



Maryland
Department of
the Environment

**THE MDE FOREST FINANCING
IMPLEMENTATION TOOL
(MD FFIT)**





Maryland Clean Water SRF

FIRST, SOME
BACKGROUND INFO:
WHAT IS THE MD WATER
QUALITY REVOLVING
LOAN FUND?

Maryland's Water Quality Revolving Loan Fund, **more commonly known as the Clean Water State Revolving Fund (CWSRF)**, provides financial assistance for a wide variety of projects to protect or improve the quality of Maryland's rivers, streams, lakes, the Chesapeake Bay and other water resources.

The CWSRF program:

- Represents the best value in the market for financing water infrastructure and nonpoint source projects
- Is administered by the Maryland Department of the Environment (MDE)
- Provides over \$150M in assistance per year to Maryland communities, on average



Why Choose an SRF loan?



The SRF generates

BIG SAVINGS

with below-market SRF loan rates:

50% of the Bond Buyer 11-Bond Index rate for Standard Loans

currently 0.9%

25% of BBI 1-BI rate for Disadvantaged Communities

currently 0.4%



It has ample

CAPACITY

A CWSRF loan can cover **100%** of costs for most projects



and

FLEXIBILITY

The CWSRF can **customize** assistance to a borrower's needs, including:

- loan terms
- interest rates & fees
- guarantees
- refinancing
- additional subsidy
- ...and more



Factors for DAC Consideration

WHAT IS A
"DISADVANTAGED
COMMUNITY"?

MDE's Water Quality Financing Administration takes several criteria into account to determine whether a community should be designated as "disadvantaged." These include:

- Community MHI < 70% State MHI
- Located in an Environmental Benefit District
- Unemployment rate in upper 33rd percentile, and
- Population decline

Disadvantaged communities may qualify for reduced interest rates or loan forgiveness from MDE's CWSRF program



IPPS RANKING FACTORS TO SCORE PROJECTS

- All applications for CWSRF assistance are scored and ranked using MDE's Integrated Project Priority System (IPPS)
- Riparian buffer restoration / tree planting projects are rated based on the below criteria:
 - Water Quality Benefit (Total Nitrogen (TN) reduction)
 - Effectiveness of TN reduction based on location of the project
 - Mitigation of a public health emergency, contamination, or flooding issue
 - Compliance credit toward a TMDL, a CCMP, or addressing a 4c listing from the Maryland Integrated Report of Surface Water Quality
 - Nitrogen Removal Cost Efficiency, and;
 - Co-Benefits (for Climate Mitigation, Adaptation, Resiliency, or Sustainability)
- Click [HERE](#) for more information about the IPPS and project ranking criteria.



RFB NOW INCLUDED IN THE IPPS

- Riparian Forest Buffer (RFB) Restoration was recently added to the IPPS as a fundable project type / ranking methodology
- This along with the Tool are part of MDE's efforts to encourage CWSRF applications from communities for tree planting / RFB restoration projects



The Calculator at 10,000 Feet

THE MARYLAND FOREST FINANCING IMPLEMENTATION TOOL

WELCOME TO MDE'S ECOSYSTEM RESTORATION CALCULATOR!

This calculator was developed to help communicate the benefits of tree planting and reforestation projects in the state of Maryland and the critical role these types of project play in protecting water quality in our rivers, streams, and the Chesapeake Bay. Ecosystem restoration projects that incorporate tree and native grass plantings can effectively reduce pollutant runoff, support healthy soils, sequester carbon dioxide, and potentially earn stormwater credits needed for permit compliance in certain jurisdictions. This calculator is divided into two separate sections: Discover Ecosystem Restoration and The Project Planning Tool.



DISCOVER ECOSYSTEM RESTORATION

Curious about how far your money can take you with an ecosystem restoration project? How much can you afford? Use this section of the tool to create a hypothetical overview of what a potential ecosystem project might cost, how many stormwater credits could be earned, and what your loan term might look like. This section will provide a general overview only. The multipliers used to estimate project benefits and annual costs in this section were based on an assumption of 100 acres planted with 75% seedlings (50 acres planted with conifers and 25 acres planted with hardwood seedlings) and 25% native grass plantings, as well as forest services for landscaping and vegetation care and maintenance activities. Actual project costs will vary. If you have a specific project in mind, please continue to The Project Planning Tool below to explore the costs and benefits in more detail.

Project Location

Where is your project located? Select from the drop-down box.

