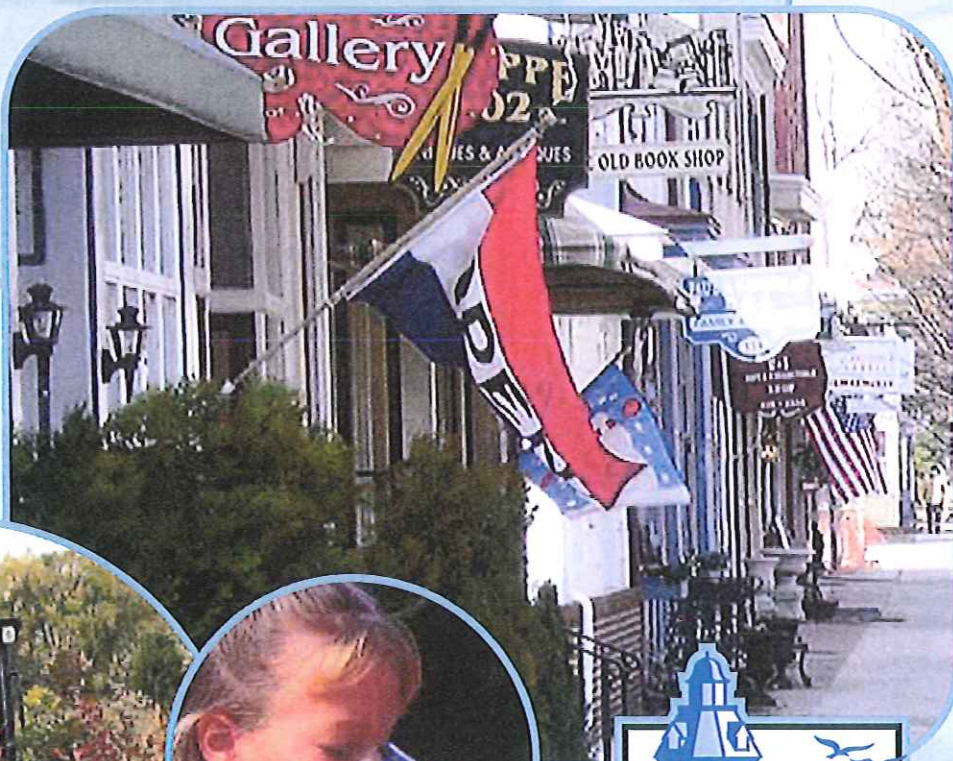


CLEAN WATER PARTNERS

Make it your business to reduce water pollution and flooding.



*Clean water is good
for business!*



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LEAN WATER PARTNERS

Make it your business to reduce water pollution and flooding.

All types of industry — from grocery stores, shops and restaurants on Main Street, to gas stations, auto repair garages, and manufacturers — can protect local waterways, reduce flooding, and enhance business image by becoming a Clean Water Partner.

Clean water is good for communities and good for business too. Creeks, rivers, bays and oceans provide us with drinking water, beautiful scenery, recreation and food. Healthy waterways attract people to live, work, and play on or near them and improve our quality of life. Polluted water and flooding, on the other hand, is harmful to communities and businesses alike.

Water pollution and flooding problems come from everywhere. Because so much of our landscape is covered with buildings and pavement, most rain and melting snow (stormwater) cannot be absorbed into the ground. Instead, water quickly runs off of these nonporous surfaces, and can flood our parking lots, streets, businesses and homes. Storm drains clogged with dirt and debris can cause localized flooding. Rushing to the nearest waterway through channels and storm drain networks, stormwater runoff carries trash, engine oils, dirt, bacteria, chemicals, etc., causing creeks and rivers to become polluted and occasionally overflow their banks.

As a business owner or manager, you play an important role in clean water protection and flood reduction. By managing onsite rainwater to slow the flow, and using simple and inexpensive maintenance to prevent pollution, you can minimize the amount of water that runs off of your property, and keep it clean.

