

## **Effects of Groundwater Infiltration Caused by Urbanization**

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Changes in groundwater infiltration in the Spokane Valley-Rathdrum Prairie (SVRP) aquifer are strongly influenced by human activity and continued urban development. Urbanization affects stormwater runoff, soil moisture, and groundwater recharge. Domestic, municipal, commercial, agricultural, and industrial activities all impact the amount of water which infiltrates the SVRP aquifer. Urbanization can also affect downstream flood peaks, water volume, and the groundwater recharge in a downstream watershed. The effects of current and projected urban growth to the area have initiated concerns for impacts to the groundwater supply. It is of particular significance to the SVRP aquifer because it is a semi-arid watershed and the sole source of drinking water for more than 500,000 residents in the area. The objective of this research is to identify the main surface and groundwater inputs into the watershed, simulate the present hydrologic cycle, create a groundwater model using Visual MODFLOW to determine the recharge and discharge into the watershed, and determine a hypothetical future impervious land use scenario to determine how it will further change the hydrologic cycle. The study will compare different regions of the watershed, some of which are less developed, to determine how urban growth affects infiltration in different regions. This comparison will allow an evaluation of urbanization impacts to the health and water budget of the SVRP aquifer. Results will propose how future development to the area can achieve a less significant influence to the change in groundwater inputs.

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Laura is a graduate student pursuing her Masters degree in Environmental Engineering at Washington State University, specializing in water resources. Her research currently focuses on modeling groundwater in the Spokane Valley-Rathdrum Prairie aquifer. Laura received her B.S. in Civil Engineering at WSU in 2007.