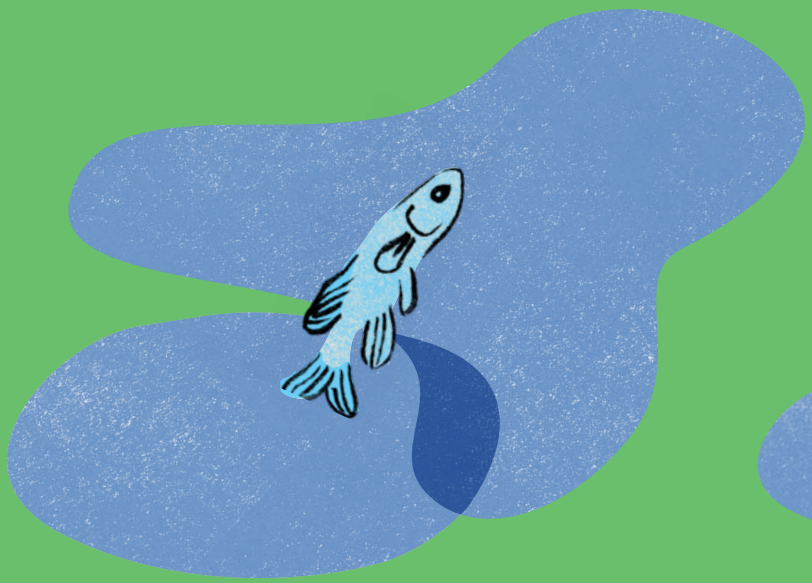
Freshkills Park

What is Freshkills?

At 2,200 acres, Freshkills Park is the largest landfill-to-park project in the world. New York City's residential waste was brought here from 1948-2001. Now, the City of New York is working to create a great new park for nature, art, recreation, and education through engineering, design, science and technology.



In the past it was trash.

New York City first processed waste at Fresh Kills between 1914 and 1918 at a plant that converted trash into useful fuels. The City also dumped trash into the ocean until a Supreme Court ruling in 1934 put a stop to that method. In 1938, Parks Commissioner Robert Moses proposed a landfill at Fresh Kills. The site's wetlands were considered a nuisance and Moses planned to fill them in with trash for three years and then use the area for parks, private residential development, and industry. The first scow* of garbage arrived at Fresh Kills in 1948 and by the mid 1990s Fresh Kills Landfill was the largest landfill in the world and the main collector of household garbage in NYC.

*SCOW: a flat-bottomed boat used to transport large loads

Closing the landfill
Community voices were finally heard in 1996 when a law was passed that required the landfill to stop accepting waste by December 31, 2001. By 1997, The City of New York Department of Sanitation (DSNY) had capped two of the landfill's four mounds, covering the garbage with layers of soil, impermeable materials, and thousands of linear feet of underground pipes and infrastructure, topped with clean soil and seeded with grasses. Fresh Kills Landfill received its last barge of garbage on March 22, 2001.

After the landfill officially closed,
the City started to consider the site for a park. The former landfill presented new potential for open space in NYC. An international design competition was held in 2001 and designers created innovative ways for planning the site's transformation. In 2003, James Corner Field Operations was chosen to draft the master plan and refined that plan through years of community meetings and development.

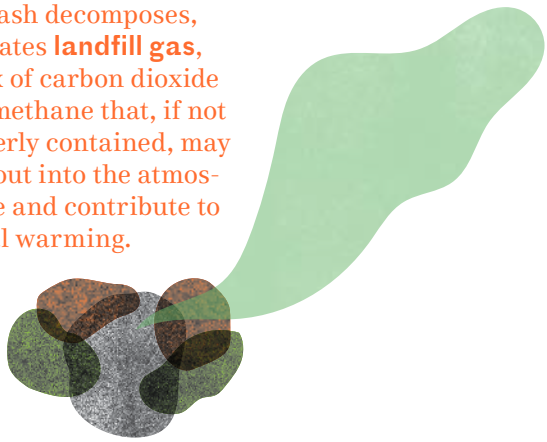
The Fresh Kills site in its natural state, before landfilling began, was primarily tidal creeks and coastal marsh.

At its peak, the landfill collected 29,000 tons of garbage per day. That's like 6,000 elephants marching in daily!

