

North Georgia Water Resources Partnership

2021 Annual Meeting/Educational Seminar

DPH Onsite Sewage and Water Quality Program

April 28th, 2021

Chris Kumnick, B.Sc.A

Program Director

DPH Environmental Health Section



Environmental Health; A Corner Stone of Public Health

Promotes and protects the well being of citizens and visitors of Georgia by assuring the **environmental conditions in which people live, work and play can be healthy.**

Accomplished by providing primary prevention via **surveillance, education, enforcement and assessment programs** designed to identify, prevent and abate the conditions that adversely impact human health.

**Clean Air, Clean Water, Safe Food,
and Safe Housing**

<http://dph.georgia.gov/environmental-health>

Environmental Health Mandates

Food Service Establishments: O.C.G.A. 26-2-373

Public Swimming Pools: O.C.G.A. 31-45

Tourist Accommodations: O.C.G.A. 31-28

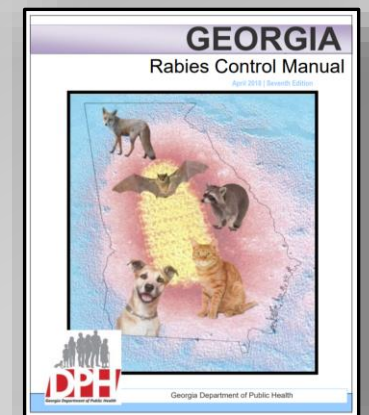
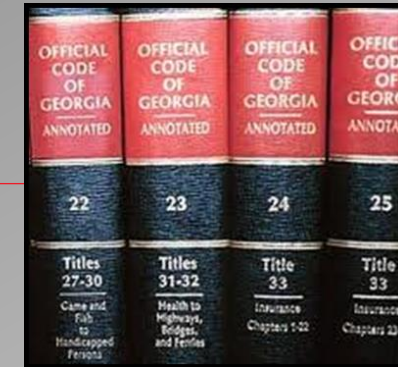
On-Site Sewage Management: O.C.G.A. 31-2A-11 & 31-3-5(b)

Portable Sanitation: O.C.G.A.31-2A-4(3)

Rabies Control: O.C.G.A. 31-19

Tattoo Studios: O.C.G.A. 31-40

Tanning Facilities: O.C.G.A. 31-38



EH Program Mandates

Childhood Lead Poisoning Prevention Program: O.C.G.A. 31-41-10

- Healthy Homes Program
- Indoor Air: O.C.G.A. 31-12A “Smokefree Air Act”
- Asthma

Chemical Hazards Program: O.C.G.A. 31-12

- Health Impact Assessment
- Brownsfield Grant

Non-Public Water Supply: O.C.G.A. 12-5-134; 31-2A-4; 31-3-4

Emergency Preparedness: O.C.G.A. 31-12-1.1; GEMA

- EH Emergency Prep
- Mass Fatality Coordination

Control of Mass Gathering: O.C.G.A. 31-27

Surveillance and Response: O.C.G.A. 31-2A-(1) (2)

