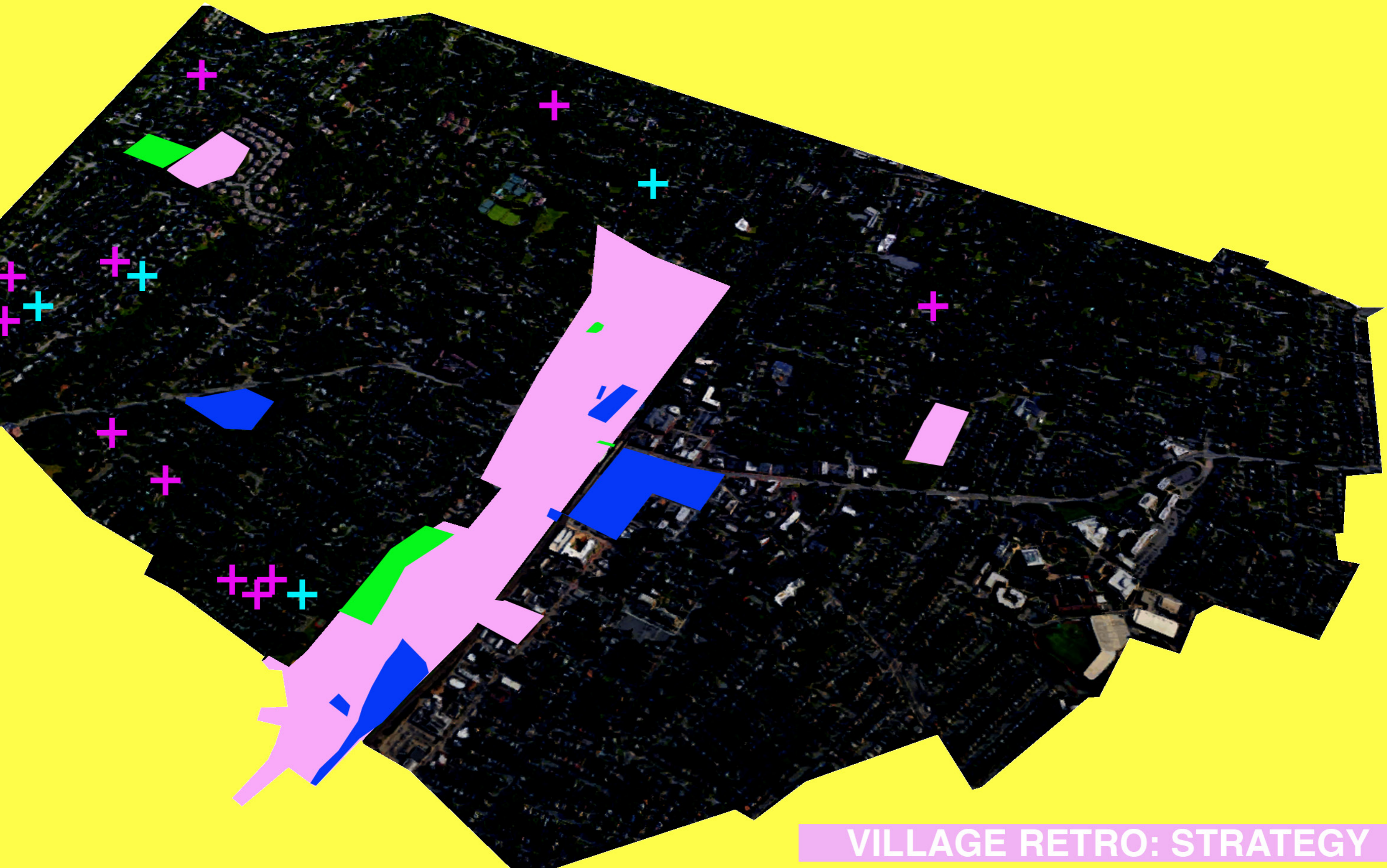


**VILLAGE RETRO: STRATEGY  
FOR SUSTAINABILITY/ECOLOGY/STORMWATER**

## VILLAGE RETRO: STRATEGY FOR SUSTAINABILITY/ECOLOGY/STORMWATER

This document is for the Call for 2018 Gala Award Nominations. It highlights several projects that have been completed by **chambersdesign** in partnership with Township of South Orange Village, the South Orange Environmental Commission, South Orange Green Team and other team members.

Though the projects are presented as individual accomplishments, they are all part of an overarching strategy to improve South Orange and showcase sustainability. All of the members of the projects have built a strong working relationship and feel that the strategy used can help other towns and suburbs do big things one little step at a time.



VILLAGE RETRO: STRATEGY  
FOR SUSTAINABILITY/ECOLOGY/STORMWATER

Village Retro: Strategy for Sustainability/Ecology/Stormwater is a town-wide approach to invest, innovate and create sustainable places in South Orange, NJ. The approach is built on the primary partnership of chambersdesign, Township of South Orange Village, South Orange Environmental Commission and South Orange Green Team. These are not the only team members, but they are all present in the majority of the projects showcased. There is an assortment of other team members such as the South Orange/Maplewood School District, Tito's Burrito and Wings, South Orange Downtown Village Alliance and many others. Moreover, the list of individual residents that have committed time and funding cannot be exaggerated. From our perspective, Village Retro wants to bring people together to create a community around and for sustainability.

Green design has established itself as the premiere method of architecture. The LEED rating system has evolved to include different building types in different contexts. However, sometimes, certification needs a beginning, middle and end. For Village Retro, it is less structured due to its scale and current financial ability. That's not to say that the strategy couldn't easily fit into a LEED rating system, it could. LEED for Neighborhood Development is its most likely ally as well as the Sustainable SITES Initiative. The U.S. Green Building Council (USGBC) has been a long-time supporter of the Sustainable SITES Initiative and has incorporated certain SITES credit content into iterations of the LEED green building rating system. When filling out the checklist for both LEED-ND and SITES, the Village Retro approach would easily achieve a platinum rating.

Big issues need to be addressed such as stormwater in places like South Orange. Nearly every town, city and village in New Jersey that is on or near the water's edge have experienced some form of flooding or storm surge due to rising water levels and changes to rainfall. If you focus on cost for major infrastructural changes, individuals find that it's impossible to do anything. Add to that, the process to get approval for such infrastructure in floodplains and along rivers makes the challenge only more unfeasible. These issues can be completely disempowering at first, but Village Retro sees that these big issues can be addressed with little projects.

All of the projects highlighted in the following pages have been completed for less than \$10,000.00 USD. Yet, they hold tight to the principles of green building such as using only sustainable materials, using ecologically rich species, creating habitat restoration, fostering placemaking and upholding the highest standards for design quality. But these things are one piece of the pie. It is the people that make them and care for them...support them and encourage them that is the most important. Important places need to be treated with importance. For South Orange, every corner of the village is important. It has an incredible citizenry, beautiful spaces and willingness to act in the face of tremendous odds. And though the odds are against Village Retro's success, this nomination shows that we are succeeding.

