

Flooding 101 Brooklyn Community Board 9

April 2025

Our Changing Climate



NOAA (National Oceanic and Atmospheric Administration) has **reclassified NYC a "humid subtropical" climate.**

Sudden, powerful storms are bringing more **intense rainfall** to New York City.

- August 2021 (Henri): 1.94 inches in an hour
- September 2021 (Ida): 3.15 inches in an hour
- September 29, 2023: 2.5 inches in an hour

Effects of these storms can be made worse in coastal areas by **sea level rise** and **tidal cycles.**

Types of Flooding



Groundwater Flooding

- Some areas of the city have naturally high ground water.
- After a heavy rain or **back-to-back rainstorms**, the ground can become saturated.
- Water seeks its own level. It will find and travel through cracks in a basement foundation or floor drains.



Tidal Coastal Flooding

- Coastal flooding can send tidal water back up into the sewer system, resulting in overflows from manholes, catch basins, and basement connections.
- Tide gates keep ocean water out of the system during high tides or storm surge.



Sewer Back-Ups & Overflows

- 60% of New York City has combined sewers that carry wastewater from your home and stormwater from rains.
- During rainstorms, the sewer system can get overwhelmed when the amount of water produced by the storm is greater than the capacity of the pipes.
- This can result in back-ups from manholes, catch basins and basement sewer connections or overflows into local waterways.



The City has a toolkit to combat flooding

DEP is using a multi-layered approach that strategically uses grey infrastructure, green infrastructure, and other flooding solutions.

- ✓ Grey Infrastructure
- ✓ Green Infrastructure
- ✓ Blue Infrastructure
- Regulation
- ✓ Real-time Monitoring

Sewers

- **Sewers** work in every rainstorm and protect fully against 98% of rain events.
- The sewer network is generally built to handle 1.5 to 1.75 inches of rain per hour.
- During rainstorms, the system can get overwhelmed when the amount of water produced by the storm is greater than the capacity of the pipes.
- DEP's 10-year capital plan includes \$8.2 billion for sewer system upgrades. Over 100 sewer projects are in the pipeline for the next five years, totaling a \$3.6 billion investment.



Green Infrastructure: Natural Storage

- Green infrastructure (GI) absorbs water into the ground in areas with good soil. It also greens neighborhoods, reducing urban heat island effect.
- These projects reduce street flooding by catching stormwater before it enters the sewer system, freeing up drainage capacity and reducing sewer overflows into local waterways.



Typical GI Median

Porous Pavement

- Porous pavement is a special roadway paving designed to absorb and drain rainwater.
- "The Concrete Jungle" is limited in areas that naturally soak up rainwater because most paving materials are impermeable or nonporous.
- DEP uses this tool in primarily residential areas. Over three miles of porous pavement installed as of 2023. We are adding 10 more miles in the Bronx and another 35 miles in Brooklyn.



Porous Pavement in Action

FloodNet Sensors

- Sensors detect and monitor street flooding in real-time and relay life-saving information to City agencies.
- Installed in neighborhoods that are vulnerable to high tides, storm surge, and stormwater runoff.
- NYC first flood-monitoring network is set to expand — DEP is installing 500 across all five boroughs.
- www.floodnet.nyc



Unified Stormwater Rule

- In 2022, DEP increased the amount of stormwater new and redeveloped properties must manage on-site.
- Rezonings and/or development present a huge opportunity to manage stormwater on-site and reduce demand on the city's drainage system.
- The rule prioritizes the use of green infrastructure, which has the added benefits of reducing heat island effect and supporting wildlife habitat.



Green Roofs Absorb Stormwater

What you can do to protect your home from flooding



Converted Basements



- Sewer Back-ups Bathroom fixtures shouldn't be located lower than the sewer connection. This can result in raw sewage backing up into basement apartments through drains.
- Stormwater Flooding Basements located at the bottom of a driveway or below sidewalk level are prone to stormwater flooding and groundwater flooding.
- **Safety** Exit routes are critical in the event of a flood. Bars on windows trap people in flooding basement apartments.

Reroute Downspouts

- Disconnecting downspouts from the sewer keeps rainwater out of the system and reduces the likelihood of back-ups.
- Direct downspouts away from your building.



Install a Rain Barrel

- Connecting your home's gutters to a rain barrel will keep water out of the sewer and reduce the demand on the system.
- You can reuse the collected rainwater to water plants.



Use Flood Sensors & Elevate Belongings

- Place belongings and valuables on a shelf above where water may flow into your basement.
- Use flood sensors to alert you when water is entering your basement.
- **Pro tip:** Place the sensor on the floor, near the sewer drain, or under the windows if you have outdoor window wells.



Use Flood Barriers

- Flood barriers can be filled with water or sand and reused in storms.
- Place flood barriers near doors, garages, and/or basement windows that may allow stormwater to enter your home.



Use Sump Pumps

- Use a sump pump to remove flood water.
- A sump pump is a device that detects rising water, say in a basement pit or drain, and pushes it outdoors.
- **Pro tip:** Be sure to use pipes or hoses that extend 10-15 feet beyond your building.





Wait to Use Water

- Wait to flush the toilet, take a shower or use appliances that use water (washing machine, dishwasher) during heavy rain.
- The extra water discharge puts unnecessary strain on an already taxed sewer system.



Trash It. Don't Flush It.

- Many sewer back-ups are caused by grease or debris in the sewers.
- DEP spends roughly \$18M a year to degrease sewers, deal with damage from back-ups, and repair equipment trashed by wet wipes. New Yorkers foot that bill.



Plan for Intense Storms



Pay attention high tides.

Tide Alert (NOAA) app

Monitor forecast for rainfall amounts greater than 1.5 inches per hour.



Plan for Intense Storms

- The National Flood Insurance Program (NFIP) is a federal program run by the Federal Emergency Management Agency (FEMA).
- Flood insurance through the NFIP is available for homeowners, renters, and businesses.
- Flood insurance may be required for some homes and businesses in the floodplain, but all New Yorkers are eligible for NFIP – no matter what neighborhood you live in.



Homeowner Insurance

- Most homeowner's insurance policies do not include coverage for a sewer back-up.
- You can add an optional rider to your insurance policy to cover any damages to your home from a sewer back-up.



Water Conservation

- With our changing climate, New York is seeing more extreme weather – both intense rainfall and periods of drought.
- Whether in or out of a drought, New Yorkers can save hundreds of gallons of water with simple changes in routine.
- Go to nyc.gov/savewater for water saving tips.
- Sign up for the **My DEP Account** online portal. You can pay bills online, track your water usage and sign up for automatic leak alerts.



Sign Up for Notify NYC

Notify NYC is the City's official source for information about emergencies.

Scan the QR Code to sign up today!







DEP is Here to Help

Call 311. All complaints go directly to DEP response teams on duty in your neighborhood.

Contact DEP Community Affairs with your 311 complaint number for follow-up.

DEP Community Affairs: BrooklynDEP@DEP.nyc.gov

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