# YORKSHIRE WATER SERVICES LTD

# PERIODIC REVIEW 2009

# B3 – A BALANCED ASSET MANAGEMENT PLAN – PARTS 2,3,4,&5
# MAINTAINING SERVICE AND SERVICEABILITY TO CUSTOMERS (WATER AND SEWERAGE)

CONTENTS

# 1. PLANNING OBJECTIVES, DIRECTION AND DELIVERY

## *1.1. OVERVIEW*

1. This section sets out our approach for the final business plan (FBP) with regard to stakeholder engagement and leadership, policy and strategy. We have encompassed all aspects of the FBP and have not restricted our commentary under this section to capital maintenance alone.

2. Our detailed approach to balancing our asset management plan with regard to service, risk, customers, stakeholders and prices is set out in our B3 overview, 'A Balanced Asset Management Plan.'

### *1.1.1. Planning objectives and stakeholder engagement*

3. We recognise that not all stakeholders have the same priorities. We have balanced their varying needs in the different components of our maintenance plan. We have also balanced how stakeholders have influenced our planning objectives.

4. We have set out how we balance the stakeholders differing views. We have discussed who, how and when we have engaged with the different stakeholders.

5. We summarise the methods we have used for both quantitative and qualitative customer priorities undertaken by ourselves and that are available from the national customer research. We also summarise, other feedback and significant support we have had for our FBP proposals from our regulators and other regional stakeholders.

### *1.1.2. Leadership, policy and strategy*

6. Our vision to be clearly the best water company in the UK and our commitment to best practise asset management is led by our executive management team.

7. Our asset management policy is to manage the asset base in an integrated way, at the lowest total cost and a known level of risk. This is as relevant for the future as it has been in the past. We remain committed to delivering the right investment, in the right asset, at the right time, first time, every time.

8. To achieve our vision and the goals we have set ourselves for 2035 in our Strategic Direction Statement (SDS), we require a strategy of innovation in research, processes, systems and technology. This will ensure we remain at the forefront of asset management practise via continuous improvement.

This strategy has served us well in AMP3 and AMP4. We are not complacent and recognise that we will need to continue to drive further improvements ourselves, within the water industry and with partners in order to be clearly the best water company in the UK.

# 2. THE PLANNING OBJECTIVE 2010 TO 2015

## *2.1. THE PLANNING OBJECTIVE AND BALANCING DIFFERENT STAKEHOLDER VIEWS*

9. Our planning objective is to maximise the benefit to customers for our investment. This is consistent with our PR09 principle of putting customers at the heart of our business plan (a continuation of our PR04 approach). It is also consistent with the economic approach in MD161 and the cost benefit approach set out in the UK Water Industry Research Ltd (UKWIR) Common Framework for Capital Maintenance Planning.

10. Investment programmes impact on a wide range of stakeholders. It is not the case that all stakeholders value all parts of the investment programme equally. Therefore we have taken a balanced view on how to meet these sometimes conflicting needs.

11. **In capital maintenance** (B3 sections 3 and 7) our goal is to maintain stable serviceability, service levels and have a positive net benefit at programme level (table 4). This programme includes some statutory requirements such as mains and sewer diversions. This may conflict with the Drinking Water Inspectorate (DWI) and Environment Agency (EA) aspirations for 100% compliance because this would incur greater investment needs.

12. There is strong support from customers and stakeholders for maintaining service. This is seen in both qualitative and quantitative studies (para 26). In some cases our level of service is already at or beyond the economic level of service when assessed at scheme by scheme level. In such circumstances we have limited the programme to the minimum investment required to maintain service in order to limit the impact on customers bills.

13. The only significant areas where we have been unable to apply the cost benefit objective are:

- management and general (M&G) activities (particularly IT requirements)
- new development and statutory drivers such as sewer and mains diversions

- strategic business decisions (for example the need to address a shortfall in sludge treatment capacity arising from Integrated Pollution Prevention and Control (IPPC) implementation)
- or where no information is available from the willingness to pay surveys.

14. In these cases we have fulfilled the Cost Effectiveness Objective of the Common Framework as a minimum

15. Table 1 below shows that the majority of our asset management plan has been developed using cost benefit analysis to maximise benefits to customers.

| | Cost Effective Objective | Cost Benefit Objective |
|---|---|---|
| Water Resources | ✓ | ✓ |
| Water Treatment | ✓ | ✓ |
| Water Distribution | ✓ | ✓ **part*** |
| Water Distribution pumping | ✓ | ✓ |
| Sewerage | ✓ | ✓ **part*** |
| Sewerage pumping | ✓ | ✓ |
| Sewage treatment | ✓ | ✓ |
| Sludge treatment and disposal | ✓ | ✓ |
| Management & General | ✓ | ✓ **part**** |
| *Statutory drivers – mains & sewer diversions **Not wholly covered by 'willingness to pay' | | |

**Table 1: Planning objective by asset type.**

16. **We will maintain service and serviceability, in accordance with MD212**, for those areas already being maintained. We have assessed stable serviceability using the criteria set out in RD15/06. In defining our PR09 plan we have reviewed historic performance and expenditure in addition to our future forecasts. Further detail is provided in B3 sections 3 and 7.

17. In summary:-

- We have complied fully with the requirements of MD161 and the UKWIR Common Framework for Capital Maintenance Planning.
- In determining our Capital Maintenance Programme (CMP) we have chosen to take a very balanced approach, using our 'Willingness to Pay' studies as well as Leading Edge Asset Decision Assessment + (LEADA+) process and tools to derive the programme. It seeks to **maintain serviceability** across the whole of our asset base, meets our **statutory obligations, minimise costs** and **maximise the benefit to customers.**

18. The exception to maintaining service levels within capital maintenance is area flooding (overloaded sewers). This is because stable service levels have never been achieved historically and reporting of area flooding is still maturing, in comparison to other service measures. In this case we have proposed base maintenance investment solely to address a modest number of known overloaded sewer problems. These are associated with significant consumer impact.

19. The area flooding (overloaded sewer) sub-programme within capital maintenance has a positive net benefit of £6m. It is extremely limited in scale (£16m capex) in comparison to maintaining levels of area flooding at over £100m capex. We are targeting only our most significant area flooding problems, where mitigation cannot be effectively used. We are balancing the impact on customer bills, with the very distressing impact on individuals or groups of consumers and communities. Our investment will only offset the already rising trend of problems by a modest amount. This is set out in more detail in C6 Section 6.3.

20. For **quality enhancement investment** (Part B4), the primary influence is the agreed regulatory programmes with the DWI and the EA. Our cost benefit analysis demonstrates that the customers' willingness to pay does not outweigh the costs of all of these improvements at scheme by scheme level. To take as much account of customer views as possible, we mitigate the potential impact on prices by challenging the need for improvements by requiring sound scientific evidence. This evidence is provided by the DWI or created by the joint company and EA water quality modelling that supports the National Environmental Programme (NEP). We seek to limit the impact of future obligations by driving investigations within AMP5 to provide sound science in advance of large scale Water Framework Directive (WFD) programmes. This approach is supported by the EA, the Consumer Council of Water (CCWater), Natural England (NE), Royal Society for the Protection of Birds (RSPB) and other stakeholders.

21. For **supply demand investment (**Part B5) our obligation is to meet our statutory duties for new development. Our cost benefit analysis demonstrates that at a scheme by scheme level, the customer willingness to pay does not outweigh the costs of these improvements. We seek to balance customers' views and the potential impact upon prices by reviewing least cost long term options, ensuring synergies with other programmes are utilised (by proportional allocation from the quality programme) and excluding significant uncertainties such as Eco-towns and climate change. We also seek to balance future significant pressures on surface water management and sustainable abstractions by driving studies within AMP5 to provide sound science in advance of larger investment programmes. The surface water management studies will engage with

other stakeholders and are supported by the EA. Investment associated with maintaining service levels for internal flooding (overloaded sewer) is supported by customer priorities, CCWater and customer willingness to pay.

22. **Our proposals to improve customer service (**Part B6 Section 2) are driven by customer support identified in our willingness to pay assessments, where we are below the economic level of service. We also have additional support from the EA for flood resilience, pollution reduction and going beyond the statutory minimum requirements towards 'excellent' bathing water quality. Other local stakeholders including the local authorities, local MPs and the local tourist board also support proposals for the revised Bathing Water Directive (rBWD) investment, given the impact upon the local communities at the East coast. We have worked with CCWater to whom we provided further information after the Draft Business Plan (DBP). This included a site visit to explain the impact, disruption and damage to the local economy of such an investment programme. We also demonstrated that there is a 14% reduction in costs by delivering this programme of work in conjunction with the statutory requirements.

23. The Enhanced Level of Service (ELoS) internal flooding (overloaded sewer) sub-programme has a positive net benefit of £56m. This sub-programme includes a limited number of problems where the benefits do not outweigh the costs at a scheme by scheme level. We are targeting only our most significant internal flooding problems, where mitigation cannot be effectively used or is already in place but ineffective. This balances the impact upon customer bills with the very distressing impact of flooding on upon individual or groups of consumers and communities. This is set out in set out in more detail in C6 Section 6.2.

**In summary, we have listened to our stakeholder feedback and have balanced our total investment programme to meet the various serviceability, statutory, third party and customer service driven needs.**

# 3. STAKEHOLDER ENGAGEMENT

## 3.1. PLANNING OBJECTIVES – STAKEHOLDER CONSULTATION

24. We have carried out wide ranging stakeholder engagement for both our SDS and for the AMP5 investment programme. Figure 1 summarises the stakeholder engagement over the last two years. It has been carried out via a range of qualitative and quantitative methods for both consumers, regulators (DWI, EA, NE, and CCWater.) and other stakeholders. This is summarised below with more detail available in section C1, sections 3-5.

