

Waterloo Road Amphibian Passage System

Byram Twp., Sussex County, NJ

The term "amphibian crossing" is a growing part of the vernacular of conservationists, wildlife enthusiasts, and communities at large, thanks to the many efforts springing up to monitor and safeguard amphibian migrations across roads. Residents of Byram Township, in Sussex County, have been getting an extra-special education on the topic and will soon have bragging rights to one of the few under-road tunnel projects in the country offering safe passage for amphibians.

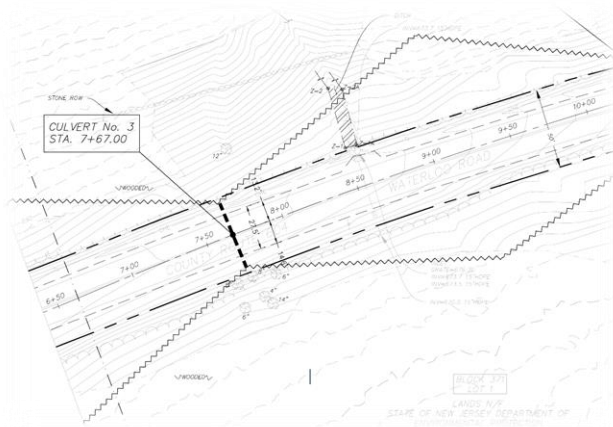


A Spotted Salamander crosses Waterloo Road.

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At Waterloo Road in Byram, more than 300 salamanders and frogs *per hour* have been tallied crossing a quarter-mile stretch on peak migration nights. Their goal is to reach the vernal pool on the other side, lay eggs, and journey back to the forest again. The tiny migrants are up against about 50 vehicles per hour or more - grim odds given that just 15 cars per hour can kill more than 50% of all amphibians trying to cross a road. Even with rescue teams patrolling Waterloo on foot, roadkill rates are always over 10% (Hall and Triage 2012-2017). For Spotted Salamanders, annual road mortality of more than 10% can lead to local extirpation (Gibbs and Shriver 2005).

Seasonal road closures work fine to protect some amphibian crossing sites. The Delaware Water Gap closes a section of road during migration season, and East Brunswick detours traffic around [Beekman Road's salamander crossing](#) up to ten times each spring. But at Waterloo, the shortest detour option is 18 miles around and includes an interstate highway. Hardly an attractive option for organizers or for drivers.



Snapshot of the amphibian passage design for Waterloo Road, prepared by Kensho Resources LLC.

So we're going to get amphibians across Waterloo Road by funneling them beneath it. Our plan uses four polymer concrete tunnels, spaced every 200 feet or so, with guide fencing to direct animals through them. The project was spearheaded by the Conserve Wildlife Foundation of NJ with input from international herpetile road-crossing expert Tom Langton, representatives from ACO Polymer Products Inc., Sussex County's Division of Engineering (the road owner), and NJ Division of Fish and Wildlife's Endangered and Nongame Species Program (ENSP). Engineering plans were drawn up by Kensho Resources LLC.

In July 2017, the ENSP was awarded a \$500,000 [Transportation Alternatives Program](#) (TAP) grant by the NJ Department of Transportation to implement the Waterloo Road project. TAP funds come from the Federal Highway

Administration for non-traditional projects related to road infrastructure, including efforts to reduce vehicle-caused wildlife mortality and restore habitat connectivity. Construction should take place in Fall 2018. Pre- and post-construction monitoring are planned in order to document how well the passage system is working for the various species passing through.

For more about the Waterloo story, check out the Conserve Wildlife Foundation's ["Connecting Habitat: Waterloo Road" story map](#).

-Written by MacKenzie Hall, ENSP