- Mosquito Surveillance
- Public Health Pest Surveillance
- Response

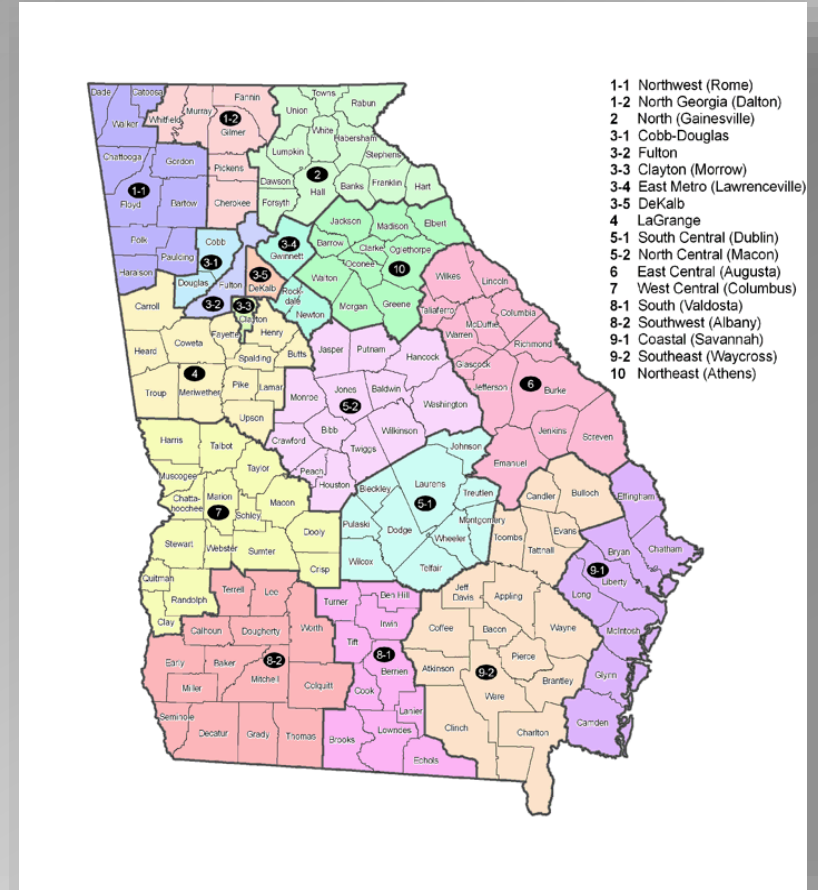


Public Health-Environmental Health Workforce

Environmental Health services are provided by approximately **425 professional staff statewide.**

- 23 State Office
- 17 EH District Directors
- 385 Local Board of Health EHS
- EH provides population-based services, ~500 EHS required (1 EHS/20,000 persons)

**“Environmental Health...
Touching Everyone’s Life Every Day”**



Environmental Health Specialists (EHS): Credentials

Bachelor Science Degree

National Registered EH Specialist

- EH Credential and nationally recognized
- 15 Subject Matter Areas
- Expertise and Credibility

Five formal weeks of new EHS training/Standardization

State Certification in Onsite Sewage Management

Certifications in Lead and Healthy Homes

Training in Chemical Hazards Risk Communication

FDA Food Standardized

Foodborne and Waterboard Outbreak Training



On-Site Sewage Management Systems

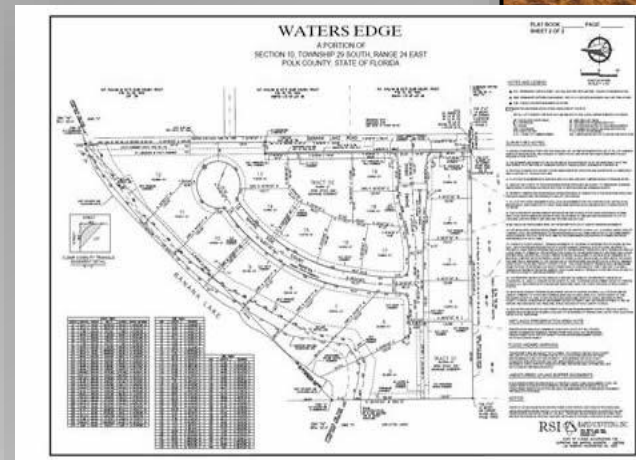
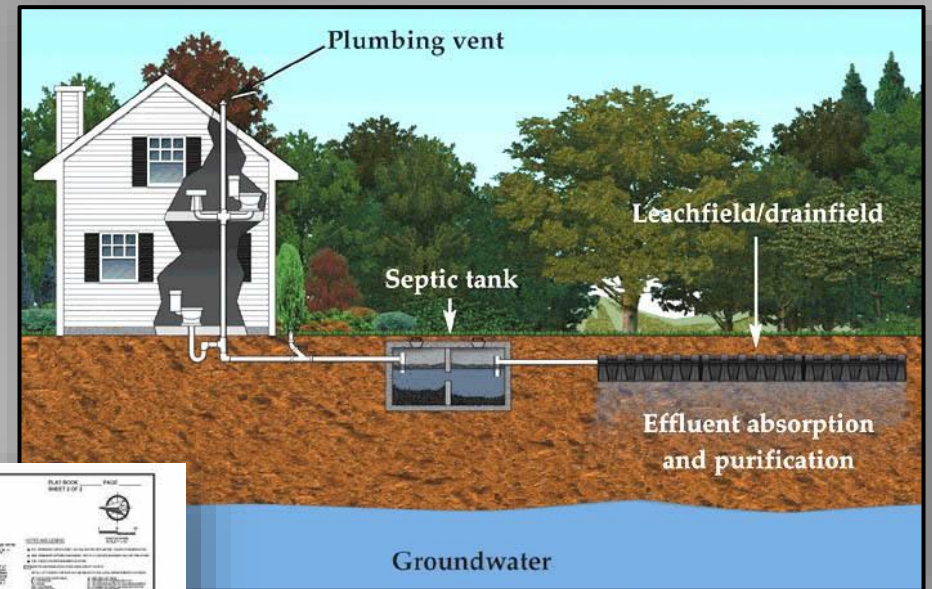


