

# FAIRFAX WATER CONSERVATION PROGRAM PROPOSAL \*

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Submitted by:

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Supported by:

Board of Directors, Marin Water  
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**\*A Note on the Proposal:** *This proposal is specifically for the Town of Fairfax with the hope it will serve as a draft model for other towns in the water district to duplicate, and customize to reflect individual town priorities. By working together using similar program structures, we can exponentially increase our collective capacity to meet the necessary water use reduction goals.*

The following was developed in collaboration with the Marin Water Conservation Mgmt department.

## THE WATER EMERGENCY

The water supply for the town of Fairfax, California is vastly diminished due to drought. With roughly 7,500 inhabitants, Fairfax uses an estimated 939,672 gallons of water per day (based on district-wide per capita consumption from Marin Water). Precipitation in the 2021 winter season yielded a mere 38-40% of the average. The local system of reservoirs, which supplies 75% of the county's water, are at 42% of capacity (as of 7-19-21) compared to the average 81% of capacity for this time of year (source: Marin Water). Marin Water typically gets the remaining 25% of its needs from contracts with Sonoma's Russian River supply. But this year, Sonoma is also under drought and is not contracting any of its water out of the county.

Projecting an inadequate supply of water in its reservoirs, Marin Water is examining the possibility of pumping water through a pipeline across the Richmond Bridge (as they did for a previous drought many years ago) and is also considering the construction of a costly desalination plant. Before significant time- & cost-intensive construction projects are undertaken, new and innovative ways to conserve and reuse water are needed. As climate change models predict ever hotter and drier conditions in this region, more must be done to increase water conservation in Fairfax and across the entire County—not just to meet human needs but also to provide a secure supply for the entire ecosystem. Doing so will create better long-term climate resilience in the face of worsening conditions.

Marin Water offers a broad spectrum of different conservation strategies and programs to increase water awareness and reduce water demands. The current call to action to address this historic drought is a 40% district-wide reduction in water demands. But the utility cannot offer very personalized attention to its 191,000 users (61,000 accounts) spread across 11 towns. Their approach is generally to offer a suite of different conservation options and to respond to interested parties. To help meet its ambitious goal, the

Fairfax Water Conservation Program can take a localized, focused effort to reduce water demand through a combination of education, outreach, and rebates that dovetail with Marin Water's programs.

## **PROGRAM PROPOSAL**

The Fairfax Water Conservation Program (FWCP) aims to build on the programs offered by Marin Water to dramatically increase the adoption of water conservation strategies among the residents and businesses of Fairfax, and beyond. By building a successful and effective system for streamlining adoption, we will create a model that could expand across the water district, and perhaps Marin County and the entire state. This pilot program would be an extremely localized and hands-on approach that provides direct interaction with residents and businesses--in critical ways that Marin Water does not have the bandwidth to support in the timeline dictated by the emergency drought situation.

While this program is focused exclusively on Fairfax, it is created with extensibility to other towns in mind. There is an opportunity for each town to embrace water conservation strategies and provide the benefits of a networked community to share ideas/strategies/resources/marketing materials that can help meet our collective goals and create more resilient conditions for an uncertain future.

The Fairfax Water Conservation Program ("FWCP") will fundamentally be structured to coordinate and manage a neighbor-helping-neighbor approach using a team of trained volunteers -- a "Water Warrior" Corps—that will assist with home water audits, engage directly with residents and businesses to facilitate adoption of conservation measures, help with low-water use garden ideas and more. To date, there has already been interest in the community to participate. In addition, the program will offer rebates for conservation measures (e.g. greywater, rainwater catchment) that will further enhance adoption.

### **Water Conservation Strategies**

The goal of this program is to build on Marin Water's effective conservation measures by creating higher adoption rates in our town. This will help the District meet its ambitious goal of a 40% reduction in water consumption across the region. Using a very hands-on, personalized and highly localized approach that is not possible from a large water utility company, we will focus on 6 program areas:

1. **Greywater** (or graywater) is relatively clean waste water from approved and appropriate appliances, bathroom sinks, baths/showers, and washing machines. Reusing greywater for irrigating gardens directly reduces the consumption of limited potable water supplies. Various methods can be used to collect greywater, including very low tech solutions like placing buckets in showers to capture water, basins in kitchen sinks to capture water from rinsing vegetables or washing dishes, and outdoor showers that drain to non-edible gardens; to higher tech solutions such as Laundry to Landscape valves that divert washing machine water to the garden, and complex whole house systems. Such systems can range in cost from free to several thousands of dollars, depending on site conditions.

