



Section 1

Data Review and Discussion

1.1 Introduction and Background

The City of Valdosta (City) is located in Lowndes County, and has 38,516 inhabitants based on the 2000 Census, including the following areas: North Lowndes, Bemiss Road Corridor, U.S. 84 Corridor, Clyatville, South Lowndes, and the Airport Subdivision Area. The City is bounded by Perimeter Road on the east and I-75 on the west, with an approximate area of 40 square miles.

Table 1.1.1. Stream Miles and Sub-basins Tributary Area

Stream Name	Tributary Area (Ac)	Stream Miles
One Mile Branch	1,943.8	3.0
Sugar Creek	1,621.5	4.2
Dukes Bay Canal	2700.5	5.0
Browns Canal	676.3	1.6
Three Mile Branch	598.3	2.2
Two Mile Branch	1,798.5	3.7
Stillhouse Branch	551.0	1.6
Cherry Creek	8,141.1	8.6
Hightower Creek	1,018.7	2.7
Knights Creek	10,485.8	10.2
Total	29,535.5	42.8

The City stormwater infrastructure includes more than 10 miles of ditches, 926,000 feet of stormwater pipes, and 18,000 drainage structures. This complex network of infrastructure outfalls to 10 stream sub-basins that are grouped in 2 major watersheds: the Withlacoochee River basin, and the Mud Creek basin. **Table 1.1.1** shows the estimated stream length for each of the 10 stream outfalls located within the City, which add up to a total of 42.8 stream miles. It also shows the

tributary areas of the various sub-basins in the City. **Figure 1.1.1** shows the streams and sub-basin delineations.

The objective of this stormwater master plan update is to define the stormwater level of service, update models for the City’s primary stormwater management system (PSWMS) and outfalls, identify alternative solutions and capital improvement projects, and update the stormwater data management system.

This study has been conducted over several years to accommodate the City’s budget and the intensive data collection process that precedes the model building task. The following is an outline of the work included in this report.

