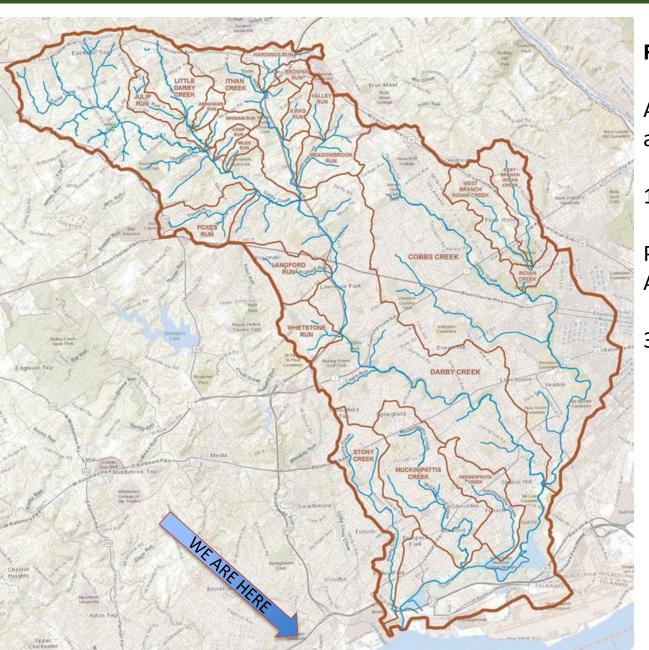


...and how you can help!



### The Darby Creek Watershed



#### **FLOW FACTS:**

Area: 78 square Miles (50K acres +/-)

123 Linear Miles of Stream

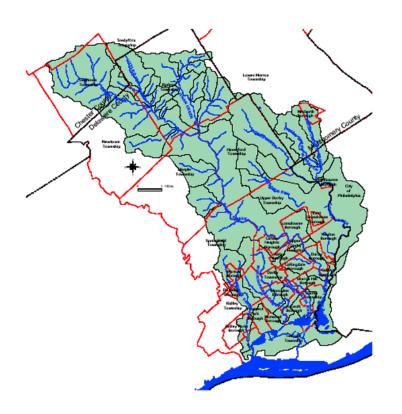
Population within Watershed: Approximately 500,000 people

31 Municipalities

### Time to Update

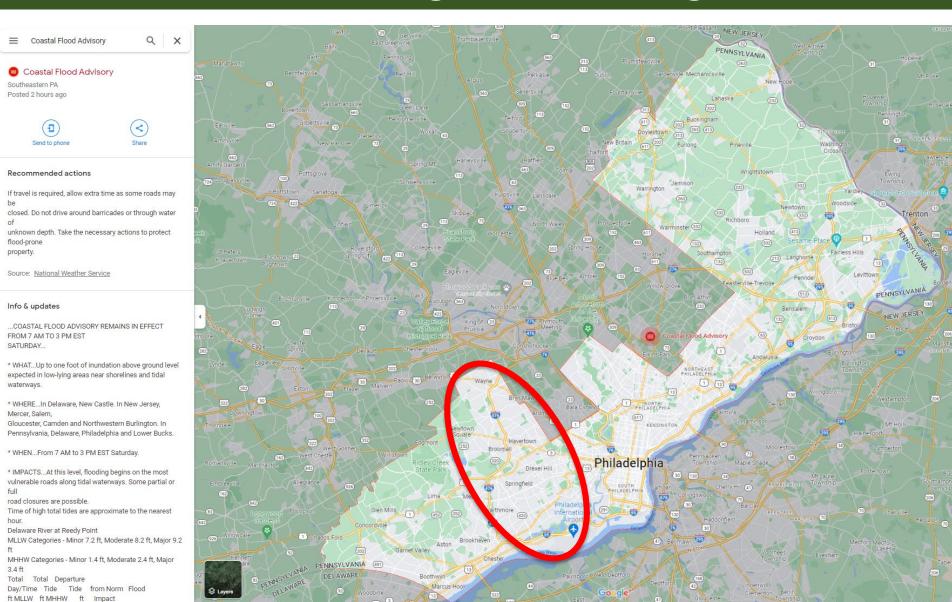
# DARBY CREEK WATERSHED CONSERVATION PLAN

#### **EXECUTIVE SUMMARY**





### Issues: Regional Flooding



# Issues: Local Flooding



(Credit: CBS3)

### Causes: Climate Change

# Pennsylvania Department of Conservation and Natural Resources









# Community Climate Outlook DELAWARE COUNTY, PA

Delaware County residents will face increasingly severe weather- and climate-related hazards, such as heat waves, flooding, and storm surge.

As the frequency and intensity of local hazards change, it is important for all of us to protect communities and local habitats. Using the best available evidence, scientists can project how climate (long-term averages in daily weather) will change in the future, and the effects this will have on local communities.

Climate information can guide decision-making to help us plan and prepare for future weather and climate hazards. It is important that action includes areas with limited resources and people at higher risk. With justice-minded planning and preparation, Delaware County can build a resilient community for all residents and future generations.