## TABLE OF CONTENT

<b>Front Cover</b>	
<b>Title Page</b>	- p. i
<b>Aerial Map of South Orange</b>	- p. ii
<b>Introduction &amp; Table of Content</b>	- p. iii
<b>Open Space Inventory (OSI)</b>	- p. 01
<b>South orange Parklet</b>	- p. 03
<b>Rain Park</b>	- p. 06
<b>Greening Schools: South Mountain annex Master Plan</b>	- p. 10
<b>Eastern Forest Museum</b>	- p. 15

PINK INDICATES AREAS INCLUDED IN OSI

AREA DESCRIBED IN MORE  
DETAIL ON FOLLOWING PAGE

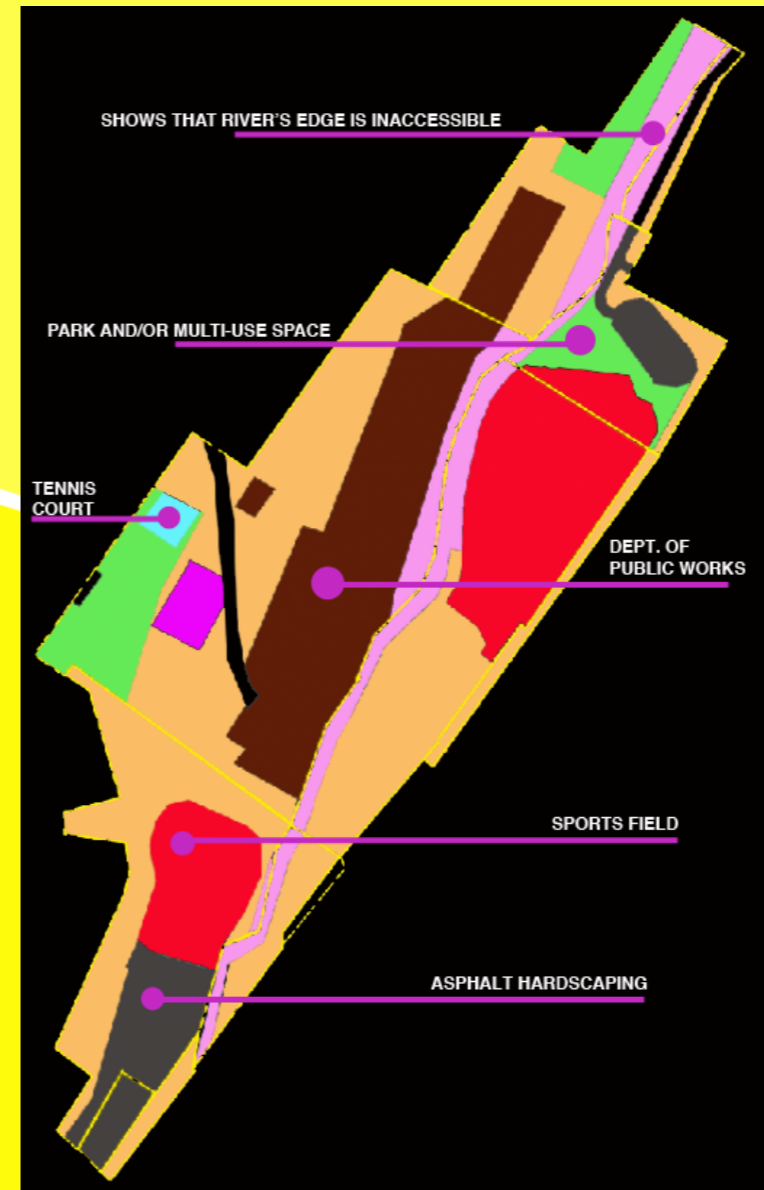
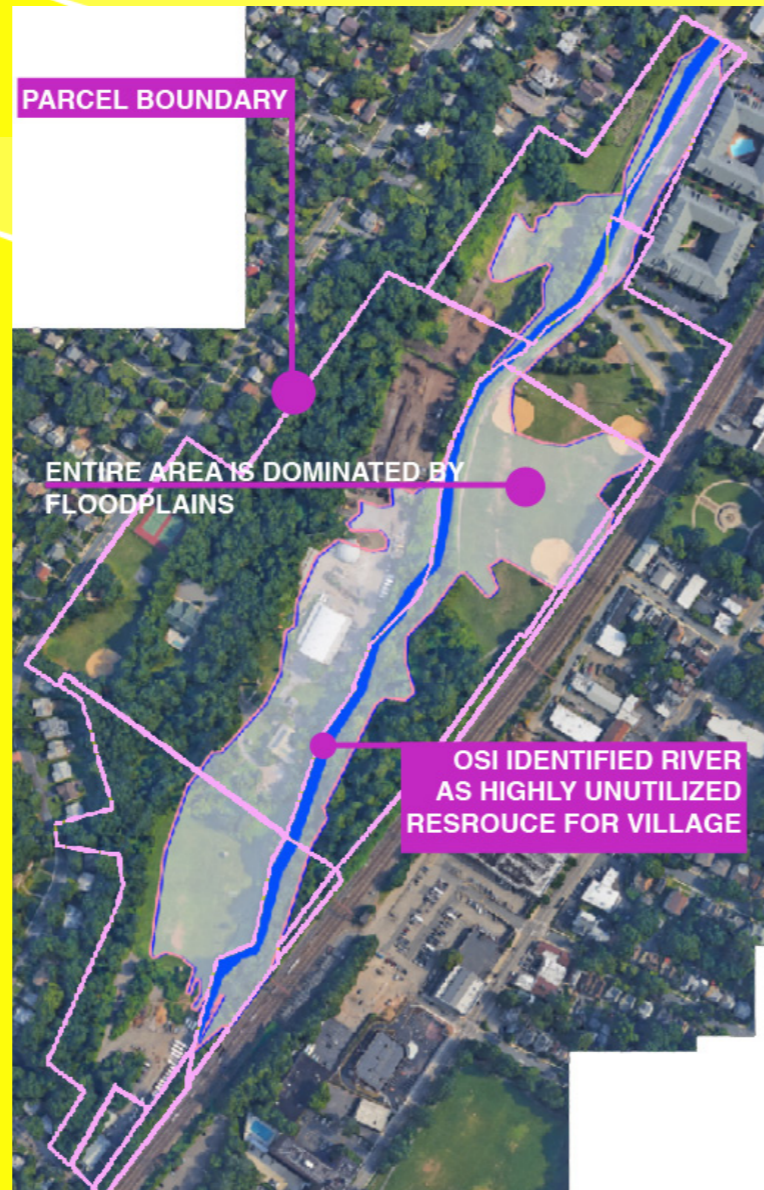
# OPEN SPACE INVENTORY (OSI)

VILLAGE RETRO: STRATEGY FOR SUSTAINABILITY/ECOLOGY/STORMWATER

The Open Space Inventory (OSI) is a critical element for the South Orange Environmental Commission to understand what lands is available for sustainable and ecological improvements and/or projects. The village currently own over 40 properties throughout the township as well as in neighboring towns. These areas vary in size, location and current usage. Some of the parcels include buildings and parking lots while others house essential services for the town like the Department of Public Works and community centers. Nearly all of the sites are not completely occupied by a single element such as a building or service, and thereby all of the spaces lend themselves to sustainable projects. This is especially true for the landscape-dominated areas of South Orange such as its parks, sports fields and urbanized open spaces. The OSI is currently being updated into a more visually accessible document that is being led by chambersdesign. The revised OSI is already creating new avenues for fresh thinking about community engagement, carbon sequestration and sustainability. For example, in the southwestern corner of the village, the OSI team discovered has decoded and evaluated a set of 11 parcels that have become “forgotten” by the town and its residents. To call the areas “forgotten” does not mean that the spaces are not used, but that they are not seen as a cohesive unit that works together for a common goal. The 11 sites abut each other and add up to 52.29 acres of land. The different parcels also consist of an array of uses but the premiere character of the lots is open space.

