

Understanding the Urban Watershed Curriculum Project (4th–12th grade)

Ellen Freedman Schultz

Fairmount Water Works Interpretive Center, education outreach center for the Philadelphia Water

Department

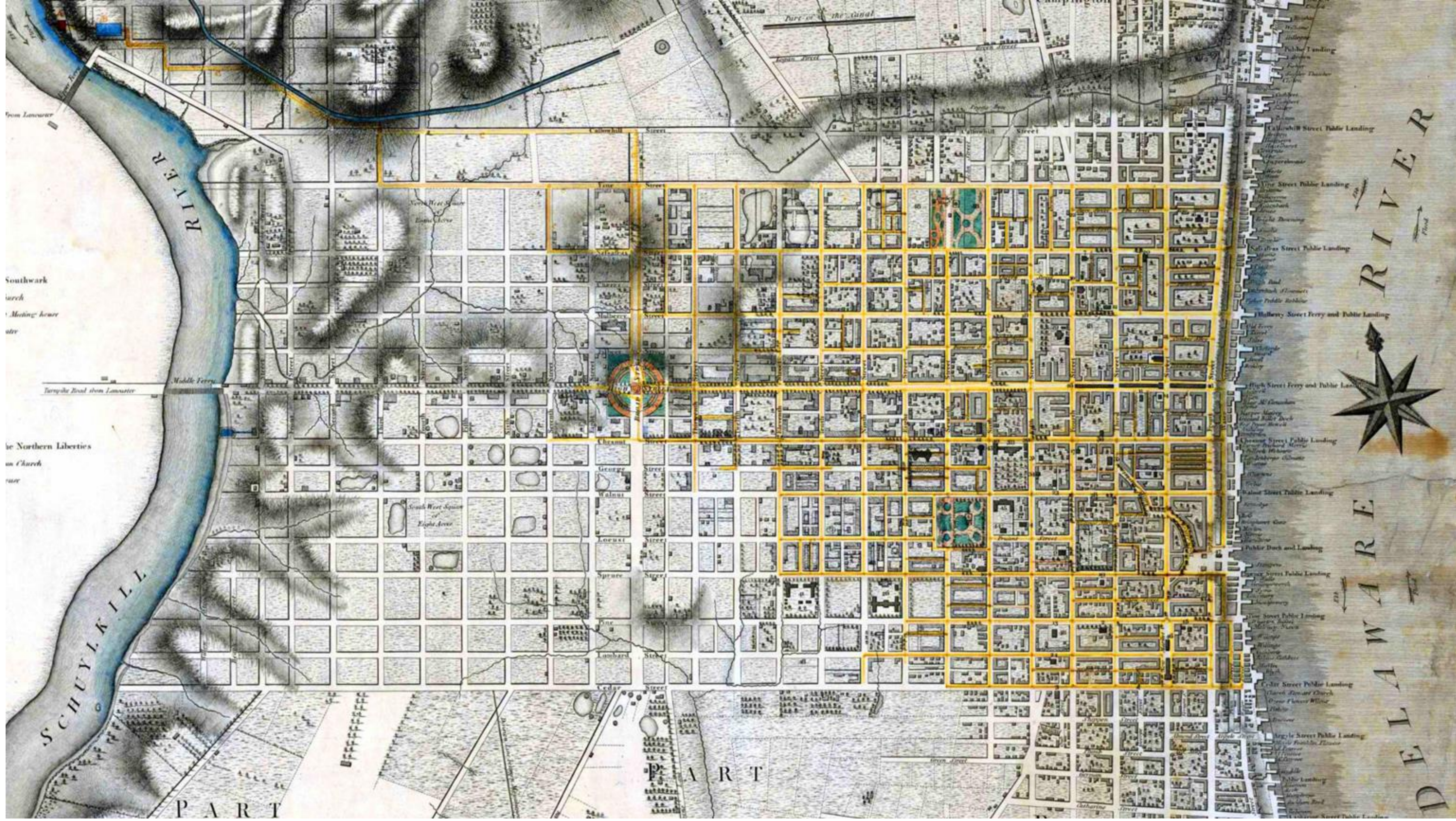
Philadelphia, Pennsylvania

United States

PHILADELPHIA
WATER
— DEPARTMENT —

FAIRMOUNT
WATER
WORKS





LEFT: Het Meer / Roger Veringmeier, CC BY-SA 4.0, via Wikimedia Commons.

