

wallkill river
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SCIENCE-BASED ACTION PLAN



2017-2019

www.wallkillalliance.org

wallkillalliance@gmail.com

www.facebook.com/wallkillriver

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SCIENCE-BASED ACTION PLAN 2016-2019

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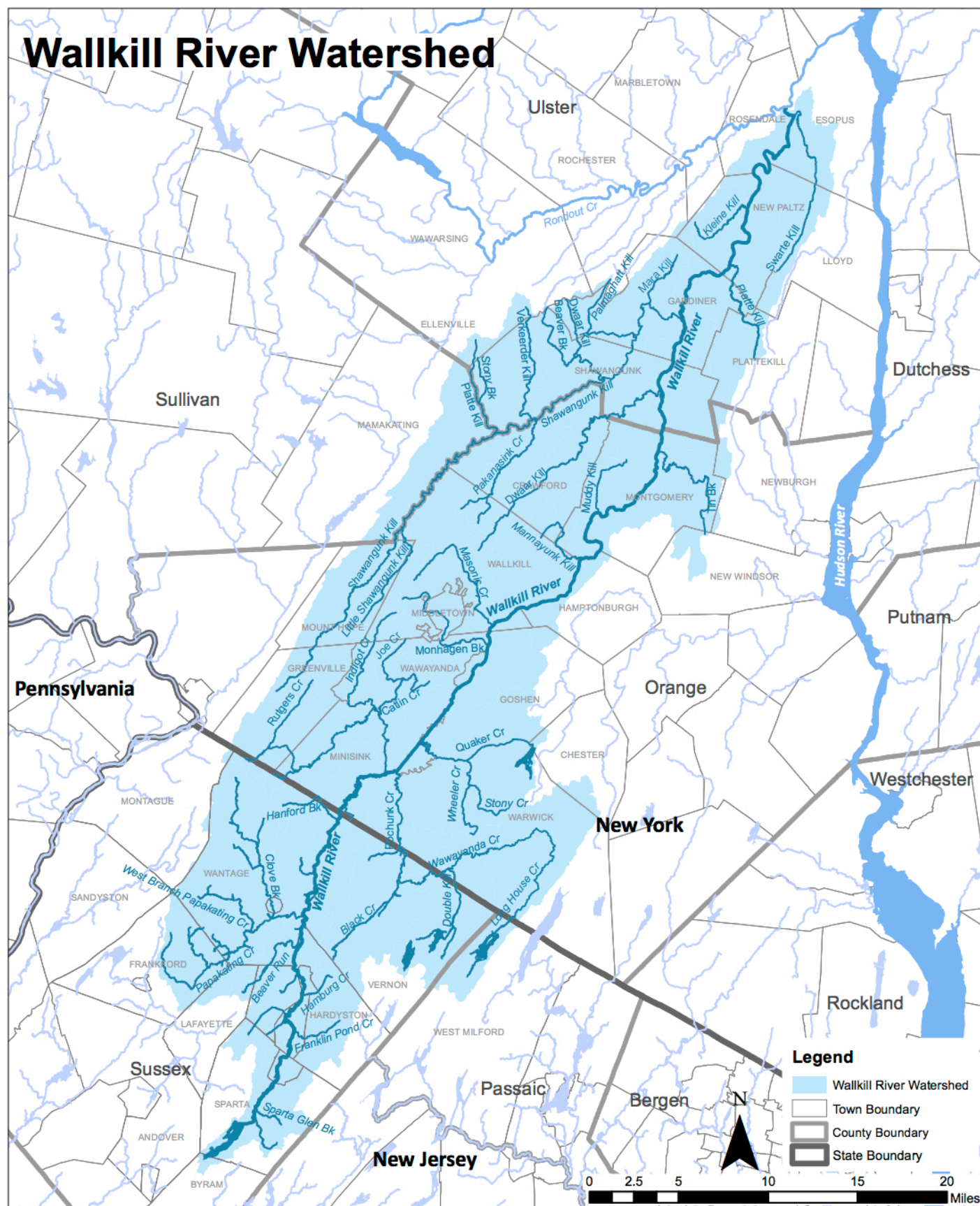
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Wallkill River Watershed



This map was created for the Wallkill River Watershed Alliance (WRWA) in April 2016 and shows the extent of the watershed, its tributaries, and the municipalities in the watershed. Data sources include the United States Geological Survey, United States Census, and NYS Department of Environmental Conservation. The map was created by the Hudson River Estuary Program and Cornell University, with assistance from SUNY Geography Intern Paulina Lustgarten. Contact Laura Heady at laura.HEADY@dec.ny.gov with questions about the map. To learn more about WRWA, visit www.wallkillalliance.org or email wallkillalliance@gmail.com.



Cornell University

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Swimming in the Wallkill, early 20th Century.

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1.0 Introduction

In December of 2015, Riverkeeper submitted a successful grant application to the Hudson River Estuary Program entitled “Piloting Second Generation Water Quality Community Science in the Hudson River Watershed.” This grant provided, in part, funds for the drafting of a “Science-Based Action Plan” for the Wallkill River Watershed Alliance.



The Science Working Group begins sampling ahead of an expected HAB, 2017.

It is important that the Wallkill River Watershed Alliance base our actions on the best scientific data available, and to advocate for more scientific research in the coming years. We need scientific data to inform our policy positions, public statements and outreach materials. For instance, increased riparian buffers are needed to restore the river, but how wide should those buffers be? What pesticides are in the river, and are they at dangerous levels? There is arsenic in the river in New Jersey - does it wash downstream to New York? Scientific research is the only way to answer these questions, and therefore forms a cornerstone of our work.

It is our hope that placing scientific inquiry at the heart of our policy, outreach, and monitoring will provide a better roadmap for actions that are informed by existing science, prioritize ongoing projects and identify new studies to help enable future action.

In the process of developing this Plan, we first gathered recommendations. After reviewing the available literature on the watershed (see Appendix A), we focused on four sources:

- The recommendations collected from many of the more than a hundred attendees at the April 2015 “Future of the Wallkill” conference, as reflective of current concerns from as large a sample as we were likely to get.
- The collected recommendations of the 2007 *Wallkill River Watershed Conservation and Management Plan*. As reflective of the exhaustive research undertaken by the Wallkill River Task Force, Orange County Soil and Water Conservation District, and others in writing the Management Plan. While now a decade old, the Plan is still a useful and relevant guide to both issues and potential action in the watershed.
- The Board of Directors held a meeting facilitated by Maureen Cunningham, Executive Director of the Hudson River Watershed Alliance. At this meeting, Maureen led us through a SWOT (Strengths, Weaknesses, Opportunities, and Threats) training, which identified additional areas of concern and related goals.
- Each Alliance Working Group (see Section 2 below) identified short, medium, and long term goals for their work.

At the above mentioned SWOT training, we also clustered the various recommendations into three broad categories, called our Priorities. The three overarching Priorities of the Alliance are:

- **Water Quality**, meaning a Wallkill and tributaries that are swimmable, with pollution levels below acceptable limits and no Harmful Algae Blooms.
- **Public Access & Engagement**, fostering a public individually and personally invested in the wellbeing of the river and its' watershed, as well as involved in its restoration. Recreation is critically important to addressing this Priority, and efforts to expand and promote recreational opportunities are a key focus of the Alliance.
- **Capacity Building**, or increasing the time, funding, and people dedicated to restoring the watershed, for both the Alliance and our allied organizations, agencies, and governments.

The heart of this Science Based Action Plan is found in Section 4: Alliance Goals and Tasks. Here we have distilled the laundry list of recommendations gathered from the sources listed above. Organized by Priority, broad Goal, and discrete Task, this document reflect the goals that our membership feels that we can meet within a three-year time frame.

2.0 The Wallkill River Watershed

A watershed is defined as all the land that drains into a common body of water; it includes all the tributaries of a river as well as the river itself.

The following description comes from the DEC's 2016 proposal for an “Enhanced Monitoring Study of the Wallkill River”. The Wallkill River Watershed Conservation and Management Plan offers a more comprehensive description of the Wallkill River Watershed and related water quality issues. The Management Plan is available at www.wallkillalliance.org/files.

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The Wallkill River flows north approximately 90 miles from Lake Mohawk in Sparta, New Jersey until joining the Rondout Creek in Rifton, New York. Collectively the Wallkill and Rondout watersheds form the second largest tributary to the Hudson River Estuary, second only to the Mohawk River.



The Black Dirt farming region, 2017.

Within New Jersey, the Wallkill River flows 27 miles, and its watershed drains 208 square miles in 13 municipalities. In New York State, the Wallkill River flows for 66 miles before it joins the Rondout Creek, and its watershed drains 552 square miles. There are 48 municipalities in the Wallkill watershed, including both New York State and New Jersey.

The Wallkill River watershed has a complicated pattern of land use. With areas of denser development (and one city) alongside undeveloped land and significant agricultural areas, the sources and solutions to water quality problems are complex as well. According to GIS analysis undertaken by the Wallkill River Watershed Alliance, the watershed's land use (including the New Jersey portion) is 60.3% undeveloped, 26.5% in active agriculture of some kind, and 13.2% urban/suburban development. The watershed includes both public and private wastewater treatment plants, and septic systems. There are 36 SPDES permitted discharges (23 of which are wastewater facilities) and roughly 600 mapped MS4 outfalls in the watershed.

On the Wallkill River's main stem, there are dams at Montgomery, two at Walden, Wallkill, Rifton and Sturgeon Pool. In Orange County's Black Dirt Region, the Wallkill River main channel and tributaries have also undergone considerable modification over the last 200 years. There are also at least 16 public access points, and the Wallkill River is frequently used for boating and fishing.

New York State Department of Environmental Conservation (NYSDEC) routine water quality sampling in 2008 suggested water quality had declined in certain areas of the Wallkill River when compared with previous sampling in the 1990's. In addition, more recent sampling in 2012 in the areas of New Paltz and Montgomery suggested impaired water quality and moderate impacts to aquatic life. These results confirm indications of water quality impairment in these areas by Orange County independent water quality monitoring programs. Results of these efforts indicate phosphorus enrichment in the watershed as the dominant pollutant.

The Wallkill River has experienced two years of documented Harmful Algal Blooms (HABs). In August 2015, a HAB in New Paltz was reported to NYSDEC, and confirmed by visual assessment. From August 24, 2016 through at least October 24, 2016, HABs affected as much as 30 miles of the river from Montgomery in Orange County to Sturgeon Pool at Rifton in Ulster County, and into the Rondout Creek downstream of the Wallkill's confluence. Outlying blooms were also observed on August 15 in the Rifton area and on September 14 in the National Wildlife Refuge at NY-NJ state line. The bloom was confirmed with high toxins with visual and photographic evidence, microscopic analysis by scientists associated with the Wallkill River Watershed Alliance, and through both microscopic and toxin analysis by the SUNY College of Environmental Science and Forestry, in collaboration with the NYS Department of Environmental Conservation.



