

# ROAD & BRIDGE SAFETY IMPROVEMENT AWARD PROGRAM

## PROJECT ENTRY: DODDS ROAD REALIGNMENT & STREAMBANK RESTORATION

### Response to Selection Criteria

#### PROJECT SUMMARY

As far back as 1981, erosion and flooding were a problem at Dodds Road, according to Penn Township Supervisor Doug Roth. “I don’t know how many times I was called out in the middle of the night by police because there was water on the road,” he says. “Sometimes, when we expected there would be flooding, we’d take barricades over and set them up ahead of time. It was a dark and dangerous spot in a remote area. If a driver got into trouble, chances were small they’d see another motorist around to help out.”



Dodds Road was flooded after heavy rains in February 2024.

Penn Township did what they could over the years to enhance safety: adding riprap to the roadside bank and replacing the cross drain with a larger one, but, like many townships, they had limited funds available to implement a comprehensive solution. When opportunity struck, they were ready.

In 2021, the American Rescue Plan Act provided more than \$360 billion for infrastructure improvements. The township already had a preliminary concept for realigning the roadway and rehabilitating the adjacent stream to mitigate flood risk; this plan had been developed in cooperation with Butler County and neighboring municipalities as part of a larger, cooperative flood study. When the county sought projects in which to invest its ARPA funds, they knew the need at Dodds Road, and they knew the project was ready to proceed through design and construction. They awarded Penn Township a \$700,000 grant to complete the project, and the clock attached to ARPA funds began ticking.

Engineers initiated formal design and permitting services in February 2023, and construction began in May 2024. The completed roadway opened four months later on September 25th.

## **SAFETY**

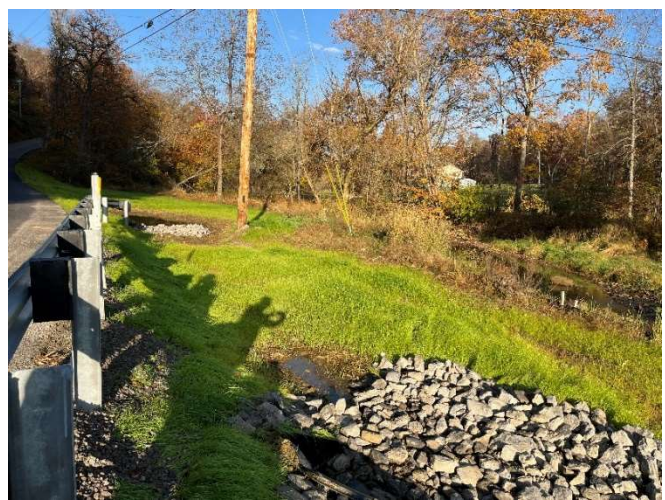
**Reduced flood risk. Improved visibility and turning radii at the intersection. Safer grades.**

“Before the project began, you could take about two steps off the side of the road, and your feet would be wet in the stream,” design engineer Devin Dunwoody says. “There wasn’t a lot of elevation to separate the road from the stream when it flooded either.” Engineers shifted the alignment of Dodds Road away from the stream and installed guide rail on both sides of the road.

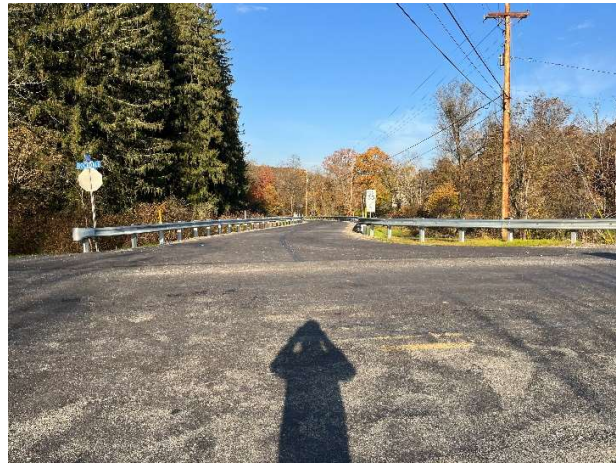
As they designed a new roadway alignment, they made badly needed improvements to visibility at the intersection of Dodds Road with Rockdale Road, too. Originally, Dodds Road was a steep climb to the intersection with Rockdale Road. Drivers had to navigate a sharp turn from Dodds Road onto Rockdale Road, immediately onto a bridge with almost no approach roadway as a buffer. Engineers shifted Dodds Road away from the bridge and flattened the approach roadway. “The grades were steep before,” Dunwoody says. “If you came to the stop sign at the T-intersection, you’d be facing uphill significantly, which made it difficult to turn out onto the road without potentially spinning tires – especially on wet roads. With the grade changes, we were able to provide a better approach.”



**BEFORE:** Dodds Road was very close to the creek, and visibility at the intersection with Rockdale Road was reduced due to the steep slope of the roadway.



**AFTER:** The road has been shifted away from the creek.



The photos show the Dodds Road approach to the intersection with Rockdale Road.

