THE BENEFITS OF **COMMUNITY-DRIVEN** GREEN INFRASTRUCTURE

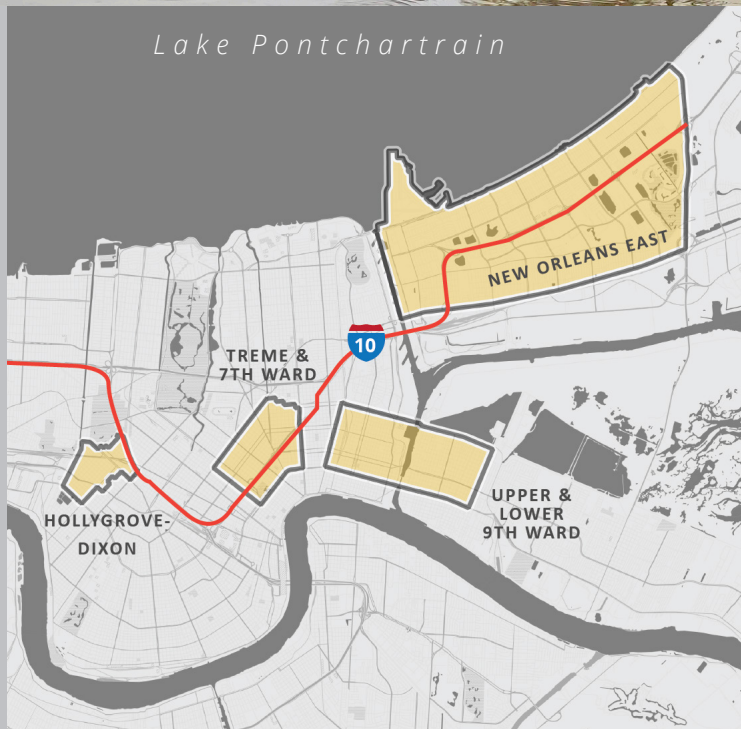
EARTH ECONOMICS

NEW ORLEANS | WATER WISE GULF SOUTH | UPDATED MARCH 2023

GREATER TREMÉ CONSORTIUM, INC. · New Orleans East Green Infrastructure Collective · WATERWISE GULF SOUTH · L9WHA Lower 9th Ward Homeownership Association · HEALTHY COMMUNITY SERVICES Building Healthier Communities by Going Green · Upper Ninth Ward Bunny Friend Neighborhood Association · HOLLYGROVE-DIXON NEIGHBORHOOD ASSOCIATION

FLOODING IN TREMÉ NEIGHBORHOOD
PHOTO CREDIT: CHERYL AUSTIN

New Orleans' (NOLA) neighborhoods regularly suffer from flooding from intense rainfall events. This localized flooding—not captured in FEMA's flood risk maps—is a persistent, widespread problem that is getting worse. Calls to 311 (NOLA's non-emergency helpline) for street flooding and drainage-related services between Lake Pontchartrain and the Mississippi River increased by 46 percent between 2012 and 2018. The flooding these communities face is a function of a history of racially discriminatory policies and still visible disparities in public investments in these neighborhoods along the I-10 corridor.



URBAN FLOODING IS COSTLY

Accounting for the costs of neighborhood-scale urban flooding is challenging. Smaller storm events that can cause urban flooding are modeled less frequently than 100-year flood events—the typical threshold used for mapping, regulation, and insurance purposes. Over time, the costs of these smaller, more frequent flood events can rival those of larger, infrequent events.

COSTS

THE INDIVIDUAL

Damage to structures and property

Time and money spent on cleanup

Lost wages or business income due to missed work

Longer commutes due to flood closures

Health-related costs from mold

Stress and mental health impacts of repeated flooding

Reduced access to emergency services, public transit, schools, etc.