What's a Landfill?

The oldest, cheapest, and currently most common method of waste disposal is to bury it in a landfill. Landfills are, at their simplest, a hole in the ground that trash is dumped into. They're convenient ways of putting our garbage out of sight and out of mind, but they carry some complications of their own.

As trash decomposes, it creates **landfill gas**, a mix of carbon dioxide and methane that, if not properly contained, may leak out into the atmosphere and contribute to global warming.



Any water that seeps into a landfill absorbs various chemicals and comes out as a liquid known as **leachate**. If it's not contained, leachate can leak into rivers or groundwater, contaminating them with potentially harmful substances.

Where does New York City's trash go now?

New York City's waste is now exported to other states. Staten Island's waste is sent to DSNY's Staten Island Transfer Station where it is compacted, sealed into shipping containers and railed by a private contractor to a landfill in South Carolina. Garbage from households in the Bronx goes to a landfill in Virginia, and waste from Brooklyn is railed to a landfill in upstate New York. Much of Manhattan's waste is trucked to a waste-to-energy plant in New Jersey.

It costs NYC over $300 million a year in tax dollars to send its trash somewhere else! Once DSNY comes and picks it up, the trash doesn't just disappear – it still needs to be disposed of somehow.

The average American creates over 4lbs. of waste each day. Collectively, all households in NYC produce over 12,000 tons of garbage every day and only recycle 17% of the waste stream. We could recycle twice that amount!

Grasslands

What are grasslands?

Grasslands are areas of land dominated by grasses rather than large shrubs or trees. Grasslands in the eastern United States were cultivated by Native Americans for thousands of years. When Europeans arrived, these rich soils were the first lands farmed by colonists. Now eastern grasslands are one of the rarest ecosystems, especially in the New York area.

At Freshkills Park there will be over 750 acres of grasslands, much of which already exist today.

Why are they important?

Grasslands control erosion

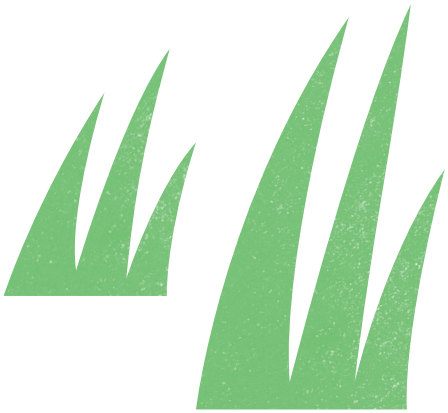
Grasslands help with erosion control because the root systems hold soil and slow runoff. At Freshkills Park, grasslands are an important part of the landfill engineering because the grasses keep everything that is underground in place (like shoelaces keep your shoes from falling off).

Grasslands improve soil health

Native grasses increase grasslands' sustainability. They need less chemical (insecticide and herbicide) applications than non-native grasses. Since the root systems completely regenerate after three to four years, native grasses increase soil fertility, organic matter and carbon sequestration, which can slow the accumulation of greenhouse gases. Native grasses also have deep root systems, which are more drought and fire resistant than many non-native species.

Grasslands improve wildlife diversity

The ecosystem supports a great concentration of rare or uncommon species in the Northeast. In addition, birds nest in the grasses, Barn Owls and Northern Harriers forage in this environment, and many migrating birds rest and feed in grasslands during their seasonal migrations. The grasslands at Freshkills Park will provide an important coastal wildlife refuge specifically needed in the New York Metropolitan area.



1948 The first scow of garbage arrived at Fresh Kills

1986 Fresh Kills Landfill is the main repository of household garbage in NYC

1996 Law was passed that required the Fresh Kills Landfill to stop accepting waste by December 31, 2001

Now it's becoming a park!

Freshkills Park is possibly the most ambitious project undertaken in modern day New York City. NYC Parks and DSNY are working together to recycle what was the world's largest landfill into a place for nature, art, recreation, and education.

Current stage:
Today, the capping of the final mound (West Mound) is in progress. By-products of the landfill are collected, cleaned, and reused. Construction of the park in stages has begun.

