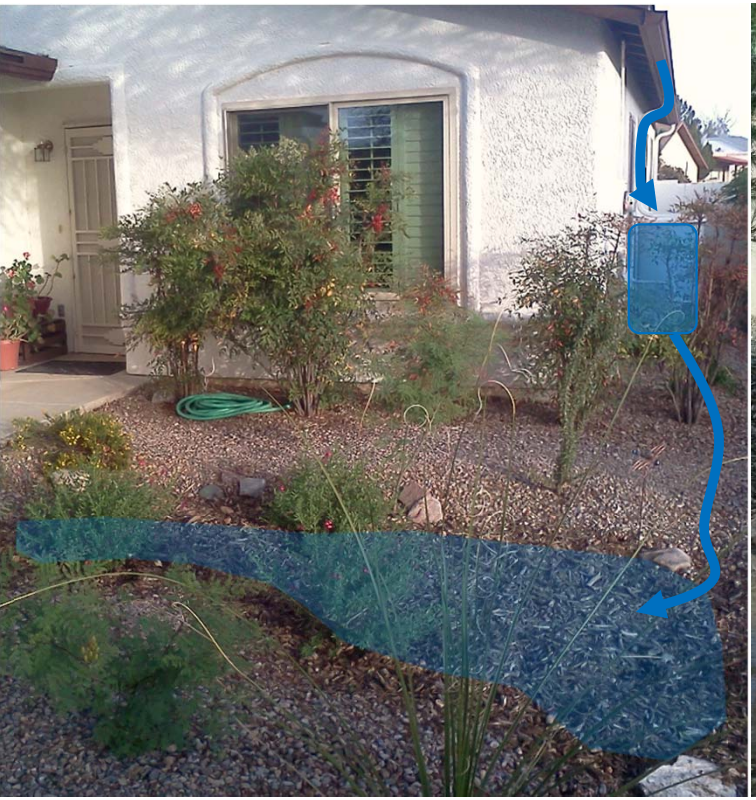
Opportunities for Stormwater to Restore Community and Riparian Health