Increased risk of injury

THE PUBLIC

Decreased economic activity

Decreased real estate value

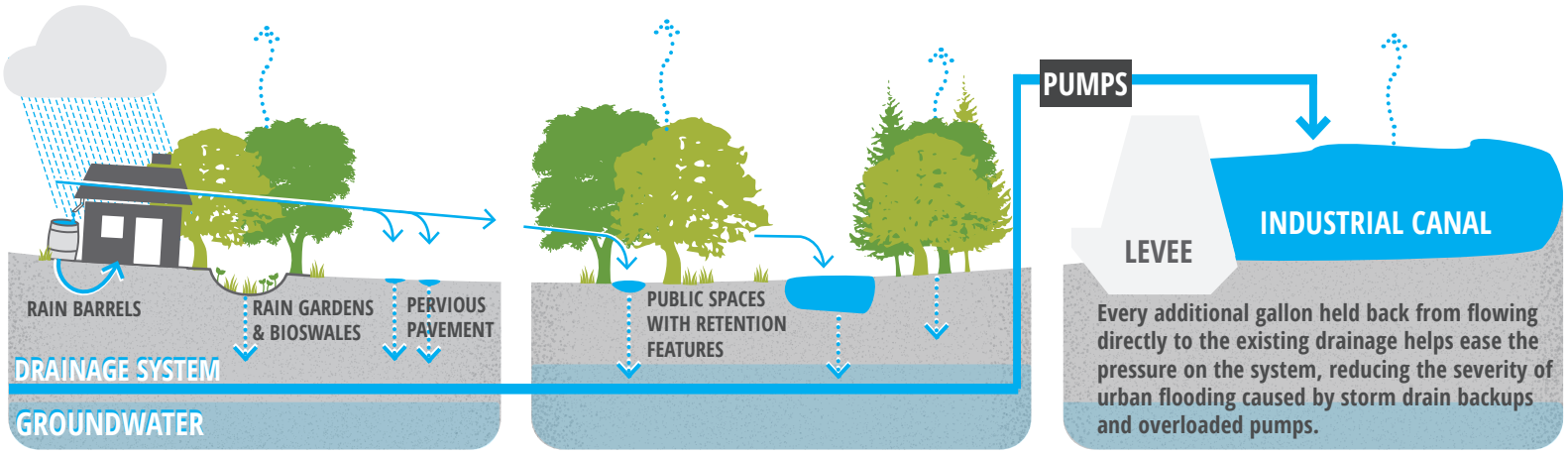
Business closures

Discharge of contaminants to adjacent water bodies

FLOODING IN THE UPPER 9TH WARD
PHOTO CREDIT: JONATHAN LINDQUIST

FLOODING IN TREMÉ NEIGHBORHOOD

GREEN INFRASTRUCTURE: AN URBAN FLOODING SOLUTION



ADAPTED FROM WAGGONNER & BALL 2013

SLOW **STORE** **DRAIN**
ONLY IF NECESSARY

PROJECTS COMPLETED

BY THE WATER WISE GULF SOUTH COLLECTIVE

Communities across the nation are turning to green infrastructure (GI) solutions as part of multi-focus stormwater reduction strategies. GI refers to a variety of project elements that mimic natural processes to slow and reduce the amount of stormwater flowing into traditional stormwater management systems, often while adding additional co-benefits, such as improvements to air quality or neighborhood aesthetics.

