Conowingo Watershed Implementation Plan
Financing Strategy
Final Project Report

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SCHOOL OF PUBLIC POLICY
CENTER FOR GLOBAL SUSTAINABILITY

Conowingo Watershed Implementation Plan
Phase 1 Strategy

The following report is a product of the Center for Global Sustainability (CGS, or the Center), based at the University of Maryland. CGS is in the Washington, D.C. metropolitan area. The Center utilizes its strong research network and international policy experts and contacts to informs global, national, and local discussions on climate, energy, economic development, and sustainability. The Center's work is organized around four topical areas—climate policy; energy pathways; health and ecosystems; and adaptation and resilience—that draw upon existing strengths at the University of Maryland, with the integrative goal to facilitate policy design and multi-stakeholder implementation.

Project Leads:

Dan Nees; dnees@umd.edu
Joanne Throwe; jthrowe@umd.edu

Introduction and Executive Summary

The University of Maryland (UMD) Center for Global Sustainability (CGS) was awarded an EPA grant in July 2019 to develop a financing system to advance Phase 1 of the Conowingo Watershed Implementation Plan (Conowingo WIP, or CWP). A financing system is a collection of institutions and rules of engagement that permit the exchange of funds. In the private sector, this includes banks, exchanges, insurance companies and investment firms. In the public sector, it includes agencies charged with allocating and distributing revenues in support of programs and capital projects. Properly functioning financing systems allow borrowers, lenders, and firms to invest current funds to either produce goods and services or generate financial returns on investment. Financing systems can be local, global, or anywhere in between. While the structure of these systems is relatively consistent, how these systems function tends to mirror the unique nature of the industries, regions, and cultures in which they exist.

The structure of the Conowingo WIP financing system was in large part dictated by the Chesapeake Bay Program Partnership in 2017. This is when the partners decided to address the new Conowingo pollution loads collaboratively. This decision impacted the financing process in two important ways. First, it ensured that the Conowingo WIP would be distinct and separate from existing state WIPs currently in place to address Chesapeake Bay pollution limits. The pollution reductions associated with the Conowingo WIP are in addition to the existing state WIP obligations. Second, the desired collaborative approach ensures that the Conowingo WIP will be interstate in nature. This means that project implementation, investment, and financing processes must have the capacity to function across jurisdictional boarders. This differs from the state WIPs in that the entire CWIP process—funding, financing, and implementation—will presumably be implemented collectively among multiple Bay jurisdictions.

The structure of the Conowingo WIP financing system was borne out of necessity. The purpose of the Phase 1 strategy described in this report is to take advantage of the opportunities associated with a new interstate WIP to establish a more efficient, cost effective, and scalable restoration financing process. The benefits of this system are expected to be significant and widespread. They include the following:

- <u>Expanded impact and effectiveness of existing restoration resources and capacity</u>: Mitigating an additional 6 million pounds of nitrogen pollution will require additional fiscal resources and capacity over the long-term. Phase 1 focuses on leveraging existing institutions, financing mechanisms, and ecosystem-based restoration practices to create efficiencies and reduce implementation risk at the outset. The innovative procurement and investment processes that form the basis of this financing system and the Phase 1 plan are understood, well established, and thoroughly researched. The lessons learned in Phase 1 will enable the Bay states to bring the CWIP process to scale in the future. The CWIP Phase 1 plan will also create an entirely transparent investment and administrative process where every dollar associated with managing and implementing the financing and investment process will be tracked and reported. The CWIP financing process will also incentivize administrative efficiency, thereby ensuring maximum funding support on-the-ground restoration.
- <u>Coordination with the State-based Watershed Implementation Plans</u>: The Phase 1 process is designed to ensure that the Conowingo WIP is implemented and funded in coordination and

partnership with the state agencies and leaders charged with achieving State WIP pollution reductions. It is not the role of the CWIP financing team to influence the state based WIP financing processes. The intent is to ensure that the CWIP process will work in coordination with existing restoration efforts.

- Broadscale economic benefits and impact: This multi-state restoration process will maximize the economic impacts and benefits within all the Bay states. Pollution reductions will benefit the Bay-based economies that are so important to the culture and quality of life of the entire region. In addition, investments in sustainable agriculture production are the foundation of the Conowingo WIP and will have a direct, positive impact on the economies and communities in every state where restoration activities occur. The multi-state process should result in reducing restoration costs regionwide while also maximizing economic and ecosystem impacts.

Summary of the Conowingo WIP Phase 1 Process

The Conowingo WIP financing system was designed by necessity to establish an innovative, efficient interjurisdictional investment and implementation process. The intent of designing Phase 1 of the financing effort is to provide state and federal leaders with an opportunity to implement this new restoration system through a controlled process. The Phase 1 process is designed around four components:

- Revenue Commitment by the Bay States: Phase 1 is predicated on a $50 million revenue commitment by the Bay States in support of restoration projects. Public revenues are comprised of income from taxes and fees that support the expenses associated with implementing public sector projects, programs, and infrastructure. The revenue commitment by the Bay states will set in motion private investment and implementation of restoration projects across the Susquehanna River watershed. The state revolving loan fund programs within each state will enable state leaders to guarantee revenue investment in the future while at the same time providing a window of opportunity to identify revenue streams necessary to support Phase 1 and the CWIP process moving forward.