**SEA LEVEL RISE** 



THE CITY OF PHILADELPHIA

OFFICE OF

SUSTAINABILITY

PHILADELPHIA
CLIMATE ACTION
PLAYBOOK

JANUARY 2021

# Causes: Too Much Paving



# Causes: Too Much Lawn

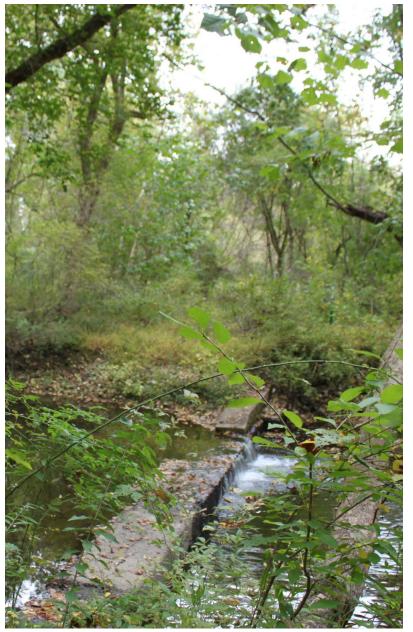


# Causes: Outdated Stormwater Management



# Causes: Outdated Infrastructure



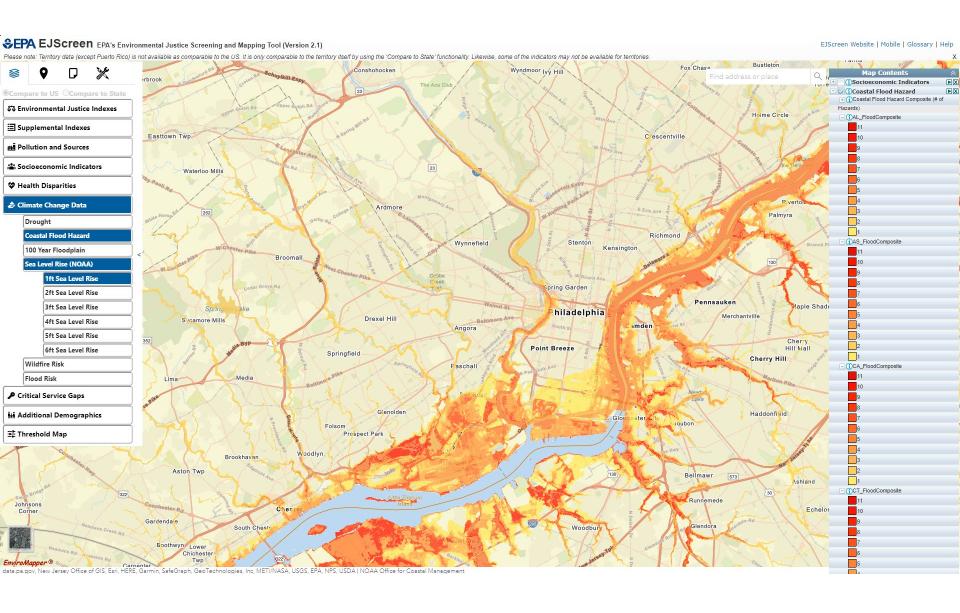


### Causes: Weak Ordinances, Poor Enforcement

# PRINCIPLE 1: ZONING and SUBDIVISION REGULATIONS ORIENTED TOWARDS PROTECTION OF NATURAL RESOURCES

Techniques/Evaluate	HIGH	MEDIUM	LOW
Underlying or "base" zoning is	Zoning 4.0: All districts allow	SR - Scenic River	
appropriate for the community	1 & 2 family dwellings on	RR - Recreational River	
and encourages groundwater	15% slope or less only. Some	R1 - Rural Residential	
infiltration and protection of	districts permit ag, forestry,	R2 - Rural Development	
natural resources.	institutional, or craft shop uses	GR - General Residential	
Zoning and SALDO	as appropriate. All else is	RB - Roadside Business	
regulations have been adopted?	special uses.	DB - Downtown Business	
Consistent w/municipal or	Min Lot are $= 5$ ac (SR), 3 ac	Zoning 6.5: Floodplain overlay	
county conservation policies?	(RR, R1, R2), 20K sf (RB,	– 100 yr flood zones. Non-	
At "build out" does zoning	DB), 15K sf (GR).	obstructive uses permitted. No	
protect natural resources?		buildings unless flood-proofed.	
	Rural districts have 300 ft. min		
	river or road frontage.	Zoning 6.17: River Mgmt	
		Corridor. Apply in SR & RR.	
	Max lot clearing = 20% (SR,	Ridgeline regs apply if visible	
	RR, R1, R2), 15% (GR), 50%	from Delaware or w/in 100 ft.	
	RB, GB).	of ridgeline. 100 ft. setback	
		from Delaware for structures	
	Max lot coverage = 10% (SR,	and septic. Other conditions	

### Another Result: Environmental Injustice



### The Funders











### The Sponsors & Supporters



#### **Municipalities**

Darby Township
Haverford Township
Lansdowne Borough
Newtown Township
Norwood Borough
Radnor Township
Springfield Township
Tinicum Township
Upper Darby Township

#### **Partner Organizations**

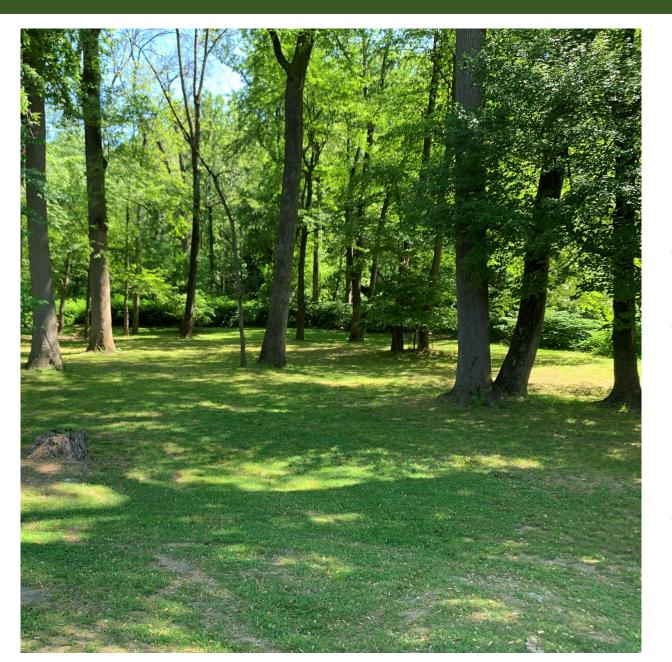
Eastern Delaware County Stormwater Collaborative

