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PR19: Water Network plus Growth

September 2018



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Executive summary

Driver for investment

The key driver for this investment is our legal duty under the Water Industry Act 1991 to “make supplies available to persons who demand them” and make arrangements for “maintaining, improving and extending” our water mains and other pipes. We support economic development in our area and make every effort to ensure that new customers can connect to our water mains. Growth may be restricted for many reasons but we don’t want provision of water infrastructure to be one of them.

The population in our area is projected to increase by 50,000, or 1.6%, in AMP7. In the same period, the number of households is expected to increase by 43,700. This is a 30% increase on our projection made for AMP6 at PR14. New developments need new mains to connect them to our existing water distribution network. Household growth is the driver for expenditure on water requisitions and infrastructure network reinforcement.

As more people and businesses are connected to the system, we may also need to increase the capacity of trunk mains or storage, or add booster pumping stations to make sure we continue to supply customers with water at acceptable pressure.

The investment

Our proposed programme and associated capital costs are shown in Table 1. We plan to invest £67m (capex) in AMP7: to allow new customers to connect to our water network; to maintain service to existing customers as the population increases and economic growth is supported, and; to provide new meters for optants.

Requisitions expenditure is now only the ‘on-site’ or ‘site-specific’ element; other work, i.e. off-site, required as a direct consequence of connecting new developments is Infrastructure Network Reinforcement. Our Network Growth Scheme budget is for strategic capacity improvements where our network modelling and analysis shows there is a critical need. The New Connections (Large Diameter) expenditure is for those connections where we carry out a bespoke design, i.e. separate fire mains and domestic connections over 63mm diameter. The Meter Options budget is for household and business optants, and for selective metering where it is deemed necessary.

Programme of work	Proposed capex
Requisitions (On-site / Site-specific)	£30.0m
Infrastructure Network Reinforcement	£4.5m
Network Growth Schemes	£9.7m
New Connections (Large Diameter)	£8.8m
Meter Options	£14.5m
Total programme (2017-18 price base, pre-efficiency)	£67.5m

Table1:New Development & Growth capex programme for AMP7

Standard domestic new connections are now accounted as opex, as are diversions. A small opex increase will also result from the water network growth schemes. Taking account of these Table 2 shows the totex figures for the AMP7 growth programme.

Programme of work	Proposed totex
Requisitions (On-site / Site-specific)	£30.0m
Infrastructure Network Reinforcement	£4.5m
Network Growth Schemes	£9.8m
New Connections (All diameters)	£31.6m
Diversions	£15.7m
Meter Options	£14.5m
Total programme (2017-18 price base, pre-efficiency)	£106.1m

Table 2: New Development & Growth totex programme for AMP7

Delivering for our customers

This work will meet the following of our customer promises:



Clean, safe water for all: Provide clean, safe water for new customers with no detriment to levels of service for existing customers.

Delivering for the future

In Welsh Water 2050, we identified a number of future trends which will impact on the way we operate now and in the future. Our proposed New Development & Growth investment will ensure that we can continue to meet the service requirements of our customers in AMP7. The main trends driving this investment are:



Climate change: Drier, hotter summers are projected, which could result in water supply deficits and the potential for increased water demand.



Demographic change: Population growth will lead to increased water demand in certain areas and an ageing population may lead to more customers in vulnerable circumstances. However, opportunities will emerge to develop a more diverse age profile in the workforce.

Delivering our Strategic Responses

In Welsh Water 2050, we set out to deliver 18 Strategic Responses. This investment will contribute primarily to the following two:



Enough water for all – although principally about water resources management, this strategic response could also be considered to include delivery of water to new domestic customers and businesses



Leading edge customer service – includes providing a great service and support to new customers who want to connect to our water network.

Achieving our measures of success

In AMP7 we will continue to measure our performance against our Measures of Success (MoS)/Performance commitments. This investment will contribute to achieving the following MoS/Performance commitments:

Measure of Success	End of AMP6 Position	End of AMP7 Position
Customer water supply interruptions	12	8
Worst-served customers for water service	1131	871

1 Delivering our customer outcomes

Need for investment

The key driver for this investment is our legal duty under the Water Industry Act 1991 to “make supplies available to persons who demand them” and make arrangements for “maintaining, improving and extending” our water mains and other pipes. We support economic development in our area and make every effort to ensure that new customers can connect to our water mains. Growth may be restricted for many reasons but we don’t want provision of water infrastructure to be one of them.