- Expand Existing Institutional Capacity: As is the case with the entire Chesapeake Bay restoration effort, the financing and funding activities associated with the Conowingo WIP will require significant coordination and institutional capacity. The Phase 1 plan leverages the existing capacity of the Susquehanna River Basin Commission (SRBC), which is uniquely structured to facilitate the investment, tracking, administrative, and political activities that will be required moving forward. The inclusion of SRBC in the CWIP process will accelerate implementation and reduce administrative costs.

- Establish Innovative Procurement Systems: The Conowingo WIP will only succeed if every public dollar invested achieves the maximum level of pollution reduction possible. This will require procurement processes that incentivize efficiency and reward innovation, ingenuity, and cost-effectiveness. SRBC will work with a team of experts to establish pay-for-performance financing processes that effectively incentivize private investment in restoration activities for projects with verifiable restoration results. The benefits of these procurement processes to the restoration effort and the Bay States will be significant. First, it will transfer implementation and financing risk to the private sector where it belongs, thereby requiring public investment when, and only when, restoration results are achieved. Second, market-based procurement systems will accelerate implementation activities. This is essential given the short timeframe associated with the TMDL. Finally, pay-for-performance systems coupled with the SRF guarantee, will provide state leaders with an expanded window of opportunity to identify the revenue streams that will support restoration activities in the long-term.

- Ensure Detailed Project Monitoring and Tracking Protocols. Finally, the Phase 1 plan will include detailed project monitoring and tracking protocols. These are being developed by the Chesapeake Conservancy. In keeping with the need for efficiency and innovative, the CWIP project monitoring process will utilize technology to reduce monitoring and tracking costs while at the same time providing the assurances that are necessary for the financing and market system to function appropriately.

The following report provides more details associated with Phase 1. The project team's strategy was to provide state and federal leaders with a concise yet descriptive plan of action to serve as a framework for restoration activities at scale. This plan, coupled with the CWIP financing structure report delivered to the Chesapeake Bay Program Partnership last year is the result of exhaustive due diligence on the part of the project team. The CWIP financing process was guided by the engagement, expertise, and feedback from dozens of public and private financing experts from across the region and country. The resulting Phase 1 plan will facilitate the necessary pollution reductions associated with the Conowingo WIP.

While many of the details of this plan will be determined soon, what is certain now is that success will require strong leadership at all levels of government as well as the private sector. The success of the Conowingo WIP will require bold leadership on the part of the Bay states. By agreeing to the structure of this Phase 1 plan and the relatively modest initial investment of $50 million, state leaders will send a powerful signal that will very quickly incentivize restoration investments at scale.

Structure of the Conowingo WIP Phase 1 Plan

The Conowingo WIP is a road map toward achieving a "pollution diet" like those in place for the entire Chesapeake Bay watershed. For decades, the Conowingo Dam reservoir functioned to trap nutrients, sediment, and other pollutants so that less of it traveled from the Susquehanna River to the Bay. Now the area behind the dam has silted in, rendering it unable to trap any more pollutants.[1] For the purposes of the financing strategy and process, several key issues are worth highlighting. First, the entire WIP geographic scope is within the Susquehanna River Basin. In addition, the vast majority of the WIP is targeting practices within Pennsylvania. As a result, Phase 1 implementation will be restricted to the Susquehanna River Basin primarily, though not exclusively, within Pennsylvania. In addition, the WIP is almost exclusively focused on the agricultural sector. This is reflected in the Phase 1 CWIP.

As is the case with the State-based WIPs, the Conowingo WIP will require a phased implementation approach. This is especially important given the potential impacts and interactions between the CWIP and the State Phase 3 WIPS. Phase 1 of the Conowingo WIP is intended to accomplish the following.

- <u>Advance restoration and scale</u>: Phase 1 will be designed to incentivize restoration investments at scale in the most efficient, effective, and expedient manner possible. Above all else, the purpose of Phase 1 is to advance the Conowingo WIP and improve water quality.
- <u>Establish an interstate financing process</u>: The Conowingo WIP is intended to step outside this state-based system and address the challenged posed by the additional pollutant loads collectively and collaboratively. This defines the challenge: to develop a collaborative Conowingo WIP funding and financing strategy that works in concert with the existing state-based implementation and financing system that is in and of itself not designed for this type of collaborative process.
- <u>Establish an adaptive management process that encourages innovation, flexibility, and measured, verified results</u>: Phase 1 is intended to provide the Bay Program Partners with a genuine opportunity to identify and apply new and innovative approaches to achieving water quality restoration goals, specifically regarding financing and investment. Because the CWIP is being implemented separately from the state WIPs, there is an opportunity to identify and test new restoration approaches and to make necessary implementation course corrections based on measured implementation results.

CWIP Phase 1 Investment Scale

Phase 1 is being designed at a minimum investment level of $50 million, which is based on anticipated revenue guarantees by the CWIP partnership jurisdictions.[2] This level of state-based investment will be augmented by additional revenues generated from the federal government, private investment, philanthropic activity, and perhaps market activity. As a result, the total level of investment is anticipated to be above $50 million. The $50 million investment goal will provide the scale necessary to significantly accelerate restoration activity while at the same time

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[1] https://www.chesapeakebay.net/channel_files/41689/draft_conowingo_watershed_implementation_plan_10_14_20.pdf

[2] Revenues are defined as public income and monies generated in support of the Phase 1 costs and expenses.

be manageable enough to allow for adaptive program management thereby enabling any necessary course corrections related to the investment process. Finally, this proposed scale will effectively provide "proof-of-concept" related to the innovative investment processes that are the foundation of this first phase.