25. In this section we have summarised the method used and the feedback gained from our key customer and stakeholder consultation. It is summarised in the context of balancing the different stakeholder views for the whole programme.

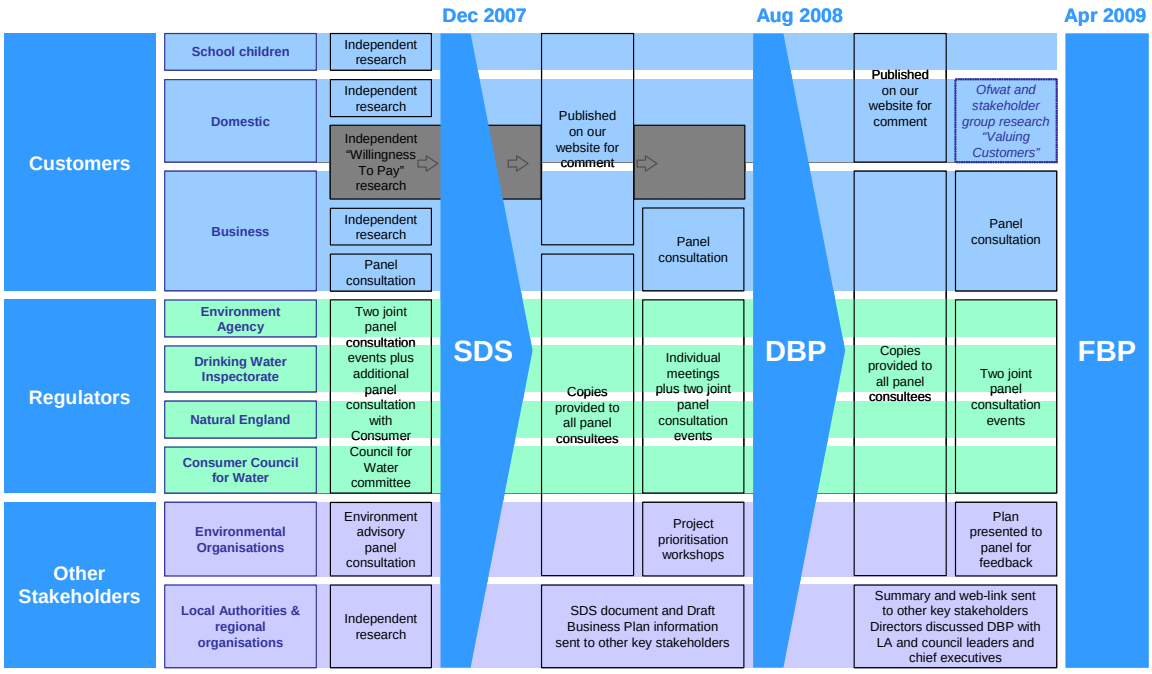



**Figure 1: Overview of Stakeholder engagement**

### 3.1.1. Key findings of our stakeholder consultation

26. Our key findings from consumer consultation set out in 3.2, and the key findings for our stakeholder consultation is set out in 3.3.

## 3.2. CUSTOMER SUPPORT SUMMARY

27. Customers view maintaining our water and sewerage service assets as essential.

28. 91% of customers view our current water and sewerage services as good value for money.

29. 97% of customers viewed our Draft Business Plan proposals as good value for money.

30. Customers support improved sustainability of our water and sewerage networks.

31. Customers support improvements where we are below the economic level of service in the following areas:

- Internal sewer flooding (overloaded and other causes)
- Pollution
- Low pressure
- Odour
- Flood / asset resilience
- Drinking water compliance with lead standards
- Sites of Scientific Special Interest

32. Customers support going beyond the statutory minimum requirements of the rBWD, towards 'excellent' water quality.

33. Customers do not support improving service, where we are at or beyond the economic level of service in the following areas. Therefore no service improvements are proposed in Enhanced Levels of Service.

- River water quality (WWTW)
- Drinking water quality (WTW)
- Security of water supply
- Interuptions to water supply
- Discolouration of drinking water

34. Customers support addressing a limited number of existing external flooding problems.

35. This support is sufficient to limit the rising trend of external flooding locations to a modest extent, but it is not supported to the level required to prevent this rising trend (i.e. to maintain a service level).

## *3.3. STAKEHOLDER CONSULTATION KEY FINDINGS*

36. The DWI, Natural England, CCwater and EA support our approach to sound science with regard to:

- The Water quality programme (DWI, CCWater, Natural England)

- The NEP programme (EA, CCWater)
- The WFD investigation proposals (EA, CCWater, Natural England)

37. The DWI, Natural England and EA have expressed reservations with regard to too low a level of maintenance in that it may:

- Increase the risk of service failure
- Increase the risk to the environment
- Delay progress towards our SDS aspirations

38. The CCWater have expressed support for:

- The proposals to reduce internal flooding
- The proposals to reduce the nr of properties suffering from low pressure
- The proposals for automated meter reading
- Mains rehabilitation

39. The Environment Agency have expressed support for:

- The catchment management proposals
- The pollution reduction proposals
- The risk and investment prioritisation methodology
- The proposals for network hydraulic modelling & surface water studies
- The proposals for flood resilience, including continued risk assessments
- The proposals for going beyond the minimum standards for the rBWD and contributing to 'excellent' bathing water quality.
- The Draft Water Resource Plan
- The proposals to improve biodiversity
- The Water Framework Directive investigations

40. Natural England have expressed support for:

- The catchment management proposals
- The proposals to improve biodiversity
- The Water Framework Directive investigations

41. Other stakeholders have expressed support for:

- The WFD investigation proposals
- The proposals for going beyond the minimum standards for the rBWD and contributing to 'excellent' bathing water quality.
- The proposals to improve biodiversity
- The proposals increase our renewable energy generation
- The proposals for surface water studies

## *3.4. STAKEHOLDER ENGAGEMENT FOR THE STRATEGIC DIRECTION STATEMENT (SDS)*

42. In spring and summer of 2007 we consulted a wide range of stakeholders on our SDS. In each case we sought their views on the priorities of service areas they considered most important over the next 25 years, what improvements should be made and the challenges facing the water industry.

### *3.4.1. Customer consultation*

- Our business customers were consulted from May to June 2007. The process involved a panel event for large businesses or telephone interviews for 300 small and medium sized businesses. It was carried out by our market researchers Market Research UK (mruk).
- Domestic customer consultation was carried out by doing 1000 interviews with domestic customers from across the Yorkshire region. There was a good spread across age, gender, ethnicity and socio-economic group.

### *3.4.2. Regulators*

- Quadripartite meetings were held with our regulators; the EA, the DWI, NE and CCWater. Events were held in June and July 2007. We presented information about the SDS, our current performance, short term aspirations and some of the issues as well as challenges facing the industry. We then asked them to prioritise which service areas would be most important to them over the next 25 years and to feedback their views on the challenges discussed. As well as group discussion between the four parties, we also held individual sessions with each regulator. This gave us the chance to discuss areas of interest/concern in confidence.

### 3.4.3. *Other stakeholders*

- Our existing Environmental Advisory Panel (EAP) was invited to attend a consultation event in June 2007. We gave them information about the SDS, our current performance, short term aspirations and some of the issues as well as challenges facing the industry. We then asked them to feedback on our current performance and prioritise which service areas would be most important to them over the next 25 years.
- The independent research agency MORI carried out additional research with regional stakeholders including MPs, council CEOs and leaders, local strategic partnerships and the government office for Yorkshire and the Humber.

## 3.5. *STAKEHOLDER ENGAGEMENT FOR PR09*

43. We consulted a wide range of stakeholders specifically on our PR09 proposals in 2007 and 2008. In each case we sought their views on the priorities of service areas that they considered most important Business Customers with quantitative surveys from business and domestic customers.

### 3.5.1. *Business Customers*

- A panel of our largest business users (water and trade effluent) were invited to attend a consultation event in January 2008. We also explained our 'Willingness to Pay' (WTP) research and shared some of the initial outcomes with them. We asked them to compare their own priorities with those of domestic and business customers in the study and to highlight key areas of support or concern.
- Face-to-face interviews with 500 small/medium sized businesses were carried out during March, April and May 2007 as part of our WTP exercise. Sixteen service factors were tested to find out how much customers would be willing to pay (as a percentage bill increase) to see improvements in these services or, conversely, how much of a decline they would be willing to tolerate for a reduction in their bill.

### 3.5.2. *Domestic Customers*

- Face-to-face interviews were carried out with 2000 customers during March, April and May 2007 as part of our WTP exercise. Sixteen service factors were tested to find out how much customers would be willing to pay (as a pounds and pence increase to a typical bill) to see improvements in these services or, conversely, how much of a decline they would be willing to tolerate for a reduction in their bill. Further detail is set out in B3 Section 1.0, and C8 section 6

### 3.5.3. Regulators

- Individual meetings with each regulator; the EA, DWI, NE and the CCWater were held during January 2008. Using the same service factors which were tested in the WTP research, we asked each regulator to consider whether we should be aiming for a service level improvement, reduction, or to stay the same over the course of the next 5 year period. We asked them to consider the likely impact on customers' bills from their decisions.
- A further quadripartite meeting was held with our regulators in 2008. We shared information on the status of the business plan, which areas were proving cost beneficial, size of investment in each area and possible prices. There was a general discussion between the parties, before breaking up for individual meetings once again to discuss areas of interest raised in the group session.