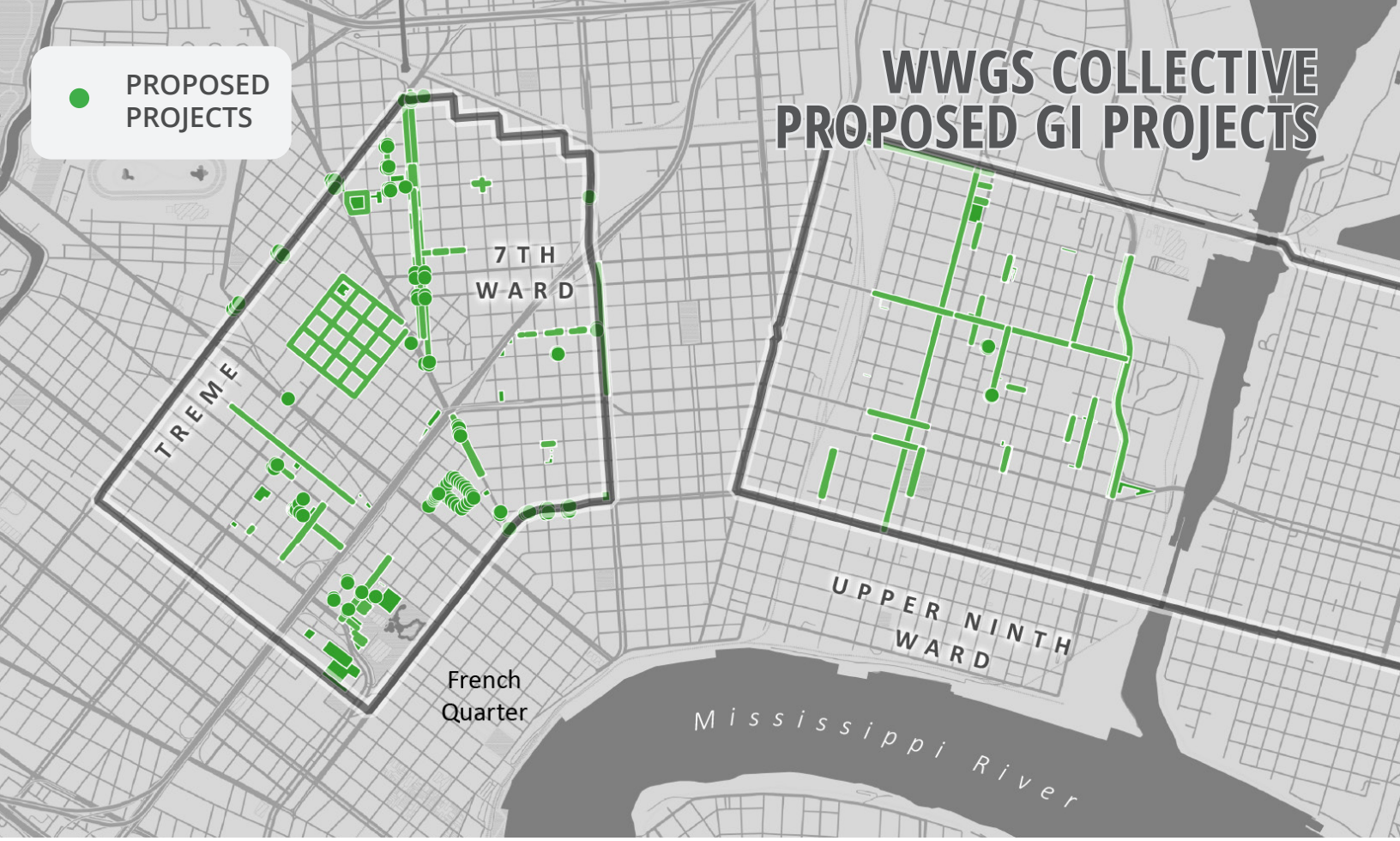
The Greater Tremé Consortium, Healthy Community Services, the Upper 9th Ward Bunny Friend Neighborhood Association, New Orleans East Green Infrastructure Collective, and the Lower 9th Ward Homeownership Association have installed GI projects at private residences, small businesses, churches, community centers, vacant lots, and in public rights-of-way. These Water Wise Gulf South (WWGS) community-based organizations (CBOs) have planted over 770 trees, installed 146 rain barrels, and implemented 112 other green infrastructure projects that have added more than 189,000 gallons of stormwater retention capacity to the 7th Ward, Upper 9th Ward, Lower 9th Ward, New Orleans East/ Idlewood-Parkwood, Hollygrove-Dixon, and Tremé neighborhoods.

770
TREES PLANTED

146
RAIN BARRELS

113
ADDITIONAL GI PROJECTS

189,000
GALLONS OF STORMWATER RETENTION CAPACITY



FLOOD REDUCTION BENEFITS

To place the rainfall captured by these proposed GI projects in context, we calculate their storage capacity as a percentage of total rainfall generated by a typical but intense rainstorm: one that deposits three inches of rain over the course of a single hour. In a given year in New Orleans, such a storm has a 10–20% chance of occurring.

