



**San Joaquin Valley**  
AIR POLLUTION CONTROL DISTRICT



## 2022 REQUEST FOR PROPOSALS

Stockton Community Emissions Reduction  
Program: Vegetative Barriers

The San Joaquin Valley Air Pollution Control District is seeking proposals from entities to implement Vegetative Barriers projects in the Stockton AB 617 Community.

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# Request for Proposals

## Stockton Community Emissions Reduction Program: Vegetative Barriers

The San Joaquin Valley Air Pollution Control District (District) is soliciting proposals from local entities (Applicants) to implement and administer Vegetative Barriers projects in the Stockton AB 617 Community boundaries. This Request for Proposal (RFP) will provide a total grant amount of up to \$1,000,000 to the selected applicant(s) that can demonstrate the ability to efficiently and effectively implement vegetative barriers projects by working with the community to reduce exposure to emissions and to provide several key co-benefits. The Vegetative Barriers Emission Reduction Program is a Community Identified Project that has been included and prioritized in the California Air Resources Board (CARB) and District adopted Community Emission Reduction Program (CERP).

### Introduction

Assembly Bill 617 (AB 617) requires CARB and air districts to develop and implement additional emissions reporting, monitoring, reduction plans and emission reduction measures in an effort to reduce air pollution exposure in disadvantaged communities. Stockton is one of the San Joaquin Valley (Valley) communities selected by CARB for investment of additional resources under AB 617.

AB 617 provides mechanisms and resources to invest substantial funding in the community through voluntary incentive funding measures. Most importantly, these measures are guided by the shared experience and knowledge of local community members, through their input and involvement on Steering Committees for each AB 617-selected community.

### Background

The Vegetative Barriers Emission Reduction Program is part of California Climate Investments (CCI), a statewide initiative that puts billions of Cap-and-Trade dollars to work reducing greenhouse gas emissions, strengthening the economy, and improving public health and the environment – particularly in disadvantaged communities.

Vegetative Barriers projects use natural solutions to mitigate air quality impacts and improve public health. Projects may include planting trees or vegetative barriers in the community in order to reduce exposure to emissions and provide several key co-benefits.

Vegetative barriers, also known as windbreaks, are composed of one or more rows of trees or shrubs that may be planted in specific areas of concern in order to improve air quality in the immediate area by intercepting airborne particles, dust, chemicals, and odors. Pollutants directly emitted from cars, trucks, and other motor vehicles are found in higher concentrations near major roads. In addition, stationary sources such as industrial facilities, factories, and agricultural operations can also contribute air pollutants to their surrounding areas. While various emission control techniques and programs exist

to reduce these pollutants from mobile and stationary sources, vegetative barriers have been shown to be an additional measure to potentially reduce a population's exposure to air pollution through the interception of airborne particles and the uptake of gaseous pollutants. Examples of vegetative barriers include trees, bushes, shrubs, or a mix of these.

Generally, a higher and thicker vegetative barrier with full coverage will result in greater reductions in downwind pollutant concentrations. In addition to air quality benefits, vegetative barriers can improve aesthetics, increase property values, reduce heat, control surface water runoff, and reduce noise pollution. Factors to be considered when designing Vegetative Barriers include, but are not limited to, vegetation height, thickness, porosity, seasonal effects, vegetation air emissions (e.g. biogenic VOCs), pollution and stress resistance. Additional considerations include: soil characteristics, availability of water, control of water runoff, maintenance of the vegetative barrier, use of native and non-invasive species, and roadway safety. A full list of design considerations can be found in **Exhibit C** - EPA's *Recommendations for Constructing Roadside Vegetation Barriers to Improve Near-Road Air Quality*, it is also available at [https://19january2017snapshot.epa.gov/sites/production/files/2016-08/documents/recommendations\\_for\\_constructing\\_roadside\\_vegetation\\_barriers\\_to\\_improve\\_near-road\\_air\\_quality.pdf](https://19january2017snapshot.epa.gov/sites/production/files/2016-08/documents/recommendations_for_constructing_roadside_vegetation_barriers_to_improve_near-road_air_quality.pdf)

### Qualitative Benefits

Vegetative Barriers can shade buildings and reduce energy consumption by lessening the load on air conditioning systems. When planting and maintaining native and/or drought-resistant vegetation using water efficient irrigation methods, vegetative barriers can reduce water usage. In addition, planting more trees in certain areas, such as near freeways, may also help reduce noise pollution. The Steering Committee has suggested installing vegetative barriers next to industrial sites and along major roadways.

### Community Support for Vegetative Barriers

Community engagement continues to be an important part of the CERP development. Through ongoing discussions with the Stockton CSC subcommittee for the vegetative barriers and urban greening measures, the subcommittee had expressed strong interest in providing funding to support the Vegetative Barriers measure (VB.1). The Vegetative Barriers measure has been discussed at CSC and subcommittee meetings to inform residents of the program and to shape the requirements for participation. Following the outreach efforts, this measure received support from the Stockton CSC and was included in the adopted CERP. This RFP was developed and modeled after existing plans and resources for similar projects within the state of California and includes feedback received from the CSC to create a program that addresses the unique needs of the community.

### Schedule

<u>Date</u>	<u>Event</u>
October 3, 2022	Release Request for Proposal

October 20, 2022 (11:00 AM)	Informational meeting
November 17, 2022 (5:30 PM)	Proposal submission deadline
Approximately 90 days	Proposal review and final selection announcement

### Funding Available

The total funding available for the Vegetative Barriers Emission Reduction Program is \$1,000,000 for projects within the Stockton AB 617 Community.

The applicant must be in compliance with applicable State and/or federal conflict of interest laws. To be eligible to receive incentive funding, the applicant **must** agree to disclose additional funding sources that include, but are not limited to, federal, state, and third-party private sources as follows:

1. Indicate if their organization has applied for or received funding from any other sources for this project.
2. Indicate if you intend to apply for additional funding from other sources in the future for this project.
3. Disclose the value of any current financial incentive that directly reduces the project cost including tax credits or deductions or other public financial assistance.

**For any additional funding that the applicant will receive or has already received for this project, the applicant will submit copies of letter(s) of financial commitment(s), agreement(s), or grant award letter(s).** Information provided may be shared as required by federal, state, and local laws. Any owner, designee, or other third party who is found to have submitted multiple applications or signed multiple contracts for this project without proper disclosure may be disqualified from funding for that project from all sources within the control of the District. Applying for or receiving funding from other sources for this project does not necessarily preclude you from this RFP. Match funding is not required for this program.

Projects funded through existing initiatives within the community may be leveraged to expand existing projects in the Stockton AB 617 community. Applicants may use the grant awarded to them as leverage to raise matching funds for Vegetative Barriers projects.

### Contract Period

Applicants must arrange and budget for the maintenance of vegetative barriers project, comply with other requirements described in this RFP, and make the project available for inspection if requested by District and/or CARB staff.

Applicants selected through this RFP are required to commit to their projects for a minimum of 10 years. The project implementation phase shall be completed within three (3) years of the contract execution date. During the contract period, Applicants must

maintain the project, comply with other requirements described in this RFP, and make the project available for inspection if requested by District and/or CARB staff.

### Applicant Eligibility

Applicants must meet all of the following criteria:

1. Applicant must be a joint powers authority, special district (Green Improvement/Benefit District, Flood Control District, etc.), non-profit, tribal government, or public agency and have the necessary experience or can work with project partners with the experience to implement vegetative barriers projects within the selected AB 617 community.
2. Applicant must be the property owner or be able to obtain documented authority, such as a letter of commitment or agreement, from the property owner on which the project will be implemented.
3. Applicant must commit to implementing the project within three years of contract execution date. The contract will be ten (10) years from the date of execution. This includes having a commitment to irrigate and maintain vegetative barriers, up to and including removal and replacement of dead plants.
4. Utilize baseline air monitoring data available through AB 617 and other state funded air monitoring projects in the selection, design and characterization of the benefits of the Vegetative Barrier project(s). District community air monitoring: <https://community.valleyair.org/selected-communities/stockton/community-air-monitoring/>
5. Applicant must commit to making the project available for inspection if requested by the District or CARB staff during the entire contract period, which will be ten (10) years.
6. Applicant must contact the local County Agricultural Commissioner's Office before obtaining any plant material originating from outside the respective county to ensure all the requirements for movement of plant material into the respective county are met.
7. Applicant must ensure that trees are purchased, planted, and maintained to the specifications provided in Appendix H *Tree Selection, Planting, and Care Specifications* of the CAL Fire Urban and Community Forestry Grant Guidelines.<sup>1</sup>
8. Applicant shall, provide public access to the project where feasible.
9. Applicant shall obtain any required permits necessary for successful project completion.
10. Applicant must ensure that all work performed is in conformance with the California Environmental Quality Act and all other applicable statutes, rules, and regulations.
11. Applicant and project partner(s) must have financial capacity to complete, operate, and maintain the project. If the Applicant is unable to carry the financial responsibility of a reimbursement program on their own, they may partner with a local public agency or 501(c)(3) non-profit.
12. Applicant must ensure that all property taxes where the Vegetative Barrier project will be located are current at the time of application.
13. Applicant must ensure that any funds required from other sources are reasonably expected to be available in the time frame needed to carry out the project.

## Project Eligibility

The following criteria are based on the adopted community CERP. Applicants are encouraged to review the resources provided in **Exhibit D** as they prepare their proposals.

1. All projects must be located within the Stockton Community boundaries and meet eligibility requirements described in this RFP. Applicant may highlight locations that take into account local community air monitors, using the following map: <https://community.valleyair.org/selected-communities/stockton/community-air-monitoring>.
2. Required species selection for the projects
  - a. Non-Invasive
  - b. Non-Poisonous
  - c. Roadway safety conformity (where applicable)
  - d. Maximize GHG reductions
  - e. Low-biogenic volatile organic compound (BVOC) emitting
  - f. Minimize allergenic pollen
3. Vegetation Characteristics – The following plant characteristics should be considered when making species selection. A full detailed description of vegetation characteristics can be found in **Exhibit C**.
  - a. Seasonal Effects
  - b. Leaf Surface
  - c. Air Emissions
  - d. Pollution and Stress Resistance
4. Routine maintenance and rehabilitation projects.
5. Payments will be made on a **reimbursement** basis. The Grantee pays for services, products, and supplies, then submits invoices and proof of payment, and is then reimbursed.
  - a. The following costs are **eligible** for funding:
    - i. Initial Study
    - ii. Supplies and materials
    - iii. Labor and construction of the project such as removal of materials and equipment, installation of vegetative barriers, and other approved items
    - iv. Contracted services related to the project
    - v. Signs and interpretive aids communicating information about the project
    - vi. On-going project maintenance for the continued health of the vegetative barriers
    - vii. Up to 25% of the grant request may be budgeted for non-construction costs, including but not limited to design, permitting, outreach, direct project administration and management
    - viii. Up to 10% may be budgeted for contingency costs
    - ix. The grant amount will cover 100% of eligible costs



- b. The following costs are **ineligible** to receive funding as part of this CERP strategy:
- i. Overhead (i.e., rent, utilities, office equipment/supplies)

### Project Evaluation and Scoring Criteria

Applications received by the District will be distributed to District staff and the Stockton CSC, who will work in partnership to evaluate and score the projects according to the scoring criteria described in Table 1 below. A meeting with the CSC will be scheduled after the conclusion of the RFP period to present and rank the submitted proposals. The scoring criteria and points, which were developed in partnership with the Stockton CSC, are meant to inform the decision-making process. Several of these criteria were based off of the CCI Urban Greening Guidelines<sup>ii</sup> and additional scoring criteria were added at the request of the sub-committee.

