Schuylkill Action Network

Strategic Plan

2016-2021

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SAN Drinking Water Protection History

Following the passage of the Clean Water Act and the Safe Drinking Water Act in the early 1970s[1], we started to think very differently about our rivers and streams and how they impact our daily lives. The Schuylkill River, which was once seen as a place to dispose waste, is now a vital resource for our quality of life. As the largest single tributary and source of fresh water to the Delaware River, the Schuylkill River is also an important component of the Delaware Estuary. The river provides opportunities for recreation, helps to meet our energy needs, and is a major source of freshwater to the Delaware Estuary, a major economic driver for the region. However, one of its most important benefits is something we all rely on every day, drinking water.

More than 2 million people get their drinking water from the river and streams in the Schuylkill watershed, making protecting it a very important goal for water suppliers. Over a decade ago, the Philadelphia Water Department (PWD) embarked on a very ambitious effort to identify and prioritize all of the potential pollution threats to the Schuylkill River, which provides about half of the city's drinking water. This process led to the creation of a protection plan for the river, laying out a roadmap for addressing these threats. One of the primary goals of this plan was to create a mechanism for regional coordination across geographic, regulatory, and jurisdictional boundaries. The Schuylkill Action Network (SAN) was created shortly thereafter to help accomplish this goal. The SAN takes a watershed-wide approach to protecting drinking water sources by partnering with upstream communities, other regional water suppliers, businesses, governments, and watershed protection groups.

Strategic Plan Background

Since its inception, the SAN has regularly produced a Strategic Plan to help guide the network's future growth and direction. The SAN 2016-2021 Strategic Plan (the "Plan") was developed through an effort of the SAN Planning Committee to serve as a guide for the next five years. The Plan was informed by the SAN's original goals and purposes, past priorities and long-term agenda items, as well as the current and ongoing work of its various workgroups, committees, and partners.

[1] The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the Act was significantly reorganized and expanded in 1972. "Clean Water Act" became the Act's common name with amendments in 1972. *http://www.epa.gov/laws-regulations/summary-clean-water-act*.
The Safe Drinking Water Act (SDWA) was established in 1974 to protect the quality of drinking water in the U.S. This law focuses on all waters actually or potentially designed for drinking use, whether from above ground or underground sources. *http://www.epa.gov/laws-regulations/summary-safe-drinking-water-act*

The SAN facilitated a variety of processes for gathering new input from partners and watershed stakeholders during the strategic planning update process. Early in 2015, the Planning Committee and Executive Steering Committee (ESC) initiated the planning process by identifying key themes for the new plan. During the summer of 2015, the Planning Committee held regional strategic planning listening sessions in Reading and Philadelphia and engaged members online through a webinar meeting. Several online surveys developed for water suppliers, recreational users, and the general public were distributed throughout the watershed to garner additional input. In total, over 300 SAN partners and stakeholders provided responses. All solicited feedback was organized by the SAN Planning Committee and incorporated into new strategies and objectives which are reflected in the Plan below.

The Plan is a tool crafted to guide and coordinate the SAN's work over the next five years and to communicate the SAN's intentions to the surrounding community of partners, potential partners, and funders. Planning is a fluid process and this plan was designed to be regularly revisited – and revised – as needed as part of the work planning process. The Plan is supported and further detailed by the yearly workplans for each SAN workgroup/committee.

The SAN is a voluntary partnership dedicated to meeting its mission and vision for the Schuylkill River. The deadlines, actions, and commitments of this Plan are subject to the availability of sufficient resources and funding to carry them out. The SAN leadership will periodically review the progress of the Plan, make adjustments as needed to reflect the latest priorities, needs and available resources, and continue to work toward the vision and mission of the SAN at an efficient and feasible pace.

Overview of SAN Strategic Goals

Strategic Goal	**Workgroup / Committee Responsible**
To advance drinking water and watershed protection for the Schuylkill River and its tributaries by **facilitating communication and decision making** on a regional, state, and federal level. Work collaboratively to **ensure the availability of resources, expertise, and commitments** to support the work.	Executive Steering Committee
Focus efforts on improving watershed management, especially activities that will **enhance the quality and flow of Schuylkill waters** for the protection of public health and aquatic resources. Create and maintain an effective network that **maximizes the resources of its membership** to protect and restore the Schuylkill watershed.	Planning Committee
Maximize reduction and/or treatment of **abandoned mine drainage** discharges.	Abandoned Mine Drainage (AMD) Workgroup
Maximize reduction and/or prevention of **agricultural impacts** to water quality.	Agricultural Workgroup
Improve **public support** for watershed protection actions.	Education & Outreach Workgroup

Engage recreational users of the watershed in activities that lead to **increased awareness** and advancement of watershed protection and restoration strategies.	Recreation Workgroup
Facilitate and strengthen communication and coordination among regulatory agencies, downstream water users, and basin stakeholders regarding **point source compliance programs** and **drinking water protection** strategies.	Pathogens/Compliance Workgroup
Maximize reduction and/or prevention of **stormwater runoff** pollution.	Stormwater Workgroup
Promote a **sustainable landscape** in the Schuylkill River watershed through strategic conservation and efficient land resource use to protect the integrity of water supplies for future generations.	Watershed Land Protection Collaborative Workgroup

Vision

The Schuylkill watershed is a healthy ecosystem and a foundation for a thriving network of communities in southeastern and central Pennsylvania. It is the largest source of fresh water to the Delaware River and an important natural resource of the Delaware Estuary. Residents recognize themselves as citizens of the watershed and they value its unique cultural and natural resources. Reflecting this common value, residents, businesses, non-profit organizations, and governments actively work to address current and past threats to drinking water sources and watershed health while working to protect these natural resources from new stress. Members of the Schuylkill Action Network share information, expertise, and technology to help each other achieve this shared vision of clean water and a healthy environment for the Schuylkill River and its tributaries. Management practices, restoration efforts, and protective measures are implemented using a sustainable source of funding to improve and protect the water resources and water quality of the Schuylkill River watershed.

Mission

The mission of the Schuylkill Action Network is to improve water resources in the Schuylkill River watershed by working in partnership with local watershed organizations and land conservation organizations, businesses, academics, water suppliers, recreational communities, local governments, and regional, state, and federal agencies to transcend regulatory and jurisdictional boundaries in the strategic implementation of protection measures. The SAN seeks to achieve this mission through enhanced communication and collaboration and, more specifically, by working cooperatively with interested parties to:

- Support existing efforts and implement actions to restore and protect water quality in the Schuylkill River watershed;
- Promote the long-term coordinated stewardship and restoration of the watershed and educate others regarding their roles in protecting the watershed and water supplies;
- Transfer the experience and lessons learned to other communities; and
- Enhance intergovernmental communication and coordination by working together on the identification and resolution of environmental issues with shared regulatory responsibility.

SAN Objectives

To improve the quality of drinking water as indicated by:

- Reduction in annual pollutant loadings to source water due to drinking water protection efforts.
- Participation of Schuylkill River water suppliers in SAN workgroups and events directly supporting utility's Source Water Protection Plans and Source Water Protection Plan goals.

To improve watershed health as indicated by:

- Increased efforts to achieve healthy and resilient aquatic ecosystems.
- Promoting the restoration of impaired stream miles and continuing to further advance the protection of stream miles through the network's many collaborative efforts and watershed strategies.

To improve public value as indicated by:

- Significant improvement in public perception of the Schuylkill River as a vital regional natural resource that should be protected.
- A return to the river by the public for the purposes of recreation, sport, and enjoyment.

Key Strengths of the SAN

Overview

During the strategic planning process, SAN members were asked to describe the services provided by the SAN that they value most. These services should be maintained and/or improved by the SAN in order to achieve a shared vision for a clean and healthy Schuylkill watershed. The following themes represent this feedback and are incorporated throughout the goals, strategies, and objectives of the SAN leadership and workgroups.

