

WEST MONTGOMERY COUNTY CITIZENS ASSOCIATION

P.O. Box 59335 • Potomac, Maryland 20854

Founded 1947

Committee: House Environment and Transportation Committee

Testimony on: Bill Number HB 942 “Wetlands and Waterways Program - Authorizations for Stream Restoration Projects”

Position: Favorable

Hearing Date: March 3, 2023

The West Montgomery County Citizens Association (WMCCA) supports HB 942 “Wetlands and Waterways Program - Authorizations for Stream Restoration Projects.”

WMCCA welcomes the opportunity to provide written testimony on this bill. It will strengthen Maryland’s commitment to cleaning up the Chesapeake Bay while at the same time recognizing the need to safeguard local natural resources. The focus of this testimony is to make Delegates aware of the damage done by stream “restorations”. Bill HB 942 promotes more effective and beneficial stream restoration projects and incentivizes alternatives to stream restorations using less destructive out-of-stream stormwater control methods such as rain gardens, bioswales, green roofs, permeable paving, and conservation landscaping to replace turf grass.

This testimony includes a video link and numerous photographs of the unconscionable damage done to our natural areas by numerous stream restoration projects. Please take a few minutes to watch this video of the [Solitaire Court stream restoration](#) in Gaithersburg that was completed in May of 2022. Without exception, everyone who sees this video is appalled by the destruction of what once was a lovely stretch of wooded stream. What you see are typical activities that take place during a stream restoration such as chain sawing large mature trees, clearcutting mature stream-side forests, and dumping rocks into streams to make dams that fish and other aquatic animals cannot cross. The narrator describes the results that we can see with our own eyes: a landscape that is “...clearcut, demolished, torn out, stripped to bare dirt, leaving no trace of life. A desert landscape. ...The canopy gone, leaving the entire corridor open to hot, baking sun and drying winds.” One viewer said, “I do not understand how this is legal.” Another person asked, “Why do they call it restoration?”

Stream “Restorations” Don’t Restore Streams

Stream restorations typically clear-cut mature stream-side forests. Young trees are replanted, but these will take decades or longer to approximate what was destroyed. The complex web of interactions between fauna, flora, geology, and hydrology in natural areas can’t be recreated by engineering projects using bulldozers, trucked-in rock rubble, and some replanted saplings.

The following photographs show examples of stream restorations that have been done in several jurisdictions around the state and illustrate the need for stream restoration reform. The photo below is a stream restoration at Nature Forward (formerly Audubon Naturalist Society) in Chevy Chase.

This was once a fully wooded area. It shows the heavy construction equipment being used. Visible are the plastic sheets used and large boulders dumped in the stream channel.



(Above: Nature Forward, Chevy Chase; <https://conservationblog.anshome.org/tag/stream-restoration/>)

The next photo at this same site shows a series of rock dams built with rock rubble that has been dumped into the stream channel. Now there is no way for aquatic creatures to move up and down this stream.



(Above: Nature Forward, Chevy Chase; <https://conservationblog.anshome.org/tag/stream-restoration/>)

The aerial photo of a stream restoration at the Asbury Methodist Village in Gaithersburg shows how rock rip rap has been dumped at intervals into the stream to create a series of dams. These dams prevent the migration of fish and other aquatic organisms. You can get an idea of scale compared to the large trees at the bottom.



(Above: Asbury Methodist Village, Gaithersburg, <https://www.youtube.com/watch?v=hGZN-L0Qrj0>)

The next photo is an example of the utter destruction caused by a stream restoration in the City of Rockville in the upper Watts Branch. This project was completed in 2018. The riparian, or stream-side, forest buffer has been completely destroyed and scraped down to bare soil. Before it was clearcut, the trees along this stream provided shade which lowered the water temperature required by some sensitive aquatic organisms.