Table 1 – Scoring Criteria

Criteria	Points Available
Cost-Effectiveness - \$/ton GHG reduced	0-25
Exposure Benefits - Proximity to sensitive populations - Proximity to buildings to reduce energy costs	0-25
Co-benefits - Criteria air pollutant emission reductions	0-20
Species Selection - Types of species of trees and plants - Environmental benefits of the species selected	0-10
Project Readiness - Timeliness of project implementation - Leveraging existing efforts in the community	0-10
Supporting documents to demonstrate the ability to efficiently and effectively implement vegetative barriers projects, which may include, but are not limited to the following: - Summary of past projects and experiences, particularly in proposed vegetative barriers area(s) - Letter(s) of reference - Resume	0-5
Utilization of baseline air monitoring data available through AB 617 and other state funded air monitoring projects in the selection, design and characterization of the benefits of the Vegetative Barrier project(s).	0-5

During the selection process, the District and the CSC may wish to interview some Applicants for clarification purposes only. No new material will be permitted at this time. Additional information provided during the bid review process is limited to clarification by



the Applicant of information presented in the proposal upon request by the District and the CSC.

The determination shall be based solely on the Evaluation Criteria contained in the RFP, on evidence provided in the proposal and on any other evidence provided during the bid review process.

The District will report program information in accordance with Community Air Protection program guidelines available at:

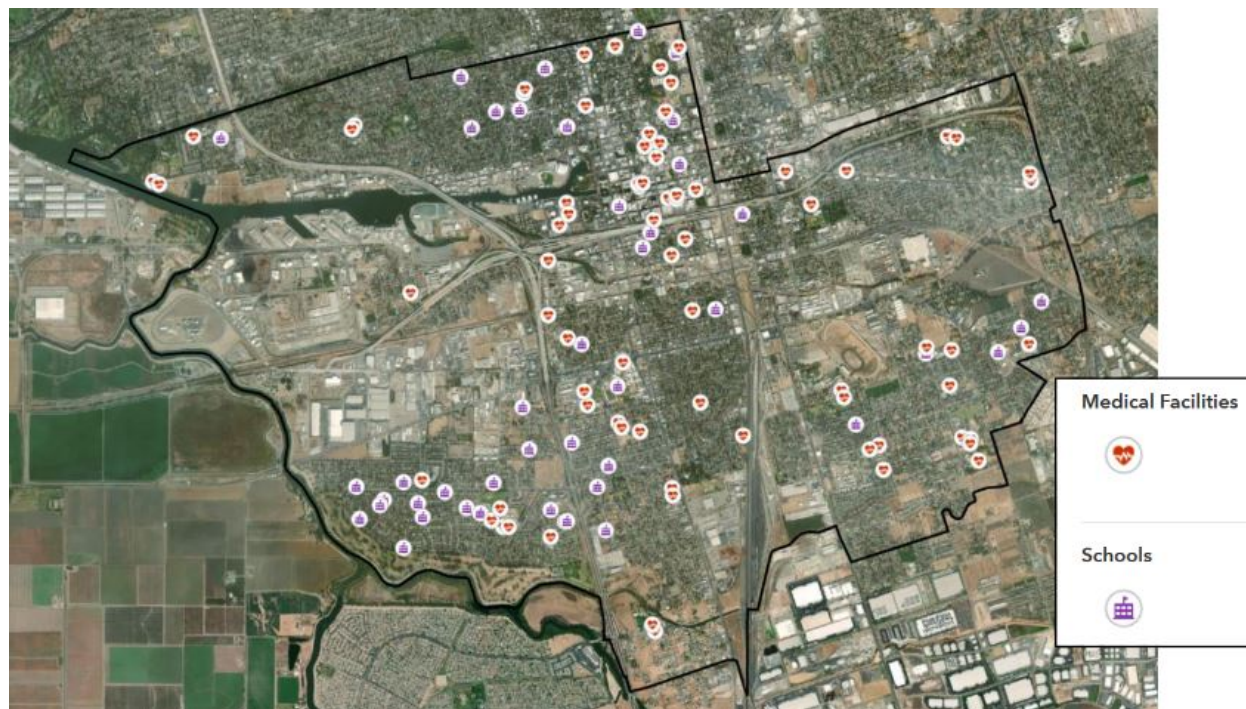
[https://ww3.arb.ca.gov/msprog/cap/docs/cap\\_incentives\\_2019\\_guidelines.pdf](https://ww3.arb.ca.gov/msprog/cap/docs/cap_incentives_2019_guidelines.pdf)

## Location

Stockton is the largest metropolitan area in the Northern Region of the District, with a current estimated population of over 310,000 residents. A number of heavily trafficked freeways pass through the City of Stockton, including Interstate 5 (I-5) and Highways 99 and 4, contributing a significant amount of PM2.5 emissions in the community. Specifically, southwest Stockton is a densely populated community within the City of Stockton directly impacted by large freeways, the Port of Stockton, freight locomotives, industrial sources, and emissions traveling downwind from the northern portion of the city. The Stockton AB 617 community, as approved by the Community Steering Committee, is approximately 16 square miles, has an estimated population of 132,000 and is impacted across a number of health and pollution indicators. Using the State CES tool, all census tracts located within the Southwest Stockton proposed community rank in the top 5% most disadvantaged communities in California, and rank highest in the Valley amongst census tracts not already a part of an AB 617 community.

The Stockton Steering Committee has identified Vegetative Barriers as a priority for air pollutant mitigation. The committee has expressed the need for the installation of vegetative barriers (and sound walls) around and near sources of concern such as schools, along truck routes, near the Port of Stockton, Charter Way, Boggs Tract and El Dorado with an additional priority along Interstate 5.

Proximity to emission sources can pose health risks for community members, particularly for sensitive groups such as children, the elderly, and those with cardiovascular diseases. Sensitive receptors located in Stockton include schools, daycare facilities, and medical facilities, as shown in the map below.



The Stockton Steering Committee placed a high priority on measures that would protect the health of children and suggested additional vegetative barriers near these sensitive receptors. Reducing exposures for sensitive receptors will be accomplished through the implementation of Vegetative Barriers projects.

The project(s) to be implemented through this RFP **must be** within the boundaries of the AB 617-selected community of Stockton.

### Emission Reductions

Various California state and institutional bodies have developed tools to help estimate the GHG reductions and co-benefits associated with Vegetative Barrier projects. The methodology and referenced tools below are consistent with the Quantification Methodology developed for the California Natural Resources Agency (CNRA) Urban Greening Grant Program under the California Climate Investments Program. The District and CSC will use these methodologies and tools to evaluate the proposed projects.

All Vegetative Barrier project calculations can be performed in the Benefits Calculator Tool, a workbook, which has been developed by CARB for the CNRA.<sup>iii</sup> Project Applicants need to fill out data within two tabs in this workbook in order to quantify emissions and co-benefits. Applicants must fill out tabs “Project Info,” and “Tree Planting – ITP.” The tab “Tree Planting – ITS” should not be filled out (The “Tree Planting – ITS” tab is designed for an alternative input tab for use with alternative software that is no longer supported). Tab “New Bike-Ped Infrastructure” should not be completed, as new bicycle/pedestrian infrastructure is not included in the Vegetative Barrier Program Plan.

In order to fill out all the information as prompted in the spreadsheet, project Applicants will also need to use three external tools, as follows:

- University of California Agriculture and Natural Resources (UCANR) Water Use Classification of Landscape Species (WUCOLS IV) tool<sup>7iv</sup>
- California Department of Water Resources (DWR) Water Budget Workbook<sup>8v</sup>
- i-Tree Planting Tool<sup>9vi</sup>

A guide detailing how to use each of these tools can be found in Exhibit B.

## Proposal Requirements and Process

Applicants must submit a completed application (Exhibit A) and requested supplemental documents listed in this RFP to the District prior to the RFP deadline. Incomplete proposals or proposals arriving after the deadline will be automatically disqualified from consideration.

Local entities will submit applications that include the required information as described in this RFP. A certification section is included in the application and details applicant requirements. Participation occurs in several phases:

1. Applicants must submit the following documents in response to this RFP:
  - a. Completed Application, with no fields left blank;
    - i. Applicants may submit answers to Section 3, questions 1-14, of the application on a separate document so long as the proposal answers each question in the order presented in the application and the responses are numbered accordingly.
  - b. Completed Certifications Form section, signed by applicant;
  - c. First page of IRS Form W-9;
  - d. Completed California Natural Resources Agency (CNRA) Draft Urban Greening Benefits Calculator Tool and provide copies of the “GHG Summary” tab and “Co-benefit Summary” tab;
  - e. Dated and itemized quote(s) for the project costs; and
  - f. Photographs of the project site, an aerial photo of the project from an online resource, and a representation of the project plan area (i.e. site plan).
2. Once the RFP period has ended, the District and the CSC will review applications received and contact Applicants as necessary to gather additional information. The District will aim to respond to prospective Applicants within 90 days following the end of the RFP period to alert them if their projects have been selected to receive funding. However, this timeline may be extended at the discretion of the District and CSC (e.g. to reach consensus from the CSC).
3. Upon CSC consensus, applications selected for funding will be processed by District Staff and a contract will be offered to the applicant. Once both parties have agreed to sign the contract, the applicant will be notified of the contract execution, at which point Applicants may then commence work on the project. Project expenses cannot be incurred prior to contract execution. In the event that the

District and the selected applicant(s) cannot agree to a contract, the District reserves the right to award the grant to the next qualified applicant(s) or close this solicitation.

4. Claim for Payments may be submitted for partial/progress payments for reimbursement throughout the project implementation period and up to 90-days following the completion of the project implementation period. A complete Claim for Payment packet is required as part of the reimbursement process and must include, but is not limited to, the invoice(s) and receipts for the services performed and materials purchased, and proof of payment for all expenses. During this time, District inspectors will inspect and take photos of the project site. District staff will review submitted claim packets and reimburse for eligible costs, up to the approved contract amount.

### Proposal Submittal

All proposals must be submitted to the District according to specifications set forth in this RFP. Failure to adhere to these specifications may be cause for rejection of proposal.

Signature – All proposals shall be signed by an authorized representative of the Applicant.

Due Date – All proposals are due no later than 5:30 PM, November 17, 2022, and should be directed to:

David Lopez  
Supervising Air Quality Specialist  
San Joaquin Valley Air Pollution Control District  
1990 E. Gettysburg Ave  
Fresno, CA 93726-0244  
Email: [grants@valleyair.org](mailto:grants@valleyair.org)  
Subject: Stockton Vegetative Barriers Application

Late Proposals – Late proposals will not be accepted under any circumstances.

Grounds for Rejection – A proposal may be immediately rejected if:

- It is not prepared in the required format, or
- It is signed by an individual not authorized to represent the firm, or
- It is not signed.

Modification or Withdrawal – Once submitted, proposals cannot be altered without the prior written consent of the District. All proposals shall constitute firm offers and may not be withdrawn for a period of 90 days following the last day to accept proposals.