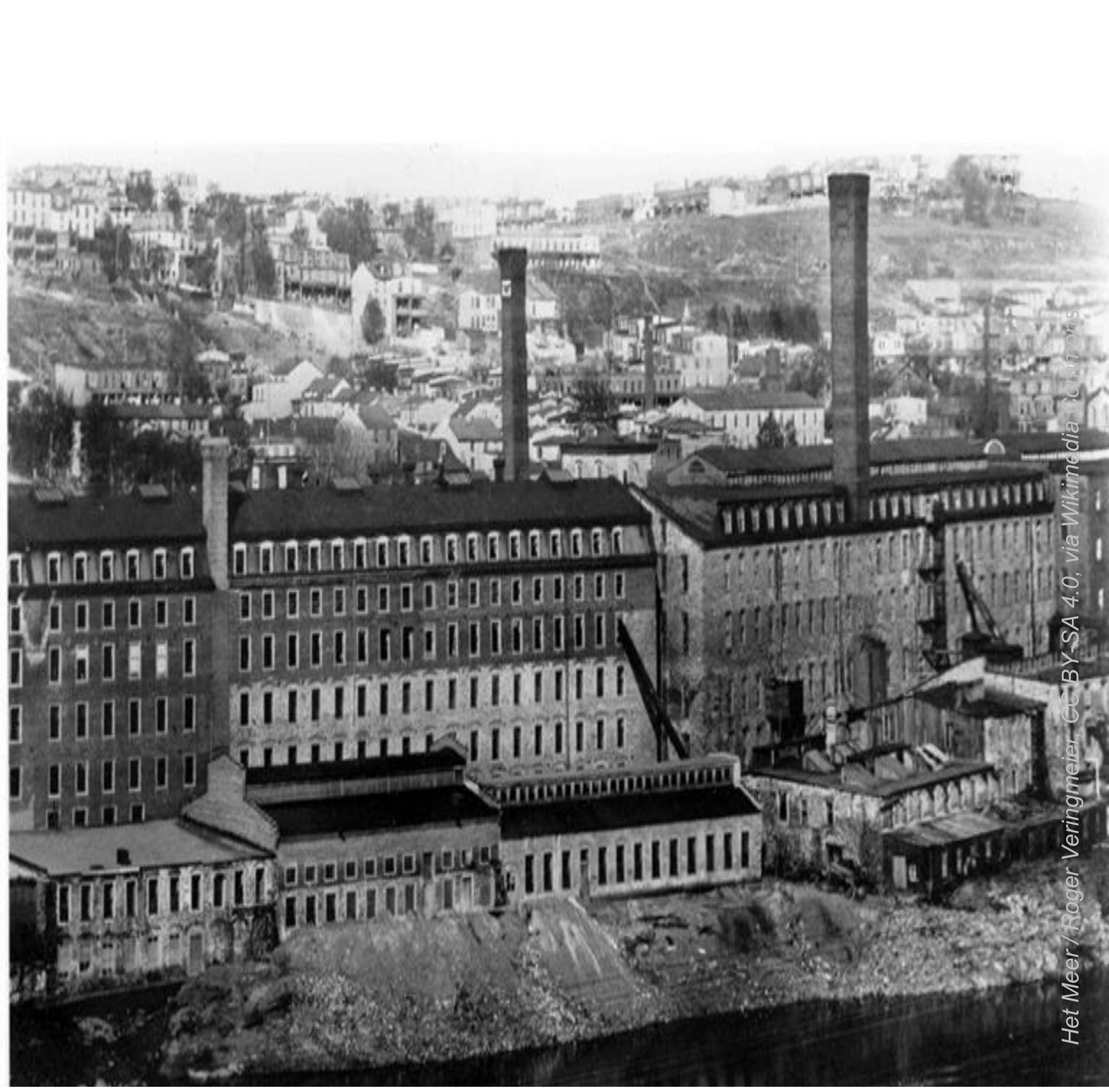
RIGHT: Het Meer / Roger Veringmeier, CC BY-SA 4.0, via Wikimedia Commons.



