



Grant Avenue Pathway and Drainage Improvements Project Award Nomination Narrative

Public Works Agency
Alameda County

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Project Name: Grant Avenue Pathway and Drainage Improvements Project

Project Location: Along Grant Avenue, between Via Seco and
Union Pacific Railroad, in San Lorenzo, California

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Project Narrative

The overall purpose of the Grant Avenue Pathway and Drainage Improvements Project was to provide multi-modal and environmentally responsible improvements along Grant Avenue, between Via Seco and the Union Pacific Railroad, in San Lorenzo, California. This project included the construction of a paved 8' multi-modal pathway, installation of a 2' wide gravel running path, construction of Class II bicycle lanes, rehabilitation of the pavement on Grant Avenue, installation of Bay-Friendly certified landscaping, and storm drain improvements including vegetation swales and rain garden drainage facilities. These safe and sustainable community improvements serve the multi-modal transportation needs of residents, school children, and nearby businesses. The improvements also complete an important pedestrian and bicycle transportation link between the residential areas of San Lorenzo with the San Francisco Bay Trail.

Improving and Preserving Overall Quality of Street and Road System

Grant Avenue serves as a major east-west arterial route in the San Lorenzo community. This roadway serves three nearby schools along with the industrial area (with associated truck traffic) at the end of Grant Avenue. The existing roadway was primarily a two-lane roadway with a significant elevation difference than the adjacent dirt pathway. This crowning of the roadway caused storm runoff to create problems for all users. During rainstorms, muddy pathways forced children walking to and from the three schools on or near Grant Avenue into the street. Water collecting in uneven pavement near the bus stops created large splash zones when buses passed by and deep mud divots when buses pulled into a bus stop. Public transit riders had to navigate this ponding water and deep mud simply to board a bus.



The Alameda County Public Works Agency sought to address all of the issues facing residents, businesses, and school children travelling along the roadway with the Grant Avenue Drainage and Pathway Improvements Project. Benefits of this project include a paved 8' multimodal pathway separated from the roadway with landscaping and a 2' wide gravel running path. This multimodal pathway improves pedestrian walkways, improves safety for casual bicyclists, and provides better access to public transportation, all while improving the aesthetics of this location.

The Grant Avenue Drainage and Pathway Improvements Project also incorporates sustainable design practices which promote water conservation through the use of native plantings in vegetation swales and rain gardens, recycling of storm water collected for landscaping along Grant Avenue; air and water quality improvement through the installation of innovative drainage improvements, including rain garden drainage facilities and vegetation swales separating the roadway and the multimodal pathway. The planting of Bay Friendly landscaping also creates vibrant landscapes, which further enhance the surrounding environment for residents, school children, and local businesses.

Project Features

Safety and Multi-Modal Features:

- Construction of an 8' wide paved multi-use pathway for walking, jogging, and recreational biking on both sides of Grant Avenue, between Via Seco and the Union Pacific Railroad
- Installation of a 2' wide gravel running path adjacent to the multi-use pathway
- Upgrading to Class II bike lanes on both sides of the roadway
- Resurfacing of the roadway pavement
- Minimal installation of curbs, gutters, and pedestrian ramps at the three crossing intersections



Sustainability Features:

- Recycled (reclaimed) asphalt concrete pavement used to construct various project components including the base material for the multi-use pathway
- Bay Friendly landscaping
- Preservation of 113 existing pepper trees within the project area
- Stormwater drainage system including vegetation swales and rain gardens to filter strips to intercept and filter storm water runoff

Innovative, Unique and Complementary Project Features



One of the unique and innovative features of this project is use of vegetative swales to resolve drainage and roadway flooding issues rather than lining the entire street with more common concrete curbs and gutters. Vegetation swales are broad, shallow channels with a dense stand of vegetation covering the side slopes and bottom. These vegetation swales capture stormwater runoff from roadway and pathway surfaces and remove silt and contaminants before the water enters the drainage system or groundwater.

Benefits of vegetation swales over conventional storm water management practices include the reduction of peak flows, removal of pollutants, promotion of runoff infiltration, and lower capital improvement and maintenance costs.

Rain gardens were incorporated into this project to minimize the removal of existing vegetation and provide an environmentally friendly, cost-efficient solution to stormwater pollution. Rain gardens help lower the impact by capturing clean rainwater runoff from Grant Avenue and diverting it into the rain garden, contaminants are filtered as water slowly soaks slowly into the ground. Native plants were used in the rain gardens because they are best suited for the climate and will grow well in both wet and dry areas.