Eastwick Friends & Neighbors Coalition

John Heinz National Wildlife Refuge at

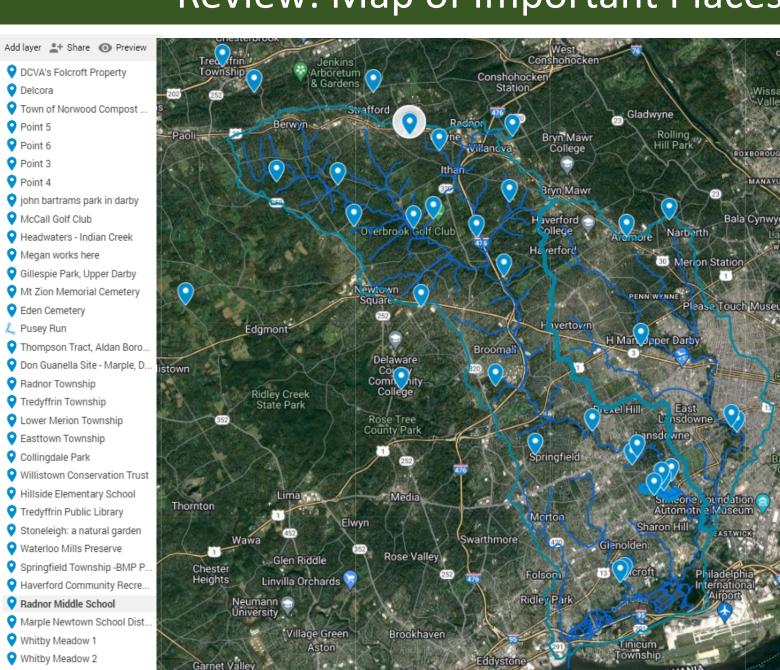
Tinicum

### The Task Force



**Aurora Dizel Ashley Dolcemore** Maria Gazzillo **Bonnie Hallam** Dale Harris Jesse Hart **Roy Hunter** Jon Lesher William Lighter Robin Mann **Ruth Mooney** Brian Razzi Jaclyn Rhoads Temwa Wright Rebecca Yurkovich Faith Zerbe

### Review: Map of Important Places



#### **Good Examples:**

Radnor Middle Sch.

Gillespie Park

#### **Issues:**

Dumping at Collingdale Park

Direct stormwater flow at Aldan Swim

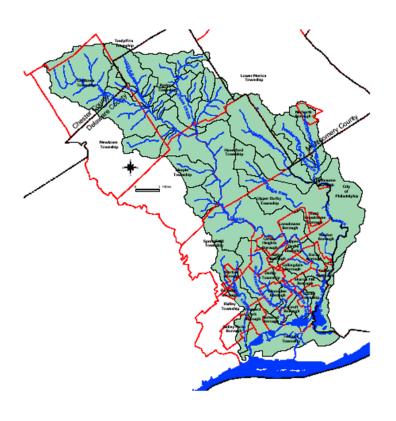
#### **Opportunities:**

Golf Courses Cemeteries Parks Open Spaces

### PRELIMINARY Goals

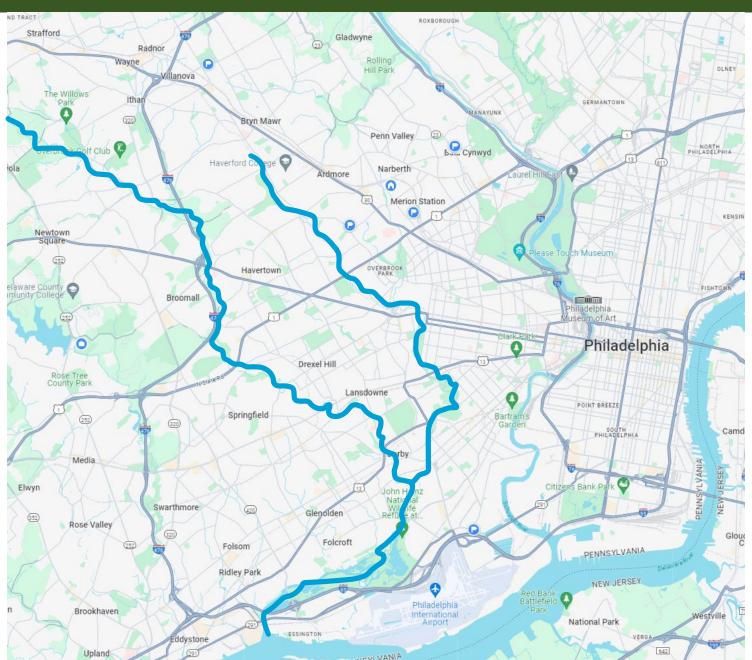
#### DARBY CREEK WATERSHED CONSERVATION PLAN

#### **EXECUTIVE SUMMARY**

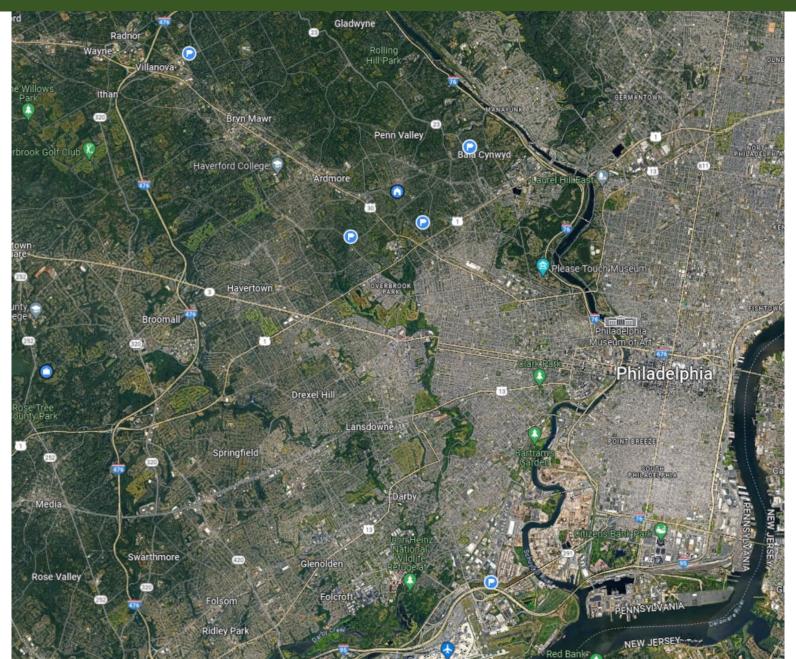


- Establish a Darby Creek Watershed greenway
- 2. Monitor Stormwater Plans
- 3. Identify Parcels for Conservation
- Promote Efforts to Establish,
   Improve and Enforce Existing Land
   Use and Development Ordinances
- 5. Promote Equity and Environmental Justice across the Watershed
- Prepare for the increased effects of climate change, with a focus on flooding

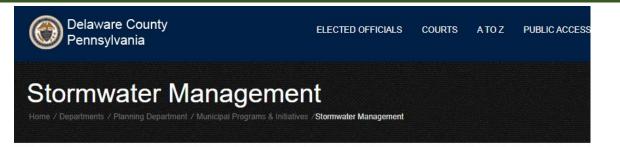
# 1. Establish Greenways



### 1. Establish Greenways



### 2. Monitor Stormwater Plans



Delaware County Planning can provide information and technical support to municipalities for compliance with stormwater regulations.

