Urban Land Institute

Water Wise Development Coalition

Marianne Eppig, Director of Resilience, ULI

July 12, 2023

Water Wise Development Coalition

Intro for newbies!

- Who: ULI, in partnership with the Alliance for Water Efficiency,the SonoranInstitute, and the WaterNowAlliance, is convening land use and real estate professionals with policymakers and decision-makers. This coalition is supported by the Colorado Water Conservation Board.
- What: Advancing water-smart real estate development and supportive policies.
- When & Where: Quarterly virtual meetings. How: Participants will have a say in meeting topics, speakers, and efforts.

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Agenda

- Welcome and Overview (10 min)
  - Group chat introductions:name,title, org, location
  - About the Water Wise Development Coalition
  - Speakerintroductions
- Water Wise Development Presentations (45 min)
  - BrockSmethills,President, SterlingRanch Development Company
  - Kyle Harris, Senior Vice President Community Development, McWhinney
  - Steven Kunshier, Director of Housing Development, MaikerHousing Partners
  - Jacob Atalla, Vice President, Sustainability Initiatives,KB Home
- Q&A and Group Discussion (30 min)
- Next Steps (5 min)

Urban Land Institute

STERLING RANCH
COLORADO

STERLING RANCH – A *SuccessStory*

WATER WISE TOOLS IN HOUSING


joy resides here

STERLING RANCH
COLORADO

joy resides here

STERLING RANCH
COLORADO

joy resides here

Meet Brock Smethills

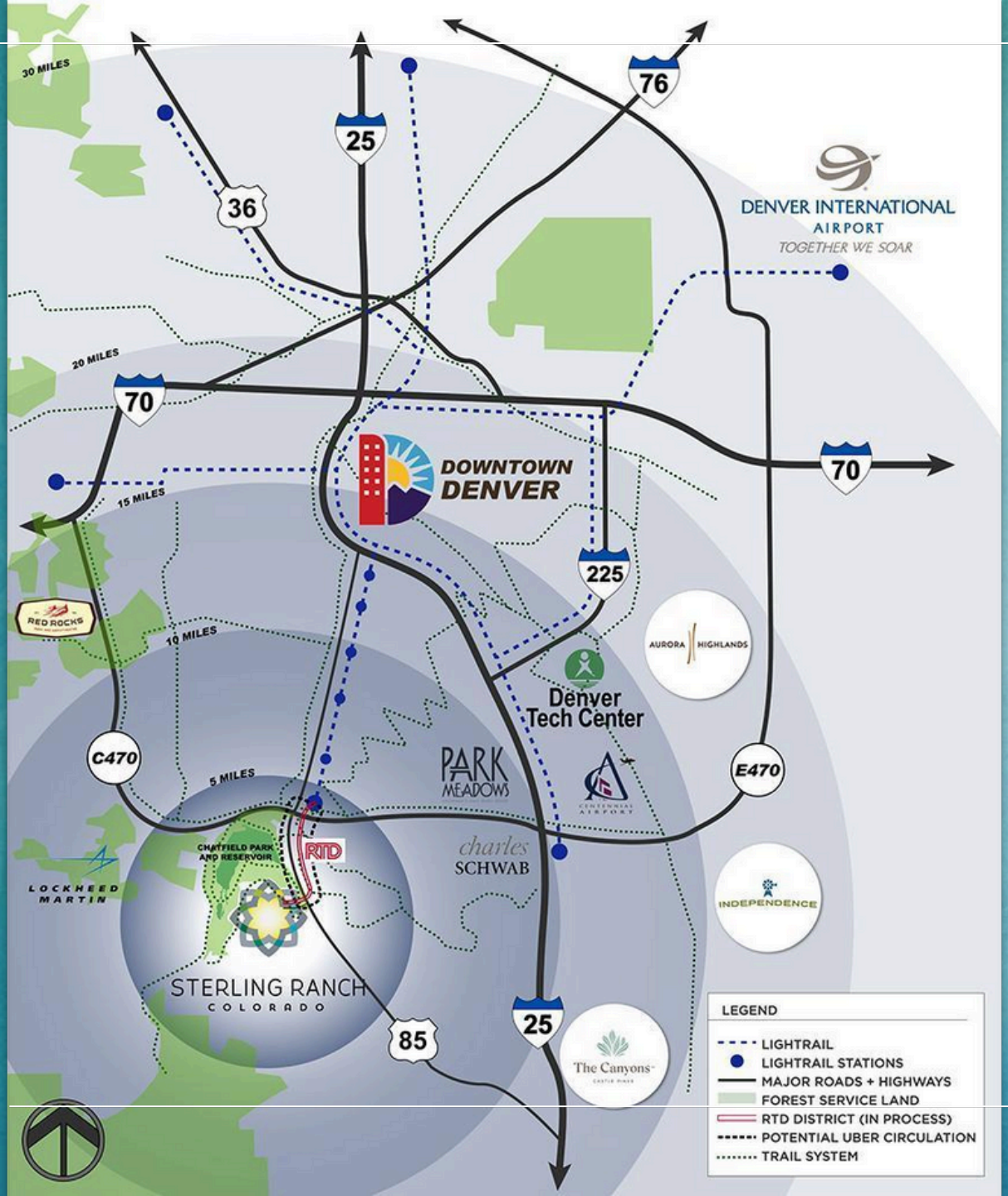
PRESIDENT
STERLING RANCH DEVELOPMENT COMPANY

Sterling Ranch has become the preeminent and top selling master planned community in the Denver Metro MSA for the past several years.

Brockoverseesstrategicplanningandexecution, including sustainability measures such as water demand management and technology.

STERLING RANCH
COLORADO

Sterling Ranch Location



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About Sterling Ranch

3,400
Total Acres

1,300
Acres Parks& Open Space

1,500+
Occupied Homes

12,000+
Planned Homes

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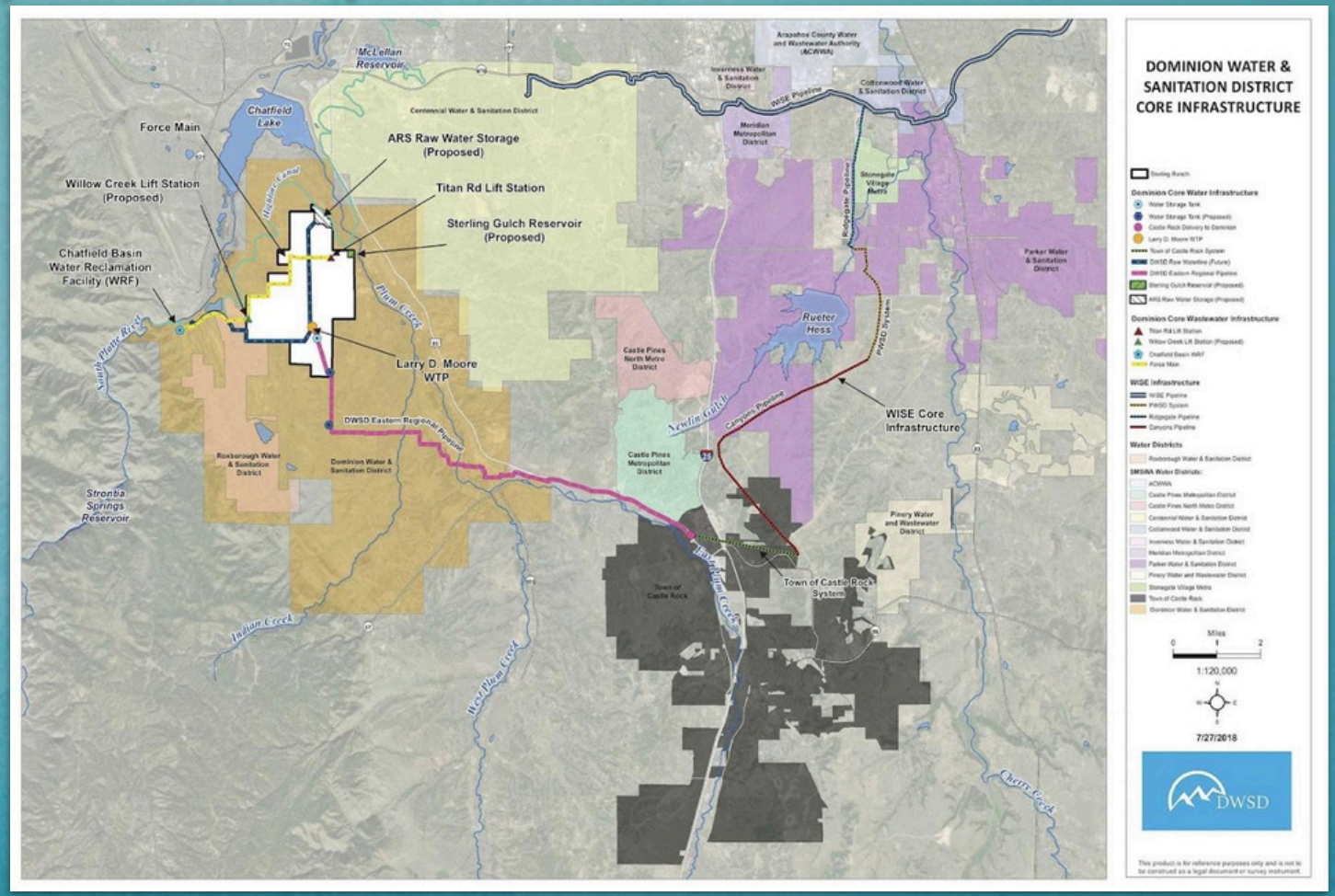
Water, Land, and ROI