Manual for On-Site Sewage Management Systems

UPDATE – June, 2019

Environmental Health Section

Georgia Department of Public Health



Onsite (Decentralized) Wastewater Treatment

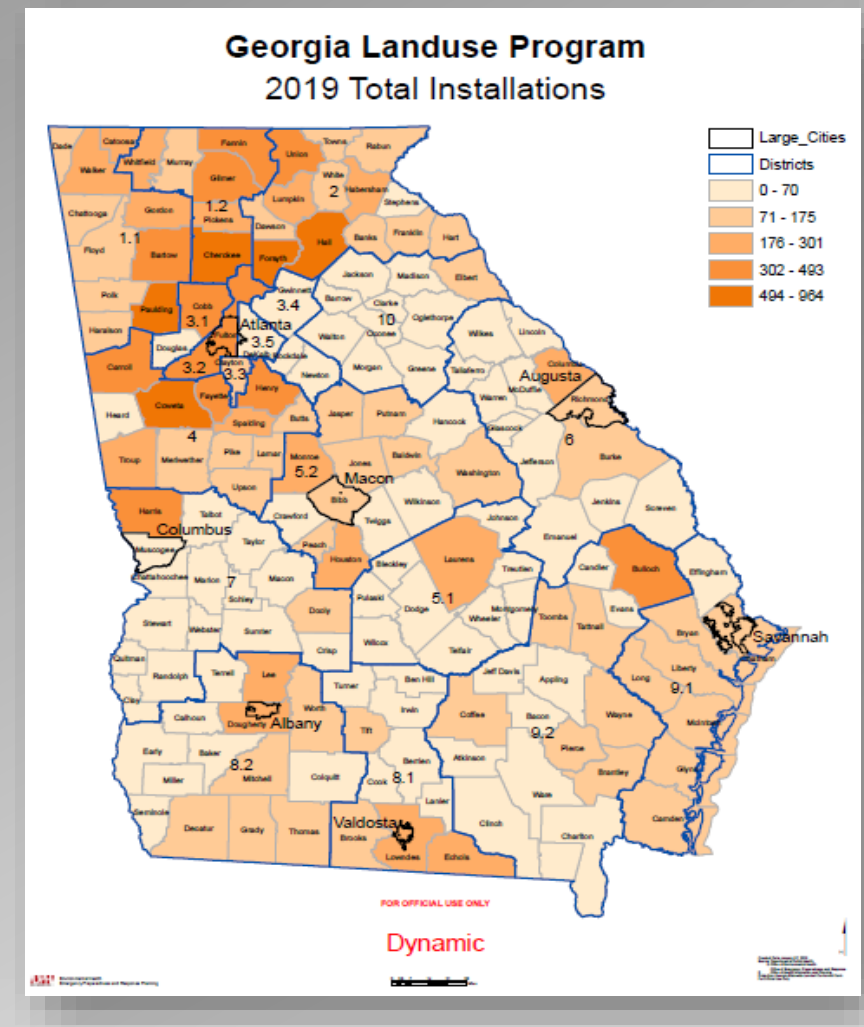
30% of homes in the U.S. dependent on OSSM systems

Statewide

- 40+% in Georgia. **1.7 million systems.**
- 20,000+ new systems installed annually in Georgia.

Coosa-North GA Region (18 counties)

- 265,000 OSSMS: Treating ~48 MGD
- If these systems are “serviced” every 10 yr, ~1 MGD septage treatment capacity needed