Managing stormwater and protecting water quality in our streams is of critical importance to Delaware County and its residents. The Planning Department works with municipalities to help them implement state and federal programs aimed at mitigating stormwater and pollutant impacts on water quality.

#### **ACT 167 STORMWATER PLANNING**

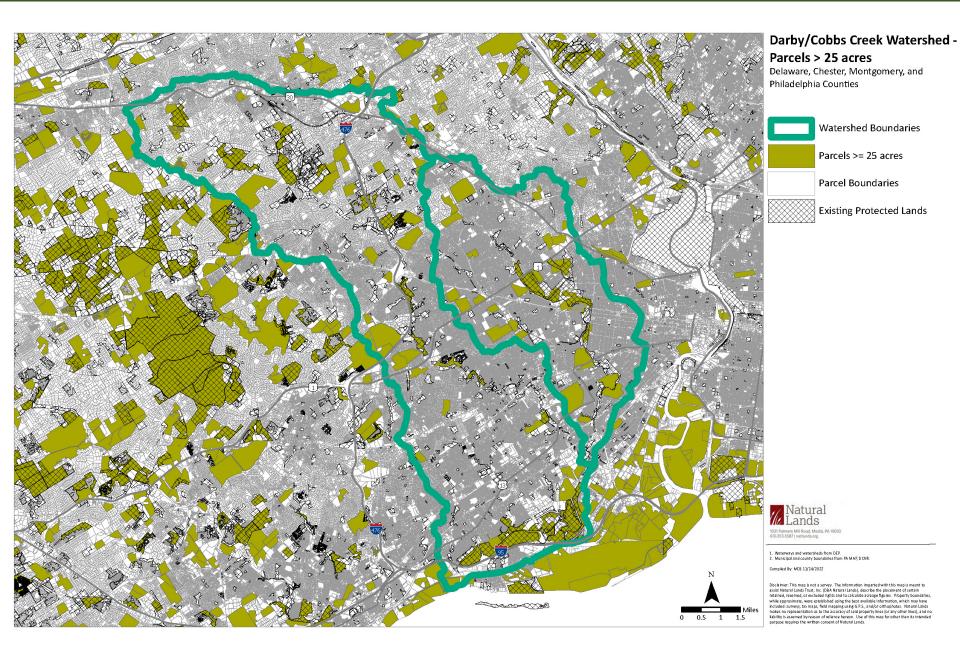
### **Background**



- DEP is directed under Act 167 to develop a **model stormwater ordinance**.
- Existing MS4s must update existing ordinances to be consistent with the model ordinance by **September 30, 2022**.
- New MS4s must adopt an ordinance consistent with the model ordinance by September 30, 2022 or with 4<sup>th</sup> Annual MS4 Status Report.
- The Model Stormwater Management Ordinance satisfies **DEP's Act 167** requirements, and, for **MS4s**, regulatory requirements as implemented through **NPDES permits**.
- MS4s should consider requirements unique to specific county-wide or watershed-wide Act 167 Plans.



### 3. Identify Parcels for Conservation



### 3. Identify Parcels for Conservation

### Some quick observations...

Not many very large parcels...only ninety-one over 25 acres...and most are golf, cemetery, or developed – some institutions.

A lot of golf courses, but less land than we might think:

Watershed total: 49,000 acres.

Golf course: 1,000 acres or roughly 2% of

watershed

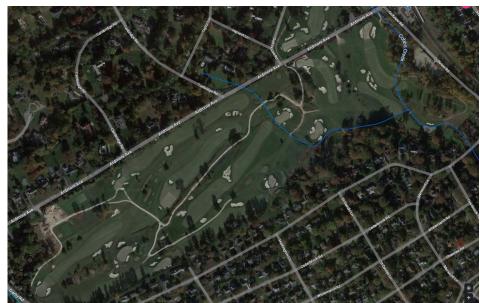
A lot of cemeteries, but less land than we might think:

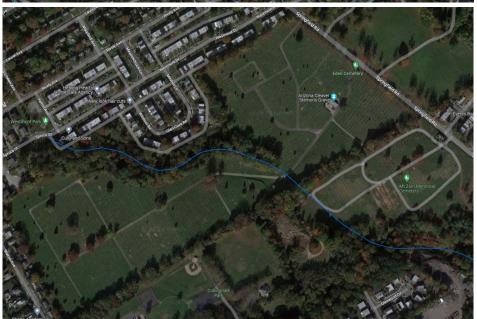
Watershed total: 49,000 acres.

Cemeteries: 1,126 acres or roughly 2% of

watershed

Many small parcels will need to make a difference!







### What are we trying to:

- Gain an understanding of the regulatory tools communities are currently using
- Figure out what's working or not working and WHY
- Identify where the watershed may be unprepared for current or future development trends
- Understand communities' ordinances in the context of their community character

















What can we do?

