Purified recycled water for drinking

Visitor Centres around the world

September 2022

WATER SERVICES
ASSOCIATION OF AUSTRALIA

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We gratefully acknowledge Linda Macpherson for her generous sharing of knowledge and experience

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Global visitor centres

Many cities considering purified recycled water to enhance their water supply, create a visitor centre or educational experience as part of a demonstration project, to help communities, stakeholders and others to understand how the process works.

Visitor centres on this topic are a specialised art form. This report outlines some leading examples globally, including images of the centres and tours visitors go on.

The theatrette at Water Corporation's Groundwater Replenishment System Visitor Centre at Beenyup, Perth, Western Australia

NEWater Visitor Centre, Singapore

H2O Learning Centre,
Orange County, California

San Diego: After the city rejected reuse in the 1990s, a demonstration project was set up and existing office spaces converted to a visitor experience. San Diego is now proceeding with reuse.

Singapore
San Diego
Orange County
Perth
Hampton Roads

Case studies in pictures

Singapore

NEWater Visitor Centre

- This global flagship visitor centre opened in 2003
- Learnings from social psychology about stigma, risk, perception were used to shape exhibits, language.
- This report broadly focuses on its initial fit-out which was a ground-breaking approach that led the world.
- However the interior fit-out has been updated over time.

Scheme type

Reservoir augmentation
Will supply 600 MLD by 2060.

Details

- Scheme driver: Diversify water supplies to protect against natural or other (strategic) interruptions of supply.
- Began as a pilot facility, approvals for operation came after 2-3 years of successful monitoring.
- On the same site as the WWTP, though the visit does not include the WWTP.
- The NEWater Visitor Centre is built around the facility, to showcase every step of the treatment train. The site is 4930m^2.
- There is a second visitor centre at Marina Barrage which focuses on water supply considerations.
- Every school student has the opportunity to visit the Centre.

Tasting area

- NEWater can be sampled at the end. This was previously bottled, although in recent times PUB has moved towards more sustainable packaging methods.

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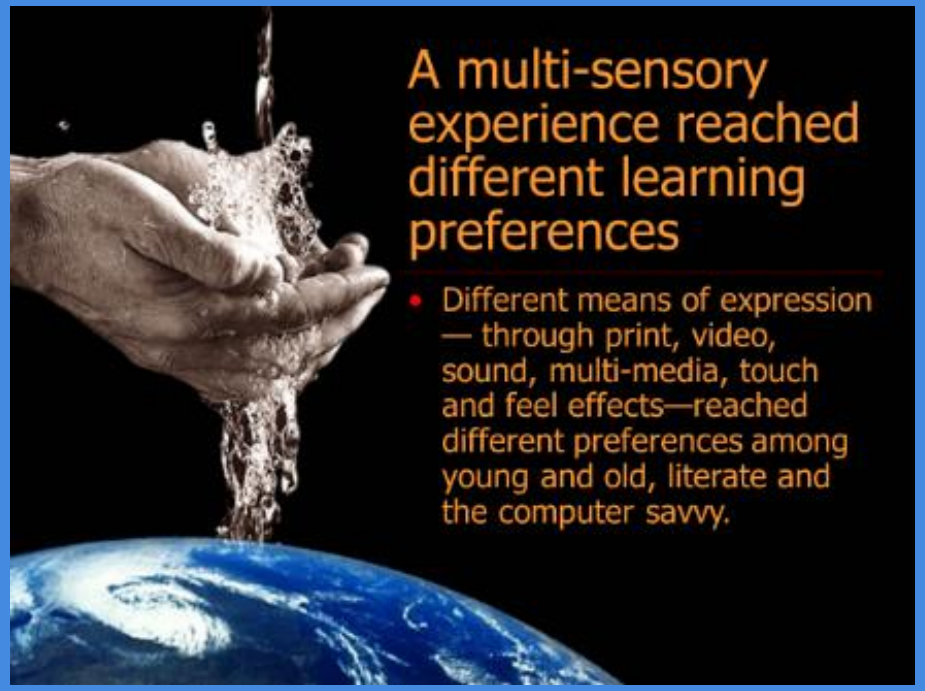
2003: The original Concept Plan, Fabrication and installation for this visitor centre was led by CH2M. Many of the images here are from the original fit out or early re-fits, to show the conceptual ideas behind the centre design.