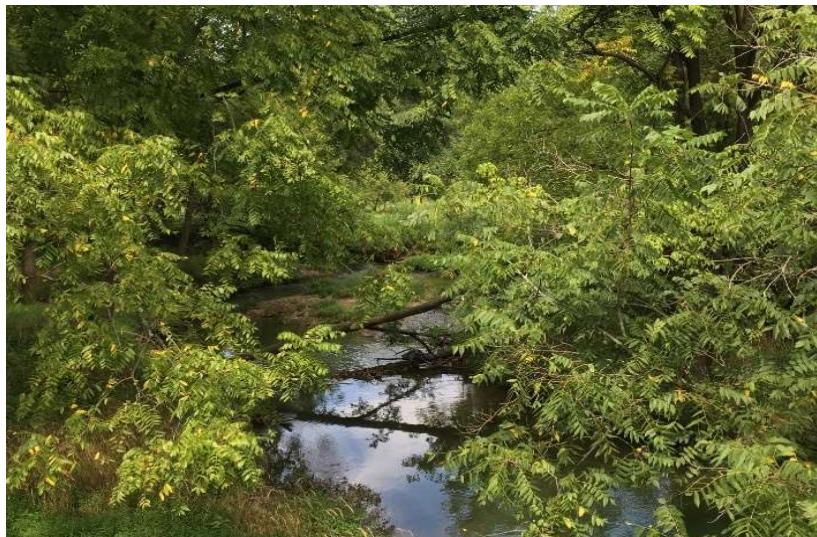
(Above: Stream "restoration" in Upper Watts Branch, Rockville; photo by City of Rockville)

What happens to the stream during these construction projects? Below is the Falls Reach project in Potomac, MD. The entire stream was forced to run through this black pipe during construction. How hot do you think that water gets? No longer can frogs, turtles, and other animals access the water. And it gets worse. According to a U.S. Department of Agriculture National Engineering Handbook called “Stream Restoration Design”, “Aquatic life would be either be prevented from passing the project or pulverized by the pumps.”¹ So not just fish but frogs, crayfish, northern water snakes, baby snapping turtles, spotted turtles, etc. are at risk.



(Above: Falls Reach Stream Restoration Project; photo by K. Bawer, 3/19/2019)

The pre-construction photo of Whetstone Run in Blohm Park, Gaithersburg shows a riparian, or stream-side, forest that was quite dense and lush.



(Above: before construction, Whetstone Run in Blohm Park, Gaithersburg; by K. Bawer, 5/03/2021)

¹ “Stream Restoration Design,” National Engineering Handbook, Part 654, August 2007, United States Department of Agriculture, Natural Resources Conservation Service, Case Study 6, p. CS6–13

The post-construction photo below, taken at the exact same location, shows the total destruction of the stream-side forest. The original stream channel was filled and a whole new stream channel was dug. The original, natural stream never had this kind of artificial meander pattern, or sinuosity, that was created by the heavy machinery. Some of the paltry replanting is barely evident.



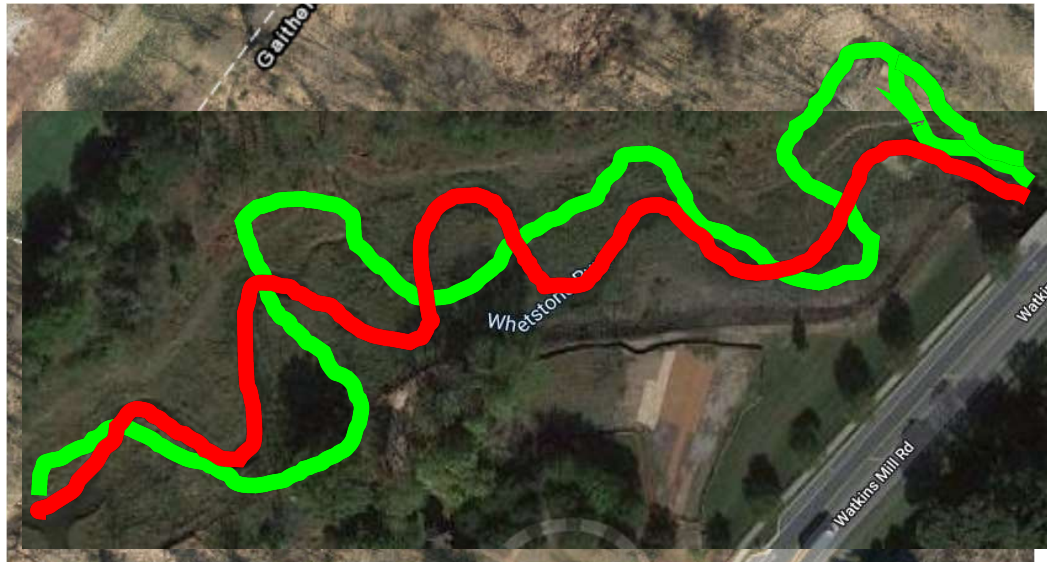
(Above: after construction: Whetstone Run in Blohm Park, Gaithersburg; by K. Bawer on 5/03/2021)

This is another view of the Whetstone Run project just to show that there were, in fact, lots of mature trees cut down.