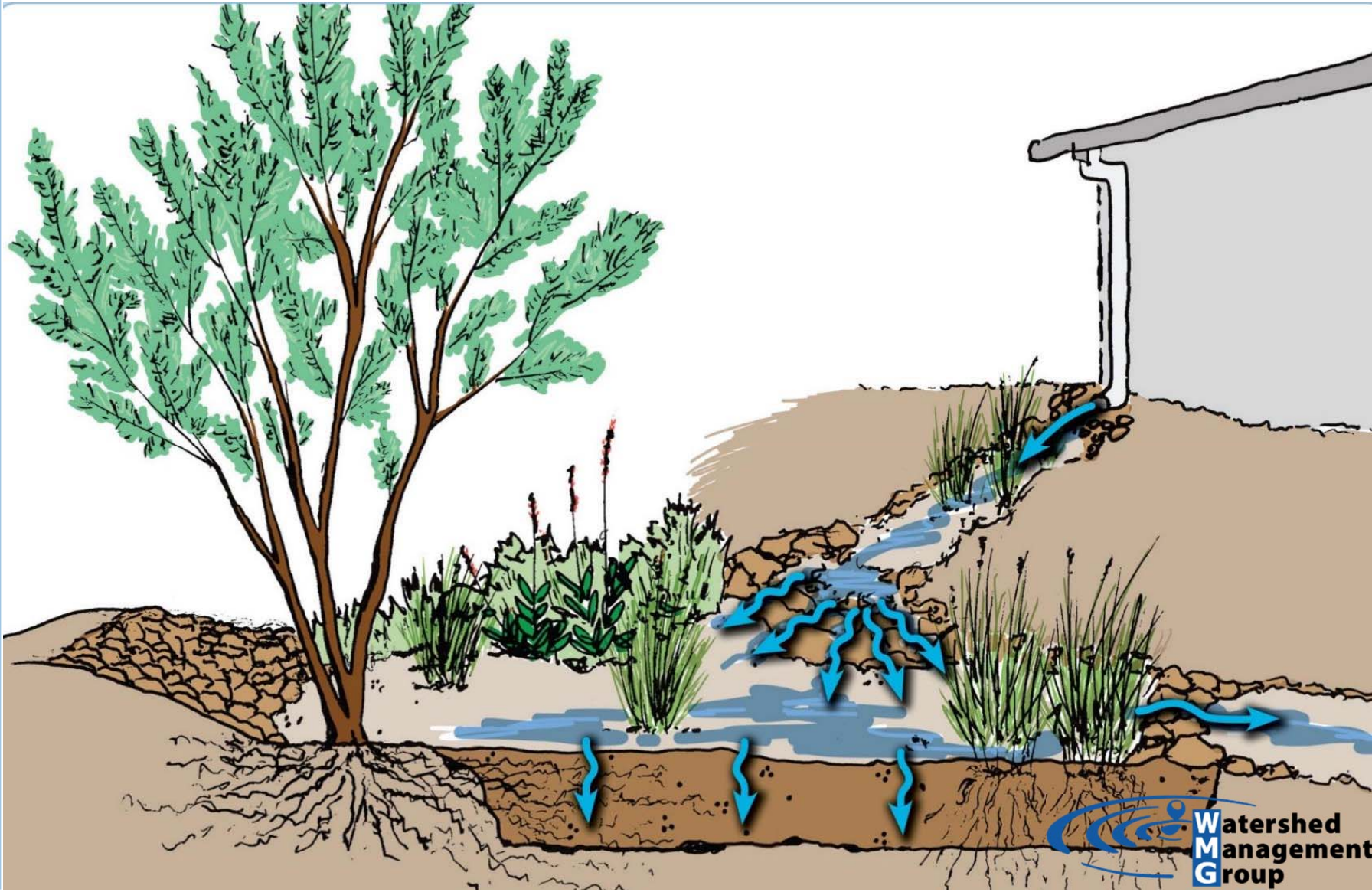
Watershed Management Group

watershedmg.org

Catlow Shipek, Policy and Technical Director



Supply
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Demand
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Balance
4000
3000
2000
1000
0
(1000)
(2000)
(3000)


Watershed
Management
Group

WMG’s Living Lab and Learning Center

2012

1137 N Dodge Blvd, Tucson
watershedmg.org

2018

ESTIMATED ANNUAL WATER BUDGET

Annual budget is based on a conservative estimate of 10.8 inches of rain a year.

Annual Supply

19,000 gallons
Rooftop Rainwater
+
10,000 gallons
Landscape Rainwater & Greywater

Annual Demand

11,000 gallons
Indoor use
+
18,000 gallons
Outdoor use

29,000 gallons – *29,000 gallons* =

Total renewable water supply – Total demand

ESTIMATED WATER BALANCE

0 gallons
No municipal water is needed!

ACTUAL WATER BUDGET (Oct 2014 – Sept 2015)

We had a great year – we received 14 inches of rain – giving us a water surplus for the year!

Annual Supply

22,000 gallons
Rooftop Rainwater
+
13,000 gallons
Landscape Rainwater & Greywater

Annual Demand

9,445 gallons
Indoor use
+
6,600 gallons
Outdoor use

35,000 gallons – *16,045 gallons* =

Total renewable water supply – Total demand

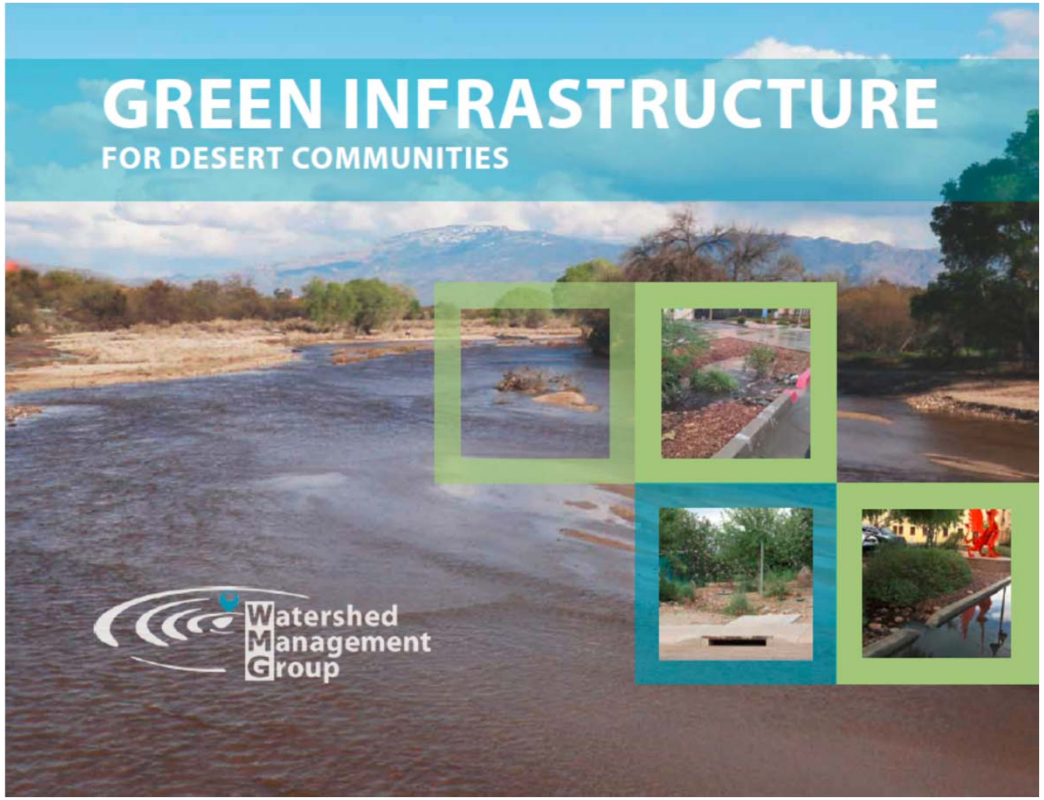
ACTUAL WATER BALANCE

18,955 gallons!

8,000 gallons of this renewable water surplus is stored in our tanks. The other 10,955 gallons was rainwater surplus captured in our basins that infiltrated for groundwater recharge.

WMG's 10,000 gallon tank is beneath the Living Lab plaza and captures and stores rainwater to meet 100% of our indoor and outdoor water needs.

