ST. JOHNS RIVER TRIBUTARY DREDGE STUDY

for
Dredging Committee
Jacksonville Waterways Commission
City of Jacksonville
Florida

NOVEMBER , 2000

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Department of Biology and Marine Science
Jacksonville University
Jacksonville, Florida

Introduction

The City of Jacksonville contacted with Jacksonville University to conduct a preliminary dredging study of the St. John River and its tributaries. The Dredging Committee of the Jacksonville Waterways Commission requested this study. The Jacksonville Waterways Commission (JWC) is an advisory body composed of appointed citizens and elected officials. The purpose of the JWC is to advise the City Council on matters relating to the Jacksonville waterways.

The purpose of this study was to investigate the water depth, comparing this to published navigation charts and to examine the sediment characteristics. Several groups have approached the JWC seeking support for various dredging projects. After considering the requests, the Dredging Committee decided it did not have sufficient information on the conditions in the tributaries to make a recommendation or to prioritize projects.

Tributaries were selected in consultation with the Jacksonville Waterways Commission Dredging Subcommittee along with other interested parties. The tributaries are listed in Table 1 along with the sediment characteristics.

Methodology

This study was conducted during July, August and September, 2000, in the tributaries listed in Table 1. Surveys were conducted using a Boston Whaler Fronters 25 equipped with a bathymeter. Each tributary was surveyed by cruising the tributary and noting differences between navigation charts and bathymeter measurements. Periodically the sediment was sampled to determine its compostion. Sediment was collected using a petit Ponar sampler or a sediment probe. The sediment was field analyzed to determine its characteristics as to composition of silt, clay, sand and organics, including detritus or decaying plant material. There are estimates to be used for initial evaluation of dredging suitability.

Depths were adjusted to reflect low water conditions. In general, tributaries with adjusted water depths less than 2ft. MLW were considered candidates for dredging.

Results

This report is divided in to three sections. The first is the navigation charts with depths noted. Circled depths were found to be essentially identical to those indicated on the navigation chart. Changes are indicated in hand-written numbers on the chart.

The second section contains areas whose depths would indicate dredging would be beneficial to the system and its users. These areas are considered candidates for dredging.

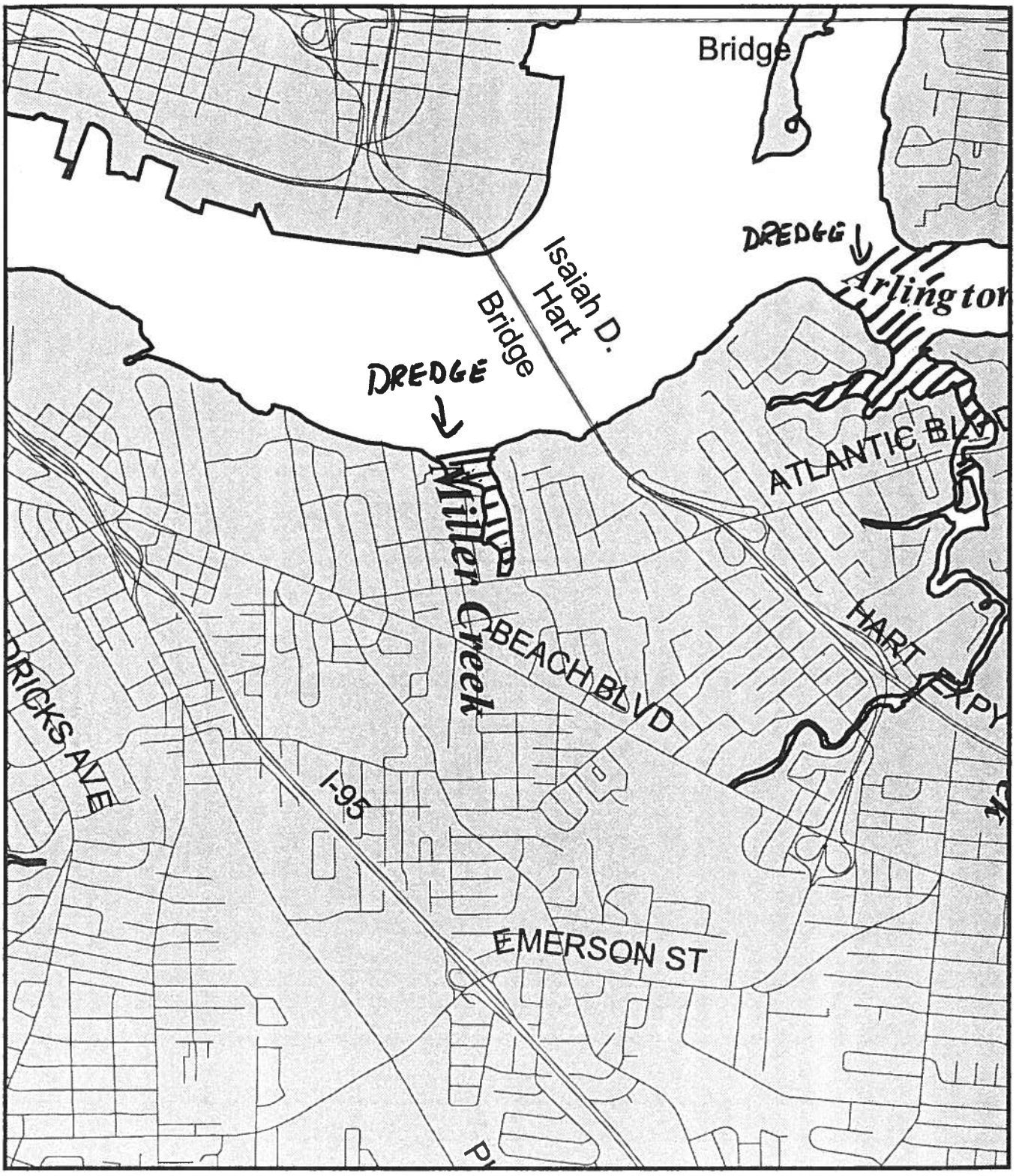
The third section contains tidal ranges in various tributaries in the Duval County area. There are presented to help assess the tidal fluxes in each tributary.

