



artist rendering of the MIR pilot streets project

## Summary

The Pilot Streets Initiative began as a city project for infrastructure replacement in the flood damaged neighborhood of the Lower Ninth Ward. Make It Right (MIR) was invited to coordinate consultation and design services due to their pioneering success using pervious concrete as an alternative to traditional concrete and asphalt street paving. The project evolved into a highly collaborative multi-disciplinary effort to develop an innovative streetscape design within the flood-damaged MIR project site. The hope for the design is that it will result in a modular “kit of parts” that could be replicated citywide.

## Objectives and Goals

The following were developed by MIR alongside the city of New Orleans Department of Public Works (DPW):

- Provide retention/detention for 10-year storm levels
- Regenerate local habitat & ecology
- Integrate greenspace for retention/detention
- Function with contiguous & non-contiguous lots
- Delineate short & long term maintenance requirements
- Minimize impervious surfaces
- Minimize energy used by municipal pumping stations
- Encourage alternative forms of transportation
- Reduce “heat island” effect through street-tree strategy
- Use high-performance, cost-effective, easily maintainable green building technologies
- Testing/monitor for water quantity & quality

## Context

Because the elevation of the city of New Orleans is lower than the surrounding water bodies, a system of pumping stations is currently used to convey stormwater runoff from the city over the levees and into the lakes and wetlands. The city of New Orleans is also located in a subtropical climate that has some of the highest rainfall amounts in the country. A typical storm event generates a large volume of runoff that must then be pumped out of the city. This pumping process uses significant amounts of energy and money to operate the pumps in addition to leaving an extensive carbon footprint.

Conventional urban stormwater systems collect runoff (a majority of which comes from paved surfaces such as streets, sidewalks, etc.) and convey it through a series of underground pipes and culverts into streams, lakes, and wetlands. Drawbacks to this method include increased flooding downstream, increased stream velocities, higher erosion rates, and reduced water quality. Another issue is sediment buildup in the system, which must be cleaned out at an additional cost to the city and is especially costly in New Orleans due to the massive pumping infrastructure.

## Project Background

The project began as an engineering and city project to replace the existing infrastructure in the Lower Ninth Ward. MIR was brought into the equation for their work in the area regarding pervious pavement. The idea was to create innovative streetscapes in the Lower Ninth Ward utilizing a “kit of parts” that could be replicated elsewhere throughout the neighborhood and city.

Pilot Streets encompasses five sections of roadway. The main purpose is to improve water quality, reduce runoff quantity, and retrofit the streets with pervious paving materials and stormwater best management practices (BMPs). The structural pervious concrete is currently being tested by MIR for road use using different reinforcement techniques.

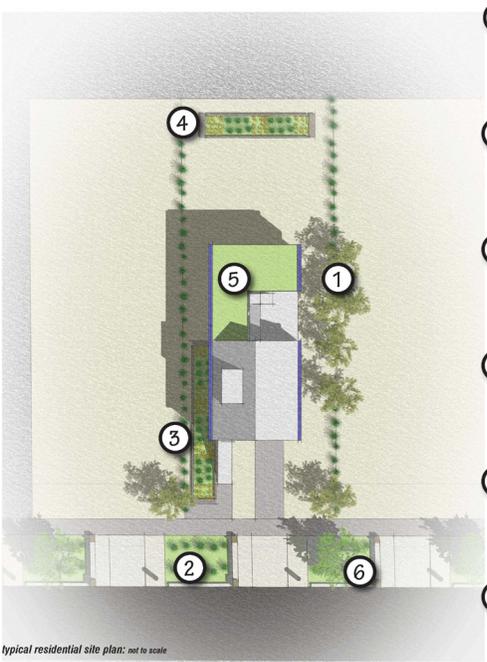
Schematic design development began in May 2009 with a collaborative team of engineers, MIR, the New Orleans DPW, the New Orleans Sewer and Water Board (SWB), and outside design consultants. The collaborative design team created a unified streetscape scheme for the project which was then subjected to review by community, city, and industry representatives. The preliminary plan is tentatively scheduled to be submitted for city review by mid February 2010. After the final city review, bid and construction documents will be finalized and the project will go to bid. Construction is tentatively planned to begin in late April or May 2010 after bid selection.

## Preliminary Results of Hydrologic Modeling

A stormwater drainage assessment conducted for the project by Olsson Associates indicated that the pervious roadway and subgrade could completely retain stormwater from the 10-year event. Peak runoff from the project area could be reduced by 30-80% during the 10-year event and the BMPs have the potential to remove 100% of suspended sediment as well as a large percentage of other pollutants. Overall the project has the ability to decrease stormwater runoff entering the pumping station to one-third or less of the average peak capacity and could reduce pumping costs by at least \$413,600 annually.