**Detailed Ordinance Assessments** 

Land Use Regulation Updates

Zoning
Subdivision & Land Development
Plant Lists & Landscaping





### 5. Promote Equity and Environmental Justice

Underserved Communities Eligible for Additionally Funded Projects

**Detailed Ordinance Assessments** 

Land Use Regulation Updates

Park Assessments

Park Master Plans

**Pilot Communities** 







### 5. Promote Equity and Environmental Justice



Natural Lands
1031 Palmers Mill Road
Media, PA 19063
610-353-5887
www.natlands.org

ASH PARK MASTER PLAN

Coatesville, PA May 2021



### 5. Promote Equity and Environmental Justice

#### What can we do?

Park Assessments

Mini Master Plans- Conceptual Plans to help get you started

#### **Plantings**

- Riparian buffers
- Reforestation
- Rain Gardens
- Stormwater Swales
- Meadows
- All plantings help manage water!

#### Modern Recreation Facilities

- Playgrounds
- Pavilions
- Trails
- Sports Courts & Fields





### Parks & Planning

### Some quick observations...

Many parks could be updated to improve recreation, meet modern standards and protect or enhance water quality and infiltration.

#### A lot of parks...

- 175 +/- parks in Darby Creek Watershed within Delaware County
- 2,000 ac +/-
- Watershed total: 49,000 acres.

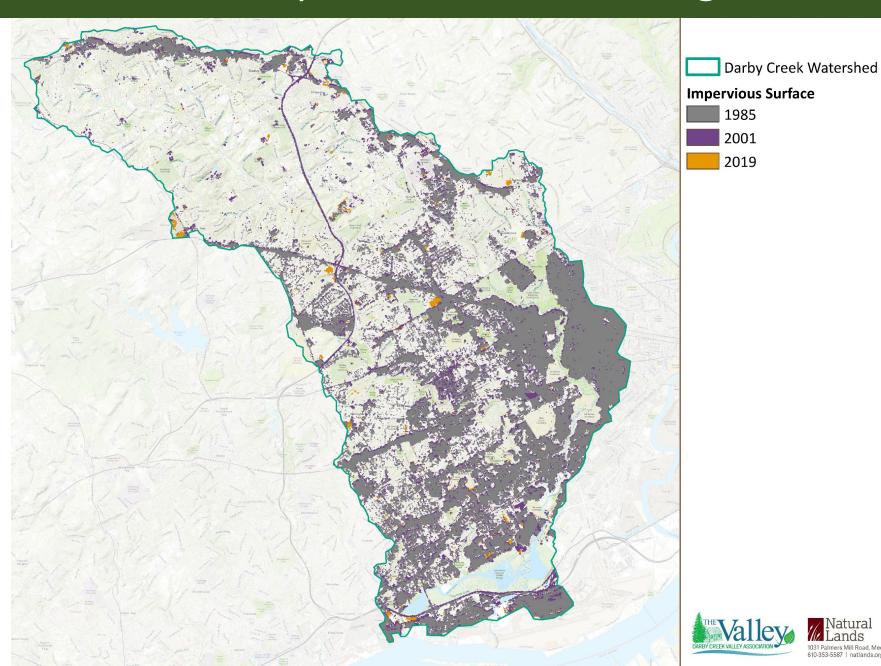
Parks make up roughly 4% of watershed.

Many small parcels will need to make a difference!

