

# Fundamentals of Water Management

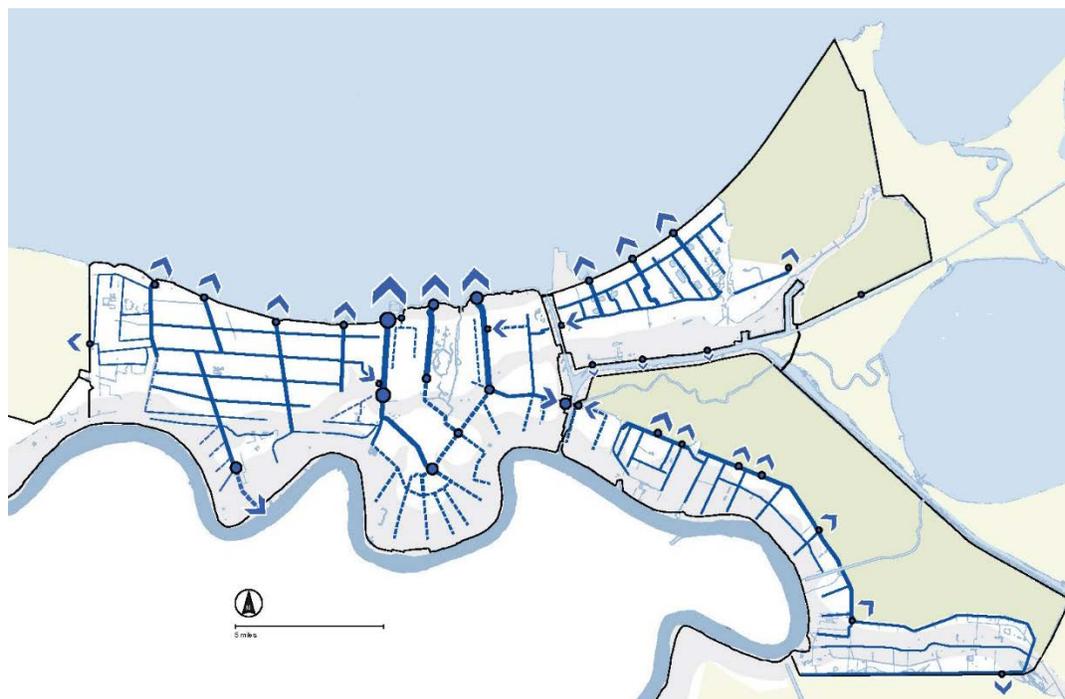


Diagram of drainage on the East Bank of metro New Orleans from *Greater New Orleans Urban Water Plan*, Waggoner & Ball et al., 2014, courtesy GNO Inc,

## The Basics

- > Rainfall inside the levees must be absorbed by soils or pumped out.
- > Multiple agencies are responsible for aspects of drainage and flood protection.
- > Allowing stormwater to enter soils is a cost-effective way to improve drainage known as green infrastructure.
- > Federal and local funds are helping repair our drainage system and add green infrastructure.
- > Increased local investment will be required for continued improvement and maintenance.
- > Even with an improved drainage system, flood insurance is still a must.

Neighborhood flooding during the summer of 2017 was a painful reminder that water management is of unique importance in Greater New Orleans. Like clean drinking water and sanitary wastewater treatment, citizens rightfully view drainage as a core service provided by local government.

Levees built to protect the city from Mississippi River flooding and hurricane storm surge effectively create a bowl, meaning that rainfall must be absorbed by the soil or pumped out.

Hard surfaces, such as pavement and rooftops, shed runoff quickly; whereas vegetated green spaces slow and absorb stormwater.

Rainfall on the East Bank is channeled to Lake Pontchartrain. Because of flat terrain, pumps are required to keep stormwater moving and transport it over the slight Metairie, Gentilly and Esplanade ridges. These pumps run on 25 cycle electricity, which is custom generated by the Sewerage and Water Board. Many citizens learned this only after power turbine failures were implicated in August flooding. Additional pumps are needed to lift stormwater in large drainage canals over floodgates at the lakefront. These pumps are not subject to the same electricity constraints.

In the city of New Orleans, the catch basins and smaller pipes (under 36 inches in diameter) through which stormwater enters this system are the responsibility of Department of Public Works, while the intermediary pump stations and large drainage canals are the responsibility of Sewerage and Water Board. Some of these pipes will be upgraded using FEMA and City bond dollars through road and subsurface repairs.

Construction underway at the lakefront pumping stations and the SELA drainage project is managed by the U.S. Army Corps of Engineers, but these assets will be handed over to Sewerage and Water Board upon completion. The board will be responsible for cost-share, operations and maintenance. Current millages for drainage only cover the cost of the existing pumps managed by the Sewerage and Water Board; no dedicated funding source exists for the City's network of pipes, canals, and catch basins.

Repair and expansion of conventional drainage infrastructure is both very expensive and disruptive to daily life and commerce. A more cost-effective strategy can be alleviating pressure on the drainage system by keeping stormwater out of pipes in the first place. Known as green infrastructure, this approach may provide the additional benefit of slowing subsidence and the associated damage to streets.

Green infrastructure is central to FEMA- and HUD-funded projects soon to begin construction in New Orleans. It is also required for most new development greater than 5,000 square feet. Compliance is overseen by the City Planning Commission in accordance with comprehensive zoning ordinance.

In addition to overseeing construction of these projects, the next mayor and city council will be responsible for identifying a sustainable maintenance strategy as well as policies to increase green infrastructure retrofits on already developed property and new, smaller developments.

### About Us

Established in 2014, the Water Collaborative of Greater New Orleans is a multidisciplinary community of practice that includes engineers, architects, floodplain managers, educators and community representatives. The Water Collaborative conducts education, advocacy and professional development in support of integrated urban water management because green infrastructure makes our region safer and more sustainable while creating economic opportunity for its residents. For more information contact Nathan Lott, director, at [nathan@nolawater.org](mailto:nathan@nolawater.org).