7th Ward proposed GI projects will collect over 1.6 million gallons—approximately 1% of the total stormwater generated in the area by the modeled rain event.

Upper 9th Ward proposed GI projects will collect 2.2 million gallons—approximately 2% of the total stormwater generated in the area by the modeled rain event.

Tremé proposed GI projects will collect 2.8 million gallons—approximately 5% of the total stormwater generated in the area by the modeled rain event.

These estimates from 2020 are conservative, because they do not include the water storage capacity of street tree plantings, whose storage capacity is calculated not on a per-event basis, but an annual basis.

VOLUNTEERS PLANTING A RAIN GARDEN

EARTH ECONOMICS MEASURED THE **ECOSYSTEM SERVICES BENEFITS** OF COMPLETED GI PROJECTS.

Benefit Category	Dollars per Year (2022)
Neighborhood scenery	$2 million
Reduced emissions from pumping	$10 thousand
Reduced pumping costs	$50 thousand
Carbon sequestration	$2 thousand
Flood regulation	$5.5 million
Habitat	$7.5 million
Health benefits from reduced heat exposure	$1.5 million
Reduced heating and cooling costs	$8 thousand
Noise reduction	$2.9 million
Grand Total	**$19.3 million**

ADDITIONAL BENEFITS OF GREENING NOLA

NOLA is already surrounded by wetlands that provide benefits worth millions of dollars, including shoreline stabilization, hurricane buffering, recreation, tourism, and job creation benefits. Existing green spaces in the Water Wise neighborhoods perform economically valuable functions each year, including climate stability, water quality, water capture and storage, air quality, disaster-risk reduction, and recreation and tourism.

COMPLETED GI PROJECTS PROVIDE

$19.3 million

IN ECOSYSTEM SERVICES BENEFITS TO THE LOCAL AND REGIONAL COMMUNITY EACH YEAR.

In addition to completed projects, community engagement has empowered residents to engage in the visioning of future GI projects for their neighborhoods with Community Lookbooks. These community-visioned projects could store approximately 6.5 million gallons of water and increase green space by 45 acres. With projected costs of $32 million for installation and $1.5 million in annual maintenance, these projects will provide $116 million in benefits. GI projects provide additional benefits not captured in this valuation, such as community cohesion, cultural preservation, land subsidence mitigation, workforce development, and mental and physical health.

Without anti-displacement initiatives, GI projects can contribute to gentrification. Financially supporting a community-led process for implementing GI is critical to the well-being of NOLA's historic neighborhoods, particularly in the face of growing climate threats.

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A COST-EFFECTIVE SOLUTION

Completed and proposed projects by the Water Wise Gulf South Collective have been designed to meet the site-specific needs of CBO neighborhoods—an essential element of any successful GI project. These projects offer flood reduction and other green benefits to the neighborhoods that reflect local priorities and values. Offering lower costs than traditional gray infrastructure approaches as well as a wide range of benefits, research has repeatedly demonstrated that site-specific GI projects routinely prove to be cost-effective.