### 3.5.4. Environmental Stakeholders

- The company's EAP was invited to attend a consultation event in March 2008 where the SDS (published in November 2007) was explained. We also explained our WTP research and shared some of the initial outcomes. We held a workshop to allow panel members to group together and discuss key areas of interest for their organisations. They discussed the projects we were proposing for their areas of interest.

### 3.5.5. Consumer Council for Water

- Following on from the quadripartite meeting with our regulators, we held an individual meeting with the CCWater Yorkshire chair and deputy chair in May 2008. Key areas of interest from the previous day were discussed at this meeting, including investment to improve service, discolouration, investment in Hull and the potential change in prices for customers.
- An additional meeting was held in June 2008 with the Yorkshire committee to explain in more detail the benefits which could be provided for customers through the proposed investment programme.

### 3.5.6. Other Regional Stakeholders

- During January and February 2008, presentations were made to the Local Government Association, Yorkshire Forward and the Government Office. We explained our long term direction as presented in the SDS, and discussed the process for preparing and submitting our DBP.

- We have also consulted with the Yorkshire Tourist Board, local authorities in July 2008 and local MPs specifically on our proposals for the coastal investment under the rBWD, and received written support.

## 3.6. FEEDBACK ON THE DRAFT BUSINESS PLAN

44. We published Part A of the DBP on our website, and sent the link to the members of the various stakeholder panels so that they could see the summary of our plan.

### 3.6.1. Business Customers

- The panel reconvened in November 2008 to give feedback on our DBP. We presented to them the key messages from our plan and the impact of our proposals on bills for businesses customers. Their feedback was:
- The presentation of price changes shown in the DBP could be improved, as is did not include for inflation which could drive further price increases.
- They reiterated their view that Yorkshire Water should not go beyond compliance with environmental legislation if price increases to businesses would be needed to fund this.
- It is important to make sure our assets are resilient to flooding in the future, since weather events are becoming less predictable.
- They are interested in areas of uncertainty, such as private sewer adoption and the Humber Estuary infraction proceedings.

### 3.6.2. Domestic Customers

- After Companies submitted their DBPs, Ofwat carried out its own research into what customers thought about Companies' proposals. This research was carried out by independent consultants MVA Consultancy with BMG Research on behalf of Ofwat and a group of water industry stakeholders which included the Department for Environment and Rural Affairs (DEFRA), the Welsh Assembly Government, the CCWater, the EA, the DWI, NE and Water UK.
- Face-to-face interviews were carried out with customers, including 315 Yorkshire Water customers, during September and November 2008. The aims of the research were:
- To obtain views on water issues in the wider context of other social issues and household bills
- To determine customers' understanding of water and sewerage services
- To understand customers' priorities for maintaining or improving service, with reference to the proposed bill impacts

- To obtain customers' views on their company's DBPs, including service levels, bill impacts, phasing of increases and any omissions

45. The results of this research showed strong customer support for our DBP proposals, 97% of customers reporting that they found our plan and the proposed impact on their bill either "acceptable" or "very acceptable" and 91% feeling the plan offered either "fairly good" or "very good" value for money.

46. Customers were asked whether they felt our DBP offered good value for money in each of fourteen key service areas. Our plan was well received, with at least 80% of customers feeling our proposals represented either "fairly good" or "very good" value for money in every service area (see figure 4). It is important to note that the % of respondents viewing our proposals of 'fairly poor' or 'very poor' was minimal.

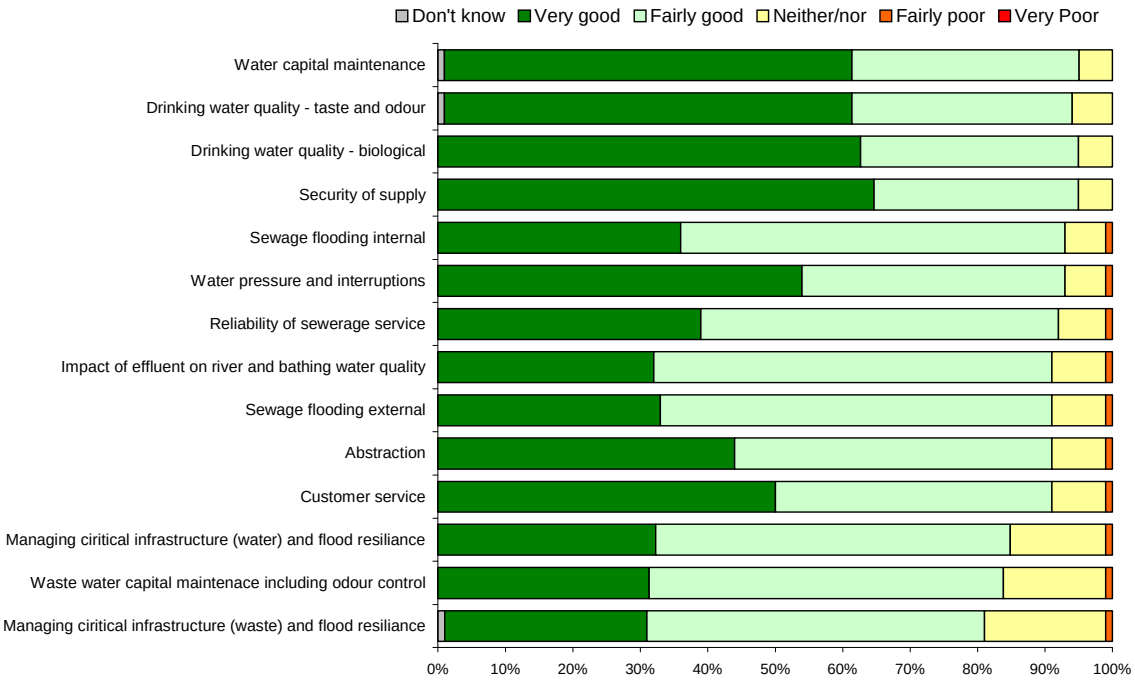



**Figure 2: Ofwat research into value for money of the DBP proposals**

### *3.6.3. Regulators*

47. We sent copies of Part A of the DBP to all the regulators, and invited them to meet in October 2008 to discuss our submission. At this meeting we presented the key messages from our DBP and asked the regulators to provide their feedback.

48. CCWater told us they supported many areas of our plan including:

- automated meter reading,
- water mains rehabilitation
- reduction of sewer flooding.

49. They felt they still needed more information about our proposals for bathing beaches. They also felt that the way possible price changes were communicated could be misleading to customers, since this did not include any amount for inflation.

50. NE commended the science-based approach we had taken, and especially supported our proposals for catchment management to improve raw water quality. They still found the plan 'lean' in terms of the natural environment and would like to see us work closely with other organisations in order to realise multiple benefits from the proposed investment.

51. The EA told us they had no major concerns with the DBP, and supported all the schemes. They asked us to work more closely with them to improve our understanding of flood risks. They encouraged us to take a risk based approach towards capital maintenance and offered their support with this.

52. We met with our regulators once again in January 2009 to obtain their views prior to finalising our FBP. We presented to them Ofwat's Capital Incentive Scheme (CIS) and updated them with the latest changes from DBP to FBP. We also shared the results of the joint stakeholder research into customers' views of companies' plans, "Valuing Customers".

53. The DWI felt that we should challenge Ofwat's CIS position, which meant that 85% of our proposed programme would be funded. They felt this could seriously undermine our ability to work towards our SDS aspirations.

54. NE also expressed concern that reduced funding could compromise improvements for the natural environment. It still strongly supported catchment management, and again encouraged us to aim to achieve multiple benefits from this investment.

55. The EA felt that investigations for the Water Framework Directive (WFD) should be included in AMP5 funding. All other members of the regulator panel also expressed support for the targeted WFD investigations.

56. The EA also pointed out that whatever funding is agreed, it should be targeted to areas of greatest need, and both the EA and NE expressed reservations with regard to the 15% base maintenance reduction at the draft CIS baseline and that this could increase the risk to the environment.

57. We met separately with CCWater in January 2009 on a technical visit to Scarborough. We visited the town and the Waste Water Treatment Works (WWTW) in order to show what type of disruption, and the scale of investment may be needed to meet the requirements of the rBWD. We emphasised that we do not wish to impact on these local community in two stages of investment. We provided CCWater with additional information about our proposals for bathing beaches. We met with CCWater's flooding group to discuss our approach to sewer flooding, the method of prioritisation with some worked examples and the detail of the FBP proposals.

58. The formal consultation events outlined above were in addition to the more detailed discussions about our investment plans. These took place at a working level with representatives of the DWI and the EA, as set out in section 3.5.3.

#### *3.6.3.1. Environmental Stakeholders*

- We provided panel members with a copy of Part A of the DBP as well as Part B11, the section relating specifically to sustainability. We attended the panel's meeting in September 2008 to present the key messages from our DBP. The Environmental panel are supportive of our approach to renewable energy, biodiversity and WFD investigations.

#### *3.6.3.2. Drinking Water Inspectorate (DWI)*

- We have continued to refine the clean water quality programme by working closely with the DWI. There have been exchanges of technical information and a further meeting since the DBP.
- This has resulted in an agreed programme, based upon sound scientific evidence. The DWI issued letters of support for our proposals in January 2009. Further detail is provided in B4 Water Section 1.

