



Snohomish County Public Works
Surface Water Management

**RESIDENTIAL SEPTIC SYSTEM
CARE AND MAINTENANCE:
BASELINE SURVEY**

December, 2008


ELWAY RESEARCH, INC.



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INTRODUCTION

This report summarizes the results of a telephone survey of Snohomish County residents who have septic systems on their property. The objective was assess current practices in care and maintenance of the septic system. The county's Surface Water Management Division intends to implement a public education campaign aimed at improving maintenance of residential septic systems. This survey will to provide a baseline against which to measure changes in awareness and behavior later in the campaign.

Specifically, this survey addressed:

- How careful septic owners perceive themselves to be with the system.
- Maintenance behavior, including regular pumping, keeping things out of the drains, regulating the amount of water entering the system at one time, and keeping the drain field clear.
- What is on the ground on top of their drain field and their reserve field (if they have one.)
- Whom they would call if they had a problem with their system.
- Their attitudes toward the impact of septic systems on the surrounding environment, particularly surface water.
- Motivations for caring for and maintaining septic systems.

Demographic information was also included in order to compare and contrast the answers.

The questionnaire was refined from the instrument used in an interactive polling forum held in November. At that forum, 46 septic system owners answered the questions with individual keypads and discussed the issues.

This report organizes the survey findings and analysis in order of the research questions listed above. This is done via annotated charts of the pertinent survey results, followed by a more in-depth statistical analysis. A complete set of cross-tabulation tables is presented in the appendix.

METHODS

SAMPLE:	400 residents of unincorporated Snohomish County who have septic systems on their property. A list of residents with septic systems was provided by Snohomish County. The sample was split evenly among the County's categories of Rural, Transitional, and Other areas. Residences fell into one of three categories based on selected VALS® consumer data ratings for their respective census block group. The County recognizes that this distinction is somewhat subjective and will be used solely as a method to target outreach materials.
TECHNIQUE:	Telephone Survey
FIELD DATES:	Dec. 11 - 14, 2008
MARGIN OF ERROR:	±5% at the 95% confidence interval. That is, in theory, had all similarly qualified residents been interviewed, there is a 95% chance the results would be within ±5% of the results in this survey.
DATA COLLECTION:	Calls were made during weekday evenings and weekend days. Trained, professional interviewers under supervision conducted all interviews. Up to four attempts were made to contact a head of household at each number in the sample before a substitute number was called. Questionnaires were edited for completeness, and a percentage of each interviewer's calls were re-called for verification.

It must be kept in mind that survey research cannot predict the future. Although great care and rigorous methods were employed in the design, execution and analysis of this survey, these results can be interpreted only as representing the answers given by these respondents to these questions at the time they were interviewed.

RESPONDENT PROFILE

In interpreting these findings, it is important to keep in mind the characteristics of the people actually interviewed. This table presents a profile of the 400 respondents in the survey, all of whom were screened to own septic systems. In addition, the interviewer asked to speak to the person in the household who would be most responsible for the system's care and maintenance.

Note: Here and throughout this report, percentages may not add to 100%, due to rounding.

GENDER:	51% Male 49% Female
AGE:	3% 18-35 22% 36-50 40% 51-64 32% 65+ 2% No Answer
AREA:	33% Rural 33% Transitional 33% Other
HOUSEHOLD SIZE:	11% One person 49% Two people 17% Three 15% Four 6% Five or more
EMPLOYMENT:	12% Public sector 5% Educational Institution 35% Private business 7% Not working right now 41% Retired
EDUCATION:	21% High School 7% Business/Vocational School 30% Some College 26% College Degree 14% Graduate/Professional Degree
HOUSEHOLD INCOME:	7% Less than \$25,000 20% \$25,000 to \$50,000 19% \$50,000 to \$75,000 24% \$75,000 or more 30% No answer

KEY FINDINGS

- ◆ **The most typical system was gravity, well over 10 years old, was not treated with additives, had a clear drain field and included a reserve drain field:**
 - Almost half of households said that their septic system was a gravity distribution type,
 - 3 in 4 were more than 10 years old – around half were installed 20 years ago or more.
 - 4 in 5 had lawn or "nothing" on their drain fields and reserve fields, although some had trees or shrubs. Very few (3%) reported structures, parking, or play areas.
 - 7 in 10 knew of a reserve field; a majority, but fewer than wanted.
- ◆ **Most rated their households as "10s" in septic system care.**
 - Meaning "excellent" – the highest score on a 0 to 10 scale.
- ◆ **At least half rated their households as "10s" (excellent) in every aspect of maintenance queried. This included:**
 - "Keeping the land on top of the drain field clear" (the single most successful maintenance task, with almost everyone saying "10,")
 - "Making sure that too much water doesn't go down the drain at once,"
 - "Being careful with sink drains," and
 - "Pumping the tank regularly."
- ◆ **There was some confusion about what should not go into the system:**
 - Almost all knew to avoid any old medications and coffee grounds.
 - Most knew to limit bleach, small fruit/vegetable scraps, and de-cloggers (Draino), although many thought these were acceptable in moderate amounts. For instance, 1/3 thought that fruit/vegetable scraps and Draino were either "ok," or "ok in moderation."
 - However, most thought that any amount of toilet paper was ok.
- ◆ **There were several even more alarming aspects to respondents' septic system care and maintenance, that**

believe their self-given "10" ratings:

- Almost a quarter did not know which type of septic system they had.
- Most would wait for a smell, wet ground, or drain back up to know that they had a problem with the septic system.
- Most did not have a regular pumping schedule, and a 1/4 had never pumped. Most had pumped their system in the past 5 years.