A California study in 2012 found that installing greywater systems saved 17 gallons / day per person (14,565 gallons a year) or 68 gallons per household for a family of 4. Using greywater also reduces energy consumption, as the water is not pumped from supply to the household (pumping water is actually a significant source of California's carbon / energy footprint).

***FWCP Actions:*** *The FWCP will proactively reach out to residents and businesses, providing education, home consultations provided by the Water Warriors team, information on eligible*

*greywater-related rebates, discounted materials and/or delivery of MW materials, and workshops. Locations that require a more indepth assistance will be directed to MW or other valuable resources.*

- 2. Rainwater Harvesting** entails the collection of rainwater, rather than allowing it to run off. Rainwater is collected from roofs and channeled to a tank or cistern, where it can be used for irrigation or toilet flushing. This reduces the need to use potable water for things that don't need potable water. It also reduces overall carbon footprint by reducing the need to pump water to the home. The general rule of thumb is that for every 1,000 sf of rooftop, one can collect about 600 gallons *per 1" of rainfall* (Fairfax's rainfall is roughly 32"/year, which means a 1,000 sf rooftop could generate 600x32=19,200 gallons). For example, in Japan a big sports stadium collects rainwater for toilet flushing. The Frankfurt Airport in Germany collects rainwater for irrigation and toilet flushing. An organization in Virginia uses rainwater from the roof of a laundry facility in the washing machines.

***FWCP Actions:*** *The FWCP will proactively reach out to residents and businesses, providing education, home consultations provided by the Water Warriors team, rainwater-related rebates, discounted materials and/or delivery of MW materials, and workshops.*

- 3. Home Conservation Strategies** include many efforts focused on getting people to consider every gallon of water used in the home—from doing dishes, to using appliances with water in mind, to limiting showering, to reusing water wherever possible and most importantly educating customers on how to read their water meter to check for leaks and further understand their water use. Ideally, we can get people thinking about their water use with the same level of intention as they think about trash and recycling.

***FWCP Actions:*** *A team of volunteer Water Warriors will provide free home consultations, sharing and delivering water conservation tools directly to the home, assisting users in accessing MW resources like turf conversion to low water use plant material, greywater strategies, low flow showerheads, high efficiency toilets, composting toilets, and more.*

- 4. Low-Water Use Gardening** can significantly reduce water consumption for each water account. Water use in the region doubles during the summer months due to irrigation, which demonstrates the opportunity to obtain long term water savings as a result of converting high water use plants to drought tolerant, low water use plant material. Strategies include using efficient irrigation solutions, site management, transitioning to water efficient plants and how to keep them alive during droughts, and are all opportunities to educate and inform residents of ways to save water while maintaining a beautiful landscape.

***FWCP Actions:*** *The program proposes to again, use a neighbor-helping-neighbor strategy (Water Warriors team) to share knowledge and resources on gardening during times of drought. For many gardeners, this will be an incredibly useful service.*

- 5. Reducing Consumption Among Large Local Commercial/Institutional Users**  
Large commercial & institutional users of water include Recreational Facilities, Restaurants, Laundromats, Car Washes, and Schools. Such businesses are inherently preoccupied with their

operations and finances and have very few resources to consider exploring new processes and equipment.

***FWCP Actions:*** *Our program will reach directly out to decision makers at these businesses, connect them to Marin Water's conservation options, and help them outline a plan for reducing water consumption (working in conjunction with Marin Water as needed). Wherever possible, we will facilitate the adoption of rainwater harvesting and other water saving equipment available through Marin Water's rebate programs.*

- 6. Turf Removal** is a priority MW conservation measure that incentivizes homeowners to remove high water demand grass lawns from their properties. Currently, Marin Water pays customers \$3/sq ft for turf removal. It is estimated that every square foot of grass removed results in 24 gallons per year saved. So a property that removes 1,000 sq ft of grass saves 24,000 gallons per year.

***FWCP Actions:*** *The FWCP marketing and educational materials will encourage residents to take advantage of MW's program and socialize the idea that green lawns are out of favor. Much of our efforts in this component will rely on increasing public awareness about MW's generous incentives, its Mulch Madness Program, and the huge impact turf removal has on water savings. After lawn removal, the Water Warriors will assist with low water garden ideas and support them as part of the Low-Water Gardening program component.*

Program Components will include:

- **Education and Home Consultations:** The Water Warrior Corps will be a core mechanism to do home consultations, regular tabling downtown and help community members reduce water use. The program will use social media, mailers and posters, promote monthly online zoom webinars, and create a Resource List of Qualified Local Contractors who have installed water conservation systems (greywater, rainwater catchment, etc).