Download your free copy at watershedmg.org/green-streets



WARNING
FLOOD ZONE
PARK AT YOUR
OWN RISK

23 9:29AM

23 9:27AM

Escorrentía es un Problema -->
Agua de lluvia es un Recurso

Infraestructura Verde

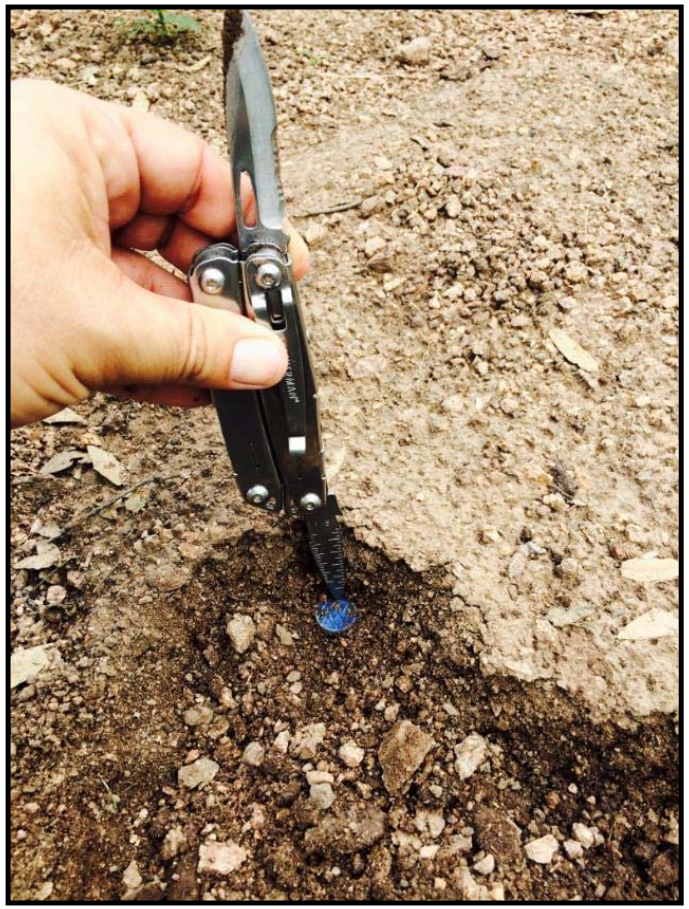
Capacidad Local. Nogales, Son

- Conferencias 4
- Capacitación de dos días - 80 participantes
- Implementación de IV – 35 voluntarios
- Diferentes instancias Municipales de Nogales, Sonora

Desarrollo Integral para la Familia de Nogales (DIF): “Parque de Lluvia”

- Implementación Parque de Lluvia – DIF Junio, 2016
- Fase II:ITN
- Licitación de Calle Verde
- Fase III: Calle Verde
- Resolución de IV – Marzo 2017

Desarrollo Integral para la Familia de Nogales (DIF): “Parque de Lluvia”



Modificación de Leyes en el Estado de Sonora y Resolucion de I.V. del Municipio de Nogales, Sonora

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LID @ Cochise College

LID @McFadden Park

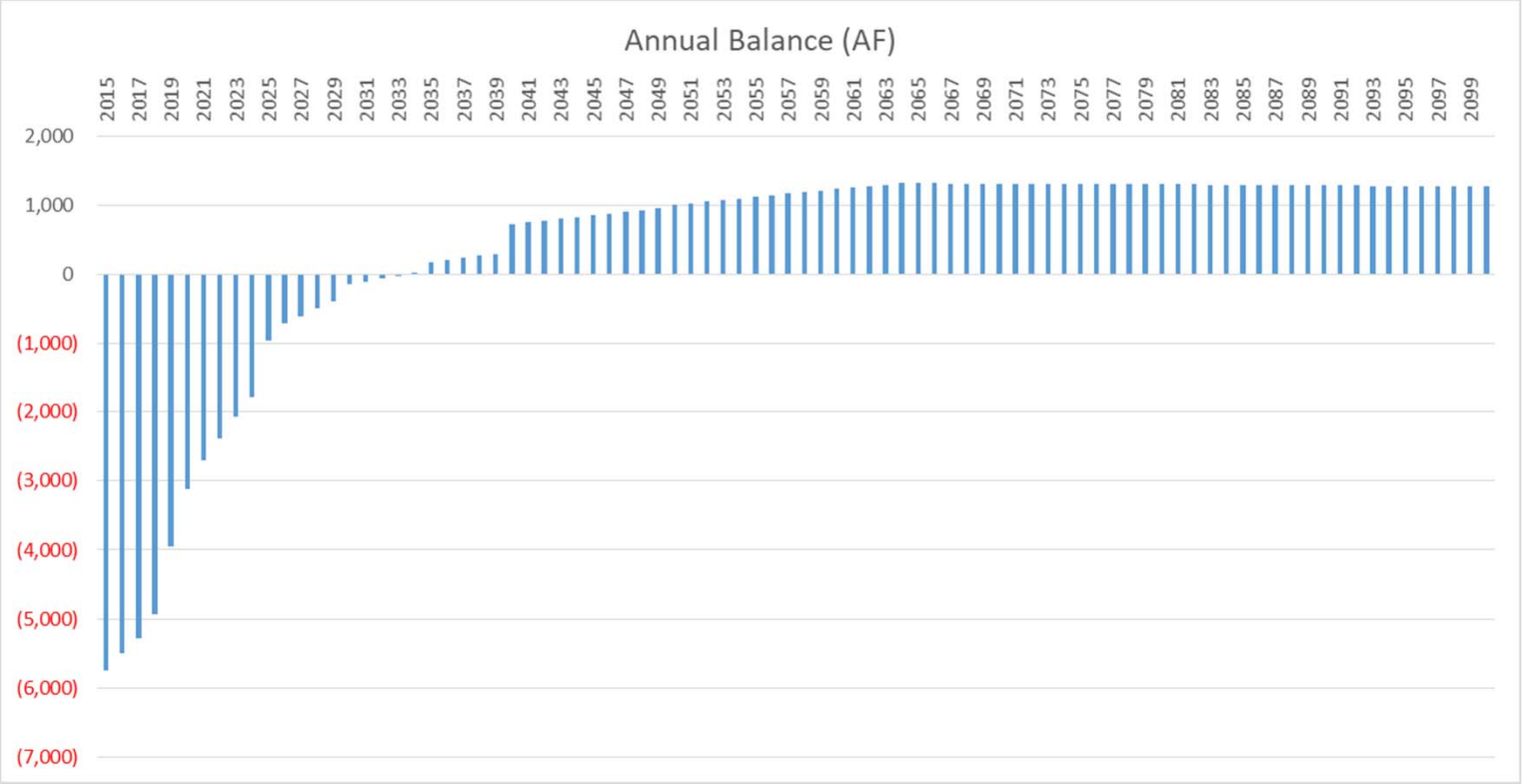
Retrofitting Green Stormwater Infrastructure: Cost Benefit Analysis