Explaining macroinvertebrates at the Earth Day Festival, Dutch Reformed Church, New Paltz, 2016.

Recreational uses of the river were impacted by the HAB, with a private beach closed, a kayaking rental business that normally operates on the Wallkill suspending operations there, multiple public paddles canceled, and public signage posted by DEC warning against exposure to the water posted at several public boat launches. In addition, use of the water for irrigation remains a concern, for the many farmers in the Wallkill Valley that irrigate with river water, for their customers, and for gardeners such as those that use the New Paltz Gardens for Nutrition, a community garden that irrigates with river water. Public concern on this issue is high, as evidenced by the turnout of 65 people for a public event that featured DEC, Department of Health and other speakers on the harmful algal bloom.

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2016's Harmful Algae Bloom

In 2012, Riverkeeper began a community science effort to monitor *Enterococcus*, a fecal indicating bacteria, in the Wallkill River. As a Class B waterbody, the Wallkill River's highest and best use is defined as swimming and other contact recreation. As of 2015, 87% of samples from the Wallkill River and several tributaries (377) exceeded EPA's Beach Action Value for *Enterococcus*. The geometric mean of all samples was 426 colony forming units per 100 milliliters. This impact has been documented in recent Priority Waterbodies List/Waterbody Inventory updates for the lower and middle segments of the Wallkill River.

In addition to nutrients, harmful algal blooms, and bacteria, other water quality concerns include organic contaminants and heavy metals. In 1997, a DEC CARP study showed the Wallkill to have ten times the concentrations of DDT and dieldrin of all Hudson River tributaries examined. The banned pesticides were found in the top layers of sediment along the entire length of the river. Arsenic contamination has also been documented in the New Jersey portion of the Wallkill River watershed, with approximately 20 river miles impaired. New Jersey is implementing a Total Maximum Daily Load (TMDL) to address this issue.

3.0 The Wallkill River Watershed Alliance

In April 2015, the Wallkill River Watershed Alliance was launched in the wake of the first "Future of the Wallkill River" summit, held at SUNY New Paltz. Over 120 people from throughout the watershed attended and contributed their visions for a healthy Wallkill River. Since then, the Wallkill River Watershed Alliance has met monthly, alternating between locations in Ulster and Orange counties. The our three Priorities are: to improve water quality, increase public engagement, and build capacity to protect and restore the Wallkill River and its watershed. The Alliance has four Working Groups who implement and prioritize the work needed to carry out these goals. Our Working Groups are: Boat Brigades (free, monthly paddles to observe river conditions), Outreach, Policy, and Science. The Alliance and its partners build on prior efforts, such as the Wallkill River Task Force, which produced the 2007 "Wallkill River Watershed Conservation and Management Plan." The Alliance plays an important role in convening stakeholders throughout the region and communicating about issues of concern, such as HABs.

3.1 Mission

There is no life without water, and the water that flows through our communities is our responsibility. A river we can swim in and eat from is both our right and our responsibility. The Wallkill River Watershed Alliance was founded to restore the Wallkill River to its prime, to act as the voice of the River, and to advocate for the restoration of its entire watershed, using whatever means we find necessary.

3.2 Administration

The Alliance is governed by a Board of Directors elected annually by the membership, including a President, Secretary, Treasurer, and four At-large Directors. From June 1, 2016 through May 31st 2018, a part time Coordinator has been contracted by Riverkeeper, paid for by a grant from the Hudson River Estuary Program (the coordinator role has been filled by the President). Part of this funding includes the drafting of this Science-Based Action Plan.



Tabling at Earth Day, Dutch Reformed Church, 2016.

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The Alliance holds General Meetings on the second Wednesday of each month, alternating location between the New Paltz and Montgomery Village Halls. For the first hour, members meet in individual Working Groups (see below) or project committees, coming together for the last hour to update the larger group, discuss general business and occasionally host educational speakers.

Alliance members are organized into three Working Groups: Boat Brigades, Outreach & Policy (the result of two Working Groups merging), and Science. Each Working Group operates independently, coming together at monthly General Meetings to compare notes and coordinate activities.



Wallkill River samples waiting to be analyzed, 2016.

3.3 Boat Brigades

The Boat Brigades organize public outings on the Wallkill in both Orange and Ulster Counties. They launch expeditions from May through October, monitoring the river for garbage, illicit discharges, potential algae blooms, and ailing stormwater infrastructure. They file reports of their observations with local building inspectors and MS4 officers if something suspicious is found. Just as importantly, the Boat Brigades get people out on the river, deepening the public's engagement and appreciation of the Wallkill.

Beginning with the 2017 boating season, the Boat Brigades have expanded south, organizing monthly expeditions in Orange County, in addition to a monthly schedule of Brigades in Ulster.

3.4 Outreach Working Group

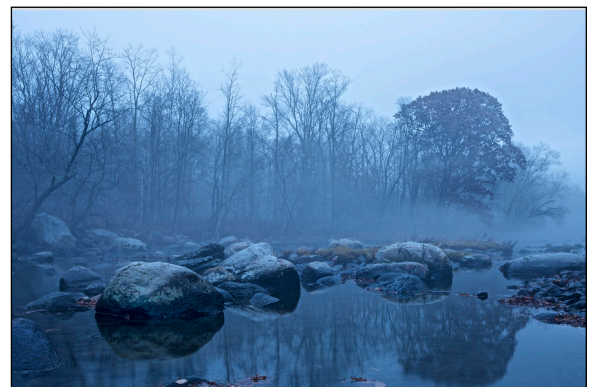
The purpose of the Outreach Working Group is to act as the main bridge between the Alliance and the public, with the aim of both promoting the organization and recruiting new organizers. This has included tabling at community events, giving educational programs in an elementary school, and organizing the first annual Wallkill River Festival.

3.5 Policy Working Group

The Policy Working Group is tasked with devising legislative solutions to problems in the watershed. This involves several aspects of public policy, for instance drafting legislative agendas, working with local governments to adopt beneficial local laws, and advising homeowners on best management practices.

3.5 Science Working Group

The Science Working Group is made up of both citizen-scientists and trained PhD research scientists. The Science Working Group undertakes sampling and analysis of the Wallkill and its tributaries. They devise research questions and plan for the monitoring and assessment necessary to answer them.



The Shawangunk Kill in winter

3.6 Shawangunk Kill Watershed Alliance

In 2017, the Outreach Working Group identified “subwatershed groups” as a priority for outreach. With several members of the Working Group living in the Shawangunk Kill watershed, this largest of the Wallkill's tributaries was the clear choice to prioritize. The SKWA has a membership of 6-8 people, and meets monthly in Pine Bush. The projects so far identified by the SKWA as priorities are:

- Testing the Kill for nutrient pollution, especially phosphorus.

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- Working with local governments to increase the use of best management practices and local laws to protect the watershed.
- Monitor developments, especially Heartwood in Gardiner, and developments in Blooming Grove. Involve ourselves in the SEQRA process where appropriate on behalf of the Kill.
- Increasing public access to the Kill, including scouting and developing new access sites.
- Creating an Atlas of the Shawangunk Kill Watershed for planning, education, and outreach purposes.



The Boat Brigade on the Wallkill, 2017.

3.7 Sturgeon Pool Watershed Alliance

Over the course of 2017, there was an effort made by an Alliance member and a property owner on Sturgeon Pool to start a Sturgeon Pool Watershed Alliance. Some initial meetings were held, and both the Woodcrest Bruderhof, and Central Hudson were supportive. Ultimately, the project never launched largely because of the issue of public access. With the lake surrounded by private homes, it was made clear that opening the Pool up to the general public was not supported by the neighborhood. It is recommended that Sturgeon Pool be a focus of future monitoring, relying on relationships with local residents to allow access.

4.0 Alliance Priorities

The Alliance has identified three broad priorities for the coming years: improving water quality, expanding public engagement with the river and its tributaries, and increasing our capacity to organize and effectively advocate for the watershed.

4.1 Water Quality

Improving water quality is a key goal for the Alliance, and our first Priority. Our aim is to have a Wallkill that is swimmable, with pollution levels below acceptable limits and no harmful algal blooms. Within this broad ‘water quality’ category, four issues of particular concern have arisen, and are priorities over the next few years: nutrient pollution, pathogens (especially *Enterococcus*), harmful algae blooms, and the threat of pesticides. Other water quality issues, such as sediment, arsenic or micropollutants, while still concerns, are not within the scope of the current action plan, due to the Alliance’s finite human and financial resources.

Specific water quality goals and tasks identified include:

- **Spearhead development of a 9-Element Plan (or TMDL) for priority pollutants - pathogens, nutrients**
 - Collaborate on community science sampling for enterococcus and nutrients, with Riverkeeper; algae with SUNY Rockland and Riverkeeper; and macroinvertebrates via WAVE
 - Support DEC's studies: 2017 Rotating Integrated Basin Study (RIBS) and/or Enhanced Monitoring
 - Identify and promote land use strategies relevant for pathogen and nutrient reduction
 - Develop watershed planning - including subwatersheds - in support of water quality improvements
 - Update the Management Plan based fecal contamination, expanding public use of the river, swimmability, and new access sites
- **Identify and characterize pesticide presence and impacts, and reduce impacts**
 - Identify and characterize the problem based on existing literature
 - Identify and promote land use strategies that reduce pesticide runoff from farms and lawns
- **Track and report Harmful Algal Blooms**
 - Monitor river conditions for possible HABs
 - Report potential HABs to relevant agencies, press, and the public.

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4.2 Public Access and Engagement

Increasing public access and engagement is our second priority, and is defined as fostering a public individually and personally invested in the wellbeing of the river and its' watershed, as well as involved in its restoration. Recreation in the watershed ranges widely, from kayaking, canoeing, and fishing the river and its tributaries, to hiking, biking, hunting and camping in the broader watershed. Recreation (and the potential tourism it generates) is critically important to addressing this Public Access and Engagement. Efforts to expand and promote recreational opportunities are therefore a key focus of the Alliance.

