuse which could be broadened in the future.</p>
19	Recycled water use (dual reticulation) is only financially viable on larger new developments (such as Cobaki and Kings Forest). The opportunity to implement should not be lost.	<p>Agreed; dual reticulation is only financially viable on new development.</p> <p>The Demand Management Strategy - Stage 1 reviewed data for the Tweed and found that options such as dual reticulation were not considered viable, however should be considered if proposed by a developer.</p> <p>The DMS recommends that for major development that requirements above the NSW Government's Building and Sustainable Building Index (BASIX) be pursued through agreement for the provision of 5,000 L Rain Water Tanks with a minimum connected roof area of 160m², dual flush toilets and 3 star shower heads.</p> <p>Refer to responses to Issues 7 and 17.</p>

No.	ISSUE	RESPONSE
	<u>Alternative water sources</u>	
20	Water recycling is required.	Council has been recycling small quantities of water since the 1980s, and over the last decade has increased the amount of water recycled throughout the Shire. This process is ongoing and Council undertook a Recycled Water Options Report in 2006 which identified several potential water reuse options for the Tweed. One of these, at Chinderah Golf Course, has already been implemented and added to the existing water recycling schemes. Others, such as water recycling on the Les Burger Field at Bogangar are in various stages of implementation or investigation.
21	That Council should procure alternative water sources such as indirect potable reuse (ie returning highly treated sewage effluent to Clarrie Hall Dam or Bray Park Weir for all uses including drinking). Returning to Bray Park Weir would make this option more financially viable. Insufficient rationale provided to justify removing Indirect Potable Reuse from the options.	Council has investigated alternative supply schemes (such as reuse schemes) before embarking on this Water Supply Augmentation project. Reuse in particular has been investigated in detail in the Stage 1 Demand Management Strategy which went on public exhibition in 2008. The Stage 1 report looked at the possibility of introducing recycled water in a 'three-pipe system' to supplement 'future major greenfield development sites' at Cobaki, Bilambil heights, Area E (Terranora), Kings Forest and West Kingscliff. A three-pipe system would include a pipe for drinking water, one for sewage and the third to transport recycled water from wastewater treatment plants. The study concluded that although this system would save the equivalent amount of water as the 'rainwater tank' option, both the upfront and ongoing costs of providing a three-pipe network and establishing membrane treatment was significantly higher. These overall combined costs to the community, home owners and council were approximately twice that of the rainwater tank option from a long-term financial perspective - in excess of \$30 million over a period of 20 years.
22	Council should procure direct potable reuse (ie returning highly treated sewage effluent directly to local reservoirs in Tweed and Chinderah). For just \$20mill more, the West Kingscliff Sewage Treatment Plant could have been upgraded to produce potable water quality. Insufficient rationale provided to justify removing Indirect Potable Reuse from the options.	Refer to responses to Issue 5 and 21.
23	If there are community concerns with direct potable recycled water, household rainwater tanks could supply drinking water.	Community concerns (Social acceptability) was one of 10 criteria used to assess each of the preliminary options in the Coarse Screening report. Public health risks associated with rainwater tanks were highlighted in Technical Note 2: Large Stand Alone Rainwater Tanks (MWH, Feb 2010) prepared for the CWG:

No.	ISSUE	RESPONSE
		<p>http://www.tweed.nsw.gov.au/Water/WaterSupplyAugmentation.aspx (under Downloads)</p> <p>On this basis TSC recommends that rainwater is used for non-potable applications such as toilet flushing, outdoor use and cold water use in washing machines where potable water supply is available.</p>
24	Greywater recycling to potable standard was discounted on technological grounds - but this is widely practiced in Europe. Why couldn't it be pumped directly into the Bray Park weir to run through the new Water Treatment Plant?	This amounts to discharging untreated greywater directly into the Tweed River and polluting it. Council would not be permitted to do this under existing environmental legislation and would not be considered "greywater recycling". Intentional contamination of the Bray Park Weir water source used for supply of the potable town water supply is in complete conflict with NSW Health regulations.
25	Sewage effluent can be dumped vertically to generate hydro-electricity. This power, along with methane generated in digesters, can be used to pump effluent through filtration and UV and other purifying systems to produce water for re-use.	Council's sewage treatment plants are situated approximately at sea level, and there are few opportunities for hydro-electricity generation using this method. Council's current treatment plants are all based on aerobic treatment processes.
26	The existing water supply is adequate for our current and projected population for at least 20 years, especially if 22,500L rainwater tanks and other on-site recycling systems including simple lowcost filters for drinking water were used.	<p>This is incorrect.</p> <p>Refer to responses to Issues 12 and 13.</p> <p>Simple filters can be utilised to remove some contaminants, but these require on-going maintenance, need to be disposed of once used, and may not be so cost effective. One alternative (although often used after filtering) is to disinfect with UV, however this is expensive and requires specialist on-going maintenance.</p>
27	A vehicle for dissemination of more, clearer and more timely information into the community is required.	<p>Point noted. Council is investigating ways of improving future community consultation, and has been gauging the success of this phase of the community consultation process. The process represented a major undertaking for Council, both in terms of time and resources, and was important for Council to receive feedback.</p> <p>Since submissions closed, former members of the Community Working Group (CWG) met with Council officers to provide feedback on the positive and negative aspects of the process, and to recommend how the community consultation process could be improved in the future.</p>

No.	ISSUE	RESPONSE
		<p>In addition, an independent observer from Southern Cross University has also provided Council with an independent viewpoint of the process, which will be used to improve similar processes in the future.</p> <p>http://www.tweed.nsw.gov.au/Water/WaterSupplyAugmentationWorkingGroup.aspx</p>
28	<p>Community consultation was a sham - the decision to raise Clarrie Hall dam has already been made. It has been a deceitful process, pre-planned to achieve pre-determined outcomes.</p>	<p>This is incorrect.</p> <p>The original Coarse Screening report used an MCA to rank all options. Clarrie Hall dam was only one of the options under investigation. The MCA gave Clarrie Hall dam the highest score based on the information available at the time. The intention of Council has always been to conduct further investigations and a more rigorous analysis in the Fine Screen MCA.</p> <p>Council's intention has been to gather information from stakeholders and the community on environmental, cultural and social issues in order to assist in determining the most appropriate option in the Fine Screen MCA. Given the complexity of the MCA (involving 10 criteria and 4 options = 40 variables) it is difficult for Council to pre-determine the result.</p>
29	<p>It would appear that Council has deliberately failed to inform the CWG that one of the options they have been given to consider is in fact specifically prohibited. This makes a mockery of the entire community consultation process regarding our future water supply options. Some have written to the Minister about this serious breach of transparency.</p>	<p>This statement is incorrect for several reasons.</p> <p>The option referred to is the dam on Byrill Creek, and the State Government document is the draft Water Sharing Plan for the Tweed River.</p> <p>Council did not attempt to conceal this document and is not responsible for the document. It has been drafted by the DECCW (NSW Office of Water), and they are responsible for its distribution and for requesting comments to the plan.</p> <p>The Water Sharing Plan is a draft document only, and has not been gazetted by the Minister. It is also not certain whether the clause regarding Byrill Creek will remain in the final version of the plan.</p> <p>Council is therefore bound to continue to carry-out the options selection process based on the existing regulations, which do not prohibit the construction of a dam on Byrill Creek.</p>

No.	ISSUE	RESPONSE
		It is noted that once approved, the conditions in the plan would become part of the framework for any water resource augmentation.
30	Needed a mechanism to better engage the broader community (eg referendum) who are generally complacent unless you discuss with them directly. The process required an extended timeframe, with better and earlier involvement of the community.	Refer to response for Issue 27
31	Council should be congratulated for being proactive in engaging the community. It has attempted to disseminate a vast amount of information, create debate, include community input and encourage feedback.	Refer to response for Issue 27
Demand Management – management issues		
<u>Water reduction initiatives</u>		
32	Council should encourage water savings through community education implementation of waterwise initiatives in all dwellings and permanent water restrictions.	<p>Education and promoting water savings and restrictions are some of the key recommendations from Council's Demand Management Strategy and the Drought Management Strategy to encourage water savings.</p> <p>The Drought Management Plan proposes that permanent restrictions will be implemented in July 2012.</p> <p>Low level permanent restrictions may include the following:</p> <ul style="list-style-type: none"> • Watering on alternate days (3 days per week) for odd and even house numbers • External water use only during the hours of 6am to 9am and 5pm to 8pm • No runoff allowed from watering into gutters and stormwater systems • Vehicles not to be washed on hard surfaces and trigger sprays to be used.
<u>Price of water</u>		
33	Council should increase the base price of water and decrease the water volumes which trigger the step price increase for excess consumption. Council should also target water use of 150L/p/d or lower (such as in SEQ and Melbourne). Why is Tweed aiming at only 205L/p/d water usage	<p>This "inclining block tariff" approach is recommended in the DMS and is in line with Council policy and what is considered best practice.</p> <p>From TSC web-site: "To encourage water conservation, high residential consumers are subject to a 50% step price increase for consumption in excess of 450 kL per year. From July 2010, it is proposed to implement this 50% step price increase for consumption in excess of 350 kL per year. " http://www.tweed.nsw.gov.au/Water/WaterPricing.aspx</p>

No.	ISSUE	RESPONSE
		<p>205 L/p/day is a short term target (2012), ultimate average shire-wide target in 2036 is 170 L/p/day.</p> <p>The target set in Melbourne and SEQ (155 L/p/day target and 140 L/p/day, respectively) are targets set under severe drought restrictions - not long term conservation goals. The long term planning target for SEQ is for 230 L/p/day.</p>
	<u>Rebates</u>	
34	That Council should provide rebates for installation of rainwater tanks and retro-fitting of water efficient appliances.	Rebates for rainwater tanks was considered in the Stage 1 DMS but was deemed not to be cost-effective. Shower head rebates and home water audits are proposed as part of the DMS.
35	Instead of spending \$75M at Bray Park and \$35M on a dam (\$110M total), Council could provide \$500 rebates for rainwater tanks to all the houses projected to be in the shire in 2036.	<p>The \$110M referred to provides a secure water supply (through water treatment and the dam) for an estimated population in 2036 of 157,000. The increase in population from today is approximately 80,000, which roughly equates to 30,000 new houses.</p> <p>To install equivalent self-sufficient rainwater tanks would cost over \$20,000 per residence. If the \$110M was divided amongst residences, the equivalent rebate would be only \$3700 per dwelling (assuming no rebates to commercial and industrial customers).</p> <p>For comparison, the shire-wide cost to make all new developments self-sufficient on rainwater tanks would be at least 30,000 x \$20,000 = \$600M.</p>
	<u>Community Working Group (CWG)</u>	
36	The make-up of the CWG did not adequately represent stakeholder groups. Not all members were open or committed.	<p>Other consultation tools are available, however the make-up of the CWG was considered the most appropriate to enable a variety of views from the community to be directly represented in the process.</p> <p>All CWG applicants were required to agree with the CWG Terms of Reference which outlined the make-up of the CWG and the responsibilities of its members in terms of representing their particular stakeholder group. It is acknowledged that some CWG members did not feel comfortable representing their stakeholder group.</p> <p>The Terms of Reference stipulated that all members were to be open and committed to the process.</p>

No.	ISSUE	RESPONSE
		This feedback is noted and will be used to assist Council improve community consultation in the future (Refer to responses to Issues 27 & 39).
37	Some of the CWG felt all of the nine options and demand management options should have been part of the process from the beginning.	<p>This feedback is noted.</p> <p>All CWG applicants were required to agree with the CWG Terms of Reference which specified the scope and focus of the process. The Terms of Reference clearly stated that the four short-listed options would be the focus of the CWG.</p> <p>It is worth noting that not all members felt constrained, with members expressing a range of views, for example these quotes from the CWG report:</p> <ul style="list-style-type: none"> - "correct approach was taken - not spending excessive time and resources by studying lots of options in depth with the preferred decision based on available information" - "there was already too much information to comprehend without including more options" - "impossible to go to the public with more options" - "Council started at a sensible place in the process"
38	The CWG process was rushed and the time span was insufficient for meaningful consultation. The community needs to see that recommendations from the CWG are followed or the process will be little more than a sham.	<p>This feedback is noted. However, as stated in the CWG Terms of Reference, the recommendations from the CWG will not be considered alone.</p> <p>The recommendations from the CWG process and report will be used as <u>one</u> of the inputs to the Fine Screen MCA process. In particular, CWG recommendations have been utilised to fine tune the MCA weighting and rating system to better incorporate community views on environmental and social issues.</p> <p>In addition, the MCA will make use of information from reports, community information sessions and submissions received during the extended submission period (which came about due to the recommendations of the CWG).</p> <p>Council will reference and utilise all these sources of information when determining a preferred option.</p>
39	There were instances where the CWG misunderstood the process. It was never the intention for the group to reach consensus - this	Acknowledged. Council has met with ex-CWG members since the process ended to discuss ways of improving Council's community consultation in the future. These

No.	ISSUE	RESPONSE
	was imperative for all voices being heard. That the majority penned a statement of their own was indication of frustration felt by some that their contribution to the process would otherwise be of little value.	recommendations have been forwarded to Council's Communications and Marketing Unit for inclusion in its ongoing review of Council's Community Consultation Strategy.
40	The time and effort of the independently selected members of the Community Working Group should be acknowledged.	Agreed. Council has acknowledged the substantial commitment by CWG members on numerous occasions. This has taken the form of personal thanks, public statements & media releases, and gift hampers presented to each member by Councillors. Council wishes to take this opportunity to thank all ex-members of the CWG for their interest, time and commitment in assisting Council by providing valuable information for a decision of such importance to the Shire.
41	The CWG process did not allow many members to discuss items of importance to them in a meaningful way. Greater clarity and better facilitation was required to better empower the group and improve the outcomes.	Acknowledged. Refer to responses to Issues 37 & 38.
<i>Forward thinking Council</i>		
42	Outdated unsustainable solutions of damming should not be pursued. Why doesn't Council lead the way with sustainable solutions?	<p>The focus of Council's IWCM Strategy is to pursue best practice management of water resources in an integrated and sustainable manner. The first action in this strategy Council has undertaken is to target water reductions through demand management. Council is also assessing sustainable water supply and has assessed a range of possible augmentation options.</p> <p>The various water supply alternatives and demand management measures have been assessed against a quadruple bottom line sustainability assessment. The preferred options from these assessments follow best practice, and are considered the most sustainable solutions available to Council.</p>
43	Regulatory impediments to the enforcement of more stringent and sustainable water management must be removed.	<p>Council is obliged to work within the regulatory framework. Council continues to work together with State and Federal agencies to improve the regulatory framework and remove restrictions where appropriate.</p> <p>Refer to response to Issue 5.</p>
44	The Demand Management, Drought Management and Supply Augmentation strategies were all produced by MWH, resulting in little opportunity for peer input or review. The recommendations	Members of the CWG have written to Council's General Manager to request an independent expert review of the three studies in which MWH has been involved. One of these studies is a collaborative effort between MWH, NSW Public Works (Dams and Civil)

No.	ISSUE	RESPONSE
	<p>in these strategies result in a mostly “business as usual”, “dollar focussed” approach. MWH was involved with the background studies for the Traveston Dam which were disputed, and their studies on the Tweed may also be disputed. Council should follow the CWG’s recommendation for an independent expert review of the proposed demand management and water augmentation approaches.</p>	<p>and Environmental Hydrogeologists Associates, all of which contributed in the areas of their respective expertise, and thereby provided opportunity for peer review. Furthermore, this work has been based on previous studies by acknowledged specialists such as GHD and Hunter Water.</p> <p>All work to date has been carried out by independent experts. The variety of reports used on this project show the breadth and depth of that independent expertise and have included information from all of the following experts: Montgomery Watson Harza, NSW Public Works, Hunter Water, SunWater, Water Solutions, GHD, Southern Cross University, Converge Heritage & Community, Greenloaning Biostudies, Eco-sure Environmental Consultants, Tweed Landcare Inc., and Peter Parker Environmental Consultants.</p> <p>In addition Council and its consultants are continuing to work with independent relevant government agencies, particularly licensing authorities, to ensure their requirements are met through this ongoing review process. Council has requested feedback and advice from the following licensing and regulatory authorities during this process: NSW Office of Water, NSW Fisheries, National Parks, NSW Forestry, NSW Health, Department of Planning and Northern Rivers Catchment Management.</p> <p>Given that each of the participants are recognised experts in the water field, it is difficult for Council to justify further significant expenditure on expert reviews of the work already undertaken by experts. Given that Council would need to engage the said independent reviewer, there are also questions as to whether the community would accept the independence of this additional process.</p> <p>Finally, MWH was not involved in any studies concerning the Traveston Crossing Dam project. MWH reported to the Queensland Water Commission on the SEQ Water Strategy in relation to demand management strategies in face of the millenium drought.</p>
45	<p>The significant cost of the Bray Park WTP means that Council is not prepared to support alternative water supply options that will not utilise (and pay for) water from the new plant.</p>	<p>This is incorrect. Council is committed to pursuing the most sustainable and cost effective solution for the future of the Tweed community.</p> <p>Refer to response to Issue 35</p>
	<p><u>Extension of time for submissions</u></p>	
46	<p>Community groups are under much pressure to respond within the</p>	<p>Point noted. This and other requests resulted in an extension of the date of submissions.</p>