1. CO'S 80/20 Rule
2. Groundwater vs. Renewable Water
3. Conjunctive Use System
4. Rainwater Harvesting
5. Return on Investment
6. Land is a Residual



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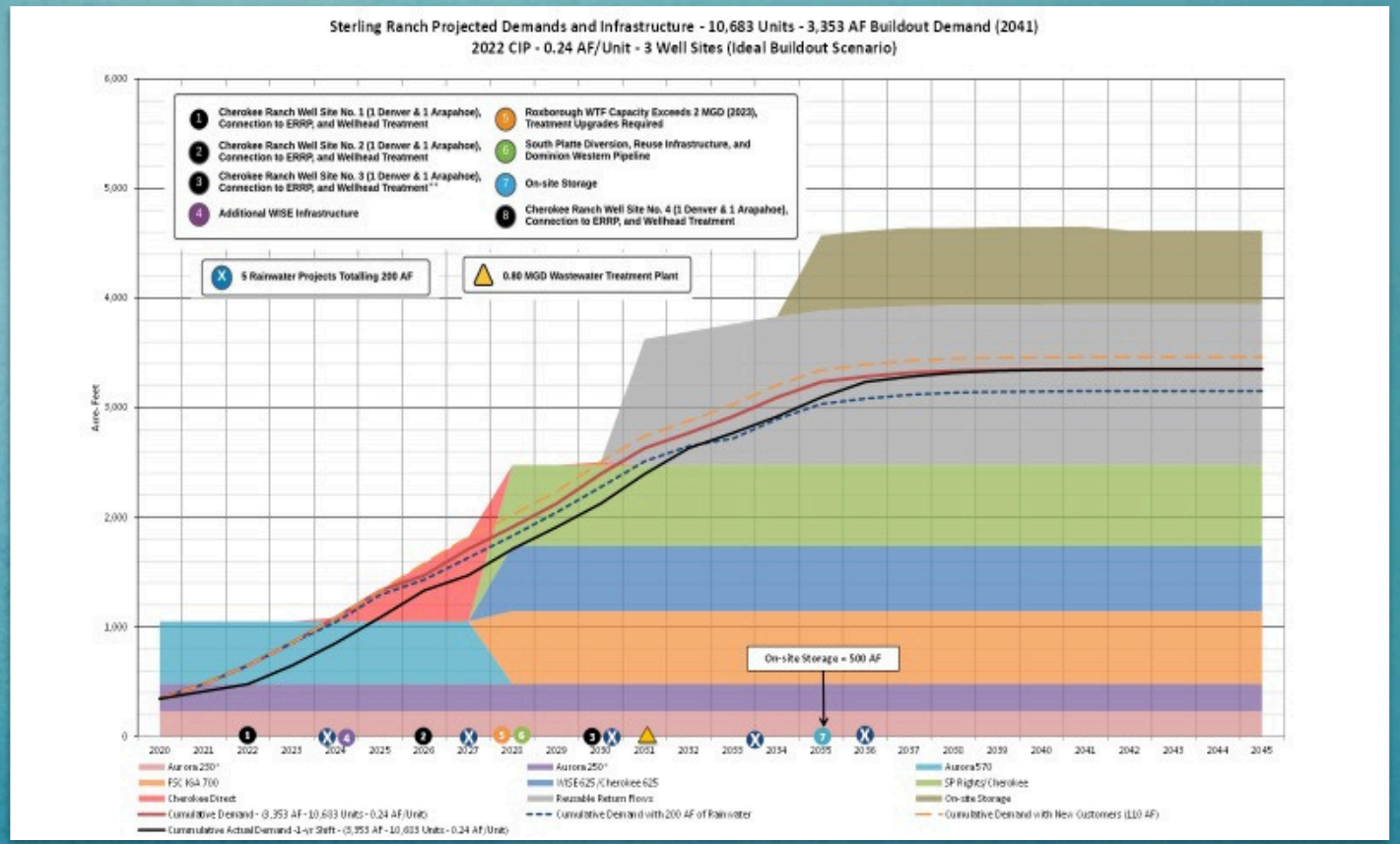
Water Reductions Save Money…

… And Water is the Lynchpin of Growth in CO

1. Over $60 million in infrastructure savings
2. Use Water to Extinction!
3. Rainwater Harvesting
4. Water Costs (Taps) directly Impact Land Value



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Tools to be Water Wise

1. Land Plan Design
2. Diversity of Housing
3. Landscape & Lot Design
4. Technology
5. Effective Rate Structure

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Tools to be WaterWise

Let'stalk Success

0.17
Acre-Ft PerHome *2022

55,000
GallonsPer Home

45%
Lower Than AverageDenver

26%
Lower than State Water Plan 2050 Target

MSA

Density & Design Matter!

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Tools to be Water Wise

0.202
Acre-Ft
PerLargeLot

~ 60%
Indoor Water
Usage

0.136
Acre-Ft
Per Small Lot

~67%
Indoor Water
Usage

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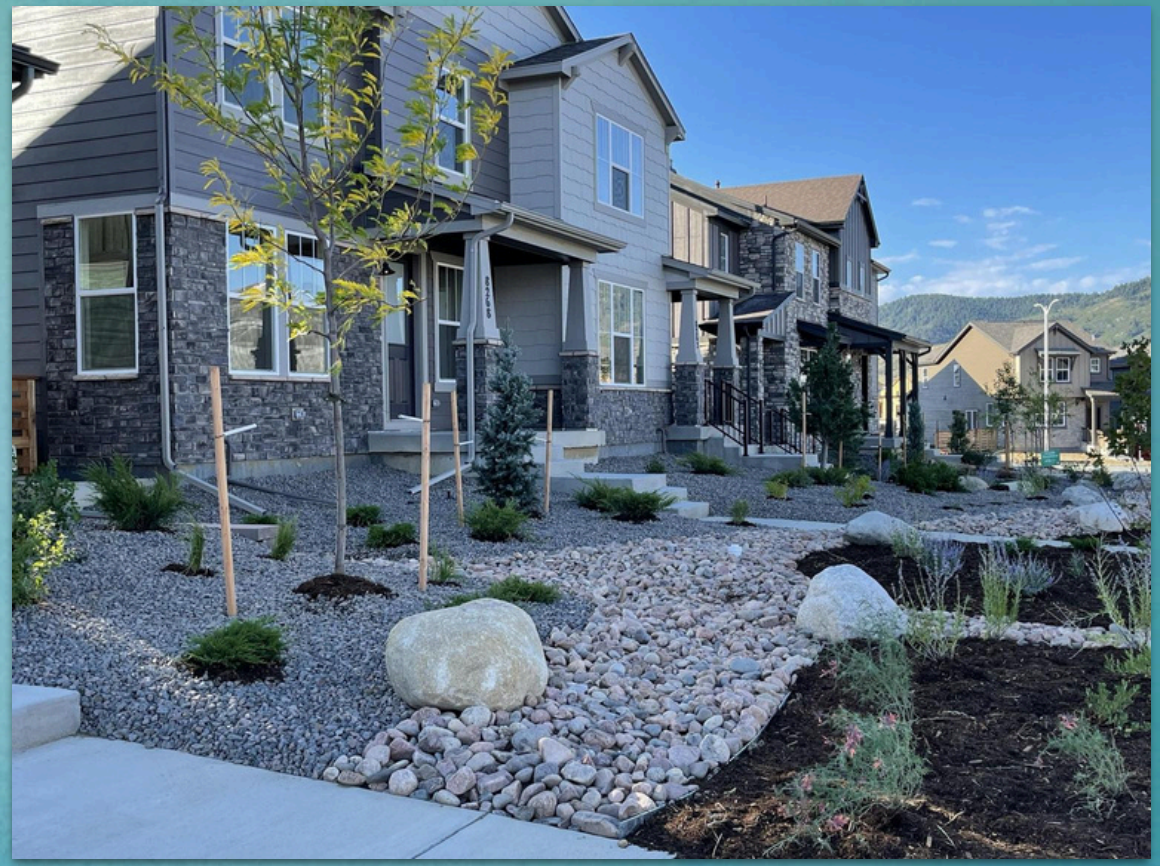
Diversity of Housing

ToolstobeWaterWise

Landscape Takeaways

1. PartnershipwithDenver BotanicGardens
2. Homeowner education
3. Irrigation budgets
4. Individual lot landscape designs
5. No one-size fits all
6. Grass isn’talwaystheenemy



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Landscaping & Lot Design

Tools to be Water Wise

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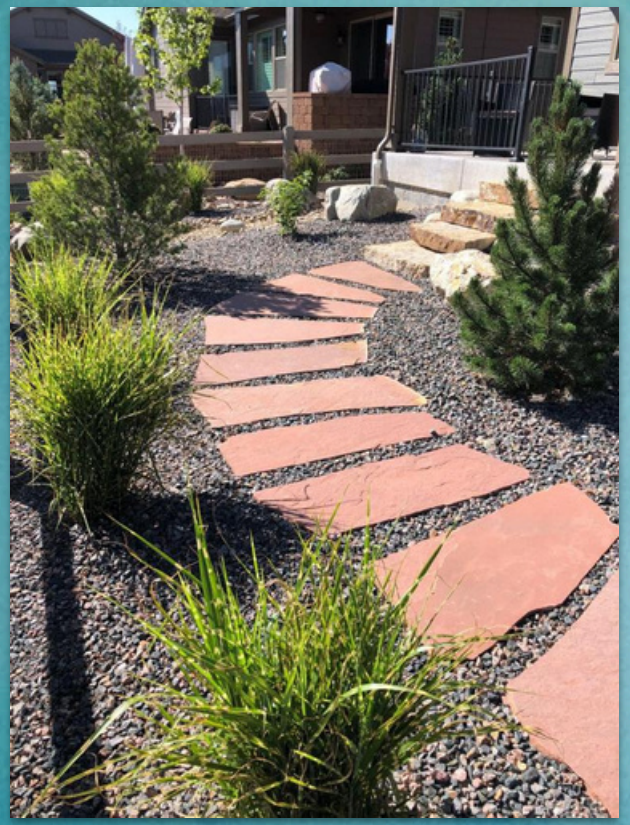
Landscaping & Lot Design

