

This presentation premiered at WaterSmart Innovations

watersmartinnovations.com





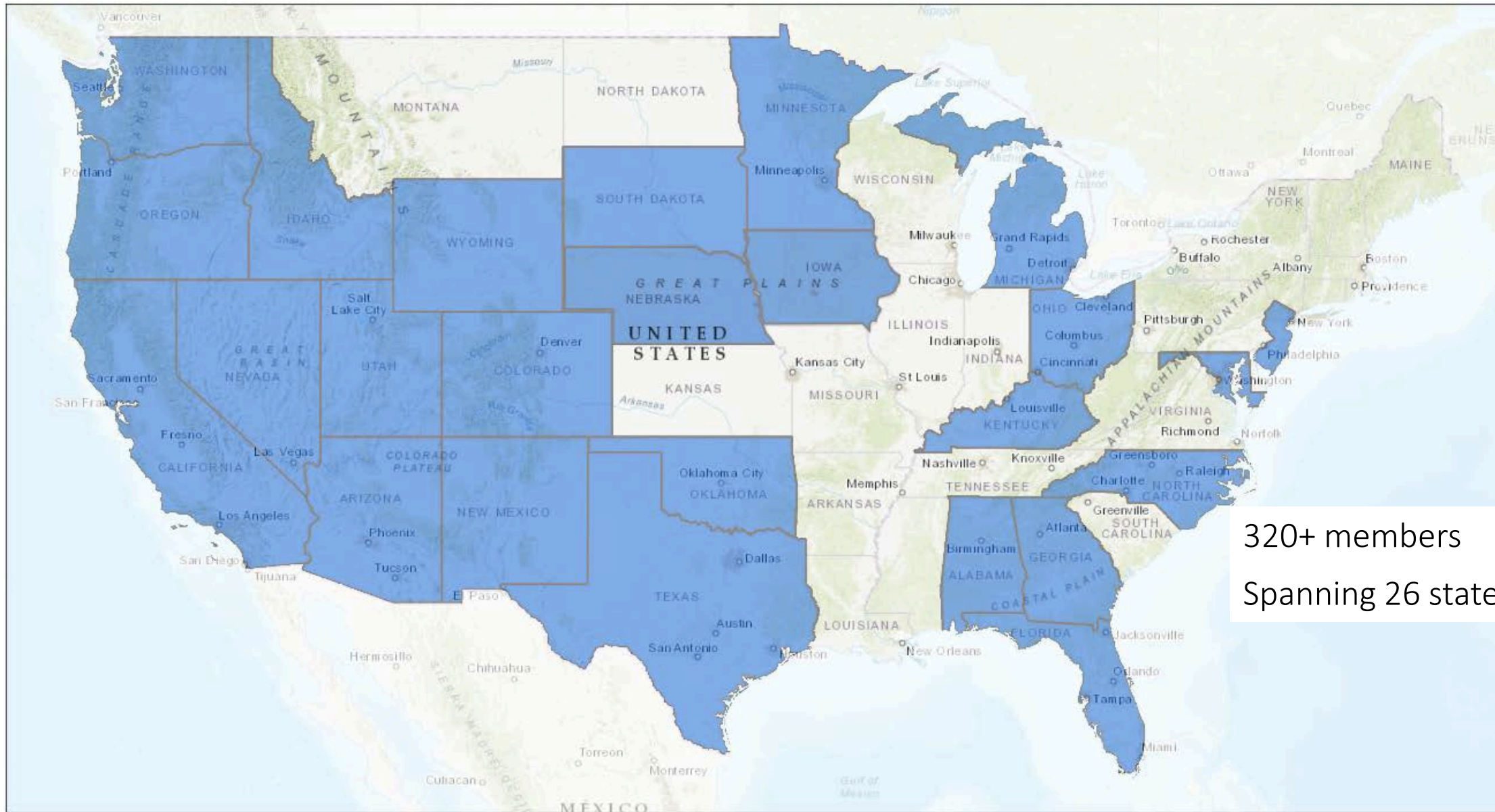
Distributed Infrastructure 101: What is it, and how to pay for it

**WaterSmart Innovations
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WaterNow Alliance Members



320+ members
Spanning 26 states

WHAT DO WE MEAN BY SUSTAINABLE?

