



IMPLEMENTING WATER SUSTAINABILITY

RMLUI 2020



STERLING RANCH
COLORADO



3,400 acre master
plan development in
Douglas County, CO



30 minutes
southwest of
Denver



Zone for 12,000+
residential units
and a downtown
up to 7 stories

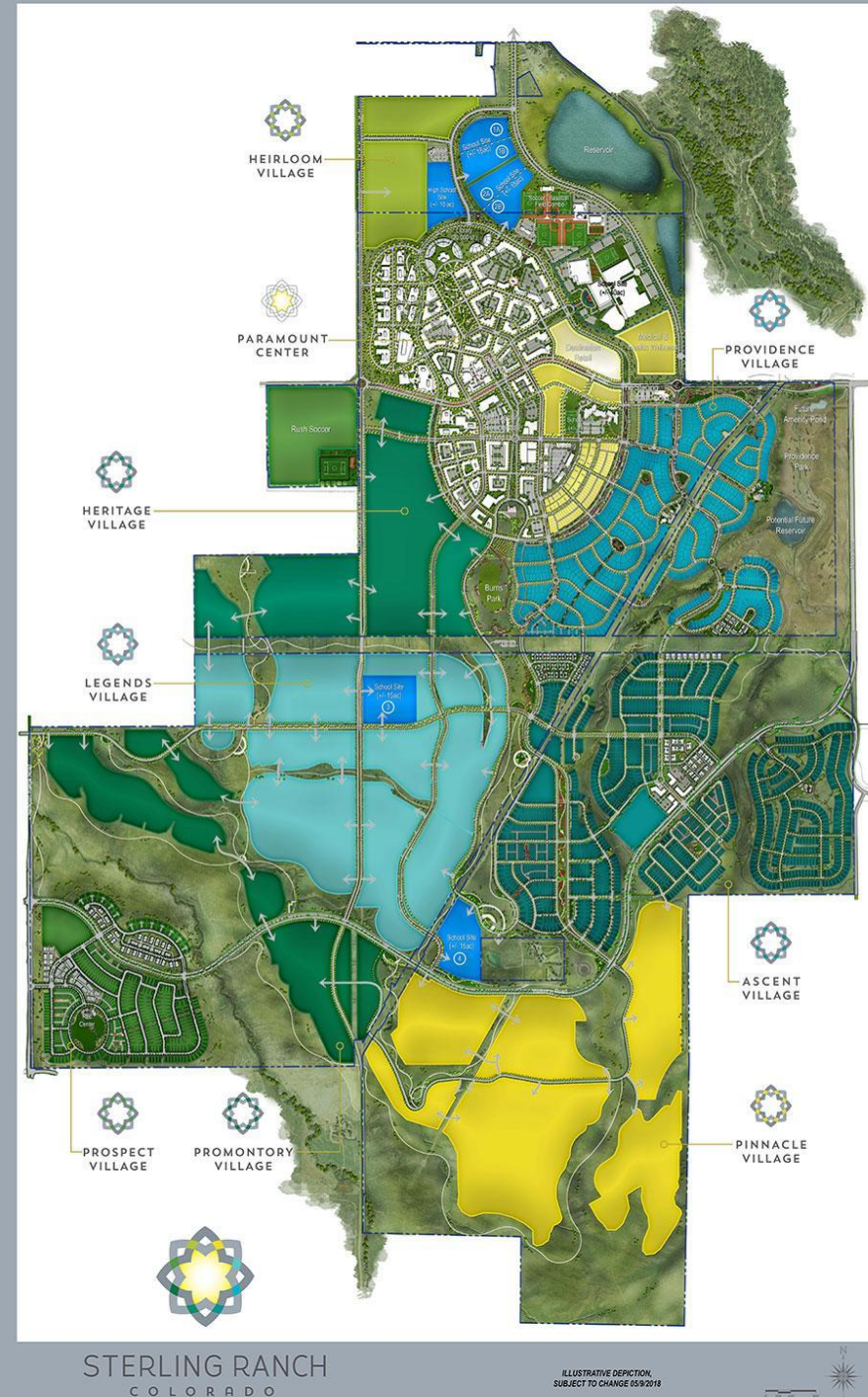


Building a 21st
century
community from
the ground up

STERLING RANCH HISTORICAL CONTEXT

Milestones

- 2001–2003 Negotiations for Purchase
- 2003 Contract
- 2004 Dominion Water and Sanitation District Formed
- 2006–2008 DRCOG Urban Designation
- 2008 Douglas County CMP Update
- 2009 Sterling Ranch PD submitted to Douglas County
- 2011 Sterling Ranch PD approved
- 2011–2015 Sterling Ranch PD litigated
- 2015 BOCC Approves First Final Plat; Groundbreaking
- 2016 First Lots Delivered
- 2017 Filing 1 Grand Opening