Costs: Installation and maintenance

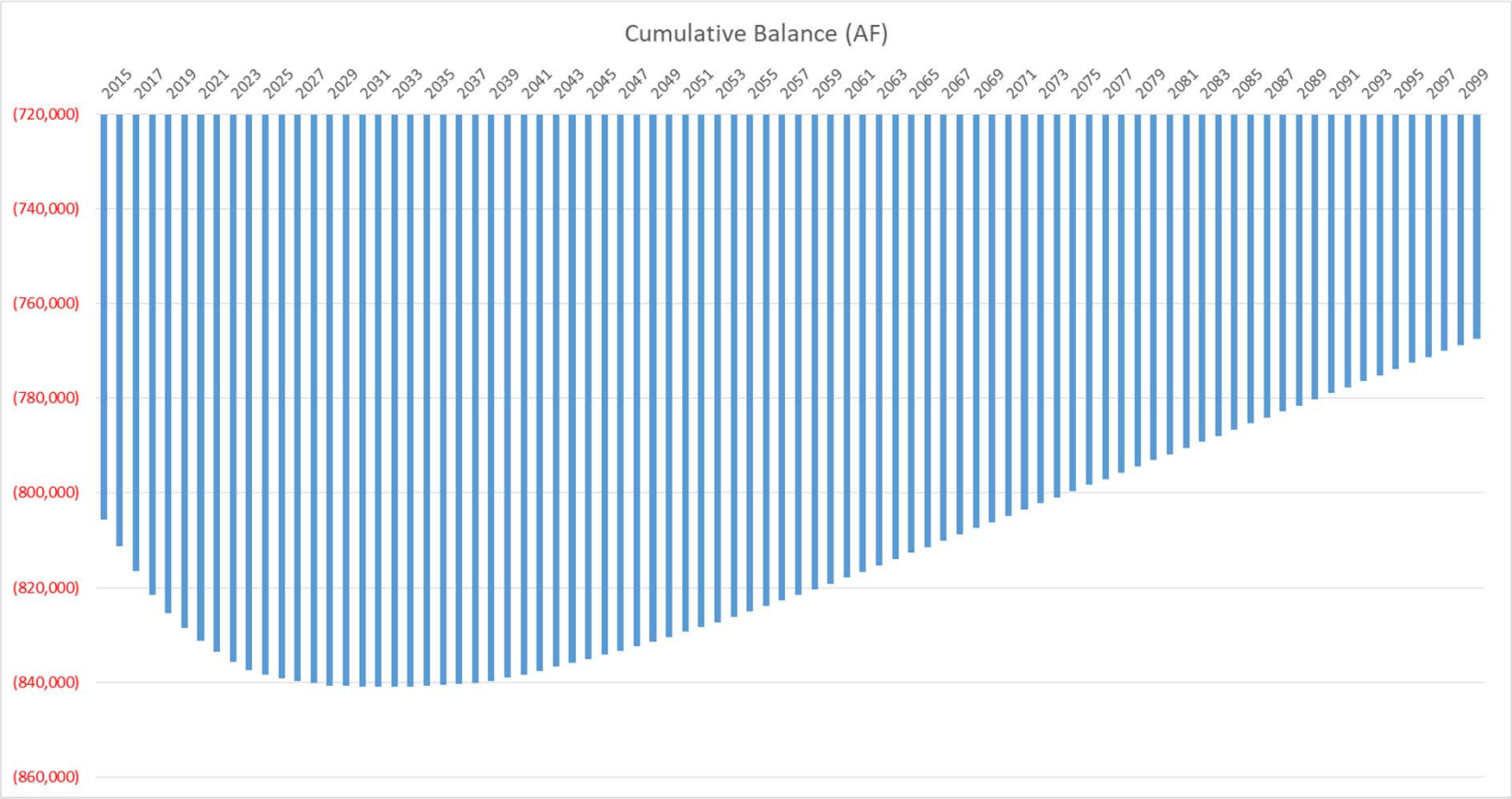
Benefits: Based on the volume of water harvested and the number of trees planted

