



Water Resources Master Planning At Tampa's Lowry Park Zoo

In cooperation with the City of Tampa, Southwest Florida Water Management District, and EPA's Gulf of Mexico Regional Partnership program, the Zoo is conducting a feasibility study related to its water conservation challenges and opportunities. The study will analyze both water conservation and water quality issues related to Zoo operations. Recommended solutions are expected to impact Zoo operations, facilities, and future land uses. Study tasks include:

- Inventory, analyze and map water infrastructure inventory
- Update operations protocol and flow diagram for the animal waste system
- Develop water, pure stormwater, and domestic wastewater flow diagrams
- Determine feasibility of separating stormwater and animal wastewater for increased water quality
- Examine existing stormwater infrastructure on the main Zoo exhibit property
- Evaluate the potential for any on-site wastewater treatment systems and options for reuse of washdown water and enhancement or reuse of captured on-site irrigation
- Evaluate the feasibility of constructing an animal wastewater collection system for conveyance to the City of Tampa's system
- Conduct a capacity analysis of the City system that runs through the Zoo parking lot and provide information on available capacity
- Evaluate adjacent properties for increased stormwater treatment to improve stormwater and/or water quality treatment
- Develop water conservation, reuse and waste reduction actions to decrease water use and increase on-site recycling



- Produce master plan containing all of the outputs from all study tasks; opportunities for best management practices related to nutrient removal and water loss reduction; recommendations for separation of combined stormwater and animal wastewater flows; potential use of existing Zoo property; water conservation and reuse options; potential for waste-to-energy/compost projects; preliminary capital and life-cycle costs of the most feasible options; and recommendations for incorporation of projects into the Zoo's ongoing education program



As a community institution and leading conservation organization, the Zoo expects to use the opportunity of its water resources master planning and implementation to further regional water conservation goals by integrating water as an interpretive theme or sub-theme throughout the Zoo. Further, the Zoo intends to share the planning process and study findings with other zoos to promote similar water conservation strategies.

The Zoo intends to be a leader in conservation of wildlife as well as natural resources. To do that, the Zoo is conducting a feasibility study to identify and recommend a progressive approach to better managing its own use of water and energy and to promote wise and sustainable use of these resources by everyone. By implementing state of the art solutions throughout its operations and sharing lessons learned, the Zoo can inspire respect for and stewardship of precious natural resources and become a model for zoos across the United States.



The Zoo's main areas of study are:

- Importation of potable water into the facility
- Use of water to maintain animal habitats and for animal life support
- Generation and management of solid and liquid animal wastes
- Rainwater/stormwater that enters and comingles in the system, and
- Over 100 million gallons per year of combined wastewater and stormwater that are treated and discharged.

From this study, the Zoo will develop a Water Resources Master Plan that provides a vision of the future that can guide its ongoing development. The planning process creates an unprecedented opportunity to re-design and re-orient infrastructure towards resource conservation and sustainability. It also presents a unique opportunity to involve and educate the public on ways to protect the environment.

The Water Resources Master Plan starts with a complete understanding of current Zoo operations, water and energy use, importation and discharge of nutrients, waste generation

and management, rainwater/stormwater management, and existing infrastructure inventory and analysis. The Zoo, with the project team, will identify potential modifications to operations and infrastructure, and the plan will include a description of the purpose for each action and its benefits and costs. The Water Resources Master Plan will outline the manner in which each remedial measure will contribute to a coherent plan that evolves the Zoo's water operations toward maximum sustainability.

Funding and project management for this innovative study is provided by the City of Tampa, Southwest Florida Water Management District, and EPA's Gulf of Mexico Regional Partnership Program, with Greenman-Pedersen, Inc. as consulting engineers. The Water Resources Master Plan is expected to be completed by the end of 2015.

Special thanks to:

