RAIN
CATCHER
PILOT
PROGRAM

OCTOBER 2018 – SEPTEMBER 2019

Phase 1 Snapshot Summary Report

The Rain Catcher Pilot Program (RCPP) is a comprehensive effort to integrate and leverage the City's existing Green Stormwater Infrastructure (GSI) programs and resources. The RCPP's main goal is increasing the prevalence of cisterns and rain gardens to achieve stormwater management and water conservation objectives.

To achieve program goals, the City of Austin (COA) Watershed Protection Department (WPD) is collaborating with Austin Water (AW), the Development Services Department (DSD), and the non-profits Urban Patchwork (UP), and The Nature Conservancy (TNC) to address financial barriers, help with outreach and messaging **(Figure 1)**, and streamline tasks associated with GSI installation to buffer the negative effects of existing urban development on watershed hydrology.

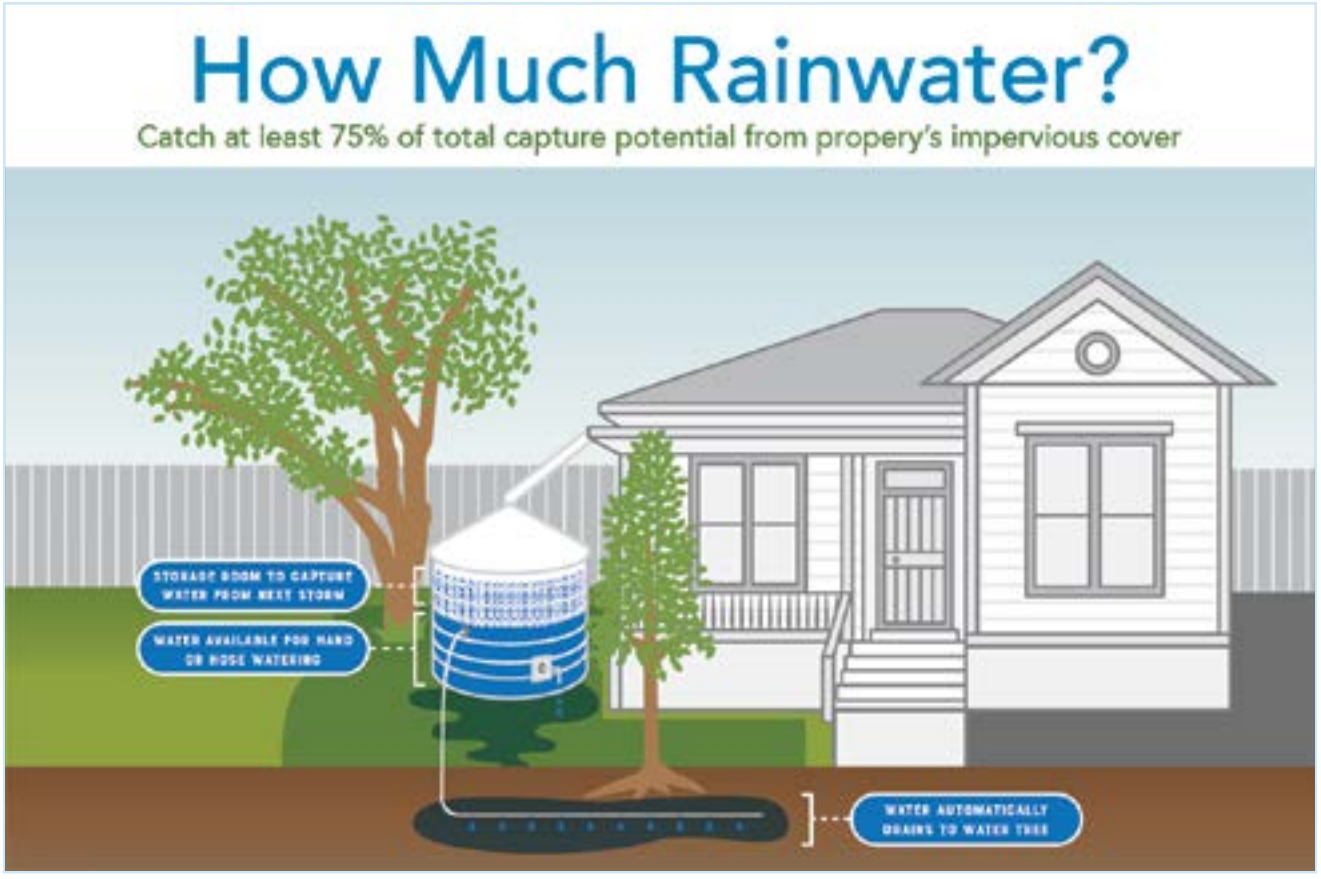


Figure 1. Example of an outreach graphic

Phase 1 Planning

The entire pilot program area is in the upper portion of Waller Creek Watershed in North Central Austin **(Figure 2)**. The area covers 1.08 sq. mile with 46% impervious cover (hard surfaces like driveways and roofs) and has a limited number of existing regional stormwater controls for newer residential developments. Historic flow data **(USGS Gage # 08156910)** at the bottom of the pilot area is available to track any changes resulting from the program's efforts.