## Administration

1. **Cost of Developing Application**

The Applicant is responsible for the cost of developing an Application, and this cost cannot be charged to the District. In addition, the District is not liable for any costs incurred during environmental review or as a result of withdrawing a proposed award or canceling the solicitation.
2. **Procurement**

The Applicant is encouraged to demonstrate support for the *District's Green Procurement and Sustainable Practices Policy* by; providing verification of environmentally friendly business practices through green certification programs or equivalent means, and participate in eco-friendly programs such as HAL Partners. More information can be found here: <http://healthyairliving.com/>.
3. **Errors**

If an Applicant discovers any ambiguity, conflict, discrepancy, omission, or other error in the solicitation, the Applicant shall immediately notify the District of such error in writing and request modification or clarification of the document. The District shall not be responsible for failure to correct errors.
4. **Immaterial Defect**

The District may waive any immaterial defect or deviation contained in an Applicant's application. The District's waiver shall in no way modify the Application or excuse the successful Applicant from full compliance.
5. **Disposition of Applicant's Documents**

Pursuant to the District's Procurement Policy and Procedure, the District reserves the right to reject any or all proposals. On the date that the Agreement is signed, all applications and related material submitted in response to this solicitation become a part of the property of the District and public record.
6. **Applicant's Admonishment**

This solicitation contains the instructions governing the requirements for funding projects submitted by interested Applicants, including the format in which the information is to be submitted, the material to be included, the requirements that must be met to be eligible for consideration, and Applicant responsibilities. Applicants must take the responsibility to carefully read the entire solicitation, ask appropriate questions in a timely manner, submit the application with all required responses in a complete manner by the required date and time, and make sure that all procedures and requirements of the solicitation are followed and appropriately addressed.
7. **Agreement Requirements**

The content of this solicitation and each grant Recipient's application shall be incorporated by reference into a final grant agreement. The District reserves the right to negotiate with Applicants to modify the project scope, the level of funding,



or both. If the District is unable to successfully negotiate and execute a funding agreement with an Applicant, the District, at its sole discretion, reserves the right to withdraw the pending award and fund the next highest ranked eligible project. This does not limit the District's ability to withdraw a proposed award for other reasons, including for no cause.

8. No Agreement Until Signed

No agreement between the District and the successful Applicant is in effect until the agreement is signed by the Recipient and signed by the authorized District representative. Costs are only subject to reimbursement by the District after execution; no costs incurred prior to execution of the agreement are reimbursable.

9. No Modifications to the General Provisions

Because time is of the essence, if an Applicant at any time, including after Preliminary Grantee Selection, attempts to negotiate, or otherwise seeks modification of, the application or proposed award, the District may reject an application or withdraw a proposed award.

10. Payment of Prevailing Wages

This project is subject to prevailing wages under California law. Applicants must comply with all prevailing wage requirements. Failure to pay legally required prevailing wage rates can result in substantial damages and financial penalties, termination of the grant agreement, disruption of projects, and other complications.

11. Solicitation Cancellation and Amendments

The District reserves the right to cancel this solicitation, revise the amount of funds available under this solicitation, amend this solicitation as needed, and reject any or all applications received in response to this solicitation.

## Insurance

The selected applicant(s) is required to maintain sufficient insurance, licenses, or other required certifications for the type of work being performed. The District may require specific insurance coverage be established and maintained during the course of the work and as a condition of award or continuation of contract.

## Reporting Requirements

All projects that receive funding under this program must comply with the requirements described in Section H of Chapter 3 in the Community Air Protection Incentives 2019 Guidelines<sup>vii</sup>. This will involve the preparation of Semi-annual and Yearly Reports, which the District will prepare based on information collected from the selected Applicant(s). Applicant(s) must ensure that project-related information is complete, correct, supported by documentation, and supplied to the District upon request for the preparation of the reports. Some of the information to be included in these reports is described below:

- Project information, including but not limited to the following:

- Location information
- Priority population identification, if applicable
- Approach for identifying beneficial projects (e.g. outreach efforts, community-based organization letters, etc.)
- Project benefits (e.g. reduction of emissions, greater mobility, etc.)
- Program-level information, including but not limited to the following:
  - Employment benefits and outcomes (jobs)
  - Public transparency and outreach events (outreach)
- Status of projects and funds for each grant year of CAP incentives
- A list of any projects identified as nonperforming and a brief narrative of any related enforcement actions

The above is not an exhaustive list of reporting requirements for the selected Applicant(s) in this program and the District will work with the Applicant(s) to ensure that the required data and information are collected for the reports. For more information, please refer to the Community Air Protection Incentives 2019 Guidelines.

### Informational Meeting

The District will host an informational meeting to address questions from Applicants interested in submitting a proposal. This meeting is open to the public and is not limited to interested Applicants. Attendance at the informational meeting is NOT a requirement for submitting a proposal.

The informational meeting will be held on October 20, 2022 at 11:00 AM via the following:

Zoom:

<https://us06web.zoom.us/j/88553031053?pwd=Wkx5OUpEVjZZVmo0Z0lNUFVTVmI5UT09>

Telephone: (877) 853-5247

Passcode: 623295

Please email the District's contact person below to RSVP for this RFP informational meeting.

### Contact Person

All questions concerning this RFP and application submittals should be directed to:

David Lopez  
Supervising Air Quality Specialist  
San Joaquin Valley Air Pollution Control District  
1990 E. Gettysburg Ave



Fresno, CA 93726-0244  
Phone (559) 230-6144  
Email: [David.Lopez@valleyair.org](mailto:David.Lopez@valleyair.org)

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<sup>i</sup> Appendix H, CAL FIRE Urban and Community Forestry Grant Guidelines. Available at:  
[https://www.fire.ca.gov/media/9653/cal-fire-ucf-cci-2019-20\\_grant-guidelines\\_final.pdf#page=54](https://www.fire.ca.gov/media/9653/cal-fire-ucf-cci-2019-20_grant-guidelines_final.pdf#page=54)  
Accessed: March 2021.

<sup>ii</sup> Urban Greening Program Final Guidelines. Available at: <https://resources.ca.gov/grants/urban-greening/>  
Accessed: February 2021.

<sup>iii</sup> CARB Urban Greening Calculator Tool (Version 3). Available at:  
<https://ww2.arb.ca.gov/resources/documents/cci-quantification-benefits-and-reporting-materials?corr>  
Accessed: February 2021.

<sup>iv</sup> WUCOLS IV Database. Available at <https://ucanr.edu/sites/WUCOLS/> Accessed: February 2021.

<sup>v</sup> DWR Water Budget Workbook. Available at:  
<https://cadwr.app.box.com/s/5k39tv10u42rp5bn2uebd7fodkxzgve7>  
Accessed: February 2021.

<sup>vi</sup> i-Tree Planting Calculator v2.1.2. Available at: <https://planting.itreetools.org/> Accessed: February 2021.

<sup>vii</sup> Community Air Protection Incentives 2019 Guidelines. Available at:  
[https://ww2.arb.ca.gov/sites/default/files/2020-10/cap\\_incentives\\_2019\\_guidelines\\_final\\_rev\\_10\\_14\\_2020\\_0.pdf](https://ww2.arb.ca.gov/sites/default/files/2020-10/cap_incentives_2019_guidelines_final_rev_10_14_2020_0.pdf)

# Exhibit A

# VEGETATIVE BARRIERS/URBAN GREENING

## APPLICATION

Urban Greening Emission Reduction Program is part of [California Climate Investments](#), a statewide initiative that puts billions of Cap-and-Trade dollars to work reducing greenhouse gas emissions, strengthening the economy, and improving public health and the environment — particularly in disadvantaged communities.

### SECTION 1 - APPLICANT INFORMATION (PLEASE PRINT OR TYPE)

1. Organization, Company, or Proprietor's Name (as it appears on Form W-9):		
2. Physical Address:		
3. City:	4. State:	5. Zip Code:
6. Mailing Address (if different from above):		
7. City:	8. State:	9. Zip Code:

### SECTION 2- CONTACT INFORMATION (PLEASE PRINT OR TYPE)

<b>PRIMARY CONTACT INFORMATION</b>	
1. First and Last Name:	2. Title:
3. Phone Number:	4. Fax Number:
5. Alternate Contact Number:	6. Email (required):
<b>SIGNING AUTHORITY INFORMATION (IF DIFFERENT FROM ABOVE)</b>	
1. First and Last Name:	2. Title:
3. Phone Number:	4. Fax Number:
5. Alternate Contact Number:	6. Email (required):

**SECTION 3 – PROJECT INFORMATION** (PLEASE PRINT OR TYPE)

Applicant may submit answers to this section on a separate document so long as the proposal answers each question in the order presented and the responses are numbered accordingly.

**Project Type:** Urban Greening

**1. Project Summary**

Briefly describe your project including committed partners, expected implementation period, project costs and how the project will mitigate air quality impacts.

**2. Location of Project**

Provide address or cross-streets and describe surrounding area. Please attach photographs of the project site, and aerial photo of the project from an online resource, and a representation of the project plan area (i.e., site plan).

**3. Is the applicant the property owner of the land on which the project will be implemented?** **Yes.** **No.** Please provide the name and contact information for the Property Owner(s) of Each Parcel within Project Footprint or provide a demonstrated plan to obtain the authority from the property owner(s).**4. Describe Proposed Greenery**

Include quantity of each plant or tree to be planted. Also note environmental benefits of the selected species (e.g., if the species is native, drought resistant, non-allergenic, or low-BVOC emitting), if possible.

**5. Area of Project Footprint to be created or Enhanced (acres or square footage)****6. Proposed Irrigation Systems**

Describe the type of irrigation systems (e.g., drip, overhead spray)

**7. Project Limitations**

Describe any possible project limits such as parking, hours of operation, available staffing, user fees, seasonal restrictions, or other ecological considerations.

**8. Sensitive Receptors**

Provide a list of sensitive receptors (e.g., schools, day cares, residences) within 1,000 feet of the project

Name of Location	Distance from Project

**9. Estimated Timeline for Project Implementation**

Provide an estimated timeline for project implementation assuming project is notified of grant approval within 90 working days of submittal of application.

Include preliminary design, environmental documentation, permitting, long-term operations and maintenance commitments, and any other relevant actions as steps in this timeline.

Date	Action

Describe the measures that will be utilized to assure completion of the project within the indicated time.





## CERTIFICATIONS FORM

I have read the Eligibility Criteria and Program Guidelines and I agree to **ALL** the following terms and conditions by **signing below**:

- **I have not purchased, made any payments toward, or began any work, nor will I, until I have an executed contract from the District.**
- I understand that submission of this application does not guarantee incentive funding for the project.
- I am the property owner, have documented authority from the property owner, or have a demonstrated plan to obtain the authority from the property owner to construct and maintain the Urban Greening project as described in the project application.
- I agree to complete the project implementation phase within three years of the contract execution date and maintain the project for a minimum of 10 years.
- I will make the project site available for inspection if requested by SJVAPCD and/or CARB staff during the ten (10) year contract period.
- I will provide photo documentation upon completion of the project.
- I will provide annual or bi-annual status updates in the form of a photo update and/or a tree condition report to ensure project maintenance is occurring throughout the contract period.
- I understand it is my responsibility to contact the local County Agricultural Commissioner's Office before obtaining any plant material originating from outside respective county to ensure all the requirements for movement of plant material into respective county are met.
- I understand, where feasible, projects shall provide public access.
- I will select plant species that maximize GHG reductions and minimize ROG (BVOC) and allergenic pollen.
- Project plan incorporates recommendations in the anti-displacement resources provided.
- All property taxes are current at the time of application.
- I understand that I am responsible for obtaining any permits required.
- Our organization, along with any project partners have the financial capacity to complete, operate, and maintain the project.
- I understand that any funds required from other sources must reasonably be expected to be available in the time frame needed to carry out the project.
- I understand that the final funding amount reimbursed may be less than the maximum incentive amount if the final invoice amount for the eligible costs of the project is less than the maximum incentive amount.
- I understand that the selection of a third party contractor to perform any or all of the project is completely my choice and the District does not endorse, or is not in partnership with any such contractors and shall not be responsible for any disputes arising from the work performed between the applicant and the contractor. The District will not be held liable for any disputes, circumstances or events that occur between the applicant and contractor. Contractors are independent contractors; they are not officers, representatives, agents, servants, employees, partners, associates, or joint ventures of the District.

