

# LLSWD Water



# Efficiency Successes

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# Importance of Water Efficiency

- Annually, 60-75% of the water used within the District is applied to landscapes
  - Nationwide average is 50% (Water Research Foundation, 2016)
- Our goal is to help our customers use water more efficiently
- WA DOH Water Use Efficiency goal:
  - District's Goal is to keep annual water production increases at or below 1.6% (16 million gallons) over the next 6 years.
- Climate/Drought cycles unpredictable....
- Water availability varies from year to year
- SVRP Aquifer interacts with the Spokane River
  - Augments surface flow (positively AND negatively)

# Activities Implemented

- Demonstration garden
- Landscape and Irrigation Retrofits
  - Swale by parking lot
  - Matched heads on main landscape area and installed pressure regulators
  - Turf removal
  - Swale along Mission Ave
- Sensor Incentive Program
  - Audits, rain and soil sensors
- AgriMet weather station
- Education program
  - Workshops and seminars
  - Water conservation devices and literature

# Demonstration Garden

- Established a demonstration garden at our administration building to demonstrate what types of plants can be used for environmentally friendly landscapes
- Completed the Concept Master Plan in 1999
- Constructed in 2002 and expanded in 2005
- Composed entirely of drought tolerant and native plants



Currently over 2,000 plants are being shown

















# Landscape and Irrigation Retrofits

- 2005 implementations:
  - North Parking Lot Swale
  - Matched heads on main landscape area and installed pressure regulators
  - Turf Removal
  - Irrigation sensor
- 2014 and current implementations:
  - West stormwater swale along Mission Ave (City of LL water)
  - AgriMet-based irrigation controller

2005



- Retrofitted 22 spray heads to MP 2000 Rotators
- Observed water savings was 2.66 GPM to 0.71 GPM per head
- Recognized savings = 42.9 gallons per minute