Owl Hollow Soccer Fields
Schmul Playground
Visitor's Center

New Springville Greenway
Walking Pathways
Kayak Program Launch

Event Entrance
Entrance
Future Entrance

1997 Two of the four mounds were closed and covered

2001 Fresh Kills Landfill received its final barge of garbage

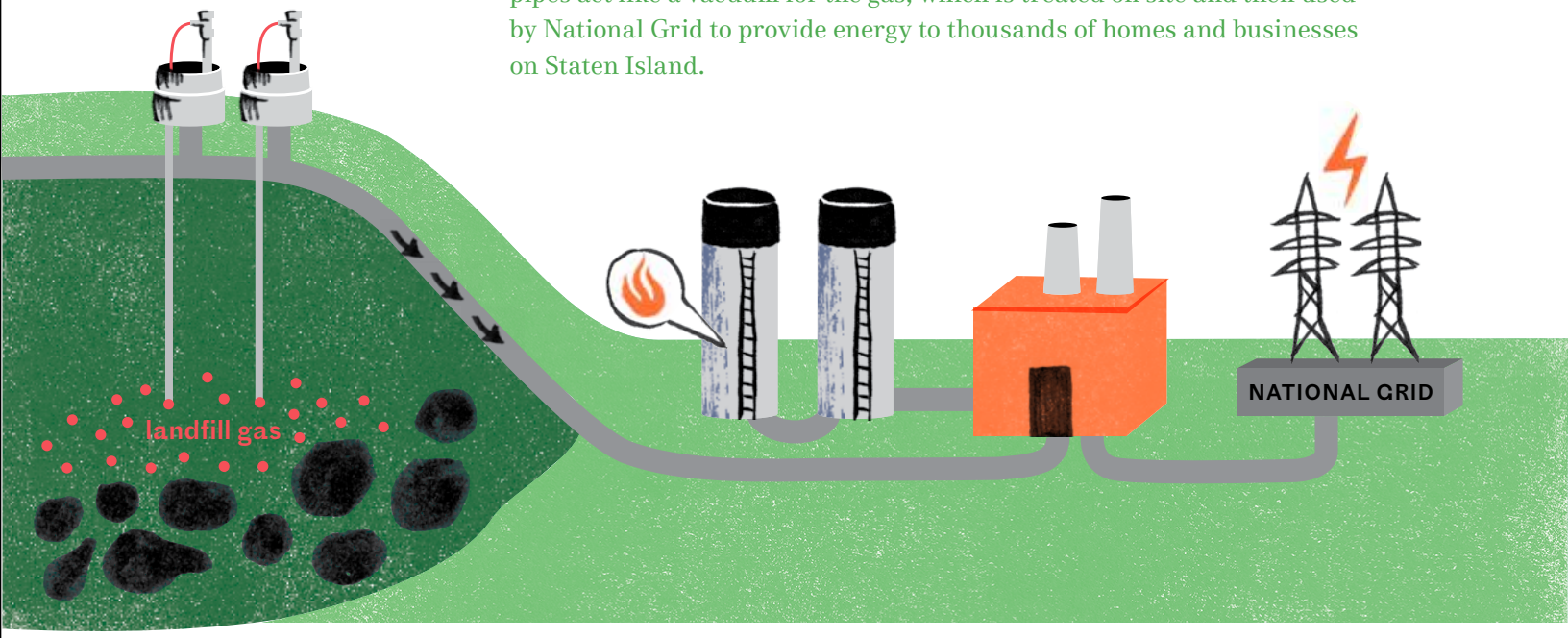
City of New York launches International Design Competition

2003 James Corner Field Operations, winner of competition, begins planning process

This place is a big example of recycling. 53 years of New York City's trash created a footprint that makes up 6% of Staten Island's landmass, and the tallest of the five peaks rises to 200 feet. **Now engineers are turning our trash into energy!**

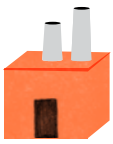
What's happening under there?

Decomposing waste produces an invisible **landfill gas (LFG)**, which is comprised of methane and carbon dioxide. A huge network of underground pipes act like a vacuum for the gas, which is treated on site and then used by National Grid to provide energy to thousands of homes and businesses on Staten Island.



Landfill gas wellheads
These wellheads are monitoring stations for engineers on site and contain and carry the gas through a vacuum.

Flare station
If the underground pipes or the recovery plant need a repair, gas is sent to the flare station, where the gas is burned off in a safe and controlled method.