SUSTAINABILITY IN A NEW ECONOMY



- Generations X and Y Entering the Market
- Baby Boomers Demanding Sustainability they can Afford, Understand, and Manage
- Old Paradigms of Land Use are Disappearing
- History of Underinvestment in Infrastructure
 - Water, Wastewater, Storage
- Growing Economy and Private Capital Must Provide Solutions and Lead the Way Forward in Sustainability

LAND AS A LEGACY

- Building a Community Requires
 - Vision
 - Values/Principles/Disciplines
 - Financial Resources
 - Supportive Local Government
 - Reliable and Quality Water Supplies
 - Team that Shares the Vision & Values
- Water Footprint is Defining Cost and Competitive Advantage



STERLING RANCH
COLORADO

joy resides here

HISTORICAL CONTEXT

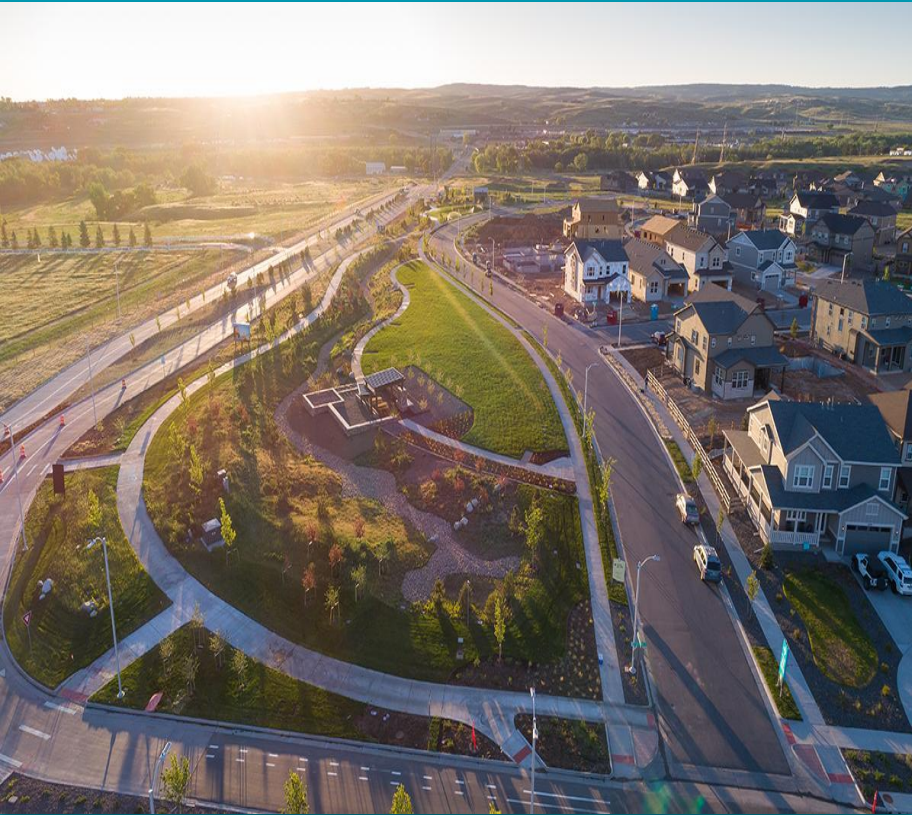
Northwest Douglas County, Early 2000's



- Sustainable Water Supply Challenge
 - 700 neighbors on failing individual & community wells
 - Some trucking water
- Balance of systems exceeded water costs
- Only a large development with a municipal type system could fund infrastructure and solve

“Water Supplies are Extremely Expensive and Limited, Therefore We Must Reduce Demand and Increase Efficiency.”

MAJOR ELEMENTS OF THE STRATEGY



- Best in Class – who does the best job of water conservation in the country?
- Holistic Approach
 - Reduce in-home demand
 - Manage landscape, irrigation, and peaking
 - Use naturally occurring water effectively
 - Colorado Water Conservation Board Study
www.lrcwe.com

“If You Compare Yourself To Yourself Or Your Direct Competition,
You Always Look Pretty Good. Breakthrough Thinking Comes
From New Metrics, Usually From the Outside”

DEVELOPING SUSTAINABILITY STRATEGICALLY

Key Considerations

- Designing for people not yet born
- State and local government support for sustainability
- Water Provider rate structures/cost/reliability
- Availability of technology/internet
- Creating economically viable project to distinguish the market
 - Capital with proper time horizon
 - Builders
 - Residents
- Landscaping must be Colorado beautiful and be sustainable

