



CSAC 2019 Challenge Award Entry Turner Court Green Infrastructure Demonstration Project

EXECUTIVE SUMMARY

OVERVIEW: The Turner Court Green Infrastructure Demonstration Project site incorporates 14 green infrastructure demonstration features to meet county challenges related to pollution, flooding and erosion.

CHALLENGE: Municipalities are faced with the critical challenge of incorporating green infrastructure into their designs to meet new environmental guidelines and protect their watersheds and communities from pollution, flooding, and erosion. Urban development traditionally involves replacing natural landscapes with impermeable pavement and storm drain systems, or “gray infrastructure,” whereas green infrastructure uses vegetation, soils and other elements to capture, infiltrate, treat, and slow urban runoff. Untreated stormwater can wash pollutants and debris off buildings, roads, and parking lots, carrying them through the storm drain system into our waterways. Stormwater picks up everything from oil and grease to other chemicals that runoff into our streams and to the Bay. In addition to pollution, large volumes of runoff can cause flooding and erosion of our waterways. Therefore, mitigating the effects of urbanization and addressing water quality in the most effective way is a challenge that must be met. *With the Green Infrastructure Demonstration Project, the Alameda County Public Works Agency (ACPWA) and the Alameda County Flood Control and Water Conservation District (District), have gone above and beyond to identify and incorporate a collection of the best features to effectively capture, test and treat stormwater.*

SOLUTION: Beginning in April 2018, ACPWA and the District converted the two agency-owned parking lots at 951 Turner Court in Hayward, CA into a 142,000 square foot Green Infrastructure Demonstration Project site. The site consists of 14 green infrastructure demonstration features that address critical challenges by using engineering and nature to reduce pollution and flooding. Each of the features are described in detail on interpretive panels and integrated into a self-guided tour, open to the public. This Project was designed as a model and training ground for municipal agency and private sector professionals in engineering, stormwater management, landscape architecture, construction, and maintenance. Workshops are regularly held on site. This allows professionals to study the features used, so that they can incorporate the features best suited for their projects into their designs.

INNOVATION: Rather than simply repaving two old and deteriorated parking lots, ACPWA and the District decided to reconstruct those parking lots to include a large collection of green infrastructure features for the treatment of stormwater and to showcase some of the most impactful and sustainable green infrastructure features. This project is unique for the following reasons: 1) It incorporates 14 different green infrastructure demonstration features at one location; 2) It includes a pathway around the project for a self-guided tour of all the green infrastructure demonstration features with interpretive panels at each feature; and 3) ACPWA and the District will be monitoring the features and reporting on effectiveness and on-going maintenance required. ACPWA and the District developed the Green Infrastructure Demonstration Project to demonstrate commonly used features used in green infrastructure design including pervious concrete, porous asphalt, permeable pavers, pervious pavers, articulated concrete blocks, bioretention areas, storm drain inlet with full trash capture device, bioretention tree well with trash capture, high flow rate tree well, underground structural cells, flow-through planters, Bay-Friendly principles, horizontal flow biofiltration, and rainwater harvesting. The 820-gallon rain harvesting system captures rain runoff from the roof and stores it for landscape irrigation. The site is innovative because it showcases a multitude of low impact development (LID) or green infrastructure features side by side for visual comparison, with panels explaining how each function. ACPWA and the District are using the site with all the features as a test lab for monitoring how well the features treat water quality, how each feature holds up over time, and how much it costs to maintain each feature.

RESULTS: Due to the effectiveness of the Project, more stormwater will percolate into the soil and be filtered by the soil, and less will end up as runoff that washes pollutants into creeks, wetlands and the Bay. The Project features are being monitored to determine how well they treat water quality, how well they hold up over time, and the costs to maintain each feature. Over time, the Project will help determine which of the green infrastructure features are most cost effective and sustainable. Foundations were also installed to support the solar panels that will be installed at the site next year.

REPLICABILITY: The Turner Court Green Infrastructure Demonstration Project was designed to showcase green infrastructure so that developers and designers can decide which features they would like to chose for their own projects. The Project serves as a model of best practices in green infrastructure that can be used on a larger scale. Over time the Project information that is gathered on the durability and cost of maintaining each feature will be very helpful for selecting the most economical and sustainable features.

PROJECT CONTACT: Hank Ackerman, Principal Civil Engineer, Alameda County Public Works Agency
510-670-5553 | hank@acpwa.org | 399 Elmhurst Street, Hayward, CA 94544

SUPPLEMENTAL INFORMATION: Attached diagrams and video list.