Our team will visit households and provide a simple report detailing various water conservation measures, including specific rainwater catchment and greywater options (from simple things like using buckets in the shower and basins in the kitchen sink for use on gardens, to more involved strategies that require plumbing like outdoor showers that drain to non-edible gardens, rainwater catchment, etc). With good followup and facilitating connections to contractors and equipment, we will aim to get very high adoption rates.

- **Rebates** for water conservation equipment, including greywater, rain catchment, water flume meters, etc. These would be additional rebates beyond what Marin Water offers, that would make adoption even easier for residents.
- **Outreach to Businesses/Institutions** to educate them about Marin Water's conservation options, connect them to MW resources/rebates, and provide logistical support for implementation if needed
- **Demonstration Projects / Garden Tours** to show real examples in the community.
- **Evaluation & Tracking** program impacts, water warrior site visits, including # installations, estimation of water saved (and money saved by the participant)

## **PROGRAM GOALS** (see attached Impact Projections worksheet)

- Increase residential, commercial & institutional adoption of water conservation strategies to 30% of Fairfax customers employing at least one method.
- Increase public awareness of water conservation strategies to 80%.
- Free home consultations for at least 20% of households (670 of the 3,350 households)
- Reduce water consumption in Fairfax by at least 20 million gallons per year.
- Become a pilot program that becomes more widely adopted throughout Marin County and the rest of California. Make materials available to facilitate the adoption of our program.

## **PROGRAM BENEFITS**

- Save at least 20 million gallons of water per year in Fairfax per year (assumptions provided below)
- Save at least 255 million gallons of water in lifetime savings
- Increase public awareness about the need for water conservation & greywater adoption
- Build a more resilient community to address the likelihood of ongoing water shortages
- Create a more sustainable environment for the wildlife and ecology of our watershed (more water available for environmental releases)
- Create a model for implementing a town-wide action program that can be adopted by other towns in Marin and the rest of the state
- Reduce our Carbon Footprint from reduced need for pumping water
- Help reduce the need for much more costly Richmond pipeline or desalination plant
- Save money (for residents and businesses)
- Create jobs (program personnel and contractors/plumbers/irrigation specialists)

## **IMPLEMENTATION COMPONENTS (1 year)**

### **Education** (ongoing)

- Create a volunteer team of “Water Warriors” trained by MW and other experts who can perform home water consultations and mentor their neighbors
- Regular water conservation zoom webinars to introduce people to strategies and to the new Water Conservation Program (coordinated with Marin Water and other towns; create a master calendar of water conservation educational opportunities)
- Distribute posters and postcards to residents and businesses
- Table at public events such as the Farmers Market, in public space (eg Good Earth)
- Create and distribute a list of local contractors/plumbers/irrigation specialists experienced with greywater and rain catchment installations

### **Home Consultations & Installations**

- Perform free water conservation audits for up to 20% of households in Fairfax (670 households). This is approximately 3 per business day for 12 months.
- Provide rebates for greywater/rain catchment installations, with the goal of getting up to 30% adoption rate of at least one new conservation strategy.
- Proactively drive adoption of Marin Water’s conservation measures among commercial and institutional water users in Fairfax (recreational facilities, schools, town hall); with the goal of getting up to 30% of businesses/institutions adopting at least one new water conservation strategy.

## **Program Tracking and Evaluation**

Throughout the project, our team will evaluate and report on our processes and track progress for public review. Progress reports will be provided to the council regularly. Metrics include:

- Estimated water savings (gallons/year)
- Estimated water savings per lifetime (gallons)
- Determine the community-wide gallons per capita per day reduction
- # households who receive a water conservation audit
- # of people reached with public awareness campaigns through our efforts
- # households who adopt at least one new water conservation strategy
- # of businesses who adopt at least one new water conservation strategy
- Estimated impact on carbon footprint by reducing need for pumped water
- Aggregate cost savings from reduced water bills

## **TEAM**

This program will be managed by Sustainable Fairfax, a 501c3 which has implemented various conservation programs for the Town in the past. There will be two full time equivalents (FTEs - or 80 hours of staff time) to run this program:

