



PennState Law

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Creating Dialogue and Facilitating a Watershed Forum:

Understanding and Stewarding Water Quantity and
Quality in the Spring Creek Watershed



Photo by Illona Ballreich, April 18, 2018

JUNE 14, 2018 (SUBMITTED TO SPRING CREEK WATERSHED COMMISSION)

EXPR 972, Mediation of Environmental & Public Conflicts

Penn State Law

Executive Summary

Located in Central Pennsylvania, the Spring Creek Watershed is a critical water source for a growing population and local economies while also supporting an important fishery. The Spring Creek Watershed Commission (SCWC or Commission) is updating a long-term watershed management plan; the first management plan was last completed in 2003. In spring 2018, the Commission worked with Penn State Law students to host a forum to better understand stakeholders' concerns about water quality and quantity in the watershed, to identify their visions for the watershed, and to identify potential next steps for developing a watershed plan.

The law students facilitating the dialogue were enrolled in "*Mediation of Environmental and Public Conflicts*," which focused on helping students develop the skills to mediate and facilitate complex multi-party public issues. In spring 2018, they focused on water as a topic, and prepared for and facilitated the public watershed forum on April 18, 2018.

During the forum, stakeholders shared their perspectives on the issues or challenges they saw affecting the watershed, including substantive sector-based and process-related issues. Stakeholders considered topics global to the watershed, such as the watershed's nature, water temperature and quality, forested area, climate change, surface and groundwater sources/uses/protection, reuse, water ownership, longevity of the aquifer, flooding and droughts, upstream management, regulation, distribution and access, pollutants, beautifying the watershed, and research's role. Other sector-based issues included growth, development, and existing and/or new impacts; infrastructure; tourism/recreation; agriculture; drinking water; wastewater; mining; transportation; and Penn State's role. Process-related issues include funding; education/outreach/engagement; the role of "experts" and expertise; decision making/governance/law; privatization of water; communication/engagement; and information availability/transparency.

Stakeholders also shared their vision for the future of the watershed. First, stakeholders see the on-going planning process as an opportunity to restore relationships. Second, stakeholders want an integrated water resource management plan, including integration of ground water and surface water systems, and integration of knowledge. Third, stakeholders want governing bodies and the SCWC to develop and adopt a coordinated, integrated governance model, ideally one with "teeth." Fourth, stakeholders envision data, information, and educational resources being easily accessible to the public. Fifth, some suggested ideas needing further exploration such as protecting aquifer recharge areas and creating a potential storage reservoir.

Finally, stakeholders identified potential next steps to achieve their vision, including repairing relationships, and addressing both process and substantive issues. Process-related steps include establishment of a management team; centralization of information; education on water issues and rights; enhancement of public discourse; development of research funding; and a focus on individual and collaborative sustainability efforts that community members can adopt. Substantive needs include assessing water quantity and quality; developing in a smart way; increasing or decreasing development; creating a Commission with teeth; developing an overlay district, water plan, and official map; adopting more municipal codes; creating wetlands and/or retention ponds; increasing research; increasing individual environmentally-friendly efforts; building community pride; and improving legislation.

Following the forum, the law students compiled their notes from the forum and other interviews in this report. The Commission have also hired Janie French to develop the updated watershed management plan. Members of the public can and are encouraged to learn more about the Spring Creek Watershed through the Watershed Atlas and to engage through the upcoming planning processes. The law students appreciated the opportunity to work with the Commission and various stakeholders on this project. To share your comments, suggestions, or questions on this report, please contact Penn State Law Professor Lara B. Fowler at lbf10@psu.edu.

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I. INTRODUCTION

A. THE WATERSHED

The Spring Creek Watershed is located in central Pennsylvania and covers 14 municipalities, in whole or in part.¹ Following the Spring Creek International Stewardship Exchange in 1996, a week-long event involving local stakeholders, the Spring Creek Watershed Commission (SCWC or Commission) was officially founded in 1997.² Today, the Commission is a body of elected officials representing 13 of 14 local municipalities.³ The SCWC plays a critical role in managing the future of the Spring Creek Watershed through its mission, which includes the following:⁴

1. To establish a long-range vision for the watershed that represents a consensus of thoughts and ideals that are commonly shared by the people of the Spring Creek Watershed.
2. To establish a leadership role within the watershed to advance and coordinate projects and programs that are consistent with the long-range vision of the Spring Creek Watershed.
3. To develop a long-range comprehensive Watershed Management Plan and a program of meaningful associated projects to protect and enhance the quality of life within the Watershed.

B. WATERSHED MANAGEMENT PLANNING

Over the years, the population in the municipalities and their water needs have grown rapidly, but the watershed has remained the same. Based on U.S. Census estimates, the population grew by nearly 27,000 residents from 2000 to 2017.⁵ As the watershed is facing growth and other pressures, the Commission identified the need to examine the challenges facing the watershed and fashion a plan to address such challenges. Phase 1 of the Spring Creek Watershed Management Plan was published in 2003. Now, 15 years later, SCWC wants to update the watershed management plan, drawing from as many stakeholders as possible.⁶ The April 18, 2018 facilitated dialogue was an initial step of a longer watershed management planning process being planned by the Spring Creek Watershed Commission. The Commission hired Janie French of Headwaters Charitable Trust to facilitate the longer, more involved watershed management plan development process.

¹ Robert Carline, *Geography of the Spring Creek Watershed*, The Spring Creek Watershed Atlas (Jan. 10, 2017), <https://www.springcreekwatershedatlas.org/single-post/2016/05/08/Finding-support-and-help-how-your-community-can-make-a-difference>.

² See *SCWC Meeting Agenda*, Spring Creek Watershed Comm'n (June 10, 2015), <http://www.scwatershed.com/41-spring-creek-watershed-commission.html?start=45> (describing the Commission).

³ *Members of the Spring Creek Watershed Commission*, Spring Creek Watershed Comm'n, <http://www.scwatershed.com/members.html> (last visited May 2, 2018).

⁴ *Mission Statement*, Spring Creek Watershed Comm'n, <http://www.scwatershed.com/36-spring-creek-watershed-commission/about-scwc/48-mission-statement.html> (last visited May 2, 2018).

