CITY OF CUPERTINO

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# CITY COUNCIL STAFF REPORT

Meeting: October 4, 2022

Subject

Progress update on the Climate Victory Gardens pilot program

Recommended Action

Receive an update on the Climate Victory Gardens pilot and direct staff to

(1) Continue to share these findings with neighboring jurisdictions, Valley Water, and to develop further partnerships with landscape supply companies, designers, and installers through the life of the pilot program, and
(2) Focus on large and institutional sites based on the evidence provided by the cost effectiveness table (Table 3), and
(3) Explore partnerships for training and workforce development to ensure that the customer, the City, and contractor can move projects forward in a timely manner, and
(4) Bring back a permanent program for City Council's consideration before the pilot program expires in 2023.

Discussion

The City Council directed staff to create a "Lawn Buster Drought Tolerant Planting Pilot" as part of the Fiscal Year 2019-2020 City Work Program and allocated a project budget of $175,000. The project's objective was to create a program to enable residents to easily elect water-wise turf conversion, including pre-set landscape plans, pre-approved contractors, and fixed prices. Below is a brief overview of the project milestones:

- **Pre-planning:** City conducted initial research and data collection on similar programs within other jurisdictions and created an initial conceptual design for a Cupertino-specific landscape conversion pilot.
- **April 2019:** City prepared a Request for Qualifications (RFQ) to solicit project design and technical support from qualified firms. No firms were identified.
- **Spring 2020:** The project team consulted with water agencies and landscaping professionals, re-designed the concept, and issued a revised request for proposals (RFP).
- **October 2020:** A local non-profit, Ecology Action, was awarded a contract of $102,100 for a one-year pilot. Climate Victory Gardens pilot launched with a public

relations campaign, program documents and website, and an online workflow application developed by the Information Technology Division.

- **September 21, 2021:** Staff update to Council on pilot's progress. Council authorized the City Manager to waive City planning and review fees for removing turf grass in certain situations.
- **December 2021:** Based on promising results of the first year, the City Manager authorized a new contract for $60,000 and extension of the pilot through December 2022.
- **July 2022:** Staff update to Sustainability Commission.
- **September 2022:** Amendment signed to add $12,181 to fund additional scope of services and extend the pilot through the end of FY23.

The project team expects the pilot program goals to be reached and exceeded by the end of this fiscal year. The targets are summarized in this report. With innovation pilot programs, the targets are often designed in a way to not only move forward a strategy such as water conservation, but also to generate tests and data that can help improve program offerings and how they scale across City operations.

**Pilot Overview and Objectives**

Climate Victory Gardens offers full-service project management services to support residents, homeowner's associations, and property managers step-by-step through the process of converting turf into drought-tolerant, California native landscapes. Ecology Action provides technical assistance, direct installation of landscaping, and recruitment of landscape installation contractors.

Climate Victory Gardens makes installation costs more predictable by leveraging rebates from Valley Water, and by negotiating fixed rates with qualified installation contractors. The program promotes add-on features including rainwater harvesting, laundry to landscape greywater reuse, and rain gardens. These add-on features help the property owner to utilize additional rebates, apply ecological principles as identified in the Climate Action Plan 2.0, and apply today's best landscape retrofit practices.

Ecology Action offers two "pathways" for customers to install drought-tolerant landscapes:

1. **Participant Installation (DIY):** Ecology Action supports the customer with no-cost landscape design and technical assistance services. The work is performed by the customer with assistance from Ecology Action. Ecology Action procures all materials and applies for the Valley Water rebates on the customer's behalf. This basic offering is designed so that all or nearly all the cost to the customer is offset by the rebates.
2. **Contractor Installation:** Ecology Action provides "turn-key" project services, including landscape design, technical assistance, and contractor selection support. The contractor can be one of the pre-approved program contractors selected by Ecology Action or another contractor selected by the customer. Installation costs

are determined by the program agreement. A basic landscape conversion project is set at $6/square foot; however, customers can choose different features and adjust as needed. The customer then claims the landscape water conservation rebate from Valley Water to offset the cost of their installation.

