

Fact Sheet: Influence of Land Use On Groundwater & Consumption

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Effects of Land Use on Water Resources

Land use activities including agriculture, residential development and commercial/industrial activity have a significant impact on water resources and the environment. Land development alters the natural landscape, disrupts the collection and flow of water and creates impervious surfaces in the construction of roads, parking lots, and other structures. Impervious surfaces change natural landscape functions by:

- Contributing to water pollution by limiting the capacity of soils to filter runoff.
- Heightening erosion potential which impacts habitat and water quality.
- Increasing storm water runoff, which can deliver more pollutants to water bodies that residents may rely on for drinking and recreation. Storm runoff from urban and suburban areas contains dirt, salt and oils from road surfaces, nutrients from fertilizers, and various toxic compounds.
- Affecting ground water aquifer recharge by reducing water that soaks into the soil and diverting water that would naturally flow to replenish groundwater, wetlands and surface waters.¹

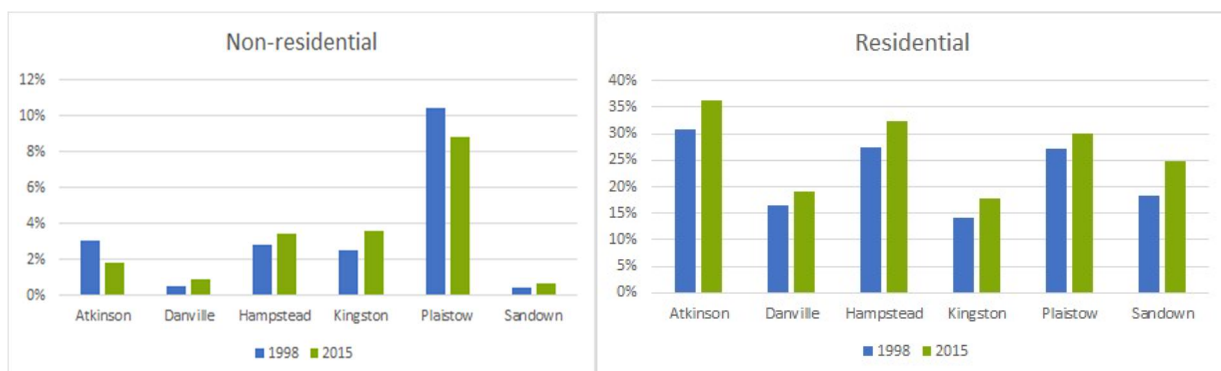
Runoff from commercial and industrial activities may also contain toxic substances, depending on the land use, also known as a point source of pollution. Agricultural land uses can greatly affect the quality of ground water depending on the size of the operation and the types of crops planted. Irrigation needed for agricultural purposes affects the amount of water available for other uses.

Land Use in Hampstead and Surrounding Area

The following table describes the major land uses in Hampstead from 1962 to 2015. Several trends are evident from this data. In 1962, forested land use accounted for nearly 6,800 acres in Hampstead, dropping to 3,554 acres by 2015, a decrease of nearly 52 percent. Agriculture has also seen a steady decrease over time from 583 acres of active agricultural land in 1962 to 55 acres in 2015. The series of land use maps from 1962 to 2015 are available at www.therpc.org/communities/hampstead. In Hampstead and surrounding communities, from 1962 to 2015 residential development has significantly increased where commercial and Industrial activity has increased at a slower pace. The table and chart below illustrate residential and non-residential development over time.

¹ <https://www.epa.gov/report-environment/land-use>

Hampstead Historical Land Use (Acres)							Notes:
Land Use Type	1962	1974	1998	2005	2010	2015	
Active Agricultural	584	364	75	47	54	55	Years 1962, 1974 and 1998 were compiled with a slightly different methodology than 2005, 2010, and 2015. Aux Transportation, Playing Fields and Utilities are categories only broken out in 2005, 2010, and 2015. Wetlands have not necessarily increased over time; mapping methods and air photographic interpretation have increased the accuracy of mapping wetlands, particularly forested wetlands. Many Playing Fields were changed in 2015 to ensure that those in proximity to a school were classified as Education (Industrial/Commercial).
Aux Transportation				5	5	6	
Farmsteads	23	10	2	9	9	8	
Forested	6,791	6,520	5,187	3,671	3,563	3,554	
Industrial/Commercial	223	77	248	280	288	300	
Mixed Urban	6	3	8	11	11	11	
Wetlands*	213	213	178	949	948	948	
Other/Idle	172	229	148	372	389	340	
Playing fields/Recreation				98	98	115	
Residential	636	1,007	2,480	2,821	2,894	2,907	
Transportation	103	123	205	238	239	247	
Utilities					5	5	
Water	465	467	485	515	513	518	



Land Use Development and Water Resource Demands

With increased land development comes an increase in demand for water. The land use change data presented above shows that the largest water consumption sector is residential development. Community outreach focused on residential users may greatly raise awareness of the importance of water management and conservation. Careful drinking water management needs to be a community wide and regional effort to be most effective in protecting aquifers. All consumers and suppliers play a role in managing water as water is a public resource. The New Hampshire Office of Strategic Initiatives estimates that Hampstead will experience a steady population increase from the years 2020 to 2040. An increase in population will most likely cause an increase in land development for residential and commercial/industrial purposes. This increase in development will further increase the demand for water and strain the region's water resources.



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