The population in our area is projected to increase by 50,000, or 1.6%, in AMP7. In the same period, the number of households is expected to increase by 43,700. This is a 30% increase on our projection made for AMP6 at PR14. New developments need new mains to connect them to our existing water distribution network. Household growth is the driver for expenditure on water requisitions and infrastructure network reinforcement.

As more people and businesses are connected to the system, we may also need to increase the capacity of trunk mains or storage, or add booster pumping stations to make sure we continue to supply customers with water at acceptable pressure.

Views of our customers and stakeholders

We have undertaken extensive consultation with customers through our PR19 preparation programme, including our Welsh Water 2050 strategy consultation held in the summer of 2017, which engaged with 19,980 of our customers. A detailed description of the methodology and outcome of all our customer consultation is included in supporting document 1.2 PR19 Stakeholder Engagement Report.

In our Welsh Water 2050 research customers spontaneously identified population growth as the biggest challenge for our future.

Our New Development expenditure is for Requisitions, INR and New Connections. We have a legal duty under the Water Act 1991 to allow new

customers to connect to our water mains. This area of expenditure is not affected by the preferences of our existing customers.

Our existing customers are understandably concerned that the level of service they receive should not fall as a result of new developments. Our proposed investment will maintain existing levels of service in the face of growth.

Regarding broader stakeholder engagement, we have developed good working relationships with the twenty eight Local Planning Authorities which cover our area. As well as liaising closely over preparation of Local Development Plans (Wales) and Frameworks (England), we are normally consulted on all individual planning applications. This cooperation increases understanding and improves the planning effectiveness of both parties.

Our Developer Services team is the highest ranking of all the companies in Water UK’s performance rankings for services to developers since the scheme was established in 2015.

Benefit for our customers

Supporting development without detriment to service

Managing the impacts of population growth is a serious challenge for society. Our New Development and Growth investment will ensure that we can support:

- the projected population increase of 50,000 in our area;
- connecting and supplying another 43,700 households;
- connecting and supplying another 1,700 businesses.

2 Investing now and for the long-term

Future challenges

Our Welsh Water 2050 strategy identifies significant trends over the next 30 years and how these will impact on our business and our customers. The key trends driving growth expenditure are demographic change and climate change.

The rate of [population increase](#) in our area as a whole is relatively stable at about 0.3% per year. However, even this rate will drive construction of 43,700 new households, which will need to be connected to our existing water distribution system and supplied with water. The additional demand from these households must not make things worse for our existing customers either in the vicinity of new developments or anywhere in our network.

Furthermore, the average growth rate disguises the fact that some areas are growing whilst others are shrinking. The population of Cardiff, for example, is projected to grow by 25% between 2016 and 2036, whereas Blaenau Gwent's is set to fall by 6% over the same period.

[Climate change](#) is causing drier, hotter summers and this leads to higher demand for water. Our Water Resource Management Plan deals with the amount of water needed at Water Resource Zone level but changing demand will also affect distribution within a zone. There are many other factors in this equation, such as leakage, per capita consumption and changing industrial demand, but climate change must be considered alongside demographic change as a factor for consideration in growth planning.

Planning for the future

Long-term planning

Our New Development expenditure – Requisitions, INR and New Connections – is reactive: we have a duty to provide water to new customers when it is requested.

Our Growth expenditure, however, has a long-term focus. We are proposing modelling and analysis to fill the gap between the local assessments for individual development sites, and the broader

scope of our Zonal Studies programme. This will allow us to identify some beneficial capacity improvements at strategic locations. These will have long-term benefits through reducing costs compared to a piecemeal approach.

Building on progress

AMP6 Progress

This case is built using analysis of historical performance (what it has cost us to connect new properties in recent years) together with a projection of future activity (forecast number of new connections). This section presents the historical data and analysis.

Historical new connections

Figure 1: PR14 forecast and actual new property connections

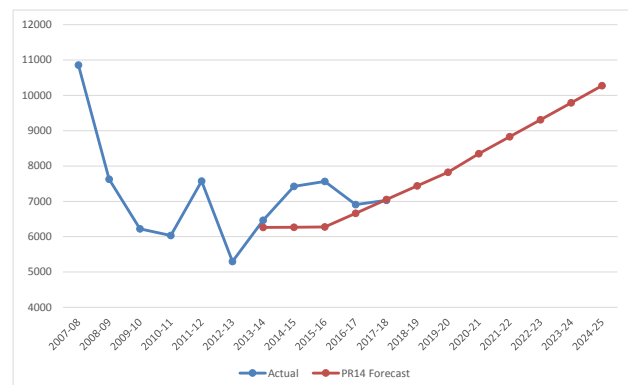


Figure 1 shows how actual connection numbers have varied from those predicted at the last price review, PR14. 33,700 new property connections were made to our water network in the five years from 2012-13 to 2016-17 inclusive.