# 2005 Turf Removal - Before

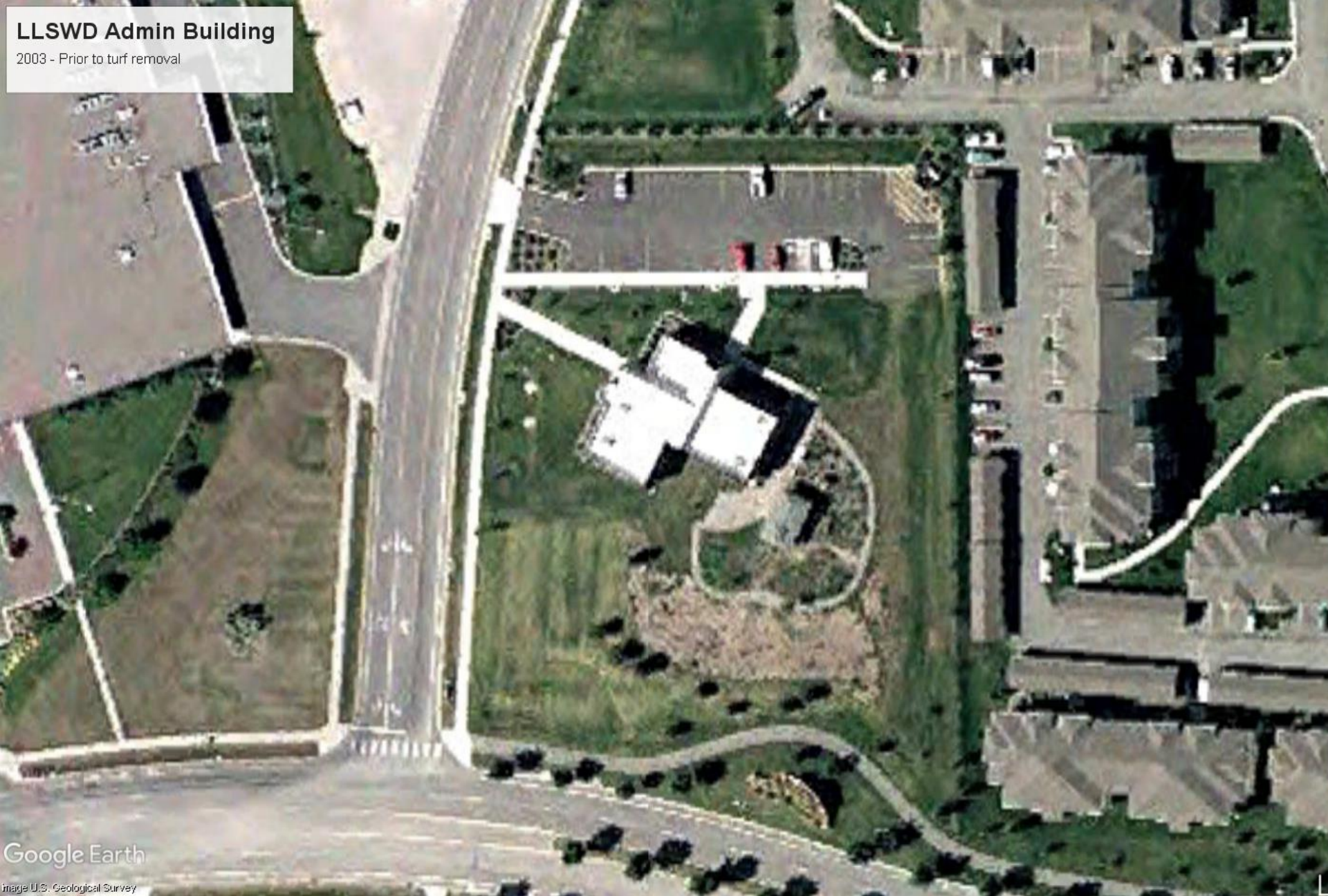


2,400 square feet of turf replaced with hardscape rocks and drought tolerant plants and drip irrigation – irrigated over a 5 year period



**LLSWD Admin Building**

2003 - Prior to turf removal



Google Earth

Image U.S. Geological Survey



After





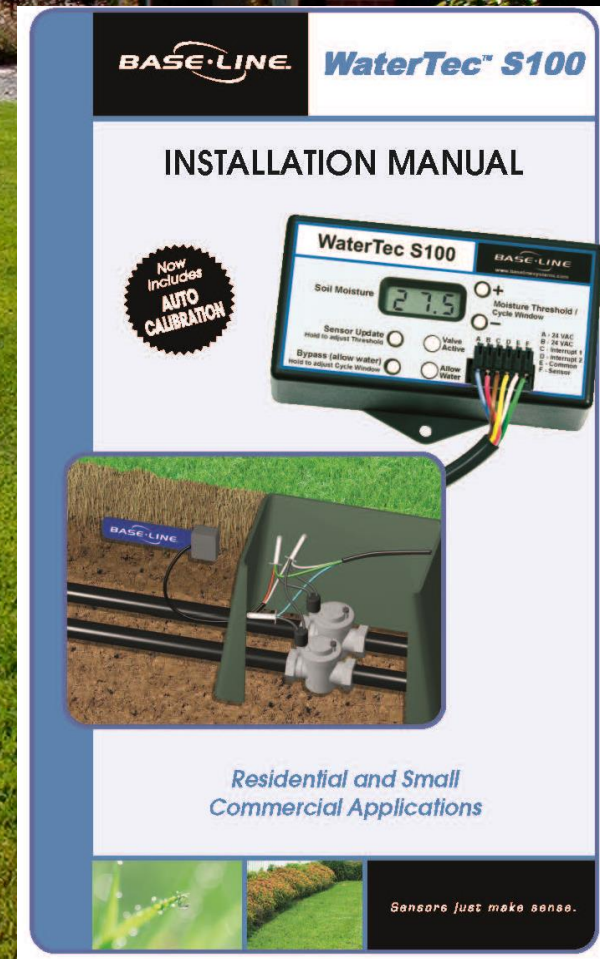
After





2005

Installed a soil moisture sensor at the Administration Building to cut back lawn irrigation and to conserve water.