Property Selection, Preliminary Surveys, and Data Collection

During the development of the RCPP program:

- A survey of community members within the pilot area was conducted as a University of Texas at Austin's Community and Regional Planning Master's research project. This study contained information about residents' GSI interest and knowledge, as well as potential barriers to installing cisterns and rain gardens.

- 25 residential properties were identified for Phase 1 **(Figure 3)**. Twenty of these properties are contiguous, and most are adjacent to Waller Creek. Five of the properties were scattered in the upper portion of the Waller Creek watershed and had self-identified their interest in GSI by participating in a University of Texas Civil Engineering design class. Their participation was designed to test the functionality of the incentive package on a small sample set.

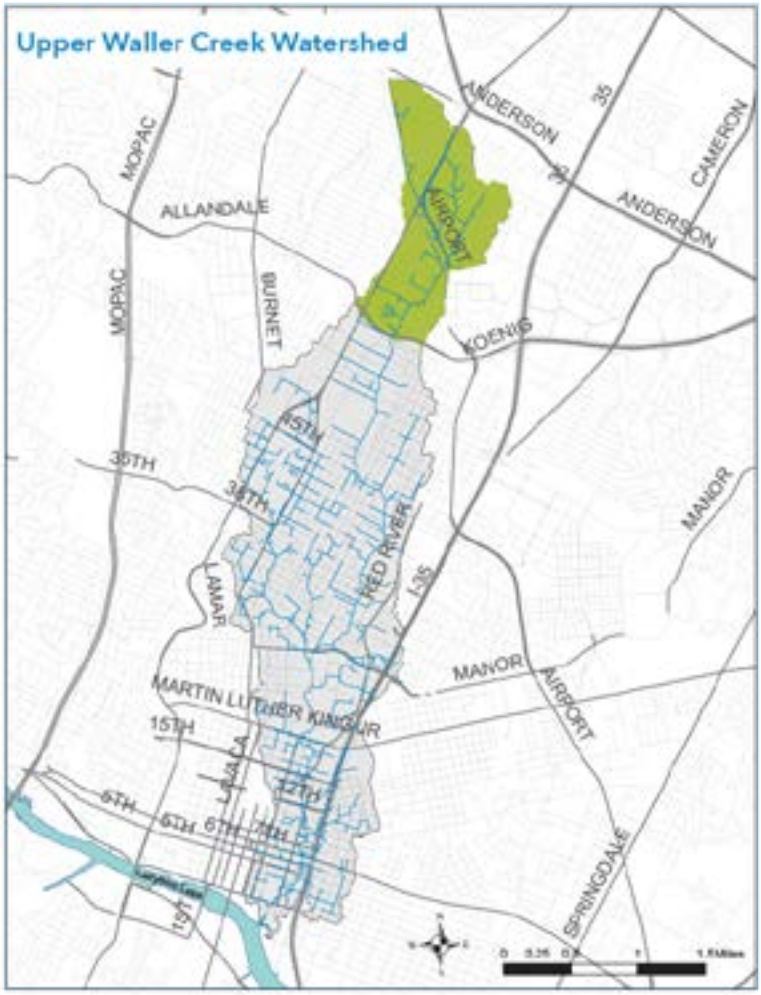


Figure 2. Upper Waller Creek Watershed

In the summer of 2017, a WPD intern conducted a benchmarking study to examine GSI-based incentive programs offered by public agencies across the US seeking to understand elements needed for success, lessons learned, critical components, logistics, etc.

