Non-Technical Summary

Chelmsford City Council is expected to experience significant growth, particularly in relation to domestic development over the period 2021 to 2036. This growth represents a challenge in ensuring that both the water environment and water services infrastructure has the capacity to sustain this level of growth and development proposed.

This Chelmsford City Water Cycle Study (WCS) update forms an important part of the evidence base that will help Chelmsford City Council determine the most appropriate options for development within the City area (with respect to water infrastructure and the water environment) to be identified in the Council's New Local Plan from 2021 to 2036. This WCS update has been informed by a previous Phase 1 (2010) and Phase 2 (2011) WCS which were undertaken to account for the Local Plan period until 2021.

Planned future growth across the Chelmsford City Area has been assessed with regards to water supply capacity, sewage capacity and environmental capacity. Any water quality issues, associated water infrastructure upgrades, and potential constraints have subsequently been identified and reported. This WCS provides information at a level suitable to demonstrate that there are workable solutions to key constraints to deliver future development for all development sites (committed and allocations), including recommendations on the policy required to deliver it.

Wastewater Strategy

Wastewater Treatment

The WCS identifies that in total, three Water Recycling Centres (WRCs) will serve the proposed future development across the City Area. Table 1 below provides an indication of the WRCs which have available capacity and those that are likely to require changes to permits that control discharge and potentially infrastructure upgrades.

Table 1. WRC summary

WRC	Phasing of Development
Chelmsford	Flow and treatment capacity for growth under all growth scenarios with some capacity available for further growth.
Great Leighs	Limited flow capacity under all growth scenarios, therefore growth upgrades and careful development phasing will be required. Treatment process upgrades using conventional and possibly non-conventional treatment technologies will be required to meet river quality targets. Permit setting recommended for phosphate.
South Woodham Ferrers	Limited flow capacity under all growth scenarios, therefore growth upgrades and careful development phasing will be required. Treatment process upgrades will also be required using conventional treatment technologies to meet river quality targets.

Two WRCs (Great Leighs and South Woodham Ferrers) under specific growth scenarios do not have sufficient capacity to accept all future development proposed within the plan period. Therefore solutions are required in order to accommodate the growth to ensure that the increased wastewater flow discharged does not impact on the current quality of the receiving watercourses, their associated ecological sites and also to ensure that the watercourses can still meet with legislative requirements.

The detailed assessments have shown that improvements to Great Leighs and South Woodham Ferrers WRCs will be required to maintain compliance with Water Framework Directive (WFD) water quality standards within the receiving watercourses, and that these improvements are possible using wastewater treatment technologies currently available (conventional). This demonstrates that an engineering solution for wastewater treatment is feasible and hence treatment capacity should not be seen as a barrier to growth.

The phasing of developments draining to these WRCs will need to be discussed between Chelmsford City Council and Anglian Water Services to ensure the WRC's have sufficient treatment process capacity (which may be dependent on timing of upgrades) to accommodate the growth in line with Anglian Water Service's asset management plans.

The WCS has concluded feasible solutions are possible to ensure environmental conditions and legislative objectives are met. However, this WCS recommends that Chelmsford City Council, the Environment Agency, and Anglian Water Services should work together to determine when solutions will implemented and hence conclude when and how much development can be accommodated across the City Area in the early phases of the Local Plan delivery period.

To ensure that the planned level of development within the plan period does not result in a negative impact upon wildlife both inside and outside of designated sites, it is recommended that policy is included within the New Local Plan to ensure that these matters are addressed at a strategic level.

Water Supply Strategy

Based on the growth assessed, the WCS has concluded that, allowing for the planned resource management of Essex & Suffolk Water's supply areas in the City Area, the water supply company would have adequate water supply to cater for growth over the plan period.

However, the WCS has identified that, according to the Environment Agency water stressed areas – final classification (2013), the Essex & Suffolk Water supply area is an area of 'serious water stress'. Hence there is a key driver requiring that water demand is managed across the area for all new development, in order to assist in achieving long term sustainability in terms of water resources.

In order to minimise the need for additional (or changes to) raw water supplies from rivers and aquifers, the WCS has set out ways in which demand for water, as a result of development, can be minimised without incurring excessive costs or resulting in unacceptable increases in energy use. In addition, the assessment has considered how far development in the City Area can be moved towards achieving a theoretical 'water neutral' position i.e. that there is no net increase in water demand between the current use and after development across the plan period has taken place. A pathway for achieving neutrality as far as practicable has been set out, including advice on:

- what measures need to be taken technologically to deliver more water efficient development;
- what local policies need to be developed to set the framework for reduced water use through development control;
- how measures to achieve reduced water use in existing and new development can be funded; and,
- where parties with a shared interest in reducing water demand need to work together to provide education and awareness initiatives to local communities to ensure that people and business in the City Area understand the importance of using water wisely.

Five water neutrality scenarios have been proposed and assessed to demonstrate what is required to achieve different levels of neutrality in the City Area. The assessment concluded that measures should be taken to deliver the first step on the neutrality pathway; the following initial measures are therefore suggested by the WCS:

- Ensure all housing is water efficient, with new housing development meeting the mandatory national standard as set out in the Building Regulations;
- Carry out a programme of retrofitting and water audits of existing dwellings and non-domestic buildings. Aim to move towards delivery of 10% of the existing housing stock, with easy fit water saving devices; and,
- Establish a programme of water efficiency promotion and consumer education, with the aim of behavioural change with regards to water use.

Overall Impact of Development

Overall, the WCS concludes there are no significant constraints with respect to water service infrastructure and the water environment to deliver the New Local Plan development, on the basis that strategic water resource options and wastewater solutions are developed in advance of development coming forward.