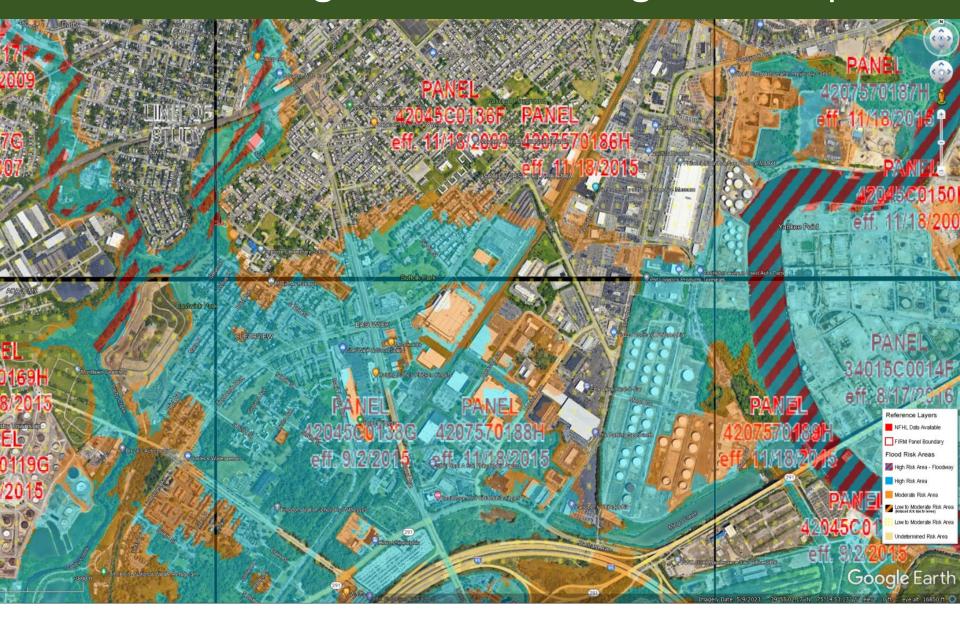




# 6. Prepare for Climate Change

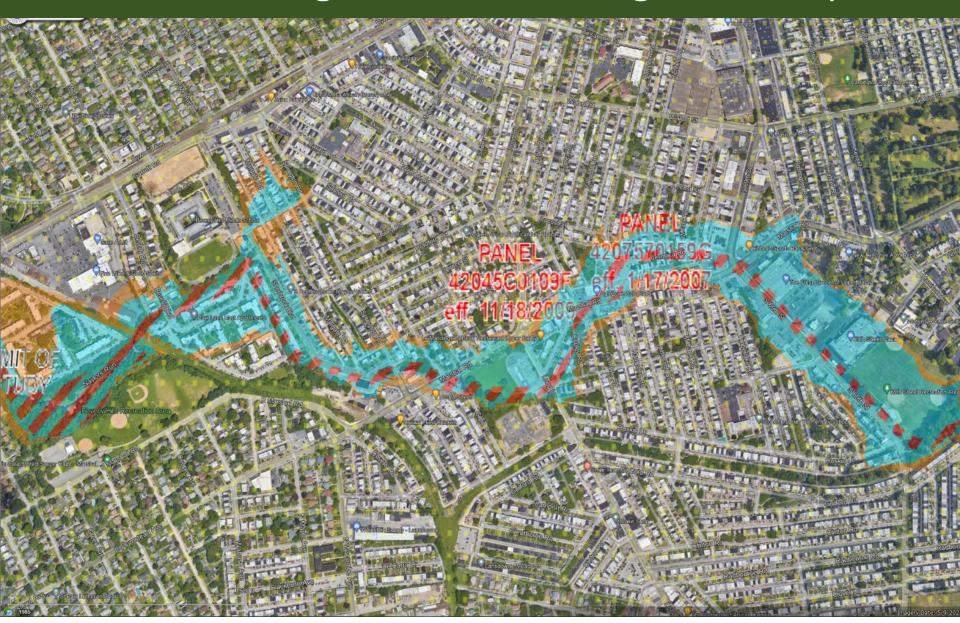


### 6. Climate Change: 1600+ Buildings in Floodplains



Darby Creek & Schuylkill River – Philadelphia

### 6. Climate Change: 1600+ Buildings in Floodplains



Naylors Run- Upper Darby Township

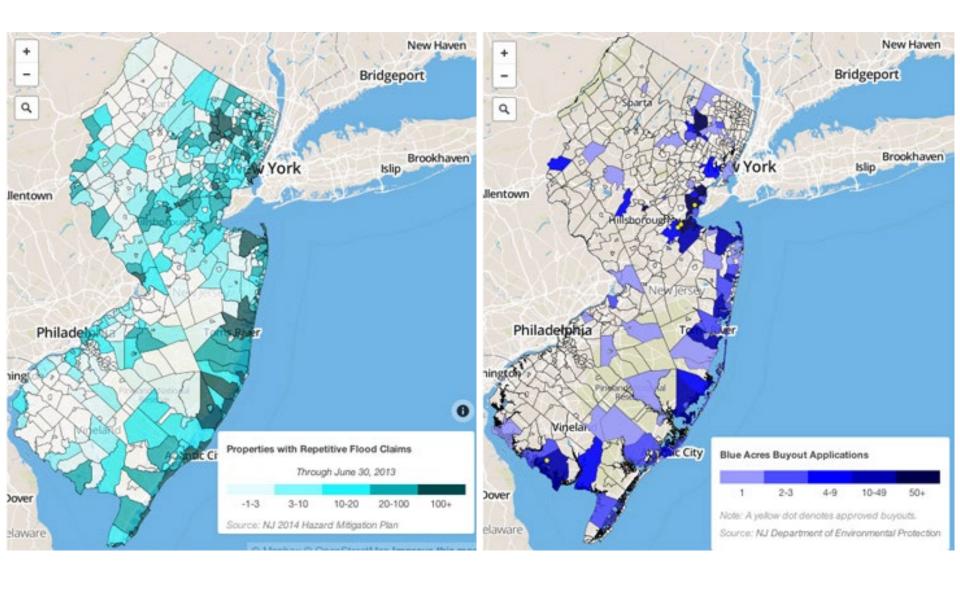
### 6. Climate Change: 1600+ Buildings in Floodplains



Cobbs Creek – Haverford Township

# 6. Climate Change: NJDEP's Blue Acres Program 🦠





### 6. Climate Change: FEMA's Community Ratings System



#### Community Rating System Overview and Participation

The Community Rating System has 1,520 communities throughout the United States that participate in the program by implementing local mitigation, floodplain management, and outreach activities that exceed the minimum NFIP requirements.

View the Fact Sheet

### **Community Rating System**

The NFIP's Community Rating System (CRS) provides discounts on flood insurance premiums in those communities that establish floodplain management programs that go beyond NFIP minimum requirements. Communities can receive credit for more restrictive regulations, acquiring flood-prone property, and other measures that reduce flood damages and protect floodplains. Over 1,000 communities now participate in the CRS and are taking action to reduce their vulnerability to flooding.

Learn More about the Community Rating System

# 6. Climate Change: Precedent Programs?



This unprecedented effort restores access to almost 180 miles of blocked habitat throughout six major salmon and steelhead rivers of Oregon's North Coast. Using a strategic, scaled approach to maximize benefits and minimize costs, a unique, community partnership will deliver a portfolio of 93 projects. As of January 2024, we're over half way home with 129 miles reconnected. Each year the Salmon SuperHwy reconnects more historic habitat, reduces chronic flooding, improves recreation opportunities and stimulates the local economy.

#### DARTHERS

TILLAMOOK COUNTY • TILLAMOOK ESTUARIES PARTNERSHIP • TILLAMOOK COUNTY CREAMERY ASSOCIATION

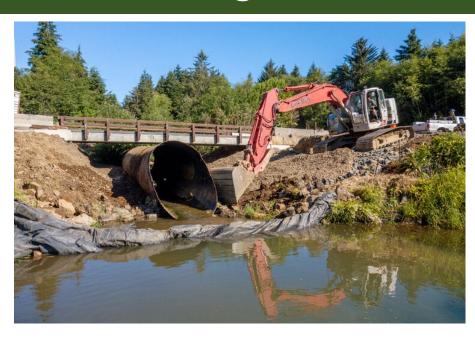
NESTUCCA-NESKOWIN SAND LAKE WATERSHEDS COUNCIL • PELICAN BREWING

OR DEPT OF FISH AND WILDLIFE • OR DEPT OF FORESTRY • OR DEPT OF TRANSPORTATION
OR WATERSHED ENHANCEMENT BOARD • OR FISH PASSAGE TASK FORCE

