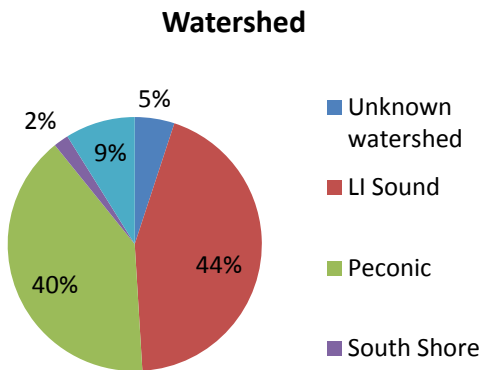
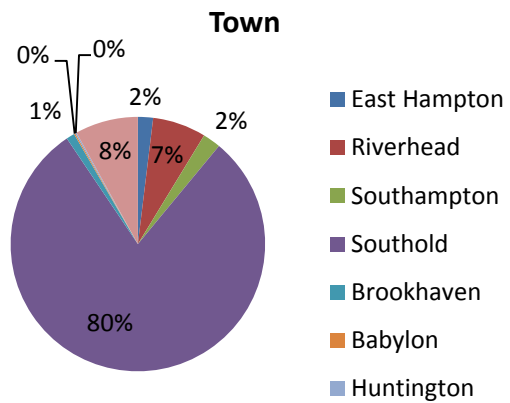


III. Survey

Peconic Green Growth developed a questionnaire, with input and testing by the Orient Association (OA), to assess public opinion and awareness of decentralized wastewater issues. The survey was designed to evaluate current knowledge and practices relative to onsite wastewater treatment, receptivity to enhanced treatment, tolerance for increased costs, and details of individual systems to improve knowledge of characteristics influencing the need for enhanced decentralized wastewater treatment. While the survey was designed for use throughout the East End, in 2013 the emphasis of the outreach was on 13 hamlets in the towns of Southold and Riverhead that are within the Long Island Sound watershed. Due to varied methods of outreach including forums and the expansion of outreach to the Peconic Estuary, responses are from an area wider than the target communities. As of December 9, 2013 there were 573 respondents after the subtraction of 18 duplications (where people had filled out both the online and paper surveys). 442 responses were from targeted hamlets. Over 57 applicants did not know in which watershed their home was located. Once watersheds were assigned based on detailed address information, 29 responses still had unidentified watersheds and 50 were unanswered. 44% or 252 of the respondents had homes in the LI Sound Estuary. Residents of Southold were much more responsive at 80% than Riverhead at only 7%. Much of this is due to the involvement, or lack of it, of local civic and home owner associations. This was evident in Orient, where the Orient Association took a committed role. That, combined with the fact that residents predominantly rely on individual wells for drinking water, resulted in Orient providing 33.5% (192) of the responses. The immediacy of the impacts of water quality on personal welfare, as well as environmental benefits, probably had an impact on the participation rate.

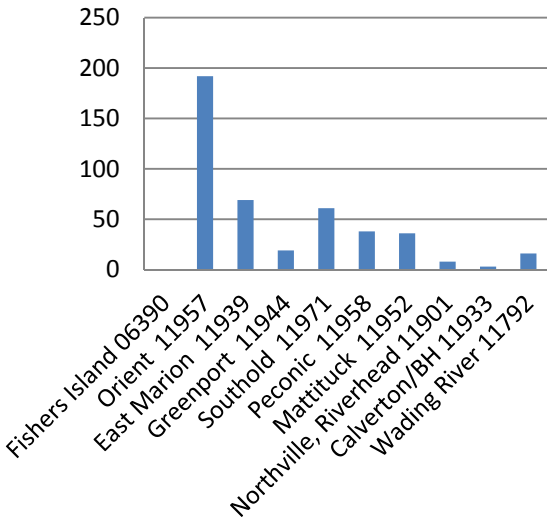


<i>Watershed</i>	
Unknown watershed	29
LI Sound	252
Peconic	230
South Shore	11
Unanswered	51
	573



<i>Town</i>	
East Hampton	11
Riverhead	39
Southampton	13
Southold	456
Brookhaven	6
Babylon	1
Huntington	1
Unidentified	46
	573

