Welcome to the Technical Meeting for the St Lucie River Basin Management Action Plan

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Detailed Allocations : What Changed???

The Allocation Model was refined using more scientifically-defensible data sets, and primarily, to reflect consistent information in the updated 2012 St. Lucie River Watershed Protection Plan, which includes the following:

- **Sub-basin boundaries aligned** to match the modified sub-watershed boundaries used in the updated SLRWPP -
  In the previous model, there were some relative differences in acreages in each of the sub-watershed boundaries. These differences were identified through a more coordinated effort between FDEP and the SFWMD GIS staff.

- **Localized Rainfall Data for Sub-basin watersheds** was used - FDEP chose to use the same SFWMD rainfall data, which was based on measured rainfall at gage stations throughout the watershed & during the TMDL Period of Record.

Detailed Allocations : What Changed???

- **Event Mean Concentrations (EMCs)** - For the most part, EMCs in urban areas were left unchanged, the basis for those values came from Harper and Baker, 2007 (Table 4). However, in the refined model, EMC values for specific agricultural commodities were adjusted and aligned with the values Del Bottcher had used for the Lake Okeechobee and St Lucie Watersheds.

- **Runoff Coefficient Values Revised** - Significant revisions were made here - using ROCs more reflective of runoff values by land use categories, and using an average rainfall of 51.5 inches (Source: Table 3 in the SLRWPP). The previous model attempted to associate different runoff values associated among land use categories and hydrologic soils groups, but sufficient basin- specific data was lacking for soil groups for this watershed.

  On average, the new ROC values ranged **from 0.03** for the Wetlands/Water land use categories, **to 0.53** for Industrial & Highway land uses. Previous values had ranged **from 0.44 to 0.67** for same land use categories.

Rainfall Data Obtained from the SFWMD

Year	Basin 1	C23	C24	C25	C44 & S153	South Fork	North Fork	Basin 4,5,6	Average[1]
1996	53.1	48.4	47.2	49.5	46.4	59.3	52.1	53.0	49.7
1997	59.1	45.3	51.3	61.8	46.1	60.3	56.1	51.6	50.6
1998	56.4	50.5	54.0	60.5	58.0	69.5	53.0	60.5	55.6
1999	55.6	51.6	60.4	61.6	51.4	63.9	48.9	48.7	53.5
2000	38.9	36.4	43.2	44.8	40.6	42.0	36.8	41.6	39.4
2001	57.6	45.3	47.9	54.1	48.6	62.5	56.4	63.7	51.3
2002	50.1	47.6	54.9	62.3	41.3	43.8	41.4	41.6	45.3
2003	50.1	44.6	52.4	57.9	46.2	47.0	46.4	45.4	47.0
2004	43.6	55.6	57.3	53.8	50.8	53.4	46.1	55.8	52.3
2005	66.9	74.0	67.7	60.9	63.8	75.3	71.3	76.6	69.9
Average	**53.1**	**49.9**	**53.6**	**56.7**	**49.3**	**57.7**	**50.8**	**53.9**	**51.5**

Data is based on ground rainfall gage station measured rainfall.

1. This average does not include Basin1 and C25.

Distributed Rainfall Values Used in the Revised Allocation Model

Subbasin	Rainfall (inches)
North Fork	50.80
C-23	49.90
C-24	53.60
Basins 4 5 6	53.90
C-44 S-153	49.30
South Fork	57.70

Sum of Acres in Each Sub-Basin

Jurisdictional Entity	Basins 4 5 6	C-23	C-24	C-44 S-153	North Fork	South Fork	Grand Total
Agriculture	1,496	56,471	48,775	57,524	451	16,310	181,026
Copper Creek			286				286
FDOT	329	824	469	921	1,598	779	4,920
Ft Pierce					890		890
Hobe St Lucie Cons District				3,173		1,799	4,972
Managed Lands	6	25,506	7,941	23,288	12,064	6,463	75,269
Martin Co	7,139	7,239		24,017	225	11,053	49,673
Martin Co MS4	6,431	161		7,894	6,176	11,632	32,294
North St Lucie River WCD			4,332		40,698		45,031
Okeechobee Co		1,834	5,104				6,938
Pal Mar WCD				1,969		21	1,991
Port St Lucie MS4		7,098	3,478		45,945		56,521
Sewalls Pt					471		471
Southern Grove		3,171	425				3,596
St Lucie Co		9,833	10,848		4,015		24,696
St Lucie Co MS4			0		4,935		4,935
Stuart MS4					915	1,833	2,748
Tradition		9	3,111		38		3,158
Troup-Indiantown WCD				4,557			4,557
Turnpike	184	21			907	284	1,395
Verano			3,033				3,033
Grand Total	**15,584**	**112,167**	**87,802**	**123,343**	**119,330**	**50,174**	**508,401**