= $3-6 Benefit / $1 Cost

Sierra Vista Subwatershed: Tackling the Water Deficit



Net-Positive Development = Water security for communities and riparian systems

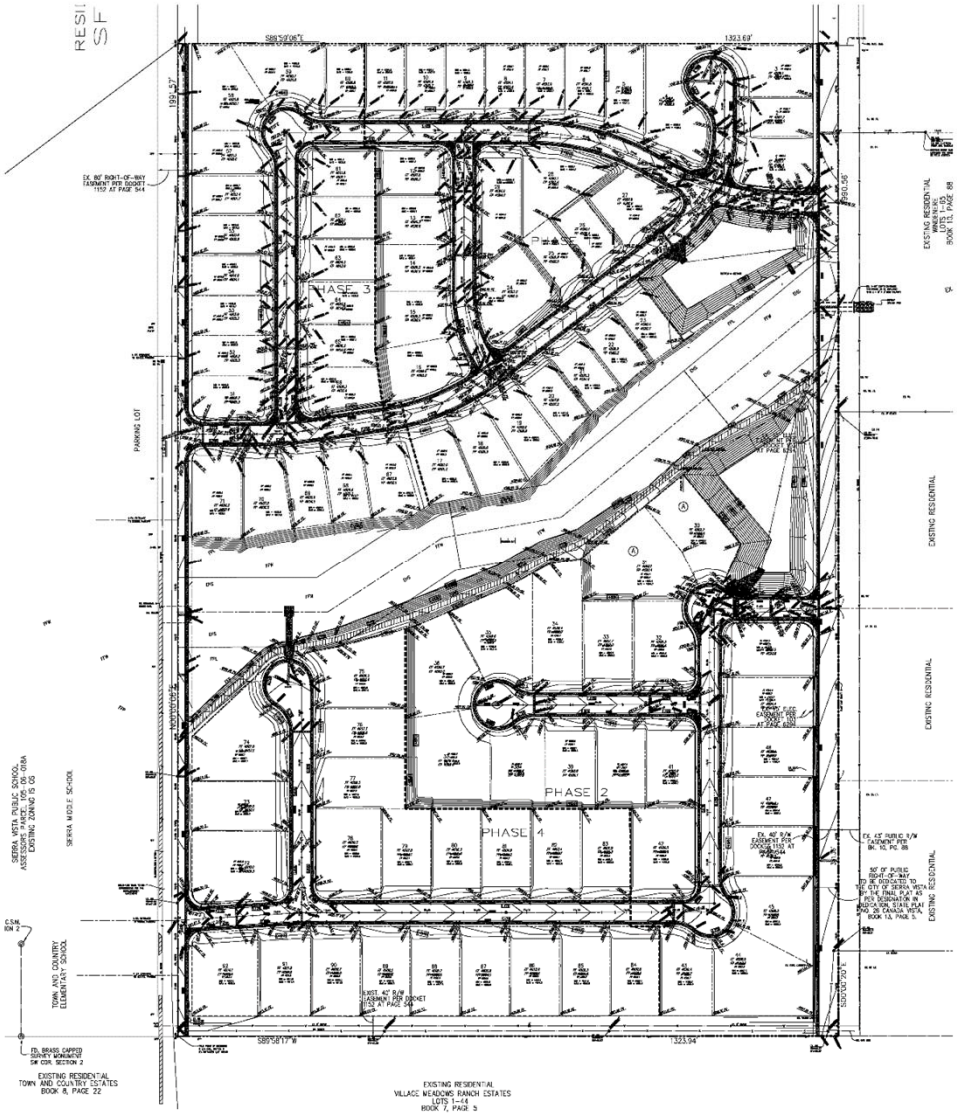


Sierra Vista, AZ

New Infill Residential Development Case Study

Question we asked:

Can development be net-water positive and work towards community and river health?