Response from Targeted Hamlets



Hamlet	#	%
Fishers Island 06390	0	0.0%
Orient 11957	192	43.4%
East Marion 11939	69	15.6%
Greenport 11944	19	4.3%
Southold 11971	61	13.8%
Peconic 11958	38	8.6%
Mattituck 11952	36	8.1%
Northville, Riverhead 11901	8	1.8%
Calverton/Baiting Hollow 11933	3	0.7%
Wading River 11792	16	3.6%

442

Methods of outreach requesting people to take the survey included email requests through local civic or home owner associations, presentations at libraries (Riverhead, Mattituck and Greenport), home owner association meetings, links on both the Peconic Green Growth and Orient Association websites, hard copies available in two Country Stores, distribution at meetings and forums, solicitation in front of the post office one Saturday (Orient), and personal contact by volunteers, including door-to-door outreach conducted in Orient, East Marion, Peconic, Mattituck, Riverhead, Calverton, and Wading River. Outreach to seventeen associations was made in the LI Sound watershed. Orient responses were analyzed independently to assess influence. Other than drinking water source, most Orient responses were in line with the overall answers.

Survey breakdown by question

Total Survey Responses: 591 Responses as of December 9, 2013, with a further reduction by 18 due to duplicate records. A few of the hard copy submittals missed questions on the second page (beginning with question 12).

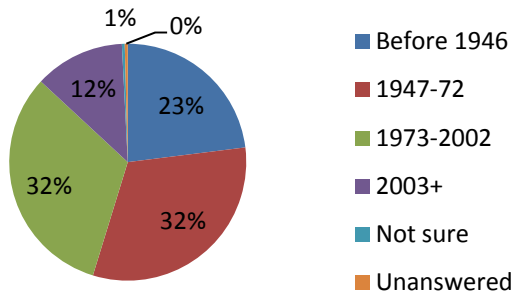
1 When was your house built?							
	<i>LIS</i>			<i>All Responses</i>			
Before 1946	58	23.0%	23.0%	Before 1946	172	30.0%	30.0%
1947-72	80	31.7%	54.8%	1947-72	158	27.6%	57.6%
1973-2002	81	32.1%	86.9%	1973-2002	166	29.0%	86.6%
2003+	31	12.3%	99.2%	2003+	66	11.5%	98.1%
Not sure	1	0.4%	99.6%	Not sure	3	0.5%	98.6%
Unanswered	1	0.4%	100.0%	Unanswered	8	1.4%	100.0%

252

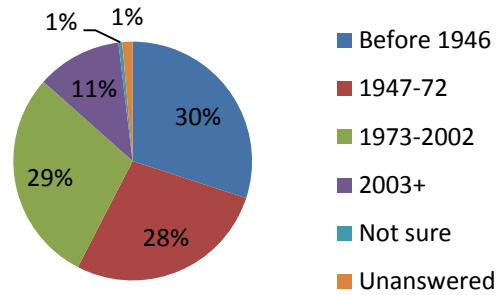
573

Buildings older than 1946 represent 23% of the homes in the LI Sound (LIS) watershed in Southold and Riverhead, with another 31.7% being built between 1947-72. Any building built before 1973 with no substantial additions is likely to have a cesspool. The percentage of homes older than 1973 in the LIS watershed, at 54.8%, is slightly lower than the overall response of 57.6%. Since proposed community systems are in older neighborhoods, this percentage is expected to be higher for targeted projects.

**Building Age
LI Sound Watershed Responses**



Building Age- All Survey Responses



2 Which kind of wastewater system do you have?					
	LIS			Total	
	#	%		#	%
Cesspool	126	50.0%		251	43.8%
Septic + leaching pits	61	24.2%		151	26.4%
Septic + field	26	10.3%		61	10.6%
Community	2	0.8%		7	1.2%
Central Sewer	3	1.2%		11	1.9%
Don't know	30	11.9%		67	11.7%
Unanswered	4	1.6%		25	4.4%
	252			573	

If one combines the percentage of people who have cesspools with half of those who don't know, the total is 56%, which is slightly higher than the 54.8% of LI Sound homes older than 1973. The cesspools will be priority systems for upgrade, especially if in vulnerable areas, such as flood zones or in areas with shallow depth to groundwater.

