



Leep Water Networks Limited



Draft Water Resources Management Plan 2019

June 2018



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Security Statement

Leep Water Networks Limited confirms that no information has been excluded from this published Final Water Resources Management Plan on the grounds that it would be contrary to the interests of national security.

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SUMMARY OF OUR DRAFT WATER RESOURCES MANAGEMENT PLAN 2019

Leep Water Networks Limited is a water company in the North West of England, supplying part of the MediaCityUK site located in Salford, Greater Manchester. Our water supplies are obtained via a bulk treated water supply from United Utilities Water Limited (United Utilities) provided under a legal agreement.

This draft water resources management plan sets out how we will maintain the balance of supply and demand over the 25-year period from 2020 to 2045. Our plan is consistent with the requirements of the Strategic Environmental Assessment (SEA), Habitats Directive and Water Framework Directive (WFD). We will review and update the plan every five years in accordance with statutory requirements.

We provide water supplies to the area in MediaCityUK around the Quays Point development, which contains a mix of residential and commercial use buildings. Our water supply system is based on a direct treated water import from United Utilities of up to 1.64 million litres per day (MI/d). There are no clauses in our bulk supply agreement that would lead to a reduction or cessation of this maximum supply volume during a drought. We therefore have a secure, robust water supply.

MediaCityUK has been designed to maximise water efficiency and was the first development in the United Kingdom to be awarded BREEAM Excellent Sustainable Development status. The MediaCityUK water resource zone comprises a very new water supply system with modern infrastructure and consequently leakage from our supply pipe network and customer supply pipes is very low compared with other water companies in England and Wales. Our strategy is to ensure we maintain the current very low levels of leakage throughout the planning period. We anticipate that the site will continue to develop over the planning period and will we work with the developers to ensure our plans meet the needs of new occupiers and residents for secure, efficient, high quality drinking water supplies at a competitive price.

Overall, we forecast that dry year demand will increase from 0.34 MI/d at 2016-17 to 0.73 MI/d by 2044-45. This growth will principally be driven by the increase in metered household consumption followed by non-household consumption as occupancy of MediaCityUK continues to increase. The volumes of leakage and unbilled water use are forecast to remain at low levels over the planning horizon, with continued focus on actions to control leakage levels. The increase in demand will require us to agree an increase to the current annual maximum import volume under the bulk supply agreement with United Utilities from 2023-24 onwards. We have discussed this with United Utilities who confirmed that our request to increase the bulk supply would not



be withheld. The demand forecast set out in our plan is consistent with the demand values for our MediaCity resource zone that United Utilities has included in its Water Resources Management Plan 2019.

To cater for the uncertainty in our future forecasts, we have calculated a planning "target headroom" allowance profile for the 25-year period which amounts to a planning "buffer" of 0.11 Ml/d by 2044-45. Comparing the water availability forecast with the dry year demand forecast plus the target headroom allowance, we will have a supply-demand surplus throughout the planning period. Hence there is no requirement to assess options to address any future supply deficits. The supply surplus of 0.80 Ml/d at 2044-45 represents an acceptable position for our customers, providing a robust standard of water supply reliability.

Our Draft Water Resources Management Plan 2019 ensures that we can meet the anticipated growth in demand at MediaCityUK, maintain the levels of service for supply reliability expected by our customers and secure benefits for the wider economy of the City of Salford and Greater Manchester. In addition, LWNL has made an application for a new inset appointment at Liverpool International Business Park. Following consultation on our draft plan for our MediaCityUK resource zone, our final Water Resources Management Plan will be updated to include details on water resource planning for this new inset appointment once it has been granted.

If you have any comments on our draft Water Resources Management Plan, please send these to the Secretary of State for Environment, Food and Rural Affairs by e-mail to both water.resources@defra.gsi.gov.uk and LWNL@leeputilities.co.uk

Please title your e-mail '*Leep Water Networks WRMP19 consultation*'.

Alternatively, you can send your comments by post to Defra at:

The Secretary of State for Environment, Food and Rural Affairs
Leep Water Networks Limited Water Resources Management Plan consultation
Water Resources
Department for Environment Food and Rural Affairs
Area 3D, Nobel House
17 Smith Square
London, SW1P 4DF



1 INTRODUCTION

1.1 BACKGROUND

Leep Water Networks Limited (Leep Water Networks) is a water company (legally an “Inset Appointee”) in the North West of England, supplying part of the MediaCityUK site located to the north of the Manchester Ship Canal in Salford, Greater Manchester. We provide water and sewerage services for a mix of modern residential and commercial properties within the MediaCityUK development, the first development to be awarded the BREEAM “excellent” status for sustainable development. Our water supplies are obtained via a bulk treated water import from United Utilities Water Limited (United Utilities) provided under a legal agreement. Our commercial customers include media companies and two hotels.

This draft plan is being made available for consultation with our customers and stakeholders to gather views on our long-term strategy to balance future supply and demand for water. We expect to publish our final plan during 2019, subject to approval from government.

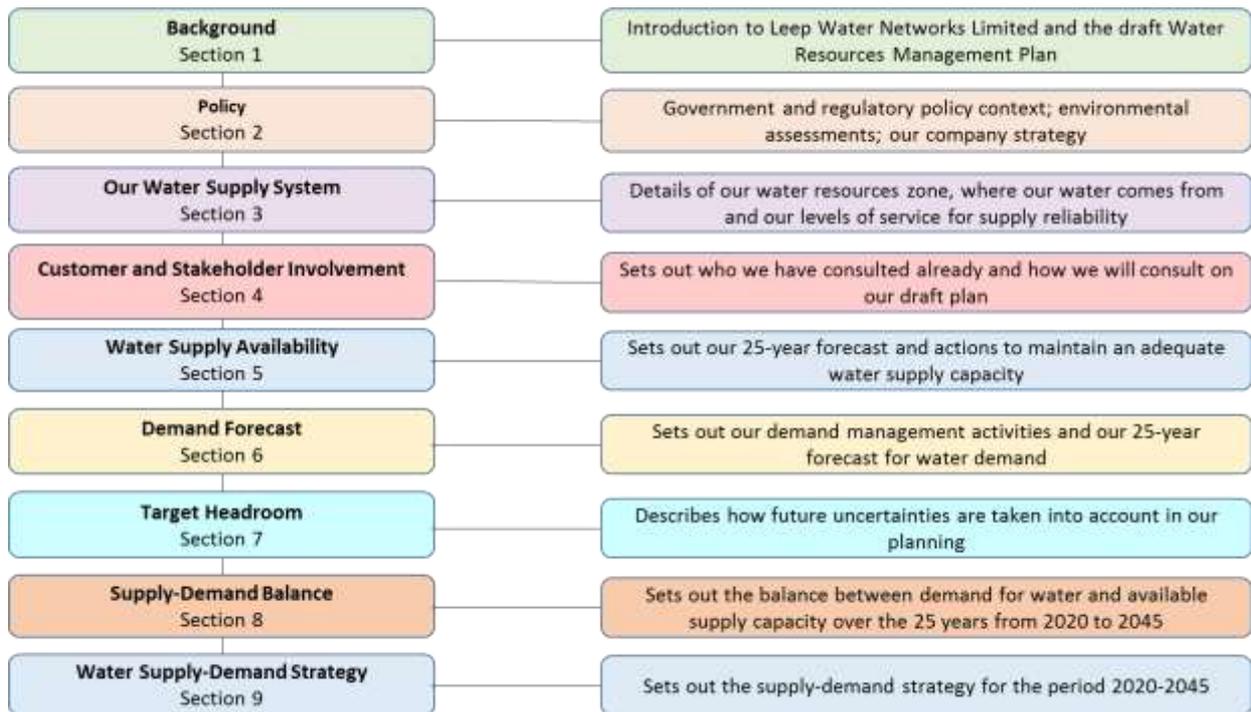
1.2 WATER RESOURCE PLANNING

This draft Water Resources Management Plan is based on our strategy to provide our customers with a reliable and affordable water supply service over the next 25 years. The plan has been prepared in full accordance with relevant legislation, national guidelines and methodologies. We have also taken account of government policies for the water industry and consulted with a number of regulatory bodies, particularly the Environment Agency.

1.3 STRUCTURE OF THE PLAN

We have structured our draft Water Resources Management Plan in accordance with national guidelines. **Figure 1** details the various sections contained in our plan and the key information each section provides.

Figure 1. Structure of our Draft Water Resources Management Plan



Our plan is supported by detailed data set out in the accompanying regulatory water resources planning tables provided for completion by the Environment Agency. A copy of the tables is available on request.

2 POLICY

2.1 WATER RESOURCES MANAGEMENT PLANNING

Our Water Resources Management Plan sets out how we will maintain the balance of supply and demand over the 25-year period from 2015 to 2040. We will review and update the plan every five years in accordance with statutory requirements.

As a water company, we have a statutory duty to produce a Water Resource Management Plan in accordance with the Water Industry Act 1991 (as amended by the Water Act 2003) and the Water Resources Management Plan Direction 2017. As part of the process, all water companies are required to prepare and publicly consult upon a draft Water Resources Management Plan once approval has been given by the Secretary of State. Following the consultation period, a Statement of Response to any representations received must be published. Taking account of the comments received and any additional regulatory guidance, a final plan must be prepared and submitted to the Secretary of State for approval to publish.

The Water Resources Management Plan Direction 2017 sets out specific requirements for the preparation of a Water Resources Management Plan. The way in which we have complied with these directions is presented in Appendix A.

In addition Defra has set out government policies in '*Guiding Principles for Water Resources Planning*' (2016) and regulatory guidance has been prepared jointly by the Environment Agency and Natural Resources Wales (*Water Resources Planning Guideline, April 2017*).

This draft Water Resources Management Plan is complemented by our Drought Plan, which sets out the short-term operational measures we will take in the event of drought conditions affecting the supply area.

2.2 GOVERNMENT POLICY CONTEXT

The government's policies and priorities for water resources management planning for England are set out in the '*Guiding Principles for Water Resources Planning*'. It emphasises the need to provide secure, sustainable and affordable water supplies that take a long-term (beyond 25 years) perspective to ensure resilience. The government has also stressed the importance of managing the demand for water and providing services to customers to help them use water efficiently where the benefits outweigh the costs.