Table 1

SELECTED TRIBUTARIES ON THEIR SEDIMENT CHARACTERISTICS

Tributary	Sediment Characteristics
Arlington River	
- Pottsburg Creek	Silty Sand
- Little Pottsburg Creek	Silt with significant detritus
- Strawberry Creek	Silt
- Silversmith Creek	Silt
Ortega River	Silt/Sand
Cedar River	Silty Sand
- Butcher Pen Creek	Silty Sand
- Fishing Creek	Silt with some organic material
- Wills Brand	Dredged – mouth with sand
Big Fishweir Creek	Silt
Goodby's Creek	Silty sand with high organics
Trout River	
- Moncrief Creek	Silt with significant detritus
- Ribault River	Silt/Sand
Miller Creek	Silt with significant detritus
Clapboard and Browns	Silt/Sand/High organics
Mill Cove	Silt/San near opening
- Harbor North	Silt/Sand
Julington Creek	Silty sand/High Detritus

TRIBUTARIES WHICH ARE CANDIDATES FOR DREDGING



Miller Creek

General Location of Waterway *

County Boundary Line

Water

* The General Location of a Waterway was created from Duval County Soils Information. These areas generally identify the location of a waterway and are not intended to represent extent of where water exists.

N

0 2000

Feet

IMG CAPITAL MANAGEMENT

File
Dredging

arter B. Bryan
EO

May 23, 2001

Councilmember Lynette Self
117 W. Duval Street, #425
Jacksonville, FL 32202

Dear Lynette:

The Dredge Subcommittee met this morning at 9:00 a.m. at City Hall.

The tributaries that were discussed were Williamson Creek, Miller Creek, Silversmith Creek, Ribault River, Moncrief, Little Marsh Island, Mill Cove, Ortega Marker "1", St. John's Cove Canal and Isle of Palms. The meeting was opened with a discussion of where we are today, where we have come from and the procedures that we are working toward to have ongoing dredging in the tributaries. A motion was made by Jim Bailey and seconded by Gary Anderson that Williamson Creek, Miller Creek and Little Marsh Island be considered as equally important for the next areas to be dredged following Morven Lake. These three bodies of water all have very much in common since there is substantial evidence as to what caused the silting was not natural but man made. They are all confined areas where the silting has reached a critical state in that boats are not able to negotiate the creeks except at extremely high tide and then only very carefully.

Discussion was held on Silversmith Creek and Moncrief Creek that we need further evidence and to do more investigation to determine if in fact they need to be dredged, and if so, what caused the silting in and how it can be resolved. Ribault River was taken off the list as it would qualify for FIND, however we determined that from our field trip and from Dr. White's study that there is no need for dredging at this time. Ribault River seems to be fine. There are some shallow areas, but they are certainly negotiable for the most part by the average boat. We discussed Mill Cove that we would like to leave that as a separate category and follow the actions from the Mill Cove people and public works department working with JEA and their contractor to correct the problem that was caused by the construction of the towers for JEA several years ago. Ortega Marker "1" we would like to pursue the Army Corps of Engineers to see if they could dredge that since it is a major navigable waterway for both private and commercial. If the Corps is not

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responsive, we would pursue a FIND grant for 2002. St. John's Cove Canal was considered basically a private development. There is only a small area that needs to be dredged outside the canal and would suggest that the developer take care and maintain that canal. Isle of Palms met with us with different representation than we have previously met with and indicated that they had reached a point where they need help. They have paid for the engineering study and are looking into the cost of removing the spoil material to a FIND site or to Bartram Island. The cost at this point is $2 - $3 million, which exceeds the ability for the local land owners to pay. We indicated that we would assist them in trying to find if this coalition of the four agencies will work out and if we can possibly find funding for spoil removal if they would pay for the actual dredging.

