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AGENDA

1. What to Know
2. Why it Matters
3. What is Being Done
4. What You Can Do
5. What's Next

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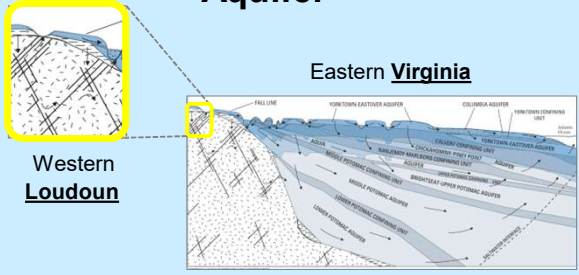
What to Know

1. Our aquifer is getting less reliable.
2. We're taking out more than is going back in.
3. More competition for the same water.



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POINT 1: The Limits of Our Aquifer



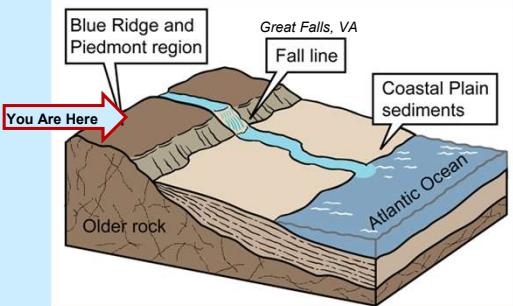
Eastern **Virginia**

Western **Loudoun**

U.S. Geological Survey - Water Resource Investigation 03-4278

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Geologic and Aquifer Regions

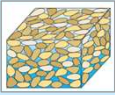

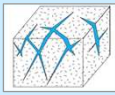


You Are Here

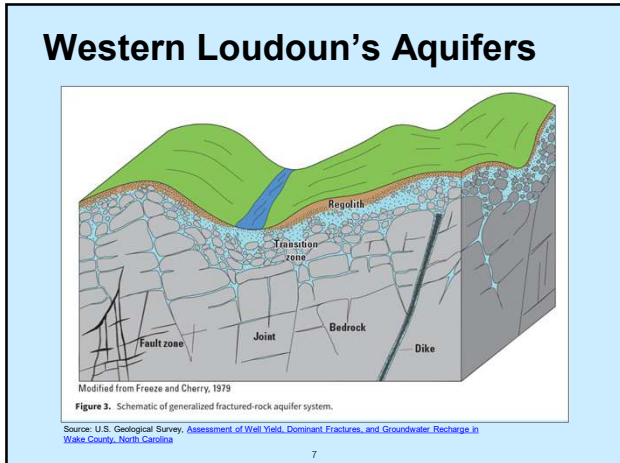
Modified from Swaby, A. N., M. D. Lucas, and R. M. Ross (eds.), 2016, The Teacher-Friendly Guide to the Earth Science of the Southeastern US, 2nd edition. Paleontological Research Institution, Ithaca, New York, 460 pp. [Chapter 4 Topography](#)

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Aquifers 101

Coastal		10 - 35% water
Loudoun Karst		1 - 5% water
Rest of Loudoun		1/2 - 2 % water

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Our Aquifers, Quick Summary

In comparison with coastal aquifers, Western Loudoun's aquifers are relatively:

- **Shallow and Thin**
(aquifer has less volume)
- **Hold less water** by volume of rock
(aquifer has less storage capacity)
- **"Unconfined"**
(surplus rainfall can't be stored for later)

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Water Table and Wells

What is a:
 "Water Table?"
 "Cone of Depression?"

Groundwater Photo Gallery | U.S. Geological Survey

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POINT 2: We're Taking Out More Than is Going Back In

Why?

1. More wells
2. Less recharge

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Reason 1: More Wells

- 6,000 active wells 1980
- 10,000 active wells in 1990
- 19,000 active wells today

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A Crowded Space

- 19,000 private wells
- Many town and community systems
- 50% of the wells are within 200'
- 90% are within 550'

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Reason 2: Less Recharge

- A: More development
- B: Community water systems
- C: Drought
- D: Changing rainfall patterns

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Less Recharge Because ...

A. More development means:

- More runoff and less infiltration

Source: Center for Watershed Protection - Stream Corridor Restoration Principles and Practices, 1998

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Less Recharge Because ...

B. Community systems don't discharge into the ground

Private septic systems return water to the ground Town and other community systems discharge to streams

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Less Recharge Because ...