In addition to the statutory water resource and drought planning commitments, we have to ensure our drinking water supplies to customers meet the strict standards



required by drinking water regulations underpinned by the EU Drinking Water Directive. The quality of our water is independently regulated by the Drinking Water Directorate (DWI). Leep Water Networks is also regulated by Ofwat in relation to economic and water pricing regulatory requirements.

We have taken account of all relevant government policy in preparing our plan.

2.3 REGULATORY GUIDELINES

The *Water Resources Planning Guideline* provides technical instructions on the content and methodology for a water resources management plan. For small water companies, such as Leep Water Networks, additional guidance was previously provided by the Environment Agency in its *Navigation Tool for Smaller Water Companies (2012)*. This guidance has not been updated by the Environment Agency in support of the 2019 plan updates but we have continued to take account of this guidance along with the 2017 national guidance, recognising that some aspects of the 2017 guidance are not applicable to very small companies whose supply is solely from a bulk supply and where there is surplus water availability throughout the planning period. We have liaised with the Environment Agency to ensure that our proposed approach is acceptable.

2.4 ENVIRONMENTAL ASSESSMENTS

Water companies must ensure their Water Resource Management Plan meets the requirements of the Strategic Environmental Assessment (SEA) and Habitats Regulations before implementation. We have liaised with the Environment Agency and Natural England (and Historic England for the SEA) to ensure our draft plan meets these statutory requirements.

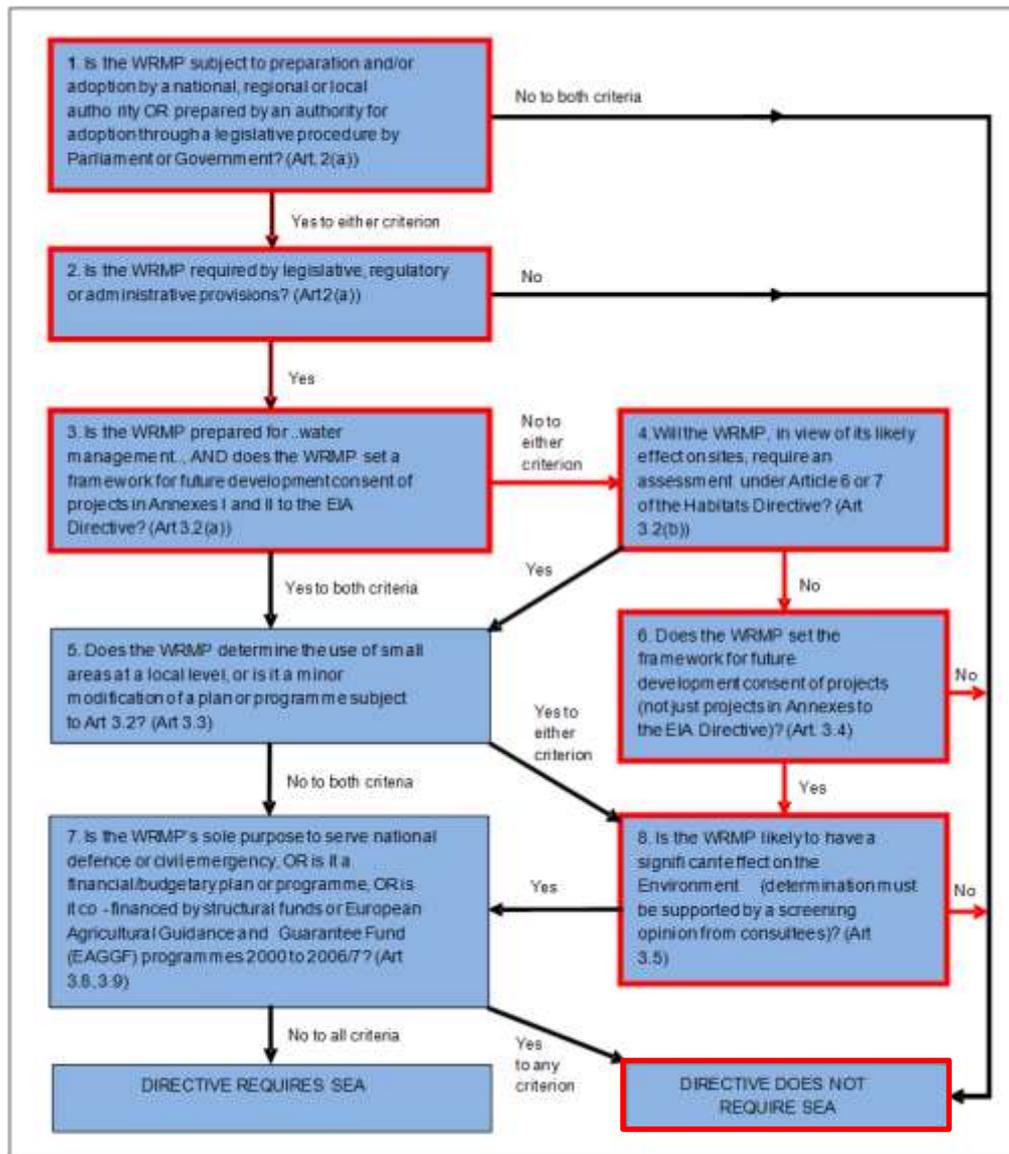
In early January 2018, the Government published its 25 Year Environment Plan for England. Amongst a range of policies, this plan sets out the Government's ambition to seek to embed a 'net environmental gain' principle so development delivers environmental improvements locally and nationally. We have considered this policy objective and other relevant policies in the 25 Year Environment Plan in developing our draft Water Resources Management Plan.

2.4.1 Strategic Environmental Assessment

For certain plans or policies, Strategic Environmental Assessment (SEA) is required in accordance with the SEA Regulations which transpose into English law the EU SEA Directive. We have carried out an SEA screening assessment to establish whether our Water Resources Management Plan requires an SEA to be carried out. An SEA is required if a plan has the potential to require an Appropriate Assessment under the

EU Habitats Directive and/or the plan sets the framework for future development consents of projects listed in Annex I or II of the EU Environmental Impact Assessment (EIA) Directive. Our screening assessment confirmed that our draft plan does not require an SEA since it does not lead to any activities for which Environmental Impact Assessment or Habitats Directive assessment is necessary (see **Figure 2**).

Figure 2 SEA Directive: Application to the Leep Water Networks Limited draft Water Resource Management Plan



2.4.2 Habitats Regulations Assessment

The European Union Habitats Directive (92/43/EEC) requires that member states must



identify and protect certain habitats as Special Areas of Conservation (SAC). This directive is transposed into national legislation by the Conservation of Habitats and Species Regulations 2010 (as amended). The Habitats Regulation Assessment is a process for identifying the implications of plans on Special Areas of Conservation, as well as Special Protection Areas (SPAs) designated under the EU Wild Birds Directive or environmentally sensitive sites designated under the international Ramsar Convention.

There are no SPA, SAC or Ramsar sites in close proximity to the MediaCityUK complex. However, some of the water supplied to Leep Water Networks at MediaCityUK via the bulk supply from United Utilities is derived from water sources situated within or flowing into Special Areas of Conservation (notably, the Haweswater and Thirlmere reservoirs and Lake Ullswater in the Lake District). As the Competent Authority for assessing the potential impacts of abstractions on protected areas, United Utilities will complete a Habitats Regulations Assessment in support of its Draft Water Resource Management Plan 2019. This ensures that the water we supply to our customers at MediaCityUK will not adversely affect the integrity of designated environmental sites.

As United Utilities is the Competent Authority, and in agreement with the Environment Agency and Natural England, Leep Water Networks is not required to carry out a Habitats Regulations Assessment of its Draft Water Resources Management Plan.

Nevertheless, we recognise the environmental sensitivity of water supply activities and we encourage our customers to use water efficiently to help minimise the impact of abstraction on the environment.

2.5 WATER FRAMEWORK DIRECTIVE ASSESSMENT

The Water Framework Directive (WFD) has established a strategic framework for managing the water environment in Europe. The Directive recognises that the most effective way to improve the water environment is at the natural river basin scale requiring member states to enhance the status and prevent deterioration of aquatic ecosystems. Water companies must ensure that their Water Resource Management Plans do not pose a likely risk of deterioration to the status of designated waterbodies.

The latest Environment Agency guidance (2017) on the WFD assessment for Water Resource Management Plans states that for companies receiving bulk supplies, it is the donor company's responsibility to take account of possible deterioration to any designated waterbody. United Utilities Draft Water Resource Management Plan 2019 does not include any plans to increase abstraction or develop any new water resources in its Strategic Resource Zone that are necessary to provide our bulk treated water



supply. Consequently, no deterioration to waterbody status is anticipated as a result of our customers' increasing demand for water over the coming years. Consequently, there is no requirement for us to carry out a WFD assessment of our draft plan.

Whilst responsibility for the WFD assessment rests with United Utilities, we recognise that all water abstraction has an impact on the environment and that we can play our part in minimising the environmental impact by encouraging our customers to use water wisely.

2.6 COMPANY STRATEGY

Our company strategy is to provide a reliable, sustainable and affordable water supply to our customers. We aim to be as efficient as possible to keep our costs low and help our customers to use water efficiently to help them keep their water bills as low as possible too.

We anticipate that the MediaCityUK site will continue to develop and expand over the planning period. We will work with the developers to ensure our plan meets the needs of new occupiers and residents for secure, high quality drinking water supplies at a competitive price. We will work with the developers to encourage water efficiency from the outset, building in efficiency in the design at an early stage. This draft plan sets out the future forecast growth in demand for water and how this will be met over the next 25 years.

2.7 DIRECTOR ASSURANCE

Our Directors have been reviewed this draft Water Resources Management Plan and they are satisfied the plan represents the most cost effective and sustainable long-term solution for maintaining reliable and efficient supplies to our customers.