(Above: Whetstone Run , Gaithersburg from <https://www.youtube.com/watch?v=1XLXRNmN9L8&t=61s>)

To show how the original, pre-construction stream was moved, a trace of the original stream channel location in green is overlaid with a trace of the new stream channel in red. The image is quite shocking.



(Above: photo for “before” green trace from <https://earthexplorer.usgs.gov/>, photo for “after” red trace from Google Maps)

The next several photographs show different views of a destructive stream restoration in Columbia.



(Above: Columbia stream restoration in Longfellow neighborhood; by S. Boies, 1/8/2021)



(Above: Columbia stream restoration in Longfellow neighborhood; by S. Boies, 4/6/2021)



(Above: Columbia stream restoration; by S. Boies)

Next is the Solitaire Court stream restoration in Gaithersburg (the location of the video link on page 1). Before construction, none of the houses below were visible through the narrow strip of forest. At the pre-construction walk-through, the city program manager was asked what will happen to little animals like frogs, turtles and salamanders. That person responded with a straight face, “Oh, they’ll just move away and come back after the construction.”



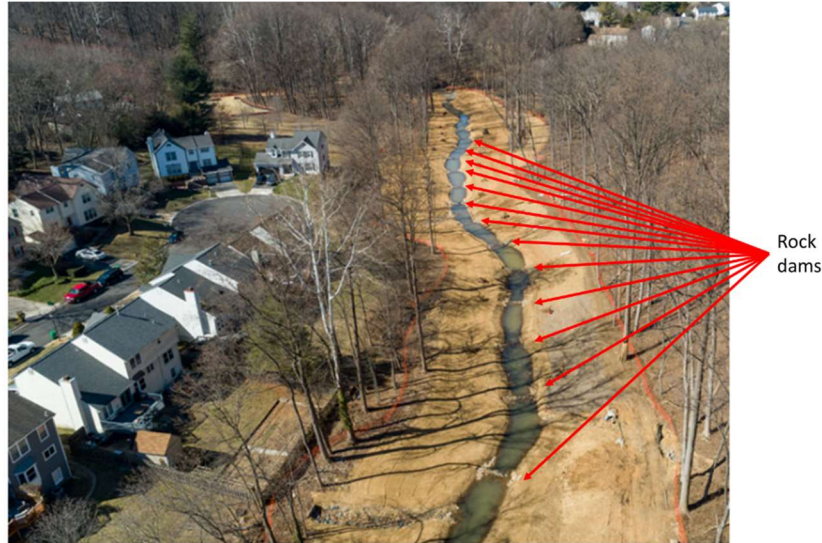
(Above: Solitaire Court stream restoration in Gaithersburg; photo by K. Bawer, 10/23/2021)

In another photograph, the former forest can be seen reduced to a giant pile of logs.



(Above: Solitaire Court stream restoration in Gaithersburg; photo by R. Portonova, 12/3/2021)

In another view of the Solitaire Court project, the arrows point to some of the rock dams created by dumping rocks into the stream. These will totally block fish and other aquatic organisms. Plus, the stream will drastically heat up now that a large number of the shade trees were cut. Note that the critical root zones of the trees (the area around the base of a tree containing most of a tree's roots that are critical for its survival) near the orange construction fences (on both sides of the clear-cut area) were not protected, so many of these edge trees will die due to soil compaction.



(Above: Solitaire Court project in Gaithersburg; <https://www.gaithersburgmd.gov/government/projects-in-the-city/solitaire-court-stream-restoration-project>)

Below is another view of the Solitaire Court project from further downstream. Again, this was a fully wooded forest. All of the trees on the left with the vertical wood scape protectors (the red arrow points to one) will probably die because their critical root zones have been severely compacted. And the line of big trees on the right at the edge of the clear cut will also likely die due to soil compaction.