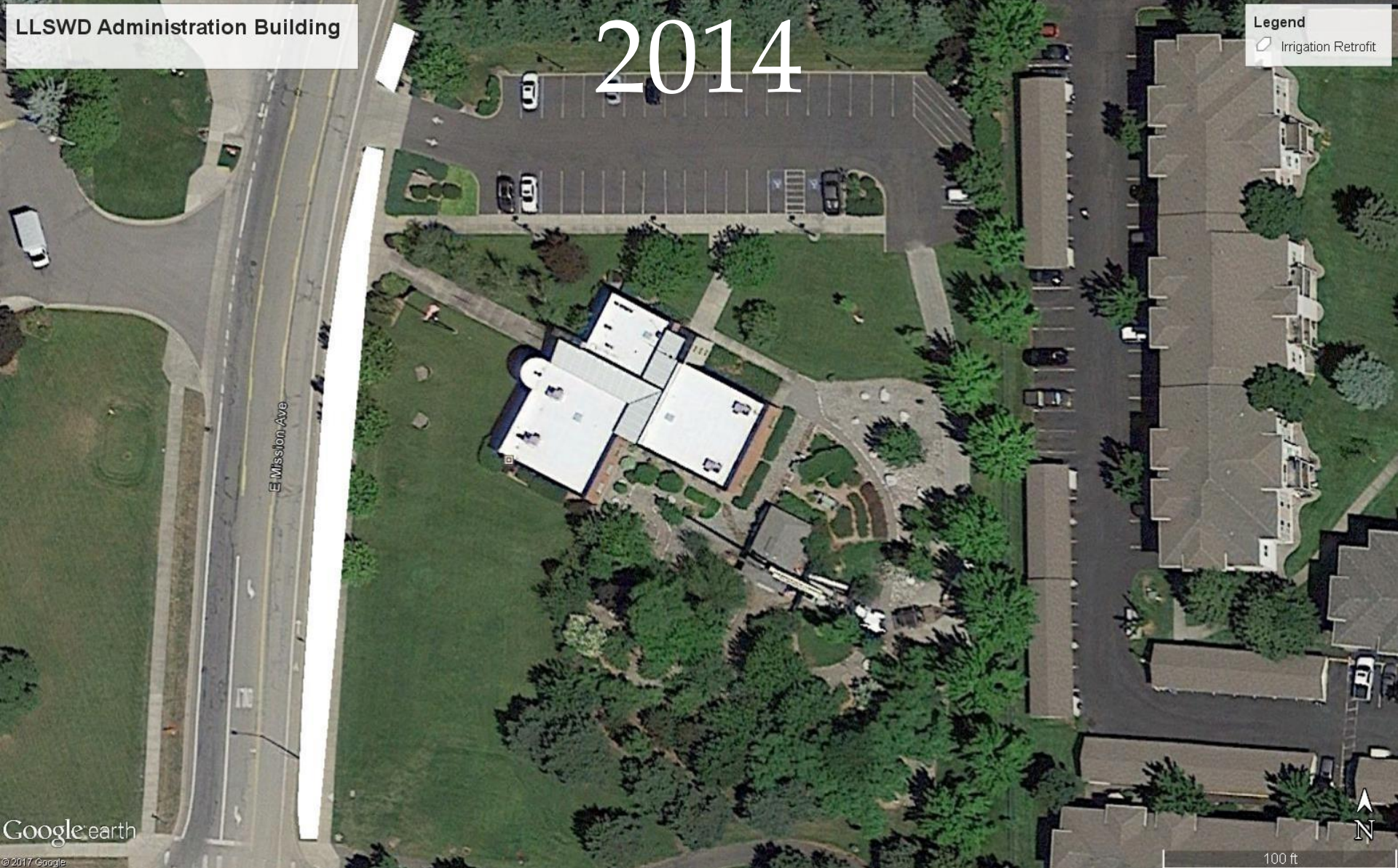
The soil sensor is buried in the root zone and relays real time soil moisture data back to the controller. Sensor data is utilized to automatically determine watering intervals based on the moisture content of the soil directly at the turf's root zone.