3 OUR WATER SUPPLY SYSTEM

3.1 THE MEDIACITYUK WATER RESOURCE ZONE

MediaCityUK is a waterfront development at the site of the former Manchester docks in Salford Quays and Trafford Wharfside (see **Figure 3**). The site has been operational since 2010. The site currently hosts businesses across a diverse range of sectors, notably digital arts, creative media, production, retail and culture. In addition there are two hotels and approximately 400 apartments spread across two residential buildings.

Leep Water Networks is an “Inset Appointee” and supplies the area in MediaCityUK around the Quays Point development (see **Figure 4**). The currently developed part of the site is approximately 11 hectares in size and contains a mix of residential and commercial use buildings. This supply area is known as the MediaCityUK Water Resource Zone, which is the planning unit for which we have determined the future water supply-demand balance.

3.1.1 Water Resource Zone integrity

As all properties served by Leep Water Networks are supplied directly by a bulk treated water import from United Utilities Water PLC, it is classed as a single Water Resource Zone. The delimitation of the site as a single Water Resource Zone is consistent with the Environment Agency’s ‘*Water Resource Zone Integrity*’ definition (2017).



Figure 3. MediaCityUK Location Map

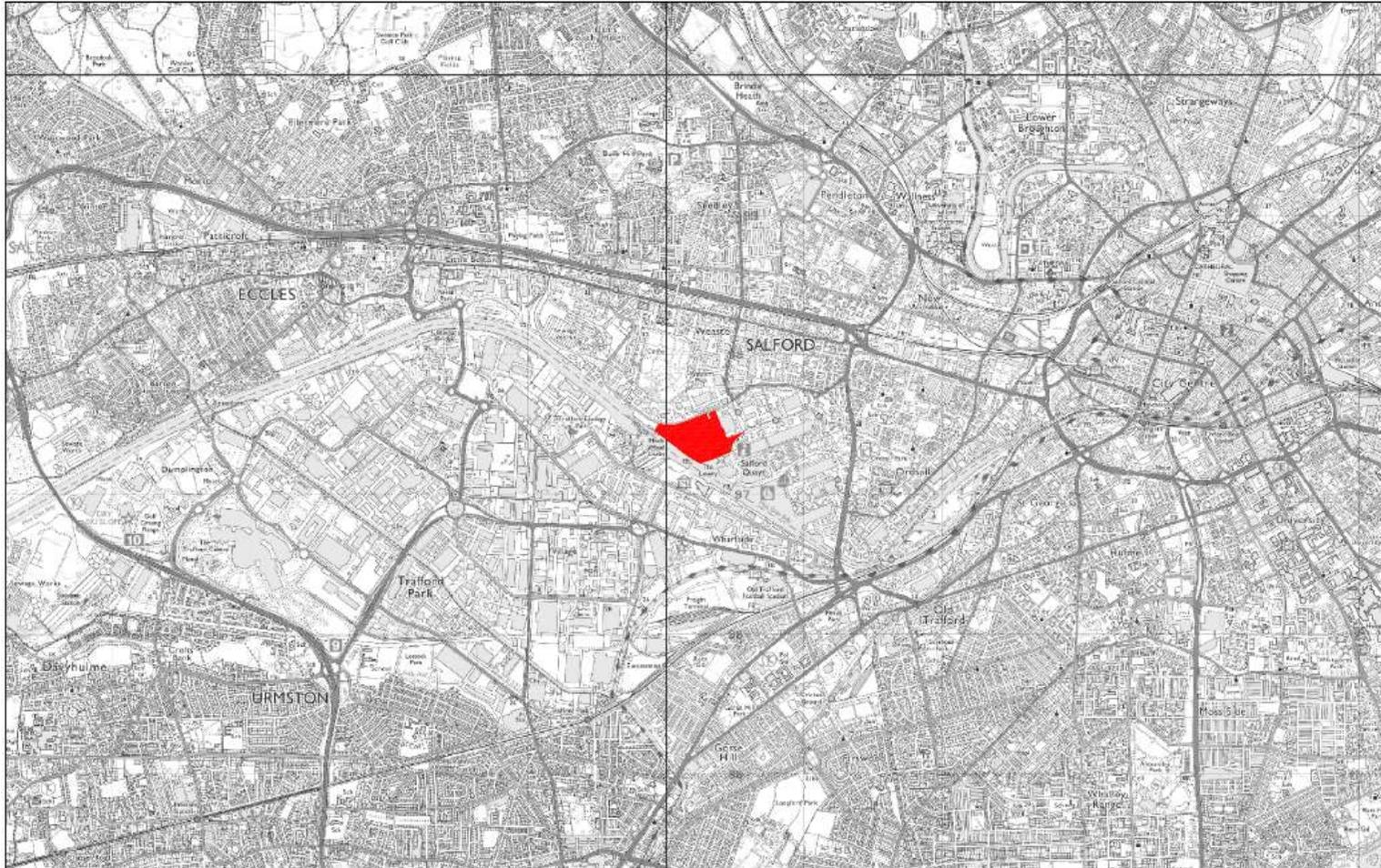


Figure 4. The MediaCityUK Water Resource Zone



3.2 OUR WATER SUPPLY SYSTEM

3.2.1 Bulk Supply from United Utilities Water PLC

Our water supply system is based on a direct bulk treated water supply from the United Utilities Strategic Resource Zone. This is United Utilities' largest Water Resource Zone and is underpinned by an inter-linked system of major aqueducts which deliver water supplies from the Lake District, Pennines and North Wales into South Cumbria, Lancashire, Greater Manchester, Cheshire and Merseyside. We receive treated water from this zone which is used by our domestic and commercial customers.

Our bulk supply is derived from a mixture of water sources that supply the Salford and Manchester area. The principal water sources utilised by United Utilities are the Haweswater and Thirlmere reservoirs in the Lake District (supplemented by lakes Ullswater and Windermere) and the Longdendale chain of reservoirs on the western edge of the Peak District, east of Manchester.

3.2.2 Our water supply system and our customers

We expect the MediaCityUK site to continue to grow as it attracts new investment. Located in the core of the MediaCityUK development, our Water Resources Zone at Quays Point will be the focus of growth over the course of the next 25 years. 'Phase 1' of the development at Quays Point is now complete. During 2015/16, the Phase 2 construction commenced, with a new integrated hotel and office block being built.



Construction commenced in 2017 on a new apartment block, comprising about 325 apartments, which is due to be completed in 2019. We aim to complete the second phase of works by 2023 and our supply-demand forecasts presented in this draft plan take into account the implications of this future growth. Although further development of the site after 2023 is likely, we do not have any specific plans at present.

Rather uniquely, our residential customers and some of our commercial customers receive their hot water supply from another service company. We supply this service company with (metered) cold water downstream of our bulk treated water import and they subsequently heat the water for distribution by a dedicated hot water pipe network. The supply of hot water to customers is therefore metered (and billed) by the service company rather than by Leep Water Networks.

Wastewater from the MediaCityUK Water Resource Zone is collected by our sewer system and then transported via the United Utilities sewer network to a United Utilities water treatment works. From there, the treated water is safely discharged back to the water environment of the River Mersey catchment.

As we receive a bulk treated water supply from United Utilities, there are no direct greenhouse gas emissions arising from its operations to supply water to our customers. All of the water is supplied via gravity to our customers.

Given the very small footprint of our Water Resource Zone, there are negligible vehicle movements for meter readings and maintenance activity, with consequently negligible greenhouse-gas emissions.

As there is a supply-demand surplus forecast throughout the planning period, there is no requirement to assess options to address supply deficits. Hence there are no future measures identified in this plan with likely new emissions of greenhouse gases.

3.2.3 Bulk Supply Agreement

We have a legal commercial agreement with United Utilities to provide a bulk treated water supply to the MediaCityUK Water Resource Zone. The agreement is based on a maximum daily supply capacity of 1.64 million litres per day (Ml/d). This volume is guaranteed even in severe drought conditions; there are no drought termination clauses and there would be no interruptions to the bulk import during a drought.

The existing agreement currently provides us with an annual volume up to 151 million litres (Ml) of water per year. This annual volume (but not the daily volume) will need to be increased in due course in line with the anticipated growth in demand in the MediaCityUK Water Resource Zone. With the existing agreed daily capacity of 1.64 Ml/d, an annual total of 598.6 Ml per year could be supplied. Under Section 40 of the



Water Industry Act 1991, United Utilities cannot unduly withhold a request from an Inset Appointee for an additional annual bulk supply volume. There is a supply-demand surplus forecast over the planning period to 2045 in the United Utilities Strategic Resource Zone; consequently, an increase to the annual volume presents no risk to the United Utilities' supply-demand balance.

3.2.4 Historic Droughts

MediaCityUK has been operational since 2010 and the site has not yet experienced a drought event. Given the very short duration of records available, we have adopted the same historic drought event (the 1995-96 drought) used by United Utilities in its draft Water Resources Management Plan as the severe drought scenario on which to assess our supply-demand balance during a dry year (see sections 4 and 5).

3.3 CUSTOMER LEVEL OF SERVICE FOR WATER SUPPLY RELIABILITY

We are committed to providing the highest level of service to our customers; these commitments are outlined in more detail in our Standards of Service and Customer Code of Practice, which can be requested from our website (<https://www.leeputilities.co.uk>). Our customer 'level of service' for water supply reliability relates to the frequency with which we may need to apply temporary restrictions on our customers' water use in drought conditions.

Although we have a very resilient and robust water supply system, our customer level of service reflects the terms of the company's bulk supply agreement with United Utilities, which requires us to introduce temporary water use restrictions and seek drought orders to restrict non-essential water use in a drought simultaneously with United Utilities.

Consequently, in accordance with our bulk water supply agreement conditions, our level of service is intrinsically linked to that offered by United Utilities to its customers within its large Strategic Water Resource Zone (from which our bulk treated water import is supplied) that includes all of Greater Manchester.

Our levels of service for customers are set out below:

- Water use restrictions (implemented under a Temporary Use Ban) on average no more than once in 20 years
- A Drought Order to prohibit further non-essential water uses on average no more than once in 80 years

In common with United Utilities, we consider it is unacceptable to plan for rota cuts or standpipes to restrict essential customer water uses, even during a very extreme

drought situation. Our plan ensures that we have a robust, resilient supply of water to withstand even the worst drought event on record.