Onsite (Decentralized) Wastewater Treatment

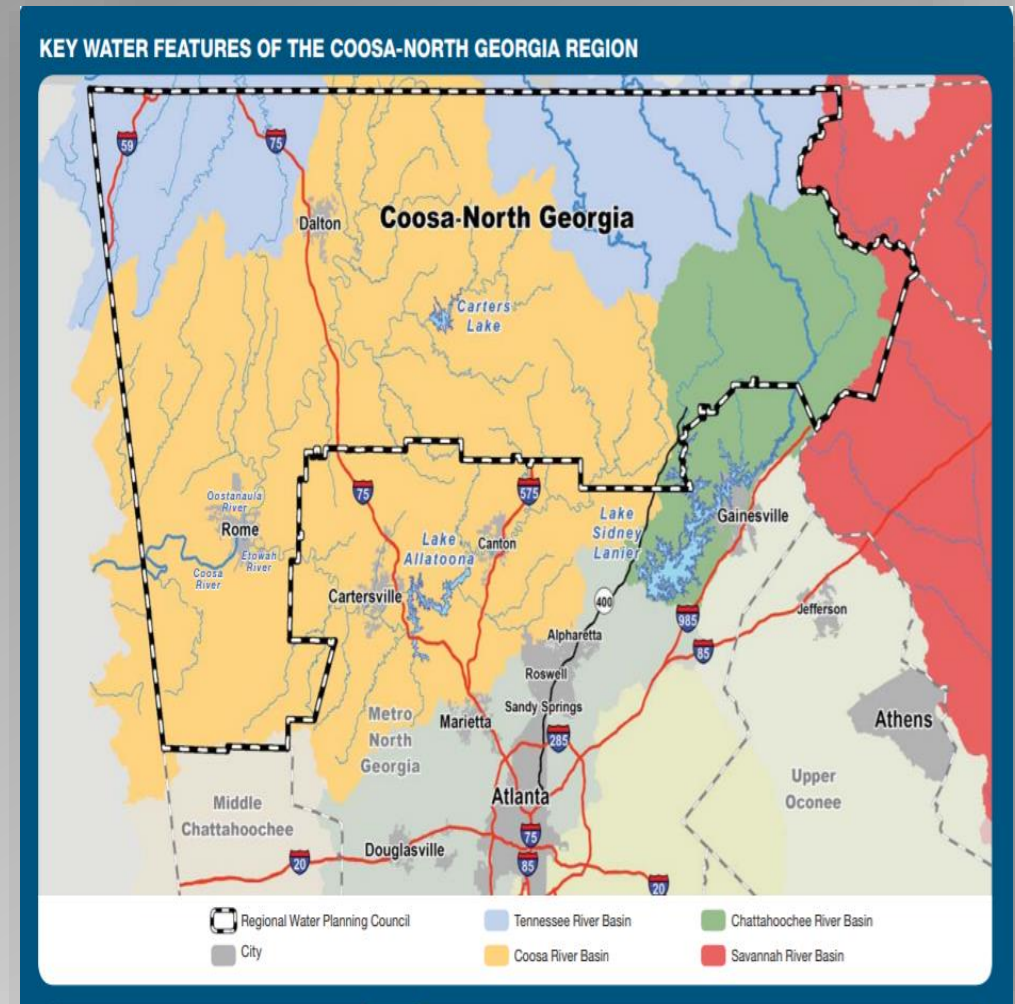
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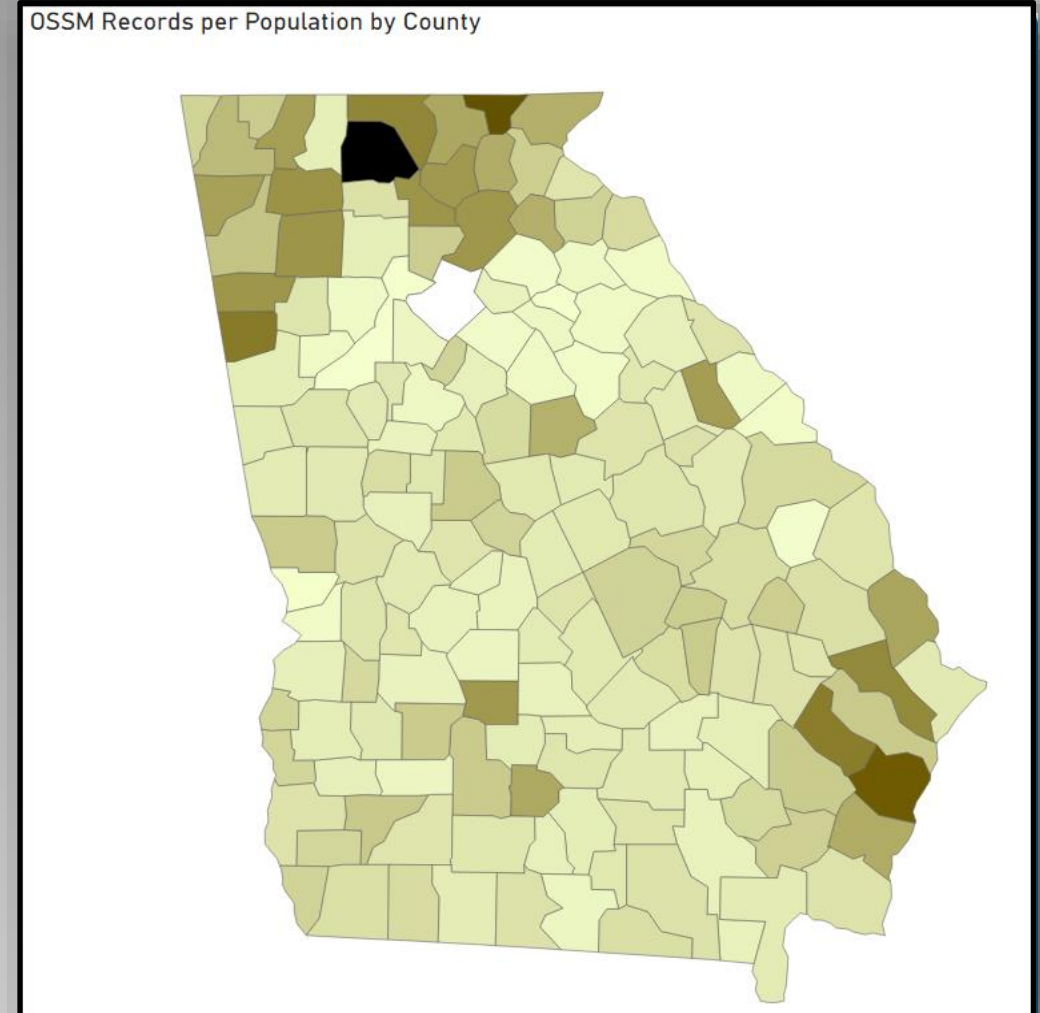
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Non-Public Well Water Supply