No.	ISSUE	RESPONSE
	scheduled timeframe.	
	<u>Global best-practice water management</u>	
47	Composting Toilets have not been given enough attention and Council should have designs which are approved and can implemented available for new and retro-fitted constructions.	<p>There a number of benefits from composting toilets, however, successful operation of composting toilets may require intensive user intervention and understanding of various issues relating to ongoing maintenance: insects/flyes (e.g. disease vectors for pathogens), odours, mechanical or electrical failures, or inappropriate use of toilets (i.e. addition of chemicals).</p> <p>Other issues of concern may arise due to possible contamination of adjacent soils and waterways as a result of the excess liquid (or leachate) disposal, use of compost prior to pathogen die-off, and poor environmental conditions required for composting (C/N, moisture, temperature). NSW Health regulations require both liquid and solid waste material to be removed and disposed of adequately. Cost effective disposal is usually on site, however the buffers required to neighbouring land will preclude most areas in urban environments. Alternatively, liquid (urine) could be diverted directly to the sewer and a registered waste collector could be contracted to collect and dispose of solid waste external to the block.</p> <p>Given these issues, the use of composting toilets is not recommended for wide scale adoption. Council encourages it in unsewered areas, and while it does not prohibit the installation of composting toilets in urban areas, it is not recommended.</p>
	<u>Water licenses</u>	
48	The DMS should include better control over water extraction licenses for river and groundwater extraction by agriculture and other uses.	Water extraction licenses and groundwater extraction licenses are regulated by the NSW State Government. Council, and its Demand Management Strategy, does not have jurisdiction to control these issues.
	<u>Draft Water Sharing Plan</u>	
49	Until the Minister for Water finalises the Tweed Water Sharing Plan, Council doesn't have any options that can be considered for public comment. How can the public comment on options that have not been given the consent by the NSW Office of Water? Byrrill Creek Dam is prohibited, interstate and inter-region water exchange is prohibited and the environmental flow restrictions on Clarrie Hall dam may render it unviable.	<p>The Tweed Water Sharing Plan is still in draft format and is due to be approved in Oct 2010. There is nothing which is currently known to prohibit any of the short-listed options.</p> <p>Furthermore Council has undertaken extensive consultation with the NSW Office of Water to receive feedback on all options and the viability of each. Following that extensive consultation the Office of Water stated that <i>"At this stage the Office of Water does not propose to make any further comment on the alternatives presented, [and it] believes</i></p>

No.	ISSUE	RESPONSE
		<p><i>council will have sufficient input from the Planning Focus Meeting [held with all government agencies], the community consultation CWG and public comments from the exhibition phase to prepare a representations / recommendations report."</i></p> <p>As with other government agencies, the Office of Water is unable to grant consent to multiple options at this early phase in the process. Further in depth consultation will be required once detailed studies and an Environmental Assessment on the preferred option have been prepared. Council will also be required to apply to the Office of Water for construction and operating licenses for the preferred option as part of any approvals process.</p> <p>Refer to response to Issue 29.</p>
	Water Augmentation Options	
	<u>Existing situation</u>	
50	If the Tweed currently consumes 12,000ML/a and our license is for 27,000ML/a then there is no need for dam options and Council has time to investigate other approaches.	<p>The demand on the Bray Park supply system is actually around 10,500 ML/a, while the secure yield of this system is currently 13,750 ML/a.</p> <p>Councils water licence entitlement is 27,500 megalitres per annum and was determined by the relevant state government department at the time of the construction of Clarrie Hall Dam (early 80's). It would have been based on the secure yield of the system as determined by the predecessor to the current IQQM water supply model. That model utilised historic rainfall and climatic data as does the current model but was simulated on a monthly basis and did not include a 95%ile environmental flows. The latest IQQM also utilises an additional 25years worth of rainfall and flow data (including the 2002-03 drought). This results in a reduced secure yield. The secure yield has been peer reviewed and is considered robust and accurate.</p> <p>Whilst the secure yield has reduced from 27,500 to 13, 750 ML/annum the water licence allocation was not reduced as it is an entitlement already granted to Council and the community.</p>
51	If Clarrie Hall dam can hold 16,000ML and we're only using 10,500ML/yr then we have more than 5,000ML in excess, with one of the highest rainfalls in the state, and nothing needs to be done.	There is no direct correlation between the volume of a dam and its secure yield. The unique dam and climatic characteristics combine to determine the actual amount of water that can be reliably supplied.

No.	ISSUE	RESPONSE
		<p>The value of 16,000ML refers to the maximum volume of Clarrie Hall Dam, however not all of that water is useable. Some water at the bottom of the dam is inaccessible; Council must release some of the water for environmental flows; and water is lost through evaporation, seepage and during transmission down the Tweed River to Bray Park Weir.</p> <p>The dam is only used to supplement flows during dry periods. The Tweed gets most of its water from the Tweed and Oxley Rivers (and all tributaries) up stream of Bray Park Weir. This system is able to reliably supply 13,750ML/a (ie its Secure Yield).</p> <p>Whilst demand is currently approximately 10,500ML/a, demand forecasting has shown that the secure yield (13,750ML/a) will be reached in the next 8 to 13 years. So while TSC has enough water now, there is a need to plan for future augmentation.</p>
52	<p>Conflicting figures stating an extra 3,250ML/a is required, while the DMS states 5,250ML/a. Why to do we need options of 22,000ML at CHD or 36,000ML at BCD - isn't this excessive?</p>	<p>Stage 1 of the DMS stated 5,250ML/a, however this became 3,000ML/a in the final combined DMS report based on the revised figures in the Stage 2 report.</p> <p>The value of 3,000ML/a is rounded and refers to the additional Secure Yield required. The existing water system has a secure yield of 13,750ML/y and results from the combination of the Tweed and Oxley Rivers (and all tributaries) up stream of Bray Park Weir plus Clarrie Hall Dam.</p> <p>Secure Yield is the annual volume that can be supplied by the entire water system with a very low probability of failure. In simple terms failure should only occur if the worst drought on record is repeated. In Tweed's case the probability of that happening is very low based on 120 years of rainfall information, this includes applying water restrictions when needed. To have a secure water supply for 157,000 people, we would require a system with a Secure Yield of 16,750ML/a.</p> <p>In order for the entire system (ie rivers and dam) to provide this secure yield, modelling has shown that additional water is required. This could be supplied by increasing the size of CHD from 16,000ML to 42,300ML of storage volume, or alternatively by building a new BCD with a 16,300ML storage volume. The size of dams have also been chosen to provide economies of scale as well as efficiency and constructability.</p>

No.	ISSUE	RESPONSE
		<p>Uncertainties such as climate change have also been taken into account (refer to response to Issue 95). It is worth noting the current national approach is tending towards provision of 12 months contingency storage which for Tweed system is more conservative than what is currently applied.</p> <p>The 36,000ML dam at BC refers to the ultimate size of a possible future dam (if BCD were to be raised again in the future - eg in 30-50 years time).</p>
53	<p>Given that Clarrie Hall dam contains 16,000ML, the weir at Bray Park is able to supply 13,750ML/annum, and only 3250ML/annum additional supply is required until 2036 it would appear that we have enough water for a population of 500,000.</p>	<p>The dam volume (measured in cubic metres) and the secure yield of the system (measured in likely water volume per year) are not directly comparable. The secure yield is not determined by simple calculation but by a sophisticated computer model (IQQM). It is determined by taking the dam volume into account, along with rainfall data, evaporation rates, seepage rates, environmental flow releases, water restrictions, transmission losses, and other factors in a statistically based model.</p> <p>In simple terms it looks at the worst year or period on record and determines what amount of water can be extracted without the system failing. For our current system that was the 2002/03 drought (it was more severe than the previous 1902/3 drought). In this 12 month period if the 95%ile flow regime was in operation an amount of 13,750 megalitres could have been extracted from the weir pool at Bray Park.</p> <p>The methodology is based on NSW State Government guidelines to ensure consistency across regions.</p> <p>Refer also to response to Issue 52.</p>
	<p><u>Process and Approach</u></p>	
54	<p>Limited number of well thought out options - Lack of rigour in exploring other options. Too much emphasis has been placed on supply rather than demand options. The shortlisted options promote an unsustainable and wasteful lifestyle.</p>	<p>The two issues are inter-related and need to be looked at together.</p> <p>Refer also to responses to Issues 8, 9, 10 & 58.2</p>
55	<p>The current ratepayers will be paying for the future water users. A separate charge should be imposed on the new developments for the additional costs involved with the upgrade of the water supply.</p>	<p>A separate charge is levied on all new development to pay for the additional costs associated with providing new or upgraded infrastructure to meet the requirements of the development.</p>

No.	ISSUE	RESPONSE
	Rural areas are subsidising the unsustainable coastal fringe.	<p>Council levels charges for the cost of augmenting the water supply on all new developments. These charges are based on the estimated future capital cost and projected population, and are reviewed every five years. In this way augmentation is paid for by the new developments that produce the additional demand.</p> <p>To ensure an ongoing water supply, Council will need to augment the system prior to the construction of the all new developments (and prior to receiving the full amount of developer charges). Council would then borrow a portion of the capital costs which would incur financing costs (loan costs). These are not fully recouperated from developer charges and under the LGA Act Council is not permitted to include the cost of financing. This additional cost is met by the entire rate payer base. Depending on the timing of the infrastructure, the amount borrowed and the financing conditions, the increased cost to ratepayers is estimated at between 0.5-1.5 cents per kL.</p>
56	Concerns that the available data and information has been, and continues to be, insufficient to support the MCA analysis.	<p>Noted, however Council believes the data utilised is adequate to enable the MCA to determine a preferred option. Council has followed a phased process which aims to provide information appropriate to the particular phase.</p> <p>The Fine screen MCA aims to assess the relativity between options, and to highlight any "show stopper" issues which would cause excessive risks to Council and the community. The report aims to highlight the potential benefits and any negative impacts from each of the options to assist Council in determining a preferred option for the good of the whole of community.</p> <p>Subsequent stages will focus on more detailed planning issues to ensure all impacts are assessed and appropriate mitigation & management strategies are developed.</p> <p>Refer also to response to Issue 58.</p>
57	The available data is adequate for this stage of the process. Council has taken a sensible, efficient approach.	<p>Acknowledged. This is the approach which has been followed.</p> <p>At each stage in the process, Council has invested more time and resources while focussing on fewer options. This aimed to provide more detailed information in order to improve decision making. The Coarse Screening (Stage 2) Report investigated the nine options. The Fine Screen (Stage 3) has utilised more detailed information and additional reports</p>

No.	ISSUE	RESPONSE
		<p>focused on the four short-listed options. Subsequent stages will involve more detailed information focussed on the preferred option only.</p>
58	<p>There is no consensus within the community on the most appropriate method(s) to augment the water supply in terms of reduced environmental, social and economic impacts.</p>	<p>The range of views and responses highlights several issues including:</p> <ul style="list-style-type: none"> - the diversity of the Tweed community - the sensitive nature of the project - the complexity of the issues - the diveristy of opinions on environmental, social and economic issues - the difficulty (time, interest, expertise) of accessing and interpreting information <p>It also highlights the difficult nature of the decision that must be made by Council. There is no perfect solution, and all options have positive and negative impacts.</p> <p>The MCA methodology is ideal for these complex assessments containing 'grey areas' where clear-cut decisions difficult. The MCA assesses all of the advantages and disadvantages against a quadruple bottom line to determine the overall best option.</p> <p>Council's cautious and staged approach aims at providing the best available data in order to make an informed decision.</p> <p>Refer to Issues 58.1 to 58.9.</p>
58.1	<p>I support and endorse all of the options and more.</p>	<p>Acknowledged.</p>
58.2	<p>The coarse selection of bulk water supply options was considered to be inadequate, with too few similar dam choices and no regard to other more suitable bulk water supply choices.</p>	<p>The broadest possible range of possible solutions based on international best practice have been investigated for the project.</p> <p>A range of nine options have been considered during the Coarse Screen report of which six were options not involving dams:</p> <ol style="list-style-type: none"> 1. Raising the existing Clarrie Hall Dam 2. New dam on Byrrill Creek 3. New dam on Oxley River, near Tyalgum (Rocky Cutting site). 4. Pipeline from Rous Water 5. Pipeline from South East Queensland Water Grid 6. Desalination 7. Groundwater supply

No.	ISSUE	RESPONSE
		<p>8. Indirect potable reuse 9. Direct potable reuse</p> <p>Additional options were also assessed in Council's Demand Management Strategy and Technical Papers including:</p> <ul style="list-style-type: none"> - third pipe water recycling - fourth pipe water recycling - greywater reuse - stormwater reuse - rainwater tanks
58.3	Incredibly, the singular 'Direct potable use' (Option 9) became a main Tweed option in the Coarse Screening Assessment.	<p>Option 9 'Direct potable use' is an option with potential to polarize the community. There are those within the community who believe it should not be considered, but there are also those who consider it as a logical option. Council would have been remiss had this option not been included in the Coarse Screening report.</p> <p>Refer to issues and response to Issues 22, 23 and 58.3.</p>
58.4	Option 9 (Direct Potable Reuse) is the least environmentally damaging, but even this relies on fossil fuels for pumping and purification.	<p>Option 9 was assessed during the Coarse Screening stage. It was found to provide some benefits over other options, however there are also disadvantages which needed to be considered.</p> <p>All options have impacts and consideration of these impacts from a whole of community perspective is required to determine the most appropriate option.</p>
58.5	Unless more sustainable measures are implemented, cheaper and less sustainable solutions will prevail and ultimately delay the implementation and growth of sustainable development.	Agreed. This is why an MCA has been used to assess the sustainability of the options, rather than just an assessment of costs. The results of the MCA assessments are that the most sustainable options are selected in terms of environmental, social, economical, and governance issues.
58.6	Council did not consider stormwater harvesting, rainwater tank or recycling options.	Yes, these options were explored in depth in both the DMS and the Water Options study when considering new development areas in TSC.
58.7	Only the cheapest options have been considered.	A range of nine options have been considered during the Coarse Screen report. The most expensive options considered have capital costs up to six times the price of the cheapest option.
58.8	The cost of alternative water supply technologies (stormwater harvesting, greywater harvesting, water recycling, rainwater tanks)	This is a myth, numerous studies have shown that decentralised solutions can often cost more than centralised solutions on an annualised cost basis. A thorough costing exercise

No.	ISSUE	RESPONSE
	is miniscule in relation to the estimated cost of building a new dam.	was conducted for both the WSA and DMS reports.
58.9	The estimated costs of either dam are too high and totally unacceptable , particularly when other far less expensive and more environmentally sensitive options are available.	Option costs and their environmental characteristics were two of the ten assessment criteria used to consider preferred option for water resource augmentation. Each option was assessed based on a QBL assessment of all ten criteria.
59	The four options presented are contrary to Government policies and legislation (Northern Rivers Catchment Management Plan, Tweed Macro Water Sharing Plan, National Water Sensitive Cities Strategy).	<p>This is not correct. The draft Tweed Area Water Sharing Plan does not preclude any of the options. Northern Rivers Catchment Management with whom Council is in consultation, has not suggested that the options are precluded by their plan. Council's Demand Management approach follows best practice guidelines for water use and sustainable approaches including those set by the National Water Initiative (NWI) and the NSW Office of Water. Furthermore, Council's Integrated Water Management Strategy has Water Sensitive Urban Design as one of its 18 key actions.</p> <p>Refer to Responses to Issues 29 and 49.</p>
60	Contingency options should be reviewed every two years especially where new innovations in water recycling and use come on line and evidence that they are economically feasible to apply.	<p>Point taken.</p> <p>The objective of this phase of the Water Supply Augmentation project is to review all of the options and determine the preferred option that is the most sustainable and with the least risk.</p> <p>The subsequent phase will focus on carrying out investigations & designs, examining impacts, and gaining development approval. This subsequent phase is expected to take a number of years (4-8 years).</p> <p>Once development approval has been granted, construction could commence or be delayed as required. Construction could proceed depending on the need shown by the actual and projected population growth and per capita water demand figures at that time.</p> <p>Council will continue to stay abreast of the development of alternative options during this time, whereby the approved option could be compared to any latest developments.</p>
61	Perception that the conclusions of the Demand Management Strategy are weighted specifically to create the promise that the Shire has no option other than to undertake some massive centralised water infrastructure project. There should be a shift	The DMS has been carried out following NSW Office of Water guidelines (refer also to response to Issue 59). The Water Supply Augmentation project is in response to the identified shortfall in supply after savings from the DMS have been taken into account.

No.	ISSUE	RESPONSE
	from hard infrastructure towards decentralised supplies which cause less devastation.	<p>Future urban planning in the shire is towards centralised developments and their economies of scale for servicing requirements. It is also generally more difficult for decentralised schemes to provide adequate secure yield. Even local best practice examples such as in Pimpana/Coomera do not attempt to provide decentralised water supplies.</p> <p>The currently proposed development model does not permit effective implementation of decentralised schemes.</p> <p>Refer to responses to Issues 35 & 45.</p>
	<u>Dams</u>	
62	Dams are unsustainable, deplete our waterways and result in a decline of water quality. Dams only have a 50 year lifespan. For these reasons dams are being dismantled around the world wherever possible.	<p>All options have impacts and consideration of these impacts from a whole of community perspective is required to determine the most appropriate option.</p> <p>For this reason, dams are not the only options that Tweed are investigating.</p>
63	Dams are outdated technology. Only the fastest/cheapest/easiest engineering solutions have been considered. London is an example of sustainability where the Thames River is its main water source and there is not dam supply.	<p>A number of innovative engineering solutions have been considered in both the DMS and WSA, including dual reticulation, indirect potable reuse, direct potable reuses, rainwater tanks, desalination, groundwater, pipeline links to cross-boundary water supplies.</p> <p>The comment regarding the Thames is not strictly correct given that the Thames utilises a number of off-line dam storages to ensure a reliable supply. The existing CHD and the proposed BCD are based on a similar concept, and under existing legislation and licensing, are considered off-line storages that do not dam flows in the Tweed river.</p>
	<u>Raising Clarrie Hall Dam</u>	
64	Is unacceptable as it will flood significant areas of native forest (and Native Park), significant vegetation, farmland, residential land, roads, sites of Aboriginal cultural heritage. It would mean 210ha of land would be flooded, affecting 24 property owners, and relocating McCabes bridge.	<p>The impacts will be acknowledged and used in the assessment criteria.</p> <p>All options have impacts and consideration of these impacts from a whole of community perspective is required to determine the most appropriate option.</p>
65	To increase the water Clarrie Hall dam can supply, Council should construct a holding pond on the Tweed River and pump water (run on solar energy) from this to the dam during periods of high flow.	<p>During periods of high flow Clarrie Hall Dam would normally be full. Constructing a holding pond on the Tweed River would require more stringent controls than a new off-stream storage (such as proposed at Byrill Creek) and is unlikely to be approved. The increased energy and cost, and lower reliability would mean it would be a less effective option than Clarrie Hall Dam raising and would rate significantly lower on most criteria.</p>

No.	ISSUE	RESPONSE
66	If demand management measures can not support the population, the most sensible choice is to raise Clarrie Hall Dam. Least environmentally damaging since the impacts have mainly already occurred. It will be important that the EIA process is comprehensive and mitigation measures are identified and implemented into the development conditions. Adequate emergency plans should also be put in place.	Noted. All of these issues will be included in Fine Screen assessment. A significant number of further impact studies and approvals would be required for the preferred option.
67	There are too many unanswered questions to support a solution. Will the dam affect access to Commissioners Creek Rd. Will construction affect the peace, access, and how long will it take?	These impacts will be considered in the assessment criteria. In any case, a significant number of further impact studies would be required for the preferred option.
68	Current dam releases polluted toxic foul-smelling water.	<p>When water is released from the dam, it can come from a low oxygen environment in the deep water behind the dam wall. The water is not toxic, however the low oxygen content could have negative impacts on the downstream environment if not treated. Water is treated by releasing it through a conical dispersion valve to maximise mixing and re-oxygenation. This process releases hydrogen sulphide gas which produces a "rotten egg" smell.</p> <p>During this process excess soluble iron oxide and manganese are also precipitated out of the water and attach to the rock producing brown stains at the base of the dam.</p> <p>Field investigations on Doon Doon Creek below the dam have shown that the dissolved oxygen content of the released water is above saturation levels some 60m downstream of the outlet.</p>
69	The seven metre buffer currently proposed seems excessive and should be reduced if possible.	<p>The seven metre buffer is an estimate based on the information currently available.</p> <p>Further detailed design work would be undertaken if CHD were the preferred option. This would provide more accurate estimates for the required buffers. Subsequent EIS process may also propose revised buffer zones based on the impacts to landholders, the environment, cultural heritage, and infrastructure.</p>
70	Council has been required since 2002 to enlarge the spillway but has delayed works pending the decision on whether or not to raise the dam wall. This work still needs to be done regardless of whether the wall is raised.	Correct. The NSW Dam Safety Committee, responsible for ensuring dam safety throughout the state, agreed in 2002 for works to be delayed until such time Council determines its preferred option. If an option other than CHD is chosen, then the spillway will need to be upgraded as a separate project.