The Centre has now been operating for 15 years and seen many updates, as interactive communication technologies have advanced.



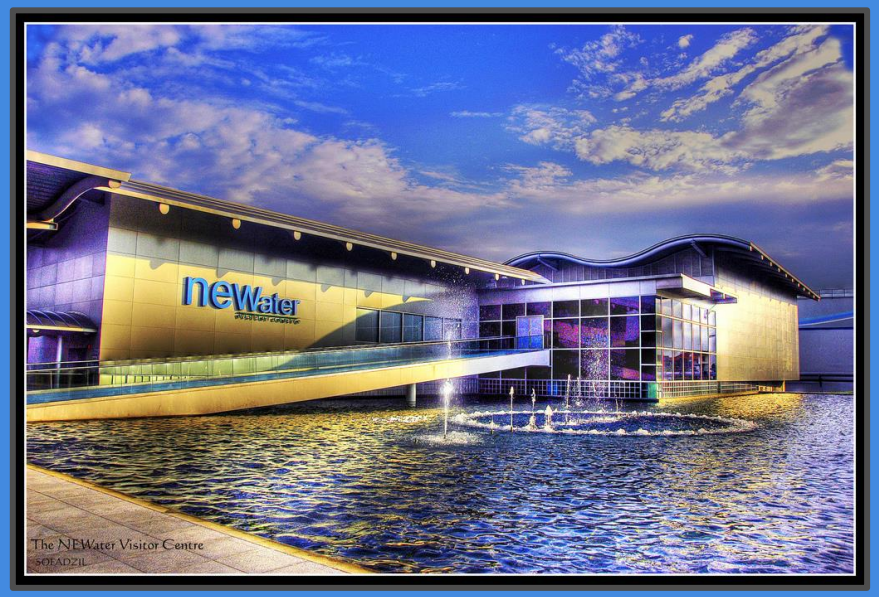
The Transparency of a Visitor Centre Integrated into a Treatment Facility Was Considered an Advantage

- The Centre was designed to emphasize the 'experiential mode of learning'.
- Analytical and rational thought processes were considered.
- The Centre creates a positive feeling about the facility, the processes and safety.

Minds Were Changed:

- By **not** telling citizens what to believe but by reframing the issue and showcasing the technology
- By realigning public perceptions of the hydrologic cycle and the NEWater processes as part of the cycle created through scientific means