⁵ See "Total Population—Centre County" Data Set: Census 2000 (SF2), available online at https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_00_SF2_PCT001&prodType=table (last visited May 2, 2018) (reporting a total population of 135,758); "Annual Estimates of the Resident Population: April 1, 2010 to July, 2017—Centre County" Data Set: Census 2010, available online at American Factfinder (Census Bureau), https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=PEP_2017_PEPANNRES&prodType=table (last visited May 2, 2018) (estimating a total population of 162,660).

⁶ *Spring Creek Watershed Study, Overview*, PlaceSpeak, <https://www.placespeak.com/en/topic/5684-spring-creek-watershed-study> (last visited May 2, 2018).

II. OVERVIEW OF THE CLASS AND METHODOLOGY FOR WATERSHED FORUM

A. OVERVIEW OF CLASS

The “Mediation of Environmental and Public Conflicts” Course (EXPR 972) is a Penn State Law course that helps law students develop mediation and facilitation skills to address complex multi-party issues. During the Spring 2018 semester, students examined water as a topic to meet course goals. Students 1) learned about different forms of dispute resolution and when they are appropriate to use; 2) built skills using interest-based negotiation and mediation to work through role plays, scenarios, and real-life situations; and 3) identified potential ethical issues. The course had 18 students with a wide range of perspectives and different geographic locations, including students from Sri Lanka and Kazakhstan. This course was part of Penn State’s Sustainable Communities Collaborative,⁷ which matches courses with community needs.

Students learned about the process of facilitating dialogue. To do so effectively, conducting a situation assessment is a critical first step.⁸ A situation assessment involves identifying potential issues and stakeholders, determining what information is known and what needs to be developed, and identifying potential ways to proceed. It can be conducted by parties involved, or with the help of a facilitator or a mediator. A facilitator or a mediator is a neutral third party whose job is to help the stakeholders move a process forward. A facilitator is often used before there is an actual conflict or dispute to help move things forward productively. A mediator has many of the same skills, but mediation is a more formal conflict resolution process that invokes legal privileges under Pennsylvania law.⁹ This legal privilege protects any mediation communications from disclosure. Regardless of the title, the underlying function has similarities: the neutral third party works with stakeholders to establish productive communication; design a strategy; work with data and information; build and maintain teams within different stakeholder groups; and help set up and maintain a neutral process for conducting discussions.

This white paper represents a synthesis of what Penn State Law students learned from the April 18, 2018 forum, as well as interviews and background research.

B. DEVELOPMENT OF SPRING CREEK WATERSHED FORUM

Development of the watershed forum required several sets of concurrent efforts, including (1) consultation with the Commission, (2) development of an online platform through a program called “*PlaceSpeak*,” (3) fact-gathering and a simulated role play, (4) interviewing interested individuals and groups, and (5) planning and conducting the actual forum itself. The students participated throughout the process in different capacities along with Professor Lara Fowler.

1. Consultation with the Spring Creek Watershed Commission

Professor Fowler met with the Spring Creek Watershed Commission in February 2018 to propose facilitating the watershed forum. The Commission agreed to the facilitation, and in March 2018, Professor Fowler met with the Commission again to refine the agenda and focus of the forum. C-NET recorded both meetings, which are online. Note: To access C-NET’s recordings for the Watershed Commission, go to <https://www.cnet1.org/>; select “playlists”; and search for the Spring Creek Watershed Commission. Because the Watershed Commission is supported by its member organizations, it does not appear directly under the list of members.

⁷ <http://sustainability.psu.edu/live/staff/sustainable-communities-collaborative>

⁸ See generally Carpenter & Kennedy, *Managing Public Disputes: A Practical Guide for Government, Business, and Citizen’s Groups* (2001).

⁹ 42 Pa. Cons. Statute § 5949 (Confidential Mediation Communications and Documents), *available online at* http://www.pde.state.pa.us/portal/server.pt/document/82830/confidentiality_statute_pdf.

2. Development of *PlaceSpeak* Platform for Engagement

Staff from the Sustainable Communities Collaborative created a way for people to participate in discussions through *PlaceSpeak*. The vision of *PlaceSpeak* is to “empower people to make a meaningful impact on the communities where they live, work, and play” by creating an online forum tied to people’s location that allows for online communication and discussions. For more information about *PlaceSpeak*, see <https://www.placespeak.com/about>.

Penn State paid for a subscription to *PlaceSpeak* to help provide a way for those wishing to engage online in additional dialogue during the development of the forum. An archived version of *PlaceSpeak* is online at <https://www.placespeak.com/en/topic/5684-spring-creek-watershed-study/>. Contact information and data gathered through this online process will be used to invite people to further discussions and to inform the Commission’s future watershed planning process. Note: after reviewing the cost to maintain the subscription, the SCWC opted to not continue this platform at this time during its May 2018 meeting.

3. Fact-Gathering and Background Research through Simulated Role Play

To learn more about the issues and challenges facing the watershed, the law students toured the watershed, gathered and reviewed background information, and simulated a mediation. Background information included information such as the “*Spring Creek Watershed Plan: Phase I Final Report*,” other local reports, newspaper articles and other related information. Students then participated in simulated mediation sessions over several class periods. During the sessions, students adopted roles, and researched how someone in their role might react to the issues raised. As part of this process, students identified various critical issues, brainstormed possible options and solutions, and identified potential steps on how a mediation might proceed.

4. Interviews with Individuals and Groups

In preparation for the forum, the students also interviewed a variety of stakeholders in and outside the classroom. The students conducted both individual and group interviews with people from a range of interests, including local governments, utilities, businesses, the conservation district, non-governmental organizations, advocacy groups, and interested citizens. In total, students talked with more than 50 people in individual or small group settings. Thoughts and perspectives shared during these interviews are also included in this summary.

5. The April 18, 2018 Watershed Forum

During the semester, Penn State Law students planned for and facilitated an open public forum with over 100 people, which was held on April 18, 2018. The stakeholders participating in the forum brought a broad range of perspectives to the conversation concerning water quantity and quality issues in the Spring Creek Watershed. The goal of the forum was to better understand various perspectives on stewarding water quantity and quality in the Spring Creek watershed, and to set the stage for additional work in 2018 and beyond on a watershed plan for Spring Creek. Below is the agenda for the forum, including questions asked of the stakeholders.