Methods of providing clean, affordable, and accessible water services to people without using up or destroying water resources, now and into the future.

Sustainable Water Solutions



The diagram consists of six colored circles arranged in two rows of three. Each circle contains text representing a different sustainable water solution. The colors of the circles are light blue, medium blue, lime green, dark blue, light blue-grey, and dark green.

Reuse & Recycling

Source
Water &
Watershed Protection

Groundwater
Management

Water Conservation &
Water Use Efficiency

Water Trading: Market
Mechanisms

Green and Distributed
Infrastructure

What is “Green Infrastructure”

Green infrastructure is an approach to water management that protects, restores, or mimics the natural water cycle. Green infrastructure is effective, economical, and enhances community safety, quality of life and community resilience.

What is Distributed Water Infrastructure?

- **Decentralized water management strategies and technologies distributed over many properties**
- **Not owned and operated by water utilities or cities**
- **Operate in concert with built infrastructure.**



High Efficiency Appliances and Fixtures



Leak Detection Devices



Smart Irrigation Controllers



"Cash for Grass" /Turf Replacement





Rainwater Capture



Greywater Reuse

ONSITE NON-POTABLE WATER REUSE

PRACTICE GUIDE



Onsite Non-Potable Water Reuse Systems



Constructed Wetlands



Commercial, Industrial and Institutional Retrofits/Upgrades



Green Stormwater Infrastructure



Watershed Restoration



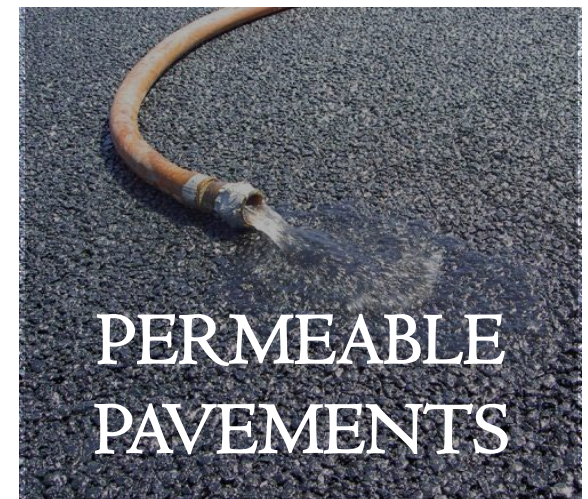
Lead Line Replacement

What Do You Want to Do – and at What Scale?



EXPAND WATER CONSERVATION PROGRAMS

- Subsidized Toilet installation
- Washing machine rebates
- Free shut off valves/nozzles



What's the Problem?

But annual rate revenue is not sufficient to cover large scale investments

Your finance folks tell you that you can **only pay** for these things out of annual operating cash



Capital vs. Operating



- Pipes
- Treatment plants
- Reservoirs



- Staff salaries & benefits
- Chemicals
- Annual regular maintenance

What's the Solution?



GOOD NEWS:

GASB has issued new guidance clarifying that public water resource agencies are authorized to capitalize distributed infrastructure!

Using Muni Bonds to Finance DI

GASB 62 says an entity with **rate setting ability** can capitalize 'business-type activity costs' that could otherwise be expensed.

How Would This Actually Work?

Example: Your water utility has a \$70 million budget. You'd like to invest in a major conservation program that will cost \$10 million for DI programs.

Using Annual Operating Cash

- Raise rates in Year 1 by ~ 14%
- Implement program in Year 1
- Benefits over 20 years

Using Debt

- Raise rates in Year 1 by ~1%
- Pay back over 20 years
- Implement program in Year 1
- Benefits over 20 years

Regulatory Accounting – It's happening!

