



## **Optimization of the central automatic control of a small Dutch sewer system**

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A sewer control system was developed in the context of a subsidized project aiming at improvement of surface water quality by control of sewer systems and surface water systems. The project was coordinated by the local water board, "Waterschap Hollandse Delta". Other participants were Delft University of Technology, Deltares and the municipalities Strijen, Cromstrijen, Westmaas, Oud Beijerland and Piershil. As part of the project there were two pilot implementations where a central automatic controller was coupled to the existing SCADA system. For these two pilots the system is now operational. A Dutch urban area in the western part of the Netherlands is usually part of a polder, which is effectively an artificially drained catchment. The urban area itself is split into small subcatchments that manage runoff in different ways. In all cases a large fraction goes into the natural hydrological cycle, but, depending on the design of the local sewer system, a larger or smaller part finds its way into the sewer system. Proper control of this flow is necessary to control surface water quality and to avoid health risks from flow from the sewer into the streets. At each time step the controller switches pumps to distribute the remaining water in the system at the end of the time step over the different subcatchments. The distribution is created based on expert judgment of the relative vulnerability and subcatchment sewer system water quality. It is implemented in terms curves of total system stored volume versus subcatchment stored volume. We describe the process of the adaptation of a controller to two different sewer systems and the understanding of the artificial part of the catchment we gained during this process. In the process of adaptation the type of sewer system (combined foul water and storm water transport or separate foul water and storm water transport) played a major role.