April 18, 2018 Watershed Forum Agenda:

- | | |
|---------|--|
| 6:30 PM | Welcome, Pledge of Allegiance- Denny Hameister, Chair, Commission |
| 6:40 PM | Purpose of forum, review breakout group process- Lara Fowler, Penn State Law
Future watershed planning- Janie French, Headwaters Charitable Trust |
| 6:50 PM | Facilitated breakout groups- facilitated by Penn State Law students |
1. What issues/challenges do you see for the Spring Creek watershed’s future?
 2. What is your vision for Spring Creek watershed in 10-15 years?

3. What steps might be needed to get from where we are now to where you would like the watershed to be in the future?
4. What does watershed planning look like to you, and how do you or others want to be involved in the watershed?
5. Other?

7:50 PM Report back from breakout groups, discussion- All

8:30 PM Discussion of next steps

8:45 PM Wrap up

III. FINDINGS

This section outlines the following findings based on stakeholder feedback: a) categories of potential stakeholders identified through this project, b) substantive issues affecting the watershed; c) procedural issues affecting the planning process; d) visions for the future of the watershed, and e) potential steps towards achieving the vision vis-à-vis water management planning. During the facilitated forum, what steps might be needed to achieve peoples’ future vision was somewhat separate from what watershed planning might look like; however, answers to these questions overlapped quite a bit, so the pertinent sections addressing these issues below will have overlapping content to a certain degree. To maintain clarity, we present both sections separately. This report represents a summary of what we heard from stakeholders but does not represent a unanimous view nor consensus on what must be done to move forward.

A. CATEGORIES OF POTENTIALLY INTERESTED STAKEHOLDERS

In preparation for the forum, students identified general stakeholders who have a vested interest in the planning of the Spring Creek watershed. The potential stakeholders and interested sectors are listed on the table below.

Table 1: Potential Stakeholders and Interested Sectors

<ul style="list-style-type: none"> ● Citizens and neighborhoods ● Local and regional governments, including COG and SRBC ● Commission: members, councils, and staff ● State and federal governments ● Non-governmental organizations ● Penn State: students, staff, faculty 	<ul style="list-style-type: none"> ● Fishing, recreation, and tourism ● Business and development ● Agriculture ● Transportation ● Utilities: water and sewer ● Mining ● Press
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While the list of potential stakeholders and interested sectors is comprehensive, it is not exhaustive. More categories of stakeholders will undoubtedly surface throughout the on-going planning process.

B. SUBSTANTIVE SECTOR-BASED ISSUES

Parties attending the watershed forum identified an array of substantive issues that should be addressed in the future watershed management plan.

1. Overall Watershed Considerations

Stakeholders identified several issues global to the watershed; these are discussed below.

Nature of the watershed: Some stakeholders expressed concern that because the watershed is made up of karst topography, it has a multitude of unanticipated connections between surface

and ground water. Some are concerned with the geology and topography of the watershed, how to preserve the nature of the watershed, avoid future erosion and sinkholes, and protect the resources given the nature of the watershed. Several people noted that we live in a “wet” area with relatively abundant and high quality water supplies; protecting what we have is important.

Temperature: A few stakeholders raised issues about the importance of maintaining the temperature of the watershed, especially to protect trout habitat. These stakeholders explained that future population and economic growth should address how to maintain water at a desirable temperature. In addition, they expressed that additional research studies should assess the impact of the growth on water temperature. The impact of water reuse on temperature was also raised.

Quality of the Water: Some focused on protection of existing high quality streams and restoration where appropriate. Stakeholders described water quality as generally good, with abundant water for a fishery that depends on high-quality water. Stakeholders explained that they want to preserve the high-quality streams and maintain minimum stream flows. Some mentioned that the use of conservation easements is a good tool to protect high quality areas. They also shared a concern that some areas along streams are relatively more degraded than others, though not all areas that might be degraded have been identified. Some stakeholders raised issues as to whether they should prioritize the protection of the water quality versus the restoration of degraded areas throughout the on-going planning process. A few people noted the impact of spills of hazardous chemicals that had occurred long ago.

Forested Areas: Stakeholders foresee issues in protecting the current forested areas and building buffers along streams. They explained that many streams lack forested buffers, which leaves the streams vulnerable to polluted runoff and silt and sediment that could potentially drain into the stream. They described the forested areas as being helpful in maintaining the soil in place, contributing to less drainage and increasing wildlife habitat. Some also noted that such forested buffers are a high priority to address water quality needs for not only local waterways, but also the Chesapeake Bay. In addition, others mentioned the need for increased tree planting to help manage water and sequester carbon (while also addressing temperature issues).

Climate Change: Some stakeholders explained that how climate change will impact the watershed is not entirely clear to them, they did foresee climate change affecting the northeast. They raised issues about rising temperatures in the northeast of the United States, which in turn will likely impact the watershed. Others voiced the need to increase the price of fossil fuels to address damage caused by global climate change.

Surface and Groundwater: Stakeholders explained that managing the surface and groundwater separately, as they perceive to be the case, doubles efforts and silos both procedures. Separate management is an issue that could be addressed through an integrated watershed management plan that explicitly addresses both surface and groundwater.

Water Source: Some stakeholders described the watershed as the source of water for the residents and businesses in the area, and therefore, they explained, protection of the water in the watershed is critical. The stakeholders also saw education as an issue in need of attention. They explained that educating the community about the water source and the issues facing the water source is important community education and engagement.

Use and Reuse: Some stakeholders shared concerns about how to use and reuse water efficiently, such that use of water is less than recharge rates. They explained that when addressing this, it would be important to consider whether reducing the usage rates to the desired levels is feasible, and who will educate residents and business owners on any adopted changes.

Water Ownership: Stakeholders raised issues as to who owns the water in the watershed. Some stakeholders explained that the Pennsylvania Constitution places the water in public trust, and fails to define what the phrase means for the public. For the stakeholders, the Constitution's clause raises other issues, such as how communities might weigh into decisions regarding water allocation and usage. Answers to such questions surrounding water rights would provide clarity and allow for design of plans responsive to these water rights.

Longevity of Aquifer: A few stakeholders foresaw issues regarding the longevity of the aquifer and explained that taking steps to protect the aquifer is of utmost importance to them. To address some of these issues, the stakeholders emphasized the need to minimize pollutants.