◆ Most would call a pumper/commercial septic care company if they had a question about proper care and maintenance. Only 2% would call the Health District.**◆ Almost 3/4 would not call the Snohomish Health District to report a problem:**

- A quarter would just "not," and half would "certainly" not.
- Of those who wouldn't call SHD, 28% just said that they would call somewhere else first (usually a commercial company), 23% said that SHD "wasn't the right source," 15% said that they didn't know how to reach SHD, and 13% said that they would "if it were serious."

◆ Most agreed with "environmentally correct" attitudes, but failed to see the connection to their own property:

- Almost all agreed that failing septic systems could spread disease among humans and harm aquatic life (over half strongly.)
- However, most also agreed with the statement: "the condition of the septic system on my own property does not really impact local streams and lakes."
- A quarter agreed that concerns about septic systems were "just scare tactics."

◆ Each of the possible reasons for maintaining a septic system were termed "critical" by a majority. This included:

- Keeping kids, family, and pets safe (which almost everyone rated a "10-critical.")
- Making sure that the toilets and drains in the house work fine.
- Avoiding the cost and hassle of repairs.
- Not having any trouble with the County or Health District.
- Keeping the yard or fields dry and clean.
- Making sure that the neighbors don't complain.

◆ The single most important reasons for maintenance were personal: be keeping family/pets safe and working plumbing.

SUMMARY OF FINDINGS

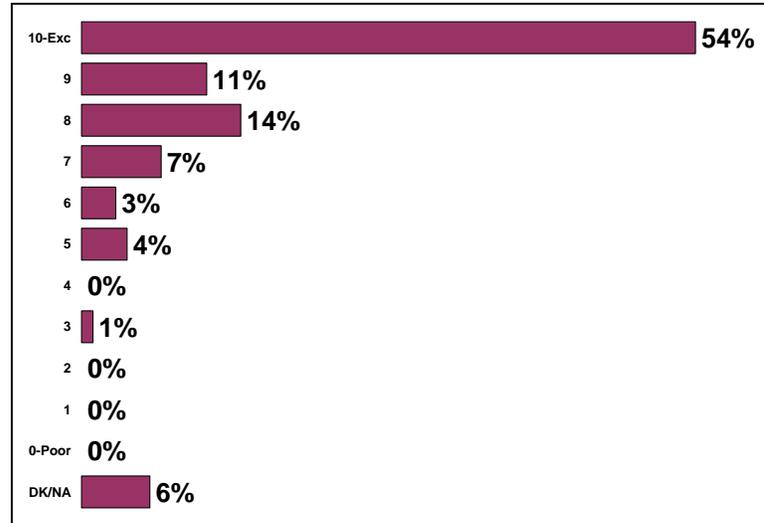
Major findings are presented in the following section in the form of annotated graphs, tables and bullets. The full results are appended in detailed cross-tabulations.

SYSTEM PROFILE

SYSTEM TYPE:	45%	All Gravity Dist. (with no pump)
	15%	Low pressure Distribution (LPD)
	12%	Sandfilter (LPD or drip disposal)
	2%	Aerobic (LPD or drip disposal)
	3%	"Pump" (added by respondents)
	22%	Don't Know/No Answer
YEARS EXPERIENCE LIVING WITH SEPTIC SYSTEMS:	2%	Less than 2 years
	12%	2 - 4 years
	14%	5 - 9 years
	29%	10 - 19 years
	42%	20+ years
AGE OF CURRENT SYSTEM:	2%	Less than 2 years
	9%	2 - 4 years
	11%	5 - 9 years
	26%	10 - 19 years
	48%	20+ years
USE OF ADDITIVES:	34%	Yes
	57%	No
	9%	Don't Know/No Answer
HAVE A RESERVE DRAIN FIELD:	70%	Yes
	22%	No
	7%	Don't Know/No Answer

- ◆ **Respondents were most likely to have an all gravity system (45%), if they knew what type of system they had at all.**
 - Almost a quarter did not know, even though they were screened to be the one in the household most responsible for maintenance.
- ◆ **3 in 4 systems were at least 10 years old:**
 - 48% were over 20 years.
 - 26% were 10 to 19 years.
- ◆ **7 in 10 respondents had lived with a septic system for over 10 years.**
 - 42% over 20 years.
 - 29% 10 to 19 years.
- ◆ **1 in 3 used additives such as enzymes or yeast.**
- ◆ **7 in 10 had a reserve drain field.**
 - One person households were least apt to have a reserve field (52%).
 - Among all others, 73% had a reserve drain field.

Half Rate Themselves as "Excellent" at Septic System Care



Question 4: We would like to know how people are taking care of their septic systems. Use a scale of zero to 10 where 10 means you are doing an excellent job and zero means a Poor job of taking care of your system. Overall, how would you rate the job your household does at taking care of your septic system?