#### *3.6.3.3. Environment Agency (EA)*

- We have continued to refine the waste water quality programme by working closely with the EA. We have met monthly since the DBP to confirm the scope of the obligations, including detailed scope for investigations.
- This has resulted in an agreed waste water quality programme, and agreed environmental schemes for the clean water quality programme. Both programmes are based upon sound scientific evidence. The EA issued an updated NEP in November 2008.

- Further to the NEP in November 2008, we have also agreed with the EA the scope of work for WFD investigations, groundwater schemes, sludge obligations, additional rBWD monitoring requirements and some biodiversity schemes. Further detail is provided in B4 from Section 4.8.
- We consulted with the EA and shared our combined experience about how we use pollution history and risk data to inform our risk assessments and prioritisation proposals. Working with the EA will continue. This will ensure targeted investment not only in the planning at Periodic Review stage but throughout the delivery of AMP5. The EA is supportive of our pollution reduction proposals. Further detail is provided in B6 Sewage Section 3.3.
- We have used EA flood risk data to inform our modest flood resilience proposals, and have received their support in principle for our continued approach to risk assessment.
- Proposals for studies on contribution to surface water management are supported by the EA for Hull, Leeds and Sheffield. Our proposal to undertake more detailed drainage area plans for 37 DAZ is also supported by the EA. Further detail is provided in B5 Section 4 and B3 7 Section 1.3.1.9.

#### *3.6.3.4. Other Regional Stakeholders*

- We published Part A of the DBP on our website and sent all our other key regional stakeholders a summary postcard with a details of a link to it. Our directors have also discussed our business plan with all regional local authority and council leaders and chief executives.

## *3.7. VALUATION OF BENEFITS*

59. We have valued the benefits of our service following quantitative customer consultation. In PR04 the main customer consultation covered 1000 domestic customers and 500 commercial customers. For PR09 this was doubled to 2000 domestic customers. This enables more detailed analysis and sensitivity testing with, for example, low income groups.

60. The process for this consultation was in a number of stages:

- The identification of service areas, their measures and attributes;
- Qualitative customer research work to identify broad customer preferences and prioritisation of service areas;
- Quantitative customer research work to value the benefits of service using Choice Experiments;
- Benefits estimation of customer willingness to pay in terms of service provision and bill levels
- Estimation of customer preferences in terms of severity of impact

- Aggregation of individual customer valuations to the aggregate value of service across Yorkshire
- Calculation of the annualised benefit for optimisation in LEADA+

61. Detailed explanations of this approach are set out in Section C1 section 4 and C8 Section 3.

62. Qualitative work was done to determine which aspects of service to include in the study. This helped develop easily understood customer-friendly terminology for the questionnaire. A total of eight focus groups of residential customers and eight telephone business interviews were held (Table 2).

| Group No. | Location | Age Group | SEG |
|---|---|---|---|
| 1 | Sheffield | 60+ yrs | **C2DE** |
| 2 | Sheffield | 35 – 59 yrs | **ABC1** |
| 3 | Northallerton | 16 – 34 yrs | **ABC1** |
| 4 | Northallerton | 35 – 59 yrs | **C2DE** |
| 5 | Halifax | 16 – 34 yrs | **ABC1** |
| 6 | Halifax | 35 – 59 yrs | **C2DE** |
| 7 | Hull | 60+ yrs | **ABC1** |
| **8** | **Hull** | **16 – 34 yrs** | **C2DE** |

**Table 2: Group Structure & Location**

63. The initial feedback from the qualitative customer research work informed us which areas to take forward to the quantitative stage. This was necessary to prevent low priority topics getting in the way of high quality feedback on the areas seen as a high priority. It was also necessary to improve the representation of certain areas for consultation, where focus group results indicated that information was not always fully understood.

64. A key output of the survey was the prioritisation. Customers were asked to categorise all the service impacts into ‘essential’, ‘nice to have’ or ‘not important’. Customers had full information on all areas in terms of meaning and our performance. We asked about specific service impacts e.g. pollution and interruptions to supply areas, as well as a view of overall water and sewerage service maintenance.

65. Figure 3 shows the detailed results for the residential customers. The service impacts have been ranked based on the number of groups choosing the ‘essential’ category. For residential customers it can be seen that three areas were considered essential by all eight focus groups, five areas were allocated a mix of all categories and only one area was considered not important for by all groups.

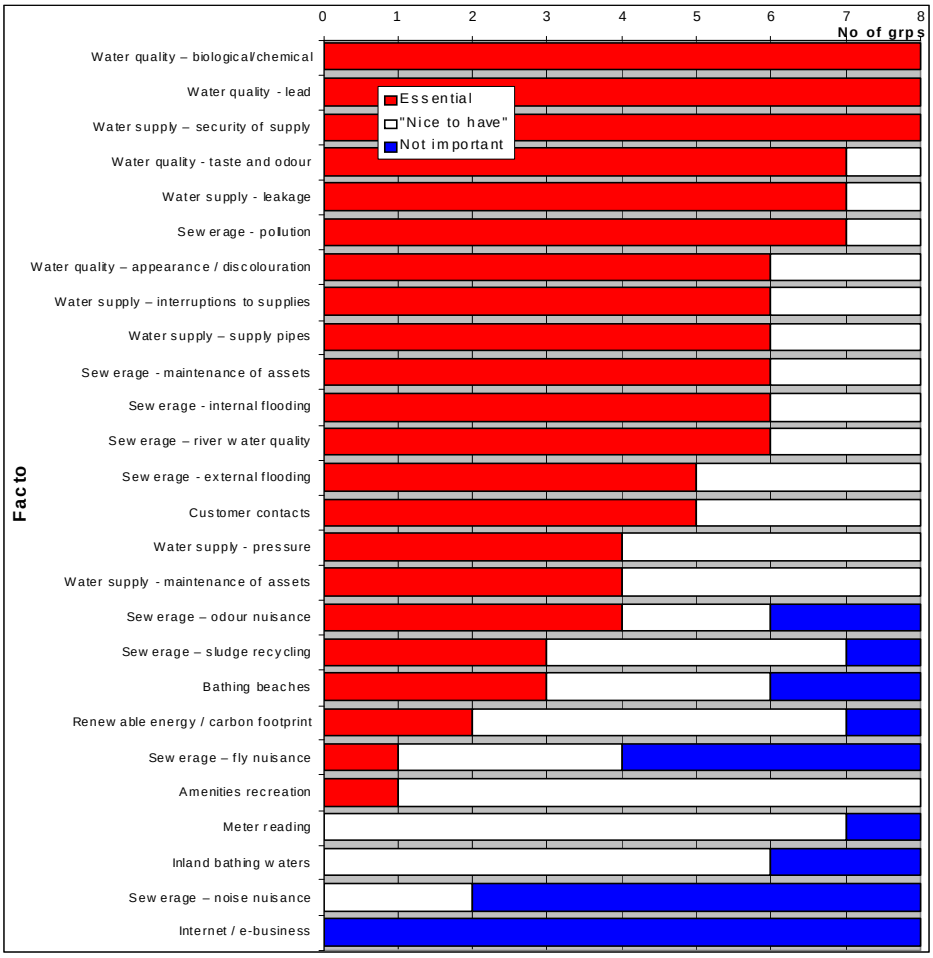



**Figure 3: Residential Customer Qualitative Priorities**

66. Business customers' detailed results are shown in figure 4. There were two areas which all eight groups considered essential, eleven areas with all three categories and no areas where all eight groups thought the issue was not important. The greater variety was expected for businesses as their needs vary depending on the nature of their business.

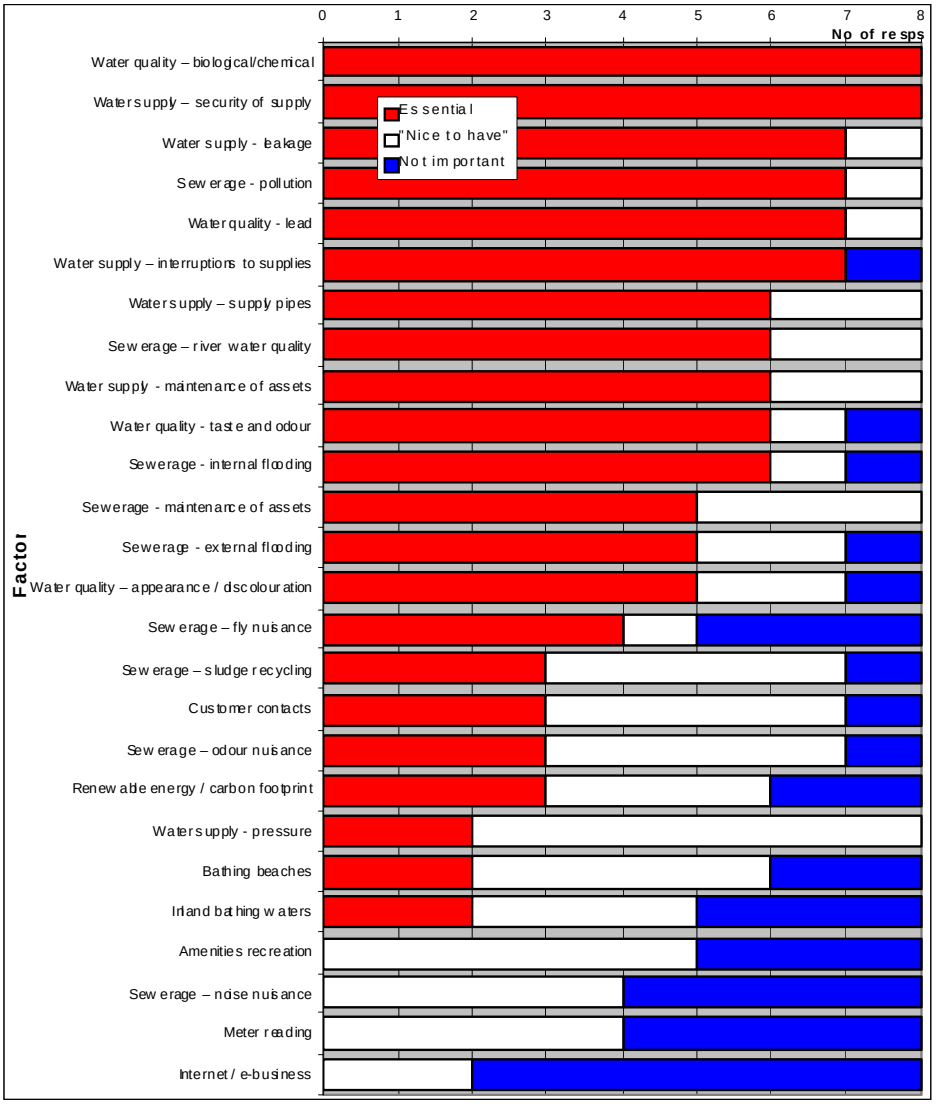



**Figure 4: Business customer qualitative priorities**

Our qualitative consultation indicates that **customers view maintenance of our assets as essential for both the water and sewerage service.** No customer groups viewed this as non-essential work.