Resource

The SAN provides valuable resources and information related to the Schuylkill watershed. This has been a primary objective of the SAN since its inception, and achieved by utilizing the SAN website as a clearinghouse of information on Schuylkill-related topics, documents, reports, guides, photos, and more. Maintaining this benefit of the SAN is important for the watershed community and is embedded as a key element of the strategies for the next 5 years. The SAN should also continue to look for additional opportunities to serve as a resource for its partners that will add value to the shared work throughout the watershed.

The SAN's key strengths as a resource include being:

- A leading source for information on watershed related issues or materials;
- Supportive, and possessing a high level of watershed knowledge and expertise;
- A resource for assisting partners in obtaining funding necessary to complete their priority projects. For example: partners submit many multi-organizational grant applications, focus on sub-award projects coordinated by the Partnership for the Delaware Estuary, and provide letters of support for SAN priority projects.

Networking and Collaboration

One of the primary goals of the SAN is to serve as a platform for individuals, organizations, agencies, utilities, schools, businesses, and others to come together to share resources, information, and strategies that improve the health of the watershed.

The SAN's key strengths in networking/collaboration include:

- Effective collaboration with partners;
- Welcoming and engaging members;
- Strategically planning events and meetings;
- Bringing together a variety of stakeholder groups. For example: environmental nonprofits, water utilities, and governments;
- Having geographical diversity among its partners;
- Continuously developing the SAN and including new members/partners;
- Providing professional connection and networking.

Issue-focused Action

The SAN is largely structured around issue-driven workgroups, tasked with addressing the most pressing problems in the watershed. This approach is valued by SAN partners in that it represents a prioritized approach and leads to high quality projects. In the strategic plan, strategies have been developed to ensure that issue-driven work continues and is expanded when possible.

The SAN's key strengths in maintaining issue-focused action include:

- The SAN's focus on many different aspects of water, while maintaining a central emphasis on watershed health and clean and safe drinking water;
- Linking together drinking water, waste water, recreation, societal issues, and economics;
- Defining clear objectives;
- Taking proven approaches to solving problems;
- Identifying tools to protect and restore the watershed.

Watershed Improvements

The SAN has positively impacted the environmental conditions of the watershed, as well as communities in the watershed, despite limited money, resources, and staff. This is especially highlighted in the Agricultural and Abandoned Mine Drainage workgroups where water quality improvements are very noticeable. Throughout this strategic plan, the SAN will focus on achieving watershed improvement results.

The SAN's key strengths in achieving watershed improvements include:

- Fostering positive environmental change;
- Positively impacting communities in the watershed;
- Clearly communicating what progress looks like to its members;
- Achieving goals despite limited money, resources, and staff;
- Identifying tools to protect and restore the watershed.

Education and Outreach

The SAN works to integrate education in many of its watershed restoration and protection goals. In addition to maintaining an Education and Outreach Workgroup, the SAN strives to implement actions that increase the understanding of and affinity for the Schuylkill Watershed across all of its work. Education and outreach is also a key focus in many of the SAN's partners' missions. When possible, education and outreach should be further embedded throughout SAN initiatives and projects with the goal of increasing public awareness and care for the watershed.

The SAN's key strengths in education and outreach include:

- Making the connection between upstream and downstream waters;
- Including strong, clear messages about clean water in outreach materials;
- Creating and managing the Schuylkill Action Students program.

Data and Monitoring[2]

In order to advance the restoration and protection efforts of the SAN, it is important to document the extent and impact of activities. This is largely accomplished through water quality monitoring efforts. Data collection and monitoring is a key element of many SAN workgroup strategies. The SAN will work to acquire resources for monitoring and to connect local monitoring activities with larger regional monitoring and data collection and modeling efforts. A primary goal of the SAN will be to provide a mechanism for sharing data among partners to

[2] In the previous strategic plan, data and monitoring was listed as a separate team. The SAN is now integrating basin-wide monitoring through the Delaware River Watershed Initiative.

assist in identifying priority areas for program implementation, reducing contamination, and protecting public health.

The SAN's key collaborative monitoring and data collection efforts include:

- Abandoned mine drainage monitoring efforts completed by the Schuylkill Headwaters Association, Schuylkill Conservation District, United States Geological Survey, and the Army Corps of Engineers.
- Agriculture monitoring efforts by the Delaware River Watershed Initiative (DRWI).
- Conservation monitoring efforts by the DRWI

Additional monitoring strategies of the SAN include:

- Provide guidance and support to workgroups for determining and measuring workgroup objectives.
- Provide guidance and support to the SAN partners for integrating watershed monitoring information into the SAN website and other outreach tools.
- Support the maintenance of key monitoring stations, such as the USGS gauge station at Norristown and other USGS gauge stations located upstream of drinking water intakes.
- Coordinate watershed monitoring and analysis needs with current or new initiatives through the Delaware River Watershed Initiative and with the Academy of Natural Sciences.
- Support water suppliers in their efforts to better coordinate and share water quality data and information.
- Encourage the involvement of colleges and universities in helping the meet additional monitoring needs in the Schuylkill River watershed.
- Identify opportunities and provide support for connecting data and monitoring activities of the Delaware Valley Early Warning System with SAN watershed outreach and planning efforts.

Water Suppliers

Since the inception of the SAN, the SAN has been actively involved in water suppliers' source water protection planning and implementation efforts.

The SAN should continue to:

- Maintain and update the water suppliers list on the SAN website.
- Share relevant information with the water suppliers listserv.
- Participate in water supplier source water protection meetings.

EXECUTIVE STEERING COMMITTEE

TO ADVANCE DRINKING WATER & WATERSHED PROTECTION FOR THE SCHUYLKILL RIVER & ITS TRIBUTARIES BY FACILITATING COMMUNICATION & DECISION MAKING ON A REGIONAL, STATE, & FEDERAL LEVEL;

&

BY WORKING COLLABORATIVELY TO ENSURE THE SAN HAS THE NECESSARY RESOURCES TO SUPPORT ITS WORK.

Objectives

1. *Leadership* - Provide leadership on issues, policies, and practices influencing drinking water and watershed protection.
2. *Visioning* - Increase the SAN's ability to advance a progressive agenda by communicating opportunities, challenges, and needs.
3. *Collaboration* - Facilitate collaboration among public and private interests in drinking water protection. Work to secure strategic partnerships with public and private entities to support restoration and protection efforts.
4. *Sustainable Operational Funding* - Support the investigation and acquisition of resources needed to meet the operational needs of the SAN.

Strategy

The SAN Executive Steering Committee (ESC) provides support, leadership, and oversight of the overall goals and objectives of the network, working to collaborate on strategies and practices that will advance the SAN's primary mission of drinking water protection while supporting efforts to connect this work to other water resource protection needs. The ESC provides direction to the SAN from a regional, state, federal, and utility perspective. The ESC is represented by members of Pennsylvania Department of Environmental Protection, U.S. Environmental Protection Agency, Delaware River Basin Commission, Philadelphia Water Department, the Partnership for the Delaware Estuary, and the Schuylkill River Heritage Area. The ESC will work together to prioritize and articulate strategies that encourage the above agencies and organizations to strengthen their commitment to the restoration and protection goals of the SAN for the Schuylkill River watershed. Over the next 5 years, the ESC will explore the engagement of 3-5 new strategic partners from among public and private entities to support the restoration and protection of the Schuylkill River. The ESC will assist with the facilitation of strategic planning and goal setting in for the SAN and approve updates to the SAN Strategic Plan on at least a 5-year cycle. The ESC will provide guidance on decision making and prioritization for investments of agency/organizational time to meet the objectives of the SAN and its Strategic Plan. The ESC will provide guidance to the SAN workgroups, when needed, to prioritize work and set goals for achieving its overall mission.

PLANNING COMMITTEE

FOCUS EFFORTS ON IMPROVING WATERSHED MANAGEMENT, ESPECIALLY ACTIVITIES THAT WILL ENHANCE THE QUALITY AND FLOW OF SCHUYLKILL WATERS FOR THE PROTECTION OF PUBLIC HEALTH AND AQUATIC RESOURCES.