The current OSI states that this area contains approximately 21 acres of open space that is divided into park spaces such as Farrell Field and the New Waterlands Sports Fields. However, when the OSI team visited and walked each parcel, they found that much of the land considered open is overgrown and/or under-managed. A majority of the spaces are overgrown with invasive plants such as Japanese Knotweed and mugwort. When the areas that are inaccessible due to poor management, the official open space drops to 14.31 acres (with 5.97 acres of park/multi-use and 8.34 acres as single use spaces such as sports fields).

At first, these findings were disappointing for the team, however, when the overgrown and undermanaged areas were calculated, they found that more than 23 acres fall into the underused category. This is land that is unoccupied by structures, handscaping or other features. The land provides a huge opportunity for community engagement and sustainability. This opportunity has fueled several efforts that are affordable, community-based and achievable.



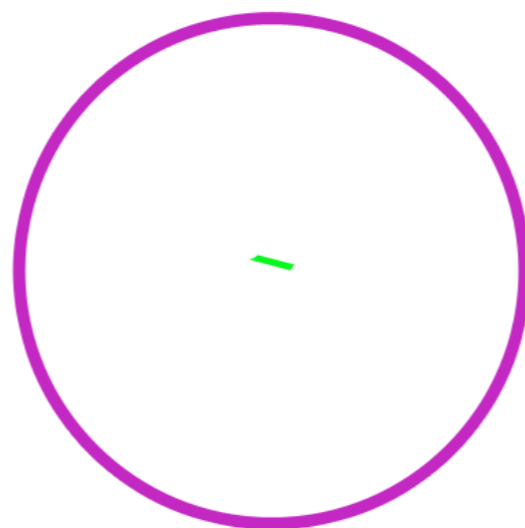
# 52.29 ACRES OF LAND

**27%** PARK AND SPORTS FIELD

**44%** UNDERUSED LANDSCAPE

**OPEN SPACE INVENTORY (OSI)**

VILLAGE RETRO: STRATEGY FOR SUSTAINABILITY/ECOLOGY/STORMWATER



AT THE CENTER OF SOUTH ORANGE IS COMMUNITY  
**SOUTH ORANGE PARKLET**



**SOUTH ORANGE PARKLET**

VILLAGE RETRO: STRATEGY FOR SUSTAINABILITY/ECOLOGY/STORMWATER

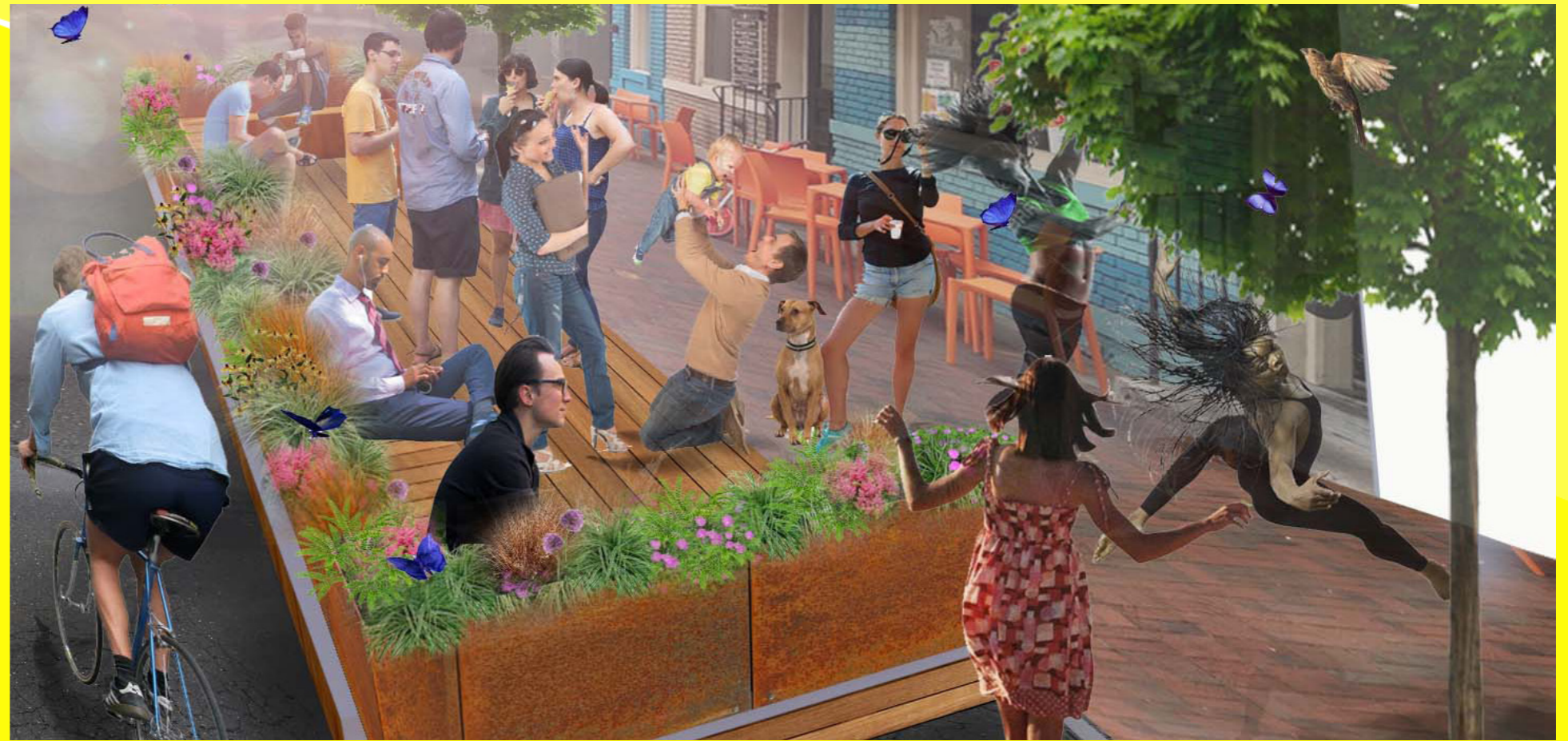
Sustainability and green design don't always have to be big or permanent to be significant. The South Orange Parklet is a tactical approach to creating public space and reducing hardscaping in downtown South Orange. The parklet was first installed in the summer of 2017 and then disassembled for the winter. It will be reinstalled annual during the warm months of the year. The parklet was de-signed and constructed by chambersdesign and funded through a public/private fundrais-ing process.

A parklet is a mini-park that is temporarily built in parking spaces. Though simple in concept, the parklet took nearly 3 years from initial idea to installation because it required talking with dozens of town committees, businesses and residents to build community support. The project participated in Park(ing) Day in 2016 to physically show leaders in the town that the idea was safe, attractive and worthwhile.

The project is constructed with 100% sustain-able materials including sustainably forested wood, recycled steel planters, locally sourced plants & soil and all native perennials & grasses. Also, the parklet improved the storm-water management of the parking spaces. Typically, nearly all of the rainwater from the parking spaces runoff into the storm drains. The parklet reduced the total amount of runoff by 40% during the time it was installed.

The public reaction to the parklet was over-whelming positive because the project un-derstood that community-based project need to take the time to truly engage the public, be extremely aesthetically appealing, have multiple sustainable features and be an super awesome place to hang out.

