3.1.2 Recommendations

A new approach based on the preservation of a site's natural features to minimize pollution loads and help preserve the natural system is recommended. Such approach should be consistent with the concept of Low Impact Development (LID). LID aims at minimizing the volume of runoff reaching the receiving water bodies and managing it as close as possible to where it is generated. Techniques defined as micro-controls are implemented in a dispersed fashion throughout a site. The basic principle is to attempt to mimic pre-development hydrology by slowing surface water runoff and subsequently increasing surface water infiltration into the soils closer to the source of the discharge, thereby replicating the natural pathways of groundwater infiltration. Further descriptions of the LID concept are provided in Appendix A.

The application of LID concepts to land development has been assessed herein by determining the storm event that generates a runoff volume equal to 0.5 inches. The goal is to remove the anthropogenic pollutant load associated with this runoff volume. For example, for residential areas, based on typical lot designs for single-family homes under zoning categories RSF-3 through RSF-6, a typical residential lot has a Directly Connected Impervious Area (DCIA) of approximately 25 percent. Using the Soil Conservation Service (SCS) curve number (CN) method and assuming a CN of 74 for the non-DCIA areas, which represents soil type C (slow infiltration), the design storm event for LID design should be 1.5 inches of rainfall. For parking facilities, assuming a 90 percent DCIA, the design event is 1.3 inches. Based on rainfall statistics for South Florida, the 1.5 and 1.3 inch rainfall events represent approximately the 90th percentile. This means that either no runoff pollutant load will be discharged from residential and parking areas for 90 percent of the storms.

As stated above, the goal of the new approach should be simply to retain (no discharge) the pollutant load associated with an additional 0.5 inches of runoff when compared to traditional designs. As conditions may vary substantially between sites, the LID techniques applied to a particular development should be left to the discretion of the designer and could be applied at the lot level or at the subdivision level. Documents that could be adopted by the County as reference to facilitate design include the "Stormwater Quality Applicant's Handbook" developed by FDEP as part of the draft stormwater rule and the Sarasota County, Florida, LID manual. The FDEP handbook delineates design criteria for numerous types of BMPs from retention basins and exfiltration trenches to swales and underground storage and cisterns. The Sarasota County manual focuses on detention with bio-filtration and pervious pavement.

Collier County staff, the development community, consultants (architects, landscape architects, and professional engineers), and the public should all be involved in a public awareness and education campaign to promote the benefits of the proposed approach. The literature on LID describes LID designs as often more cost effective than the conventional stormwater management design because the size of needed conveyance facilities is substantially reduced, thus reducing capital and operations and maintenance (O&M) costs. Also, from a developer's standpoint, the land not used for construction of treatment facilities (i.e. the additional 50 percent detention pond area) can be turned into home sites. However, it is recognized that, at least initially, there may be some reluctance by the development community to adopt the new