Flooding and Droughts: Stakeholders stated that the current system to manage flooding and droughts is not efficient. Moving forward, stakeholders want to adopt a management approach that addresses both short- and long-term flooding and droughts. A few stakeholders also explained that they see issues regarding the definition of drought, with different stakeholders having different definitions. More information about predictions for this area would be useful.

Management: A few stakeholders explained the lack of upstream management is an issue; managing impacts upstream would also affect the lower portions of the watershed. Others were focused on riparian buffers or places where issues are present.

Regulation: A few stakeholders raised issues concerning regulation of watershed. They perceived that the lack of regulation leaves the watershed without the state protections that could otherwise be potentially in place. The lack of regulation leaves the stakeholders with questions about what is and isn't permissible regarding the use and allocation of the water.

Water Distribution and Access: Some stakeholders foresee issues in maintaining water in the watershed. They explained that the export of water should be limited, and everyone should have equal access to clean water. Similarly, a few stakeholders expressed that they saw issues in keeping water as a public resource and not a private resource, with lessons learned from other watersheds. Others observed that there is a lot of water in the Spring Creek watershed, and that a better understanding of the overall water flows, both through surface and groundwater, is critical.

A number of questions remained at the forum's end about distribution and access. For example, what is the best way to address equity concerns when deciding whether to permit use of water? How can individuals with wells, and communities that may be struggling with water supplies be supported? For example, how can the Spring Creek Watershed help communities like Snow Shoe? And if so, how much help should they provide?

Pollutants: Stakeholders foresee that the amount of pollutants in the watershed and the soil, including chemicals, compost, and organic matter might negatively affect the watershed. Stakeholders wanted to identify the exact levels of pollutants present. In addition, they wanted to take steps to reduce the total maximum daily load of nitrogen, phosphorous and total dissolved solids in the watershed to meet Chesapeake Bay water quality requirements.

Beautifying the Watershed Surroundings: Members of the forum identified potential issues in beautifying the surrounding land around and along the watershed. For example, Bellefonte's effort to beautify the watershed could serve as an example to imitate along the watershed. Historic preservation is also an important consideration: "we need to sensitively review, rehab and only when absolutely necessary, replace dilapidated buildings that are negatively impacting the watershed while also saving the built environment as much as possible."

Role of Research: Stakeholders foresee issues regarding research. Research is a critical component in understanding the watershed and in helping stakeholders craft a management plan.

For example, new studies could help identify the roots of the watershed's problems and calculate acceptable amounts of pollutants (for example, as must be met for the Total Maximum Daily Load or TMDL for both locally impaired streams and the overall Chesapeake Bay needs). Research should remain essential throughout the on-going watershed management plan process.

2. Growth, Development, and Existing and New Impacts

Stakeholders noted that balancing growth and development while protecting the natural resources from potential negative environmental impacts is an issue affecting the watershed's future. Stakeholders remained concerned with growth, both population and economic wise, and equity and fairness for all residents and business sectors. Some stakeholders explained that the region has experienced growth: in terms of population, business development, and also in the increasing size of Penn State, including its student population. Stakeholders explained that while new industries have reported water use, there is a lack of follow-up on their water usage.

Stakeholders also foresee issues about how to mitigate impacts. Suggestions included increasing low impact development, limiting certain types of businesses to less water intensive users, limiting location of potentially higher impacts to water, allocating or distributing water between user types (potentially a quota), and using zoning areas to protect the water resource. One person noted that "development should be restricted to areas without environmental sensitivity and extreme beauty."

3. Infrastructure

Some noted that infrastructure is in need of upkeep and repair. In some places, wooden pipes still exist, and water leakage is an issue. Some noted that there are different levels of expertise across the watershed; finding ways to share lessons learned may be critical for helping larger and smaller entities charged with water and wastewater alike. In addition, stakeholders noted that building codes for water appliances and plumbing infrastructure could be improved. There are opportunities to create more environmentally-conscious infrastructure, including green infrastructure, and water conservation technologies. Planting trees to facilitate water retention and to "lock up" carbon were mentioned as critical to the watershed. To address the current issues with the deteriorating infrastructure, stakeholders offered adopting equitable rates for services (equivalent residence units, or ERUs) and patching-up old infrastructure. Others mentioned potential tax breaks or funding sources to increase availability and education about low flow plumbing fixtures such as toilets, urinals, showerheads, faucets, and other fixtures.

4. Tourism and Recreation

Stakeholders observed that the Spring Creek watershed is a rich source for tourism and recreation. They wondered how to maximize tourism while also maintaining the environment for residents and trout. Some foresee issues in increasing water-based tourism, while others promoted the opportunity for increasing the number of tourists who could appreciate the watershed's beauty. Some of the potential industries for recreation and tourism include fishing and kayaking, which can and do bring outside visitors to the area.

5. Agriculture

Some stakeholders perceived agriculture as a significant contributor to contamination of the watershed. They explained that some of the biggest concerns include the drainage of agricultural byproducts, nutrient, and sewage into the water source. However, the view that agriculture is contributing to the contamination of the water source was not universal. During the forum, stakeholders also raised the importance of appreciating different perspectives, including on the meaning of the quality of the water.

Stakeholders suggested two approaches specifically for the agriculture sector. One approach is to identify and better understand the effect of agriculture on the watershed: study the effects that agriculture has on the Chesapeake Bay total maximum daily load. Second, farmers could consider creating more buffer zones to further protect streams from potential pollutants. In addition, the ability to provide conservation easements to keep their land in production and not turned into developed areas was mentioned; increasing funding and compensation is needed. In addition, stakeholders identified educating the public about the multiple benefits that buffers provide and facilitating access to the information as a crucial issue moving forward.

6. Drinking Water

Stakeholders likewise expressed concern for the quantity and quality of drinking water taken from the watershed and about how to encourage further public confidence in the drinking water. Some suggested creating an emergency water supply plan in the event of drought or other shortage of water. Maintaining a sustainable amount of drinking water at all times also needs addressing. Some expressed the need to better manage water consumption, promote conservation and efficiency, including encouraging the use of dual flush toilets and saving rainwater on site. Leakage of water was also mentioned. Lastly, some noted that the impact of private wells on the amount of water used is largely unknown and needs addressing. Concerning water quality, private wells were again mentioned as their impact on water quality is unknown to them. Stakeholders also mentioned the need to protect source water.