US FISH & WILDLIFE SERVICE • US FOREST SERVICE
BUREAU OF LAND MANAGEMENT • NATURAL RESOURCES CONSERVATION SERVICE

TROUT UNLIMITED

SPECIAL THANKS TO THE MEYER MEMORIAL TRUST





# 6. Climate Change: Programs - Home Waterproofing





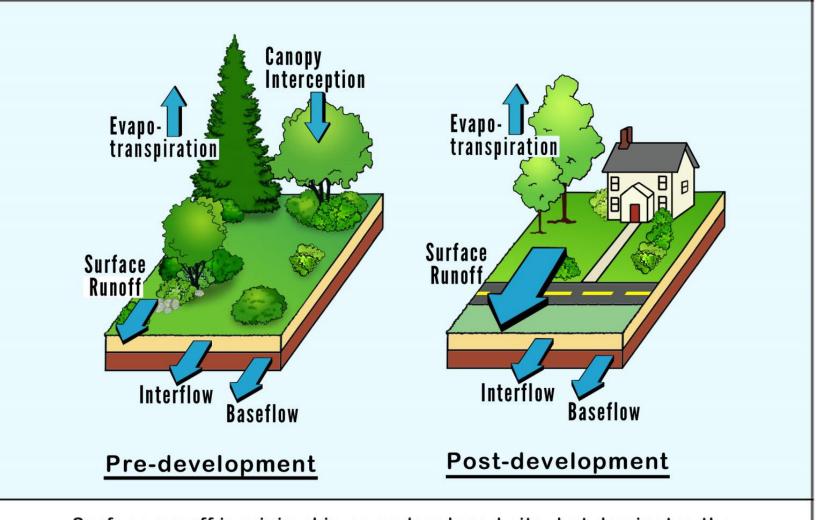
# Opportunities for Homeowners: Daylighting





## Opportunities for Homeowners: Lawn Reduction

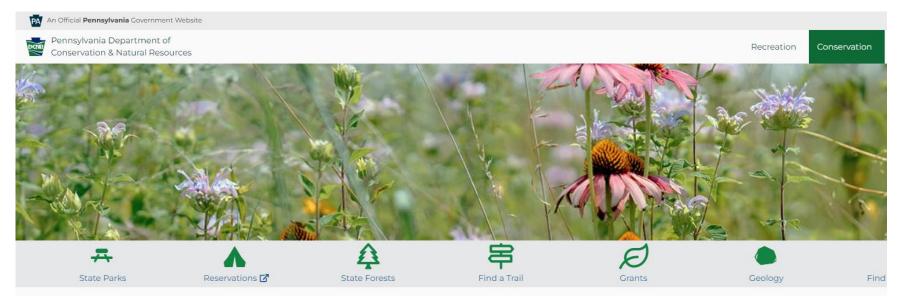
Figure 1.1 Water Balance at a Developed and Underdeveloped Site (Source: Schueler, 1987)



Surface runoff is minimal in an undeveloped site, but dominates the water balance at a highly impervious site.

# Opportunities for Homeowners: Lawn Reduction





DCNR > Conservation > Water > Lawn Conversion

### **Lawn Conversion**

In Pennsylvania, there are two million acres of lawn.

Maintaining a lawn takes work. Grass needs to be treated with fertilizer because the soil is not right (not to mention how those fertilizers run off into streams when it rains).

Turf wants water when the weather doesn't provide it. Mowing requires time and takes energy; and pollinators disappear because they no longer have food to eat.

## Share Your Backyard with Nature

One way to reduce your environmental footprint, help provide clean water, and welcome birds and beneficial insects is to let go of all that grass!

Converting some or all of your lawn to woods or meadow:

· Shows you are a good steward of the land

## Additional Information

Mowing Savings Calculator (XLSM)

Bring Biodiversity Back to Your
Lawn Blog Post

Introduction to Insects (PDF)

Penn State Extension Meadows and Prairies: Wildlife Friendly

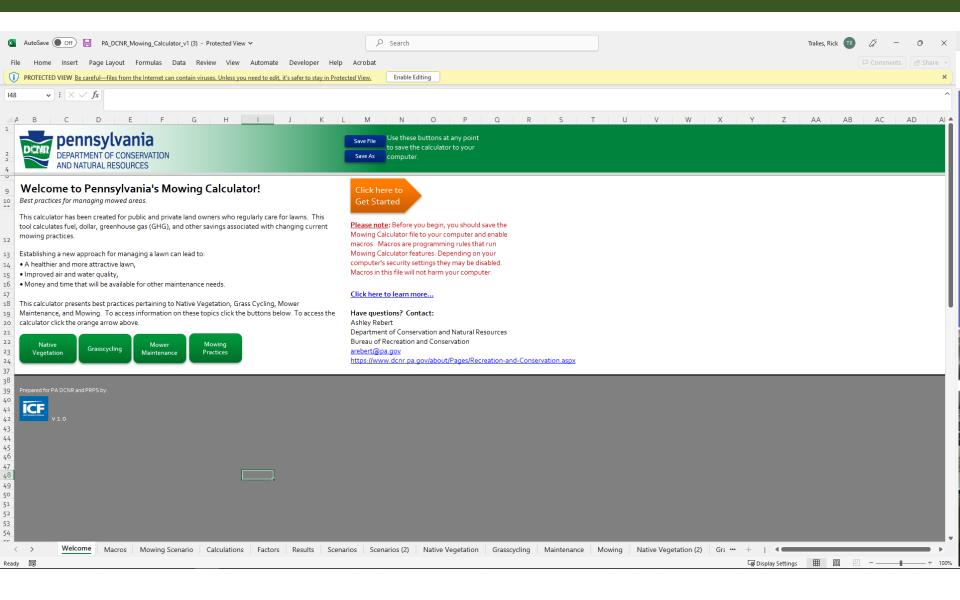
Alternatives for Lawn [2]

Penn State Wildland Weed

Management 12

DCNR Watershed Specialists
Regions Map (PDF)

Chav



#### Compare current and future practices Save File See the Save As **Summary Results** Mowed Area Mowing Hours Fuel Use Fuel Costs 40 GGE\* **Current Practices** 27 hours 2.0 acres 146 **Future Practices** GGE\* hours acres Savings GGE\* acres hours