C. Drought

- Severe drought in the past few years
- Increased frequency of extreme droughts

Source: <https://www.drought.gov/states/virginia/county/loudoun>

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Less Recharge Because ...

D. Increasing intensity of heavy rainfalls produces more runoff and less infiltration

Source: National Weather Service <https://www.youtube.com/watch?v=1AUGQjMPPQ5Y>


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RESULT: Declining Water Table

- In red areas, water table has declined 10-40 feet
- Map based on tens of thousands of well records
- Comparison between pre- and post-2000 water levels
- More assessment is needed

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POINT 3: More Wells Means More Well Conflicts

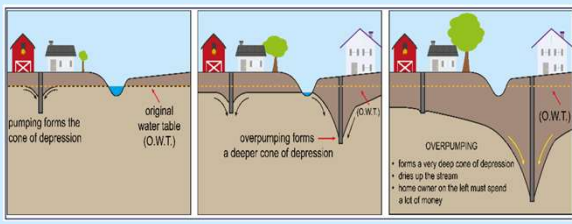


Aerial View near Lovettsville (from Developer's ad)

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Competing "Cones of Depression"



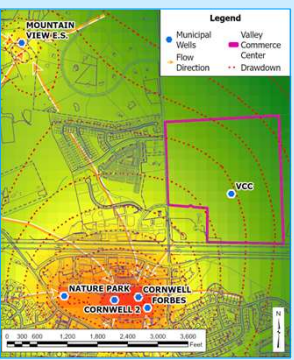
Best Practices for Owners of Domestic Wells in Alluvial Aquifers, The Groundwater Project, 2026, gw-project.org

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Valley Commerce Center Purcellville

- Purcellville Town Council voted against annexation
- Application for County re-zoning
- County Staff recommended against re-zoning
- County Planning Commission recommended approval
- County Supervisors Meeting April 15

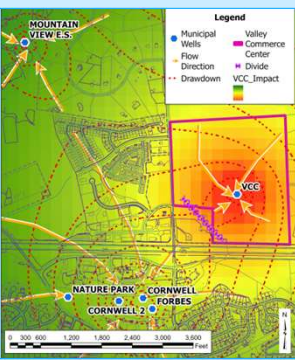


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Impact of VCC Pumping

- VCC "cones of depression" overlap with Town Wells
- Proposed VCC well pumps 30% more than the nearest Town well (Forbes)
- Groundwater taken by VCC would not be available for the Town water supply
- Purcellville's demand already exceeds its groundwater supply



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Why It Matters

Farms Need Water



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Rural Business Needs Water




Photo with permission from Dirt Farm Brewery

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Related Concerns

- How many more houses can be built?
- Cluster subdivisions will continue to cause drawdown conflicts
- Replacement wells are very costly

Easements, Clusters, 20+/40+ Vacant & Recombined w/Res Communities

Source: Loudoun GridHub Data files, Jan. 2021

Watershed Consulting, LLC

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What is Being Done?

County

- Environmental Commission recommends restarting groundwater analysis and monitoring
- County staff recommendation coming in near future – decision by Board of Supervisors will follow.

State

- \$200K for a groundwater study in Loudoun and Fauquier awaiting final State budget approval.

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What YOU Can Do:

1. Spread the News
2. Advocate: County/State
3. Conserve Water

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1. Help Get Out the Word!

- Invite others to upcoming community meetings!
- Share information!
- Use the community grapevine!
- Social media!
- Letters to the papers!
- Tell us about your situation!


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2a. Advocate to the County

The County can:

- Collect and analyze data
- Require well monitoring and reporting
- Increase dedicated subject matter expert staff
- Establish water management plan




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2a. Advocate to the County

The County can:

- Adopt water conservation, recharge standards and drought restrictions
- Regulate “permitted uses” (in the Zoning Ordinance)
- Encourage State establishment of Groundwater Management Area



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2b. Advocate to the State




State law:

Withdrawal permits are only required within an established “*Groundwater Management Area*”

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3. Practice Water Conservation Inside and Outside



Fix leaks

Buy efficient appliances

As much as **50 percent** water wasted from inefficient watering methods and systems. **Curb your water waste!**

look for **WaterSense** Meets EPA Criteria

LWC **SPRING NATIVE PLANT SALE**

NATIVE TREE PLANTING

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What’s Next?

1. Public engagement
April 15th – 6pm BOS Public Hearing: Valley Commerce Center
2. Advocating to County Board of Supervisors
3. Advocating for a state “Water Management Area”

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Discussion



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