Historical expenditure

Over the past five years (from 2012-13 to 2016-17 inclusive), our total expenditure on water requisitions was £25.6m, adjusted to 2016-17 prices. We connected 33,663 new properties over this period, giving a unit cost of £761. We have used this cost for estimating AMP7 expenditure. This expenditure includes both on and off-site costs, i.e. it includes both the 'on-site' / 'site-specific' requisitions as well as what is now referred to as Infrastructure Network Reinforcement (INR).

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Our network growth expenditure from 2012-13 to 2016-17 inclusive was £10.1m. Over 90% of this was for a single new service reservoir at Coed Dowlyd, our largest AMP5 scheme. Our significant, planned AMP6 network growth schemes are in Hereford but the main expenditure on these will be incurred over the remaining years of AMP6.

Over the past five years (from 2012-13 to 2016-17 inclusive), our total expenditure on water diversions was £11.7m, adjusted to 2016-17 prices. We connected 33,663 new properties over this period, giving a unit cost of £346. We have used this cost for estimating AMP7 expenditure. The new property connections figure is used as a general indication of economic activity likely to drive the need for water diversions. Some diversions are caused by highways schemes, like the A465 Heads of the Valleys scheme which has driven significant expenditure in AMP6.

Forecast out-turn new connections

Table 3: AMP6 Actual and forecast property connections

Description	2015-16	2016-17	2017-18	2018-19	2019-20
Properties connected in the year	7,563	6,910	7,028	8,447	8,651
Properties connected in the year (PR14 FBP forecast)	6,274	6,662	7,050	7,438	7,825

Table 3 shows reported and forecast property connections to the end of AMP6. These numbers are also shown graphically in the next section. Reported figures are from 2017-submitted CAT 6 - WW Properties and Population. 2017-18 and future forecast figures are as per PR19 Table WS3. This

latter source uses the term 'residential' for households, and 'business' for non-households.

The PR14 forecast for new property connections in AMP6 was 35,250. The current AMP6 forecast, using actual completions for the first three years, is now 38,600, about 10% higher than projected at PR14.

Our meter options enhancement expenditure in the five years from 2012-13 to 2016-17 inclusive was £13.8m.

Forecast out-turn expenditure

Table 4: Reported and forecast outturn expenditure (£m)

Description	2015-16	2016-17	2017-18	2018-19	2019-20
New Developments ₁	5.9	5.5	6.7	5.6	6.2
Growth schemes ₂	0.1	0.5	-	-	-
New connections element of new development (CPs, meters) ₃	-	-	1.0	0.8	0.9
Meter Options ₄	2.2	2.6	2.8	2.4	2.6

1. From 2017-18, includes growth schemes and INR. PR19 table WS2 Line 11.
2. From 2017-18, included in New Developments line, PR19 Table WS2 Line 11.
3. New, from 2017-18, PR19 Table WS2 Line 12.
4. Combined expenditure from the three metering lines.

Table 4 shows our submitted expenditure figures for new development, growth and meter options. Figures up to 2016-17 are taken from the Cost Assessment Table (CAT) submitted in 2017 – Table 2, Lines 9, 14, 15, 16 and 18. Figures for the remainder of AMP6, i.e. 2017-18 to 2019-20 are as per those in PR19 Table WS2. The 2017-18 figures are also in the APR Table 4L.

3 Options

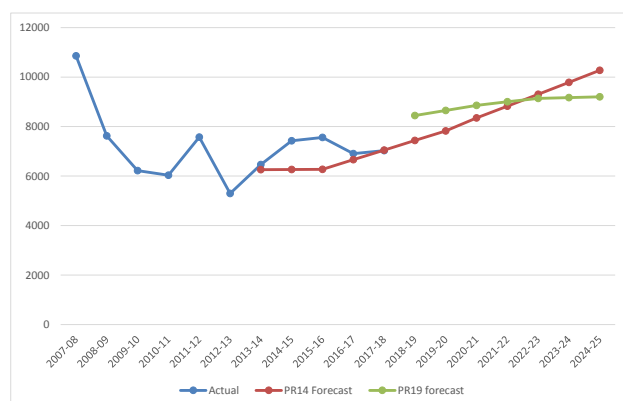
Background

We have a legal duty under the Water Act 1991 to “make supplies available to persons who demand them” and make arrangements for “maintaining, improving and extending” our water mains and other pipes. This means that the planning focus is primarily on making our best assessment of the likely expenditure requirement.

