# Lawn Replacement Pilot Program

Final Report & Lessons Learned

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#### **Executive Summary**

The Sonoma County Water Agency (SCWA) contracted Daily Acts and Conservation Corps North Bay (CCNB) to execute an eight (8) week pilot program to replace lawns in the cities of Rohnert Park and Cotati including the installation of up to five (5) model sites. The scope of the model sites went beyond lawn replacement and included design, planting, and drip irrigation installation. The program, and associated contracts, were approved by the Sonoma County Board of Supervisors on August 11, 2015. CCNB was

contracted to provide labor for the project four days per week (Monday through Thursday) from 9am to 2pm. Daily Acts served as Project Manager and was responsible for training the crew, interfacing with property owners, performing site assessments, obtaining permission to perform work, ordering materials, managing landscape design professionals (in the case of the model sites), providing general oversight, quality control, photography, media coordination, and reporting.

On Monday, August 17th, Daily Acts facilitated a full-day training/orientation for the CCNB crew members. This orientation took place at the Cavanagh Center Food Forest and Community Garden in Petaluma. A portion of the day was dedicated to the crew taking the QWEL exam in order to gauge pre-existing knowledge and serve as a baseline for learning. The team managed to remove 30 lawns and create three (3) new model sites in 30 business days (note that 20 days were dedicated to residential lawn removal and the team was able to convert 1.5 residential lawns per day with each lawn averaging 925 sq. feet).

The three (3) model sites that were installed are St. Elizabeth Seton Parish, Sonoma Mountain Village Office Park and Event Center, and Cotati City Hall. Each of these sites are highly visible to SCWA customers and will serve as a wonderful example for years to come.

#### **High-Level Facts**

- 30 (Business) Days
- 30 Residential Lawns Replaced
- 3 Amazing Model Sites
- 2 Educational Field Trips
- 43,050 Total Square Feet Replaced (an American Football Field is 48,000 Square Feet)
- 724,313 Gallons/Year of Water Saved (an Olympic Swimming Pool is 660,430 Gallons)
- 129 Yards of Compost (or 1,548 Wheelbarrows)
- 57 Rolls of Cardboard
- 392 Yards of Mulch (or 4,704 Wheelbarrows)
- 387 Native, Drought-Tolerant Plants and Trees

The educational component of this project was an important one given the nature of the crew and CCNB's involvement. Daily Acts provided the crew members with invaluable insight into water conservation and sustainability in general. The crew participated in two field trips; one to tour Grab n' Grow's composting facilities in Santa Rosa, and one to the Permaculture Skills Center in Sebastopol where they learned more about basic Permaculture principles.

Overall the program was seen as a huge success for all stakeholders. Residential participants were thrilled with getting their lawns replaced for free and model site participants were equally thrilled to participate. CCNB gained a new core competency in sheet mulching and is actively pursuing funding to leverage this new-found skill. Daily Acts was honored to manage this important pilot program for SCWA and learned a lot about working with youth crews and ways to take these kind of water-saving efforts to scale.

### Outreach and Participant Signup

- 134 signed up for the program via Google Form which worked great.
- Suggest adding field to capture email address in order to facilitate follow-up, especially to those on wait list.
- Went to "wait list" status within the first week of going live. SCWA staff followed up with those on waitlist when project.
- Consider making it more clear during signup what the specific criteria are for being selected.

#### Site Visits / Selection Criteria

- 37 sites were visited, 7 rejected due to lack of operational sprinklers, 30 were selected and subsequently completed.
- Both front and backyards were deemed eligible. Given desire for biggest impact consider limiting future lawn replacements to front yards only due to higher visibility.
- There was some concern regarding replacing "brown" lawns and the decision was made to move forward with these lawns if they had functioning irrigation. The number of "green" lawns is very limited in the Rohnert Park/Cotati and likely these residents are not (yet) ready to give up their lawn.
- Setting a boundary (Rohnert Park/Cotati only) was critical and made things manageable from a site scoping perspective.