This concludes all the areas we have heard from in the last set of public hearings. We have not scheduled another meeting in June because we wanted to wait to hear the results of the meeting on the 25th at 9:00 a.m.

Sincerely,

Carter B. Bryan

CBB/

cc: James F. Bailey, Jr.
Gary Anderson

Dredging Subcommittee Projects

PROJECT	PERMITTING STATUS	FUNDING SOURCE	COMMENTS
1. Arlington River	Not Acquired	Phase I - FIND (2000)	
2. Miller Creek			Approved for funding
3. Goodbys Creek		Phase I - FIND funding	
4. Mill Cove (North Channel)			Reviewed in March - met criteria JEA contract created problem
5. Moncrief			Needs further study
6. Fishweir Creek	2000 permits not yet available	Phase I approved for funding for FIND grant	Approved for funding
7. Morven Lake		Looking for collaboration between City, ACOE, FIND and SJRWMD	Number One Priority Approved for funding
8. Ortega River Marker 1		Will request funding Phase I in 2001 for FIND grant and ACOE	
9. Isle of Palms			Reviewed current status. Land-owners proceeding on their own Need help - money
10. Silversmith Creek			Reviewed in March in public hearings - met criteria ? Appr...
11. Hilton Hotel			Reviewed in original list, removed by manager of Hilton; they have dropped plans for marina (?)
12. Cedar River			Considered not in need of dredging also, DEP says soil contaminated; environmental concerns
13. Williamson Creek			Approved for funding
14. Ribault River			Looked, shallow conditions could not find. Not approved
15. Little Marsh Island			Reviewed - approve for funding
16. St. Johns Cove Canal			Private development - Not approved

OFFICE OF THE MAYOR

ST. JAMES BUILDING
117 WEST DUVAL STREET
SUITE 400
JACKSONVILLE, FL 32202

JOHN A. DELANEY
MAYOR

October 5, 2001

Colonel James G. May
District Engineer
U.S. Army Corps of Engineers
Post Office Box 4970
Jacksonville, FL 32232-0019

Dear Colonel May:

During a recent meeting with representatives of your headquarters, we were informed that the Corps has continuing authority to undertake studies relating to "Ecosystem Restoration," without formal Congressional approval, at the request of a local governmental unit. Therefore, the City of Jacksonville hereby makes formal application for a study of the areas as identified in the attachment.

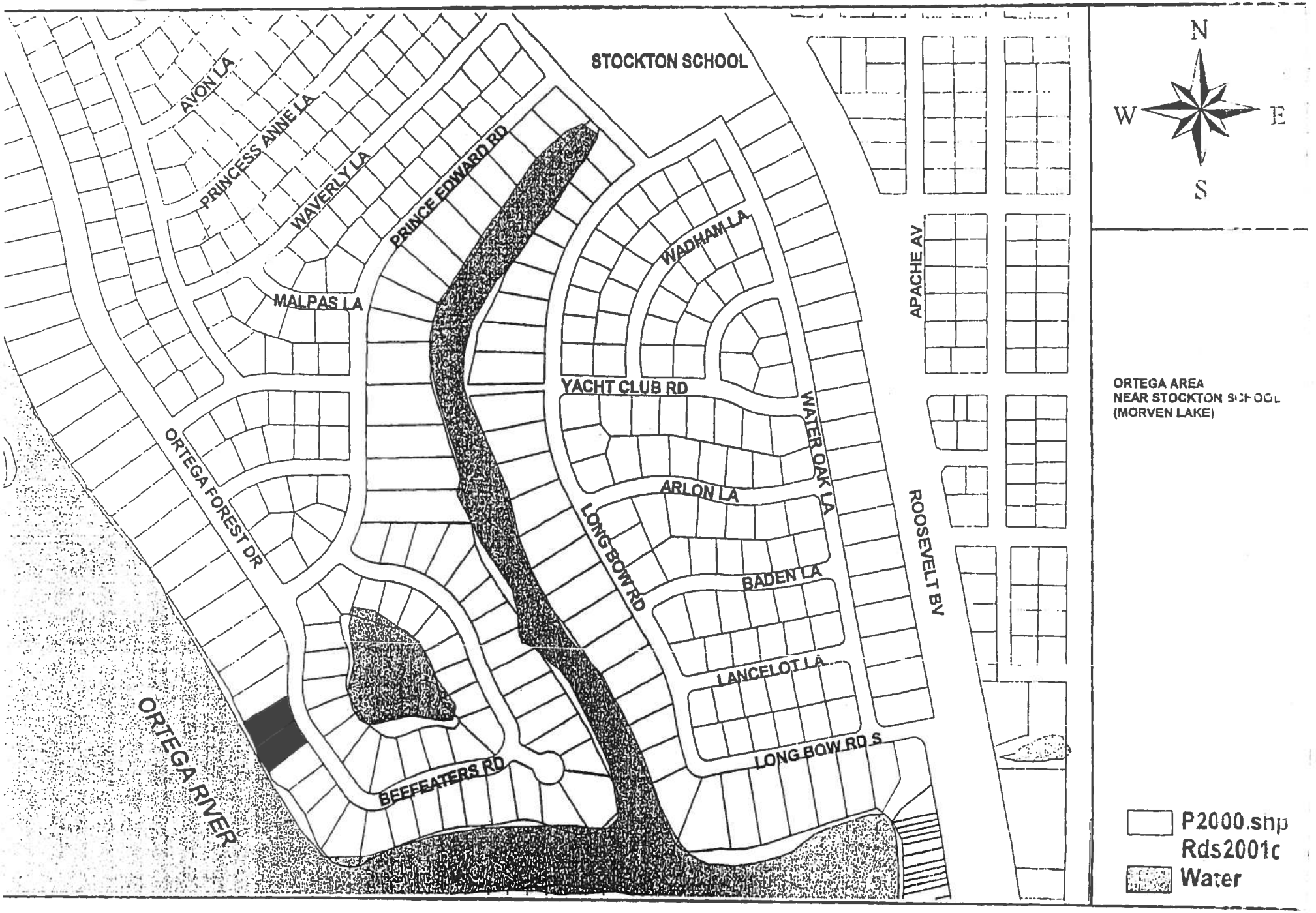
This list is in order of desired priority based on restoration of historic channels and public access; economic benefit; environmental benefit; restoration of private property "non-navigable;" and manatee considerations. However, it is not intended to be inflexible, and if there are reasons, such as or benefit to cost ratio of less than one, for changing the order of work, the City is receptive to such changes.