New property connections (households and non-households) are the key driver for requisitions and INR expenditure. Our company forecast for new connections is the starting point for expenditure forecasts.

Figure 2 shows our PR19 property connection forecast in context with both the previous price review forecast and actual performance. Over the AMP7 period, we expect to connect 45,372 new properties to our water mains network. This is nearly 30% higher than our estimate for AMP6 made at PR14.

Figure 2: Actual and forecast property connections



Uncertainty & external factors

New development expenditure is strongly influenced by activity in the housing market. Levels of house-building in our area are now more stable than in the first few years after the financial crisis in 2007-8, but they still haven’t recovered to those seen prior to that event.

Whilst there will always be uncertainties, it is generally accepted by all the main political parties, both in Westminster and Cardiff, that there is a need to both increase the supply of housing and to improve affordability for first-time buyers. It is thought that government schemes such as ‘Help to

Buy’ have led to an increase in the rate of house-building in recent years.

Our current forecast for new property connections in AMP6 is 10% higher than that made at PR14, when we were closer to the years of high volatility following the financial crisis. We would expect our current forecast for AMP7 to be more accurate, given the circumstances. Our sewer requisitions and INR expenditure is reactive in nature and is offset to some extent by income. This reduces the impact of error in our forecast.

By contrast, growth expenditure is driven predominantly by population increase and this has continued steadily in our area. Population – and therefore the demand on our assets – is projected to carry on increasing, although the most recent government projections suggest a small reduction in the rate of growth (due to lower expected net migration). Our population forecast for AMP7 is growth of approximately 0.3% or 10,000 people per year.

New Development (Requisitions and INR) expenditure and Growth (Network growth schemes) expenditure require slightly different planning approaches but for simplicity, they are considered together in the following section.

High-level options appraisal

Three high-level options were considered in the development of this investment case for AMP7:

- Option 1: Do nothing
- Option 2: Maintain expenditure based on historic unit cost rates (new development) and historic programme scale (growth)
- Option 3: Increase investment to provide additional strategic capacity at critical locations.

Further detail on these options is provided below.

Option 1 - Do nothing: do nothing in AMP7 and defer any interventions until AMP8 or later.

Option 2 - Maintain expenditure at historic rates: Use our historically achieved unit cost rates (£ per new connection) together with AMP7 forecast new property connection numbers to determine the new development expenditure requirement.

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Continue growth expenditure at a similar level to AMP6.

Option 3 – Increase investment: increase growth expenditure to provide additional strategic capacity at more locations, i.e. where growth rates and demand are highest.

Assessment

Option 1 is not compatible with our legal obligation to allow new customers to connect to our water network. New Development expenditure is reactive and we will need to continue reacting to developers' and individuals' requests for a water supply. Growth expenditure is planned but doing nothing to address existing capacity constraints now would lead to higher costs in future. For these reasons, we cannot select Option 1.

Option 2 allows us to meet our legal obligations and maintain service to existing customers whilst supporting economic growth in our area. The calculation of new development expenditure takes account of the company's projected new connections forecast and does not propose any increase above the historic unit cost rate for connecting new customers. The growth programme

is maintained at a similar level to AMP6: population increase is steady and we do not yet have the water network modelling evidence to support a step change increase in programme expenditure.

Option 2 is our preferred and proposed solution.

Option 3 is as per Option 2 for new development but includes increased expenditure on network growth schemes.

We have identified an analysis gap between the local assessments made for individual development sites and the much broader approach of our Zonal studies programme. We propose to try and close this gap in areas of greatest need by using a proportion of the Option 2 growth programme budget. However, until this modelling work is complete, we won't have the supporting evidence to identify and scope up individual schemes

We know that population growth in AMP7 is forecast to continue at a similar rate to AMP6 so a similarly sized growth programme is justifiable. However, an increase beyond that would require more detailed evidence.