Specific public access and engagement goals and tasks identified include:

- **Host public meetings to engage the public and promote a community of watershed advocates**
 - Host monthly membership meetings
 - Host monthly Working Group meetings as needed
 - Host an Annual Wallkill River Summit
 - Host Issue-based events (ie. Harmful Algal Blooms)
- **Promote public use, enjoyment, awareness of, and action to support the river**
 - Support Boat Brigades. Continue reporting. Organize more Boat Brigades in Orange County.
 - Participate in the New Paltz Regatta as a signature Wallkill River event
 - Organize a Riverkeeper Sweep service project as a signature Wallkill River event
 - Map and promote public access points. Promote the creation of new access points, creating a "blue trail" where possible
 - Attend public events to promote the Wallkill and the Alliance
 - Create events and opportunities for access to the river and watershed
- **Support Water Quality Goals**
 - Promote community science
 - Build coalitions with Town/Village Boards, CAC's, agencies, businesses and relevant organizations Offer technical assistance where appropriate
 - Issue Advocacy: Engage local citizens to bring watershed issues to local elected officials, and educate the public about the watershed
 - Define and build membership; Promote Working Group volunteerism



2nd Annual Wallkill River Summit, Montgomery, 2016.

4.3 Capacity Building

Capacity building means increasing the time, funding, and people dedicated to restoring the watershed, for both the Alliance and our allied organizations, agencies, and governments.

Specific capacity building goals and tasks identified include:

- **Fundraising**
 - Membership donations
 - Business donations
 - Institutional donations
 - Grants

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- **Bridge the disconnect within the Alliance between experts and the newly engaged.**
 - Improved communication before and after meetings, including Agendas and meeting notes
 - Organize contact lists
 - Update website w/presentations, agendas, notes, press kit, press, "RK/DEC report a problem"
- **Recruitment and maintenance of membership at various levels of engagement**
 - Invent/find volunteer opportunities and organizes events.
 - Create an orientation for new members, press kit
 - Coordinate Working Group priorities
 - Develop a fundraising/informational mailing to property owners and residents along the river.
 - Collaboratively develop budget
- **Subwatershed groups**
 - Support sub watershed groups
 - Support sub-watershed plans within the Wallkill River watershed with detailed local actions
 - Conduct more detailed watershed planning in sub-watersheds of the Wallkill utilizing % impervious mapping work from this Plan to guide the initial direction of planning efforts
- **Amplify the voice of the Alliance with a coalition of NGOs**
 - Inform groups on the river (kayakers, etc.) and municipalities about how to report problems to the DEC and Riverkeeper
 - Cultivate partnerships with academic institutions, agencies, stakeholders, and organizations to facilitate development of research projects on other priority issues such as biodiversity, land use, and environmentally-compatible economic development
- **Build Working Group capacity**
 - Compile database of all relevant local laws in watershed municipalities
 - Compile all relevant studies done by watershed municipalities
 - Use GIS to measure the extent of potential riparian buffers
 - Create relevant maps
- **Secure a part time coordinator**
 - Fund the position of part-time Coordinator of the Alliance

5.0 Alliance Goals and Tasks

Given the resources currently available to the Alliance, it would be impossible for us to achieve all of the tasks in section 4.0 in two years. To that end, we engaged in a process of triage at a series of Working Group meetings, Board of Directors meetings, and General Meetings. The results of that process are presented below. An "X" in one of the boxes means that there is no action needed in that quarter.

5.1 Water Quality Goals and Quarterly Tasks

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<p style="text-align: center;">2017 WATER QUALITY: GOALS AND QUARTERLY TASKS</p>						
<i>goal</i>	<i>tasks</i>	<i>responsible parties</i>	<i>2017 Q1</i>	<i>2017 Q2</i>	<i>2017 Q3</i>	<i>2017 Q4</i>
Spearhead development of a 9-Element Plan (or TMDL) for priority pollutants - pathogens, nutrients	Collaborate on community science sampling for enterococcus and nutrients, with Riverkeeper; algae with SUNY Rockland and Riverkeeper; and macroinvertebrates via WAVE	Science Working Group, Outreach Working Group, Riverkeeper, SUNY Rockland, SUNY New Paltz, Hudson River Estuary Program	Analyze 2016 data, mapping with SUNY New Paltz GIS intern	Community science data gathering	Community science data gathering	Analyze 2017 data
			define plans for 2017, including Boat Brigade role in data collection	recruit community scientists as needed	Submit data to DEC 305(b) proces	X
			X	report results at annual event	X	X
	Support DEC's studies: 2017 Rotating Integrated Basin Study (RIBS) and/or Enhanced Monitoring	Science Working Group, DEC Division of Water, Riverkeeper, Hudson River Estuary Program	Advocate for DEC 2017 study	Collaborate with and assist DEC where possible	Collaborate with and assist DEC where possible	Collaborate with and assist DEC where possible
	Identify and promote land use strategies relevant for pathogen and nutrient reduction	President, Policy Working Group, Pace Land Use Law Cen	X	X	Identify priorities. Ask DEC to publish updated Article 24 freshwater wetlands maps.	TBD, based on strategies identified
	Develop watershed planning - including subwatersheds - in support of water quality improvements	Board of Directors, municipalities, DEC	X	Research elements of 9-element plan	Identify municipal partners for applications, and goals of application	Apply for funding through CFA, or defer for one year

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<div>2017</div> <div>WATER QUALITY: GOALS AND QUARTERLY TASKS</div>						
<i>goal</i>	<i>tasks</i>	<i>responsible parties</i>	<i>2017 Q1</i>	<i>2017 Q2</i>	<i>2017 Q3</i>	<i>2017 Q4</i>
	Promote public engagement in DEC Enhanced Monitoring Study of the Wallkill River	President, Outreach Working Group, Science Working Group, Riverkeeper	Support budget for study - public and groups in the watershed	Educate public at annual event, define future steps	Work with DEC & legislators to fund a version of the study	Work with DEC & legislators to fund a version of the study
	Update the Management Plan based fecal contamination, expanding public use of the river, swimmability, and new access sites	Riverkeeper	X	X	TBD	TBD
Identify and characterize pesticide presence and impacts, and reduce impacts	Identify and characterize the problem based on existing literature	President, Science Working Group,	X	X	Scope study and research funding options and partners	Reach out to DEC Division of Water, asking them to study the problem
	Identify and promote land use strategies that reduce pesticide runoff from farms and lawns	President, Policy Working Group	X	X	X	Research BMPs for pesticide filtration
Track and report Harmful Algal Blooms	Monitor river conditions for possible HABs	Boat Brigades, Science Working Group, Riverkeeper	X	Use HAB Reporting Form if HAB possible	Use HAB Reporting Form if HAB possible. HAB Sampling Project	Use HAB Reporting Form if HAB possible. HAB Sampling Project

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<p style="text-align: center;">2017</p> <p style="text-align: center;">WATER QUALITY: GOALS AND QUARTERLY TASKS</p>						
<i>goal</i>	<i>tasks</i>	<i>responsible parties</i>	<i>2017 Q1</i>	<i>2017 Q2</i>	<i>2017 Q3</i>	<i>2017 Q4</i>
	Report potential HABs to relevant agencies, press, and the public	President, Boat Brigades, Outreach Working Group	X	Email DEC if HAB possible. Send press release if confirmed	Email DEC if HAB possible. Send press release if confirmed	Email DEC if HAB possible. Send press release if confirmed

<p style="text-align: center;">2018</p> <p style="text-align: center;">WATER QUALITY: GOALS AND QUARTERLY TASKS</p>						
<i>goal</i>	<i>tasks</i>	<i>responsible parties</i>	<i>2018 Q1</i>	<i>2018 Q2</i>	<i>2018 Q3</i>	<i>2018 Q4</i>
Spearhead development of a 9-Element or TMDL for priority pollutants - pathogens, nutrients	Collaborate on community science sampling for enterococcus and nutrients, with Riverkeeper; algae with SUNY Rockland and Riverkeeper; and macroinvertebrates via WAVE	Science Working Group, Outreach Working Group, Riverkeeper, SUNY Rockland, SUNY New Paltz, Hudson River Estuary Program	Analyze 2017 data; mapping with SUNY New Paltz GIS intern	Community science data gathering	Community science data gathering	Analyze 2018 data
			define plans for 2018, including Boat Brigade role in data collection	Recruit community scientists as needed	Submit data to DEC 305(b) process	X
			X	report results at annual Wallkill River Summit	X	X
	Support DEC's studies: 2017 Rotating Integrated Basin Study (RIBS) and/or Enhanced Monitoring	Science Working Group, DEC Division of Water, Riverkeeper, Hudson River Estuary Program	wait for DEC to announce results	(hopefully) discuss results at annual Wallkill River Summit	interpret DEC's results for ourselves and promote their findings	interpret DEC's results for ourselves and promote their findings

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2018 WATER QUALITY: GOALS AND QUARTERLY TASKS						
<i>goal</i>	<i>tasks</i>	<i>responsible parties</i>	<i>2018 Q1</i>	<i>2018 Q2</i>	<i>2018 Q3</i>	<i>2018 Q4</i>
	Identify and promote land use strategies relevant for pathogen and nutrient reduction	President, Policy Working Group, Pace Land Use Law Center	assist Pace where needed in development of LULA training	work with Pace Land Use Law Center to train municipal leaders in watershed land use BMPs	TBD, based on strategies identified	TBD, based on strategies identified
	Develop watershed planning - including subwatersheds - in support of water quality improvements	Board of Directors, municipalities, DEC	Debrief from unsuccessful 9E Plan application. Possibly plan to apply again.	If re-applying, begin grant draft process or hire grantwriter.	Write the final grant proposal	Wait on results on application.
	Update the Management Plan based fecal contamination, expanding public use of the river, swimmability, and new access sites	Riverkeeper	<i>Done on Riverkeeper's schedule</i>	<i>Done on Riverkeeper's schedule</i>	<i>Done on Riverkeeper's schedule</i>	<i>Done on Riverkeeper's schedule</i>
Identify and characterize pesticide presence and impacts, and reduce impacts	Identify and characterize the problem based on existing literature	President, Science Working Group,	Establish what is known about the issue, and whether it is a risk.	TBD	TBD	TBD
	Identify and promote land use strategies that reduce pesticide runoff from farms and lawns	President, Policy Working Group	assist Pace where needed in development of LULA training	work with Pace Land Use Law Center to train municipal leaders in watershed land use BMPs	TBD, based on strategies identified	TBD, based on strategies identified

