EXECUTIVE SUMMARY

The Lower West Coast (LWC) Planning Area is expected to experience substantial growth between now and the year 2020. Population is expected to increase by almost 70 percent from 1995 levels to about 1 million people, with expansion occurring mostly in the coastal areas. This growth will create additional water demands for potable and irrigation water. Likewise, agriculture - primarily citrus and sugarcane located in the eastern portion of the region - is projected to increase by ten percent to approximately 260,000 acres. In addition, there are numerous coastal and inland environmental resources within this region. This region receives approximately 52 inches of rainfall per year on average. Meeting water demands while addressing the water needs of the environment makes development of proactive water supply strategies imperative to the economic and environmental sustainability of the area. The District will be responsible for water resource development to facilitate development of source options at the local level; while, local governments, water users, and water utilities will responsible for water supply development.

This planning document is the product of a public process, that relied heavily on an advisory committee of diverse membership representing agricultural, urban, and environmental interests. The planning effort provided a forum to weigh projected water demands against available supplies.

Seven water source options were identified to address the water supply needs of the LWC Planning Area. These options either make additional water available from historically used sources or other sources, or provide additional management through conservation and storage of the options. The options are (no implied priority):

- Conservation
- Ground Water
  - Surficial Aquifer System
  - Intermediate Aquifer System
  - Floridan Aquifer System
- Reclaimed Water
- Regional Irrigation System
- Seawater
- Storage
  - Aquifer storage and recovery
  - Regional and local retention
  - Reservoirs
- Surface Water

Overall, from a regional perspective, it was concluded that with appropriate management and diversification of water supply sources, there is sufficient water to meet the needs of this region during a 1-in-10 drought condition through 2020. Implementation of the LWC Water Supply Plan, in conjunction with the Comprehensive Everglades Restoration Program, the Caloosahatchee Water Management Plan, and the Southwest Florida Study, should avert potential problems. Even though the volume of water available from the Gulf of Mexico (seawater) appears to be unlimited and could meet the needs of this region through the year 2020, it was concluded that it is not cost effective at this time.

This assessment concluded that the traditional source of water for urban water needs, the surficial and intermediate aquifer systems, has limited potential for expansion due to potential impacts on wetland systems, and increased potential for saltwater intrusion in coastal areas. The Floridan aquifer, a saline water source found at depths greater than 600 feet below the land surface in the LWC Planning Area, appears to be a promising source for additional potable water needs. Current knowledge of the Floridan aquifer indicates it has sufficient supplies to meet both existing and future potable water demands. Many urban utilities have already begun transitioning to the Floridan aquifer through desalination, which removes salt from saline water. Little is known about long-term water quality impacts of sustained withdrawals from this aquifer making the development of a regional Floridan aquifer ground water model and water quality and water level monitoring of the Floridan aquifer a research priority in this region.

From a regional perspective, the use of fresh ground water sources, reclaimed water, surface water, and storage, through development of a regional or subregional irrigation water distribution system(s), will be sufficient to meet the urban irrigation demands. Water from the surficial and intermediate aquifer systems, and reclaimed water have been used historically to meet these demands. However, these sources will not be sufficient to meet the projected urban irrigation demands such that additional supplemental sources and storage will have to developed. The concept of a regional irrigation water distribution system was identified as a means to meet these demands using ground water, reclaimed water, and surface water. This system would make irrigation water available for local supply entities/utilities to withdraw from for distribution. The recommended feasibility analysis will determine the design and magnitude of the irrigation water system. Potential configurations were discussed including one large regional system, subregional systems, or on a utility by utility basis. Storage will be a key component of this system, primarily through aquifer storage and recovery, to store excess surface water and reclaimed water for later use.

In the southeastern portion of the LWC Planning Area, it was concluded that existing surficial aquifer and intermediate aquifer system ground water sources are sufficient to meet the 2020 projected agricultural demands. Some modifications to wellfield configurations and well operation regimes will need to be done at the project level to avoid potential impacts to natural systems and other existing legal users.

The Caloosahatchee Water Management Plan (CWMP), a separate but complementary District planning effort to the LWC Water Supply Plan, evaluated water supply in the northeastern portion of the region in the Caloosahatchee River Basin. The CWMP determined the projected surface water needs of the Caloosahatchee River Basin and Estuary can be met based on recommended developments of water management and storage infrastructure that effectively captures and stores surface water flows in the Basin. The CWMP concluded that existing surface water supplies from the Caloosahatchee River (C-43) are inadequate to meet existing as well as future demands, including the needs of the environment. The C-43 is heavily relied on for agricultural water supply and to a much lesser extent, potable water supply. Surface water availability is essentially a function of climate and storage; there are excess amounts during the wet summer months, and at times, insufficient supplies during the dry winter months. This problem of timing is

particularly illustrated by the impacts of freshwater discharges to the Caloosahatchee Estuary. Excessive discharges decrease the salinity of the estuary that contribute to the loss of estuarine productivity. Insufficient freshwater discharges increase the salinity to essentially saltwater impacting freshwater grasses. A minimum flow and level is being established for the Caloosahatchee River and Estuary.

Improved management of surface water through storage could increase fresh water availability in the region and reduce potential impacts resulting from water use. Aquifer Storage and Recovery (ASR) technology shows promise both for treated and untreated water by providing a storage option during periods of water availability. This technology is currently being used by several utilities at the local level. In addition to continued use and development at the local level, application of ASR on a regional scale has been identified as a potential storage option to capture excess surface water in the Caloosahatchee River Basin, and potentially elsewhere in the region. Regional and local retention projects will reduce excess water discharged to estuarine systems and increase water availability inland by increasing water levels in canals and providing additional ground water recharge.

Strong emphasis should be placed on water conservation through implementation of a comprehensive water conservation plan that promotes cultivation of a conservation ethic. This ethic would be realized through proactive, cooperative efforts between water users, utilities, local governments, and the District. The conservation plan will incorporate many initiatives, including continued development and compliance with water conservation ordinances, development and implementation of public education programs, use of alternative water sources, continued emphasis on water conservation in the District's surface water and consumptive use permitting programs, and other means.

Local governments and users will play a key role in making these strategies a success through adoption of conservation ordinances, homeowner awareness programs, land use decisions, and development of water source options by local utilities and water users. Based on the analysis, it appears most of the water supply issues in the LWC Planning Area can be addressed at the local level with appropriate diversification and management. Exceptions would be addressing the needs of the estuaries and surface water availability in the Caloosahatchee Basin, and meeting the urban irrigation demands. It is likely that ongoing studies will result in future water resource development capital projects.

Other planning efforts are currently underway and are continuing to address some specific goals of this plan, including the Lower East Coast Regional Water Supply Plan, the Comprehensive Everglades Restoration Plan, and the Southwest Florida Study. The proposed Southwest Florida Study will evaluate the entire LWC Planning Area for flood control, water supply, environmental impacts, wildlife habitat including the needs of the estuaries, water quality, uplands, and others. The strategies outlined in this plan, in partnership with other efforts, should ensure that water in this region is prudently managed and available to meet the anticipated demands of the region. This plan will be reviewed and updated every five years to ensure that the water needs of this region can be met.