Overall, the rain gardens are inexpensive, sustainable and esthetically beautiful.

Positive Environmental Effects

The Grant Avenue Pathway and Drainage Improvement Project is a benchmark for sustainable design and construction of a safe, multimodal pathway and installation of beautiful, and environmentally-friendly drainage system.

The Contractor followed the Storm Water Pollution Prevention Plan and took Best Management Practices (BMP) measures during the construction of the project to preserve the environment while maintaining Community character.

Alternatives to Vehicle Travel



The multi-modal pathway was installed along this roadway utilized recycled (reclaimed) asphalt concrete pavement in its construction. Separated from the main roadway by a landscaping, the pathway offers an alternative for the casual cyclist or pedestrian wanting to walk or cycle along this busy roadway. A 2' wide gravel pathway was also installed adjacent to this pathway and provides a separate place for runners.

Designated Class II bike lanes were constructed in both the east and west directions along Grant Avenue to provide cyclists with adequate space to travel safely along this section of the busy road.

Protecting Water and Air Quality

Storm runoff from Grant Avenue is collected into vegetation swales which filter the water before it flows into our creeks, lakes or bay. The planting of native plants and shrubs of trees and shrubs planted along the roadway take up the CO₂ and pollutants to help clean our air. No synthetic fertilizers are used, and an integrated pest management approach for pest and weed control reduces runoff contamination.

Bay Friendly Landscaping

One of the notable environmental preservation and protection features of this project is the integration of Bay Friendly landscaping principles in the project design and construction, which include vegetation swales and rain gardens to intercept and filter storm water runoff.

Bay-Friendly is a holistic approach to gardening and landscaping that works in harmony with the natural conditions of the San Francisco Bay Watershed. The concepts foster soil health, conserve water and other valuable resources while reducing waste and preventing pollution. Using the Bay-Friendly landscaping approach, the natural attributes of our surrounding environment and contribute health, diversity, and sustainability of the San Francisco Bay ecosystem.

Vegetation swales, rain gardens and adjacent planting areas include 44 new trees, 350 5-gallon size shrubs and 2800 1-gallon size ground cover plants selected from California native drought resistant plant species. Additionally, over 27,000 square feet of swales and rain gardens were hydro seeded with a mix of California coastal wildflower and native ornamental fine fescue mix seeds. All of the planting areas outside of the swales and rain gardens received a minimum of 3 inches of clean mulch to cover and stabilize the bare ground.

This project is in the process of receiving Bay Friendly Rated Landscaped Certification. A minimum of 60 points out of 100 are required to earn the Bay Friendly Rated Landscaping designation. The Grant Avenue Pathway and Drainage Improvement Project anticipates receiving a score of 80 or higher with its certification.

Easily Replicable Models

When faced with stormwater ponding, design engineers may opt to find adjacent areas which can be graded to lower elevations where stormwater can be routed through vegetation rather than the common curb and gutter solutions. Additionally, the Bay Friendly landscaping principles and practices are easily replicable on all landscaping projects. These principles can be found in the Bay-Friendly Landscaping Guidelines: Sustainable Practices for the Landscape Professional along with other useful reference materials on the Bay-Friendly Landscaping and Gardening Coalition's website: <http://bayfriendlycoalition.org>.

Cost Effectiveness of the Project

Project Cost/Funding: \$1,838,000

This \$1.8 million project was funded by the Alameda County Public Works Agency and the California's Infrastructure Bond (Prop 1B).

While the maintenance costs may be higher than traditional concrete-based drainage, the value of intangible benefits to the neighborhood outweigh those costs.

Sustainable Outcomes

The Grant Avenue Pathway and Drainage Improvements Project is an excellent example of sustainable design with its environmentally-preferable design aspects. These design aspects include:

- *Vegetation Swales and Rain Gardens:* These landscape drainage systems will filter contaminants from storm water runoff before the water enters groundwater. Additionally, the vegetative swales will remove silt and contaminants from the roadway and pathway surfaces, resulting cleaner water for wildlife and for the environment. Moreover, with the selection of native plant species in the landscaping in conjunction with the captured storm water runoff from the vegetation swales and rain gardens, less supplied irrigation water will be needed.
- *Greenhouse Gas Mitigation:* With the newly constructed multi-use pathway, Class II bike lanes, jogging pathway, and bus stops along Grant Avenue offer access to a variety of cleaner air alternative modes of transportation in lieu of the motor vehicle. Additionally, the preservation of the 113 pepper trees coupled with the new landscaping will help offset greenhouse gas emissions.
- *Aesthetic Improvements:* This roadway is used by large trucks travelling to and from industrial businesses, residents of the neighboring communities, small local businesses, and minors walking to and from schools in the area. The installation of Bay Friendly landscaping, a multi-use pathway, and a jogging pathway enhance the area by turning an unfriendly pedestrian pathway into a beautiful and inviting streetscape with functional aesthetic improvements.

