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Type	oral presentation
Category	Benefits of Stream Restoration
Title	<i>Benefits of Small Headwater Stream Restoration Projects: Are They Worth it?</i>
Abstract	<p>The Shoals Community Stream Restoration Project is located in Surry County, NC, near the town of Shoals. The Shoals Community Park was established by a group of local residents who purchased the tract of land with the intent of developing a focal point for the community. The park would provide field sports recreational areas, and nature trails for exploration of natural communities. But the tract of land needed a facelift for the public to safely utilize the park, and to address severe erosion issues on two small tributaries that flowed through the park. The Shoals Community Trust, the Resource Institute Inc., and Baker Engineering prepared a grant proposal for the NC Clean Water Management Trust Fund to address the erosion and water quality issues of the park, and the grant was awarded.</p> <p>Two of the four unnamed tributaries within the tract had experienced channelization and severe incision, and were a public safety concern and a detriment to water quality. Mature riparian vegetation was lacking due to past timber harvesting, and the early successional buffer included several exotic species. The calculated bankfull depths from the drainage areas were expected to be about one foot and the existing condition bank height ratios for the tributaries ranged from 1.1 to 11.7. As a result, channel degradation, slope stability, and public safety concerns were widespread throughout the site.</p> <p>For analysis and design purposes, Baker Engineering evaluated the degraded channels with two primary goals: 1) to economically and effectively restore the stream functions of the degraded tributaries while 2) alleviating potential safety concerns. The restored tributaries were elevated several feet utilizing Rosgen Priority Levels I and II approaches. One tributary was elevated to reconnect with its original floodplain; while the other had its incised and widened channel filled in order to create an adequate floodplain and slope. Both tributaries were tied into the upstream most headcut.</p> <p>This presentation will focus on comparing the benefits of the channel stability, functional uplift, and public welfare versus the costs of the project. The Shoals Project was unique in that stream restoration approaches were aggressive and required considerable construction resources to implement, relative to the small size of the streams. Comparisons will be presented between design techniques, construction logistics and costs, channel stability, public safety, and overall site performance.</p>