No.	ISSUE	RESPONSE
		<p>If CHD is the preferred option, the DSC may agree to allow the spillway to be further delayed until such time the dam needs to be raised to increase the water supply. However, the DSC may not agree to further postponement and work on the spillway (currently estimated at \$5M) may need to be carried out prior to the dam being raised.</p>
71	<p>Many landholders at Doon Doon Creek were dissatisfied with the way they were treated when Clarrie Hall Dam was constructed. The figures in the budget for compensation does not inspire confidence. Compensation to affected landholders needs to be appropriate and tailored to individuals. Fair financial compensation will be acceptable to most of the affected landholders.</p> <p>CHD landholders were burdened last time. Its time that burden passes to others.</p>	<p>The compensation process has changed markedly since the original dam was built. Compensation must be negotiated with affected land owners. Property holders are protected under the Land Acquisitions (Just Terms Compensation) Act 1991. Under that act Council must negotiate a fair price with the landholder, which must be equal or greater to the unaffected market value of the property (ie the market value before the development was considered). Other factors are also taken into account such as severance of property, ongoing loss of income and hardship or difficulties.</p> <p>Figures for compensation have been reviewed and included in the revised cost estimates within the Fine Screen report. At this stage, these are estimates for comparison purposes only. Council will be required to negotiate with individual owners. Once a development approval has been granted for the development the acquisition process can begin. The process is one of negotiation. Usually this will mean that both the landholder and Council will engage valuers to value the property and any other factors and then use these values as a basis for negotiations. If for some reason the parties can not agree on a final value for compensation the case is referred to the NSW Valuer General who is bound by the Act and must determine the value of the just terms compensation.</p> <p>These issues will be incorporated in the Fine Screen report.</p>
72	<p>Investigate the feasibility of a micro-hydro power plant as part of the augmentation.</p>	<p>Micro-hydro power has not been included in this early stage of the process. Council would be able to consider the viability and appropriateness of power generation if the dam becomes the preferred option.</p>
	<p><u>Byrrill Creek Dam</u></p>	
73	<p>Too high Social, Cultural Heritage & Environmental problems to be considered an option.</p> <p>From the evidence we have Byrrill Creek must be removed from the list of viable options</p> <p>Object as it will flood some of the highest conservation value land</p>	<p>TSC takes notice of the concerns expressed by the CWG and the community in terms of the environmental and social impacts associated with a dam at Byrrill Creek, particularly its environmental significance.</p> <p>These impacts will be considered in the assessment criteria. In any case, a significant</p>

No.	ISSUE	RESPONSE
	in the Tweed, is a regionally significant biodiversity hotspot adjacent to the Mt. Warning World Heritage National Park. Major drawcard for tourism. Road closures will occur. Residents and communities will be severely affected.	number of further impact studies would be required for the preferred option.
74	Are we damming our hinterland valleys to provide for coastal development that will ultimately be lost to the sea due to future climate change?	Not all options involved dams. Refer also to responses to Issues 2 to 7.
75	<p>Building a dam at Byrrill Creek potentially provides positive outcomes:</p> <ul style="list-style-type: none"> - Alternative catchment of rain - Council owns most of the land - Clean catchment, surrounded by State and National Parks - Water supply security - Reduced compensating costs - Quality in sourced water <p>Building a dam at Byrrill Creek potentially provides negative outcomes</p> <ul style="list-style-type: none"> - Area is HCV - Local lifestyle disturbances - Best location for rehabilitation. - New road alignments required. - Rehabilitation works done. 	Noted. All of these issues will be included in Fine Screen assessment.
76	Some residents will lose their homes. Others will be inconvenienced by property inundation or severance, closure of Byrrill Creek Road, alternative property access, spillway noise and construction impacts. Some residents were made aware of these issues when they purchased their land, others were not.	<p>These effects to landholders, residents and public access will be considered in the Fine Screen report. Refer also to response to Issue 71.</p> <p>Council agrees that all residents should have been made aware of these issues at the time of land purchase at Byrrill Creek. Council's LEP and planning documents contain constraint maps under Clause 52 showing the potential area that would be affected by a dam at Byrrill Creek.</p> <p>When land is bought or sold, the Conveyancing Act 1919, requires that a Section 149 Planning Certificate be attached to the Contract for Sale. The 149 Certificate contains</p>

No.	ISSUE	RESPONSE
		information on how a property may be used and the restrictions on development, including whether the property is affected by Council planning documents or constraint maps. At the time of purchase a Solicitor or Conveyance Clerk should have been employed to check the 149 Certificate which would have caught the CI52 – Constraint Map – relating to a dam.
77	Investigate the feasibility of a micro-hydro power plant as part of the augmentation.	Refer to response to Issue 72.
	<u>Pipeline to SEQ Water grid</u>	
78	Unsatisfactory option: selling water to the Gold Coast robs the Tweed of needed water and promotes unsustainable development on the Gold Coast without them providing the necessary infrastructure. Desalination has large energy requirements. SEQ has even less water than the Tweed. QLD government has not given any agreement. It is risky and water may not be available when required (ie during drought).	The short-listed Option 5 - Connection to SEQ Water Grid has many uncertainties which are reflected in the assessment criteria. Refer also to response to Issue 80.
79	Interbasin transfers are not the answer.	Interbasin transfers are common in Australia and are treated on their merits. Interbasin transfers would need to satisfy relevant State (and potentially Federal) government regulations.
80	The SEQ pipeline option is not permitted under the draft Tweed Area Water Sharing Plan.	This is not correct. The draft Tweed Area Water Sharing Plan does not preclude connection to the SEQ water grid nor for water to be supplied to the Tweed from SEQ (which is the proposed SEQ option). The SEQ option does not consider sending water from the Tweed into Queensland. Should SEQ require a reciprocal arrangement whereby flow could be reversed, the NSW government would need to amend several instruments such as the water sharing plan for this to be permissible.
81	The SEQ pipeline option should be more fully explored.	This is the objective of the Fine Screen report. It takes into account considerable additional information for the SEQ option such as: clearer information from stakeholders in QLD and NSW (eg Queensland Water Commission QWC, Department of Main Roads DMR, Office of Water, Planning Risk Review); alternative alignments D & E; and more detailed information from the Aboriginal community.
82	Alternative routes A and B are unacceptable on environmental grounds. Route C could potentially have less impact given the Cobaki Lakes development.	These issues are addressed in the Fine Screen Options report.

No.	ISSUE	RESPONSE
	<u>Contingency Option</u>	
83	Including a contingency option is good planning, however the current option is flawed.	There are acknowledged limitations with the contingency option.
84	Use of groundwater would deplete finite supplies necessary for agriculture, the environment, and has cultural heritage impacts.	Any use of groundwater would be in accordance with strict licensing requirements set by State government agencies to ensure the sustainable use of the resource. A preliminary assessment of groundwater supplies has shown that water can be sustainably provided below specific yields. Further detailed studies would be required before any extraction would be permitted to occur. During these studies, requirements for agriculture, rural domestic supplies, the environment, and the Aboriginal community would need to be taken into consideration.
85	The pipeline link to Rous Water can only be considered if Rous increases its existing system capacity. If this were to occur, the option could be more sustainable, viable and cost effective than the SEQ pipeline. It could be a permanent contingency plan. There is no agreement with Rous Water for them to supply water to Tweed.	Acknowledged. This is only applicable as a short-term emergency source in the event that the capacity of the Tweed network cannot supply the demands of growth at the southern extremities of the system.
86	Pipeline options or localised groundwater extraction in urbanising areas would be preferable to inundating irreplaceable rural areas that are currently subsidising the growth of coastal fringes.	All options will be considered on their merits.
	<u>Water-wise options</u>	
87	Byrrell Creek Dam could be avoided by spending the \$57M Byrrell Creek Dam would cost on rainwater tanks and composting toilets.	Refer to responses to Issues 35 & 47
88	Council should include the “water wise option” within the short-listed options.	Waterwise options have been considered separately in the DMS. The forecast demand including waterwise options has been used as the basis for assessing all water supply augmentation options.
89	Waterwise options may be more expensive up front, but will be much cheaper in the long run.	The studies carried out to date show that waterise options will only curb demand so much, ultimately there will be a need to augment the supply source based on continued population growth in Tweed.
	<u>Alternative Options</u>	
90	Multiple smaller dams to be constructed on unproductive higher land throughout the valley to reduce impacts from a larger dam. Water could be used by intensive agriculture on the fertile valley below and excess fed back into the Bray park weir for domestic	There are economies of scale for constructing a single dam. Also, dams are not the only options under consideration. Damming the Cobaki broadwater would result in converting an estuarine environment into

No.	ISSUE	RESPONSE
	supply. Dam the Cobaki broadwater.	a freshwater environment in an area more susceptible to tidal issues than the existing Bray Park Weir.
	<u>Sale of Tweed water</u>	
91	Council only wants to sell water to SEQ or Rous Water and this should not be a reason for building new dams in the Tweed.	The focus of this project is to ensure the ongoing security of the Tweed's water supply to its current and future residents. Supply of water to other regions is not part of the scope of this project and is not considered as a reason for the need to augment the Tweed's water supply system.
	<u>Environmental flows</u>	
92	At its meeting 17 November 2009, Council approved further environmental flow restrictions on the Tweed River at Bray Park Weir: "The cessation level for flow bypass requirements at Bray Park Weir be set at a level of 50% of the capacity of the Clarrie Hall Dam".	Council is not able to approve or alter environmental flow requirements which fall under the jurisdiction of the NSW Office of Water. At its meeting 17 November 2009, Council adopted the Drought Management Strategy which included a recommendation to approach the NSW Office of Water to determine appropriate flows during periods of serious drought. Based on the recommendations from the Drought Management Strategy, Council requested the cessation of flows at Bray Park Weir when the capacity of Clarrie Hall Dam drops below 50%. However, in July 2010 the Office of Water imposed the following license conditions on Council: "(9iii) [That there must be a flow equivalent or greater to the] 100th percentil flow at Bray Park Weir when Clarrie Hall Dam capacity is 50% or less and 2 weeks after the imposition of Level 6 water restrictions by Council." A further relief clause was also provided for more extreme drought events: "(10) If the storage level of Clarrie Hall Dam falls below 50% and an approved demand management strategy has been introduced the licensee may apply to the Office of Water for modification of the discharge requirements in subsection iii of condition 9."
	<u>Inclusion of external and flow-on effects</u>	
93	External factors such as environmental costs and benefits have not been directly included in the economic and comparative analysis. The analysis should have included items such as reduced water discharges to sensitive receiving waters, reduced storm surcharges, creation of habitat. The cost of water recycling and dam construction cannot be fairly compared until environmental costs are incorporated into the overall dam costs.	Council acknowledges ecological sustainability and caring for the environment as intrinsic components of community expectations and statutory obligations. Environmental considerations were taken into account in the assessment of options. Considerations were included under six of the ten criteria: - Secure Yield - meeting environmental flow requirements - Planning obligations - meeting environmental regulatory requirements - Legislative acceptability - meeting government agency environmental requirements

No.	ISSUE	RESPONSE
		<ul style="list-style-type: none"> - Capital & Operating Costs - cost of environmental mitigation actions, compensatory habitats, baseline & ongoing monitoring, management plans, adaptive management requirements - Environmental constraints - assessing the environmental issues and constraints due to the options - Greenhouse gas emissions - assessing GHG emissions due to the options
94	<p>Stormwater was discarded based on cost constraints alone. This is a skewed way of assessing pros and cons. Stormwater harvesting and reuse of water would reduce discharges to estuaries, and in some instances flood surge damage.</p>	<p>Stormwater was discarded based on an assessment of its characteristics. MWH conducted a separate investigation into Stormwater Harvesting and Reuse. The study investigated costs, reliability, and treatment requirements; but also the potential benefits due to reduced discharges to receiving waters. http://www.tweed.nsw.gov.au/Water/WaterSupplyAugmentation.aspx (under Downloads)</p> <p>The study found that stormwater can not replace other more reliable sources. Unlike recycled water, which is a relatively constant source of supply, stormwater is climate dependent and supply is not guaranteed during periods of drought or below average rainfall. Because supply cannot be guaranteed, the size of town potable water infrastructure cannot be downsized as it will still need to be able to cater for peak water demand.</p> <p>Being climate dependent also has implications on the size of storage required for stormwater harvesting schemes, which need to be large enough to capture the wet period rainfall and store it to cater for the dry period demand. There is also a 'point of diminishing returns' in storage size, where increasing the size further does not provide a significant increase in yield and will determine the most cost-effective storage for a given demand and catchment, this will mean a reliability less than 100% and will require an additional water source to meet the required demand.</p> <p>Annualised costs for dual reticulation A+ quality recycled water is approximately \$7/kL for schemes ranging from 90 to 440 ML/year. By comparison, stormwater harvesting costs for lower quality municipal use water show that schemes reusing volumes of 10 ML/year also cost approximately \$7 per kL. Stormwater harvesting for third pipe systems is less cost effective than stormwater harvesting for municipal reuse due to the more stringent and costly treatment requirements. Similarly harvesting, treatment and storage for third pipe stormwater schemes is more costly than the equivalent recycled water scheme due to stormwater being climate dependent, having a variable quality and requiring larger</p>

No.	ISSUE	RESPONSE
		<p>storages.</p> <p>Analysis of various development servicing options for a Greenfield site at Kalkallo in Melbourne showed that recycled water supplied by third pipe requires significantly less storage space than stormwater. To supply garden and toilet with 95% reliability and adopting end-use management measures, a 22 ML recycled water storage is required compared to a 1,100 ML stormwater storage. This equates to 0.9 hectares compared to 44 hectares (assuming a uniform 2.5 metre storage depth) or 0.2% of the storage requirement.</p> <p>Costs of stormwater harvesting schemes can be more attractive if other downstream treatments to remove pollution and improve waterway health can be avoided.</p>
95	Climate change and sea level effects have not been considered.	<p>Climate change and sea level effects have been adequately taken into account. Modelling of the Tweed's Secure Yield (capacity of the water supply system) has taken into account all climate data to date including the effects on other areas on the North Coast, and the worst droughts on record. Climate change modelling carried out immediately to the north and south of the Tweed (for SE QLD and Rous Water) have shown that the secure yield in those adjacent regions could be reduced by between 7-15%.</p> <p>The latest CSIRO reports commissioned by the NSW and Federal Governments confirm expected impacts for the Tweed are no worse than those contained in the Rous and SEQ reports. (see: http://www.environment.nsw.gov.au/climatechange/nswreports.htm http://www.climatechangeinaustralia.gov.au/nswacttemp1.php http://www.climatechangeinaustralia.gov.au/qldtemp1.php)</p> <p>Council is confident that climate change effects can be accommodated given that each of the short-listed water supply options are able to supply more than the required projected Secure Yield even when taking these reductions into account.</p> <p>Changes in sea level are not expected to have a significant impact on water demands. Therefore, the timeline for water resource augmentation would be unaffected.</p>
	<u>Multi-Criteria Analysis (MCA)</u>	
96	Both social and environmental impacts are significant. Half the CWG considered them to be equal in importance. Half considered environmental issues are more important. It was interesting that	This feedback from the CWG and from the community has assisted in the preparation of the Fine Screen MCA. The weightings used in the Fine Screen MCA have been updated to take this data into account.

No.	ISSUE	RESPONSE
	no one on the CWG considered social impacts ahead of environmental impacts.	
97	Suggested improvements to the MCA used in the coarse screening included: using a finer scoring system, refinement of weightings so that other criteria were weighted equal or greater to costs and secure yield, improving the transparency through inclusion of discussion and background information.	This feedback from the CWG and from the community has assisted in the preparation of the Fine Screen MCA. The Fine Screen report provides more in depth discussions and explanations to aid the reader and improve transparency. The rating system and weightings used in the Fine Screen MCA have been updated to take this data into account.