Tools to be Water Wise



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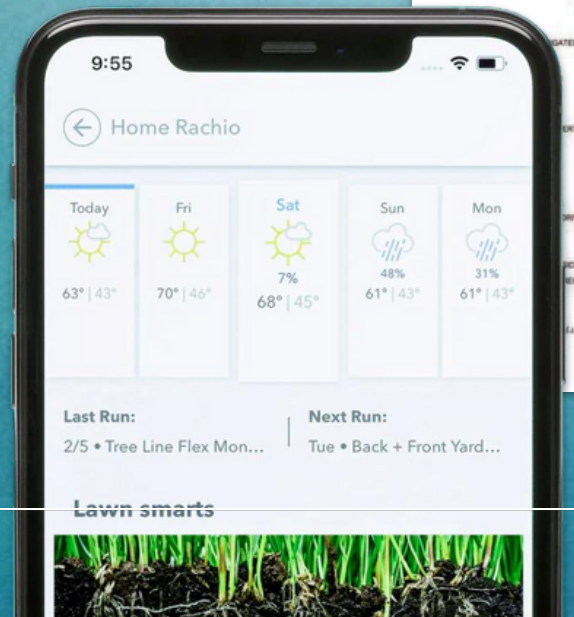
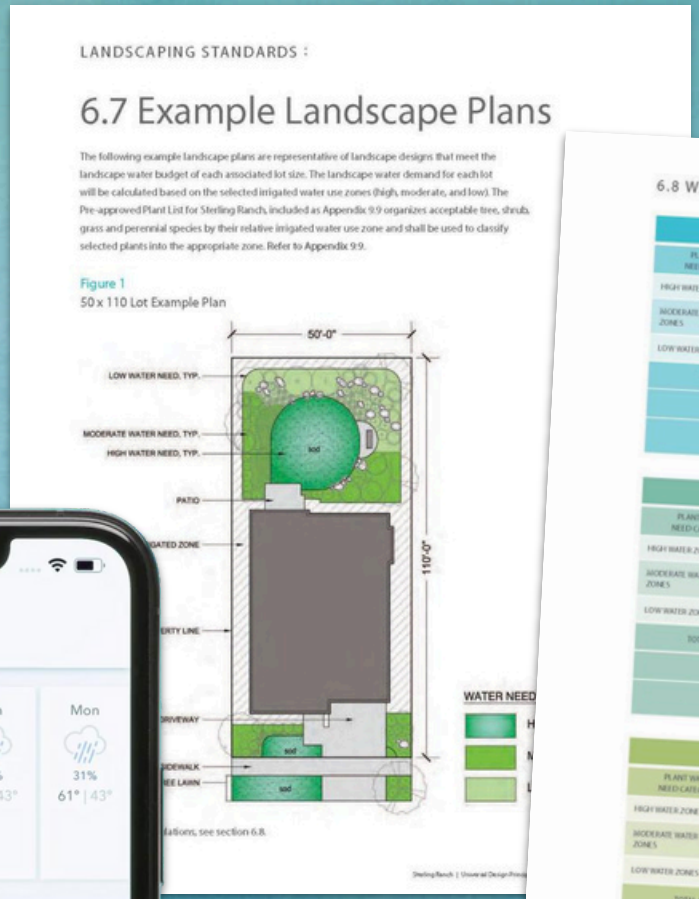
Landscaping & Lot Design

Tools to be Water Wise

Technology

1. Dualwater meters
2. Rachio
3. Predictive Analytics
4. Low-flow fixtures




LANDSCAPING STANDARDS :

6.7 Example Landscape Plans

The following example landscape plans are representative of landscape designs that meet the landscape water budget of each associated lot size. The landscape water demand for each lot will be calculated based on the selected irrigated water use zones (high, moderate, and low). The Pre-approved Plant List for Sterling Ranch, included as Appendix 9.9 organizes acceptable tree, shrub, grass and perennial species by their relative irrigated water use zone and shall be used to classify selected plants into the appropriate zone. Refer to Appendix 9.9.

Figure 1
50 x 110 Lot Example Plan

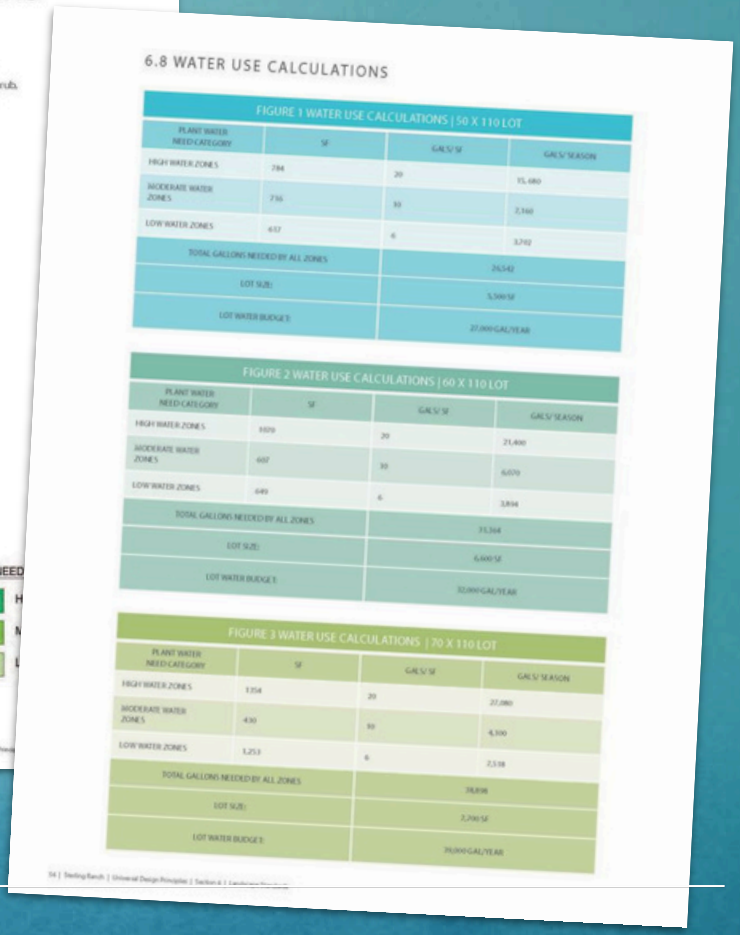

6.8 WATER USE CALCULATIONS

FIGURE 1 WATER USE CALCULATIONS | 50 X 110 LOT

FIGURE 2 WATER USE CALCULATIONS | 60 X 110 LOT

FIGURE 3 WATER USE CALCULATIONS | 70 X 110 LOT

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Tools to be Water Wise

Effective Rate Structures

WATER BUDGET
(gallons / year)

LOT SIZE SQ. FT. (without ROW)		
0	3,000	10,000
3,001	4,000	12,500
4,001	5,000	15,000
5,001	6,000	27,000
6,001	7,000	32,000
7,001	8,000	39,000
8,001	11,000	49,000
11,001	20,000	60,000
20,001	30,000	80,000
30,001	70,000+	100,000

INDOOR WATER RATES		
TIER 1 $8.55 Per 1,000 gallons	**TIER 2** $10.30 Per1,000 gallons	**TIER 3** $16.35 Per 1,000 gallons

OUTDOOR WATER RATES			
TIER 1 $10.25 Per 1,000 gallons	**TIER2** $16.05 Per 1,000 gallons	**TIER3** $21.85 Per 1,000 gallons	**TIER 4** $26.90 Per 1,000 gallons

TIERED WATER PRICING	
Single Family Monthly Fee	**$66.00**
Multi-Family Monthly Fee	**$44.25**
Plus Monthly Usage of Indoor and Outdoor Water	

