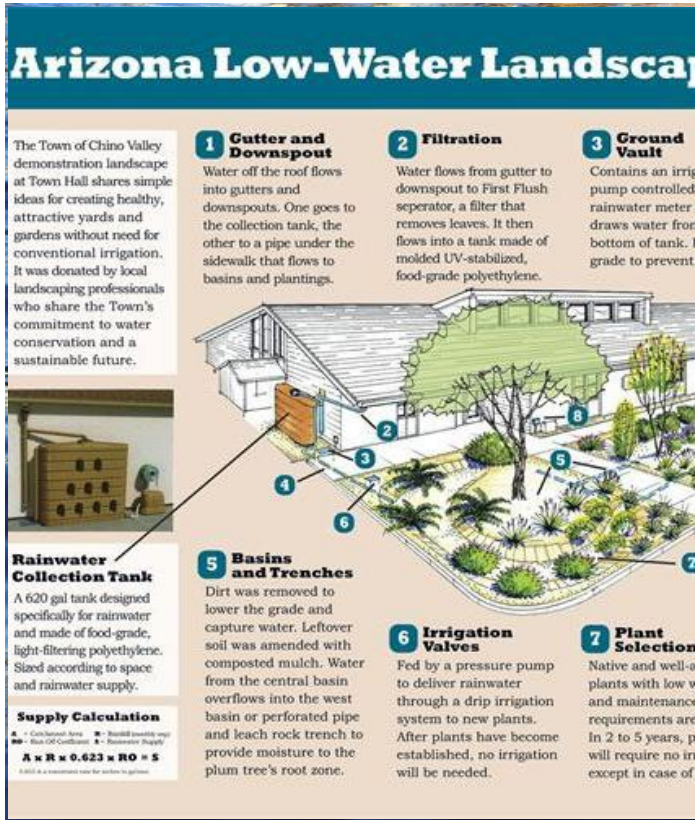
Chino Valley Town Hall Rainwater Demo

Low-water landscape and rainwater harvesting



SKYWATER

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ENVIRONMENTAL DESIGN

Chino Valley Town Hall Demo Project

Project Overview

Low-water landscape, active system demonstration project

- **Industry/Sector**: public
- **Client:** Town of Chino Valley
- **Location**: Chino Valley, Arizona
- **Completion**: 2009
- **Description:** In anticipation of new water conservation ordinances, Town staff asked us to design a demonstration project to educate the public as well as to provide research data. Turf was removed, new drought-tolerant landscaping planted, and active and passive rain systems integrated and featured in front of Town Hall and the Public Library. We also created interpretive displays.

Chino Valley Town Hall Demo Project

Design Data

- **Water use**: landscape irrigation
- **Annual average rainfall**: 11 in.
- **Available roof area**: 2,000 sq. ft.
- **Roof material**: Asphalt shingle
- **Hardscape material**: concrete, soil

Chino Valley Town Hall Demo Project

Rainwater System

- **Storage**: 620 gal.
- **System**: *Active:* Rain Harvesting rainhead, 620-gal. Bushman slimline poly tank connected to irrigation system; in-ground vault metered. *Passive:* adjacent parking lot and rain tank overflow directed to regraded, rock-lined and planted sediment basins.
- **Pump**: .75 hp
- **Filtration**: Pre-filtration: Rain Harvesting rain head
- **Roof and surface conveyance**: wet
- **Irrigation**: gravity
- **Overflow**: landscape

