

VOLUSIA COUNTY STORMWATER FIVE YEAR CAPITAL IMPROVEMENTS PROJECTS

1. North Peninsula Stormwater Improvements, Phase II

- a. This project consists of the construction of swales and associated driveway culverts on both sides of 40 east-west streets, located in unincorporated county. The swales will provide water quality benefits through collection and treatment of stormwater runoff in grassed swales. The net result will be a reduction of stormwater discharge into the Halifax River. The additional benefit will be a reduction of stormwater flows onto John Anderson Drive, which has a history of flooding. Construction will consist of swale excavation, adjustments to driveways, re-sodding of excavated areas and relocation of affected sprinkler and utility systems.
- b. Project cost is \$360,000 and it is supported by a \$310,000 grant from SJRWMD. County share of \$50,000 of in-kind services.
- c. Construction: Work to be completed by Road & Bridge or Mosquito Control crews.
- d. Project Status: Agenda Resolution approved 9/8/05.

2. Raleigh Drive, Atlanta Drive, Culverhouse Drive, Derbyshire Road, and Carmen Avenue Flooding

An older subdivision (20+ yrs.), with undersized/deteriorated pipes. Needs major drainage infrastructure replacement. Phase I drainage analysis for this sub-basin complete. Land acquisition for large stormwater facility complete. Project is supported by a \$50,000 SJRWMD grant. Construction by September 2005. Projected cost is \$410,000. Tomoka River Basin. Engineering by Quentin-Hampton Associates.

3. Daytona Park Estates Stormwater Master Plan

Project is a master plan for a large, platted subdivision located at the northerly headwaters of the Deep Creek Basin. The planning area consists of approximately 2,000 acres, which includes Cypress Lake, Daytona Lake, Lake Byron, Lake Ruby and Lake Charles. The initial phase of the study will be one ft. aerial contour mapping. Analysis will consist of defining existing hydrologic conditions and proposed improvements, including stormwater projects such as construction of retention areas, improved conveyance systems and a programmed maintenance plan. Planning tools will consist of flood "level of service" analysis, such as 10-yr., 25-yr. and 100-yr. flood elevations. This project is supported by a \$30,000 grant from the St. Johns River Water Management District. The consultant is PEC Engineers. Design is underway. Completed December 2004. Cost: \$130,000. Estimated capital costs: \$270,000.

4. Gabordy Canal / Edgewater Canal

A joint project between the City of Edgewater, New Smyrna Beach and the County. This project will involve the identification of parcels for retention ponds, increased maintenance activities, replacement/ enlargement of culvert capacity at Tatum Blvd., Park Ave. and Old Mission Rd. This project has coverage within the Turnbull Creek Basin and the Indian River Lagoon Basin. Project goals are to reduce localized flooding, and provide water quality treatment. Conceptual scope of work has begun. PEC Engineers have completed initial phase of data collection, which includes one ft. aerial mapping and surveying completed August 2003. Completion of the "Gabordy Basin Stormwater Management Plan" will recommend capital projects, with priorities, costs/benefits. Initial improvements underway include acquisition of eight-acre parcel adjacent to Edgewater Canal (for regional retention area) and design of box culvert at Tatum Blvd. Estimated cost of basin plan: \$150,000. Capital costs for infrastructure upgrade/replacement and stormwater pond expansion estimate: \$420,000.

5. McGarity Basin Outfall Improvements

During the summer of 2002, the unincorporated/Deltona area received an unusually large amount of rainfall (60 inches within 90 days). This situation resulted in flooding conditions, primarily due to lake systems rising and limited outfall capacity. The basin most affecting unincorporated county was the McGarity Basin. The critical areas of concern begin at Lake Diane and proceed through Big Lake, Lake Mitnik, Jenkins Pond and the Barker Dr. outfall. All of these systems were causing adverse impacts to property, endangering homes, roads and septic systems. The decision on outfall improvements will be based on engineering analysis regarding system capacity, costs/benefits, land acquisitions and easement requirements. This will be a multi-year capital improvement program based on prioritization and funding. Engineering is completed. Cost of management plan: \$110,000. Estimated cost of capital improvements: \$580,000.