### Conservation Corps North Bay Crew

- The initial crew was comprised of the following: Daniel R. (Supervisor/Lead), Austin D., Isaiah M., Heaven H., David D., Hugo M., Michael S., and Calvin B.
- For the most part the crew remained intact for the duration of the pilot. There were a few days when there were only five (5) crew members which typically wouldn't have been an issue. Unfortunately, one of the days there was a small crew was the first day of the installation of the first model site which contributed to the project taking a bit longer than expected. Conservation Corps North Bay (CCNB) made some mid-course corrections and attendance improved.
- It isn't fair to compare productivity of this kind of crew against a professional, for-profit landscaping organization. When planning future projects it is important to assume a slightly lower level of productivity due to learning curves, substitute personnel, and the inevitable one or two individuals who from time to time are not interested in participating.
- Daily Acts was impressed with the crew's ability to quickly learn the new skills and the initiative that most crew members showed. Within the first two weeks crew members found their niche and hit the ground running. At times they moved a bit too fast and needed to be reminded of why they were doing what they were doing (i.e., trenching along a fence isn't necessary).
- Crew members had ample opportunity to interact with media, homeowners, and the general public. They all were able to articulate what they were doing and why.

- Daily Acts was very impressed with the respect the crew members demonstrated for each other (even on very hot days when even the best of us might be a bit agitated).
- The crew took great pride in their work and never complained when asked to make corrections (i.e., this trench needs to be deeper)
- Daniel (Danny) did a great job managing the crew. He provided regular progress updates and never hesitated to call if he had questions and/or concerns.

### **Educational Components**

- The crew participated in a full day orientation on Monday, August 17<sup>th</sup>. In addition to learning the basics of sheet mulching and capping irrigation (major focus of program), the crew toured the Cavanagh Center food forest, community garden, water catchment systems (above and below ground) and toured Daily Acts Executive Director, Trathen Heckman's urban homestead.
- The QWEL exam was administered on the first day (see below for before/after results).
- A "Sustainability Assessment" was also completed by each crew member to determine the
  crew members sense of awareness, and a post-assessment was also completed on the
  second-to-last day of the pilot. Noticeable changes were seen in areas the crew received
  training and experience in, awareness around key sustainability issues/concepts increased
  marginally and confidence in various skills increased as well.
- Hands-on sheet mulching instruction was provided by Daily Acts staff, Kellen Watson and Carl Shuller, at the first residential site. The basics of laundry-to-landscape greywater systems was also demonstrated at one of the residential properties.
- Early on in the project the crew gained considerable experience in residential lawn irrigation repair. The subsequent decline in the number of repairs is proof that the crew learned from their "mistakes."
- The crew toured the composting facilities at Grab n' Grow and gained an appreciation for where the materials they were using on a daily basis came from.
- The field trip to Permaculture Skills Center was a huge success, with several crew members talking about it well after our visit. Crew members were given the opportunity to talk about the work they had been doing in the field to date and how it has personally impacted them. It was great for them to witness two young and enthusiastic leaders (Ryan Johnston and Sam Gerhard) working in a field they are passionate about. The tour opened their eyes to ways Permaculture can be applied with several crew members expressing an interest in taking what they are learning back to their homes and communities.
- Daily Acts staff, Brianna Schaefer and Carl Shuller, provided an introduction to the various plants that were specified for the various model site projects. The proper methods of planting and plant care were covered. Hands-on instruction in drip irrigation was also provided. An important by-product of this instruction was experience reading architectural drawings and learning about scale.

- One model site (St. Elizabeth Seton) provided the opportunity for the crew to lay out swales on contour using "A" frames. The concept of swales were discussed. Note that the client used heavy machinery to dig the 100+ feet of swales!
- Consider making expectations relating to education more tangible in terms of time budgeted. Finding a balance between getting work done and taking time to "educate" was difficult, and consequently, Daily Acts defaulted to getting work done. From a productivity standpoint arranging specific field trips probably worked better than many small training events.

#### Material Procurement / Vendor Assessment

- Grab n' Grow (A+)
  - Ordering materials at least a week or more in advance helped ensure materials were onsite when needed. There were zero instances of materials not being available. Brett and his team were excellent to work with and very accommodating in the few instances that materials needed to be delivered outside of their service level window.
- Wyatt Irrigation (A+)
  - It is critical to have knowledgeable vendors like Wyatt. Kris Loomis and her team were very helpful and responsive. Consider having an open PO that materials can be billed against moving forward in order to eliminate the need to "manually" pay each invoice.

