Dirt Gravel and Low Volume Road Program

WEBINAR

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Stream Crossing Replacement Site Prioritization

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Stream Crossing Replacement Site Prioritization

- **Background**
- Considerations for Prioritizing Stream Crossings
- Criteria for Prioritizing Stream Crossings
- Finding Priority Stream Crossings
- Tools
- Leveraging Additional Funding Sources

Background

- Stream crossing replacements are costly, limiting the number of replacements each county can complete.
  - Conservation districts have shown interest in maximizing the benefits of crossing replacements (some crossings have greater environmental value than others).
  - There are various criteria that can be used to prioritize sites that provide the most benefit for the intended cause.
    - Can be beneficial for finding project sites and selecting between sites.

The information provided in this webinar is for your consideration when identifying and funding stream crossing replacements. They are not requirements.

Background

There should be a focus on environmental issues, not so much general infrastructure replacement.

Structural and environmental issues.

Background

Structurally sound with environmental issues.

Background

Structurally sound with environmental issues.

Background

Structural issues. Minimal environmental issues.

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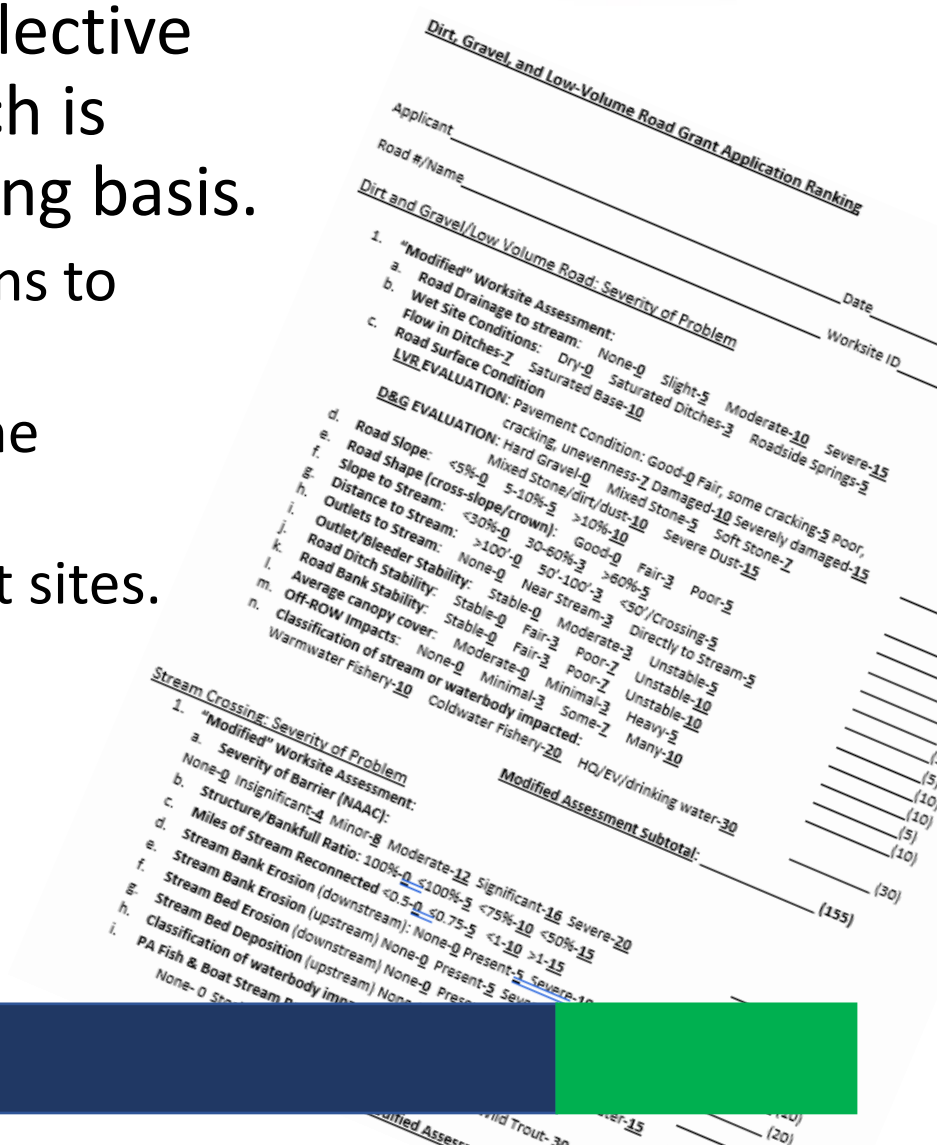
Considerations for Prioritizing Stream Crossings