In addition, our qualitative customer consultation informed us of which specific service impacts to assess further with the quantitative 'willingness to pay' consultation (B3 Section 3, and C1 Section 3).

### *3.7.1. Stage 1 – Quantitative assessment (choice experiment) between different service measures*

67. Although the rankings between businesses and domestic customers were different there was a general agreement in the service areas in the top and bottom half of the table. The results were used to assess which areas to take forward to the quantitative phase (see Section C1 sections 3.4 and 3.5 for more detail of the qualitative phase). It was essential to reduce the number of service areas to a level that could be handled in the quantitative survey. The initial 26 topics were slimmed down to 16 service areas to assess qualitative benefit values (Table 3). The majority of service topics were similar to those used in PR04 but some were clarified as a result of learning from AMP4 use (for example splitting out odour nuisance specifically).

| Service Areas used in 'Willingness to Pay' | |
|---|---|
| **Clean Water** | **Waste Water** |
| Security of supply | Internal Flooding by sewage |
| Interruptions to supply | External Flooding by sewage |
| Drinking water quality | Odour Nuisance |
| Water quality Appearance | Sewage Pollution incidents |
| Water quality Taste and Odour | River Water Quality |
| Leakage | Bathing Beach Quality |
| Inadequate mains pressure | Sludge Recycling |
| Lead | Renewable Energy |

**Table 3: Willingness to Pay service areas**

68. For PR09, monetary benefits are derived from the choice experiment section in the quantitative customer consultation, undertaken in two stages. Stage 1 is Quantitative assessment between different service measures and Stage 2 is Quantitative within service measure, at differing severity of service loss.

69. The first stage included a series of attitudinal and validation questions to help assess the consistency of the responses.

70. A choice experiment presents customers with sets of alternative combinations of service attributes. Customers are asked to choose their most and least preferred alternatives from the set. Repeated choices by customers from sets of alternatives reveal the trade-offs customers are willing to make between attributes or service factors. Each choice set comprised three alternatives, one of which was always the status quo or current situation.

71. The service factors needed to be assessed for different levels of service to give customers a choice of improved, stable or deteriorated levels for the service area.

**Service level choices**

- Level –1 is a service reduction from the level currently experienced;
- Level 0 is the service level currently experienced;
- Level +1 is an improvement on the service level currently experienced that is achievable with AMP5;
- Level +2 is a further improvement beyond service level +1.
- Level +3 is an aspirational level of service that in many cases removes the problem or maximises the service potential.

*'**Aspect 3** is about **how often flooding from the mains sewer gets into homes or properties.** Sewage flooding may be caused by the sewer becoming overloaded with rainwater following a storm or prolonged rainfall. Alternatively, sewage flooding may result from a blockage in the sewer, a collapsed sewer or an equipment failure. Sewage can enter homes and buildings, with properties with cellars particularly at risk. Currently, 448 properties are affected by flooding from the mains sewer. With reduced investment this could increase to 702 properties. With increased investment this could be decreased to 218 properties, 97 properties or no properties.'*

*'**Aspect 5** is about **how often the water supply is interrupted due to unplanned events such as burst mains.** Currently customers experience interruptions to their water supplies due to an unplanned event at 2,000 properties per year for between 6 and 12 hours. With reduced investment this could increase to 16,000 properties between 6 and 12 hours. With increased investment this could be reduced to 1,000 properties between 6 and 12; 500 properties between 6 and 12; or 100 properties between 6 and 12 hours.'**

*Extract PR09 Customer questionnaire

**Figure 5 - Service level choices**

72. With reference specifically to the SDS, Level +3 (Figure 5) was designed to test those longer term aspirations set out in our long term plan such as zero property flooding, zero pollution incidents and zero interruptions to supply. Level +3 assumptions were either to the SDS levels themselves or a significant way towards those stated SDS service improvements.

73. The extract from the quantitative consultation, included in figure 6, demonstrates the choices proposed including aspirational targets towards the SDS goals.

74. Consultants, mruk the Centre for Research in Environmental Appraisal and Management (CREAM) and the University of Newcastle undertook the qualitative and quantitative customer research informed by our 'Willingness to Pay' Working Group. Analysis of the stated preference survey results were undertaken by CREAM in developing individual household and business WTP values. Further details are set out in Section C1, section 1.

### *3.7.2. Supplementary Quantitative assessment (contingent valuation) towards sustainable infrastructure*

75. As part of the customer surveys, we undertook a second method of stated preference valuation, the 'payment card contingent valuation experiment'. Contingent Valuation is a method where the respondent directly states what they are willing to pay for a change. This section focussed on investment associated with the replacement rates of the distribution and sewerage networks, in order to assess customer willingness to pay towards a more sustainable rate of replacement for mains and sewers.

76. The result of the Contingent Valuation study, are set out in C1 Section 6, and indicate that customers do understand that the mains and sewers are long lived assets, not currently being replaced at a rate which suggests that their serviceability will continue in the longer term, and there is a willingness to pay more to increase the rate of replacement. We consider this an important indicator that **customers support more sustainable assets in the longer term.**

77. We are aware of concerns over whether this is seen as an overlap or double count of the benefit valuations arising from the choice experiment surveys. We would stress that the contingent valuation results have not been used in LEADA+ to determine the investment programme, which is based upon our analysis of serviceability and statutory requirements and the benefit valuations from the WTP choice experiment.

### *3.7.3. Stage 2 – Quantitative within service measure, at differing severity of service loss*

78. The second stage of customer consultation was undertaken so that customers could further influence the benefit assessment by giving more detail of values for differing severities of service failure.

| Low pressure / flow - Increasing severity | | | | |
|---|---|---|---|---|
| VL | L | M | H | VH |
| Pressure and flow is sufficient to meet standards but can reduce occasionally at times of high water demand. | Pressure and flow is sufficient to meet standards but can reduce frequently at times of high water demand. | Pressure and flow is ***not*** sufficient to meet standards. | no flow upstairs at breakfast/dinner time | no flow upstairs or downstairs at breakfast/dinner time |
| **Pollution - Increasing severity** | | | | |
| VL | L | M | H | VH |
| Incident reported but it was a false alarm i.e. no incident | Incident occurred but there was no environmental impact. | Incident occurred resulting in a minor localised impact on the environment. | 1) Incident occurred which has a significant effect on the environment<br>2) Observable effect on water quality and aquatic life.<br>3) Odour or appearance of water affected. | 1) A major incident having a prolonged significant effect on the environment<br>2) Possibly causing extensive fish kill and extensive corrective action required<br>3) Odour and/or appearance significantly affected |

**Figure 6 - Extract of severity categories used in severity stage of consultation.**

79. An example of such is to understand the relative value of a low severity service failure – at 'VL' severity the water pressure meets standards, but can reduced occasionally at times of high water demand. This is in comparison with very high severity for low pressure which is categorised as no flow upstairs or downstairs at the peak water use periods of breakfast / dinner time.

80. Figure 6 is an extract of the severity levels used in the consultation. There are 5 levels of severity, from very low, to very high and align with the updated PR09 risk matrices used in our asset management planning. This is an improvement from PR04 where the severity scale was not as extensive. Consequently, the approach taken in PR09 has increased the detail available for both risk assessment and customer valuation.

81. Similar to the main quantitative customer consultation, choice experiments were used, the results of which provided weightings to the main quantitative values in response to the severity of the service loss.

### *3.7.4. Assessing the benefits of the programme*

82. As a result of this extensive consultation and quantitative benefit assessment, monetary values are embedded within the LEADA+ systems. Customers' priorities underpin the investment choices in PR09. The key output from this stage is the ability to place a monetary benefit on the service we provide and every solution we could consider. We have invested significant effort in this exercise, employing expert practitioners to assist in developing and executing this work.

83. Our results indicate that the total benefit of the base maintenance programme outweighs the costs (Table 4). Detailed analysis and results are set out in C8 Section6.

| | Water service | Sewerage service |
|---|---|---|
| Base maintenance Net benefit | + £8.2 Bn | + £12.8 Bn |

**Table 4: Net benefit of the base maintenance programmes**

84. Where we are below the economic level of service i.e. internal flooding – both overloaded and other causes; pollution; odour; low pressure and to an extent flood / asset resilience. We have made cases to improve service, as set out in B6 sections 2-3. Some elements of the clean water quality enhancement programme are also supported by customers' willingness to pay to meet the new drinking water quality standard.