3 How many leaching pits does your system have?					
	LIS			All Responses	
	#	%		#	%
1	19	31.1%		39	25.0%
2	16	26.2%		42	26.9%
3	5	8.2%		20	12.8%
more	2	3.3%		14	9.0%
Don't know/Not sure	19	31.1%		41	26.3%
	61			156	
% of systems with more than 1 pit	37.70%			48.70%	
unanswered				417	
S+ LP - # answered	0			-5	

Online, this question was only triggered when a septic system with leaching pits was selected for question #2. While the respondents in the LIS correlated, the number of overall responses was more than the number of people indicating they had septic/leaching systems. Some people using the hard copy, but who had multiple cesspools, probably answered this question as well. This question indicates where depth to groundwater is an issue for septic systems. If a system has more than one leaching pit, the design was most likely adjusted to allow the installation of shallower system with multiple leaching pits to accommodate wastewater recharge clearances to groundwater. It is these systems that will be

expected to fail when groundwater levels rise due to climate change. For the LI Sound watershed 37.7% of the 61 responses had multiple rings, indicating that SCDHS requirements for alternative designs were triggered by shallow depths to groundwater. 33.1% of the respondents did not know how many rings they had.

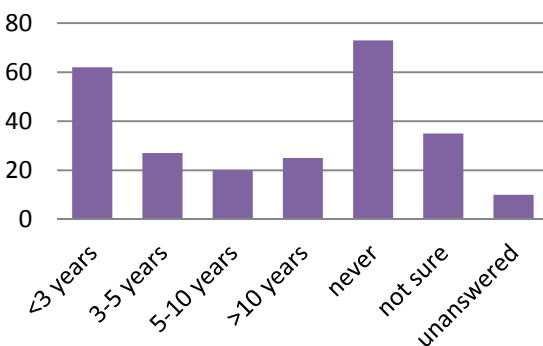
4 Do you know where on your lot your wastewater system is?				
	LIS		All Responses	
Yes, precisely	168	66.7%	379	66.1%
Yes, approximately	65	25.8%	123	21.5%
No, not sure	9	3.6%	32	5.6%
no answer	10	4.0%	39	6.8%
	252		573	

A high percentage of people were knowledgeable about the location of their systems. 92.5% of LI Sound respondents knew either precisely or approximately where their systems were located. Since most of the individual systems have buried hatches, this percentage was encouraging.

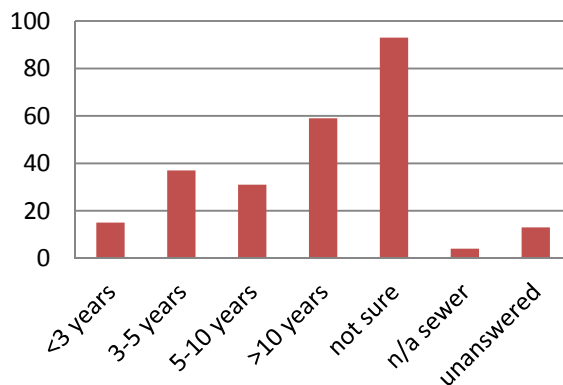
5 When was your septic tank last pumped out?				
	LIS		All Responses	
<3 years	62	24.6%	145	25.3%
3-5 years	27	10.7%	59	10.3%
5-10 years	20	7.9%	51	8.9%
>10 years	25	9.9%	46	8.0%
Never	73	29.0%	131	22.9%
Not sure	35	13.9%	81	14.1%
No answer	10	4.0%	60	10.5%
	252		573	

A high percentage of people in the LI Sound watershed (29%) indicated that they have never had their cesspools or septic tanks pumped out. In the second highest category (24.9%), people had pumped out their systems recently, within three years. Since most people only pump out their systems when there is evidence of functional failure, the systems that were recently pumped may have had issues that impact water quality. Seasonal overloading in tourist areas also can stress onsite wastewater treatment systems, requiring additional pumping. When people never pump, it is probably due to small households, partial use, or possibly cesspools in very porous soils. The latter condition may cause environmental harm without any evidence of system function failure.

LIS Last time system was pumped-out



LIS Service Intervals



6 How often do you need to have your cesspool or septic tank pumped out?				
	<i>LIS</i>		<i>All Responses</i>	
<3 years	15	6.0%	34	5.9%
3-5 years	37	14.7%	73	12.7%
5-10 years	31	12.3%	83	14.5%
>10 years	59	23.4%	118	20.6%
not sure	93	36.9%	206	36.0%
n/a sewer	4	1.6%	9	1.6%
unanswered	13	5.2%	50	8.7%
	252		573	

36.9% of Long Island Sound respondents were not sure when their wastewater system should be pumped out. Other responses were probably based on experience, with 23.4% indicating greater than ten years as appropriate. Optimal periods between system pump-outs vary according to size, usage (number of people per household), and the use/flushing of chemicals harmful to the natural microorganisms processing the waste. Cesspools in porous soil will drain rapidly, with tanks being found empty, meaning that solids as well as liquid effluent are entering soils.