&

CREATE AND MAINTAIN AN EFFECTIVE NETWORK THAT MAXIMIZES THE RESOURCES OF ITS MEMBERSHIP TO PROTECT AND RESTORE THE SCHUYLKILL WATERSHED.

Objectives

1. Secure funding of $500,000 per year or more to support watershed restoration/protection and partnerships, with at least 50% coming from sustainable sources.
2. Increase the number of participants contributing to the Schuylkill River Restoration Fund each year.
3. Maintain operational funding necessary for the day to day operations of the SAN.
4. Redesign the SAN website to better serve the needs of workgroups, partners, and the general public.
5. Increase the participation and diversity of the SAN membership.
6. Oversee the development of a Recreation Workgroup and strategic plan element until it becomes established.
7. Serve as a facilitator for improving the processes that guide restoration and protection efforts in the Schuylkill River watershed.
8. Provide guidance and take action to remove barriers that impede watershed restoration and protection.

Strategy

In order for the SAN to achieve long-term success in restoring and protecting the health of the Schuylkill watershed, it is important that the Planning Committee continues its focus on maintaining the health of the network, providing guidance and resources to SAN partners for workgroup priorities. Since its creation in 2003, the SAN has successfully developed a system of prioritizing and implementing projects that advance drinking water protection in the watershed. In doing so, the SAN has been able to establish itself as a leader in the watershed and provide a forum for communicating and advancing discussions on activities that impact the watershed's natural resources. Over the next five years, the SAN must continue to secure resources for the watershed; create opportunities for networking and collaboration; maintain focus on the most pressing watershed issues; lead watershed outreach; and advance the goal of achieving watershed protection and improvements.

In order to maintain network health and promote a progressive drinking water protection agenda for the Schuylkill watershed, the SAN Planning Committee will work to secure resources, facilitate communication among its partners, and eliminate barriers to better watershed management. The Planning Committee will continue the goal of acquiring both sustainable funding for watershed implementation projects, as well as securing long-term funding to cover the operational expenses of the network. The Planning Committee will look for opportunities that will leverage resources and provide positive outcomes in priority watersheds that align with both the Clean Water Act (CWA) and the Safe Drinking Water Act (SDWA).

The Planning Committee will continue to create opportunities that engage watershed stakeholders and encourage the sharing of information and resources throughout the network. This includes working collaboratively with the Education and Outreach Workgroup to redesign the SAN website. Also, through the various SAN outreach channels, including the SAN website and social media sites, workgroup and network-wide meetings, and SAN publications, the Planning Committee will direct needs-driven information and resources to its members.

The Planning Committee will focus specifically on the following strategies:

1. Continue to strengthen the SAN communication infrastructure to maintain active communication among SAN members (website, social media, newsletters, and meetings) and provide more needs-focused support to SAN workgroups.
2. Implement elements of the SAN Fundraising Strategy, securing both public and private funding for SAN priority projects, with a goal of establishing an annual fund of $500,000.
3. Investigate new fundraising strategies for the SRRF and operational SAN funding.
4. As needed, convene meetings of a Watershed Practices Implementation Committee with the goal of examining the processes and policies that guide watershed management and developing and presenting strategies that improve them (See Appendix C).
5. Support SAN partners as they continue their assessment of the impacts of climate change on the Schuylkill River watershed and Delaware Estuary and identify linkages between workgroup activities and climate change adaptation recommendations.
6. Provide support to SAN workgroups in projects that engage municipalities and water utilities in watershed restoration, protection, and planning.
7. Work cooperatively with SAN partners to encourage and support regional collaborative watershed planning efforts that integrate the Clean Water Act and Safe Drinking Water Act programs.
8. Support drinking water protection activities within the City of Philadelphia, including education and outreach projects, planning initiatives, and other relevant endeavors, and disseminate information to upstream communities.
9. Engage recreational users in the SAN through events, projects, and the establishment of a new Recreation Workgroup; increase awareness of need for protection efforts among the users of the River.
10. Continue to integrate SAN's connection with the Delaware River Watershed Initiative through both the Middle Schuylkill and Schuylkill Highland's clusters, as well as through watershed-wide efforts of this initiative.
11. Continue to support partners and leverage funding by providing letters of support.
12. Explore the feasibility of developing a *State of the Schuylkill* report to effectively communicate water quality improvements and conditions in the watershed.
13. Consider the relationship of flow and water quality as it relates to SAN Goals.
14. Coordinate with the Partnership for the Delaware Estuary (PDE) on its freshwater mussel recovery program.

ABANDONED MINE DRAINAGE (AMD)

MAXIMIZE REDUCTION AND/OR TREATMENT OF ABANDONED MINE DRAINAGE DISCHARGES.

Objectives

1. Reduce surface water infiltration into the Pine Knot mine-pool to lessen discharge.
2. Reduce legacy coal silt from streams.
3. Remediate AMD pollution for Pine Knot/Oak Hill mine pool complex.
4. Remove 92 tons of iron, 6 tons manganese, 7 tons aluminum annually from discharges and streams.
5. Improve the pH of mine discharges/streams to pH 6.0 or above as needed to support fisheries and aquatic life.
6. Convert 15 miles of streams to healthy habitat to support fisheries and aquatic life over the next 5 years.
7. Increase partner participation so at least two or more partners are actively involved in every AMD project.
8. Complete 5 AMD remediation projects over the next 5 years.
9. Maintain existing AMD projects so they continue to function properly in removing metals and improving pH.

Strategy

Abandoned Mine Drainage (AMD) is one of the primary sources of pollution in the headwaters of the Schuylkill River and the biggest source of metals downstream. It is responsible for 24% of water quality impairments in the watershed. AMD is created deep below the ground in abandoned mines where streams, groundwater and stormwater fill tunnels that were once kept dry by active pumping operations. Water and oxygen react with lingering iron sulfide (pyrite) producing metal-laden and sometimes highly acidic discharges that exit the tunnels in telltale orange and silver plumes, easily visible in regional surface waters. AMD interferes with vegetative growth and reproduction of aquatic animals by armoring the streambed with deposits of iron and other metals. Acidity and metals impair both surface and ground drinking water resources and quickly corrode pipes and industrial mechanisms. Legacy mining also causes sediment pollution as silt from coal refuse piles flows into nearby creeks and streams.

Over the next five years, the AMD Workgroup will continue to implement projects that reduce the impact of legacy mining practices on the water quality of the Schuylkill River. The workgroup will target priority discharges by designing and constructing AMD treatment systems with the most current treatment technologies; implementing projects that keep unpolluted water clean by reducing surface water infiltration into mine pools; and assisting with projects that utilize best practices for mine land reclamation, including programs that promote reclamation through reforestation. The workgroup will also work to direct new investments into their work, largely by securing resources from the PA Department of Environmental Protection's Title IV Set-Aside Program. The workgroup will explore options for utilizing this funding to construct a treatment system for the Oak Hill/Pine Knot discharge, the most pressing AMD issue in the Schuylkill watershed.

The workgroup will also improve stream habitat, which will result from AMD abatement work and in-stream habitat improvements. The workgroup will continue to assess the impact of their activities through project tracking, biological and chemical monitoring, and ongoing oversight of existing and future treatments systems. The workgroup will maintain and strengthen relationships with all stakeholders, including government agencies, landowners, mining operators, NGO's, and local governments.

The AMD Workgroup will focus specifically on the following strategies:

1. Implement elements of the West Branch Qualified Hydrologic Unit Plan (QHUP) and utilize Abandoned Mine Land (AML) set-aside funding and implement projects under this program.
2. Construct treatment system(s) to address metals and pH loading from the Oak Hill/Pine Knot Mine pool.
3. Investigate completion of additional QHUPs for additional stream reaches impacted by AMD.
4. Maintain focus on reducing surface water infiltration into the Pine Knot Mine pool, working with partners to identify the best opportunities for implementing projects.
5. Implement in-stream restoration practices that will improve habitat for fisheries and aquatic life.
6. Promote, support, and demonstrate best practices for mine land reclamation, focusing on techniques promoted by the Appalachian Regional Reforestation Initiative (ARRI).
7. Continue to assess and address AMD treatment system maintenance needs.
8. Continue to monitor the impact of AMD treatment systems in the watershed.
9. Provide support to the SAN Planning Committee as it works to address the gaps and barriers in local, regional, state, and national processes that focus on issues related to AMD and legacy mining impacts on source water.