#### Scheduling

• Scheduling went very well. Daily Acts left room in schedule to accommodate unknowns like slips in model site schedules. In the future be sure to leave some room to move things around as needed and set expectations with home owners that we reserve right to change dates. Daily Acts had to reschedule five (5) jobs for various reasons and each homeowner was more than amenable (as was vendor, Grab n' Grow).

#### **Residential Sites**

- Resources for residents:
  - Consider including signed disclaimer regarding Bermuda grass and likelihood that it will breach the confines of any/all cardboard eventually.
  - Consider creating a one-page document on drip irrigation planning/installation.
  - Consider creating a handful of design templates to help homeowners get a jump start on planting.
  - Consider including notice in waiver that a sign will be installed in yard upon completion.
     While there were no complaints, it would be good to have in writing so expectations are clear.
  - Include in 'thank you' letter a reminder for home owners to turn off their timers.

- It is very important to be mindful of property lines and anticipate potential issues, especially in cases where the client's lawn blends with a neighbor's lawn. It is important to initiate contact with the neighbor (and better yet ask the client to talk to their neighbor prior to work commencing) and inform them of what you will be doing. There was one case where the client's sprinkler heads where well over a foot inside their neighbor's yard. Digging a clean, straight trench along the property lines is critical in ensuring that mulch doesn't easily migrate into the neighbor's yard.
- Consider creating a dedicated tool box to irrigation repair parts, anticipating any number of possible scenarios. Daily Acts staff made ten (10) separate trips to local hardware stores over the course of the eight (8) week pilot.

#### **Model Sites**

- Three model sites were installed during the eight (8) week pilot: Cotati City Hall, Sonoma Mountain Village and St. Elizabeth Seton Church. Considerable time and effort was required to identify, vet, secure and design these sites. Special thanks to Patrick Picard at Equinox Design for his flexibility on such short notice and his ability to turn around two quality designs.
- Contingency planning is critical when working within such a short window of time. Make sure to leave free days in the schedule in case the crew needs to come back to complete tasks.
- Consider budgeting for plumbing/irrigation professionals to execute any/all work related to tapping into a client's existing system as there is a greater risk of something going wrong. Daily Acts did not experience any issues but in the case of the church, considerable time went into installing filters/pressure reducers in a new box.
- Remember to contact USA Dig whenever doing any major digging (better safe than sorry).
- In the future consider getting written agreements with all clients and subcontractors. While there were no issues, this pilot moved very fast (especially the development of the model sites) and it is good practice to get things in writing (in the form of an agreement/contract vs. email threads).
- When the scope of work includes planting and installing drip irrigation, make absolutely sure
  that there is ample time in the schedule to get water to the plants no later than 24 hours after
  planting (assuming that the plants get a good soak with the hose directly after planting).
  Daily Acts ran into delays at the Church that pushed planting to Thursday and due to the
  hot weather, staff had to visit the site over the weekend to ensure that the plants were
  getting the water they needed.
- Consider not including planting in scope during such warm months. On related note, Daily
  Acts has some concern regarding potential for model site stakeholders to not be totally
  vested.

### Quality Control / Feedback

- All sites were inspected upon completion and any deficiencies addressed. It is important to note that there were very few issues with the quality of work performed. Main areas for improvement are consistency associated with "edging". Every site was left well swept and in general, better than it was found.
- Each homeowner was asked to fill out an online survey regarding their experience (see below for results of survey). Almost without exception expectations were exceeded in every aspect of the program.

### **Project Management**

- It is critical to have an experienced project manager on the team who can anticipate potential issues before work starts and instruct the crew. Daily Acts was in the field almost every day to ensure things went smoothly.
- Communication was open and just frequent enough. It is a bit surprising to note that no face-to-face meetings were required beyond the initial kick-off meeting.

#### Media

- Press Democrat
- LA Times

### **Photography**

• The pilot was extensively photographed (and video was captured as well). Pictures of the crew in action can be found online at <a href="https://www.flickr.com/photos/dailyacts/">https://www.flickr.com/photos/dailyacts/</a>

### Attachment A

### **QWEL Results**

The complete test results are available via Gregory Plumb at the Sonoma County Water Agency.