- Projects funded by District will not be used as marketable emission reduction credits, to offset any emission reduction obligation, or for credit under any federal or state emission averaging, banking and trading program. In addition, projects funded through this program may not be used to generate a compliance extension or extra credit for determining regulatory compliance.
- Any current financial incentive that directly reduces the project cost, including tax credits or deductions, grants, or other public financial assistance for the same project, must be disclosed to the District.

**I hereby certify that all information provided in this application and any attachments are true and correct to the best of my knowledge.**

Signing Authority's Signature:	Date:
Print Name:	Title:

## APPLICATION PACKET CHECKLIST

All proposals must be submitted according to specifications set forth in the RFP. Failure to adhere to these specifications may cause for rejection of proposal. Once submitted, proposals cannot be altered without the prior written consent of the District. A complete application packet includes the following items:

- Completed **Application**, no fields left blank.
- Completed **Certifications Form** section, signed by **Applicant**.
- First page of IRS **Form W-9**.
- Copies of the applicant's results from the "GHG Summary" tab and "Co-benefit Summary" tab from the **California Natural Resources Agency (CNRA) Draft Urban Greening Benefits Calculator Tool**
- Dated and itemized **Quote(s)** for the project costs.
- Aerial map of the project from an online resource
- Photographs of the project site and a representation of the project plan area (i.e. site plan).

**All proposals are due no later than 5:30 PM, November 17, 2022. Late proposals will not be accepted under any circumstances.**

**Please submit your completed application packet via one of the following methods below to avoid duplicate submittals:**

**Email:** [grants@valleyair.org](mailto:grants@valleyair.org)

(Subject line must indicate Stockton Urban Greening Incentive Program and applicant's name)

**-or-**

**Mail:** SJVAPCD

Attn: Grants and Incentives  
1990 East Gettysburg Avenue  
Fresno, CA 93726-0244

**Don't forget to retain a full copy of the completed application for your own records.**

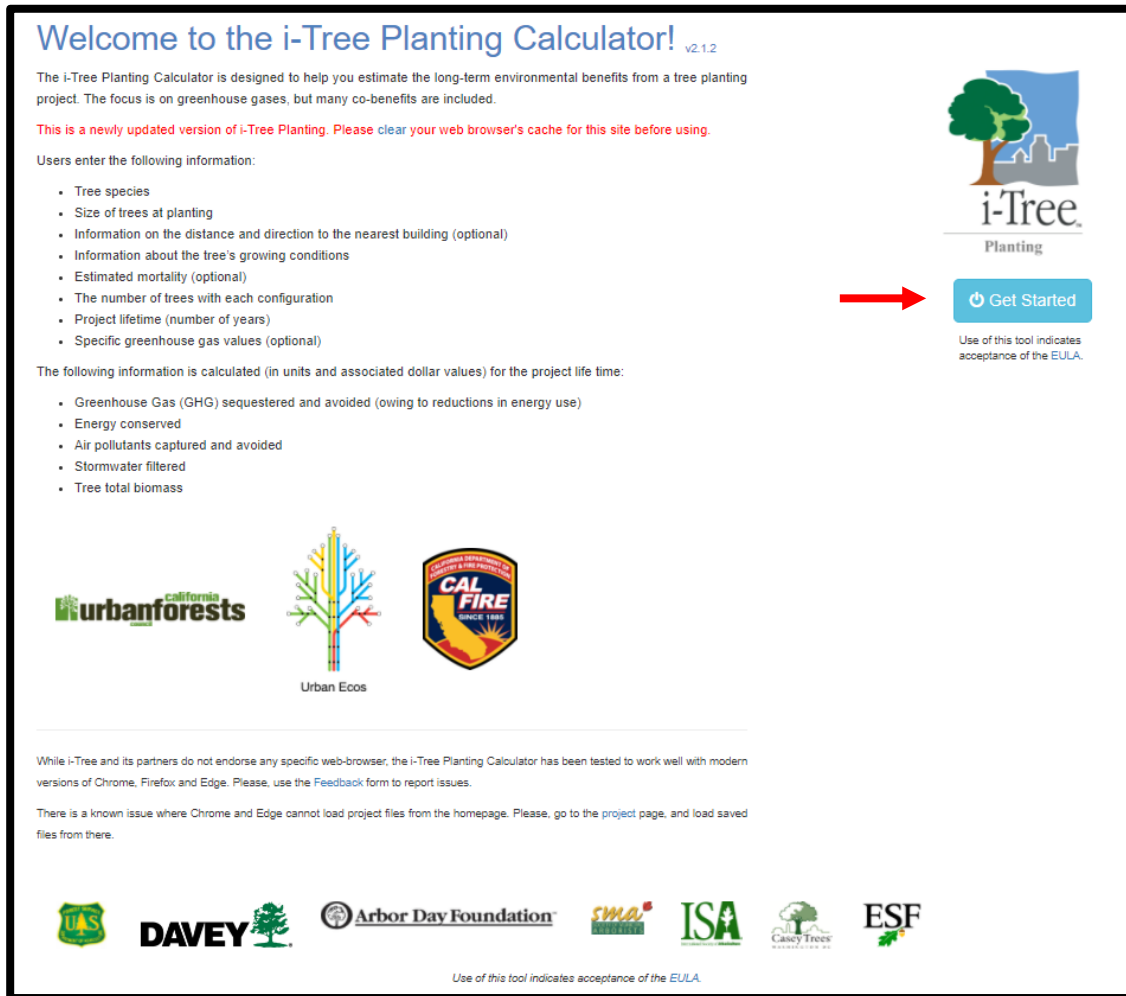
For additional assistance, please contact staff in the Grants Department at (559) 230-5800

# Exhibit B

### i-Tree Planting Calculator User Guide

The tool **i-Tree Planting** should be used in order to help estimate the tree carbon storage, energy savings, and pollution reduction due to each group of trees to be planted. This tool can be found at <https://planting.itreetools.org/>

**Step One – Open Tool.** Once at the website, click “Get Started” on the right of the screen to access the tool, as shown below:



**Step Two – Specify Project Location.** Once in the tool, enter the project location (state, county, then city) as prompted from the three dropdown menus. Click next to continue.

**Step Three – Specify Project Parameters.** On the Project Parameters page, the Electricity Emissions Factor, Fuel Emissions Factor, Years for the Project, and Tree Mortality over Project Lifetime are all adjustable. Per CNRA guidelines, the Electricity Emissions Factor should be 227.9 kg CO<sub>2</sub>e/MWH and the Fuel Emissions Factor should be entered as 53.1 kg CO<sub>2</sub>e/MMBtu. The Years for the Project value should represent the total years of tree growth 40 years from the project start date. For example, for trees planted in the first year of the project, enter “40.” For trees planted in the second year, enter “39,” and so on. The Urban Greening Benefits Calculator Tool will account for the Tree Mortality over the Project Lifetime, so please enter zero for this field. See the following screenshot for an example of what this page may look like for a project within the San Joaquin Valley:

After making this change, hit next again to progress to the next tab, "Tree Planting Configurations."

**Step Four – Specify Units for Tree Planting Configurations.** At the top of the Tree Planting Configurations page, the units can be adjusted between English and Metric, and it can be selected whether the tree species will be listed using their common or scientific names.

**Step Five – Enter Tree Planting Configuration Information.** After the units and nomenclature items are selected (under Step Four), the following must be entered:

- Tree Group Information
  - Species of tree (*select from dropdown*)
  - Diameter at breast height (DBH) at time of planting
- Building Information
  - Distance to nearest building (*select from dropdown*)
  - Direction from nearest building (*select from dropdown the cardinal direction [e.g., North South, etc.] in which the tree is located when standing at the building*)
  - Age of building (*select from dropdown*)
  - Climate controls within the nearest building (*select from dropdown*)
- Tree Details
  - Tree condition (*select from dropdown*)
  - Exposure to sunlight (*select from dropdown*)
  - Number of trees to be planted



This information must be entered for each different group of trees that will be planted. A new group is required whenever any of the above parameters are different for a set of trees. To add a new group of trees, hit the plus sign at the far left of the table. To remove a group, click the X at the left of the row that needs to be removed.

An example of this completed tab with two groups of trees is shown below:

**Tree Planting Configurations**  
*ATTENTION: Please, limit projects to batches of 100 or less tree groups.*  
 Enter the tree groups for the project.

**Units**  
 English (feet & inches)    Metric (meters & cm)

**Nomenclature**  
 Common Name    Scientific Name

Tree Group Information				Building Information				Tree Details		
	Group Number	Species	DBH in inches	Distance to Nearest in feet	Tree is _____ of Building	Vintage	Climate Controls	Condition	Exposure to Sunlight	Number of Trees
<input type="checkbox"/>	1	Acacia	8	0-19	South (180°)	Built 1950 - 1980	A/C Only	Good	Full Sun	10
<input type="checkbox"/>	2	Cottonwood	14	20-39	Northeast (45°)	Built after 1980	Heat & A/C	Excellent	Full Sun	5

**Adjust all values in these cells as needed**

**Step Six – Generate Report.** After inputting this information, hit next again. This will generate the final report from i-Tree Planting.

The report has four sections within the webtool:


- “CO2” shows the pounds of CO2 avoided and sequestered and the resultant cost savings.
- “Energy” shows the electricity and other fuel savings and resultant cost savings.
- “Eco” shows the total tree biomass, rainfall interception, and the avoided runoff in gallons and resultant cost savings.
- “Air Pollution” shows the total mass of several key air pollutants that was either avoided (via deposition and dispersion) or removed (via absorption) as a result of the project.

In order to see values from all four of these tabs at once, proceed to Step Seven – Export Report.

**Step Seven – Export Report.**

## Planting Report

*NOTE: Printing is recommended as the "landscape" orientation or at a reduced scale.*



### Project Report - i-Tree Planting Calculator v2.1.2

Location: Fresno, California 93704  
 Electricity Emissions Factor: 252.40 kilograms CO2 equivalent/MWh  
 Fuel Emissions Factor: 52.00 kilograms CO2 equivalent/MMBtu  
 Lifetime: 40 years  
 Tree Mortality: 3%


All amounts in the tables are for the full lifetime of the project.

**Units**

English (pounds & tons; kWh & MMBtu; gallons)  
  Metric (kilograms & metric tons; kWh & MMBtu; cubic meters)

Copy
Export
CO<sub>2</sub>
Energy
Eco
Air Pollution

Search:



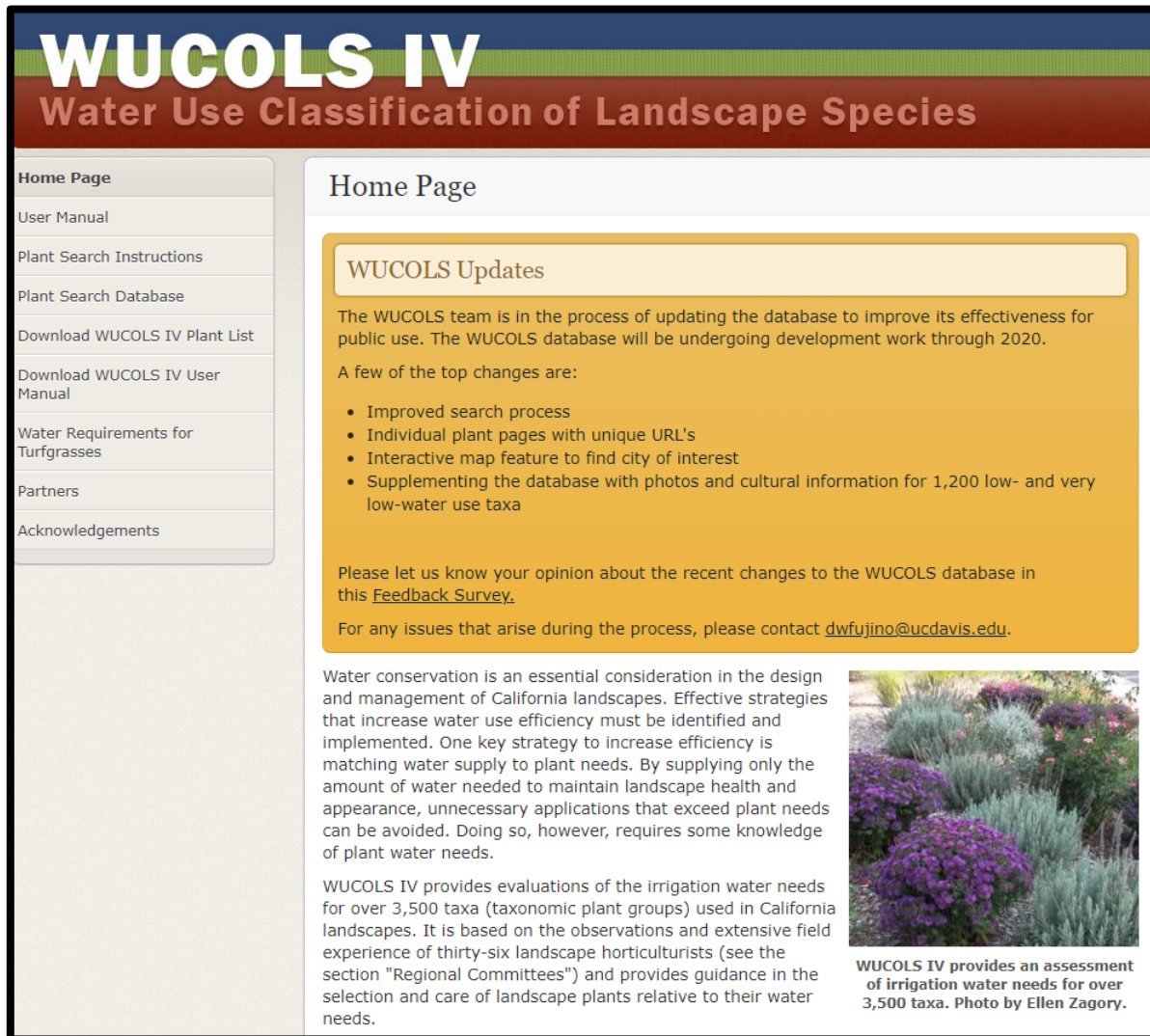
Location		CO <sub>2</sub> Benefits			
Group Identifier	Tree Group Characteristics	CO <sub>2</sub> Avoided (pounds)	CO <sub>2</sub> Avoided (\$)	CO <sub>2</sub> Sequestered (pounds)	CO <sub>2</sub> Sequestered (\$)
1	<ul style="list-style-type: none"> <li>(10.0) Acacia (Acacia species) at 8.0 inches <u>DBH</u>.</li> <li>Planted 0-19 feet and south (180°) of buildings that were built 1950-1980 with only A/C.</li> <li>Trees are in good condition and planted in full sun.</li> </ul>	28,073.5	\$652.90	1,326.0	\$30.84
2	<ul style="list-style-type: none"> <li>(5.0) Cottonwood (Populus species) at 14.000000000000002 inches <u>DBH</u>.</li> <li>Planted 20-39 feet and northeast (45°) of buildings that were built post-1980 with heat and A/C.</li> <li>Trees are in excellent condition and planted in full sun.</li> </ul>	26,175.3	\$608.76	56,094.6	\$1,304.59

Hitting export will generate an Excel spreadsheet with all relevant values included. These values will need to be imported into tab "Tree Planting – ITP" in the CNRA Calculator Tool.

## Water Use Classification of Landscape Species (WUCOLS IV) Tool User Guide

The University of California Agriculture and Natural Resources (UC ANR) **WUCOLS** tool should be used in conjunction with the DWR Water Budget Workbook in order to estimate the amount of water and type of irrigation that this project will require. This tool is available here: <https://ucanr.edu/sites/WUCOLS>.

**Step One – Open Plant Search Database.** From the tool home page, click “Plant Search Database” to enter the tool itself, as shown below:



**WUCOLS IV**  
Water Use Classification of Landscape Species

**Home Page**

- Home Page
- User Manual
- Plant Search Instructions
- Plant Search Database
- Download WUCOLS IV Plant List
- Download WUCOLS IV User Manual
- Water Requirements for Turfgrasses
- Partners
- Acknowledgements

**Home Page**

**WUCOLS Updates**

The WUCOLS team is in the process of updating the database to improve its effectiveness for public use. The WUCOLS database will be undergoing development work through 2020.

A few of the top changes are:


- Improved search process
- Individual plant pages with unique URL's
- Interactive map feature to find city of interest
- Supplementing the database with photos and cultural information for 1,200 low- and very low-water use taxa

Please let us know your opinion about the recent changes to the WUCOLS database in this [Feedback Survey](#).

For any issues that arise during the process, please contact [dwfujino@ucdavis.edu](mailto:dwfujino@ucdavis.edu).

Water conservation is an essential consideration in the design and management of California landscapes. Effective strategies that increase water use efficiency must be identified and implemented. One key strategy to increase efficiency is matching water supply to plant needs. By supplying only the amount of water needed to maintain landscape health and appearance, unnecessary applications that exceed plant needs can be avoided. Doing so, however, requires some knowledge of plant water needs.

WUCOLS IV provides evaluations of the irrigation water needs for over 3,500 taxa (taxonomic plant groups) used in California landscapes. It is based on the observations and extensive field experience of thirty-six landscape horticulturists (see the section "Regional Committees") and provides guidance in the selection and care of landscape plants relative to their water needs.



**WUCOLS IV provides an assessment of irrigation water needs for over 3,500 taxa. Photo by Ellen Zagory.**

Clicking that link will open the Plant Search Database.

**Step Two – Enter City Name.** Enter the city in which the proposed project will be located using the drop-down menu or “Find a city on the map” option.

**Step Three – Choose Plant Type.** Once the city name is entered, there are two options. If the types of plant and greenery for the project have already been determined, use the “Plant Name” search box to choose the specific plants and greenery. If not, then the general Plant Type can be chosen from the list on the right, and the water usage can be chosen from the checklist on the left. In the example below, the user selected California native trees that require very low or low water usage within Fresno:

**WUCOLS IV**  
Water Use Classification of Landscape Species

### Plant Search Database

If you know exactly which plant you are interested in, you may search for it by name (partial names are OK, too). Otherwise, consider searching by plant type and/or water use.

**City**  
Search for a city:  — or —

**Plant Name**

**Water Use**

- Very Low
- Low
- Moderate / Medium
- High
- Unknown
- Not Appropriate for this Region

**Plant Type**

- Gc (Ground Cover)
- P (Perennial)
- S (Shrub)
- T (Tree)
- V (Vine)
- Ba (Bamboo)
- Bu (Bulb)
- G (Ornamental Grass) [Looking for Turf Grass?](#)
- Pm (Palm and Cycad)
- Su (Succulent)
- N (California Native)
- A (Arboretum All-star)

**Step Four – Search Plants.** After the options have been set, click “Search Plants” on the bottom left of the screen in order to view the results. The top results of the plant type selected in Step Three appear alphabetically as shown on the following page:

# WUCOLS IV

## Water Use Classification of Landscape Species

### Plant Search Database



City	Fresno
Region	Central Valley

[Start Over](#) [Search Again](#) [Export List](#)

▼ Legend: Plant Types

▼ Legend: Categories of Water Needs

Search Results: 450

Type	Photo	Botanical Name	Common Name	Water Use	Export
T	N/A	<a href="#">Abies pinsapo</a>	Spanish fir	Low	<input type="checkbox"/>
P N	N/A	<a href="#">Abronia latifolia</a>	yellow sand verbena	Very Low	<input type="checkbox"/>
P N	N/A	<a href="#">Abronia maritima</a>	sand verbena	Very Low	<input type="checkbox"/>
S N		<a href="#">Abutilon palmeri</a>	Indian mallow	Low	<input type="checkbox"/>
T		<a href="#">Acacia baileyana</a>	Bailey acacia	Low	<input type="checkbox"/>

**Step Five – Choose Plant Type.** Once an appropriate plant has been identified, or once the type of plant that has already been chosen for this project is found, click on its name. An example for the first search result, *Abies pinsapo*, is shown below:

**WUCOLS IV**  
Water Use Classification of Landscape Species

Plant Search Database

City: Fresno  
Region: Central Valley

Start Over Search Again Export List

Legend: Plant Types  
Legend: Categories of Water Needs

Search Results: 450

Type	Photo	Botanical Name	Common Name	Water Use	Export
T	N/A	<a href="#">Abies pinsapo</a>	Spanish fir	Low	<input type="checkbox"/>
P N	N/A	<a href="#">Abronia latifolia</a>	yellow sand verbena	Very Low	<input type="checkbox"/>
P N	N/A	<a href="#">Abronia maritima</a>	sand verbena	Very Low	<input type="checkbox"/>
S N		<a href="#">Abutilon palmeri</a>	Indian mallow	Low	<input type="checkbox"/>
T		<a href="#">Acacia baileviana</a>	Bailey acacia	Low	<input type="checkbox"/>

**Step Six – Obtain Evapotranspiration Rate.** On the next page, click on the text “Legend: Categories of Water Needs” in order to display the evapotranspiration rates for the chosen plant. Look for the value that matches the water usage classification for that plant, which should be highlighted in blue. An example for the first search result, *Abies pinsapo*, is shown on the following page:

# WUCOLS IV

## Water Use Classification of Landscape Species

### Plant Search Database

*Abies pinsapo*

[Start Over](#)

<b>Botanical Name</b>	<i>Abies pinsapo</i>
<b>Common Name</b>	Spanish fir
<b>Plant Type(s)</b>	Tree (T)

#### Cultural Information

*Abies pinsapo* (Spanish fir), evergreen tree, slow growing to 50-75 feet tall and 15-30 feet wide, with short, stiff, aromatic, needlelike, bluish green leaves and cylindrical cones that stand upright at ends of branches. Native to rocky soils on dry mountain slopes in southern Spain and northern Morocco. Sun to light shade, slightly acidic, well-drained soils. Accepts more heat and dryness than many other firs. Sunset: N/A

#### Water usage

<b>Region 1</b> North Central Coastal	Low
<b>Region 2</b> Central Valley	Low
<b>Region 3</b> South Coastal	Low
<b>Region 4</b> South Inland Valley	Inappropriate
<b>Region 5</b> High and Intermediate Desert	Inappropriate
<b>Region 6</b> Low Desert	Inappropriate

Use this classification to select the correct ET<sub>0</sub> percentage, below

[Clear region selection](#)

#### Legend: Plant Types

#### Legend: Categories of Water Needs

Category	Abbreviation	Percentage of ET <sub>0</sub>
Very Low	VL	< 10
Low	LO	10-30
Moderate / Medium	M	40-60
High	H	70-90
Unknown	U	N/A
Not Appropriate for this Region	NA	N/A