(Above: Solitaire Court stream restoration in Gaithersburg; photo by R. Portanova, 2/7/2022)

The following photos are “before” and “after” pictures of the Takoma Branch project in Takoma Park.



(Above: before construction, Takoma Branch, Takoma Park; photo by DPW, City of Takoma Park)

After construction, it can be seen that the natural character of the forest was wiped out including removal of woody debris such as the fallen trees that woodpeckers and other animals depend on.



(Above: after construction, Takoma Branch, Takoma Park; photo by DPW, City of Takoma Park)

Below is the Briers Mill Run in Prince Georges County after restoration. Before this project, the area was a natural strip park with lots of trees and understory plants – a great place for kids to explore and animals to live. Not so much anymore. This is now merely an engineered drainage ditch.



(Above: Briers Mill Run, Prince Georges County;
<https://www.facebook.com/PGCCWP/posts/1299726287063844>)

Next is the Scotts Level Branch stream restoration in Baltimore County. The county web site says that they are concerned about providing essential habitat and vegetative buffers for streams. Why then are they destroying what they already have?



Scotts Level Branch Stream Restoration Project

(Scotts Level Branch stream restoration, Baltimore County; from
<https://www.youtube.com/watch?v=ix42pr9t3ts>)

The following photo shows the pre-restoration St. Charles Parkway stream in Charles County. This was a fine-looking stream valley until the riparian forest was clearcut.



(Above, St. Charles Parkway stream restoration, Charles County; from <https://www.charlescountymd.gov/our-county/infrastructure-capital-services/npdes-project/st-charles-parkway#ad-image-0>)

What remained was a pile of logs, some of which are shown in the photo below.



(Above, St. Charles Parkway stream restoration, Charles County, from <https://www.charlescountymd.gov/our-county/infrastructure-capital-services/npdes-project/st-charles-parkway#ad-image-0>)

Two other views of the St. Charles Parkway stream restoration are shown below.



(Above, St. Charles Parkway stream restoration, Charles County; from <https://www.charlescountymd.gov/our-county/infrastructure-capital-services/npdes-project/st-charles-parkway#ad-image-0>)



(Above, St. Charles Parkway stream restoration, Charles County; from <https://www.charlescountymd.gov/our-county/infrastructure-capital-services/npdes-project/st-charles-parkway#ad-image-0>)

The Mayberry Stream Restoration in Carroll County was completed in spring of 2022. Heavy construction equipment destroyed a wide swath right through the forest. Note how the trees on the edges have no protection. This photo shows a bulldozer running over trees' critical root zones and compacting the soil. Many trees along both sides of the project will probably die due to soil compaction.



(Above: *Mayberry Stream Restoration in Carroll County*; from <https://www.carrollcountymd.gov/media/16472/mayberry-stream-restoration.pdf>)

The next photo is the post-construction Bacon Ridge stream restoration in Anne Arundel County. They cut down about 400 trees for this project!



(Above: *Bacon Ridge stream restoration, Anne Arundel County*; by K. Bawer, 7/14/2021)

The slide below illustrates more of the collateral damage done by stream restorations aside from the trees and larger shrubs that get most of the attention. These are just a tiny sampling of Maryland native wild flowers and small animals that can't outrun the bulldozers. Look at the baby box turtle pointed to in the left column in the red box. It is about the size of a quarter. Stream valleys are where the babies live for about the first five years of their life. Not even the full-grown adult box turtle in the photo can outrun a bulldozer.



(Above: wildflowers and small animals that are native to Maryland; all photos by K. Bawer except middle photo by City of Rockville)

Stream restorations fail due to uncontrolled or inadequately controlled stormwater

Adding insult to injury, since stormwater is not being controlled at its source (e.g., runoff from impervious surfaces such as roads, roofs, etc.), stream restorations have failed or will fail, especially given the more intense storms that are expected due to global warming. All the rocks, boulders, fill dirt, and soil stabilization fabrics brought in by these projects will eventually get blown out by future storms. A blow-out means the disruption of the armor-plating and stream bank engineering caused by large rainstorms. This renders them useless and a waste of taxpayers' money. Photographic evidence of stream restoration failures is provided below.