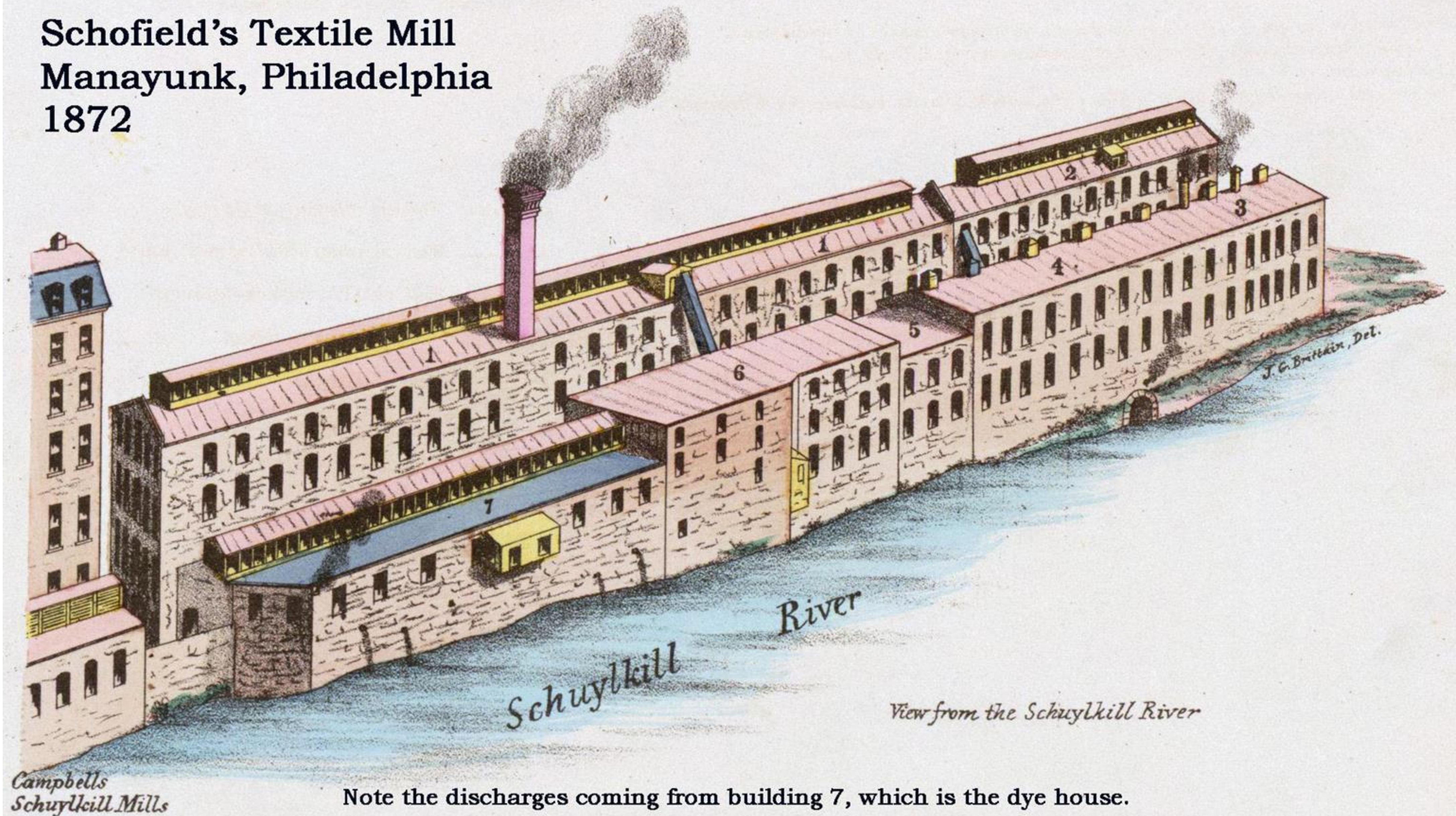
Fairmount Water Works was visited by multitudes near and far.
 "...one of the very prettiest spots the eye can look upon."
-Novelist Frances Trollope commenting on the waterworks



Het Meer / Roger Veringmeier, CC BY-SA 4.0, via Wikimedia Commons.



Schofield's Textile Mill Manayunk, Philadelphia 1872



Note the discharges coming from building 7, which is the dye house.