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Water Wise Works

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COLORADO

joy resides here

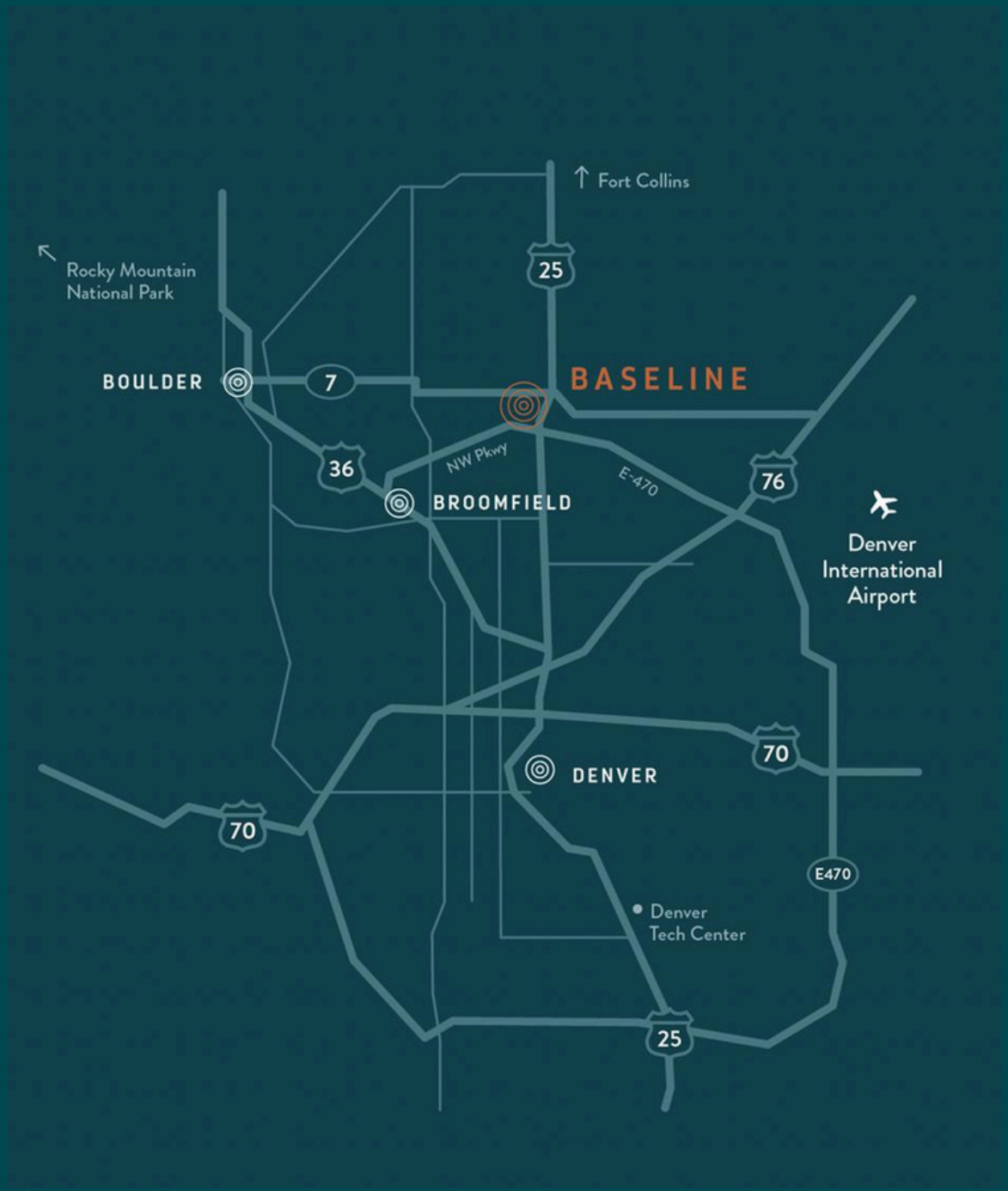
BASELINE™

Broomfield, Colorado

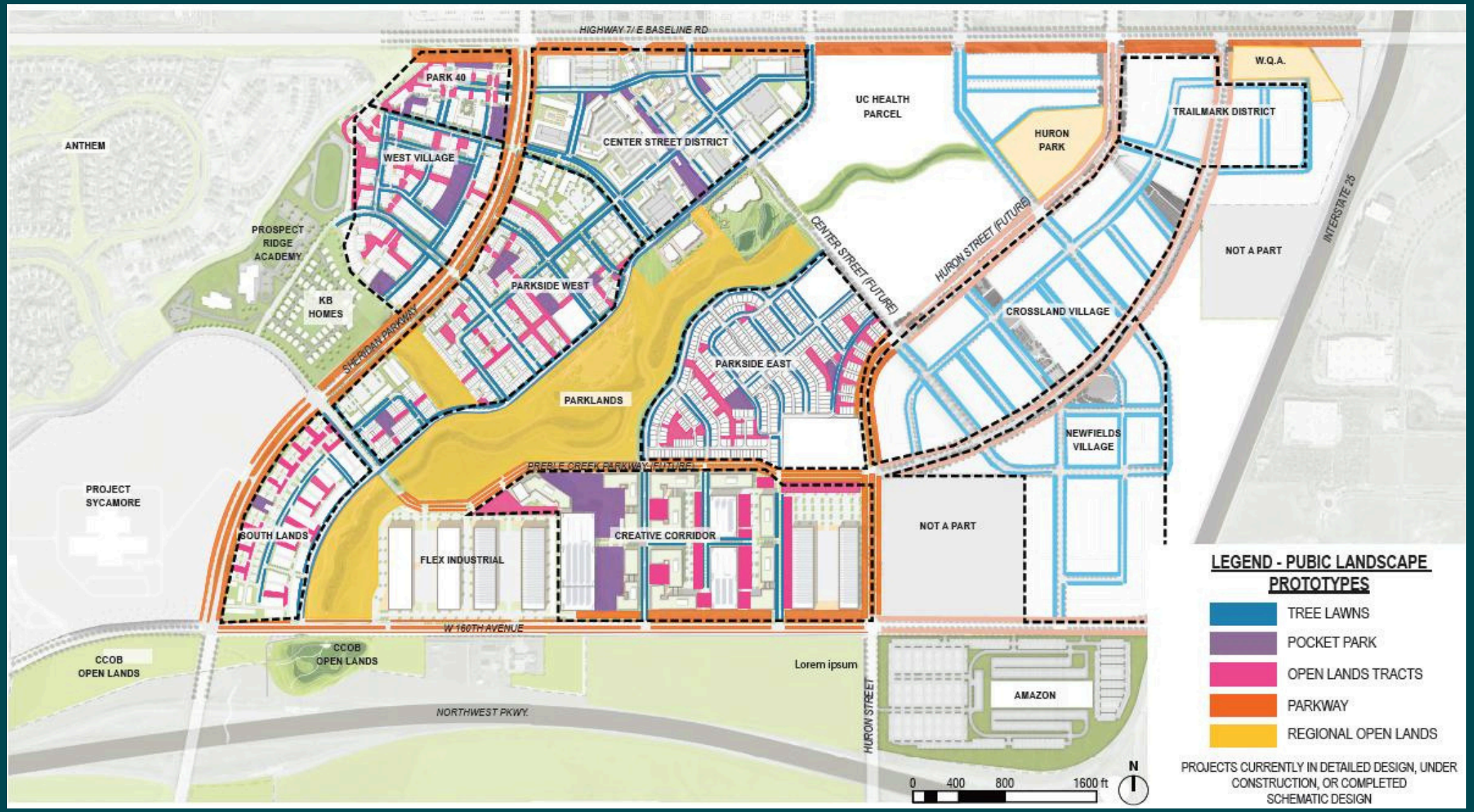
WATER CONSERVATION IN PRACTICE

McWHINNEY

| Location


Fort Collins
Rocky Mountain National Park
25
BOULDER
7
BASELINE
36
NW Pkwy
E-470
76
BROOMFIELD
Denver International Airport
70
DENVER
70
E470
Denver Tech Center
25

| Baseline Landscape Zones



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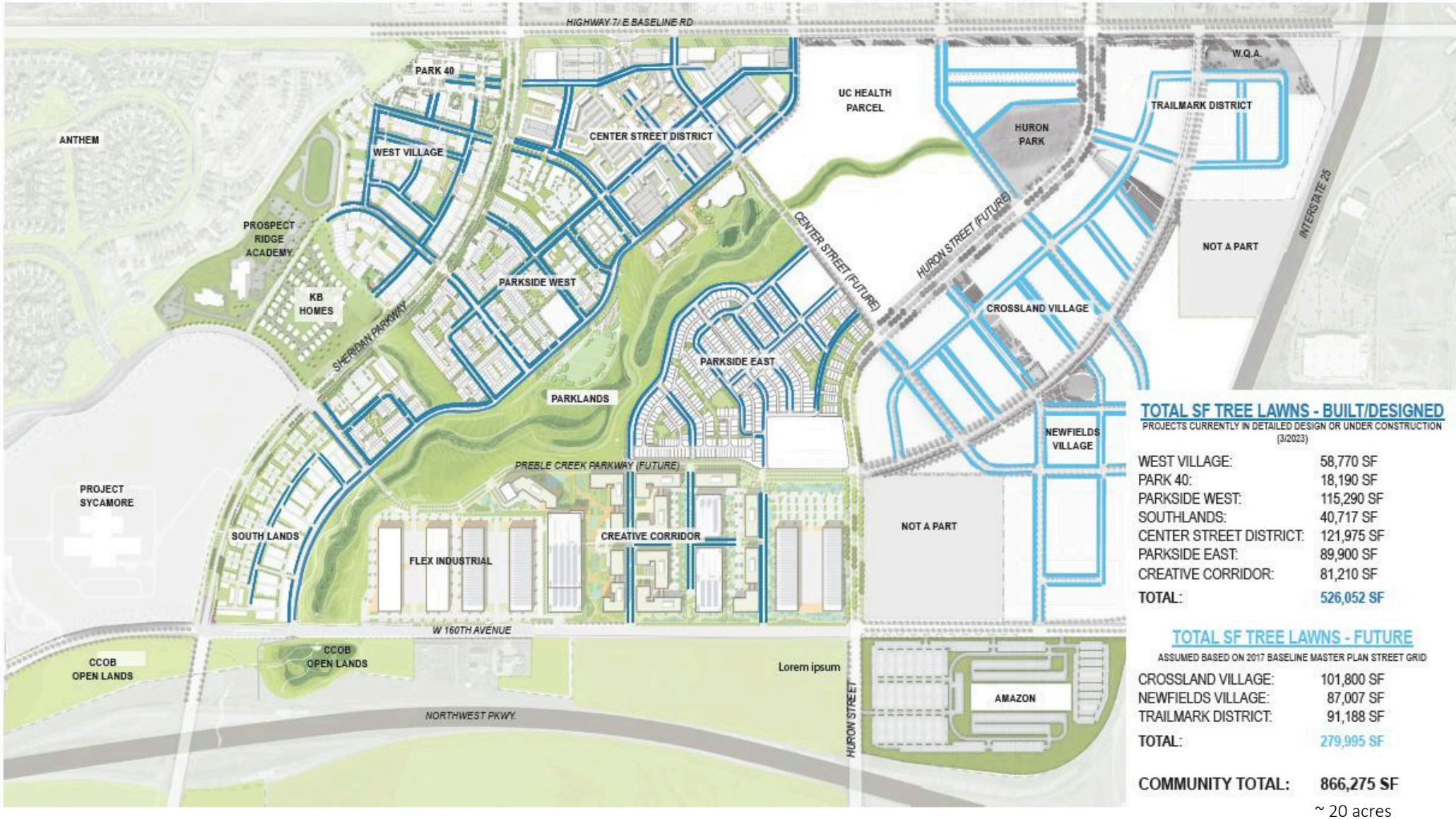
| Tree Lawns