- ◆ **Most rated their households as "10s" ("excellent") in septic system care, on a 0 to 10 scale.**
 - Only 2 respondents rated their household 0-2,
 - Others said 8-9 (25%) or put themselves in a wide mid-range, of 3 - 7 (15%).

- ◆ **Household size had the most impact on these ratings, of all demographics:**
 - Two-person households were the most likely to rate themselves as "10" (61% vs. 46% of all others).
 - Households of either one person or four+ people were more likely than others to rate themselves a 3-7 (20% of each of these two groups did, compared to 13% of 2-3 person households).

Keeping Clear Drain Fields Easiest Care Aspect; All Rated "10" by Majorities

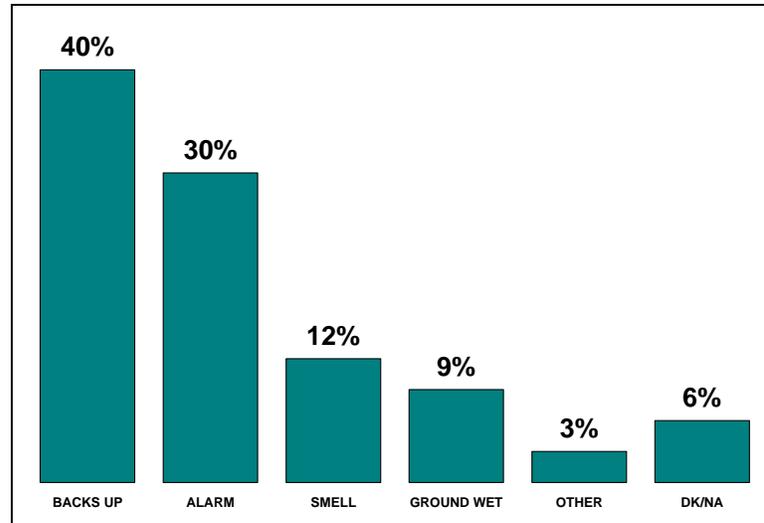


Question 5: I am going to read a list things people sometimes do to their septic system. Using the same scale of zero to ten, rate the job your household does with each. The first one is...

- ◆ **At least half rated their households as "10s" in every aspect of maintenance queried.**
- ◆ **The most success was in "keeping the land on top of the drain field clear of structures and cars" -- almost everyone gave their household as "10" (87%).**
- ◆ **Again, household size made the most impact, with smaller household more likely to give themselves "10s" in:**
 - Regulating water use:
 - 67% of one-person HHs,
 - 53% of 2-person HHs,
 - 48% of 3-person HHs, and only
 - 38% of HHs of 4 or more people.
 - Being careful of what goes down sink drains (93%, 78%, 76%, 70%).
- ◆ **Respondents' overall care ratings correlated most strongly with "pumping regularly" and "being careful with what goes down sink drains."¹**

¹ Correlation coefficients of .49 and .44, respectively.

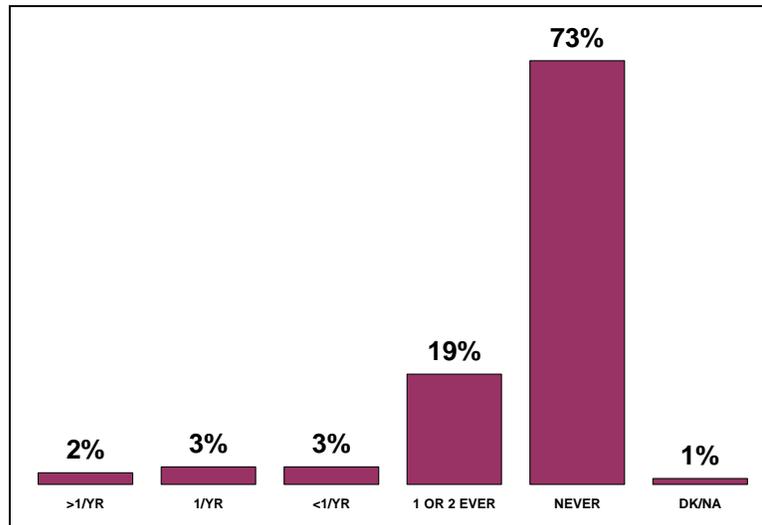
Plurality Would Wait for a Back-up to Indicate a Problem



Question 6: If you had a problem somewhere in your septic system, how do you think you would become aware of it?