- Utilizing regulatory accounting is common practice in utilities
- Keep in mind that *the ability to recover the cost through rates creates the asset*, not what the utility spent the money on
- Amortization period should be linked to recovery period

Who is Doing This Now?

DI IN ACTION

Cash for Grass/Turf Replacement

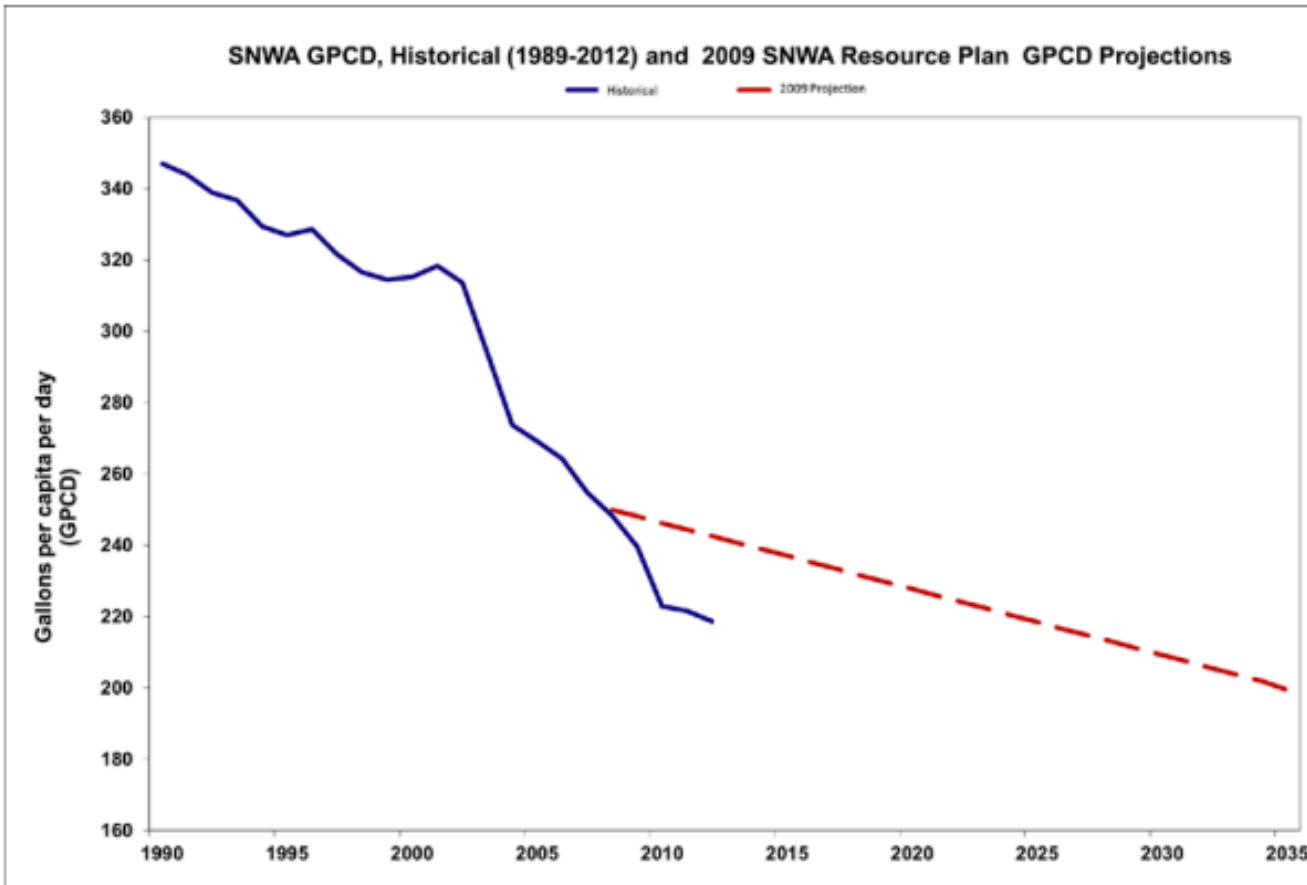


Southern Nevada Water Authority:

Regional Collaboration, Regional Success

SNWA Water Resource Plan:

Figure 1 – Conservation Achievements
(1990-2012) and Projections (2008-2035)



- **Goal: 116 GPCD by 2035.**
- **Programs:**
 - Water Smart Landscapes Rebate Program
 - Rebate Coupons
 - Water Efficient Technologies
 - Single-family Indoor Retrofit

Water Smart Landscapes Program:

- Financial incentives for water-efficient landscaping.



