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BAINBRIDGE ISLAND'S REDONE DOWNTOWN CORRIDOR

7 Trees Planted Along Winslow Way Manage Stormwater On Site

Bainbridge Island is a small city located a 35-minute ferry ride from downtown Seattle in the heart of the Puget Sound. The island's rural character and small town feel support a variety of land- and water-based recreational activities. At the center of Bainbridge Island is Winslow Way, the City's downtown main street and heart of its community. When the City identified aging utility infrastructure in need of replacement (water distribution, sanitary sewer, and storm sewer) along Winslow Way, it recognized the opportunity to remake downtown. The City also wanted to improve the water quality of Eagle Harbor, the downstream receiving waters that provide an important function for native habitat and recreational activities.

Working closely with the City of Bainbridge Island, Seattle-based SvR Design Company helped realize the City's vision of creating a vibrant downtown that protects the natural environment and enhances multimodal and multiuse activity. The design emphasized community values by providing wider sidewalks, gathering areas, bike facilities and site amenities, while addressing overall accessibility. The project also incorporated green stormwater infrastructure systems including stormwater planters, rain gardens, and Silva Cells to manage stormwater runoff and increase vegetation in the sidewalk areas.

The Silva Cell system was integrated into the roadway to visually narrow the road for traffic calming, to maximize tree canopy, and to manage stormwater runoff. Silva Cells allowed the design team to locate street trees in the angle parking zone, which narrowed the optical width of the roadway (the physical relationship between the width of the road and the height of adjacent buildings) and provide traffic calming. The street trees, which are located nine feet beyond the face of sidewalk, allow space for large canopies desired by the community and away from adjacent zero lot line developments. Pervious concrete installed above portions of the Silva Cell system allows stormwater runoff to enter and pass through a bioretention soil media, which both treats the stormwater and provides healthy growing media for the trees. An underdrain below the Silva Cell system connects to the public storm drain and conveys runoff that passes through the system to counteract poorly draining native soils and prevent stormwater from migrating into the basements of adjacent buildings.

To meet federal funding requirements, the project team prepared a cost-benefit analysis and proprietary item justification letter for the Washington Department of Transportation (WSDOT). WSDOT accepted the use of the Silva Cell system and in 2013 selected the project for its 2013 Award of Excellence for Best City Project.

The Silva Cell system allowed the project team to solve several design challenges encountered with a single system while improving the quality of the project. The project included seven street trees supported by more than 550 Silva Cells and 5,500 cubic feet of bioretention soil media. Since the project's completion, Winslow Way has once again become a valued community destination and been called "one of the best remade streets I've seen anywhere in America" (Dan Burden of the Walkable and Livable Communities Institute).

This case study was written by Nathan Polanski, a civil engineer with SvR Design Company. Text and images are reprinted courtesy of the author.

Installation Summary

Number of trees: 7
Average bioretention soil volume per tree: 800 ft^3
Number of Silva Cells: 550+ frames
Installation date: 2011
Installation Type: Integrated - trees and stormwater
Project Site: Winslow Way, Bainbridge Island, WA
Project designers: SvR Design Company
Client: City of Bainbridge Island

For more information on this project, please contact Leda Marritz (415-746-1555 or leda@deeproot.com).