Appendices

Appendix A – Detailed Issues Table

Individual topics or issues are listed below, together with the entity (member of the public or organisation) making the submission. Related topics have been grouped into grey header issues that have been addressed in the Discussion Section of the report.

It should be noted that the issues paraphrase comments from individual submissions. In many instances the text is a combination of the most representative and significant wording from individual submissions. Issues listed are not an attempt to record individual submissions word-for-word but are Council’s best attempt to consolidate the number of issues, record those raising a similar issue, and enable responses to be drafted effectively.

The complete set of submissions received is bound under a separate cover “Submissions and feedback received – Water Supply Augmentation Project” and is available upon request.

No.	ISSUE	RAISED BY:	REFER TO
	Planning Issues	-	
	<u>Demand Projections</u>		
1	Demand has not increased in recent years despite increasing population. Why does Council expect demand to increase in the future if the trend is towards lower usage per person?	Spragg	See response in Discussion Section
	<u>Population issues</u>		
2A	Population expectations and projections used are considered too high for the Tweed’s future sustainability. The assumption that the population needs to double is flawed. The community has not given its consent to doubling the population.		See response in Discussion Section
2.1	Population expectations and projections used are considered too high for the Tweed’s future sustainability. The assumption that the population needs to double is flawed. The community has not given its consent to doubling the population.	Sledge; Sonnenschein; Cooney; Summers; Spragg; Jack; Hearder; Hayes; Bolten; Berg; Tweed District Residents & Ratepayers; Townsend; Sledge & Voinot; Watsford; Prince; Jack; Morrison; Martin; Ipsen; Tyman; Stuart; Riordan; Pearson; O'Reilly; McCormick; Gardner; TweedCAN; Fuhrmann; Caldera Environment Centre - Hopkins; Caldera Environment Centre; Uki Village & District Residents Association Incorporated; Thompson (CWG); Fingal Head Coastcare Inc; Rich; Whittingham	issue grouped for combined response
2.2	The CWG is concerned that the water supply augmentation options process is premised on population growth predictions that the CWG is	Community Working Group Report (March 2010); Ebehard (CWG)	issue grouped for combined response

No.	ISSUE	RAISED BY:	REFER TO
	not able to assess the validity of.		
2B	There is a lot of support for a population cap, but who will determine the cut-off point and how could this be enforced? Population can't be capped, but we can control growth to levels that our environment can handle by slowly staged development. The instruments for this are the Far North Coast Regional Strategy and the TSC Urban and Employment Strategy.	Cooney; Smith L	See response in Discussion Section
3	The population debate is an issue that will not go away. It needs to be addressed by a mechanism (eg inquiry) that identifies a sustainable population level for the Tweed.		See response in Discussion Section
3.1	The population debate is an issue that will not go away. It needs to be addressed by a mechanism (eg inquiry) that identifies a sustainable population level for the Tweed.	Ipsen; Hastings Point Progress Association; McNamara; Dawson; Findlay; Uki Village & District Residents Association Incorporated; Ebehard (CWG); Dawson (CWG); Name withheld	issue grouped for combined response
3.2	The water issue has been "thwarted" by the population debate.	Smith L	issue grouped for combined response
3.3	Tweed Population should be capped at existing levels. Increased demand is almost entirely due to population growth. Council simply needs to stop the amount of development allowed. Projections should be rounded down to satisfy the capacity of the Shire not the desires of the State government.	Hastings Point Progress Association; Sledge; Hollingsworth; Armfield; Pidgeon; Scanlan; Pearce; Name withheld; Hay; Sledge & Voinot; Purser; Ipsen; Tyman; McCormick; Hearder; Graf; Gardner; Findlay	issue grouped for combined response
3.4	It is one thing to cater for population needs, and another to plan overdevelopment and doubling of the population. The availability of resources should determine population, not the other way round.	Riordan; McNamara	issue grouped for combined response
3.5	Given time, the population can adjust to any situation but the rush to overdevelop the Shire at this time is unsustainable.	Symons	issue grouped for combined response
3.6	Water and population need to be linked. Without considering population growth in the context of ultimate resource scarcity, that is acknowledging there is a finite limit of water available to be trapped in the system (which can support a fixed number of people). Population growth at current levels is unsustainable. The current urban model is flawed. With controlled land release, money could be set aside for the best long	Community Working Group Report (March 2010)	issue grouped for combined response

No.	ISSUE	RAISED BY:	REFER TO
	term option rather than expediency.		
3.7	The best elements of urban planning need to be adopted by TSC (why can't TSC be leading edge?) in tandem with maintaining and enhancing the environmental values of the region. Enlightened LEP addressing the future needs of community and the environment. The Tweed Shire LEP should address the issue of preserving why people live or would wish to live in the Tweed. This includes those values, both environmentally and socially, which will be destroyed for future generations through a develop or bust approach, filling the pockets of a parochial few at the detriment of the greater good to meet their demands.	Community Working Group Report (March 2010)	issue grouped for combined response
4	If Council's population estimates are overestimated, then augmentation could be delayed and allow development of better water saving programs in the five new major developments and infill areas.	Hollingsworth DMS: Gardner; Graf; Havier and Addis; Hollingsworth; Munz and Maher; Pearson; Tweed Heads Environment Group - Murray	See response in Discussion Section
	<i>Sustainability of new housing developments</i>		
5	New developments should be permitted only if they are sustainable, self-sufficient and are not dependent on the Shire's water grid.	Cooney; Pidgeon; Jack; Beltrame; Hearder; Name withheld; Hayes; Boltan; Berg; Prince; Jack; Martin; Tyman	See response in Discussion Section
6	New developments should be permitted only if they are sustainable and their demand on the Shire's water grid can be limited via sustainable design.		See response in Discussion Section
6.1	New developments should be permitted only if they are sustainable and their demand on the Shire's water grid can be limited via sustainable design.	Cooney; Sledge & Voinot; Stuart; Fuhrmann; Turner; Fingal Head Coastcare Inc; Luca; ; Name withheld	issue grouped for combined response
6.2	Water resources and sewerage are inadequate for proposed developments.	Hastings Point Progress Association	issue grouped for combined response
6.3	The designs of Cobaki and Kings Forest are unsustainable and are pushing the requirement for a new source of water supply. Water demand should be limited via sustainable design.	Tweed District Residents & Ratepayers; Martin; Caldera Environment Centre; Turner; Smith B; Thompson (CWG)	issue grouped for combined response
6.4	Better more modern planning is required to enable collection and storing of water on individual properties.	O'Reilly	issue grouped for combined response
6.5	The Tweed community is concerned that council is taking too little	Community Working Group Report (March 2010)	issue grouped for

No.	ISSUE	RAISED BY:	REFER TO
	action in the total water cycle of new satellite cities which are expected to accommodate a predicted 76198 persons by 2036.		combined response
7	The proponents of Cobaki and Kings Forest initially proposed greywater recycling and dual reticulation but this was not supported by Council. Why didn't Council meet part of the costs with Leda?		See response in Discussion Section
7.1	The proponents of Cobaki and Kings Forest initially proposed greywater recycling and dual reticulation but this was not supported by Council. Why didn't Council meet part of the costs with Leda?	Tweed District Residents & Ratepayers; McCormick; Fuhrmann	issue grouped for combined response
7.2	Alternative water sources have been considered too expensive, but if developers are made to design and install these, there is not nett cost to Council.	McCormick	issue grouped for combined response
7.3	Immediate appointment of a Tweed Sustainability Commissioner as in VIC to oversee the planning of homes, towns and communities with sustainable and responsible water use.	Welling; Stuart; Outridge (Margo); Outridge (Mary Blane); Outridge (Mary Lou); Bonar	issue grouped for combined response
	Demand Management Strategy	-	
	<i>Proposed Demand Management Actions</i>		
8	The interdependencies between demand and supply need to be taken into account by Council when formulating recommendations for the future of the Tweed's water.		See response in Discussion Section
8.1	The interdependencies between demand and supply need to be taken into account by Council when formulating recommendations for the future of the Tweed's water.	McNamara	issue grouped for combined response
8.2	I do not support any of the options without first demonstration by council of tangible benefits in water management and recycling	Community Working Group Report (March 2010)	issue grouped for combined response
8.3	Endorsement of all demand management options being considered including rainwater tanks, auditing, and future water recycling where possible.	Wood	issue grouped for combined response
9	The Demand Management Strategy is just a mechanism for TSC to meet legislative requirements to build a dam.	Dawson	See response in Discussion Section
10	All demand management actions should be implemented before augmentation is considered. Time must be allowed for them to take effect, The timeframe for a decision on augmentation is too short.		See response in Discussion Section

No.	ISSUE	RAISED BY:	REFER TO
10.1	All demand management actions should be implemented before augmentation is considered. Time must be allowed for them to take effect, The timeframe for a decision on augmentation is too short.	TweedCAN	issue grouped for combined response
10.2	Council needs a holistic approach to water management.	Turner	issue grouped for combined response
	Demand Management – infrastructure issues	-	
	<u>Infrastructure Upgrades</u>		
11	Tweed’s water reticulation is energy and cost inefficient and should not be exacerbated with new developments based on a similar approach. Full ecological costs associated with new developments should be factored into government planning including s94 and s64 developer contributions. All dwellings should be individually metered.		See response in Discussion Section
11.1	Tweed’s water reticulation is energy and cost inefficient and should not be exacerbated with new developments based on a similar approach. Full ecological costs associated with new developments should be factored into government planning including s94 and s64 developer contributions.	Turner	issue grouped for combined response
11.2	All dwellings should be metered individually (which is not currently the case for some large complexes). Water wasters should be called to account.	Wuoti	issue grouped for combined response
	<u>High volume rainwater collection</u>		
12	That Council should make high volume rainwater collection for primary source of water compulsory in all new developments. A minimum of 10,000-20,000L tanks should be required in residential and 40,000L for non-residential (even 7,500-10,000 gallon prescribed).		See response in Discussion Section
12.1	That Council should make high volume rainwater collection for primary source of water compulsory in all new developments. A minimum of 10,000-20,000L tanks should be required in residential and 40,000L for non-residential (even 7,500-10,000 gallon prescribed).	Sragg; Beltrame; Header; Bolten; Berg; Lanham; Tweed District Residents & Ratepayers; Milligan; Jack (Marie); Jack (Elizabeth); McCormick; Hollingsworth; Havier; TweedCAN; Fuhrmann; Fingal Head Coastcare Inc	issue grouped for combined response
12.2	That Council should make high volume rainwater collection for primary	Cooney; Cornford; Summers; Hollingsworth; Armfield;	issue grouped for

No.	ISSUE	RAISED BY:	REFER TO
	source of water compulsory in new developments.	Spragg; Scanlan; Ray; Hudson; Yeomans; Prince; Jack; Martin; Ipsen; Welling; Tyman; Stuart; Moore; McNamara; Mayfield; Graf; Curtis; Caldera Environment Centre; Blunden; Uki Village & District Residents Association Incorporated; Vella; Smith B; Luca; Mayfield; Name withheld; Name withheld; Weber	combined response
13	Council has determined that a household of 4 requires 120,000L tank capacity to be self-sufficient. We could aim for 20,000L per household to supplement the reticulated supply enough to ensure existing infrastructure is adequate and avoid the need for new dams. Town water supply should only be as a backup.		See response in Discussion Section
13.1	Council has determined that a household of 4 requires 120,000L tank capacity to be self-sufficient. We could aim for 20,000L per household to supplement the reticulated supply enough to ensure existing infrastructure is adequate and avoid the need for new dams.	McCormick; TweedCAN	issue grouped for combined response
13.2	Town water supply should only be as a backup.	Cooney; McCormick	issue grouped for combined response
13.3	Rainwater tanks to be compulsory in all existing homes.	Hastings Point Progress Association; Wuoti; Armfield; Milligan; Hudson; Fuhrmann; Clarke	issue grouped for combined response
13.4	On the Tweed it is possible for rainwater tanks to make homes self-sustaining. Tweed has one of the highest rainfall rates in Australia and water can easily be harvested and harnessed, but we fail to do it. The huge amount of roof area in the region needs to be utilised.	Wuoti; Pidgeon; Menzies; Milligan; Kaye; Pearson; Havier; Dawe; Findlay; Turner; Name withheld	issue grouped for combined response
13.5	Installation of rainwater tanks should be encouraged, although it is recognised that they will have a relatively small impact and are only good while it continues to rain.	Combined Tweed Rural Industries Association	issue grouped for combined response
13.6	Country people are able to live off rainwater tanks by being careful with their water use. It is achievable and should be enforced on all.	Jack; Berg; Menzies; Tyman; Pearson; McCormick; Hollingsworth; McInerney; Hoopman; Caldera Environment Centre	issue grouped for combined response
14	Promotion and funding of rainwater tanks is unacceptable to public health due to risks from Dengue fever. Existing tanks should be maintained through professional service providers reporting back to Council.	McConville	See response in Discussion Section

No.	ISSUE	RAISED BY:	REFER TO
15	High volume rainwater collection (self-sufficiency) can be accommodated by ensuring the size of blocks of land is large enough and by using space saver tanks and bladders.	Turner (and others)	See response in Discussion Section
	<u>Water substitution</u>		
16	That Council should make all new developments self sustainable (energy and water).	Hastings Point Progress Association; Pearson	See response in Discussion Section
17	That Council should make water substitution methods compulsory in all new developments, in particular recycling water (effluent reuse) through dual reticulation, greywater reuse, and stormwater harvesting as they are in Pimpama/Coomera and Ballina.		See response in Discussion Section
17.1	That Council should make water substitution methods compulsory in all new developments, in particular recycling water (effluent reuse) through dual reticulation, greywater reuse, and stormwater harvesting as they are in Pimpama/Coomera and Ballina.	Cooney; Cornford; Hollingsworth; Armfield; Scanlan; Beltrame; Hearder; Name withheld; Hayes; Brodie; Bolten; Berg; Lanham; Menzies; Ray; Jack; Jack; Yeomans; Prince; Jack; Martin; Kaye; Jack (Marie); Welling; Tyman; Stuart; O'Reilly; McNamara; McCormick; Mayfield; Hearder; Havier; Graf; Gardner; Curtis; Findlay; Caldera Environment Centre - Hopkins; Caldera Environment Centre; Blunden; Uki Village & District Residents Association Incorporated; Fingal Head Coastcare Inc; Mayfield; Name withheld; Name withheld	issue grouped for combined response
17.2	There is no excuse for flushing potable water down the toilet.	Findlay	issue grouped for combined response
17.3	Rather than dams, rainwater should be captured from gutters, piped to pump stations and pumped to major catchment areas for treatment before entering the reticulation system.	Graf	issue grouped for combined response
17.4	Council should promote greywater and stormwater harvesting for industrial and agricultural use.	Spragg	issue grouped for combined response
17.5	Large scale Recycling, Storm Water Harvesting & Large Water tanks are the only environmentally & socially sustainable way forward for Tweed Shires Water Management	Community Working Group Report (March 2010)	issue grouped for combined response
18	Promotion of independence and self-reliance, through on-site water collection and recycling, would help foster a sense of attachment to place and a feeling of unity to others in the community.	Caldera Environment Centre DMS: Caldera Environment Centre – Dawson; Caldera Environment Centre	See response in Discussion Section

No.	ISSUE	RAISED BY:	REFER TO
19	Recycled water use (dual reticulation) is only financially viable on larger new developments (such as Cobaki and Kings Forest). The opportunity to implement should not be lost.	Yeomans; Mayfield	See response in Discussion Section
	<u>Alternative water sources</u>		
20	Water recycling is required.	Ipsen; Stuart; Riordan; O'Reilly; Moore; McNamara; McCormick; Hearder; Havier; Dawe; Blackwell; Findlay; Smith B; Weber	See response in Discussion Section
21	That Council should procure alternative water sources such as indirect potable reuse (ie returning highly treated sewage effluent to Clarrie Hall Dam or Bray Park Weir for all uses including drinking). Returning to Bray Park Weir would make this option more financially viable. Insufficient rationale provided to justify removing Indirect Potable Reuse from the options.	Tyman; Gardner; Dawson	See response in Discussion Section
22	Council should procure direct potable reuse (ie returning highly treated sewage effluent directly to local reservoirs in Tweed and Chinderah). For just \$20mill more, the West Kingscliff Sewage Treatment Plant could have been upgraded to produce potable water quality. Insufficient rationale provided to justify removing Indirect Potable Reuse from the options.	Graf; Gardner; Dawson	See response in Discussion Section
23	If there are community concerns with direct potable recycled water, household rainwater tanks could supply drinking water.		See response in Discussion Section
23.1	If there are community concerns with direct potable recycled water, household rainwater tanks could supply drinking water.	Gardner	issue grouped for combined response
23.2	Statements that "there is not enough known about long term health risks" seem to ignore current best practice (eg Sydney Water water recycling).	McCormick	issue grouped for combined response
24	Greywater recycling to potable standard was discounted on technological grounds - but this is widely practiced in Europe. Why couldn't it be pumped directly into the Bray Park weir to run through the new Water Treatment Plant?		See response in Discussion Section
24.1	Greywater recycling to potable standard was discounted on technological grounds - but this is widely practiced in Europe. Why	Eriksen	issue grouped for combined response