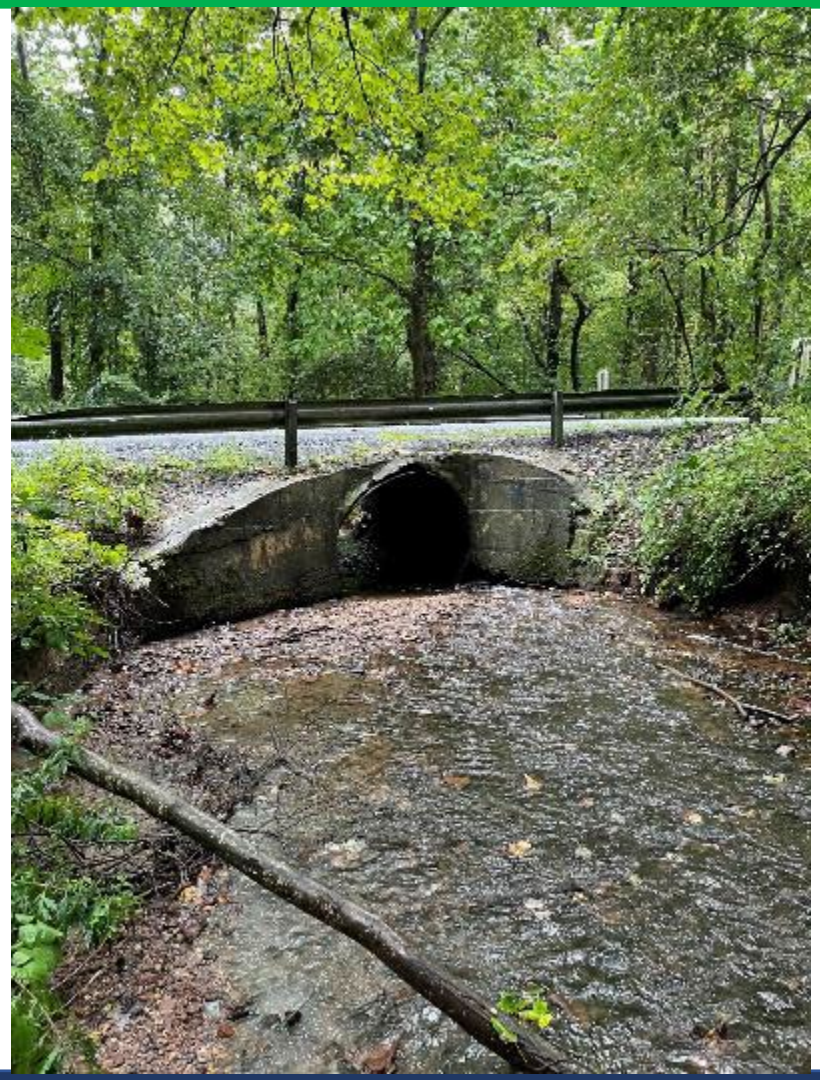
- An application deadline is imperative for being selective when funding projects. The prioritization approach is minimally effective if taking applications on a rolling basis.
  - There needs to be multiple stream crossing applications to prioritize against each other.
  - The local ranking criteria should be set up to inform the prioritization.
  - Districts can help steer potential applicants to the best sites.