Click here to expand

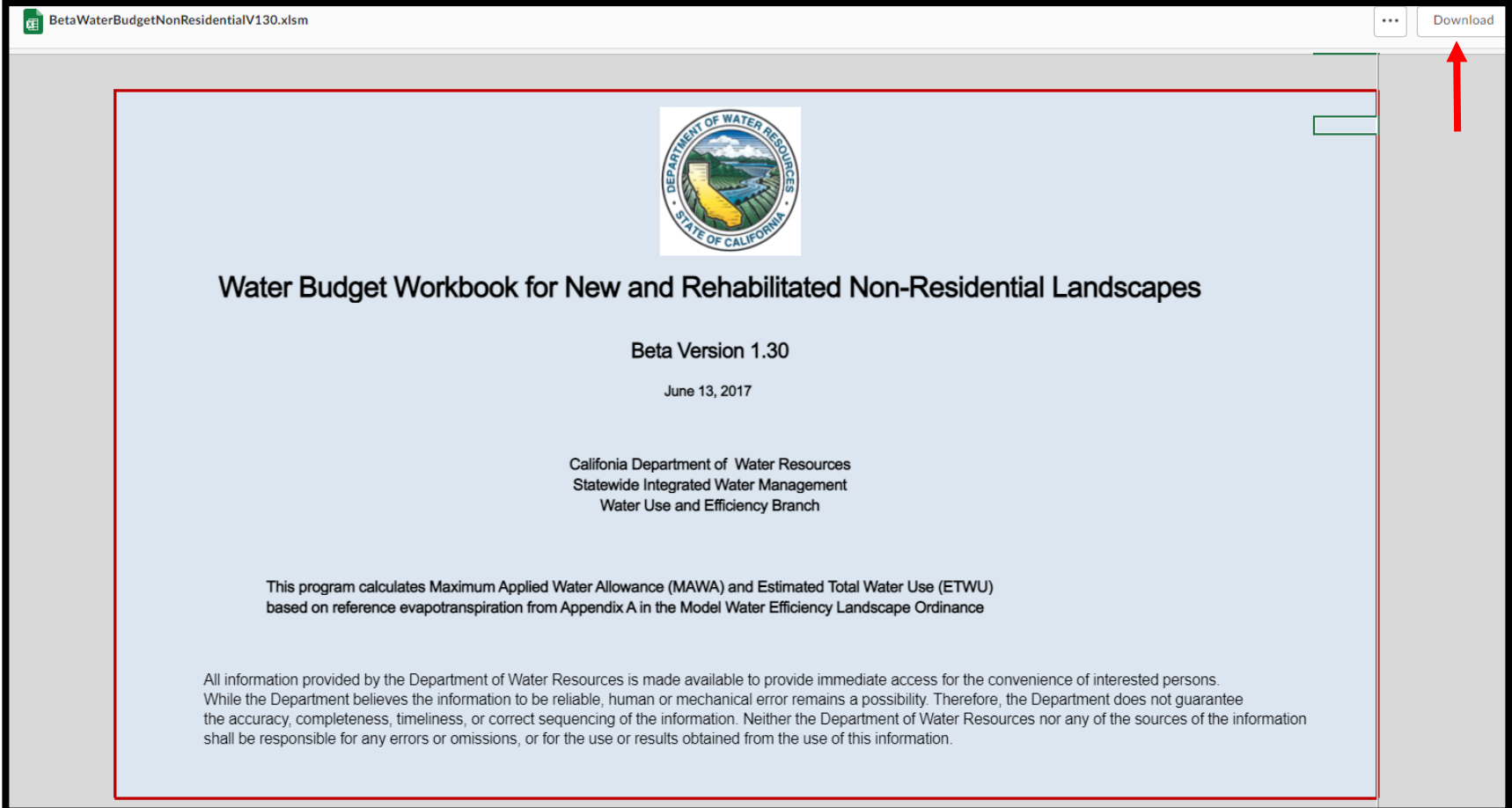
The Evapotranspiration Rate, ET<sub>0</sub>, is shown in the "Percentage of ET<sub>0</sub>" column. Take note of the average value from the column "Percentage of ET<sub>0</sub>," shown above. In this case, the average would be 20%.

The ET<sub>0</sub> value needs to be obtained for all plants that are currently at the proposed project site, as well as all of the species that would be planted as part of the project itself. Once these values have been collected, they can be entered into the next tool, the DWR Water Budget Workbook.

## DWR Water Budget Workbook User Guide


After the WUCOLS tool is run, the California Department of Water Resources' Water Budget Workbook for New and Rehabilitated Non-Residential Landscapes ("**DWR Water Budget Workbook**") should be used in order to estimate the amount of water and type of irrigation that the proposed project will require. This tool is available for download here: <https://cadwr.app.box.com/s/5k39tv10u42rp5bn2uebd7fodkxzgve7>.

**Step One – Download Tool.** Clicking the link above opens an embedded workbook. In order to access the tool in Excel, click "Download" in the top right, as shown below.



BetaWaterBudgetNonResidentialV130.xlsm

Download



**Water Budget Workbook for New and Rehabilitated Non-Residential Landscapes**

Beta Version 1.30

June 13, 2017

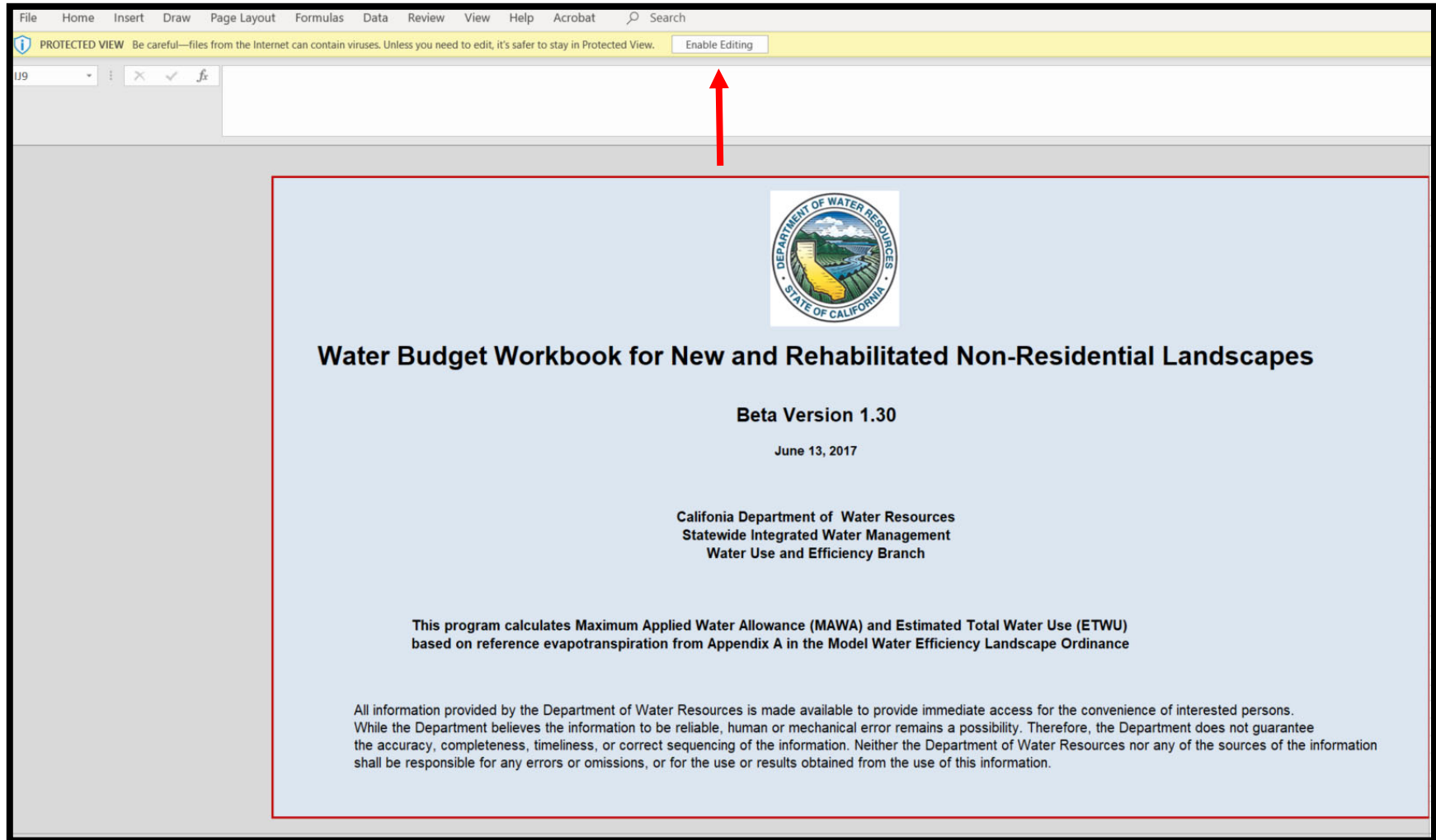
California Department of Water Resources  
Statewide Integrated Water Management  
Water Use and Efficiency Branch

This program calculates Maximum Applied Water Allowance (MAWA) and Estimated Total Water Use (ETWU) based on reference evapotranspiration from Appendix A in the Model Water Efficiency Landscape Ordinance

All information provided by the Department of Water Resources is made available to provide immediate access for the convenience of interested persons. While the Department believes the information to be reliable, human or mechanical error remains a possibility. Therefore, the Department does not guarantee the accuracy, completeness, timeliness, or correct sequencing of the information. Neither the Department of Water Resources nor any of the sources of the information shall be responsible for any errors or omissions, or for the use or results obtained from the use of this information.



**Step Two – Enable Workbook.** After downloading the spreadsheet, click “Enable Editing” in order to gain access to the spreadsheet.



This tool consists of three main tabs: Maximum Applied Water Allowance (MAWA), Estimated Total Water Use (ETWU), and Special Landscape Area (SLA).

For all proposed projects, this entire workbook must be filled out twice:

- Once using the current landscape characteristics of the proposed project site (“Pre-Project Scenario”), and
- Once accounting for the landscape characteristics after the proposed project is implemented (“Post-Project Scenario”).

To do so, it is recommended that the applicant save two copies of the Water Budget workbook: one for the Pre-Project Scenario, and one for the Post-Project Scenario.

Workbook cells highlighted in blue are ones for which data should be entered. Cells highlighted in tan display results and should not be adjusted.

### **“MAWA” Tab**

Steps One through Three should be performed in the blue highlighted cells in the “MAWA” tab. For reference, a screenshot of this tab is provided on the next page. Note that there is additional instruction to the left of the data entry in this tab.

**Step Three – Specify Project Location.** In the tab “MAWA,” first select the city where the proposed project will be located.

**Step Four – Specify Project Area.** Next, enter square footage of the landscape area that is irrigated via overhead spray, as well as the square footage of landscape area that is irrigated by drip irrigation. Where prompted, also enter the square footage of any special landscape area on the project site. Special landscape area includes recreational area, area permanently and solely dedicated to edible plants, and area irrigated with recycled water.

**Step Five – Specify Project Precipitation.** If known, enter the annual precipitation at the project site in inches per year. If the annual precipitation is unknown, this cell can be left blank.

