

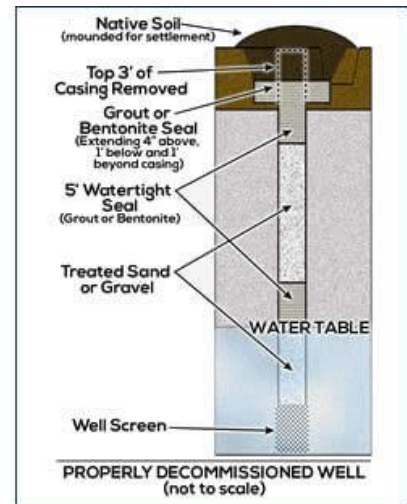
Land use policies to reduce contaminants in groundwater

Land use affects groundwater quality. Policies to limit nitrate in drinking water have two general approaches:

1. Geographically separate potential sources of contaminants and drinking water wells
2. Reduce potential sources of contaminants

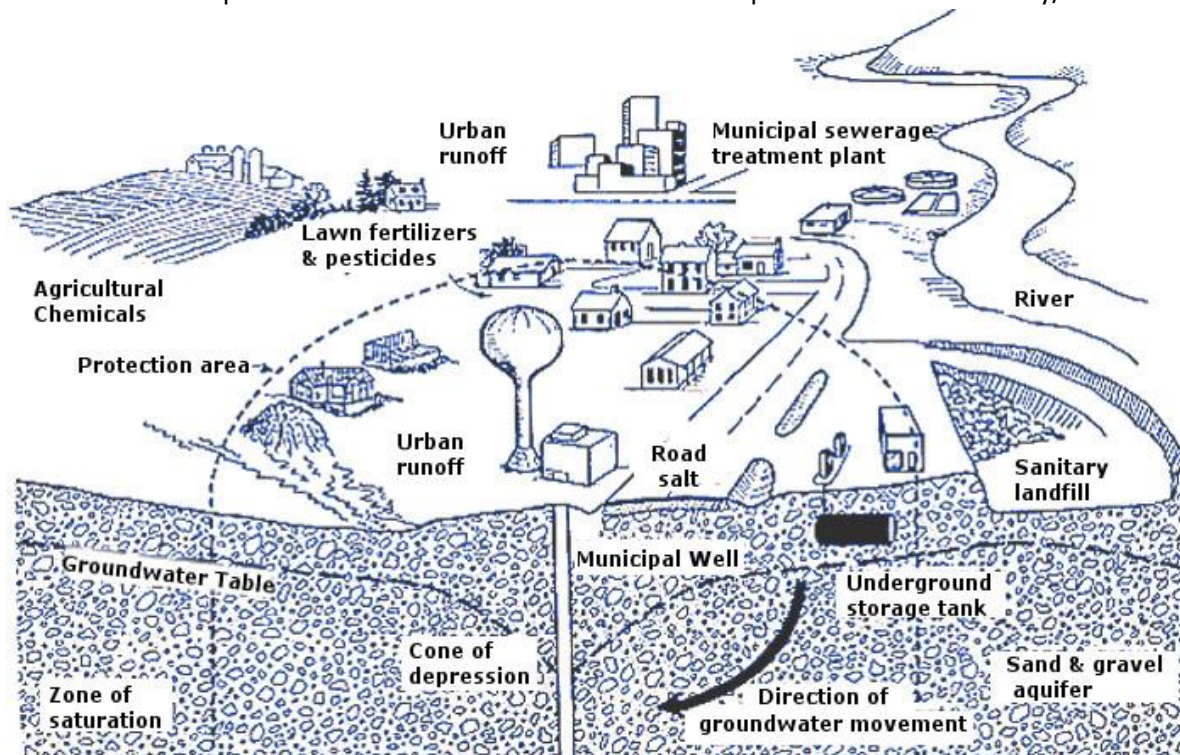
Well abandonment ordinances identify and properly fill unused wells and drillholes. Unused wells and drillholes can act as direct conduits for nitrate to travel from the ground's surface to groundwater aquifers.

- Does your county have a well abandonment ordinance or program?
- When does it apply?
- Is funding available?



Wellhead protection ordinances are one type of zoning ordinance that limit land uses in the wellhead recharge area.

- Which municipal wells have wellhead protection ordinances, and which do not?
- Record which land uses are not allowed or restricted in each recharge zone.
- Copy maps that show recharge zones.
- Wellhead protection ordinances could also be used to protect other community/shared wells.