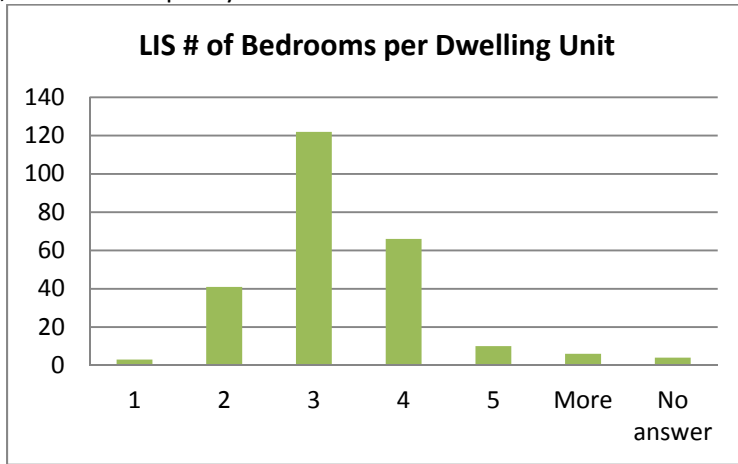
7 Do you ever experience flooding on your site or in your basement?				
	<i>LIS</i>		<i>All Responses</i>	
Yes	19	7.5%	50	8.7%
only major storms	32	12.7%	78	13.6%
first time Sandy	3	1.2%	13	2.3%
No	195	77.4%	404	70.5%
No Answer	3	1.2%	28	4.9%
	252		573	
% homes that have experienced flooding	21.4%		24.6%	

In the LI Sound watershed, 21.4% of homes have experienced flooding, compared to the overall response of 24.6%. Cesspools are particularly vulnerable during storm events, as solids leach into flood waters, potentially transporting pathogens. Pollution from temporary events can have a severe, even lasting impact on marine ecosystems. Salt water intrusion in coastal locations will hinder/halt the natural processing of waste. Also, if pumped during flood conditions, onsite systems may collapse.

8 How many bedrooms does your dwelling have?				
	<i>LIS</i>		<i>All Responses</i>	
1	3	1.2%	10	1.7%
2	41	16.3%	82	14.3%
3	122	48.4%	273	47.6%
4	66	26.2%	140	24.4%
5	10	4.0%	26	4.5%
More	6	2.4%	17	3.0%
No answer	4	1.6%	25	4.4%
	252		573	

The number of bedrooms influence the size of the system needed to properly treat wastewater. 48.4% of the homes in the LI Sound watershed had three bedrooms and 32.6% had four bedrooms or more.

Homes in tourist areas tend to be overcrowded during times of high season, stressing systems beyond their design capacity, but under capacity at other times.

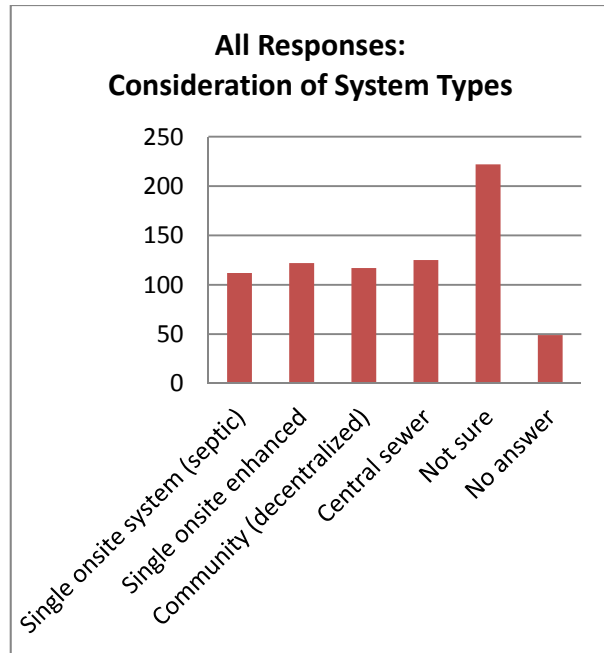
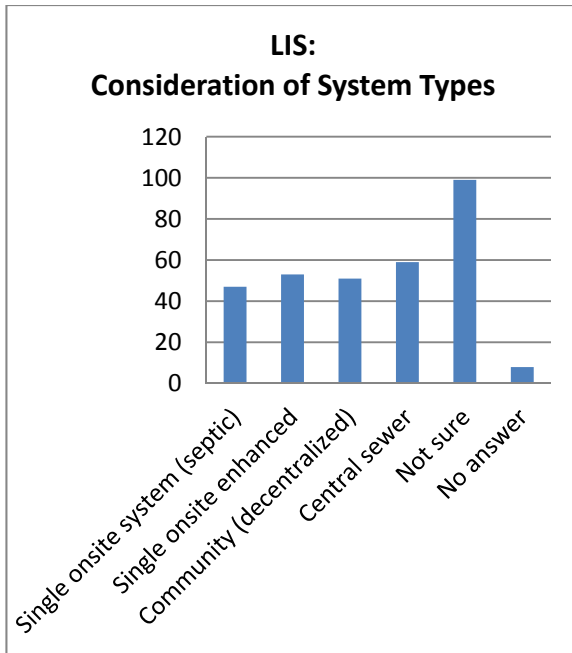