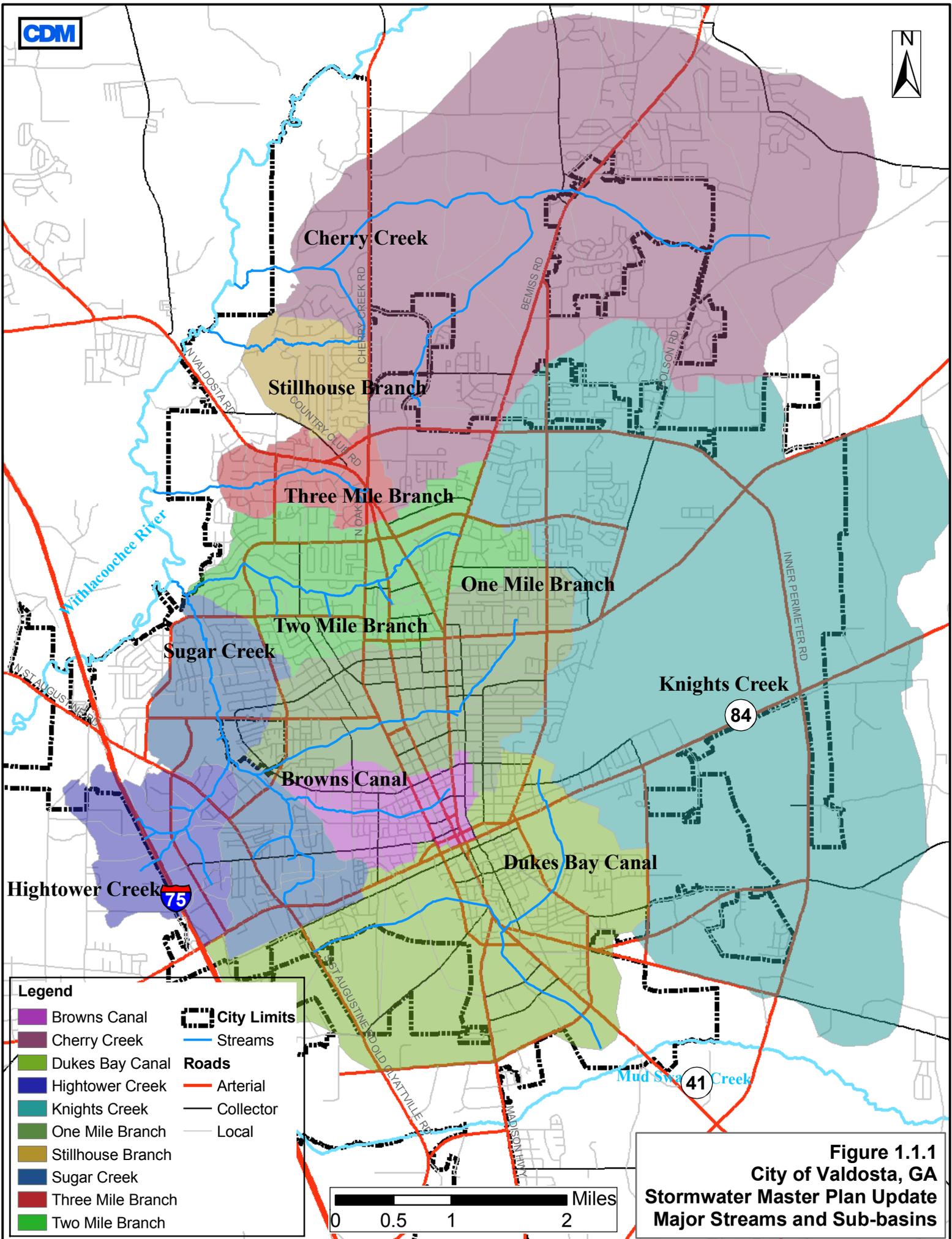


Figure 1.1.1
City of Valdosta, GA
Stormwater Master Plan Update
Major Streams and Sub-basins



1.2 1996 Stormwater Management Plan

The City developed a “Master Stormwater Management Plan (MSMP)” in 1996. This study includes analysis of the existing system, hydrologic/hydraulic modeling, determination of deficiencies, and outlines a 10-year Capital Improvements Plan (CIP). The 1996 MSMP was developed by RS&H for the City of Valdosta.

The 1996 MSMP report includes the list of known stormwater deficiencies for each one of its major tributary areas. The deficiencies were classified on a scale from Level 1 to Level 5, ranging from inconsequential flooding to house flooding and road blockage. The project included a number of outreach meetings throughout the City to collect the complaints from residents and compile the information. The problem locations were identified based on citizens’ complaints, hydraulic model results, and recurrent maintenance problems. The study also showed a high correlation between the hydraulic model results and the areas of citizens’ complaints.

The City has been funding and building some of the capital improvement projects proposed by the previous master plan, as mentioned in Section 4 and Section 5. In addition to the projects identified in the 1996 stormwater master plan, the City has also implemented several other projects using Special Purpose Local Option Sales Tax (SPLOST) funds that have stormwater benefits associated with them. These are listed in **Table 1.2.1**.

The 1996 MSMP had a primary focus on flood control, and did not consider water quality elements that are becoming essential for the City’s sustainable growth and permitting.

Table 1.2.1 SPLOST Funded Projects by Sub-basin

S. No.	Sub-basin	Project Description
1	ONE MILE BRANCH	Glynn Circle Culvert Installation
2		Lakeland Avenue Culvert Upgrade
3		Lakeland Avenue Concrete Ditch Paving
4		Slater Street Culvert Upgrades near Brookwood Place
5		Piping near Troup Street
6		Woodlawn Drive Culvert Upgrade
7		Deeb Drive Culvert Upgrade
8		La Forrest Street at Marion Street Culvert Upgrades
9		Garland Drive Ditch Paving and Pipe Installation
10		Sustella Avenue Culvert Upgrade
11	CONNEL ROAD	Connel Road Concrete Ditch Paving



Table 1.2.1 SPLOST Funded Projects by Sub-basin

S. No.	Sub-basin	Project Description
12		Gornto Road at Terrace Culvert Installation
		Chadwyck Area Regional Detention
13	SUGAR CREEK	Lilly Street Culvert Upgrade
14		Park Lane Culvert Installation
15		Green Circle Culvert Upgrade
16		Mall Area Regional Detention Facility
17	HIGHTOWER CREEK	River Street Culvert Upgrade
18		Norman Drive/River Street Detention
19		Norman Drive/Spring Chase Apartments Pipe Installation
20	DUKES BAY CANAL	Madison Highway Drainage Structures and Detention I
21		Madison Highway Drainage Structures and Detention II
22		Madison Highway Drainage Structures and Detention III
23		Hine Street Detention
24		Clay Road Culvert Upgrade
25		Savannah Avenue Culvert Upgrade
26		West Hill Avenue Concrete Ditch Outfall
27		West Hill Avenue at Avenue B Culvert Upgrade
		Conference Center Pond Modification
28	Commerce Drive Culvert Upgrade	
29	THREE MILE BRANCH	N Valdosta Road Culvert Installation near Bosch
30		Castle Creek Culvert Installation
31	STILLHOUSE BRANCH	Bellemeade Drive Outfall Ditch Paving
32		N Oak Street Exit/Cherry Creek Road Culvert Upgrades



1.3 2007 Two Mile Branch Watershed Management Plan

The only stream on the impaired water list (303d) issued by the Georgia EPD is Two Mile Branch, which is due to fecal coliform. The City initiated a study on this basin in 2007 in order to assess the condition of the area and identify potential solutions.