AGRICULTURE

MAXIMIZE REDUCTION AND/OR PREVENTION OF AGRICULTURAL IMPACTS TO WATER QUALITY.

Objectives

1. Rehabilitate and/or buffer 5 miles (26,000 feet) of streams over the next 5 years.
2. Through the Berks County Conservation District and Berks Nature, complete 20 conservation and nutrient management plans annually.
3. Through Natural Resource Conservation Services (NRCS), complete 25 conservation plans (2,500 acres) annually.
4. Monitor water quality (quarterly) and aquatic life (annually) of streams downstream of completed agriculture restoration projects.
5. Through the NRCS, complete 15 Comprehensive Farm Management plans over the next 5 years.
6. Advance restoration goals of the Middle Schuylkill Implementation Plan as part of the Delaware River Watershed Initiative (DRWI).
7. Create and continue to populate database of farm best management practices (BMPs) completed in Berks County.
8. Evaluate impact of agriculture BMPs on stream health and communicate results to the watershed community.
9. Develop and maintain involvement in funding programs and initiatives to support current and future agriculture restoration activities.

Strategy

Agricultural runoff is a primary source of pollution in streams and rivers in the Schuylkill watershed and is responsible for over 30% of the watershed's water quality impairments. Pollutants carried in agricultural runoff include soil, nutrients, pesticides, bacteria, and other substances, all of which may increase water treatment costs and degrade aquatic habitats. Runoff from animal operations can contain manure, depositing high nutrient values and potentially disease-causing bacteria and pathogens into the local waterways. Nutrients cause excessive plant growth and algae blooms in waterways, which deplete the water of dissolved oxygen as the plant materials die. The presence of pathogens in source water may increase the cost and complicate the processes of downstream drinking water treatment.

Over the next five years, the Agriculture Workgroup will complete projects that reduce the impact of agriculture runoff on drinking water sources in the Schuylkill watershed. Through a collaborative approach, the workgroup will engage key partners and watershed stakeholders in the strategic implementation of agriculture BMPs, conservation and nutrient management plans, and progress monitoring. To accomplish the above agenda, the workgroup will identify and secure resources; support and help guide decisions on agriculture related programs; and continue to work with and strengthen its relationship with farmers, water utilities, and local watershed and conservation organizations.

The workgroup will also advance efforts of the DRWI, working to complete key elements of the Middle Schuylkill Cluster implementation plan. The workgroup will monitor the impact of its investments by regularly monitoring water quality of agriculture impacted streams. The workgroup will also catalogue all BMP projects completed that are contributing to improvement in the watershed.

The Agriculture Workgroup will focus specifically on the following strategies:

1. Continue to update and map priority farms for workgroup assistance.
2. Continue to maintain focus on BMP implementation on farms in priority subwatersheds that will have the greatest impact on improving drinking water sources.
3. Identify and secure funding from new sources, including programs such as the Pennvest NPS pollution program, Schuylkill River Restoration Fund, DRWI, and others to allow for greater leveraging of farm bill appropriations in the watershed.
4. Maintain involvement with the DRWI to substantially complete agriculture restoration projects in the Middle Schuylkill Cluster.
5. Strengthen relationships with water suppliers in priority subwatersheds and pursue joint ventures for implementing BMPs on priority farms/sites.
6. Utilize resource of the Conservation Reserve Enhancement Program (CREP) in the Delaware River watershed to restore priority streamside habitat.
7. Document agriculture BMP investments and successes in the watershed, including load reduction modeling results, and promote to watershed stakeholders.
8. Report gaps and barriers in local, state and regional programs for mitigating agricultural impacts to the Planning Committee and provide support for addressing them.
9. Expand restoration activities in Lehigh, Montgomery, and Chester counties.
10. Complete and implement the Lower Maiden Watershed Implementation Plan, securing additional federal funding for agriculture restoration in this area.
11. Continue to support and share data and other pertinent water quality and project information with Philadelphia Water Department and other water suppliers in support of their watershed planning efforts associated with the Long Term 2 Enhanced Surface Water Treatment Rule (LT2)/ Watershed Control Plan.

EDUCATION AND OUTREACH

IMPROVE PUBLIC SUPPORT FOR WATERSHED PROTECTION ACTIONS.

Objectives

1. Redesign and enhance the SAN website to better serve the needs of workgroups, partners, and the general public.
2. Increase engagement of the watershed community through social media (Facebook, Twitter, and Instagram) by 50% in 5 years (500 new combined followers).
3. Improve public perception of and/or connections with the Schuylkill watershed.
4. Post project descriptions, pictures, and/or videos on the SAN website for every completed workgroup project.
5. Increase media coverage of SAN events, projects, and activities (10 media hits per year).
6. Increase applicants for the Schuylkill Scholastic Drinking Water Awards program.
7. Increase number of cleanups, volunteers, and trash removed from the watershed through the *Schuylkill Scrub* initiative (700 cleanups over 5 years).
8. Develop a litter sampling protocol for *Schuylkill Scrub* volunteers to conduct and track types of litter found throughout the watershed.

Strategy

One of the most important aspects of ensuring the long-term protection of the Schuylkill watershed is raising awareness as to the resources it provides to residents. In the Schuylkill watershed, residents are accustomed to turning on a tap and receiving clean, safe drinking water, with little or no thought given to the source of that water or its availability. However, clean water cannot be taken for granted; polluted water is everyone's concern. Through concentrated public education and outreach efforts, people can discover how their decisions and daily actions directly impact the water they drink, the recreation they enjoy, regional wildlife habitat, human health, and sustainability for future generations. Education and outreach are necessary to raise public awareness of the problems and of the local management options to fix them. Ideally, SAN outreach efforts foster an appreciation and awareness of local water resources, inspiring stewardship and meaningful changes in the daily actions of residents.

Over the next five years, the SAN Education and Outreach (E&O) Workgroup will continue to generate the support and awareness necessary for the long-term protection and restoration of the Schuylkill watershed. To accomplish this, the E&O Workgroup will promote SAN projects and successes, watershed news and events, restoration and protection priorities, and individual opportunities for watershed action through the SAN website, social media, media outlets, and within the network. The E&O Workgroup will support the efforts of all the SAN workgroups. The E&O Workgroup will maximize these efforts, aiming to increase its reach by utilizing social media tools and resources. The workgroup will also partner more closely with the Philadelphia Water Department, advancing city-wide watershed outreach initiatives and finding opportunities to replicate them in upstream communities. The workgroup will also continue to support school-based watershed activities through its annual Schuylkill Scholastic Drinking Water awards programs and by assisting with workgroup school-based programs. The workgroup will lead engagement activities through the *Schuylkill Scrub* initiative, serving as a tool for watershed residents to take action in improving the health of the Schuylkill watershed. To accomplish the above agenda, the workgroup will identify and secure resources; support and help guide decisions on outreach-related activities; and continue to identify new opportunities for working on collaborative projects that increase watershed awareness and appreciation (such as Keep Pennsylvania Beautiful's Great American Cleanup of PA and EPA's Trash Free Waters program).