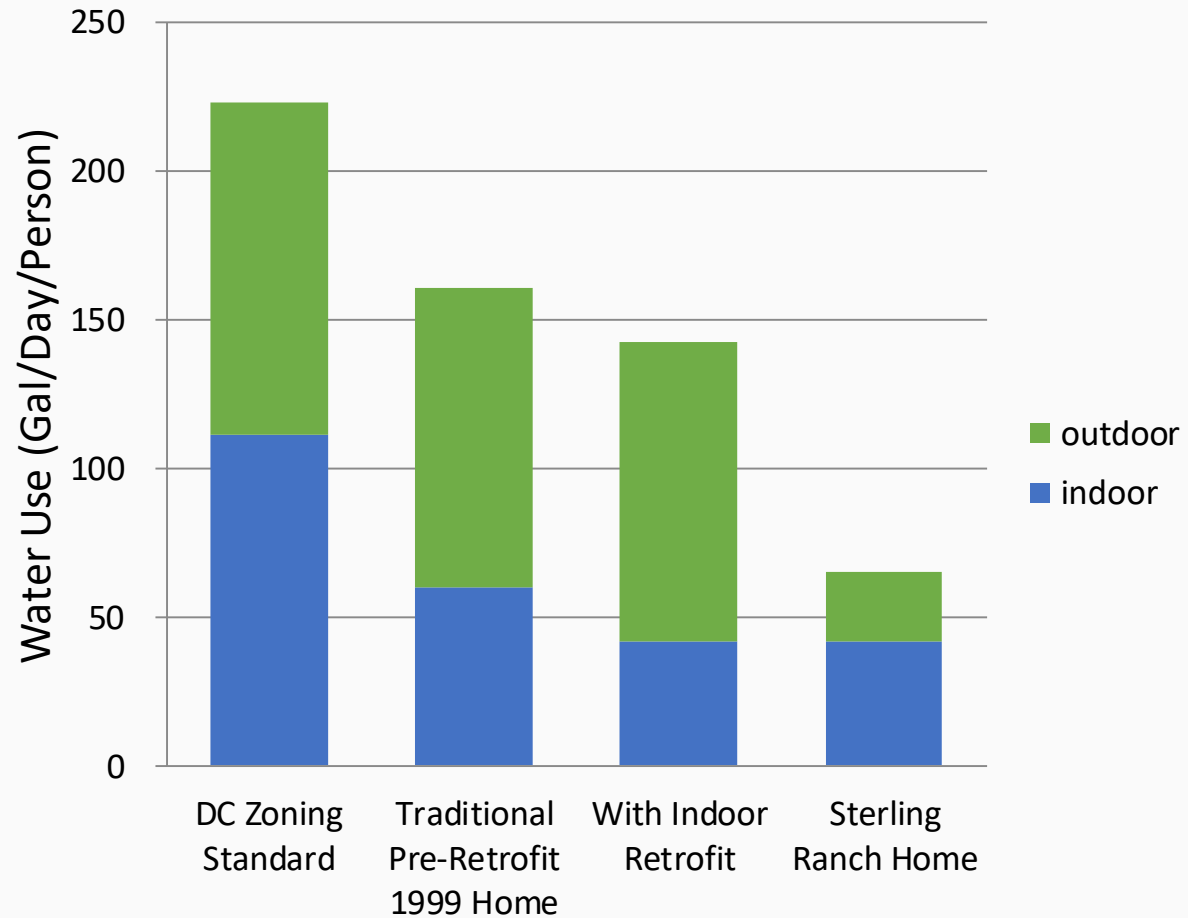
WATER IS A VERY TOUGH PROBLEM

- New technologies for managing water are now available
 - Residents want to control their homes – put them in charge!
 - Dual metering
 - Instantaneous feedback to residents
 - Leak protection
 - Peaking management
 - Resident awareness and cost of water



Water Demand Management

WATER DEMAND PLANNING



INDIVIDUAL WATER BUDGETS

Lot Size w/out ROW (square feet)*	Water Budget (gal/yr)
0 to 3,000	10,000
3,001 to 4,000	12,500
4,001 to 5,000	15,000
5,001 to 6,000	27,000
6,001 to 7,000	32,000
7,001 to 8,000	39,000
8,001 to 11,000	49,000
11,000 to 20,000	60,000
20,001 to 30,000	80,000
30,001 and up	100,000

*Lot size does not include the right-of-way.