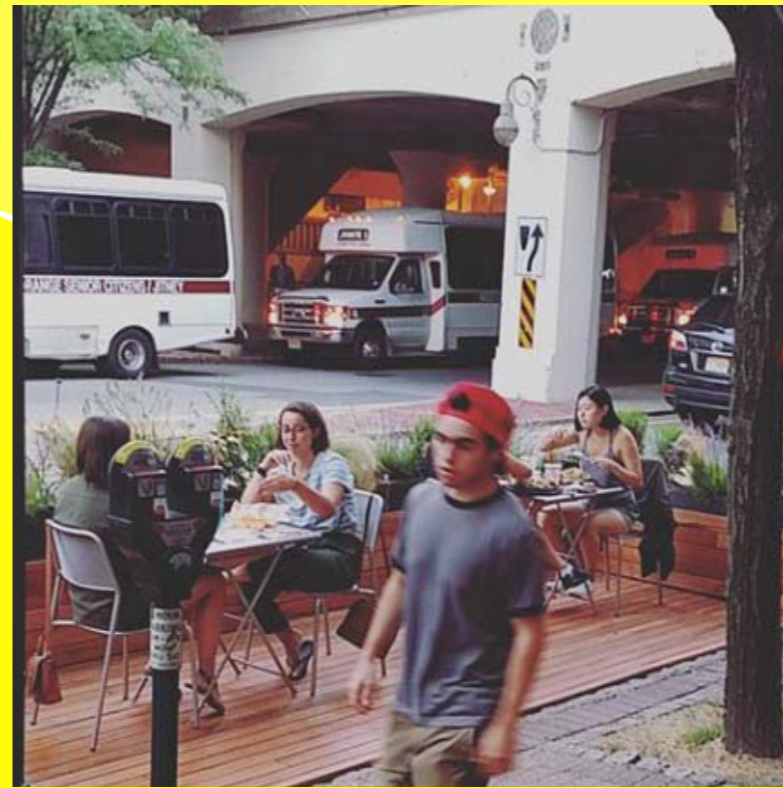
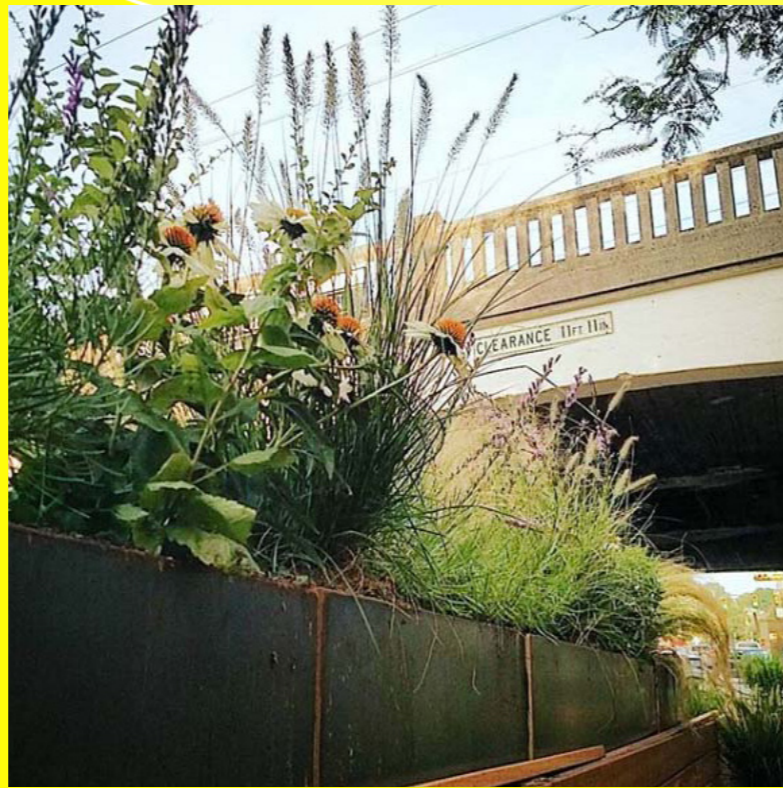
The images on this page were used during meeting with stake-holders to convey the idea of the parklet. The renderings were the basis of the final construction and installation.



## SOUTH ORANGE PARKLET

VILLAGE RETRO: STRATEGY FOR SUSTAINABILITY/ECOLOGY/STORMWATER



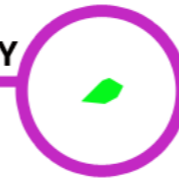


The images above are from the summer of 2017 when the parklet was first installed. The images highlight the success and popularity of the space. Several regional news outlets covered the project. The images also show how the materials and plants work together to form a urban aesthetic that speaks to the desire of design quality in the downtown area of South Orange.

## SOUTH ORANGE PARKLET

AT THE CENTER OF SOUTH ORANGE IS COMMUNITY

**RAIN PARK™**



**RAIN PARK**

VILLAGE RETRO: STRATEGY FOR SUSTAINABILITY/ECOLOGY/STORMWATER



# RAIN PARK

VILLAGE RETRO: STRATEGY FOR SUSTAINABILITY/ECOLOGY/STORMWATER

# RAIN PARK

The Rain Park concept was first created for the Knight Foundation's Cities Challenge in 2016. The concept is to create outdoor spaces that manage large amounts of stormwater while also making areas inviting and enriching. The Rain Park is meant for urbanized areas, that is, places that have limited access to large landscapes and, instead, are heavily hardscaped with roads, parking lots, sidewalks and buildings. Rainwater runoff has had a dramatically negative impact on towns and cities that fit this description. Predictions for rainfall due to climate change threaten to make existing problems worse. The Rain Park proactively faces this challenge.

Moreover, urbanized areas (such as South Orange, NJ) need and want more engaging public spaces as well. Placemaking (that a multi-faceted approach to the design of public spaces that promote people's health, happiness, and well being) has become an increasingly used method of fulfilling the desire for rich public spaces. However, many placemaking projects are absent stormwater measures even though they would greatly enhance the spots appeal and sustainability.

The Rain Park installed in South Orange, NJ is combining those two features for one common area. The Rain Park is located within the downtown area of the village near the iconic Tony Smith sculpture "TAU". Each rain park is designed and installed with great care to the site's context. The original design was to be installed within an existing parking lot surrounded by multistory buildings. The South Orange site is adjacent to a duck pond and highly used roadways as well as the iconic Tony Smith sculpture "TAU". All of these factors influence the final design.

The stormwater issues of the site are unique as well. The site is located on a gentle slope that directs rainwater from uphill toward the duck pond. This hydrology was considered an important design element. The area is almost void of perennials or native grasses and lacked a landscape component that reflected/contrasted the water of the duck pond with the modern style of TAU.