MS4 Phase 3 Riparian

Project Budget & Financing

How much do you plan to invest in the project? Enter a dollar value here.

\$ 1,762,000.00

Are you planning to receive any grant funding? Enter a dollar value here.

\$

What interest rate do you expect to pay on a loan?

5.00%

How quickly do you plan to repay the loan (years)? Select from the drop-down box.

15



ESTIMATED BENEFITS & ANNUAL COSTS

You could afford to restore this many acres	148
You could earn this many MS4 stormwater credits	218
The annual payments on your loan could be as low as	\$ 128,094

THE PROJECT PLANNING TOOL

Already have an ecosystem restoration project in mind? Use The Project Planning Tool below to estimate what this project might cost, how many stormwater credits you might be able to earn, how the project might reduce pollution loads in stormwater runoff, and how many carbon credits you could earn! Enter information on use the drop-down menus to make selections in the gray shaded boxes ONLY.

Part 1: PROJECT COSTS

What will you plant?

1A - Where is your project located? Select from the drop-down box.	MS4 Phase 3 Riparian	1B - What land use are you converting to Riparian Forest Buffer (RFB)? Select from the drop-down box.	Turf
2A - How many acres are in your project area? Enter the number of acres.	140	2B - Enter the number of trees per acre you will plant.	850
3 - How much will you spend to hire a landscaper for pre-planting services? Select the estimated cost/acre for your area from the drop-down box.			\$ 500.00
4 - How many acres will be planted with native grasses? Enter the number of acres.	40	5 - How many acres will be planted with seedlings and/or containerized trees? Enter the number of acres.	100
6A - Do you want to plant hardwoods? Make your selection in the drop-down menu.	hardwood seedling	Enter the number of acres.	50
6B - Do you want to plant conifers? Make your selection in the drop-down menu.	Conifer containerized tree	Enter the number of acres.	50

Contractor and Labor Services

7 - How much will you spend to hire a contractor to perform post-planting care and maintenance? Select the cost/acre for your area from the drop-down box.		8 - How much will you spend on an approval? Select the estimated cost for your area from the drop-down box.	I don't know
9 - How much will you spend on a land survey? Select the estimated cost/acre for your area from the drop-down box.	\$ 400	10 - How much will you spend on an appraisal? Select the estimated cost for your area from the drop-down box.	\$ 1,000
10 - How much will you spend on legal services? Select the estimated cost for 1000 acres from the drop-down box.	\$ 300		

Private Equipment Payment

11 - Will you need to compensate private landowners for the acreage they are contributing to ecosystem restoration with a conservation easement? Typical appraisal value per acre range from \$1,000 (low range), \$4,000 (mid-range), and \$8,000 (high-range). Please select from the drop-down box.	\$ 1,000
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Miscellaneous/Other

12 - Enter the cost of any other project expenditures you may have that were not captured above.	\$ 100
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Financing

13 - Are you planning to receive any grant funding? Enter a dollar value here.	\$	14 - If you are financing the rest of your project with an MS4 loan, do you plan to enter your interest rate. Do not include the administrative fee.	0.00%	15 - Are you a disadvantaged community, as defined by MS4C100 in the MS4 permit rule?	Yes
16 - Do you know what interest rate you'll have to pay if you did not receive an MS4 loan? Select from the drop-down box.	Yes	If you selected Yes, what interest rate would you pay?	5.00%		
17 - How quickly do you plan to repay the loan (years)? Select from the drop-down box.	15				

How does the Estimated Project Costs budgeting table work?

Your project cost entries will be shown in the budget table below. Each line item numerically corresponds with a project cost entry on the left. Low, mid, and high cost ranges have been included for each budget line item to help you plan for a more realistic cost spread. The budget is based on broad cost estimates only. Actual project costs will vary.

ESTIMATED PROJECT COSTS				
Cost Range	Low	Mid	High	
1 - Pre-Planting Services	\$ 52,500.00	\$ 79,000.00	\$ 87,500.00	
4 - Planting: Native Grasses	\$ 1,980.00	\$ 2,117.00	\$ 2,647.00	
6 - Planting: Seedlings	\$ 179,812.50	\$ 239,750.00	\$ 299,687.50	
6 - Planting: Containerized Trees	\$ 927,993.75	\$ 937,935.00	\$ 946,656.15	
7 - Post-Planting Care & Maintenance Services	\$ 9,870.00	\$ 13,180.00	\$ 16,490.00	
8 - Land Survey	\$ 42,000.00	\$ 54,000.00	\$ 69,440.00	
9 - Land Appraisal	\$ 750.00	\$ 1,000.00	\$ 1,250.00	
10 - Legal Services	\$ 300.00	\$ 300.00	\$ 375.00	
11 - Private Equipment Payment	\$ 113,000.00	\$ 420,000.00	\$ 533,000.00	
12 - Miscellaneous/Other	\$ 875.00	\$ 100.00	\$ 625.00	
TOTAL PROJECT COST	\$ 877,614.45	\$ 1,170,152.60	\$ 1,462,130.75	