Shifting the alignment made the intersection much safer, but additional work was needed to further mitigate flood risk. The low point elevation in the roadway was raised by over 3.5 feet, and the horizontal alignment shifted nearly 25 feet further from the stream. Additional drainage pipes were designed to allow water to pass under the roadway rather than over to utilize additional wetland flood storage area on the opposite side of the road. As high-water levels at the stream recede, the same pipes allow the waters to pass through under the roadway and restore the areas adjacent to the roadway to return to normal conditions.

## RESOURCE INNOVATION

### Regional collaboration with county and neighboring municipalities positions township for ARPA-funded grant

The project was primarily funded by the American Rescue Plan Act (ARPA) via a grant from Butler County's Municipal Infrastructure Program. This grant, for \$704,484, covered up to 90% of design and construction costs, and Penn Township provided a 10% Local Share match from its Infrastructure funds. Many projects competed for this funding, but Dodds Road was prioritized, in part, because of its regional impact. Penn Township had previously participated in a joint flood study of the Lower Connoquenessing Watershed with nine other municipalities in southwestern Butler County. Through site investigations, interviews, and watershed modeling, engineers identified the root causes of flooding in the area and recommended strategies to reduce flood risk at the watershed level. The study identified 32 projects to address these root causes and reduce flood risk throughout the region. Dodds Road was one of those projects; thus, Butler County had hard data to demonstrate that the positive impact of improving Dodds Road would extend beyond Penn Township's borders to benefit all downstream communities.

It was a wise investment of federal funds, made even better by the project team's efficiency. Herbert, Rowland & Grubic, Inc. (HRG) provided engineering services and secured necessary permits. Two contractors, Phil Hay & Sons and CRS Contracting, completed construction. The final cost was \$115,000 less than the original projected budget. Savings came from many places: Township staff and community volunteers provided labor for the streambank restoration portion of the project, and utility relocations were achieved at no cost, thanks to cooperation from the utility companies. The overall design was refined through several iterations to find a balance of cost vs reward in flood mitigation.

## BENEFITS OF IMPROVEMENTS

**Safer roads. Cleaner streams and better habitats for aquatic creatures.**

Driving along Dodds Road and turning onto Rockdale Road is much safer than it used to be now that the roadway alignment has shifted away from the stream and bridge. Drivers have better visibility at the intersection, and it is easier to turn, thanks to the increased radii and grading adjustments. Flood risk is also reduced, thanks to the revised alignment, streambank stabilization, and installation of fish habitat structures that focus mainstream flow toward the center of the stream channel. These stream enhancements also prevent erosion and reduce sediment pollution. This will improve the trout population's health and enhance fishing opportunities.



The photo on the left was taken after heavy rain in February 2024 (before the project was built). The photo on the right shows the same roadway after a similar rain event with melting snow in February 2025 (after the project was built). The flood mitigation efforts kept significant water off the roadway.

## COOPERATION

**The county, neighboring municipalities, watershed alliance, state agencies, contractors, consultants, and volunteers bring the project to life with funding support from the federal government.**

This project would not have happened now without collaboration with neighboring municipalities. Penn Township joined the Southwest Butler County Stormwater Management Committee and nine other municipalities in 2019 for a cooperative study of flooding in southwestern Butler County. Through site investigations, interviews, and watershed modeling, engineers identified the root causes of flooding in the area and recommended strategies to reduce flood risk at the watershed level. The study identified 32 projects to address these root causes and reduce flood risk throughout the region. Nine of the ten municipalities agreed to a cost-share agreement to implement the projects, and the group worked together to seek grant funding. The county awarded more than \$5.8 million to participating municipalities via its ARPA money to fund 8 priority projects. Dodds Road was one of them. The cooperative study documented the need and helped attract the funding the township required to get a project off the ground.

With money in hand, the township engaged Herbert, Rowland & Grubic, Inc. (HRG) to assist with design and permitting. Together, they collaborated with the U.S. Army Corps of Engineers, the Pennsylvania

Department of Environmental Protection, PennDOT, and the Pennsylvania Fish and Boat Commission to meet permitting requirements and design standards. The Connoquenessing Watershed Alliance volunteered to stabilize the streambanks and install fish habitat structures. These measures stabilize the streambed, improve erosion control, and enhance local fish populations. Township staff and several of HRG's engineers also volunteered their time and skills for this work.



Volunteers helped install stream stabilization measures and fish habitat structures that will mitigate flood risk through enhanced erosion control and enhance local fish populations.

The Connoquenessing Watershed Alliance has a long history of working with Penn Township to reduce flooding and improve local water quality. In 2007, they completed stream rehabilitation on Thorn Creek at Winters Road, and the township's public works staff offered support. Over the years, the alliance completed several similar projects around the area, and the township assisted when asked. They'd even begun planning a stream rehabilitation project at Dodds Road prior to the flood study, so it was natural for them to offer their support as the Dodds Road project progressed.

Central Electric and Consolidated Communications completely rebuilt the power and communications infrastructure in the project area. Construction activities were performed by the township's public works department alongside local contractors: Phil Hay & Sons and CRS Contracting.

## CONTACT INFORMATION:

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