No.	ISSUE	RAISED BY:	REFER TO
	couldn't it be pumped directly into the Bray Park weir to run through the new Water Treatment Plant?		
24.2	Recycling of greywater and blackwater should be considered.	Dawson	issue grouped for combined response
24.3	Council should investigate dual reticulation (effluent reuse) in new subdivisions.	Combined Tweed Rural Industries Association	issue grouped for combined response
24.4	Other options beside dam construction have been inadequately addressed and show a lack of willingness/innovation to adopt other water saving and storage issues (storm water retention, recycling).	Community Working Group Report (March 2010)	issue grouped for combined response
	<i>Other technologies</i>		
25	Sewage effluent can be dumped vertically to generate hydro-electricity. This power, along with methane generated in digesters, can be used to pump effluent through filtration and UV and other purifying systems to produce water for re-use.	Caldera Environment Centre	See response in Discussion Section
26	The existing water supply is adequate for our current and projected population for at least 20 years, especially if 22,500L rainwater tanks and other on-site recycling systems including simple lowcost filters for drinking water were used.	Caldera Environment Centre	See response in Discussion Section
	<i>Consultation with the community</i>		
27	A vehicle for dissemination of more, clearer and more timely information into the community is required.		See response in Discussion Section
27.1	There is confusion in the community over the demand and supply "prongs" of Tweed's water strategy which needs clarification.	Weatherley; Hastings Point Progress Association	issue grouped for combined response
27.2	An easy to access website / webpage should be created so that people can access information, plans, etc.	Piper	issue grouped for combined response
27.3	Better marketing of the TSC Integrated water management strategy as a holistic package, and reducing the dominance of technical literature, are required so the Tweed community better understand the steps being taken to conserve, protect and augment the future needs of the Shire.	Community Working Group Report (March 2010)	issue grouped for combined response
27.4	When Council fails to provide information about the low Tweed River historic flows at Bray Park Weir, how can residents adequately respond on water supply issues in the Demand Management Strategy?	Tweed Heads Environment Group - Murray	issue grouped for combined response

No.	ISSUE	RAISED BY:	REFER TO
28	Community consultation was a sham - the decision to raise Clarrie Hall dam has already been made. It has been a deceitful process, pre-planned to achieve pre-determined outcomes.		See response in Discussion Section
28.1	Community consultation was a sham - the decision to raise Clarrie Hall dam has already been made. It has been a deceitful process, pre-planned to achieve pre-determined outcomes.	Watsford; Tyman; Summers; Pearson; Dawson	issue grouped for combined response
28.2	Council pushed through four shortlisted options without consulting the community about what those options should be. The four options were too limited. Earlier consultation on both the augmentation and demand management projects was required.	Summers; Berg; Tweed District Residents & Ratepayers; Prince; Martin; Jack; Hastings Point Progress Association; Tyman; Pearson; McQueen; Mayfield; Havier; Haffer; Gardner; Dawson; Fuhrmann; Fingal Head Coastcare Inc; Rich DMS: Prince; Fingal Head Coastcare Inc.; Jacobi; Mason; Prince; Tweed District Residents & Ratepayers; Hersovitch; Jack; Rifello; Ehrlich; Header; Pearson; Header	issue grouped for combined response
28.3	Community consultation was inadequate. Object to the way in which it has been carried out. Needed to be more open.	Townsend; Martin; Hastings Point Progress Association; Tyman; Stuart; Pearson; O'Reilly; Moore; McQueen; Haffer; Ehrlich; Caldera Environment Centre - Hopkins DMS: Stuart; Caldera Environment Centre - Hopkins; Whittingham	issue grouped for combined response
28.4	Affected residents and the community have not had enough time to comment on the project.	Possenti; Pearson	issue grouped for combined response
28.5	Disappointing that the process did not focus on and engage with the broader community.	Beck (CWG); Murray (CWG); Dawson (CWG); Thompson (CWG)	issue grouped for combined response
29	It would appear that Council has deliberately failed to inform the CWG that one of the options they have been given to consider is in fact specifically prohibited. This makes a mockery of the entire community consultation process regarding our future water supply options. Some have written to the Minister about this serious breach of transparency.	Jack; Townsend; Prince; Jack; Martin; Summers; Pearson; McCormick; Havier; Gardner; Dawson DMS: McCormick; Jack; Tweed Heads Environment Group - Murray	See response in Discussion Section
30	Needed a mechanism to better engage the broader community (eg referendum) who are generally complacent unless you discuss with them directly. The process required an extended timeframe, with better and earlier involvement of the community.		See response in Discussion Section

No.	ISSUE	RAISED BY:	REFER TO
30.1	<p>Needed a mechanism to better engage the broader community who are generally complacent unless you discuss with them directly. Joanna has done far more consultation with the broader community than TSC eg Survey, Uki Meetings, Byrrill Creek Meetings, Newsletters & 100's of emails</p> <p>The process I feel has been tokenistic, due to the late involvement – and limited involvement, of the community.</p>	Community Working Group Report (March 2010)	issue grouped for combined response
30.2	A referendum is needed canvassing all the options - including the sustainable ones.	Findlay	issue grouped for combined response
30.3	The input for the MCA needs further community consultation over an extended timeframe.	Dawson (CWG)	issue grouped for combined response
31	Council should be congratulated for being proactive in engaging the community. It has attempted to disseminate a vast amount of information, create debate, include community input and encourage feedback.		See response in Discussion Section
31.1	The CWG fully supports Council's desire to engage the community in the Tweed Water Supply Augmentation decision-making process.	Community Working Group Report (March 2010); Whittingham	issue grouped for combined response
31.2	Thank Council for the opportunity to contribute.	Uki Village & District Residents Association Incorporated	issue grouped for combined response
31.3	Thank and congratulate TSC for the information and approach. Much information was available prior to this phase and underpinned this first phase of assessing the short-listed options.	Smith L	issue grouped for combined response
31.4	Community consultation should draw upon those most affected, guided by clearly articulated and agreed upon processes for participation. This was generally the case. Council has been proactive in opening up to community consultation.	O'Flynn (Southern Cross University)	issue grouped for combined response
31.5	Valuable attempts to gather further input to the consultation participatory process included the advisory group of local representatives of varying experience and expertise, and three visits to local areas to ascertain feedback from and disseminate information to community members. The whole community consultation process has generated and disseminated a vast amount of valuable information.	O'Flynn (Southern Cross University)	issue grouped for combined response
31.6	It can be difficult for Council to justify expenditure on community	O'Flynn (Southern Cross University)	issue grouped for

No.	ISSUE	RAISED BY:	REFER TO
	consultation. Further resourcing was raised as an issue and addressed some areas of concern in relation to: a far-reaching survey tool, funding public meetings, meeting members' out-of-pocket expenses.		combined response
31.7	Commend Council officers attending community information sessions for their time and willingness to explain the processes involved.	McCormick	issue grouped for combined response
31.8	Majority of Community only speak out when there is something to complain about - So just implement radical water saving devices in each new development and rebate incentives for retrofitters	Community Working Group Report (March 2010)	issue grouped for combined response
	Demand Management – management issues	-	
	<u>Water reduction initiatives</u>		
32	Council should encourage water savings through community education implementation of waterwise initiatives in all dwellings and permanent water restrictions.		See response in Discussion Section
32.1	Council should encourage water savings through community education.	Combined Tweed Rural Industries Association; Armfield; Pearce; Brodie; Tweed District Residents & Ratepayers; Pearson; Hollingsworth; Havier; Dawson; Curtis; McInerney; Hoopman; Blunden; Uki Village & District Residents Association Incorporated; Fingal Head Coastcare Inc	issue grouped for combined response
32.2	Council should educate on the importance and value of waters and rivers.	Pearson; Name withheld	issue grouped for combined response
32.3	Council should implement waterwise initiatives in all dwellings.	Armfield; Pidgeon; Brodie; Havier	issue grouped for combined response
32.4	Council should encourage water savings through permanent water restrictions.	Pearce; Brodie	issue grouped for combined response
32.5	If all residents in the Tweed put their minds to it and reduced water usage there would be no need for expensive infrastructures like dams	Watsford	issue grouped for combined response
	<u>Price of water</u>		
33	Council should increase the base price of water and decrease the water volumes which trigger the step price increase for excess consumption. Council should also target water use of 150L/p/d or lower (such as in SEQ and Melbourne). Why is Tweed aiming at only 205L/p/d water		See response in Discussion Section

No.	ISSUE	RAISED BY:	REFER TO
	usage		
33.1	Council should increase the base price of water and decrease the water volumes which trigger the step price increase for excess consumption. Council should also target water use of 150L/p/d or lower (such as in SEQ and Melbourne). Why is Tweed aiming at only 205L/p/d water usage	Lanham; Tweed District Residents & Ratepayers; Sledge & Voinot; Welling; Tyman; Pearson; Hollingsworth; Fuhrmann; Caldera Environment Centre; Blunden; Fingal Head Coastcare Inc	issue grouped for combined response
33.2	User pays water pricing is required	Pidgeon; Tyman	issue grouped for combined response
	<u>Rebates</u>		
34	That Council should provide rebates for installation of rainwater tanks and retro-fitting of water efficient appliances.	Pidgeon; Tweed District Residents & Ratepayers; Prince; Jack; Hollingsworth; Havier	See response in Discussion Section
35	Instead of spending \$75M at Bray Park and \$35M on a dam (\$110M total), Council could provide \$500 rebates for rainwater tanks to all the houses projected to be in the shire in 2036.	Caldera Environment Centre	See response in Discussion Section
	<u>Community Working Group (CWG)</u>		
36	The make-up of the CWG did not adequately represent stakeholder groups. Not all members were open or committed.		See response in Discussion Section
36.1	CWG should comprise of a range of residents and technical experts.	Sledge	issue grouped for combined response
36.2	One local resident representative on the CWG for Byrill Creek is not enough. The time pressures to organise a representative were not fair.	Sledge; Ipsen; Pearson	issue grouped for combined response
36.3	Two unpopular, pro-development councillors were inappropriately included on the CWG when they do not represent the environmentally conscious population. Phil Youngblutt should have been censured for his poor attendance.	Jack; Eriksen; Prince; Jack; Pearson	issue grouped for combined response
37	Some of the CWG felt all of the nine options and demand management options should have been part of the process from the beginning.		See response in Discussion Section
37.1	The CWG is limited to investigate the short-listed options. Some on the CWG felt boxed in not to look beyond supply.	Sledge; Prince; Jack; Martin; Hastings Point Progress Association; Tyman; Summers; Pearson; McQueen; Graf; Gardner; McInerney; Gardner (CWG)	issue grouped for combined response
37.2	Some of the CWG felt all of the nine options should have been part of the so called community consultation from the beginning.	Community Working Group Report (March 2010)	issue grouped for combined response
38	The CWG process was rushed and the time span was insufficient for		See response in

No.	ISSUE	RAISED BY:	REFER TO
	meaningful consultation. The community needs to see that recommendations from the CWG are followed or the process will be little more than a sham.		Discussion Section
38.1	Two thirds of the CWG endorsed no dam in Byrill Creek. To go ahead would display a complete disregard for the community.	McInerney	issue grouped for combined response
38.2	The CWG feel they've been taken for a ride - the whole process was little more than a sham.	Watsford; Prince; Jack; Tyman; Dawson	issue grouped for combined response
38.3	The final CWG report under-reported the dissent and opposing views.	Summers	issue grouped for combined response
38.4	Decisions when rushed like this reinforce a sense of predeterminism. The time span was insufficient for meaningful consultation.	Dawson (CWG); Gardner (CWG)	issue grouped for combined response
39	There were instances where the CWG misunderstood the process. It was never the intention for the group to reach consensus - this was imperative for all voices being heard. That the majority penned a statement of their own was indication of frustration felt by some that their contribution to the process would otherwise be of little value.		See response in Discussion Section
39.1	The CWG is over-estimating its brief - we are providing recommendations for consideration by the Council who makes the decisions. The Terms of Reference were appropriate, but it was disappointing that they were not always met by all CWG members.	Smith L; Allsop (CWG)	issue grouped for combined response
39.2	Intentions of CWG are good but the process of each member getting past parochial viewpoints to think about the big picture is surprisingly difficult.	Allsop (CWG)	issue grouped for combined response
39.3	There were instances where the CWG misunderstood the process. It was never the intention for the group to reach consensus - this was imperative for all voices being heard. That the majority penned a statement of their own was indication of frustration felt by some that their contribution to the process would otherwise be of little value.	O'Flynn (Southern Cross University)	issue grouped for combined response
39.4	The purpose if the CWG is not to make a decision but to provide information to council to help them make a decision. It has been made clear that advice and information from members of the CWG is not relevant or difficult to incorporate into the decision making process.	Community Working Group Report (March 2010)	issue grouped for combined response
40	The time and effort of the independently selected members of the	Uki Village & District Residents Association Incorporated	See response in

No.	ISSUE	RAISED BY:	REFER TO
	Community Working Group should be acknowledged.		Discussion Section
41	The CWG process did not allow many members to discuss items of importance to them in a meaningful way. Greater clarity and better facilitation was required to better empower the group and improve the outcomes.		See response in Discussion Section
41.1	The role of the CWG has been unclear throughout the working group process and this has constrained our effectiveness.	Ebehard (CWG)	issue grouped for combined response
41.2	Some of the CWG felt constrained by the timing and time constraints, data limitations and focus of community input on ratings of 2 specific criteria (environmental and social) for 3 predetermined water supply options. Community consultation has not been properly achieved within the CWG : items many members wanted to discuss meaningfully were not allowed, or “that we would look at them later” (which didn’t happen) & the “Agenda” took precedence.	Community Working Group Report (March 2010)	issue grouped for combined response
41.3	While the CWG has learnt a lot from the process adopted, the CWG felt uncomfortable speaking on behalf of the whole Tweed community, and encourages Council to seek additional ways to engage the whole community in this process in the future.	Community Working Group Report (March 2010)	issue grouped for combined response
41.4	The facilitator was generally able to facilitate idea sharing, opposing frictions, and development of new ideas. Council staff ably assisted. Some other projects have used two facilitators which have worked well in the past.	O'Flynn (Southern Cross University)	issue grouped for combined response
	<i>Forward thinking Council</i>		
42	Outdated unsustainable solutions of damming should not be pursued. Why doesn't Council lead the way with sustainable solutions?		See response in Discussion Section
42.1	Outdated unsustainable solutions of damming should not be pursued. Why doesn't Council lead the way with sustainable solutions?	Cooney; Cox; Sloane; Tyman; Stuart; Gardner; Dawson; McInerney; Mayfield DMS: Mason; Dawe; Stuart	issue grouped for combined response
42.2	Council and employees should search their souls and proceed with stewardship of such a special valley.	Outridge (Margo); Outridge (Mary Blane); Outridge (Mary Lou)	issue grouped for combined response
42.3	Sustainable options and kerbing population growth need to be more professionally reviewed.	O'Reilly	issue grouped for combined response

No.	ISSUE	RAISED BY:	REFER TO
42.4	Allowing engineers to have the final say is narrow minded in the extreme - their environmental credentials are poor.	Eriksen	issue grouped for combined response
43	Regulatory impediments to the enforcement of more stringent and sustainable water management must be removed.	Turner	See response in Discussion Section
44	The Demand Management, Drought Management and Supply Augmentation strategies were all produced by MWH, resulting in little opportunity for peer input or review. The recommendations in these strategies result in a mostly “business as usual”, “dollar focussed” approach. MWH was involved with the background studies for the Traveston Dam which were disputed, and their studies on the Tweed may also be disputed. Council should follow the CWG’s recommendation for an independent expert review of the proposed demand management and water augmentation approaches.		See response in Discussion Section
44.1	The Demand Management, Drought Management and Supply Augmentation strategies were all produced by MWH, resulting in little opportunity for peer input or review. The recommendations in these strategies result in a mostly “business as usual”, “dollar focussed” approach. MWH was involved with the background studies for the Traveston Dam which were disputed, and their studies on the Tweed may also be disputed. Council should follow the CWG’s recommendation for an independent expert review of the proposed demand management and water augmentation approaches.	Turner	issue grouped for combined response
44.2	The CWG would like assurance that Tweed SC's demand management strategy is benchmarked against national and international standards, and undergoes independent assessment to demonstrate this, otherwise a needless Dam option could proceed.	Community Working Group Report (March 2010)	issue grouped for combined response
44.3	Council should follow the CWG’s recommendation for an independent expert review of the proposed demand management and water augmentation approaches.	Townsend; Prince; Jack; Morrison; Jack (Marie); Hastings Point Progress Association; Wrem; Summers; Stuart; Pearson; McNamara; Hearder; Graf; Gardner; Dawson; Bonar; McInerney; Turner DMS: Turner	issue grouped for combined response
45	The significant cost of the Bray Park WTP means that Council is not	Hollingsworth	See response in

No.	ISSUE	RAISED BY:	REFER TO
	prepared to support alternative water supply options that will not utilise (and pay for) water from the new plant.	DMS: Symons; Gardner; Graf; Hollingsworth; Munz and Maher; Pearson	Discussion Section
	<u>Extension of time for submissions</u>		
46	Community groups are under much pressure to respond within the scheduled timeframe.	Caldera Environment Centre - Hopkins	See response in Discussion Section
	<u>Global best-practice water management</u>		
47	Composting Toilets have not been given enough attention and Council should have designs which are approved and can implemented available for new and retro-fitted constructions.	Spragg; Ipsen; Havier; Dawe; Caldera Environment Centre - Hopkins; Caldera Environment Centre; Uki Village & District Residents Association Incorporated	See response in Discussion Section
	<u>Water licenses</u>		
48	The DMS should include better control over water extraction licenses for river and groundwater extraction by agriculture and other uses.	Spragg	See response in Discussion Section
	<u>Draft Water Sharing Plan</u>		
49	Until the Minister for Water finalises the Tweed Water Sharing Plan, Council doesn't have any options that can be considered for public comment. How can the public comment on options that have not been given the consent by the NSW Office of Water? Byrrill Creek Dam is prohibited, interstate and inter-region water exchange is prohibited and the environmental flow restrictions on Clarrie Hall dam may render it unviable.		See response in Discussion Section
49.1	Until the Minister for Water finalises the Tweed Water Sharing Plan, Council doesn't have any options that can be considered for public comment. How can the public comment on options that have not been given the consent by the NSW Office of Water? Byrrill Creek Dam is prohibited, interstate and inter-region water exchange is prohibited and the environmental flow restrictions on Clarrie Hall dam may render it unviable.	Symons; Pearson; Gardner	issue grouped for combined response
49.2	The draft Tweed River Area unregulated and alluvial Water Sharing Plan prohibits the damming of Byrrill Creek and therefore Byrrill Creek should not even be considered as an option.	Spragg; Jack; Townsend; Tyman; Summers; Pearson; Graf; Dawson; McLnerney; Turner DMS: Pearson and Rifello; Pearson, Rifello and Rothwell; Peacock; Ehrlich; Gray; Hill; James; Lewin; McCormick; McNamara; Prince, Wilkens-Russel; Prince; Jack; Turner; Tweed Heads Environment Group - Murray	issue grouped for combined response