7. Wastewater

Management of wastewater remains a big concern for many stakeholders in the Spring Creek Watershed area. Wastewater treatment facilities have capacities that are burdened by the ever-growing population in the area. Stakeholders have expressed the need for a better wastewater management system to facilitate wastewater reuse and prevent negative impacts to the watershed like the spreading of biosolids, household toxins, and agricultural runoff. Instead of directly injecting the treated, and slightly warmer, water back into the watershed, some stakeholders suggested it would be more beneficial to find other uses for that water. Some noted that another way to manage wastewater would be to create water gardens instead of retention pools in areas in which wastewater accumulation is the most problematic. Some mentioned Penn State's living filter as an idea to more broadly incorporate into current and future wastewater management systems. Stakeholders also expressed a willingness to pay additional fees for overall improvements to wastewater management systems.

8. Mining

Some voiced concern about the potential impact that hydraulic fracturing and other conventional mining techniques could have upon the watershed. Among the most pressing concerns was that water from the Spring Creek watershed would be exported to support hydraulic fracturing operations in other areas. Some also worried that such operations would rise up within the watershed and risk contamination of the streams and aquifer, including through acid mine drainage. An additional concern expressed was about the impact that new or expanded quarrying operations might have upon the watershed. Stakeholders pointed out that such operations are known to produce tailings, which can contaminate the watershed. Furthermore, stakeholders were concerned that expanded quarrying would lead to a shift in the geography of the area through the reduction of vegetation and foliage, which they believe is vital to the continued protection of the watershed via the reduction of erosion.

9. Transportation

Some stakeholders stated that transportation can affect local water quality. Their concerns included the potential impact of road salt; runoff and pollutants from roads and airport runways; and the impact of paved or impermeable surfaces and the need for more permeable surfaces, including large parking lots such as those in the local Wal-Marts. One person noted that “vehicles, roads, and parking lots cause pollution and erosion” that harm our water resources. Incentivizing and expanding mass transit use might help.

10. Penn State University’s Role

Stakeholders identified Penn State as both contributing to the issues affecting the watershed and in being important in helping finding solutions to the issues facing the watershed. Stakeholders perceive that Penn State is partially responsible for pollution, runoff, and agricultural pesticides harming the watershed, and some are concerned about the growth of both the campus and the number of students. In addition, some perceive that Penn State does not face repercussions for infractions. However, the role of Penn State is not all negative. Stakeholders suggested that Penn State students could be more engaged in finding solutions to the watershed management and in grass roots efforts. Moreover, stakeholders perceive Penn State as an institution with the capacity to research the watershed, offering the use of the university’s facilities, creating a living filter, and helping acquire grants.

C. PROCESS-RELATED ISSUES

During the watershed forum, stakeholders also identified a number of process-related questions important to consider for an updated watershed management plan.

1. Funding

Funding is another critical challenge identified by stakeholders. Existing water infrastructure throughout much of the watershed is outdated, inefficient, or unable to meet the demands of the growing population. As a result, there is a need to upgrade or replace infrastructure to increase efficiency and reduce waste. Similarly, stakeholders expressed interest in local water authorities utilizing ‘smart’ meters to monitor and streamline water usage. To do so, more funding from municipalities would be required. Many stakeholders noted that they were willing to accept a higher rate for their water usage if increased revenue would be used to update local water infrastructure. Stakeholders expressed concern that not all users are paying for their fair share of water use: local water authorities should play a role in leveling the playing field, requiring higher users to pay higher rates, or at least fees, for the stress higher users place on the aquifer and infrastructure. Stakeholders thought that, at the very least, local water rates should be reassessed. In addition, more funding for planners, especially environmental planners, was mentioned. Finally, stakeholders identified funding as necessary to maintain the environment for the trout and balance the needs of the ecosystem, while addressing population growth. Finding ways to “monetize good Best Management Practices (BMPs), business and developments that implement these BMPs” should receive financial incentives.

2. Education, Outreach, and Engagement

Stakeholders foresee the need to make education, outreach, and community engagement stronger. During the forum, participants expressed frustration with the perceived lack of ability to share information with one another and with the potential sharing of misinformation. Some stakeholders stated that a starting point toward better education can include outreach efforts to educate community members from kindergarten to postsecondary students and beyond. Topics include science in general, individual and community water ownership, steps to protect water

sources, and limitations on water resources. One person noted that need to “build pride and community ownership so that watershed areas are preserved and not developed.”

To reach the public, stakeholders suggested using means that the public often relies on to learn more about the issues, including local papers such as the *Gazette* or the *Centre Daily Times*, and WPSU, a local public television station. They explained that the information should also be accessible to the public, in a way that the public can understand. Stakeholders also expressed a desire to see more engagement from community members. Someone suggested a way to engage community members is to begin a clean-up Spring Creek holiday, where community members clean around and along the basin. [Editor’s note: Clearwater Conservancy does host an annual watershed cleanup day in April]. To improve education, outreach, and engagement, stakeholders also expressed a desire to bring back a program that worked and was in place in approximately 1998. [Editor’s note: it is not clear without further details what this program is, but if someone has more information, that would be helpful to know].

3. Role of “experts” and expertise

Stakeholders emphasized the importance of relying on experts and scientific evidence to help make informed decisions about the water resource management plan, and also identified several issues that may arise when working with experts. For example, some people might exhibit a potential inability to accept science; at the same time, there is a need for experts to be able to translate what they say to the audience with whom they are talking.

4. Decision making/governance/water law

Stakeholders expressed concern regarding watershed governance from a variety of perspectives. Some want to be more informed during decision making processes and want decision makers to be held accountable and respectful of the need for “cautious stewardship” of water and other natural resources. Others wanted a jurisdiction encompassing the entirety of the watershed, and to not have the watershed divided by political boundaries. There are various views about who should be making decisions, with friction between various parts of the watershed about water management related to past and recent decisions. One person noted the need to have stronger, effective and informed governance on water issues: “we need informed government leaders with the ability to regulate and tax fairly for the good of humanity, including repairing infrastructure, installing reverse osmosis systems, creating emergency response systems, purchasing land to leave wild, and upgrading water systems in a transparent way.”