TOTAL SF TREE LAWNS - BUILT/DESIGNED

PROJECTS CURRENTLY IN DETAILED DESIGN OR UNDER CONSTRUCTION (3/2023)

WEST VILLAGE:	58,770 SF
PARK 40:	18,190 SF
PARKSIDE WEST:	115,290 SF
SOUTHLANDS:	40,717 SF
CENTER STREET DISTRICT:	121,975 SF
PARKSIDE EAST:	89,900 SF
CREATIVE CORRIDOR:	81,210 SF
TOTAL:	**526,052 SF**

TOTAL SF TREE LAWNS - FUTURE

ASSUMED BASED ON 2017 BASELINE MASTER PLAN STREET GRID

CROSSLAND VILLAGE:	101,800 SF
NEWFIELDS VILLAGE:	87,007 SF
TRAILMARK DISTRICT:	91,188 SF
TOTAL:	**279,995 SF**

COMMUNITY TOTAL: 866,275 SF

~ 20 acres

| Tree Lawns

TREE LAWNS	TYPICAL	BASELINE COMMUNITY TREE LAWN
STUDY AREA (SF)	3,000 SF	3,000 SF
IRRIGATED TURF (SF) (HIGH WATER REQ.)	3,000 SF	1,228 SF
IRRIGATED SHRUBS (SF) (MEDIUM WATER REQ.)	0 SF	745 SF
IRRIGATED NATIVE SEED (SF) (LOW WATER REQ.)	0 SF	0 SF
PERCENTAGE OF LANDSCAPE IRRIGATED (%)	100%	66%
WATER REQUIREMENT (GAL/YEAR)	58,163	27,857

BASELINE

| Tree Lawns –3,000 sf Study Area

Cost	Typical Community	Baseline	Delta
Installed Cost	$26,985 $11,062	$38,889	48%
Water Rights	$18,000 $56,455	$5,298	(52%)
Yearly Maintenance Cost		$24,000	33%
Yearly Water Cost		$27,057	(52%)
10 Year Cost	$782,599	$555,703	(29%)

10-year Savings: $226,896

| Pocket Parks

TOTAL SF POCKET PARKS - BUILT/DESIGNED

PROJECTS CURRENTLY IN DETAILED DESIGN OR UNDER CONSTRUCTION (3/2023)

WEST VILLAGE:	99,370 SF
PARK 40:	84,036 SF
PARKSIDE WEST:	70,360 SF
SOUTHLANDS:	12,475 SF
CENTER STREET DISTRICT:	106,320 SF
PARKSIDE EAST:	41,500 SF
CREATIVE CORRIDOR:	381,660 SF
TOTAL:	**853,674 SF**

TOTAL SF POCKET PARKS - FUTURE

ASSUMES CROSSLAND VILLLAGE & NEWFIELD VILLAGE WILL HAVE SIMILAR POCKET PARS/SF OF DEVELOPMENT AS PARKSIDE WEST; ASSUMES TRAILMARK DISTRICT WILL HAVE SIMILAR POCKET PARKS/SF OF DEVELOPMENT AS CENTER ST. DISTRICT.

CROSSLAND VILLAGE:	104,006 SF
NEWFIELDS VILLAGE:	93,463 SF
TRAILMARK DISTRICT:	53,346 SF
TOTAL:	**250,815 SF**
COMMUNITY TOTAL:	**1,104,489 SF**

~ 25 acres

| Pocket Parks

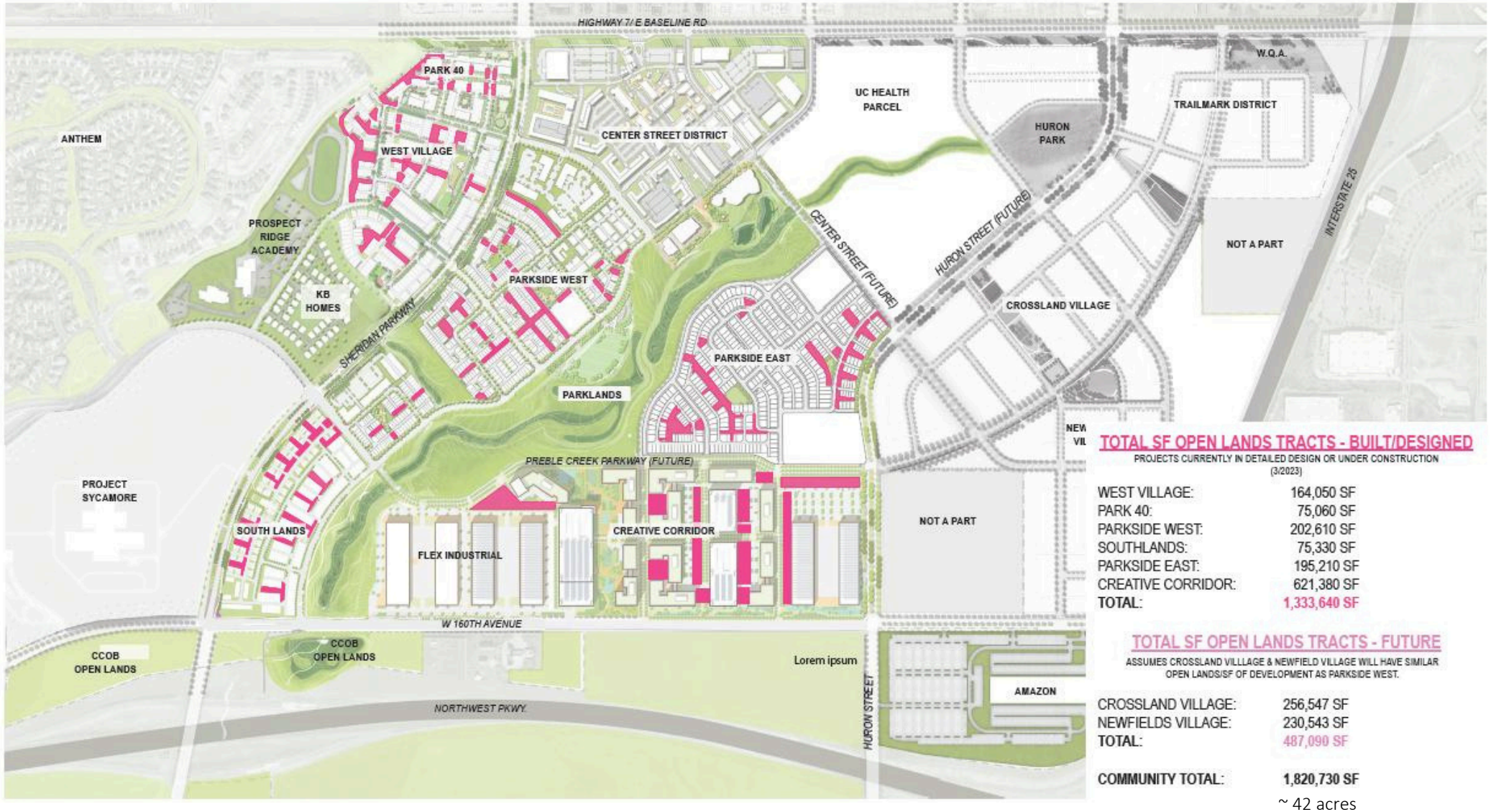
POCKET PARK	TYPICAL	BASELINE COMMUNITY POCKET PARK - AVERAGE
STUDY AREA (SF)	26,000 SF	26,000 SF
IRRIGATED TURF (SF) (HIGH WATER REQ.)	17,500 SF	10,010 SF
IRRIGATED SHRUBS (SF) (MEDIUM WATER REQ.)	0 SF	5,355 SF
IRRIGATED NATIVE SEED (SF) (LOW WATER REQ.)	1,100 SF	0 SF
PERCENTAGE OF LANDSCAPE IRRIGATED (%)	72%	59%
WATER REQUIREMENT (GAL/YEAR)	343,124	145,956

| Pocket Park –½ Acre Study Area

Cost	Typical Community	Baseline	Delta
Installed Cost	$119,559	$133,319	12%
Water Rights	$65,256	$27,758	(57%)
Yearly Maintenance Cost	$343,124	$145,956	(57%)
Yearly Water Cost	$48,999	$20,857	(57%)
10 Year Cost	$1,790,809	$1,487,959	(17%)

10-year Savings: $302,850

| Open Lands/Gardenways



TOTAL SF OPEN LANDS TRACTS - BUILT/DESIGNED

PROJECTS CURRENTLY IN DETAILED DESIGN OR UNDER CONSTRUCTION (3/2023)

WEST VILLAGE:	164,050 SF
PARK 40:	75,060 SF
PARKSIDE WEST:	202,610 SF
SOUTHLANDS:	75,330 SF
PARKSIDE EAST:	195,210 SF
CREATIVE CORRIDOR:	621,380 SF
TOTAL:	**1,333,640 SF**

TOTAL SF OPEN LANDS TRACTS - FUTURE

ASSUMES CROSSLAND VILLLAGE & NEWFIELD VILLAGE WILL HAVE SIMILAR OPEN LANDS/SF OF DEVELOPMENT AS PARKSIDE WEST.

