

Presenter	Shandor Szalay AKRF, Inc.
Type	oral presentation
Category	Innovative watershed and stream restoration approaches/methods
Title	<i>Cost-effective Alternatives for Urban Incised Stream Restoration in Philadelphia, PA</i>
Abstract	<p>Cost-effective incised channel restoration in urban environments is often difficult due to a range of factors that increase project cost, including the installation of large rock for grade control and bank stabilization revetments and disposal costs associated with excess cut material generated from bank regrading. In older urban areas, channels may be in the latter stages of urban adjustment and may exhibit relatively stable bedforms and low-bank erosion rates. In such areas, intensive in-channel intervention may not only be costly, but unnecessary to achieve watershed goals. Additionally, over stabilization of banks may be counterproductive as bank erosion is often an important source of bedload to downstream alluvial channel segments and is an important process for the introduction of large woody debris into the stream channel.</p> <p>The authors present a decision framework for cost-effective incised channel restoration and discuss its application to on-going restoration efforts within two 1st/2nd order tributary systems in Northwestern Philadelphia. In both cases, the channels exhibit signs of incision and widening due to urban development within the upstream watershed. Through exploiting opportunities for hydrologic regime modification; limiting in-stream intervention to the most severely-impacted segments; and emphasizing on-going monitoring rather than immediate intervention for channel segments in later stages of urban channel evolution, the project team crafted a low-cost restoration strategy that eliminated the need for extensive channel reconstruction while still meeting habitat improvement and downstream pollutant load reduction goals.</p>