Southern Nevada
Water Authority





WATER SMART LANDSCAPES

PROGRAM FACTS

**185
MILLION**

Square feet of grass that has been removed since the WSL program began in 1999

snwa.com

Rev. 2/18



WATER SMART LANDSCAPES

PROGRAM FACTS

119 BILLION

Gallons of water has been saved through grass removed to date.

That's enough
water to fill the
Luxor Hotel
Pyramid

330
TIMES



snwa.com

Rev. 2/18



Southern Nevada
Water Authority



Other Programs and Results

- **Rebate Coupons:** Resulted in a savings of more than 2 billion gallons of water.
- **Water Efficient Technologies (WET) Program:** Saved more than 6.5 billion gallons of water.
- **Single Family Indoor Retrofit:** Resulted in savings of more than 750 million gallons annually compared to traditional residential developments.

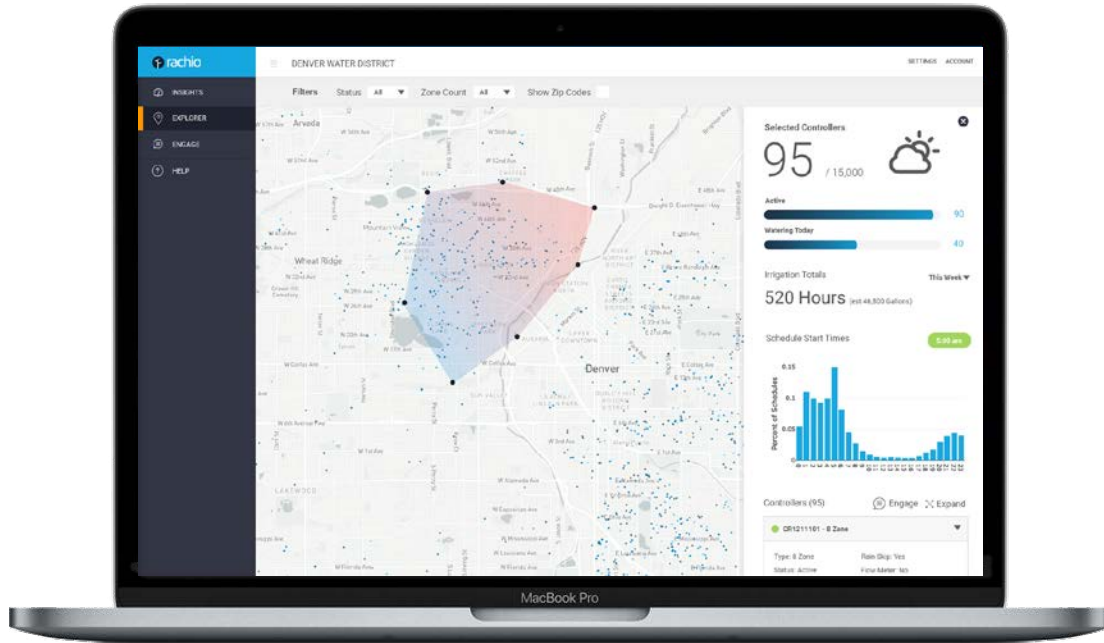
Source: Southern Nevada Water Authority



DI IN ACTION

Smart Irrigation Controllers

Smart Irrigation Data and Analytics Platform



Measure program efficacy and audit controller redemptions



Access real-time insights including demand trends, landscape composition, and customer behavior