Phase 1 Timeline

Implementation and construction of best management practices will begin in 2022 and run through 2025. During this 3–4-year period, $50 million in restoration project contracts will be initiated. Complete implementation, as well as operations and maintenance (where appropriate), and long-term financing will continue in the intervening years. As a result, the complete Phase 1 timeline will be determined by the specifics of the contracts and the associated projects that are executed by SRBC, and most importantly the revenue commitments by the partnering states.

Establishing the Conowingo WIP Financing Authority

The unique interstate nature of the Conowingo WIP puts added emphasis on institutional capacity within the financing system. The focal point of the Conowingo WIP financing process is the establishment of a Conowingo financing authority.[3] The authority's purpose will be to facilitate and execute water quality restoration financial transactions, including purchasing, selling, transacting, and tracking pollution reductions in support of the Conowingo WIP. It will serve to directly fund, finance, and invest in projects, practices, and technologies that advance ecosystem restoration goals, primarily in support of the Conowingo WIP. The authority will contract directly with public, private, and nongovernmental organizations (NGOs). In addition, the authority will have the ability to receive funds from any public, private, or nonprofit institution or investor and invest these funds within any jurisdiction located within the Conowingo WIP geographic zone. Specifically, the authority will be authorized to procure services directly through RFPs and other similar procurement mechanisms and support innovative ventures, projects, and practices through direct equity investment. Though the authority will have the capacity to facilitate debt-based financing, it will not have the capacity to lend or issue debt.

It is possible that a dedicated financing institution or authority will be required to support and manage CWIP restoration activity over the long-term. In the short-term, however, the most efficient approach to establishing a CWIP financing institution will be to expand the capacity of an existing organization. To that end, the project team assessed existing institutions across the region and determined that the Susquehanna River Basin Commission is uniquely appropriate for leading the CWIP Phase 1 effort. In its role as the financing authority, the Susquehanna River Basin Commission (SRBC) will:

- Secure restoration revenues and investment guarantees from the participating Bay states;
- Ensure capitalization for projects;
- Manage program cash flows; and,
- Track and monitor projects and report progress to the Bay States and EPA.

[3] The term "authority" is used in a generic sense. Though authorities can be defined as a specific type of financing institution. The exact corporate and institutional structure will be determined in Phase 2.

A coalition of state agencies in Virginia, Maryland, Pennsylvania, and New York has been working with SRBC and the University of Maryland project team to execute an MOU between SRBC and the partnering states that will establish SRBC as the Conowingo WIP financing authority. Key provisions of the MOU include the following.

- Establishment: Recognizing the interstate nature of the CWIP and the capabilities of the SRBC as an interstate agency that works throughout the Susquehanna River Basin, the parties to the MOU agreed that the SRBC will serve as the financing authority for initial implementation of the CWIP, as approved by the Signatory CWIP Partners. The SRBC's role as the financing authority will sunset on December 31, 2025, with the option for renewal. Whether or not the option for renewal is exercised, funding ongoing or approved projects shall continue until completion or funds are exhausted, whichever occurs first.
- Contract Authority: The SRBC in its capacity as the financing authority may enter into contracts, including grant agreements, to receive and distribute funds to implement the CWIP, including associated administrative costs.
- Use of Funds: The SRBC will use the funds it receives as the financing authority to finance best management practices that implement the CWIP. The SRBC's use of funds as the financing authority will be subject to the terms and conditions of contracts, including grant agreements, which the SRBC enters its role as the financing authority. Subject to the terms and conditions of these contracts, including grant agreements, the SRBC, as the financing authority, may, with input from the Chesapeake Bay Program partnership, implement best management practices called for in the CWIP directly, or through contracts or grants to third parties. The SRBC will keep all funds received for the CWIP separate from all other SRBC funds and the Parties agree that the SRBC is not obligated to provide funding to the CWIP from these other SRBC funds.
- Governance: The work to be performed by the SRBC and the selection and approval of projects to be implemented will be guided by the CWIP in close consultation with the Chesapeake Bay Program partnership and the Principal's Staff Committee, as applicable, taking into consideration the implementation of the jurisdictional WIPs. In accordance with this section, SRBC will submit an annual plan to the Signatory CWIP Partners.

Project Portfolio

The financing process is designed to ensure the flow of money and capital throughout the restoration process, which entails ensuring the most efficient risk adjusted ecological restoration investment possible. This will require a diverse portfolio of projects with unique investment profiles that in aggregate result in the most efficient and effective allocation of resources.

SRBC's restoration funding and investment activities will be supported through three dedicated pools of revenue or funds. The purpose will be to invest in restoration practices and activities in support of water quality and ecosystem restoration. The funds will be the mechanisms that receive money to support restoration practices. It is through the funds that investments will be made in support of those practices. They will serve as the linkages between private investment and public funding. The funds will support a portfolio of projects that collectively will advance Conowingo WIP implementation in the most efficient and effective way possible.

Program/project team leaders at SRBC will select projects based on overall cost efficiency, cashflow requirements, and a specific project's potential connection to available financing mechanisms. To that end, SRBC will guide investments within the following three categories.