Landfill recovery plant
Once collected, the gas is cleaned at an on-site Landfill Gas Purification Plant. Gas emissions, non-methane organic compounds (NMOCs), and other hazardous pollutants are removed, and landfill gas and its odor are prevented from entering the atmosphere.

Energy
The processed LFG is almost pure methane and is then used by National Grid to supply homes and businesses on Staten Island with energy for cooking and heating.

2010 First major public event **2011** First public kayaking program **2012** Goatscaping at the pilot wetland restoration Schmul Park reopens after rehabilitation project

Wetlands

What are wetlands?

Wetlands are areas of land saturated by water, either permanently or seasonally, such that they take on characteristics of a distinct ecosystem.

In 2012, the Freshkills Park Development Team restored 2.1 acres of wetlands. Goats ate away at the invasive reed Phragmites, then the landscape was re-graded and native species were planted, ultimately making the wetlands and the ecosystem more resilient.

The City of New York is developing an innovative stormwater management system by creating pocket wetlands (canals with dense vegetation covering the sides and bottom) and bioretention areas: where soil and plants are used to remove pollutants from storm runoff.

Why are they important?

Wetlands improve water quality

Wetlands trap particles carried by water. Vegetation reduces the speed of water, causing heavy metals, organic particles (that could otherwise cause algae blooms), and excessive sediment (that could pose a threat to fish eggs) to sink to the bottom. Bacteria in the root zone breaks down compounds such as nitrogen and phosphorous.

Wetlands control flooding and prevent erosion

Wetlands reduce shoreline erosion (the wearing away of land by elements such as water). They absorb wave energy and also allow for the storage of large volumes of water. This is especially important during large storms to reduce flooding and storm damage.

Wetlands improve species diversity

Freshkills Park's tidal wetlands are characterized by their brackish (slightly salty) waters that foster the growth of specialized plants and animals not found in freshwater or saltwater habitats. They also serve as important habitats for migratory birds, as well as incubators and nurseries for insects and fish.

Wetlands have economic benefits

Wetlands can offer substantial economic, as well as ecological benefits. They can save a community from having to build water treatment or flood control systems. Also, by serving as an important fish habitat, they help keep the commercial fishing economy alive.

2013 The new Owl Hollow Fields open

Main Creek Wetland Restoration Complete

2015 New Springville Greenway Complete

CUNY Macaulay Honors College students take a biodiversity survey of North Mound at BioBlitz!

FRESHKILLS PARK

The **PAINTED TURTLE** lives in the freshwater ponds, which are part of the stormwater runoff collection system.

The **GREAT EGRET** stands up to 1 meter (3 feet) tall and has a yellow bill and black legs and feet.

