Onsite Sewage System Operation & Maintenance in Thurston County

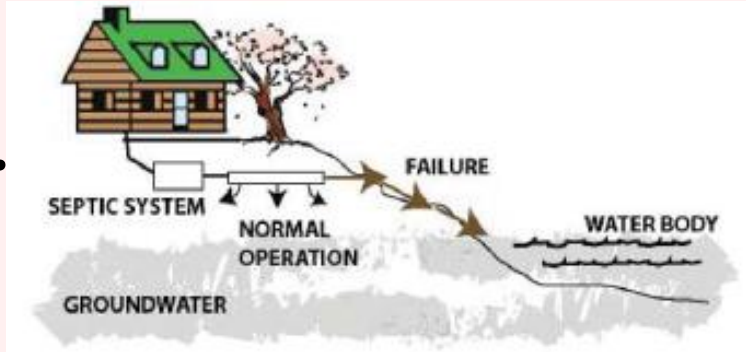
O&M History

- 1984 -O&M permits around Lakes GSA;
- 1990 -O&M permits expanded to new, repairs, and when sold;
- 1995 -WAC 246-272 requires O&M;
- 1999 – Board of Health scales back O&M program to alternative OSS;
- 2007 –Henderson watershed-wide O&M begins;
- 2007 –WAC revision requires local OSS mgnt plan and increases O&M;
- 2010 –Time of Transfer inspection/reporting;
- 2013– Nisqually Reach watershed-wide O&M begins

What's Law?

RCW 70.118A requires County to:

- Adopt On-site Sewage Mgnt Plan
- Create "Marine Recovery Areas"
- Establish a program to find & fix failing systems
- Identify & inspect

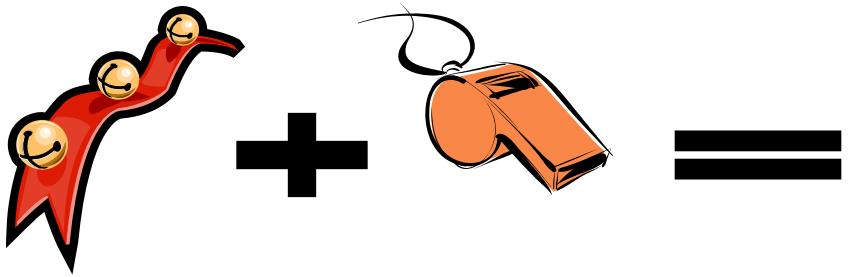


How Many Septic Systems?

Estimate 70,000

~10,700 - Henderson/Nisqually MRA
~ 3,000 - County-wide O&M program
~25,000 -"Known"; No OPC required
> 31,000 -"Unknown"; No OPC required

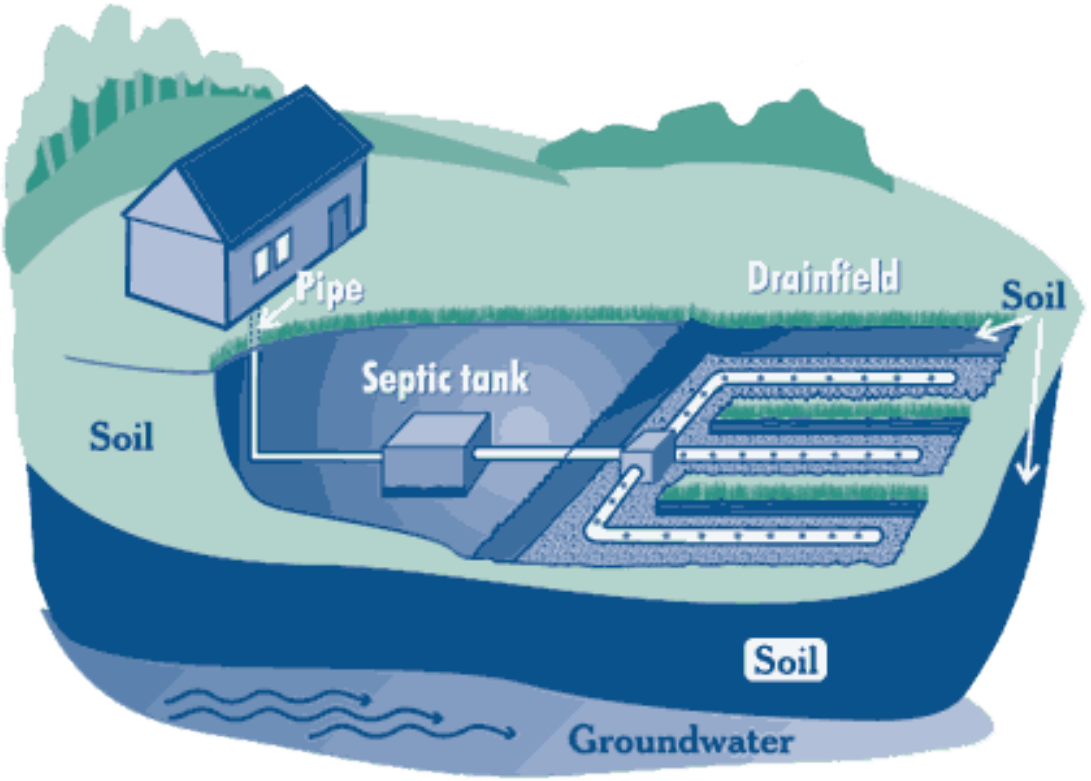
County-wide O&M: based on System Complexity



Operational Certificate

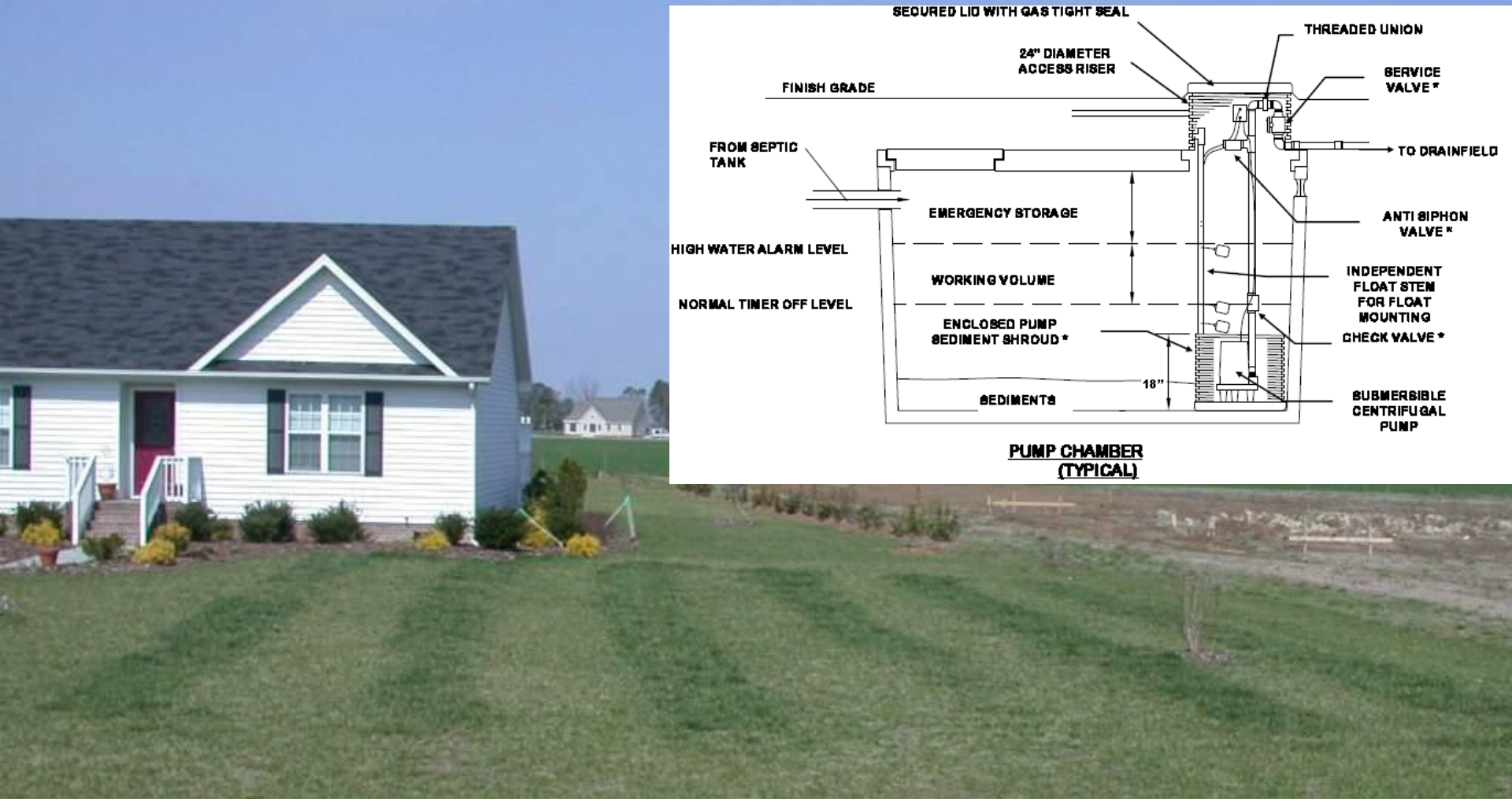
GOAL: To ensure OSS are working properly to protect public health

