## Plan for Decentralized Wastewater Treatment, North Fork (NY)

Funded by the LI Sound Futures Fund 2012
National Fish and Wildlife Foundation Planning Grant
NFWF/Legacy Grant Project ID: 1401.12.033406
Peconic Green Growth, Inc.
March 2014

Prepared by Glynis M. Berry, AIA, LEED AP, Peconic Green Growth, Inc. 651 W. Main Street, Riverhead, NY 11901 631 591 2402 www.peconicgreengrowth.org

Engineering by
Natural Systems Utilities, Inc., Applied Water Management
2 Clerico Lane, Suite 1, Hillsborough, NJ 08844 908 359 5501

Grants from the following sources were used as partial match:
Henry Phillip Kraft Family Memorial Fund at the Long Island Community Foundation
Suffolk County Water Quality Protection and Restoration Program
Patagonia, Inc.

Major commitments of time and resources were donated by:
The Town of Southampton, GIS Department
The Orient Association
Suffolk County

Funds from the following sponsors of the Symposium, 2013 were applied as match to this study:

Platinum: Bridgehampton National Bank

Clear Flo Technologies, Inc.

Gold: The Nature Conservancy

Roux Associates. Inc.

Silver: David and Kate Calone

Lombardo Associates, Inc.

Sea Tow Services International, Inc.

Bronze: AEC Engineering Design & Construction PLLC

Coastal Pipeline Products Corp.

**Excav Services** 

Jet Inc.

No project can be done in isolation, our thanks to the many people who supported this project including, but not limited to:

- The team from Natural Systems Utilities including Ed Clerico, Rick Cisterna, David Smith, and Jens Riedel, who were true partners in the project;
- The Town of Southampton, especially Ross Baldwin, Director of GIS Services, and Supervisor Anna Throne Holst and Jennifer Garvey for allowing/fostering the support;
- Suffolk County: including, David Calone, Chair, SC Planning Commission, Kara Hahn, SC Legislature, Wayne Horsley, SC Legislator, Al Krupski, SC Legislature, Gwynne Schroeder;
- SC Department of Public Works: Gilbert Anderson, Commissioner, John Donovan, Chief Engineer of Sanitation;
- SC Department of Health Services: Walter Dawydiak, Acting Director of Environmental Quality, Walter Hilbert, Principle Public Health Engineer, Alison Branco, Director Peconic Estuary Program, Michael Jensen SC Bureau of Marine Resources, Jonathan S. Wanlass SC;
- SC Department of Economic Development and Planning: Sarah Lansdale, Director of Planning and Environment, Dorian Dale, Director of Sustainability, Christine DeSalvo;
- NYSDEC: Tom Boekeloo, Lorraine Holdridge, Bill Spitz, Julie Nace, Sarah Deonarine, Nancy Pierson;
- US EPA: Kristina Heinemann, Rob Adler;
- U.S. Congressman Tim Bishop;
- NYS Assemblyman Fred W. Thiele, Jr.;
- The Nature Conservancy including Marci Bortman, Kevin McDonald, Wayne Grothe, Christopher Clapp, Elizabeth Smith, and Stephen Lloyd;
- The Orient Association: Venetia Hands, President, Bob Hanlon, Ellen McNeilly, Kathleen Becker, Catherine Chaudhuri and others. Sandra Sinclair, the Orient Country Store;
- Organizational partners: The East Marion Civic Association, Jamesport Civic Association, Browers Woods Home Owner Association, Captains Kidds Estate Homeowners Association, Greenway Home Owner Association, Southold Voice, Kenney's Beach Civic Association, Group to Save Goldsmith's Inlet, Howard Meineke;
- Town of Southold: Supervisor Scott Russell, the Town of Southold Trustees, in particular John Bredemeyer, and the town planning and engineering departments, especially Michael Collins
- Town of Riverhead: Sean Walter, Supervisor, Jill Lewis, Deputy Supervisor, Michael Reichel, Sewer District Superintendent, and planning department;
- Ed Romaine, Supervisor, Town of Brookhaven;
- Sarah J. Meyland, Director of the Center for Water Management Resources, NYIT;
- Doug Clark, Erin Moore (Clark Engineering);
- Citizens Campaign for the Environmnet: Adrienne Esposito, Executive Director, and Tara Bono;
- Bill Toedter, Director North Fork Environmental Council;
- Christopher Gobler, PhD, Stony Brook University;
- Albert Robert Rubin, NCSU;
- David Berg of Cameron Engineering & Associates;
- Edward Sawchuck of Aqua Vectors;
- William V. DeCandido of In-Pipe Technology;