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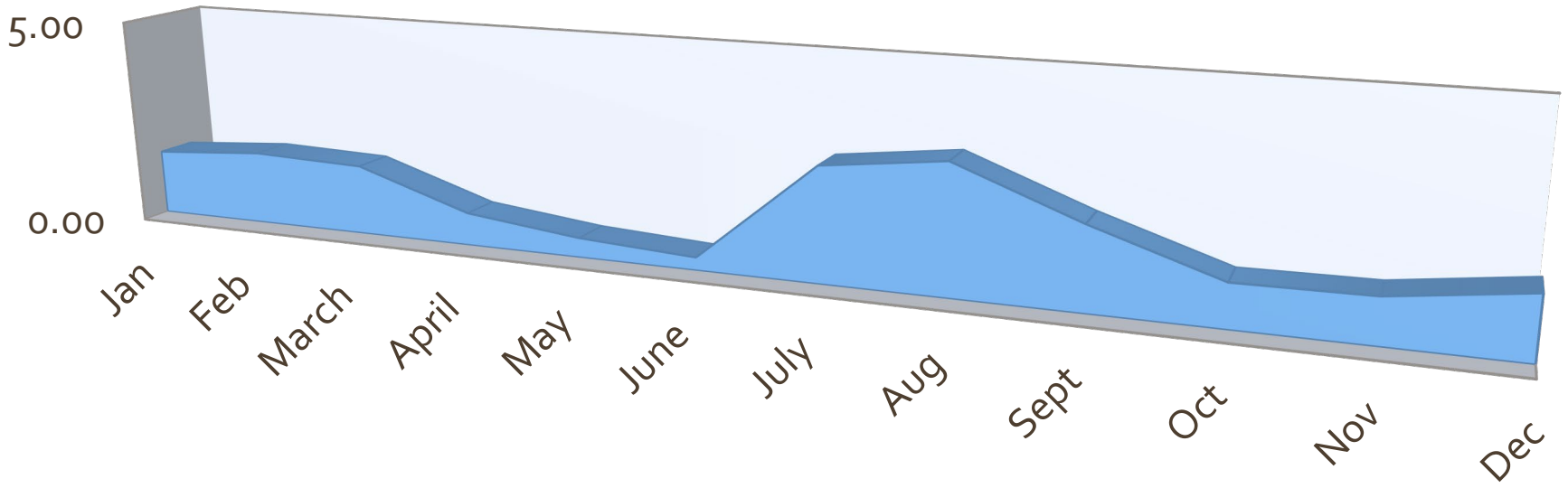
Average Annual Precipitation (in.)



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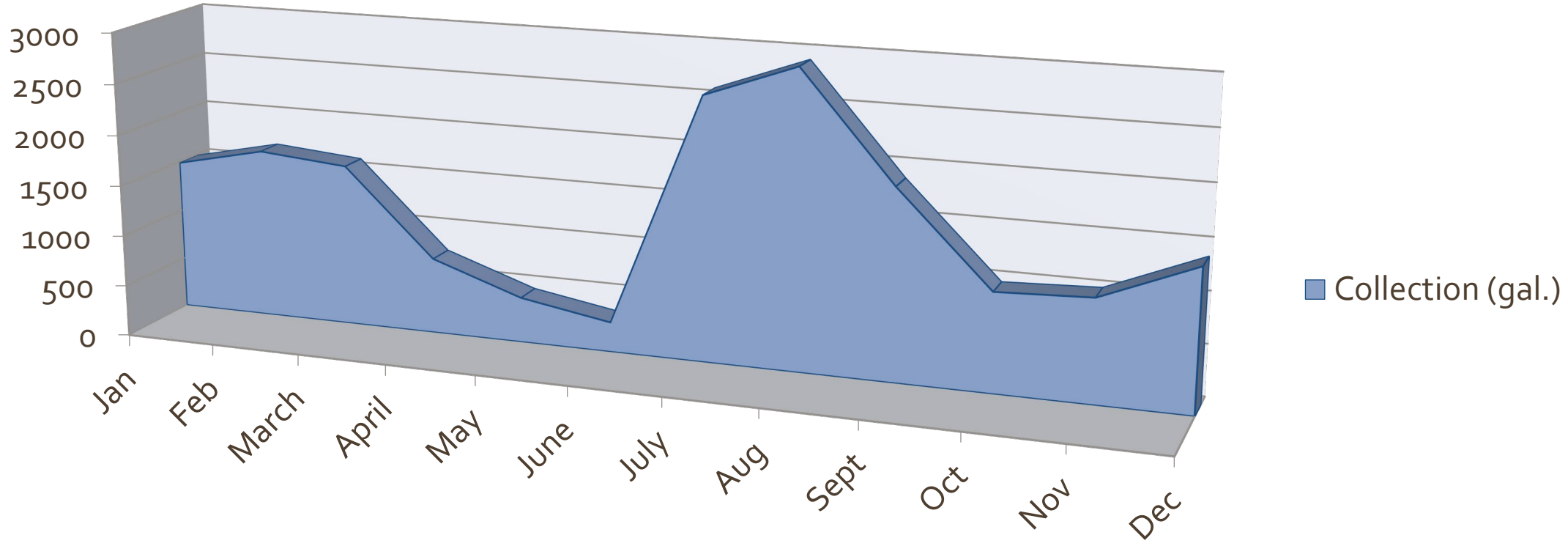
Collection Potential (gal.)