Conventional Gravity System



Simple; No mechanical parts;
Soil does treatment;
No OPC

Conventional Pressure Distribution



Includes pump & controls; Soil does treatment; No OPC

When soils & site condition aren't suitable for conventional OSS -

ALTERNATIVE SYSTEM

Renewable Operational Certificates Required:

- ✓ All Alternative Systems:
  - ✓ Mound
  - ✓ Glendon
  - ✓ Sand filter
  - ✓ Proprietary treatment systems
- ✓ Food establishments & Schools
- ✓ Community systems
- ✓ Misc others

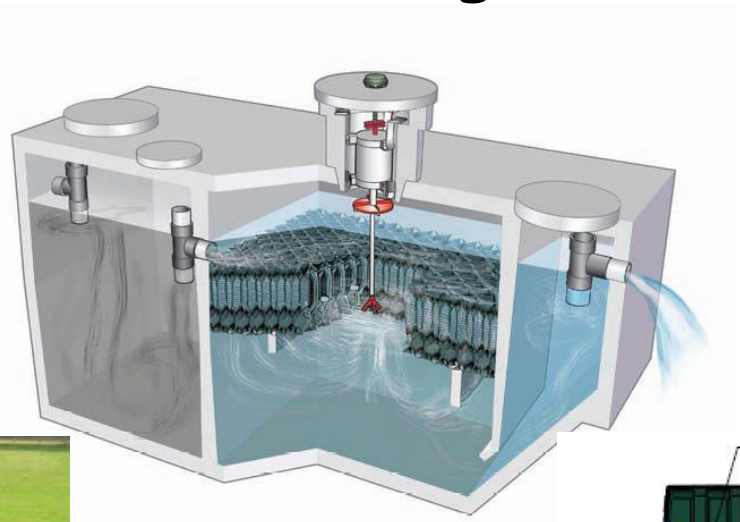
Sand-Based Systems

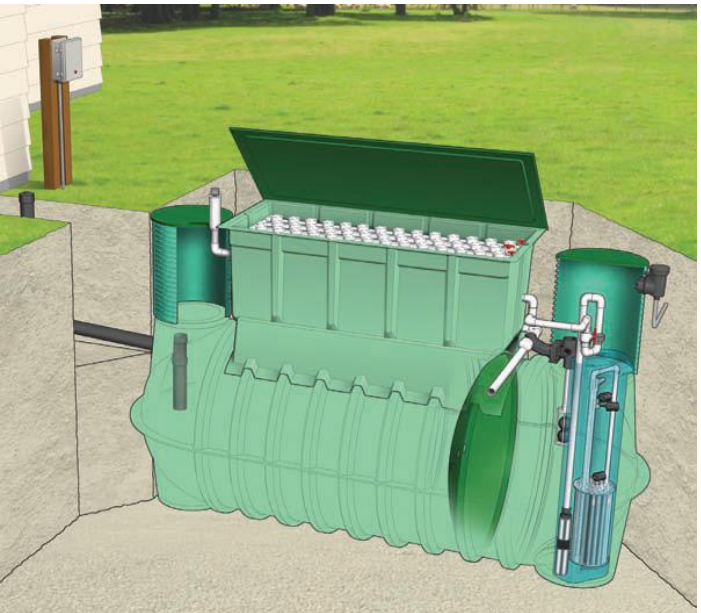
Have pump & controls;
Constructed sand filter
does treatment;
3-yr OPC

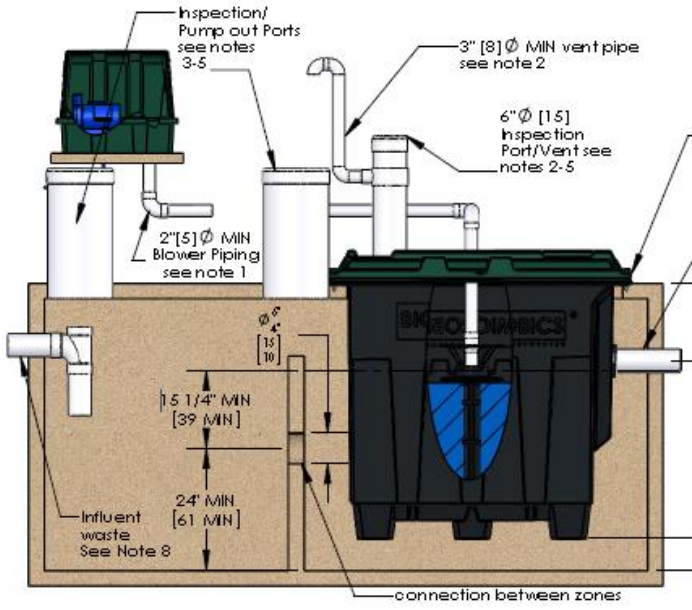
✓ Intermittent
Sand filter

Aerobic Treatment Units (ATU)

Have pumps, controls, blowers, disinfection, etc.;
Treatment is enhanced biological activity;
1-Year OPC

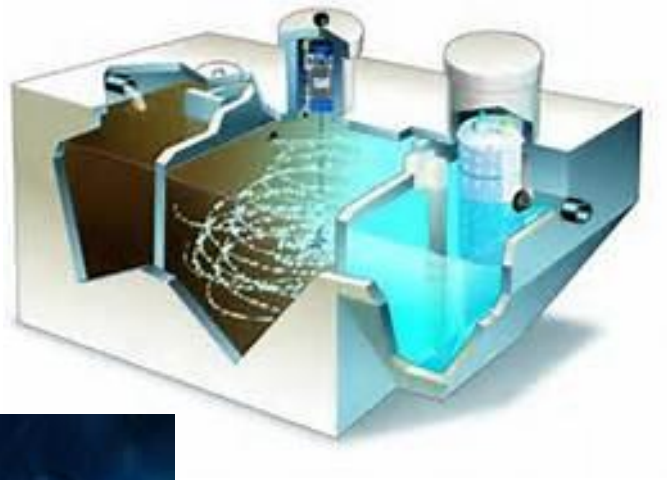




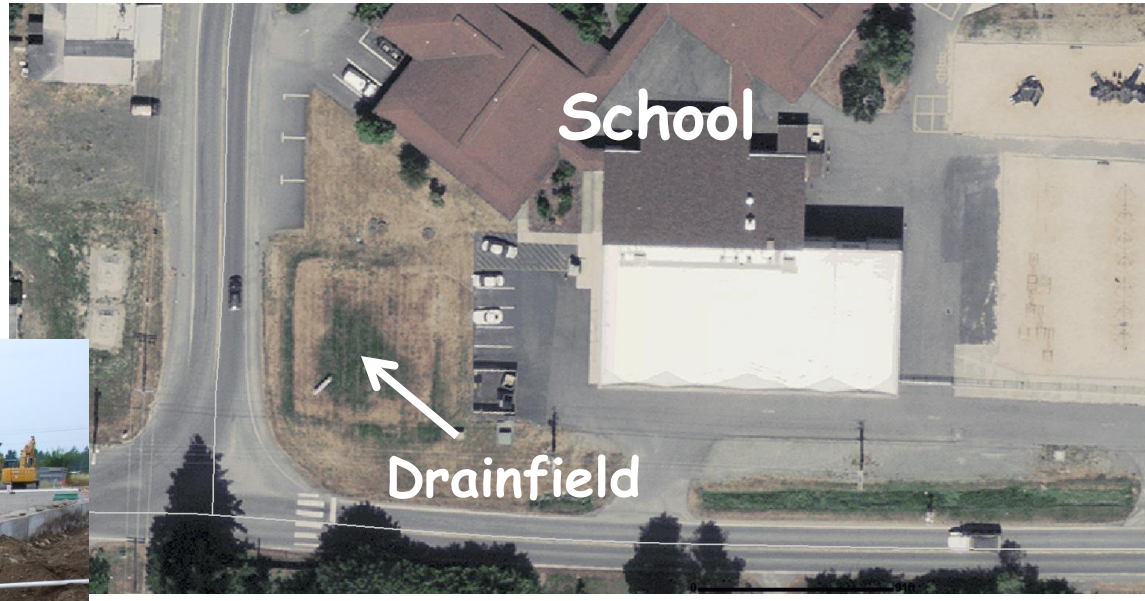


OSS with Disinfection

Used to kill pathogens before disposal;
In combination w/other treatment;
Chlorine or ultraviolet light;
1-Year OPC



Food, Schools, & Community OSS



High volume of sewage;
High strength waste;
Sometimes complex;
High risk to public;
1-Year OPC

How Many?