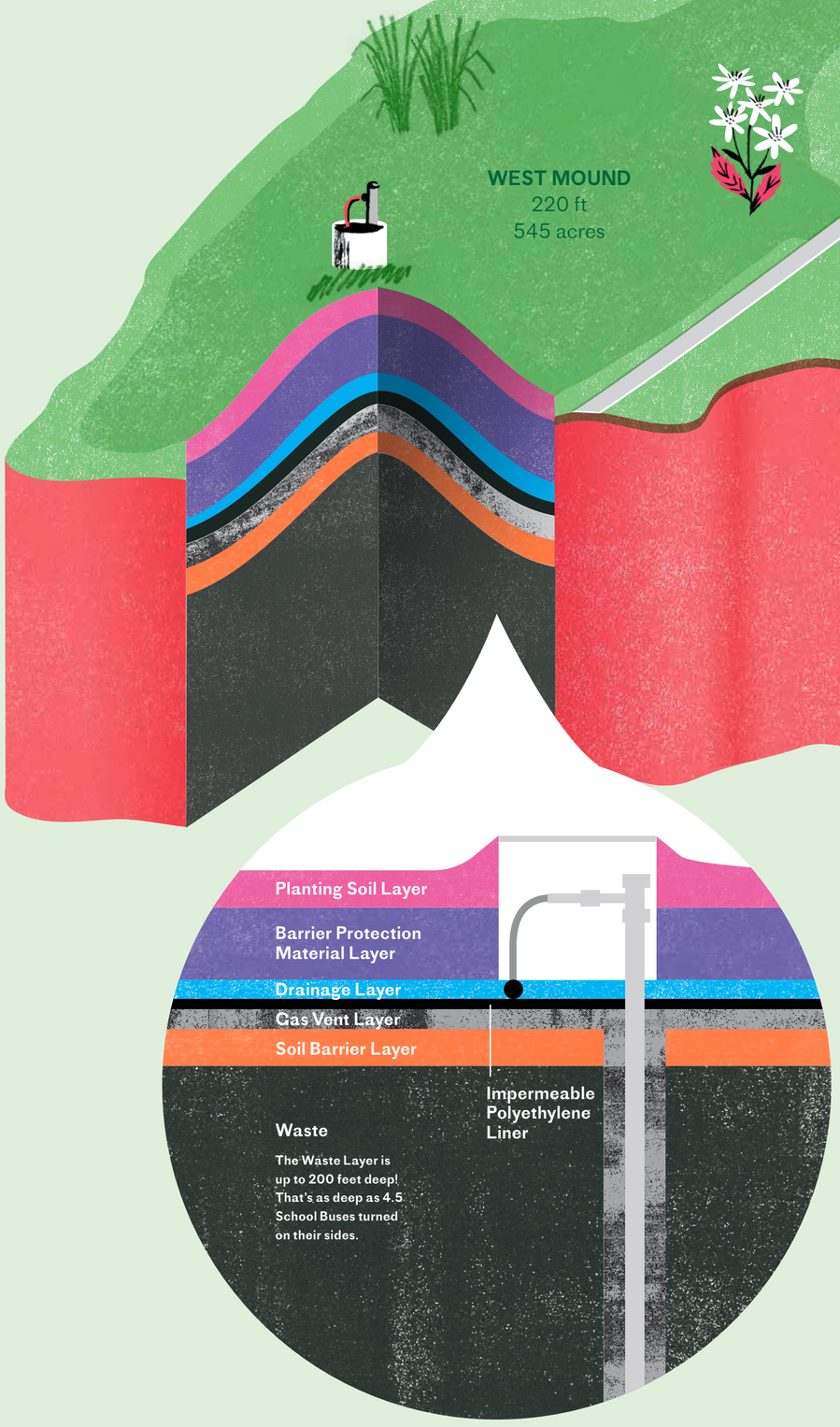
The **OSPREY** is a large raptor that swoops into the creeks to catch fish between its talons.

NORTH MOUND
150 ft
233 acres

EAST MOUND
130 ft
482 acres

WEST MOUND
220 ft
545 acres

SOUTH MOUND
140 ft
425 acres



Landfill Layers

The Planting Soil Layer is where native grasses and plants grow. These plants prevent erosion and serve as a habitat for wildlife.

The Barrier Protection Material Layer protects the landfill cap and adds a thick layer of clean soil that is safe for park visitor use.

The Drainage Layer drains water that seeps through the barrier protection layer off the mounds.

The Impermeable Polyethylene Liner prevents water from entering the landfill and forming leachate. The plastic liner also prevents landfill gas and its odors from escaping.

The Gas Vent Layer allows the landfill gas to get captured by underground wells. The gas is sent to a plant where it's made into gas that people use to heat and power their homes and businesses!

The Soil Barrier Layer covers the garbage and ensures the hills are stable.

The Waste Layer mounds are composed of 50 years worth of NYC's residential waste.

Wildlife

Common Yellowthroat

This New World warbler is a small songbird, common across North America, which gets its name from its looks.

Killdeer

The medium-sized plover often uses a tricky "broken wing act" to distract predators from the nest. During nesting season, killdeer use open dry uplands and meadows.

Barn Swalllow

The most widespread species of swallow in the world is the barn swallow. It is a distinctive passerine bird with blue underparts, deeply forked tail and curved, pointed wings. The barn swallow normally uses man-made structures to breed and consequently has spread with human expansion.

Painted Turtle

The painted turtle is native to North America and lives in the freshwater retention basins at Freshkills Park, which are part of the stormwater runoff collection system. These turtles reach up to 10 inches long and can live for over 50 years in the wild.

Osprey

The osprey is a large raptor, reaching more than 2 ft. in length and almost 6 ft. in wingspan. Its diet consists almost exclusively of fish, which it catches in the creeks of the park.