Collaboration with Community and Other Partnerships

Throughout the project, the Alameda County Public Works Agency worked closely with the San Lorenzo Village Homes Association, residents on Grant Avenue and adjacent roadways, Grant Avenue Elementary School, Arroyo High School, and local businesses to ensure all stakeholders were actively engaged in all phases of this project. These efforts included holding public meetings to present proposed improvement plans to the community, receive feedback, and answer questions regarding the project. Prior to and during construction, the

Public Works Agency communicated with the community through written notices, direct mailers to businesses and residents in the project area, communications through press releases to local and major newspapers, updates to the Public Works Agency website as needed, and personal contact with residents and business owners.

Additional community relations included signage to keep motorists, residents, and the general public informed of possible traffic delays.

Publically Verifiable and Useful Project Benefits and Results

The main goals of this project were to provide multi-modal access along Grant Avenue and address drainage issues that created muddy conditions which negatively impacted pedestrian, cyclists, as well as public transportation users. These goals have been met through the construction of a paved 8' multi-modal pathway, installation of a 2' wide gravel running path, pavement rehabilitation on Grant Avenue, installation of Bay-Friendly certified landscaping, and storm drain improvements, including vegetation swales and rain garden drainage facilities. Residents, school children, and nearby businesses benefit from the new multimodal pathway; bicyclists benefit from the construction of Class II bike lanes. The improvements also complete an important pedestrian and bicycle transportation link between the residential areas of San Lorenzo with the San Francisco Bay Trail.

Additional Positive Outcomes



In 2000, the Alameda County Public Works Agency, as part of its Urban Forestry Program, planted pepper trees on Grant Avenue. Community outreach efforts prior to the implementation of the Grant Avenue Drainage and Pathway Improvement Project revealed a strong desire by the community to preserve existing pepper trees within the project limits. Extensive efforts were made while the project was in the design phase to ensure minimal impact the 125 pepper trees. Bay Friendly landscaping, vegetation swales, and rain

gardens were constructed in a manner which preserved 113 pepper trees. Twelve existing trees needed to be removed to accommodate the newly paved bus stops. These were replaced with 27 new native species trees; vine maples, sensation box elders, ray hartman ceanothus, and redbuds, and 17 crape myrtles, for a total of 44 new trees throughout the project site.

This project also solved a problem with illegal dumping near the Union Pacific Railroad tracks. Prior to the construction of the multi-modal pathway and installation of Bay Friendly landscaping, people routinely dumped trash and debris in the seemingly unused portions of the dirt path at the corner of the railroad tracks and the roadway. Public Works Agency crews, responsible for removing the illegally dumped debris, have noticed an almost 100% improvement since the pathway construction.



Innovative Technology

By applying sustainable design practices in the design, construction, and maintenance program, any city or county can create a project that will improve the quality of life not only for its citizens, but for the surrounding environment and all life within it. This project incorporates sustainable design practices in the design, construction, and maintenance which promotes energy conservation, through the water conservation through the use of native plantings and recycled water for landscaping; air and water quality improvement through the installation of innovative storm water treatment strategies including Bio-Swales and Bay Friendly landscaping; and resource conservation through both the use of recycled asphalt and the recycling of all construction debris, all while achieving its project goals to improve traffic safety, provide multi-modal facilities, create vibrant landscapes, and to enhance the surrounding environment.

Conclusion

As a result of the above, the Alameda County Public Works Agency believes the Grant Avenue Pathway and Drainage Improvements Project provides multi-modal and environmentally responsible improvements along Grant Avenue, between Via Seco and the Union Pacific Railroad, in San Lorenzo, California, while also correcting drainage issues. These safe and sustainable community improvements serve the multi-modal transportation needs of residents, school children, and nearby businesses. The improvements also complete an important pedestrian and bicycle transportation link between the residential areas of San Lorenzo with the San Francisco Bay Trail.