



Septic Systems & Water Quality

Presented to the Deschutes Advisory Group
August 25, 2011

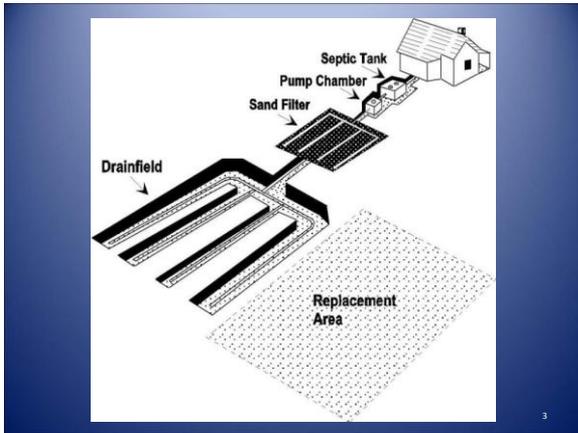
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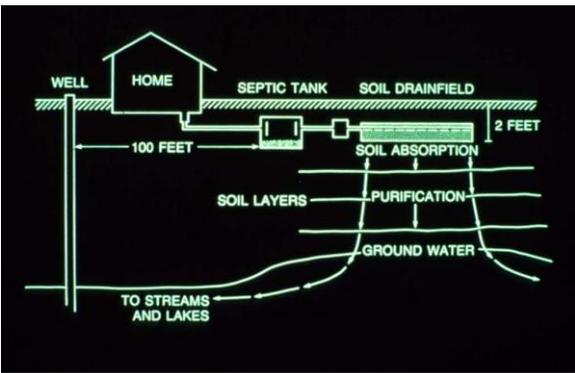


Objectives

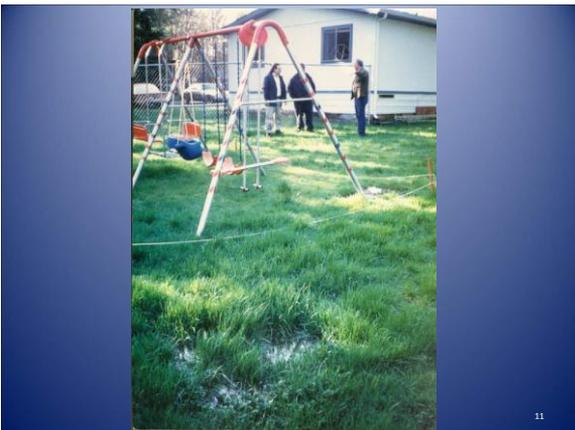
- How septic systems work
- How septic systems fail
- Public health & water quality issues associated with septic systems in the urban area

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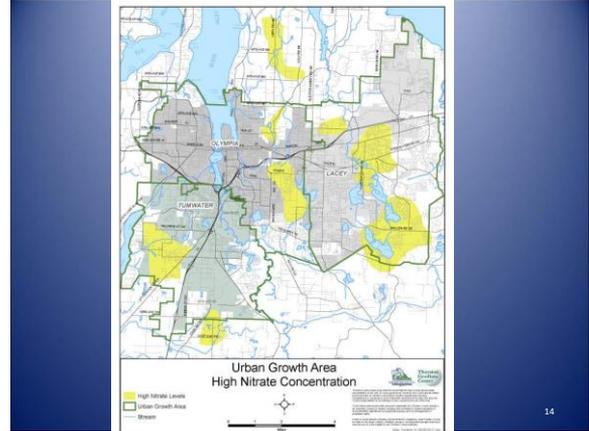


Low Permeability Contributes to Surface Failures

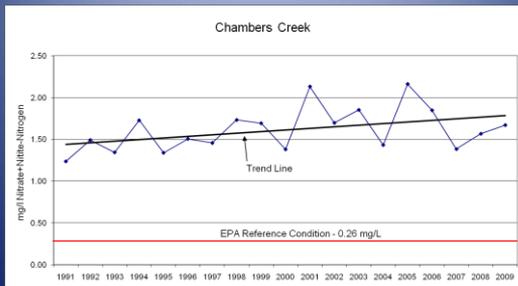


Failing marine shoreline septic systems have direct impact on nearshore water quality.

High Permeability Contributes to Ground Water Contamination



Nitrate Trends



June 20, 2011 Dept of Ecology Puget Sound Fly-Over

Morning flight from Seattle to Olympia at <1000 ft altitude



Red brown bloom in East Bay around Swantown Marine, Butt Inlet, Olympia 9:32 AM

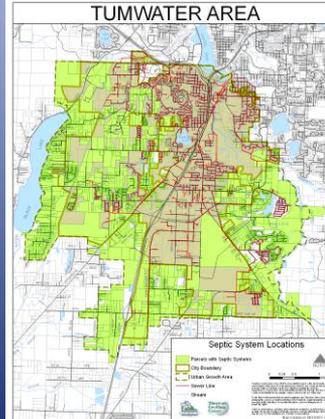
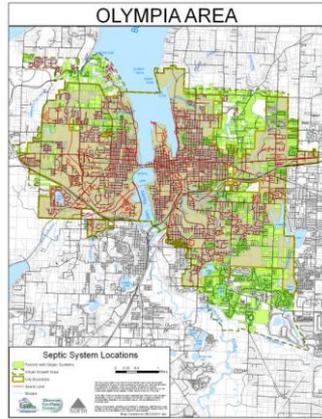
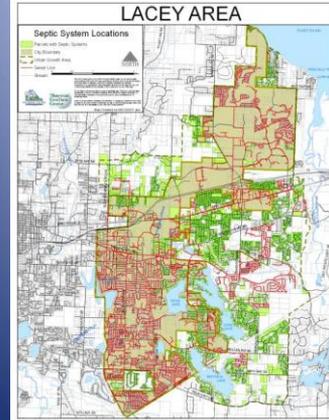
Septic System Statistics

	Within City	Within UGA
Olympia	2061	2183
Lacey	1183	5276
Tumwater	1509	1495
TOTAL	4753	8954
	13,707	

Treated Wastewater Quality

	LOTT Reclaimed Water ¹	Budd WWTP Effluent ¹	Septic Tank Effluent ²
Volume	2 mgd	11 mgd	3 mgd
Total Nitrogen (mg/L)	5	5	40 – 100
Fecal Coliform (colonies/100ml)	0	6 - 285	Millions
BOD (mg/L)	3	4	140 - 200

¹ Personal Communication, LOTT Staff, June 2011
² US EPA, "Onsite Wastewater Treatment Systems Manual", February 2002



High Density Neighborhoods on Septic Systems in the Urban Area



Quarter Acre Lot Size Often Include Multi-Family Use



Multi-Family Use Generates Higher Volumes of Septic Effluent



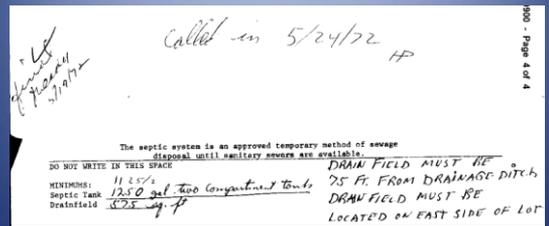
Large Community Septic Systems Serve Whole Neighborhoods



Small Lots Have Limited Area for Septic Repairs



Interim Solution Until Sewer



Many Near Sensitive Areas



Sewered & Septic Areas Intermixed



Summary

- Too many septic systems in the urban area are loading groundwater with nitrate
- Failing shoreline septic systems discharge sewage directly to surface water

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