LANDSCAPE PLANS & WATER BUDGETS



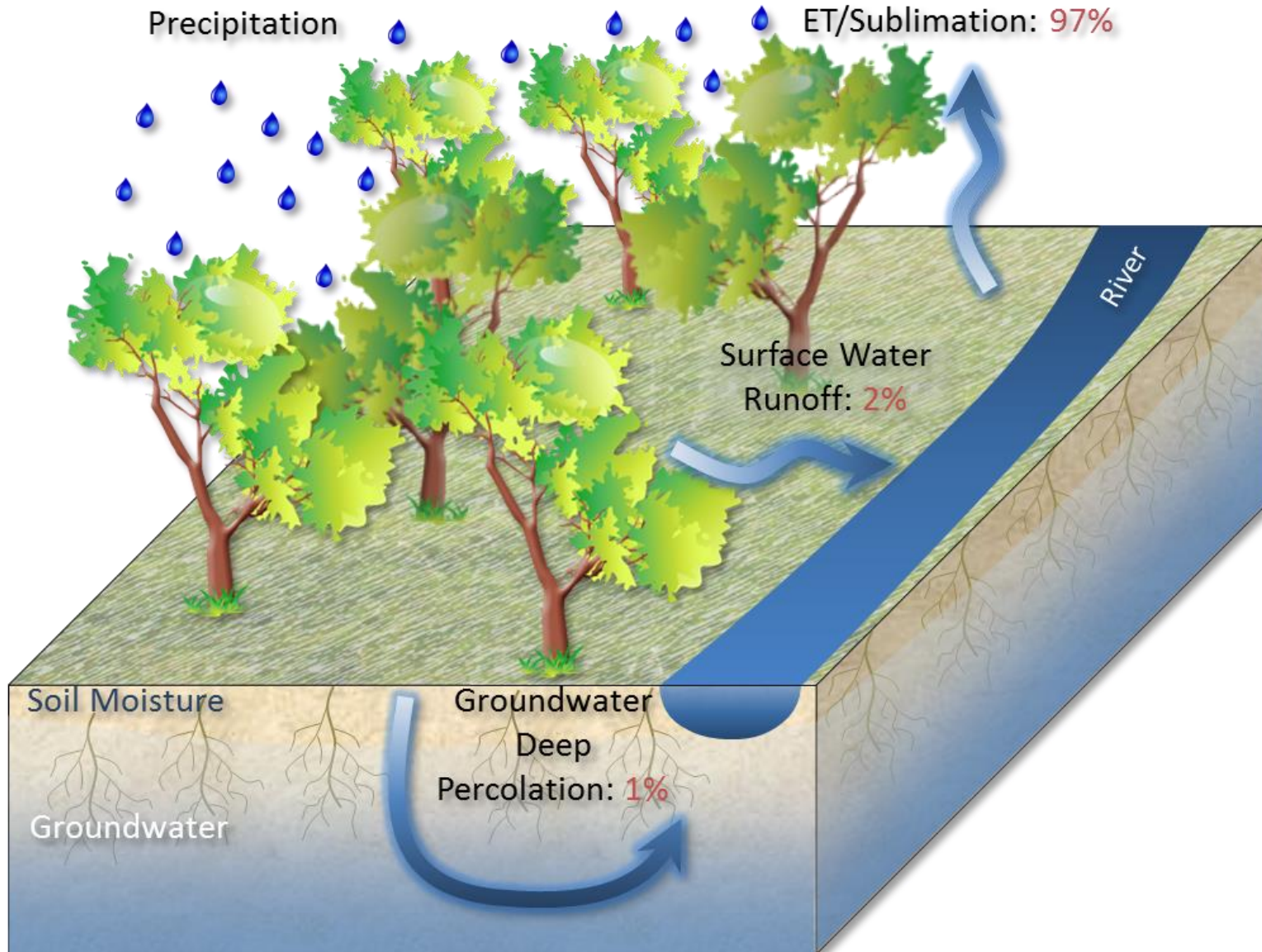
Typical Rear Yard Landscaping

FIGURE 1 WATER USE CALCULATIONS | 50 X 110 LOT

PLANT WATER NEED CATEGORY	SF	GALS/ SF	GALS/ SEASON
HIGH WATER ZONES	784	20	15, 680
MODERATE WATER ZONES	716	10	7,160
LOW WATER ZONES	617	6	3,702
TOTAL GALLONS NEEDED BY ALL ZONES		26,542	
TOTAL SQUARE FEET (SF) NEEDED BY ALL ZONES		2,117	
AVERAGE GALS/ SF/ SEASON, ALL ZONES TOTAL GALS/ TOTAL SF:		12.54	



2007 HOLISTIC APPROACH STUDY



- On average, only 3% of precipitation returns to the stream system.
- Could capture 97% without impacting existing water rights.
- Replace the other 3% through an augmentation plan.

- Integrating stormwater management as part of a non-potable system and incorporating into land planning
- Reduce amount and extent of infrastructure needed for development & reduce homeowner's expense
- Reduces pollutants caused by and transmitted with stormwater – improved water quality





THE NATURE OF
STERLING RANCH
C O L O R A D O

THE WONDER OF TODAY AND A THOUGHTFUL
COMMITMENT TO THE PROMISE OF TOMORROW.