4 Preferred option

Preferred option

Option 2 is our preferred solution. The proposed programme elements and costs are shown in Table 5.

Table 5: AMP7 Proposed capex and totex.

Element	Proposed capex	Proposed totex
Water requisitions (On-site / Site-specific)	£30.0m	£30.0m
Infrastructure Network Reinforcement	£4.5m	£4.5m
Water Network Growth Schemes	£9.7m	£9.8m
New Connections (Large diameter)	£8.8m	£8.8m
New Connections (Small diameter)	-	£22.9m
Water Diversions	-	£15.7m
Meter Options	£14.5m	£14.5m
Total programme (pre-efficiency)	£67.5m	£106.1m

New Development – Requisitions and Infrastructure Network Reinforcement

Our forecast combined expenditure on water requisitions and INR in AMP7 is £34.5m. This is based on connecting 45,372 new properties at a unit cost of £761/property, as derived from the historical analysis described above. The historic unit cost is approximately 40% higher than that derived and used at PR14. Requisitions expenditure was significantly under-predicted at PR14 – AMP6 forecast out-turn is now nearly 50% higher than PR14 FBP. (N.B. The reasons for these increases are discussed in Chapter 8.)

2017-18 is the first year that Ofwat has required separation of 'old' requisitions expenditure into (a) requisitions 'on-site / site-specific' expenditure and (b) INR expenditure. The split is required in APR Table 2J. We analysed schemes in 2017-18 to identify this split and have applied the same proportions to our forecast for AMP7. We found the proportion to be 87% 'on-site/site-specific' and 13% INR.

This expenditure is offset to some degree by income from developer contributions and infrastructure charges. Assumptions regarding income have been set out in our Tables Commentary.

Growth

Our proposed AMP7 expenditure on Water Network Growth projects is £9.7m. This figure is based on a combination of three elements:

- Project costs associated with a proactive strategic modelling approach to achieve a 'just-in-time' expansion programme - £1.7m;
- Strategic schemes in Cardiff identified using the above approach –£6.0m;
- An allocation of funds to deliver schemes that are being identified in our zonal studies approach at Water Quality zone level - £2.0m

Our planning approach for identifying water network growth schemes has developed since PR14. The approach now includes a modelling element which can support a more strategic approach to growth schemes through identifying in-combination effects of individual planning applications. The approach provides a tool to ensure that headroom within the network system is not eroded as part of the planning process thus ensuring current customers retain their level of service. The approach now consists of:

- Reviewing our Developer Services Team's responses to Local Planning Authorities' Local Development Plan consultations, i.e. where we have advised that water supply capacity may be a constraint;
- Reviewing individual cases where we have objected to developers' planning applications on grounds of, for example, low pressure.
- Reviewing the Water Quality Zonal study assessments where growth schemes have been identified. As this project is still ongoing an element of this review also looks at forecasting an average growth

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scheme driven from the zones already completed.

- Modelling the in-combination effects of growth schemes identified as part of LDP's and Water Resources Management Plans at a strategic level, such as Water into supply area or Water Resources Zone level. This modelling also includes an element of 'just-in-time methodology i.e. when will a strategic scheme be needed driven by growth.

This approach generated a list of potential hot-spot areas where growth-led schemes could be required, including trunk water mains, new booster pumping stations, new service reservoirs and trunk main reinforcement. The method brings together a more integrated approach to resource and asset management that allows schemes to be delivered just in time to enable developers to connect to the system when required, while still maintaining headroom and service to our current customers.

Having developed this process, Cardiff and Swansea were chosen as trial areas. A new approach was developed and the process is still being tested.

The approach has already confirmed that Swansea will be able to allow growth during AMP7 without further strategic schemes.

However, in Cardiff the analysis has indicated that a number of schemes will be required. Further modelling is planned during the remainder of AMP6 to produce an optimal delivery plan that allows schemes to be delivered in line with the rise in demand. All of the feasible schemes have been developed to provide indicative costs and an allowance of £6.0m has been made to deliver these. A project cost of £1.7m has been put aside to implement the modelling work.

It is anticipated that during AMP7 a scheme will be required on the Llwynon trunk main to meet the in-combination growth expected in the system from developments occurring within the Cardiff area. Further schemes will be required in the future and the modelling approach will allow a stepped approach over time.

