SASKATOON

Incentive for installing backwater valves

Source: ICLR

THE SCIENCE

Backwater valves are a powerful and cost-effective mechanism to reduce the risk of damage to homes from basement flooding, however most homes do not have a valve installed. Local governments across Canada are applying programs to inform and encourage homeowners about how to reduce the risk of damage to homes from basement flooding. Most local programs include a focus on encouraging the installation of a backwater valve as a critical element of property owner participation in protecting a home from sewer backup damage as a result of extreme rainfall.

Most communities, however, have been disappointed by the small number of homeowners that install a backwater valve despite financial incentives offered by the local government. There is agreement within the expert community on the importance and protective value of backwater valves, but there is not yet agreement concerning the best way to convince homeowners to take action. Saskatoon has been successful in achieving a high participation rate. The City targeted its program to homeowners with an increased risk of sewer backup.

A professional plumber can significantly reduce the risk of basement flood damage to a specific home through the installation of protective devices like backwater valves and foundation drain disconnection. Each home is unique, including the circumstances of its location, so a professional can best determine the best protection for a particular dwelling. Saskatoon actively worked with plumbing contractors in the implementation of the City's backwater valve installation program, and this partnership is another factor contributing to the success of the program.

THE TRIGGER

Sakatoon's Flood Protection Program was introduced following extreme rainfall events in 2005, 2007 and 2010. Unacceptable and largely preventable water damage to homes led the City to develop the program. One element of the program included financial incentives encouraging homeowners to take action to protect their dwellings from the risk of sewer backup damage by installing backwater valves. Homeowners who wish to qualify must also redirect weeping tile flows away from the floor drain and into a sump pit where the water may be pumped outside. In addition, they need to safely drain the water expelled by the sump pump away from the property and onto a suitable lane, ditch, street, or easement. The City decided to focus its initial efforts on the identification of properties with a higher risk of sewer backup damage, and targeted incentives to these homeowners.

Partnerships between Saskatoon and local plumbing and restoration professionals is consistent with research by ICLR and others identifying the importance of the unique nature of each home. Experts can identify the ideal strategy to reduce the risk of damage to a particular home from sewer backup and other perils associated with extreme rainfall.

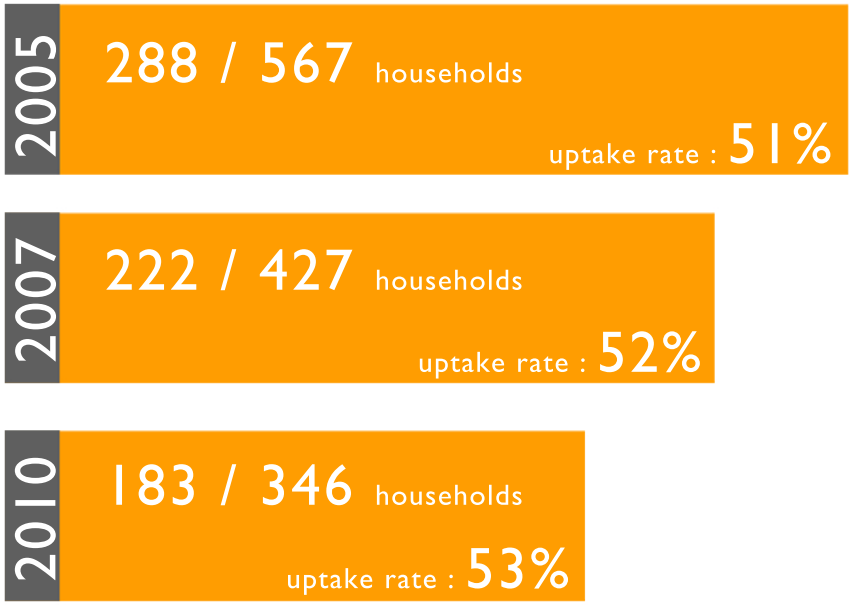

Figure 9 : *The table above illustrates the uptake rate of Saskatoon's Flood Protection Program after each flooding event. Each time, the City was able to experience an uptake rate higher than 50 percent for the installation of backwater valves.*
(Source: ICLR)

THE APPROACH

Two different analyses were conducted to identify which properties were at risk in the City. First, the location of flooded basements was mapped. This map allowed the city to evaluate roughly which properties were located in more vulnerable areas and were likely to flood in the future. After completing this first assessment, a hydraulic model of the area was created to provide the City with more precise information on which houses were at higher risk of sewer backups and basement flooding. A challenge for Saskatoon was the identification of dwellings that had previously experienced damage. Many homeowners do not report flood damage to the City, and privacy laws prevent insurance companies from sharing their confidential information about specific policyholders, so it can be difficult for local governments to identify the extent of the problem.

Saskatoon next needed to craft a strategy for encouraging at-risk homeowners to take action. The City chose to focus on financial incentives to pay for retrofits that would reduce the risk of sewer backup damage. The City was aware that most communities with programs experienced low rates of take up. The City also approached 120 plumbing contractors to determine their capacity, interest and willingness to install risk reduction measures.

THE OUTCOME

Saskatoon's Flood Protection Program has consistently led to sewer backup damage reduction investments by about half of qualifying homeowners, a very high uptake rate for this kind of program. The mapping and hydraulic modeling was used to identify higher-risk homeowners that would qualify for the Program. The City offered these residents up to $2,500 (increased to $3,000 in 2010) to install backwater valves on their sanitary sewer lateral. Homeowners were given the choice of paying the contractor and recovering funds from Saskatoon, or having the City pay the contractor directly.

About 50 percent of targeted homeowners participated in the program. The uptake rate for the program was higher than programs offered in other communities because, in part, Saskatoon offered the Flood Protection Program immediately after flooding events in 2005, 2007 and 2010. When damage had just happened homeowners where found to be more willing to invest in protection. Moreover, the City found 85 percent of those who had backwater valves had no further flood issues.

A WORD FROM SASKATOON

When asked what advice he would give to other cities that would like to implement a similar program, Galen Heinrichs, Water and Sewer Engineering Manager for the City of Saskatoon, mentioned that his team was happy with their decision to limit the program to people most likely to need it. The program was initially managed through a consultant but the City of Saskatoon realized that this kind of program was best managed internally. "Administratively, it's pretty intensive and it takes quite a bit of personnel and several hours to manage the program but I believe it is better to run it internally because there are too many things that are tied into the process."