85. Our analysis also demonstrates that customers are willing to pay to go beyond the minimum statuary requirements of the revise Bathing Water Directive (rBWD). By delivering this programme of work in conjunction with the statutory requirements, it reduces the costs by 14%, in comparison to investing towards 'excellent' water quality at a later stage. A single programme of work also reduces the significant disruption that the local communities would have to suffer as a result of the construction work at and near the sea fronts. Further detail is provided in B4 section 4.9 and B6 section 3.6.

86. We have limited the capital maintenance programme to the minimum investment required to maintain service levels, where we are at or beyond the economic level of service. This includes river water quality (WWTW), drinking water quality (Water Treatment Works), Security of supply, interruptions to supply and discolouration of drinking water quality. Therefore no additional investment proposed under the Enhanced Service Level (ELoS) Programme.

87. Although some improvements may be proposed in the above areas under the quality enhancement programmes, significant challenge has occurred to confirm the need for the work planned in the quality enhancement programme.

### *3.7.5. Academic Panel Peer Review*

88. The work has been subject to academic peer review by experts from the field of 'Willingness To Pay' and stated preference market research. The role of these individuals has been to ensure that the approach and analysis have been undertaken fairly, thoroughly and that only reasonable conclusions have been drawn. There was review throughout all stages of

the work. A key component of this was peer review by an Academic Advisory Panel.

89. The Panel was composed of three independent acknowledged academic experts in the field of stated preference analysis. The panel were;

- Professor Kenneth Train, University of California, Berkeley, and Vice President of NERA Economic Consulting, Inc
- Professor Mark Wardman, University of Leeds
- Dr Susana Mourato, Imperial College,London

90. The panel reviewed the proposals and analysis and made recommendations, which were taken on board at all stages of the project. Further detail is provided in Section C1, Section 3.8. Their conclusions were:

> 'We believe the research team did a great job in tackling the complexity of the task in hand. Notably, the authors further advanced and updated the procedures adopted in their pioneering 2002 stated preference study of service improvements for YWS, in the light of the most recent developments in the literature. Overall, we find this to be an excellent piece of research, reflective of a profound knowledge of the state-of-the-art in stated preference valuation and also of extensive background research, thought and discussion.'
> Academic Advisory Panel, 2008

# 4. LEADERSHIP, POLICY AND STRATEGY

## *4.1. LEADERSHIP*

### *4.1.1. Leadership in Asset Management*

91. Our commitment to asset management best practise and continuous improvement is embedded within the culture of the Company at all levels. The importance placed by the Company for great asset management is evident by the engagement of our Board and Directors across a wide range of asset management strategies, policies and improvement initiatives. The emphasis placed upon Asset Management is evident at the highest level in our Company.

92. Director led sub groups representing the Board are used for the most regular governance, consultation management and support in day to day asset management (Figure 7).

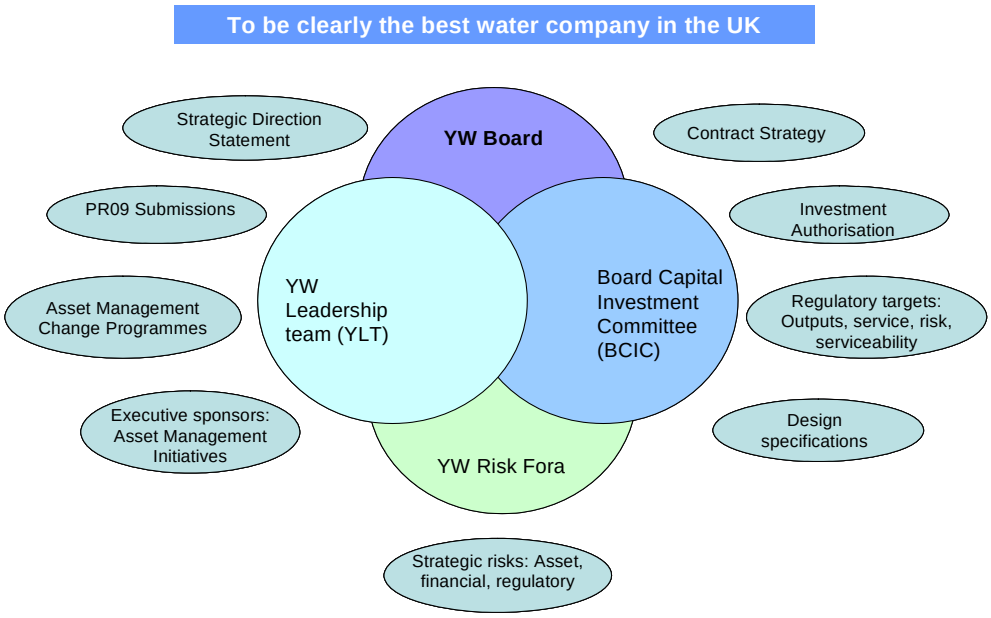



**Figure 7 - Board / Director roles in asset management**

93. The Yorkshire Water Board meets monthly and is the formal approval body for major investment, Company strategies and regulatory submissions. Governance, management and day to day support may be delegated to the Board Capital Investment Committee (BCIC), the Executive (ELT) Leadership team or the Company risk management fora.

94. The Company Directors sit on the Yorkshire Leadership Team (YLT). This team provides management support and approval for major asset management strategies and initiatives.

95. The BCIC has delegated approval from the Board for the investment programme, including design specifications, procurement strategy, investment authorisation, asset management and regulatory targets such as service, risk and serviceability.

96. We also have a suite of risk fora at Director and Senior Manager level where strategic risks are identified, reviewed and managed. These risks are associated with asset management, financial or regulatory matters.

97. The Board Audit Committee which sits above all these functions ensures corporate governance and sound procedures are in place and are operated appropriately.

### *4.1.2. Leadership in development of our Plan for AMP5*

98. Our vision to be 'Clearly the best' and our world class asset management processes have been used as the foundation for our approach to PR09. This led to development and Board approval of our PR09 principles at the outset of PR09 planning in 2006, which are set out in B3 Section 1.0 para 3.

99. Development of the AMP5 programme is aligned with our PR09 principles, and followed by our key long term goals in the SDS. These are not only endorsed by the Company Board, but were developed with full engagement of the Board to inform the approach to PR09, including the capital maintenance plan and any proposed service improvements. Our PR09 submission is consistent with the long term vision and the PR09 objectives of a balanced programme with customers at its heart.

100. Throughout the development of the AMP5 investment programme, there was a continuous board level challenge to balance investment, service and prices whilst delivering a robust asset management plan and working towards our SDS goals. This approach ensures that value is driven into the planning process via our commitment to maximising the benefit to customers and the challenge given to potential new quality enhancements. This ensures there is not a conservative approach to new legislation.

101. The Company is committed to delivering best value to customers. This is evident in our Asset Management Plans and also in the improvements to the whole life cost approach for PR09 as set out in B3 Part 2.0 Section 4.2.

102. As with the development of the SDS, the approach for PR09 has developed from the PR09 planning teams. They work to clear and approved terms of reference. These then go through challenge, review and sign off by Steering groups business wide, senior management teams in the Company, followed by consultation, development and final sign off by the executive management team and the Board.

## *4.2. POLICY*

### *4.2.1. Asset Management Policy*

103. Our approach to asset management leads from the service, compliance, value and society aspects of the Company vision and our overarching policy is:

To manage the asset base in an integrated way, to meet current and forecast customer needs and regulated targets at lowest total cost and a known level of risk.

104. As a consequence, we have developed detailed policies, guidance and internal procedures, which support our high level approach. These ensure that the service requirements and regulatory commitments for AMP4 are met or exceeded.

105. The policies associated with 'Asset Management Plan 4' (AMP4), are set out in a corporate Lotus Notes database. This incorporates the regulatory background, the agreed enhancement obligations, the policy for stable serviceability and stable red risks over AMP4, the monitoring plan and identifies the teams who manage and govern each stage.

106. Of particular note for AMP4 was the introduction of cost benefit analysis as a decision support tool in investment prioritisation and also the 'red risk investment policy'. The red risk policy was to ensure that investment was targeted at those risks of most likely and severe impact. The policy was developed as part of PR04 and has been applied in AMP4.

107. An extract of this guidance is provided in Figure 8.

**Maintenance Investment**

- To maintain stable level of red risks by 2010 in the most cost beneficial way
- To maintain stable serviceability for infrastructure assets
- To achieve stable serviceability for non infra assets by 2007/08
- To reduce number of failing WWTW by 2010

Red risks:

| PROBABILITY \ IMPACT | VL | L | M | H | VH |
|---|---|---|---|---|---|
| VH | | | | | |
| H | | | | | |
| M | | | | | |
| L | | | | | |
| VL | | | | | |

- To maintain stable level of red risks by 2010 in the most cost beneficial way
- Solutions must address at least one red risk by 2010 to be considered
  - Except – DG5 overloaded sewer (driven by regulatory outputs)

**Figure 8 - Extract of guidance June 05.**

108. The 'AMP4' database is linked to a second corporate Lotus Notes database which holds the procedural guidance for the Asset Management Planning and Investment Cycle (AMPIC). These procedures identify the

stages of asset management from monitoring of asset performance, risk assessment, intervention optioneering, whole life cost, cost benefit assessment, investment prioritisation and project delivery. Current improvements include the implementation of a BPM (Business Process Management) system. This will enable asset management colleagues to inter-relate with and operate the AMPIC process more effectively and efficiently, with links to the key guidance and policy documents. BPM also enables simulation of proposed improvements prior to their implementation.