CHINO VALLEY
TOWN HALL
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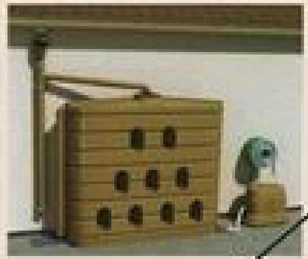
CHINO VALLEY
TOWN HALL

Arizona Low-Water Landscape Demo Project

The Town of Chino Valley demonstration landscape at Town Hall shares simple ideas for creating healthy, attractive yards and gardens without need for conventional irrigation. It was donated by local landscaping professionals who share the Town's commitment to water conservation and a sustainable future.



Rainwater Collection Tank

A 620 gal tank designed specifically for rainwater and made of food-grade, light-filtering polyethylene. Sized according to space and rainwater supply.

Supply Calculation

A – Catchment Area
R – Rainfall (monthly avg.)
RO – Run-Off Coefficient
S – Rainwater Supply

A x R x 0.623 x RO = S

0.623 is a conversion rate for inches to gallons

1 Gutter and Downspout

Water off the roof flows into gutters and downspouts. One goes to the collection tank, the other to a pipe under the sidewalk that flows to basins and plantings.

2 Filtration

Water flows from gutter to downspout to First Flush seperator, a filter that removes leaves. It then flows into a tank made of molded UV-stabilized, food-grade polyethylene.

3 Ground Vault

Contains an irrigation pump controlled by a rainwater meter that draws water from the bottom of tank. Below grade to prevent freezing.

4 Tank Overflow Pipe

When the tank is full, water overflows into pipe under the sidewalk and into the landscape basins, passively watering plants.

Mulch and Moisture

Mulch improves the moisture-holding ability of soil, boosting plant health. We also added organic fertilizer, soil inoculants and 1,000 earthworms to ensure long-term fertility.

5 Basins and Trenches

Dirt was removed to lower the grade and capture water. Leftover soil was amended with composted mulch. Water from the central basin overflows into the west basin or perforated pipe and leach rock trench to provide moisture to the plum tree's root zone.

6 Irrigation Valves

Fed by a pressure pump to deliver rainwater through a drip irrigation system to new plants. After plants have become established, no irrigation will be needed.

7 Plant Selection

Native and well-adapted plants with low water and maintenance requirements are used. In 2 to 5 years, plants will require no irrigation, except in case of drought.

8 Irrigation Controller

An existing irrigation controller is used to control irrigation of new tree and shrub plantings. It also controls watering to the existing turf. Each planting zone is separately metered so the Town may collect accurate water-use data.

Does this area get enough rain to collect?

Yes! A 2,500 s.f. rooftop in Chino Valley—a high desert area that receives 13 in. of annual precipitation—can collect 21,600 gal. of rainwater. That's more than enough to water the typical landscape for a home this size, especially if plants are selected for regional conditions.

