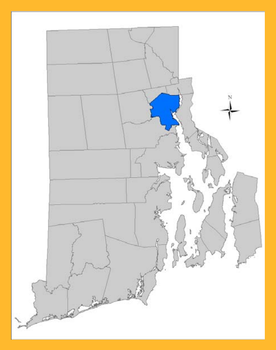
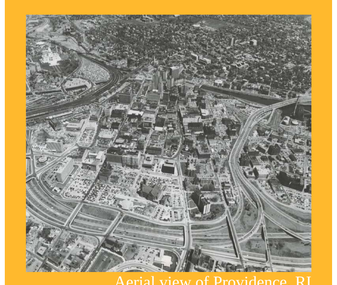
Site Suitability Analysis for Stormwater Management Practices in Providence, RI



Urban Stormwater Management

As stormwater moves from impervious surfaces such as roads, roofs, parking lots, and sidewalks into streams, it takes with it pollutants that have built up

on those surfaces. Fertilizers, oil, grease, chemicals, sediment, salt, bacteria and nutrients can all make their way to urban water bodies via surface runoff . The amount of impervious surface in a watershed dramatically impacts the volume of stormwater runoff that



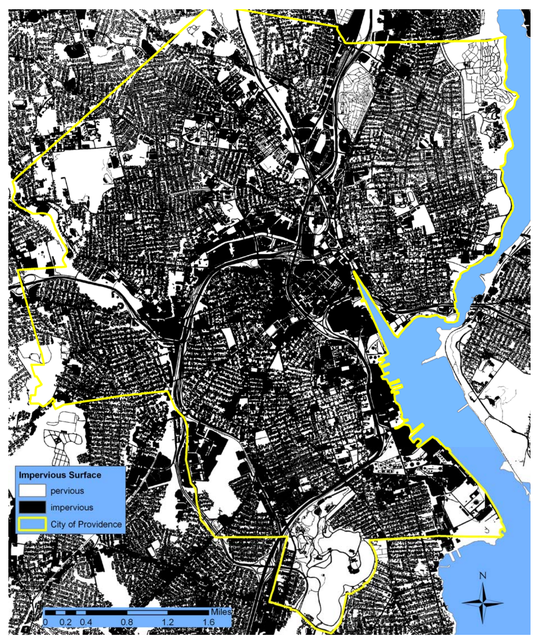
Aerial view of Providence, RI

enters storm drains. Studies analyzing the quality of urban water bodies have concluded that the goals of stormwater management should be to get as close to the natural hydrologic function as

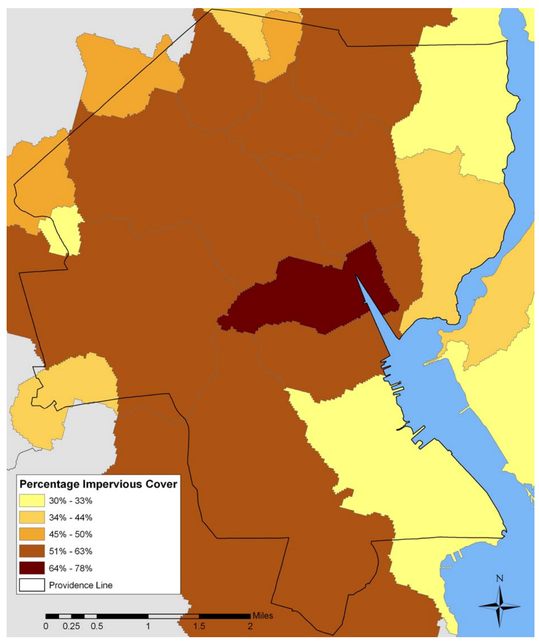
Vegetated Buffer Strip

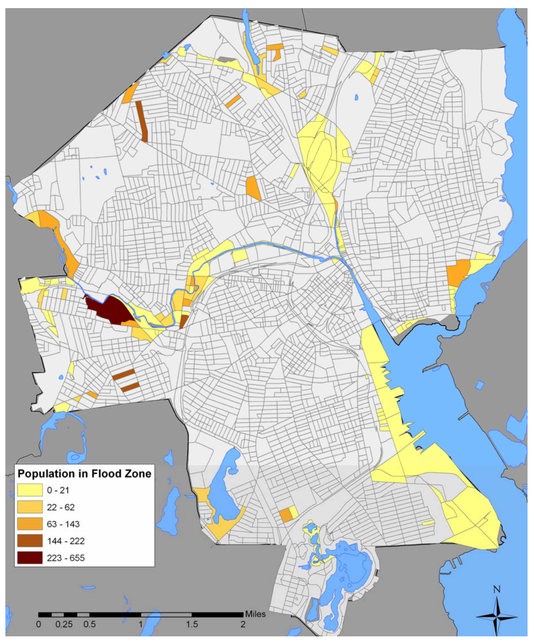
possible.
To address this, Best Management Practices (BMPs) such as rain gardens and vegetated buffer strips, which enable stormwater to infiltrate the ground, are recommended.