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<div>2018</div> <div>WATER QUALITY: GOALS AND QUARTERLY TASKS</div>						
<i>goal</i>	<i>tasks</i>	<i>responsible parties</i>	<i>2018 Q1</i>	<i>2018 Q2</i>	<i>2018 Q3</i>	<i>2018 Q4</i>
Track and report Harmful Algal Blooms	Monitor river conditions for possible HABs	Boat Brigades, Science Working Group, Riverkeeper	X	Use HAB Reporting Form if HAB possible	Use HAB Reporting Form if HAB possible. HAB Sampling Project	Use HAB Reporting Form if HAB possible. HAB Sampling Project
	Report potential HABs to relevant agencies, press, and the public	President, Boat Brigades, Outreach Working Group	X	Email DEC if HAB possible. Send press release if confirmed	Email DEC if HAB possible. Send press release if confirmed	Email DEC if HAB possible. Send press release if confirmed

<div>2019</div> <div>WATER QUALITY: GOALS AND QUARTERLY TASKS</div>						
<i>goal</i>	<i>tasks</i>	<i>responsible parties</i>	<i>2019 Q1</i>	<i>2019 Q2</i>	<i>2019 Q3</i>	<i>2019 Q4</i>
Spearhead development of a 9-Element Plan (or TMDL) for priority pollutants of pathogens, nutrients	Collaborate on community science sampling for enterococcus and nutrients, with Riverkeeper; algae with SUNY Rockland and	Science Working Group, Outreach Working Group, Riverkeeper, SUNY Rockland, SUNY New	Analyze 2018 data; mapping with SUNY New Paltz GIS intern	Community science data gathering	Community science data gathering	Analyze 2019 data
			define plans for 2019, including Boat Brigade role in data collection	recruit community scientists as needed	Submit data to DEC 305(b) proces	X

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<p style="text-align: center;">2019 WATER QUALITY: GOALS AND QUARTERLY TASKS</p>						
<i>goal</i>	<i>tasks</i>	<i>responsible parties</i>	<i>2019 Q1</i>	<i>2019 Q2</i>	<i>2019 Q3</i>	<i>2019 Q4</i>
	Riverkeeper; and macroinvertebrates via WAVE	Paltz, Hudson River Estuary Program	X	report results at annual Wallkill River Summit	X	X
	Identify and promote land use strategies relevant for pathogen and nutrient reduction	President, Policy Working Group, Pace Land Use Law Center	TBD, based on strategies identified with Pace in 2018	TBD, based on strategies identified with Pace in 2018	TBD, based on strategies identified with Pace in 2018	TBD, based on strategies identified with Pace in 2018
	Develop watershed planning - including subwatersheds - in support of water quality improvements	Board of Directors, municipalities, DEC	TBD, based on HREP program funding or other potential grant sources	TBD, based on HREP program funding or other potential grant sources	TBD, based on HREP program funding or other potential grant sources	TBD, based on HREP program funding or other potential grant sources
	Promote public engagement in DEC Enhanced Monitoring Study of the Wallkill River	President, Outreach Working Group, Science Working Group, Riverkeeper	TBD, based on the results of the study unveiled in 2018	TBD, based on the results of the study unveiled in 2018	TBD, based on the results of the study unveiled in 2018	TBD, based on the results of the study unveiled in 2018
Identify and characterize pesticide presence and impacts, and reduce impacts	Identify and characterize the problem based on existing literature	President, Science Working Group,	TBD, based on whether new data can be gathered in 2018	TBD, based on whether new data can be gathered in 2018	TBD, based on whether new data can be gathered in 2018	TBD, based on whether new data can be gathered in 2018

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<p style="text-align: center;">2019 WATER QUALITY: GOALS AND QUARTERLY TASKS</p>						
<i>goal</i>	<i>tasks</i>	<i>responsible parties</i>	<i>2019 Q1</i>	<i>2019 Q2</i>	<i>2019 Q3</i>	<i>2019 Q4</i>
	Identify and promote land use strategies that reduce pesticide runoff from farms and lawns	President, Policy Working Group, Shawangunk Kill Watershed Alliance	Develop Shawangunk Kill land use agenda, TBD based on strategies identified with Pace in 2018	Meet w/ elected for support of agenda, TBD based on strategies identified with Pace in 2018	Meet w/ elected for support of agenda, TBD based on strategies identified with Pace in 2018	Meet w/ elected for support of agenda, TBD based on strategies identified with Pace in 2018
Track and report Harmful Algal Blooms	Monitor river conditions for possible HABs	Boat Brigades, Science Working Group, Riverkeeper	X	Use HAB Reporting Form if HAB possible	Use HAB Reporting Form if HAB possible. HAB Sampling Project	Use HAB Reporting Form if HAB possible. HAB Sampling Project
	Report potential HABs to relevant agencies, press, and the public	President, Boat Brigades, Outreach Working Group	X	Email DEC if HAB possible. Send press release if confirmed	Email DEC if HAB possible. Send press release if confirmed	Email DEC if HAB possible. Send press release if confirmed

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5.2 Public Access and Engagement Goals and Quarterly Tasks

<div>2017</div> <div>PUBLIC ACCESS & ENGAGEMENT: GOALS AND QUARTERLY TASKS</div>						
<i>goals</i>	<i>tasks</i>	<i>responsible parties</i>	<i>2017 Q1</i>	<i>2017 Q2</i>	<i>2017 Q3</i>	<i>2017 Q4</i>
Host public meetings to engage the public and promote a community of watershed advocates	Host monthly membership meetings	President, Board of Directors	Agenda, promotion, speaker, minutes	Agenda, promotion, speaker, minutes	Agenda, promotion, speaker, minutes	Agenda, promotion, speaker, minutes
	Host monthly Working Group meetings	Working Groups	Agenda, promotion, minutes	Agenda, promotion, speaker, minutes	Agenda, promotion, speaker, minutes	Agenda, promotion, speaker, minutes
	Host Annual Wallkill River Summit	President, ad hoc subcommittee	Set agenda, goals; promote	Event, promotions	X	Set agenda, goals, promote
	Host Winter lecture series	Boat Brigades	Events, promotions	X	X	Organize 2018 speakers, and promote
	Host Issue-based events (ie. Harmful Algal Blooms)	President, Board of Directors, Working Groups	X	X	TBD	TBD
Promote public use, enjoyment, awareness of, and action to support the river	Support Boat Brigades. Continue reporting. Organize more Boat Brigades in Orange County	President, Board of Directors, Boat Brigades	winter lecture series	river expeditions	river expeditions	river expeditions, planning for 2018
	Develop, use and promote protocols for reporting issues	President, Board of Directors, Boat Brigades	X	X	Develop protocols	revise as needed
	Participate in New Paltz Regatta as a signature Wallkill River event	Boat Brigades	Boat making; set engagement goals	Boat making, promotions, event	X	X

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<div>2017</div> <div>PUBLIC ACCESS & ENGAGEMENT: GOALS AND QUARTERLY TASKS</div>						
<i>goals</i>	<i>tasks</i>	<i>responsible parties</i>	<i>2017 Q1</i>	<i>2017 Q2</i>	<i>2017 Q3</i>	<i>2017 Q4</i>
	Organize Riverkeeper Sweep service projects, as a signature Wallkill River event	Boat Brigades	Determine cleanup sites, seek site permission and cleanup agreements, promote	Event, promotions	X	X
	Map and promote public access points. Promote the creation of new access points, creating a "blue trail" where possible	Boat Brigades, Outreach Working Group, DEC	X	X	Update maps of all known public access areas	Design access flyer, work with DEC Fisheries to promote
	Attend public events to promote the Wallkill and the Alliance	Outreach Working Group	X	X	Define highest priorities for needed materials and presentations	Develop materials and presentations according to defined priorities
	Create events and opportunities for access to the river and watershed	Boat Brigades, Outreach Working Group	X	Begin planning for a September Wallkill River Festival	Continue planning, host event	X
Support Water Quality Goals	Promote community science	Science Working Group	X	recruit community scientists as needed	WAVE sampling	WAVE sampling
	Promote use of HABs reporting form	Science Working Group	X	X	Consultation with SWG; develop outreach plan	Promote use of form (methods TBD)

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<div>2017</div> <div>PUBLIC ACCESS & ENGAGEMENT: GOALS AND QUARTERLY TASKS</div>						
<i>goals</i>	<i>tasks</i>	<i>responsible parties</i>	<i>2017 Q1</i>	<i>2017 Q2</i>	<i>2017 Q3</i>	<i>2017 Q4</i>
	Build coalitions with Town/Village Boards, CAC's, agencies, businesses and relevant organizations Offer technical assistance where appropriate	President, Policy Working Group, Outreach Working Group	Municipal letters in support of Wallkill study; meetings with CACs	X	ongoing	ongoing
	Issue Advocacy: Engage local citizens to bring watershed issues to local elected officials, and educate the public about the watershed	Outreach Working Group	Member advocacy on budget for Wallkill study	X	ongoing	ongoing
	Define and build membership; Promote Working Group volunteerism	President, Board of Directors, Outreach Working Group	X	Define target lists of organizations, businesses and other potential institutional members and allies	Outreach to residents who live along the river and its tributaries	TBD
	Update / redesign Website	President, Board of Directors, Outreach Working Group	X	X	X	X

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2017						
PUBLIC ACCESS & ENGAGEMENT: GOALS AND QUARTERLY TASKS						
<i>goals</i>	<i>tasks</i>	<i>responsible parties</i>	<i>2017 Q1</i>	<i>2017 Q2</i>	<i>2017 Q3</i>	<i>2017 Q4</i>
	Develop a well-designed, quarterly e-newsletter. (Possibly using NationBuilder or MailChimp as a platform)	President, Outreach Working Group	X	X	X	X
	Develop press outreach capacity	President, Board of Directors, Outreach Working Group	recruit volunteer to draft press releases	X	X	X

2018						
PUBLIC ACCESS & ENGAGEMENT: GOALS AND QUARTERLY TASKS						
<i>goals</i>	<i>tasks</i>	<i>responsible parties</i>	<i>2018 Q1</i>	<i>2018 Q2</i>	<i>2018 Q3</i>	<i>2018 Q4</i>
Host public meetings to engage the public and promote a community of watershed advocates	Host monthly membership meetings	President, Board of Directors	Agenda, promotion, minutes	Agenda, promotion, minutes	Agenda, promotion, minutes	Agenda, promotion, minutes
	Host monthly Working Group meetings where appropriate	Working Groups	Agenda, promotion, minutes	Agenda, promotion, minutes	Agenda, promotion, minutes	Agenda, promotion, minutes

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<div>2018</div> <div>PUBLIC ACCESS & ENGAGEMENT: GOALS AND QUARTERLY TASKS</div>						
<i>goals</i>	<i>tasks</i>	<i>responsible parties</i>	<i>2018 Q1</i>	<i>2018 Q2</i>	<i>2018 Q3</i>	<i>2018 Q4</i>
	Host Annual Wallkill River Summit	President, ad hoc subcommittee	Organize and promote the event	Promote and host the event. debrief soon after	X	Set Summit agenda, goals, begin organizing
	Host Issue-based events	President, Board of Directors, Working Groups	TBD	TBD	TBD	TBD
Promote public use, enjoyment, awareness of, and action to support the river	Support Boat Brigades. Continue reporting.	President, Board of Directors, Boat Brigades	X	river expeditions	river expeditions	river expeditions, planning for 2018
	Participate in New Paltz Regatta as a signature Wallkill River event	Boat Brigades	Boat making; set engagement goals	Boat making, promotions, event	X	X
	Organize Riverkeeper Sweep service projects, as a signature Wallkill River event	Boat Brigades	Determine cleanup sites, seek site permission and cleanup agreements, promote	Event, promotions	X	X
	Map and promote public access points. Promote the creation of new access points, creating a "blue trail" where possible	Boat Brigades, Orange County Water Authority, DEC	Assist OCWA when needed on developing a water trail from NY/NJ to Rifton.	Assist OCWA when needed on developing a water trail from NY/NJ to Rifton.	Assist OCWA when needed on developing a water trail from NY/NJ to Rifton.	Assist OCWA when needed on developing a water trail from NY/NJ to Rifton.