Non-Public Water Supply: O.C.G.A. 12-5-134.

Private well water for Food Service, Tourist Facilities and Public Pools.

Individual well

Water sampling and well assessment.

- Residential bacterial sampling: Total and Fecal coliform ssp.



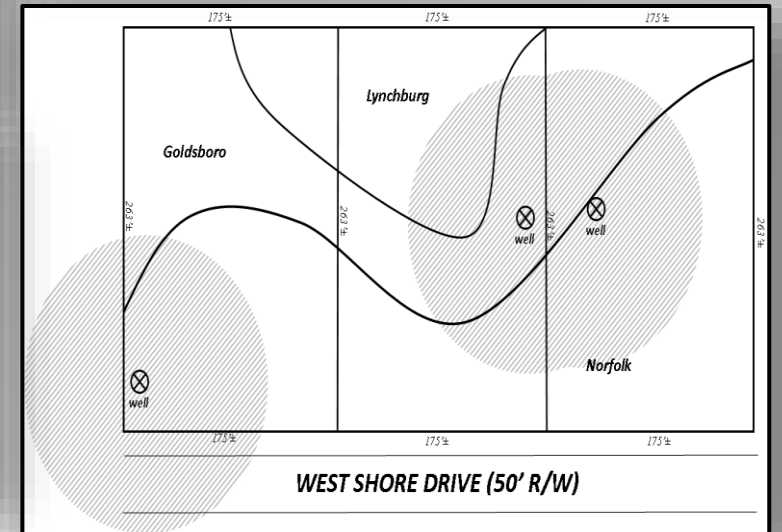
Non-Public Water Supplies

New Well Sites Evaluated	3,628
Existing Systems Evaluated	4,935
Bacterial Samples Taken	5,136
Positive Samples	1,387
Wells Disinfected	118

27% Positive/Unsatisfactory

Public Health Hazards

- Bacteria
- Parasites
- Chemicals



Onsite Program- Evaluation and Outcome

Standardization, QA, Audits

- Digital Health Department (DHD)
- OSSMS Inspection and Failure Reports
- Existing System Evaluations