Climate Victory Gardens key service elements:

- No-cost landscape and irrigation assessment at the property
- Planting and irrigation design to replace the lawn
- Negotiated bulk pricing for plants and irrigation equipment
- Negotiated rate agreements with a bench of qualified landscape installation contractors
- Upfront standard fee of $6/square foot for a basic project (Contractor Installation Option)
- Basic package designed to be entirely offset by Valley Water rebates, with professional design and technical assistance at no cost (Participant Installation (DIY) Option)
- Technical design assistance for rainwater and graywater "add-on" features
- Technical support in applying for and receiving Valley Water rebates
- Project Agreement Forms document all expectations for the customer upfront

Climate Victory Gardens maximizes uptake of incentives and rebates from Valley Water, including the Landscape Conversion Rebate detailed in Table 1.

**Table 1.** Valley Water rebate examples within the City of Cupertino.

| | **Small-Medium Sites** | **Large Sites** |
|---|---|---|
| | *Single Family and Small Multi-Family (4 or fewer units)* | *Commercial, Industrial, Institutional, and Large Multi-Family (5 or more units)* |
| **Total Lifetime Combined Rebate** | $5,000 | $110,000 |
| **First 1,000 sq. ft.** | $3.00/sq. ft. | - |
| **First 10,000 sq. ft.** | - | $3.00/sq. ft. |
| **Thereafter sq. ft.** | $2.00/sq. ft. up to per-site cap | $2.00/sq. ft. up to per-site cap |

**Note: Rebate cap is one-time only; sites in unincorporated areas in Cupertino are not eligible for additional cost sharing amount; amounts updated since September 2022.*

In addition to the standard landscape conversion rebate type, Cupertino customers are eligible to apply for rebates for irrigation equipment and rainwater capture to further improve their yards (Table 2).

**Table 2.** Additional Rebates for Cupertino Customers

| **Irrigation Equipment** | |
|---|---|
| High-Efficiency Nozzles | Up to $5/nozzle |

| | |
|---|---|
| Rotor Sprinklers or Spray Bodies | Up to $20/body |
| Rain Sensor | Up to $50/sensor |
| Dedicated Landscape Meter, Flow Sensor*, Hydrometer* | Up to $1,000/meter |
| Weather Based Irrigation Controller, 1-12 Stations | Up to $300/controller |
| Weather-Based Irrigation Controller, 13-24 Stations | Up to $1,000/controller |
| Weather-Based Irrigation Controller, 25 Stations+ | Up to $2,000 per controller |
| In-line Drip | $0.25/sq. ft. |
| **Rainwater Capture** | |
| Rain Barrel (40-199 gals) | Up to $70 |
| Cistern (200-gals min) | $1.00 per gallon |
| Rain Garden | $2.00/sq. ft. (up to $600) |

Customer rebate examples:

- A single-family property that replaces a turf lawn of 1,000 square feet will receive a total of $3,000 (1,000 sq. ft. x $3.00). The customer will receive a rebate of $3,000 for their landscape conversion and has the potential to access $2,000 worth of irrigation equipment and rainwater capture rebates.
- A non-residential property that has a turf lawn of 7,000 square feet will receive a total of $21,000 (7,000 sq. ft. x $3.00). The customer will receive a rebate of $21,000 for their landscape conversion and has the potential to capture $89,000 worth of irrigation equipment and rainwater capture rebates.

Pilot Objectives:

- **Up to 55 landscape consultation site visits** to educate residents about the possibilities for sustainable landscape transformation
- **30 customized designs** delivered (mix of single-family, multi-family, and non-residential sites)
- **45,000 ft² of high water/energy use landscaping converted** to climate- adapted landscapes that increase biodiversity, sequester carbon, and reduce stormwater run-off

As of August 2022, a total of 44 landscape consultation site visits have been completed (Table 3).