OnSite Systems	NUMBER
Mounds	1613
Glendons	597
Sand Filters	1494
Aerobic Treatment Units	199
OSS w/ Disinfection	146
Food Establishments	105
Schools	6
Community OSS	258

Service Contracts

Required for:

- ✓Community OSS
- ✓Proprietary Treatment products
- ✓OSS with Disinfection
- ✓Others as needed

Monitoring

Required when:

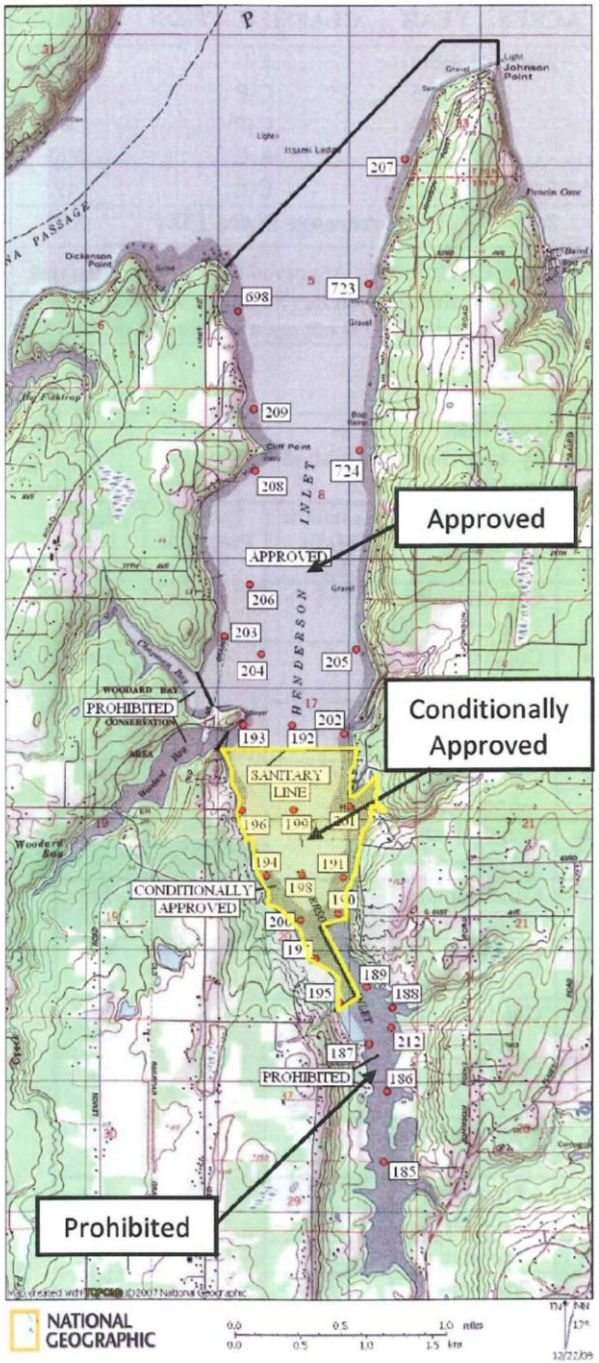
- ✓ TL A or B w/disinfection
- ✓ High strength sewage
- ✓ Nitrogen-reducing
- ✓ As condition of permit
- ✓ To determine waste strength

Marine Recovery Areas

Henderson & Nisqually Reach MRAs

Bacterial pollution causing shellfish closures and threatening public health.

Henderson Inlet Former Classification



Henderson Downgrades

Year	Classification	Acres
1984	A-C	180
1985	C-P	120
2000	C-P	8
2001	A-C	300
2005	C-P	49

Total Acreage Since 1984 **657**

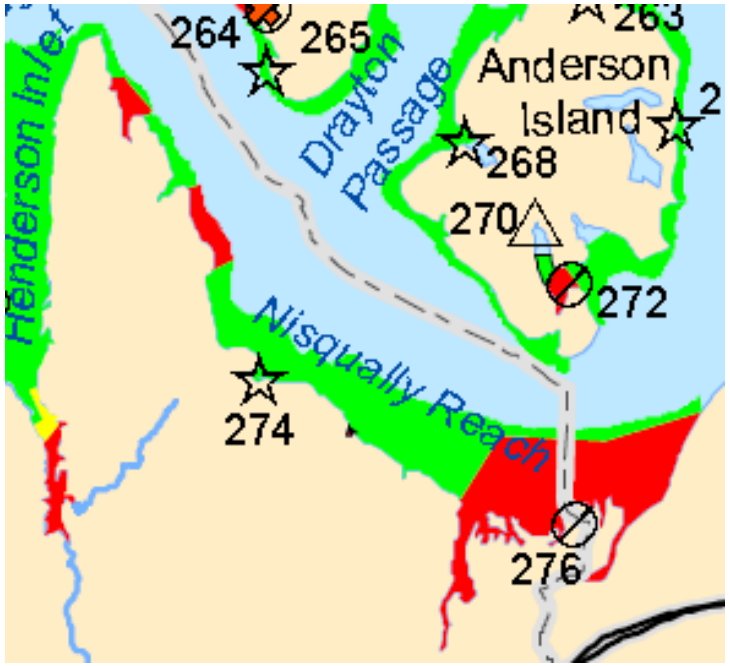
Nisqually

Downgrades

Year	Classification	Acres
1992	A-C	1000
2000	C-R	74
2006	A-P	120
2006	U-P	197

Acreage Downgraded Since 1992:

1391



Upgrades

Year	Classification	Acres
2000	C-A	20
2002	C-A	960
2006	R-A	37
2009	R-A	12

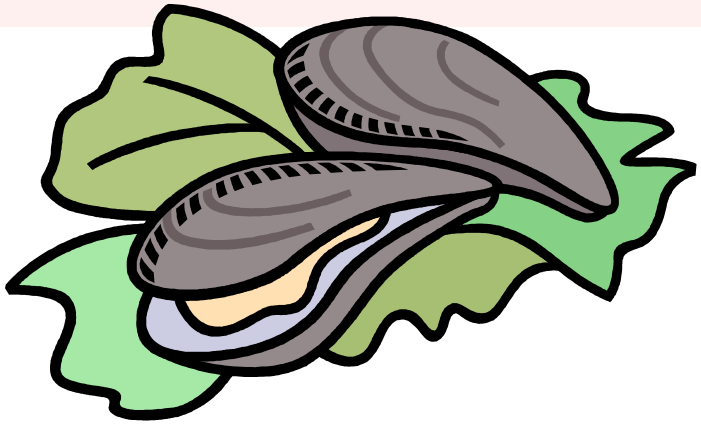
Acreage Upgraded Since 2000:

1029

What are the Laws?

RCW 90.72.045 requires County to:

- Create "Shellfish Protection District"
- Establish a program to improve water quality



Response

- 2001: Shellfish Protection Districts formed
- 2002: Stakeholder Committee develop a clean-up plan
- Septics identified as significant pollutant source
- Recommended Risk-Based Septic O&M program
- Started Henderson MRA in 2007
- Started Nisqually Reach MRA in 2013

What is the Goal of MRAs?