- Audited in June 2005 the system efficiency (DU) was 44%
- Implemented measures: Irrigation retrofits, turf removal & soil sensor
- **These implementations reduced metered water use by 36%**



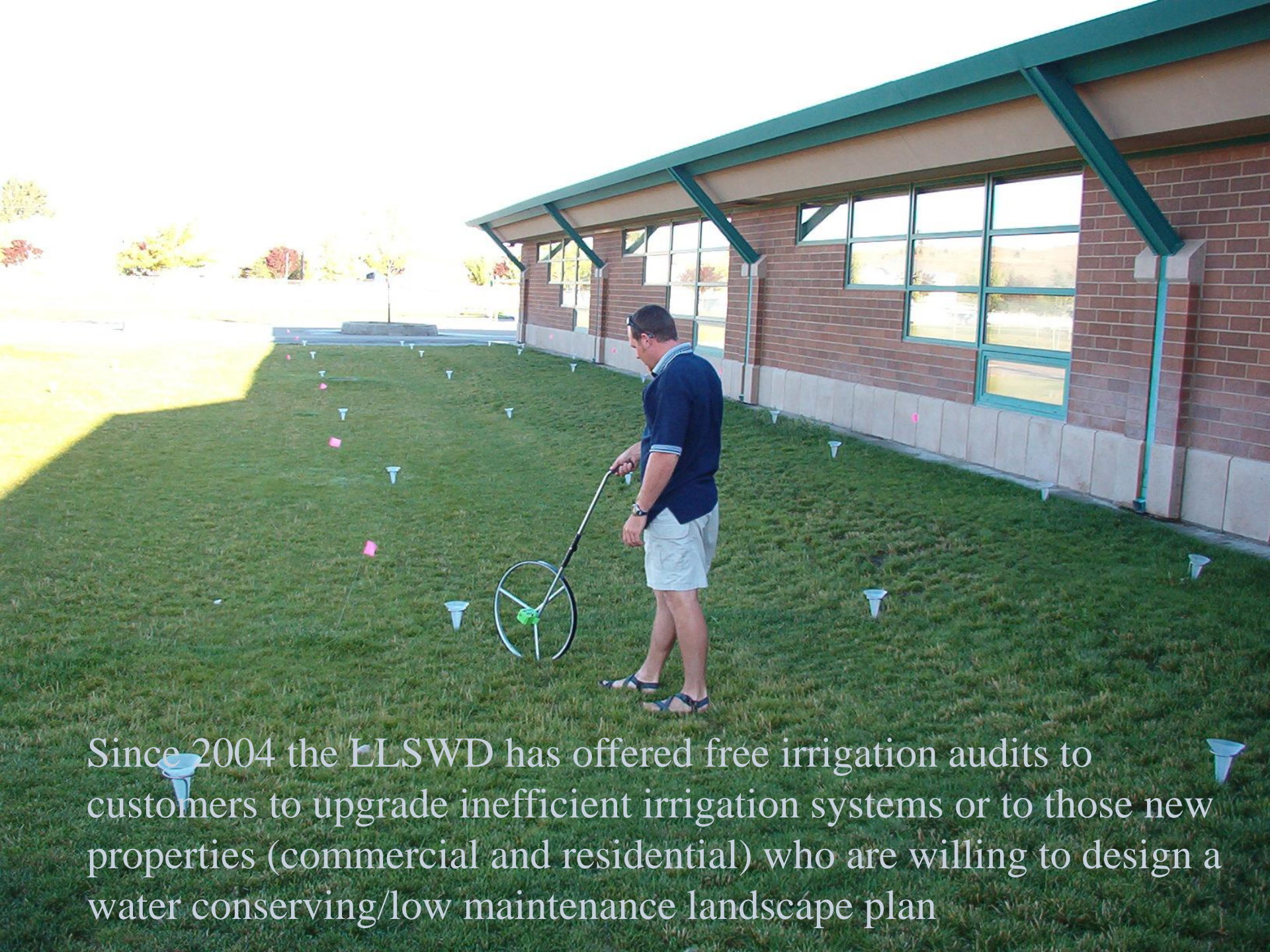


- Retrofitted 34 spray heads to MP 1000 Rotators and eliminated 27 heads
- Observed water savings was 1.85 GPM to 0.50 GPM per head
- Recognized savings (City) = 95.85 gallons per minute