One of the most crucial issues for the stakeholders was how to create a Commission that has “teeth” so that it could push back against critical issues. Some wanted the Commission to be able to push back against issues where unequal bargaining power between the community and big corporations existed. Stakeholders feared that the Commission could easily be dismantled and succumb to outside pressures because of corporate proposals to draw water from the watershed. They explained that a Commission with “teeth” should also be able to address growth, development, both residential and economic, while maintaining equity and fairness.

Stakeholders foresee issues regarding water law in the state. They expressed a desire to understand water law in general and their water rights in specific. The law on the residents’ rights to the water remains unclear to the stakeholders. They explained that this lack of clarity is in part based on lack of access to relevant data and vague water law principles in Pennsylvania.

Finally, the need for uniform well drilling standards was mentioned; “changing laws and codes to require grouting of drilled, private well casings to prevent surface water contamination of water tables and local aquifers” was identified as an issue. [Editor’s note: Centre County does have local well drilling standards.]

5. Enforcement

A few stakeholders explained that regulatory enforcement is lacking. At the state level, the stakeholders perceive that the Department of Environmental Protection (DEP) can do more to enforce the existing laws whenever someone is in violation of state laws. At a regional level, the stakeholders categorize the Susquehanna River Basin Commission (SRBC) as too lenient on enforcing permitting. The stakeholders see enforcement from the state to the local level as crucial to preserve the quality of the watershed.

6. Privatization of Water

Given prior proposals to privatize the water and potential future proposals, some stakeholders identified the potential privatization of the water as an issue of concern, stating that they want to minimize privatization. These stakeholders recognized that a bottling plant is present in the area but remained concerned that other additional bottling water plants might be established. For example, the stakeholders discussed the prior Nestlé proposal to establish a bottling plant in the Benner or Spring Township area. Although no longer pursuing the proposal, Nestlé continues to express interest water from this region.

7. Communication/Engagement

Some stated that communication and community engagement between stakeholders and outside experts is lacking. They explained that the public wants to exercise their right to express their views on issues affecting the watershed, including when private companies offer proposals to draw water from the basin. According to the stakeholders, more forums—even if only twice a year—would enhance communication and increase community engagement. They explained that a stakeholder-facilitated meeting would help identify gaps in the laws and disperse information between groups, to name a few benefits. Moreover, they explained that Penn State can do more community outreach to maintain contact with the public.

8. Availability and Transparency of Information

Some expressed concerns about accessing information. They have struggled to locate, and access information related to watershed planning. They want greater transparency and clarity. They explained that the “right to know” laws should give constituents the ability to access to government functions and have experienced hurdles in accessing information.

D. VISION FOR THE FUTURE

Stakeholders offered comprehensive visions for planning and water resource management. They envision the on-going planning process as an opportunity to restore relationships, create an integrated water source management approach that draws input from all stakeholders, develop a coordinated, integrated water governance model, and establish readily access to information, data, and educational resources. The stakeholders also expressed a desire to explore potentially innovative opportunities. Each component is detailed below.

1. Opportunity for Restoring Relationships

Some see the on-going planning process as a way for stakeholders to restore and strengthen relationships among stakeholders. Several stakeholders expressed that through a real attempt to understand others through community engagement, relationships could begin to heal. They perceived that continual dialogue among stakeholders would strengthen their relationships as they learn to appreciate their diversity of thought, further empathize with each other, and learn from one another. Stakeholders expressed that community forums would be appropriate mechanisms to bridge relationships, and address other controversial topics, such as politics and issues surrounding water quality.

2. Integrated Water Resource Management (IWRM)

Many expressed the need for the development of an integrated water resource management plan, which ideally includes the integration of land use planning, zoning, water use, and even with management plans for food and other energy sources. The stakeholders expressed hope was that this plan would be run by citizens from each community and not simply mandated by a single municipality. Some ideas for an integrated water management plan include: finding creative solutions outside the box that encourage smart growth in various sectors, converting sewage water into drinking water, informing others on how to responsibly use water, protecting recharge areas, tighter regulations on farmers, efficient storm water use/regulation, and better enforcement of infractions.

Stakeholders hoped that the water will be of the same quantity and quality in the future. To ensure this happens, the stakeholders proposed that an initiative to beautify the watershed. As previously mentioned, Bellefonte's efforts to provide access and beautify the watershed could be an initial guide. The stakeholders classified that plan as a way to beautifying the watershed while maintaining sensitivity to local history and historical structures. Some examples of agreed upon good practices include: reducing water use, reclaiming area to create riparian buffers for the streams, developing a future water budget, replacing buildings that are dilapidated and in complete disrepair while preserving those that still maintain historic and cultural value, lessening the impact of waste, such as plastic water bottles, in the water, and creating public parks for the entire community to enjoy. The stakeholders believe these creative solutions, coupled with integration, will improve the watershed over the next 50 years.

3. Coordinated, Integrated Governance Model

Stakeholders want governance of the watershed that is also coordinated and integrated. An integrated model includes several essential pieces, they explained. Under this model, the Commission is stronger with, what community members call, "more teeth." The stakeholders explained that ideally, the Commission would cope with the on-going population growth in the region and would look at all the relevant information regarding the watershed. Regulations in place would also allow for more decision-making by local authorities. In addition, under this governance model, stakeholders envision water authorities and pertinent municipalities working together and holding each other accountable through a comprehensive implementation plan. Such an integrated system also requires a bottom-up approach, where community members provide input on the governance model and its essential components and different parties, including townships, boroughs, counties, and authorities, expand the communication among community members. Several stakeholders also expressed that the governance model should be proactive by, for example, taking steps to guard against industries that prey on water. Stakeholders also envision being in full agreement regarding decisions about their public resources, and envision an integrated governance model helping them reach such agreements.

4. Easily Accessible Information, Data, and Educational Resources

Good communication was also identified as a critical feature. More forums and increased education in schools would heighten awareness for younger generations and the community at large. They also envision expanding C-NET to spread awareness about the watershed to additional cities. They explained that the wider dissemination of public broadcasting will encourage transparency and maintain public knowledge of local government as it relates to the Spring Creek Watershed. Additionally, it was suggested that scientific studies, conducted by experts and free of political bias, could assist in educating the public about the effects of their actions on the watershed. Also, some envision support to the agricultural sector towards the development of methods that lessen the sector's impact on the watershed. Finally, stakeholders

would like to see a "Spring Creek Day." They envision this event as providing an opportunity for the community to appreciate the watershed's vital role and the need for its protection in the future. As the process continues, stakeholders envision the role of visualization of what the watershed "should look like" as a guiding goal.