Considerations for Prioritizing Stream Crossings

- Consider the environmental impact then consider the resources affected.
  - Are there negative effects resulting from the crossing?
  - What is the value of the resource affected? (Habitat Value)

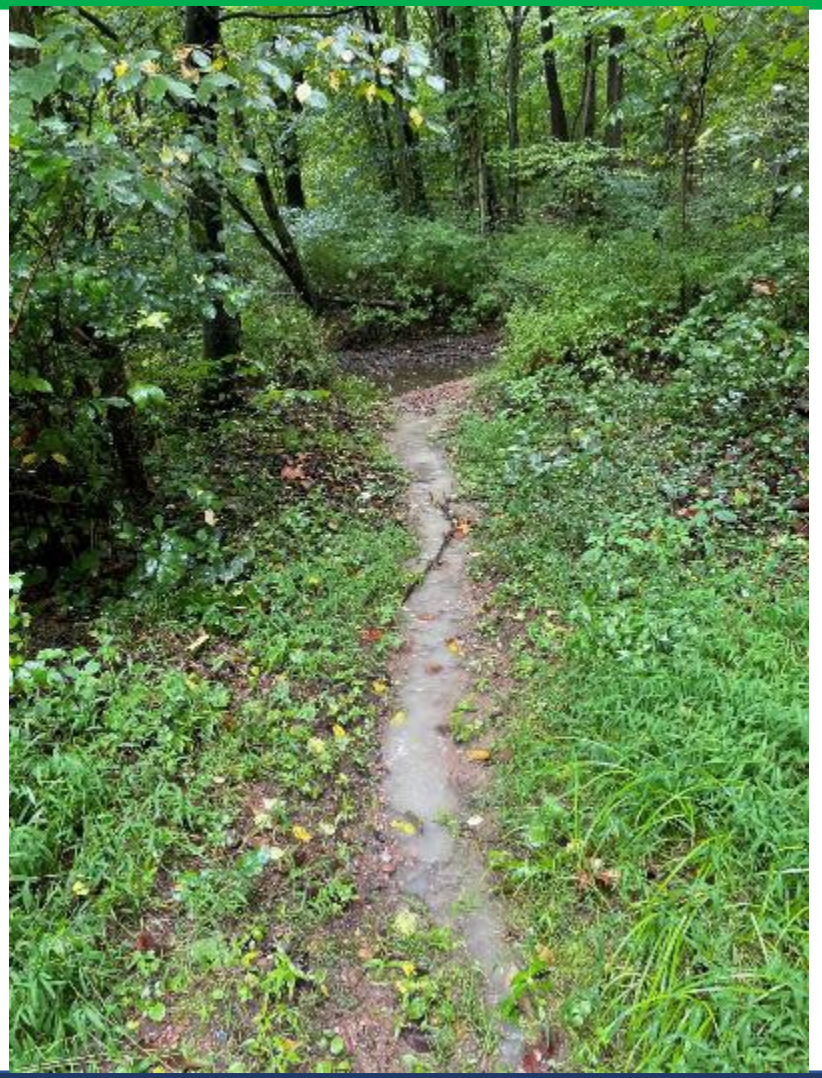
Considerations for Prioritizing Stream Crossings



Example

- Lancaster County – Pumping Station Road
- Walnut Run
- 1.6-mile-long wild trout stream and tributary to larger wild trout stream, Hammer Creek
- AOP Barrier
- Upstream Deposition
- Downstream Scour
- Failing Pipe
- Stormwater Drainage Impacts
- Reconnects >1.5 miles of stream (headwaters to mouth)

Considerations for Prioritizing Stream Crossings



Considerations for Prioritizing Stream Crossings

Does the site have issues outside the crossing?

- Examples
  - Are there drainage impacts affecting the stream/stream crossing?
  - Does the project build upon other completed projects in the watershed?
  - Is the project necessary to the greater success of other locally completed projects?
  - Is the stream crossing replacement part of a phased project?