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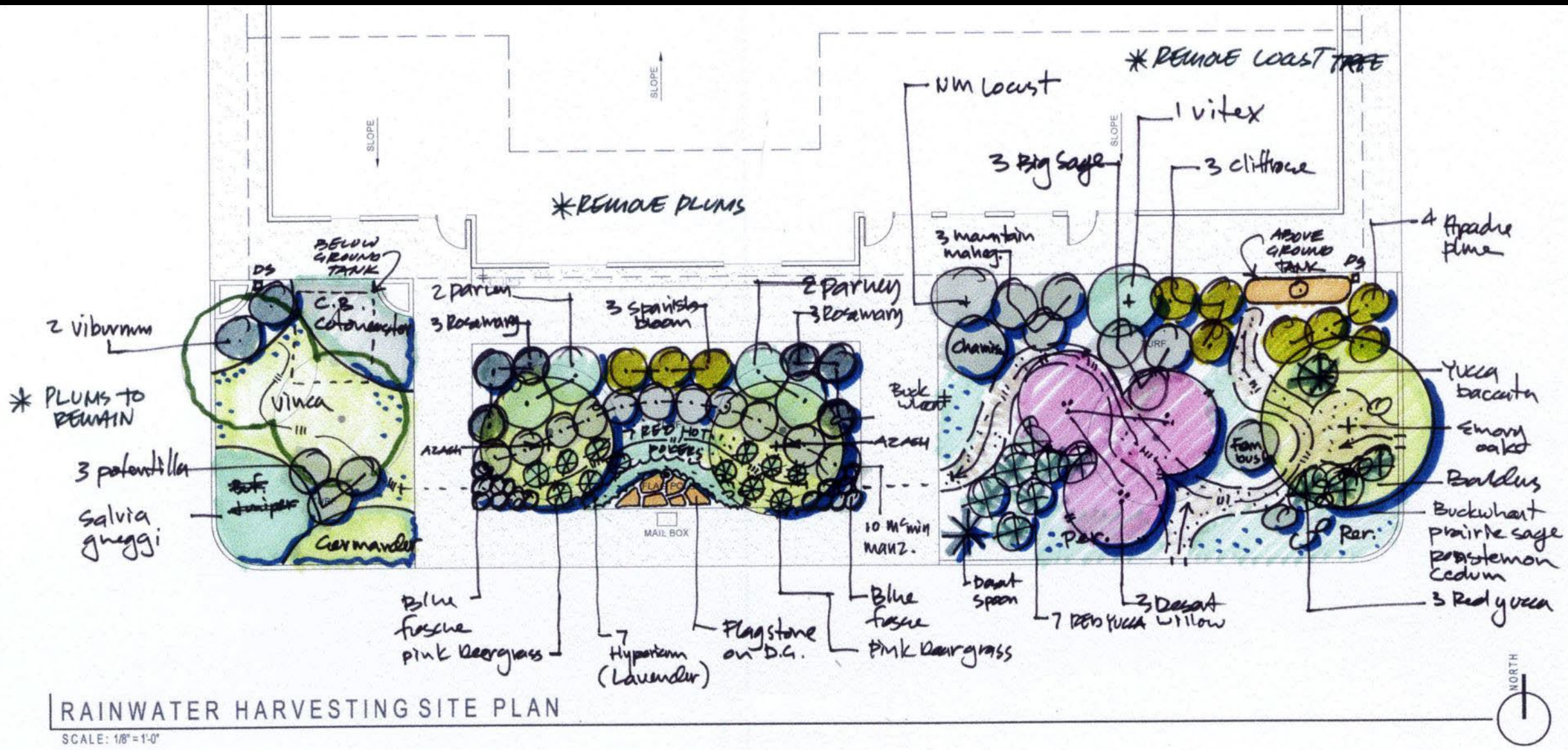

RAINWATER HARVESTING SITE PLAN

SCALE: 1/8" = 1'-0"

Chino Valley Town Hall Demo Project
Team

- **Designer**: TBK Environmental Design
- **Installer**: Skywater
- **Landscape Contractor**: Nature West

Skywater

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