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2018						
PUBLIC ACCESS & ENGAGEMENT: GOALS AND QUARTERLY TASKS						
<i>goals</i>	<i>tasks</i>	<i>responsible parties</i>	<i>2018 Q1</i>	<i>2018 Q2</i>	<i>2018 Q3</i>	<i>2018 Q4</i>
	Attend public events to promote the Wallkill and the Alliance	Outreach Working Group	Begin attending anti-Millennium Pipeline protests	TBD, as opportunities arise	TBD, as opportunities arise	TBD, as opportunities arise
	Have sections of the Wallkill designated "Recreational River"	Policy Working Group	Research designation process	TBD, based on requirements	TBD, based on requirements	TBD, based on requirements
	Create events and opportunities for access to the river and watershed	Boat Brigades, Outreach Working Group	X	Begin planning for a September Wallkill River Festival	Continue planning, host event	X
Support Water Quality Goals	Promote community science	Science Working Group	X	recruit community scientists as needed	WAVE sampling	WAVE sampling
	Build coalitions with Town/Village Boards, CAC's, agencies, businesses and relevant organizations Offer technical assistance where appropriate	President. Outreach Working Group, Policy Working Group	assist Pace where needed in development of LULA training	Focus outreach on sportsmen's clubs/ recreational associations for Summit	Reach out to watershed municipalities to join the Alliance	TBD

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2018						
PUBLIC ACCESS & ENGAGEMENT: GOALS AND QUARTERLY TASKS						
<i>goals</i>	<i>tasks</i>	<i>responsible parties</i>	<i>2018 Q1</i>	<i>2018 Q2</i>	<i>2018 Q3</i>	<i>2018 Q4</i>
	Issue Advocacy: Engage local citizens to bring watershed issues to local elected officials, and educate the public about the watershed	Outreach Working Group	Create a municipal-scale legislative agenda	Further develop legislative agenda informed by Pace's LULA training	Finalize legislative agenda, send to all watershed elected officials (for their comments before publication?)	Begin lobbying, starting with known supporters who could endorse the platform
	Update / redesign Website	President, Board of Directors, Working Group Chairs	Finish updating websites	update as needed	update as needed	update as needed

2019						
PUBLIC ACCESS & ENGAGEMENT: GOALS AND QUARTERLY TASKS						
<i>goals</i>	<i>tasks</i>	<i>responsible parties</i>	<i>2019 Q1</i>	<i>2019 Q2</i>	<i>2019 Q3</i>	<i>2019 Q4</i>
Host public meetings to engage the public and promote a community of watershed advocates	Host monthly membership meetings	President, Board of Directors	Agenda, promotion, minutes	Agenda, promotion, minutes	Agenda, promotion, minutes	Agenda, promotion, minutes
	Host monthly Working Group meetings where appropriate	Working Groups	Agenda, promotion, minutes	Agenda, promotion, minutes	Agenda, promotion, minutes	Agenda, promotion, minutes

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2019						
PUBLIC ACCESS & ENGAGEMENT: GOALS AND QUARTERLY TASKS						
<i>goals</i>	<i>tasks</i>	<i>responsible parties</i>	<i>2019 Q1</i>	<i>2019 Q2</i>	<i>2019 Q3</i>	<i>2019 Q4</i>
	Host Annual Wallkill River Summit	President, ad hoc subcommittee	Organize and promote the event	Promote and host the event. debrief soon after	X	Set Summit agenda, goals, begin organizing
	Host Issue-based events	President, Board of Directors, Working Groups	TBD	TBD	TBD	TBD
Promote public use, enjoyment, awareness of, and action to support the river	Support Boat Brigades. Continue reporting.	President, Board of Directors, Boat Brigades	X	river expeditions	river expeditions	river expeditions, planning for 2018
	Participate in New Paltz Regatta as a signature Wallkill River event	Boat Brigades	Boat making; set engagement goals	Boat making, promotions, event	X	X
	Organize Riverkeeper Sweep service projects, as a signature Wallkill River event	Boat Brigades	Determine cleanup sites, seek site permission and cleanup agreements, promote	Event, promotions	X	X
	Attend public events to promote the Wallkill and the Alliance	Outreach Working Group	TBD, as opportunities arise	TBD, as opportunities arise	TBD, as opportunities arise	TBD, as opportunities arise
	Have sections of the Wallkill designated "Recreational River"	Policy Working Group	Research designation process	TBD, based on requirements	TBD, based on requirements	TBD, based on requirements

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2019						
PUBLIC ACCESS & ENGAGEMENT: GOALS AND QUARTERLY TASKS						
<i>goals</i>	<i>tasks</i>	<i>responsible parties</i>	<i>2019 Q1</i>	<i>2019 Q2</i>	<i>2019 Q3</i>	<i>2019 Q4</i>
	Create events and opportunities for access to the river and watershed	Boat Brigades, Outreach Working Group	X	Begin planning for a september Wallkill River Festival	Continue planning, host event	X
Support Water Quality Goals	Promote community science	Science Working Group	X	recruit community scientists as needed	WAVE sampling	WAVE sampling
	Build coalitions with Town/Village Boards, CAC's, agencies, businesses and relevant organizations Offer technical assistance where appropriate	President, Outreach Working Group, Policy Working Group	Select a few key municipalities from the Pace training who will work with us on land use issues	Work with select municipalities to draft and adopt watershed protection laws	Work with select municipalities to draft and adopt watershed protection laws	Work with select municipalities to draft and adopt watershed protection laws
	Issue Advocacy: Engage local citizens to bring watershed issues to local elected officials, and educate the public about the watershed	Outreach Working Group	Continue lobbying, starting with known supporters who could endorse the Alliance legislative agenda	Work with select municipalities to draft and adopt watershed protection laws	Work with select municipalities to draft and adopt watershed protection laws	Work with select municipalities to draft and adopt watershed protection laws
	Update / redesign Website	President, Board of Directors, Working Group Chairs	update as needed	update as needed	update as needed	update as needed

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5.3 Capacity Building Goals and Quarterly Tasks

<p style="text-align: center;">2017 CAPACITY BUILDING: GOALS AND QUARTERLY TASKS</p>						
<i>goal</i>	<i>solution/task</i>	<i>responsible parties</i>	<i>2017 Q1</i>	<i>2017 Q2</i>	<i>2017 Q3</i>	<i>2017 Q4</i>
Fundraising	Membership donations	President, Board of Directors, Working Group leadership	X	merchandising	Riverkeeper set up online donation portal	Wallkill River Festival
	Business donations	President	X	Huckleberry fundraiser; pitch Huckleberry on quarterly fundraising; pitching other New Paltz businesses;	Pitch businesses on Festival sponsorship	TBD
	Larger private donations	President, Board of Directors, Riverkeeper	X	Complete annual report; ID potential donors	Schedule meetings with donors	TBD
	Institutional donations	President	Solicit from villages	Town of New Paltz, Village of New Paltz (via New Paltz Kayaking Tours), Ulster County	Solicit from towns	Solicit from counties
	Grants	Riverkeeper, Orange County, potentially other sponsoring agencies/orgs	X	Town of New Paltz - 9element application prep; Riverkeeper to solicit Butler Conservation Fund	T/New Paltz 9element application; HREP application?	TBD

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<p style="text-align: center;">2017 CAPACITY BUILDING: GOALS AND QUARTERLY TASKS</p>						
<i>goal</i>	<i>solution/task</i>	<i>responsible parties</i>	<i>2017 Q1</i>	<i>2017 Q2</i>	<i>2017 Q3</i>	<i>2017 Q4</i>
bridge the disconnect within the Alliance between experts and the newly engaged.	improved communication before and after meetings, including Agendas and meeting notes	President, Board of Directors, Working Group leadership	Defined role for communication's assistant; Solicit for volunteer	Solicit for communication's assistant volunteer	Solicit for communication's assistant volunteer	X
	Organize contact lists	President	X	X	Define project and solicit for volunteer	Execute project
	have speakers at meetings relevant to the public and/or specific tasks of the Action Plan/goals of working groups	President	engage Board & membership to choose topics	X	May: Brenda/ Archie on Regatta/Boat Brigades; June:	Ideas: Partner orgs (sportsmans groups, Wallkill Valley Land Trust, Jay Beaumont on moodna WIC; Emily on MS4/GI; Amanda Lavalle; SWCD, CCE; update on Monhegan Brook watershed; Gilmour on GI in New Paltz; Klein Kill watershed; Source watersheds in the Wallkill (Elisa Chae); MS4 officers to the meetings;
	update website w/ presentations, agendas, notes, press kit, press, "RK/DEC report a problem"	President	X	ongoing	ongoing	ongoing

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<div>2017</div> <div>CAPACITY BUILDING: GOALS AND QUARTERLY TASKS</div>						
<i>goal</i>	<i>solution/task</i>	<i>responsible parties</i>	<i>2017 Q1</i>	<i>2017 Q2</i>	<i>2017 Q3</i>	<i>2017 Q4</i>
	monthly newsletter		X	X	amplify monthly events list	amplify monthly events list
recruitment and maintain membership at various levels of engagement	Have [Outreach Working Group/ED] invents/finds volunteer opportunities and organizes events. Possibly a single coordinator	President, Board of Directors, Outreach Working Group	Outreach Working Group	Make google doc workflow of existing volunteer, tabling opportunities/public events	ongoing	ongoing
	Create an orientation for new members, press kit	President, Board of Directors	Outreach Working Group	Develop merchandise	create orientation document. add relevant info to website	revise as needed
	Coordinate Working Group priorities	President, Board of Directors, Working Group leadership	Science-Based Action Plan will serve this purpose	quarterly check-in	quarterly check-in	quarterly check-in
	Develop a 5-minute presentation on the watershed & the Alliance	President, Outreach Working Group, Policy Working Group	X	X	Finish presentation	find audience and present
	Develop a fundraising/informational mailing to property owners and residents along the river.	Board of Directors, Outreach Working Group	X	X	X	X