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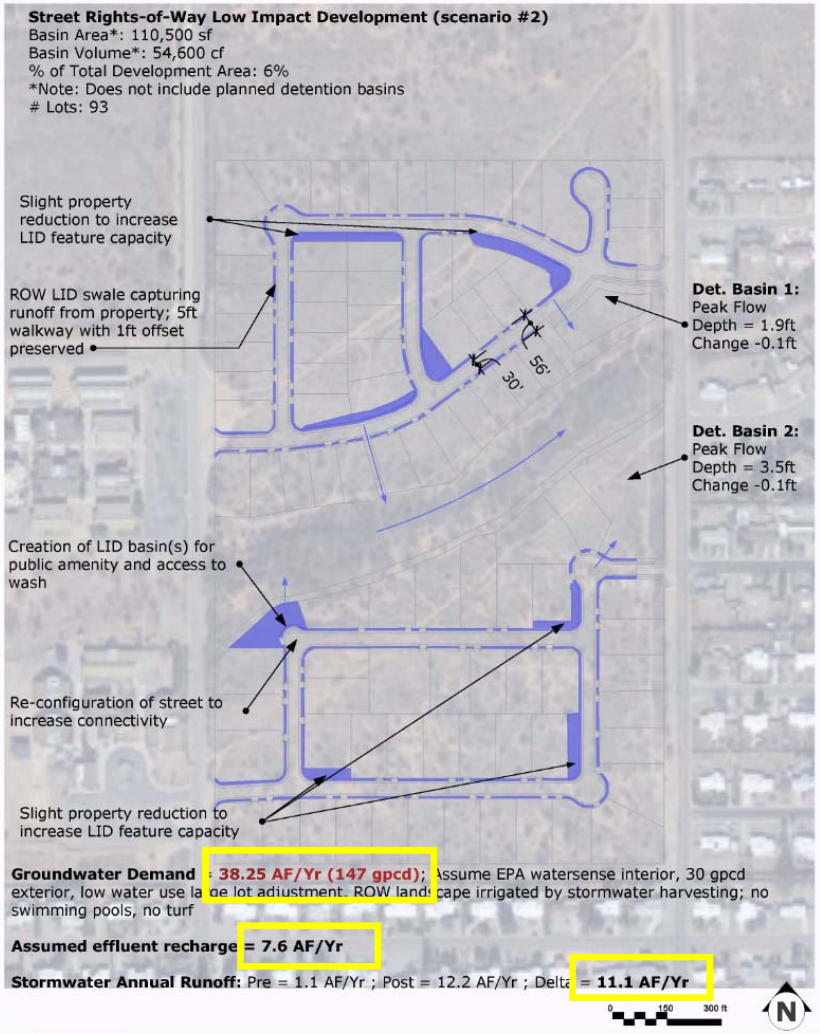
Canada Vista | Base Scenario :: A

Sierra Vista, AZ *scale: 1:3600* 3 of 11



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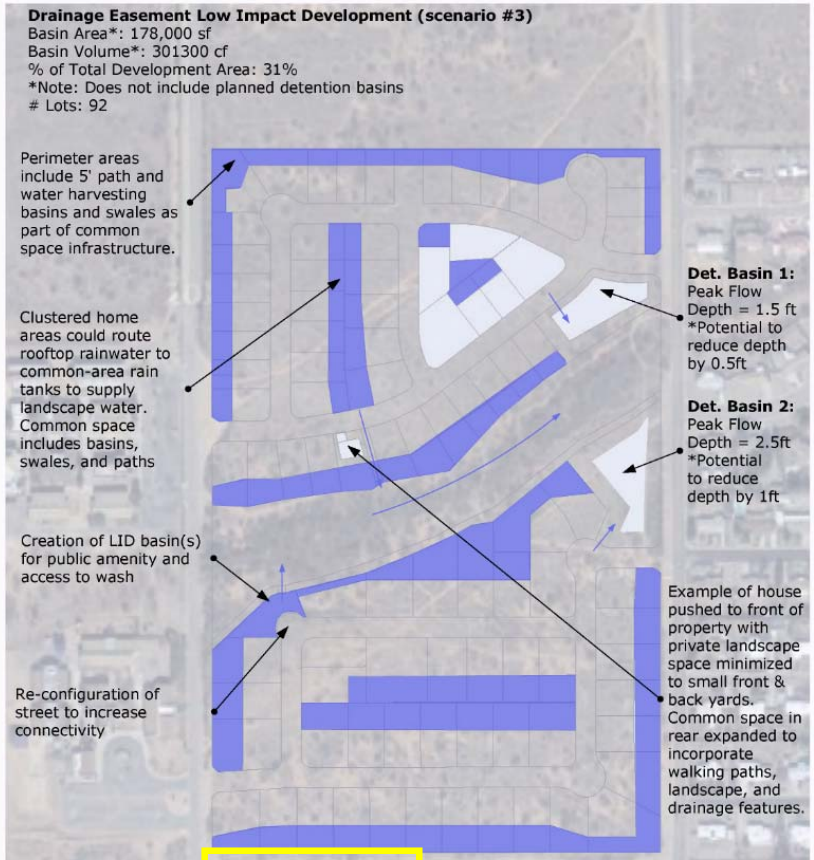
Canada Vista | LID Scenario #2 :: A