It is our understanding that there are three phases to this type work: the first phase is the reconnaissance study which will be funded by the U.S. Army Corps of Engineers; the second is feasibility/design, which is 50% funded by the local sponsor; and the third is the construction phase, which is 35% funded by the local sponsor. A portion of the local share may consist of in-kind services.

It is realized that this request comprises a very extensive program and that your annual expenditures for this type work are limited. Similarly, the City's resources are limited and, as you are aware, before any money can be expended, the necessary actions will have to be undertaken to have the City Council approve the expenditures and include the work within the Capital Improvement Program. However, until your comments and recommendations as to the work that can be accomplished under your program and expenditure limitations are received, w cannot present the Council with a proposed schedule of work that we know will be feasible. Consequently, I look forward to the results of your reconnaissance studies, and working with your office to develop a viable plan for restoring some of Jacksonville's tributaries to their original pristine ecosystem.

Joe R. Miller
Director, Public Works Department

Lynn A. Westbrook, P.E.
Deputy Director, Public Works Department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AVON LA
PRINCESS ANNE LA
WAVERLY LA
PRINCE EDWARD RD
MALPAS LA
WADHAM LA
APACHE AV
YACHT CLUB RD
WATER OAK LA
ORTEGA FOREST DR
ARLON LA
LONG BOW RD
ROOSEVELT BV
BADEN LA
LANCELOT LA
LONG BOW RD S
BEEFEATERS RD