### **Program Manager (1 FTE)**

- Program administration
- Oversee Field Manager and Communications Manager
- Main liaison with Marin Water and the Town of Fairfax
- Strategic partnerships with state and local agencies, local nonprofits
- Program tracks and reporting

### **Field Manager (Part time)**

- Contractor coordination
- Audit coordination
- Training mentors for home audits
- Works with businesses (e.g., Fairfax Lumber, The Backyard Farmer) on conservation supplies

### **Education & Communications Manager (Part time)**

- Social media and outreach
- Event coordination
- Creation of educational materials: emails, posters, postcards, etc
- Strategic partnerships with state and local agencies around messaging and education

## RESOURCES REQUIRED

\$124,800	Program Administration:	Program Manager @30 hours/wk; Field Manager @20 hrs/wk; Social Media Coordinator @10 hrs/wk
		Perform Home Audits, Business/Institutional Outreach, Data Collection, Social Media/Marketing, Liaise with Government Agencies, Track Progress
\$8,200	Education	Create marketing materials for Water Warriors volunteers, tabling downtown, posters, mailers, signage
		Demonstration projects and Garden Tours
\$67,000	Rebates	For residential water conservation installations (greywater, rain catch, and water efficient appliances), including Laundry to Landscape, etc. Calculations below:
	3350	# households
	20%	participation rate
	670	# participating households
	\$100	\$ avg spent per participant
<b>\$200,000</b>	<b>TOTAL</b>	
33.50%	% of budget that is rebates	
Staffing Detail		
\$62,400	3/4 time (30 hrs/wk) program manager	
\$41,600	1/2 time (20 hrs) field manager	
\$20,800	1/4 time (10 hrs/wk) social media / communications	
\$124,800	sum	

**This proposal can also be staged as a 6 month program, with a budget of \$100,000. All program goals would be halved accordingly.**

**Marin Water District has committed to contributing an additional \$60K to this initiative in the form of outreach, training, material supplies, etc.**

## STRATEGIC PARTNERS

- Sustainable Fairfax
  - Program management
    - Contracted staff
    - Implementation
    - Quarterly reporting to town
  
- Town of Fairfax
  - Secure funding and allocation
  - Review quarterly reports from program manager
  - Partner with Sustainable Fairfax, and MW on outreach and solutions for high consumption institutional users
  - Permitting process (where applicable)
  
- Marin Water
  - Program Support (marketing, webpage support for customized pages),
  - Training Field Manager [who in turn will train Water Warrior Corps]
  - Administer rebates for our program
  - Water data tracking support
  - Report on program participation in Fairfax (monthly)
  - Water conservation supplies (e.g.hose end nozzles, low flow hardware, buckets)
  
- Local Water Conservation Resources and Expertise
  - Greywater Action
  - Backyard Farmer, Fairfax Lumber (to provide bundles and material support)
  - Local Contractors
  - Marin County Health Department
  - WaterNow Alliance
  - Daily Acts



## Potential Water Savings Opportunity In Fairfax

	Lifespan (yrs)	% of accounts adopting	# participants (3350 Fairfax households or accounts)	Gallons saved/participant/year	Gallons saved across Fairfax / year	Lifetime gallons saved
Greywater Residential	15	20%	670	3,060	2,050,200	30,753,000
Rainwater catchment Residential	10	10%	335	1,468	491,780	4,917,800
Rainwater Large Commercial/Institutional	10	x	5	25,900	129,500	1,295,000
Turf Removal*	20	3.00%	101	24,000	2,424,000	48,480,000
Recreational Facilities	10	See table below for details on business savings	1	x	5,592,962	55,929,616
Restaurants & bars	10	100%	20	35,040	700,800	7,008,000
Laundromats	10	100%	3	63,875	191,625	1,916,250
Other businesses	10	100%	2	29,200	58,400	584,000
Other Conservation Measures? (low flow showers, high efficiency toilets, etc)	10	5-10%	See table below		9,510,188	95,101,875
					<b>21,149,342</b>	<b>245,985,541</b>
*for turf removal, this assumes a 1,000 sf lawn						