- ◆ **6 in 10 would "wait too long" to sense that they had a septic system problem:**
- ◆ **4 in 10 would become aware of problems via back-ups.**
 - This was less true of the Other area than in Rural or Transitional areas (32% of Other, vs. 45% and 43%, respectively).
- ◆ **1 in 10 would use smell (12%) or wet ground (9%).**

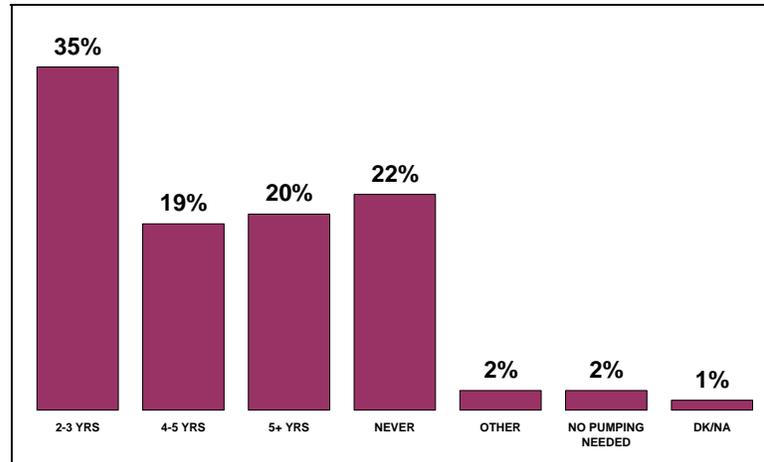
Few Actually Experience Problems



Question 7: How often do you have trouble with your system, such as over-flowing, smelling, drains backing up or wet spots in the drain field? Would you say...

- ◆ **3 in 4 (73%) said they "never" have trouble with their system, and another 19% said "once or twice."**
- ◆ **Respondents with sand filter systems were more likely than others to report having had problems:**
 - 35% did, compared to 24%.
- ◆ **Those who had never experienced a septic problem usually gave themselves higher care ratings. This included:**
 - The overall rating (58%, compared to 47% who had trouble once or twice, and 28% with more frequent troubles.)
 - Regulating water use (55%, compared to 39% and 41%).
 - Keeping the drain-field clear (90%, vs. 80% and 78%).
 - However, those who had a problem once or twice were most apt to give themselves a "10" in "pumping regularly" (63%, compare to 56% who never had trouble and 38% with more frequent problems.)
- ◆ **The experience with septic trouble varied somewhat according to years living with septic, and with education.**
 - Those who could state a frequency of problems (less than once a year to more than once a year) were most likely to have been living with a septic system for 10 to 19 years (41% vs. 30% of others).
 - Those who had never had a problem were more apt than others to have a post-graduate degree (15% vs. 9%).

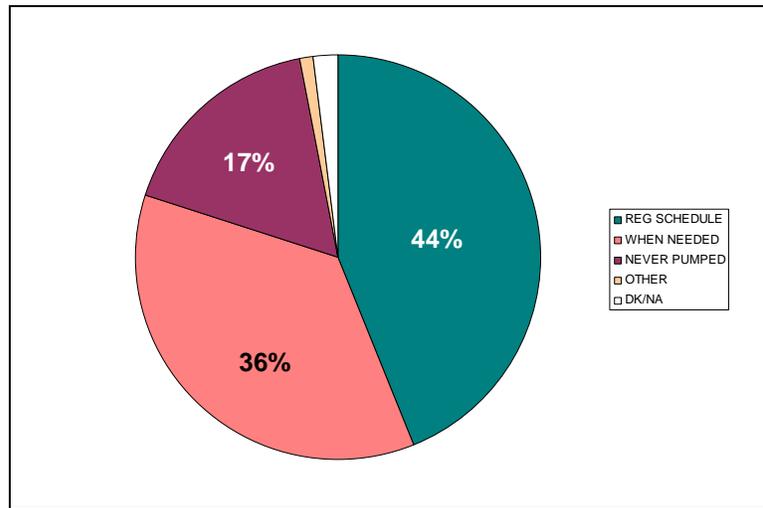
Pumping Most Typically Done Every 2-3 Years; Too Many Say "Never"



Question 8: How often do you usually end up getting your septic tank pumped?

- ◆ **Sand Filter systems were most likely to be pumped every 2-3 years:**
 - 46% were, compared to 36% of gravity distribution systems and 29% of LPDs.
 - Only 13% of Sand Filter system owners said "never," compared to 22% of all others.
- ◆ **Those with older systems were less likely to say "never:"**
 - Those who said "never" included 15% of systems 20+ years old, 20% of 10-19 year old systems, and 41% of systems installed in the past 10 years.
- ◆ **Those who had experienced some trouble with their system reported pumping it more often.**
 - 41% who had ever experienced a problem said that they had their system pumped every 2 – 3 years, and 27% said every 4 – 5 years.
 - This compares to 33% and 16% who had never had trouble.
 - Of those who never had any trouble, 26% said that they had never pumped their system. This compares to 11% who reported having trouble.
- ◆ **Fewer than expected said that their system was the type that did not need pumping. Undoubtedly, some of those who said "never" belonged in the "none needed" category.**