We have taken a proactive approach to modelling the impact of local development plans at a Water quality zone level and a number of growth schemes

at this lower level have been indicated so far. This approach will continue during the remaining years of AMP6. A £2m allowance for 'non-specific' growth expenditure that arises from this approach has been made.

New Connections

This is a new inclusion in this investment case for AMP7, triggered by Ofwat's addition of a new capex enhancement line in PR19 Table WS2 (Line 12). The capex element above is for 'Large Diameter' connections only. In practice, this means only those for which we carry out a bespoke design, i.e. separate fire mains and domestic connections over 63mm diameter.

Standard domestic new connections are classed as opex.

The cost estimates were provided by our Developer Services team, based on historic expenditure with an uplift to reflect the forecast increase in connection numbers in AMP7 compared to AMP6.

Diversions

Diversions are also now classed as opex.

Our forecast expenditure on water diversions in AMP7 is £15.7m. This is based on connecting 45,372 new properties at a unit cost of £346/property, as derived from the historical analysis described above.

This is about 10% lower than the unit rate applied at PR14. Current forecast AMP6 expenditure on diversions is £12.5m, roughly in line with our PR14 estimate. However, this is a difficult area to forecast. The timing of major infrastructure schemes, like the proposed M4 duplication around Newport, will have a significant influence on expenditure.

Diversions expenditure is mostly offset by income from contributions. Assumptions regarding income have been set out in our PR19 Tables Commentary (Table App28).

Meter Options

The customer meters programme has been developed as two streams of work:

- **Enhancements**, which are customer meters installed at properties for the first time to

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measure and charge water, known as the Meter Options programme, and;

- **Maintenance**, which is the reactive and proactive replacement of existing water meters – this element is described in the Distribution Networks Maintenance Case.

The enhancement element, the Meter Options programme, has been split into three categories:

- **Household Optants:** where a domestic company decides to have a water meter installed for billing purposes (Table WS2 Line A21);
- **Selective Metering:** where we require a meter to be installed, for example where an existing property has been divided into flats, each of which is required to have a meter (Table WS2 Line A22).
- **Non-Household Optants:** where a business customer decides to have a water meter installed for billing purposes (Table WS2 Line A23);

The expenditure is based on historic unit rates combined with the AMP7 forecast for meter option installations. Our proposed AMP7 expenditure is

similar to both our PR14 business plan and current AMP6 forecast out-turn figures.

Forecast meter numbers and associated expenditure are shown in Table 6.

Table 6: Meter Options capex breakdown

Element	Number of meters	Expenditure
Household optants (WS2-A21)	85,127	£13.737m
Selective metering (split/combined premises) (WS2-A22)	4,201	£0.784m
Non-household (business) optants (WS2-A23)	159	£0.019m
Total Meter Options programme	89,487	£14.540m

5 Cost efficiency and innovation

Cost efficiency

We are proposing to deliver £1.3m (capex) and £2.8m (totex) efficiencies under this investment programme, as shown in Table 7.

We will deliver these savings by challenging ourselves and our Capital Delivery Alliance partners to improve efficiency and by maximising opportunities to innovate.

Table 7: Pre-and post-efficiency expenditure

Element	Proposed capex	Proposed totex
Water requisitions (On-site / Site-specific)	£30.0m	£30.0m
Infrastructure Network Reinforcement	£4.5m	£4.5m
Water Network Growth Schemes	£9.7m	£9.8m
New Connections (Large diameter)	£8.8m	£8.8m
New Connections (Small diameter)	-	£22.9m
Water Diversions	-	£15.7m
Meter Options	£14.5m	£14.5m
Total programme (pre-efficiency)	£67.5m	£106.1m
Total programme (post-efficiency)	£65.3m	£102.4m

Innovation

We will continue to explore any opportunities to deliver cost savings through innovation. Although requisitions and infrastructure network reinforcement are reactive programmes, there will still be opportunities to benefit from innovation in design and construction techniques. These activities will fall under our new Network Alliance, so will be delivered as part of the wider water network programme.

Our water network growth programme includes an innovative modelling approach, which will fill the gap between the local assessments made for individual development sites and the much broader approach of our Zonal Studies programme. Through this new area of analysis, we will identify and deliver schemes at the locations of greatest need.

Partnering and co-creation

Working closely with our partners is essential to the way we plan to work in the future. Our 2050 strategy highlights this through identifying partners for each of our programmes of future work.

We aim to undertake this work in partnership with customers and communities, developers and local authorities.