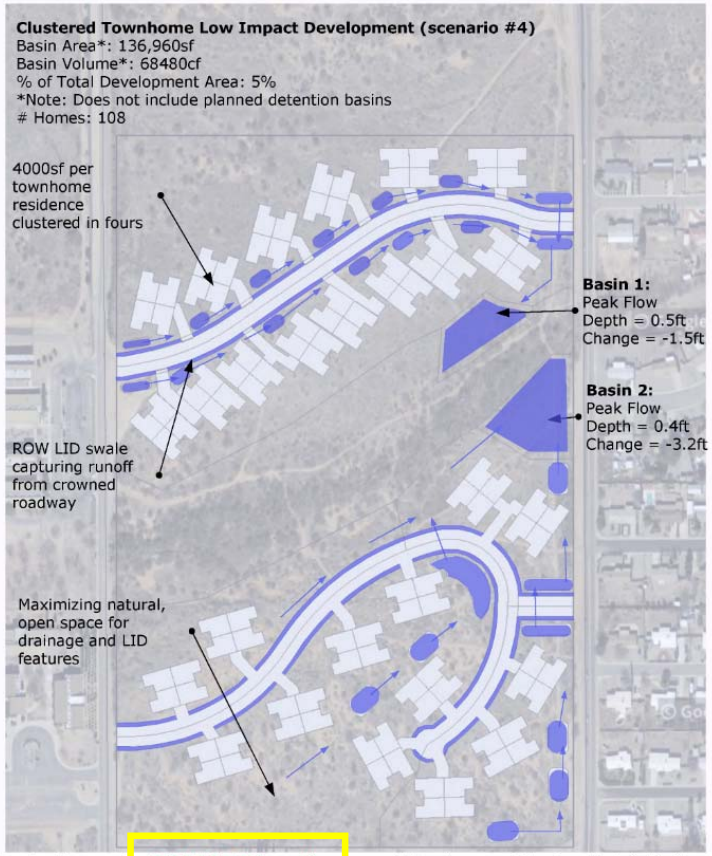
Sierra Vista, AZ *scale: 1:3600* 5 of 11



Groundwater Demand = **13.8 AF/Yr (54 gpcd)**; Assume EPA watersense interior, 30 gpcd exterior, common space native plants irrigated by passive water harvesting; no swimming pools, no turf

Assumed effluent recharge = **7.6 AF/Yr**

Stormwater Annual Runoff: Pre = 1.1 AF/Yr ; Post = 9.1 AF/Yr ; Delta = **8 AF/Yr**

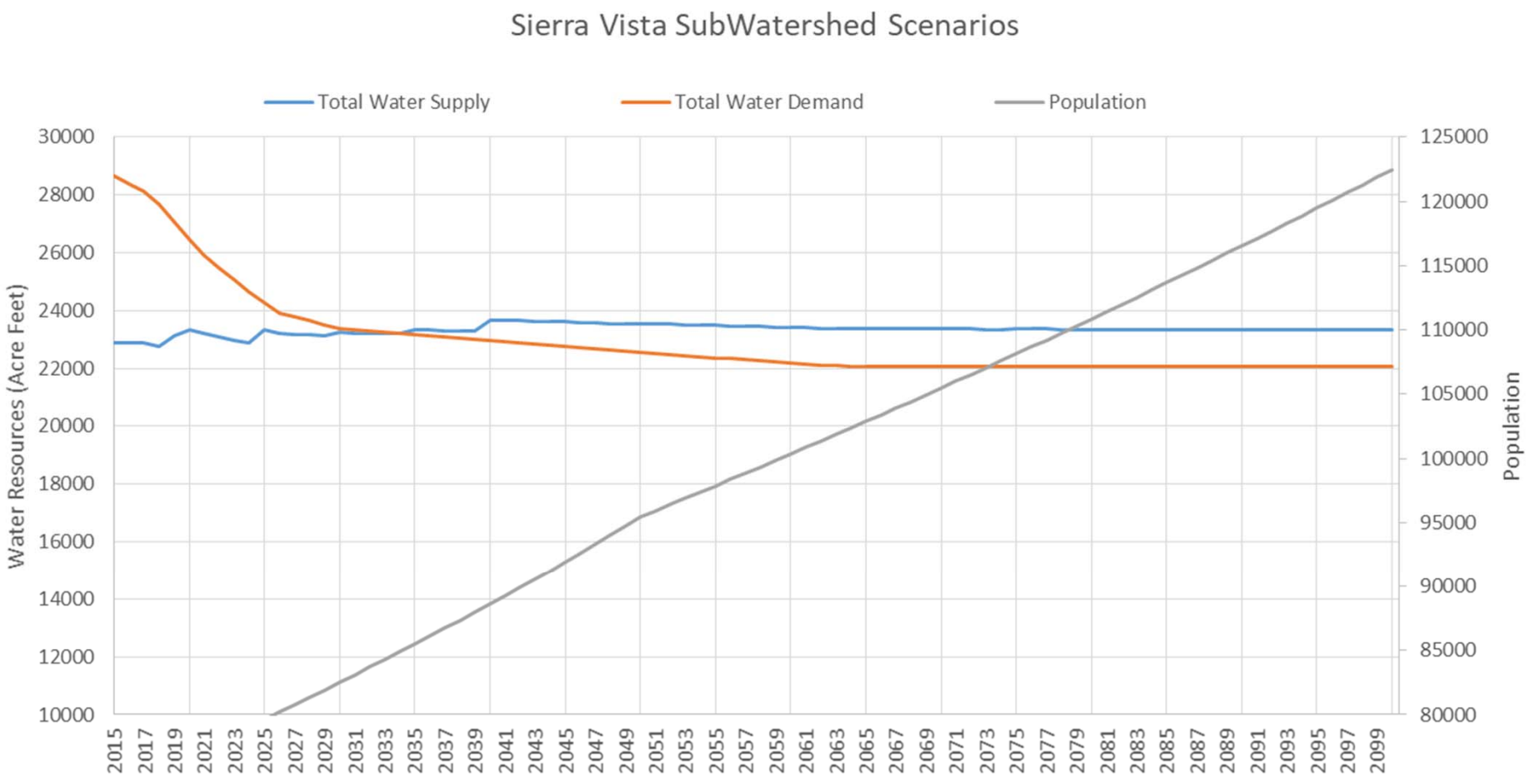


Groundwater Demand = **9.5 AF/Yr (31 gpcd)**; assume EPA watersense interior with toilet fed by rain tank, exterior irrigated by rain tank, no swimming pools or turf, common space not irrigated (use water harvesting landscape features)