It should be noted that the vast majority of our customers do not have gardens or external features that require watering. There is no provision for domestic hosepipe use. Consequently, the impact of water use restrictions in a drought would be limited. Nevertheless, in the interests of supporting the need for additional water saving measures in a severe drought, we would seek to introduce these water use restrictions. A Drought Order would require approval from the Secretary of State. Further details are provided in our Drought Plan.

3.4 PROBLEM CHARACTERISATION FOR WATER RESOURCES PLANNING

Problem characterisation provides a framework for reviewing the risks and uncertainties that a water company needs to consider in order to develop a justifiable and proportionate response to future water resources planning requirements. Its application is described in the UKWIR/Environment Agency's '*Decision Making Process Guidance*' (2016).

The problem characterisation process involves answering a series of questions about the size of the strategic needs and the complexity of the risks and vulnerabilities being faced. As the MediaCity UK is a very small water resource zone and has a secure surplus supply-demand balance throughout the planning period, it is assessed as having a low level of risk with respect to problem characterisation. In consequence, conventional or simple methods of analysis for water resources planning are appropriate. There is no need to use complex methods.

The properties in MediaCity comprise apartments and businesses without gardens and so there is no peaking in summer demand due to garden watering. This, together with the water being provided by a secure bulk supply, means that a critical (peak) period for supply-demand assessment does not apply.



4 CUSTOMER AND STAKEHOLDER INVOLVEMENT

4.1 CUSTOMER CONSULTATION

In line with our company strategy to provide our customers with a reliable, sustainable and affordable water supply service, we will publish our draft plan for customer consultation to ensure it meets their needs and expectations.

Our customers' bills will have a link to the plan which will be located on our website. We will also send summary details of the plan to our key customers, inviting them to discuss any issues with us.

In addition, LWNL has made an application for a new inset appointment at Liverpool International Business Park. Following consultation on our draft plan for our MediaCityUK resource zone, our final Water Resources Management Plan will be updated to include details on water resource planning for this new inset appointment, once it has been granted.

4.2 REGULATORY CONSULTATION ACTIVITIES

We have discussed the preparation of our draft plan with the Environment Agency. We also wrote to Natural England and the Consumer Council for Water to set out our approach to the plan and to invite them to make any comments.

We have also discussed the draft plan with United Utilities Water PLC to ensure we have a joint understanding of our respective supply-demand strategies and alignment of the bulk supply data and forecasts between the two draft plans.

5 WATER SUPPLY AVAILABILITY

5.1 WATER AVAILABLE FOR USE FORECAST

This section describes our forecast of water availability over the 25 year planning period (2020 to 2045).

5.1.1 Calculation of Water Available for Use

A fundamental component of our plan is the assessment of water availability over the 25-year planning period. The key water supply measure used by water companies and the Environment Agency is known as “Water Available For Use”, which indicates the maximum quantity of water supply that can be sustained during a prolonged dry period (drought), taking account of any allowances for unplanned loss of water production (outages), water losses from the water source to the water treatment works, as well as any imports or exports of bulk water supplies.

In calculating our Water Available For Use forecast, we have followed national methodologies and guidance. We do not have any water sources, raw water supply systems or water treatment works; consequently there are no source deployable outputs, water losses or outage allowance values required to be calculated for our MediaCityUK Water Resource Zone. Equally, there are no raw or potable exports of water from our resource zone, or any raw water imports. Our Water Available For Use forecast is therefore simply based on the maximum daily quantity of water that can be sustained in a prolonged dry period by the potable (i.e. treated) water import from United Utilities.

5.1.2 Potable Water Import

As explained in Section 3.2 earlier, the entire water supply for the MediaCityUK Water Resource Zone is derived from the bulk potable water import from the Strategic Resource Zone of United Utilities. **The maximum daily quantity of water that can be sustained in a prolonged dry period from this potable water import is 1.64 MI/d.** This is consistent with the bulk supply agreement maximum daily volume discussed in Section 3.2.3 and with the installed physical capacity of the water supply network providing the bulk import.

The potable water import daily maximum volume of 1.64 MI/d can be provided in severe drought conditions. There are no clauses in the bulk supply agreement that would lead to a reduction or cessation of supply during a drought.

With the existing agreed daily capacity of 1.64 MI/d, an annual total of 598.6 MI per year could potentially be supplied. However, as set out in Section 3.2.3, the existing



bulk supply agreement currently limits the annual supply volume to 151 million litres (MI). The annual volume value in the agreement with United Utilities will need to be increased in due course in line with the anticipated growth in demand in the MediaCityUK Water Resource Zone. There is a supply-demand surplus forecast over the planning period to 2045 in the United Utilities Strategic Resource Zone; consequently, an increase to the annual volume presents no risk to the United Utilities' supply-demand balance.

We have had dialogue with United Utilities as part of the development of our respective Water Resources Management Plans. We have discussed the future forecasts for our bulk supply with United Utilities and it has indicated that any future application for an increase in the annual bulk supply volume would not be withheld given both the local and Resource Zone-wide future forecast supply-demand position.

On this basis, Water Available for Use is assessed as the agreed maximum daily volume of 1.64 MI/d. We consider that there is a high degree of certainty that an annual volume of 598.6 MI per year would be supplied by United Utilities in the future following an application to modify our bulk supply agreement. The demand forecast set out in our plan is consistent with the demand values for our MediaCity resource zone that United Utilities has included in its Water Resources Management Plan 2019.

5.1.3 Sustainability Changes

To ensure that abstractions do not have an unacceptable impact on the environment, the Environment Agency issues abstraction licences to water companies to limit the volume that may be taken from each water source. In line with targets set out in the EU Water Framework Directive, the government and Environment Agency are reviewing all abstraction licences to ensure all water abstractions are sustainable by 2027.

A “sustainability change” refers to the potential future to abstraction licences by the Environment Agency to meet this objective. Such changes often have the effect of reducing the deployable output from the water source, in turn reducing the reliable supply of water to a water resource zone.

As we do not have any water sources or abstraction licences, **no sustainability changes are applicable to our Water Available For Use forecast.**

It is acknowledged that some sources within the Strategic Resource Zone of United Utilities might be at risk of sustainability changes in the future. However, despite these reductions, United Utilities is expected to have sufficient reliable water supplies for its Strategic Resource Zone to be able to maintain our bulk water supply over the planning period. Consequently, we do not anticipate any impact of any sustainability changes



on our bulk potable water import.

5.1.4 Climate Change Risks

It is important to assess whether climate change presents a risk to our future water availability forecast. We have reviewed the possible implications of climate change (and the associated uncertainties) on water availability by reference to the work carried out by United Utilities and presented in its Final Water Resource Management Plan 2014. This work is being updated by United Utilities for its forthcoming draft Water Resources Management Plan 2019, but we note that the baseline climate change scenarios being used by the water industry for the draft plans remain unchanged (the UKCP09 climate change scenarios).

Whilst climate change is expected to result in some reduction to the United Utilities future reliable supply forecasts (as indicated in its 2014 plan), given the scale of our potable water import relative to the overall reliable supply available to United Utilities, we do not consider that climate change effects will adversely impact on the future reliability of our bulk supply from United Utilities. **We have therefore assumed a zero reduction to our water supply forecast due to climate change.**

5.1.5 Water Available For Use Forecast

Our Water Available For Use Forecast is set out in **Table 1**. This shows that we have a stable forecast over the 25-year planning horizon based on the daily maximum volume set out in the bulk supply agreement and which is equally reflected in the physical capacity of the potable water import infrastructure. The potable water import is reliable and robust, providing a secure basis for supply-demand planning.



Table 1. Water Available For Use Forecast 2016-17 to 2044-45 (MI/d)

Water Supply Forecast Component (MI/d)	2016-17	2020-21	2024/25	2034-35	2044-45
Baseline Deployable Output	0	0	0	0	0
Sustainability Changes	0	0	0	0	0
Climate Change Impact	0	0	0	0	0
Forecast Deployable Output	0	0	0	0	0
Non-potable supplies, raw & process losses, outage allowance and potable exports	0	0	0	0	0
Potable imports	1.64	1.64	1.64	1.64	1.64
Water Available For Use	1.64	1.64	1.64	1.64	1.64

6 DEMAND FORECAST

This section summarises the development of our demand forecast over the 25-year planning period (2020-2045). It describes how we currently meet our customers' demand for water and how we expect the demand for water to change over the planning period to define our final demand forecast.

6.1 DEMAND MANAGEMENT

6.1.1 Leakage Control

Leakage in the MediaCityUK Water Resource Zone is defined as any loss of water from the potable water supply import meter to the end of the customers' supply pipes. It therefore includes water lost from our distribution network, the connections to properties ("communications" pipe) and the supply pipes (owned by our customers). As explained in Section 3.2.2, the supply system is rather unique in that the hot water to household customers and some commercial customers is distributed by a separate service company, with Leep Water Networks providing a supply of cold water to the service company. This means that there is a hot water customer "supply pipe" as well as a standard cold water "supply pipe" for those customers. Any losses from the hot water supply pipe system will be included in our calculation of leakage in the same way as "standard" supply pipe losses are included.

Whilst we consider leakage control to be an important part of our overall demand management activities, the MediaCityUK resource zone comprises a very new water supply system with modern infrastructure, including a distribution network composed of lined, barrier medium-density polyethylene (MDPE) pipework. Our plastic communication pipes and the customer supply pipes are also very new. Consequently, leakage from our supply pipe network and customer supply pipes is very low compared with other water companies in England and Wales.

With all of our customers metered, we are able to accurately calculate a water balance across the network and to therefore identify any potential water losses. Smart metering is installed throughout our whole supply area, which enables us to read, record and monitor usage in real-time via advanced telemetry software. This system also helps us to identify leaks or instances of low pressure at the earliest opportunity, minimising disruption to customers.