5. Opportunities to Explore

A few stakeholders shared ideas which they hoped to continue to explore. These included finding ways to ensure the protection of aquifer recharge areas; developing a storage reservoir to potentially help preserve water for droughts and other future uses; and returning the watershed to its original state, before human activity negatively impacted the watershed.

E. OPPORTUNITY FOR INTEGRATED WATER RESOURCES MANAGEMENT

Stakeholders identified a range of steps to achieve their vision of integrated water resource management, one that includes the integration of systems, knowledge, and entities with the same goals. The steps presented below are related to relationships, process, substance. The steps are neither presented in sequential order nor in order of importance. Instead, the stakeholders explained that they know they can execute multiple steps concurrently, can prioritize which steps to address first, or can choose not to adopt a step.

1. Potential Relationship Topics to Consider

During the forum, stakeholders prioritized building positive relationships among all stakeholders who will participate in the watershed management plan. As a starting point, the stakeholders suggest repairing relationships among members on the Commission. As the community members continue to meet, they explained that they might potentially identify other relationships that could benefit from further strengthening.

2. Potential Process Steps: Community in Action

Stakeholders identified a number of process steps as being potentially important.

Assess Water Quantity and Quality: According to the stakeholders, an early step toward an integrated management plan is to define the resource in a more precise manner. The stakeholders expressed that a more defined resource can help decision-makers better manage the watershed. Similarly, the stakeholders want to better assess the water quality assets. Again, they explained that such assessments can help them better understand the water in the watershed and develop management solutions responsive to those needs.

Establish a Management Team: A second early step that the stakeholders identified in the on-going development of a management plan includes establishing a management team. The stakeholders described this team as being the team that will make decisions regarding the future management of the watershed and will lead the communication among stakeholders. The stakeholders also suggested that the management team can develop sanctions and fines and would ultimately ensure that anyone sanctioned or fined complies with the measures.

Centralize Information: Stakeholders want to centralize information throughout the on-going planning process to give the stakeholders greater access to all the information in one place. They explained that if centralized, they would not have to search multiple sources for important information, such as background information, water rights, and details on upcoming forums.

Enhance Public Discourse: According to stakeholders, another step in enhancing community action would be more public engagement. Completion of the Watershed Atlas would be an important step, including a way for stakeholders to communicate with one another and upload or share information, such as reports, studies, and similar other work product. One

proposal suggested providing regular public forums addressing the state of the Spring Creek Watershed, encompassing both qualitative and quantitative measurements. The feasibility and structure of such an approach, however, requires additional input—for example, the timing of forums, such as annual or bi-annual forums. Despite these challenges, stakeholders agreed that a greater understanding of the watershed would lead to a more fruitful discussion of strategies for safeguarding the Spring Creek Watershed. For example, more information from Spring Township would have helped inform stakeholders about the Nestlé proposal.

Educate the Public: Several stakeholders noted that establishing an educational framework, starting at the primary educational level, would work best to provide the information necessary to make informed decisions regarding the watershed. Specifically, stakeholders proposed incorporating a primary through secondary educational strategy that would use the resources available through Penn State.

Another aspect of public education includes the need for more information regarding the legal structure of water management in Pennsylvania, including the regulatory framework established to manage withdrawals from surface water resources. On this front, stakeholders noted a frustration regarding a lack of understanding relating to power structures within and between governments (e.g., municipal, county, state, and federal). By providing a better understanding of how water and water withdrawals are regulated in Pennsylvania, such as the prohibition on local regulation of water withdrawals, stakeholders noted the potential for a more productive public input on future water management challenges.

Learn from Others: The stakeholders identified the University Area Joint Authority (UAJA) efforts to reuse water for irrigation as an opportunity to explore further. The stakeholders want to build on those efforts and expand the pipes for reuse and irrigation. They also shared a desire to use the water not only for irrigation but for other uses, including drinking.

Develop Smart: Some stakeholders defined the term “smart development” as the ability for individuals and current/prospective business owners in different sectors to find innovative ways to develop their sectors, while also remaining cognizant of the importance of protecting the environment. They explained that such development requires that stakeholders in the various sectors identify potential negative environmental impacts on the watershed and take action to avoid or minimize potential negative repercussions. Other stakeholders, including local and state organizations, can support individual and business efforts, offering ideas, information, or providing aid whenever possible. Moreover, according to the stakeholders, developing smart also includes finding ways to involve and help residents from different socio-economic backgrounds.

Increase or Decrease Development: Stakeholders expressed a wide range of views and potential steps regarding development. Some want to see policies that encourage a reduction in population, a few even suggesting having everyone leave the area and revert to natural form of farming, when farming was primarily for self-consumption, not sale. Others mentioned the impacts of growth by Penn State and the need to house students. Others want policies that encourage new business startups, including startups by Penn State graduates, and resource development. Some were less concerned with the amount of growth but focused on the process. For the process, they suggested that the community would benefit from higher population density. Higher density would allow for some increase in population and development but would prevent issues from creating unnecessary impervious surfaces. Additionally, higher density would also increase more clean, green areas. Others suggested that the process for new businesses coming to the area should slow down.

Create a Commission with “Teeth”: Several stakeholders want the Commission to have “teeth.” The Commission should have the ability to raise issues with local governments and balance growth with development. Moreover, the Commission should not fear limiting growth when environmental damage is too high. According to stakeholders, other steps a Commission with “teeth” can take is to hire a hydrologist to assist the Commission in its watershed management plans and be able to anticipate and plan for greater outside demand for water.

Overlay District, Water Plan, and Official Map: Stakeholders suggest creating and adopting an overlay district. They explained that an overlay district could help further development while minimizing environmental impact. Stakeholders want these efforts to be part of the official water source management plan. Finally, stakeholders also explained that an official map can clarify the official boundaries of the underlying and overlay districts.