Maximum Applied Water Allowance Calculations for New and Rehabilitated Non-Residential Landscapes																
Enter value in Pale Blue Cells																
Tan Cells Show Results																
Messages and Warnings																
Click on the blue cell on right to Pick City Name	Fresno	me of City														
	<table border="1"> <tr> <td>ET<sub>o</sub> of City from Appendix A</td> <td>51.10</td> <td>ET<sub>o</sub> (inches/year)</td> </tr> <tr> <td></td> <td>23000</td> <td>Overhead Landscape Area (ft<sup>2</sup>)</td> </tr> <tr> <td></td> <td>27000</td> <td>Drip Landscape Area (ft<sup>2</sup>)</td> </tr> <tr> <td></td> <td>43000</td> <td>SLA (ft<sup>2</sup>)</td> </tr> <tr> <td>Total Landscape Area</td> <td>93,000</td> <td></td> </tr> </table>		ET <sub>o</sub> of City from Appendix A	51.10	ET <sub>o</sub> (inches/year)		23000	Overhead Landscape Area (ft <sup>2</sup> )		27000	Drip Landscape Area (ft <sup>2</sup> )		43000	SLA (ft <sup>2</sup> )	Total Landscape Area	93,000
ET <sub>o</sub> of City from Appendix A	51.10	ET <sub>o</sub> (inches/year)														
	23000	Overhead Landscape Area (ft <sup>2</sup> )														
	27000	Drip Landscape Area (ft <sup>2</sup> )														
	43000	SLA (ft <sup>2</sup> )														
Total Landscape Area	93,000															
<b>Results:</b>																
(ET <sub>o</sub> ) x (0.62) x [(0.45 x LA) + (1.0 - 0.45) X SLA]	2,075,040	Gallons														
	277,393	Cubic Feet														
	2,774	HCF														
	6	Acre-feet														
	2	Millions of Gallons														
<b>MAWA calculation incorporating Effective Precipitation (Optional)</b>																
<b>Precipitation (Optional)</b>																
ET <sub>o</sub> of City from Appendix A	51	ET <sub>o</sub> (inches/year)														
Total Landscape Area	93,000	LA (ft <sup>2</sup> )														
Special Landscape Area	43,000	SLA (ft <sup>2</sup> )														
		Total annual precipitation (inches/year)														
Enter Effective Precipitation	0.00	Eppt (in/yr)(25% of total annual precipitation)														
<b>Results:</b>																
MAWA = [(ET <sub>o</sub> - Eppt) x (0.62)] x [(0.45 x LA) + ((1.0 - 0.45) x SLA)]	-	Gallons														
	-	Cubic Feet														
	-	HCF														
	-	Acre-feet														
	-	Millions of Gallons														



Next, move to tab "ETWU."

### "ETWU" Tab

Steps Six through Nine should be performed in the blue highlighted cells in the "ETWU" tab. For reference, a screenshot of this tab is provided on the next page.

Note that after download, the tool will display example data in this sheet, with six hydrozones listed. Delete the irrigation type, plant factor, and hydrozone area columns before starting.

**Step Six – Specify Irrigation Type.** Fill out the irrigation type (overhead spray or drip) for each hydrozone. A hydrozone is a portion of the landscaped area having plants with similar water needs. If two different types of tree are planted as part of this project, then each type of tree qualifies as its own hydrozone. Additionally, if certain areas of the landscape are irrigated in different ways then those areas would constitute different hydrozones as well. Special Landscape Areas do not need to be entered on this tab.

**Step Seven – Specify Area of Each Hydrozone.** For each hydrozone, enter the area in square feet in the column labelled "Hydrozone Area Without SLA." The total area entered for all hydrozones on this page should match the total area entered on the "MAWA" tab. Special Landscape Areas do not need to be entered on this tab.

**Step Eight – Enter Plant Factors.** Next, input the correct plant factor for each hydrozone. This plant factor will be the average evapotranspiration rate (ET<sub>0</sub>) that was obtained from the WUCOLS tool. Each type of plant will have its own plant factor, and thus may represent its own hydrozone. Special Landscape Areas do not need to be entered on this tab.

These three items will be input into the columns highlighted in blue, as shown below for a project with six example hydrozones:

Estimated Total Water Use						
Equation: $ETWU = ET_0 \times 0.62 \times [((PF \times HA)/IE) + SLA]$ ; Considering precipitation $ETWA = (ET_0 - Eppt) \times 0.62 \times [((PF \times HA)/IE) + SLA]$						
Enter values in Pale Blue Cells						
Tan Cells Show Results						
Messages and Warnings						
Irrigation Efficiency Default Value for overhead 0.75 and drip 0.81.						
Plant Water Use Type			Plant Factor			
Very Low			0 - 0.1			
Low			0.2 - 0.3			
Medium			0.4 - 0.6			
High			0.7 - 1.0			
SLA			1.0			
Hydrozone	Select System From the Dropdown List click on cell below	Plant Water Use Type (s) (low, medium, high)	Plant Factor (PF)	Hydrozone Area (HA) (ft <sup>2</sup> ) Without SLA	Irrigation Efficiency (IE)	(PF x HA (ft <sup>2</sup> ))/IE
Zone 1	Overhead Spray	High	0.70	5,000	0.75	4,667
Zone 2	Overhead Spray	Medium	0.50	4,000	0.75	2,667
Zone 3	Overhead Spray	Medium	0.40	3,000	0.75	1,600
Zone 4	Drip	Low	0.30	7,000	0.81	2,593
Zone 5	Drip	Low	0.30	15,000	0.81	5,556
Zone 6	Drip	Low	0.20	16,000	0.81	3,951

**Step Nine – View Results.** At the bottom of this tab, the workbook will display the estimated total water usage as shown below. Note this value (in gallons) for both the pre- and post-project scenarios, as it will need to be entered into tab “Tree Planting-ITP” of the CNRA calculations workbook.

Projects must comply with MAWA, per California’s updated Model Water Efficient Landscape Ordinance (MWELO).<sup>1</sup> This workbook will show if a project complies with MAWA as shown in red font in the screenshot below.

<b>Results</b>		<b>Total Landscape Area including Special Landscape</b>	
MAWA =	3,317,575	ETWU =	3,243,226 Gallons
			433,558 Cubic Feet
			4,335.58 HCF
			9.95 Acre-feet
			3.24 Millions of Gallons
			<b>ETWU complies with MAWA</b>

Note that the DWR Water Budget Workbook also includes a third tab, “SLA.” For purposes of these projects, the inputs on this tab do not affect the project results. Therefore, this tab can be ignored.

## CNRA Benefits Calculator Tool User Guide

After using i-Tree Planting, WUCOLS IV, and the DWR Water Budget Workbook, the California Natural Resources Agency (CNRA) **Benefits Calculator Tool** can be completed for the proposed urban greening project.

To access the tool, visit the following site: <https://www.arb.ca.gov/cci-resources>.

**Step One – Locate Tool.** Scroll down to the section labelled “Natural Resources and Waste Diversion,” then look for the California Natural Resources Agency’s Urban Greening Program.

**Step Two – Open Tool.** Once identified, click the link for “Calculator Tool (Version 3),” as shown below, to open the tool. This will download an Excel file named “cnra\_ug\_finalcalculator\_070820\_v3.xlsx”. Open the Excel file and click the prompt to “Enable Editing” if necessary.

<a href="#">Calendar</a>   <a href="#">Help &amp; FAQs</a>   <a href="#">Contact</a>   <a href="#">Careers</a>   <a href="#">English</a>   <a href="#">Español</a>   <input type="text" value="SEARCH CARB"/>				
<a href="#">ABOUT</a>   <a href="#">OUR WORK</a>   <a href="#">RESOURCES</a>   <a href="#">SERVICES</a>   <a href="#">RULEMAKING</a>   <a href="#">NEWS</a>   <a href="#">EQUITY</a>				
Recovery				
California Department of Resources Recycling and Recovery	Waste Diversion, Organics Composting, Community Composting, Anaerobic Digestion/Co-Digestion, Food Waste Prevention and Rescue	<a href="#">Organics Programs QM Calculator Tool</a>	Waste Diversion and Utilization	Waste Diversion and Utilization  Community Compost
California Natural Resources Agency	Tree Planting Carbon Sequestration, Tree Planting Energy Savings from Shade, New Bike Paths or Lanes, New Pedestrian Facilities	<a href="#">Urban Greening Grant Program QM Calculator Tool (Version 3)</a> <i>Note: Version 3 July 8, 2020, corrects an autofill field that was not populating correctly and a formula error ascribing the incorrect anticipated lifespan to Class II bike lanes.. No changes to the QM document/User guide were made.</i>	Urban Forestry and Urban Greening	Urban Greening Projects
California State Coastal Conservancy	Climate Ready Program, Tree Planting Carbon Sequestration, Carbon Farming, Climate Adaptation Planning	<a href="#">Climate Ready Program QM Calculator Tool</a>	Healthy Soils Planning  Urban Forestry and Urban Greening	Climate Ready Program

**Step Three – Enter Project Information.** Within the Excel file, two main tabs need to be updated manually. The first is labelled “Project Info.” This tab requires the applicant to enter the project name, contact information, and the requested funding amount. The items that should be filled out are highlighted in green.

While there are multiple line items set up for funding, the total amount of funding requested under the San Joaquin Valley AB 617 program should be entered in the row labelled “Total Urban Greening GGRF

Funds Requested,” as shown below. Unless other funding is available, all other funding rows can be labelled as \$0.

**Note to applicants:**  
 A step-by-step **user guide**, including a **project example**, for this Benefits Calculator Tool is available at:  
[http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/cnra\\_ug\\_finaluserguide\\_050720\\_v2.pdf](http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/cnra_ug_finaluserguide_050720_v2.pdf)

**Third-party tools:**  
 This Benefits Calculator Tool requires data inputs obtained from several third-party tools.  
 The following third-party tools are required to use this Benefits Calculator Tool:

i-Tree Planting	Available at: <a href="https://planting.itreetools.org/">https://planting.itreetools.org/</a>
i-Tree Tools	Available at: <a href="https://www.itreetools.org/streets/index.php">https://www.itreetools.org/streets/index.php</a>
Water Budget Workbook for New and Rehabilitated Non-Residential Landscapes	Available at: <a href="http://water.ca.gov/">http://water.ca.gov/</a>
Water Use Classification of Landscape Species (WUCOLS IV)	Available at: <a href="http://ucanr.edu/">http://ucanr.edu/</a>

Information for using i-Tree tools is available in the user guide (see above).  
 Information and examples for using the water tools is available in the Water Savings Assessment Methodology at: [www.arb.ca.gov/cci-cobenefits](http://www.arb.ca.gov/cci-cobenefits).

Urban Greening applicants must enter the applicable information in the table below before proceeding with the project-specific data on the Inputs tab.

Project Name:	
Applicant ID:	
Contact Name:	
Contact Phone Number:	
Contact Email:	
Date Calculator Completed:	
Total Urban Greening GGRF Funds Requested (\$):	\$ <b>Enter requested funding amount here</b> -
Other GGRF Leveraged Funds (\$):	\$ -
Total GGRF Funds (\$):	\$ -
Non-GGRF Leveraged Funds (\$):	\$ -
Total Funds (\$):	\$ -



<b>Key for color-coded fields:</b>	
Green	Required input field*
Grey	Output field / not modifiable
Yellow	Helpful hints / important tips

\*See "Documentation" tab for additional information

After the "Project Info" tab has been filled out, go to tab "Tree Planting-ITP." Steps Four and Five should be entered on the "Tree Planting-ITP" tab.

**Step Four – Enter Water Usages.**

At the top of the “Tree Planting – ITP” tab, there are two rows to enter the estimated annual baseline on-site water use and the estimated annual on-site water use after planting. Here, enter the estimate total water usage (ETWU) from the DWR Water Budget Workbook. Enter the value from the pre-project scenario in row 16, and the value from the post-project scenario in row 17, as shown below:

Estimated Change in Water Irrigation from Planting Trees	
Enter data below after using the UCANR Water Use Classification of Landscape Species (WUCOLS IV) and the DWR Water Budget Workbook for New and Rehabilitated Non-Residential Landscapes (Water Budget Workbook).	
If Project Involves Additional Irrigation, Estimated Annual Baseline On-site Water Use (gal/yr)	Enter pre-project ETWU from DWR Workbook here 
If Project Involves Additional Irrigation, Estimated Annual On-Site Water Use After Planting (gal/yr)	Enter post-project ETWU from DWR Workbook here 
Irrigation Savings Over 40 Year Quantification Period (gal)	0

**Step Five – Enter Data from i-Tree Planting.** In the second table on the “Tree Planting – ITP” (shown below), enter the results from the i-Tree Planting Report as prompted. Enter the results for each individual group of trees in a separate row. Once all of the green cells below have been populated, this tool will calculate emission reductions as well as water and energy savings at the bottom of the tab.