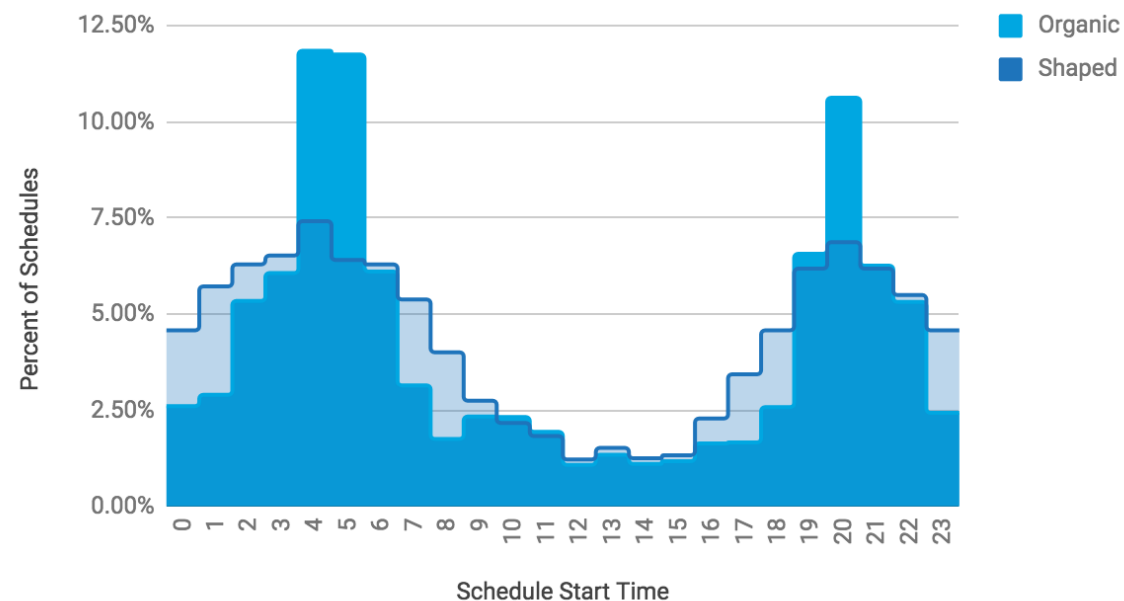
Spanish Fork, Utah



CASE STUDY: Spanish Fork experiences high intra-day peak use at a time when wind funneled through the city greatly reduces irrigation efficiency.

In partnership with Rachio, Spanish Fork is distributing controllers to $\frac{1}{3}$ of the city (3,000) and remotely managing these devices to achieve peak reduction.

Intraday Peak Shaping by Adjusting Schedule Start Time



Fresno, CA



380 million

gallons saved annually in Fresno County.

CASE STUDY: Rachio partnered with California's Local Government Commission and Department of Water Resources to reduce residential irrigation demand in Fresno County.

In less than 11 months, Rachio was able to distribute over 4,300 controllers in the county, resulting in an estimated 300+ million gallons saved annually.



DI IN ACTION

Stormwater Management

Lancaster, PA



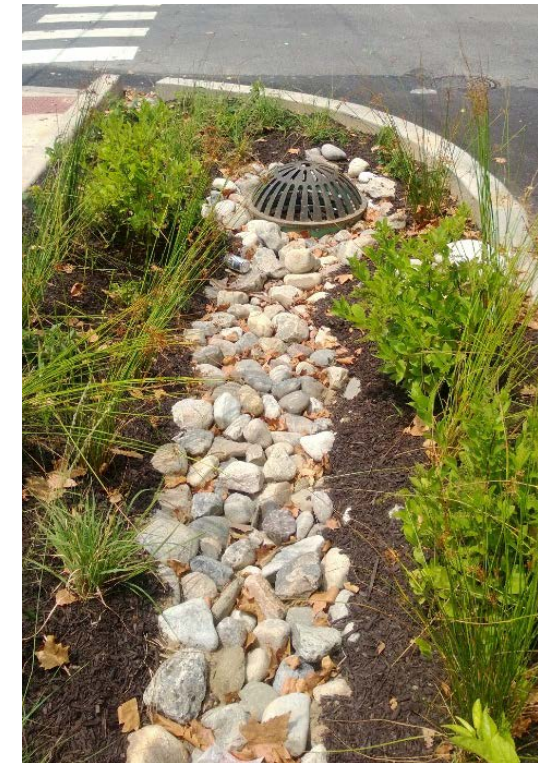
Combined Stormwater and
Sewer systems with
chronic combined sewer
overflow