Source: US Environmental Protection Agency

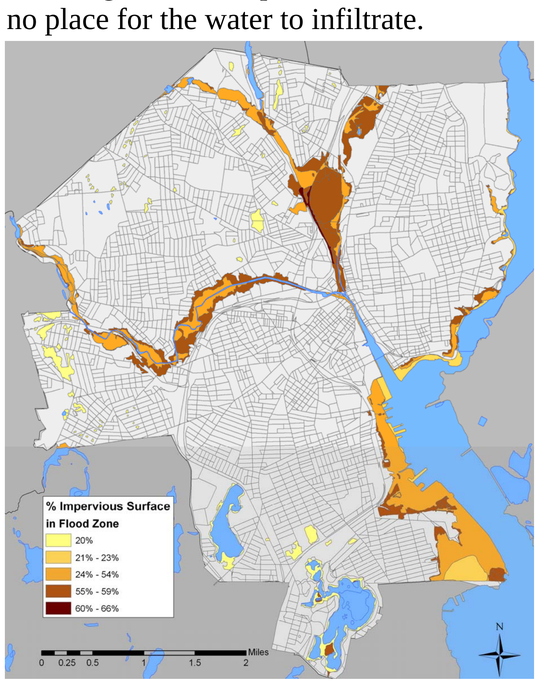


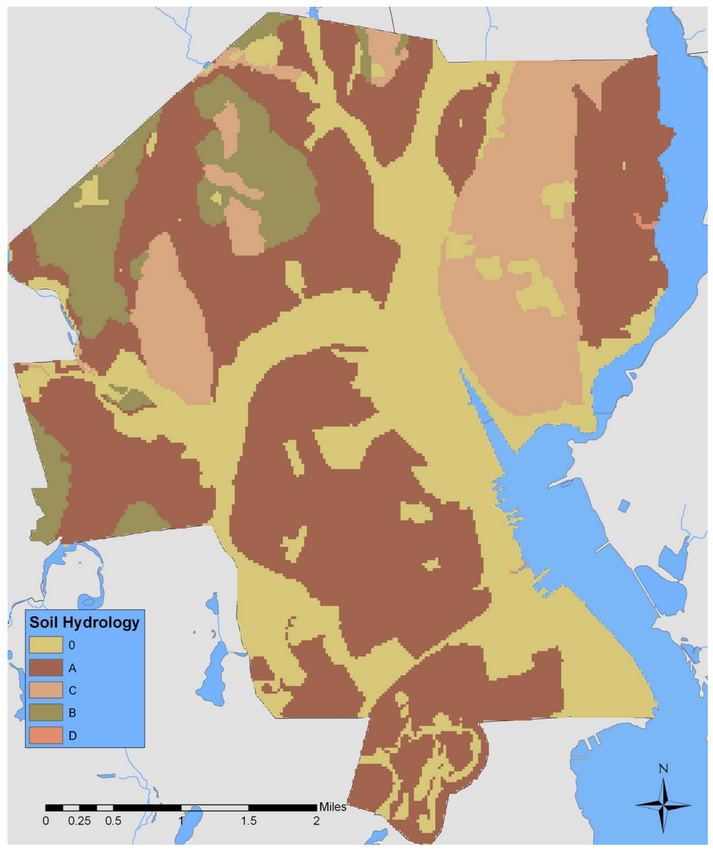
Providence has a high percentage of impervious surface.





Flooding becomes a problem when there is no place for the water to infiltrate.