**Millions of people
in our region get their
drinking water from
local creeks and rivers.**

*Even a small storefront can
prevent water pollution
by keeping sidewalks
swept and litter-free.*





SIMPLE BUSINESS PRACTICES TO REDUCE FLOODING AND KEEP LOCAL WATERS CLEAN

1 Green-up Your Property

Understanding the Land-Water connection is the first step to prevent flooding and protect local creeks and rivers.

Rainwater is a valuable natural resource that you can harvest, utilize, and help manage.

The health of water above and below the ground, including drinking water supplies, depends upon water being able to soak into the ground.

- Create areas for water to soak into the ground, such as small rain gardens or larger retaining basins with flow-slowing, raised earthen berms and water-loving plants. Old-fashioned, mown grass basins do very little to slow down the destructive flow of stormwater.
- When ground is exposed during construction or landscaping, use mulch, silt fencing, or erosion control fabric as temporary stormwater management measures to keep loose soil in place.
- Prevent erosion by planting loose-dirt areas with a covering of grasses, trees and shrubs. The natural root systems will hold soil in place and soak up water as the plants slow the flow and filter pollutants.
- Use rain barrels and cisterns to "harvest" rainwater for watering plants and other purposes – even flushing toilets with specialized plumbing systems.
- Downspout planters capture and use water from your downspout to keep flowers healthy and happy – perfect for small storefronts.
- Use water-absorbing paver blocks or porous concrete and asphalt alternatives where hard surfaces are needed.
- Install planted swales and tree trenches in your parking lot to absorb and filter rain runoff.
- Encourage and support street trees, curb gardens, and sidewalk planter efforts in your community.
- Visit www.delawareestuary.org/pdf/green_guide.pdf to learn more about green stormwater management options for your business property.

Sweep up dirt and debris to keep water clean — hosing down sidewalks sends pollutants down the storm drains.

2

Use Dry Methods for Cleanup Whenever Possible

- Sweep or vacuum to pick up dirt, sand and grit from sidewalks and place it in a trashcan. Avoid hosing down dirty paved areas — this carries pollutants into storm drains.
- Keep sidewalks and other outdoor areas litter-free.
- Use absorbent products to clean up chemical or oil spills, and then follow proper regulations to dispose of them.
- When water must be used for cleaning, dispose of wastewater properly in a drain connected to wastewater treatment (sanitary sewer) facility — never in a storm drain.
- In large areas, use a street sweeper or professional cleaning machine service to collect dirt and debris. Contractors are required to dispose of the resulting wastewater at approved facilities.



Clean Streets = Clean Streams

Everything we do on land has an impact on the health of local waters. It is easier (and less expensive) to stop pollution from washing off the land than it is to clean up polluted water.

3

Cover and Contain

- Provide lidded cigarette, trash and recycling receptacles in areas that are convenient for customers and employees.
- Cover all outdoor storage containers with leak-proof lids to stop water from flowing through the contents.
- Make sure that all storage containers are leak-proof, and replace corroded or broken containers.
- Materials and chemicals stored outdoors should remain covered when not in use.
- Elevate outdoor materials on platforms or pallets to prevent direct contact with rainwater or snow melt runoff.
- Certain activities (i.e. fueling, engine maintenance and waste or grease storage) should take place under cover (i.e. a roof, awning, or stand-alone canopy) so that spills are not mixed with rainwater.
- Use heavy-duty, well-anchored plastic tarps to cover materials that do not have permanent storage available.
- Put back-up protection in place to catch leaks from storage containers, i.e. drip pans, catch basins or curbing.
- Chemical and fueling activities should take place under cover, on hard surfaces that do not allow products to soak into the ground and can be easily cleaned with absorbent materials.



Put a lid on it!

Lids keep rainwater out while keeping trash or stored material dry, and prevents the contents from blowing away in the wind.