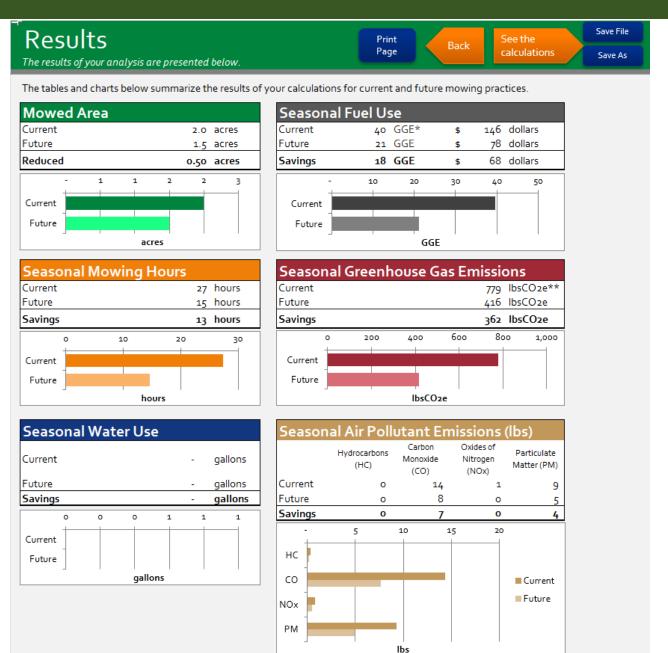
Current Mowing Practices			
You must enter the acres mowed in the yellow cell below. All other inputs are optional	I. Default data are	provided where possible.	
General Information			Click to restore
How large is the area that you mow?	2	acres	default data and settings.
How frequently do you mow the lawn? Once every	7	days	
How many weeks long is the mowing season?	26	weeks	
How many mowers do you have?	• One mower	C Several mowers	
Single Mower Information			
How large is the mower's deck?	46	inches	
What's the mower's horsepower (hp)?	20	hp	
What type of fuel does the mower use?	Gasoline		
What's the average fuel cost?  Don't know? Here's the average.	\$ 3.70 \$ 3.70	\$/gallon \$/gallon	
How fast do you go when you're mowing the lawn?	5	mph	
Irrigation Information (Optional)			
What percent of the lawn is irrigated routinely?  If none, leave blank.	į	% acres	
How often do you irrigate? <u>Learn more</u>		times per season	
How much water do you use? Don't know? Here's the average.	1	inch(es) per irrigation cycle inch per irrigation cycle	

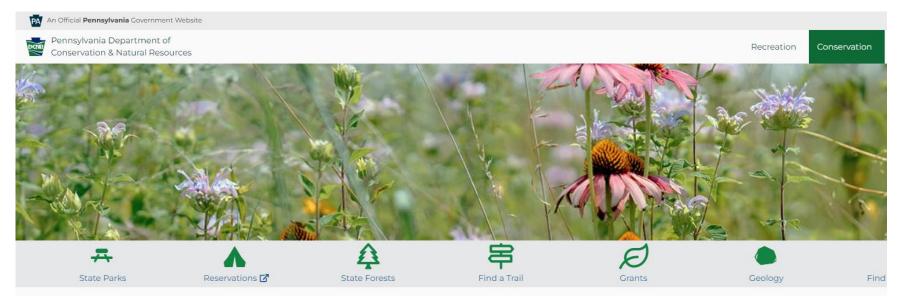
## Compare current and future practices



Summary Result	s			
	Mowed Area	Mowing Hours	Fuel Use	Fuel Costs
Current Practices	1.5 acres	14 hours	21 GGE*	\$ 77
Future Practices	- acres	- hours	- GGE*	\$ -
Savings	- acres	- hours	- GGE*	\$ -

Current Mowing Practices			
You must enter the acres mowed in the yellow cell below. All other inputs are option	al. Default data are	provided where possible.	
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What's the average fuel cost?	\$ 3.70	\$/gallon	
Don't know? Here's the averag  How fast do you go when you're mowing the lawn?		\$/gallon mph	
now last do you go when you re mowing the lawn:	5	Прп	
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DCNR > Conservation > Water > Lawn Conversion

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Alternatives for Lawn [7]

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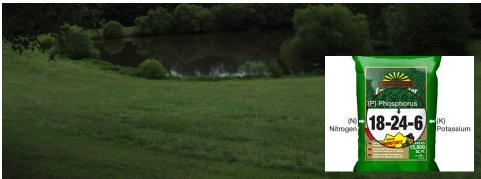
Management 13

DCNR Watershed Specialists
Regions Map (PDF)

Chav

# Opportunities: Complement Lawn Reduction













## Next Steps





## Keep gathering information:

- Ordinance Reviews
- Map Studies
- Site visits & meetings

## Begin public process:

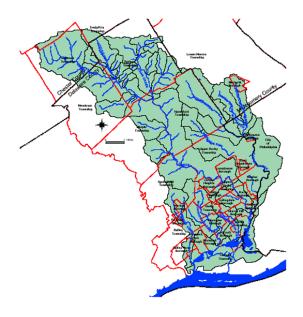
- Public meetings
- Key Person Interviews
- Focus Groups

## **End Products**

## Written Report

#### DARBY CREEK WATERSHED CONSERVATION PLAN

#### **EXECUTIVE SUMMARY**



DARBY CREEK VALLEY ASSOCIATION ©2005

## **Toolkit Pieces**





#### Preserve Goal

Advance the protection and stewardship of open space, farmland, and natural and cultural features to realize economic, ecological, and quality of life benefits.

Learn More



#### Protect Goa

Protect and restore critical natural resources to ensure a resilient environment that supports healthy

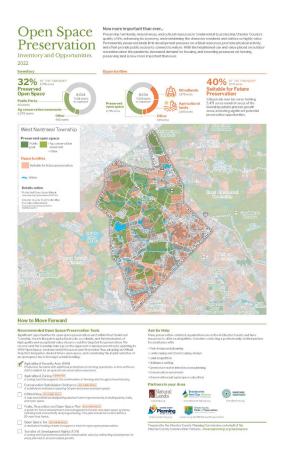
Learn More



#### Appreciate Goal

Preserve the historic resources and landscapes that define our cultural heritage to inspire the future through tangible connections to our shared past.

Learn More



## Your Homework-help inform the plan!!!



Rick Tralies, PLA rtralies@natlands.org

**QUESTIONS?** 

# thank you.