The Education and Outreach Workgroup will focus specifically on the following strategies:

1. Redesign the SchuylkillWaters.org website and continue to facilitate internal communication among SAN members, provide opportunities for online sharing of information among watershed professionals, and support public advocacy for protecting and restoring Schuylkill Waters.
2. Recognize, expand, promote, and support watershed education initiatives and schools/teachers/students as they implement water quality restoration, protection, and awareness projects.
3. Provide assistance to SAN workgroups on educational elements of their restoration and conservation activities.
4. Provide assistance to SAN Recreation Workgroup on all SAN outreach tools and messaging.
5. Maximize use of social media tools for outreach campaigns that aim to influence public perceptions/attitudes/behavior of watershed residents, encouraging them to view the watershed as a valuable resource.
6. Work with the Philadelphia Water Department to model drinking water protection education and outreach projects in the City of Philadelphia and disseminate to upstream communities for replication and collaboration.
7. Provide audience-specific education to different communities, making linkages between their community and water quality.
8. Host workgroup projects tours for specific audiences (ex. MS4 project tour to exhibit models for other municipalities to follow).
9. Develop a marketing strategy, using clear, concise, and uniform messaging.
10. Develop a simple brochure about SAN and separate brochures about each workgroup ready for partners to use and share.
11. Highlight local leaders in the watershed (farmers, teachers, township employees, etc) in outreach materials to promote and encourage replication of model watershed management practices.
12. Develop public education materials to targeted stakeholders not currently involved with the SAN and disseminate this information to watershed related/reliant business and community organizations.
13. Develop school outreach programs, including contests and games, to engage students in learning and caring about the Schuylkill watershed.
14. Assist workgroups in communicating SAN current and past accomplishments to build support from community leaders, elected officials, and corporate partners for future SAN activities.
15. Use key messaging received from feedback in the Strategic Plan General Public survey in all outreach materials.
16. Promote more citizen science involvement in PDE's freshwater mussel recovery program.

PATHOGENS AND POINT SOURCE

FACILITATE AND STRENGTHEN COMMUNICATION AND COORDINATION AMONG REGULATORY AGENCIES, DOWNSTREAM WATER USERS, AND BASIN STAKEHOLDERS REGARDING CLEAN WATER ACT AND SAFE DRINKING WATER ACT GOALS

Objectives

1. Provide educational opportunities to wastewater utilities on inflow and infiltration management, drinking water protection, and other clean water initiatives.
2. Track progress of projects addressing unsewered communities (on-lot malfunctions and wildcat sewer discharges).
3. Develop an outreach strategy to increase wastewater treatment operators' participation in the SAN.
4. Share information and facilitate discussion with wastewater and drinking water utilities on emerging contaminants and watershed issues.
5. Characterize conditions and treatment technologies of wastewater treatment plants (WWTPs) in the Schuylkill watershed (e.g. UV treatment for *Cryptosporidium*).
6. Track Act 537 Planning initiatives throughout the watershed.

Strategy

Over the next five years, the SAN Pathogens and Point Source Workgroup will maintain the current level of coordination and communication provided by wastewater treatment compliance practitioners, identifying opportunities to improve compliance and reduce threats to downstream water suppliers and other river users. The workgroup will maintain a focus on reducing illegal discharges, supporting and promoting the Delaware Valley Early Warning System (EWS), and supporting planning efforts aimed at reducing pathogen introduction in the watershed. Additionally, the workgroup will also provide assistance in coordinating support for increased pathogen monitoring efforts in the watershed.

The SAN Pathogens and Point Source Workgroup will focus specifically on the following strategies:

1. Promote funding opportunities, such as Pennvest, to wastewater and drinking water utilities.
2. Utilize the permit and compliance process to minimize discharges from wastewater treatment and encourage/require upgrades.
3. Implement a strategy to address any remaining and unidentified wildcat sewers.
4. Improve discharger/water supplier communication of events through use of the Delaware Valley EWS to minimize water quality threats to the Schuylkill River.
5. Assist the Philadelphia Water Department in the implementation of their LT2 Watershed Control Program Plan for the Queen Lane intake.
6. Support efforts that provide wet weather and inflow and infiltration management education to WWTP operators.
7. Explore options to improve monitoring at strategic locations in the watershed: downstream of point sources that could influence the water quality profile at drinking water intakes.
8. Characterize conditions of WWTPs in the Schuylkill watershed through Philadelphia Water Department's Sanitary Survey.
9. Continue to update information on wastewater treatment technologies and systems throughout the watershed (e.g. Chapter 94 reports).
10. Investigate evolving source water issues, such as Harmful Algal Blooms (HABs) and emerging contaminants and develop a better understanding of what these issues mean for water supplier's source protection strategies.

RECREATION WORKGROUP

ENGAGE RECREATIONAL USERS OF THE WATERSHED IN ACTIVITIES THAT LEAD TO INCREASED AWARENESS AND ADVANCEMENT OF WATERSHED PROTECTION AND RESTORATION STRATEGIES.

Objectives

1. Work with the SAN Planning Committee to improve and finalize the Recreation Workgroup strategic plan section and yearly workplans.
2. Initially invite at least 25 potential partners and 5 new partners annually, to participate in the newly formed Recreation Workgroup.
3. With the Education and Outreach work group, develop and implement an outreach strategy for the recreational community along the Schuylkill River.
4. Increase recreational engagement in the watershed.
5. Implement watershed restoration projects in close proximity to high traffic recreation sites (e.g. trailheads and boat launches).
6. Improve public perception of the Schuylkill River watershed as a safe, clean, and fun place to recreate.

Strategy

Within the last decade, recreational use and access to the Schuylkill River and its tributaries has increased remarkably. In 2009, 800,000 people used the Schuylkill River Trail. In 2015, that number grew to 2 million users, an increase of 150%. Also that year, the Schuylkill River Trail was voted the "*Best Urban Trail* " by *USA Today*. To capitalize on this success, the SAN Recreation Workgroup will focus on changing public perspective on the Schuylkill River, underscoring its transformation from a once heavily polluted river to a significantly cleaner and safer recreational resource. The Recreation Workgroup will do this by developing an outreach strategy for the recreational community that will heavily focus on experiential learning, as well as capture cultural and heritage aspects of the waterways.

Over the next 5 years, the SAN Recreation Workgroup will increase support for protection and restoration of the Schuylkill watershed by educating recreational users about the history and progress of the Schuylkill River and the SAN. The workgroup will work with existing recreational groups, such as rowing clubs, kayaking clubs, and hiking groups, to implement an outreach strategy for the entire recreational community along the Schuylkill River. The workgroup will strategically identify opportunities for connecting restoration and conservation projects with important recreational areas in the watershed. With the Education and Outreach Workgroup, The Recreation Workgroup will develop clear, concise messaging and innovative events to connect users to watershed protection and restoration efforts.

The SAN Recreation Workgroup will focus specifically on the following strategies:

1. Collaborate with the SAN Education & Outreach Workgroup, specifically the Schuylkill River Trash Task Force, to develop citizen science litter monitoring/sampling protocols for the *Schuylkill Scrub*.
2. Promote the use of reusable water bottles instead of single-use bottles.
3. Develop simple outreach materials with clear, concise messaging about the SAN and its connection to recreation for partners to use at recreational (and other outreach) events.
4. Attend at least four recreational events a year to promote the SAN and increase membership.
5. Pilot use the Schuylkill Acts & Impacts environmental curriculum as a model for the Schuylkill Sojourn during 2016-2020.
6. Develop a webpage on the SAN website that lists recreational events/opportunities in the Schuylkill watershed.
7. Promote existing recreational events on the SAN's newly formed recreational webpage and social media sites.
8. Develop educational signage in parks, along trails, at bike and boat rentals, and at boat ramps.

9. Increase public access to the Schuylkill River and its tributaries.
10. Expand and improve connection of the Schuylkill River Trail network.

STORMWATER

IMPROVE MANAGEMENT OF STORMWATER TO REDUCE AND/OR PREVENT POLLUTION FROM RUNOFF.

Objectives

1. Complete 15 stormwater BMPs, including riparian buffer restoration projects, on priority headwater streams.
2. Conduct workshops, tours and educational events for watershed stakeholders on best practices for stormwater management.
3. Develop an outreach strategy to increase municipality participation in the SAN and encourage more watershed based collaboration.
4. Perform targeted outreach and provide support to municipalities for better stormwater management.
5. Support implementation and documentation of stormwater BMPs and green infrastructure by workgroup partners.
6. Identify new partners/sites that are working to complete stormwater management projects.
7. Implement 10 stormwater improvement practices on school campuses within the next 5 years through the Schuylkill Action Students program.
8. Apply for funding for at least 3 stormwater improvement practices on school campuses annually through the Schuylkill Action Students program.