To reduce pollution from septic systems

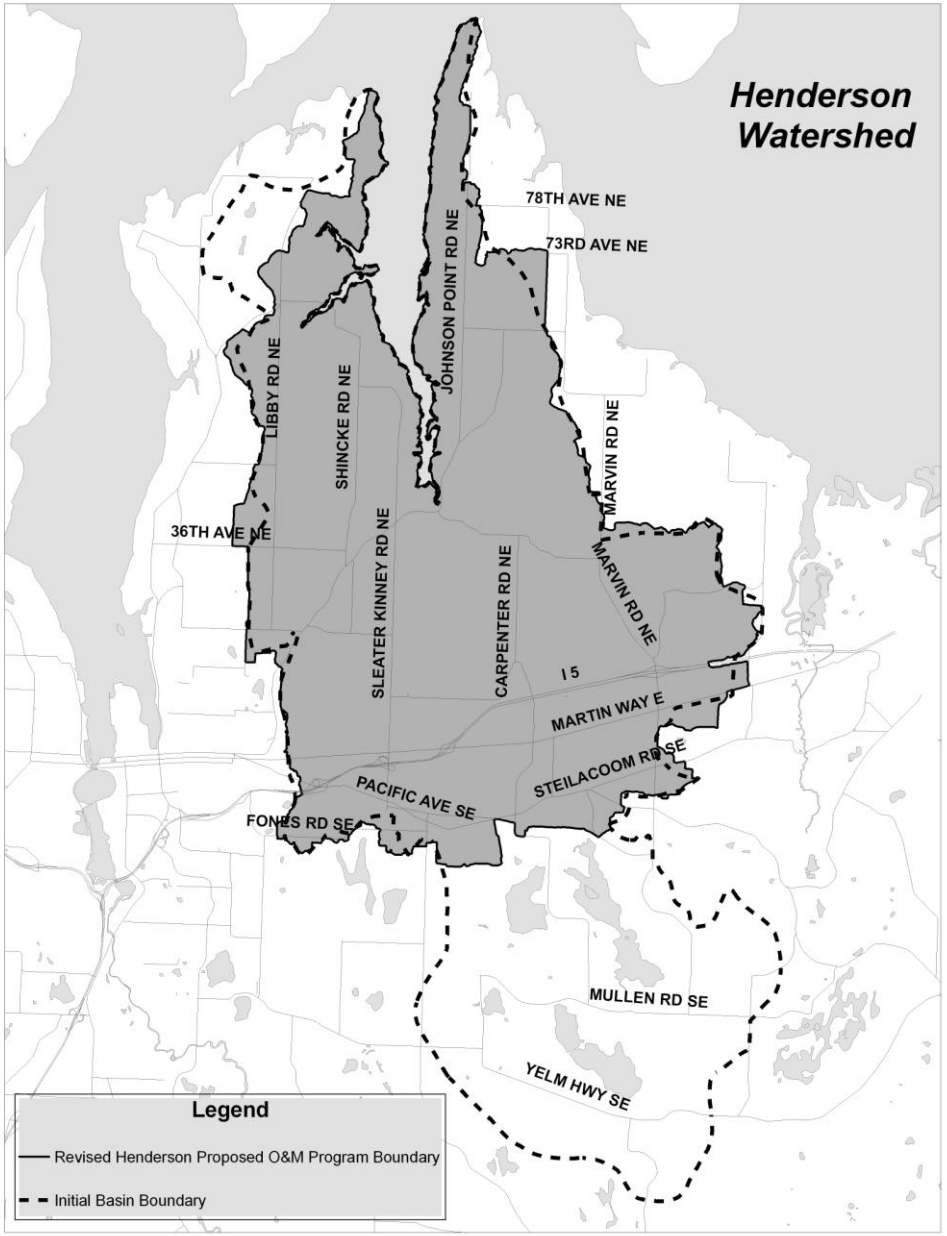

AUG 2 2010

How is the goal met?

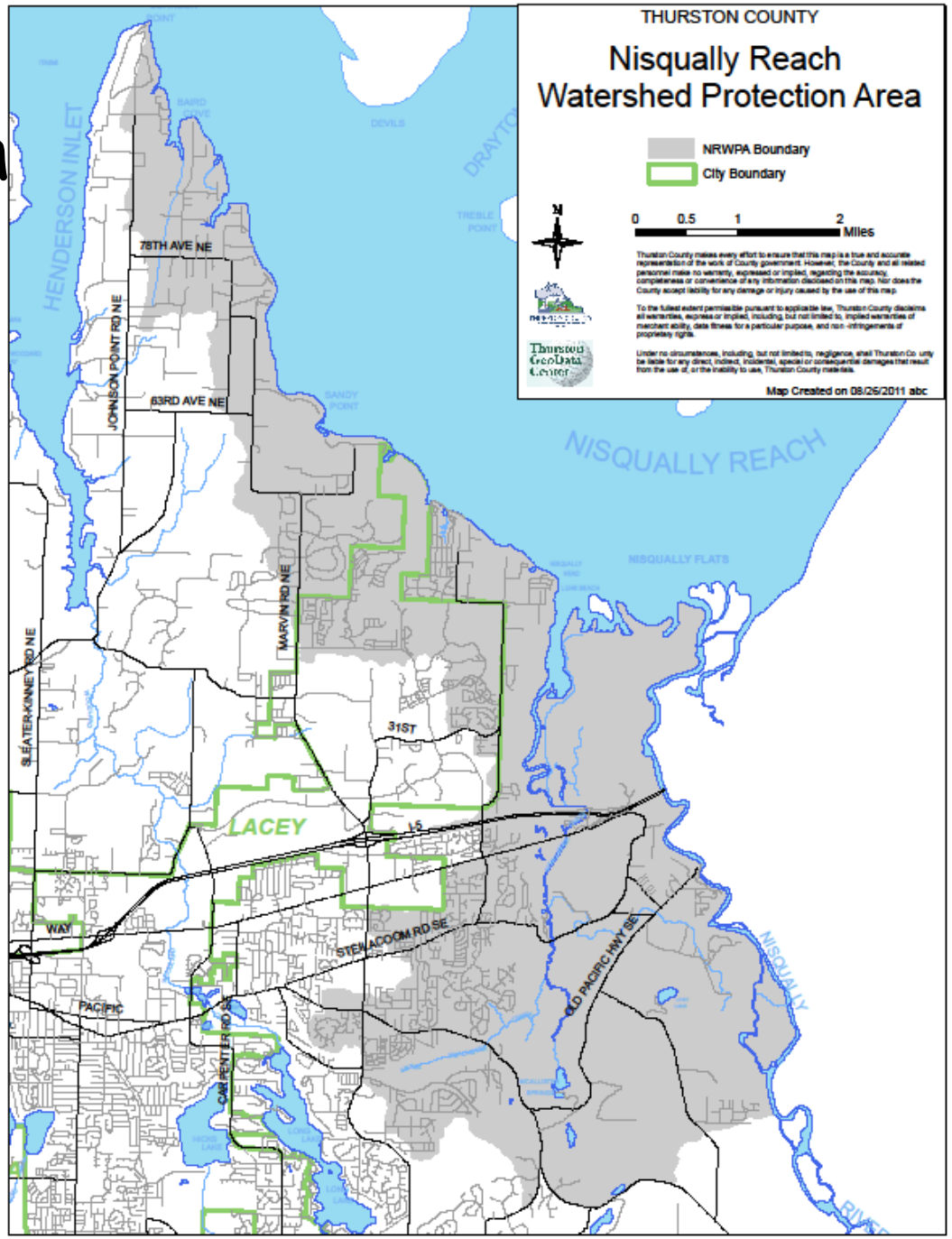
- Regular inspections for ALL
- Maintenance & Repairs as needed
- Dye Tests

How were the MRA Boundary Determined?