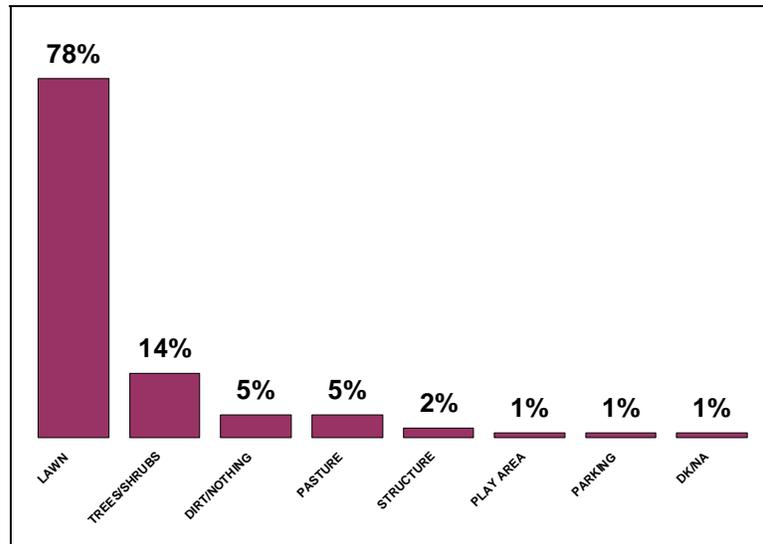
Minority Have a Regular Pumping Schedule



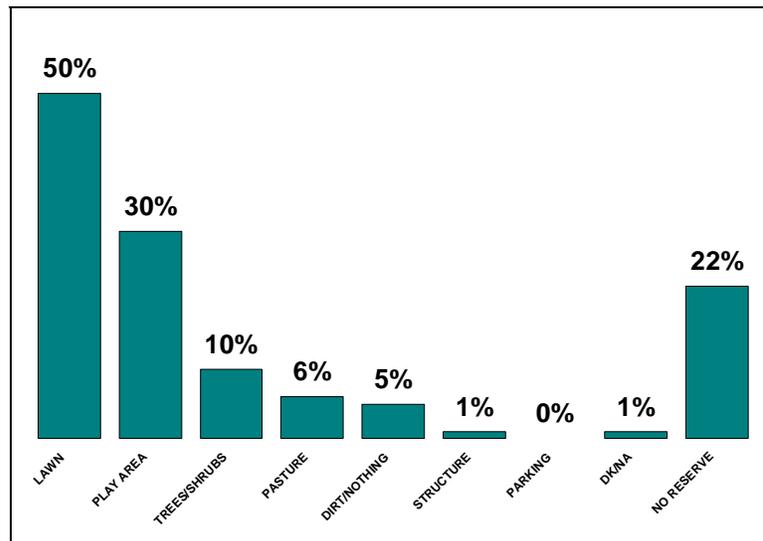
Question 8.1: Do you get the tank pumped...1) On a regular schedule; 2)Or, when it seems to be needed?

- ◆ **Septic owners who had rated their households an 8 to 10 in overall septic care were more likely to have a regular pumping schedule:**
 - 48% did, compared to 29% who gave themselves 0 - 7 ratings.
- ◆ **Those with older systems were also more likely to pump on a schedule. This was true of:**
 - 48% of those with 20+ year-old systems,
 - 44% whose systems were 10-19 years old, and
 - 37% whose systems had been installed in the last 10 years.
- ◆ **Those who had experienced trouble were less likely to pump on a regular schedule:**
 - 58% who reported any trouble said that they pumped "when needed," compared to 31% who never had trouble.
 - However, 21% who had experienced no trouble said that they "never" pumped the system, compared to 8% who had.
 - This, taken with the previous data on pumping incidence, indicates that septic owners who experience trouble report pumping more often directly because of the trouble, not because they have "learned a lesson," and have since gotten on a regular, more frequent pumping schedule.

Drain Fields and Reserve Fields Mostly Clear



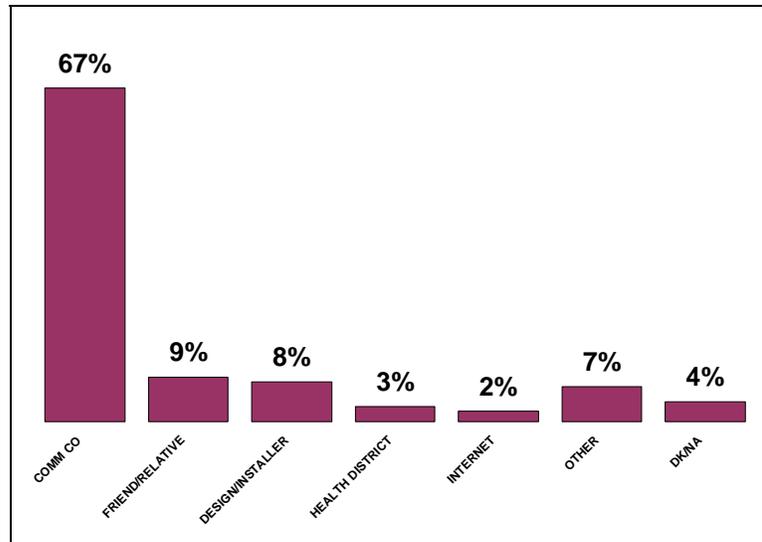
Question 9: Thinking now about just your septic drain field, which of the following things do you have on the land on top of your drain field... (Multiples allowed)



Question 10: Do you have a reserve area for your drain field- that is, an alternate area that could serve as a drain field should your current drain field stop working properly?
 Question 10.1: IF YES: Which of the following things do you have on the land on top of your drain field reserve area...

- ◆ **Very few had structures (2%), parking (1%), and/or play areas (1%) on their main drain fields.**
 - 3 in 10 had reserve fields with play areas, which may be movable.