The Problem

Approximately 60% of Philadelphia is served by a combined sewer system. During wet weather, this older section of our system often overflows. As a result, billions of gallons of stormwater and diluted sewage flow into local waterways each year. State and federal regulations, including sections of the Clean Water Act, require Philadelphia to reduce at least 85 percent of this pollution—or face steep fines.

The Solution

Green City, Clean Waters uses a green-first approach, complemented by grey infrastructure, to reduce combined sewer overflow volumes. Since 2011, hundreds of GSI projects have been built across the combined sewer area. To measure the progress, PWD and regulators set a target of delivering 9,564 greened acres by 2036. This makes our program one of the largest scale GSI programs in the country.

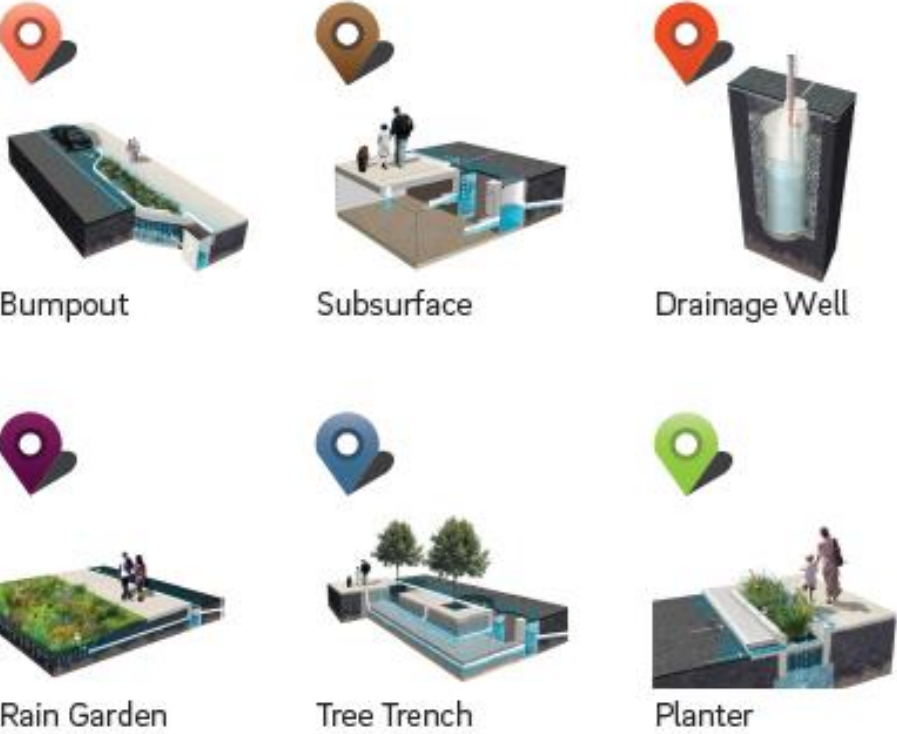
Green City Clean Waters

Morris Park & Surrounding Area

Planned Green Stormwater Infrastructure (GSI) & Sewer Disconnection Projects



Green Tools



These tools capture and store runoff to protect local waterways as part of the city's *Green City, Clean Waters* plan. For more information on green tools, please visit: water.phila.gov/green-city/

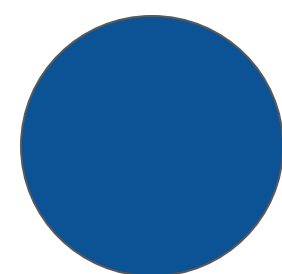
Sewer Disconnection

In this sewer disconnection project, PWD will create a separate stormwater sewer to convey stormwater from these streets to the newly constructed rain gardens located in Morris Park.