The next picture is a failed Cabin Branch stream restoration in Montgomery County showing how uncontrolled stormwater has eroded out the stream bank behind the rock armor-plating rendering it useless. This is an example of why stream restorations are only a temporary fix to stream bank erosion.



(Above: Cabin Branch Stream in Cabin John Regional Park, Montgomery County; by K. Bawer, 3/19/2021)

The photo below shows blown-out armor plating along Long Branch in Takoma Park. Notice the huge size of these boulders compared to the people.



(Above: Long Branch, Takoma Park; photo by K. Bawer, 10/2/2021)

The next photo is Snakeden Branch in Potomac. The blown-out area can be seen on the right bank. The water has gone over and behind the rock wall and has continued to erode the stream bank behind it. Also visible is exposed plastic geotextile fabric which will break down and add to the micro plastics problem.



(Above: Snakeden Branch, Potomac; by K. Bawer, 11/23/2021)

Below is a photo of an unnamed tributary to Great Seneca Creek in Gaithersburg. Note the disrupted rock structure exposing plastic fabric. Stormwater has continued to erode the stream bank behind the rocks despite the stabilization attempt.



(Above: unnamed tributary to Great Seneca Creek, Gaithersburg; by K. Bawer, Fall, 2022)

The Lower Booze Creek stream restoration in Potomac originally cost \$700,000. After its completion, the Montgomery County Department of Environmental Protection web site states, “Storm damage occurred very soon after construction, initiating structural failures”. This photo shows some of the damage to the original stream restoration project at one location.



Lower Booze Creek - Erosion downstream of imbricated wall structure from original stream restoration.

(Above: Lower Booze Creek, Potomac; photo from <https://www.montgomerycountymd.gov/water/Resources/Files/restoration/streams/Lower-Booze-Creek-Restoration-Repair-Fact-Sheet.pdf>)

The repair work cost an additional \$3.6 million. Since stream restoration companies typically only guarantee their work for one year, when they are destroyed after that it is the taxpayers who pick up the bill. The photo below was after the repair work at one location which was formerly fully wooded.



(Above: repair of the restoration in Lower Booze Creek, Potomac; photo by K. Bawer, 12/4/2021)

On top of all that, the scientific literature^{2 3 4 5} says that these projects rarely, if ever, result in improved in-stream biology.

In summary, the current problems with stream restorations are clearly visible if only we will acknowledge what can be seen with our own eyes. These photographs provide irrefutable evidence that stream restorations don't actually restore streams, that projects get blown-out because upland stormwater has not been adequately controlled, and that stream restorations are, in fact, devastating to both the stream itself and the local environment where they are constructed. Bill HB 942 would incentivize less destructive out-of-stream alternative stormwater control methods while promoting more effective and beneficial stream restoration projects. This bill will help us achieve another Rachael Carson moment for environmental protection in Maryland.

We urge the Committee's FAVORABLE report on HB 942.

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² Hilderbrand, Robert H., et. al., "Quantifying the ecological uplift and effectiveness of differing stream "restoration" approaches in Maryland," Final Report Submitted to the Chesapeake Bay Trust for Grant #13141, 2020 (https://cbtrust.org/wp-content/uploads/Hilderbrand-et-al_Quantifying-the-Ecological-Uplift.pdf)

³ Jepsen, R., Caraco, D., Fraley-McNeal, L, Buchanan, C., and Nagel, A. 2022. "An Analysis of Pooled Monitoring Data in Maryland to Evaluate the Effects of "restoration" on Stream Quality in Urbanized Watersheds: Final Report." ICPRB Report 22-2. Interstate Commission on the Potomac River Basin, Rockville, MD. (https://www.potomacriver.org/wp-content/uploads/2022/06/ICP-22-1_Jepsen.pdf)

⁴ Palmer, M. A. et. al., 2014, "Ecological "restoration" of Streams and Rivers: Shifting Strategies and Shifting Goals," Annual Review of Ecology, Evolution, and Systematics. 2014. 45:247–69 (www.ecolsys.annualreviews.org or www.annualreviews.org)

⁵ Pedersen ML, Kristensen KK, Friberg N (2014), "Re-Meandering of Lowland Streams: Will Disobeying the Laws of Geomorphology Have Ecological Consequences?" (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4180926/>)