Performance Standards

Water Quality

Surveillance and Education

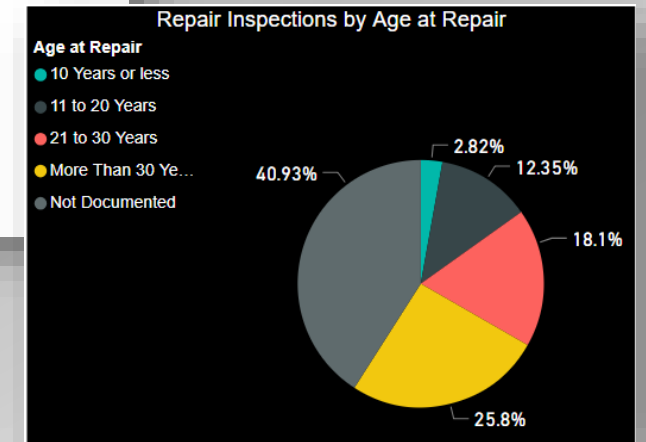
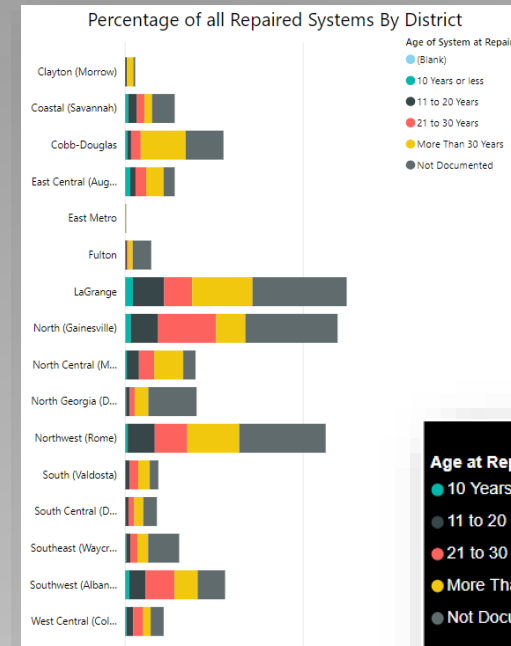
- 25% Reduction in Out of Compliance Wells

Onsite Sewage

Longevity and Capacity to Respond

- < 1% failure rate in 1st year
- Repairs; 3 days to Investigate,
- 90 days to Abate

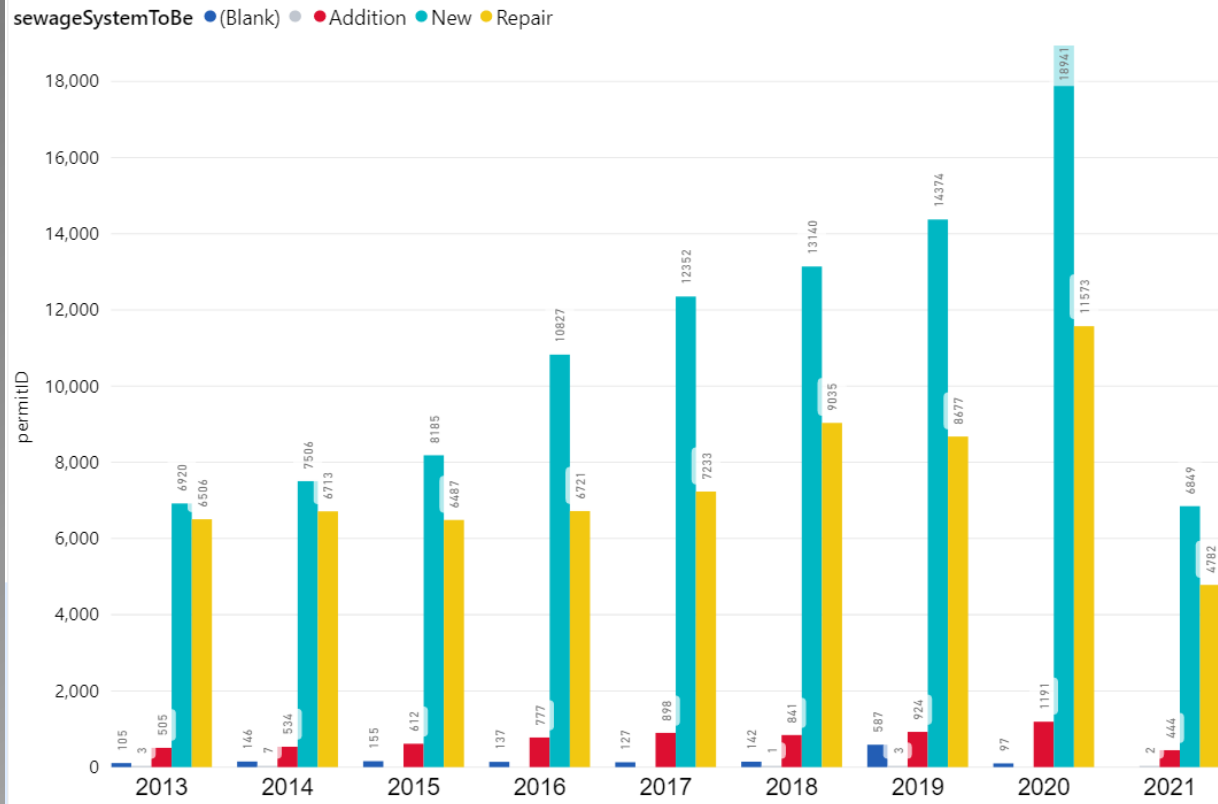
absorptionLine	Count of Inspections
Quick 4 Plus High Capacity - 14	5441
EZflow 1203H	3083
EZflow 1303T	2150
ARC 36 High Capacity -16	2028
Infiltrator Quick4 High Capacity -16"	1114
Conventional 12x36 gravel & pipe	754
MPS-13-36	692
SS-13-36	596
Infiltrator Quick4 Standard -12"	497
EZFlow 0904HP	327
Quick 4 Plus Standard - 12	283
No Line Added_ Repair Only	244
Infiltrator High Capacity -16in	236
Eljen In-Drain (GSF) A-42	177
Infiltrator Quick4 Plus Standard LP 1.0	80
EZflow 0904H	65
ARC 36 Standard -13	36
Infiltrator Quick4 Plus EQ36 LP 1.53	23
Total	17991