**Table 3.** Climate Victory Garden (CVG) Pilot Program goals, current pipeline of projects, and completed projects as of August 2022.

| Pilot Program Goals | Total in Progress + Completed | Completed to Date |
|---|---|---|
| Up to 55 landscape consultation site visits | 48 | 44 |

| | | |
|---|---|---|
| 30 gardens designed | 35 | 29 |
| 45,000 ft² of turf converted | 35,095 ft² | 30,972 ft² |

While the program is on track to exceed the goal for number of gardens designed, it is currently short of the turf conversion goal. In hopes of meeting and exceeding the turf conversion target, remaining pilot program resources are being prioritized. The project team is in discussions with several community-based organizations and public agencies that may be good pilot participants, in order to observe results from that customer class compared to homeowners or HOAs. In addition, having a diversity of sites would allow the pilot's effectiveness to be evaluated for various sized projects across multiple sectors. With a large list of interested customers, the project team expects to exceed all pilot program goals.

Two example projects are pictured below. A selection of customer testimonials is included as an Appendix to this report.

Project A, Before

Project A, After

Project B, Before

Project B, After

**Pilot Cost and Value Analysis**

The total pilot program budget set by City Council is $175,000. The cost to the City is calculated as pilot program administrative costs only. Each project has a total square feet of converted yard and is categorized based on a specific range of sizes. A sample of 13 completed projects are shown in Table 4.

The contracted services amount to approximately $3.80 per square foot converted. For comparison, a direct install program operated by the City of San Jose Municipal Water Agency contracted with a consultant in 2015 for $2.00 per square foot converted. The San Jose program is limited to only low-income customers, does not provide any

customization options for participants, does not provide or irrigation systems, and has a wait list of 1 year or more before a consultation can be scheduled. The San Jose program does rely on AmeriCorps to complete the conversions, which provides an important workforce development service but at the expense of the more concierge experience provided by the Climate Victory Gardens pilot model. Initial results suggest that the Climate Victory Gardens model provides for more reliable outcomes; however, cost is higher on a per-unit basis.

**Table 4.** Program administration cost to the City, 13 completed projects are categorized by size of turf converted.

| Category Label | Project Size (Sq. Ft.) | # of Sites in Sample | Total Sq. Ft. | Water Savings (Gallons) | Cost per gallon saved |
|---|---|---|---|---|---|
| A | 0-500 | 2 | 2,000 | 55,881 | $3.13 |
| B | 501-800 | 4 | 5,564 | 155,462 | $1.13 |
| C | 801-1000 | 2 | 3,692 | 103,157 | $1.70 |
| D | 1001-1500 | 3 | 6,534 | 182,564 | $0.96 |
| E | 1501-2000 | 2 | 6,428 | 179,602 | $0.97 |

**Findings and Key Lessons Learned**

The project team makes the following conclusions based on this data.

a) The sustainability value to the City is higher when these types of direct assistance services are targeted to larger customers – the cost per unit is lower.
b) Most of the project sizes were in category 'B' ranging from 501 to 800 square feet. The project team has identified a "neighborhood effect," where converted lawns across many neighborhoods may spark conversations among neighbors. This has an intangible value to the City in terms of driving behavior change over the long term.
c) The largest total area of turf converted was in category 'D' (1001 to 1500 sq. ft.) with a total of 6,534 converted yard area; the program administrative cost is $0.96 per gallon saved. This site is a highly visible HOA property.
d) There was approximately 100 hours of staff time dedicated to this pilot program in Fiscal Year 2021. Some functions could be brought in-house to reduce the fixed costs to the City, but the design and technical advice is a specialized activity that is best performed by experienced landscape managers.

Overall, the City and its collaboration with Ecology Action has shown positive outcomes within the Cupertino community through (1) positive feedback from clients on the

program, EA, and the City, (2) a long waitlist indicating a high interest in this pilot program, and (3) increased awareness, education, and proactive behavioral changes to reduce water usage.

As the drought continues to present short and long-term consequences with water supply and infrastructure, our partners in the Valley Water Conservation Subcommittee have also provided the following feedback:

- The Climate Victory Gardens pilot has produced better outcomes compared to most projects that Valley Water audits. The gardens are thoughtfully designed, and the homeowners are likely to maintain them when they have a consultative approach to the project delivery
- The pilot is likely to produce sustainable water savings, because the gardens are installed with professional oversight, which eliminates many of the issues that Valley Water observes with improper irrigation, plant die-off, or incorrect mulching techniques.
- The pilot program provides additional value to the broader community by training homeowners, property managers, and installation contractors in proper application of low water use drip irrigation and design principles.
- The incentive applications are processed quicker under the pilot, using economies of scale and providing direct homeowner assistance to claim the rebates. This is a reduced administrative burden for both the homeowners and the Valley Water program.
- Valley Water is interested in exploring further partnerships with Cupertino.