Assumed effluent recharge = **7.6 AF/Yr**

Stormwater Annual Runoff: Pre = 1.1 AF/Yr ; Post = 8.5 AF/Yr ; Delta = **7.4 AF/Yr**

San Pedro River ….a future?


Sierra Vista SubWatershed Scenarios
Total Water Supply
Total Water Demand
Population
Water Resources (Acre Feet)
Population
30000
28000
26000
24000
22000
20000
18000
16000
14000
12000
10000
125000
120000
115000
110000
105000
100000
95000
90000
85000
80000
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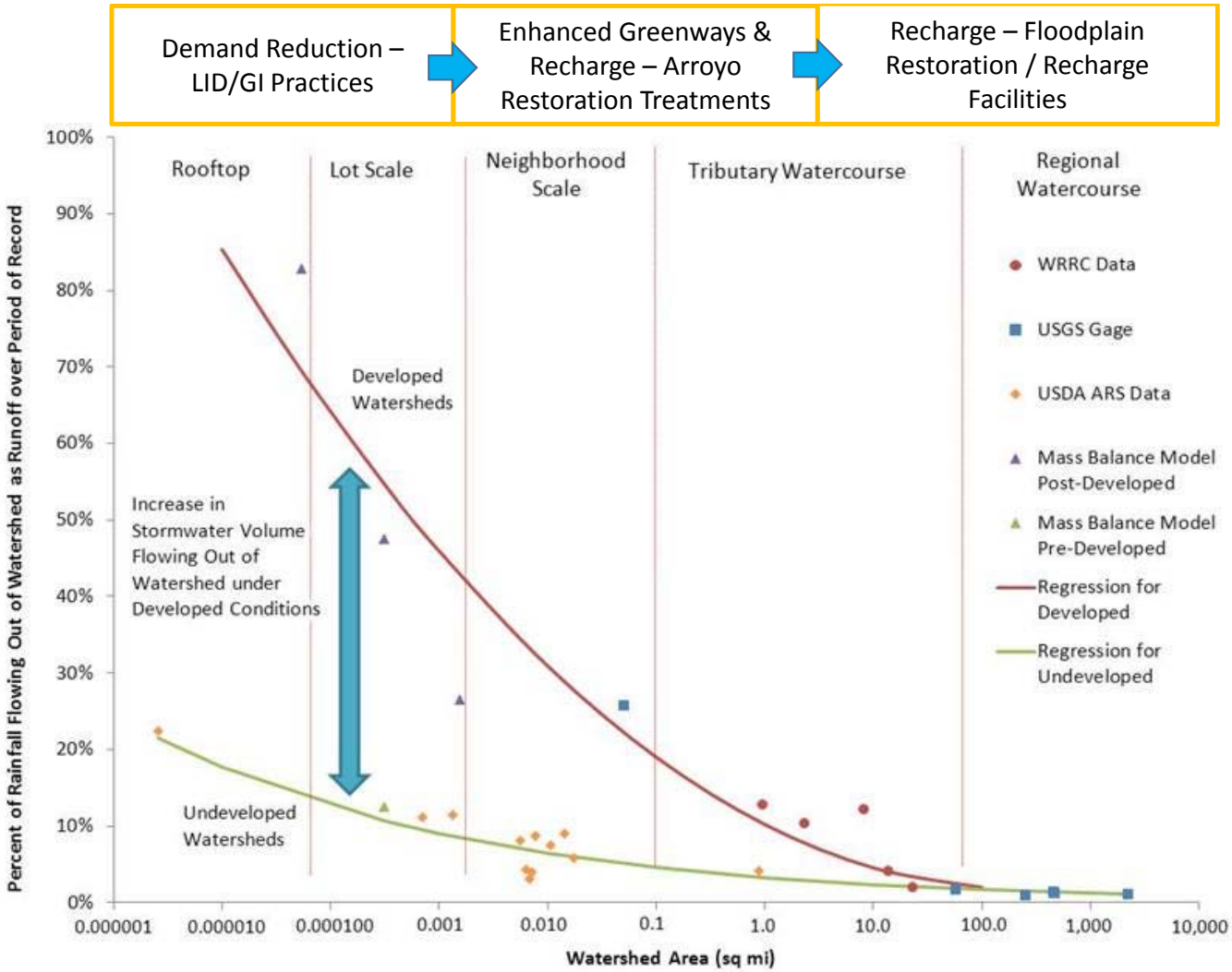
Strategies for Managing Urban Stormwater as a Resource



Source: Evan Canfield, Pima County Regional Flood Control District