- Conowingo Ecosystem Investment Fund: The Ecosystem Fund will focus on restoring the critical ecosystem functions within the Susquehanna River Basin, including streams, wetlands, and forests. These structural practices are the foundation of a restored and functioning ecosystem and will in turn be the foundation for the Conowingo WIP financing effort.
- Agriculture Sustainability Fund: Incentivizing and financing sustainable agronomic farming practices is one of the most significant financing challenges associated with the Conowingo WIP financing processes. This fund will focus on identifying innovative approaches for including annual practices in a long-term financing process.
- Restoration Innovation Fund: The Restoration Innovation Fund will invest in those practices that have demonstrated potential to be effective at mitigating nutrient emissions yet are not being implemented at scale, either because they have not yet been approved by state and federal regulators, or due to some other yet-to-be-identified market failure.

Table 1 on page 10 summarizes the three funds that collectively will comprise SRBC's project portfolio. The purpose of segregating the BMPs in this way is to identify the unique funding and financing needs and characteristics, cashflow requirements, appropriateness for long-term financing, and potential risk. This provides a glimpse of how a portfolio of practices will fit into a variety of funding sources and financing tools and mechanisms.[4]

The project portfolio is essential for developing a thorough understanding of costs, cashflow needs, and financing risk profile is essential for any new business venture. It is even more so regarding the Conowingo WIP due to the scarcity of revenue and fiscal resources. The project portfolio enables program managers to assess the key needs and issues related to the funding and financing process, including the following:

- Minimize and balance cashflows: Estimating annualized project costs is important to understand the potential scale of the restoration effort, but it does not provide an accurate estimate of the annual cashflow needs required to implement the WIP. This is true even if cost estimates are completely accurate. Cashflow analysis is an essential step towards understanding what is possible, rather than theoretically possible.
- Minimizing restoration costs: The portfolio approach provides a much more accurate understanding of the total restoration costs. Annualized costs are important for planning purposes, but the primary cost-related priority should be to reduce total restoration costs and adapting to reduce those costs as much as possible. The portfolio financing approach provides the process and template for understanding how to best reduce total project costs over time.

[4] The financing project team has begun recategorizing the proposed Conowingo WIP practices into this table, including modelled timelines. This process will be completed once the WIP itself has been officially accepted into the system.

- Understanding and adjusting for risk: The portfolio approach provides and effective process for understanding the inherent risks associated with each project (e.g., performance risk and funding risk) and how they impact the overall portfolio risk. A project portfolio needs to balance risk over time. This process will help identify and track performance.

Table 1: Conowingo WIP Investment Funds and Priorities

CWIP Investment Funds	Practice Types	Land Use: Urban/Rural	Annual or Structural	Funding and Financing Risk Profile	Potential Strategy
Conowingo Ecosystem Investment Fund	Forests, streams, wetlands, aquatic habitat	Strictly agriculture based in Phase 1, but may also include urban stream restoration	Exclusively structural, some with very long-time frames	Often very high (relatively) implementation costs. Annual cashflow requirements decrease significantly over time	Long-term financing opportunities with a finite end date
Agriculture Sustainability Fund	Manure injection, manure management, cover crops, conservation tillage	Primarily/exclusively agriculture based.	Agronomic and pollution reduction practices	Very low (relatively) annual cashflow requirements. Very uncertain future funding requirement: projects must be funded in perpetuity. As a result, funding and implementation risk can increase significantly over time	Short-term funding with limited financing opportunities and no end date
Restoration Innovation Fund	An array of projects across all sectors	Both rural agriculture and urban stormwater	Mixed	Varies depending on project	Potential for long-term financing opportunities

The financial reasons for a balanced approach to developing the BMP portfolio—balancing cashflow and risk specifically—mirrors the ecological reasons for achieving the same type of balance. No type of practice is better than the others. A cursory analysis of the proposed Conowingo WIP shows that the portfolio of practices necessary for achieving a restored watershed mirrors the financial reasons for achieving the same balance.

Primary Revenues Sources

Revenues refer to the monies—public, private, or nonprofit in origin—that pay the expenses associated with implementation actions. Total revenues must equal total costs over time for the financing process to sustain itself. The proposed Phase 1 $50 million cost will be supported exclusively and completely by the partner states. This baseline level of guaranteed revenue will enable restoration activity to occur at scale.

Ultimately the sources supporting each state's revenue commitment will be determined by the states themselves. However, ***it is the guarantee of public revenue that drives the entire restoration financing system, and the Conowingo WIP process is no exception***. A unique feature of the Phase 1 process is that revenue commitments from each of the partnering states will be fully guaranteed by the SRF programs within those states. This guarantee will enable project capitalization and implementation to occur immediately.

Most of the revenues needed to achieve the entire restoration effort will come from publicly generated taxes and fees at the state, local, and to some extent federal levels. In the short-term, the Conowingo WIP will be no different. Generating and supplying revenues in support of the Conowingo WIP is the responsibility of the Bay jurisdictions; however, the more supplemental revenues that can be generated, the more cost-effective state investments will be. SRBC will work with project partners to identify and leverage additional revenue sources to supplement the financial commitments made by the participating Bay states. These supplemental revenue sources may include:

- Federal investment, either through existing programs, or through new appropriations;
- Private investment, specifically associated with climate mitigation;[5]
- Philanthropic investments, especially in support of innovative new practices; and/or
- Program revenues supported through innovative investments in marketable best management practices.

Again, identifying and securing supplemental revenue sources will be an important part of SRBC's role in the Conowingo WIP financing process. These additional revenues will increase the scale of restoration activity while also decreasing the relative cost to the states to achieve pollution reduction targets.