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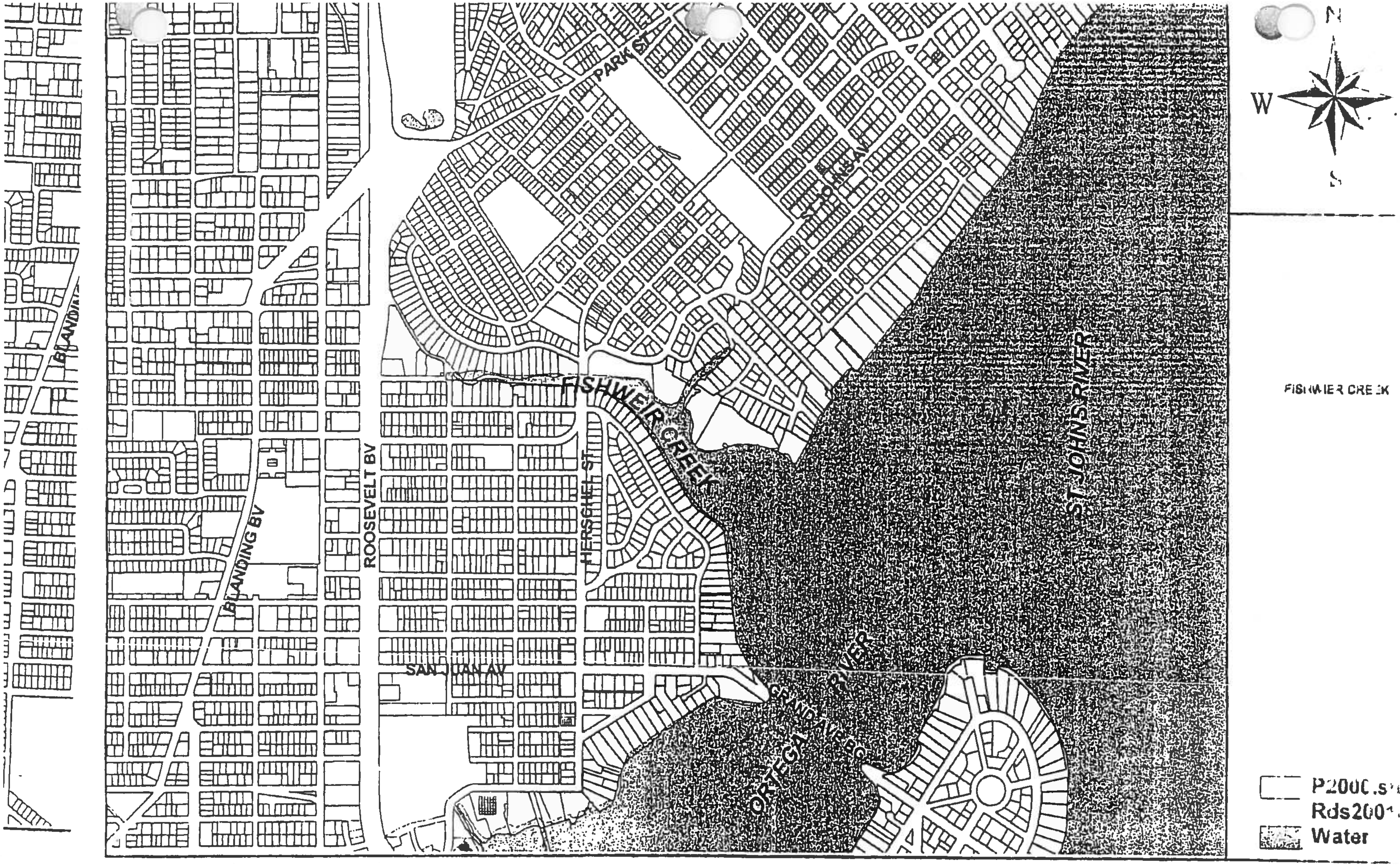
Water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BLANDING BV
ORTEGA RIVER
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PALMER TE
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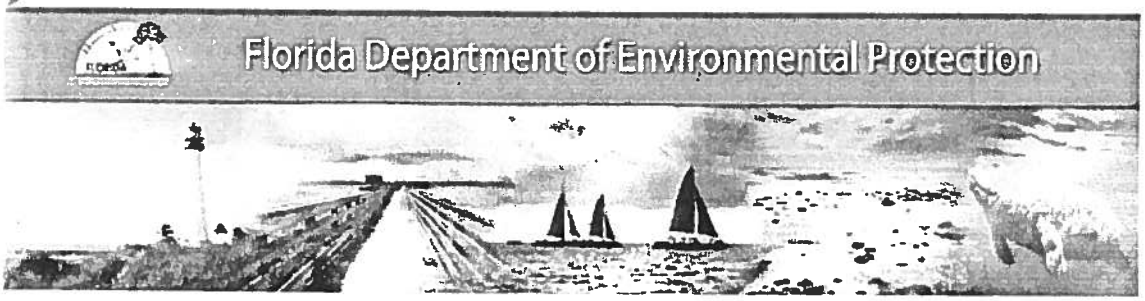
ATLANTIC BV



ST. JOHNS RIVER TRIBUTARIES RESTORATION EFFORTS ACHIEVING RESULTS

Florida Department of Environmental Protection sent this bulletin at 03/06/2014 03:59 PM EST

FOR IMMEDIATE RELEASE: March 6, 2014

CONTACT: DEP Press Office, 850.245.2112, DEPNews@dep.state.fl.us

ST. JOHNS RIVER TRIBUTARIES RESTORATION EFFORTS ACHIEVING RESULTS

~Stakeholders provide annual update on status of restoration plans at Lower St. Johns River Tributaries Annual Meeting~

JACKSONVILLE – Florida Department of Environmental Protection staff today met with local stakeholders to discuss annual progress on the restoration plans for 25 tributaries in the Lower St. Johns River basin. The Department, along with the Florida Department of Transportation, City of Jacksonville, JEA, Duval County Health Department, City of Atlantic Beach, City of Jacksonville Beach, City of Neptune Beach, and Naval Station Mayport reviewed updates on water quality trends, project successes and future direction.

The Department verified various tributaries in the Lower St. Johns River basin as impaired for fecal coliform, a bacteria that indicates the possible presence of human or

animal waste. The Department adopted restoration goals establishing the fecal coliform targets necessary to achieve good water quality in the 25 tributaries.