Event Mean Concentrations Used in the Allocation Model [1]

EMCs	TN	TP
Low-Density Residential *	1.61	0.19
Single-Family	2.07	0.33
Multi-Family	2.32	0.52
Low-Intensity Commercial	1.18	0.18
High-Intensity Commercial	2.40	0.35
Light Industrial	1.20	0.26
Highway	1.64	0.22
Pasture**	3.35	0.44
Unimproved Pastures**	1.70	0.30
Citrus**	2.24	0.42
Row Crops**	2.90	0.89
General Agriculture**	2.79	0.75
Undeveloped /Rangeland/Forest	1.15	0.06
Mining / Extractive	1.18	0.15
Water	0.84	0.11
Wetlands	1.01	0.05

[1] Sources: Chapter 4 of 2007 report entitled "Evaluation of Current Stormwater Design Criteria within the State of Florida (Final Report submitted to the FDEP, Tallahassee.

* Average of single-family and undeveloped values; and,

** Del Bottcher, personal communication for Agriculture EMCs

Total Nitrogen

	Basins 4 5 6	C-23	C-24	C-44 S-153	North Fork	South Fork
Estimated Concentration (mg/L)	1.11	1.53	1.54	1.34	1.15	1.30
Target Concentration (mg/L)	0.72	0.72	0.72	0.72	0.72	0.72
Reduction Required (%)	35%	53%	53%	46%	37%	44%
Estimated load per acre (lbs/acre)	3.84	5.21	7.69	3.98	3.60	4.38
Target Load per acre (lbs/acre)	2.49	2.45	3.59	2.14	2.25	2.43

Runoff Coefficient Values Used in the Revised Allocations

Runoff Coefficients								
Land Use Category	A	B	C	D	A/D	B/D	C/D	NA
Highway Areas (75% Impervious)	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517
Commercial Areas	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
High-Density Residential Areas	0.456	0.456	0.456	0.456	0.456	0.456	0.456	0.456
Highway Areas (50% Impervious)	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517
Water	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
Citrus	0.365	0.365	0.365	0.365	0.365	0.365	0.365	0.365
Single-Family Residential Areas (40% Impervious)	0.395	0.395	0.395	0.395	0.395	0.395	0.395	0.395
Pasture	0.365	0.365	0.365	0.365	0.365	0.365	0.365	0.365
Unimproved pastures	0.304	0.304	0.304	0.304	0.304	0.304	0.304	0.304
General Agriculture	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335
Wetlands	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030
Single-Family Residential Areas (25% Impervious)	0.334	0.334	0.334	0.334	0.334	0.334	0.334	0.334
Low-Density Residential Areas	0.334	0.334	0.334	0.334	0.334	0.334	0.334	0.334
Row Crops	0.425	0.425	0.425	0.425	0.425	0.425	0.425	0.425
Undeveloped Land	0.304	0.304	0.304	0.304	0.304	0.304	0.304	0.304

Refer to Del Bottcher’s Table 3: Word DOC

TN Allocations: Target Load Per Acre

Jurisdiction/Entity	Basins 4 5 6	C-23	C-24	C-44 S-153	North Fork	South Fork	Grand Total	% Reduction
Agriculture	3,731	138,534	175,176	123,210	1,016	39,645	481,312	62%
Copper Creek	-	-	1,029	-	-	-	1,029	39%
FDOT	820	2,023	1,683	1,972	3,602	1,894	11,993	52%
Ft Pierce	-	-	-	-	2,006	-	2,006	56%
Hobe St Lucie Cons District	-	-	-	6,796	-	4,373	11,169	55%
Managed Lands	16	62,570	28,521	49,881	27,186	15,710	183,884	54%
Martin Co	17,810	17,759	-	51,441	508	26,867	114,386	4%
Martin Co MS4	16,045	394	-	16,908	13,916	28,276	75,538	36%
North St Lucie River WCD	-	-	15,559	-	91,710	-	107,269	53%
Okeechobee Co	-	4,500	18,331	-	-	-	22,832	24%
Pal Mar WCD	-	-	-	4,218	-	52	4,270	54%
Port St Lucie MS4	-	17,412	12,493	-	103,532	-	133,437	29%
Sewalls Pt	-	-	-	-	1,062	-	1,062	-14%
Southern Grove	-	7,780	1,526	-	-	-	9,306	55%
St Lucie Co	-	24,122	38,962	-	9,047	-	72,131	14%
St Lucie Co MS4	-	-	0	-	11,120	-	11,120	43%
Stuart MS4	-	-	-	-	2,062	4,455	6,517	33%
Tradition	-	22	11,172	-	86	-	11,281	55%
Troup-Indiantown WCD	-	-	-	9,759	-	-	9,759	57%
Turnpike	458	51	-	-	2,044	690	3,243	55%
Verano	-	-	10,893	-	-	-	10,893	38%
Grand Total	**38,880**	**275,166**	**315,344**	**264,185**	**268,899**	**121,962**	**1,284,437**	**51%**