Phase 1 Planning

Figure 3 (above). Location of RCPP catchment area and 25 Phase 1 Properties

Both the survey and benchmarking study helped unveil barriers for the installation of cisterns and rain gardens by community members. The team developed programmatic strategies that directly address the potential participant's lack of GSI expertise and concerns regarding financial barriers. **(Figure 4)**

Figure 4 (right). Basic tools to mitigate residential barriers to rainwater harvesting

Knowledge

- One hour site assessment and design recommendations.

Knowledge / Costs

- Urban Patchwork will streamline the design, installation, and payment processes for program participants.

Costs

- Reduced drainage charge
- Existing Rainwater Harvesting and Rainscape Rebates
- $1,000 per tree with passive irrigation system.
- PLUS an additional $1 per gallon.

Phase 1 Implementation

(OCTOBER 2018 - SEPTEMBER 2019)

During Phase 1, the mechanics of the incentive package, the money flow among collaborators, as well as program content and outreach methods were developed, tested, and revised. Additionally, the program team held a community meeting for potential participants; conducted site assessments and design visits; completed customized site reports; created a work flow between the city staff, participants, Urban Patchwork and contractors; established new strategies to resolve new barriers discovered upon implementation of the pilot, and defined major program steps **(Figure 5)**.

Image. Analyzing a drainage issue during a site assessment visit

RCPP STEPS

1. PLANNING
2. PROGRAM AWARENESS
3. CONTACT US
4. AMBASSADOR SITE ASSESSMENT
5. URBAN PATCHWORK / CONTRACTOR DESIGN VISIT
6. FINALIZE DESIGN
7. INSTALLATION
8. CAPTURE RAIN

Figure 5. RCPP Steps

RCPP Participation Status

At the end of FY2019, October 2018 – September 2019, there were 7 residences actively engaged in the RCPP, out of the original 25 in the block-scale phase 1 rollout **(Figure 6)**:

- **1 participant**, the first to join, was completely done with installation of their system which included 3 rain gardens, 1 cistern, and 2 irrigated trees for a total rainwater capture volume of 2115 gallons.
- **3 participants** were in the design/construction phase.
- **3 participants** had completed site assessments and were moving into design phase.