109. The AMPIC guidance sets out the roles and responsibilities of the teams and those teams are empowered to govern the key stages. A particular strength of the AMPIC process is that the roles and responsibilities cut across different Directorates (Clean Water, Environmental, IT, Regulation and Investment). The natural constructive tension and competition for best practise, that this creates, ensures that there are vigorous challenges at key stages. Further details are set out in B3 part 2.0 section 3.1.

110. As part of our drive for continuous improvement in our asset management processes, we initiated a review in 2006, called 'Capital Transformation' (See B3 part 2.0 para 137). The aim of this programme of reviews was to improve targeted investment and to drive value. The statement below captures this:

'Right Investment, Right Asset, Right Time, First Time, Every Time'

### *4.2.2. Governance of Asset Management Policy*

111. The BCIC is a Board delegated approval body with the major governance role in the Company's asset management processes. It comprises 4 Directors and Senior Managers from across the Company and is the approval body not only for investment but other asset management policies such as technical specifications. The approved engineering specification is held corporately on both our intranet and the 'Yorkshire Water exchange', which enables electronic access for our delivery partners.

112. BCIC meets weekly to review individual project approvals and receive recommendations as required for approval on procurement strategy and engineering specification. It also governs the capital programme, serviceability performance and updates on strategic initiatives such as 'Clearwater' in the Clean Water Business Unit (WBU) and 'Waste Water 2020' in the Environmental Business Unit (EBU). These initiatives focus on improving customer service and driving our efficiencies.

113. BCIC provides challenge and governing approval where there have been changes in design guidance for solution options or procurement routes. This considers performance of existing and proposed designs requiring an assessment of whole life costs for the proposed options. For example following review of both asset performance and whole life cost the technical guidance for sludge dewatering equipment has been changed from belt presses to centrifuges in AMP4, in order to maximise performance whilst driving best value.

114. In terms of individual investment projects, the solution options are required to present in terms of whole life cost, with a view of options rejected and why, including views of residual risks. Over 50% of the AMP4 programme (by value) is approved at Board level with a formal delegated approval schedule accountable for the remainder based upon project value (Figure 9). This provides significant governance and challenge for the investment programme at senior level.

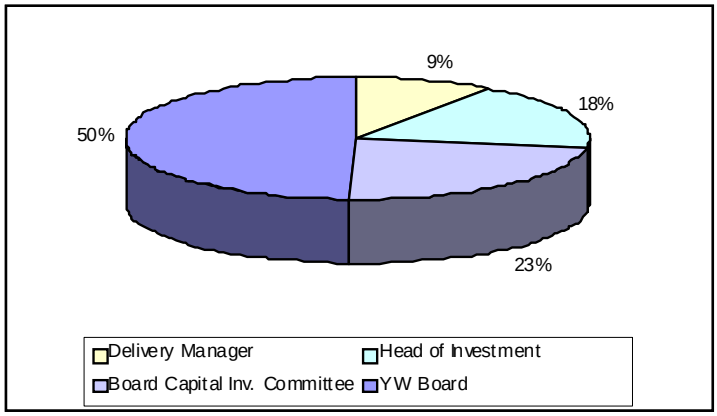



**Figure 9 - Proportion of investment authorisations by value in AMP4**

115. Quarterly programme reviews at BCIC have evolved for AMP4. They now not only look at the regulatory obligations and progress towards them but assesses serviceability results and trends, in addition to risk reporting by business units and trends in project costs. This is direct governance of our asset management policy of lowest total cost solutions and known level of risk for our asset base in addition to ensuring we meet our AMP4 obligations. This also demonstrates our commitment to translating strategies developed for periodic review submissions into business as usual processes.

116. This is evidenced consistently throughout our June Returns where we continue to report delivery of all required outputs at the same time as delivering cost efficiencies and further customer focussed improvements.

## 4.3. STRATEGY

### 4.3.1. Our Strategy for asset management

117. The Company published its SDS in December 2007 which set out its long term direction for the Company including improving service to customers.

118. The strategy for the Company is underpinned by the existing Company vision and its six chapters of service, compliance, value, people, partners and society.

To achieve our vision of being clearly the best and the goals we have set ourselves for 2035 in our Strategic Direction Statement, we require a strategy of innovation in research, processes, systems and technology; to ensure we remain at the forefront of asset management practise via continuous improvement.

### 4.3.2. Our strategy for innovation in leading research & development

119. We will continue to drive innovation through our two fold approach to research and development:

120. Firstly, we invest, engage and actively participate in research programmes such as UKWIR, ensuring we take a lead role in driving forward innovation within the whole industry. During AMP4 we have achieved this by taking significant leadership roles on the UKWIR board, as Client managers in Waste Water and Clean Water Distribution and as Research and Development (R&D) managers in defining and prioritising the programme.

121. We have also taken project management and steering group roles in areas such as Integrated Catchment Management and topics addressing current and future regulatory issues such dangerous substances and intermittent discharges. This benefits the industry by driving regulatory clarity whilst also seeking to avoid precautionary investment. We will continue to take major contributory roles in UKWIR research (Figure 12). Examples of success in AMP4 being cost benefit analysis, carbon accounting, development of the AMPAP process, least cost long term sewerage planning and 20th century sewerage design. All of these play a key part in our approach to innovation for the industry.

122. Secondly, we will continue a significant targeted research and development (R&D) programme in AMP5 and AMP6. This will continue to

be supported by our industry leading Strategic Partnership approach, with 5/5* Research assessment exercise (RAE) rated research departments. Our internal governance, cross business processes and structure encourage best practice and sharing of research. This ensures that the potential benefits are implemented into the business. Further detail of our approach to research and development is set out in B3 part 9.0 section 1.2.3, and figure 10 shows our programme at a high level.

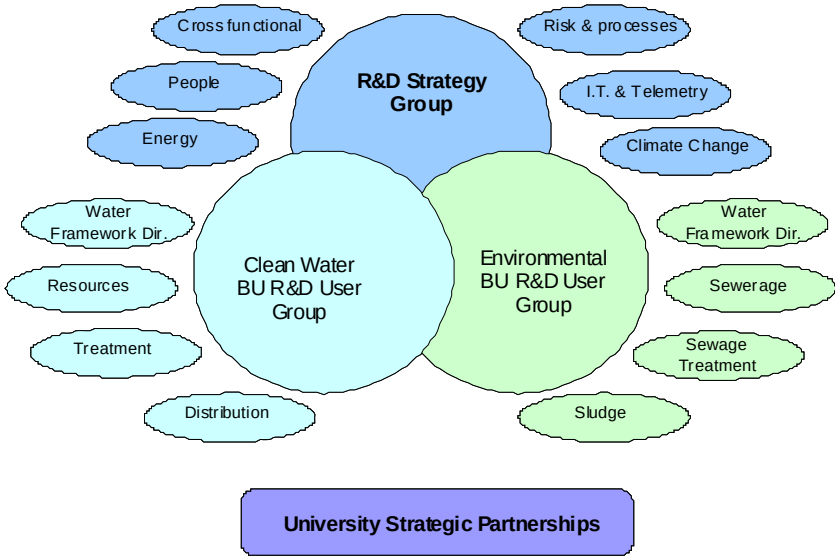



**Figure 10 - Management of Research & Development**

### *4.3.3. Our strategy for innovation in systems and technology*

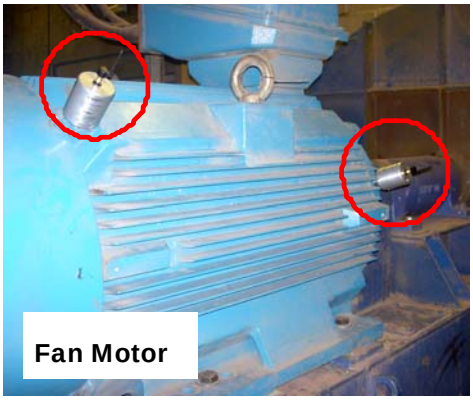
123. As a continuation of our approach in developing LEADA for PR04 and LEADA+ for PR09, we will maximise technology and software development in our asset management planning tools for business as usual and PR14. We will stay at the forefront of asset management systems and tools. We will also advance our understanding and processes further so that by PR14 we expect to be operating LEADA++, continuing to operate within a culture of continuous improvement where we seek to achieve more for less.

124. We will continue to identify, develop and make best use of technology to drive down costs and to drive improvements to customer service.

125. An example of the use of technology to mitigate the impact of service failure following asset failures is the new 'Hawkeye' telemetry (Figure 11). This enables a faster response to asset failures which can avoid or reduce the severity of pollution incidents (see also B3 section 7.0). We led the way in both testing and deploying this new technology in order to deliver significant service improvements which was recognised when we won Utility Company of the Year in 2006.

126. We are developing low cost condition based monitoring, using self powered, wireless vibration monitors which can be applied to a range of equipment – WWTW centrifugal compressors; sewage pumping stations; final water pumping stations; WWTW aeration blowers and sludge centrifuges (Figure 11).

Hawkeye GSM CSO monitor




Vibration Pump/Motor Monitor

**Figure 11 - Innovative technology in action**

127. The development of real time network monitoring (RTNet) is another AMP4 success. This mitigates the impact upon customers of water distribution failures by reducing the number of properties effected. The RTNet pilot in Harrogate and Dales utilised technology trialled by our internal Research and Development. This was recognised in the National Customer Service Awards 2007 winning the "Best Use of Technology in Customer Service" category. We are currently working with a consortium of universities and other suppliers through project Neptune to utilise this technology in optimising system performance and burst detection.