## IMPACT PROJECTIONS DETAIL (\* Developed in collaboration with Marin Water)

Conservation Components	Gallons Saved	Assumptions
Greywater	2,050,200	20% adoption of at least one greywater strategy x 17 gallons/day x 180 days of use; awaiting some clarification from Carrie. Cost is from 670 households (20% of town) x \$125 rebates. Divide this in 3 equal parts: greywater, rainwater, and Other Conservation measures
Rain catchment residential	491,668	assuming 10% of households (335 households) put in a 850 gallon tank x 1.7 multiplier [source: Marin Water];
Rain catchment Town Hall & Schools, Pavillion, School Plaza	129,500	must discuss with schools. \$3500/tank x 15 tanks (5 sites w 3 tanks each). Town Hall/Fire/Police bldgs, White Hill School, Manor School, Pavillion, School Plaza bldgs. Marin Water will give \$1,000 per site. We will not offer rebates to institutional/businesses.
Other measures per education (eg high efficiency toilets, turn off shower valve, low flow showerheads, etc)	9,510,188	assumptions below

Turf Removal	2,424,000	15% adoption rate (75 sites total) of the 15% of sites that are eligible, 24 gal/sqft/yr x 1000 sf/site [source: Marin Water]
Recreational Facilities	5,592,962	20% reduction off one huge user plus 20% reduction from additional recreational facilities
Restaurants & bars	700,800	20% reduction among the town's 15 restaurants and 5 bars
Laundromats	191,625	20% reduction; 3 laundromats
Other businesses	58,400	assumes 20% reduction, (eg car wash/hot tub place), based on ballpark estimate of 400 gallons/day used
<b>TOTAL</b>	<b>21,149,342</b>	
<b>Assumptions</b>		
<b>Restaurants</b>	480	gallons water used per restaurant per day assumes 24 gallons per seat per day x 20 seats/resto
	9,600	gallons per day for all restaurants & bars, assuming 15 restos + 5 bars
	3,504,000	gallons per year consumed, assuming 15 restos & 5 bars in town
	700,800	gallons saved per year, if we reach 20% savings across all restos & bars
<b>Laundromats</b>	875	gallons of water per day, per laundromat, assuming 25 loads per day x 35 gallons/load (an industry veteran estimated a much higher volume -- minimum of 2,000 gallons per day)
	319,375	per year
	958,125	annual water consumption by 3 laundromats (multiply above x 3)
	191,625	gallons saved, assuming a 20% reduction
<b>Other conservation measures undertaken by residents</b>		
High efficiency toilets	2,690,050	gallons saved per day, assumes 10% adoption rate so 335 households; assuming average toilet here is 3.5 gallon/flush. assuming it might save 2.22 gallons/flush to convert to a high efficiency x 10 flushes/day = 22 gallons per house per day). 7370 gallons/day saved/town if 10% adoption rate
Low flow showerheads; reduced shower time	4,707,588	assumes 10% adoption, 335 houses; from 2.5 gpm to 1.2 gpm = 1.3 gpm saved x 10 min shower = 13 gallons/shower x 2 people/household = 26 gallons/day/household. 8710 gallons per day saved/town if 10% adoption. Plus 10% of pop who will reduce shower time from 10 to 5 minutes (2.5gpm x 5)=12.5 gallon x 335 = 4187 gallons/household/day x 365
Turn off valve at shower for pausing while soaping	609,550	2 mins x 2.5 gallons/minute = 5 gallons per shower x 2 showers/household per day = 10 gallons/day; assuming 5% adoption rate so 167 households x estimated 10 gallons/day per house saved
Changes in landscaping (not turf removal)	1,503,000	assumes irrigation is 180 days; daily gallons saved, assuming 5% adoption rate, 167 households, assuming reduction of 50 gallons per day irrigation; changes in watering schedule, changes in plant species towards more drought tolerant; MW comment: I think you could get a 50% reduction in landscape water use through adjustments in schedule to comply with the current landscape restrictions.
<b>TOTAL</b>	<b>9,510,188</b>	
<b>Residential Home Consultations Calculation</b>		

		670 homes (20% of homes) in 1 year will take at least one new conservation measure
	56	homes visited per month x 12 months
	14	homes visited per week
	3	per business day
		achievable if avg audit is 60 minutes; plus we have to factor in business outreach
<b>Potential District-Wide Impact (not included in figures above)</b>		
Another impact might be that the other 10 towns included in the water district might adopt our model	<b>155,564,925</b>	gallons of water saved per year, if adopted by 10 other towns (this is <u>in addition</u> to our town's 20 million gallon savings)
Most are bigger than Fairfax, but assume they are about the same, to be conservative		assuming savings would be the same as ours x 10 additional towns; I took out the golf course number, since most towns do not have one (although Mill Valley does); of course San Rafael (pop. 58k) is nearly 8x bigger so the savings would be quite a bit larger