9 To what extent is your home being used?				
	LIS		All Responses	
Full-time	150	59.5%	331	57.8%
Partially, year-round	59	23.4%	140	24.4%
Seasonally	38	15.1%	74	12.9%
No answer	5	2.0%	28	4.9%
	252		573	

Sixty percent of the homes in the Long Island Sound watershed are used full-time, slightly more than the overall response. 23.4% use their homes partially year-round, while 15.15 occupy their homes seasonally. The statistics indicate a robust second home market, which is fueled by the marine environment. Use is still predominantly year-round rather than seasonal, supplemented by a strong tourist season. These numbers indicate a fluctuation in use that will impact treatment choices.

10 Looking ahead, if you needed to change your wastewater treatment system, which of the following would you consider? (you may pick more than 1)				
	LIS		All Responses	
Single onsite system (septic)	47	14.8%	112	15.0%
Single onsite enhanced	53	16.7%	122	16.3%
Community (decentralized)	51	16.1%	117	15.7%
Central sewer	59	18.6%	125	16.7%
Not sure	99	31.2%	222	29.7%
No answer	8	2.5%	49	6.6%
	317		747	

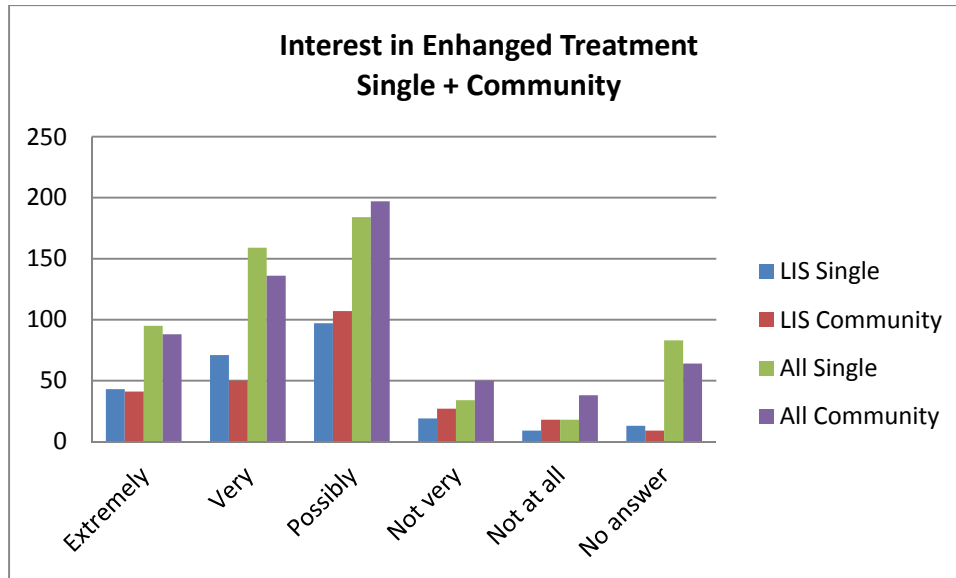
Respondents were tentative about options, with more people (31.2%) being not sure about what they would prefer for wastewater treatment. The other preferences were quite close, with central sewers edging out slightly the other choices.



