Questions from Residents about Donaldson Run Tributary B Stream Restoration Project

Q. To what extent do the storm and sanitary sewer pipes need to be replaced and what impact will that have on the project? Who pays for that part?

A. A short section of the storm sewer pipe between N. Upton St and the upstream outfall for Donaldson Run Tributary B has been damaged by stormwater flows and will be replaced. In addition, the endwall for the storm sewer pipe that drains N. Upshur St will be replaced or repaired.

Replacement of public sanitary sewer pipe is not anticipated. Several public sanitary sewer pipes and one private sanitary sewer lateral have been exposed as the stream has eroded over the past 50 years. The restoration will raise the elevation of the stream, burying these pipes. This will protect them from breaking and releasing untreated sewage into the stream (as has happened in the past in both the Tributary A and B stream valleys).

Repairs to the storm sewer system and protection of the sanitary sewer pipes have been included in the Donaldson Run Tributary B restoration project budget and will be paid for with the combined funding for the project from the Neighborhood Conservation Program and the Stormwater Fund.

Q. What herbicides are being used to maintain prior stream restoration projects?

A. Herbicides containing glyphosate and triclopyr have been used in Zachary Taylor Park and Lee Heights Park to limit populations of invasive plants along restored sections of Donaldson Run. When applied properly, these herbicides are among the least toxic available for application near aquatic resources.

Q. Why aren't more money and resources being devoted to addressing the problem of storm water runoff at the source? Wouldn't the long-run cost be less and the resolution better?

A. Stream restoration and watershed retrofits are both needed to protect our local and regional water resources. Watershed retrofits are storm water management facilities added closed to the source to slow down and treat storm water runoff. Watershed retrofits help water quality in our streams in the long term, but ***cannot undo the damage that development and excessive runoff have already caused to local streams***. Streams that have eroded down and widened in their channel will continue to do so, washing more sediment and pollution downstream, and threatening more trees along the stream channel. In addition, the highly urban nature of our County means there is limited space for new stormwater management facilities.

Stream restoration and watershed retrofits are both costly, particularly in urban communities like Arlington County. For FY 2011-2016, Arlington County's proposed

Capital Improvement Program for the Stormwater Fund contains slightly more funding for watershed retrofit ($1.85 million) than for stream restoration ($1.75 million) projects. This latter number does not include funding for restoration of Donaldson Run Tributary B, which has been committed since 2007, prior to the establishment of the Stormwater Fund. Funding for Tributary B also includes $350,000 from the Neighborhood Conservation Program.

Q. What about the Chesapeake Bay Preservation Ordinance that limits development and tree removal along Arlington County stream? Does the County have to abide by these regulations?

A. The Department of Chesapeake Bay Local Assistance (DCBLA), the State agency that oversees the implementation of the Chesapeake Bay Preservation Act and Regulations, recognizes the benefits of comprehensive stream restoration and has issued guidance (excerpted below) that establishes stream restoration projects as 'permitted development' activities under State law and regulation and Arlington County's Chesapeake Bay Preservation Ordinance.

Water Dependent Facilities
Certain uses are permitted by-right within the RPA. Water dependent facilities, i.e., facilities that by their very nature require that they be located adjacent to the water, are among these facilities. Some examples of water dependent facilities that are permitted to be located within the RPA include the water dependent portion of marinas, aquacultural facilities that require fresh flows of water, beaches, docks and piers as well as stream and wetland restoration projects that have been permitted by state and federal agencies such as DEQ and USCOE.

As explained in the State guidance excerpted above, stream restoration projects must obtain all other required environmental permits to work in waterways.

Q. How can small trees and new vegetation absorb as much water as the existing large trees and thick vegetation? The planting from previous phases do not seem to have grown much.

A. New, small trees do not absorb as much water as larger established trees. However, in the long term, the restoration should create a healthier, more diverse streamside forest that will not only absorb surface runoff, but also provide many additional benefits for water quality and wildlife.

Stream erosion along Tributary B has undermined many of the existing large trees as the stream has deepened and widened its channel. As a result, a substantial number of mature trees have fallen into the stream or across the trail in recent years. In addition, non-native, invasive plants make up the majority of the thick vegetation growing along Tributary B. Invasive vines such as English ivy, Chinese wisteria and Japanese wisteria damage streamside trees by overtopping, shading, and girdling them, or by introducing disease-causing pathogens. Many of the trees that will be removed by the stream restoration

project are currently undermined by erosion or overtaken by invasive plants and may not have survived much longer in any case.

Removal of healthy, existing trees is avoided if at all possible, but is sometimes necessary for stream restoration. When trees must be removed, they are typically replaced with several young trees of various species. This increases the diversity of the streamside forest. Maintenance of the restored area prevents re-establishment of invasive plants. The restored stream channel will also be stable, limiting erosion and protecting remaining trees and new seedlings alike.

Q. Most of the year the stream has very low flow, so why do we need a large, expensive project that reshapes the entire area to deal with a few episodes?