No.	ISSUE	RAISED BY:	REFER TO
49.3	The draft Tweed River Area unregulated and alluvial Water Sharing Plan prohibits all options except Clarrie Hall dam.	McInerney	issue grouped for combined response
49.4	Council officers, in support of long-standing TSC policy, requested state government to have the proposed prohibition lifted. This has caused a great deal of community unrest.	McNamara	issue grouped for combined response
	Water Augmentation Options	-	
	<u>Existing situation</u>		
50	If the Tweed currently consumes 12,000ML/a and our license is for 27,000ML/a then there is no need for dam options and Council has time to investigate other approaches.	Symons	See response in Discussion Section
51	If Clarrie Hall dam can hold 16,000ML and we're only using 10,500ML/yr then we have more than 5,000ML in excess, with one of the highest rainfalls in the state, and nothing needs to be done.	Pearson	See response in Discussion Section
52	Conflicting figures stating an extra 3,250ML/a is required, while the DMS states 5,250ML/a. Why do we need options of 22,000ML at CHD or 36,000ML at BCD - isn't this excessive?	Gardner	See response in Discussion Section
53	Given that Clarrie Hall dam contains 16,000ML, the weir at Bray Park is able to supply 13,750ML/annum, and only 3250ML/annum additional supply is required until 2036 it would appear that we have enough water for a population of 500,000.	DMS: Smith L	See response in Discussion Section
	<u>Process and Approach</u>		
	It should be called a water stealing plan.	Carroll	issue grouped for combined response
54	Limited number of well thought out options - Lack of rigour in exploring other options. Too much emphasis has been placed on supply rather than demand options. The shortlisted options promote an unsustainable and wasteful lifestyle.		See response in Discussion Section
54.1	Limited number of well thought out options - Lack of rigour in exploring other options. Too much emphasis has been placed on supply rather than demand options. The shortlisted options promote an unsustainable and wasteful lifestyle.	Eriksen; Symons; Ipsen; Tyman; Moore; Havier; Dawson; Dawe; Findlay; TweedCAN; Fuhrmann; Uki Village & District Residents Association Incorporated; Learmonth (CWG); Mayfield	issue grouped for combined response
54.2	Only the four options were considered but other	Sledge; Armfield; Pidgeon; Berg; Townsend; Eriksen;	issue grouped for

No.	ISSUE	RAISED BY:	REFER TO
	simpler/cheaper/common sense sustainability options were not considered as a whole/part solution to the problem.	Menzies; Sledge & Voinot; Symons; Purser; Stuart; Riordan; Possenti; Pearson; Outridge (Margo); Outridge (Mary Blane); Outridge (Mary Lou); O'Reilly; Header; Haffer; Dawson; Dawe; Barron; Findlay; TweedCAN; McInerny; Hoopman; Fuhrmann; Caldera Environment Centre - Hopkins; Name withheld DMS: Stuart; Caldera Environment Centre - Hopkins; Jack; Rich	combined response
55	The current ratepayers will be paying for the future water users. A separate charge should be imposed on the new developments for the additional costs involved with the upgrade of the water supply. Rural areas are subsidising the unsustainable coastal fringe.		See response in Discussion Section
55.1	Who is paying for this? Those inconvenienced by the options (eg living near to or behind the dams) should not be made to pay through raised rates etc.	Piper; Tyman	issue grouped for combined response
55.2	The current ratepayers will be paying for the future water users. A separate charge should be imposed on the new developments for the additional costs involved with the upgrade of the water supply.	Community Working Group Report (March 2010)	issue grouped for combined response
55.3	Existing residents should not be made to pay for augmentation of the water supply through greater taxes, environmental degradation or reduced living standards due to poorer river health.	Cooney; Piper DMS: Turner	issue grouped for combined response
55.4	Existing residents will pay \$5000 each for augmentation, since developer contributions are \$25,000 and there is a new cap of \$20,000.	TweedCAN	issue grouped for combined response
55.5	Pipeline options or localised groundwater extraction in urbanising areas would be preferable to inundating irreplaceable rural areas that are currently subsidising the growth of coastal fringes.	Dawson	issue grouped for combined response
55.6	Those in the community who are self-sufficient (particularly rural allotments) pay rates which unfairly subsidise the capital works spending by Council for the benefit of new and future residents who are responsible for the environmental impacts of these options.	Tyman; Caldera Environment Centre DMS: Caldera Environment Centre	issue grouped for combined response
56	Concerns that the available data and information has been, and continues to be, insufficient to support the MCA analysis.		See response in Discussion Section
56.1	Some of the CWG felt a full Environmental Impact Assessments needed	Community Working Group Report (March 2010)	issue grouped for

No.	ISSUE	RAISED BY:	REFER TO
	to be carried out PRIOR to any decisions on the short-listed options to determine the preferred option.		combined response
56.2	No EIS has been carried out on any of the options.	Prince; Jack; Pearson DMS: Jack	issue grouped for combined response
56.3	Estimates have not adequately included for landholder compensation or relocation of roads and services.	Edwards (CWG)	issue grouped for combined response
56.4	The CWG has concerns that the available data and information (particularly social and economic information, but potentially also other criteria) is not sufficient to support the MCA analysis that takes Council from 4 short-listed options to 1 preferred option.	Ebehard (CWG)	issue grouped for combined response
57	The available data is adequate for this stage of the process. Council has taken a sensible, efficient approach.		See response in Discussion Section
57.1	Correct approach not spending excessively on lots of options - coarse screening was done first and the preferred decision is based on available information.	Allsop (CWG)	issue grouped for combined response
57.2	The evidence is more than adequate but is unfortunately unable to be easily interpreted. There are many questions about the assumptions made in the DMS reports such as water consumption and consumer preferences.	Dawson (CWG)	issue grouped for combined response
58	There is no consensus within the community on the most appropriate method(s) to augment the water supply in terms of reduced environmental, social and economic impacts.		See response in Discussion Section
58.1	I support and endorse all of the options and more.	Wood	See response in Discussion Section
58.2	The coarse selection of bulk water supply options was considered to be inadequate, with too few similar dam choices and no regard to other more suitable bulk water supply choices.	Gardner (CWG); Murray (CWG)	See response in Discussion Section
58.3	Incredibly, the singular 'Direct potable use' (Option 9) became a main Tweed option in the Coarse Screening Assessment.	Murray (CWG)	See response in Discussion Section
58.4	Option 9 (Direct Potable Reuse) is the least environmentally damaging, but even this relies on fossil fuels for pumping and purification.	Caldera Environment Centre - Hopkins DMS: Caldera Environment Centre - Hopkins	See response in Discussion Section
58.5	Unless more sustainable measures are implemented, cheaper and less sustainable solutions will prevail and ultimately delay the	O'Reilly	See response in Discussion Section

No.	ISSUE	RAISED BY:	REFER TO
	implementation and growth of sustainable development.		
58.6	Council did not consider stormwater harvesting, rainwater tank or recycling options.	McCormick	See response in Discussion Section
58.7	Only the cheapest options have been considered.	Graf; Gardner; Dawson	See response in Discussion Section
58.8	The cost of alternative water supply technologies (stormwater harvesting, greywater harvesting, water recycling, rainwater tanks) is miniscule in relation to the estimated cost of building a new dam.	Havier	See response in Discussion Section
58.9	The estimated costs of either dam are too high and totally unacceptable , particularly when other far less expensive and more environmentally sensitive options are available.	Havier	See response in Discussion Section
59	The four options presented are contrary to Government policies and legislation (Northern Rivers Catchment Management Plan, Tweed Macro Water Sharing Plan, National Water Sensitive Cities Strategy).		See response in Discussion Section
59.1	The four options presented are contrary to NSW State Government policy and will cause unacceptable environmental and ecological damage.	Dawson; Caldera Environment Centre DMS: Caldera Environment Centre	issue grouped for combined response
59.2	Government policies and legislation (Northern Rivers Catchment Management Plan, Tweed Macro Water Sharing Plan, National Water Sensitive Cities Strategy) disqualify Council's preferred options due to the need for environmental flows, ecological damage to Byrrill Creek & National Parks, unsustainable & unapproved inter-catchment transfer of water, ignoring alternative sources used by other regions.	Symons; Riordan; Caldera Environment Centre; Thompson (CWG) DMS: Caldera Environment Centre	issue grouped for combined response
59.3	NSW Weirs Policy prohibits the building of new dams / extension of dams.	Riordan; Gardner; Dawson; McInerney; Hoopman	issue grouped for combined response
60	Contingency options should be reviewed every two years especially where new innovations in water recycling and use come on line and evidence that they are economically feasible to apply.	Community Working Group Report (March 2010)	See response in Discussion Section
61	Perception that the conclusions of the Demand Management Strategy are weighted specifically to create the promise that the Shire has no option other than to undertake some massive centralised water infrastructure project. There should be a shift from hard infrastructure towards decentralised supplies which cause less devastation.	Mayfield; Turner	See response in Discussion Section

No.	ISSUE	RAISED BY:	REFER TO
	<u>Dams</u>		
62	Dams are unsustainable, deplete our waterways and result in a decline of water quality. Dams only have a 50 year lifespan. For these reasons dams are being dismantled around the world wherever possible.	Brodie; Prince; Hearder; Turner DMS: Turner	See response in Discussion Section
63	Dams are outdated technology. Only the fastest/cheapest/easiest engineering solutions have been considered. London is an example of sustainability where the Thames River is its main water source and there is not dam supply.		See response in Discussion Section
63.1	Dams are outdated technology. Only the fastest/cheapest/easiest engineering solutions have been considered. London is an example of sustainability where the Thames River is its main water source and there is not dam supply.	Jack; Jack; Sloane; Dawson DMS: Dawson; Stuart (and others); Turner; Tweed Heads Environment Group - Murray	issue grouped for combined response
63.2	It is difficult to support dams as they flood native forest, farmland and residential land, and adversely affect the river system. Dams should be the last option considered.	Cooney; Pidgeon; Beltrame; Name withheld; Townsend; Smith L; Dawson; Dawson (CWG)	issue grouped for combined response
63.3	Dams have huge social and environmental impacts.	Gardner; TweedCAN; Vella; Smith B; Rich; Name withheld	issue grouped for combined response
63.4	Dams all have problems with water quality and emissions but we have not been given guidance on this.	Community Working Group Report (March 2010)	issue grouped for combined response
63.5	Dams are an integral part of developing a sustainable society.	Meath; Klaus; Rotary Club Kingscliff	issue grouped for combined response
	<u>Raising Clarrie Hall Dam</u>		
64	Is unacceptable as it will flood significant areas of native forest (and Native Park), significant vegetation, farmland, residential land, roads, sites of Aboriginal cultural heritage. It would mean 210ha of land would be flooded, affecting 24 property owners, and relocating McCabes bridge.	Spragg; Bolten; Lanham; Prince; Riordan; Pearson; Gardner; Dawson; Dawe; Blackwell; Blunden; Murray (CWG); Gardner (CWG); Duckworth; Fingal Head Coastcare Inc DMS: Fingal Head Coastcare Inc.; Lewin; Prince, van Steenwyk, Yeomans; Baker; Hersovitch; Sledge and Vionot; Chadwick; Jack; Dawe; Name withheld	See response in Discussion Section
64.1	Against the destruction of cultural heritage.	Rabbits	issue grouped for combined response
65	To increase the water Clarrie Hall dam can supply, Council should construct a holding pond on the Tweed River and pump water (run on	DMS: Smith L	See response in Discussion Section

No.	ISSUE	RAISED BY:	REFER TO
	solar energy) from this to the dam during periods of high flow.		
66	If demand management measures can not support the population, the most sensible choice is to raise Clarrie Hall Dam. Least environmentally damaging since the impacts have mainly already occurred. It will be important that the EIA process is comprehensive and mitigation measures are identified and implemented into the development conditions. Adequate emergency plans should also be put in place.		See response in Discussion Section
66.1	If demand management measures are not enough to support the existing population, the most sensible choice is to raise Clarrie Hall Dam.	Hastings Point Progress Association; Townsend; Hudson; Morrison	issue grouped for combined response
66.2	Preferred option is to raise Clarrie Hall Dam. It will be important that the EIA process is comprehensive and mitigation measures are identified and implemented into the development conditions.	Walton; Tyalgum Literary Institute and Progress Association; Campbell; Wood; Hay; Milligan; Smith L; Lucas; Styman; Piper; Pottsville Community Dune Care; Rotary Club Kingscliff	issue grouped for combined response
66.3	Least environmentally damaging since the impacts have mainly already occurred. However, further impacts will happen and these are concerning.	Symons; Prince; Piper; Morrison; Martin; Pearson; Moore; McQueen; Graf; Uki Village & District Residents Association Incorporated	issue grouped for combined response
66.4	Damage has already occurred and should be constrained to one area. However concerns over effects to native forest (and Native Park), farmland, residential land, and roads.	Hay; Symons; Piper; Morrison	issue grouped for combined response
66.5	It is better to impact on environmental and social values which have already been compromised, however being mindful of the people and environmental values which will be affected. By raising Clarrie Hall dam, Byrrill Creek will remain an environmental asset to the Shire. Least impact option and takes care of the required spillway fix. Clarrie Hall dam is preferred over Byrrill Creek if one of these options is to proceed.	Community Working Group Report (March 2010)	issue grouped for combined response
66.6	Easiest choice for now – path of least resistance.	Allsop (CWG)	issue grouped for combined response
66.7	As second option, Council should augment Clarrie Hall dam.	Combined Tweed Rural Industries Association; Cudgen Progress Association	issue grouped for combined response
66.8	In addition to demand management measures, Council should also raise	Wood	issue grouped for

No.	ISSUE	RAISED BY:	REFER TO
	the wall at Clarrie Hall Dam.		combined response
66.9	State and National water flow requirements will have to be adhered to, and adjusted accordingly. At CHD the denudation of vegetation should be done by barge to reduce the need for further road infrastructure, which creates more environmental damage.	Community Working Group Report (March 2010)	issue grouped for combined response
66.10	At CHD an emergency plan should be established for the village of Uki, and surrounding areas if the dam should fail; including during construction.	Community Working Group Report (March 2010)	issue grouped for combined response
66.11	A larger dam would have a greater risk of failure due to seismic activity. There is no adequate emergency plan in place should this occur.	Symons; Ingram	issue grouped for combined response
67	There are too many unanswered questions to support a solution. Will the dam affect access to Commissioners Creek Rd. Will construction affect the peace, access, and how long will it take?	Piper	See response in Discussion Section
68	Current dam releases polluted toxic foul-smelling water.	Jack; Clarke	See response in Discussion Section
69	The seven metre buffer currently proposed seems excessive and should be reduced if possible.	Meath; Evans	See response in Discussion Section
70	Council has been required since 2002 to enlarge the spillway but has delayed works pending the decision on whether or not to raise the dam wall. This work still needs to be done regardless of whether the wall is raised.	Gardner	See response in Discussion Section
71	Many landholders at Doon Doon Creek were dissatisfied with the way they were treated when Clarrie Hall Dam was constructed. The figures in the budget for compensation does not inspire confidence. Compensation to affected landholders needs to be appropriate and tailored to individuals. Fair financial compensation will be acceptable to most of the affected landholders. CHD landholders were burdened last time. Its time that burden passes to others.		See response in Discussion Section
71.1	Many landholders at Doon Doon Creek were dissatisfied with the way they were treated when Clarrie Hall Dam was constructed. The figures in the budget for compensation does not inspire confidence.	McInerny; Hoopman	issue grouped for combined response

No.	ISSUE	RAISED BY:	REFER TO
71.2	Concerns over compensation because the last time (at CHD) the council were, to say the least, economical with the truth.	Community Working Group Report (March 2010)	issue grouped for combined response
71.3	CH Dam area already damaged, less people to move, but people already disturbed will have their lives disrupted again. Fair financial compensation will be acceptable to most of the affected landholders.	Thompson (CWG); Anon	issue grouped for combined response
71.4	Compensation to affected landholders needs to be appropriate and tailored to individuals. Changed landuse practices would improve protection of dam catchment and landholders could be compensated by allowing rural residential zoning for smaller scale acerages.	Meath	issue grouped for combined response
71.5	CHD landholders were burdened last time. Its time that burden passes to others. CHD may be burdened again in 30 years time if raised then.	Beck (CWG); Duckworth	issue grouped for combined response
72	Investigate the feasibility of a micro-hydro power plant as part of the augmentation.	Walton; Campbell; Meath	See response in Discussion Section
	<u>Byrrill Creek Dam</u>		
73	Too high Social, Cultural Heritage & Environmental problems to be considered an option. From the evidence we have Byrrill Creek must be removed from the list of viable options Object as it will flood some of the highest conservation value land in the Tweed, is a regionally significant biodiversity hotspot adjacent to the Mt. Warning World Heritage National Park. Major drawcard for tourism. Road closures will occur. Residents and communities will be severely affected.		See response in Discussion Section
73.1	Object as it will flood some of the highest conservation value land in the Tweed, is a regionally significant biodiversity hotspot adjacent to the Mt. Warning World Heritage National Park. Major drawcard for tourism. Road closures will occur. Residents and communities will be severely affected.	Hollingsworth; Jack; Cox; Brodie; Bolten; Townsend; Hay; Sledge & Voinot; Sims; Ray; Hudson; Name withheld; Scorgie; Symons; Purser; Prince; Piper; Morrison; Martin; Kaye; James; Jack; Ipsen; Bram; Wrem; Summers; Riordan; Possenti; Pearson; Outridge (Margo); Outridge (Mary Blane); Outridge (Mary Lou); Moore; McQueen; McCormick; McConville; Mayfield; Havier; Haffer; Graf; Dawson; Dawe; Curtis; Blackwell; Barron; Barnett (Kellie); Barnett (Jade); Baker; TweedCAN; McInerny; Hoopman;	issue grouped for combined response