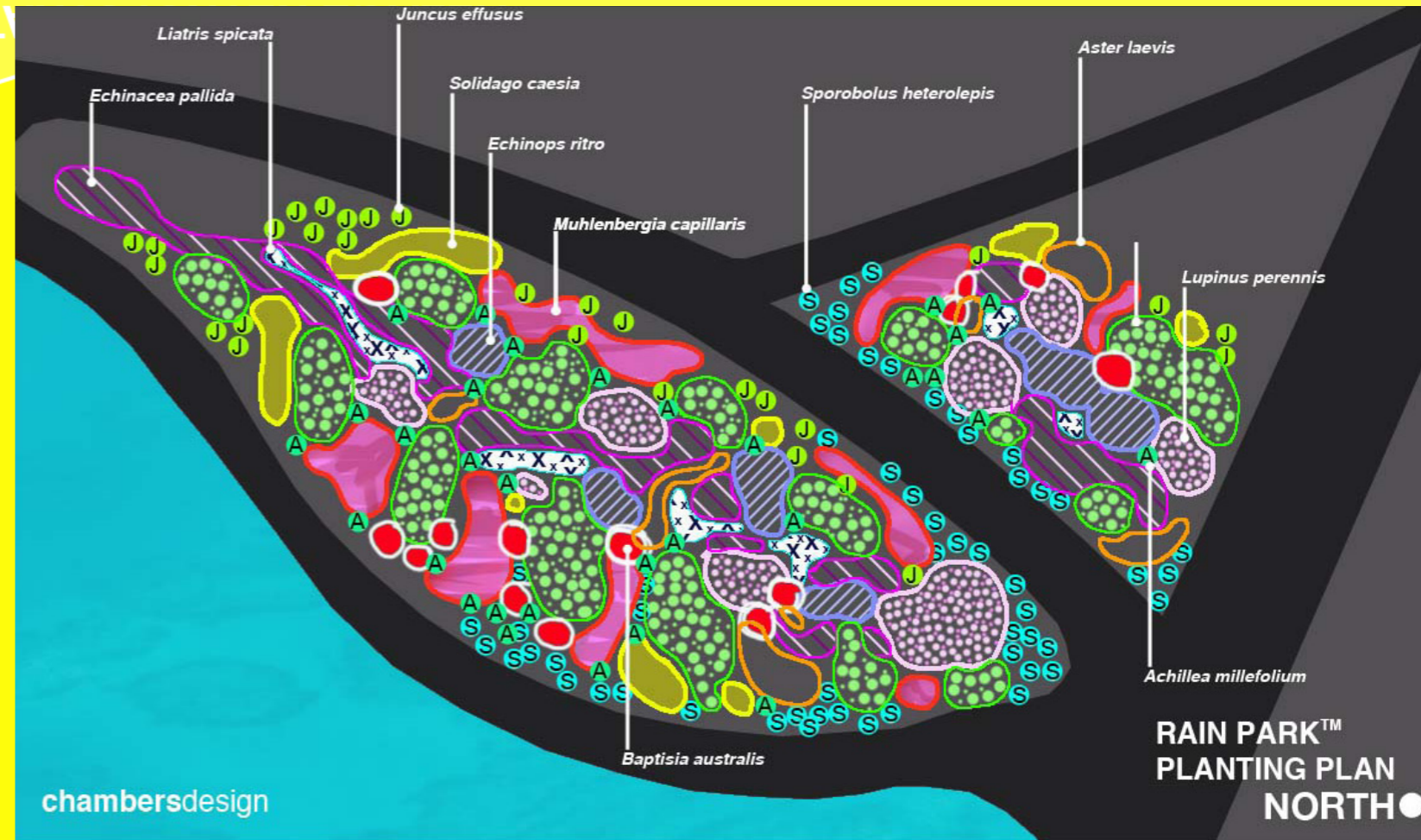
## RAIN PARK

The final design was a series of earth mounds that look and feel like moving waves across the landscape. They change in size, height and shape throughout the space. The mounded earth works as a dam for uphill (upstream) water arriving at the rain park. The mounds capture the uphill water at their feet while also capturing water within the thousands of undulations made as the mounds slope up and down. The forms themselves retain and detain thousands of gallons of stormwater annually allowing it to naturally infiltrate into the soil.

The overall site is seen as a backdrop to create an urbanized meadow of native plants that add color and seasonal interest to the space. All of the plants used for the rain park are native to the United States with many endemic to New Jersey. They were selected based on their ability to need little irrigation as well as ability to filter and transpire surface runoff water.

The planting plan was conceived with the same stylistic creativity as the famous perennial designer Piet Oudolf. The plants are located to maximize a sense of fullness as well as bursts of color throughout March to November. The design also considers the winter to be an ideal time to highlight the beauty of nature. Many of the plants used maintain a richness even during dormancy. The mounds themselves are built to hold snow in a way that conveys a larger reality of the discovery of cold days in January and February.

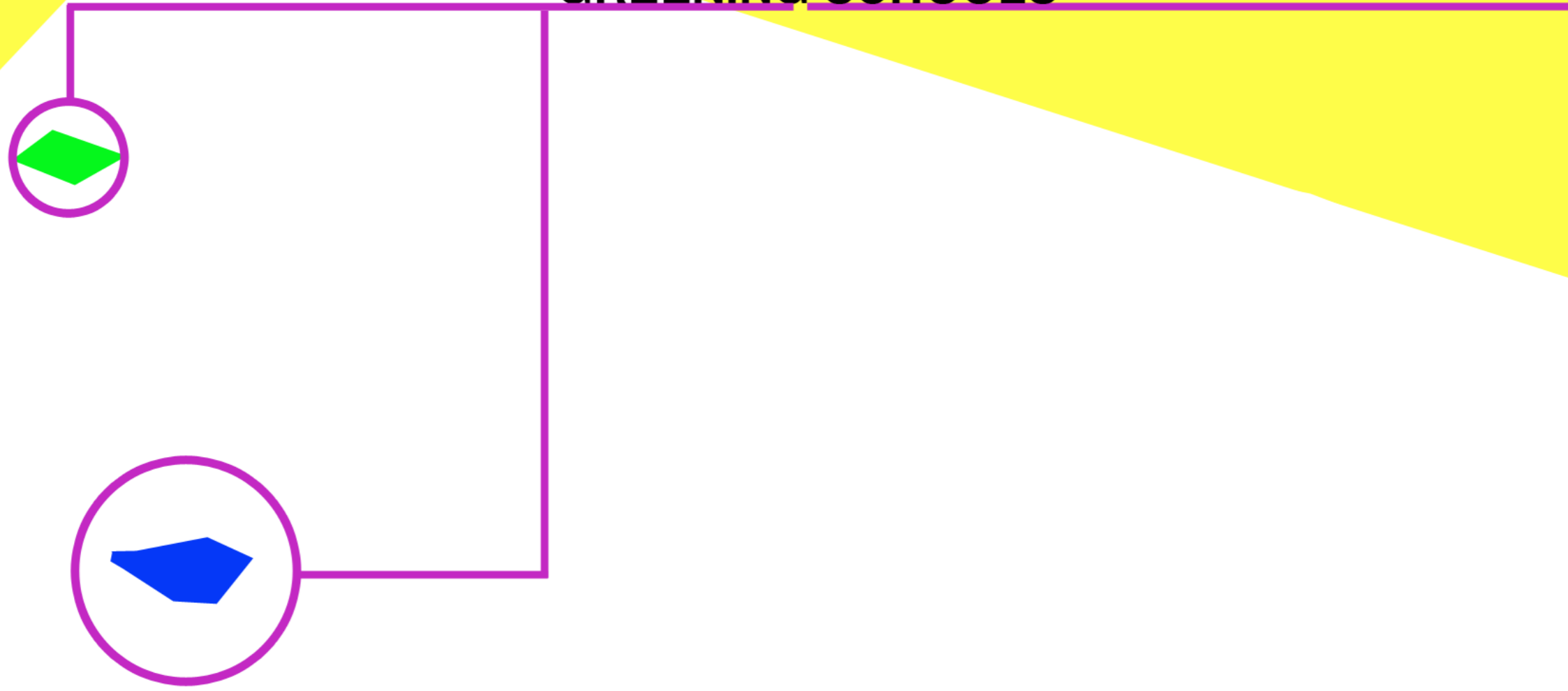
The project was designed and installed by **chambersdesign** with funding coming from American Water. The project's installation was started in the fall of 2017. The earth mounds were completed in October 2017 and more than a 1000 bulbs (daffodil, allium and crocus) being planted in November 2017. The remaining plantings will be completed in the spring of 2018 with more than a hundred thousand seeds.