Procurement Processes

An essential component of the Conowingo WIP financing system will be the development and application of innovative procurement policies and processes. SRBC's nonprofit and quasi-governmental corporate structure will enable it to link the transparency and oversight policies inherent to public sector procurement systems with the speed, innovation, and efficiency of the private sector. This will result in efficient and effective accelerated restoration activities.

Traditional public procurement processes require complete transparency and access to information regarding bidding processes, and access to these processes must be clear and open. While transparency and openness in the procurement process is essential, public procurement systems are not designed to address the risks and opportunities necessary for creating a more efficient, innovative implementation and financing system. That will require incorporating the benefits of private procurement processes. Private organizations function differently in that they draw revenue from sales, investments, and other business-related areas. Their money is more centralized, which speeds the procurement process along. Privately owned businesses can seek out different suppliers to find the best deal because they have more time and resources to do

[5] To be clear, this is referring to private investment that achieves a return from sources other than public water quality-based revenues.

so. Their focus is more on saving the most money and getting things done quickly, which is exactly what the Conowingo WIP implementation process will need to succeed.

SRBC will occupy a middle ground between public and private procurement processes as a nonprofit or nongovernmental organization. Certainly, nonprofits must comply with transparency and procurement requirements inherent to the public agencies that support their missions. Like other nonprofits, SRBC will have more flexibility to establish procurement policies and procedures due to the diverse nature of its anticipated funding support. This provides opportunities to create innovation within the restoration financing process. The Authority will have the capacity to balance efficiency with project effectiveness in support of the public trust. Achieving this balance requires enabling essential functions and capacities within the procurement process, including:

- Purchasing ecosystem services: First, SRBC must be able to purchase ecosystem services (PES) as they are delivered. This is important for several reasons. PES procurement processes enable public institutions to transfer much of the implementation risk associated with restoration practices to the private sector. PES systems require private sector firms to use private capital to design, implement, and operate and maintain restoration practices. This provides certainty regarding long-term project costs and performance. This is a significant departure from traditional request-for-proposal and public procurement systems.
- Capacity not to invest: SRBC must have the capacity NOT to invest or fund practices that do not meet funding and financing goals and priorities. Public funding must often be expended on an annual basis or those funds may be pulled back. Even forward-thinking programs that do their best to utilize market and performance-based procurement processes are often limited in their impact by the need to spend out public revenue. In the private sector, services are procured *only* if they meet the needs of the firm. If they do not, no contract is issued. Firms have the advantage of waiting for the right contract at the right time. SRBC must have that same flexibility imbedded into its procurement policies and processes.
- Pay-for-performance: The foundation of SRBC's procurement processes will be in the form of pay-for-performance (PFP) requests for proposals.[6] By focusing on PFP bidding processes, SRBC will have the capacity to pay for project outcomes rather than outputs. This in turn will ensure a procurement process that balances fiscal efficiency with program effectiveness. A critical component of SRBC's procurement processes will be the requirement that all applicants provide their own financing in the form of upfront capitalization.

Project Capitalization and Cash Flows

One of the most important benefits associated with the proposed Conowingo WIP investment and financing process is associated with cash flow requirements. Cash flow refers to the total amount of money being transferred into and out of the restoration investment process. While estimating total annualized implementation costs is important for planning purposes, cash flow requirements determine actual revenue requirements over time. As a result, it is unlikely that

[6] A request for proposal (RFP) is a formal document that announces a project, describes it, and solicits bids from qualified contractors to complete it.

cash flow requirements will equal the average long-term annualized costs. An important function of SRBC will be to establish procurement processes that help buffer public revenue flows from short-term project capitalization needs. This will be accomplished in two ways: 1) issuing requests for proposals (RFPs) that are founded on PES procurement processes and project capitalization through private investment; and/or, 2) establishing a pool of restoration funding through private investment.

RFPs that are predicated on payments for ecosystem services have the unique advantage of transferring implementation and performance risk to the private sector. In other words, public revenues flow only when ecosystem services—in this case the reduction of nitrogen emissions through project implementation—is achieved. This RFP process provides two very important benefits to the public sector. First, again, it transfers implementation risk to the private sector. Second, it requires private investment to capitalize restoration projects, which creates a funding buffer or delay regarding public revenue flows. As a result, restoration activity can begin at scale before public revenue investments are made. This funding buffer will be extremely beneficial to participating jurisdictions as they navigate the political issues associated with generating revenue flows. Coupled with the SRF revenue guarantees, these RFPs will move money quickly at scale.

SRBC will also have the option of establishing a private restoration fund that can support any number of procurement systems and processes, including pay for performance and traditional project contracting. The impact on the states is essentially the same in that public revenue flows are only necessary after nitrogen reductions occur, but the cash flow requirements on the part of SRBC are slightly different. The impact on the participating jurisdictions is the same: revenues will flow when projects are successful, thereby giving the states the opportunity to identify necessary revenue streams using the SRF as the guarantee.

Both investment processes provide cash flow benefits to the participating states as well as a transfer of performance risk to the marketplace. SRBC's primary role in both processes is to limit public risk, match project cash flows to public revenue needs, and ultimately serve as a purchaser of pollution reductions on behalf of the Bay states and other institutions.

Project Monitoring and Verification

The development and implementation of the Conowingo WIP has occurred within three programmatic objectives. The first objective focused on the development of the WIP itself; this effort was led by the Center for Watershed Protection. The second objective focused specifically on finance; this objective is being led by the Center for Global Sustainability. The third objective is being led by the Chesapeake Conservancy. It is focused on establishing project verification, monitoring, and reporting protocols. The Phase 1 plan will include specific monitoring protocols that will developed and implemented by the Conservancy in partnership with SRBC.