The Two Mile Branch Watershed Management Plan (WMP), prepared by Stantec Consulting Services Inc., characterized the Two Mile Branch watershed through collection of many forms of data, including water quality monitoring data, geospatial data (current and future land use, imperviousness, soils, and wetland buffers), existing watershed studies (1996 MSMP, comprehensive development plans), and city and county ordinances related to stormwater. An inventory of potential coliform sources was evaluated, including the sanitary sewer collection system, stormwater outfalls, septic systems, animal waste, sediment, and debris. Based on the source evaluation, the WMP recommended several management opportunities to reduce the fecal coliform load to Two Mile Branch. These opportunities were split into structural BMPs, non-structural management recommendations and education and outreach. Structural BMPs included bio-retention cells, stormwater wetlands, wet detention ponds, dry swales and grassed channels, while the non-structural management recommendations included pet waste management, rain-gardens and rain harvesting, sediment and erosion control monitoring, septic tank phase-out, and channel restoration. The WMP also presented funding sources and opportunities and included an implementation plan.

1.4 NPDES Mapping Efforts

The City initiated actions to comply with the NPDES Phase II in December 2006, including the mapping and identification of stormwater outfalls. In the process the Engineering Department has developed detailed GIS shapefiles for stormwater inlets, pipes, ditches and ponds. The information was very useful during the development of this master plan update, and includes significant information particularly in terms of location, connectivity and pipe size attributes.

1.5 2006 Stormwater Utility Implementation

In 2004 the City started a study to evaluate the implementation of a stormwater utility to create a dedicated fund to maintain and operate the stormwater infrastructure within the City. Since the establishment of the SPLOST, the City has funded the construction of stormwater projects through this mechanism. However, the operation and maintenance costs of these facilities have been lumped together with the sewer and water maintenance funds.

The City engaged Camp Dresser & McKee Inc. (CDM) to evaluate the existing levels of expenditures related to operation and maintenance of the stormwater system, which were estimated to be about \$1.5M in 2004. The evaluation included the creation of a stormwater utility committee, with representation of several members of the



community including engineers, the chamber of commerce, residents, and the Regional Development Center among others. In May 2006, the City Council approved a stormwater utility fee of \$2.5/month/ERU that was expected to generate approximately \$850,000 annually in a single dedicated fund to operate and maintain the stormwater system. The report included information regarding the City organization and structure as it relates to the operation and maintenance of stormwater activities, and identified the need to create a staff position within the City fully dedicated to stormwater activities. Since then the City created the position of Stormwater Superintendent with a full time assistant, as well as some on-call help from a student intern.

1.6 Flooding Complaints

As part of this stormwater master plan update, CDM compiled information collected from the year 2000 related to stormwater complaints received from citizens. The complaints were collected in individual paper records, and were mixed with other water and sewer complaints. CDM screened the information, categorized it, and geocoded each stormwater complaint. The outcome was a GIS shapefile that provided a spatial distribution as well as date and comment attributes.

The results show a fairly even spread of complaints throughout the City, without unique clusters in specific areas. This is mostly due to the fact that most of the complaints are related to infrastructure flooding, clogged inlets, ditch blockage, and maintenance issues that are not strictly related to stream bottlenecks.

1.7 Regulatory Coordination

During the stormwater master plan update, CDM assisted the City in coordinating with the state and federal agencies. Stormwater projects might run in the jurisdiction and responsibilities of multiple agencies, since they might involve wetland impacts, flood control, stream buffer variances, works in waters of the State, and environmental resource permits. The following are state and federal agencies frequently involved in the permitting process:

- Georgia Environmental Protection Division (EPD)
- US Army Corps of Engineers (USACE)
- Federal Emergency Management Agency (FEMA)
- National Resource Conservation Service (NRCS)
- Georgia Soil and Water Erosion Commission
- US Fish and Wildlife Service



- EPD's Georgia Safe Dam Program

As part of the coordination process for the permitting of the upcoming stormwater projects, CDM organized a statewide pre-application permitting meeting that was held in Savannah, GA on April 13, 2010 and a site visit that occurred on April 29 in Sugar Creek and the Freedom Park Dam. Detailed meeting minutes of both meetings are included in **Appendix A**.

1.8 FEMA Flood Maps

In September 2008 FEMA issued the latest version of the Flood Insurance Study (FIS) for Lowndes County and the City of Valdosta. The new release is a digital version of the original maps developed in 1980. This information had limited uses since it does not reflect the current state of development in the area. This has been evident in recent flood events, particularly the April 2009 Withlacoochee flood, during which the river stage rose by 30.5 feet, and flooded the City's wastewater treatment plant (WWTP) and over 100 homes. Details of the April 2009 flood and flooding of the Withlacoochee WWTP in Valdosta are presented in Appendix K.