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Criteria for Prioritizing Stream Crossings

Examples

- Wild trout
  - Brook trout, Priority Brook trout watersheds
- Other species of concern
- Stream Designation (WWF->EV)
- Culvert Barrier Severity (AOP-related)
- Miles of Stream Reconnected
- Constriction Severity (hydraulic conveyance, existing structure vs. bankfull)
- Stream Channel Impact (bed/bank erosion, bed deposition, overtopping, etc.)
- Landscape position (multiple roads cross the stream from headwaters to mouth)

Local Ranking Criteria Example

Severity of Barrier (NAAC): None: **0** Insignificant**: 4** Minor: **8** Moderate: **12** Significant: **16** Severe: **20** _____(20)

Structure/Bankfull Ratio: 100%: **0** <100%: **5** <75%: **10** <50%: **15** _____ (15)

Miles of Stream Reconnected <0.5: **0** <0.75: **5** <1: **10** >1: **15** _____ (15)

Stream Bank Erosion (downstream): None: **0** Present: **5** Severe: **10** _____ (10)

Stream Bank Erosion (upstream) None: **0** Present: **5** Severe: **10** _____ (10)

Stream Bed Erosion (downstream) None: **0** Present: **10** Severe: **20** _____ (20)

Stream Bed Deposition (upstream) None: **0** Present: **10** Severe: **20** _____ (20)

PA DEP Stream Designation: WWF: **0** CWF: **8** HQ/EV/drinking water: **15** _____ (15)

PA Fish & Boat Stream Designation: None: 0 Stocked Trout: **10** Nat Re. Trout: **20** Class A Wild Trout: **30** _____ (30)

This criteria can be adjusted to suit each individual county's needs. An updated example ranking criteria sheet will be available on the Center's website shortly.

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Finding Priority Stream Crossings

- You can be proactive in finding high-priority crossings for your municipal partners.
  - A stream crossing in poor condition with significant environmental impact may not even be on the municipality's radar.
  - Strengthens the municipality's application and likelihood of funding
  - Many projects have been done where the district brought the project idea to the road owner.

Finding Priority Stream Crossings

- Prioritizing only small crossings on small streams may not optimize environmental uplift and expense
  - Limited habitat value or environmental impact
  - May often be necessary as part of a larger project

- It is a misconception that small streams make for easier crossing replacements
  - Steeper slopes
  - Vertical offset of the channel
  - Constructability issues

Finding Priority Stream Crossings

Be Upfront (Pre-Screening)

- If a site has low environmental impact and is unlikely to be funded, let the municipality know and why.
- Avoid the time for site assessment for projects that are unlikely to be funded.
- Focus time for survey and material / cost estimating for projects that have a realistic chance of receiving funding.
- Work with your municipalities to identify high-priority sites (be proactive)