In summary, a total of eight people took the pre-test and of those eight, five took the post test. One person only answered six questions at the pre-assessment testing, so the following results are based on the four individuals who completed both the pre- and post-assessments:

- the average pre-assessment score was 48.5%
- the average post-assessment score was 58.3%
- the average assessment score **improved** by 9.7%

#### Attachment B

#### **Quality Survey Results**

A request to complete the survey was sent to those residential participants who provided email addresses (28 in total) and excludes model sites. A total of 18 responses were captured.

#### How satisfied are you with ...

- The overall program 94% Extremely Satisfied; 6% Somewhat Satisfied
- Initial call / communication 94% Extremely Satisfied; 6% Somewhat Satisfied
- Initial site visit 100% Extremely Satisfied
- Material delivery 100% Extremely Satisfied
- End product 89% Extremely Satisfied; 11% Somewhat Satisfied
- Professionalism of team members <u>100% Extremely Satisfied</u>
- List of resources provided 94% Extremely Satisfied; 6% Somewhat Satisfied

#### Responses to "How were your expectations exceeded?"

The entire process was excellent and professionally handled.

I can't believe how quickly this was performed. ..a little more than 2 hours. They all did a professional and great job. Thank you again

My husband is a disabled Police Officer (I work fulltime out of the county). We had plans to do the conversion on our own, but were dreading undertaking the work, considering he has limited abilities and I would have to take up the rest of the project. The project from front to back was well organized, executed and communicated with little or no effort requested by my husband. The final project was left in a clean and professional way, immaculate!

It was very nice to have this transformation done for us at no cost to us.

I was very satisfied with everyone and everything. They even cleaned my drive way after they were thru, which I didn't expect them to do.

We're so grateful for this program, and look forward to planting. Couldn't believe how FAST the CYCC team was -- and everybody was incredible nice. They were clearly interested in water saving generally, e.g., our little laundry-to-landscape installation.

I was impressed by the professional demeanor of all participants. I also liked that the materials were placed so that one of our cars could get in and out of the garage.

Carl made things so easy! Grab & grow's high quality, debris-free, compost & mulch is great. It is estimated we will save 18,000 gallons of water annually. Before the program was announced, we'd had several estimates for just the conversion of the irrigation, composting and mulch. The lowest bid was \$700. We can now apply the \$700 saved by the free conversion, plus the weekly lawn mowing and maintenance service (~\$700/yr), plus money saved by the water cost reduction, to landscaping with fruit trees or drought tolerant landscaping. One less lawn mower & leaf blower on Saturday morning is another huge plus! In addition to reducing water usage, and saving money, this program has another great mission. The work is performed by the Sonoma County Youth Ecology Corps. The extraordinary demonstration of teamwork, dedication and strong work ethic demonstrated by the group of young adults was exemplary. Tom, one of the 3 supervisors onsite during the work explained that the program supports & trains youth ages 16-24, who have often not yet completed high school, and have realized they need a diploma to find work. Some have aged out of foster care before having completed high school, and are faced with supporting themselves at age 18. We're thrilled programs like this exist and as mentioned, from what we observed, the young adults are a skilled & hardworking team. We were also informed about the upcoming rainwater harvesting workshop.

Crew was friendly and professional. The Crew Leader was very knowledgeable and left information pamphlets.

The whole crew did much more than i had expected them to do. Was very happy with all that they did.

This was an awesome program. Free and provided a job to young people. It helps us make the front of our yard beautiful again as we let our beautiful pride and joy of lawn die due to drought. Carl was a very nice mellow person and it was great dealing with him. He answered my questions when he came over to measure and when I emailed him.

All areas were cleaned and lawn conversion looked professionally done.

The service was great! They called and were on time. They did everything that was promised. The yard looks fantastic. So happy with the service!!!!

#### Response to "How were your expectations maybe not met?"

The "top mulch" has a tendency to attach itself to anything that walks through it thus causing a "tracking" of the material anywhere the walker goes. I notice this on myself and particularly with our little dog, as you might suspect as we come indoors. However we are learning to deal with it and expect the rainy season will take care of this minor inconvenience.

Met in every way. Wish my neighbors had been able to sign up in time.