# Sensor Incentive Program

- Established in 2009
- Incentives help introduce customers to new technologies and alternatives and help them conserve water and reduce/eliminate overages
- The incentives are designed to encourage customers to upgrade existing irrigation systems to increase the efficiency of the system and to reduce the amount of water needed for the landscape
- There are three (3) levels of participation:
  - Landscape Irrigation Audit
  - Automatic rain shut-off device
  - Soil moisture sensor





Since 2004 the ELSWD has offered free irrigation audits to customers to upgrade inefficient irrigation systems or to those new properties (commercial and residential) who are willing to design a water conserving/low maintenance landscape plan



# 2016



## AgriMet

- Network of weather stations, operated by US Bureau of Reclamation, used to model/understand crop and turf water use
- Use weather data (Evapotranspiration) to drive irrigation system controllers
- Costs:
  - Sponsor: annual O&M, \$1,600
  - Station Purchase, \$9,000 (USBOR); part of a larger study of regional microclimates

<https://www.usbr.gov/pn/agrimet/agrimetmap/libwda.html>









# Smart Irrigation Controllers



ET

Precip

Wind

Temperature

WiFi

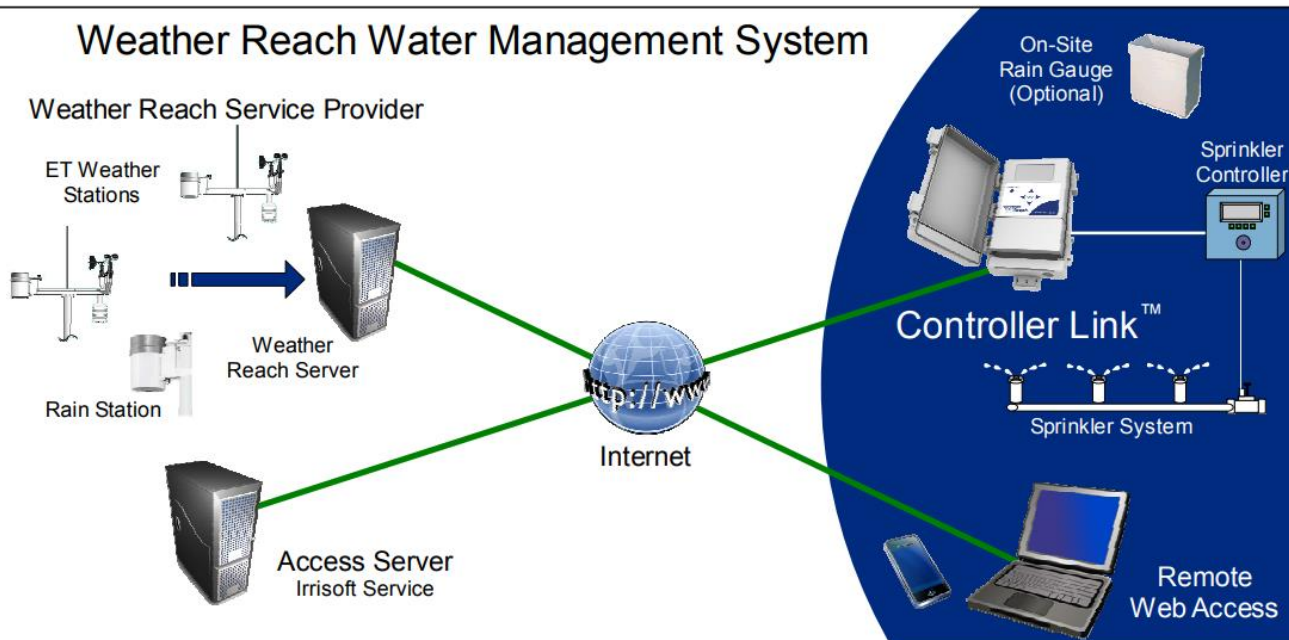
Mobile App Control

Custom Alerts

Interrupt Thresholds

Plant-specific settings

## Weather Reach Water Management System



# Education Program

- Participate in regional collaborative efforts (IWAC, SAJB, IESS-AWWA, SRC4, and more)
- Host landscaping seminars and workshops
- Provide no cost water conservation devices such as low flow shower heads and faucet aerators, toilet dams, leak detection kits, and precipitation gauges

# Questions?

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