

Robert L. Zimmerman, Jr.  
Executive Director

190 Park Road  
Weston, MA 02493  
781-788-0007

[rzimmerman@crwa.org](mailto:rzimmerman@crwa.org)  
[www.charlesriver.org](http://www.charlesriver.org)



Saving the Charles River since 1965

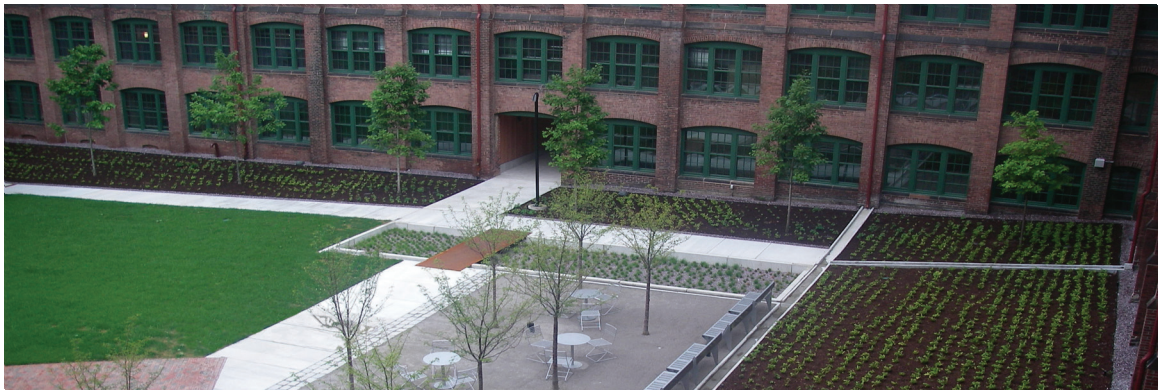
## Blue Cities

*Restoring the Urban Environment*

### What are Blue Cities?

As in most cities, metropolitan Boston's water cycle has been radically altered. Drinking water is piped in from 65 miles away, sewage is piped out to Deer Island Treatment Plant in Boston Harbor, streams are now buried and pavement prevents rainwater from seeping into the ground. These changes increase flooding and pollution, and impact groundwater levels. The loss of streams and floodplains parallels the region's loss of open space and green corridors. The best way to reduce water problems in urban areas is to design cities so that they mimic the way nature handles water.

Massachusetts receives about 45 inches of precipitation every year. In the natural environment, almost half of this rainfall filters into the ground, and nearly all the rest returns to the sky as water vapor. In cities, we have paved over the ground and cut down many of the trees that turn water into vapor. The result: well over 50 percent of the rain in a typical year quickly becomes polluted stormwater runoff. Developed areas are designed to collect and discard rain quickly, dumping runoff in rivers through storm drains. Bigger storms overwhelm the system, resulting in flooding and, depending on the infrastructure, combined sewer and sanitary sewer overflows.



*The Waltham Watch Factory Lofts in Waltham, MA. Designed with CRWA Blue Cities® concepts, this mixed-use development filters stormwater before it drains into the adjacent Charles River.*

To make rain once again an asset that replenishes aquifers, and to reduce the pollution from stormwater and the risk of flooding from storm events, Charles River Watershed Association (CRWA) is working to reengineer urban landscapes to function more naturally. By designing natural green corridors and infrastructure that can soak up water and carry it slowly through the city, "Blue Cities" designs also enhance neighborhoods and connect existing open spaces.

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### **How It Works**

Restoring urban greenscapes and natural hydrologic function is at the heart of CRWA's Blue Cities® Initiative. Using historic maps as a starting point to understand how rainwater once functioned before urbanization, Blue Cities®' analyses evaluate opportunities for restoration that work with, rather than against, natural hydrology. CRWA evaluates soil types, historic groundwater flow, and historic versus constructed drainage patterns. This information forms the basis for retrofitting buildings, streets and parking lots to capture and treat runoff, connect isolated greenspace, and create greenways - in effect, mimicking historic natural conditions. CRWA's work includes partnering with others to build and monitor our demonstration projects, modeling the potential impacts of large scale Blue Cities® designs, and training other environmental advocates, local residents, and municipal officials. CRWA has begun to expand Blue Cities® nationally, working with River Network and other partners, and we will be working in new cities and training new partners in the coming years.

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## About Charles River Watershed Association

Winner of the 2011 Thies International Riverprize for the Charles River, CRWA is an environmental research and advocacy group founded in 1965. Dedicated to restoring and protecting the Charles River, we use the Charles as our laboratory to develop practical, cost-effective and sustainable solutions for restoring urban watershed health. Led by an executive director, our staff includes a hydrologist, engineer, environmental scientists, a planner, and an attorney.