# RAIN PARK

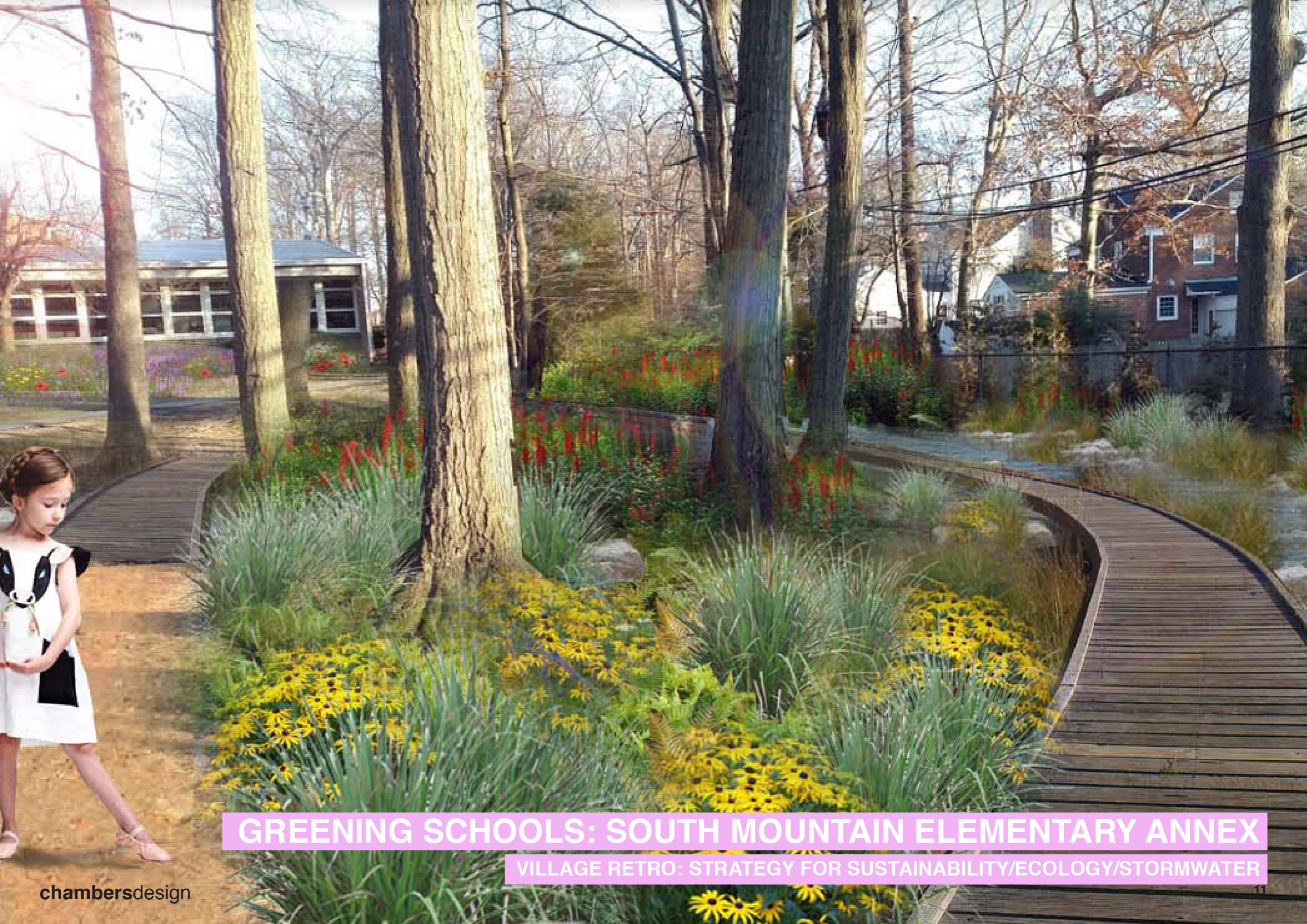
## VILLAGE RETRO: STRATEGY FOR SUSTAINABILITY/ECOLOGY/STORMWATER

# GREENING SCHOOLS



## GREENING SCHOOLS

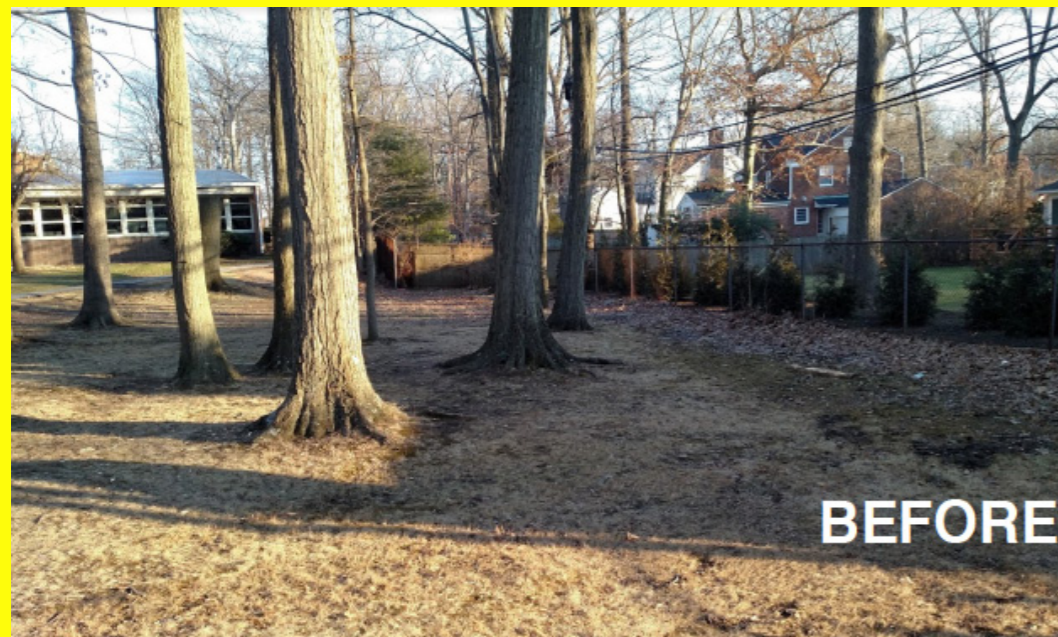
VILLAGE RETRO: STRATEGY FOR SUSTAINABILITY/ECOLOGY/STORMWATER



**GREENING SCHOOLS: SOUTH MOUNTAIN ELEMENTARY ANNEX**

**VILLAGE RETRO: STRATEGY FOR SUSTAINABILITY/ECOLOGY/STORMWATER**

Schools, especially elementary schools, have our future leaders attending every-day. They offer a unique and awesome opportunity to help these future leaders to become designers, architects, engineers, biologists, ecologists, business owners, artists and scientists. Many of the schools need outside consulting and design services to access in envisioning a design approach that is ecological and sustainable. However, as challenges for the environment grow, engaging schools to create projects that embrace sustainability, stormwater and ecology can be creative and fun. With this in mind, chambersdesign began working with the South Mountain Elementary School to master plan their two schools properties to rethink how education, play and stormwater can work together as one. South Mountain Elementary is a kindergarten through fifth-grade school with two locations. Three kindergartens, and five first-grade classes are housed at the South Mountain Annex. Two kindergartens, and all the second-grade through fifth-grade classes are located at the South Mountain Elementary School, commonly known as the Big School. Even though there are two sites, the staff, students and parents function as one school with shared meetings, assemblies and activities.