No.	ISSUE	RAISED BY:	REFER TO
		Fuhrmann; Turner; Blunden; Uki Village & District Residents Association Incorporated; Vella; Costello; Name withheld; Fingal Head Coastcare Inc; Luca; Mayfield; Name withheld; Weber DMS: Fingal Head Coastcare Inc.; Peacock; Sledge; Symons; Costello; Ehrlich; Gray; James; Lewin; Malecki; Mason; McCormick; McNamara; Moore; Prince, : van Steenwyk, Wilkens-Russel, Yeomans; Baker; Hersovitch; Sledge and Vionot; Chadwick; Jack; Kaye; Dawe; Blackwell; Outridge – Mary Blane; Turner; Dawson (CWG); Learmonth (CWG)	
73.2	Object as it will flood productive farmland.	Pearce; Bolten; McInerny; Hoopman	issue grouped for combined response
73.3	<p>Too high Social, Cultural Heritage & Environmental problems to be considered an option.</p> <p>From the evidence we have Byrrill Creek must be removed from the list of viable options</p> <p>Byrrill Creek is designated as being of high conservation value including high diversity of Schedule 1 &2 wet fauna species and very high diversity of wet flora species by NPWS (DECC) in the Stressed Rivers Assessment Report. Conservation of Biological Integrity is about preserving natural areas of High Conservation Value for their intrinsic worth. Byrrill Creek is one such area.</p> <p>Toughest choice, but in terms of long term water security this may be our best option.</p> <p>Byrrill Creek Dam is contrary to state policy of no more dams and every effort must be made to protect the environment.</p> <p>It is more expensive than CH Dam and will have a lower capacity.</p> <p>If council approved the Byrrill Creek dam option, a high conservation area would be lost to future Tweed generations, as a place of beauty and tourist destination for visitors.</p>	Community Working Group Report (March 2010)	issue grouped for combined response
73.4	Cons - Area is HCV	Community Working Group Report (March 2010); Lemaire (CWG)	issue grouped for combined response

No.	ISSUE	RAISED BY:	REFER TO
	<ul style="list-style-type: none"> - Local lifestyle disturbances - Best location for rehabilitation. - New road alignments required. - Rehabilitation works done. 		
73.5	<p>The High Conservation Value makes this a very difficult option, both locally, and on a National level.</p> <p>It will be very difficult to compensate for the area to be inundated at BCD</p> <p>The forestry plantations have economic value, and these have a benefit to the Shire financially, and in regards to carbon emissions.</p>	Lemaire (CWG)	issue grouped for combined response
73.5	<p>A dam at Byrrill Creek is unacceptable regardless of any demand management strategy or secure yield scenarios. The Tweed Riparian Restoration Prioritisation Report 2003 looked at 86 riparian sites within 6 sub catchments and ranked each according to their relative conservation and regeneration potentials. Byrrill Creek was ranked the highest of all the sub catchments and 10 of the top 30 highest priority sites of all the 6 sub catchments were located within the Byrrill Creek catchment. The total funding to date for riparian projects at Byrrill Creek amounts to \$ 416.264 plus in kind labour contributions of \$154.324 by Landcare members. Up to 21 ha of Mebbin National Park would be inundated. At least one known Aboriginal site would be affected.</p>	Symons; Prince; Morrison; James; Jack; Bram; Summers; Riordan; Pearson; McCormick; Havier; Graf; Turner DMS: Symons; McCormick; Turner	issue grouped for combined response
73.6	<p>Council purchased land at Byrrill Creek 25 years ago under very different circumstances. Building a dam may have been an acceptable position back then but it is not now.</p>	James; Pearson DMS: Symons	issue grouped for combined response
73.7	<p>Remove Byrrill Creek from the options for augmentation of the water supply.</p>	Symons; Morrison; Bram; McCormick; Havier; Turner DMS: McCormick	issue grouped for combined response
73.8	<p>Council owned land in Byrrill Creek will remain an asset for the community. It could be put to other beneficial uses or sold to National Parks.</p>	Morrison	issue grouped for combined response
73.9	<p>Two dams on adjacent valleys and both holding back headwaters to the Tweed River.</p>	Gardner; McInerney; Hoopman	issue grouped for combined response
73.10	<p>Against the destruction of cultural heritage.</p>	Name withheld	issue grouped for

No.	ISSUE	RAISED BY:	REFER TO
			combined response
74	Are we damming our hinterland valleys to provide for coastal development that will ultimately be lost to the sea due to future climate change?	Dawson; Barnett (Kellie) DMS: Gardner	See response in Discussion Section
75	<p>Building a dam at Byrrill Creek potentially provides positive outcomes:</p> <ul style="list-style-type: none"> - Alternative catchment of rain - Council owns most of the land - Clean catchment, surrounded by State and National Parks - Water supply security - Reduced compensating costs - Quality in sourced water <p>Building a dam at Byrrill Creek potentially provides negative outcomes</p> <ul style="list-style-type: none"> - Area is HCV - Local lifestyle disturbances - Best location for rehabilitation. - New road alignments required. - Rehabilitation works done. 		See response in Discussion Section
75.1	<p>Building a dam at Byrrill Creek potentially provides positive outcomes:</p> <ul style="list-style-type: none"> - Alternative catchment of rain - Council owns most of the land - Clean catchment, surrounded by State and National Parks - Water supply security - Reduced compensating costs - Quality in sourced water <p>Building a dam at Byrrill Creek potentially provides negative outcomes</p> <ul style="list-style-type: none"> - Area is HCV - Local lifestyle disturbances - Best location for rehabilitation. - New road alignments required. - Rehabilitation works done. 	Community Working Group Report (March 2010); Lemaire (CWG)	issue grouped for combined response
75.2	Council should build the dam at Byrrill Creek - it is the only long term	Budd; Lanham; Wood; Cudgen Progress Association	issue grouped for

No.	ISSUE	RAISED BY:	REFER TO
	solution. Council has owned much of the land at the site for many years.		combined response
75.3	In addition to demand management measures, Council should also approach State Government to ensure restrictions are not placed on building a new dam at Byrrill Creek which has been planned for and land acquired since the 1960s.	Wood; Duckworth	issue grouped for combined response
75.4	Council should build the dam at Byrrill Creek - it is the only long term solution. Beneficial impact on groundwater supplies and provides backup in case Clarrie Hall dam requires maintenance, etc	Combined Tweed Rural Industries Association; Lanham; Clarke; Duckworth	issue grouped for combined response
75.5	Minimum social impact relative to the betterment and future betterment of the entire Shire.	Beck (CWG); Duckworth	issue grouped for combined response
75.6	As second option, Council should build Byrrill Creek dam.	Campbell; Styman; Rotary Club Kingscliff	issue grouped for combined response
75.7	At 80% flows Byrrill Creek provides 5 million litres compared to Clarrie Hall's 2.5 million litres, and the Byrrill Creek dam would be deeper and provide better quality water.	Lanham	issue grouped for combined response
75.8	Whilst not a supporter of dams, but given TSC's long involvement at this site and the surprising pros put forward by the CWG, this option should stay on the table at this point in time.	Smith L; Lemaire (CWG)	issue grouped for combined response
76	Some residents will lose their homes. Others will be inconvenienced by property inundation or severance, closure of Byrrill Creek Road, alternative property access, spillway noise and construction impacts. Some residents were made aware of these issues when they purchased their land, others were not.		See response in Discussion Section
76.1	I have lived in the Byrrill Creek valley for over 50 years, and my home will be flooded if the dam goes ahead. I am opposed to the dam and feel Council is negligent and heartless not to consider residents' issues. There must be better solutions for the Tweed's water shortage that don't impact so much on people's lives.	Merchant	issue grouped for combined response
76.2	Existing residents have no security because of the caveats hanging over their land.	Pearson	issue grouped for combined response
76.3	When we purchased our land in 2004 we should have been, but were never, told about the possible encroachment onto our property.	Havier	issue grouped for combined response

No.	ISSUE	RAISED BY:	REFER TO
76.4	If the dam went ahead, noise from the spillway would be a concern and more information on this issue would be appreciated.	Urry	issue grouped for combined response
76.5	We (landholders in Byrrill Creek) are only a handful of people compared to the greater population of the Tweed and the decision makers will need to take this into account whilst ensuring the valley is better or at least the same.	Name withheld	issue grouped for combined response
76.6	Most residents of affected properties were well aware of the potential for the dam to be built when buying their properties and dwellings were positioned accordingly.	Name withheld	issue grouped for combined response
77	Investigate the feasibility of a micro-hydro power plant as part of the augmentation.	Campbell	See response in Discussion Section
	<i>Pipeline to SEQ Water grid</i>		
78	Unsatisfactory option: selling water to the Gold Coast robs the Tweed of needed water and promotes unsustainable development on the Gold Coast without them providing the necessary infrastructure. Desalination has large energy requirements. SEQ has even less water than the Tweed. QLD government has not given any agreement. It is risky and water may not be available when required (ie during drought).		See response in Discussion Section
78.1	Unsatisfactory option: selling water to the Gold Coast robs the Tweed of needed water and promotes unsustainable development on the Gold Coast without them providing the necessary infrastructure. Desalination has large energy requirements. SEQ has even less water than the Tweed.	Spragg; Cudgen Progress Association; Fingal Head Coastcare Inc; Pottsville Community Dune Care DMS: Fingal Head Coastcare Inc.; Prince; Sledge and Vionot; Jack; Dawe; Stuart; Turner	issue grouped for combined response
78.2	The SEQ option has no merit and the QLD government has not given any agreement. It is risky and water may not be available when required (ie during drought).	Graf; Townsend; Sledge & Voinot; Smith L; Prince; Jack; Tyman; Riordan; Pearson; McNamara; Graf; Gardner; McInerney; Hoopman; Murray (CWG); Edwards (CWG); Clarke; Weber	issue grouped for combined response
78.3	Not an option as consent has not been granted by the Minister for Water and part 13 of the draft Water Sharing Plan prohibits it.	Symons; Prince; Jack; Pearson; Murray (CWG); Edwards (CWG)	issue grouped for combined response
78.4	Politicians (Federal, Qld) have stated "NSW should look after its own water requirements", and the Qld Water Commission wrote it is recovering from drought and would not consider sale of water until it had at returned to at least 60% capacity.	Gardner	issue grouped for combined response

No.	ISSUE	RAISED BY:	REFER TO
78.5	Has excessive power requirements, the associated greenhouse gas emissions, and pollution created.	Summers; Stuart; Riordan; McNamara; Hearder; Graf; Gardner; McInerny; Hoopman	issue grouped for combined response
78.6	This ought to have a high environmental rating but a low Greenhouse gas rating.	Dawson (CWG)	issue grouped for combined response
79	Interbasin transfers are not the answer.	Header; Dawe; Carroll; Dawson (CWG); Weber	See response in Discussion Section
80	The SEQ pipeline option is not permitted under the draft Tweed Area Water Sharing Plan.	Townsend	issue grouped for combined response
80.1	<p>Pipeline to SEQ very difficult politically and too many legislative problems. Plus large ongoing pumping cost, large carbon footprint, enviro problems (linked with Tugun Desal Plant) and Cultural Heritage problems.</p> <p>Ratings for the pipeline options should reflect the whole water supply system enabled by the pipeline linkage, not just the pipeline itself. Eg the energy costs associated with the SEQ pipeline regardless of whether this is adequately reflected in any contractual arrangement.</p> <p>SEQ will be dumping their waste (brine) on our doorstep. Desalination plants are a death sentence to marine life and power usage exacerbates the already fragile/unredeemable GHG situation</p> <p>When SEQ water Grid Manager has not guaranteed supply of bulk water supply why does the WaterTweed project persist with failed Pipe options when other more suitable side options for water supply are available?</p>	Community Working Group Report (March 2010); Edwards (CWG)	issue grouped for combined response
81	The SEQ pipeline option should be more fully explored.		See response in Discussion Section
81.1	In addition to demand management measures, Council should investigate connection to South East Queensland water grid.	Wood	issue grouped for combined response
81.2	The SEQ pipeline option should be more fully explored.	Piper	issue grouped for combined response
81.3	More information is required to adequately assess the Pipeline to SEQ Water	Community Working Group Report (March 2010)	issue grouped for combined response
81.4	Pros - Cheap	Lemaire (CWG)	issue grouped for combined response

No.	ISSUE	RAISED BY:	REFER TO
	<ul style="list-style-type: none"> - Saves building dams - Quick fix - Doesn't require storage facility - Low environmental impacts Cons <ul style="list-style-type: none"> - Need approval to get the water - Only for new developments along the coast - Doesn't secure supply - No options for water treatment - Needs to be maintained 		
82	Alternative routes A and B are unacceptable on environmental grounds. Route C could potentially have less impact given the Cobaki Lakes development.	Smith L	See response in Discussion Section
	<u>Contingency Option</u>		
83	Including a contingency option is good planning, however the current option is flawed.		See response in Discussion Section
83.1	Unsatisfactory information to comment.	Ebehard (CWG) DMS: Fingal Head Coastcare Inc.	issue grouped for combined response
83.2	Objection against the Contingency Option. It is not a realistic option.	Townsend; Sledge & Voinot; Prince; Jack; Tyman; Gardner (CWG); Edwards (CWG); Cudgen Progress Association DMS: Sledge and Vionot; Jack	issue grouped for combined response
83.3	Including a contingency option is good planning, however the current option is flawed.	Smith L; Lemaire (CWG)	issue grouped for combined response
84	Use of groundwater would deplete finite supplies necessary for agriculture, the environment, and has cultural heritage impacts.		See response in Discussion Section
84.1	Use of groundwater would deplete finite supplies necessary for agriculture and the environment.	Combined Tweed Rural Industries Association; Spragg; Smith L; Symons; Pearson; McNamara; Gardner DMS: Prince; Jack	issue grouped for combined response
84.2	Groundwater : Cultural Heritage problems , Enviro problems: impacts on greater water table unknown & Farmers don't want it. Rous Water doesn't have enough water for themselves let alone share it. When Rous Water has not guaranteed supply of bulk water supply why does the WaterTweed project persist with failed Pipe options when	Community Working Group Report (March 2010)	issue grouped for combined response

No.	ISSUE	RAISED BY:	REFER TO
	other more suitable side options for water supply are available? The CWG cannot recommend this option as it is a contingency.		
85	The pipeline link to Rous Water can only be considered if Rous increases its existing system capacity. If this were to occur, the option could be more sustainable, viable and cost effective than the SEQ pipeline. It could be a permanent contingency plan. There is no agreement with Rous Water for them to supply water to Tweed.		See response in Discussion Section
85.1	Rous Pipeline provides inadequate quantities of water. There is no agreement with Rous Water for them to supply water to Tweed.	Riordan; Gardner; McInerny; Hoopman; Murray (CWG)	issue grouped for combined response
85.2	The pipeline link to Rous Water can only be considered if Rous increases its existing system capacity. If this were to occur, the option could be more sustainable, viable and cost effective than the SEQ pipeline. It could be a permanent contingency plan.	Smith L	issue grouped for combined response
86	Pipeline options or localised groundwater extraction in urbanising areas would be preferable to inundating irreplaceable rural areas that are currently subsidising the growth of coastal fringes.	Piper DMS: Dawson	See response in Discussion Section
	<u>Water-wise options</u>		
87	Byrriil Creek Dam could be avoided by spending the \$57M Byrriil Creek Dam would cost on rainwater tanks and composting toilets.	Dawe	See response in Discussion Section
88	Council should include the “water wise option” within the short-listed options.	Yeomans DMS: Prince; Fingal Head Coastcare Inc.	See response in Discussion Section
89	Waterwise options may be more expensive up front, but will be much cheaper in the long run.	Cooney; Graf	See response in Discussion Section
	<u>Alternative Options</u>		
90	Multiple smaller dams to be constructed on unproductive higher land throughout the valley to reduce impacts from a larger dam. Water could be used by intensive agriculture on the fertile valley below and excess fed back into the Bray park weir for domestic supply. Dam the Cobaki broadwater.		See response in Discussion Section
90.1	Multiple smaller dams to be constructed on unproductive higher land throughout the valley to reduce impacts from a larger dam. Water could be used by intensive agriculture on the fertile valley below and	McConville	issue grouped for combined response

No.	ISSUE	RAISED BY:	REFER TO
	excess fed back into the Bray park weir for domestic supply.		
90.2	Dam up the area of Cobaki broadwater - it is the most natural dam site and close to the areas of development.	O'Toole	issue grouped for combined response
	<u>Sale of Tweed water</u>		
91	Council only wants to sell water to SEQ or Rous Water and this should not be a reason for building new dams in the Tweed.		See response in Discussion Section
91.1	Council only wants to sell water to SEQ and this should not be a reason for building new dams in the Tweed.	Symons	issue grouped for combined response
91.2	Council wants to sell water to the Gold Coast or bottled "Coca-cola style".	Murwillumbah Ratepayers Assoc; Gill; Lemaire	issue grouped for combined response
91.3	No agreement be struck with either SEQ or Rous Water.	Hastings Point Progress Association	issue grouped for combined response
	<u>Environmental flows</u>		
92	At its meeting 17 November 2009, Council approved further environmental flow restrictions on the Tweed River at Bray Park Weir: "The cessation level for flow bypass requirements at Bray Park Weir be set at a level of 50% of the capacity of the Clarrie Hall Dam".	Tweed Heads Environment Group - Murray	See response in Discussion Section
	<u>Inclusion of external and flow-on effects</u>		
93	External factors such as environmental costs and benefits have not been directly included in the economic and comparative analysis. The analysis should have included items such as reduced water discharges to sensitive receiving waters, reduced storm surcharges, creation of habitat. The cost of water recycling and dam construction cannot be fairly compared until environmental costs are incorporated into the overall dam costs.		See response in Discussion Section
93.1	External factors such as environmental costs and benefits have not been directly included in the economic and comparative analysis. The analysis should have included items such as reduced water discharges to sensitive receiving waters, reduced storm surcharges, creation of habitat through reedbeds, etc.	Lanham; Yeomans; Hollingsworth; Graf; Dawson; Turner; Whittingham	issue grouped for combined response
93.2	Cost considerations should be secondary to improved environmental outcomes.	Spragg	issue grouped for combined response
93.3	There are no figures on environmental cost. The cost of water recycling	Community Working Group Report (March 2010)	issue grouped for