6. TMDL Program

Water quality program to comply with the State Impaired Waters Rule and Federal Clean Water Act. A TMDL is the maximum amount of a given pollutant that a particular water body can assimilate without exceeding surface water standards. The program will require DEP to assess existing surface water quality data and to develop TMDL's for impaired waters. The TMDL program will be wrapped into the DEP's five-phase cycle, which rotates through Florida's basins every five years. The five-year cycle provides the framework for focusing resources on specific basins, identifying impaired waters, conducting monitoring and developing TMDL's where needed. Watershed management plans will be used and supplemented by additional stormwater modeling to define county projects that have intended results toward reducing pollutant loads. The cost of

implementing a TMDL program is significant and will affect both public and private interests. A water resources consultant is providing the county with assistance in the TMDL program. This will involve coordination with monitoring; data analysis, public education, stakeholder meetings, watershed plan development and TMDL load allocation support.

The Group 2 Middle Basin (St. Johns River and tributaries) TMDL list is now verified. The next step is the development of a Basin Management Action Plan (BMAP). This will entail identifying stakeholders and allocating pollutant loads accordingly. This process will require additional funding resources to address potential capital projects. For planning purposes, the estimated capital cost for Group 2 is \$400,000.

The Group 5 Northern Coastal Basin (East Coast) is now on a TMDL planning list of impaired waters (December 2004). This basin contains more water bodies and thus, more potential impairment issues and costs than the Middle Basin. The estimated capital cost for projects associated with Group 5 is \$750,000.

Additional resources (\$35,000) have been allocated to the Environmental Health Lab to support ongoing and additional targeted water quality monitoring efforts.

7. Middle Basin: Deep Creek Master Plan

The Middle Basin (SJRWMD) is a SWIM water body. As such, it is a priority for water quality improvements, planning and funding assistance. The Volusia County coverage within the Middle Basin is Deep Creek. The Deep Creek basin, which includes Lake Ashby, is currently under increased development pressure, as it is bordered on the west by Deltona, and has S.R. 415 as a candidate for widening and connection with Seminole County Expressway. Water resource issues need to be addressed early on, so planning can be more long range and proactive, thus reducing or eliminating costly retrofit programs. Estimated cost of master plan: \$285,000. The first sub-basin work in the Deep Creek system is the current project "Daytona Park Estates". Estimated capital costs: \$400,000.

8. Future Master Plans:

Little Haw Creek Basin
Middle Haw Creek Basin
St. Johns River Basin
Lake George Basin
Deer Creek Basin

9. Highland Park Road / Norris Dead River Restoration

Highland Park Road is located in NW DeLand, adjacent to Lake Woodruff National Wildlife Refuge. The unpaved road conveys stormwater runoff from Audubon Ave. into a branch of the St. Johns River, known as Norris Dead River. Uncontrolled runoff has eroded Highland Park Rd., resulting in severe down cutting of side ditches and rutting of the roadway. The accumulated sediment deposition into Norris Dead River has constricted its channel width by approximately 50%. The sediment bar has sufficient build up to support invasive vegetation. The roadway erosion is so severe that it is now closed to traffic. Because the terminus of Highland Park Rd. provides access to the river, many vehicles ignore the road closure and park near the shoreline for fishing and small boat launching, thus increasing the shoreline damage.

A restoration effort to address this situation would include stabilization of the roadway, dredging of the sediment bar, establishment of desirable shoreline vegetation and allowance for pedestrian access to the river for fishing, canoeing, picnicking, etc. Highland Park Rd. would be permanently closed to traffic and used as a pedestrian walkway. Estimated cost: \$700,000.