Great Egret

Also known as the common egret, large egret, or the great white heron, this bird can be as tall as 1 meter (3 feet). It is distinguished from other egrets by its yellow bill and black legs and feet. Males and females are identical in appearance.

Grasshopper Sparrow

A new addition to the park! This bird had seen a 97% decline in NY State since 1985. They build their nests as well-concealed open cups on the ground under vegetation. The bird is named for its buzzy song, which resembles the sound made by a grasshopper.

Ribbed Mussel

Ribbed mussels live along the shorelines of Freshkills Park. They attach themselves to the base of intertidal plant species. As bivalve mollusks, they eat by filtering food from water. Through this filtration they also provide an ecosystem service by cleaning the waterways in which they live.

Native Plants

White Wood Astor

This shade-loving plant produces many small daisy-like flowers. Blooms: September to October. Grows: 1 to 3 ft tall.

Beach Plum

Look closer! This native has plums that are hard to see, but ripen to a dull purple color in early September. It's easier to identify when its creamy-white flowers are blooming in May. Sometimes grows wild, and not always near the ocean. Grows: 4 to 7 ft. tall on sand dunes, 16 to 18 ft. inland.

Redosier Dogwood

Commonly found to grow in areas of damp soil, such as wetlands for erosion protection and waterway restoration, the deciduous shrub blooms small dull white flowers. Its branches and twigs are dark red and leaves are dark green until they turn bright red or purple in fall. Grows: 7 to 9 ft. tall

Blackjack Oak Tree

A small oak in the red oak group, it is a deciduous tree with bark cracked into rectangular black plates with narrow orange fissures, and is a native tree on Staten Island. Leaves are long and broad with a three-lobed bell shape. Grows in sandy soils where few other woody plants can thrive. Grows: up to 50 ft. tall.

Partridge Pea

With slender stems and many small yellow-green leaflets, the wildflower provides bright summer color and attracts bees and butterflies. The seed pods are eaten by gamebirds and songbirds, and the leaves collapse when touched. Grows: 1 to 3 ft tall.

Switch Grass

This versatile and adaptable plant can thrive in the wetlands at Freshkills Park, and its deep root system helps keep the shore line stable. Grows: 2 to 5 ft. tall

Black Eyed Susan

Like its sunflower relative, this wildflower is known for its bright yellow petals and dark center, and traditionally symbolizes "justice." Blooms: June to October. Grows: 1 to 3 ft tall.

Sea Lavender

Large clusters of intense purple on the outside and white on the inside, this coastal plant blooms year-round, but heaviest in the summer. Despite its common name, it has no relation to the lavenders but instead the plumbago or leadwort family of wild plants. Sea lavender was planted in the wetland restoration at Freshkills Park. Grows: 2 to 3 ft. tall.

What can you do?

Set an example of recycling

Landfills are currently the main method of waste disposal, and they have a big impact on urban ecosystems and communities. We can learn from the story of Freshkills and reduce landfills in other parts of the country and the world by decreasing our trash for a more sustainable future.

- → **Bring reusable bags to grocery stores**
- → **Buy only the food you need**
- → **Compost food scraps and yard waste**
- → **Buy items with less packaging**
- → **Look for products made with recycled materials**
- → **Drop off textiles at a reFashion NYC stand at participating greenmarkets**
- → **Donate your functional electronics to be reused, fix what's broken, or drop off E-waste at a local recycling event**

Make a project at the Park

While Freshkills Park changes over time, artists and scientists are using the site for research, experimentation, and demonstration. NYC Parks Staff invite proposals and inquiries for new investigative work that supports park development and advances these fields.

Visit

Freshkills Park is opening in phases from the outside in, and sections of the park are already open! Visit the Schmul Park playground in Travis, Owl Hollow Fields in Arden Heights, and the New Springville Greenway along Richmond Avenue. Free programs and events offer opportunities to explore and learn about closed sections of the landfill-to-park project.

The Freshkills Park Development Office
100 Gold Street, Suite 3100
New York, NY 10038
freshkillspark.org

Volunteer

Volunteers provide important support during special events and cleanups at Freshkills Park. With the help of volunteers, more people can enjoy and experience the beauty of the park and understand its transformation.
volunteer@freshkillspark.org

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