- Candace Balmer of RCAP Solutions;
- Sarah Cedar Miller, Photographer and SeaTV;
- Lynn Dwyer, Assistant Director, NE, NFWF/LISS;
- Sol Marie Alfonso-Jones and Nancy Arnold of the LICF;
- Bob Eichinger; Jay Prager of Maryland Department of Environment; George Loomis, Director of New England Onsite Wastewater Training; George Heufelder and Brian Baumgaertel of the Massachusetts Alternative Septic System Test Center; Amy Macrellis of Stone Environmental, Inc.; Kathryn Macri and Dwight Brown of NYS EFC; Jonathan Zwarg, RI Department of Environmental Management;
- Donated venues: Suffolk County Community College Culinary Arts and Hospitality Center,
   Greenport, Riverhead and Mattituck libraries, and art sites.;
- AIA Peconic Chapter;
- Colin Goldberg;
- Jason O'Dell;
- Hideaki Ariizumi of studio a/b architects;
- Karen Dorsky;
- The Board of Peconic Green Growth, Inc. including Drianne Benner, Brian Mealy, Nancy Messer, and Sherry Thomas;
- And all the concerned citizens who participated in our events and survey.

We especially thank the Long Island Sound Futures Fund for their care and support, without which this effort could not have gained traction.

## **CONTENTS**

1		Summary Scope of the Project Water Quality Assessments Survey of East End Residents Town and Hamlet Characteristics in the Long Island Sound Watershed	1-1 1-4 1-6 1-6
		Proposed Projects Regulatory and Management Issues Conclusions	1-8 1-9 1-11
2		Water Quality	
3		Survey	
4		Mapping + Data Evaluation - Land-based Characteristics Influencing Water Quality	
		Background	4-1
		Land-based Characteristics Influencing Water Quality	4-1
		Onsite Wastewater Treatment	4-2
		Depth to Groundwater	4-3
		Flooding and Storm Surge	4-6
		Horizontal Impact from Inundation Due to Climate Change	4-12
		SOILS: Drainage Class and Septic Tank Absorption	4-14
		Density	4-18
		Groundwater Influence Zones (Map 9)	4-27
		Priorities (Map 10)	4-30
		Land Use and Clearances	4-31
		Hamlet summaries	4-32
5		Regulation and Management	
		SCCWRMP Suggested Actions	5-1
		Action Items – List	5-2
		Chart of Recommended Action Items Submitted to Suffolk County for Consideration	5-3
		Dedicated Staff Member for Decentralized Wastewater Issues/Program	5-12
		Proposal for Cesspool Phase-out and Prohibition	5-12
		Recommended Changes to Article 6 of Suffolk County Sanitation Code and General Guidelines Issuing Approval of Sewage Disposal Systems and Water Supplies for Existing Residences	5-18
		Suggested Municipal Action	5-18
	6	Engineering Report: Fishers Island	
	7	Engineering Report: Browers Woods, Mattituck	
	8	Engineering Report: Mattituck West	
	9	Notes and Riblingraphy	

Appendix A	Maps of Towns and Hamlets
Appendix B B-1 B-2 B-3	Mapping + Data Support TNC methodology for Coastal Resilience Project 11/09 SC Summary of SCCWRMP findings Draft Suffolk County Decentralized Wastewater System Upgrade and Nitrogen Mitigation Program Criteria & Rating System for Incentives
Appendix C C-1 C-2 C-3	Engineering for Orient Clark Engineering Preliminary Investigation RFP for Orient Engineer Engineer's Qualifications
Appendix D	
D-1	SCCWRMP Summary of Key Findings
D-2	and not a drop to drink, February 16, 2013
D-3	Roundtable: Decentralized Wastewater Regulations and Standards, May 22, 2013
D-4	Wastewater in Our Waters: Solutions June 21, 2013
D-4a	Symposium Agenda
D-5	Marked suggestions to Article 6 of SC Sanitation Code
D-6	Marked suggestions to Guidelines for Issuing Approval of Sewage Disposal Systems and Water Supplies for Existing Residences