Finding Priority Stream Crossings

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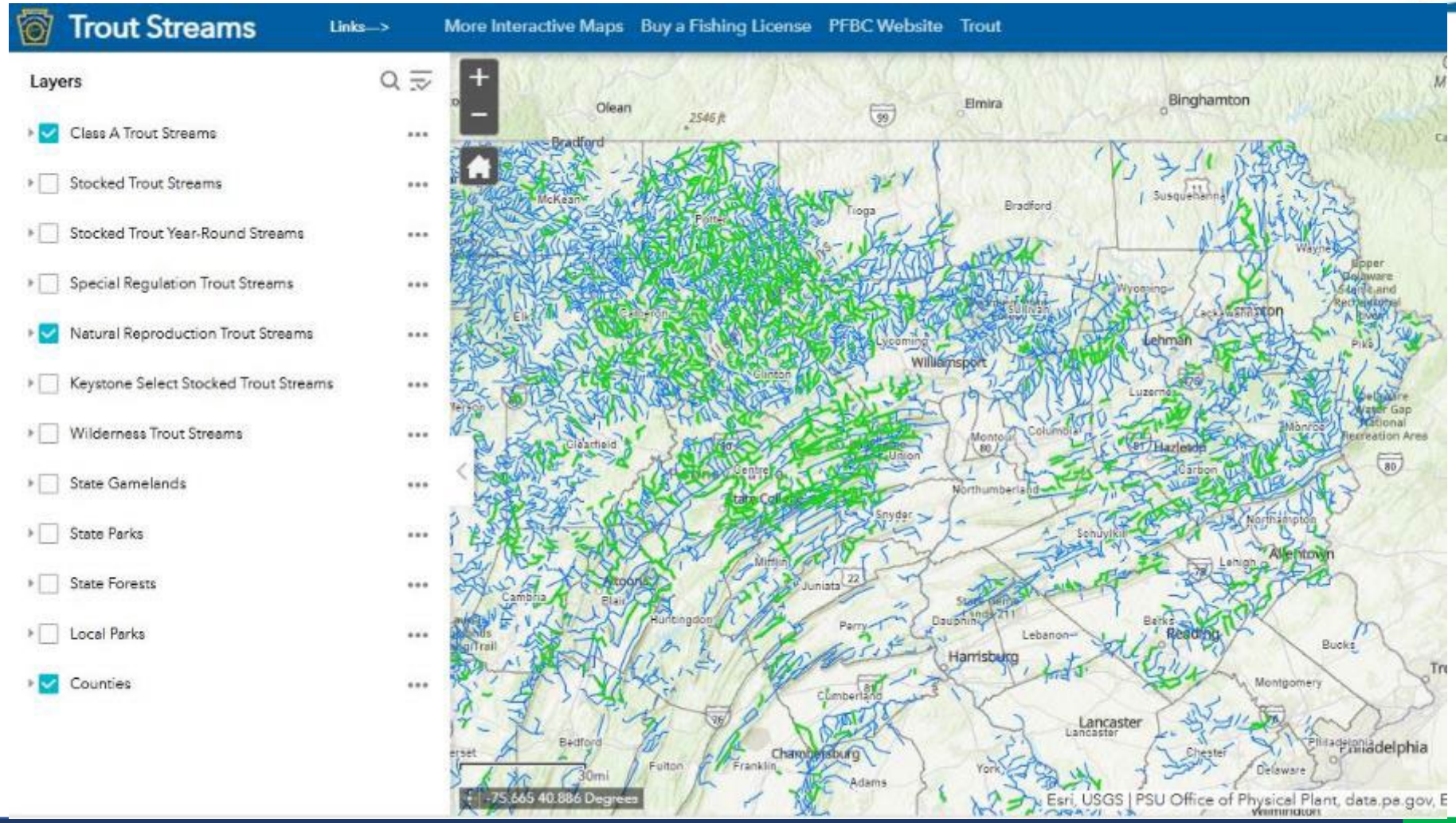
Tools (PFBC Interactive Trout Streams Map)

[Trout Streams]



Tools (Conservation Explorer Map)

[Map | PA Conservation Explorer]

Tools (North Atlantic Connectivity Collaborative)