A. Flows during storms are the flows that shape and impact stream channels the most, and the ones that must be addressed in managing and restoring urban streams. During times of high flow in natural streams, water spills over the banks onto a floodplain area. This area exists in all natural stream and river systems. The floodplain slows the stream's flow during storms, deposits nutrients for the streamside forest, protects in-stream habitat and prevents erosion of the stream banks and channel.

Currently, Tributary B cannot overflow its banks onto a floodplain, even during very severe storms. Instead, these flows are trapped within the stream's banks. The energy from these high flows has scoured the stream bottom and banks, causing erosion and pollution downstream, damaging trees, sewer lines, and trails, and destroying habitat for fish, amphibians and invertebrates that live in the stream.

The stream restoration will incorporate several design features to restore a floodplain connection and control stream energy during storm events.

Q. The small pools built in the previous stages create stagnant pools during the dry months of the year, creating significant breeding ground for mosquitoes. Shouldn't that side-effect be considered in the restoration plan? This is a health risk (including West Nile virus) and directly counter to advice the County gives to residents regarding practices on their own property.

A. A goal of stream restoration projects is to create habitat within the stream channel. This often results in the creation of pools, which are refuges for many fish and invertebrates. Although the stream water in the pools looks calm and stagnant, the water is still flowing slowly through the pools. Mosquitoes need about 7 days in completely stagnant water to complete their life cycle, so the water flowing through the stream should not add more mosquito habitat than existed prior to restoration. Biological sampling conducted in portions of the previously restored Tributary A over the past several years has not found mosquito larvae present except on isolated occasions. As the ecosystem improves after the restoration, mosquito predators including amphibians, birds, fish, other insects, and bats also become more prevalent.

Mosquitoes are one of the hazards of visiting or living near natural areas – among the pros and the cons, many would place them at the top of the con list! Unfortunately, Arlington residents are equally if not more likely to be bitten in their own yards by the now dominant Asian Tiger mosquitoes that breed in small pools of water in gutters, tires, tarps, flower pots, and similar small containers than from mosquitoes in restored or unrestored stream valley systems. The Asian Tiger mosquitoes are active all day long and, because residents spend the most amount of time on their own properties, the risks of contracting West Nile virus from a mosquito are greatest at home than anywhere else. Fortunately, according to the Arlington Public Health Division, the chances of becoming severely ill from any one mosquito bite are small. Very few mosquitoes are infected with the West Nile virus, even in areas where the virus is reported. To learn more, go to www.arlingtonva.us and search "Mosquito."

Q. What are the annual costs to maintain the restored areas? How much have the repairs cost?

A. Approximately $30,000 has been spent to date on invasive plant control and additional planting of native species along the restored portions of Tributary A. The damage caused by the severe June 2006 storm event, which occurred only two months after construction, was due to two key causes: 1) the severity of the event prior to the establishment of planted vegetation; and, 2) significant construction errors by the contractor. The contractor assumed approximately half of the repair costs; the County paid approximately $170,000 for the repair work. The County has established more stringent quality control procedures for subsequent stream restoration construction work.

Q. Is the use of 'stream restoration' still in its experimental phase, an acceptable way to re-engineer a natural environment? Isn't Donaldson Run a unique natural environment already?

A. The open space preserved within Zachary Taylor Park offers a refuge for wildlife and provides recreation opportunities for the surrounding community. Both the stream and its valley are an asset to Arlington County and its residents. However, Tributary B, like Tributary A prior to restoration, has been ravaged by stormwater flows and the stream and its valley forest have deteriorated due to land use and drainage decisions made in the watershed over a period of more than 50 years. Tributary B is not a healthy, natural stream. Erosion in Tributary B is contributing to sediment and nutrient pollution locally and in downstream waters including the Potomac and the Chesapeake Bay and undermining trees, damaging infrastructure and impacting native vegetation and wildlife in Zachary Taylor Park.

The practice of stream restoration is beyond the experimental phase and has been recognized at the State and Federal level as a critical component of a comprehensive urban watershed management program. See:
http://www.nrcs.usda.gov/technical/stream_restoration/
http://www.fws.gov/ChesapeakeBay/stream.html
http://www.dcr.virginia.gov/soil_and_water/documents/streamguide.pdf

The Tributary A stream restoration project has achieved its key design objectives, including dramatically reducing stream bank and bed erosion, improving stream habitat, protecting trail and sewer infrastructure, and improving stream access and recreation as well as education and interpretation opportunities. Lessons learned from the Tributary A project include needs for: more stringent construction oversight, better tree protection, more robust planting, and invasive plant control. Based upon design benchmarks, however, the Tributary A project is considered a major success story.

More broadly, the Donaldson Run stream restoration work is a model of County government and local neighborhood collaboration and cooperation, with extensive community outreach efforts. Stream restoration efforts along Donaldson Run have received local, regional, and broader attention. In June 2009, Virginia Tech, through its Department of Forestry, sponsored a stream restoration conference in Arlington that focused on Donaldson Run.