Strategy

Pollution carried by stormwater poses a serious threat to the health of the Schuylkill River, contributing to over 30% of the impairments to water quality in the watershed. Polluted stormwater degrades the quality of our river with sediment, excess nutrients, bacteria and pathogens, and debris. Stormwater runoff can lead to increased point and non-point source impacts along the Schuylkill River during storm events. Addressing stormwater runoff requires a multifaceted approach that involves engaging all stakeholders, including municipalities, state and federal governments, homeowners, businesses, schools, planners, developers, and water suppliers.

Over the next five years, the SAN Stormwater Workgroup will focus its efforts on activities that will reduce the volume and velocity, and improve water quality, of stormwater runoff. Focusing on priority watershed areas, the workgroup will implement both outreach and implementation projects including technical assistance to municipalities to improve their stormwater management strategies; dissemination of information on BMPs for innovative stormwater practices; implementation of on-the-ground projects that reduce runoff; and provision of a forum for stormwater practitioners to share information and resources for managing stormwater. The SAN will collaborate with the PWD to promote *Green City, Clean Waters* efforts to upstream communities.

The workgroup will continue to advance its focus on implementing innovative stormwater improvement projects on school campuses. Through the SAN's Schuylkill Action Students program, the workgroup will complete projects that will serve as demonstration projects for the schools' communities and be a catalyst for additional projects in the future. The workgroup will also work to identify and secure resources to accomplish this agenda.

The Stormwater Workgroup will focus specifically on the following strategies:

1. Implement stormwater BMPs and riparian buffer restoration projects on priority first and second order headwater streams through partner programs such as Treevitalize and the Schuylkill Action Students program.
2. Secure funding annually and complete innovative stormwater projects through the Schuylkill Action Students program.
3. Support and promote the implementation of stormwater BMPs and green infrastructure through outreach, education, and technical assistance in priority watershed areas.
4. Assist municipalities to better understand, navigate, and fulfill their stormwater management responsibilities by providing technical assistance and support in priority areas.
5. Work with the SAN Planning Committee to apply for and secure funds to implement stormwater BMPs and explore feasibility of stormwater authorities through new funding mechanisms such as the PENNVEST Nonpoint Source (Green Infrastructure) Program.
6. Integrate more closely with stormwater activities of the Delaware River Watershed Initiative.
7. Collaborate with the Philadelphia Water Department to disseminate information on the *Green City, Clean Waters* initiative to other communities in the watershed.
8. Implement projects designed for managing runoff to maintain stream base flows, reduce flashiness of streams and improve groundwater recharge.
9. Report gaps and barriers in local, state and regional programs for mitigating stormwater impacts on source water to the Planning Committee and provide support for addressing them.

WATERSHED LAND COLLABORATIVE

PROMOTE A SUSTAINABLE LANDSCAPE IN THE SCHUYLKILL RIVER WATERSHED THROUGH STRATEGIC CONSERVATION AND EFFICIENT LAND USE/MANAGEMENT TO PROTECT THE INTEGRITY OF WATER SUPPLIES FOR FUTURE GENERATIONS.

Objectives

1. Maintain or increase the pace of priority lands protected in the watershed (4,853 acres per 5 year period).
2. Permanently protect at least 400 acres annually of priority watershed lands in the Schuylkill Highland Cluster.
3. Protect and restore water quality advanced through completion of proposed projects, including: land protection, stewardship, and adoption of improved municipal policies.
4. Advance conservation goals of the Schuylkill Highlands Implementation Plan as part of the Delaware River Watershed Initiative.
5. Monitor water quality (quarterly) and aquatic life (annually) of streams downstream of completed conservation projects.
6. Maintain or increase the pace of priority lands protected in the Delaware Valley Regional Planning Commission (DVRPC) area to keep pace with priority lands developed (approximately 2,345 acres per 5 year period).
7. Support and work with the Schuylkill River Restoration Fund to administer a land transaction assistance program for the protection of priority lands.
8. Communicate successes of land protection projects to the watershed community.

Strategy

One of the greatest threats to source water in the Schuylkill watershed is the loss of open space. When undeveloped land is converted to hardscapes such as roads, parking lots, buildings, etc, water quality is impacted by both the introduction of new pollutants and a loss of the watershed's filtering capacity. Undeveloped land generally does not contribute pollutants to our water sources, and when covered with natural grasses, wetlands, plants, shrubs and trees, it serves as a filter, removing pollutants before they get deposited into our water bodies. Water quality improvement is one of the most powerful benefits of preserving open space.

Over the next two decades, development is expected to increase by 40% in the Schuylkill watershed. While it is both impossible and unnecessary to stop all development from occurring, it is critical that development is directed away from the most sensitive watershed areas. The Watershed Land Collaborative (WLC) will work with key watershed stakeholders to implement projects and promote actions that will lead to the conservation of the highest priority lands for drinking water protection. The WLC will provide outreach and technical assistance to local governments in priority watershed areas and utilize planning tools such as the watershed land prioritization model to engage local decision makers in activities that will protect critical watershed lands. When appropriate, outreach efforts will also provide townships with information on other drinking water protection strategies, including surface water and wellhead protection opportunities.

The WLC will continue to advance efforts of the Delaware River Watershed Initiative and implement key conservation, engagement, monitoring, and technical assistance activities in the Schuylkill Highlands region. The success of this work will be shared with the conservation community to encourage replication in other areas of the watershed. The workgroup will also monitor the water quality impact of its accomplishments. Additionally, the WLC will provide resources to land conservation practitioners to incentivize the protection of high priority lands. The WLC will also maintain focus on the practices and policies that lead to the protection of the watershed's riparian areas.

The Watershed Land Collaborative Workgroup will focus specifically on the following strategies:

1. Continue to promote the results of the watershed land prioritization model with local practitioners.
2. Provide targeted outreach to priority townships with goal of providing technical assistance to townships for implementing conservation measures.
3. Promote riparian buffer protection.
4. Secure funding to provide transaction assistance to land trusts, local governments, and other land conservation practitioners for projects that result in the permanent protection of priority watershed land.
5. Complete land restoration activities on properties with conservation priorities.
6. Implement demonstration projects on developed lands, such as Homeowner Associations (HOAs), to promote better development and stormwater management on high quality watershed land.
7. Implement land conservation measures with priority landowners in targeted areas throughout the Schuylkill watershed.
8. Continue to promote and utilize resources for land conservation activities through the Delaware River Watershed Initiative.
9. Transfer best practices and successful programs of the Schuylkill Highland Cluster to other areas of the watershed.
10. Engage new landowners by offering educational and recruitment events focusing on conservation and stewardship in targeted areas throughout the watershed.
11. Develop and update prioritization mapping to identify the most valuable land to protect in the watershed.
12. Implement professional-level monitoring programs with volunteers, such as the Schuylkill Water Stewards program, to assess the impact of conservation and stewardship practices.
13. Provide support to the SAN Planning Committee as it works to address the gaps and barriers in local, regional, state, and national processes that focus on issues related to protection of priority watershed lands.

LIST OF APPENDICES:

Appendix A: Background on the SAN's Organizational Development

Background on the SAN's Organizational Development (presented in a separate MSWord file) provides a brief history of the SAN's organizational development resulting in how the Network functions today.

Appendix B: 2016 Workplans

2016 Workplans together provide detailed information on the SAN's strategies and activities. These workplans are presented as a series of eight files, one for each workgroup and corresponding goal area.

Appendix C: Watershed Practices Implementation Committee Guidelines

The WPIC overview guide explains the purpose and general function of the initiative.

Appendix A: Background on SAN Organizational Development

Creation of SAN

The Schuylkill Action Network (SAN) is a collaborative network of over 100 partners working together to improve water resources in the Schuylkill River watershed. The SAN seeks to achieve this vision by working in partnership with local watershed and land conservation organizations, businesses, academics, water suppliers, recreational communities, local governments, and regional, state, and federal agencies.