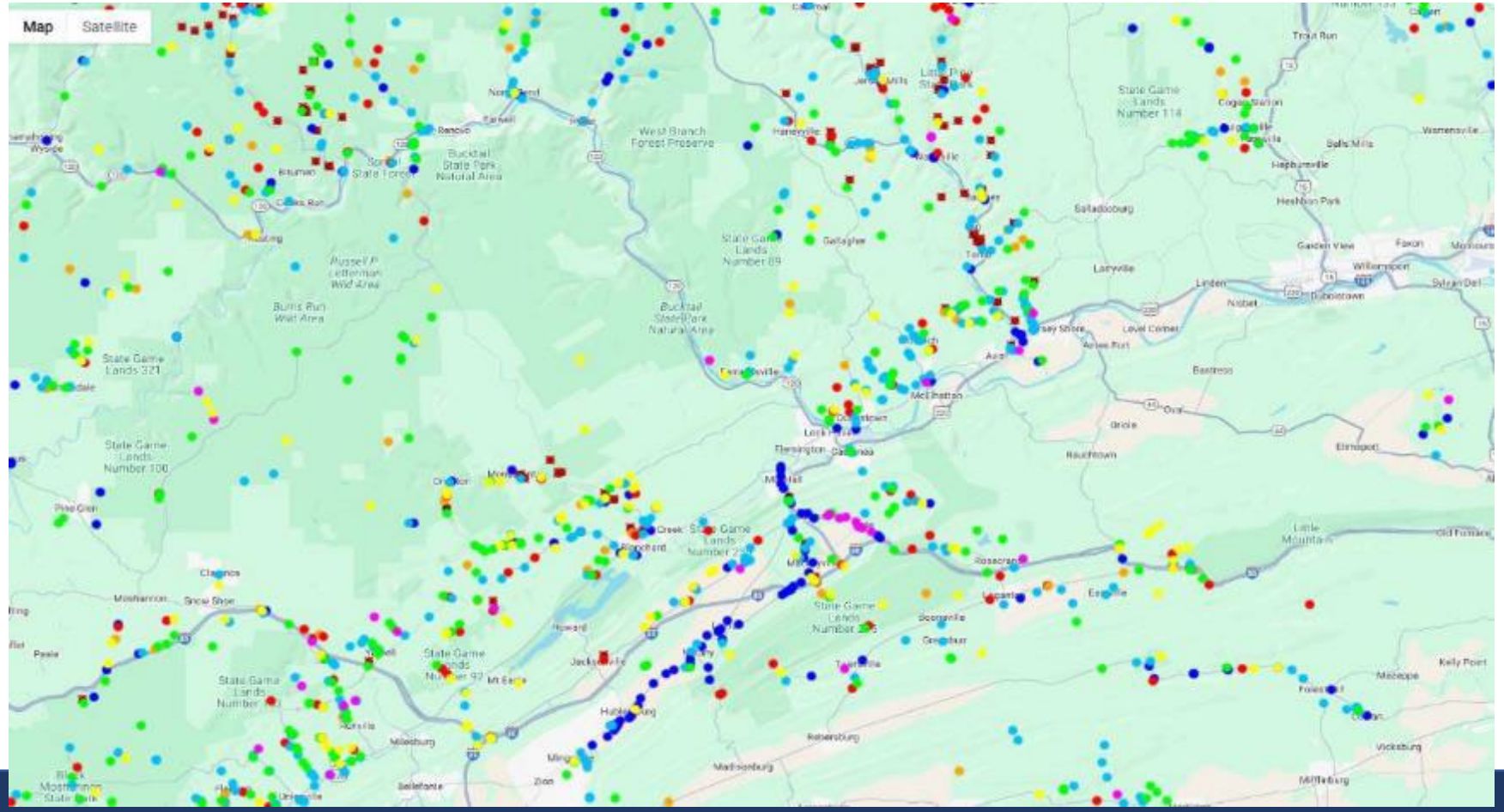
- Also known as NAACC
- Method for assessing culvert conditions and aquatic organism passage
- Coarse index of barrier severity
- Become familiar with the parameters NAACC uses to visually determine the severity of barrier, etc.
- PFBC has staff and partners that can come survey an unassessed site.

Tools (North Atlantic Connectivity Collaborative)

- Bankfull width
- Structure width
- Substrate coverage
- Vertical offsets
- Water depth and velocity
- Condition of structure

Tools (North Atlantic Connectivity Collaborative)