ESTIMATED MDE CWSRF LOAN REPAYMENT

The annual payments on your MDE loan will be approximately	\$ 64,528	\$ 86,637	\$ 107,505
The total payments to MDE over the life of the loan will be approximately	\$ 943,918	\$ 1,299,558	\$ 1,633,359
Compared to your other borrowing options, over the life of the loan you will save at least	\$ 308,952	\$ 400,470	\$ 508,396

What is a "disadvantaged community"? MDE's Water Quality Financing Administration takes several criteria into account to determine whether a community should be designated as "disadvantaged". These include median household income, unemployment rate, and population. Disadvantaged communities may receive reduced interest rates or loan forgiveness from MDE's Water Quality Revolving Loan Fund program.



Why is the tool helpful?

When a jurisdiction selects a best management practice (BMP), the focus is often on cost per acre. This tool can calculate reductions and efficiencies for Total Nitrogen (TN), Total Phosphorus (TP) & and Total Suspended Solids (TSS) based on user-defined inputs.

The Tool also helps an implementer calculate costs of working with partners like NGOs, decide which elements of a project to retain versus outsource, and estimate how competitive a loan proposal to MDE or a grant provider might be.





Why is the tool helpful? (Cont'd)

The Cost Efficiency section of the Tool provides usable information such as:

- Cost per Acre
- Annualized cost per pound of pollutant reduced (TN, TP, and TSS)
- Estimated Impervious Acre (EIA) Cost per acre, and
- EIA Cost per MS4 Credit. (MS4 = Municipal Separate Storm Sewer System)

These efficiencies can be compared to other grant program criteria, e.g., the [Chesapeake Atlantic & Coastal Bays Trust Fund](#)