Under a consent degree

Distributed Infrastructure Use

- Permeable pavement,
- Park upgrades
- Conversion to community gardens
- Rainwater Harvesting

GOAL: Reduce the volume and rate of runoff entering sewer systems.



Avoided Costs

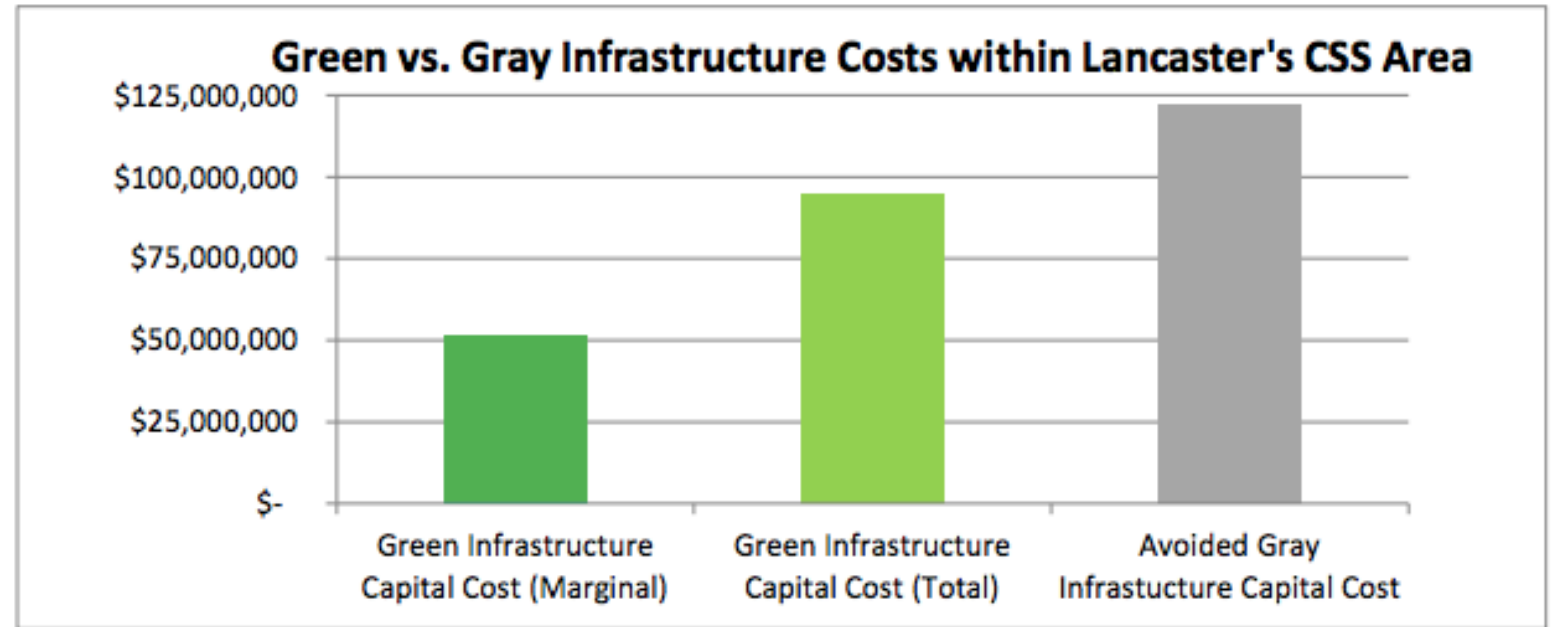


Figure 1: Comparison of avoided gray infrastructure costs to green infrastructure costs within Lancaster's CSS area.