Source: DPH DHD, 2020

Current Priorities

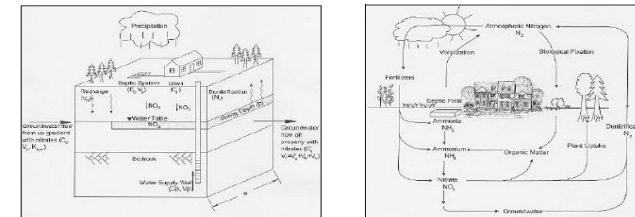
Permit Applications with Average of Days to Issue by Year and Type of Work



A Nitrate Mass Balance Model for Georgia

Impact of Onsite Sewage Systems on Ground Water Concentration of Nitrogen

Mass Balance models for lot sizes have been developed by Trela (1978), Whermann (1984), Bauman (1985), Tinker (1986), Frimpter (1990), Hantsche (1993) and others. Variations to the different methods range from simple to complex and accuracy can vary greatly. However, the planning of minimum lot sizes considers the impact of nitrogen loading by an onsite septic system. The mass balance approach can provide an approximation of the condition of ground water by estimating nitrate concentrations.

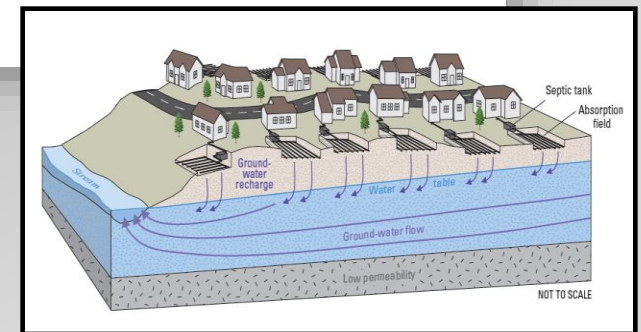


Nitrogen Cycle- Onsite Septic Systems

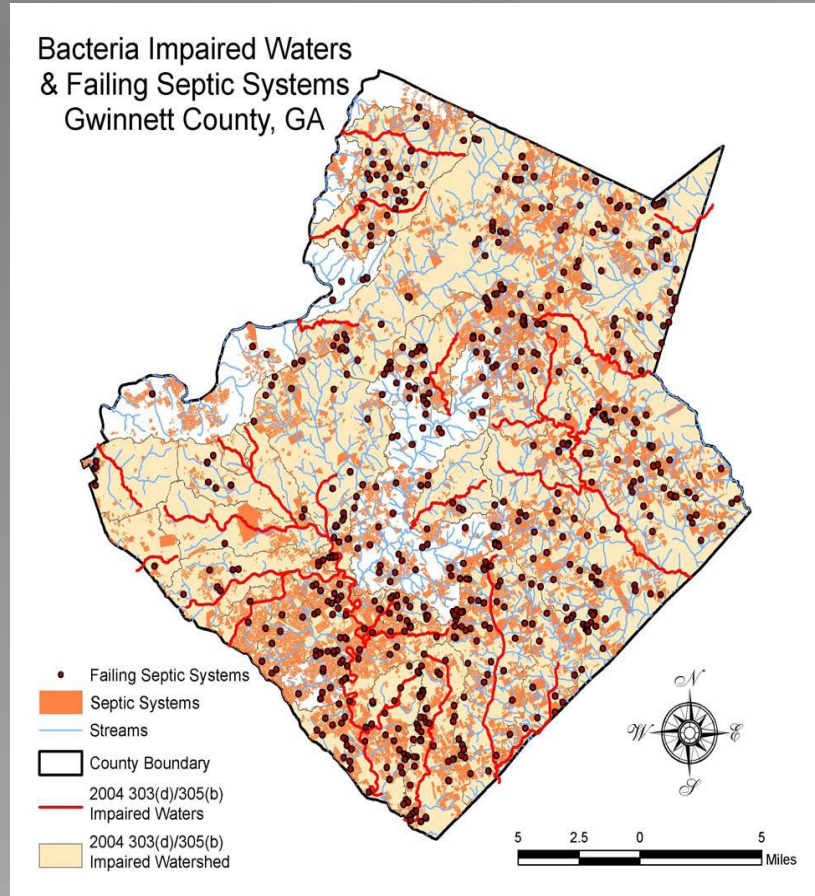
Minimum lot size is based on nitrates being diluted to drinking water standards of 10 mg/l or less. The maximum daily sewage flow for each lot or parcel of land shall not exceed 600 gallon per acres when served by a non-public water supply (GA Manual for On-site Sewage Management Systems, 2007).

A TWO STEP PROCESS:

- 1) Estimate the amount of rain which infiltrates into the ground.
- 2) Use a mass balance equation to estimate ground water nitrate concentrations.



Non-Point Source Pollution



A **TMDL** determines how much of a particular pollutant a water body can contain and still support its designated use, and states how much the pollutant load needs to be reduced to restore the water body so that it supports its designated use.

Georgia Water Quality Data

Resources **305(b)/303(d) TMDL lists.**

305(b)/303(d) lists show water bodies in Georgia not meeting their “designated uses,” such as fishable/swimmable or drinking water.