Our strategy is to ensure we maintain the current very low levels of leakage throughout the planning period, recognising that over time, some deterioration of pipework may start to occur which increases the risk of leaks occurring. We will continue to actively monitor leakage closely across the supply system and respond proactively to find and



fix any leaks that may occur.

6.1.2 Water Efficiency

Promoting water efficiency is a key priority outlined in Defra's '*Guiding principles for water resources planning*' (2016). MediaCityUK has been designed to maximise water efficiency and was the first development in the United Kingdom to be awarded BREEAM Excellent Sustainable Development status.

The MediaCityUK properties are already equipped with modern water efficient appliances, helping to achieve a low per capita consumption. However, in line with our statutory duty to promote water efficiency, we issue water efficiency information to our customers which includes advice on the environmental benefits of saving water in addition the financial savings to our customers (all our customers are metered).

We will continue to promote water efficiency to our customers via our website and through customer communications. We will also work with our largest customers to jointly promote water efficiency actions in their properties, including working with the hot water supplier to promote the joint benefits of saving water and energy by using hot water efficiently. Not only can this help customers to save money, but it also controls water demand and minimises the impact on the environment.

6.1.3 Customer Metering and Tariffs

As a new development, all of the properties in the MediaCityUK Water Resource Zone are metered and all future developments will also be metered. It is widely accepted that metering is a fair method of charging for water and also an effective way of managing the demand for water. Research into the benefits of water metering has shown that metered customers generally use less water than unmeasured customers. Metering also allows customers to monitor their behaviour and review the impacts of their water use on their bills. Metering also contributes to cutting the greenhouse gas emissions associated with supplying water and heating of water.

Our policy is to continue charging all of our customers by means of water meters over the planning horizon. However, we recognise that charging by water use is not appropriate for everyone (i.e. customers in receipt of benefits or tax credits, or where a member of the household has a medical condition which requires significant extra water use). Our WaterSure tariff ensures that household customers who need to use large amounts of water receive a fixed charge per annum which reduces the amount they pay via a water meter.

The precise benefits of metering on demand for water are linked to the type of water tariff regime applied to metered customers. Currently, our domestic customer tariffs

are based on the charges set by United Utilities, with a discount applied to all water supply charges including water volume, water standing charges and assessed water charges.

Our water charging scheme for household and non-household customers is approved by Ofwat. Our tariff policy is to ensure we have tariffs that are clear to our customers and competitive in relation to other neighbouring water companies. We will continue to review the tariff structures for our customers to ensure our charges remain competitive and encourage water efficiency. We will also continue to discuss tariffs and bulk supply charges with United Utilities.

6.2 DEMAND FORECAST

6.2.1 Methodology

Our demand forecast for the 25-year planning horizon has been prepared by applying the principles of the 'Water Resources Planning Guideline' and national good practice methodologies including '*Household Consumption Forecasting*' (UKWIR/Environment Agency, 2015). Some of the specific methods listed in the national guidelines and methodologies are not applicable to our supply system, for example the use of census data to forecast future population growth as our water resource zone is too small. The approaches that we have used are in accordance with good practice, and are summarised throughout the subsequent sub-sections.

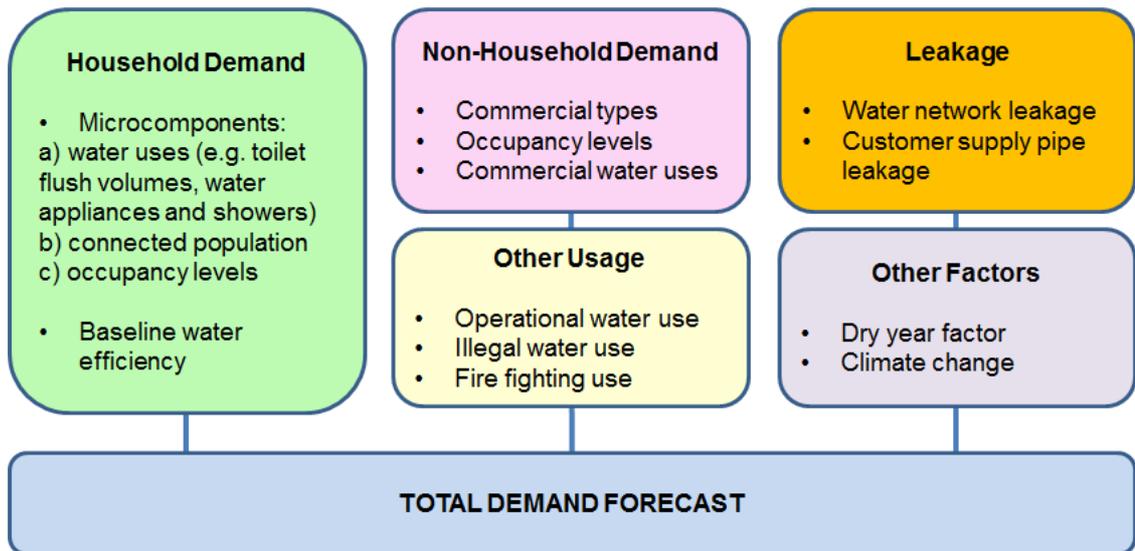
Our demand forecast assumes that, as a minimum, our current leakage, water efficiency and customer metering policies will continue as set out in Section 6.1.

6.2.2 Demand Components

Our forecast of total demand is based on the aggregation of a series of separate forecasts of the individual components of demand which contribute to water usage in the MediaCityUK Water Resource Zone (see **Figure 5**).

The key measure of total water demand for water resources planning is **Distribution Input**, which is defined as the total amount of water put into the supply system from the point of the bulk water import meter. Distribution Input therefore includes all of the components of demand shown in **Figure 5**. For planning purposes, we need to assess the Distribution Input in a dry year when demand for water will be greatest. This can then be compared with the dry year assessment of Water Available For Use (see Section 5) to determine whether there is a supply-demand surplus or deficit in each year of the planning period.

Figure 5. Components of the Demand Forecast



6.2.3 Base Year Demand

The base year (2016-17) Distribution Input was 0.341 MI/d, derived from the volume readings at the United Utilities meter for the bulk water import to the MediaCityUK Water Resource Zone.

Using the Distribution Input measured data and customer metering data, we have derived a baseline water balance for 2016-17, disaggregating the Distribution Input into each of the demand components. From this baseline, assessments and assumptions have been made as to how each component of the water balance will change over the next 25 years in a dry year to produce the future demand forecast.

The derivation of a robust base year water balance, to ensure a good understanding of the volumes of water for each component of demand, is an important starting point for preparation of the demand forecast. **Table 2** summarises the primary components of the base year (2016-17) water balance.

Table 2. Water balance for base year (2016-17)

Component	2016-17 total (MI/y)	Daily average (MI/d)	% of distribution input	Basis of derivation
Unmeasured household consumption	0	0	0	There are no unmeasured households
Measured household consumption	26.7	0.073	21.4	Based on readings of customer meters
Unmeasured non-household consumption	0	0	0	There are no unmeasured non-households
Metered non-household consumption	92.3	0.253	74.1	Based on readings of customer meters
Water taken unbilled	3.2	0.009	2.5	Estimated as the residual of the water balance
Distribution operational use	0	0	0	No operational use recorded
Total leakage	2.4	0.007	2.0	Assumed value (see later)
Distribution input	124.6	0.341	100	Based on readings of United Utilities bulk water supply import meter

Note: values may not sum exactly due to rounding

6.2.4 Dry Year Demand Forecast

Properties and occupancy

Base-year (2016-17) property numbers have been derived from our billing records. The forecast profile of future property numbers has been based on our current projections of how the MediaCityUK site will develop as proposed new buildings are constructed and then occupied, including residential units and commercial properties.

There are no records of the actual numbers of people living in each of the properties. Official population statistics (e.g. Office for National Statistics) are not available for small specific sites such as MediaCityUK. However, we do have details of the size and the number of bedrooms for each of the residential units from which we can make reasonable assumptions as to occupancy rates, although it should be noted that the residential characteristics of MediaCityUK are not typical of general housing, with some units not occupied all of the week and the majority being characterised by 1 or 2 bedroom apartments. In the absence of data on the actual resident population, we have estimated an average occupancy rate of 1.61 people per household property, as shown in the Table 3.

Table 3. Estimated average household occupancy

Type of apartment	Percentage	Potential average occupancy
Studio (1 bedroom)	23%	1.2
1 bedroom	24%	1.2
2 bedroom	47%	1.9
3 bedroom	6%	2.5
Average for all apartments	100%	1.61

This estimated average occupancy rate has been used, together with the known number of residential units, to calculate the total household population of the Water Resource Zone. The occupancy rate has been used to calculate per capita consumption (PCC) rates from average per property consumption volumes, and so the estimated PCCs are dependent on the assumed average occupancy rate. However, as forecast household consumption is largely determined by per household consumption, the impact of the assumed occupancy rate on water demand is small. Detailed further study of actual occupancy is not warranted as there is a significant supply surplus throughout the planning period.

We have assumed there is no resident non-household population as the non-household properties comprise media studios, offices, retailers, restaurants and two hotels.

Substantial further development of the MediaCity site is proposed as shown in **Table 4**. The recent and expected future growth in properties is shown in **Table 5**. Currently, there are no specific plans for further development after 2022/23.

Metered Consumption

All customers have metered water supplies. There are no unmetered households or non-households, and therefore no estimation of unmetered customer consumption has been required for the water balance calculation or future consumption forecasts.

The base-year (2016-17) water consumption for both metered households and metered non-households has been derived from actual meter readings, which are obtained quarterly for all customers.