Exterior views



Exterior views

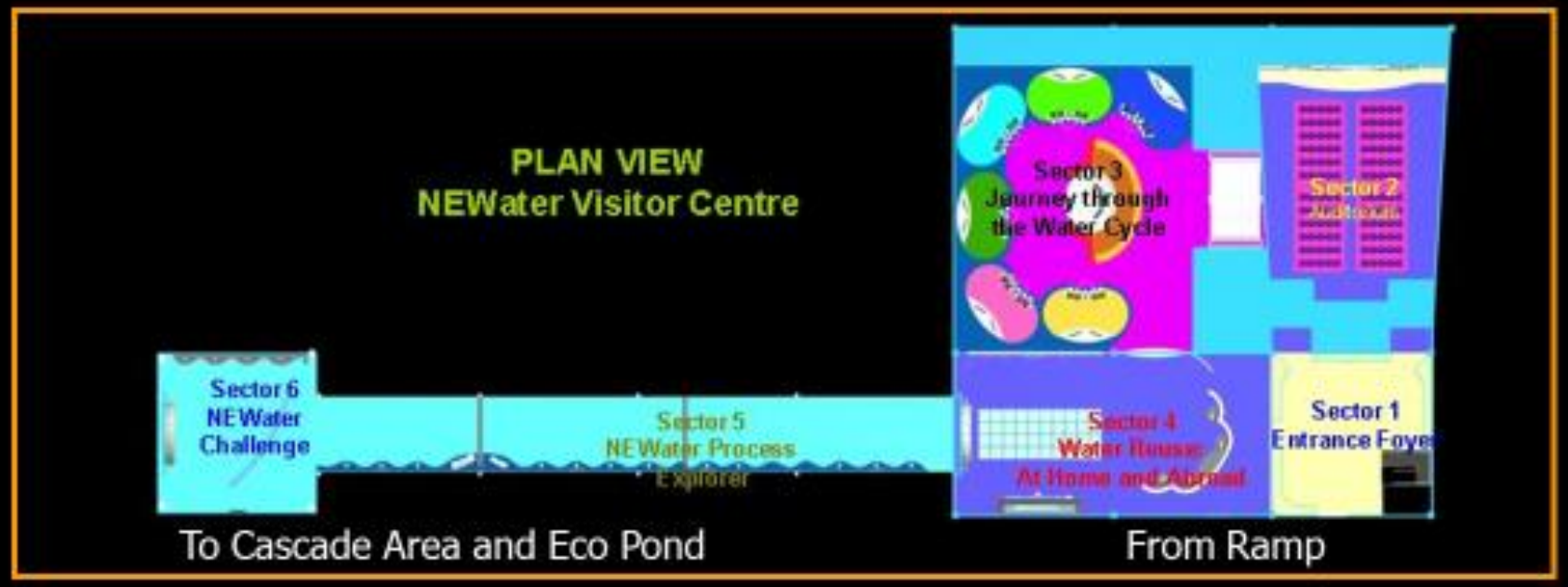
Spectacular external water feature

The Cascade incorporates features allowing the visitors to touch and feel NEWater once again, which is all part of a very important learning journey to accepting NEWater — for industry, for living, for life.

NEWater is on display at this water feature and the reed bed.

The elegant spiralling structure is subtly emblematic of the water cycle.

The Initial Learning Experience Was Divided into 6 Main Sectors



- Arrival foyer
- Auditorium
- Exhibits Area A: Water Cycle
- Exhibits Area B: Indirect Potable Use
- Elevated walkway (over process units)
- Exit area: NEWater Challenge

"Overall the Centre does not tell the visitor what to believe but creates the opportunity for a joyful learning experience that sows the seeds of understanding"

Linda Macpherson, CH2M Hill

Highlights of the NEWater Visitor Centre...

Opening mindsets and breaking barriers

SQUARE FEET	SQUARE METERS	NEWater Visitor Centre Measurements
1,830	170	Entrance Foyer
3,660	340	Auditorium
7,320	680	"Journey Through the Water Cycle" Exhibit Hall
3,660	340	IPU, Walk on NEWater, and Wall of Water
3,337	310	Elevated Walkway
1,830	170	NEWater Challenge
6,300	585	Open Terrace
8,180	760	Cascade Area (pool and walkway)
13,300	1,235	Main Water Feature
3,660	340	Function Room (exclusive of kitchen and store)
53,077	4,930	TOTAL

The NEWater Visitor Centre is incorporated into a 23 million gallons (88,000 cubic meters) per day plant. It explains the technologies that go into the manufacture of NEWater from treated, used water and builds awareness, confidence and acceptance of the product and the process that manufactures it. In a fun learning environment, visitors absorb facts through printed displays, touch-screen interactives and video presentations. Through the different displays, visitors learn about safety, reliability and sustainability of the NEWater process and product. The architectural and interior design of the NEWater facility combines elements of pure engineering with spacious, comfortable and feel-good spaces to encourage absorption of the messages. Messages on water resource management are communicated in a fun, stimulating and interactive manner. The Centre brings together state-of-the-art communication technology with the most recent research on public perception challenges. Since opening on February 21, 2003, the center has received an average of 2,000 visitors per week (March 2003 figures), and is booked several months in advance through its website: www.pub.gov.sg\newater

Entrance

The NEWater visitor centre is a significant tourist attraction. NEWater itself is highlighted in various places including this water wall

Sector 1 – Entrance foyer

Arrival Foyer

The arrival foyer is a 167-square-meter (1,800 square foot) area.

Walls are decorated with back-lit photos of water use around the world; a soundtrack plays softly in the background.

Sector 2 - Auditorium

120 Seat Auditorium: Introductory Video

Message: Water is critical to life. Water is scarce in Singapore. NEWater is vital to Singapore's future.