2/3 Would Call a Commercial Company With a Problem



Question 11: If you had a problem with your septic system, whom would you be most likely to call first? Would you call: 1) A friend, neighbor or relative for advice, 2) The designer or installer, 3) A pumper or commercial septic system maintenance company, 4) The Snohomish Health District, 5) Would you look on the internet, 6) or something else

◆ **More recent septic owners would be more likely to call friends/family for advice:**

16% of those who had lived with a septic system for less than 10 years would call a friend/family member/neighbor, vs.

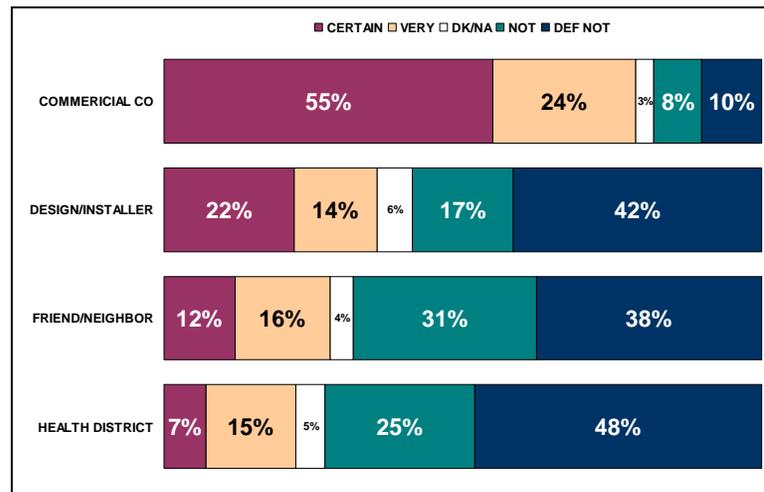
7% of 10+ year septic owners.

◆ **More experienced septic owners would go directly to a commercial company:**

71% of those who had lived with septic systems for 10+ years would, vs.

56% of more recent septic owners.

Commercial Companies Also Favored for Info



Question 12: If you just had a question about proper care and maintenance, how likely would you be to call [INSERT LIST]? Would you be Certain to call them? Very Likely? Not Likely? or Certain Not to call them? [LIST: 1) A friend, neighbor or relative; 2) The company who designed or installed your system; 3) A pumper or commercial septic system maintenance company, 4) The Snohomish Health District.

◆ **Most would be certain to call a pumper/commercial septic care company if they had a question about proper care and maintenance.**

- This proportion goes up some with income, from 50% of those with incomes under \$75K to 63% of those with \$75K or more in annual household income.

◆ **Almost 3 in 4 would not call the Snohomish Health District.**

- 48% would definitely not.
- The Other category contained the highest proportion who would definitely not call the Health District (58%, vs. 44% of others). 58% of the Other category definitely would not, compared to 43% of Rural and Transitional areas.
- Households with lower incomes were more likely to say that they certainly would call SHD: 10% with incomes under \$75,000 said they certainly would, vs. 4% with incomes of \$75,000 or more.
- Those with the highest incomes tended to say definitely not: 52% with incomes of over \$75,000 said this emphatic "no", vs. 34% with incomes between \$51- and \$75,000, and 45% with incomes of \$50,000 or less.

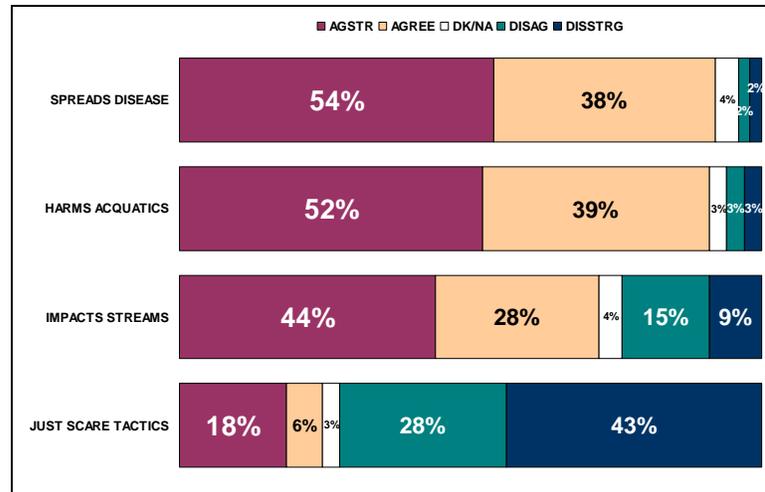
Reasons to Call / Not Call Snohomish Health District

As a follow-up to the previous questions, respondents were specifically asked why they would or would not (depending on their answer) call the Snohomish health District.