**GREENING SCHOOLS: SOUTH MOUNTAIN ELEMENTARY ANNEX**

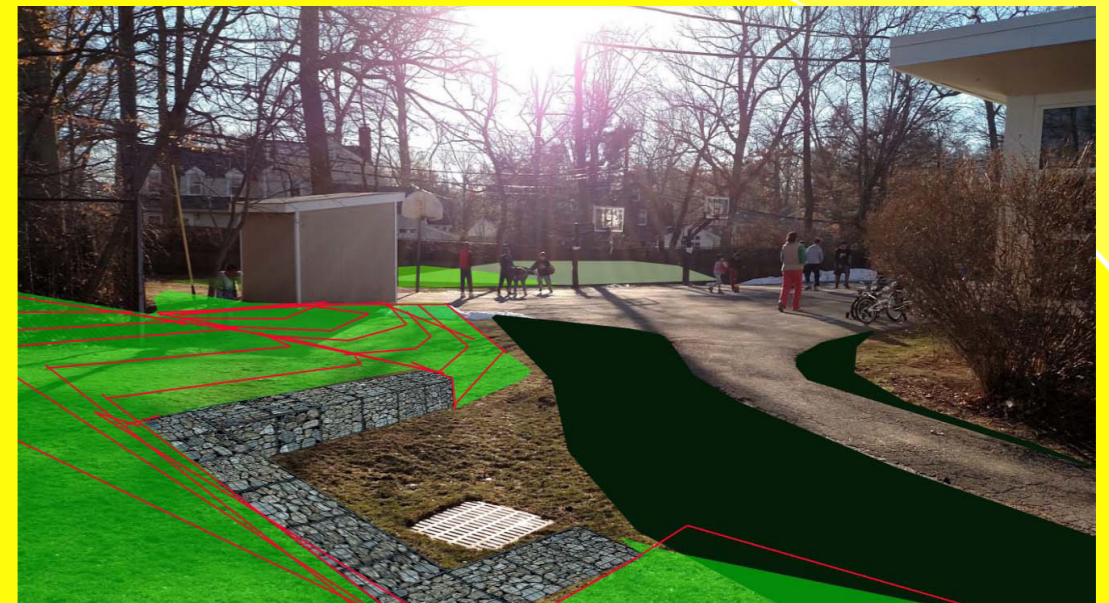
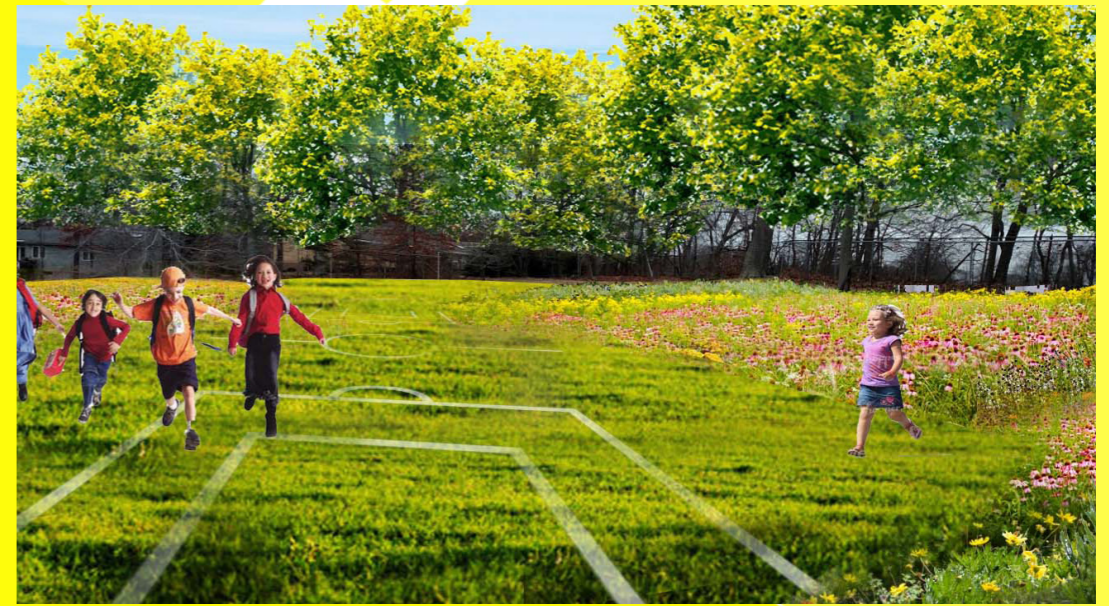
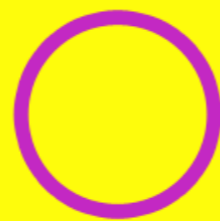
VILLAGE RETRO: STRATEGY FOR SUSTAINABILITY/ECOLOGY/STORMWATER





SKETCH OF FINAL MASTER PLAN FOR THE SOUTH MOUNTAIN ANNEX

The first project that was undertaken was the South Mountain Annex Master Plan. It was created by **chambersdesign** and was geared toward graphically rich diagrams and renderings to express the vision for the site. Along with images, chambersdesign provided detailed technical drawings, estimates for installation, material lists, planting plans and schedules for construction. All of these items were viewed as essential parts of the master plan.



# GREENING SCHOOLS: SOUTH MOUNTAIN ELEMENTARY ANNEX

VILLAGE RETRO: STRATEGY FOR SUSTAINABILITY/ECOLOGY/STORMWATER

With the project completed, the team moved into implementation of the project. The entire Annex was engaged in the installation with two days of planting occurring. One of the days was in celebration of Earth Day when parents, students and designers began transforming the site into an ecological wonderland. The second day took place two weeks later during a regular school day when every student at the Annex helped plant nearly 500 plants. They learned the botanical names of each species such as *Pycnanthemum muticum*, *Lobelia cardinalis*, *Lobelia siphilitica*, *Iris versicolor* and *Aster cordifolius*. The South Mountain Annex Master Plan was a collaboration with parents, teachers, students and design professionals. The master plan process was started with an aim to create more imaginative outdoor spaces that would serve as outdoor classrooms, ecological areas of discovery and manage stormwater issues. Ultimately, the master plan wanted to be a new way of combining green infrastructure with education and outdoor fun. The team met over a period of three months with each meeting crafting the design along the lines of the targeted goals.

The Big School is slated to start its master plan in April 2018. The project title is the Green Infrastructure for Fun and Teaching (GIFT) Project. In January 2018, the team submitted a grant application to Sustainable Jersey for Schools to help with funding the design and engineering costs for the project. The GIFT Project wants to create a green infrastructure plan for the South Mountain Elementary School in South Orange, NJ. Its aim is to evaluate existing stormwater-related conditions throughout the school's grounds and identify ways to retrofit areas with more sustainable options that address stormwater runoff. The final green infrastructure plan will explore how addressing stormwater can also create outdoor play & learning areas, ecologically enriched spaces, learning gardens and improve the sustainability of the property overall. The GIFT Project is a real world opportunity to see art, science, math and design in action through an interactive process that includes teachers, students, design professionals and members of the South Orange community.