In response to source water assessment efforts in 2003, the Philadelphia Water Department (PWD) sought help from the Environmental Protection Agency (EPA) Region III to develop a network of stakeholders that would include various agencies and organizations working to protect Schuylkill watershed resources. The EPA led the creation of the Schuylkill Action Network to address major threats to drinking water in the Schuylkill watershed, including pollutants from agriculture, abandoned mines, stormwater, and sewage.

The SAN was structured as a series of integrated workgroups or committees to address the identified threats to the Schuylkill River. The original workgroups include: Abandoned Mine Drainage, Agriculture, Stormwater, and Pathogens/Compliance Workgroups. Each workgroup was designed to meet regularly, under the leadership of a volunteer chairperson, to discuss watershed issues and plan and implement projects of strategic importance related to these topics. These workgroups were designed to represent the core of the SAN and the vehicle by which most of the SAN's work is accomplished. Workgroup membership and meetings were created to be open and accessible to anyone.

In addition to the workgroups, the SAN included an Executive Steering Committee (ESC), Planning Committee, Education/Outreach Committee, and Data Team to guide and support the activities of the workgroups. The ESC met semi-annually to provide high-level guidance and buy-in from the major public agencies, while the Planning Committee met monthly to provide more hands-on strategic direction to the SAN and help insure good internal communication. The Education/Outreach Committee and Data Team provided support services, benefitting all SAN workgroups and members. Figure 1 depicts the original organization of SAN workgroups and their responsibilities as of 2004.

Evolution of SAN

Over time, the organization of the SAN has evolved in several critical ways. In 2004, a subcommittee of the Stormwater workgroup was convened to address the recommendations of the Schuylkill River Watershed Conservation Plan. This was a critical first step for the SAN, taking a preventative approach to drinking water threats. The Schuylkill River Conservation Plan led to a successful Pennsylvania Department of Environmental Protection *Growing Greener* grant to prioritize land for preservation based on drinking water protection.

Also in 2004, the PWD and the Partnership for the Delaware Estuary (PDE) submitted a successful Targeted Watershed Grant proposal to the EPA to fund a series of projects in the Schuylkill watershed. This funding ($1.15 million of federal funds, leveraging an additional $1.49 million in match from various sources) has been critical in allowing the SAN to take action on the ground. It is also an example of the SAN at its best: a diversity of organizations and agencies leveraging their individual strengths/skills to bring new resources to the watershed and tackle widespread and complex problems in a targeted, strategic way. Under this grant, local organizations acted as project managers and received and managed project funds for implementation of projects. Projects included abandoned mine drainage remediation, stormwater management improvements, agricultural improvements, and educational pilots and case studies. This grant provided funding for the SAN to implement a set of selected projects from 2004 to 2008, during which time the SAN leadership cultivated new financial resources to continue and expand on this model of implementation.

In August 2005, the Planning Committee began the process of strategic planning by taking a critical look at SAN's organizational structure and how it could be improved to enable and encourage more stakeholder leadership within the SAN. As part of this effort, several important decisions were made, including:

- ***The decision to add a non-governmental position at the ESC level*** for more balanced representation. Based on this decision, the PDE joined the SAN ESC in the beginning of August 2006.
- ***The decision to maintain a federal lead for the ESC*** in order to provide credibility to the collaborative approach and influence for stakeholder involvement.
- ***The decision to expand Planning Committee membership to include representatives from each of SAN's workgroups*** to provide a mechanism for additional stakeholder involvement and better communication across groups.
- ***The decision to focus on the Schuylkill River Congress as the primary outreach event for the SAN each spring, and hold the SAN Annual Workshop each fall.***

In spring 2006, the SAN engaged the Institute for Conservation Leadership (ICL) to lead a stakeholder input process to inform the strategic growth and direction of SAN.

The following critical decisions were made by the SAN leadership in August 2006 in response to the ICL's recommendations:

- ***The decision to elevate the Watershed Land Collaborative (WLC) to full workgroup status*** in an effort to make the connection between land and water management more explicit. As a result, the WLC was reinvigorated and met quarterly, which re-engaged land conservation interests in the watershed.
- ***The decision to devote time/effort to and get professional help for improving SAN communications,*** including exploring new resources and ideas for improving SAN's internal communication, creating a website, and exploring the feasibility of a major public outreach campaign. As a result, one of the SAN's top priorities for organizational improvement was to hire a communications consultant to provide assistance on these critical communication issues in 2007.
- ***The decision to devote time/effort to sort and identify specific policy issues that the SAN could play a role in addressing on an issue-specific basis.*** As a result, the Planning Committee

evaluated the vast number of policy suggestions made by stakeholders to identify discrete actions for the SAN and its leading agencies to undertake for improvement

- ***The decision to target municipalities as a key audience in the work of both the Stormwater Workgroup and the Watershed Land Protection Collaborative.***

Also in 2006, the SAN contracted with the Environmental Finance Center (EFC) to explore the feasibility for building a sustainable financing/funding mechanism for Schuylkill Watershed protection activities. Based on interviews and research, the EFC's report outlined the scale, sources, and institutions for financing/funding and steps to fill the financing/funding gap for each of the SAN's priority areas/workgroups. The EFC also made a series of recommendations to the SAN leadership, including developing a unified restoration/protection plan, expanding community engagement with outreach/education and by working with relevant stakeholder groups, focusing on prevention, and convening an Implementation Task Force to help create a funding institution.

In 2004, the SAN launched a webpage. In 2007, the SAN created its website: www.SchuylkillWaters.org. This website serves as a clearinghouse for information on the Schuylkill Watershed, SAN projects, and provides a public outreach component of the network. The website also features an internal component, designed to facilitate interaction amongst SAN partners, allowing for projects reports to be created and shared, news items to be shared, email between workgroups and SAN members, and the hosting of workgroup documents. Since 2007, the website was upgraded to add an interactive calendar and was integrated with social networking tools and sites.

In 2009, the SAN, through the PDE, brought on a full time coordinator to oversee the day-to-day operation of the SAN, facilitate collaboration amongst members, and advance workgroup goals by securing funding and resources for priority projects.

In 2011, the SAN updated it strategic plan for another 5 years (2011-2016). This plan renewed commitments of the SAN workgroups, integrated new initiatives and workgroups strategies into the process, and set out an ambitious agenda to strengthen SAN's presence in the watershed.

In 2013, the SAN celebrated it 10 year anniversary, which was commenced with a series of events throughout the year, including a celebration that recognized the many milestones that the SAN was able to achieve, commitments of SAN partners, and a renewal of the stakeholders that contributed to making SAN what it is today. The SAN also released a 10-year progress report that highlighted all of the workgroup accomplishments since the SAN's inception.

In 2014, the SAN secured a fellow to assist the coordinator, which has since been turned into a full time SAN specialist position. Today, SAN now has two-full-time staff members to oversee the network and assist workgroup with advancing an aggressive agenda for a clean and healthy Schuylkill Watershed.

SAN Today

Since 2003, the SAN has grown to approximately 150 organizations (over 500 people) including local watershed organizations and land conservation organizations, businesses, academics, water suppliers,

recreational communities, local governments, and regional, state, and federal agencies. The SAN uses unique skills and experience of each of its partners to implement on-the-ground projects that improve water quality of the Schuylkill River and its tributaries.

Today, the SAN is composed of an Executive Steering Committee, a Planning Committee, six workgroups (Abandoned Mine Drainage, Agriculture, Education & Outreach, Pathogens/Compliance, Stormwater, and Watershed Land Collaborative) and is developing a seventh, Recreation workgroup. Figure 3 depicts the SAN's organizational structure as it is in 2016.

Over the past several years, the SAN has strived to encourage greater stakeholder participation and leadership. Because of these efforts, there are many opportunities for stakeholders to be involved in the SAN today. All workgroup meetings, times, and locations are posted on the SAN website and are open for anyone to attend. With the completion of its most recent strategic plan, an even more aggressive and inclusive agenda has been established to guide SAN through 2021. Many new partners have become part of the SAN and together, this collaborative network will continue to lead efforts to restore and protect the Schuylkill Watershed.