10. Calvin Street Retention Pond Expansion

Calvin Street is adjacent to an existing county retention pond and park facility. During the wet season, the road floods and has to be closed. This flooding is due to the pond “backing up” into the street (the roadway being too low in relation to pond water levels). The road is usually closed for three to five months. On the north is an existing county park. The project proposes to permanently close Calvin St. and expand the pond to include the abandoned roadway. The pond would be reshaped with flat side slopes, a perimeter walking trail, benches and landscaping. It would be linked to the adjacent park by trails. The overall result would be a landscaped, esthetically pleasing “lake”, public recreational opportunities and increased flood protection. Estimated cost is \$300,000. Planning stage.

11. Miller Lake Trunk Line

Miller Lake is a closed basin water body located on the west side of Highway 17-92, in the unincorporated area of Orange City. Rising water levels have repeatedly threatened homes and caused property damage. This lake has been identified as a candidate for inclusion in the City of DeBary master stormwater trunk line project. This partnership between the city and county would study the feasibility of adding Miller Lake to a pump discharge line, which would direct discharge to a large, multi-acreage retention area. Phase One of the study will involve a conceptual engineering analysis of the master plan. Phase Two will define the capital improvement and permitting process leading to construction of the system. Conceptual study to commence FY 2005/2006.

12. Ongoing Swale Projects

Water quality and flood reduction benefits can be easily realized in certain areas that have sufficient right-of-way and relatively well-drained soils. The use of swales is an efficient and cost-effective stormwater best management practice. Many older subdivisions have little or no stormwater treatment systems. This situation can be partially addressed by swales, which provide pollutant removal, collection and storage of roadway runoff. In addition to water quality and flood reduction benefits, the reduction of standing water on roadways helps improve traffic safety. Projects include John Anderson Dr., Tarpon Ave., Dolphin Ave., Margaret Rd. (North Peninsula area), Alcazar St., Alabama Dr., Carolina St. (Holly Hill area), Massachusetts Ave., Cumberland Rd., Cardinal Ln., Robin Ct. (DeLand area), Juno Trail and Alice Dr. (Astor area). Ongoing program. Annual cost: \$25,000.

13. NPDES Phase II Program

Volusia County and its local governments are included in the NPDES (National Pollutant Discharge Elimination System) Phase II Permit Program. This is an EPA (Federal program), administered by DEP that will require certain activities that will satisfy the six minimum measures to the “maximum extent practicable”; including having a stormwater management program, regulation of construction activities, identifying major outfalls into state waters, public involvement and having a maintenance program. A series of work plans, produced by consultant CDM, has been assembled and distributed to all affected local governments (a total of 13 entities). Each work plan is accompanied by a meeting of the working group to discuss and define the tasks. Cost sharing has been addressed through interlocal agreements. Submittal to DEP completed in June 2003. Cost for preparation: \$60,000. Annual reports due to show progress in measurable goals. Annual cost estimate: \$30,000.

14. Fleming Avenue & Calle Grande Street Box Culvert

Replacement of undersized and deteriorated structures serving major stormwater conveyance systems. Engineering and permitting in January 2005. Estimated total cost: \$125,000. Fleming is in the Tomoka Basin. Calle Grande is in Nova Basin.

15. Debbie Street

Located in unincorporated New Smyrna Beach area, near Pioneer Trail and Wallace Rd. Debbie St. has some low lying elevations which result in water being “trapped” and backing up into adjacent lots, resulting in flooding of private property and street closing. To date, one home has flooded. The project proposes to construct an inlet and pipe network to connect with a modified drainage outlet along Pioneer Trail to Turnbull Bay. Water quality inlets (filtration devices) will be installed at selected inlets. Estimated cost is \$75,000.