The delivery date was earlier than we were told; no biggie, though

The only minor suggestion I could make would be to remind homeowners to turn off automatic lawn irrigation. Seems obvious, but we may not be the only ones who didn't think to do it till the next day. We thought maybe they were already turned off by the installers, since they had turned on the irrigation to see where sprinkler heads were. BTW: It will only allow me to select a single water-saving action below. I'm using the Safari Browser v 8.0.7. We have water saving fixtures, drip irrigation

I wasn't aware of the material delivery. It was fine but could have been deposited to one side of the driveway instead of taking the entire driveway and preventing any parking. We had to push it to one side to park a work truck.

I think the irrigation system may not have been hooked up properly as we have a leak that is affecting water pressure in our house. (NOTE: We followed up with this respondent and the low water pressure ended up being a result of something unrelated to the lawn replacement project)

#### Other Comments

Thank you so much for helping us convert the front lawn.

I was not able to click all the water saving things we do, but we do all of them!

- Water-saving fixtures (shower head, nozzles, etc.)
- Drip irrigation
- Native plants lots of succulents
- Greywater Dish water, salad spinner, boiled water, steamed veggies etc.
- Rainwater harvesting in buckets when it rains
- High efficiency toilet(s) installed in all three bathrooms
- Reminders by faucets
- Shower timers -showers are turned off in between lathering and rinsing. We have a pre-set scald resistant lever
  on the valve.

We are interested in harvesting the laundry water and from the rain gutters/downspouts

Many neighbors, friends and others who saw the project and/or the newspaper article expressed interest in having their lawns converted. I have shown them the conversation as it stands today, discussed the process, and provided contact numbers.

However, there was a question that remains unanswered along with a suggestion I may have had an inside track. I explained that I received the lawn conversion solicitation via an e-mail as the result of my interest after a visit by the master gardeners on the subject.

None of this was the result of any public notification of the conversion project by the City of Rohnert Park that I could find (typical of Rohnert Park), rather through the City of Santa Rosa's own water conservation website (a little hard to find, but a wealth of information).

I looked at Santa Rosa because my daughter and her husband live in Santa Rosa and want to reduce their water bills. The city, at that time, also offered to pay them up to \$2/square foot of lawn removed, a real incentive.

The Daily Acts project was a much better deal.

I am 82 and on a limited income, but would have tried to make some sort of monthly payments,

Your "what other water-saving actions do you currently employ" question does not allow multiple answers. We take multiple actions, as I expect would most people interested in this sort of project.

For cost contribution: We probably would have left our lawn and let it completely die if we'd had to pay ourselves. We already converted our back yard, and expect the plants and irrigation for the front to cost several hundred dollars.

Yes, I think so, if we'd known what a nice job they'd do. We've seen so many conversions done poorly. We sheet mulched the back yard ourselves 8 yrs. ago, and knew we didn't want to do the front ourselves. But we've been talking about doing the front for at least 6 years and have put it off. The free program spurred us to get it done. With any landscaping we've had done by others previously, we were needed to make decisions, catch mistakes, find leaks in irrigation, etc. It has sometimes wound up being much more time consuming than anticipated. This has been a reason for procrastinating, but we were very pleasantly surprised that we weren't needed at all for the work and all appears to have been done well.

Your work inspired 2 of my neighbors. They have both called Daily Acts.

How can I encourage the city of Rohnert Park to more heartily embrace this work? I'm happy to write letter and make phone calls.

My extra door neighbor is very interested in this project.

Thank you so much for all that you did for me. I love you all.

Thank you so much for providing this program. Not sure we would have known the first step to take to convert our lawn. We are now going to get an appt with garden wise to get a consult.

#### How did you hear about this program?

REV sustainability circle
News article
was sent an email after having Master Gardeners help with redesign of the lawn conversion area
Master Gardeners
e-mail
2014 water quality report
Water quality statement
Water bill
News article
Master Gardeners
Daily Acts Email
News article
Daily Acts
Water bill
Water bill
Social media (Facebook, Nextdoor.com, etc.)
News article
Friend

The materials and labor for a 1,000 square foot turf conversion project costs approximately \$1,500. Would you have been willing to contribute to the project? I would have paid:

50% (\$750)
Right now I am not able to contribute but definitely would under better times.
We would have done the work, so we were willing to pay for the product. Part II will be pricy as well.
\$300 to \$500.
Labor
5% (\$75)
10% (\$150)
Not sureI'm a teacher so not much in the bank
I would not have been willing to contribute to the project
We'd had an estimate for \$700 **
We are renters so not at this home.
5% (\$75)
5% (\$75)
I am on such a limited income that i could not have been able to do this. So i am so grateful that this was able to be done for me.
10% (\$150)
10% (\$150)
10% (\$150)

### Have your neighbors shown interest converting their lawn since the landscape transformation?

- Yes = 72%
- I Don't Know = 18%

## Attachment C

 $List\ of\ Participants\ (including\ total\ square\ footage\ and\ water\ savings\ calculations).\ The\ complete$ spreadsheet was shared via Google Docs.

Date				Square	Calculated Water
Started	Name	Address	City	Feet	Savings
8/18/2015	David Grundman	5715 Dexter Circle	Rohnert Park	1,600	26,900
8/19/2015	Katie Ames	302 Eagle Drive	Cotati	1,400	23,545
8/20/2015	Karen Wilson	1386 Marigold Place	Rohnert Park	280	4,709
8/20/2015	Vicki K. Bruce	1381 Marigold Place	Rohnert Park	1,204	20,248
8/24/2015	Bob Whitlock	940 Hawthorne Circle	Rohnert Park	2,300	38,680
8/25/2015	Angela D. Nowicki	1539 Maria Place	Rohnert Park	744	12,500
8/25/2015	Judith Miller	7214 Ruby Ct	Rohnert Park	1,080	18,100
8/26/2015	Pamela R Hayes (Mick)	1121 San Antonio Drive	Rohnert Park	1,335	22,400
8/27/2015	Joanne Dichiera	124 Ahlstrom Cir.	Cotati	1,395	23,500
8/31/2015	Tom Dunbar	211 Fig Court	Rohnert Park	2,400	40,362
9/1/2015	Phoebe & David Antonio	8568 Lakewood Ave.	Cotati	990	16,650
9/2/2015	John Vogt	4680 Fairway Dr	Rohnert Park	1,030	18,000
9/3/2015	Shane Malilay	8735 Fehler	Cotati	759	12,500
9/3/2015	Mark Friendship	1027 Santa Cruz Way	Rohnert Park	560	9,418
9/8/2015	Laurelai Barton (Tam)	1549 Magnolia Ave	Rohnert Park	1,078	18,129
9/9/2015	Suzette Stephens	7246 Belita Ave	Rohnert Park	875	14,715
9/10/2015	Jennifer Obergfell	1496 Jasmine	Rohnert Park	1,252	21,056
9/10/2015	Jodi Misi	1300 Jasmine	Rohnert Park	700	11,772
9/14/2015	Model Site - St. Elizabeth Seto	on	Rohnert Park	8,500	142,949
9/22/2015	Kris Sease	359 Valparaiso Ave	Cotati	351	5,903
9/22/2015	Jo-ann Dapiran	221 Hahn Way	Cotati	595	10,006
9/23/2015	Julietta Villa (Mark)	7471 Monique Place	Rohnert Park	400	6,727
9/24/2015	Cynthia Mears (Trent)	1523 Mathias Place	Rohnert Park	975	16,397
9/24/2015	Anita Felton	1525 Mathias Place	Rohnert Park	344	5,785
9/24/2015	Scott (Cindy) Mayer	7741 Montero Dr	Rohnert Park	390	6,559
9/28/2015	Rosalie Elliott	1303 Middlebrook Way	Rohnert Park	480	8,072
9/28/2015	Matilde Martinez	1308 middlebrook way	Rohnert Park	429	7,215
9/29/2015	Shala Pace	1406 Gregory Ct	Rohnert Park	500	8,409
9/29/2015	Christopher Wach	912 Hacienda Circle	Rohnert Park	354	5,953
9/30/2015	Model Site - Sonoma Mountain	n Villiage	Rohnert Park	5,700	95,860
10/5/2015	Model Site - Cotati City Hall		Cotati	1,000	16,818
10/8/2015	Katrina and Gary Hoch	8029 Mackey Ct.	Rohnert Park	950	15,977
10/8/2015	Tom Meier	8032 Mackey Ct.	Rohnert Park	1,100	18,499
				43,050	724,313