Permitting Cost of Delay-Days to Issue

district	Count of permitID	Sum Days to Issue	Median of Days to Issue	Max of Days to Issue	Average of Days to Issue
⊕ Clayton (Morrow)	119	417	3	21	3.50
⊕ Coastal (Savannah)	1748	8858	0	252	5.07
⊕ Cobb-Douglas	883	9124	4	214	10.33
⊕ DeKalb	169	27	0	8	0.16
⊕ East Central (Augusta)	1465	1649	0	123	1.13
⊕ Fulton	480	2450	0	224	5.10
⊕ LaGrange	5230	24164	1	273	4.62
⊕ North (Gainesville)	5199	54669	6	338	10.52
⊕ North Central (Macon)	2249	18825	5	365	8.37
⊕ North Georgia (Dalton)	2792	16326	2	233	5.85
⊕ Northeast (Athens)	3850	29629	1	1833	7.70
⊕ Northwest (Rome)	3361	17035	1	211	5.07
⊕ South (Valdosta)	973	2090	0	730	2.15
⊕ South Central (Dublin)	840	4130	0	252	4.92
⊕ Southeast (Waycross)	2387	7114	0	365	2.98
Total	34611	217550	2	1833	6.29

Permitting Cost of Delay-Days to Issue

district	Count of permitID	Sum Days to Issue	Median of Days to Issue	Max of Days to Issue	Average of Days to Issue
⊕ Northeast (Athens)	3850	29629	1	1833	7.70
⊖ Northwest (Rome)	3361	17035	1	211	5.07
⊕ Bartow	520	2312	3	71	4.45
⊕ Catoosa	340	695	1	86	2.04
⊕ Chattooga	131	1244	2	144	9.50
⊕ Dade	110	93	1	5	0.85
⊕ Floyd	288	2318	3	211	8.05
⊕ Gordon	330	1416	2	143	4.29
⊕ Haralson	211	694	0	165	3.29
⊕ Paulding	925	6370	2	176	6.89
⊕ Polk	217	801	1	84	3.69
⊕ Walker	289	1092	1	118	3.78
⊕ South (Valdosta)	973	2090	0	730	2.15
⊕ South Central (Dublin)	840	4130	0	252	4.92
⊕ Southeast (Waycross)	2387	7114	0	365	2.98
⊕ Southwest (Albany)	1761	11812	3	232	6.71
⊕ West Central (Columbus)	1105	9231	6	314	8.35
Total	34611	217550	2	1833	6.29

Contact Information

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Georgia Department of Public Health

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Environmental Health Section
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