PROGRESS REPORT

FOREST SERVICE GRANT / AGRREEMENT
NO 15-DG-11132544-041

Period covered by this report: 7/1/2017 -12/31/2017

Issued to: University of California Cooperative Extension

Address: UCANR, 2801 Second St, Davis, CA 95618

Project Name: Tree Survival in Street-side Stormwater Facilities

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Web Site Address (if applicable):

Date of Award: 08/27/2015

Grant Modifications:

Date of Expiration: 08/31/2019

Funding: Federal Share: $37,032 plus **Grantee Share:** $37,032 = **Total Project:** $74, 064

Budget Sheet:

FS Grant Manager:
Address:

Phone Number:
Fax Number:

Project abstract (as defined by initial proposal and contract):
Street-side stormwater infiltration basins ("stormwater facilities") planted with vegetation that often includes ornamental trees are becoming increasingly common. However, little is known about the performance of trees – survival, growth, and health/pests – planted therein. This project evaluates tree survival, growth, and condition in stormwater facilities, over period of three years, with street trees of the same species and comparable age used as controls. We use the city of Portland, OR (>10 years experience with trees in stormwater facilities) as a long-term comparison for three cities in the San Francisco Bay

Area (San Francisco, San Jose, El Cerrito; 0-4 years experience). Study will result in two products: a publication, and a monitoring protocol. Study results will be presented in a peer-reviewed article, trade journal article, and a webinar. The study results will also be used to construct a standardized monitoring protocol for trees in stormwater facilities, to be used by cities that are installing their own stormwater facilities. The protocol will be informed by the study results as well as the suggestions from partner cities, and will include instructions, data collection templates and calculation sheets, as well as a discussion of lessons learned in this study.

Project objectives:
This project aims to evaluate trees in stormwater facilities of different age, with a focus on street-side infiltration basins as the most common type of facility (and the one most likely to be associated with street trees).

Objectives met successfully to-date:
To December 31 2017: successfully identified project sites, successfully installed sensors in Berkeley (substitution for San Francisco), Burlingame (substitution for San Jose), El Cerrito, and Portland, and added San Carlos. Successfully surveyed trees in bioswales. Successfully downloaded data from sensors.

Additional objectives in progress:

- Surveying trees
- Identifying additional sites to install sensors and survey trees.

Objectives not yet met:
All of the to-date objectives are in the process of being met.
San Francisco and San Jose still have not reached a final decision on whether to encourage trees in bioswales (*pointing precisely to the need for this project!*), I have substituted two cities that have routinely included trees in bioswales: Berkeley and Burlingame. I have also added San Carlos, as they have a set of established bioswales in an industrial neighborhood (a situation different from the other cities).

How will this project increase the knowledge we have about urban forestry? How will the public benefit?
This study is unique and pioneering in its focus on the survival and condition of trees in green infrastructure facilities. Design of stormwater facilities has focused on optimizing the function of each facility (stormwater collection, detention, and infiltration or delayed discharge), and has simply presumed that trees planted in those facilities will remain growing and in good health
This is the first study to produce quantitative information on tree survival and condition in stormwater facilities, and to develop a monitoring protocol that will guide those municipal arborists and stormwater managers who wish to begin to evaluate their own stormwater facilities.

How will the results be disseminated to the public?

Study findings will be presented at three conferences, with a view towards informing the professional audience. One will be an international conference such as the meeting of the Society of Municipal Arborists, or the International Society of Arboriculture. The second will be a large regional conference, such as the meeting of the Western Chapter of the International Society of Arboriculture (such a meeting is more likely to attract the operations-level municipal staff, who are critical to managing stormwater facilities, but might not be approved to travel to an "international" conference).
Third, I will also present at a national-level conference focused on planning or architecture (e.g., American Planning Association, American Society of Landscape Architects), to reach the planning and design community.
Fourth, as suggested by the reviewers, I will present the results at a national meeting of green infrastructure professionals, e.g., the American Public Works Association (APWA) Annual Conference.
To inform the research community, the study will be published in a peer-reviewed journal, and manuscript provided to USDA Forest Service.
Finally, to reach an even wider audience, we will hold a webinar to both discuss the lessons learned, and to introduce the tree monitoring protocol (which will be available on the UC website, free of charge, and will be provided to USDA Forest Service).

Has the project met the projected timeline of accomplishments? Is the project on schedule? Is the project ahead of schedule? Is the project behind schedule? If a no-cost time extension has been requested for this project, why is (was) it needed?

The project is now on schedule.

List the active partners (key individuals or organizations) involved in the project to-date:

- Stephen Pree (El Cerrito); Dorothy Abeyta (San Jose Special Districts); Ralph Mize, now Russell Hansen (San Jose); Daniel Gallagher (Berkeley); Mei Ling Hui (San Francisco); Robert Disco (Burlingame); Huy Nguyen (San Carlos); Jennifer Karps (Portland)

Comments considered of importance but not covered above:
Project location modifications were noted above.

This report was prepared by:
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