

## Retrofitting Historic Urban Development to Reduce Stormwater Runoff

*Shasten Sherwell*

To assist communities with the implementation of stormwater management on existing urban developments, the UNH Stormwater Center in collaboration with the SNEP Network, state agencies, and EPA Region 1, is currently working to develop a [Stormwater Retrofit Manual](#). Our previous issue highlighted ongoing SNEP-funded work that allows municipalities to incorporate stormwater management and planning into future urban design plans (see “[Flow Duration Curves: A New Model...](#)”). SNEP is also funding work that allows municipalities to retrofit existing stormwater management systems to better accommodate stormwater flow.

Stormwater runoff is caused by widespread impervious surfaces blocking rainfall or snowmelt from infiltrating the ground. This water accumulates over the hard surfaces and flows over land directly into water bodies or down storm drains; however, if the rate or volume of flow exceeds what the system can handle, it can result in flooding, pollution, and erosion. Under the Clean Water Act, stormwater is managed under a tiered permit program that regulates discharges from municipal separate storm sewer systems (MS4), and requires covered systems to implement stormwater management practices, also called Best Management Practices (BMPs) to prevent the negative effects of stormwater runoff. BMPs can take many forms and include vegetative, structural, or managerial practices that help control flooding, stop pollution from entering waterways, and reduce soil erosion.



*Flooding in Worcester, MA. Picture on the left shows the great flood of 1955 and picture on the right shows a flood in 2018. (Sources: Worcester Telegram, and CBSN Boston)*

While it is relatively easy to consider stormwater management in new development and in re-development, retrofitting existing development to include stormwater management is a difficult task and can often be costly. Many urban centers in New England are made up of historic development dating back to the industrial revolution and even earlier. Municipalities that want to make improvements to reduce stormwater runoff are faced with the challenge of dealing with old (sometimes degraded) development that require custom approaches and do not typically accommodate standard designs for stormwater management.

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A new Stormwater Retrofit Manual will address the longstanding impacts of altered hydrology from unmitigated urbanization by providing decision makers, engineers, and consultants updated guidelines and technical information to facilitate the retrofit of existing stormwater management BMPs in historic developments. As we move forward, this Manual will serve as a “toolbox” in the restoration of urban watersheds across New England to ensure resilient and safe communities. The Stormwater Retrofit Manual is currently under development and is expected to be complete by September, 2021. Once complete, the Manual will be hosted on the SNEP Network website and distributed as a resource to support local stormwater management efforts.

To learn more about the Stormwater Retrofit Manual, visit the Network’s website at [www.snepnetwork.org](http://www.snepnetwork.org) or email SNEP staff at [SECoastalNE@epa.gov](mailto:SECoastalNE@epa.gov)