REASONS TO CALL SHD	(n=89)	REASONS NOT TO CALL SHD	(n=295)
Knowledge / Give Good Advice	35%	Not the Proper Entity	23%
Necessary if Serious Problem	20%	Unfamiliar with SHD	15%
Health Issue / Haz Material	6%	Would Call Plumber/Pumping Co	15%
Get a Referral	6%	Only if Serious Enough/ Hazardous	13%
Honest/Impartial	1%	Would Call Someone Else	13%
Other Answer	2%	Would Handle Issue Myself	10%
No Reason Given	16%	Don't Want to Involve Gov't	6%
		Fear of Reprisal / Trouble	3%
		Just Wouldn't	2%
		Information Is Available Elsewhere	1%
		Other	12%
		No Reason Given	23%

- ◆ **Those who would call the Health District tended to explain that:**
 - SHD was knowledgeable/gave good advice (35%), and/or
 - Was appropriate for serious and/or health related problems (20%).
 - Many (16% of those who would call) could not give a reason.
- ◆ **1 in 4 of those who would not call SHD said that the Health District was simply not the right entity ("they don't do that.")**
- ◆ **Others said that they didn't know how to reach them (15%), or that they preferred another source:**
 - 15% a commercial pumper,
 - 15% some other commercial source, and
 - 10% fixing it themselves.
- ◆ **Some non-callers (13%) conceded that they might call SHD if the problem were serious/health related/hazardous.**

Most Acknowledge Potential Harm of Septic Systems, But Not Their Own

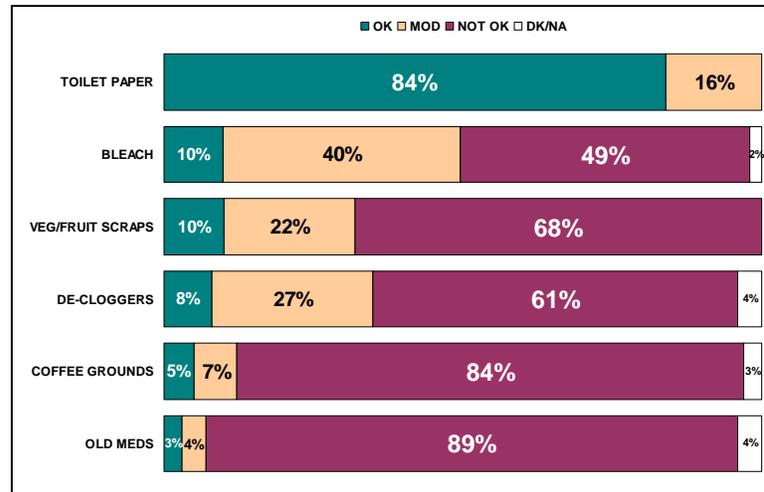


Question 13: For the next few statements, please tell me if you Agree, Agree Strongly, Disagree or Disagree Strongly as I read each one. The first one is...

- The condition of the septic system on my own property does not really impact local streams and lakes.
- Failing septic systems can spread disease among humans.
- Failing septic systems can harm aquatic life
- Concerns about harm that can be caused by septic systems are just scare tactics.

- ◆ **9 in 10 agreed that failing septic systems can spread disease among humans and harm aquatic life (over half strongly.)**
- ◆ **However, 7 in 10 said that "the condition of the septic system on my own property does not really impact local streams and lakes."**
 - Those who had given their households high "care" ratings were even more apt to agree strongly that their septic system had no adverse effect, including:
 - 46% of those who had rated their septic system care an 8-10, vs. 34% who had given themselves 0-7 care ratings.
- ◆ **1 in 4 agreed that concerns about septic systems were "scare tactics" (18% strongly.)**
 - Owners of LPD septic systems were more likely to agree so (26%, vs. 18% with gravity systems, and 13% of sand filter system owners),

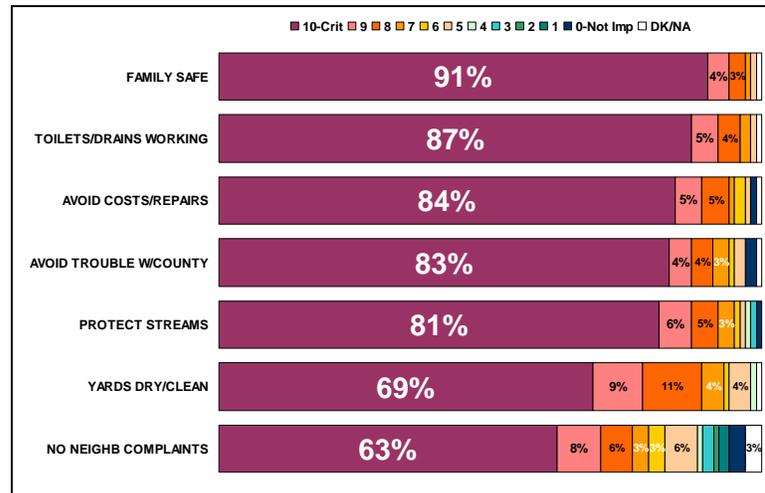
Owners Only Somewhat Knowledgeable About What Can Go into the System



Question 14: Next I am going to read a list of materials that sometimes go down the drain or toilet. As I read each one, tell me whether – as you understand it – that is OK to let down the drain or toilet...OK in moderation...or not OK to let go into the septic system at all – . The first one is...