"Local stakeholders have made significant investments in restoration projects in this basin, and we are seeing results," said Tom Frick, Director of the Division of Environmental Assessment and Restoration. "But the job isn't finished and the Department and every other stakeholder must remain committed to ensuring that full restoration is achieved."

The Department adopted two separate restoration plans, called Basin Management Action Plans, which identified water quality projects, funding resources and an implementation schedule necessary to bring the tributaries in the watershed back to health. Each BMAP set the objective of at least a 50 percent reduction in fecal coliform counts by 2014.

The first restoration plan, adopted in 2009, includes 10 tributaries. Newcastle Creek, Hogan's Creek, Miramar Creek, Deer Creek, and Goodbys Creek have exceeded the 50 percent fecal coliform reduction goal. Miller Creek, Big Fishweir Creek, Terrapin Creek, and Open Creek are also improving, while Butcher Pen Creek has experienced a slight decline in water quality.

Under the second plan, adopted in 2010, McCoy Creek, Fishing Creek, Deep Bottom Creek, Moncrief Creek, Blockhouse Creek, Cormorant Brach, Wills Branch, Sherman Creek, Greenfield Creek, Pottsburg Creek, Middle Trout River, and Lower Trout River have all exceeded the 50 percent fecal coliform reduction goal. Craig Creek, Hopkins Creek, and Williamson Creek are also improving.

All local governments continue to implement wastewater and stormwater infrastructure maintenance programs in accordance with the restoration plans, thereby reducing bacteria problems resulting from faulty systems. Other successfully completed projects presented at today's meeting included:

- Jacksonville's extensive drainage improvements in the Butcher Pen Creek, Miramar Creek, Big Fishweir Creek, Deer Creek, Goodbys Creek, Open Creek, Craig Creek, McCoy Creek, Williamson Creek, Fishing Creek, Wills Branch, Sherman Creek, Pottsburg Creek, and the Middle and Lower Trout river watersheds.
- Atlantic Beach's sewer line upgrades and manhole rehabilitation on East Coast Drive, Ocean Boulevard, and Beach Avenue between 12th and 15th Streets.
- Neptune Beach's stormwater repairs on 5th Street, culvert replacement on South Street, and sanitary sewer rehabilitation on Forest Avenue.
- The Duval County Health Department's intensive inspection program for septic tanks in the Craig Creek, McCoy Creek, Sherman Creek, and Greenfield Creek watersheds.

- Naval Station Mayport's sanitary sewer evaluation, including an assessment of lift stations, inspection and mapping of sanitary manholes, smoke testing the entire collection system, and video inspection and cleaning of all gravity sanitary lines six inches or greater.

Stakeholders also discussed future restoration actions, focusing on new laboratory tools that will allow Department scientists to quickly identify whether fecal coliform bacteria are related to humans. The new testing methods use DNA analyses of bacteria to pinpoint human waste, and they are being refined to fingerprint other sources. Once the causes of the bacteria problems are known, water managers can more effectively target sources and design optimal restoration strategies.

About the Florida Department of Environmental Protection

The Florida Department of Environmental Protection is the state's principal environmental agency, created to protect, conserve and manage Florida's environment and natural resources. The Department enforces federal and state environmental laws, protects Florida's air and water quality, cleans up pollution, regulates solid waste management, promotes pollution prevention and acquires environmentally-sensitive lands for preservation. The agency also maintains a statewide system of parks, trails and aquatic preserves. To view the Department's website log on to www.dep.state.fl.us.

http://content.govdelivery.com/accounts/FLDEP/bulletins/a92af5

Mandrup-Poulsen, Jan

From: Miller, Dee Ann

Sent: Thursday, February 19, 2009 8:38 AM

To: Jordan, Marguerite L.; Mandrup-Poulsen, Jan; Tracy, Amy; Conway, Jodi; Long, Melissa M.; Strong, Greg

Subject: Steps planned to fight bacteria in Jacksonville creeks - FLORIDA TIMES-UNION

FLORIDA TIMES-UNION

Steps planned to fight bacteria in Jacksonville creeks

Fixing the problem will cost more than $84 million, report says

By Steve Patterson Story updated at 7:37 AM on Thursday, Feb. 19, 2009

Sewer repairs, drainage projects, even street-sweeping and land-clearing hold part of the solution to fighting bacteria in Jacksonville's creeks, a new cleanup plan says.

The plan represents a consensus among state and local agencies about the next steps needed to help 10 creeks that have historically carried high levels of bacteria from feces.

Fixing the problem will cost more than $84 million, says a draft of the plan, but that figure includes a lot of work that City Hall and JEA started years ago.

"I think Jacksonville has been rather foresightful," said Jan Mandrup-Poulsen, a Florida Department of Environmental Protection administrator. "My recollection is city leaders approached the department probably five years ago with the concept of trying to do the right thing throughout the county. ... It's been on everybody's radar for a while."