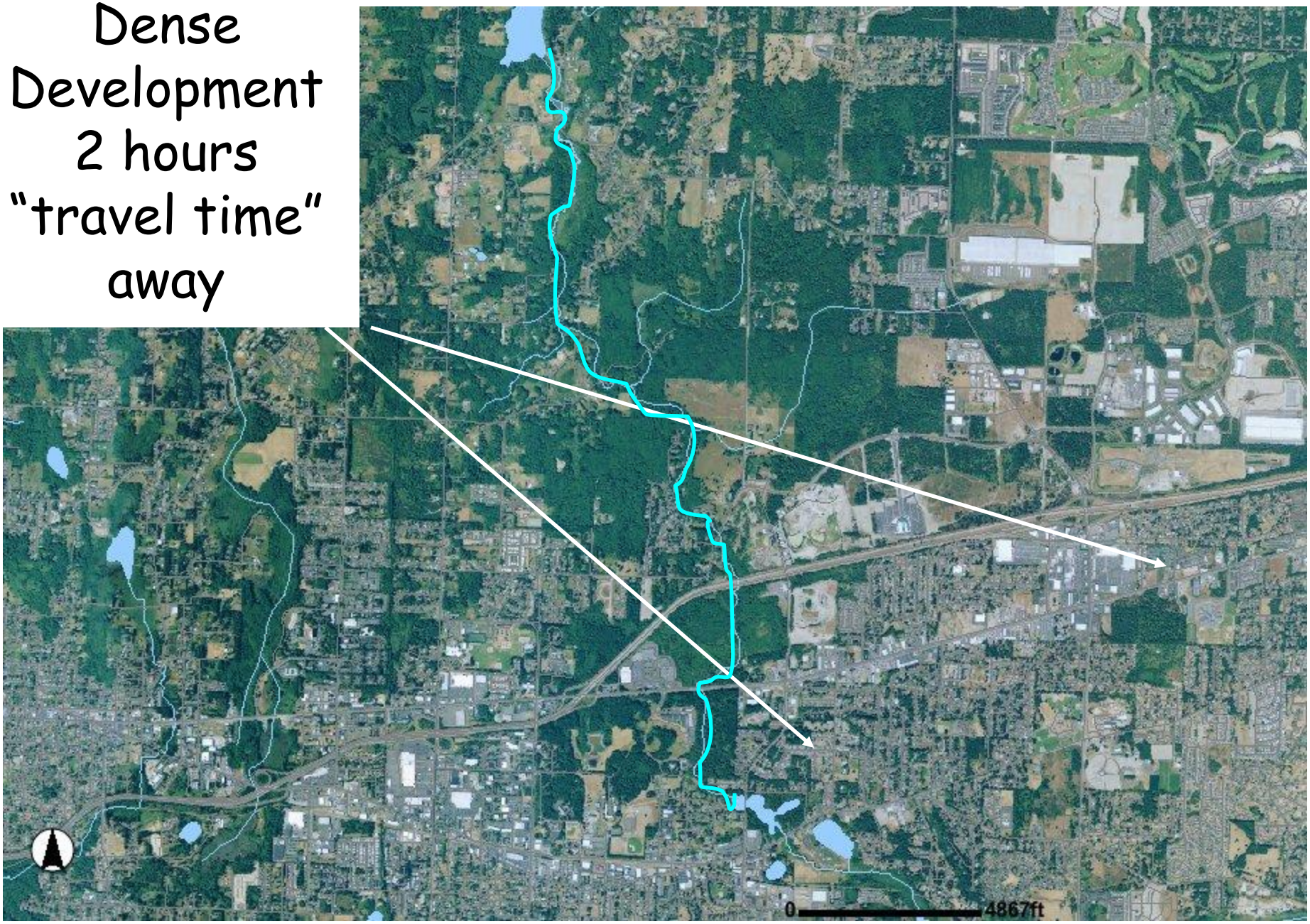
Based on:
Area of Watershed with greatest potential to contribute bacterial pollution to Marine Water



Nisqually Reach MRA Boundary



Dense Development 2 hours "travel time" away



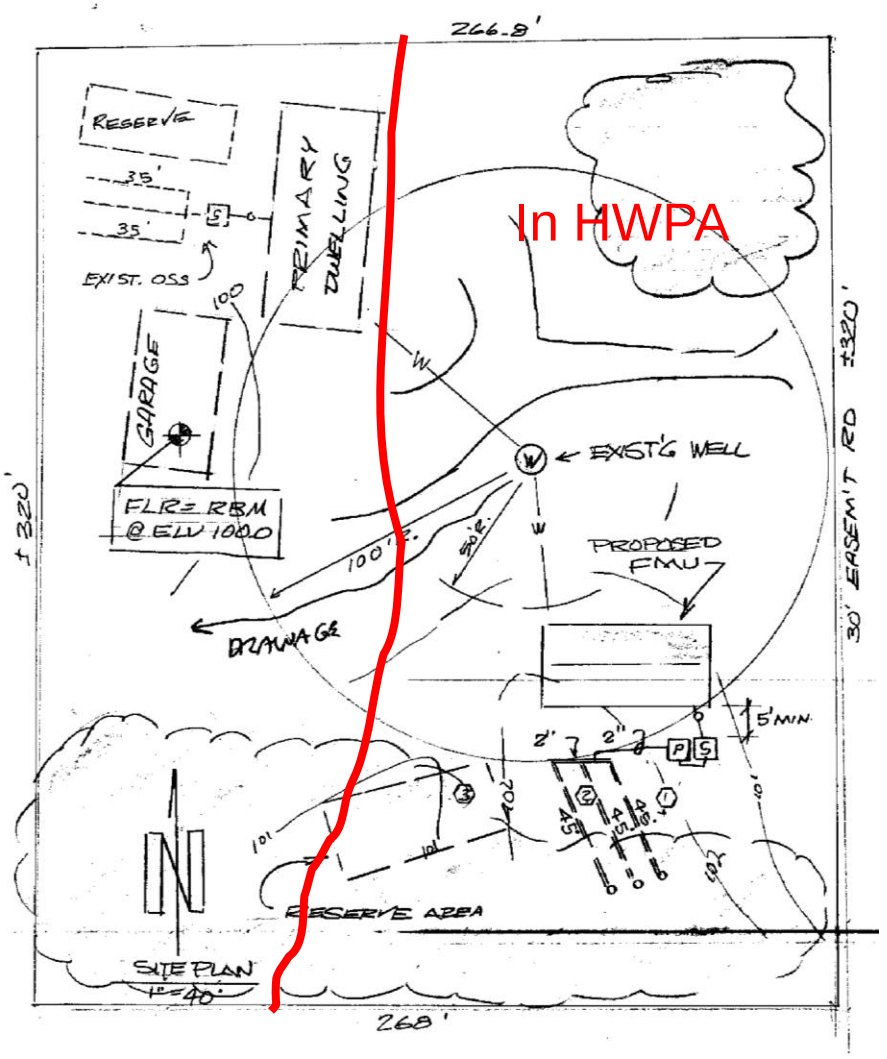
Pollution from uplands affect Marine Water

"…water parcels travel from the McAllister Creek springs to the I-5 bridge within 5 to 6 hours, or within a single high-to-low tide cycle. ***Sources of bacteria to McAllister Creek near its headwaters can impact the southern estuary within a single tidal cycle****."*

Ref: WA Dept of Ecology, May 2005

Septic systems may be closer to water than it seems

Who is IN?



Who is OUT?

Risk-based approach …

- Low risk systems – inspect every 3 years
  - ✓ by **Certified OSS Professionals**

    OR
  - ✓ by **Trained/Certified Owner**
  - ✓ County does a 10% quality control check
  - ✓ Alternative OSS – No change

- High risk – All of the above + Dye Test every 6 years
  - ✓ **County staff** conducts

"HIGH" or "LOW" Risk?

Risk level is based on:

1. Soil Type, and
2. Nearness to Water

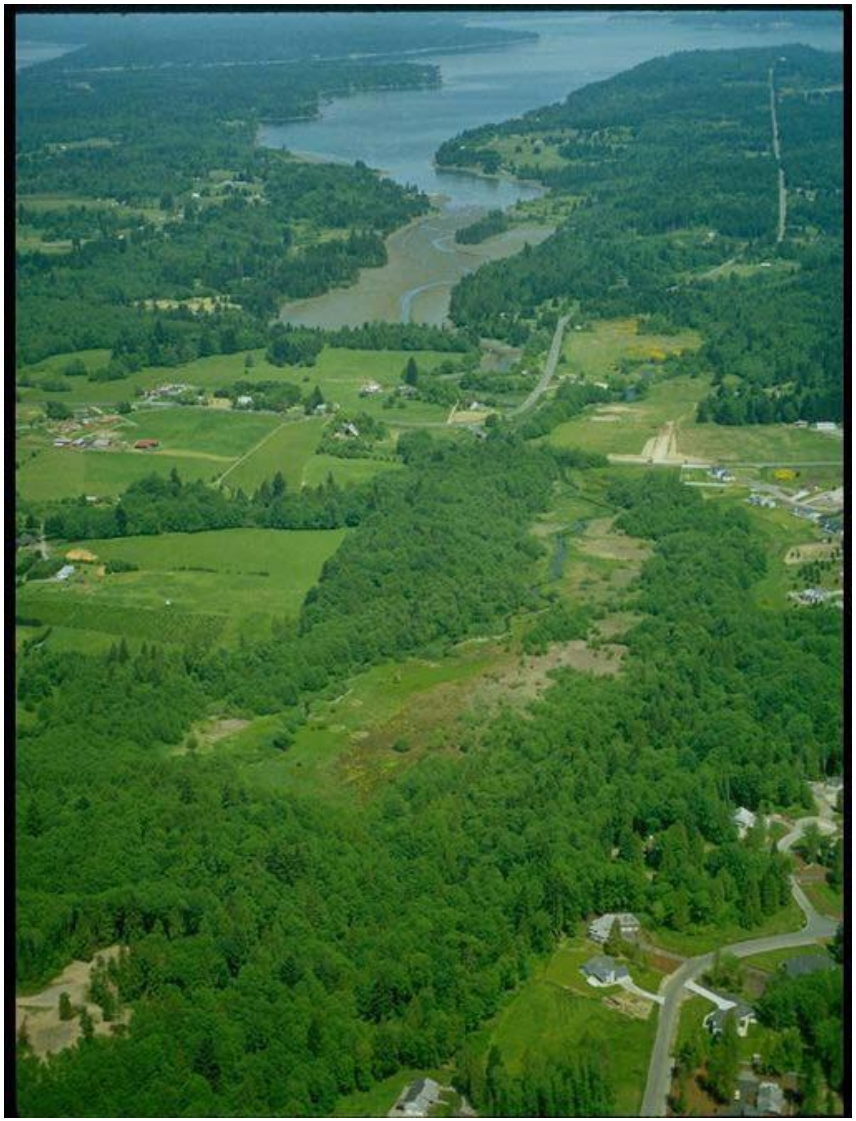
Upland + Well-drained = "Low" Risk

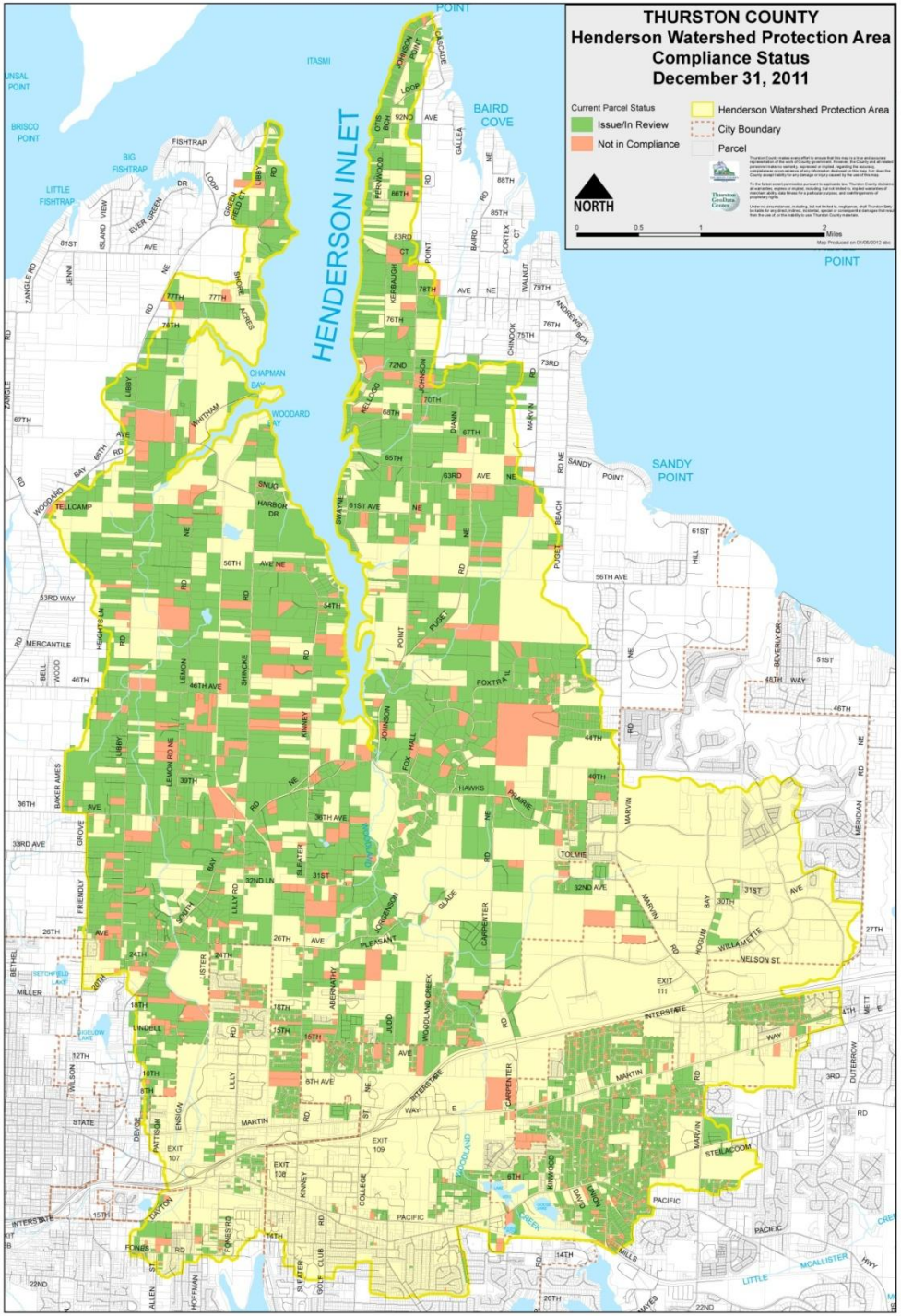
Poorly Drained + Close to Surface Water = "High" Risk

Program Activities

- Keep the property roll
- Manage septic system records
- Send Inspection Notices
- Review Inspection Reports
- Issue Operational Certificates
- Do Dye Tests
- Follow-up & Compliance
- Quality Control Inspections
- Tech Assistance & Training
- Incentives & Financial Assistance

What did we learn from the first 5 Years of Henderson?





Overall, about 87% of properties are in compliance with the program requirements, and 13% are nonconforming

---

Half of property owners need a second notice and half of those need a final notice

Septic Problems are found

Deficiencies Noted: deficiencies must be corrected to ensure proper longevity of t

FOUND CONCRETE TIGHTLINE TO BE COLLAPSED AND CONCRETE TILES TO BE FULL OF SLUDGE

Deficiencies Noted: deficiencies must be

SEPTIC TANK 6 INCHES BELOW GRADE
DRAINFIELD FLOODED & SEWAGE SURFACING
SUBMITTED PUMPING REPORT

Deficiencies Noted: deficiencies must be corrected to ensure proper longevity of the Onsite Se

PERFORMING DRAINFIELD ASSESSMENT DUE TO WATER LEVELS BEING HIGH & DRAINFIELD NOT TAKING LIQUID


Failures are Found & Repaired
Drainfield Area
Septic & Pump Tanks
Failing Sand Filter
Septic installed 2002
0
50ft

Septic System Repair Activity in Henderson Watershed Protection Area

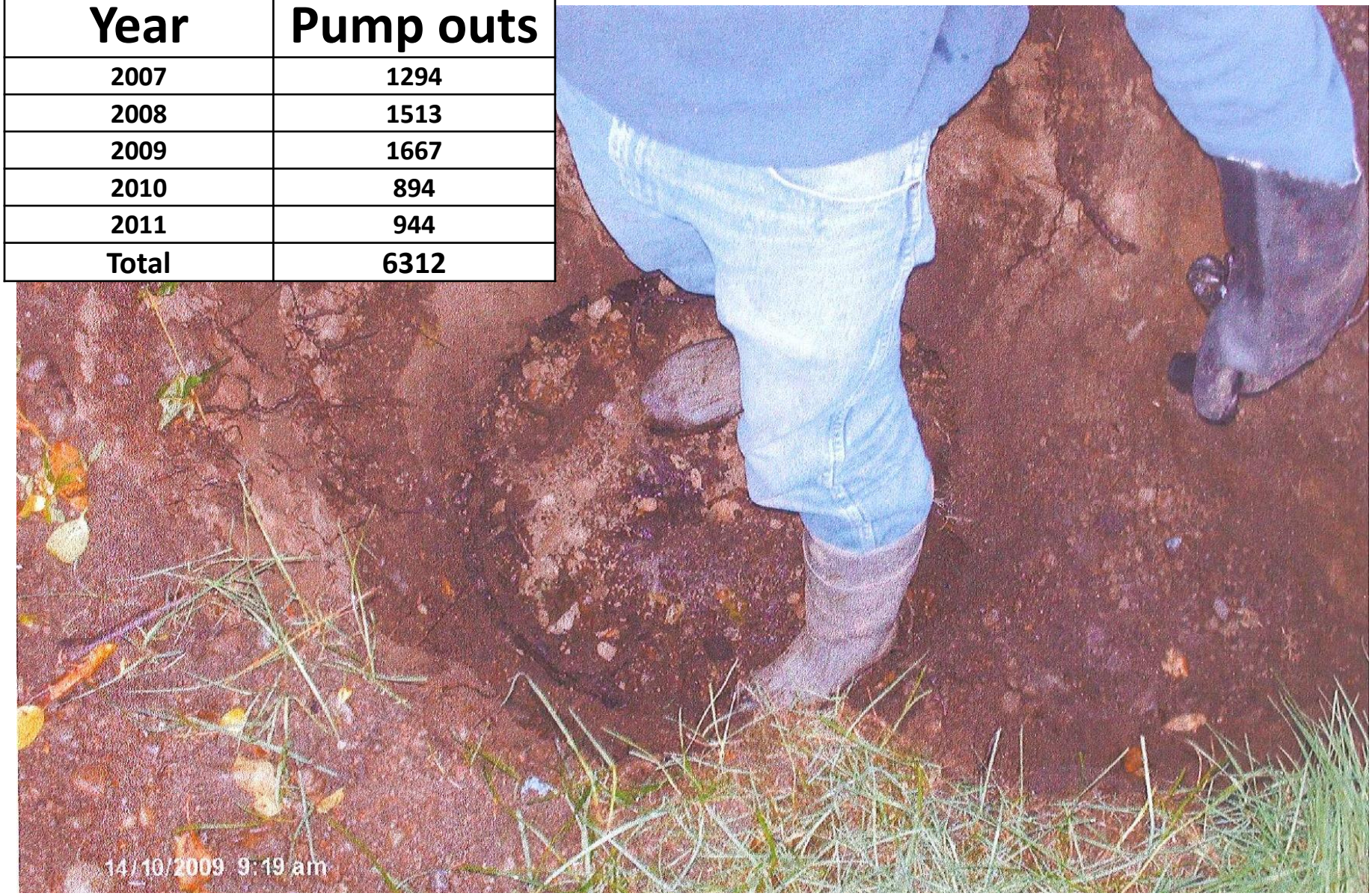
	Permit Approved	Installed
Repairs	115	102
Tanks Replaced	75	67
SandFilter/ Mound Rebuilds	9	8