Adopt More Municipality Zoning Codes: Another step some stakeholders suggested to support development in the area is to adopt more municipal zoning codes. They stated that this approach would promote development, while adopting measures that minimize negative impact on the watershed and its surroundings. In furtherance of updating municipal zoning codes, community members suggested several initial steps. One early step is more opportunities for the community to have conversations with municipal governments and with each other. They explained that availability and public awareness of forums or a convenient online platform would assist stakeholders in raising important issues about the wants and needs of the community. They also stated that forums and a centralized online platform will also assist in creating community wide definitions of key terms and ideas, which is a necessary step in actual communication. Several stakeholders expressed that having a shared understanding will allow for greater efficiency as the citizens and governments of multiple municipalities protect their shared resources. The stakeholders want the forums to give a voice to community members from all different socio-economic backgrounds. Some suggested the Centre Region Council of Governments (<https://www.crcog.net/>) as also playing a critical role in elevating these types of conversations, particularly if more citizens became engaged with the on-going efforts.

Create Wetlands and /or Retention Ponds: Several stakeholders proposed creating wetlands or retention ponds to help absorb more water at greater levels. One person noted that “preserving or expanding wetlands... is valuable as natural free water purification systems, groundwater recharge, and wildlife habitat.” Additional conservation easements may be needed to protect such areas from development.

Increase Research: Another early step that community members would like to see is additional research and studies from the social, psychological, and environmental fields. Such studies would inform the development or the implementation of resource management decisions and would help stakeholders learn about the risks facing the watershed. They stated that while risk will remain present, research can help decision-makers make informed decisions about risks. Several community members also voiced that additional research and studies should be conducted by neutral parties that have no stake or reason for bias in the outcome. The stakeholders identified Penn State researchers, including Richard Alley, as researchers who can contribute to research through climate change prediction models, for example. Some stakeholders labeled the new approach to increased research as a more aggressive regime to further science knowledge and improve understanding of water and agriculturally-related topics.

Stakeholders stated that once the community has shared its knowledge, concerns, and hopes, then they can make decisions regarding the proper balance between community growth

and development. They also explained that similar studies can inform and educate municipal governments about low-impact development.

Increase Individual Environmentally-Friendly Efforts: Several stakeholders suggested that all community member should undertake individual efforts to manage the water source. They shared that these efforts can be as small as monitoring and limiting their individual water usage. They explained that these individual efforts aggregate to benefit the watershed.

Build Community Pride: A few stakeholders saw regional branding a step to build community pride. They shared examples of where regional branding has been successful. They offered Dijon, a town in France that has successfully branded Dijon mustards, as an example. Several stakeholders hope take steps to find a brand that represents them.

Improve Legislation: Stakeholders want to take steps to use law to make changes to the management of the watershed. First, they want to replace arcane laws with newer laws that are more responsive to their needs, given the population and economic growth in the area. Second, they want to develop law that facilitates recycling sewage water into drinking water.

3. POTENTIAL SUBSTANTIVE TOPICS TO CONSIDER

Stakeholders also mentioned a variety of potential substantive topics to consider.

Education on Water Issues and Water Rights: Some stakeholders suggested educating local residents about the watershed, including issues facing the watershed. They also thought it important to educate the next generation of residents who will continue to draw on the watershed as source of water. Different educational efforts could be focused at the primary, secondary, postsecondary levels and beyond. Several stakeholders suggested that students in K-12 learn about water, while all students from kindergarten to postsecondary education learn about water conservation. In addition, they explained that Penn State students can remain engaged in water issues through community involvement.

Stakeholders also want the community at large to remain informed about issues relevant to the watershed and its usage. For example, stakeholders want to see information about the local watershed included in water bills. Stakeholders also want to learn more about water source management from other watersheds and municipalities.

Finally, stakeholders described water rights in Pennsylvania as complex, and thus, they expressed a desire to learn more about their water rights. Stakeholders raised questions they wanted to know more about. For example, what constitutional rights do residents have for their water? What do water rights mean in Pennsylvania?

Funding for Research: The stakeholders suggested that they should take steps to fund research. They stated that research is important to help them better understand the issues facing the watershed, and thus funding for research is similarly important. They identified several potential sources of funding for research, including public state/national grants or private grants from philanthropic organizations.

Sustainability Efforts: The stakeholders outlined multiple sustainability efforts that individuals, business owners, and governmental officials, and organizations can take.

- *Greener Parking Lots:* Stakeholders suggested creating parking lots that are more environmentally-friendly and which would potentially contribute to the sustainability of the watershed. For example, they explained that parking lots that are more permeable help the water drain into the watershed and help prevent stormwater runoff.

- *Smart Water Meters*: Several stakeholders also suggested smart water meters because such meters would help the residents and businesses in the area track their water consumption and identify leaks. Stakeholders explained that the meters can help residents and business owners better manage and periodically monitor their water usage.
- *Incentives and deterrents*: The stakeholders identified two type of potentially effective incentives and deterrents: credit for homeowners and taxes or fees for business owners. The use of credit for homeowners to use more watershed-friendly fertilizers and weed-killers would incentivize the homeowners to be more environmentally friendly. They explained that such measures can minimize the amount of pollutants that drain into the water streams. They also suggested that taxes and fees can serve as deterrence for current and prospective business owners to adopt new safer practices or update current practices.
- *Reusable Bottles and Cups*: Several stakeholders also suggested the use of reusable and collapsible cups to reduce waste and minimize negative environmental impact. Such sustainability efforts could contribute to watershed quality.

IV. NEXT STEPS

After the forum, the law students, the Commission, and community stakeholders have taken several steps and will continue to take steps toward realizing the stakeholders' shared vision. First, on April 23, 2018, a few students attended the Penn State Campus and Community Sustainability Expo. The Expo presented an opportunity to share the findings from the forum with the local community at large and gave community members an opportunity to inquire further into the project. For more, visit: <http://sustainability.psu.edu/calendar/campus-and-community-sustainability-expo-3>. Second, the compilation of this report also plays a crucial step toward addressing the issues facing the watershed and creating the stakeholders' vision. The report represents the input from students' notes, stakeholder interviews, and findings from the community forum.

The Spring Creek Watershed Commission will review the notes and findings to inform the development of the watershed management planning process. Janie French, Executive Director at Headwaters Charitable Trust, will lead a longer-term process to update a regional watershed management plan. Throughout the planning process, the Commission and Janie French will seek ways to engage the public. To contact the Commission and be added to their mailing list, visit <http://www.scwatershed.com/contact-us.html>. In addition, the Spring Creek Watershed Association, made up of volunteers, is interested in further participation; see <http://www.springcreekwatershed.org/>.