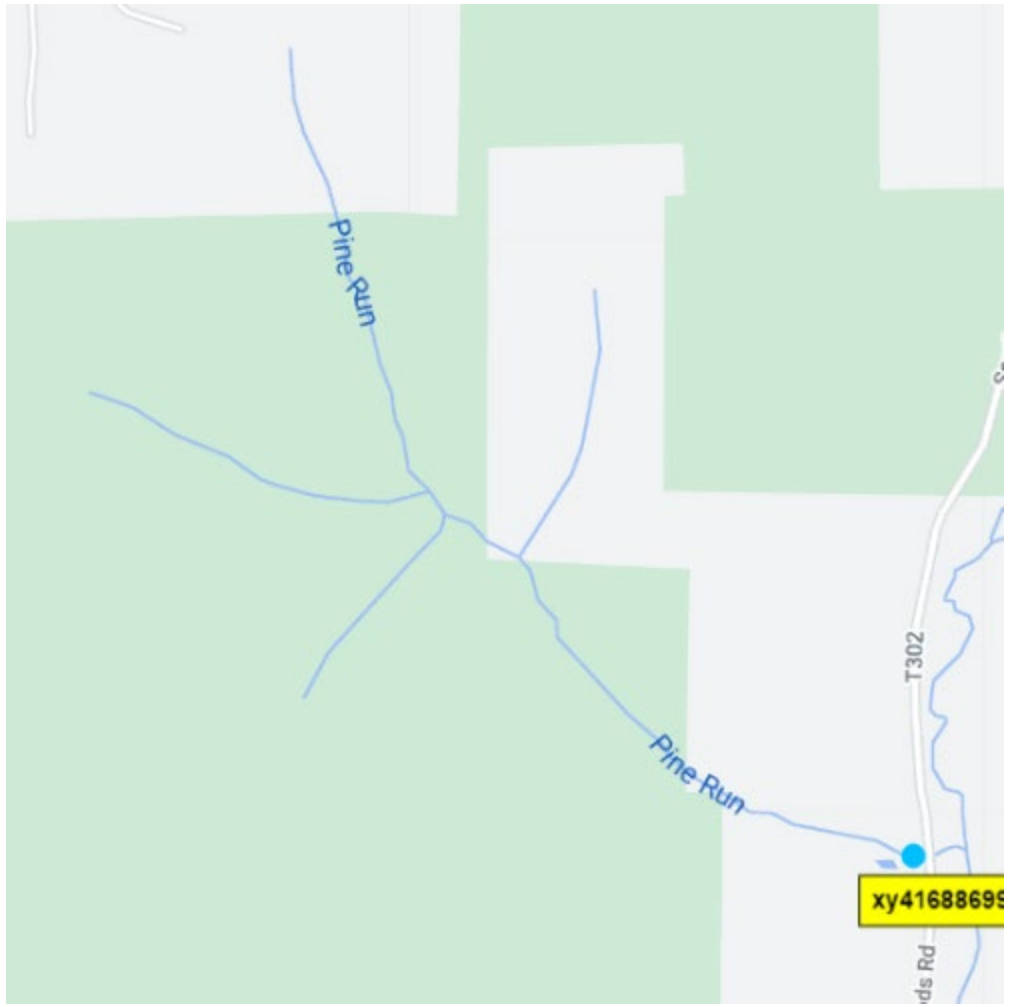
- https://naacc.org/naacc_data_center_home.cfm



Tools (North Atlantic Connectivity Collaborative)

- PFBC is working with several colleges to do NAACC surveys at unassessed crossings
- Non-profits: TU and WPC
- Dave Dippold: PFBC Fish Passage Biologist
  - ddippold@pa.gov
- Clayton Good: PFBC Division of Environmental Services
  - Clgood@pa.gov

Tools (North Atlantic Connectivity Collaborative)



- Perennial Stream
- High-Quality Cold-Water Fishery
- Wild Trout Stream (Class A candidate)
- Only culvert on entire stream
  - Complete AOP barrier
  - Restores connectivity to 1.1 upstream miles
  - Reconnects stream from headwaters to mouth
- Existing 3’ failing round pipe
- 9-foot average bankfull width

Tools (National Aquatic Barrier Inventory and Prioritization Tool)

https://aquaticbarriers.org/priority/small_barriers/

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Leveraging Additional Funding Sources

- The road owner may only be interested in the replacement if the district can provide total funding.
- Some districts do not have the budget to complete stream crossing replacement projects with DGLVR Program funding alone.
- There are opportunities to seek and utilize other grant funding sources to offset these costs.
- To achieve more benefits, it may be important to replace additional stream crossings that the DGLVR Program cannot fund.

Potential Funding Sources

- National Fish and Wildlife Foundation
- DEP Growing Greener
- DCNR C2P2
- Coldwater Heritage Partnership
- Eastern Brook Trout Joint Venture
- Energy Companies
- US Fish and Wildlife
  - Chesapeake WILD Program
  - Delaware Watershed Conservation Fund
  - Great Lakes Fish and Wildlife Restoration Act Grant Program
  - National Fish Passage Program

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Questions?

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