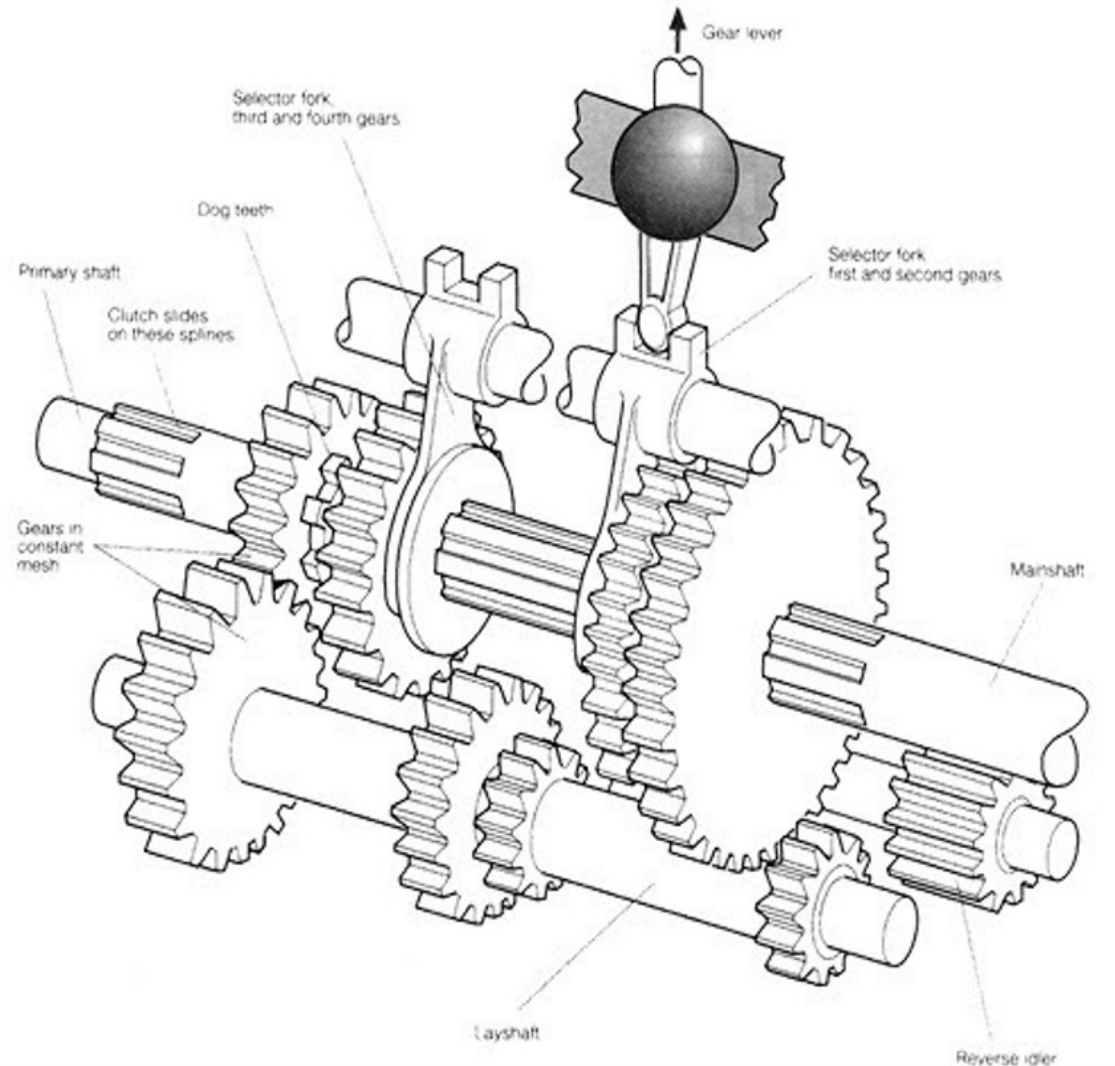




Calculator Details

ALRIGHT, CAN YOU
SHOW ME HOW
THIS THING WORKS?

Yes!





Let's Look Under the Hood

DEMO #1
2021 GUIDANCE

DEMO #2
2014 GUIDANCE



Tech Specs Foundations

2021 VS. 2014 GUIDANCE CALCULATIONS

2021 GUIDANCE	2014 GUIDANCE
Permits for large, county jurisdictions	Permits for smaller populations such as Maryland municipalities
Tentative determinations issued 2020, expected final by end of 2021	Issued in 2018
2021 Guidance available HERE .	2014 Guidance available HERE .
Relies on the latest Chesapeake Bay program environmental modeling information (version 6.0) and is consistent with the Chesapeake Assessment Scenario Tool (CAST)	Relies on modeling data from the previous model (version 5.3.2)



Tech Specs Implications

2021 VS. 2014 GUIDANCE CALCULATIONS

- Due to inherent differences between model versions, the load calculations, credit received, and BMP options are different.
- MDE's Sediment, Stormwater, and Dam Safety Program (SSDS) can answer any questions about the equivalencies and review credit calculation outcomes on a case-by-case basis.
- *It may be possible for a community initially under the 2014 Guidance to apply for and receive credit using the 2021 Guidance under certain circumstances.*



Enhancing Habitat

NATIVE GRASS PLANTINGS

- Calculations based on the 2021 Guidance (riparian and non-riparian) are based on EIA conversions for both **forest plantings** and **conservation landscaping** (which includes native grasses).
- The 2014 Guidance did not include conservation landscaping, so these calculations are based on EIA land conversions for reforestation of previous urban areas **ONLY**.
- Also, for 2014 Guidance calculations, there is no difference in credits between reforestation of riparian and non-riparian





What it Does *not* Do

LIMITATIONS OF THE CALCULATOR

The Tool is for
**PLANNING
PURPOSES ONLY!**

- **Tool outputs are dependent on user-defined inputs.** The user must understand each step of the process and decide whether the elements they include in the calculations make sense.
- The Tool does not compare costs between RFBs and other BMPs. However, a user can make comparisons with known past expenditures for BMPs, or by referring to [MDE's 2019 Stormwater Cost Report](#)
- Costs in “Budget” and other supporting tabs were estimated based on research done in 2020/21. These costs provide a range of High, Medium, and Low estimates for the user’s convenience. *However*, if better local data is available, users can request an unlocked version of the Tool from MDE to customize these values.



