

Key Findings and Recommendations of the Water Cycle Strategy Phase 2 (as reported to the New Communities Portfolio Holder Meeting December 2010)

Water Resources (Chapter 3 of WCS)

1. The WCS suggests that under a business as usual scenario the new housing development across Cambridge Water's Water Resource Zone could increase the demand for water by 33% on 2006 levels by 2031 (based on Regional Spatial Strategy rates). The WCS highlights that Cambridge Water Company's Water Resources Management Plan, 2010 (WRMP10) forecasts a positive supply-demand balance to 2035. However, there are significant arguments for ensuring that new development minimises the increase in demand for water, particularly as Cambridgeshire is in an area of serious water stress (as defined by the Environment Agency) and future supply could be affected by climate change and changes to abstraction licences. Therefore to minimise increases in demand, an approach is needed which both ensures that new developments are built to the highest standards of water efficiency and implements measures in the existing housing stock to offset additional demand.
2. The WCS finds that there have been significant advances in improving water efficiency for those growth sites which have already progressed through the planning system. For example, the sites in the Southern Fringe and NIAB 1 will be built to Code 3 for market homes and Code 4 for affordable homes (both at 105 litres/head/day). Homes at the University site will be built to Code level 5 (80 l/h/d). By contrast water consumption in a typical existing home without any water efficiency measures is approximately 150 l/h/d and Building Regulations currently require 125 l/h/d. In looking forward to future developments, such as Northstowe and Cambridge East (if it comes forward), the strategy explores a number of measures to build on these achievements.
3. The WCS sets out a vision of achieving the highest levels of water efficiency in all new homes through implementation of Code for Sustainable Homes (CSH) Level 5/6 for water which is a consumption of 80 l/h/d. To achieve these higher levels, measures such as further efficiency in household taps, installation of smaller capacity baths and use of greywater recycling (GWR) or rainwater harvesting (RWH) will need to be implemented. GWR involves treating and re-using water from the shower, bath and sinks for uses such as flushing toilets. RWH involves capturing rain water that lands on the roof and storing it for later use. RWH has the added advantage of reducing the volume of water leaving a site and therefore reducing flood risk. The WCS looks at the costs of implementing these measures, the savings on water bills, the pros and cons of household versus community GWR/RWH and other implications such as the increase in energy and therefore carbon costs involved in pumping the water above mains water.
4. The WCS also considers how to achieve high levels of water efficiency in non-domestic buildings, measured by the BREEAM method (Building Research Establishment Environmental Assessment Method) using similar methods to those described above for housing.

5. The WCS has an aspiration to water neutrality, and considers measures in the existing housing stock such as metering, variable tariff structures depending upon levels of water consumption and retrofitting of water efficient measures. The costs and potential barriers to these methods are highlighted. The WCS finds that water neutrality may be achievable, but would be highly dependent on behavioural change among existing residents.
6. The WCS provides recommendations on potential planning policies and other strategies to work towards achieving the vision set out. These are obviously only recommendations and the Council will develop policies in the LDF following the plan making process and with principles to be tested through consultation before being adopted in development plans. The WCS will be an evidence base to be used in this process.

Sustainable Surface Water Management (Chapter 4 of WCS)

7. The WCS recognises the benefits of well designed surface water management infrastructure in the form of sustainable drainage systems (SuDS) over conventional piped below ground drainage systems. Above ground drainage has benefits in managing flood risk, reduced capital and operational costs, reduced carbon emissions (embodied and operational), enhanced water quality treatment and opportunities to integrate SuDS into amenity areas and enhance biodiversity.
8. The vision set out in the WCS is for 100% above ground drainage for all future developments where feasible, and that above ground drainage should include environmental enhancement and should provide amenity, social and recreational value.
9. The WCS finds that progress is being made with many of the strategic development sites providing balancing ponds and swales to manage surface water and improve biodiversity. In particular NIAB 1 allows for 100% above ground drainage through a network of 'green finger' swales. Uncertainty over adoption and long-term maintenance of these systems is highlighted as a concern. National Sustainable Drainage Standards will help address this.
10. The type of SuDS that can be successfully used in a development is dependent upon ground conditions at a particular site. Similarly an important factor in determining the feasibility of 100% above ground drainage will be the additional land take required. SuDS can either be integrated into public open space where possible or may result in an increase in housing densities. The WCS recognises that 100% above ground drainage would be difficult in planned high density developments or on constrained windfall development sites. However, developers should look at low land take drainage measures such as green roofs, permeable surfaces and water butts.
11. The WCS sets out policy recommendations for surface water management.

Environmental Water Quality (Chapter 5 of WCS)

12. The WCS sets out a vision to ensure that development does not cause deterioration of water quality and seeks opportunities to meet 'good' status (set out by the Water Framework Directive) where feasible. The main way in which to protect water quality in receiving watercourses and groundwater from surface water runoff is through a treatment train using SuDS. The WCS

follows the CIRIA SuDS Manual in recommending 1 treatment stage for roof runoff, 2 stages for residential roads, parking areas and commercial zones and 3 stages for refuse collection/industrial areas/loading bays/lorry parks/highways. It provides details of the types of SuDS that would be suitable in the treatment stages.

Wastewater (Chapter 6 of WCS)

13. With regards to wastewater the Phase 2 WCS provides a summary of the preferred wastewater strategy and an assessment of the impact of additional wastewater treatment discharges on water quality and flood risk. Anglian Water's preferred strategy is for all development in and around Cambridge to drain to Cambridge (Milton) waste water treatment works (WWTW), and for development at Northstowe and Cambourne to drain to Utton's Drove WWTW. An assessment of the implications of growth for water quality is provided; this shows that water quality should not be a constraint to growth at Cambridge WWTW or Utton's Drove WWTW.

Ecological Assessment (Chapter 7 of WCS)

14. The WCS provides an assessment of the consequences for the water environment of proposed development within and around Cambridge. This is intended to inform future Habitats Regulations Assessments for reviews of Local Development Frameworks for the area. This assessment identifies European sites of importance which could be affected at Wicken Fen, Breckland and the Ouse Washes. However, these are screened out and it concludes that there will be no significant effect resulting from implementing the proposals identified in the WCS.