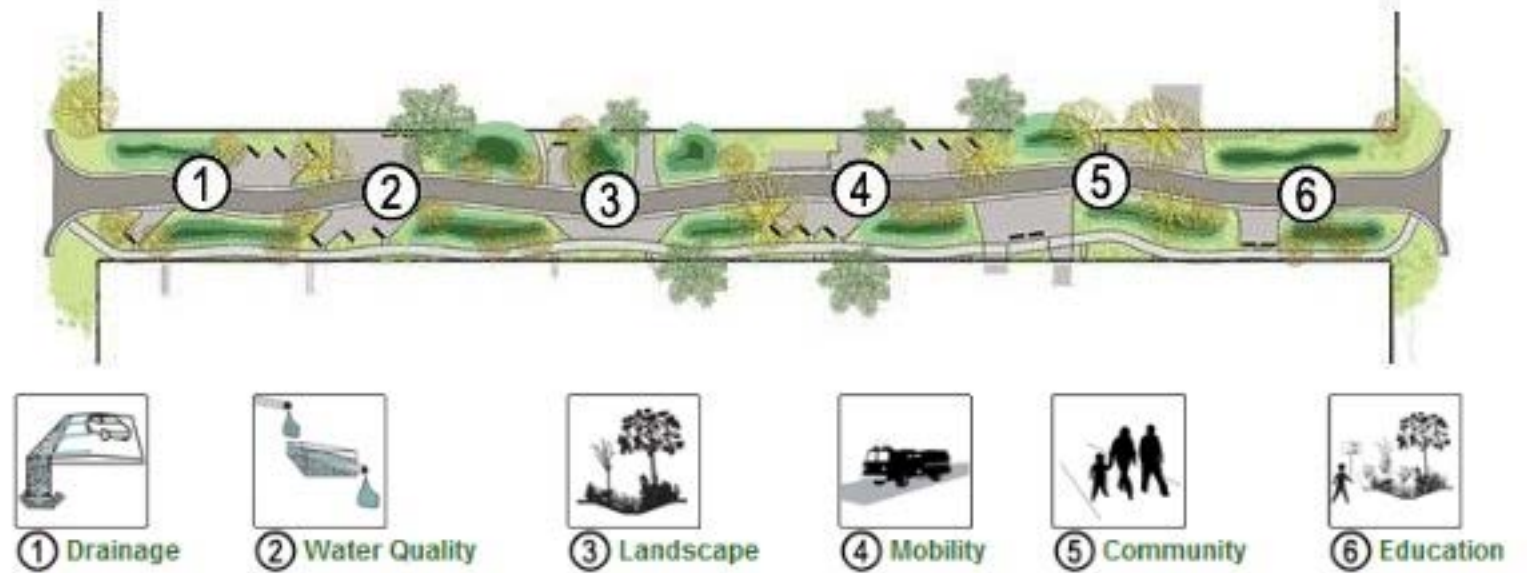
Estimated Value of Avoided Costs for Wastewater Treatment & Storage at 25-Year Implementation*	
Reduced Pumping and Treatment Costs (per year)	\$661,000
Reduced Gray Infrastructure Capital Costs	\$120,000,000

*Benefits of green infrastructure stormwater reduction outside the CSS area were not included in this analysis

Source: US EPA, "The Economic Benefits of Green Infrastructure A Case Study of Lancaster, PA" 2014



Seattle, Washington



Seattle's Street Edge Alternative project redesigned an entire block with stormwater techniques such as bioswales in the rights-of-way.

Reducing street widths and sidewalks lowered paving costs by 49 percent.

Overall, incorporating DI stormwater management techniques cost \$651,548—a savings of \$217,255 compared to a conventional retrofit of the block, which would have cost an estimated \$868,803.

Financing the Future of Water Infrastructure

- Traditional financing has limited thinking beyond traditional infrastructure.
- GASB 62 opens the door to a whole new world of investments
- What are you waiting for?
- How can WaterNow support you?



Questions?

Join the DI Revolution!

Contact us:

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