Dye Testing

Year	Dye Tests	Systems that Passed	Systems needing repair
2007	21	18	3
2008	38	33	5
2009	45	42	3
2010	50	49	1
2011	51	49	2
Total	**205**	**191**	**14 (7%)**

Tank Pumping is #1 Maintenance

Year	Pump outs
2007	1294
2008	1513
2009	1667
2010	894
2011	944
Total	6312



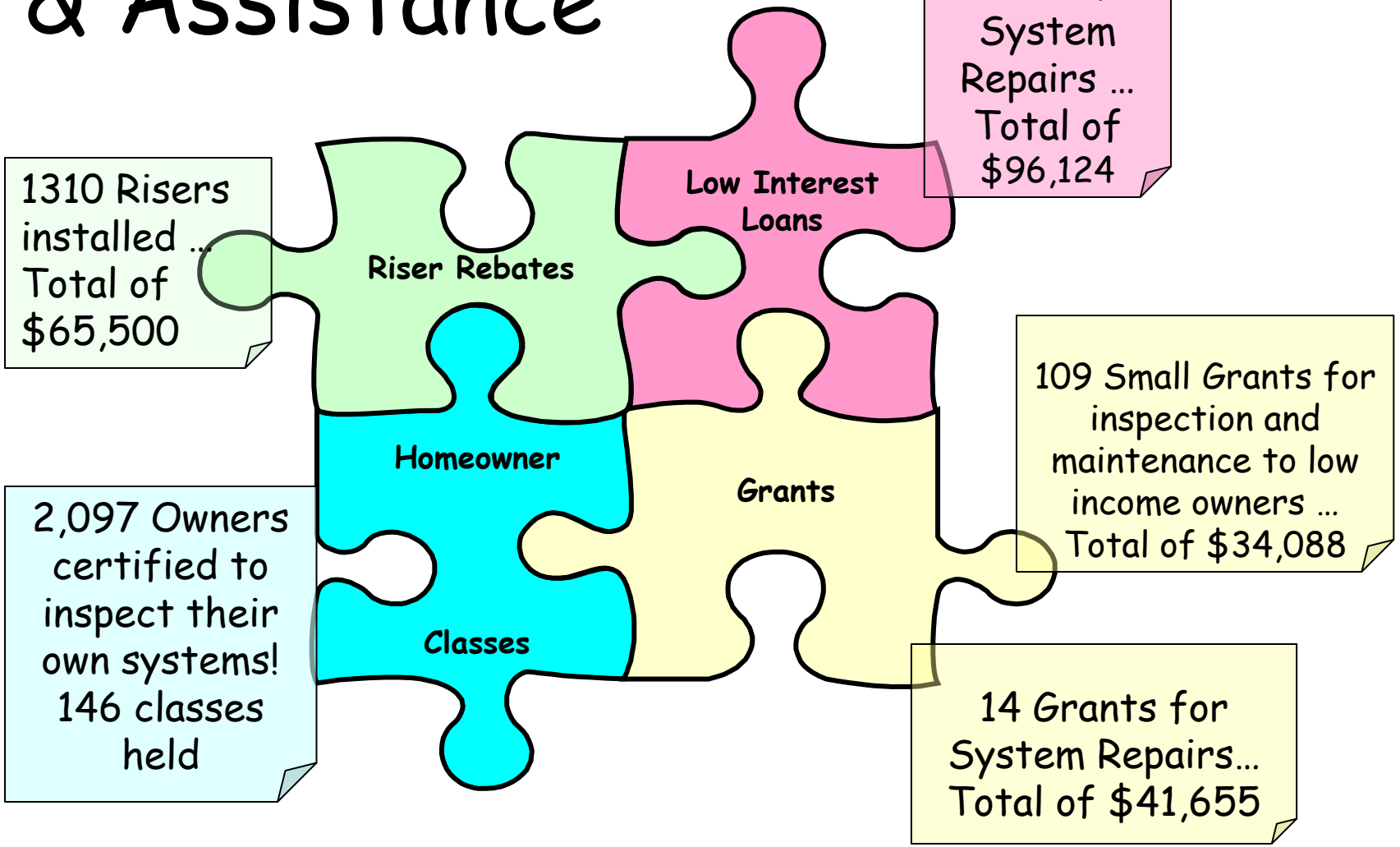
During first cycle, almost half of tanks <u>needed</u> pumping. That decreased in second cycle.

Minor Repairs

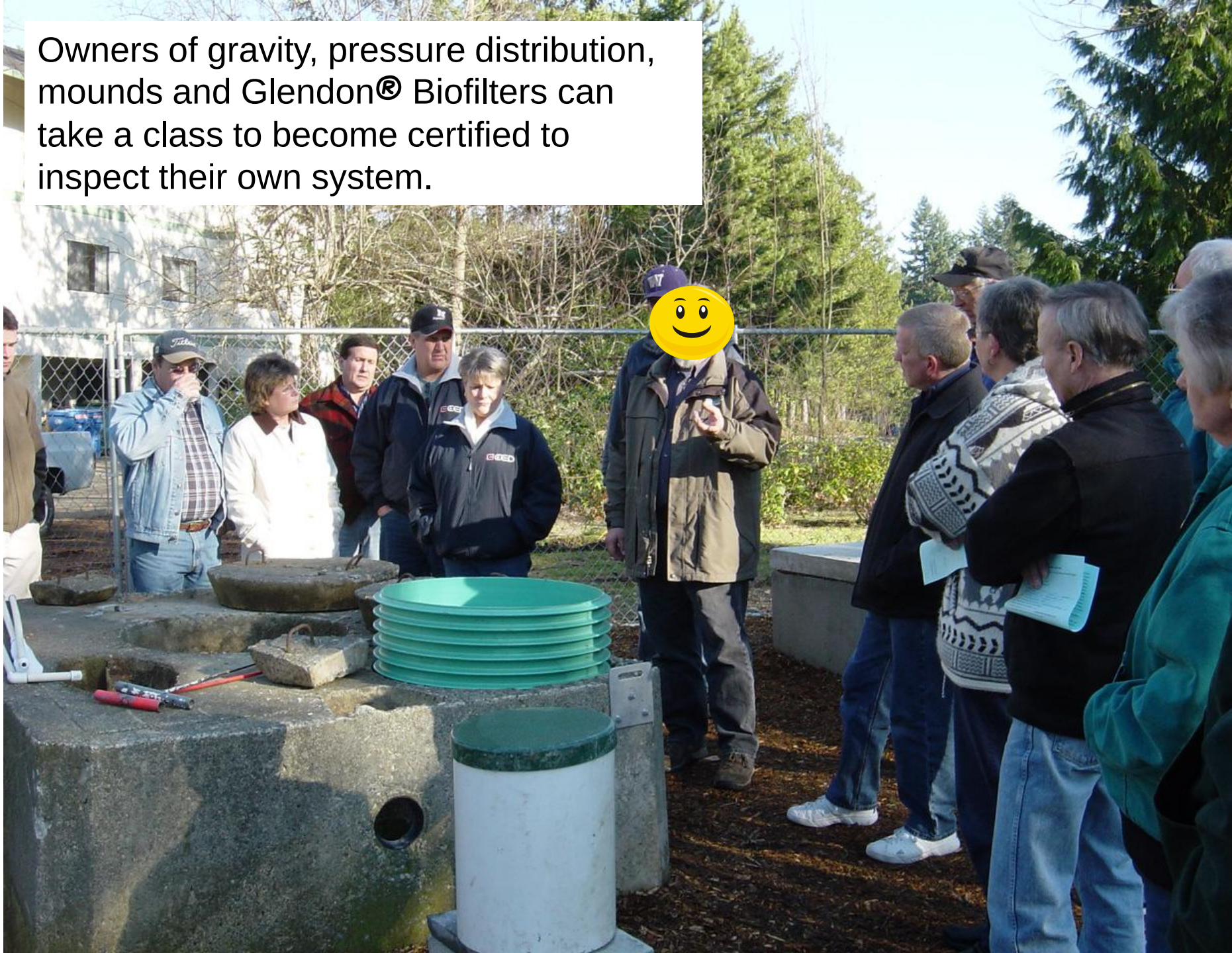
Minor Repair	2009	2010	2011
Outlet baffle	142	55	51
Holes in septic tank	56	35	12
Cracks in septic tank	41	31	17
Repair transport pipe	45	13	16
Inlet baffle	30	15	9
Floats	28	16	18
Electrical	23	12	14
Pump repair/replace	22	11	13
Pump alarm	21	4	18
Building sewer	11	2	3
Repair drainfield T	5	--	3
Other(D-box, lids, etc)	10	8	7
Total	434	202	181