RCPP Properties Status

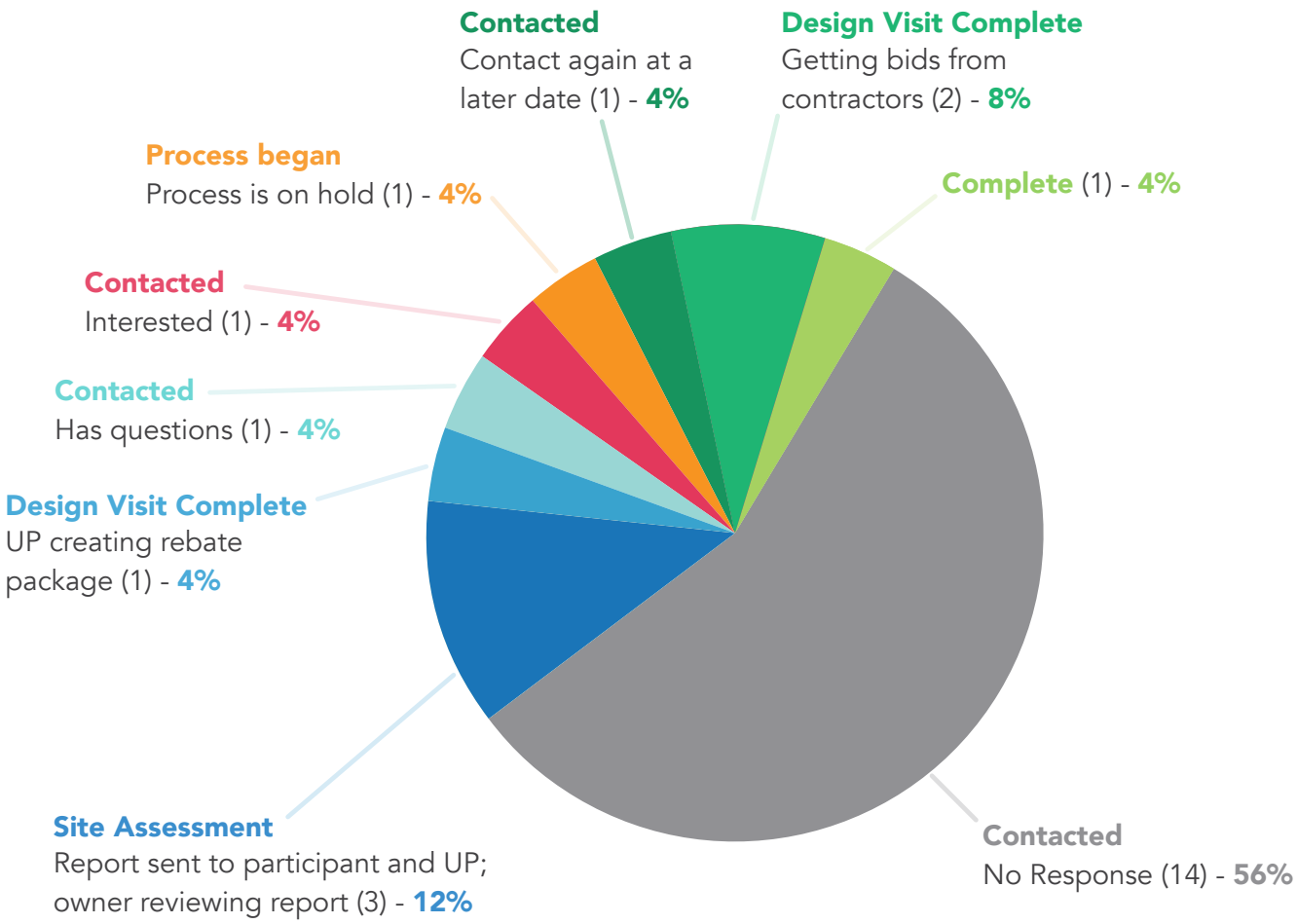


Figure 6. Participant Status in Phase 1 as of September 30, 2019

RCPP Participation Status

Image (top). A rain garden begins to take shape

Image (bottom). The first cistern to be installed

Proposed Phasing Timeline

During the next four years, the RCCP will be offered in phases to different sections within the pilot program area to facilitate both further incremental development of the pilot as well as experimental components that take advantage of spatial separation **(Figure 7)**:

- **January 2020** – Master Agreement to be voted on by Council
- **Phase 2, February 2020 – January 2021:** Offer the incentives to 448 more properties, analyze results, and report out
- **Phase 3, February 2021 – January 2022:** Program to be offered to 440 more properties, analyze results, and report out
- **Phase 4, February 2022 – January 2023:** Program to be offered to 439 more properties, analyze results, and report out
- **Phase 5, February 2023 – January 2024:** Program to be offered to any eligible homes in the entire WLR3 catchment that have not participated yet. Results will be analyzed & reported out