CROSSLAND VILLAGE:	256,547 SF
NEWFIELDS VILLAGE:	230,543 SF
TOTAL:	**487,090 SF**
COMMUNITY TOTAL:	**1,820,730 SF**

~ 42 acres

| Open Lands/Gardenways

OPEN LANDS TRACTS	TYPICAL	BASELINE COMMUNITY OPEN LAND TRACTS- NATIVE	BASELINE COMMUNITY OPEN LAND TRACTS - BOTANIC
STUDY AREA (SF)	7,000 SF	7,000 SF	7,000 SF
IRRIGATED TURF (SF) (HIGH WATER REQ.)	5,900 SF	0 SF	500 SF
IRRIGATED SHRUBS (SF) (MEDIUM WATER REQ.)	0 SF	0 SF	5,690 SF
IRRIGATED NATIVE SEED (SF) (LOW WATER REQ.)	1,100 SF	7,000 SF	0 SF
PERCENTAGE OF LANDSCAPE IRRIGATED (%)	100%	100%	88%
WATER REQUIREMENT (GAL/YEAR)	118,229	24,448	40,621

| Garden Ways–7,000 sf Study Area

Cost	Typical Community		Baseline (Botanic)	Data
Installed Cost	$50,482	$22,485	$68,080	35%
Water Rights	$21,000	$103,350	$7,725	(66%)
Yearly Maintenance Cost			$42,000	100%
Yearly Water Cost			$14,913	(86%)
10 Year Cost	$1,316,469		$644,940	(51%)

10-year Savings: $671,529

| Parkway

TOTAL SF PARKWAYS - BUILT / DESIGNED

PROJECTS CURRENTLY IN DETAILED DESIGN OR UNDER CONSTRUCTION (3/2023)

SHERIDAN PKWY:	446,090 SF
HWY 7 / E BASELINE ROAD:	621,150 SF
W 160TH AVE:	224,700 SF
PREBLE CREEK PARKWAY:	128,610 SF
HURON STREET:	235,480 SF
TOTAL:	**1,656,030 SF**

TOTAL SF PARKWAYS - FUTURE

ASSUMED BASED ON 2017 BASELINE MASTER PLAN STREET GRID

ARC STREET:	439,640 SF
HURON STREET NORTH:	270,260 SF
TOTAL:	**709,900 SF**

COMMUNITY TOTAL:	**2,643,368 SF**

~ 61 acres

BASELINE

| Parkways

PARKWAY	TYPICAL	BASELINE COMMUNITY PARKWAY
STUDY AREA (SF)	25,000 SF	25,000 SF
IRRIGATED TURF (SF) (HIGH WATER REQ.)	16,500 SF	0 SF
IRRIGATED SHRUBS/ BUFFALO GRASS (SF) (MEDIUM WATER REQ.)	5,000 SF	18,095 SF
IRRIGATED NATIVE SEED (SF) (LOW WATER REQ.)	3,500 SF	0 SF
PERCENTAGE OF LANDSCAPE IRRIGATED (%)	100%	72%
WATER REQUIREMENT (GAL/YEAR)	359,295	98,352

BASELINE

| Parkways–25,000 sf Study Area

Cost	Typical Community	Baseline	Data
Installed Cost	$175,830	$214,294	22%
Water Rights	$68,332	$18,705	(73%)
Yearly Maintenance Cost	$2,270,863	$1,707,651	(25%)
Yearly Water Cost	$127,670	$34,965	(73%)
10 Year Cost	$2,270,863	$1,707,651	(25%)

10-year Savings: $563,212

| Regional Park

TOTAL AC REGIONAL PARKS-DESIGNED

PROJECTS COMPLETED THROUGH AT LEAST 30% SCHEMATIC DESIGN (2/2023)

PARKLANDS:	70 AC
TOTAL:	70 AC

TOTAL AC REGIONAL PARKS-FUTURE

ASSUMED BASED ON 2017 BASELINE PARKS MASTER PLAN

HURON PARK:	9.0 AC
WATER QUALITY AREA:	4.9 AC
TOTAL:	13.9 AC
COMMUNITY TOTAL:	**83.9 AC**

BASELINE

| Regional Park

REGIONAL PARK	TYPICAL COMMUNITY PARK	BASELINE COMMUNITY REGIONAL PARK
STUDY AREA (ACRE)	56 AC	56 AC
IRRIGATED TURF (SF) (HIGH WATER REQ.)	1,447,120 SF	375,996 SF
IRRIGATED SHRUBS (SF) (MEDIUM WATER REQ.)	500 SF	138,550 SF
IRRIGATED NATIVE SEED (SF) (LOW WATER REQ.)	0 SF	1,059,143 SF
PERCENTAGE OF LANDSCAPE IRRIGATED (%)	59%	65%
WATER REQUIREMENT (GAL/YEAR)	28,058,865	12,914,036

| Regional Park –56 Acre Study Area

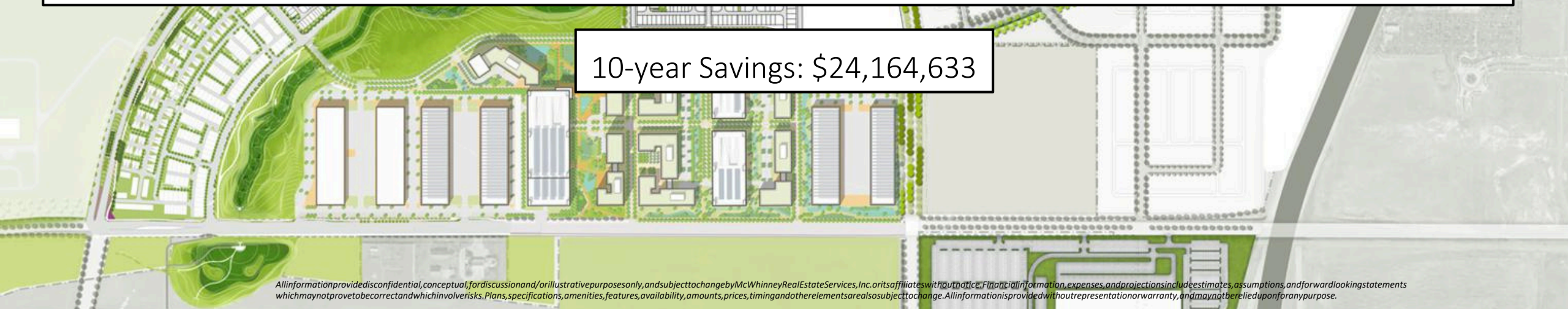
Cost	Typical Community	Baseline	Data
Installed Cost	$8,925,238	$7,519,646	(16%)
Water Rights	$5,336,349	$2,456,044	(54%)
Yearly Maintenance Cost	$579,048	$361,905	(38%)
Yearly Water Cost	$133,801	$61,707	(54%)
10 Year Cost	$21,390,076	$14,211,814	(34%)