Implementation Timeline

Below is a summary description of how the financing process will function and the anticipated timelines for implementation. The process is based on the following six processes.

Execute SRBC/state contracts. SRBC executes contracts with the participating Bay States that obligate those states to provide a certain level of revenue support. The total value of the contracts will be $50 million, and all the revenues are guaranteed by the SRF programs within each state. *Timeline: 7/21-12/21.*

Develop and release project RFPs. SRBC issues a series of RFPs that address restoration priorities within each of the three SRBC restoration funds. Key provisions of the RFPs will include:

- A clear description of the type of project being funded and the standards and protocols required for a project to be considered for funding.
- A clear description of the specific geographic area to be included in the RFP. All projects must be within the geographic region stipulated in the Conowingo WIP.
- A financing plan is prepared. All projects must include project financing and capitalization. No SRBC funds will be invested until the projects are completed, certified, and producing water quality benefits.

Timeline: 2/22-6/22.

Bid Selection. The winning bids will be identified, and contracts awarded. *Timeline: 6/22-8/22.*

Project implementation. The winning firms will begin the design and construction of water quality projects. *Timeline: Process begins 9/22.*

Project verification and credit development. As projects are completed, SRBC, in partnership with the Chesapeake Conservancy, will monitor and verify that project implementation protocols and standards have been met. As projects are verified, SRBC will award or assign pollution reduction credits. *Timeline: 10/22-12/25.*

Credit transactions. SRBC will deliver approved and verified credits to the participating Bay States based on the terms stipulated in the SRBC/state contracts. These transactions will occur annually over a period of seven years, at which point the entire $50 million in guaranteed revenue (or more depending on the level of supplementary revenue raised throughout the process) will be invested. *Timeline: 10/22-12/32.*

Conclusion

This plan is an important part of an iterative process to create what can only be described as a complex interjurisdictional infrastructure financing system. Over the coming months, leaders from the Bay States, the federal government, SRBC, and the private sector will work in direct partnership with the CWIP financing project team to fill in the details of this plan. The subsequent debates and conversations will focus on the key provisions of the process, including: ensuring appropriate oversight and governance of investment activities; establishing the SRF guarantee process; executing restoration contracts between SRBC and the Bay states; establishing the necessary procurement processes to launch to launch private investment in support of restoration projects; and, finalizing the monitoring and tracking protocols and systems.

There is clearly much work yet to be done and many unresolved issues to be addressed. In the appendix below we address some of the anticipated questions and concerns that will inevitably be raised during as state and federal leaders work to finalize the Phase 1 plan over the next several months.

Appendix: Key Issues and Questions

Will SRBC collect taxes and fees? It is important to be as clear about what SRBC will *not* do as what it will do. SRBC will not collect taxes (there are no legal options for establishing a regional tax) nor will it directly assess and collect fees. All the revenues—public and private—that support the SRBC's restoration activities will be allocated at the discretion of the revenue generating institutions. This means that state-based funding supporting the SRBC's investments will be forwarded to the Authority at each state's discretion. Finally, SRBC will not serve as a regulatory agency, although it will serve to inform public policy and the debate and conversations associated with restoration financing.

Will SRBC lend money? No, SRBC will not lend any money.

Will SRBC borrow money? Though it may be necessary in the long-term for the Conowingo WIP financing authority to borrow money, either through bond markets or SRF programs, it will not be necessary in Phase 1. That said, technically the market-based procurement processes will result in SRBC borrowing money from private firms because private firms are responsible for capitalizing projects up front. It will then be up to the firms bidding on projects to incorporate the cost of capital into their official bids.

How was SRBC chosen as the financing authority? After identifying and defining the institutional needs associated with establishing a new water quality restoration financing system (which are included in the financing plan delivered to EPA in December 2020), the project team evaluated the capacity of existing institutions to implement this new system. The initial review included an array of institutions within all the Chesapeake Bay states. The team eventually focused on Pennsylvania and Maryland, given their importance to the Conowingo WIP implementation process. The search was narrowed down to four entities that met the evaluation criteria, which included geographic reach, existing and potential scope of services, and the ability to leverage revenue by issuing debt. These entities also had to be interested in expanding their mission and scope to include the Conowingo WIP financing requirements and needs. The following four candidate institutions were considered:

- Chesapeake Bay Trust (The Trust)
- National Fish and Wildlife Foundation (NFWF)
- Susquehanna River Basin Commission (SRBC)
- Pennsylvania Infrastructure Investment Authority (PENNVEST)

All four entities expressed some level of interest in exploring how their organization could play a key role in financing the Conowingo WIP financing process. Organizational representatives were asked a list of detailed questions that are included at the end of this report. Each organization had various strengths and weaknesses related to becoming the Conowingo financing authority. However, the finance team determined that the Susquehanna River Basin Commission has the potential capacity necessary to launch the financing process. The SRBC provides a good model of interstate watershed management. The SRBC Compact, signed by the US Congress and the three states (NY, PA, MD) across which the basin lies, went into effect in 1971. SRBC was established as the body responsible for coordinating conservation, development, and administrative efforts of the water resources in the Susquehanna River Basin. The Compact sets the mission of the SRBC as working to "to enhance public welfare through comprehensive planning, water supply allocation, and management of the water resources" in the Susquehanna River Basin. The river is the country's 16th largest, the largest lying entirely in the US and flowing into the Atlantic and contributes half of the freshwater flow into the Chesapeake Bay. [7, 8]

The Compact gives SRBC the power to borrow money and issue tax-exempt bonds and debts that function to achieve the goals laid out in the Compact. SRBC is responsible for setting the terms, conditions, interest rates, etc. for the bonds and debts it issues. SRBC typically does not rely heavily upon signatory funding. Most of its capital comes from its physical assets (e.g., offices, facilities, water supply storage, water quality monitoring network). SRBC does some stream restoration projects in partnership with other entities. These are mostly grant-funded. The commission has recently begun utilizing the water management fund beyond supply storage to expand the scope of its capital investment. Overall, its capital is still limited.