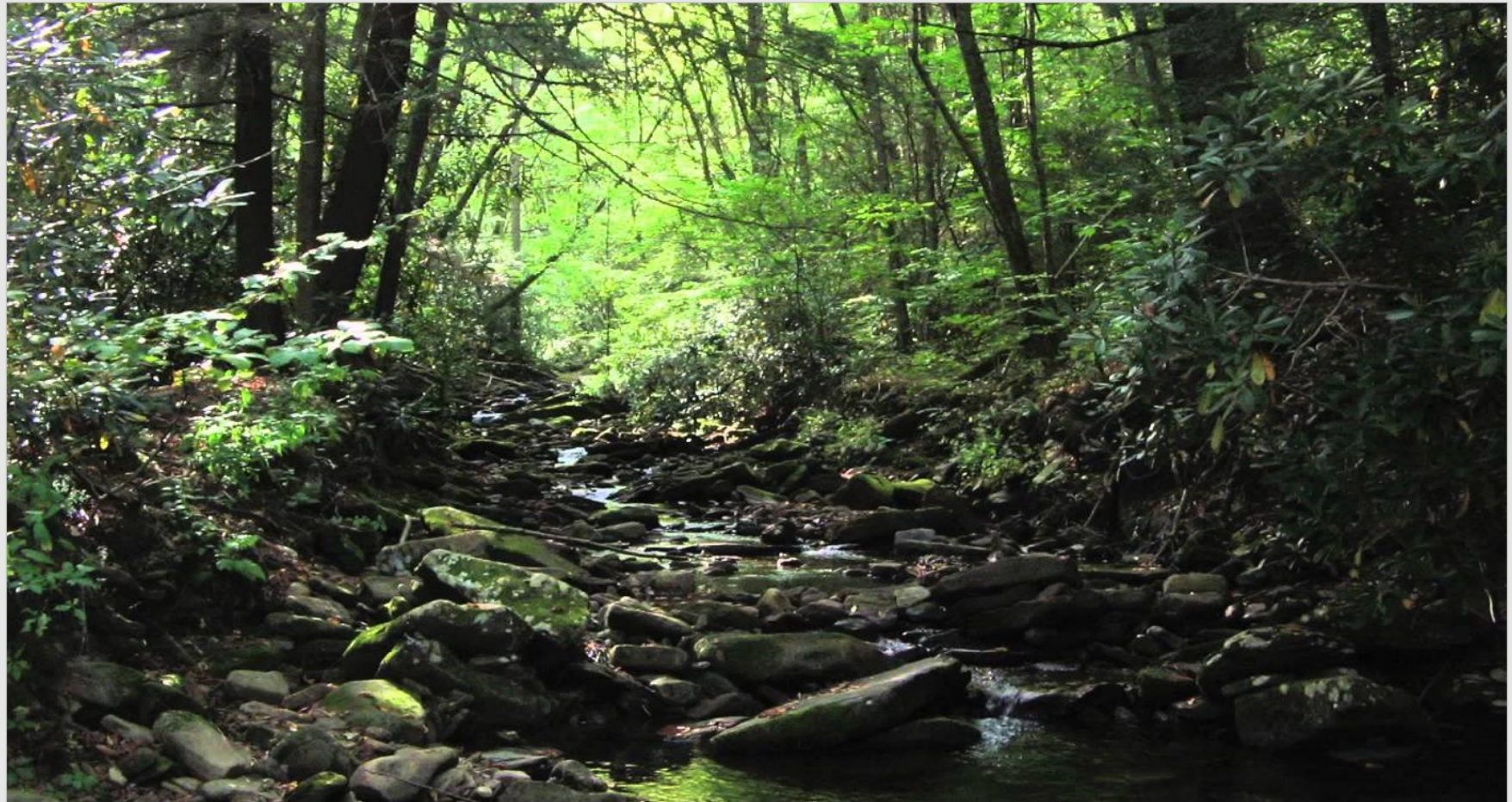
Points of Contact

QUESTIONS AND TECHNICAL ASSISTANCE

- For MDE, permits help to achieve the [Watershed Implementation Plan \(WIP\) Goals](#), therefore the MDE FFIT Tool has been designed for use by MS4 jurisdictions. *However*, if users wish to partner with a non-profit to carry out planting, maintenance or communications, all of these costs are independent and can be included or excluded in the calculations.
- Estimations from the Tool always require follow up with MDE staff to ensure that data, costs, and procedures are relevant and current. **After using this Tool, please follow up with the appropriate Program:**
 - **Financial Questions** – Contact MDE WQFA [HERE](#)
 - **Stormwater Permit Questions** – Contact MDE SSDS [HERE](#)
 - **Watershed Restoration Questions** – Contact MDE IWPP [HERE](#)



Thank you for joining us!



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