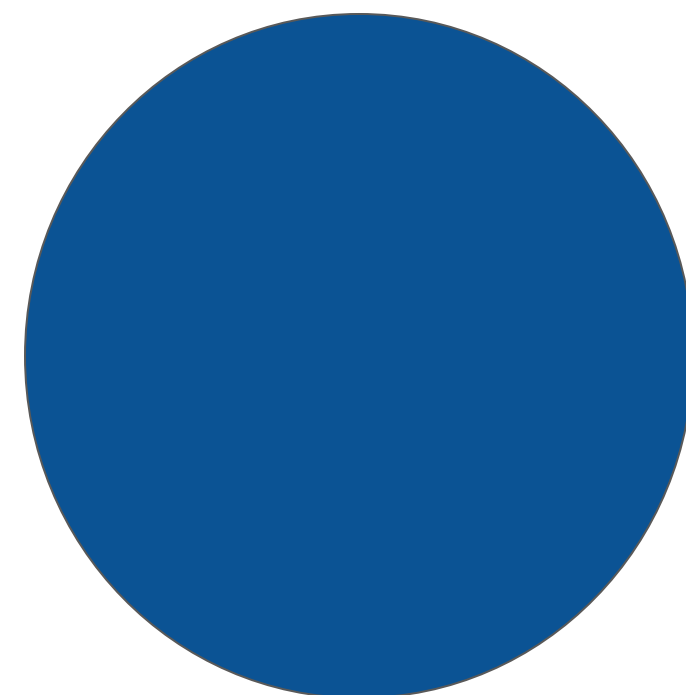
Questions? Concerns?

Please contact daniel.schupsky@phila.gov with specific questions or to schedule a community presentation. Please visit water.phila.gov/projects/ and search "Morris Park" for online information on these projects.

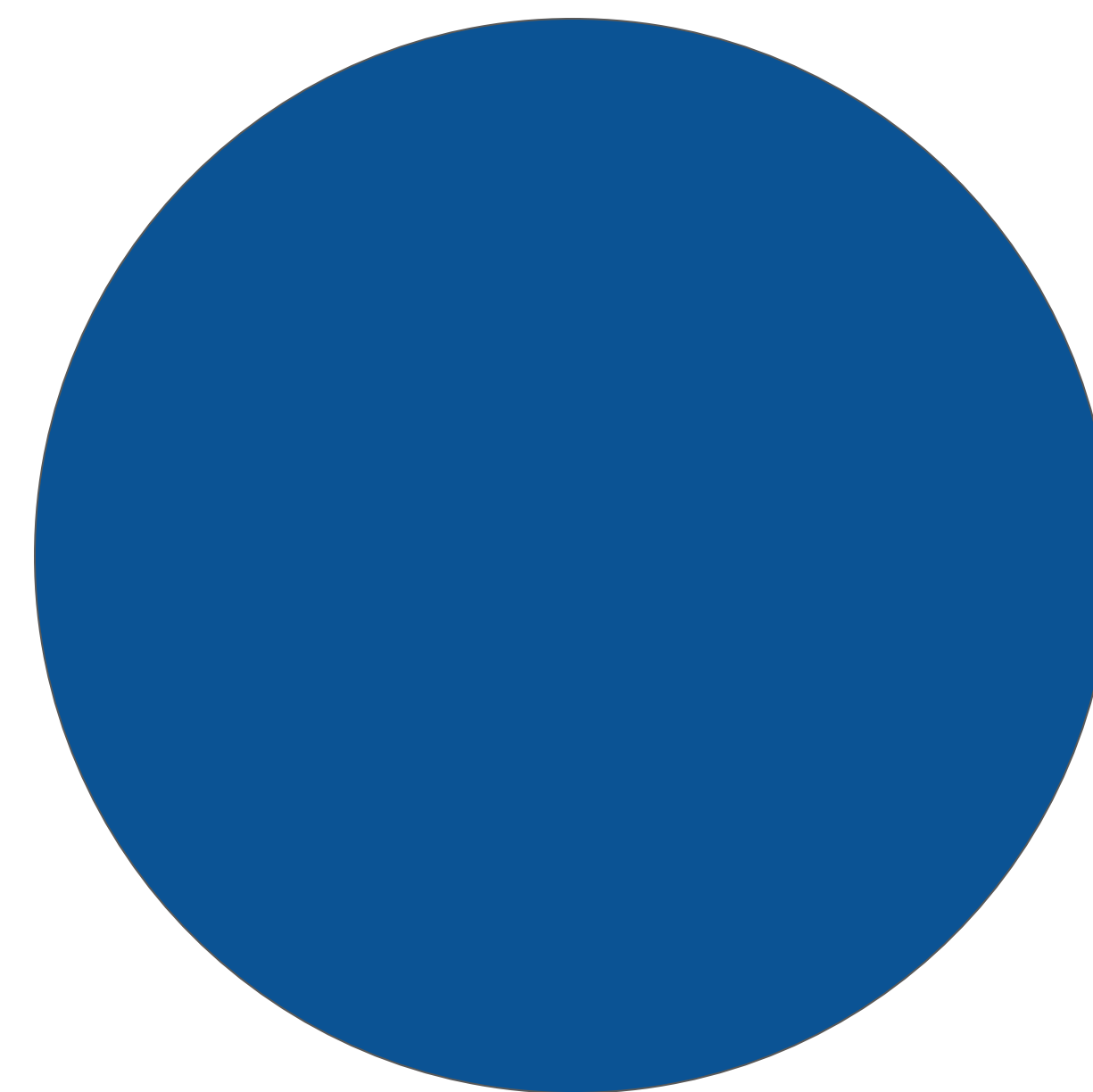
Map Updated Oct 2022; #50110 Constructed, #50186 Bid Advertised, #50220 Projects Control