Technique:
Video presentation

Sector 3 – Journey Through the Water Cycle

Exhibit Hall: Central Feature

- **Message:** Management and reclamation of water is a complete system that embraces the hydrologic cycle. There are Four National Taps working together to provide water supply in Singapore.
- **Technique:** Projected video animation from overhead — tour members gather around the central feature — video is projected on plasma monitors and the circular screen on the floor

Sector 3 – Journey Through the Water Cycle

Main Exhibit Hall

Around the room are six large colorful interactive kiosks where individuals interact with a number of exhibits. Each kiosk has two touch screen terminals, each with a large overhead plasma monitor

Water Through Time

- Message: *"Fresh water is scarce in our world. It must be carefully managed, particularly in Singapore."*
- Technique: media-rich timeline.

We Treat Our Water Right

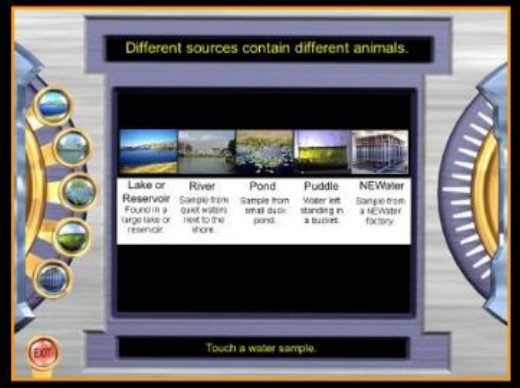
- Message: *"Singapore has a very comprehensive treatment system ahead of NEWater. The feedwater used for production of NEWater is already relatively clean."*
- Technique: virtual tour

Protecting our Waters

- Message: *"Because we have limited resources in Singapore, we must do what we can to prevent pollution and conserve our water resources."*
- Technique: interactive exploration

Messages were conveyed through learning exhibits. At the time, these exhibits were cutting edge approaches; technologies have evolved with time

Life in a Drop



- Message: *"Showcases how clean NEWater is as compared to other sources of water. Visitors get a pleasant surprise when they click on NEWater and find nothing there."*
- Technique: animated video microscopy

NEWater Products

- Message: *"NEWater enables products and technologies that contribute to our life styles, economy, quality of life."*
- Technique: matching game

Indirect Potable Use Area

- Message: *"NEWater is reliably pure and can be added to existing drinking water reservoirs as a supplement to Singapore's raw water supplies. This concept is supported by worldwide experience and the conclusion of trustworthy experts."*
- **Techniques: video and interactive displays**

IPU Exhibit Area

- Reusing Water – The Global Experience
- Message: *Use of recycled water to augment drinking water and for other purposes is expanding throughout the world. It has being practiced successfully in many locales.*

IPU Exhibit Area

- Singapore Experience – Road to NEWater.
- Message: ***"Singapore has made use of proven advanced technologies to produce NEWater that is clean enough to drink and augment its water supplies."***
- Technique: Interactive newsreels

More recent interactive exhibits

Sector 4 – Walk on NEWater

Details like the glittering doorway have been added over time

Walk on NEWater

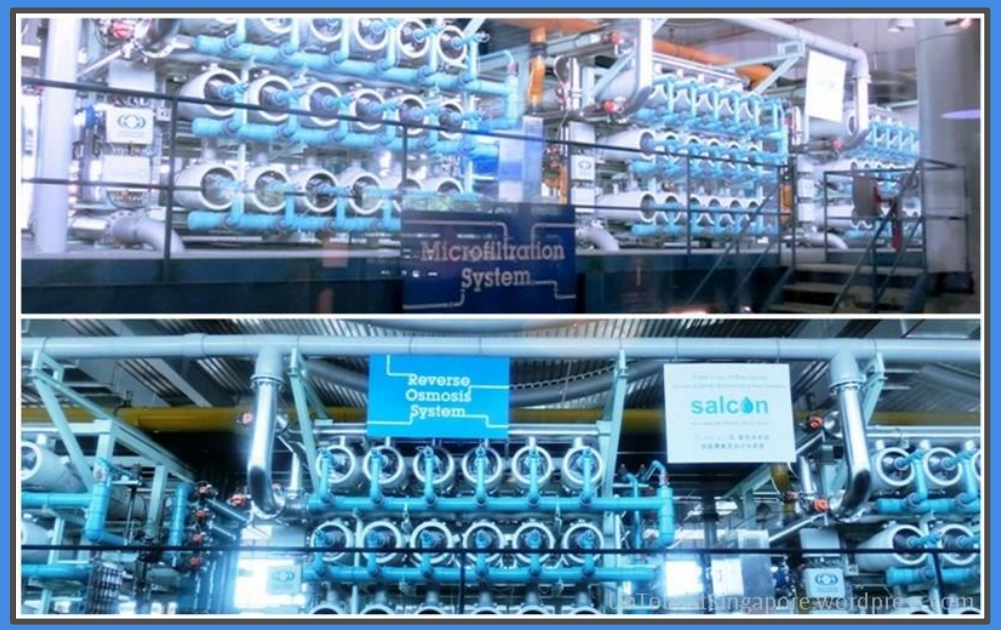
- The Tour now moves along the Walk on NEWater, past a panel showing the history of NEWater in still photos and news clippings, through a simulated vault door and into the highly valued NEWater Process area — the NEWater Process Explorer.

