

**USFS Pacific Northwest Research Station: Urban Science Initiative**  
**Sustainability Design and Conservation Behavior:**  
**green environments, human response, and community value**  
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**1. Sustainability Design**

The cities along the I-5 corridor from Eugene OR to Vancouver BC are known in the U.S. and internationally for urban sustainability innovations. Many communities have exemplary urban forestry management plans and programs. Portland has launched the Grey-to-Green Initiative for green infrastructure implementation. Seattle has more LEED certified buildings than any other city in the U.S., and the green design community continues to press for higher certification standards. The design projects range in scale from individual structures (residential and commercial), to civic buildings (city halls, libraries, and schools), to multiple structure sites (such as public housing and neighborhood infill), and include gray infrastructure conversion (such as SEA streets). A preliminary census in August 2009 turned up about 130 private, public, and non-profit organizations that do green design in the Seattle area.

**2. Conservation Behavior**

Meanwhile other organizations that are involved with urban sustainability are developing interventions, incentives, and regulations to change human behavior with regard to environment, energy, water use, waste processing, etc. The sub-discipline within psychology of “conservation behavior” has been incorporated into behavior change programs, including social marketing, pledge programs, billing incentives, etc. Behavior change programs have been directed at scales from individuals to neighborhoods and larger communities.

**3. Investigation of Green Environments and Behavioral Response**

Human agency for conservation of resources is one of the most cost effective ways to address environmental issues. While the action of one person or a household may be of minor consequence, the actions of thousands and millions of people have vast cumulative impacts. About 80% of Washington and Oregon states’ populations reside in urbanized areas, thus more and more people are in proximity to green design. Citizen encounters with green design structures are direct as users and residents, and indirect as people go about their daily activities. Environmental psychologists have long known that the physical environment shapes behavior, in subtle but measureable ways. It is hypothesized that frequent experiences of green design, particularly that which has included educational opportunities, has spillover behavioral effects. For instance, someone who lives in a water conserving house may pay more attention to waste reduction, or use public transit more frequently. This research would implement quantitative and qualitative measures of behavior response to green urban environments and measure the resulting community values, thus enhancing the already significant sustainability benefits of green design. Studies of association and causality would provide important insight on how to encourage conservation behavior in cities, while also achieving sustainable structures.



**SEA Street – Seattle’s alternative stormwater management prototype**