6 Value for money and affordability

Impact on customer bills

We understand the importance of balancing the need for investment with the affordability of our bills. We believe the investment will help to deliver the level of service our customers and regulators expect, and represents an optimal approach for sustained long term improvement.

Value for money

We recognise the need to demonstrate value for money in everything that we do. In arriving at the proposed investment, we have applied further efficiencies to our historically achieved unit costs to make sure that the investment represents value to our customers.

Whilst the new development elements – requisitions and infrastructure network

reinforcement – are reactive programmes, our growth investment will provide long-term value by using modelling and analysis to identify the most cost-beneficial interventions to remove capacity restrictions. These planned schemes will reduce the cost to customers in the long term by reducing the size of reactive solutions carried out on a piecemeal basis.

As outlined in the previous section of this document, we will also seek to ensure value for money by promoting innovation throughout delivery, by learning lessons from the work we have delivered to date, and by working closely with our partners to encourage best practice and incentivise efficiency.

7 Delivery

Procurement

The programmes will be managed by our Developer Services (New Development) and Water Assets (Growth) teams through AMP7, with scope and programme adjustments being made to meet current operational and other issues. We will monitor performance month by month so that we can respond quickly to emerging signs if we are not getting the benefits we have projected.

Programme

Requisition schemes and infrastructure network reinforcement (required as a consequence of new developments) are reactive work but there may still be opportunities to reduce costs through awareness of interactions with any other capital schemes in the water programme.

For the growth schemes, detailed modelling and analysis will be the first stage. Following this, a prioritised programme will be developed linked to the wider water programme and associated benefits of the interventions.

The growth programme budget also permits strategic upsizing of water mains where they are

being replaced under other drivers, where there is high certainty of growth, and where cost-benefit can be demonstrated.

Risk mitigation and customer protection

Our new development expenditure is low risk in that we are responding to requests from customers for new connections. We have an experienced and high-performing Developer Services team which has managed a large number of similar schemes. Our Network Alliance team will deliver requisition schemes and achieve efficiencies through both economies of scale and ongoing learning.

Our growth programme is more open and flexible. Our planned approach is for scheme delivery only after carrying out the new network modelling specifically required for this task. This will provide customer protection by ensuring that all interventions under the growth programme are carefully assessed, prioritised and selected.

8 Assurance

Governance

Our overall business management framework has established the people, processes and resources necessary to fulfil our legal obligation to provide new connections for customers. Maintenance of this provides the governance needed for the reactive element of this investment, i.e. requisitions and infrastructure network reinforcement.

For the growth programme, our Water Assets team are the 'client' and they work with our Capital Delivery team and Alliance partners to deliver schemes. Governance of these schemes is provided by our Capital Programme Board (CPB) which meets monthly. Papers are submitted for key decisions on significant individual schemes.

Cost assurance

Our costs for this investment are based on historically achieved unit costs combined with a forecast of new property connections, and reduced by application of an efficiency challenge.

The proposed total expenditure is therefore closely in line with our AMP6 out-turn forecast estimate. Our unit cost for requisitions has increased since our PR14 business plan submission. Two potential reasons for this are:

- Our long-term delivery partner (mains-laying contractor) went out of business early in AMP6. When the new contract was established following a competitive tender process, we had to accept a step change increase in rates, and;
- There is considerable volatility in the unit rate itself, i.e. requisition cost per new property connection. Two requisition schemes with the same number of properties can have significantly different costs depending on the circumstances, such as distance from site to existing mains, pumping requirements, topography, ground conditions etc. We address this

variation by using long-term data, averaging costs over five years.

Customer consultation assurance

Our future customers expect us to fulfil our legal obligations to provide new connections. Our existing customers don't want the current levels of service they receive to be reduced due to new developments and population growth.

Measures of Success

Our customers did not support the creation of a specific Measure of Success to cover our performance in supporting population growth and economic development. There are, however, MoSs which would be detrimentally affected were it not for our investment in this area. The two key MoSs are 'Customer water supply interruptions' and 'Worst-served customers for water service'

Our targets for improvement in these MoSs over AMP7 are shown in Table 8.

Table 8: MoS targets

Measure of Success	Start of AMP7	End of AMP7
Customer water supply interruptions.	12	8
Worst-served customers for water service	1131	871

Future assurance

We have strong governance procedures for the planning and delivery of our capital investment. Our Board will continue to provide the high level overview and governance to ensure that we deliver these services in the interests of our customers.