Stream Crossings

What is a stream crossing?
A stream crossing is a stabilized area that provides controlled access for livestock, equipment, and vehicles. It helps to minimize environmental effects resulting from farming activities.

Do you notice any of these issues on your farm?
- Livestock standing in deep mud near streams
- Livestock standing in streams for extended periods
- Ruts or erosion from equipment crossing streams
- Degraded stream banks

Stream crossings have many benefits
- Provide equipment access to all fields
- Provide animals access to all pastures
- Improve livestock health
- Improve water quality and stream health

Many farms have areas where streams are crossed by animals, equipment, or both. Because streams are constantly eroding and replacing material, these areas often become unstable. The resulting rutting, erosion, and increased nutrient transport are detrimental to the environment and cause excessive maintenance costs.
How do you design a stream crossing?

Planning a stream crossing. Photo credit: Tioga County Conservation District

Recently completed stream crossing—note the log cross vane as a downstream grade control. Photo credit: Tioga County Conservation District

Stream crossings must be designed by professionals to ensure that they remain stable during flood events. Additionally, all newly constructed stream crossings require permits. Planning and design considerations include:

- Purpose and location of the stream crossing
- Size and type of equipment that will use the crossing
- Stream bed conditions (stable or soft and muddy)
- Watershed size and stream bankfull dimensions
- Peak flow analysis and stability calculations
- No alterations of bankfull dimensions of the stream
- No impediment of aquatic organism passage

Many design choices are possible

Several types of crossing designs (ford, ramp, rock lined, concrete, culvert, bridge) can be used. The type chosen for each location is dependent on factors such as the intended use, stream bed composition, stream entrenchment, and watershed size. Assistance with design, obtaining permits, and construction is available (see links at the end of this fact sheet for more information).

Other practices are associated with stream crossings

Stream crossings are often part of a comprehensive system involving several conservation practices. Most commonly, this practice is used within grazing or cropping systems to provide access for animals and machinery to other parts of the farm. Some common associated practices include:

- Fences
- Access roads
- Animal trails and walkways
- Stream bank and shoreline protection

What maintenance is required?

Streams move sediment and debris with each storm, so maintenance of a stream crossing may be needed. A well-designed crossing will remain stable through floods. However, newly deposited materials or erosion can undermine the stability of the crossing over time. To avoid instability:

- Inspect the stream crossing after each flood event
- Remove deposited material from the immediate area of the crossing
- Repair stream bank or stream bed erosion if present

What else should you know about constructing a stream crossing?

As with most improvements made on your farm, stream crossings will have a cost. Materials such as stone, fabric, and fencing are common purchases. In addition, you may need specialized equipment to build stream crossings resulting in rental costs or hiring a contractor to do the work.

Stream crossings are eligible for funding through several conservation programs administered by the State Conservation Commission and Natural Resources Conservation Service (NRCS). Additionally, several local funding sources may be available through organizations such as County Conservation Districts or local non-governmental organizations.

For more information, reach out to staff at the Center for Agricultural Conservation Assistance Training (extension.psu.edu/water/conservation-practices-and-training/experts), NRCS (nrcs.usda.gov/conservation-basics/conservation-by-state/pennsylvania#contact), or your local conservation district office (pacd.org/?page_id=59)

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