When it's final, the plan will include commitments from local and state agencies to complete the cleanup.

Federal clean-water laws make local governments responsible for controlling storm water that carries debris into creeks. In many areas throughout Jacksonville, that runoff holds bacteria from septic tanks, leaking sewer lines and animal droppings.

High bacteria levels can pose a potential health risk.

Dozens of creeks with bacteria problems aren't listed in the cleanup plan. Many are expected to be added in coming years.

To finalize a plan, scientists have to agree how much bacteria the creeks can actually carry without posing an environmental problem, an answer that varies depending on unique conditions in each waterway.

State regulators have planned a hearing Friday on formally setting those standards for a dozen waterways, including some of those covered by the draft cleanup plan.

That plan outlines scores of steps large and small, from running expensive sewer lines through

neighborhoods filled with broken septic systems to replacing manhole covers at individual street corners.
While many measures seem straightforward – a new stormwater pond on Beach Boulevard will help control bacteria-laced runoff that reaching Open Creek on the Southside — the reasons for other projects are more subtle.

Along Miller Creek on the Southside, for example, public works crews are supposed to thin out plants in one area near Mayfair Road. Trimming the plants will let more sunlight reach the creek and the added ultraviolet light will help disinfect the area, the report says.

Street sweeping is another not-too-obvious solution that's spelled out in the plan. It keeps trash from building up in drainage systems and causing flooding that carries bacteria to Butcher Pen Creek on the Westside.

The plan notes that dozens of repairs to storm water systems near Butcher Pen have already helped the creek, but says monthly street-sweeping will be a sort of preventive maintenance.

Cities across Florida have creeks with bacteria problems, Mandrup-Poulsen said, although few have begun to address them.

He said cities that are taking on the subject often find public support.

"People have the desire to protect their local water," he said. "And if there is a health interest … those all resonate with everybody, whether they're environmentalists or not."

Setting standards

There will be a workshop Friday to talk about bacteria standards for the Trout River and Big Davis Creek, Big Fishweir Creek, Block House Creek, Deep Bottom Creek, Deer Creek, McCoys Creek, Miller Creek, Newcastle Creek, Open Creek, Sherman Creek and Terrapin Creek.

The workshop will be at 1:30 p.m. at the Florida Department of Environmental Protection, 7825 Baymeadows Way, Jacksonville, Suite B200.

steve.patterson@jacksonville.com,
(904) 359-4263

Boulevard, at St Nicholas Avenue extending south to Taylor Street, and in additional patchy areas throughout the basin (103.6 acres; 16.5% of total coverage). Upland forests and wetland habitat accounted for less than 5% of the land use and no agricultural or specialty farm land uses (e.g., dog kennels, horse farms) were identified within the Miller Creek watershed. Furthermore, there are no known areas of concentrated wildlife (e.g., bird rookeries) within the basin.

The Miller Creek basin is predominantly urban with little open land. According to the 2000 Census, the combined population of the census tract groups within the Miller Creek watershed is approximately 3,778. With a watershed size of 629.3 acres, this translates to an average of 6 people per acre. In addition, there are 1,618 households within the basin, averaging 1.93 people per household. Areas with the highest population densities are not located directly adjacent to the creek with the exception of one area (population density 16-25 person/acre) located adjacent to the east side of the creek, between Beach and Atlantic Boulevards (Appendix B, Figure 6). In addition, assuming that 40 percent of households have one dog (Tyler 2006), there are an estimated 647 dogs in the watershed.

Table 5. Land Use Statistics for WBID 2287.