**School
Field
Trips and
Activities**



**Activity Guide
for Schools and
Schoolyards
Green
Infrastructure
Planning**



**Classroom Curriculum+
Teachers+
School District
Partnership+
Environmental Education
Partners**



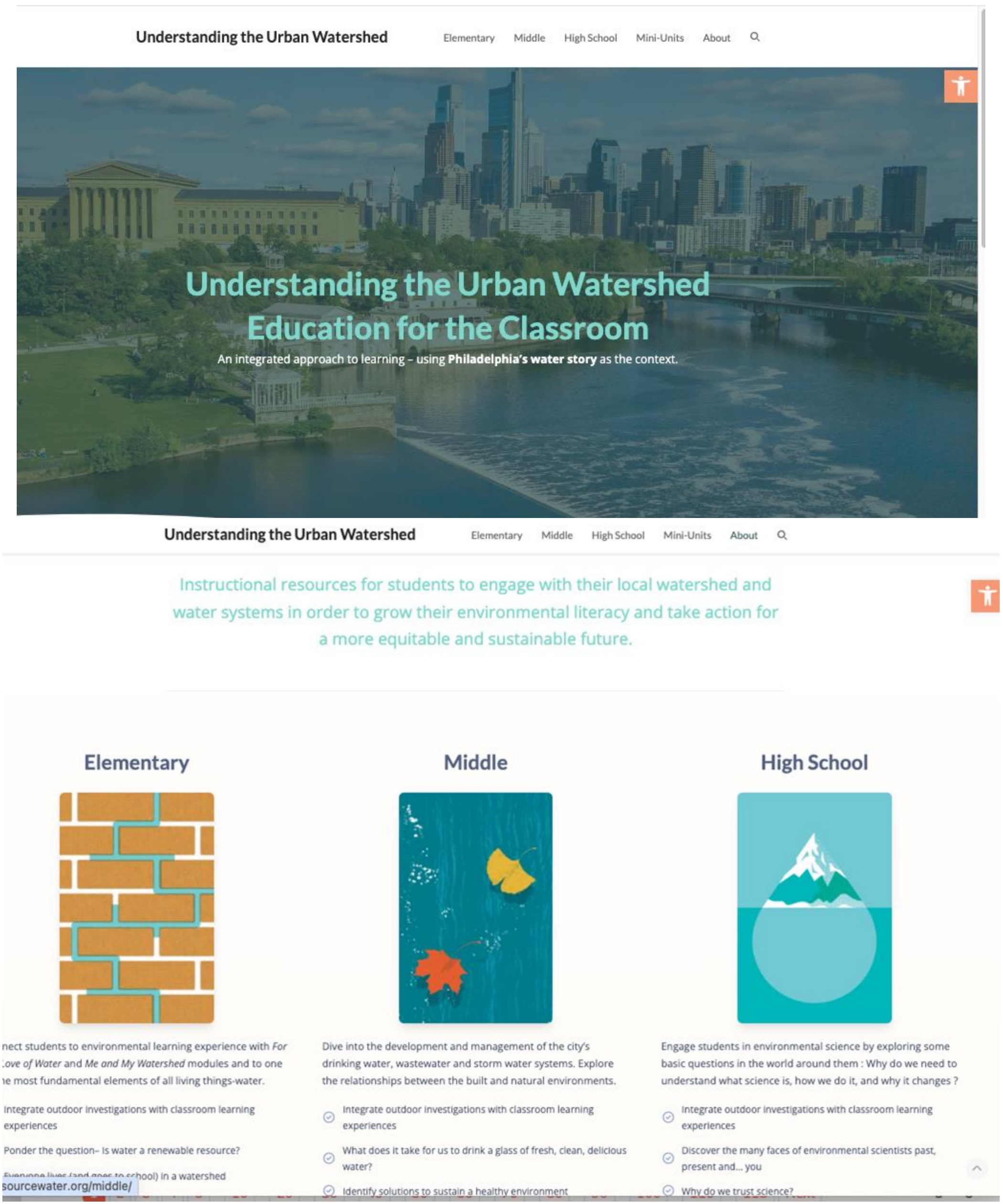
**Classroom Curriculum
+
Teacher Professional
Development
+
NEW PA State
Academic Standards
for Environmental
Literacy +
Outdoor Experiences
(MWEES)**