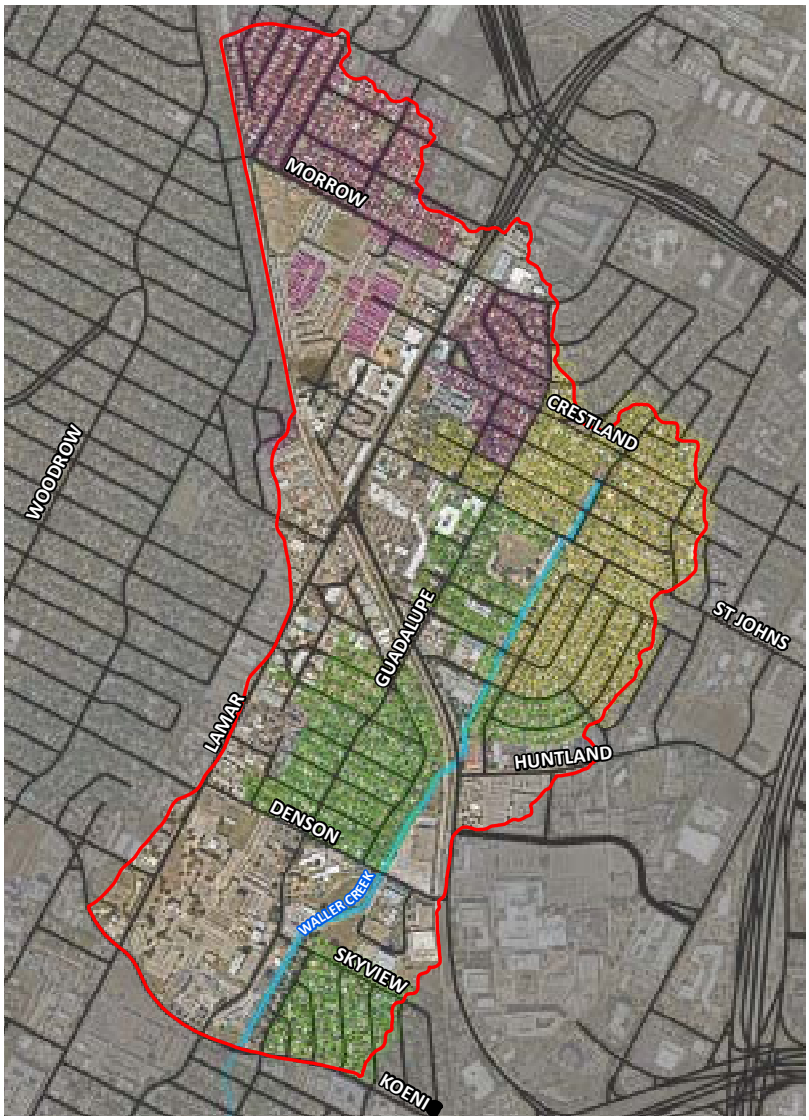


Figure 7. Spatial location of residential clusters in phases 2-4 of the RCPP.

Waller 3 Watershed

Spring 2023 - Spring 2024
All homes in program area are eligible to opt-in

Spring 2022 - Spring 2023
439 homes

Spring 2021 - Spring 2022
440 homes

Spring 2020 - Spring 2021
448 homes

Research

There are three monitoring studies that were begun during Phase 1 of the RCPP. Quality Assured Project Plans (QAPPs) outline the procedures needed to ensure that samples, data, and reports are of high quality. The following QAPPs were planned and initiated during Phase 1 of the RCPP:

- **Behavioral** – working with The Nature Conservancy to test behavioral nudges that may influence participation rates.
- **Cistern** – monitoring cistern function and performance, first at Reilly Elementary and later in residential cisterns.
- **Sewershed** – comparing baseline creek and soil moisture data to post-RCPP implementation data in the headwaters of Waller Creek along Northcrest Blvd.

Image. A scientist setting up an underground sensor line to measure the flow of water in a small channel in the headwaters of Waller Creek.

Public Property Demonstration Projects

Capturing rainwater on public property is an important way for the City to show our commitment to GSI and to educate the community through these demonstration projects. Key GSI public property milestones that were achieved during Phase 1 of the RCPP were:

Skyview Neighborhood Partner Program

Initiated by neighbors via the Neighborhood Partnering Program this project de-paved a dead-end street. The City's construction portion of the project was completed in 2019 and neighbors have the opportunity to add seating and more native plants.

