



An Environmental Showcase

ENERGY, WATER, WASTE AND GREEN INFRASTRUCTURE

Over the last two decades, both the public and private sectors achieved measurable results reducing greenhouse gas emissions and natural resource consumption by integrating sustainability early into the building design process and throughout building operations. While this approach is now standard and widely used, the results of these efforts can only achieve so much. Today, each person or building may use less water and energy than it has in the past, but the world's overall development footprint continues to grow and impact the ecosystem. Depleting scarce resources also limits the nation's success at being internationally competitive. As a result, people must be even smarter about how they develop their neighborhoods and cities.

More and more people are beginning to recognize the financial and sustainability benefits that can be achieved with district-scale systems that operate beyond the individual building and site scale. These systems can yield greater results by taking advantage of economies of scale while still being small enough to adapt to new technologies.

The federal government's footprint in the SW Ecodistrict presents a unique opportunity for it to be a leader in supporting district-scale strategies. These strategies are also critical for achieving the goals and requirements in Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance (EO 13514), signed by President Obama in 2009.

EO 13514 requires all federal agencies to reduce greenhouse gas emissions, manage stormwater, and reduce water use and waste – a challenge for buildings in urban areas. Through district-scale planning the study area has the opportunity to transform a resource-

intensive environment into one that is able to capture, manage and reuse a majority of its resources. This means that through district, block, and building strategies, the Ecodistrict will create energy from renewable sources, capture and use rainwater for its non-potable water needs and divert a majority of its waste from landfills. It can also support connected, living corridors of green infrastructure, with green roofs and walls, streetscape and tree plantings and open spaces contributing to improved human health and urban biodiversity. These strategies will provide cost savings over the long run, and enable federal agencies to exceed the goals and requirements of EO 13514.

EO 13514 also requires agencies to prepare for the effects of climate change—a process known as climate adaptation. The U.S. Climate Change Science Program examined the potential effects of climate change in the National Capital Region in 2009. Washington, DC is particularly vulnerable to threats associated with sea-level rise in low lying areas. The SW Ecodistrict is located out of the floodplain. Because its topography is substantially elevated from the Washington Channel, providing it protection from near-term impacts with regard to sea-level rise.

This chapter first discusses the modeling process and then building-scale strategies for energy, water, and waste collectively. These strategies are often integrated and focus on ways to reduce a building's use of resources. Following the building-scale discussion, are broader sections on energy, water, waste and urban ecology that focus on their importance to the Ecodistrict, and their related strategies at both the block and district scale.