Replacing Outlet Baffle – Most Common Repair
JUL 27 2008

Incentives & Assistance



Owners of gravity, pressure distribution, mounds and Glendon® Biofilters can take a class to become certified to inspect their own system.




05/12/2007
05/12/2007
05/12/2007
05/12/2007

Certified Owner Inspectors

Year	*# Certified*	*# Revoked*	*% Revoked*
2007	554	35	6
2008	546	53	10
2009	506	64	13
2010	282	24	8
2011	209	15	7
Total	**2097**	**191**	**9%**

Owner installed

Grandpa's helper!

1310 Risers Installed - $65,500 Rebates


109 Small Grants for inspection & maintenance
to low income owners … Total of $34,088

7 Loans for System Repairs … Total of $96,124

14 Grants for System Repairs… Total of $41,655

LESSONS LEARNED

- First cycle is labor intensive
- More than 1 OSS per parcel
- Septic and sewer records lacking
- Under-estimated costs
- Incentives work
- Community and mobile home park OSS mgnt is time-intensive
- Pumpers adapted business practices

LESSONS LEARNED

- Permit tracking system works, but not ideal for on-going OSS mgnt
- Tax Parcel #s change
- Dye test not needed for most streamside properties
- Need flexibility for legitimate owner life issues

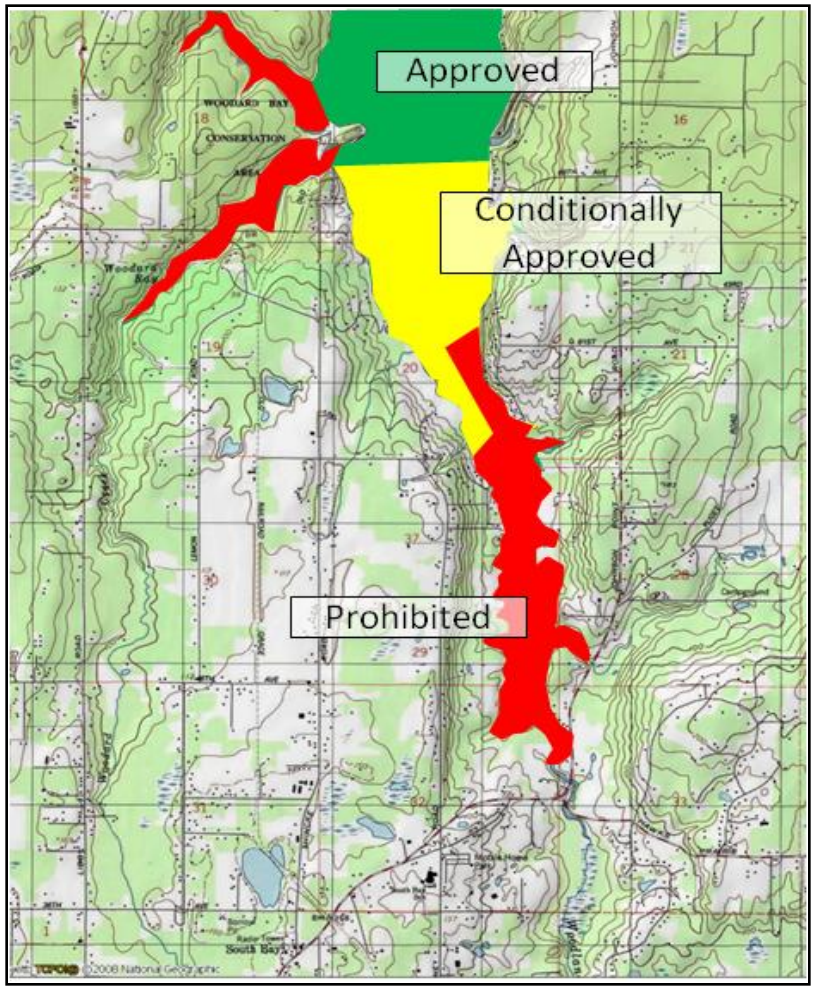
WHAT WORKED WELL

- Billing with Property tax
- Online Reporting
- Owner/Inspector Training Improved Credibility
- Stronger Relationship with OSS Professionals
- Increased Automation
- Incentives and Financial assistance
- Dedicated Compliance Staff

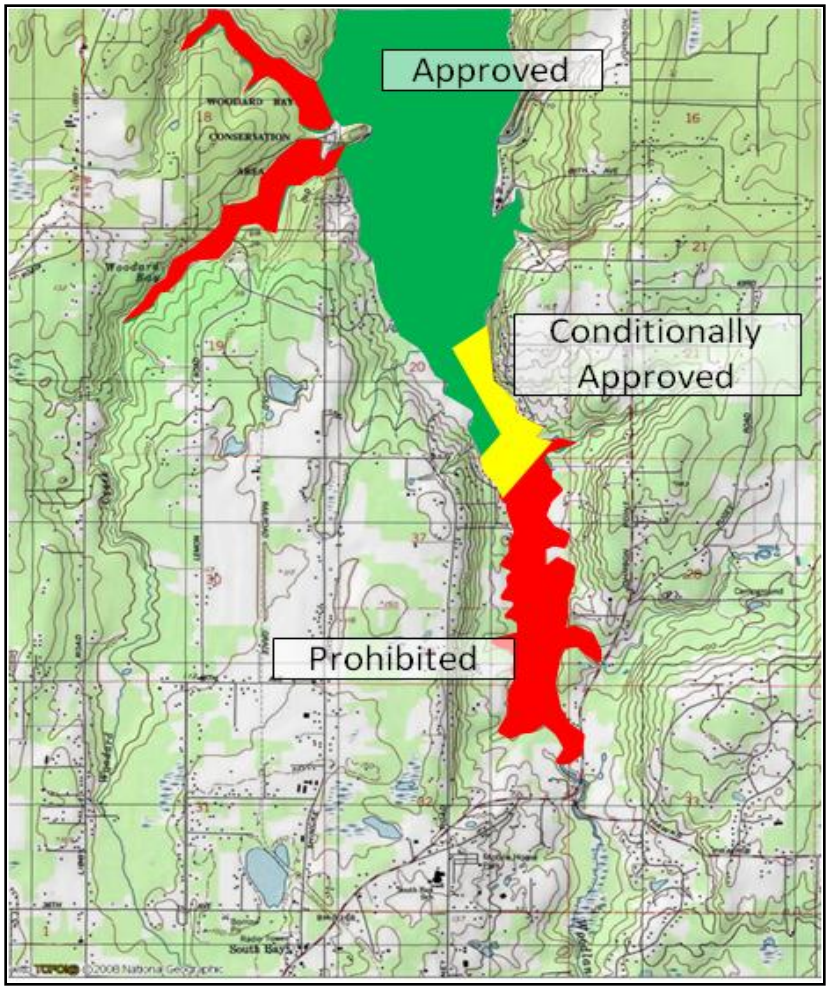
WHAT IS NEEDED

- Expand Use of OnLine Services
- Continuing Education for OSS professionals & Certified Owners
- Increase QA/QC inspections
- OSS permitting system that is independent of tax parcel numbers
- Program charge adjustment to cover expenses

2005


Approved
Conditionally Approved
Prohibited

2012


Approved
Conditionally Approved
Prohibited

Compliance

Active Enforcement for:

- ✓ **Failing OSS**
- ✓ **High Risk OSS**

Passive Enforcement for:

- ✓ **Minor deficiencies**
- ✓ **Lower Risk OSS**

Questions?