*Attracting Interested Installers:* A consultative approach results in better outcomes, however it is a large element of the cost to serve. Constraints such as resident financial flexibility, apprehension on the landscape design, present challenges to administrative cost. For smaller sites (below 1,000 ft²), it has been a challenge to attract interested installers for the $5/ ft² set price ($6/ ft² as of 2022). This is due to fixed overhead costs and labor shortages during the pandemic. The program is being evaluated to potentially adjust the pricing structure or the minimum square footage requirement, which is currently set at 500 ft². Changes to the customer contribution would have no fiscal impact to the City.

*Multiple Stakeholders*: The pilot program seeks to include several project types including single-family residential, multi-family residential, small commercial, and community-based facilities such as churches and fire stations. However, it can be difficult to get commitment from the appropriate point of contact with decision authority for sites with multiple stakeholders. The program is being evaluated to determine how best to handle these situations. There has been some success in this area through collaborative interactions and multiple iterations. For example, the City is working with a local church to provide design services and assistance installing rainwater harvesting system to support their community garden and improve stormwater conditions. However, all these interactions require time and administrative fees.

*Attracting Larger Sites*: It is clear from Table 3 that larger sites are more cost-effective in terms of administration of this type of technical assistance program. Under this pilot model, each site served has a relatively fixed administrative cost, but the more landscape that is converted results in increased water savings. In addition, larger projects allow for more gallons of water saved because the original turf yard needs substantial watering compared to drought tolerant and native plants which need significantly less water.

An additional barrier to converting larger sites was the additional fee for removing or converting yards. The Planning and Sustainability staff brought the fee and review process to the attention of the City Council in a September 2021 staff report. Council adopted Resolution No. 21-087 which authorizes the City Manager to waive certain City fees when a property owner undertakes a project to remove turf grass and replace with more drought-tolerant options. Applicants can contact the Planning Division to start that process.

**Next Steps**

Based on the findings from the analysis on cost, program effectiveness, and considerations for continuing the program, City Council is recommended to direct staff to:

(1) Continue to share these findings with neighboring jurisdictions, Valley Water, and to develop further partnerships with landscape supply companies, designers, and installers through the lift of the pilot program, and
(2) Focus on large and institutional sites based on the evidence provided by the cost effectiveness table (Table 3), and
(3) Explore partnerships for training and workforce development to ensure that the customer, the City, and contractor can move projects forward in a timely manner, and
(4) Bring back a permanent program for City Council's consideration before the pilot program expires in 2023.

<u>Sustainability Impact</u>

The pilot program helps the City make progress towards multiple objectives in the Climate Action Plan 2.0, especially water conservation and promoting biodiversity.

Drought tolerant and California native plant landscapes have a beneficial impact to residents, wildlife, and water conservation:

- Ground covers, shrubs, and trees that are drought tolerant can withstand low water and high-heat weather conditions because they are able to retain moisture. The root systems of these plants reach further into the ground compared to grass turf, thus can store groundwater, and can stabilize slopes and hills. With the

increase in California wildfires, many of the drought tolerant plants have lower quantities of flammable oils and can contribute to fire-resistance. [1]

- Supporting local ecology through lawn conversions means preservation of California native plants and wildlife biodiversity.[2] Reducing landscape maintenance such as traditional lawn mowing means there is less green waste and a reduction in pesticide use which means toxins stay out of our waterways and soil.[3]

A recent report from the Santa Clara Valley Water District shows that average water savings increases incrementally each year after conversion therefore although initial water savings is low after initial turf conversion, it will increase substantially by the fifth year (Figure 2).

