Stormwater Utility

As a community with more than thirty miles of waterfront, properties within the Village of North Palm Beach have an inextricable stormwater relationship with the surrounding water bodies. The Village fronts the Lake Worth Lagoon, and across the Lake at the eastern edge of the Village limits lies MacArthur State Park, a unique environmental preserve and ecotourism attraction for nonmotorized patrons. This pristine resource is directly affected by upland activities across Lake Worth, and its continued preservation and enhancement is a Village priority.

With every rainfall, the rainwater that is not absorbed into the ground or evaporated – called "runoff" – carries pollutants from lawns, streets, buildings, and parking lots into the waterways. With proper infrastructure, the stormwater runoff can be treated and purified so that the resulting outflow into the canals and Lake Worth Lagoon is clean. However, the development pattern in the Village includes an extensive array of stormwater outfalls, some of which discharge directly into the Lagoon without any pretreatment, resulting in the degradation of water quality. In addition, it appears some of the Village's stormwater infrastructure has surpassed its engineered life.

Development requirements to address stormwater treatment have evolved over time, beginning in earnest with the introduction of the federal Clean Water Act in the 1970s and the permit requirements of the National Pollutant Discharge Elimination System (NPDES). Florida's stormwater discharge permitting followed, with requirements for properties to treat discharge, either individually or collectively, before stormwater enters waterways. Documentation from the Environmental Protection Agency continues to advise that stormwater runoff is a principal contributor to water quality impairment of waterbodies nationwide.

Top and Bottom: The southern bank of the Earman River/C17 Canal is developed with a string of parking lots and outdoor storage areas, many of which discharge directly into the waterway with every rainfall. This development pattern is inefficient, environmentally damaging, and fails to take advantage of this valuable community asset.

Waterfront development in the Village varies considerably in scale and use, including a broad array of uses along the Earman River/C17 Canal. Many of the properties fronting this waterway were developed before modern stormwater permitting requirements were established. On the north side of the canal, uses tend to be mostly residential, both single and multi-family, along with a public park. On the south side, the uses are more intense, with a range of multi-family, commercial, and industrial uses. Within the commercial areas, several parking areas front the waterway, with rain water sheet flow across the parking areas directly into the canal after storm events.

Properties along the south side of the canal contain a high percentage of impervious surface coverage, which limits percolation on the sites and the ability

to pretreat stormwater prior to discharge. There is also a variation in the topography of properties along the waterway, wherein some parcels drain onto their neighbors. These conditions are especially challenging to retrofit on smaller parcels that have insufficient land area either for retention or exfiltration, effectively stalling redevelopment opportunities as these sites cannot meet modern requirements. Redevelopment projects are also required to comply with the Village's landscaping requirements, which often require the removal of existing paving and the installation of landscape materials. Parking requirements should be evaluated so that they are not inadvertently creating a disincentive for reducing impervious surfaces and limiting redevelopment. The Village's code requires the installation of curbing around landscaping, which prevents stormwater collection; the Village has identified the benefit of channels and inlets through curbs to enable stormwater to percolate.

Addressing the Village's stormwater requirements to improve the health of the Lake Worth Lagoon and its connected ecosystems could require extensive infrastructure improvements. While some municipalities fund these activities through general revenues, other options, such as the establishment of a stormwater utility, may prove beneficial to the Village as it seeks to implement the master plan. Similar to utilities for other infrastructure programs, a stormwater utility exists as a stand-alone service unit within a municipal government, generating revenues through fees for the services it provides. Depending on the structure desired by the parent municipality, a stormwater utility can be responsible for funding the operations, construction, and maintenance of stormwater management devices, stormwater system planning, and management. User fees and revenues from stormwater collections are deposited into a separate fund that may only be used for stormwater services.

Image Source: UF Institute for Agricultural Sciences

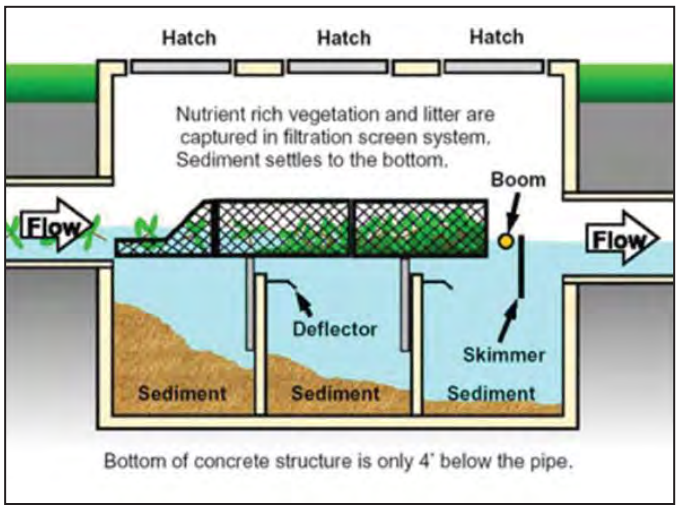

Image Source: Liquid Waste Solutions

Top and Bottom: Creative storm water treatment, such as rain gardens (top) and baffle boxes (bottom) can improve storm water discharges, improving water quality and environmental conditions.

For developed communities seeking infill development and redevelopment like the Village, stormwater utilities are especially useful to assist in master stormwater assessments and planning. While stormwater discharge can be treated on a site-by-site basis, often treatment is more effective on a larger scale, aggregated system. By aggregating stormwater treatment within a district or community, a stormwater utility can advance creative treatment techniques, such as rain gardens or baffle boxes that would be cost prohibitive on a site-by-site basis.

It appears the stormwater from Northlake Boulevard also discharges directly into the Earman River/C17 canal through underground east/west pipes. Although this discharge is untreated in the current condition, baffle boxes or other treatment infrastructure could be installed to improve the quality of this discharge as well.

Given the existing development pattern along the

Earman River/C17, the application of modern stormwater requirements and NPDES could render some of these sites unable to redevelop. Retrofitting stormwater treatment solutions in areas of older development is especially costly. However, a macro approach designed by a Village stormwater utility could enable the acquisition of sufficient property to provide higher quality stormwater treatment in an aggregated system for a district, financially enabling redevelopment to occur.

To implement the master plan, with the proposed arrangement of buildings necessary to establish the envisioned public realm, common stormwater treatment is not only desirable, but is a critical component to achieve the development quantities needed for market returns. In this manner, a stormwater utility can provide indirect redevelopment incentives through master planning, land acquisition, construction of improvements, and selling of stormwater "credits" to individual development interests. The result is the ability for a more intense development pattern that is better organized and more attractive and cleaner stormwater discharge from the sites.

In addition to the planning and construction benefits, stormwater utilities are also highly effective in providing matching funds for grant agencies, such as the South Florida Water Management District, Lake Worth Lagoon Initiative, and Florida Department of Environmental Protection, to further the Village's effectiveness in this important policy area. Stormwater utilities generate a bondable revenue stream that can be pledged towards capital projects to secure funding from other sources. The establishment and operation of a utility also communicates the Village's commitment to this policy priority to the private sector, which increases the attractiveness of local investment to financial institutions.

Image Source: http://floridalivingshorelines.com

Top: An example of a recent living shoreline improvement in the Lake Worth Lagoon.

Bottom: Living shorelines, as illustrated in the before/after images above for West Palm Beach, offer an opportunity to protect the shore and expand native plantings to enhance environmental functions along the water's edge. Below is an example of a recent living shoreline improvement in the Lake Worth Lagoon.

Image source: http://www.michaelsinger.com/philosophy/living-shorelines-initiative/