Total Phosphorus

	Basins 4, 5 & 6	C-23	C-24	C-44 & S-153	North Fork	South Fork
Estimated Concentration (mg/L)	0.25	0.49	0.37	0.24	0.26	0.27
Target Concentration (mg/L)	0.081	0.081	0.081	0.081	0.081	0.081
Reduction Required (%)	68%	83%	78%	66%	69%	70%
Estimated load per acre (lbs/acre)	0.87	1.66	1.86	0.71	0.81	0.91
Target Load per acre (lbs/acre)	0.28	0.28	0.40	0.24	0.25	0.27

TP Allocations: Target Load Per Acre

Jurisdictional Entity	Basins 4 5 6	C-23	C-24	C-44 S-153	North Fork	South Fork	Grand Total	% Reduction
Agriculture	420	15,585	19,707	13,861	114	4,460	54,148	83%
FDOT	92	228	189	222	405	213	1,349	74%
Pal Mar WCD	-	-	-	475	-	6	480	74%
Port St Lucie MS4	-	1,959	1,405	-	11,647	-	15,012	66%
Stuart MS4	-	-	-	-	232	501	733	65%
Troup-Indiantown WCD	-	-	-	1,098	-	-	1,098	49%
Martin Co MS4	1,805	44	-	1,902	1,566	3,181	8,498	66%
Managed Lands	2	7,039	3,209	5,612	3,058	1,474	20,393	77%
Martin Co	2,004	1,998	-	3,702	57	3,023	10,784	34%
Turnpike	52	6	-	-	230	78	365	73%
Southern Grove	-	875	172	-	-	-	1,047	78%
Tradition	-	2	1,257	-	10	-	1,269	81%
Okeechobee Co	-	506	2,062	-	-	-	2,569	52%
St Lucie Co	-	2,714	4,383	-	1,018	-	8,115	58%
North St Lucie River WCD	-	-	1,750	-	10,317	-	12,068	71%
Copper Creek	-	-	116	-	-	-	116	56%
St Lucie Co MS4	-	-	0	-	1,251	-	1,251	76%
Verano	-	-	1,225	-	-	-	1,225	55%
Hobe St Lucie Cons District	-	-	-	765	-	492	1,257	45%
Ft Pierce	-	-	-	-	226	-	226	82%
Sewalls Pt	-	-	-	-	119	-	119	56%
Grand Total	**4,374**	**30,956**	**35,476**	**27,636**	**30,251**	**13,427**	**142,120**	**76%**

How Did this Affect the Bottom Line Percent Reductions???

TP Reductions			
Jurisdiction/Entity	Mar-12	Mar-11	Difference
Agriculture	83%	83%	0%
Conservation Lands	77%	76%	1%
Copper Creek	56%	64%	-8%
FDOT	74%	75%	-1%
Ft Pierce	82%	70%	12%
Hobe St Lucie Cons District	45%	58%	-13%
Martin Co	34%	33%	1%
Martin Co MS4	66%	66%	0%
North St Lucie River WCD	71%	75%	-4%
Okeechobee Co	52%	32%	20%
Pal Mar WCD	74%	70%	4%
Port St Lucie MS4	66%	69%	-3%
Sewalls Pt	56%	54%	2%
Southern Grove	78%	75%	3%
St Lucie Co	58%	47%	11%
St Lucie Co MS4	76%	76%	0%
Stuart MS4	65%	66%	-1%
Tradition	81%	83%	-2%
Troup-Indiantown WCD	49%	51%	-2%
Turnpike	73%	0%	73%
Verano	55%	62%	-7%

TN Reductions			
Jurisdiction/Entity	Mar-12	Mar-11	Difference
Agriculture	62%	63%	-1%
Conservation Lands	54%	54%	0%
Copper Creek	39%	45%	-6%
FDOT	52%	46%	6%
Ft Pierce	56%	48%	8%
Hobe St Lucie Cons District	55%	54%	1%
Martin Co	4%	4%	0%
Martin Co MS4	36%	35%	1%
North St Lucie River WCD	53%	56%	-3%
Okeechobee Co	24%	0%	24%
Pal Mar WCD	54%	54%	0%
Port St Lucie MS4	29%	31%	-2%
Sewalls Pt	-14%	0%	-14%
Southern Grove	55%	48%	7%
St Lucie Co	14%	4%	10%
St Lucie Co MS4	43%	40%	3%
Stuart MS4	33%	29%	4%
Tradition	55%	62%	-7%
Troup-Indiantown WCD	57%	56%	1%
Turnpike	55%	0%	55%
Verano	38%	42%	-4%

Questions?