10-year Savings: $7,178,262

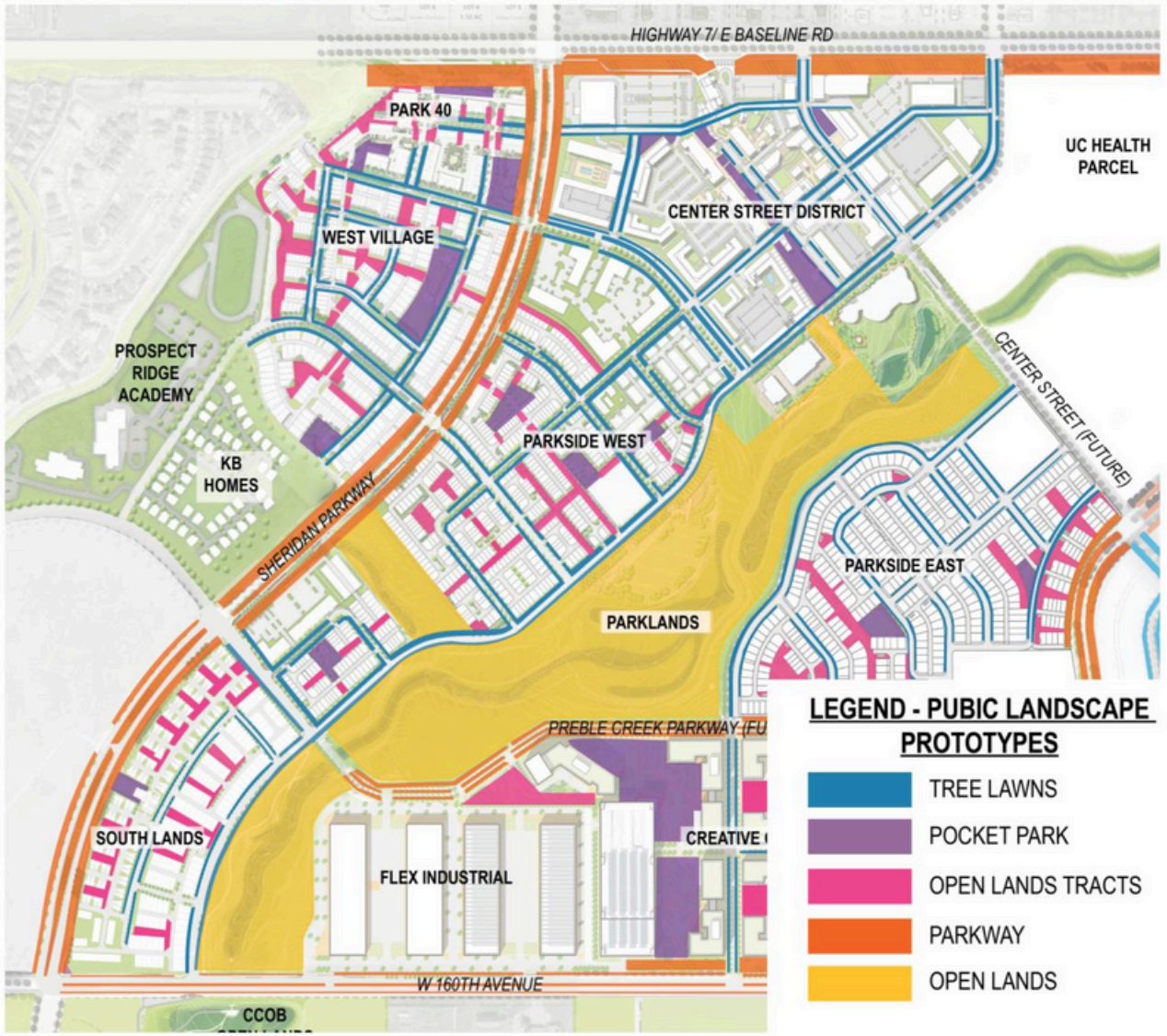
| Overall Economics

Cost	Typical	Baseline	Delta
Installed Cost	Community	$71,059,682	(4%)
Water Rights	$73,906,928	$10,154,527	(66%)
Yearly Maintenance Cost	$29,998,544	$671,008	(17%)
Yearly Water Cost	$804,648	$159,494	(66%)
10 Year Cost	$470,276	$82,044,711	(22%)
	$105,180,396		

10-year Savings: $24,164,633



| Water Conservation



64% Reduction in Irrigation Water

Public Landscape Prototype	% Reduction in Water Use Vs. Typicals
Prototype 1: Tree Lawns	52%
Prototype 2: Pocket Park	57%
Prototype 3: Open Lands Tracts	72%
Prototype 4: Parkway	73%
Prototype 5: Open Lands	54%
Total % Reduction in Water Use	64%

BASELINE™

A place created for people
who are socialby nature,
who value experiences over things,
and who regularly gaze west
towards the Rockies to remind
themselves why they live in Colorado.

THANK YOU

Water Strategies for AffordableHousing

Maiker
Housing Partners

What is Affordable Housing?

The most common housing subsidies are:

- HousingChoice(Section8) Vouchers
- Low Income Public Housing
- HUD Subsidized Project Based Section 8
- Low Income Housing Tax Credit

Rules of the Road

ForLIHTCunits, InternalRevenue Code (IRC) Section 42 dictates that gross rent includestheapplicableutilityallowanceif

the tenant pays for their own utilities.

Max Rent 2 bed at 60%	$1,67
AMI	5
Water and Sewer Utility Allowance	$70
NetRentPaidby Tenant	1,605

Case Study –Orchard Crossing

Replacement of all plumbing fixtures at a 74-unit project-based section 8 community. The project was funded by the City of Westminster and completedbyMileHighYouthCorpswitha totalprojectcost$75k

TargetReplacementFixture Flow Rates

– Toilet 1.1 gpf

–Showerhead 1.5 gpm

– Kitchen Faucet 1.5 gpm

– Bathroom faucets 0.5 gpm

The Results –Orchard Crossing

Average Winter Consumption (AWC)
reduced 48% in 2021 compared to 2020

Reduction in water and sewer costs:

- $159k in 2020 (baseyear)
- $106k in 2021 (-33%)
- $91k in 2022 (-43%)

Strategies for New Construction

Unit Plumbing Fixtures

Install all Water Sensecertifiedfixtures
Leak detection system
Resident education

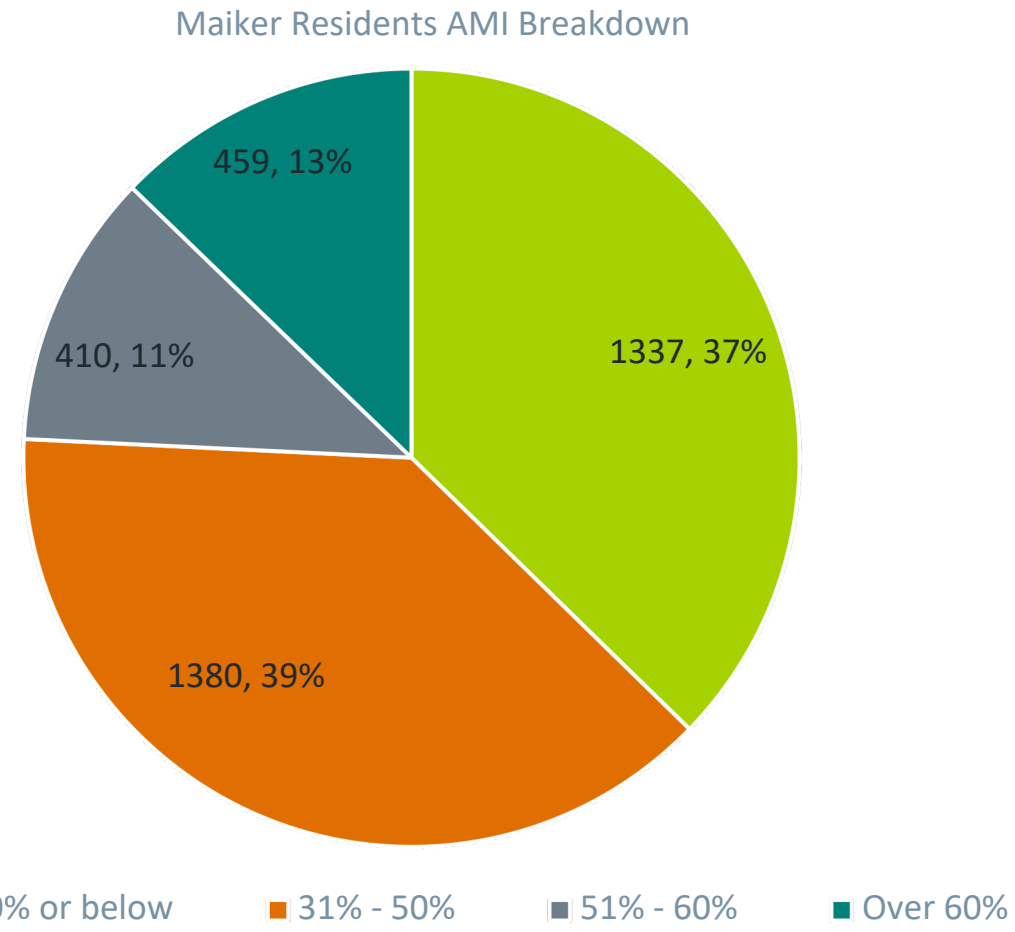
Landscaping and Irrigation

Install native species plantings
Limit use of turf/grass
Weather-based irrigation controller
High-efficiency sprinkler heads

Why it Matters?

- Reduces utility expenses and improves NOI
- Decrease upfront tap fees
- Reduce consumption and preserve limited water resources
- Lower costs for low-income households

Promoting Equity and Affordability



Thank You!

Steve Kunshier

E: skunshier@maikerhp.org

P: 303-227-2055

Maiker Housing Partners

Water-Efficient Homes

- Efficiency by design
- Rating & certification
- Confirmed savings
- Mix of carrots & sticks
- Water conservation contributes to better ESG profile