128. We will continue to drive value via innovation, creating partnerships and contract strategies which give our delivery partners incentives to innovate and maximise the use of technology to drive value in delivery.

129. Within AMP4, for example, site specific use of computational fluid dynamics has enabled settlement tanks at WWTW to be designed more precisely than has previously been possible. This has generated efficiencies and these reduced costs are then passed forward into future projects by their inclusion in our unit cost database.

### *4.3.4. Our strategy for best practise asset management in business as usual processes and activities*

130. Our strategy for best practise asset management is built upon driving continuous improvement and innovation into 'business as usual' and ensuring we have highly competent people. This requires not only development of our internal processes but seeking our best practise elsewhere via collaborative working with other Companies, regulators and agencies.

131. Throughout AMP4, several major asset management initiatives have required significant commitment to drive improvements in particular to service, compliance and value, all of which have been supported by the Board and have been sponsored by Directors and Senior Managers.

#### *4.3.4.1. Embedding LEADA in AMP4*

132. The development of our AMPIC started at the end of AMP3. This integrated LEADA into 'business as usual' to optimise actual delivery of projects throughout the AMP4 period as part of the End to End (e2e) process. The LEADA systems were integrated within the asset management cycle and used in day to day investment decision making. The systems identify asset performance, service shortfalls and maintain a 'rolling' programme of investment prioritised on service risk and optimised on cost-benefit. The process coherently ties together, asset management data, systems, people and processes, enabling them to operate in an effective and efficient way.

133. To fully realise the potential of LEADA it was recognised that a cultural shift was required and significant cross business commitment during AMP4. A major e2e process training programme was delivered to approximately 500 employees to familiarise them with LEADA systems and the risk based cost-benefit approach to capital investment. The successful integration of LEADA within business as usual in AMP4 meant we were well placed to develop and implement improvements for the PR09 LEADA+ systems and processes.

#### *4.3.4.2. Clean Water Business Unit and Environmental (Waste Water) Business Unit Asset Management Change programmes*

134. Early in AMP4 both business units set out to drive major improvements in service, compliance and value. These initiatives are 'Clearwater' and 'Waste Water 2020'.

135. Dedicated project teams developed and integrated the improvement initiatives as part of our ongoing commitment to asset management best practise. Key initiatives included:

- restructuring of the EBU creating a dedicated Waste Processing and Recycling Asset Management section
- centralising and providing focus for the end to end asset management of sewage sludge
- the creation of a dedicated EBU Customer Services section.
- changes in use of technology and business processes in WBU to deliver efficiencies for the business
- WBU service improvements for customers, by driving innovative research into real time network control into business as usual processes.

### *4.3.5. Collaborative working to seek asset management best practise and processes*

136. We have a history of collaborative working in the industry in order to drive best practise in asset management and long term investment planning, this will continue in AMP5 and beyond as part of our drive for continuous improvement.

137. We have been involved with the development of integrated urban drainage in AMP4 via engagement in two of the fifteen DEFRA (Figure 15) integrated urban drainage pilots in Leeds and Bradford. This new approach is being trialled in order that the interrelationships between different agencies can be developed and holistic solutions can be proposed. (See also B6 Part 3 & C6.) The pilots have focussed on modelling/engineering design, information sharing; institutional barriers and the planning process.


138. We have also engaged in pilot studies in the development of Distribution Operation and Maintenance Strategies (DOMS). These have been reviewed in order to identify current best practice and highlight areas where further development would be beneficial. This includes the effect of mains bursts on iron concentrations and customer contacts regarding discolouration; benefits of interventions such as systematic flushing and mains rehabilitation; design of cost-effective monitoring programmes quantification of costs associated with water quality service failures and capital and operational interventions.

139. Within AMP4 we worked closely with OFWAT and took a lead role within the industry to drive industry input into the preliminary cost effective assessment for the WFD for DEFRA. We consider that scenario planning

of this nature is an integrated part of long term asset management in order to influence national debate and policy development.

### *4.3.6. Developing our people and partners*

140. We value the benefit that highly trained and high calibre people bring to asset management best practise. Within AMP4, we have instigated a major technical asset management training programme for our colleagues and partners in order to embed best practise throughout the Company. This is a major training programme made up of 15 modules and has currently been used by hundreds of colleagues and partners, in particular the risk management elements have been recognised with external training awards. Further details of this programme are set out in B3 part 2 section 3.4.

141. Additionally we provide technical training to our operational and asset management community through professional and technical qualifications, apprenticeship schemes and bespoke in house training packages. Of particular success, in AMP4, has been the serviceability and compliance training undertaken in EBU, as part of the WWTW serviceability action plan (part B3, section 7), delivering improvements in service performance.

# 5. SUMMARY

## *5.1. PLANNING OBJECTIVE*

142. In determining our Capital Maintenance Programme (CMP) we have chosen to take a very balanced approach, using our Willingness to Pay studies as well as LEADA+ process and tools to derive a programme which seeks to **maintain serviceability** across the whole of our asset base, meets our **statutory obligations, minimising costs** and **maximising the benefit to customers.**

143. This is consistent with the economic approach in MD161 and the **cost benefit approach** set out in the UKWIR Common Framework for Capital Maintenance Planning. Where we have been unable to apply a cost benefit approach, for example statutory requirements or where Willingness to Pay data was not available, we have fulfilled the Cost Effectiveness Objective of the Common Framework.

## *5.2. STAKEHOLDER SUMMARY*

144. For both the SDS and the PR09 DBP we have consulted widely with customers, regulators and other stakeholders throughout 2007 and 2008.

145. Building on our PR04 approach we have doubled the size of the domestic customer Willingness to Pay surveys, in order to produce more robust quantitative benefit values, for use in our investment prioritisation.

146. Stakeholders have influenced the priorities, scale and content of our investment proposals as a result of the net benefit calculations used in our LEADA+ systems and processes.

## *5.3. LEADERSHIP, POLICY AND STRATEGY SUMMARY*

147. Our vision to be clearly the best water company in the UK and our commitment to best practise asset management is led by our executive management team. At all levels and across many teams we challenge each other to ensure that we deliver a balanced programme for customers both in delivery of AMP4 and the creation of AMP5 in PR09. This is all within the context of our long term goals, as set out in our SDS.

148. Our asset management policy is to manage the asset base in an integrated way, at lowest total cost and a known level of risk. It is as relevant for the future as it has been in the past. We remain committed to delivering the right investment, in the right asset, at the right time, first time, every time.

149. To achieve our vision and the goals we have set ourselves for 2035 in our SDS, we require a strategy of innovation in research, processes, systems and technology; to ensure we remain at the forefront of asset management practise via continuous improvement. This strategy has served us well in AMP3 and AMP4. We are not complacent in our performance and recognise that we will need to continue to drive further improvements ourselves, within the water industry and with partners in order to be clearly the best water company in the UK.

## *5.4. ASSET MANAGEMENT PLANNING ASSESSMENT PROCESS (AMPAP)*

150. Following UKWIR guidance with regard to assessing a company's degree of maturity with regard to asset management planning, we have provided summary scores at the start of each business plan section; see Table 4 below for B3 Section 1 & 5 AMPAP score.

151. These scores have been calculated following the detailed procedure described in B3 Part 2 section 3.2: We have exercised a high degree of rigour and manpower in our assessments ensuring the correct people in the business have provided the evidence, and sufficient quality assurance undertaken to ensure robust and accurate scoring.

| | Stakeholder Engagement | Leadership, policy & strategy |
|---|---|---|
| B3 Section 1 & 5 | 5.0 | 4.8 |

Table 5: Asset Management Planning Assessment Process Scores (YW defined)

152. Table 5 above represents the main sub-heading splits as detailed in the information requirements, at a summary level rather than split by Infra/Non-Infra. A robust assessment of our M&G asset management planning has been undertaken and the summary table is included within B3 Section 9.

153. Important points for OFWAT to note when undertaking the AMPAP assessments are;

- that we have consulted with our asset management community when scoring, rather undertaking scoring as a central function
- we assigned a full time employee to manage the process, to ensure consistency of application, internal reporting & assessment
- provided robust evidence for the scores produced
- undertaken a separate audit with our Reporter on the AMPAP process

## *5.5. B3 GENERAL STRUCTURE*

154. Because of our business wide asset management process, we have provided commentary on general processes for both the Water and Sewerage services for sections 1.0 and 5.0 jointly, then 2.0 and 6.0 jointly. Additionally, we have provided one section for Management & General assets. Our Structure for B3 is shown in table 6 below.

| Section | | |
|---|---|---|
| B3 1.0 (& 5.0) | Planning objectives, direction and delivery | Whole business approach |
| B3 2.0 (& 6.0) | Approach to asset management planning | Whole business approach |
| B3 3.0 | Business Case by Asset Group | Water Service |
| B3 4.0 | Further Table Commentaries | Water Service |
| B3 5.0 | Planning objectives, direction and delivery | Included in whole business approach set out in B3 1.0 |
| B3 6.0 | Approach to asset management planning | Included in whole business approach set out in B3 2.0 |
| B3 7.0 | Business Case by Asset Group | Sewerage Service |
| B3 8.0 | Further Table Commentaries | Sewerage Service |
| B3 9.0 | Business Case by Asset Group | Management & General |

Table 6 – B3 General Structure