Meadowview Traffic Calming Triangle

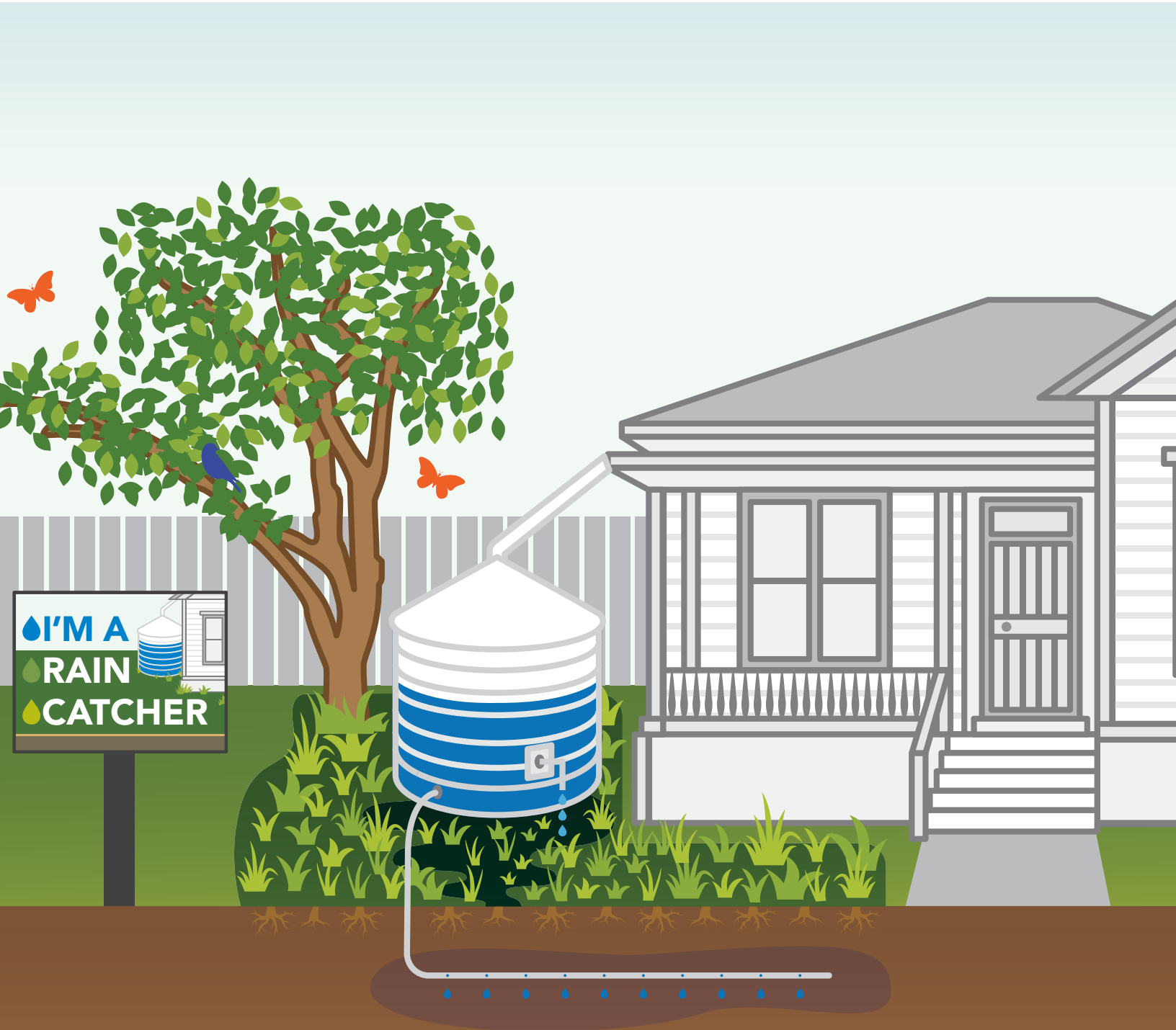
The traffic calming triangle located at the intersection of West Crestland Drive and Meadowview Lane was retrofitted to include a rain garden. This project can infiltrate approximately 83,000 gallons of water each year. (An additional traffic calming triangle on West Crestland near North Lamar was evaluated for its potential to be retrofitted too, but due to low infiltration rates that project did not move forward.)

Reilly Elementary School

The Reilly Elementary School demonstration project includes 12 cisterns and 5 rain gardens. These GSI features gather rainwater from 76,000 square feet of impervious cover and can infiltrate approximately 621,000 gallons of rainwater each year. Partners for Education, Agriculture and Sustainability (PEAS) provides programming to do minor maintenance on the systems and to connect students with their campus' GSI and Waller Creek.

City-wide Market Study

A Request for Qualifications and Services (RFQS) was prepared to develop a city-wide study. This study will identify opportunities, barriers, motivations, and knowledge from different demographic groups in the Austin community. The market study will also focus on best strategies to maximize widespread acceptance of cisterns and rain gardens on residential properties. The RFQS should go out for bid in 2020, with plans to initiate the study in late 2020 or early 2021.



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