Table 4. Summary of proposed future site development

Plot	Description of development	Expected construction date
C1	325 apartments	2018-19
D1	325 apartments	2019-20
C3	97,000 sq ft office	2020-21
C6	460 apartments	2020-21
D4	74,000 sq ft office	2021-22
B5	297,000 sq ft office	2021-22
C5	11,000 sq ft 'pop up' market space	2021-22
C4	286 apartments	2022-23

Table 5. Numbers of properties 2012-13 to 2044-45

	2012-13	2016-17	2019-20	2024-25	2044-45
Total households	377	377	702	1773	1773
Estimated occupied households	308	364	678	1712	1712
Total non-households	14	26	26	51	51
Estimated occupied non-households	14	24	24	48	48

Household consumption

Forecast household water consumption volumes have been prepared using micro-components analysis. The micro-component consumption forecasts have been derived based on a per household basis (litres per household per day – l/property/d) rather than on a per person basis; this approach has been adopted as the numbers of households can be more reliably assessed than the numbers of resident population for the MediaCityUK Water Resource Zone. In preparing the micro-component forecasts, we have taken account of the water efficiency of the existing toilets and water-using appliances in the existing properties, as well as the Building Regulations which require all new homes to meet an average water use standard of 125 litres per head per day.

The micro-component analysis and results are presented in Appendix B.

We expect water use for toilet flushing, clothes washing and dishwashing to reduce in the future as appliances continue to become more water efficient. However, water use for personal washing (e.g. showering) is expected to increase. Overall, we forecast that the total consumption per household will stay at similar levels to present.

As none of the residential properties in the MediaCityUK Water Resource Zone have gardens or hosepipes, and the amount of landscaping area around the non-household properties that requires watering is very small, there is very little external water use by any of our customers. It is therefore expected that there will be negligible impact of dry weather conditions on demand for water. **Hence we have assumed no impact on our demand forecast due to dry weather, and so the normal year and dry year demand forecasts are identical.**

Table 6 summarises the household consumption forecast (Ml/d) from 2016-17 to 2044-45 and the underlying key household forecasts.

Table 6. Household consumption forecast

	2016-17	2020-21	2024-25	2044-45
Number of occupied households	366	1027	1712	1712
Average occupancy	1.61	1.61	1.61	1.61
Resident Population	587	1600	2761	2761
Average per capita consumption (l/person/d)	124.4	124.3	124.3	123.8
Metered household consumption (Ml/d)	0.073	0.199	0.343	0.342

Non-household water consumption

The base-year (2016-17) water consumption for metered non-households has been derived from actual meter readings. Forecast non-household water consumption has been based on the current projections of how the Media City site will develop as the proposed new buildings are constructed. The current consumption rates have been used to estimate the forecast future volumes, as summarised in **Table 7**.

Table 7. Non-household consumption forecast

	2016-17	2020-21	2024-25	2044-45
Number of occupied non-households	24	24	48	48
Metered non-household consumption (MI/d)	0.253	0.253	0.503	0.503

Other water consumption

Water is taken unbilled for various uses such as building water, general landscaping, window cleaning and unmeasured hydrant flushing. The difference between the volumes of water supplied by United Utilities and the water consumed by customers is primarily due to water used for building construction and other on-site uses. Water taken unbilled has therefore been calculated as the difference between distribution input and the sum of other components (i.e. customer use and leakage).

The quantities of water taken unbilled are small but have fluctuated from year to year (0.005 MI/d in 2014/15, 0.011 MI/d in 2015/16 and 0.009 MI/d in 2016/17) consistent with the extra building water needed during construction work on the MediaCityUK site. It is expected that volumes will increase back to about 0.011 MI/d during the future construction to 2022/23.

Total Leakage

Total leakage is the measure of leakage from our distribution network and communication pipes, together with leakage from the customer supply pipes. We undertake continuous (15 minute interval) monitoring of our supply meters, which are regularly checked by our customer services team as part of the monthly water balancing analysis. Our operations and maintenance contractor visits the site regularly to carry out inspection checks of the water, foul and surface water networks, as well as fire hydrant checks, pressure testing and checking the main incoming United Utilities bulk meter. Therefore, any significant leaks would have been found. No leaks have been detected, but it is not realistic to assume that there is no leakage occurring. A very small amount of leakage has been estimated (0.007 MI/d), which represents only 2.0% of distribution input. This is a very low level of leakage and reflects the fact that water mains, communication pipes and customer supply pipes are all very new. The total leakage estimate is consistent with the metered customer consumption accounting for some 95% of the recorded distribution input.

It has been assumed that all leakage occurs on our distribution mains and is therefore allocated to “distribution losses” in the total leakage calculation. Supply pipe leakage is assumed to be effectively zero as: (a) there are few buildings and they have short,

newly laid supply pipes; and (b) the residential units are apartments within large buildings.

Forecast future total leakage is assumed to increase whilst the site develops because the mains network will be expanded and the existing pipework will age. It has been assumed that total leakage will continue to be 2.0% of distribution input and so increase to 0.017 MI/d by 2023-24. In line with our leakage policy, we will continue to monitor total leakage through analysis of the metered bulk import volumes and the metered consumption data, investigating any rise in leakage and proactively responding to any customer reports of leaks. It is possible that the condition of the water supply system may deteriorate over time (e.g. at joints, valves and fittings) and therefore we will need to take action to monitor for this potential impact in order to minimise any rise in leakage in the later part of the planning period.

6.2.5 Baseline Dry Year Demand Forecast

The baseline dry year demand forecast is summarised in **Table 8** and **Figure 6**. These illustrate how we expect the various key components of demand in a dry year to change over the planning period to 2044-45, and how these changes will impact the Distribution Input (i.e. the total amount of treated water required to be imported to the MediaCityUK Water Resource Zone).

Table 8. Baseline Dry Year Demand Forecast to 2044-45 (MI/d)

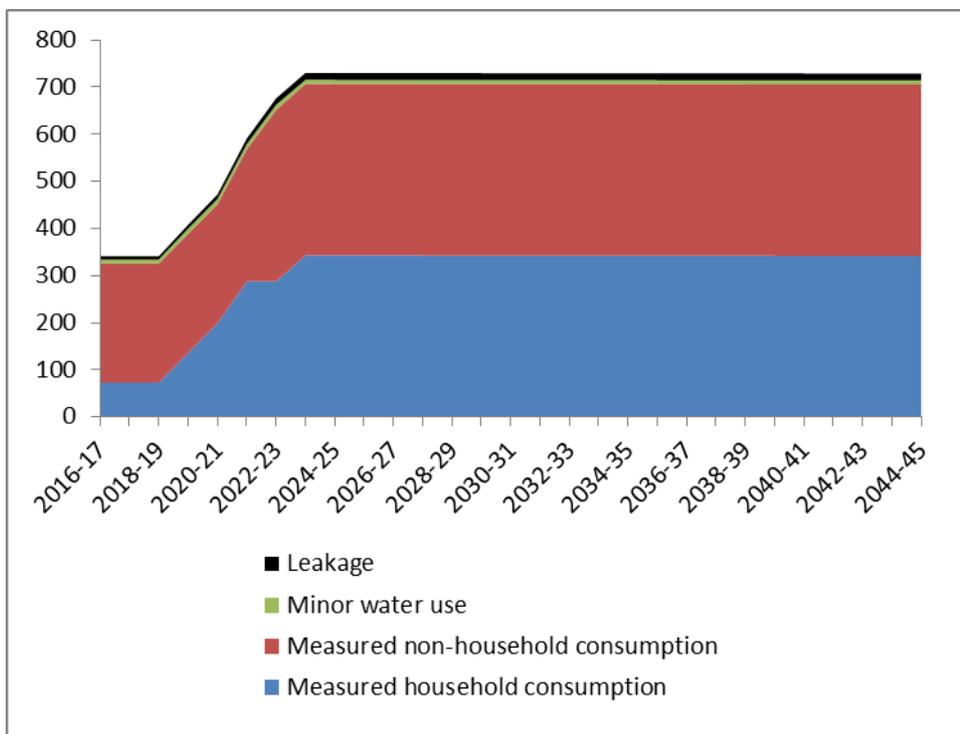
	2016-17	2020-21	2024-25	2034-35	2039-40
Metered household consumption	0.073	0.199	0.343	0.342	0.342
Metered non-household consumption	0.253	0.253	0.364	0.364	0.364
Water taken unbilled	0.009	0.011	0.009	0.009	0.009
Total leakage	0.007	0.009	0.015	0.015	0.015
Distribution Input (MI/d)	0.341	0.472	0.730	0.729	0.729

Note: Values may not sum exactly due to rounding

Overall, we forecast that dry year Distribution Input will increase from 0.34 MI/d at 2016-17 to 0.73 MI/d by 2024-25 as a result of the significant site development over the next few years, and then remain at about 0.73 MI/d to 2044-45. This growth will principally be driven by the increase in metered household consumption followed by non-household consumption as the site continues to be developed in the coming

years. Other components of the water balance are forecast to remain static over the planning horizon, with continued focus on ensuring leakage levels do not rise above the current very low levels.

Figure 6. Baseline Dry Year Demand Forecast to 2044-45 (MI/d)



6.2.6 Climate Change Impact on Demand

In accordance with the Water Resources Management Plan Direction 2017 and Environment Agency Water Resources Planning Guideline 2017, water companies are required to assess the impact of climate change on dry weather demand. The 2013 UKWIR study “*Impact of Climate Change on Demand*” (Report: 13/CL/04/12) concluded that external water use for garden watering was the only component of demand that is significantly affected by dry weather or climate change. As none of the residential properties in the MediaCityUK Water Resource Zone have gardens or hosepipes, and the amount of landscaping area around the non-household properties that requires watering is very small, there is very little external water use by any of our customers. Therefore there will be a negligible impact of climate change on future water use.

We have therefore assumed a zero impact on our water demand forecast due to climate change. An allowance for uncertainty in the demand forecast due to potential effects of climate change is however included in our target headroom allowance (see **Section 7**).



6.2.7 Final Dry Year Demand Forecast

With a negligible impact of climate change assumed and no other changes to the dry year baseline demand forecast anticipated, the final dry year demand forecast is identical to the baseline dry year demand forecast shown in **Table 3**.

Overall, the MediaCityUK Water Resource Zone will see an increase in demand in the near-term due to the significant further development of the site over the planning period, but stabilise thereafter. Measures will continue to be taken to maintain leakage at very low levels.