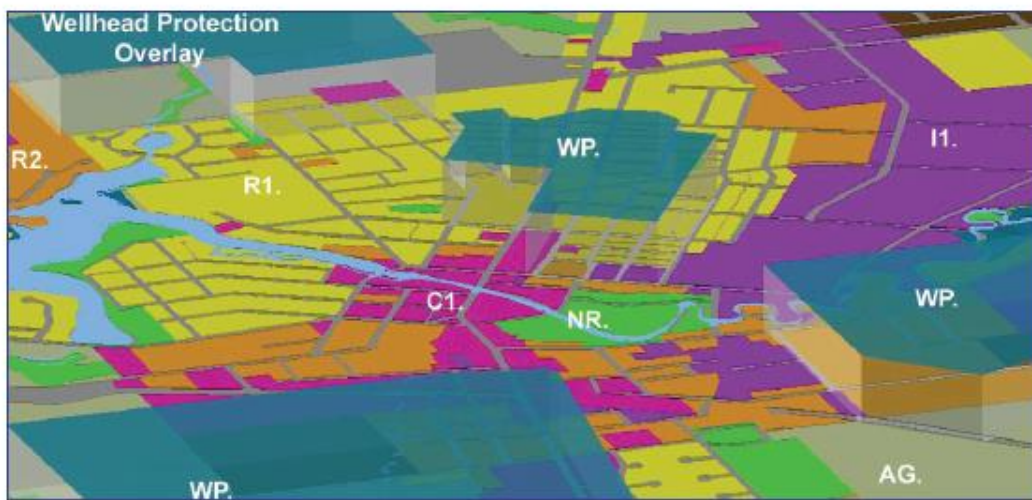


Zoning ordinances include a zoning map and text. The map shows the different zoning districts and where each applies. The text lists permitted, conditional and prohibited uses for each zoning district; lot sizes; setbacks; and other standards. Need county map of which towns do and don't have zoning. County or town zoning?

Look for:

- Which towns have county zoning? Which towns have town zoning?
- Large residential lot sizes. These limit septic system density and nutrient loading.¹ They can also take farmland and wooded land out of production.
- Land uses with high potential to contaminate drinking water prohibited or restricted in areas with drinking water wells.
- Land uses with high potential to contaminate drinking water prohibited or restricted in areas with high groundwater susceptibility.
- Land uses with high potential to contaminate drinking water required to be set back from lot lines.
- Zoning districts that maintain woodlands, grassland or wetland areas, which are land uses that typically have minimal nitrogen application.
- Zoning districts that allow ground mounted solar energy. If groundcovers are specified as native plants, there is typically minimal nitrogen application. County and town zoning applies to solar installations less than 100 megawatts. Wisconsin Public Service Commission decides on solar installations 100 megawatts or larger.
- Zoning maps that show residential development separated from land uses with high potential to contaminate drinking water. Note where you observe this separation.

Land uses with high potential to contaminate drinking water include fertilizer facilities; animal confinement facilities; some agricultural fields depending on soils, crops, nutrient application and



¹ <https://www.uwsp.edu/cnr-ap/watershed/Documents/watersummit2012.pdf>

irrigation²; high density residential development on septic systems³; landfills; cemeteries⁴; gas stations; uncovered salt piles; etc.

Land division or subdivision ordinances

provide standards and procedures for dividing and recording individual parcels of land. These ordinances often focus on the physical layout or design of a development.

Look for:

- Drinking water standards that must be met via testing before subdividing land to create new parcels.
- Shared wells and/ or shared septic systems are allowed or incentivized. This can allow strategic placement of wells relative to septic systems and other potential sources of contaminants.⁵

Maps show two-year water capture zones for 30 individual wells versus one community well in a 78-acre subdivision.⁶ Note well capture zones take up a large area on the left with 30 individual wells, leaving little room to safely place septic systems. Community well shown on right covers less acreage, allowing separation from septic systems.



Prepared by Lynn Markham, Center for Land Use Education, September 2021.

² <https://www.uwsp.edu/cnr-ap/watershed/Documents/watersummit2012.pdf>

³ <https://www.uwsp.edu/cnr-ap/watershed/Documents/watersummit2012.pdf>

⁴ <https://iopscience.iop.org/article/10.1088/1748-9326/abc914>

⁵ <https://www.uwsp.edu/cnr-ap/watershed/Documents/Subdivision%20Wells.pdf>

⁶ <https://www.tandfonline.com/doi/full/10.1080/01944361003742403> and