11 How interested would you be in learning more about advanced wastewater treatment for individual homes? (These reduce the level of contaminants leaving the system)						
	LIS			All Responses		
Extremely	43	17.1%		95	16.6%	
Very	71	28.2%	45.2%	159	27.7%	44.3%
Possibly	97	38.5%		184	32.1%	
Not very	19	7.5%		34	5.9%	
Not at all	9	3.6%	11.1%	18	3.1%	9.1%
No answer	13	5.2%	16.3%	83	14.5%	
	252			573		

12 How interested would you be in learning more about decentralized community wastewater systems? (These are shared by a group of houses and treat effluent to a higher water quality.)						
	LIS			All Responses		
Extremely	41	16.3%		88	15.4%	
Very	50	19.8%	36.1%	136	23.7%	39.1%
Possibly	107	42.5%		197	34.4%	
Not very	27	10.7%		50	8.7%	
Not at all	18	7.1%	17.9%	38	6.6%	15.4%
No answer	9	3.6%	21.5%	64	11.2%	
	252			573		

People on the whole were cautiously interested in learning more about enhanced onsite treatment systems for individual homes or community systems. Positive interest outweighed negativity, with many people remaining open to the options, but without embracing them. The major differences are that single systems are favored by 9.1% (45.2% vs. 36.1%) and those opposed were more strongly opposed to community systems versus single onsite enhancements by 6.8% (11.1% vs 17.9%).



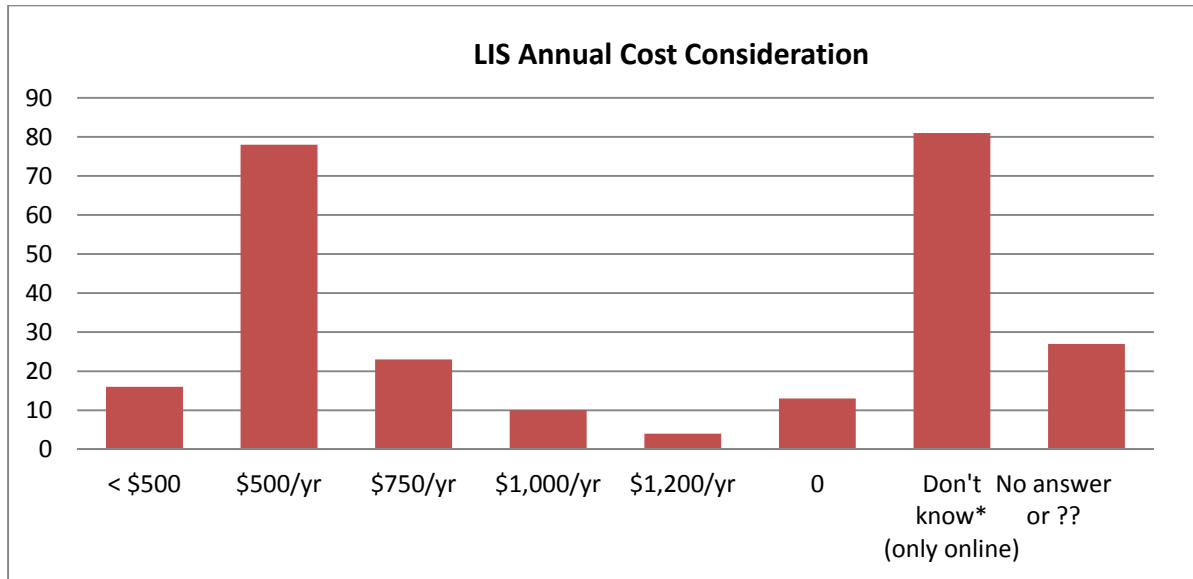
13 Clustered wastewater systems are designed to fit the existing need, resources and environment of a community. If at some time you were to participate in a community system, which of the following payment plans would you prefer?				
	LIS		All Responses	
Plan A Pay an initial fee, lower monthly fees	58	23.0%	132	23.0%
Plan B Pay no access fee and have higher monthly fees	11	4.4%	25	4.4%
Don't know/not sure	130	51.6%	279	48.7%
Would not be interested at all	43	17.1%	76	13.3%
No answer	10	4.0%	61	10.6%
	252		573	

The majority of people in the Long Island Sound watershed (51.6%) were not sure how they would be willing to pay for enhanced wastewater treatment. When people did express a willingness to consider payment options, significantly more preferred paying an initial hook-up fee with lower monthly fees (23%) to no access fee and higher monthly fees (4.4%).