7 TARGET HEADROOM

7.1 ROLE OF TARGET HEADROOM

To account for the uncertainties associated with all the components of our supply-demand balance forecasts, we apply a small safety “margin” or “buffer” to our forecast known as ‘target headroom’. This safety margin makes an allowance for the factors such as data reliability, climate change effects and the forecast changes in the micro-components of demand. The calculated target headroom values are added to the total dry year demand forecast to account for these uncertainties to help ensure that there is sufficient Water Available For Use to maintain a positive supply-demand balance.

7.2 METHODOLOGY

We have applied the 1998 UKWIR methodology “*A Practical Method for Converting Uncertainty into Headroom*” (98/WR/13/1) to determine the target headroom for the MediaCityUK Water Resource Zone. Use of this methodology is consistent with the high level of security of water availability for this site across the whole planning period, together with the “low planning risk” ascribed to the Water Resource Zone in the ‘problem characterisation’ assessment.

The appropriate areas of potential uncertainty included in the 1998 UKWIR methodology that are of relevance to the MediaCityUK Water Resource Zone are shown in **Table 9**.

Table 9. Supply-Side and Demand-Side Target Headroom Categories

Supply ¹	Demand
<p>S4: Bulk Transfers</p> <p>S6: Accuracy of supply-side data</p> <p>S8: Uncertainty of Climate change on yield</p>	<p>D1: Accuracy of sub-component data</p> <p>D2: Demand forecast variation</p> <p>D3: Uncertainty of Climate change on demand</p>

7.3 TARGET HEADROOM VALUES

Application of the 1998 UKWIR methodology to the six categories of uncertainty identified in **Table 9** led to the calculation of the target headroom values shown in

¹ Further supply-side issues (S1, S2, S3, S5, S7) set out in the 1998 UKWIR methodology do not require assessment as bulk water supplies are excluded from these categories.

Table 10. The values increase over time, in particular reflecting the greater uncertainty of the demand forecast into the future. The target headroom values range from 4.3% of Water Available For Use at 2020-21 to 6.5% by 2044-45. The target headroom values are within the expected range (as a percentage of Water Available For Use) and provide us with a modest, but appropriate, risk margin given the minor uncertainties we face in ensuring we maintain a supply-demand surplus in the MediaCityUK water resource zone over the next 25 years.

Table 10. Target Headroom Profile (MI/d)

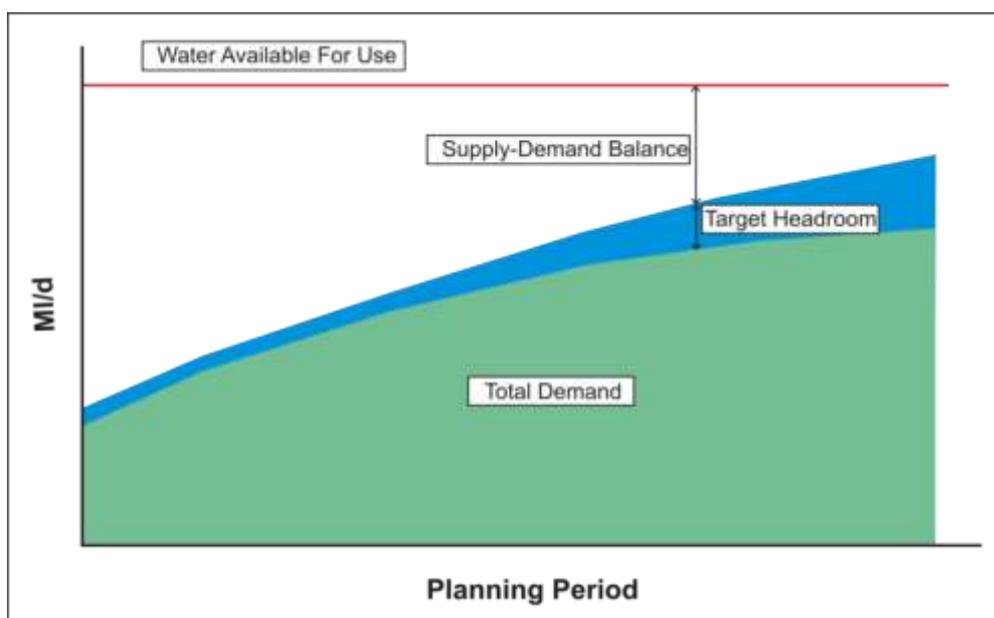
	2020-21	2024-25	2034-35	2044-45
Target Headroom (MI/d)	0.07	0.07	0.09	0.11
Target Headroom as % of WAFU	4.3%	4.5%	5.4%	6.5%

8 SUPPLY-DEMAND BALANCE

8.1 SUPPLY-DEMAND BALANCE CONCEPT

The supply-demand balance reflects the difference (in MI/d) between Water Available For Use and total demand plus target headroom (as illustrated in **Figure 7**). The balance can either be positive (i.e. a surplus of water) or negative (i.e. a deficit, where Water Available For Use is less than total demand plus target headroom). Where a supply deficit is forecast over the planning period, water companies must investigate a range of supply enhancement and demand management options to eliminate the deficit.

Figure 7. Supply-Demand Balance Calculation



8.2 FINAL SUPPLY-DEMAND BALANCE

The final supply-demand balance for the MediaCityUK water resource zone is shown in **Figure 8** and **Table 11**. Comparing the Water Available For Use forecast with the final dry year demand forecast plus target headroom, we will have a supply-demand surplus throughout the planning period. The surplus decreases over time as both demand and target headroom increase over the planning period but Water Available For Use remains stable at 1.64 MI/d. The surplus falls from 1.10 MI/d at 2020-21 to 0.80 MI/d by 2044-45 (**Table 11**). As previously explained, we will need to agree an increase to the current annual maximum import volume under the bulk supply agreement with United Utilities from 2023-24 onwards. We have discussed this with United Utilities who confirmed that our request to increase the bulk supply would not be withheld. The demand forecast set out in our plan is consistent with the demand

values for our MediaCity resource zone that United Utilities has included in its Water Resources Management Plan 2019.

With a supply-demand surplus at 2044-45 and throughout the planning period, there is no requirement to assess options to address supply deficits. The surplus at 2044-45 represents an acceptable position for our customers, providing a robust and reliable water supply.

Figure 8. Supply Demand Balance 2020-21 to 2044-45 (MI/d)

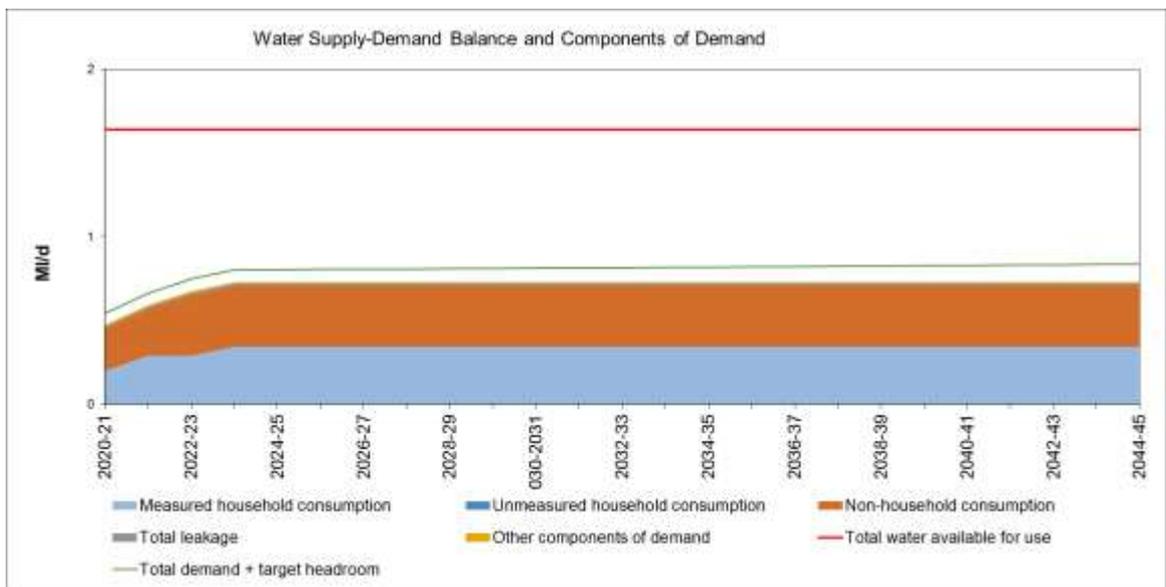


Table 11. Final Dry Year Supply-Demand Balance 2015-16 to 2039-40 (MI/d)

Supply-Demand Balance Component (MI/d)	2016-17	2020-21	2024-25	2034-35	2044-45
Water Available for Use	1.64	1.64	1.64	1.64	1.64
Dry Weather Demand	0.34	0.47	0.73	0.73	0.73
Target Headroom	0.07	0.07	0.07	0.09	0.11
Dry Weather Demand + Target Headroom	0.41	0.54	0.80	0.82	0.84
Supply-Demand Balance	1.23 (surplus)	1.10 (surplus)	0.84 (surplus)	0.82 (surplus)	0.80 (surplus)

Note: Figures may not add due to rounding to 2 decimal places

9 SUMMARY OF WATER RESOURCES STRATEGY

Our water resources strategy is to provide a reliable, sustainable and affordable water supply to our customers. Our draft Water Resources Management Plan 2019 achieves these aims, demonstrating a positive supply-demand balance forecast across the planning period to 2044-45. The plan meets statutory and regulatory requirements.

As part of our plan, we will continue to promote water efficiency to our customers as the customer base increases with time. We will also act to maintain leakage at very low levels.

A key feature of the plan is ensuring the maintenance of the bulk treated water import volume of 1.64 Ml/d and agreeing an increase to the annual volume from 2023-24 with United Utilities. This is in line with the Bulk Supply Agreement which is in place between both parties. We will continue to work closely with United Utilities to ensure the bulk supply agreement meets the needs of our customers.

We will work with the developers to ensure our plan remains up-to-date and we can continue to meet the needs of new occupiers and residents for secure, high quality drinking water supplies at a competitive price. We will work with the developers to encourage high standards of water efficiency from the outset, building in efficiency in the design at an early stage.