Tree Planting Benefits									
Enter data below after using i-Tree Planting to estimate tree carbon storage, electricity savings, natural gas savings, and co-pollutants removed due to the groups of trees.									
Group Identifier	Tree Group Characteristics	Quantity of Trees to be Planted within this Tree Group	Carbon Stored in Tree Group Over the 40 Year Quantification Period (lb CO <sub>2</sub> e)	Electricity Savings From Tree Group Over the 40 Year Quantification Period (kWh)	Natural Gas Savings From Tree Group Over the 40 Year Quantification Period (MMBtu)	NO <sub>2</sub> Removed Over the 40 Year Quantification Period (lb)	PM <sub>2.5</sub> Removed Over the 40 Year Quantification Period (lb)	Rainfall Interception Over the 40 Year Quantification Period (gal)	Avoided Runoff Over the 40 Year Quantification Period (gal)



The data from the i-Tree Planting output file should match the table above as shown below:



<b>Data Label in Exported i-Tree Planting Report</b>	<b>Data Label in Tab "Tree Planting – ITP"</b>
Group Identifier	Group Identifier
Tree Group Characteristics	Tree Group Characteristics
CO <sub>2</sub> Sequestered (pounds)	Carbon Stored in Tree Group over the 40 Year Quantification Period
Electricity Saved (kWh)	Electricity Savings from Tree Group over the 40 Year Quantification Period
Fuel Saved (MMBtu)	Natural Gas Savings from Tree Group over the 40 Year Quantification Period
NO <sub>2</sub> Removed (pounds)	NO <sub>2</sub> Removed Over the 40 Year Quantification Period
PM <sub>2.5</sub> Removed (pounds)	PM <sub>2.5</sub> Removed Over the 40 Year Quantification Period
Rainfall Interception (gallons)	Rainfall Interception Over the 40 Year Quantification Period
Avoided Runoff (gallons)	Avoided Runoff Over the 40 Year Quantification Period

The workbook contains two additional data entry tabs highlighted in green. The "Tree Planting-ITS" tab should not be filled out (the "Tree Planting – ITS" tab is designed as an alternative input tab for use with alternative software that is no longer supported).

The "New Bike-Ped Infrastructure" tab is used for estimating benefits from implementation of new bicycle or pedestrian infrastructure. This action was not identified as a requirement in the Vegetative Barrier/Urban Greening Program Plan, so this tab may also be skipped.

**Step Six – View Results.** Results are viewed on the gray-highlighted tabs, "GHG Summary" and "Co-benefit Summary". The applicant does not need to fill in any information in these tabs. However, the applicant shall attach a copy of these results to the San Joaquin Valley Vegetative Barriers/Urban Greening Project Application form as prompted. Screenshots of these two tabs are shown on the following pages:

Tab "GHG Summary:"

 <p>Cap and Trade Dollars at Work</p>	<p><b>California Air Resources Board</b></p> <p><b>Benefits Calculator Tool for the Urban Greening Grant Program</b></p> <p><b>California Climate Investments</b> Version 3 - July 8, 2020</p>	
<p><b>Project Name:</b> <input style="width: 80%; border: none;" type="text"/></p>		
<b>Project Information</b>		
Total Urban Greening GGRF Funds Requested (\$)	\$	-
Other GGRF Leveraged Funds (\$)	\$	-
Total GGRF Funds (\$)	\$	-
Non-GGRF Leveraged Funds (\$)	\$	-
Total Funds (\$)	\$	-
<b>GHG Summary</b>		
GHG Benefit of Carbon Stored in Live Project Trees Estimated Using i-Tree Planting (MT CO <sub>2</sub> e)		0
GHG Benefit of Carbon Stored in Live Project Trees Estimated Using i-Tree Streets (MT CO <sub>2</sub> e)		0
GHG Benefit from Energy Savings Estimated Using i-Tree Planting (MT CO <sub>2</sub> e)		0
GHG Benefit from Energy Savings Estimated Using i-Tree Streets (MT CO <sub>2</sub> e)		0
Avoided GHG from Establishment of New Bicycle and Pedestrian Facilities (MT CO <sub>2</sub> e)		0
GHG Emissions from Tree Planting Project Implementation (MT CO <sub>2</sub> e)		0
Total Urban Greening GHG Benefit (MT CO <sub>2</sub> e)		0
Total GHG Benefit (MT CO <sub>2</sub> e)		0
Total GHG Benefit per Total Urban Greening GGRF Funds (MT CO <sub>2</sub> e/\$)		0
Total GHG Benefit per Total Funds (MT CO <sub>2</sub> e/\$)		0

Tab "Co-benefit Summary:"

<b>Project Name:</b>	
<b>Co-benefits and Key Variables Summary</b>	
<b>Urban Greening GGRF Funds</b>	
Total PM <sub>2.5</sub> Emission Reductions (lb)	0
Total NOx Emission Reductions (lb)	0
Total ROG Emission Reductions (lb)	0
Total Diesel PM emission reductions (lb)	0
Remote PM2.5 Emission Reductions (lb)	0
Remote NOx Emission Reductions (lb)	0
Remote ROG Emission Reductions (lb)	0
Trees Planted	0
Total Water Savings (gal)	0
Annual Water Savings (acre feet/year)	0
Fossil Fuel Based Energy Use Reductions (kWh)	0
Fossil Fuel Based Energy Use Reductions (therms)	0
Energy and Fuel Cost Savings (\$)	\$0
Passenger VMT Reductions (miles)	0
Fossil Fuel Based Transportation Fuel Use Reductions (gal)	0
Travel Cost Savings (\$)	\$0
<b>Total</b>	
Total PM <sub>2.5</sub> Emission Reductions (lb)	0
Total NOx Emission Reductions (lb)	0
Total ROG Emission Reductions (lb)	0
Total Diesel PM emission reductions (lbs)	0
Remote PM2.5 Emission Reductions (lb)	0
Remote NOx Emission Reductions (lb)	0
Remote ROG Emission Reductions (lb)	0
Trees Planted	0
Total Water Savings (gal)	0
Annual Water Savings (acre feet/year)	0
Fossil Fuel Based Energy Use Reductions (kWh)	0
Fossil Fuel Based Energy Use Reductions (therms)	0
Energy and Fuel Cost Savings (\$)	\$0
Passenger VMT Reductions (miles)	0
Fossil Fuel Based Transportation Fuel Use Reductions (gal)	0
Travel Cost Savings (\$)	\$0

# Exhibit C



# science in ACTION

INNOVATIVE RESEARCH FOR A SUSTAINABLE FUTURE

www.epa.gov/research

## RECOMMENDATIONS FOR CONSTRUCTING ROADSIDE VEGETATION BARRIERS TO IMPROVE NEAR-ROAD AIR QUALITY

The EPA report, *Recommendations for Constructing Roadside Vegetation Barriers to Improve Near-Road Air Quality*, summarizes the research findings on the best practices for building roadside vegetative barriers to improve air quality. The recommendations can be used by states, communities and individuals interested in reducing roadside pollution.



The report includes:

- Barrier design recommendations
- Characteristics for best vegetative barriers
- Benefits of combining vegetation with solid noise barriers
- Additional resources

### Why study roadside barriers?

EPA is studying the role of roadside barriers in reducing air pollution near homes, schools and other buildings close to a major roadway. More than 45 million people in the U.S. are estimated to live, work or attend school within 300 feet of roadways where high concentrations of air pollution have been observed due to motor vehicle

emissions. Emissions from brake and tire wear and suspended road dust can also affect roadways.

Studies show an increase in the incidence and severity of health problems related to exposures to air pollution near roadway traffic, including higher rates of asthma onset and aggravation; cardiovascular disease; impaired lung development in children and other health effects.

### What research is EPA doing to examine the role of roadside barriers?

EPA has contributed extensively to research on near-road air pollution that has examined health effects,

sources, concentration levels and mitigation strategies, including the use of roadside barriers to reduce air pollution near roads. These barriers include walls built along roads by transportation departments to reduce traffic noise and vegetation barriers of trees and bushes near roadways.

Studies have shown that noise and vegetative barriers can reduce downwind pollutant concentrations near roads. Reduction in pollution is greater when vegetation barriers are thick, with full coverage from the ground to the top of the canopy. Pollutants can escape through gaps in foliage or travel around edges. The combination of solid noise and vegetative barriers may

provide the greatest benefit.

Research has involved:

- Field studies to measure air pollution near existing barriers along busy roadways using stationary and mobile measurement technology.
- Wind tunnel assessments to investigate how trees and bushes can remove some pollutants such as airborne particles.
- Modeling to design and evaluate vegetation barriers and determine best practices for their design and use.

In 2016, two community studies, supported by EPA, will investigate vegetation barriers for air pollution control. Past studies have used existing vegetation to determine their ability to reduce near-road concentrations. The studies will be conducted at a park in Detroit, Mich., and at an elementary school in Oakland, Calif. They will involve communities in designing, planting the vegetative barriers and measuring air quality before and after the planting. EPA is providing scientific expertise to community members to implement the projects.

#### **Key Links:**

[\*Recommendations for Constructing Roadside Vegetation Barriers to Improve Near-Road Air Quality\*](#)

Near roadway, railyard, and port research:

<https://www.epa.gov/air-research/research-near-roadway-and-other-near-source-air-pollution>

Near Roadway Air Pollution and Health: Frequently Asked Questions:

<https://www3.epa.gov/otaq/nearroadway.htm#content1>

#### **Contact:**

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919-541-4386  
[Baldauf.richard@epa.gov](mailto:Baldauf.richard@epa.gov)

August 2016

# Exhibit D

## EXHIBIT D

### Helpful Resources

Applicants are encouraged to review the following resources provided as they prepare their proposals.

#### Plant Selection Resources

- SelectTree: A Tree Selection Guide
  - <https://selecttree.calpoly.edu/>
- Allergy-Free Gardening Considerations for Asthmatic and Sensitive Residents
  - <http://www.allergyfree-gardening.com/>
- California Native Plant Society Calscape Tool
  - <https://www.calscape.org/>
- SMAQMD Landscaping Guidance
  - <http://www.airquality.org/LandUseTransportation/Documents/LandscapingGuidanceforImprovingAirQualityNearRoadwaysMay2020V2.pdf#page=21>

#### Anti-Displacement Resources

- Greening without Gentrification Guide
  - <https://www.ioes.ucla.edu/wp-content/uploads/Parks-Related-Anti-Displacement-Strategies-report-with-appendix.pdf>

#### Additional Guidelines

- CAL FIRE Standards and Specifications for Purchasing, Planting, and Maintaining Trees, Appendix H
  - [https://www.fire.ca.gov/media/9653/cal-fire-ucf-cci-2019-20\\_grant-guidelines\\_final.pdf#page=54](https://www.fire.ca.gov/media/9653/cal-fire-ucf-cci-2019-20_grant-guidelines_final.pdf#page=54)
- SMAQMD Vegetative Barrier Recommendations
  - <http://www.airquality.org/LandUseTransportation/Documents/LandscapingGuidanceforImprovingAirQualityNearRoadwaysMay2020V2.pdf#page=15>
- USEPA Recommendations for Constructing Roadside Vegetation Barriers
  - [https://cfpub.epa.gov/si/si\\_public\\_record\\_report.cfm?Lab=NRMRL&dirEntryId=321772&simpleSearch=1&searchAll=Recommendations+for+constructing+roadside+vegetation+barriers+to+improve+near+road+air+quality](https://cfpub.epa.gov/si/si_public_record_report.cfm?Lab=NRMRL&dirEntryId=321772&simpleSearch=1&searchAll=Recommendations+for+constructing+roadside+vegetation+barriers+to+improve+near+road+air+quality)