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2017 CAPACITY BUILDING: GOALS AND QUARTERLY TASKS						
<i>goal</i>	<i>solution/task</i>	<i>responsible parties</i>	<i>2017 Q1</i>	<i>2017 Q2</i>	<i>2017 Q3</i>	<i>2017 Q4</i>
	collaboratively develop budget	President, Board of Directors	X	draft budget, get approval of membership and Board	X	draft budget, get approval of membership and Board
support subwatershed groups	Support sub watershed groups	Outreach Working Group	X	Found the Shawangunk Kill Watershed Alliance	Shepherd the SWA, and explore other options (Sturgeon Pool, Monhagen Brook, KleineKill, check in w/ Millbrook Preserve)	Shepherd the SWA, and explore other options (Sturgeon Pool, Monhagen Brook, KleineKill, check in w/ Millbrook Preserve)
	Support sub-watershed plans within the Wallkill River watershed with detailed local actions	Outreach Working Group	X	X	TBD, as plans are drafted	TBD, as plans are drafted
	Conduct more detailed watershed planning in sub-watersheds of the Wallkill utilizing % impervious mapping work from this Plan to guide the initial direction of planning efforts	TBD	X	X	TBD	TBD

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<div>2017</div> <div>CAPACITY BUILDING: GOALS AND QUARTERLY TASKS</div>						
<i>goal</i>	<i>solution/task</i>	<i>responsible parties</i>	<i>2017 Q1</i>	<i>2017 Q2</i>	<i>2017 Q3</i>	<i>2017 Q4</i>
Amplify the voice of the alliance with a coalition of ngo's	Inform groups on the river (kayakers, etc.) and municipalities about how to report problems to the DEC and Riverkeeper	President, Board of Directors	ongoing	ongoing	ongoing	ongoing
	Cultivate partnerships with academic institutions, agencies, stakeholders, and organizations to facilitate development of research projects on other priority issues such as biodiversity, land use, and environmental y-compatible economic development	TBD	ongoing	priotize and expand allies list. Invite one speaker to meeeting	Invite one allied speaker to meeeting	Invite one allied speaker to meeeting
Build Working Group capacity	Compile database of all relevant local laws in watershed municipalities	Policy Working Group	X	check progress w/OC Planning	compile database	X
	Compile all relevant studies done by watershed municipalities	Policy Working Group	X	check progress w/OC Planning	compile database	X

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<div>2017</div> <div>CAPACITY BUILDING: GOALS AND QUARTERLY TASKS</div>						
<i>goal</i>	<i>solution/task</i>	<i>responsible parties</i>	<i>2017 Q1</i>	<i>2017 Q2</i>	<i>2017 Q3</i>	<i>2017 Q4</i>
	Use GIS to measure the extent of potential riparian buffers	Policy Working Group	X	find GIS capacity	find GIS capacity	find GIS capacity
	Create relevant maps	Outreach Working Group	X	X	ongoing	ongoing
Secure a part time coordinator	Fund the position of part-time Coordinator of the Alliance	President, Board of Directors	X	explore possible grant opportunities & continue fundraising tasks	continue fundraising tasks	continue fundraising tasks

<div>2018</div> <div>CAPACITY BUILDING: GOALS AND QUARTERLY TASKS</div>						
<i>goal</i>	<i>solution/task</i>	<i>responsible parties</i>	<i>2018 Q1</i>	<i>2018 Q2</i>	<i>2018 Q3</i>	<i>2018 Q4</i>
Fundraising	Business donations	President, Board of Directors, Outreach Working Group	X	Sell ads for annual Wallkill River Festival sponsorship	Sell ads for annual Wallkill River Festival sponsorship	X
	Individual donations	President, Board of Directors	Generate list of people to ask. Explore most effective ways to ask.	Reach out to possible funders for donations	Reach out to possible funders for donations	Reach out to possible funders for donations

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<div>2018</div> <div>CAPACITY BUILDING: GOALS AND QUARTERLY TASKS</div>						
<i>goal</i>	<i>solution/task</i>	<i>responsible parties</i>	<i>2018 Q1</i>	<i>2018 Q2</i>	<i>2018 Q3</i>	<i>2018 Q4</i>
	Institutional donations	President, Board of Directors	Solicit memberships from villages	X	Solicit memberships from towns and counties	X
	Grants	Riverkeeper, Orange County, potentially other sponsoring agencies/orgs	TBD, based on grant availability and willing NGO partners	TBD, based on grant availability and willing NGO partners	TBD, based on grant availability and willing NGO partners	TBD, based on grant availability and willing NGO partners
recruitment and maintain membership at various levels of engagement	Find volunteer opportunities and organize relevant events.	President, Board of Directors, Outreach Working Group	Make a list of all the ways someone can volunteer. Add options to the online membership form.	TBD, based on what volunteer roles can be filled.	TBD, based on what volunteer roles can be filled.	TBD, based on what volunteer roles can be filled.
support subwatershed groups	Support sub watershed groups	Outreach Working Group, Policy Working Group	Identify any new potential groups to organize. Support the Shawangunk Kill Watershed Alliance and other new groups as needed	Support the Shawangunk Kill Watershed Alliance and other new groups as needed	Support the Shawangunk Kill Watershed Alliance and other new groups as needed	Support the Shawangunk Kill Watershed Alliance and other new groups as needed

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<p style="text-align: center;">2018</p> <p style="text-align: center;">CAPACITY BUILDING: GOALS AND QUARTERLY TASKS</p>						
<i>goal</i>	<i>solution/task</i>	<i>responsible parties</i>	<i>2018 Q1</i>	<i>2018 Q2</i>	<i>2018 Q3</i>	<i>2018 Q4</i>
	Support sub-watershed plans within the Wallkill River watershed with detailed local actions (i.e. utilizing % impervious mapping work from this Plan)	Outreach Working Group	Support Monhagen Brook, Kleine Kill, and Millbrook projects as needed. ID grant sources for additional plans	Support Monhagen Brook, Kleine Kill, and Millbrook projects as needed. ID grant sources for additional plans	Support Monhagen Brook, Kleine Kill, and Millbrook projects as needed. ID grant sources for additional plans	Support Monhagen Brook, Kleine Kill, and Millbrook projects as needed. ID grant sources for additional plans
Amplify the voice of the alliance with a coalition of ngo's	Inform groups on the river (kayakers, etc.) and municipalities about how to report problems	President, Board of Directors	Develop and distribute fact sheet on reporting problems	ongoing	ongoing	ongoing
	Cultivate partnerships with academic institutions, agencies, stakeholders, and organizations to develop research projects on priority issues such as biodiversity, land use, and smart growth	President, Board of Directors, Working Group Chairs	Expand master list of potential allies, adding more outdoors/sportsmen, farmers, and universities. Identify issues to advance and allies to approach with partnerships	Identify issues to advance and allies to approach with partnerships	Identify issues to advance and allies to approach with partnerships	Identify issues to advance and allies to approach with partnerships
Build Working Group capacity	Compile database of all relevant local laws in watershed municipalities	Orange County Planning Department	<i>Done on OC Planning's schedule</i>	<i>Done on OC Planning's schedule</i>	<i>Done on OC Planning's schedule</i>	<i>Done on OC Planning's schedule</i>

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2018 CAPACITY BUILDING: GOALS AND QUARTERLY TASKS						
<i>goal</i>	<i>solution/task</i>	<i>responsible parties</i>	<i>2018 Q1</i>	<i>2018 Q2</i>	<i>2018 Q3</i>	<i>2018 Q4</i>
	Compile all relevant studies done by watershed municipalities	Orange County Planning Department	<i>Done on OC Planning's schedule</i>	<i>Done on OC Planning's schedule</i>	<i>Done on OC Planning's schedule</i>	<i>Done on OC Planning's schedule</i>
	Use GIS to measure the extent of potential riparian buffers	Policy Working Group	Follow up with Sebastian Pillitieri, Riverkeeper	TBD	TBD	TBD
Secure a part time coordinator	Fund the position of part-time Coordinator of the Alliance	President, Board of Directors	explore possible grant opportunities	explore possible grant opportunities	TBD, based on available grant funding	TBD, based on available grant funding

2019 CAPACITY BUILDING: GOALS AND QUARTERLY TASKS						
<i>goal</i>	<i>solution/task</i>	<i>responsible parties</i>	<i>2019 Q1</i>	<i>2019 Q2</i>	<i>2019 Q3</i>	<i>2019 Q4</i>
Fundraising	Business donations	President, Board of Directors, Outreach Working Group	X	Sell ads for annual Wallkill River Festival sponsorship	Sell ads for annual Wallkill River Festival sponsorship	X

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<div>2019</div> <div>CAPACITY BUILDING: GOALS AND QUARTERLY TASKS</div>						
<i>goal</i>	<i>solution/task</i>	<i>responsible parties</i>	<i>2019 Q1</i>	<i>2019 Q2</i>	<i>2019 Q3</i>	<i>2019 Q4</i>
	Individual donations	President, Board of Directors	Generate list of people to ask. Explore most effective ways to ask.	Reach out to possible funders for donations	Reach out to possible funders for donations	Reach out to possible funders for donations
	Institutional donations	President, Board of Directors	Solicit memberships from villages	X	Solicit memberships from towns and counties	X
	Grants	Riverkeeper, Orange County, potentially other sponsoring agencies/orgs	TBD, based on grant availability and willing NGO partners	TBD, based on grant availability and willing NGO partners	TBD, based on grant availability and willing NGO partners	TBD, based on grant availability and willing NGO partners
recruitment and maintain membership at various levels of engagement	Find volunteer opportunities and organize relevant events.	President, Board of Directors, Outreach Working Group	TBD, based on what volunteer roles can be filled.	TBD, based on what volunteer roles can be filled.	TBD, based on what volunteer roles can be filled.	TBD, based on what volunteer roles can be filled.
support subwatershed groups	Support sub watershed groups	Outreach Working Group, Policy Working Group	Support the Shawangunk Kill Watershed Alliance and other new groups as needed	Support the Shawangunk Kill Watershed Alliance and other new groups as needed	Support the Shawangunk Kill Watershed Alliance and other new groups as needed	Support the Shawangunk Kill Watershed Alliance and other new groups as needed