16. Ponderosa Drive

Ponderosa Drive is located east of State Road 11, in unincorporated DeLand. During the hurricane events of 2004, the area experienced severe street and home flooding. At least four homes flooded and many others were threatened with inundation. The situation is aggravated by ___ in the roadway where water is “trapped” due to inconsistent driveway grades and culvert elevations. The project proposes to reconstruct driveways and install ex-filtration trenches for water quality. Discharge is easterly into a wetland system. The project is located in the Little Haw Creek Basin. Estimated cost: \$175,000.

17. Erosion Control Projects Countywide

Many of the projects identified are a combination of maintenance and water quality issues, specifically related to erosion of property and sedimentation of lakes, rivers and streams. During Tropical Storm Gabrielle there were a variety of locations that experienced severe erosion, resulting in property damage, environmental impacts and increased costs for restoration. Several projects have been identified that will serve as pilot efforts to incorporate more up-to-date erosion control techniques; including hydro-seeding, erosion blankets, geo-web and paving of dirt road approaches at stream crossings. Examples of completed projects include Boy Scout Camp Rd. (Lake Ashby), Tomoka Farms Rd. and Avocado Dr. (Spruce Creek). Projected annual erosion control project cost: \$50,000.

18. GIS Database Development

Consultant (CDM Engineers) currently under assignment to develop and support GIS based stormwater application to be used for inventory and maintenance purposes. Basic project is complete, with allowances for needs assessment, including tools such as mobile GIS applications for entering field data. This database will play a key role in developing a systematic, countywide approach to mapping and identifying major stormwater features and will be indispensable for the upcoming NPDES permit process and the TMDL monitoring program, both administered by DEP. Support and maintenance of this program will be through the GIS specialist dedicated to Public Works projects. Acquisition of a sub-meter, portable GPS unit will assist staff in fieldwork to continue mapping efforts throughout the county. Estimated cost for initial implementation: \$125,000. Annual update/maintenance cost estimate: \$30,000.

19. Turnbull Creek, Tributary "E" – Golk Property

Regional project to provide water quality benefits to Turnbull Creek, reduce freshwater discharge to estuarine system, provide aquifer recharge and attenuate storm flows. State Water Advisory Panel grant contract from DEP for \$157,000. Land purchase complete. 21.7 acres to be used for flood relief, water quality and public use benefits, such as hiking trails and picnic areas. Survey and geotechnical work complete. Design and permitting completed by January 2004. Total estimated cost of project: \$555,000. Pond excavation to begin October 2005. Engineering by ECT, Inc.

20. DeLeon Springs Roadway and Drainage Improvements

The DeLeon Springs road and drainage improvement project is a joint effort between Community Services, Road & Bridge and the Stormwater Utility. The project is located in a CDBG (Community Development Block Grant) zone. This designation qualifies the project for Federal financial assistance, which is administered by Community Services. In this case, the construction phase of the project will be covered by the grant. The project proposes to pave existing dirt roads and construct drainage improvements, such as swales and a retention area. The engineering portion of the project is funded by the stormwater utility. All construction will be done by Road and Bridge. The paving improvements will provide a better quality of roadway infrastructure and eliminate severe erosion and flooding caused by the steeply sloped and unstabilized roads. The retention area will be constructed on county owned land, at the intersection of Park Ave. and Cordova Ave. The road paving will include Quebec Ave., Cordova Ave., Alcazar Ave. and portions of Park Ave. Construction is anticipated by July 2005.

21. West Minnesota Ave Retention Pond Expansion

This is Phase Two of a retention pond expansion, located adjacent to Stetson Baptist Church. The original size of the closed basin retention pond was insufficient to contain even moderate storm events, resulting in closure of Minnesota Ave. In 2000, the pond was expanded through granting of a drainage easement from the adjacent property owner. This resulted in increased storage volume and less frequent road closings. However, recent storm events have continued to result in road closings and the mobilization of pumping operations. The county has recently been offered an opportunity to purchase the entire adjoining parcel, which is owned by Stetson Baptist Church. The purchase of this parcel will allow for a major increase in pond capacity, resulting in a higher level of service (flood reduction) for the roadway and adjoining property owners.