U.S. ENVIRONMENTAL PROTECTION AGENCY

Polluted Runoff (Nonpoint Source Pollution)

FLORIDA

With the passage of the Surface Water Improvement and Management Act (SWIM) in 1987, the Florida legislature codified its concern over the continued water quality decline in surface waters and degradation of natural systems. The act established a framework and provided the initial funding to preserve and restore waters of regional and statewide importance. The SWIM Act named Tampa Bay and its tributaries to receive priority attention. Tampa Bay is Florida's largest open water estuary, with 398 square miles of surface area and a contributing watershed of more than 2,200 square miles. The Southwest Florida Water Management District has undertaken a major initiative--the Urban Stormwater Analysis and Improvement Initiative--to preserve and restore Tampa Bay. This initiative established existing and future pollutant loading estimates for the entire watershed, followed by specific stormwater rehabilitation projects to improve water quality.

The Bath Club Concourse Stormwater Rehabilitation Project

The Bath Club Concourse is located in North Redington Beach, a small barrier island community in Pinellas County. This combination roadway and parking area--connecting Bath Club Circle and Gulf Boulevard--was an impervious slab of concrete pavement. Since Bath Club Concourse could not absorb falling rain, stormwater runoff flowed directly into a single storm sewer, carrying its full load of nonpoint source pollutants directly to Boca Ciega Bay. In August 1990, the Water Management District and the town agreed to construct a stormwater rehabilitation project using pervious concrete pavement at the Bath Club Concourse. Half of the $48,000 cost was funded by the Water Management District and half from a section 319 grant.

The state has designated Boca Ciega Bay as an "outstanding Florida water" and determined that it has been adversely affected by urban stormwater runoff. Therefore, the Bath Club Concourse Stormwater Rehabilitation Project's main objective was to reduce nonpoint pollutant loading by reducing the volume of runoff discharging directly into Boca Ciega Bay. A second objective was to demonstrate an innovative way to treat or improve the quality of stormwater runoff in highly urbanized areas. These areas pose particular problems because vacant land is not readily available, and acquiring land to construct a conventional stormwater treatment best management practice (e.g., wet detention pond) is often too expensive.

The project's goal was to maximize infiltration of stormwater runoff to reduce the amount of untreated runoff discharging directly into storm sewers. Therefore, the design directed drainage toward two pervious concrete parking areas, separated by an unpaved island, in the center of the concourse. To maximize infiltration, engineers installed two 150-foot underdrains so subsurface soils could drain beneath the pervious concrete parking areas. The project required some 9,120 square feet of pervious concrete, making an 8-inch-thick slab with 20 percent porosity. Table 4-1 summarizes pollutant loadings and predicted reductions for seven water quality parameters. In addition, Figure 4-1 graphically illustrates the

reduction in total nitrogen as a result of the BMP.

These results show that a properly designed, constructed, and maintained stormwater treatment system using pervious concrete pavement (with or without an underdrain system) is a viable alternative to traditional best management practices for stormwater treatment.

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