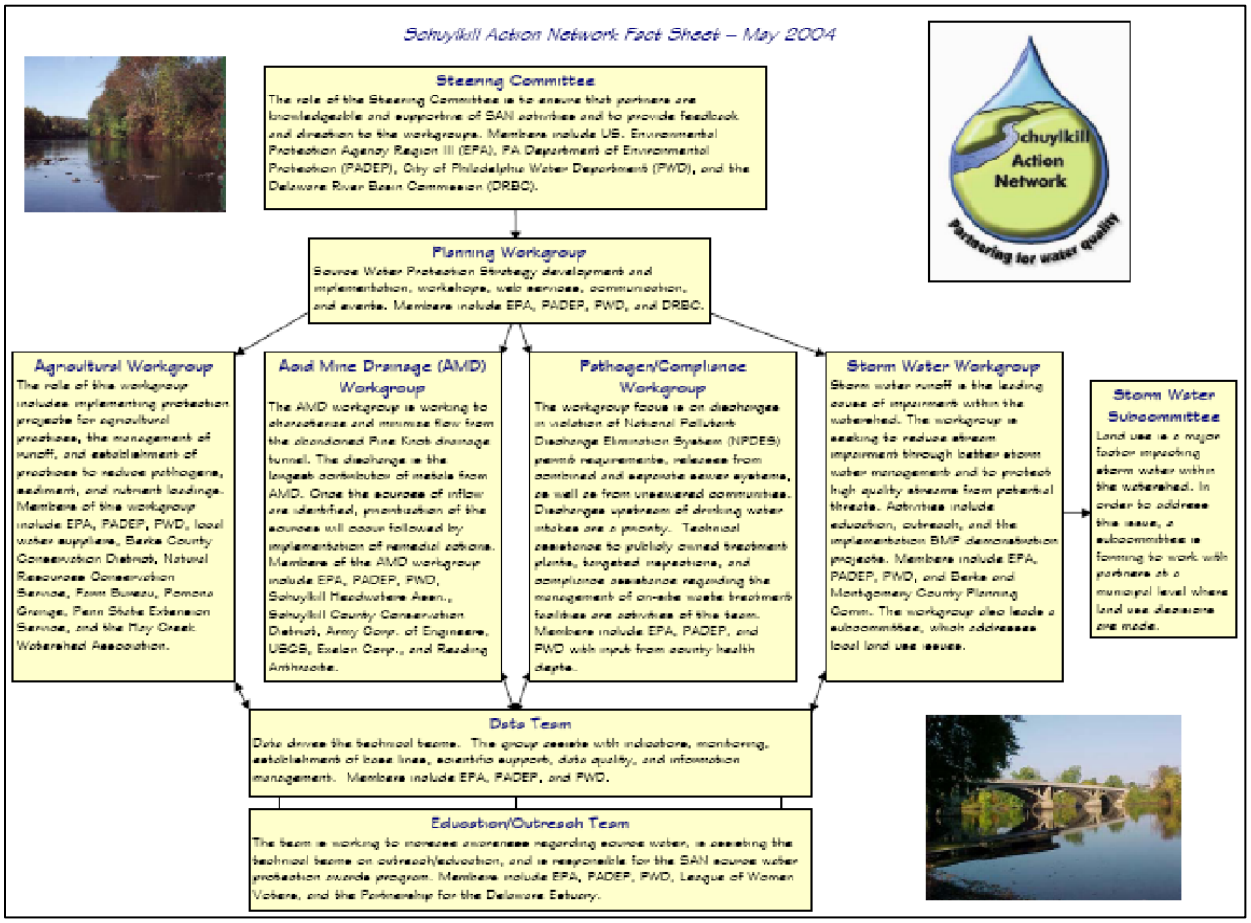

Figure 1: SAN Organizational Chart 2004

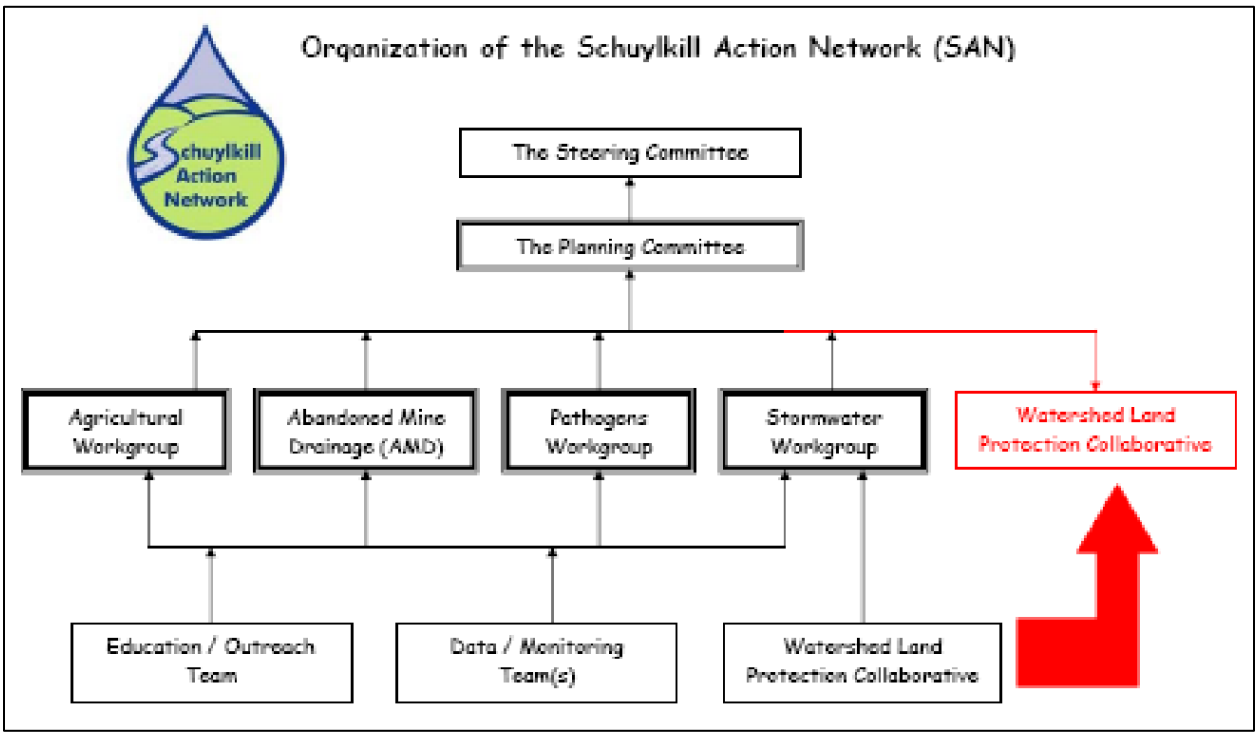

Figure 2: SAN Organizational Chart 2007

Figure 3: SAN Organizational Chart 2016

Watershed Practices Implementation Committee

Purpose:

The SAN will take a leadership role in identifying and communicating opportunities for improving the processes that guide restoration and protection efforts in the Schuylkill River Watershed. This initiative will examine the processes, including common restoration and protection practices, watershed policies, decision making structures, procedures, and guidance documents with the intent of identification of gaps and barriers that impede the improvement of watershed management. When warranted, the effort will result in the formation of recommendations and strategies for eliminating these gaps and barriers.

Process:

A subset of SAN Planning Committee members will take the lead role in identifying specific issues that impede or frustrate restoration and protection efforts in the Schuylkill Watershed. The committee will meet as needed to discuss issues and develop recommendations. The recommendations will be reviewed by the Planning committee and forwarded to the Executive Steering Committee (ESC) for additional action if warranted.

Dissemination:

For the purpose of both gathering and disseminating relevant information, a new section on the SAN website will be created to foster dialog among the SAN membership relating to improving policies and decision-making processes for watershed management, restoration and protection. This section will support the website purpose as a clearinghouse for watershed related information and platform for workgroup communication.