Understanding the Urban Watershed Curriculum

Instructional resources :
completely online and accessible
redesigned Website: nimble, responsive to
emerging research and teacher feedback

Content :
local but anchored in bigger picture of the story of
water systems, legacy pollution, past, present, and
future water management, climate change
resilience

resourcewater.org



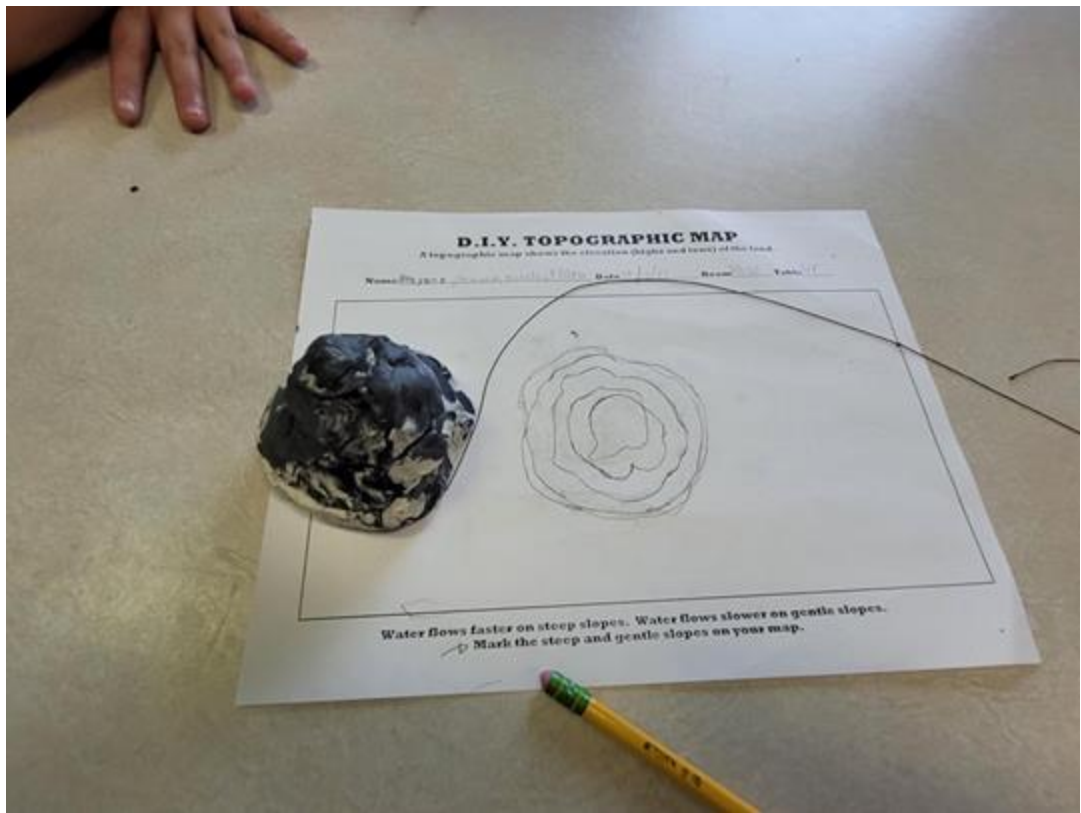
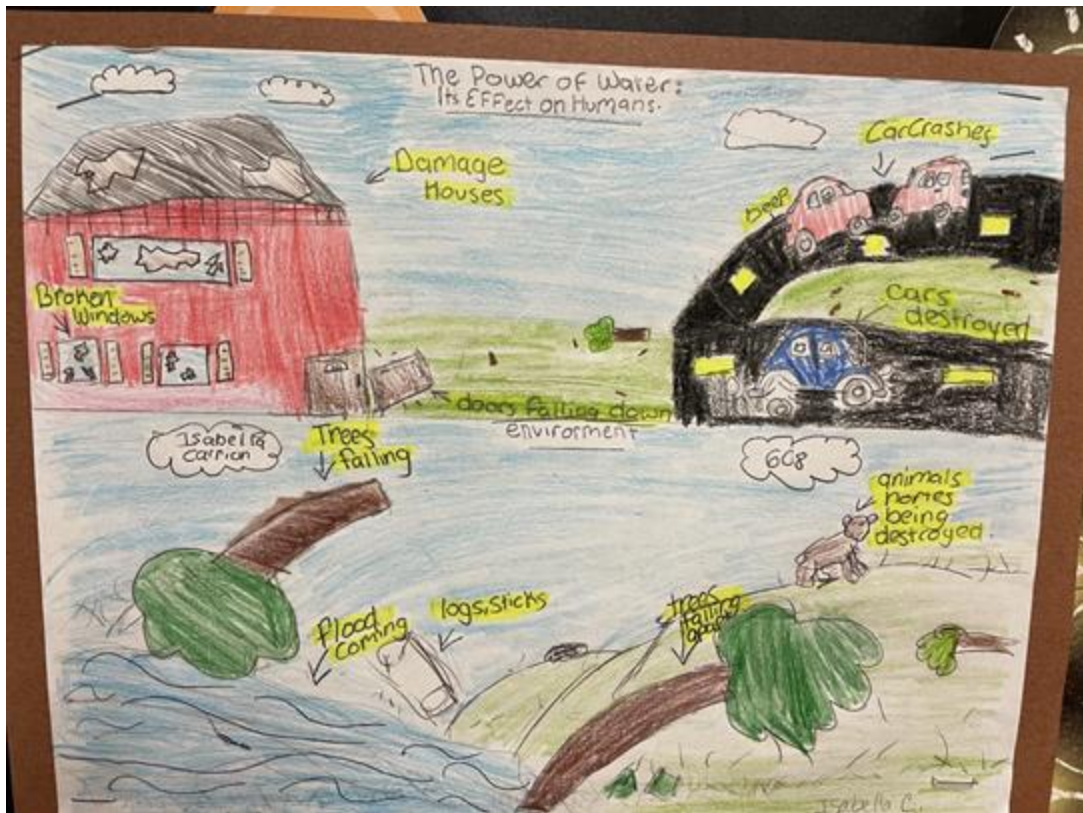
Sample Student work