Commitment to Water Conservation

2005

1st Builder to Join SNWA Water Conservation Program

2010

1st Builder to Join EPA WaterSense Program

2020

1st Builder to Pilot RESNET HERS H2O

Water Efficiency By Design

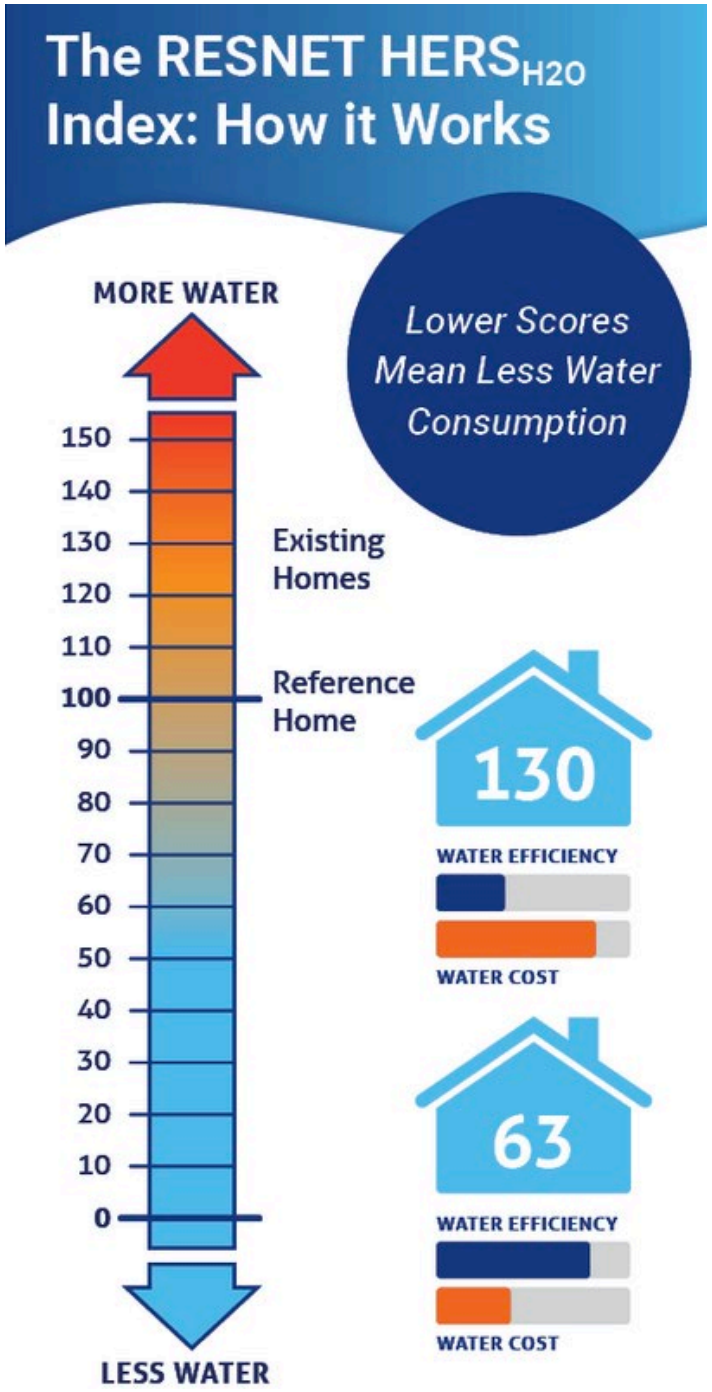
- Whole-house approach
- Hot water distribution
- WaterSense fixtures
- ENERGY STAR appliances
- Low water budget landscaping
- Minimal non-functional turf

How to Present Water Efficiency to Homebuyers?

How to Measure Water Efficiency Levels?

Rating and Certification of Water-Efficient Homes

- EPA WaterSense Program is a great "seal of approval" for customers
- RESNET HERS H2O water efficiency rating system is a good yardstick
- Rating and certification done in conjunction with energy ratings
- Rating certificate shows estimated water savings in gallons and dollars



RESNET HERS H2O®

What Does it Cover?

- Indoor plumbing fixtures
- Dishwasher
- Clothes washer
- Water softener
- Excess pressure
- Irrigation
- Pool / spa
- Leaks

Rating Certificate for the KB Home in Las Vegas with Lowest HERS H2O Score for 2022

RESNET HERS$_{H20}$®

Water Efficiency Rating Certificate

44
HERS$_{H20}$ Index

PROPERTY

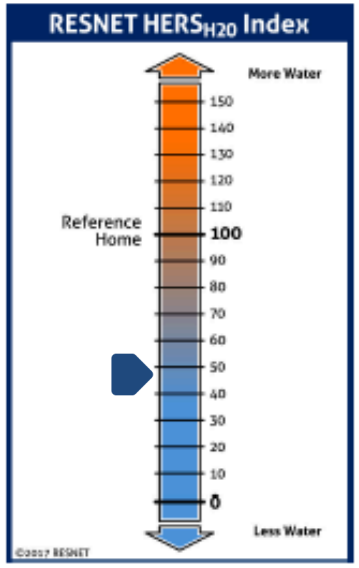
Address:	7508 Lush Oasis Ave
City/State/Zip:	Las Vegas, NV, 89113
Builder:	KB Home

RATING ORGANIZATION

Rater:	Chris Long
Rater ID:	6793814

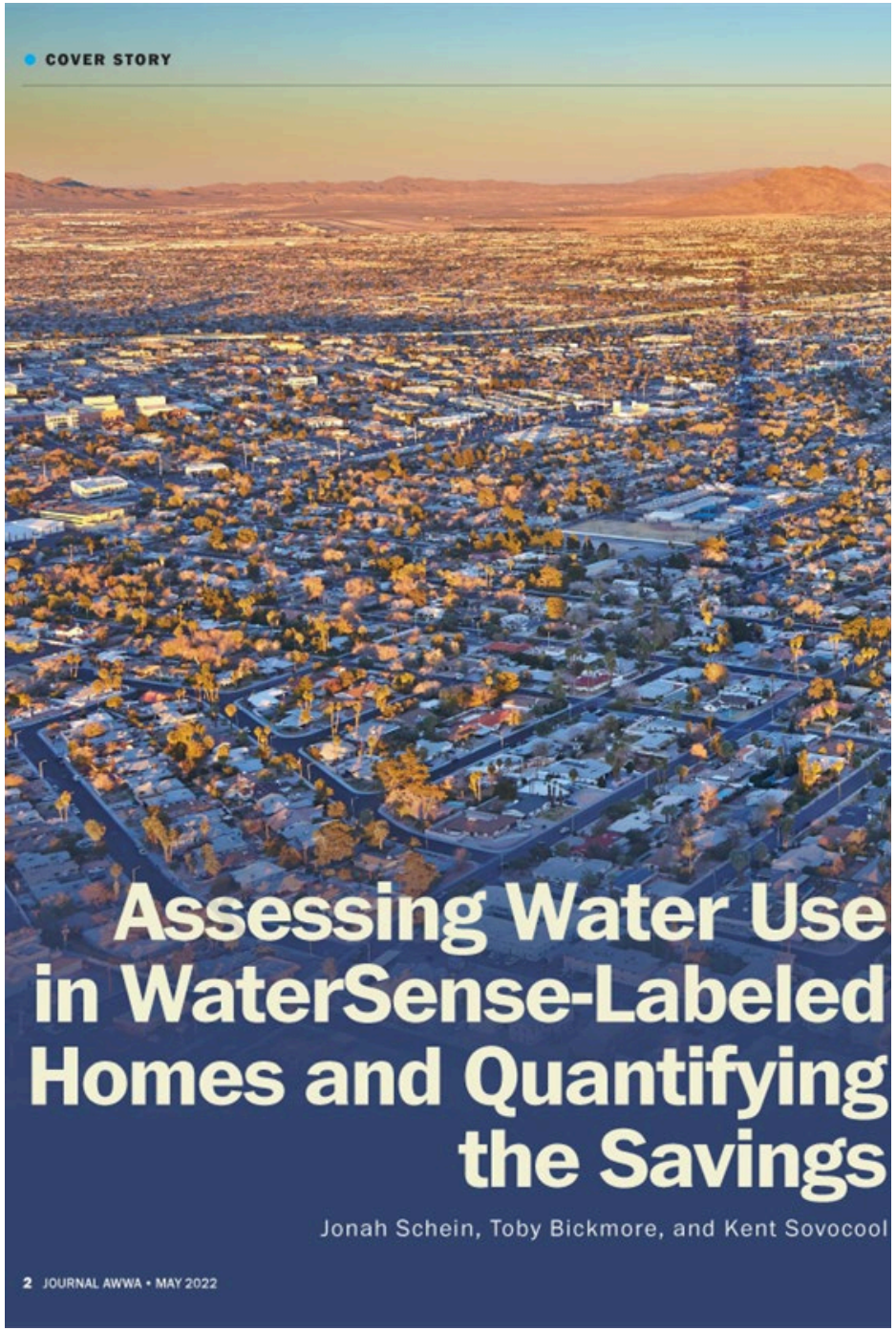
RATING INFORMATION

HERS$_{H20}$ Index:	44
Rating Date:	22-Jul-2022
Registry ID:	495915411
Rating Provider:	Energy Inspectors Corporation



How this Home Compares to the Reference Home

56%	82,747	$553.08
More Water Efficient	Gallons, Annual Water Savings	Estimated Annual Water Cost Savings



Confirming the Savings

EPA and SNWA conducted a study in the Las Vegas metropolitan region

The study evaluated indoor and outdoor metered water use of 160 WaterSense-labeled KB homes

Confirms that the HERS H2O model is doing a good job of identifying which homes are likely to use less water, and is performing as expected

Metered water usage was collected from the retail utilities and paired with information gathered during the inspection/certification process

“Median water use for these homes was 44,000 gal/year compared to average consumption of 97,000 gal/year for the area.”

55%

Avg. Annual Water Savings WaterSense Home vs. Typical Home

Roughly 7.5 homes/acre-foot/year compared to 3-4 homes/acre-foot/year typically seen in the West

Mixed Picture – Carrots & Sticks

June 19. Governor Hobbs recently announced the state will no longer approve building permits for developments inside Assured Water Supply areas that rely solely on groundwater, saying the groundwater in the Phoenix area was already spoken for. Jun 19, 2023

CAGRD
CENTRAL ARIZONA GROUNDWATER REPLENISHMENT DISTRICT
A Division of Central Arizona Project

$1,000 incentive for a **WaterSense certified home, paid to builder**

ESG is Important to Investors
Water Conservation is a Key Part of ESG

Brock Smethills

President, Sterling Ranch Development Company

Kyle Harris

Senior Vice President Community Development, McWhinney

Steven Kunshier

Director of Housing Development, Unison Housing Partners

Jacob Atalla

Vice President, Sustainability Initiatives, KB Home

Urban Land Institute

Coalition Programming

Urban Land Institute

THANK YOU FOR JOINING US!

You can reach me at Marianne.Eppig@uli.org

Urban Land Institute