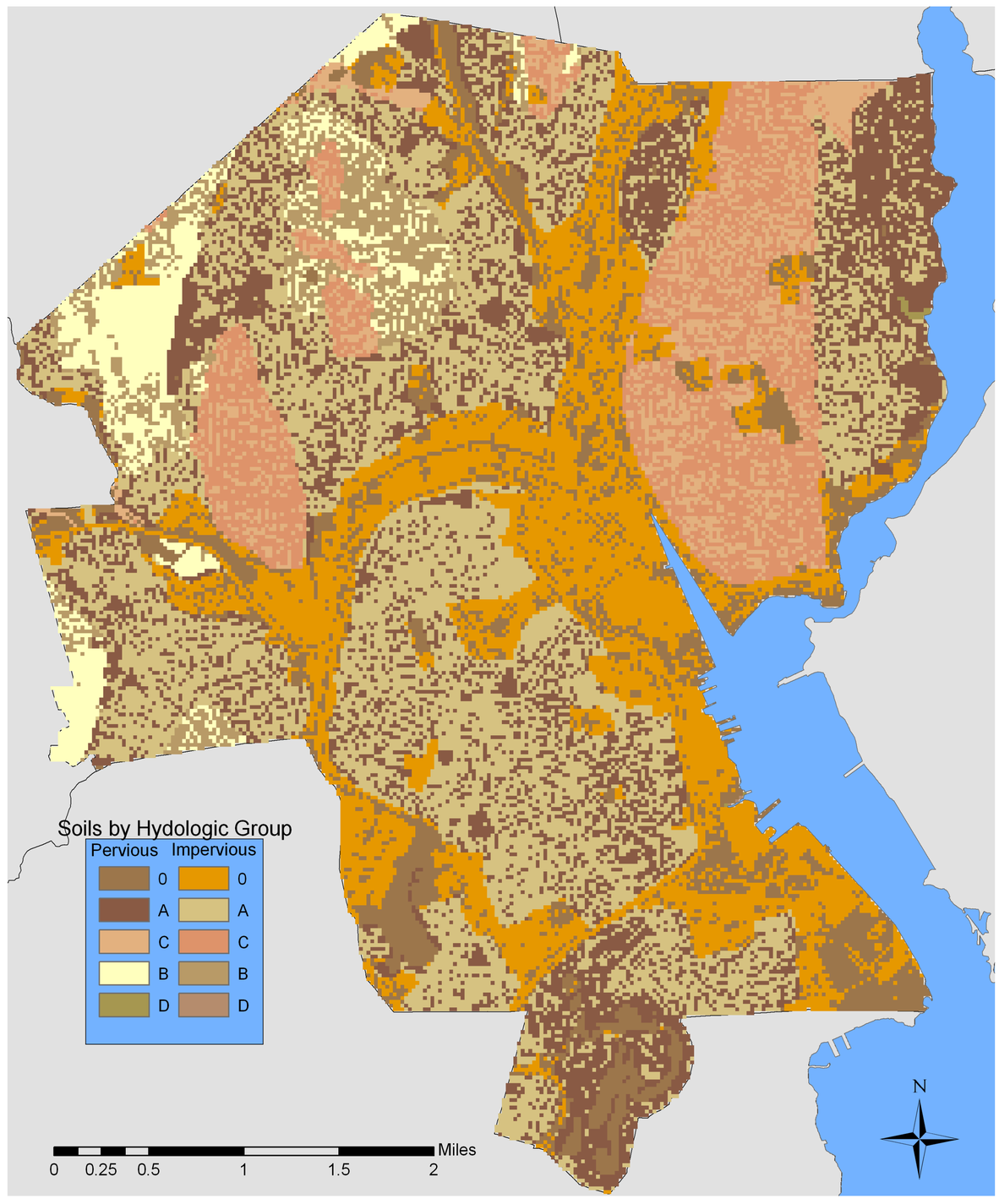




Soils mapped by hydrology. Hydrologic soils groups indicate the level of infiltration possible for each type of soil. Soils classified as zero have been identified as urbanized soils and are mostly covered in impervious cover. Soils classified A are those soils most able to infiltrate rain water. They have low runoff volumes and are appropriate for siting most BMPs. Class D represents soils that have a high level of runoff.

source: NRCS Urban Soil Primer, 2005

Impervious surface cover and Soil Hydrology. Areas that are not covered by impervious surfaces and that contain either soil class A or soil class B are the most suitable for placement of BMPs. The dark brown and the light yellow areas represent these characteristics on the map below.



Analysis: Michelle Sheehan
Data Sources: Rhode Island GIS, Rhode Island Department of Environmental Management
Acknowledgements: Barbara Parmenter, Paul Jordan
Projection: Rhode Island State Plane, 1983, Feet

Introduction to GIS, Tufts University, Department of Environmental Policy and Planning
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