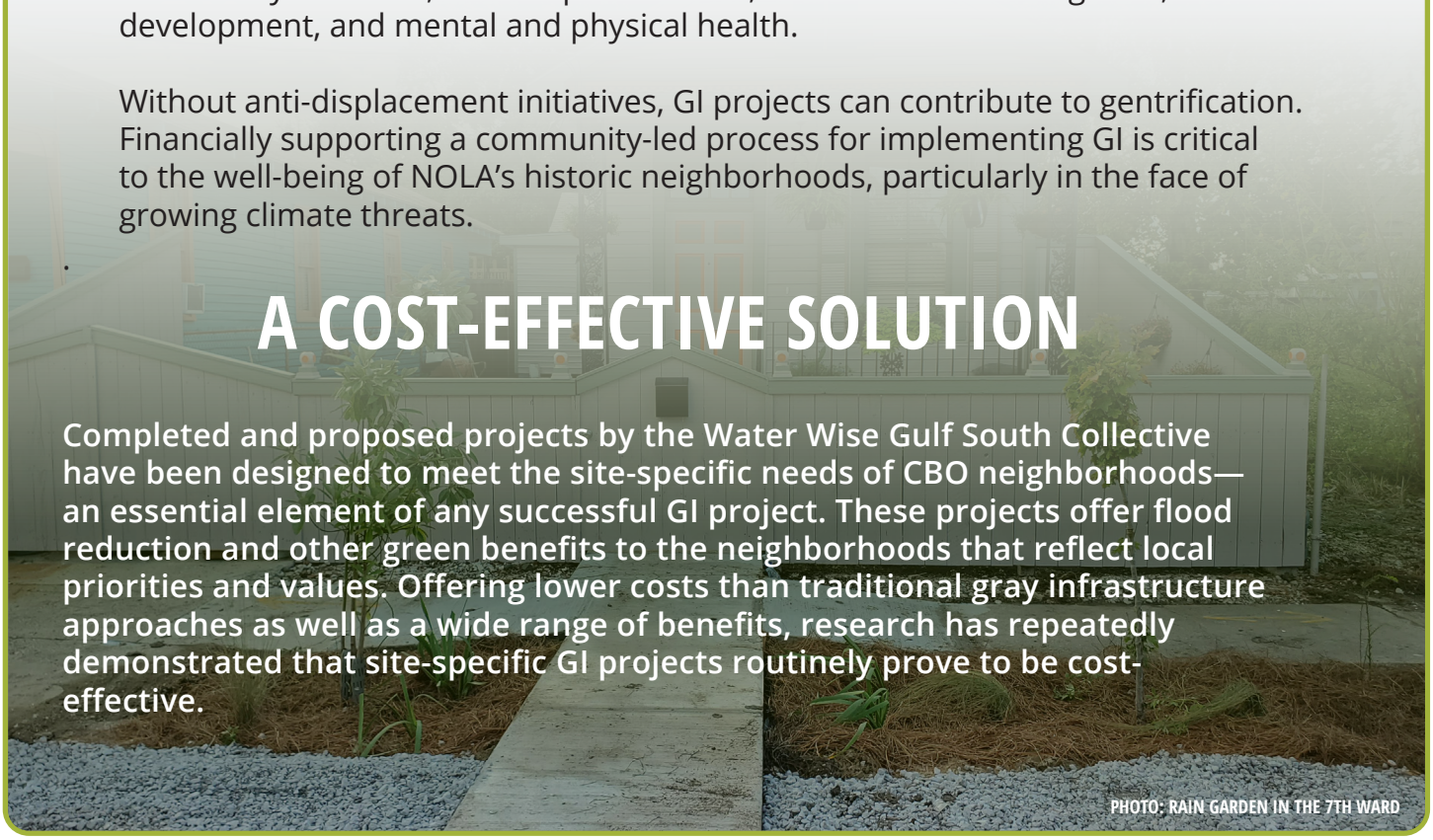

PHOTO: RAIN GARDEN IN THE 7TH WARD

THIS PROJECT WAS COMPLETED WITH

ALL OF THE FOLLOWING PARTNERS

GREATER TREMÉ CONSORTIUM, INC.

WATERWISE GULF SOUTH

HOLLYGROVE-DIXON

HEALTHY Community SERVICES
Building Healthier Communities by Going Green

Upper Ninth Ward Bunny Friend Neighborhood Association

GREATER NEW ORLEANS FOUNDATION

THE KRESGE FOUNDATION

INSTITUTE FOR Sustainable Communities

New Orleans East
Green Infrastructure Collective

L9WHA Lower 9th Ward Homeownership Association


TREE PLANTING AT TREMÉ CENTER


GI VISIONING WORKSHOP IN UPPER 9TH WARD

RAIN GARDEN IN THE 7TH WARD


RAIN GARDEN AT ST. MARY OF THE ANGELS CHURCH


STORMWATER DRIVEWAY AT GREATER TREMÉ CONSORTIUM

PHOTO CREDIT (ALL): WWGS NEIGHBORHOOD CHAMPIONS

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