With our plan drawing on existing water resources within North West England, and with only a very small total demand on these resources, our plan enables local economic growth in our MediaCityUK water resource zone without any adverse effects on the environment. Our plan is therefore consistent with the Government's policy aims set out in its 25 Year Environment Plan. The principles of 'net environmental gain' are not directly relevant to our plan as no new infrastructure development is necessary by us or United Utilities to maintain reliable water supplies to customers. Nevertheless, our plan is based on maintaining industry-leading low leakage levels and continuing to promote high standards of water efficiency to minimise demand for additional water abstraction.

Our draft Water Resources Management Plan 2019 ensures that we can meet the anticipated growth in demand at the MediaCityUK site over the near-term, maintains the levels of service for supply reliability expected by our customers over the next 25 years and secures benefits for the wider economy of the City of Salford and Greater Manchester.

APPENDIX A

COMPLIANCE WITH THE REQUIREMENTS OF THE WATER RESOURCES MANAGEMENT PLAN (ENGLAND) DIRECTION 2017

This draft Water Resource Management Plan complies with the requirements of the Water Resources Management Plan (England) Direction 2017, as shown below.

Requirement (by paragraph number)	Compliance by this WRMP
2. The WRMP must cover 25 years from 1 st April 2020	The planning period for this WRMP is from 2020-21 to 2044-45
3. The WRMP must include the following where applicable: (a) appraisal methodologies for choosing measures (b) risk of needing to apply drought measures (c) assumptions regarding the risks (d) emissions from greenhouse gases due to planned measures (e) assumptions used in the supply demand balance for climate change, household demand and non-household demand (f) programme for domestic metering (g) number of premises and demand impact of domestic metering (h) cost effectiveness of domestic metering (i) programme for management of leakage (j) explanation of any expected increase in leakage	(a) Not applicable as no additional measures are required to balance supply and demand (b) and (c) The risks of needing to apply drought measures are described in Section 3 (d) Not applicable as no additional measures are required to balance supply and demand (e) The assumptions are described in Sections 5 and 6 (f) and (g) The programme for metered new properties is described in Section 6. There are no unmeasured households and so options for conversion to metering do not apply. (h) Not applicable as there are no unmeasured households for potential conversion to metering (i) and (j) The leakage control programme and future leakage levels are described in Section 6 Detailed data on the supply-demand balance and future properties are contained in the water resources planning tables that accompany this document
4. The draft WRMP is to be submitted to the Secretary of State before 1 st December 2017	The draft WRMP will be submitted by 1 st December 2017
5. (1) The draft WRMP must be published for consultation within 30 days of the date on which the Secretary of State directs the company to do so	The draft WRMP will be published after receiving approval to publish by the Secretary of State
5. (2) The final WRMP must be published for consultation within 30 days of the date on which the Secretary of State directs the company to do so	The final WRMP will be published in 2019
6. Publication of a statement of response to representations by consultees within 26 weeks of date of publication of the draft WRMP	The statement of response will be published within 26 weeks of publication of the draft WRMP

APPENDIX B

MICRO-COMPONENT ANALYSIS OF FUTURE HOUSEHOLD CONSUMPTION

The Water Resources Planning Guideline 2017 recommends that water companies should understand current behaviours and attitudes to household water use and report this through use of micro-components in the water resources planning tables. Micro-component analysis has therefore been used to forecast household consumption. This involves estimating the consumption volumes associated with each component of household demand (e.g. toilet flushing, clothes washing, etc.). Usually micro-component values are calculated for each appliance type by multiplying estimates of % ownership (O), average frequency of use (F) and average volume per use (V). This method has the benefit of using explicit assumptions about how customer behaviour may change in the future, but has the disadvantage that many assumptions or judgement-calls are required.

We have applied the comprehensive guidance on how to carry out micro-components analysis of household water use, as documented in *“Customer behaviour and water use: A good practice manual and roadmap for household consumption forecasting”* (UKWIR, 2012). We have used the lowest level of analysis described in the document as there are no supply-demand imbalances over the planning period. We have relied on published data sources as little actual data is available on our customer micro-component use. This is consistent with the lowest data tier identified in the good practice manual.

The primary national data-set on micro-component information is provided by Defra’s Market Transformation Programme (MTP). MTP has published various documents that describe current and future ownership and usage of domestic appliances. The documents can be found at: <http://efficient-products.ghkint.eu/cms/index.html> . They provide projections for three scenarios:-

- The “Reference Scenario”: This is a projection of what is likely to happen without any new policy intervention. The scenario is based on current trends, technology developments and policies that are already in place.
- The “Policy Scenario”: This scenario estimates what could be achieved through an ambitious but feasible set of policy measures if the agreement of all stakeholders was obtained.
- The “Earliest Best Practice Scenario” (EBP): This is a projection of what could happen if the best available products and technologies were adopted, coupled with ambitious Government policies.

In some cases the same values are reported for all three scenarios. For those cases where different values are reported we have assumed use of the Reference Scenario. Table B1 presents the key assumptions and data used to calculate average per household consumption (PHC) rates for metered households.

Table B1. Key assumptions used in the micro-components analysis

Component	Item	2010 value	2030 value	Implied annual increase	Source of data
Toilet flushing	O (%)	100	100		MTP all scenarios
	F (use/hd-d)	4.71	4.71		MTP all scenarios
	V (l/use)	5.00	4.84		All apartments have been installed with modern, efficient WCs. Therefore: - for 2010: assume 100% 6/4 dual flush. - for 2030: assume 80% 6/4 + 15% 6/3 + 5% 4/2.6 dual flush WCs
	Occ (hd/H)	1.61	1.61	0.000	Assumed average occupancy
	PHC (l/H-d)	37.98	36.76	-0.061	
Baths	O (%)	100	100		All apartments have a bath installed
	F (use/H-d)	0.17	0.145		Assume 25% of MTP Reference scenario as all dwellings also have showers
	V (l/use)	84.5	85.0		MTP Reference scenario
	PHC (l/H-d)	14.37	12.33	-0.102	
Showers	O (%)	100	100		All apartments have at least one shower installed
	F (use/H-d)	1.04	1.21		MTP Reference scenario
	V (l/use)	38.2	38.4		Assume 100% mixer showers, and MTP Reference scenario volumes per use
	PHC (l/H-d)	39.73	46.46	0.337	
Washbasin	O (%)	100	100		MTP all scenarios
	F (use/hd-d)	8	8		MTP all scenarios
	V (l/use)	2.27	2.27		MTP Reference scenario
	Occ (hd/H)	1.61	1.61		As assumed for toilet flushing
	PHC (l/H-d)	29.29	29.29	0.000	
Washing machines	O (%)	100	100		All apartments have a modern washing machine installed
	F (use/H-d)	0.71	0.71		MTP all scenarios
	V (l/use)	40	33		Water efficient washing machines have been installed. Therefore: - for 2010: assume less than MTP national average of 60 l. - for 2030: assume MTP Reference scenario implied future volume
	PHC (l/H-d)	28.40	23.43	-0.249	



Component	Item	2010 value	2030 value	Implied annual increase	Source of data
Dish-washers	O (%)	100	100		All apartments have a modern dishwasher installed
	F (use/H-d)	0.67	0.65		MTP all scenarios
	V (l/use)	20	17.2		MTP Reference scenario
	PHC (l/H-d)	13.40	11.18	-0.111	
Kitchen tap	O (%)	100	100		MTP all scenarios
	F (use/hd-d)	9	9		MTP all scenarios
	V (l/use)	2.28	2.28		MTP Reference scenario
	Occ (hd/H)	1.61	1.61		As assumed for toilet flushing
	PHC (l/H-d)	33.09	33.09	0.000	
Other internal use	PHC (l/hd-d)	3	6	0.150	Assume low plumbing losses of 3l/H-d as new build. Increasing to 6l/H-d by 2030.
External use	PHC (l/H-d)	0	0	0.000	Assume no external use. No gardens and negligible car washing on-site as dwellings are flats.
TOTAL PHC	(l/Household -d)	199.25	198.34	-0.035	Assume no increase for dry weather year
NOTE:	I = litre H = household hd = head (i.e.person) d = day, so l/H-d = litres per household per day O = % ownership of appliance F = frequency of use of appliance (litres per head-day or litres per household-day) V = volume per use (on average) in litres PCC = per capita consumption (litres per head-day) PHC = per household consumption (litres per household-day) Occ = average occupancy (head/household) MTP = Market Transformation Programme (see: http://efficient-products.ghkint.eu/cms/index.html)				



The actual household volume during 2016-17 was 26,659 MI, based on readings of customer meters at 364 occupied apartments. This indicates that the actual average PHC at 2016-17 was 200.3 l/household/day. Therefore small adjustments are required to the PHC values in Table A1 to reconcile to the actual total PHC in 2016-17.

Table B2 summarises the per capita consumption (PCC) rates and forecasts calculated from the adjusted PHC values by assuming an average occupancy of 1.61.

Table B2. PCC values by component

Component	2016-17 "adjusted" PHC value (l/house/d)	2016-17 PCC value (l/person/d)	2024-25 PCC value (l/person/d)	2034-35 PCC value (l/person/d)	2044-45 PCC value (l/person/d)
Toilet flushing	37.9	23.5	23.2	22.8	22.5
Personal washing	85.3	53.0	54.2	55.6	57.1
Clothes washing	27.1	16.8	15.6	14.0	12.5
Dishwashers	12.8	8.0	7.4	6.7	6.0
Internal use	37.2	23.1	23.9	24.8	25.7
External use	0.0	0.0	0.0	0.0	0.0
Total	200.3	124.4	124.3	124.0	123.8

Notes: Values may not sum exactly due to rounding. Personal washing = bathing + showering + wash basin use.

Tables B1 and B2 demonstrate that water use for toilet flushing, clothes washing and dishwashing are expected to reduce in the future as such appliances continue to become more water efficient. However, water use for personal washing is expected to increase, in particular due to anticipated more frequent showering. Overall, it is forecast that total household consumption will stay similar to present levels.