4 Keep Activity that Causes Pollution Out of Drainage Areas

- Waste, grease and product storage, as well as cleaning and other industrial processes, should be located away from rainwater or snowmelt flow paths.
- Outdoor projects such as painting, fertilizing, chemical mixing, etc. should take place in dry weather and should be rescheduled if rain or snow is in the forecast.
- If it is not possible to protect rainwater runoff from activities on your property, consider doing them elsewhere. For example, take vehicles to a commercial car wash that recycles water instead of washing them onsite and allowing dirt and detergents to enter storm drains. Consider renting off-site enclosed storage space if it is not possible to cover and secure outdoor materials or waste products.
- Direct the flow of rainwater runoff away from supplies, grease and waste storage by using raised earthen barrier berms, curbing, or other constructed devices. Move materials to drier locations if needed.
- Keep dumpsters and other containers away from roof gutter downspouts to prevent rusting of containers and leaking of their contents.

Following the laws of gravity, water flows downhill to collect in the lowest spot. This creates flow paths that can pick up loose soil (erosion) and any pollutants left on the ground.



Proper disposal of trash, and covered dumpsters are keys to healthy waterways.

5 Limit the Use of Toxic Products

- Seek non-toxic, eco-friendly alternatives to toxic chemicals for cleaning, pest control and degreasing.
- Purchase necessary chemicals in limited quantities so that storage for long periods is not needed.
- Recycle products whenever possible – visit www.Earth911.com to find out what and where you can recycle.
- Always dispose of toxic materials in a safe and approved way.



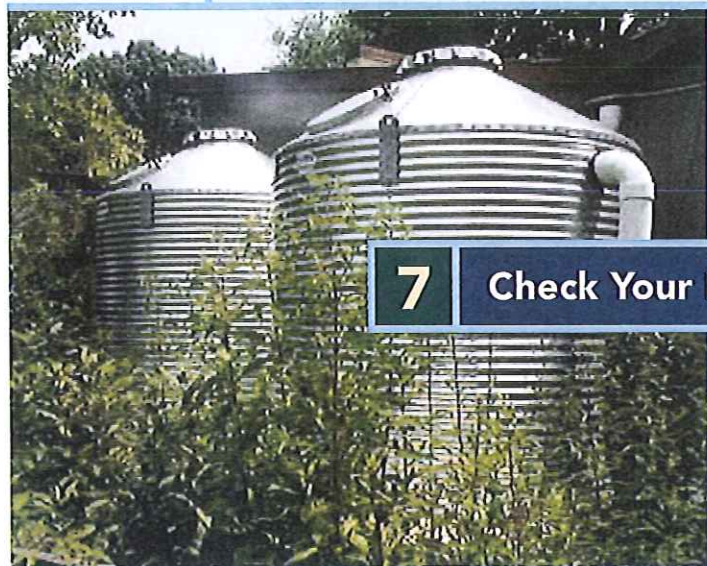
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Employee Education and Preparedness

- Let your employees and contractors know that water pollution prevention is everyone's responsibility, and train them on clean water maintenance practices.
- Label onsite stormwater drains as a reminder that any debris or pollutants allowed to enter will affect drain performance and the health of local waterways.
- Keep plenty of appropriate cleanup supplies in areas where spills or leaks are likely to occur. Train employees on spill control and how to properly use and dispose of cleaning materials.
- Check Material Safety Data Sheets (MSDS) regularly to understand special handling, cleanup and disposal of hazardous materials. Keep MSDS sheets on file in an area accessible to all employees.



Labels remind people that trash, oil and other pollutants should never be dumped in storm drains.



These large cisterns collect water that can be used to water gardens during dry spells.

7

Check Your Property for Opportunities to Improve

- Walk around your business property to look for signs of pollution, (i.e. oil sheens in puddles, grease stains, trash, eroding soil, etc.) and take action to correct these conditions.
- Replace corroded, cracked or broken storage and waste containers that allow contents to leak.
- After wet weather, check storm drains, downspouts, gutters, and any other onsite stormwater management structures to make sure they are free of clogging debris and working properly. Routine cleaning of stormwater structures should remove pollutants without flushing them into storm drains.
- If you see that water regularly pools in a certain location on your property, consider creating a rain garden there to help soak the water into the ground.
- Make sure that drains from interior operations (sinks, floors, heating and cooling, etc.) are connected to a sanitary treatment or other approved system, especially in older buildings. The Federal Clean Water Act prohibits these "illicit discharges" into waterways and storm drain systems.