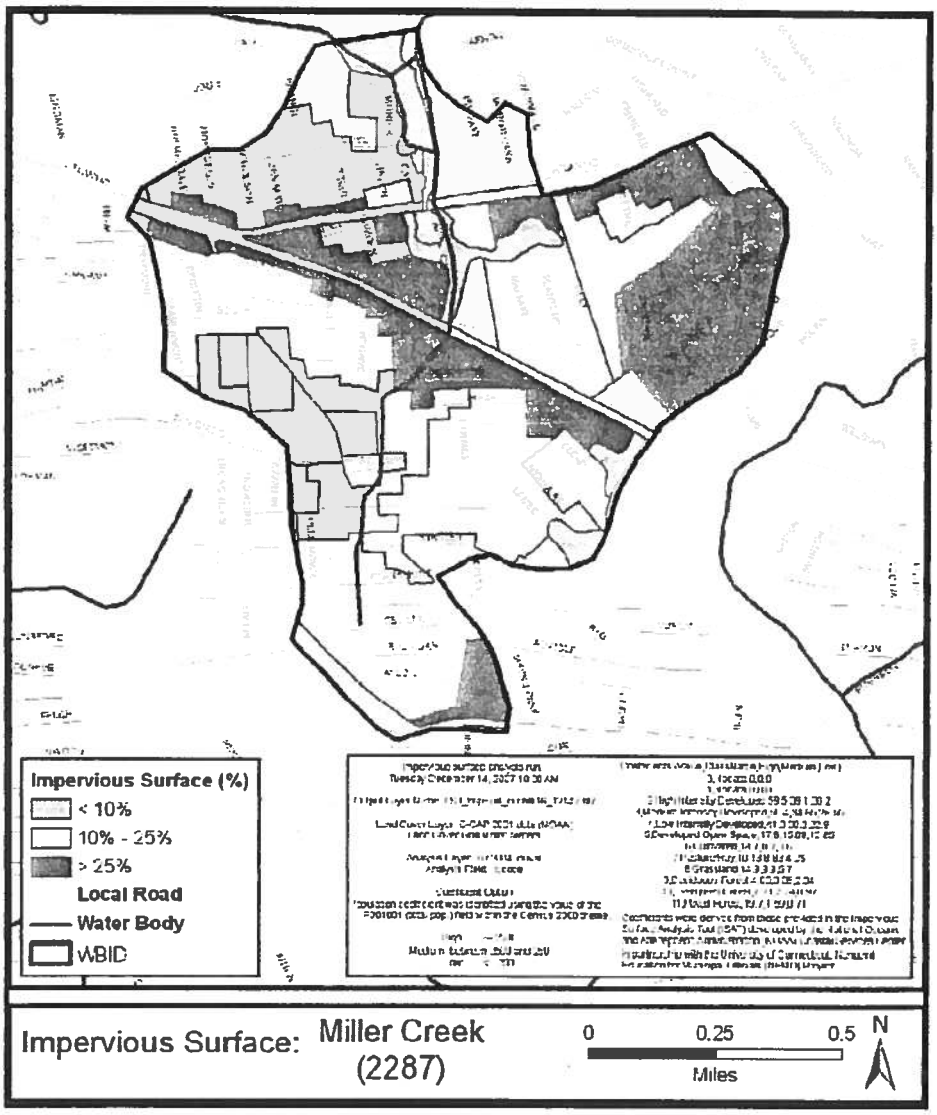
WBID	2004 Land Use	Acres	% of Total
2287	Medium Density Residential Total	212.8	33.8
2287	Commercial/ Utility/ Institutional Total	169.7	27.0
2287	High Density Residential Total	103.6	16.5
2287	Low Density Residential Total	61.8	9.8
2287	Transportation Total	36.9	5.9
2287	Wetlands Total	13.8	2.2
2287	Water Total	12.8	2.0
2287	Upland Forest Total	7.2	1.1
2287	Recreational Total	6.9	1.1
2287	Open Land Total	3.8	0.6
2287 Total		**629.3**	**100**

Analysis of impervious surface, using coefficients derived from those provided in the Impervious Surface Analysis Tool (ISAT) developed by the National Oceanic and Atmospheric Administration (NOAA) Coast Services Center in partnership with the University of Connecticut, Non-point Education for Municipal Officials (NEMO) Project, indicates that the Miller Creek WBID contains predominately 10-25% and > 25% impervious surface (Map 4). Areas with > 25% impervious surface are primarily located along Atlantic and Beach Boulevards and in the eastern corners of the WBID.

A soils survey [United States Department of Agriculture/Natural Resource Conservation Service (USDA/NRCS), provided by the Soil Survey Geographic (SSURGO) Database 2006] indicates that areas directly adjacent to Miller Creek contain soils with slow to very slow infiltration rates (Map 5). Soils with slow infiltration rates primarily occur in a narrow band between South Street and St. Nicholas Avenue and those with very slow infiltration rates are located near Marlton Street and in areas east of the Mayfair Village Road and Mayfair Road intersection. There were no areas within the Miller Creek watershed that contained soils with high infiltration rates. The majority of the WBID did

not have soil information available likely due to the extensive degree of urbanization that has occurred within the watershed.

Furthermore, the potential for stormwater runoff was predicted through the calculation of runoff coefficients using the U.S. Soil Conservation Service (SCS) Curve Number approach (U.S. Soil Conservation Service 1986) (Appendix E). This analysis demonstrates that the majority of the WBID contains a moderate-to-high potential for stormwater runoff, especially in close proximity to the creek (Map 6). Areas with the highest stormwater runoff coefficients correspond to regions with > 25% impervious surface and are located along Beach and Atlantic Boulevards and in the eastern-most corner of the WBID.



Map 4. Analysis of impervious surface for the Miller Creek WBID, using coefficients derived from those provided in the Impervious Surface Analysis Tool (ISAT) developed by the National Oceanic and Atmospheric Administration (NOAA) Coast Services Center in partnership with the University of Connecticut, Non-point Education for Municipal Officials (NEMO) Project.