In addition to providing residents with affordable, comfortable, environmentally-friendly homes, Make It Right is enhancing the neighborhood fabric with performative site-specific residential landscapes.

Design strategies reduce the need for irrigation, require minimal weekly maintenance, handle droughts or temporary inundation, provide habitat for birds and beneficial wildlife, and provide edible and medicinal gardens.



typical residential site plan: not to scale



**NATIVE PLANTS**  
Louisiana native plantings do much more than add beauty to the surrounding landscape. They help conserve water, reduce mowing costs, provide habitat for birds, butterflies and other wildlife, protect the soil and don't require chemical fertilizers and pesticides.

**RAIN GARDENS**  
These subtle depressions in the landscape collect rainwater, encouraging absorption by plantings and infiltration into the groundwater table. The water loving plants provide habitat and food for ecologically beneficial insects and wildlife.

**XERIC PLANTINGS**  
The term 'xeriscape' comes from the Greek word 'xero' which means dry. Xeriscaping refers to site-specific landscaping and gardening in ways that reduce or eliminate the need for supplemental irrigation.

**EDIBLE GARDENS**  
Local food sources and healthy, affordable options are important for the well-being of communities. Make It Right is intermittently using vacant lots as food-producing gardens, and individual residential landscapes include fruit and vegetable producing plants.

**GREEN ROOF**  
Green roofs consist of plants being grown on roofs, replacing the vegetated footprint that was destroyed when the building was constructed. Numerous benefits that result are both ecological and economical: the recovery of green space, moderation of the urban heat island effect, improved stormwater management, water and air purification, and a reduction in energy consumption.

**STREET TREES**  
Coordinated street tree plantings using native flood and drought tolerant species will assist with stormwater management, reduce urban heat island effect, create habitat for wildlife, and provide an amenity for future generations.

SUSTAINABLE RESIDENTIAL DESIGN STRATEGIES

LOWER NINTH WARD • NEW ORLEANS MAKE IT RIGHT

Poster made to communicate MIR landscaping strategies to the community

Summary

Since its inception, Make It Right's landscape concept: "High Quality, Sustainable Landscapes" has guided the organization's efforts in sustainable site design for a current total of 23 house projects in the Lower 9th Ward. With the goal of achieving LEED Platinum on all house projects, MIR has successfully certified 15 homes to date with more homes ready to undergo the certification process. MIR implements the following innovative design strategies in all of their home landscapes:

- Solar shading with large caliper trees
- Plant massing and groundcovers to reduce maintenance requirements
- Reduction of conventional turf grass
- Fruit trees in rear of lot
- Climate appropriate plant species to minimize irrigation requirements
- Pervious paving for all hardscape areas
- Rainwater harvesting for miscellaneous landscape uses

"Today, the U.S. Green Building Council says Make It Right is building the largest, greenest neighborhood of single family homes in America. We have earned their highest distinction for energy efficiency and sustainability, LEED Platinum, by integrating and aggregating a variety of cutting edge construction materials and techniques" (<http://www.makeitrightnola.org/>). The LEED Landscapes program has significantly contributed to the success of MIR's LEED Platinum ratings. Achieving between 17-23 points towards LEED for Homes, MIR's home landscapes make up over a quarter of the points needed to obtain a LEED Platinum rating from the USGBC.



Volunteer installation of rain gardens at Pam's Place

## Summary

The Louisiana Disaster Relief Foundation's (LDRF) donation to the Community Beyond Housing is aimed at the rebuilding and recovery of the Lower Ninth Ward through the enhancement of the urban landscape. The grant was originally awarded to the Make It Right Foundation (MIR) and was facilitated by the Center for the Sustainable Engagement and Development (CSED) through the efforts of the late Pam Dashiell. The Community Beyond Housing Initiative serves as a case study for effective new and regenerative models for gardens and public landscapes as a means of strengthening the sense of community in the Lower Ninth Ward. The project was a collaborative effort between MIR, the Lower Ninth Ward CSED, the American Society of Landscape Architecture (ASLA), the Louisiana Chapter of ASLA, Louisiana State University's (LSU) Robert Reich School of Landscape Architecture, and the University of Colorado Denver's (UCD) Department of Landscape Architecture.

## Objectives and Goals

- Strengthen the mission of the MIR Foundation and CSED
- Recognize and strengthen the objectives of the Lower Ninth Ward Coalition to create an energy-efficient and healthy community through comprehensive site analysis and planning strategies
- Create an appropriate cultural approach to the landscapes of the Lower Ninth Ward and to place the focus on how each individual garden ties into the broader community
- Encourage the growth of collaborative opportunities through community gardening projects
- Tie the idea of neighborhood landscape to coastal recovery and the restoration of the Bayou Bienvenue wetlands as a means to improve safety and environmental awareness within the Lower Ninth Ward community