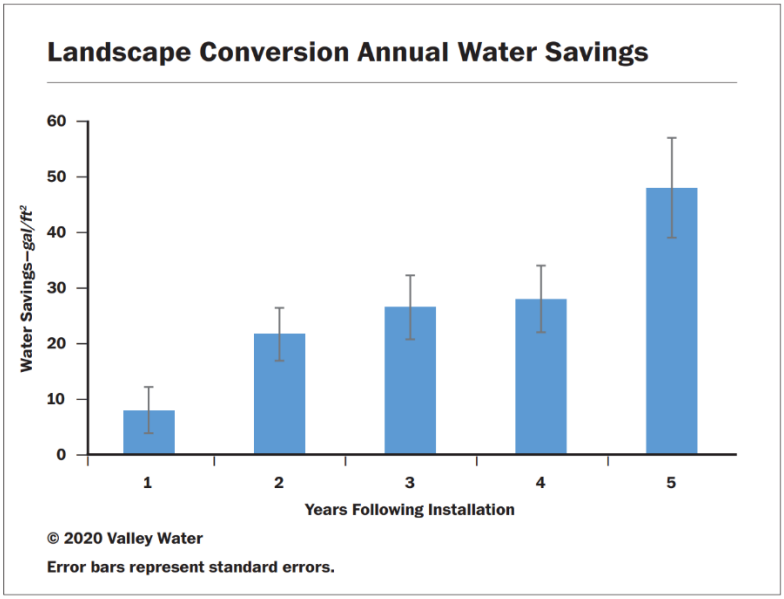


Figure 2. Neeta S. Bijoor, Valley Water, "*Saving Water with a Landscape Water Conservation Rebate Program,*"[4]

The regional water authorities have stated that if this upcoming winter is also a dry winter, then the mandatory water restrictions will become stricter and will continue to exert pressure on our communities. It is the responsible approach to remove every possible barrier to reducing water use in Cupertino at this time, in a way that can

[1] University of California Cooperative Extension (UCCE), California Sea Grant Extension, 2009, "Drought Tolerant Plants," accessed March 19, 2022, https://caseagrant.ucsd.edu/sites/default/files/Drought-Tolerant-Plants_8-7-09-2.pdf.

[2] California Native Plant Society, "Benefits of California Native Plants," accessed March 19, 2022, https://www.cnps.org/gardening/why-natives/benefits-of-california-native-plants.

[3] California Department of Water Resources (CDWR), June 10, 2020, "Why Garden with California Native Plants: Tips from DWR Landscape Architect Cassandra Musto," accessed March 19, 2022, https://water.ca.gov/News/Blog/2020/June/Why-Garden-with-California-Native-Plants.

[4] https://www.valleywater.org/sites/default/files/Bijoor%20AWWA%20Publication_2021.pdf.

responsibly build up resilient properties but also spur private investments and economic activity. Drought-tolerant gardens set a very visual example of what a climate-adapted City looks like.

*Ecological Benefits*
Another sustainability impact is in increasing the ecological benefits offered by more diverse landscapes. Studies show that most turf removal projects replace a single species of turf grass with between 6 to 20 distinct species of plants, which may offer more beneficial habitat for local pollinators, birds, and other wildlife, especially if the plants selected are native to the area. Increasing biodiversity is a

*Reduce Stormwater Runoff*
A third benefit is that well-designed urban landscapes can also help infiltrate water and reduce stormwater runoff. Managing the stormwater system and reporting on creek water quality is a core function of the Cupertino City government and is performed by the Public Works, Environmental Programs Division. For this reason, Cupertino can leverage stormwater protection fees to supplement the water conservation programs and reduce overall general fund impact.

*Leadership and Collaboration*
Another sustainability impact is the innovative nature of this pilot program and demonstrating leadership in water conservation. Valley Water has been a key collaborator in providing advice and support for Cupertino in this effort. Other cities are taking notice, for example the City of Milpitas has confirmed that as of August 2021, they are embarking on a similar one-year pilot program inspired by Cupertino's efforts.

Fiscal Impact
This Work Program project's adopted budget is $175,000. No further funds are being requested at this time.

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A – Customer Testimonials