PLANTING DAY AT ANNEX



NATIVE PLANTS USED AT ANNEX

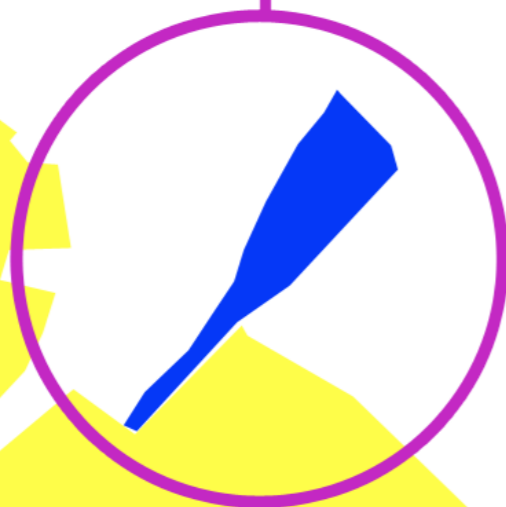


VOLUNTEER READING PLANTING PLAN

## GREENING SCHOOLS: SOUTH MOUNTAIN ELEMENTARY ANNEX

VILLAGE RETRO: STRATEGY FOR SUSTAINABILITY/ECOLOGY/STORMWATER

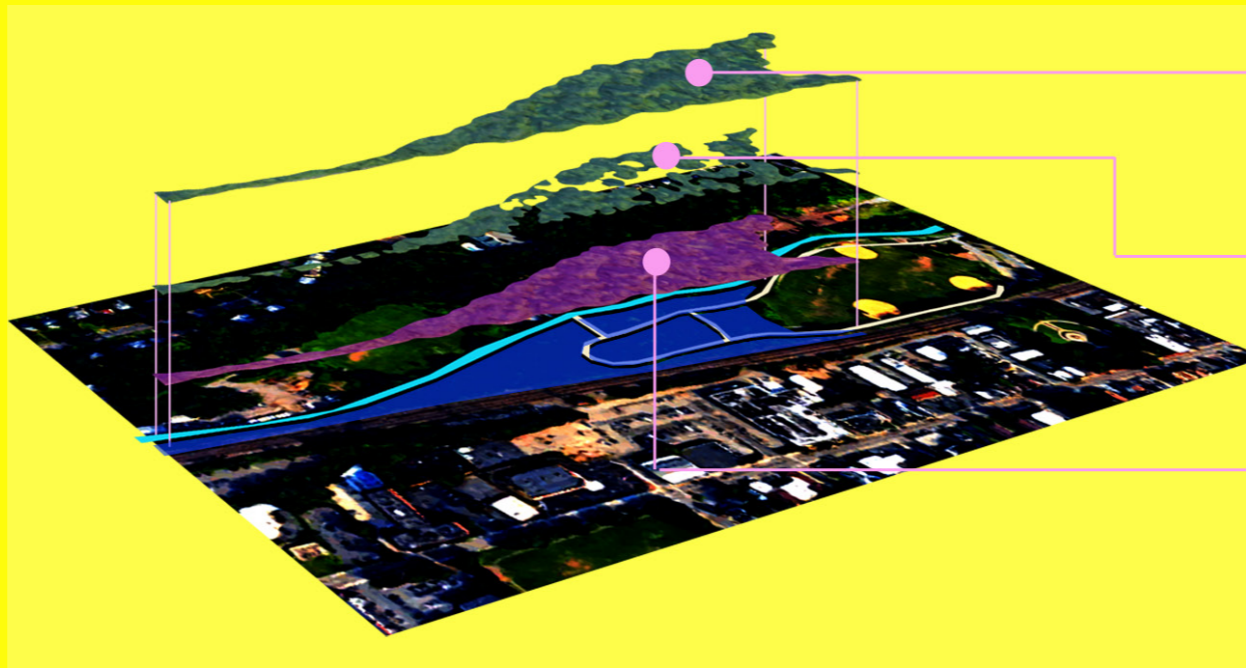
**EASTERN FOREST MUSEUM**



**EASTERN FOREST MUSEUM**

VILLAGE RETRO: STRATEGY FOR SUSTAINABILITY/ECOLOGY/STORMWATER

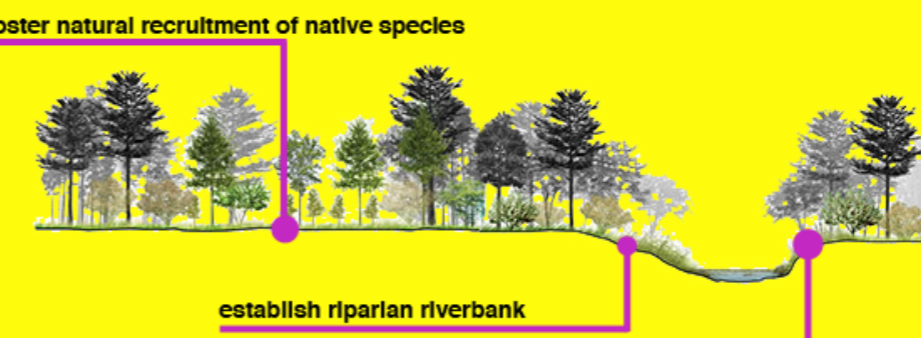
The landscape of New Jersey, and the eastern seaboard, has seen incredible change over the last 200 years. One of the most significant changes has been the clearing of eastern forests. The great eastern forest of North America was once an unbroken swathe of imposing trees that stretched from northern New England to central Florida, and west to the Mississippi River. Although it has been subject to intensive human use throughout the years, the eastern forest is still a diverse and beautiful habitat, supporting an abundance of wildlife. In western parts of New Jersey and in isolated pockets across the state, there are examples and reminders of what the forest once was. In South Orange, a unique opportunity exists to preserve and restore nearly 20 acres of forest. It may never be as magnificent as an uninterrupted forest from the northeast to the southeast, but it can be a showcase for the ecological history of the region. It's from this idea that the Eastern Forest Museum was conceived to be a place important to migratory birds, aquatic habitat and (eventually) old growth trees. The area within South Orange targeted for this project is known as the New Waterlands Woods, a chunk of land on the southwest corner of the village. The East Branch Rahway River runs along it and provides respite for nearly 40 bird and 20 mammal (plus countless insect) species. It was a fairly unimpaired space with large mature deciduous trees. In 2012, Hurricane Sandy swept through the woodland uprooting and damaging the majority of flora. The degraded conditions allowed for invasives such as Japanese knotweed to colonize the woody parcels and completely eliminating natural recruitment of natives such as beech, oak, hickory and maple. Over the last few years, the degradation has become worse, and so a plan has begun to take form to (not only restore the area) make the area a natural history museum that will be a shining example of what nature can be in New Jersey.



This area of South Orange, known as the New Waterlands Forest, had a well-established canopy of native trees prior to 2012. However, when Hurricane Sandy hit New Jersey, many of the existing trees were damaged or uprooted.

After 2012, the canopy and soil of New Waterlands Forest were greatly disrupted. The disruption caused erosion of the soil that resulted in sedimentation into the nearby river and altered the habitat that had existed. The damaged trees made the space feel and look "unkempt" and unsafe for residents. The look discouraged visitors that had an effect of the forest being forgotten.

One of the most important impacts of Hurricane Sandy is that an understory of invasive species formed as the forest floor received direct sunlight. These invasives include knotweed and mugwort. As they establish tight clumps, natural recruitment of native species (grasses, perennials and trees) becomes almost impossible. These invasive species exacerbates habitat alternations, erosion & sedimentation as well as the unkempt feel making the space even less used.



monitor & assist growth of understory



# EASTERN FOREST MUSEUM

VILLAGE RETRO: STRATEGY FOR SUSTAINABILITY/ECOLOGY/STORMWATER