- ◆ **Almost all knew to avoid any old medications and coffee grounds (89% and 84%, respectively.)**
- ◆ **9 in 10 knew to rinse down bleach, small fruit/vegetable scraps, and de-cloggers (Draino) either not at all, or in moderation.**
- ◆ **8 in 10 (84%) thought that any amount of toilet paper was ok.**
- ◆ **The only difference among those who gave themselves different care ratings was that those with higher care ratings were more likely to outlaw de-cloggers.**
 - 64% of those who gave themselves and 8-10 said "no" to Draino, vs. 50% of those who rated their households a 0 - 7 in septic care.
- ◆ **LPT system owners were also more likely to say "no" to Draino (74%.)**
 - This compares to 69% of those with sand filter systems, and
 - 58% of those with gravity distribution septic systems.

All Reasons for System Care Called "Critical"



Question 16: I am going to read through a short list of reasons for caring for and maintaining your septic system. Tell me how important each reason is to you personally. We'll use a scale of ten to zero, where ten means critically important, and zero means not important at all. The first one is...

Keeping kids, family, and pets safe.

Making sure that the toilets and drains in the house work fine.

Avoiding the cost and hassle of repairs.

Not having any trouble with the County or Health District.

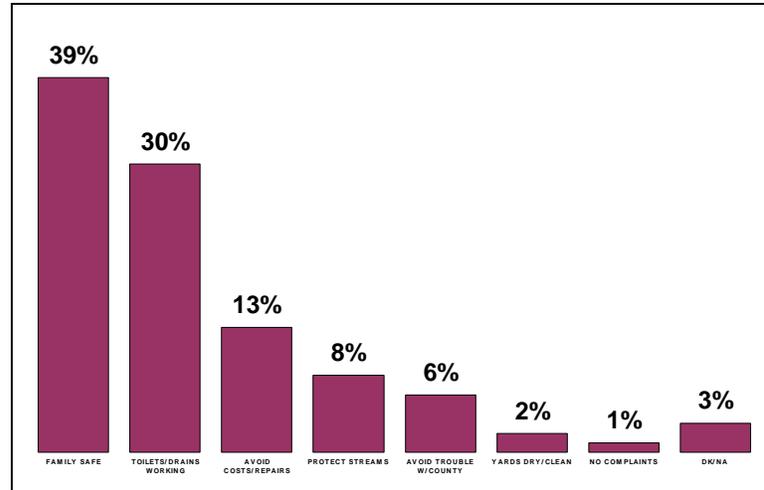
Keeping the yard or fields dry and clean.

Making sure that the neighbors don't complain.

- ◆ **Most of the reasons were termed "critical" (10) by more than 4 in 5.**
- ◆ **Least apt to be called critical were "keeping the yard or fields dry and clean," and "making sure the neighbors don't complain."**
 - Still around 2/3s termed these a "10".
- ◆ **Correlations between these reasons and the respondents' previous self "care ratings" were weak, although statistically significant. The strongest were:²**
 - Pumping the tank regularly,
 - Making sure that the toilets and drains work, and
 - Keeping the yard or fields dry and clean.

² Correlation coefficients of .21, .20, and .20.

Most Important Reasons Were Family Safety and Working Plumbing



Question 17: Which of the reasons we have just talked about is the single most important one to you?

◆ **39% and 30% called these the single most important reason for caring for and maintaining the septic system.**

- "Family safety" was higher among larger households.

58% of 4+ member household heads said "Family Safety," as did 49% of 3 member households. This compares to 31% of 3 person households and 24% of single member households.

◆ **"Protecting local streams" was named more often among less wealthy households:**

12% of those with incomes under \$50,000 named said that "protecting streams" was most important, vs.

5% of those with higher incomes.

◆ **"Not having trouble with the County" was more of an issue among:**

- Men (9% called it most important, compared to 3% of women.)
- One person households (11%, vs. 7% with 3 people, 6% with 2, and 2% of the largest households.). This is probably because the larger households are more concerned with family safety.

◆ **There were no significant differences in these responses based on what level of care ratings the respondents had given themselves.**



DISCUSSION

These septic system owners believed that they are doing a great job maintaining their systems and, for the most part, they seem to be right.

- Most know what to keep out of their drains.
- Most keep their drain fields and reserve fields clear.
- Most have had their tanks pumped within the past five years.
- Although they might wait too long to know that there was a problem, most have had no problems (that they are aware of).

This last point – lack of immediate and apparent problems – works against an effort to increase regular maintenance of septic systems. Nothing may be quite so “out of sight, out of mind” as a septic system.

Two communication strategies suggest themselves in these findings. The first is to emphasize the connection between residential septic systems and surface water. These respondents were generally accepting of the idea that failing septic systems can harm humans and aquatic life. They did not think their own system is culpable.

Making the connection more explicit between septic systems and regional waters would help make the case for more systematic maintenance of septic systems. Information on the proportion of systems that leak/ fail, and/or the proximity to surface and ground water of septic systems in Snohomish County would be useful.

The second strategy involves the target audience. Heads of larger households acknowledged that they are more likely to have problems such as controlling water flow and what sneaks down the sink. They also tended to say that protecting family is their top reason for septic system maintenance. These two findings indicate that targeting households with children might be fruitful.

In both this survey and the polling forum, it is apparent that residents want to do the right thing – both for the environment and for their family’s safety and health. They are understandably more motivated by concern for their family, but are largely unaware of the potential danger to the surrounding environment. Connecting those concerns would increase motivation to pay more systematic attention to their septic systems.



APPENDIX