14 Communities look at different financing options. If you were to consider a community solution, how much would you be willing to pay annually? (Includes construction and maintenance costs.)						
	LIS			All Responses		
\$500/yr	77	30.6%		161	28.1%	
\$750/yr	23	9.1%		53	9.2%	
\$1,000/yr	10	4.0%		33	5.8%	
\$1,200/yr	3	1.2%	44.8%	10	1.7%	44.9%
Don't know* (only online)	81	32.1%		160	27.9%	
No answer (includes written responses)	58	23.0%		156	27.2%	
	252			573		
written (see below)	40			71		

Of 40 written comments LIS) 13 do not want to pay anything; 16 will pay less than \$500; and 2 are willing to pay more. The remainder need more information or are uncertain.

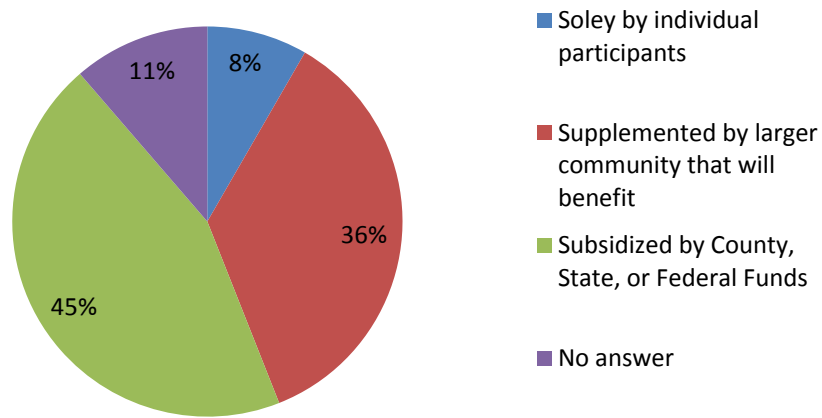
45.6% within the LI Sound are willing to pay at least \$500 annually for enhanced wastewater treatment. Another 6.3% are willing to pay something. 32.1% did not know what they would be willing to pay and some expressed a desire for more information.



15 How do you think a community system should be funded (You may answer more than one.)								
	LIS				All Respondents			
		*		*		*		*
Solely by individual participants	25	8.1%	94	21.1%	57	8.0%	192	22.5%
Supplemented by larger community that will benefit	65	21.1%	134	30.0%	146	20.5%	281	33.0%
Subsidized by County, State, or Federal Funds	115	37.3%	184	41.3%	244	34.3%	379	44.5%
All^	69	22.4%			135	19.0%		
No answer	34	11.0%	34	7.6%	129	18.1%		
	308		446		711		852	
% believing some subsidy is appropriate					80.8%		73.8%	
^option only online, but could pick multiples								
* adds # of all response to original total								

People in the LI Sound watershed felt that wastewater treatment was a service that should be subsidized (80.8%), preferably by county, state or federal funds (37%). The support of subsidy was 7% higher than the overall response. Subsidy by the larger community that will benefit from regionally improved water quality was also considered viable (30%). Only 8.1% of LI Sound responses indicated that individuals should bear all costs. Respondents were allowed to choose more than one subsidy option. Since people choosing “solely by individual participants” would likely choose only one answer, they represent 9.9% of the respondents. In the chart below, the number of people who chose “all” was added to the two subsidy categories. The 69 “all” answers (22.4%) clearly indicate that individuals should contribute to the costs, even if subsidized.

LI Sound: Subsidy Considerations



16 What is the primary source of water in your home?				
	<i>LIS</i>		<i>All Responses</i>	
Individual well	148	58.7%	279	48.7%
Shared private well		0.0%	2	0.3%
Public water/SCWA	95	37.7%	231	40.3%
Not sure	1	0.4%	2	0.3%
No answer	8	3.2%	59	10.3%
	252		573	

Respondents from the LI Sound watershed have 58.7% of the respondents relying on individual wells for drinking water, which is 10 percentage points higher than the overall average. Improvements can help drinking water quality as well as marine environments. Also, people who are cognizant of the quality of their aquifers are more likely to be receptive to improvements than people who rely on public water, as the issue affects personal health as well as the greater sustainability of the ecosystem.

LIS Drinking Water Sources