Welcome to the Technical Meeting for the St Lucie River Basin Management Action Plan

Kim Gotwals, Facilitator
Science Applications International Corporation

Provisional Credits for Non-Structural Projects

St Lucie BMAP

March 16, 2012

Available Provisional Credits

- Up to 6% credit available; beyond permit requirement

Activity				
Funding for Florida Yards and Neighborhoods	✓		✓	
Local Codes and Ordinances (Landscaping, Irrigation, Fertilizer, Pet Waste Management)	✓			✓
Public Service Announcements (TV, Radio)	✓	✓		
Informational Pamphlets on pollution prevention, fertilizer application, FF landscaping, water conservation, septic tank maintenance, etc	✓	✓		
Public Website on reducing nutrient pollution for homeowners and businesses	✓	✓		
Call-In Number and Inspection Program for Illicit Discharges	✓	✓		
Total Available Credit	**6**	**1**	**3**	**2**

Street Sweeping

- FDEP completed an Assessment Tool in association with the Florida Stormwater Association (FSA) entitled "*Methodology For Calculating Nutrient Load Reductions Using the FSA Assessment Tool*," dated January 2012. The source data that are used for calculating nutrient removal values are from the Final Report: "*Quantifying Nutrient Loads Associated with Urban Particulate Matter (PM), and Biogenic/Litter Recovery Through Current MS4 Source Control and Maintenance Practices*," by Sansalone, Raje, and Berretta, 2011, University of Florida.

- This is the methodology FDEP will be using to calculate nutrient reduction from street sweeping and catch basin cleanouts.

Preliminary Results with Current Project Information

Entities	Education and Outreach						Points	Street-Sweeping
	Florida Yards and Neighborhoods	Ordinances	Public Service Announcements on TV or radio	Pamphlets	Websites	Inspection/call-in program for illicit discharges		
City of Port St Lucie	✓	✓	✓	✓	✓	✓	6	✓
FDOT				✓			?	✓
Fort Pierce			✓	✓		✓	1	✓
Martin County	✓	✓	✓	✓	✓	✓	6	
St Lucie County	✓	✓	✓	✓	✓	✓	6	✓
Stuart	✓			✓	✓	✓	4	✓

Convening a Technical Committee and Basin Working Group

Purpose of a Technical Committee

- A focus group who provides information on project-related details for entities with allocations
- Input from other interested parties, such as NGOs
- Develop options for projects in the St Lucie watershed to reduce nutrient loads
- Provide relevant findings to a formal St Lucie Basin Working Group, which makes recommendations to DEP for inclusion in the BMAP.
- Technical Committee is ADVISORY: Basin Working Group makes RECOMMENDATIONS to DEP

Proposed Membership

Entity	Technical Committee	Basin Working Group
Martin County		
Stuart		
St Lucie County		
City of Port St Lucie		
FDACS		
SFWMD		
FDOT – District 4		
Turnpike		

Proposed Membership

Entity	Technical Committee	Basin Working Group
Sewall's Point		
Fort Pierce		
Verano CDD Troup Indiantown		
NSLRWCD		
Southern Grove		
Tradition		
Copper Creek		
Hobe St Lucie Cons District		

Committee Activities

- Hear updates from entities on progress with their projects
- Refine Maps on the Table
- Possibly hear presentations on new technologies/BMPs
- Convene by subbasins during BMAP progression
- Convene by specific topic when appropriate (e.g., monitoring)

Meeting Prep

- What are we going to do?
- Who needs to attend?
- What materials need to be distributed for review/action before the meeting?

Sunshine Law Provisions

- Florida Law that provides right of access to governmental proceedings at state and local level
- Applies to decision-making boards and commissions
- If “under the Sunshine,” meeting must be open to the public, public notice of meeting beforehand, and minutes taken

Sunshine Law in St Lucie BMAP Process

- Technical Committee is a fact-finding and discussion group, who will identify issues, concerns, and data needed for the BWG discussions; as such, NOT subject to Sunshine Law
- BWG meetings are subject to Sunshine Law; members can not discuss BMAP recommendations outside of noticed meetings
- BWG members NOT restricted in discussing matters with Technical Committee members or their staff
- DEP will provide public notice of all BWG meetings

Questions?