Each state has a commissioner in the SRBC working on its behalf. The state commissioners are officially the respective state governors, but alternates are often chosen. The federal government also has a commissioner in the Division Engineer (operating under the jurisdiction of USACE). The SRBC holds quarterly meetings regarding projects, regulations, administrative needs, budgets, etc. The Commissioners govern operations, while the Executive Director, SRBC council, and staff carry them out.

Based on the project team's research and conversations with SRBC, the team recommended to the partnering states that they be selected as the CWIP financing authority. The partnering states, led by Virginia, made the decision to officially engage SRBC through the execution of a Memorandum of Understanding.

Did the project team consider existing SRF programs as possible financing authorities? Yes. SRF programs, specifically PennVest in Pennsylvania, were identified as potential Conowingo WIP financing institutions and an in-depth interview with PennVest leadership was conducted. Though PennVest and the other participating state SRF programs will play a critical role in the financing process (specifically through loan guarantees to support state revenue obligations), it was determined that the financing process itself should be in a different institution. This decision was made for three reasons:

- The SRF programs have a range of technical expertise related to financing, but its core competencies are to provide low-interest loans in support of infrastructure projects. If the primary Conowingo WIP financing constraint were a lack of access to capital, then the SRFs would presumably address a more significant financing need. However, access to capital and the need for subsidized loans is the not the primary financing challenge associated with the Conowingo WIP. It is a lack of revenue to support investments. There is plenty of money available to borrow, but very limited money available to pay back the money that was borrowed. Subsidized loans are not the solution to the Conowingo problem.

[7] https://www.srbc.net/about/about-us/
[8] https://www.srbc.net/about/about-us/docs/srbc-compact.pdf

- SRF loans focus primarily (though not exclusively) on structural practices that are directly associated with codified regulatory-based revenue streams—e.g., wastewater, drinking water, and stormwater. However, most of the projects contained in the Conowingo WIP, and all the projects in the Phase 1 plan, are associated with unregulated activities. This means there are no enterprise fees associated with the restoration projects and best management practices (BMPs). For SRF lending programs to function effectively, one of two things must occur. Either all of the Conowingo WIP load reductions must be reassigned to regulated sources (wastewater and stormwater specifically), or the on-the-ground activities associated with the existing WIP (almost exclusively agriculture) will need to be regulated. It is unlikely that either outcome will occur. SRF loans will therefore not be a viable financing option. This also explains why so few SRF loans have occurred within the unregulated agricultural sector.
- Though the SRF may technically have the capacity to engage in interstate financing, research indicates that it would be nearly politically impossible to convince participating Bay States to send revenue to a state agency in a different jurisdiction to support restoration activities. That interstate financing function will require an institution that has a multi-state governance structure but is outside the state agency framework.

What is the relationship between the Conowingo WIP and the Phase 3 state based WIPs? The public comment process associated with the CWIP included comments associated with the impact of the CWIP on the state WIPs. There is concern that the CWIP will indirectly increase the cost of the state WIPs by decreasing the available supply of projects. This is in fact true. Basic economics would suggest that as the supply of projects available for implementation decreases, the cost of implementation will go up. It is important to remember, however, it is not the Conowingo WIP that will put pressure on the state WIPs. Rather, it is the additional pollution load reduction requirements that will put pressure on the existing system. If the 6-million-pound nitrogen load attributed to the Conowingo Dam were distributed to the Bay states rather than assigned to a separate WIP, the impact would be the same. The over implementation cost would go up for the exact same reasons that the Conowingo WIP will costs to go up. Given the fact that the responsibility for implementing all of the WIPs rests with the Bay states, the total impact on costs between the two systems is likely to be negligible.

It is important to note that the purpose of the Conowingo WIP is to make the entire restoration process more efficient and effective and to ensure that the pressure on the existing financing system is minimized. The proposed Phase 1 strategy makes no recommendations for diverting funding from existing restoration programs. In fact, one of the most important characteristic of the Phase 1 plan is that state leaders will have time to identify new sources of revenue with the possibility of not diverting existing revenue streams. In addition, the SRBC procurement systems will enable state leaders to co-finance or fund projects with Phase 3 WIP investments. As a result, Phase 3 WIP program managers can take advantage of the anticipated Phase 1 efficiencies.

Where will the states get the revenue from? This is one of the most pressing questions associated with the Conowingo WIP and one the most difficult to answer. The short answer is: it will be up to each partnering state to determine how it will generate the revenues that are necessary to support their part of the restoration process. This is no different than the state WIPs. There are two clear distinctions between the Conowingo WIP and the state WIPs, both of which will enable restoration activity to begin immediately. First, the revenue commitments made by the states will be guaranteed by the respective state SRF programs. As a result, private investment will begin immediately with the assurance that revenues will be forthcoming. Second, the pay-for-performance procurement processes will allow the states to defer revenue investments until ecosystem services in the form of nutrient reductions are delivered. As a result, the majority of the public revenues needed to support the restoration process will not begin flowing to SRBC until after 2025. Though the states will be the ultimate source of revenue, there is time to identify the potential sources and policies necessary to secure revenues in the future.