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LEAN WATER IS EVERYBODY'S BUSINESS!

With a few simple steps, businesses can reduce these harmful pollutants in local waterways:

BUSINESS ACTIVITY EXAMPLES:	COMMON POLLUTANTS:					
	Bacteria	Heavy Metals	Excess Nutrients	Oil & Grease	Erosion & Debris	Toxic Chemicals
Engine Maintenance & Repair		✓		✓	✓	✓
Food Service & Production	✓		✓	✓	✓	✓
Gas Stations		✓		✓	✓	✓
Washing Vehicles, Equipment, etc.	✓			✓	✓	✓
Waste Handling	✓	✓	✓	✓	✓	✓
Landscaping		✓	✓		✓	✓
Parking Lots, Sidewalks, & Paved Areas	✓		✓	✓	✓	

Why should we keep these pollutants out of our waterways?

BACTERIA – Just as people get sick from exposure to certain bacteria, fish and wildlife can also be harmed when bacteria is present in waterways. Water treatment is effective for drinking water supplies, but costs are lower when the source of our drinking water is cleaner.

HEAVY METALS – When ingested through water, air, or food, heavy metals can cause cancer and brain damage, and impair growth and development in children. Heavy metals persist in the environment and can accumulate in humans and animals (especially fish) over time.

EXCESS NUTRIENTS – Decaying plants, manure, natural and chemical fertilizers, and some cleaning products cause an overabundance of nitrogen and/or phosphorous in local waterways. This excessive "nutrient" pollution feeds bacteria growth, decreases oxygen levels in waterways, causes algal blooms and causes massive fish kills.

OIL & GREASE – Often seen as a rainbow-colored sheen floating on top of polluted water, oil and grease act like a lid that traps heat and makes it difficult for fish and insects to breathe. Petroleum based oils are toxic to humans and animals alike.

EROSION & DEBRIS – Murky water is filled with eroded dirt, sand, and clay. These sediments trap heat and block light, making the polluted water too warm and cloudy for fish to feed, breathe, and survive. Dirt and debris-clogged stormdrain systems increase the cost of stormwater management and drinking water treatment.

TOXIC CHEMICALS – Exposure to toxic substances can cause brain damage, disease, birth defects and death. Toxins can persist in the environment for years and accumulate in both animals and humans over time.

CAUTION



RADIOACTIVE



BIOHAZARD



POISON

DANGER

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LOW THE FLOW TO REDUCE FLOODING!

Flooded streets, basements and parking lots are bad for business – protect your bottom line by doing your part to reduce flooding.

CHALLENGES:	SIMPLE SOLUTIONS:							
	Porous Pavement Options	Street & Parking Lot Tree Trenches	Naturalized Basins & Ponds	Rain Gardens	Bioswales	Sidewalk/Curb Planters	Downspout Planters	Rain Barrels Cisterns & Tanks
Reduce non-absorbent surfaces (i.e. concrete, asphalt) that create flooding runoff	✓	✓	✓	✓	✓	✓	✓	
Naturally soak up excessive rainwater with plants		✓	✓	✓	✓	✓	✓	
Find a place for water to absorb into the ground	✓	✓	✓	✓	✓	✓		
Filter pollutants out of rain and snowmelt runoff	✓	✓	✓	✓	✓	✓	✓	
Harvest and re-use rainwater (and reduce your water bill!)							✓	✓
Redirect water flow away from business activities	✓	✓		✓	✓			

For detailed information on these green stormwater management solutions, refer to the *Green Guide for Property Management*, available online at www.delawareestuary.org/pdf/green_guide.pdf



pennsylvania

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Tookany/Tacony-Frankford Watershed Partnership, Inc.
www.ttfwatershed.org



www.SchuylkillWaters.org

For more information, visit www.DelawareEstuary.org, or contact Info@DelawareEstuary.org



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The Partnership for the Delaware Estuary leads collaborative and creative efforts to protect and enhance the Delaware Estuary and its tributaries for current and future generations.