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2019 CAPACITY BUILDING: GOALS AND QUARTERLY TASKS						
<i>goal</i>	<i>solution/task</i>	<i>responsible parties</i>	<i>2019 Q1</i>	<i>2019 Q2</i>	<i>2019 Q3</i>	<i>2019 Q4</i>
	Support sub-watershed plans within the Wallkill River watershed with detailed local actions (i.e. utilizing % impervious mapping work from this Plan)	Outreach Working Group, Policy Working Group	Support Monhagen Brook, Kleine Kill, and Millbrook projects as needed. ID grant sources for additional plans	Support Monhagen Brook, Kleine Kill, and Millbrook projects as needed. ID grant sources for additional plans	Support Monhagen Brook, Kleine Kill, and Millbrook projects as needed. ID grant sources for additional plans	Support Monhagen Brook, Kleine Kill, and Millbrook projects as needed. ID grant sources for additional plans
Amplify the voice of the alliance with a coalition of ngo's	Inform groups on the river (kayakers, etc.) and municipalities about how to report problems	President, Board of Directors	ongoing	ongoing	ongoing	ongoing
	Cultivate partnerships with academic institutions, agencies, stakeholders, and organizations to develop research projects on priority issues such as biodiversity, land use, and smart growth	President, Board of Directors, Working Group Chairs	Identify issues to advance and allies to approach with partnerships	Identify issues to advance and allies to approach with partnerships	Identify issues to advance and allies to approach with partnerships	Identify issues to advance and allies to approach with partnerships
Build Working Group capacity	Compile database of all relevant local laws in watershed municipalities	Orange County Planning Department	<i>Finished by 2019?</i>	X	X	X

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2019 CAPACITY BUILDING: GOALS AND QUARTERLY TASKS						
<i>goal</i>	<i>solution/task</i>	<i>responsible parties</i>	<i>2019 Q1</i>	<i>2019 Q2</i>	<i>2019 Q3</i>	<i>2019 Q4</i>
	Compile all relevant studies done by watershed municipalities	Orange County Planning Department	<i>Finished by 2019?</i>	X	X	X
	Use GIS to measure the extent of potential riparian buffers	Policy Working Group	<i>Finished by 2019?</i>	X	X	X
Secure a part time coordinator	Fund the position of part-time Coordinator of the Alliance	President, Board of Directors	explore possible grant opportunities	explore possible grant opportunities	TBD, based on available grant funding	TBD, based on available grant funding

Appendix A

Bibliography of the Wallkill River Watershed

Many of the documents listed below will eventually be found in the documents section of the Wallkill River Watershed Alliance's website at www.wallkillalliance.org/files

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Appendix B

Bylaws of the Wallkill River Watershed Alliance

Revised 10/11/17

1. Name

The name of this organization shall be the “Wallkill River Watershed Alliance”, heretofore referred to as “the Alliance”.

2. Mission

There is no life without water, and the water that flows through our communities is our responsibility. A river we can swim in and eat from is both our right and our responsibility. The Wallkill River Watershed Alliance exists to restore the Wallkill River to its prime, to act as the voice of the River, and to advocate for the restoration of its entire watershed, using whatever means we find necessary.

3. Membership

A. Individual Members:

1. An individual may become a Member of the Alliance upon donating time or resources. Individual members shall participate in a Working Group, or otherwise volunteer with the Alliance.
 - a. The Chair of each Working Group shall determine what participation is required.
 - b. The President shall determine what participation is required without a Working Group
2. Individuals must also affirm their interest in becoming a member by returning a membership form provided by the Alliance.

B. Local Government Members:

1. Villages, Towns, Cities and Counties may become members of the Alliance upon:
 - a. Making a \$1,000.00 (one thousand dollar) annual donation in membership dues and,
 - b. Optionally appointing a representative to the Alliance, who shall have all the benefits of membership. Each such representative shall participate in at least one Working Group.
2. Each municipality shall have one vote.

C. Organizational Members:

1. Nonprofit organizations, businesses, and community groups may become members of the Alliance upon either:
 - a. Optionally appointing a representative to the Alliance, who shall have all the benefits of membership. Each such representative shall participate in at least one Working Group.
2. Each Organizational Member shall have one vote.

5. General Meetings

- A. The Alliance shall meet at least monthly.
- B. Consensus shall be attempted on all issues facing the meeting.
 - a. In the absence of consensus, a majority vote of all members in attendance shall decide all issues.

6. Working Groups

- A. The Alliance shall be organized into Working Groups.

- B. Working Groups shall be sub-committees of the General Meeting, established by majority vote at a General Meeting, and may be dissolved by majority vote of the General Meeting.
- C. Working Groups shall:
 - 1. meet at least monthly.
 - 2. report on their progress at the monthly General Meeting.
 - 3. elect one of their members as Chair of that Working Group. Working Group Chairs shall:
 - a. be elected by majority vote of the members of that Working Group
 - b. shall maintain a list of all current Working Group members.
 - c. Working Group Chairs may be recalled by majority vote of the members of said Working Group.
 - d. Working Group Chairs shall serve a term of one year.

8. Board of Directors

- A. The Board of Directors shall be composed of the following Officers:
 - 1. The President shall be responsible for:
 - a. General oversight of the Alliance as a whole.
 - b. Facilitating General Meetings of Alliance Chapters, unless otherwise delegated.
 - c. Representing the Alliance to the public, the press and other organizations.
 - 2. The Treasurer shall be responsible for:
 - a. Maintaining a bank account and books in the name of the Alliance.
 - b. Maintaining the Alliance's donor list.
 - 3. The Secretary shall be responsible for:
 - a. Maintaining all records of the Alliance, including by not limited to:
 - i. A list of all members, with:
 - a. Name
 - b. Address
 - c. Email
 - d. Phone
 - e. Working Group(s)
 - f. Organizational Affiliation (if any)
 - g. type of Membership.
 - ii. Notes and/or Minutes of each General Meeting.
 - iii. Notes and/or Minutes of each Working Group.
 - b. Maintaining any and all email lists and/or discussion groups created by the Alliance.
 - 4. Four (4) At-Large members, who are responsible for general oversight of the Alliance.
- B. Elections for all Officers shall:
 - 1. Be held annually each January.
 - 2. Be decided by majority vote of the Membership of the Alliance present at the January General Meeting.
 - 3. Be announced on all Alliance email lists at least thirty (30) days prior to the January General Meeting.
 - 4. A member of the Board may be removed from office with or without cause via a vote as per Section 8(B)(2) above.
- C. Decision Making.
 - 1. The Board of Directors shall be responsible for all decisions required between General Meetings.
 - a. The Board of Directors shall vote either in person or via email.
 - 2. The Board of Directors shall be responsible for approving all contracts.
 - 3. The Board of Directors shall meet:
 - a. at the request of the President.
 - b. at the request of a majority of the Board
 - c. as established by Board decision.
- D. Financial Disclosure.

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Any member of the Board who has a financial, personal, or official interest in, or conflict (or appearance of a conflict) with any matter pending before the Board, of such nature that it prevents or may prevent that member from acting on the matter in an impartial manner, shall inform the Board of such conflict. That member will refrain from the discussion of, and recuse him/herself from voting on said item.

E. Expenditures

1. The fiscal year of the Alliance shall run from January 1st to December 31st, matching the calendar year.
2. Annual Budget.
 - a. Prior to November 1st of each year, the President shall email the Chair of each Working Group for their budget requests.
 - b. An itemized Draft Budget shall be prepared by the President and emailed to the Board of Directors no later than midnight on December 1st of each year.
 - c. The Board of Directors shall amend and approve the Final Budget no later than midnight on December 31st of each year.
 - d. A contingency fund of up to \$100.00 for incidental expenses may be established by the Board of Directors in the approved Final Budget.
 - i. Expenditures from this contingency fund require the approval of both the President and Treasurer, notwithstanding the provisions of section 6(E)(3) below.
3. Authorization for Payments
 - a. All expenses itemized in the approved budget may be purchased by the President and/or Treasurer without further approval by the Board of Directors, provided funds are available.
 - b. Any and all expenses (of any amount) not itemized in the approved Final Budget may only be approved by a vote of the Board of Directors, with the exception of any contingency funds established as per section 6(E)(2)(c) above.

7. Quorum

Unless otherwise stated, a quorum for all Working Groups, General Meetings and the Board of Directors shall be a simple majority of the members present.

8. Subwatershed Alliances

- A. The Alliance encourages the founding of watershed alliances for any and all streams, creeks, kills, lakes, and reservoirs that flow or drain into the Wallkill River or otherwise comprise a portion of the Wallkill River watershed.
- B. In order to be affiliated with the Alliance, each subwatershed alliance shall:
 1. Be comprised of at least three members.
 2. Abide by the Mission Statement and Bylaws of the Wallkill River Watershed Alliance.
 3. Approve a set of bylaws for the subwatershed alliance by majority vote of the members of that alliance.
 4. Elect a President, and define that position's role in the subwatershed alliance's bylaws.
 5. Meet at least monthly
 6. Send at least one representative to meetings of the Wallkill River Watershed Alliance.
- C. Each subwatershed alliance shall be granted membership in the Wallkill River Watershed Alliance by majority vote of the Board of Directors after meeting the above criteria.

9. Advisory Board

- A. An Advisory Board member:
 1. May or may not participate in Working Groups
 2. Is affiliated with a related government agency, nonprofit or citizens' group.
 3. Provides policy, technical or other advice and support to the Alliance.
 4. May not vote on issues facing the the Alliance unless they meet the criteria for membership.
 5. May also be a Member

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- B. Advisory Board members are appointed by either:
 - 1. majority vote of the Board of Directors, or
 - 2. the President of the Alliance

- C. Charter Advisory Board members:
 - 1. David Church, Director of Planning, Orange County
 - 2. Maureen Cunningham, Executive Director, Hudson River Watershed Alliance
 - 3. Scott Cuppett, Water Quality Specialist, Hudson River Estuary Program
 - 4. Martha Cheo, Wallkill River Task Force (defunct)
 - 5. David Gilmour, Director of Planning, Village of New Paltz
 - 6. Simon Gruber, President, Hudson River Watershed Alliance
 - 7. Laura Heady, Conservation/Land Use Coordinator, Hudson River Estuary Program
 - 9. Marty Irwin, Mohonk Consultations
 - 10. Dan Shapley, Water Quality Program Manager, Riverkeeper
 - 11. KT Tobin, Deputy Director, SUNY New Paltz CRREO
 - 12. Emily Vail, Watershed Outreach Specialist, Hudson River Estuary Program

10. Amendments

- A. These Bylaws may be amended by a majority vote of the membership of the Alliance present at two successive General Meetings, and a vote by a majority of the Board of Directors.
 - 1. If the Board of Directors disapprove of the proposed changes, those changes shall be returned to the General Meeting for further revision.