No.	ISSUE	RAISED BY:	REFER TO
	and dam construction cannot be fairly compared until environmental costs are incorporated into the overall dam costs. A replacement value and opportunity cost need to be factored in to better reflect the environmental value. Dollar values are a coarse measure of environmental worth but would assist in making a fairer assessment between options. Once true environmental costs have been assessed the planning process needs to revisit the coarse screening model and re-evaluate \$/ML.		combined response
93.4	We live in an area which has world heritage status – The environmental significance is what drew people here in the first place (over millennia). We have a sacred mountain in the middle. We must preserve it – to destroy it is mindless.	Community Working Group Report (March 2010)	issue grouped for combined response
94	Stormwater was discarded based on cost constraints alone. This is a skewed way of assessing pros and cons. Stormwater harvesting and reuse of water would reduce discharges to estuaries, and in some instances flood surge damage.	Tweed District Residents & Ratepayers; Eriksen; Jack (Marie); Findlay	See response in Discussion Section
95	Climate change and sea level effects have not been considered.		See response in Discussion Section
95.1	Climate change and sea level effects have not been considered.	Scanlan; Tweed District Residents & Ratepayers; Townsend; Prince; Jack; Welling; Hollingsworth; Gardner; Ebehard (CWG)	issue grouped for combined response
95.2	The CWG has not seen any evidence of how Tweed SC has considered climate change scenarios and impacts in their decision-making process.	Community Working Group Report (March 2010)	issue grouped for combined response
	<u>Multi-Criteria Analysis (MCA)</u>		
96	Both social and environmental impacts are significant. Half the CWG considered them to be equal in importance. Half considered environmental issues are more important. It was interesting that no one on the CWG considered social impacts ahead of environmental impacts.		See response in Discussion Section
96.1	Social impacts are not as big an issue as environmental impacts	Community Working Group Report (March 2010)	issue grouped for combined response
96.2	Within the CWG no one feels that the social criteria are more important	Community Working Group Report (March 2010)	issue grouped for

No.	ISSUE	RAISED BY:	REFER TO
	than the environmental criteria. Six members feel environment should be weighted more heavily, while six members believe social and environmental issues should have equal weightings. If there is no environment – there is no society		combined response
96.3	Environment is the most important factor. It is a complex problem. Social is highly critical. General consensus: we can't have one without the other.	Community Working Group Report (March 2010)	issue grouped for combined response
96.4	The overall list of criteria seems reasonable. However the process does not seem to have adequately considered climate change adaptation and mitigation	Community Working Group Report (March 2010)	issue grouped for combined response
96.5	The CWG acknowledges the complexity of the issues involved in considering the trade-offs inherent in these decisions.	Ebehard (CWG)	issue grouped for combined response
97	Suggested improvements to the MCA used in the coarse screening included: using a finer scoring system, refinement of weightings so that other criteria were weighted equal or greater to costs and secure yield, improving the transparency through inclusion of discussion and background information.		See response in Discussion Section
97.1	The MCA weightings and ratings are too coarse to gauge the finer details and disparities between the areas. It is not an adequate tool to make a qualified recommendation about the choices without further clarification and discussion.	Dawson (CWG); Gardner (CWG)	issue grouped for combined response
97.2	The ratings should be from 0 to 10 to give a finer approach, with 0 being an absolute no.	Thompson (CWG)	issue grouped for combined response
97.3	The MCA Process was discovered on 1970 and it has been considerably refined since. For complex group decisions we should be using Analytic Hierarchy Process where each decision is broken down into sub problems, pairs of sub headings are then compared with each other and given a rating. May need a computer programme to do the calculations. From my research this is a far more sophisticated way to go.	Thompson (CWG)	issue grouped for combined response
97.4	In the coarse screening: Only secure yield and costs were given high weightings Cultural heritage should have equal weightings to secure yield Greenhouse gas emissions should have a higher weighting	Gardner (CWG)	issue grouped for combined response

Appendix B –Notes from Public Information Sessions

Tweed District Water – Demand Management and Water Supply Augmentation Public Information Session

Wednesday 10 February 2010

**South Sea Islander Room, Tweed Heads Civic Centre, Brett Street, Tweed Heads
2:00pm – 7:15pm**

CWG members and Tweed Shire Council staff in attendance:

CWG

Richard Murray

Don Beck

Cr Holdom

TSC

Anthony Burnham

Tim Mackney

Dan Walton

Sascha Piotrkowski

Marion Martin

The information session was attended by approximately 20 members of the public who were interested in discussing the Shire's Demand Management actions and strategy, and the approach to augmentation of the Water Supply.

Some of the topics discussed and opinions raised by individuals were:

1. Conservation focus, concerned about dam environmental impacts, population growth is ok, concern with current planning legislation being out of step with community direction – ie restrictive on both community and Council.
2. Tweed needs to develop water resources and hydro-electricity options.
3. Astonishment that Council might have difficulty gaining approval to construct Byrrill Creek Dam
4. Understanding and supportive of the need for augmentation
5. Concerns that population predictions are driving the need for a second dam. The person was opposed to Byrrill Creek on two fronts – environmental (obvious reasons) and social (if Council had the political strength to put a cap on population we wouldn't need a second dam).
6. Environmental and recycled water focus is wanted, but need to balance with costs and legislative constraints. Concerned that Council should not ultimately be shackled by these constraints

7. Particularly interested in the environmental issues. Has been following the process with interest, especially the CWG through the minutes and question register. Wants CWG to “get on with it” and not concentrate on “administrative” issues.

Three attendees placed their names on the Interested Parties Register, with several other attendees indicating that they were already on the register.

The following brochures and reports were available as handouts:

- Recycled Water
 - Tweed Shire Council Recycled Water Initiative – Fact Sheet No. 1
 - Tweed Shire Council Recycled Water Initiative – Case Study 1
 - Tweed Shire Council Recycled Water Initiative – Case Study 2

- Demand Management
 - Water Demand Management – Tweed Shire Demand Management Strategy
 - Water Demand Management – Progress to Date
 - Water Demand Management – Reducing Water Usage
 - Water Demand Management – User Pays Water Pricing 2009 – 2010
 - Integrated Water Cycle Management – Household Retrofit Program
 - Integrated Water Cycle Management – Water Modelling Activities

 - REPORT: Demand Management Strategy – Dec. 2009 – by MWH
 - REPORT: Demand Management Strategy – Stage 1 – by MWH
 - REPORT: Demand Management Strategy – Stage 2 – by MWH

- Water Supply Augmentation
 - Tweed District Water Supply Augmentation Factsheet 1 – Why does the Tweed need more water?
 - TSC Fact Sheet 1 – Why does the Tweed need more water?
 - TSC Fact Sheet 2 – Water Supply Augmentation to 2036
 - TSC Fact Sheet 3 – Community consultation to determine a preferred option
 - TSC Fact Sheet 4 – Community Working Group nominations
 - TSC Fact Sheet 5 – Water Supply Options
 - TSC Fact Sheet 6 – Short-listed Option 1: Raise Clarrie Hall Dam
 - TSC Fact Sheet 7 – Short-listed Option 2: Construct Byrrill Creek Dam
 - TSC Fact Sheet 8 – Short-listed Option 3: Pipeline connection to SE QLD
 - TSC Fact Sheet – Questions and answers to the Project

 - REPORT: Tweed District Water Supply Augmentation Options Study Stages 1 & 2 – by MWH

- Water Savings and Education
 - Tweed Shire Council – Water Wise Fact Sheet 1
 - Tweed Shire Council – Water Wise Fact Sheet 2
 - Tweed Shire Council – Recycled Water Initiative Fact Sheet 2
 - Tweed Shire Council – Water Wise Fact Sheet 6
 - Tweed Shire Council Fact sheet 3 – Rebates
 - Tweed Shire Council – Water Wise Fact Sheet 10 – Rainwater tanks
 - NSW Government - How Can Greywater be used?

- Joanna Gardner's (CWG member) Byrrill Creek Landowners Information

Three (3) handouts

 - Environmental Effects and Considerations for the Proposed Byrrill Creek Dam
 - An Overview of the Byrrill Creek Dam Area
 - Byrrill Creek Dam Newsletter – February 3rd 2010

**Tweed District Water – Demand Management and Water Supply Augmentation
Public Information Session**

Thursday 18 February 2010

**Canvas & Kettle Room, Murwillumbah Civic Centre, Murwillumbah
2:00pm – 9:00pm**

CWG members and Tweed Shire Council staff in attendance:

CWG

Tony Thompson
Colleen Edwards
Don Beck
Cr Holdom
Robyn Lemaire
Joanna Gardner

TSC

Anthony Burnham
Tim Mackney
Dan Walton

The information session was attended by approximately 12 members of the public who were interested in discussing the Shire's Demand Management actions and strategy, and the approach to augmentation of the Water Supply.

Colleen Edwards:

- Why 40m wide spillway on 70m CHD? Can it be larger?
- Blasting issues
- Dam compensation
- \$ per kL

Jim Warburton:

- Rocky cutting – community consultation – no dams. Wave of community consultation. Water SE. Catchment Management Authority.
- Tweed River – mid estuary and fresh water in poor condition – stressed.
- Office of Water – presentation. Catchment management.
- Mandatory tanks.
- Top 5 – broad consultation as part rocky cutting.
- Community – NO DAMS.
- River already unhealthy. Fresh. E.g. red alert nutrients.
- Does the fish ladder work?
- Take rocky cutting dam off the list.
- Byrrill Creek Dam take off the list and sell land.
- Forest Plantation – reduces biodiversity.
- CAP – need to work to it. Policy Statement – no cross catchment.
- Need high flows for down stream area.
- Disconnect between the coastal and upper catchment values.
- Existing system struggling.

- Further population should not degrade the area further e.g. have 25 x nightcap villages (vs) standard development.
- Standard development not sustainable.
- Need big RWT. 22,500 L
- Dam – release temperature pollution.
- No more extraction from river.
- No more discharge to river.
- More recycling is preferred option.

Ron Duckworth:

- If CHD went ahead – road alignment at McCabbes Bridge is by far the preferred alignment.
- Extra length approximately 6 – 7 km plus 3 crossings.
- Noting trades change travel and hours making grazing and the like unuseable.
- Recommend to spread risk e.g. water quality.
- All other alternatives.
- CHD all farming country U/S.
- BCD – less developed catchment. Better water quality.
- CHD 27 properties affected approximately 18 cattle.
- Commercial impact
- Fencing required.
- Impoundment opportunity in CHD catchment at higher level but adjacent.
- Scaling of roads in Doon Doon Road and Commissioner Creek Roads to minimise sediment run off.
- Some commitments never followed through with PWD and Council.

Lady

- Appalled at only 4 options.
- Suspicious of process – just a way of building Byrill Creek Dam.
- Commitment not to build BCD.
- Use \$56mil to assist farmers and invest in other measures.
- TSC lagging behind
 - Grey water – facilitate this process. Minimise cost.
- Any saving water to reduce extraction.
- Storm water harvesting. Town areas recycling.
- Tweed Heads, Murwillumbah areas.
- Big buildings – capture as much as possible.
- RW Tanks. Retrofit. Assistance.
- Michael Mobbs.
- Avoid supply side.
- Pipeline SEQ grid. GHG emission. High rating given desalination.
- BCD.

Joanna – requested information for future Uki Meeting

Why nine options? Why some not proceeded with.

Demand Management – what are Council doing? What's still to be done?

Other notes

- Individual meters for each dwelling in:
- Retirement Villages and Multi-Unit Complexes.

- Tanks compulsory for industrial.
- Tighten up “step charge”.
- Encourage greywater use with reduction in sewer levy.
- Tank size based on no. of bedrooms, floor area of the house ie. not a blanket 5000L size.
- Water bills – make them like energy bills i.e. water meter challenge competition to encourage water saving reductions.

- Glad to see 40% reduction in water use since 1992
- Understands future savings will require more effort per litre saved (low-hanging fruit has been “picked” to some extent)

- Surprised that Council can’t force developers to implement recycled water in new developments. Queensland can do it – NSW push based around BASIX
- Rainwater is the best water in the world despite what NSW Health and Australian drinking guidelines say.

- Simple DIY greywater reuse at home – flexible hose attached to T-piece under laundry sink and runs out onto back lawn / garden. Changes position of hose every few days. Lawn is green as green all year round. When raining, turns valve so that water goes to sewer rather than water log yard.

The following brochures and reports were available as handouts:

- Demand Management
 - Water Demand Management – Tweed Shire Demand Management Strategy
 - Water Demand Management – Progress to Date
 - Water Demand Management – Reducing Water Usage
 - Water Demand Management – User Pays Water Pricing 2009 – 2010
 - Integrated Water Cycle Management – Household Retrofit Program
 - Integrated Water Cycle Management – Water Modelling Activities

 - REPORT: Demand Management Strategy – Dec. 2009 – by MWH
 - REPORT: Demand Management Strategy – Stage 1 – by MWH
 - REPORT: Demand Management Strategy – Stage 2 – by MWH

- Recycled Water
 - Tweed Shire Council Recycled Water Initiative – Fact Sheet No. 1
 - Tweed Shire Council Recycled Water Initiative – Case Study 1
 - Tweed Shire Council Recycled Water Initiative – Case Study 2

- Water Supply Augmentation

- Tweed District Water Supply Augmentation Factsheet 1 – Why does the Tweed need more water?
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- TSC Fact Sheet 8 – Short-listed Option 3: Pipeline connection to SE QLD
- TSC Fact Sheet – Questions and answers to the Project

- REPORT: Tweed District Water Supply Augmentation Options Study Stages 1 & 2 – by MWH

- Water Savings and Education
 - Tweed Shire Council – Water Wise Fact Sheet 1
 - Tweed Shire Council – Water Wise Fact Sheet 2
 - Tweed Shire Council – Recycled Water Initiative Fact Sheet 2
 - Tweed Shire Council – Water Wise Fact Sheet 6
 - Tweed Shire Council Fact sheet 3 – Rebates
 - Tweed Shire Council – Water Wise Fact Sheet 10 – Rainwater tanks
 - NSW Government - How Can Greywater be used?

- Joanna Gardner's (CWG member) Byrrill Creek Landowners Information
Three (3) handouts
 - Environmental Effects and Considerations for the Proposed Byrrill Creek Dam
 - An Overview of the Byrrill Creek Dam Area
 - Byrrill Creek Dam Newsletter – February 3rd 2010

- Colleen Gardner's (CWG member) Clarrie Hall Dam Landowners Information
One (1) handout
 - Impacts on the Community of Clarrie Hall Dam (Social, Commercial and Cultural)

**Tweed District Water – Demand Management and Water Supply Augmentation
Public Information Session**

**Tuesday 23 February 2010
Pottsville Environment Centre, Centennial Drive, Pottsville
2:00pm – 7:00pm**

CWG members and Tweed Shire Council staff in attendance:

CWG
Don Beck
Rob Learmonth

TSC
Anthony Burnham
Tim Mackney

The information session was attended by 5 members of the public who were interested in discussing the Shire's Demand Management actions and strategy, and the approach to augmentation of the Water Supply.

- Why lock yourself into a major option when in the near future say 5 – 10 years legislation etc may change to make currently ruled out or unconsidered options more feasible?
- Great that Council is looking at both demand and supply sides of water.
- Council engineers were at WUSD conference in QLD and are proactive – that's great.
- What additional regulations would help Council to enforce more demand management actions?
- The community has to hear more about WUSD
- Are the options really limited to the four?

The following brochures and reports were available as handouts:

- Recycled Water
 - Tweed Shire Council Recycled Water Initiative – Fact Sheet No. 1
 - Tweed Shire Council Recycled Water Initiative – Case Study 1
 - Tweed Shire Council Recycled Water Initiative – Case Study 2
- Demand Management
 - Water Demand Management – Tweed Shire Demand Management Strategy
 - Water Demand Management – Progress to Date
 - Water Demand Management – Reducing Water Usage

-
- Water Demand Management – User Pays Water Pricing 2009 – 2010
 - Integrated Water Cycle Management – Household Retrofit Program
 - Integrated Water Cycle Management – Water Modelling Activities

 - REPORT: Demand Management Strategy – Dec. 2009 – by MWH
 - REPORT: Demand Management Strategy – Stage 1 – by MWH
 - REPORT: Demand Management Strategy – Stage 2 – by MWH

 - Water Supply Augmentation
 - Tweed District Water Supply Augmentation Factsheet 1 – Why does the Tweed need more water?
 - TSC Fact Sheet 1 – Why does the Tweed need more water?
 - TSC Fact Sheet 2 – Water Supply Augmentation to 2036
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 - TSC Fact Sheet 6 – Short-listed Option 1: Raise Clarrie Hall Dam
 - TSC Fact Sheet 7 – Short-listed Option 2: Construct Byrrell Creek Dam
 - TSC Fact Sheet 8 – Short-listed Option 3: Pipeline connection to SE QLD
 - TSC Fact Sheet – Questions and answers to the Project

 - REPORT: Tweed District Water Supply Augmentation Options Study Stages 1 & 2 – by MWH

 - Water Savings and Education
 - Tweed Shire Council – Water Wise Fact Sheet 1
 - Tweed Shire Council – Water Wise Fact Sheet 2
 - Tweed Shire Council – Recycled Water Initiative Fact Sheet 2
 - Tweed Shire Council – Water Wise Fact Sheet 6
 - Tweed Shire Council Fact sheet 3 – Rebates
 - Tweed Shire Council – Water Wise Fact Sheet 10 – Rainwater tanks
 - NSW Government - How Can Greywater be used?

 - Joanna Gardner's (CWG member) Byrrell Creek Landowners Information

Three (3) handouts

 - Environmental Effects and Considerations for the Proposed Byrrell Creek Dam
 - An Overview of the Byrrell Creek Dam Area
 - Byrrell Creek Dam Newsletter – February 3rd 2010

 - Colleen Gardner's (CWG member) Clarrie Hall Dam Landowners Information

One (1) handout

 - Impacts on the Community of Clarrie Hall Dam (Social, Commercial and Cultural)
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