

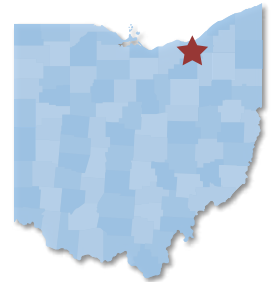
## THE UPPER 40 / FOSTER'S RUN STREAM RESTORATION PROJECT

### Village of Mayfield, Cuyahoga County

**Date Completed:** 2006

**Description:** Foster's Run was one of the most severely eroded tributaries of the Chagrin River before this project daylighted and restored sections of the stream.

**Project Size:** Two phase project totaling about 3000 linear feet of stream restoration.



*Below: Foster's Run  
(photo: Chagrin River Valley Partners)*



## Mayfield Village & Cleveland Metroparks' Foster's Run Mayfield Village, Ohio

URS provided complete multidiscipline services to daylight 1500 lineal feet of Foster's Run, located in the North Chagrin Reservation of Cleveland Metroparks. The project employed natural channel design and bioengineering slope stabilization techniques to daylight the formerly culverted stream channel.

Rapid development in the 1960s and 1970s dramatically increased stormwater runoff from the watershed resulting in erosion gullies up to five feet deep which washed out portions of Buttermilk Falls Road. The site was considered the most severely eroded tributary in the Chagrin River watershed.

The project restored a multi stage stream channel, carefully fit within the meandering, heavily forested ravine. Extensive HEC RAS modeling was required to test a variety of design options to control erosive velocities. A series of rock cascades, and step pools were devised to reduce the average stream gradient from 4% to just over 2%, and restore stream morphology. Extensive native plantings are reestablishing a riparian corridor.

The project produced a number of other benefits including:

- an 0.6 mile connector trail,
- restoration of more than 8 acres of wetlands, degraded by decades of sedimentation.

URS assisted the owners with a successful Clean Ohio Conservation Fund Grant application for \$720,000. URS coordinated construction of the \$1 million stream restoration project and was completed within budget.



Step pools were effective in managing stream velocities as well as restoring stream habitat.



Stream overflows resulting in closing of the park road



Above & Below: A 0.6 mile all purpose trail reconnects the upper and lower portions of the park.



URS stabilized the stream channel with a series of rock cascades, step pools, as well as restoration of a multi stage channel. This stream restoration allows for not only a stabilized stream bed, but also the new All Purpose Trail running along side it.

This project won an Ohio ASLA Award in 2007.

**URS**

***Developer/Client/Owner:***

The Village of Mayfield  
6622 Wilson Mills Road  
Mayfield Village, OH 44143  
[www.mayfieldvillage.com](http://www.mayfieldvillage.com)

Cleveland Metroparks  
4101 Fulton Parkway  
Cleveland, OH 44144  
[www.clevelandmetroparks.com](http://www.clevelandmetroparks.com)

***Designer/Consultant:***

URS  
1375 Euclid Avenue, Suite 600  
Cleveland, OH 44115  
<http://urs-cleveland.com/>

***Key features/lesson learned:***

- Steep gradient streams present restoration significant challenges in the form of high velocities
- Step pools and cascades were employed to reduce stream gradients
- Project solves a severe erosion problem dating back to the 1980s
- Project represents a great project partnership between Mayfield Village and Cleveland Metroparks
- This natural channel design solution successfully daylighted the stream, and stabilized the stream bed, restored trail access, where several prior project attempts had failed
- The project also restored more than 8 acres of wetlands, degraded by decades of sediment deposition

***Project Cost:*** \$1,392,000

***Maintenance Cost:*** Metroparks has added additional rock armoring, costs unknown.

***Funding Sources / Incentives:*** The project was enabled by the Clean Ohio Conservation Fund, which provided a total of \$1,392,000 in two grants. Local funding match was provided by Mayfield Village and Cleveland Metroparks.

***Applicable Zoning Regulations:*** None

***Any additional comments?*** Park visitors do not realize that a project was constructed here because it looks like it was always there.