Appendix C

Additional Maps of the Wallkill River Watershed

Map of Wallkill River Access Points in Orange County

Map of Wallkill River Access Points in Ulster County

Map of the Shawangunk Kill Watershed

Point

Name

Status

Location

Municipality

Owner

SBL

1

Wallkill River Wildlife Refuge Site

Active Launch

Oil City Rd. / Stateline Rd.

Warwick

Federal Govt.

1-1-80

2

Pine Island Tpke. Site

Potential Launch/Camp

Co. Rte. 1

Warwick

Private

3-1-1

3

Maple Ave. Site #1

Potential Launch

Co. Rte. 37

Goshen

Private

19-1-79.1

4

Maple Ave. Site #2

Potential Launch/Camp

Co. Rte. 37

Wawayanda

Private

12-1-65

5

Heritage Trail Site #1

Potential Launch/Camp

Co. Rte. 50

Goshen

City of Middletown

3-3-6

6

Heritage Trail Site #2

Potential Launch/Camp

Echo Lake Rd

Goshen

Private

12-1-24.2

7

Exit 122 Launch

Active Launch

E. Main St.

Wallkill

Town of Wallkill

78-1-35

8

Town of Wallkill Well Site

Potential Launch/Camp

Goshen Tpke.

Wallkill

Town of Wallkill

60-1-69

9

Hawkins Riverside Easement Site

Potential Launch/Camp

Hill Rd.

Hamptonburgh

OC Land Trust

9-1-78

10

Thomas Bull Memorial Park Launch

Active Launch

211 St. Rte. 416

Montgomery

Orange County

2-1-1

11

Benedict Farm Town Park Launch

Active Launch

1675 St. Rte. 17K

Montgomery

Town of Montgomery

28-1-5

12

Pleasure Ground Launch

Active Launch

Veteran's Memorial Park

Montgomery

Village of Montgomery

205-1-1

13

Riverfront Park Launch

Active Launch

11 Farm Meadow Ln

Montgomery

Town of Montgomery

20-1-88.8

14

Twin Islands Fishing Park Site

Active Launch

River Rd.

Montgomery

Town of Montgomery

12-1-101.2

15

Maple Street Launch

Active Launch

Maple Street

Walden

Village of Walden

309-22-10

16

Thruway/Hannaaford Site

Potential Launch

78 Thruway Shopping Center Plaza

Montgomery

Private

306-1-41

Map prepared by the Orange County Department of Planning

Z. Coleman - June 2017

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Wallkill River Access Points
Orange County, NY

Legend

- Orange County
- Municipalities
- Parkland
- Wallkill River
- Waterbodies
- Streams
- Heritage Trail
- Future Heritage Trail
- Dams
- SPDES Permits
- Roads
- Interstate
- Federal / US
- State
- County
- Local
- Wallkill River Access Points
- Active Launch
- Potential Launch
- Potential Launch/Camp

Map prepared by the Orange County Department of Planning
Z. Coleman - June 2017
The County of Orange makes no warranty whatsoever as to the accuracy or completeness of any information depicted on this map. Data depicted here may have been developed in cooperation with other County departments, as well as other Federal, State and Local government agencies. The County of Orange hereby disclaims liability for any loss or damage resulting from the use of the information and/or representations contained herein.

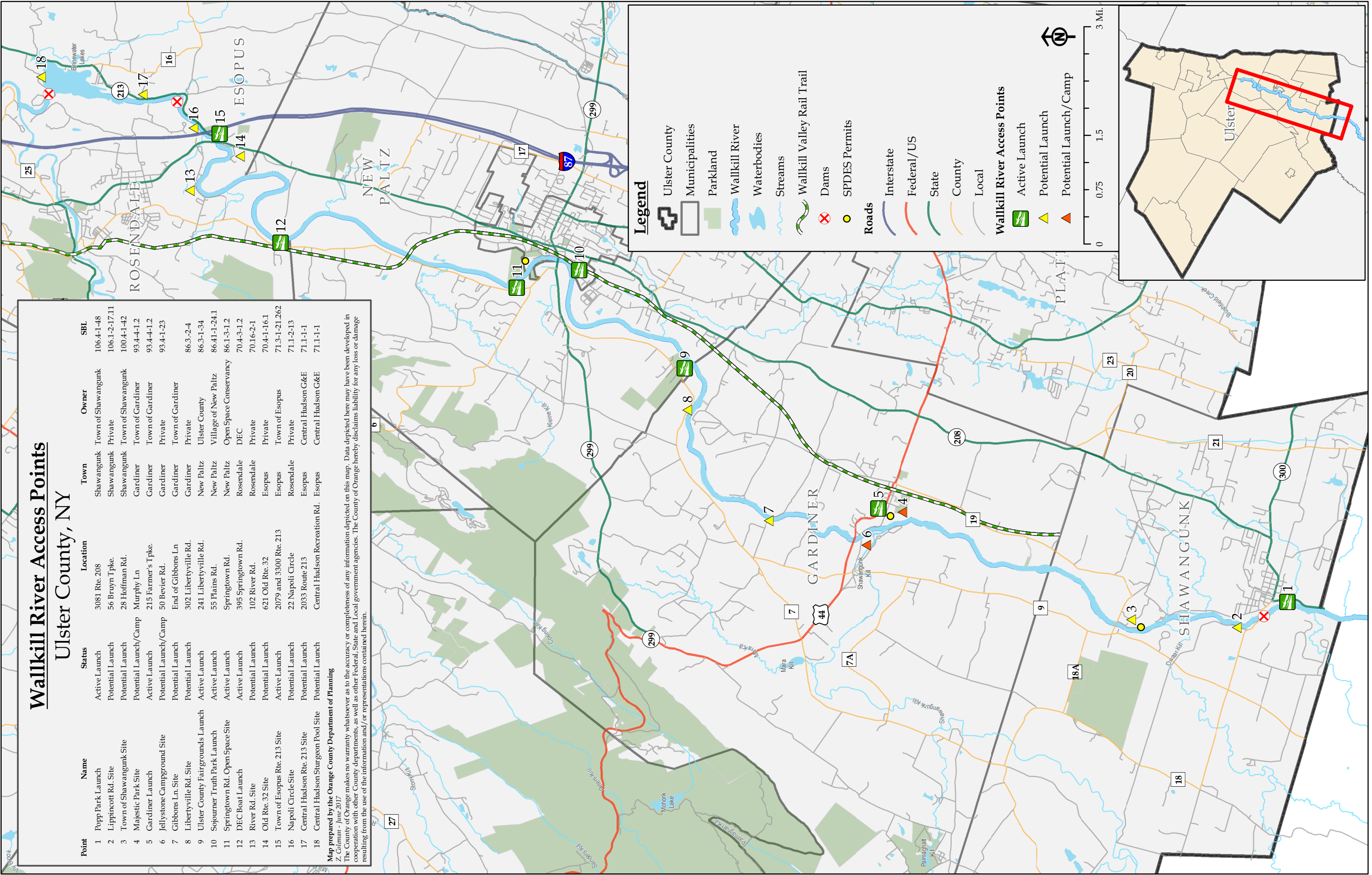
Wallkill River Access Points
Ulster County, NY

Point	Name	Status	Location	Town	Owner	SBL
1	Popp Park Launch	Active Launch	3081 Rte. 208	Shawangunk	Town of Shawangunk	106.4-1-48
2	Lippincott Rd. Site	Potential Launch	56 Bruyn Tpke.	Shawangunk	Private	106.1-2-17.11
3	Town of Shawangunk Site	Potential Launch	28 Hoffman Rd.	Shawangunk	Town of Shawangunk	100.4-1-42
4	Majestic Park Site	Potential Launch/Camp	Murphy Ln	Gardiner	Town of Gardiner	93.4-4-1.2
5	Gardiner Launch	Active Launch	215 Farmer's Tpke.	Gardiner	Town of Gardiner	93.4-4-1.2
6	Jellystone Campground Site	Potential Launch/Camp	50 Bevier Rd.	Gardiner	Private	93.4-1-23
7	Gibbons Ln. Site	Potential Launch	End of Gibbons Ln	Gardiner	Town of Gardiner	86.3-2-4
8	Libertyville Rd. Site	Potential Launch	302 Libertyville Rd.	Gardiner	Private	86.3-1-34
9	Ulster County Fairgrounds Launch	Active Launch	241 Libertyville Rd.	New Paltz	Ulster County	86.41-1-24.1
10	Sojourner Truth Park Launch	Active Launch	55 Plains Rd.	New Paltz	Village of New Paltz	86.1-3-1.2
11	Springtown Rd. Open Space Site	Active Launch	Springtown Rd.	New Paltz	Open Space Conservancy	86.1-3-1.2
12	DEC Boat Launch	Active Launch	395 Springtown Rd.	Rosendale	DEC	70.4-3-1.2
13	River Rd. Site	Potential Launch	102 River Rd.	Rosendale	Private	70.16-2-1
14	Old Rte. 32 Site	Potential Launch	621 Old Rte. 32	Esopus	Private	70.4-1-16.1
15	Town of Esopus Rte. 213 Site	Active Launch	2079 and 3300 Rte. 213	Esopus	Town of Esopus	71.3-1-21.262
16	Napoli Circle Site	Potential Launch	22 Napoli Circle	Rosendale	Private	71.1-2-13
17	Central Hudson Rte. 213 Site	Potential Launch	2033 Route 213	Esopus	Central Hudson G&E	71.1-1-1
18	Central Hudson Sturgeon Pool Site	Potential Launch	Central Hudson Recreation Rd.	Esopus	Central Hudson G&E	71.1-1-1

Map prepared by the Orange County Department of Planning


Z. Colanin - June 2017


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Shawangunk Kill Watershed


Orange-Ulster-Sullivan County, NY


 Municipalities


 Surrounding Counties


 Open Space


 Dams


 SPDES Permits


 Shawangunk Kill Watershed


 Shawangunk Kill


 Wallkill River


 Shawangunk Kill Waterbodies


 Shawangunk Kill Tributaries


 Waterbodies


 Streams


 Roads

 Interstate

 Federal / US

 State

 County

 Local