What is the purpose of the three funds, and wouldn't a single fund be sufficient? There are several reasons why the three distinct funds or program priorities are necessary. First, a goal of Phase 1 is to get a better understanding of the relative costs associated with restoration activities. Annual practices are less costly than structural practices, but what is less clear is how to make practices—annual or structural—more cost effective in relative terms. By segregating structural practices, the SRBC team can better understand what makes a structural practice more efficient compared to similar practices. The same will be true of annual practices. Ultimately the cost of the overall restoration effort will reflect aggregate costs, but getting to the lowest overall cost, relative to risk, will require a more controlled learning environment.

Finally, the innovation fund will focus on practices that are not yet approved in the model or not widely accepted. As a result, the process for accounting for the load reductions will be different that BMPs that are approved; therefore, these investments must be segregated also.

How will SRBC track and control implementation costs? The cost of implementing the Conowingo WIP has been one of the most debated issues associated with CWIP development effort. CAST cost estimates suggest that Conowingo WIP as currently structured will cost approximately $53 million annually. The UMD project team interviewed officials from each of the Bay states. Several state officials suggested the CAST cost estimates were wildly inaccurate because they were too low, while officials in other states suggested that the estimates were much too high. The reality is, costs in some places will be higher than others, and the costs of some practices also will be higher than other practices. Phase 1 is designed to reduce relative costs as much as possible while at the same time establishing a better understanding of what causes costs to fluctuate. SRBC will focus on three cost issues:

- <u>Reducing absolute costs</u>: Ultimately, the goal is to reduce the cost of achieving each pound of pollution reduction. Absolute or aggregate cost reduction is what is most important.
- <u>Reducing implementation costs</u>: Though implementation costs represent that majority of implementation costs, they are mostly out of the influence of the public sector. The SRBC market-based procurement processes are designed specifically to incentivize reducing implementation costs. In addition, by segregating SRBC's investments into the three distinct funds, the project team will be able to determine how best to address relative implementation costs.
- <u>Indirect costs</u>: SRBC will also track indirect and administrative costs associated with managing the entire restoration financing process.

- Relative costs: SRBC will focus on reducing the relative cost efficiency associated with state restoration investments. This is a primary reason why identifying potential payments for multiple ecosystem services will be an essential part of the Phase 1.

Will SRBC have the capacity to handle the CWIP financing process? SRBC is a uniquely appropriate institution for leading the CWIP financing process. They have the appropriate legal and governance structures in place to manage hundreds of millions of dollars in restoration funding, and they have a track record of successful on-the-ground implementation of projects. Though water quality restoration has not traditionally been the institutions core competency, the partnership with the project financing team and other financing experts will provide SRBC with the intellectual knowledge and capacity it needs to be successful.

How will SRBC collaborate and communicate with multiple partners? There is no single institution or process capable of implementing the Conowingo WIP. Partnerships, collaboration, and cooperation are the cornerstones of the Bay restoration effort and will be essential to address the challenges of the Conowingo WIP. SRBC will need to work in coordination with the extensive network of established leaders, institutions, and programs. SRBC must foster diverse partnerships and work collaboratively to develop solutions in line with the Conowingo WIP. This means that the Conowingo WIP will be implemented within the context of the broader Chesapeake Bay restoration effort. SRBC must ensure that interaction, communication, and engagement between a myriad of experts, leaders, and partners is effective and integral to its operations. SRBC's role in the financing and implementation process will focus on those processes and activities that are directly associated with on-the-ground implementation. Its role will not be to replace or replicate the work of state and local agencies related to key public sector functions such as: regulatory or permit enforcement, monitoring, scientific evaluation, and/or policy development. SRBC will work directly with state agencies to expand capacity in each of these areas.

How will water quality trading and credit financing work through SRBC? It is unlikely that water quality trading will play a role in the Conowingo WIP in the traditional sense. There are no regulated activities associated with the WIP. Any pollution reductions or credit for those reductions that are generated through regulated activities such as stormwater and wastewater management have already been accounted for in the state WIPs. The Conowingo WIP, which from a Chesapeake Bay restoration perspective functions like a new Bay State, has no buyers in a water quality trading system. While there is the possibility that one WIP can trade with another WIP in the future, this is not a near-term opportunity or concern. All that said, there is a significant opportunity for interstate water quality trading to become a central part of the Conowingo WIP process. The decision by the Bay states to establish a Conowingo WIP separate from the state WIPs essentially established an additional jurisdictional WIP. There is an opportunity to facilitate trades between the state WIPs and the Conowingo WIP. These "inter-jurisdictional" trades are perhaps how the Conowingo WIP can best improve the efficiency of the state WIPs.

Will the SRBC invest in multiple ecosystem services such as climate change and carbon reductions? SRBC's primary focus will be to implement projects that benefit water quality. However, SRBC will take advantage of opportunities to reduce the cost of water quality restoration by investing in multiple ecosystem services, including those related to climate mitigation and adaptation. However, the SRBC's participation in these markets will be limited to those revenues that are supplemental to the guaranteed revenues provided by the states. If there is an opportunity to leverage additional funds in support of climate-based investments, then SRBC will make those investments.