(writing, planning, measuring and calculating, science, art, heritage, culture and more ...)

6th grader Love Letter to Water

“I know things have been rough between us lately, but I want to make things right with you. We’ve been through so much. Showers and baths just wouldn’t be the same without you and trips to the beach? ...Especially when I’m thirsty and need something to drink, it would be heartbreaking if you weren’t there to provide me with relief....I mean, you keep me alive! Where would I be without you?

You’re so good to me Water, and I’m sorry if I ever broke your heart. Yeah, I might’ve chosen juice or soda over you a couple times, but that was in the past. In conclusion, life without you would be pointless. I would always have dirty clothes, hair, skin, and teeth, and my room would always be a mess. Plants and sea life would be dead and so would people. I just need you back in my life Water, and I will never again take you for granted.”



Evaluation

3 years by Two Roads

Track Implementation of Units/Learning Experiences

**Interview teachers for professional engagement and
personal behavior change**

Knowledge, Attitude, and Behavior Change

Considerations for the WAMU-NET repository for educational resources

- **Can the resource be used as-is or easily adapted to another context with user modifications to contextualize while also addressing bigger picture issues/water heritage ?**
- **Will there be a good dissemination strategy and also professional development training to support implementation of new repository resources ?**
- **Will this grow the Network and grow a new Learning Community ?**

Thank you!