Sector 5 – NEWater Process Explorer

NEWater Process Explorer

- Message: *"Proven new technologies can treat water to a highly pure state, beyond the requirements of drinking water."*
- **Technique: 3D models of process with interactive exploration**

Sector 5 – NEWater Process Explorer



The elevated walkway is a 91 meter (100 yard) glassed in walkwater through which the tour passes over the process equipment. At three stops along the way, touch screen kiosks and overhead plasma displays show animations of individual processes — ultrafiltration, reverse osmosis, ultraviolet disinfection and water conditioning. Physical models allow close-up inspection.

Sector 6 – NEWater Challenge

The tour exits the process area into the space where the visit concludes. Here visitors are challenged by an interactive game that pits them against a computer character in a context of knowledge about water and the NEWater process. At the end, the visitors are treated to a celebration video before the doors open to the NEWater Cascade.

NEWater Challenge

- Message: "***The NEWater Factory creates NEWater, which is a critical resource in Singapore's effort to provide water for industry, for living, for life.***"
- Technique: Quiz show interactive that reinforces the overall messages in other areas

Bottled NEWater was presented

(Packaging methods have changed over time)

San Diego


Enjoy coffee brewed with purified recycled water from the City of San Diego's Pure Water Demonstration Facility!
Thank you to our partner:
BIRD ROCK
COFFEE ROASTERS
CALIFORNIA
SD
Pure Water
San Diego


Pure Water
San Diego
safe, reliable, sustainable
Goal:
producing
1/3 of our
water supply

San Diego, California

- After initially rejecting purified recycled water for drinking in the 1990s, through a long demonstration project and outreach campaign, San Diego adopted it
- Opened in 2009 as part of the Demonstration Project.
- Overall this outreach program has been an outstanding success story – public support was at 26% in 2004; by 2012 it had risen to 73%, and 79% by 2019

Scheme type

Reservoir augmentation - Will supply 314 MLD by 2035.

Details

- Scheme drivers: Drought, reduced ocean impacts, local control.
- Not a stand-alone space. The Orientation room (2nd floor, Administration Building) has been set up as a starting point of the tour and it concludes in another area (1st floor). Mainly outdoor tour.
- The Demonstration Facility conducted a successful year of testing. Only in 2018 did the California Department of Public Health and San Diego Water Board approve the purification concept and to proceed with the Pure Water Program.
- On the same site as the WWTP.
- Walk through style tour.
- As the Pure Water San Diego project is evolving, further education experiences are being created.

Tasting area

- Yes, onsite only (no bottled samples to take away)

SD Pure Water San Diego

WATER SERVICES ASSOCIATION OF AUSTRALIA

The City of San Diego has adopted a family-friendly, proactive style of outreach

You're Invited!

Pure Water Day

Open House

Saturday, June 22, 2019
10 a.m. - 3 p.m.

North City Water Reclamation Plant
4949 Eastgate Mall, San Diego, CA 92121

Bring your family for free snow cones, kettle corn, fun and information!

- Tour the Pure Water Demonstration Facility
- Taste the Purified Water
- Take home a succulent

- **Participate in the Kid Zone!**
  - Obstacle Course
  - Exploratory Scavenger Hunt
  - Educational and Creative Youth Activities

Learn how the City's Pure Water Program will produce 1/3 of San Diego's water supply locally using proven technology to clean recycled water.

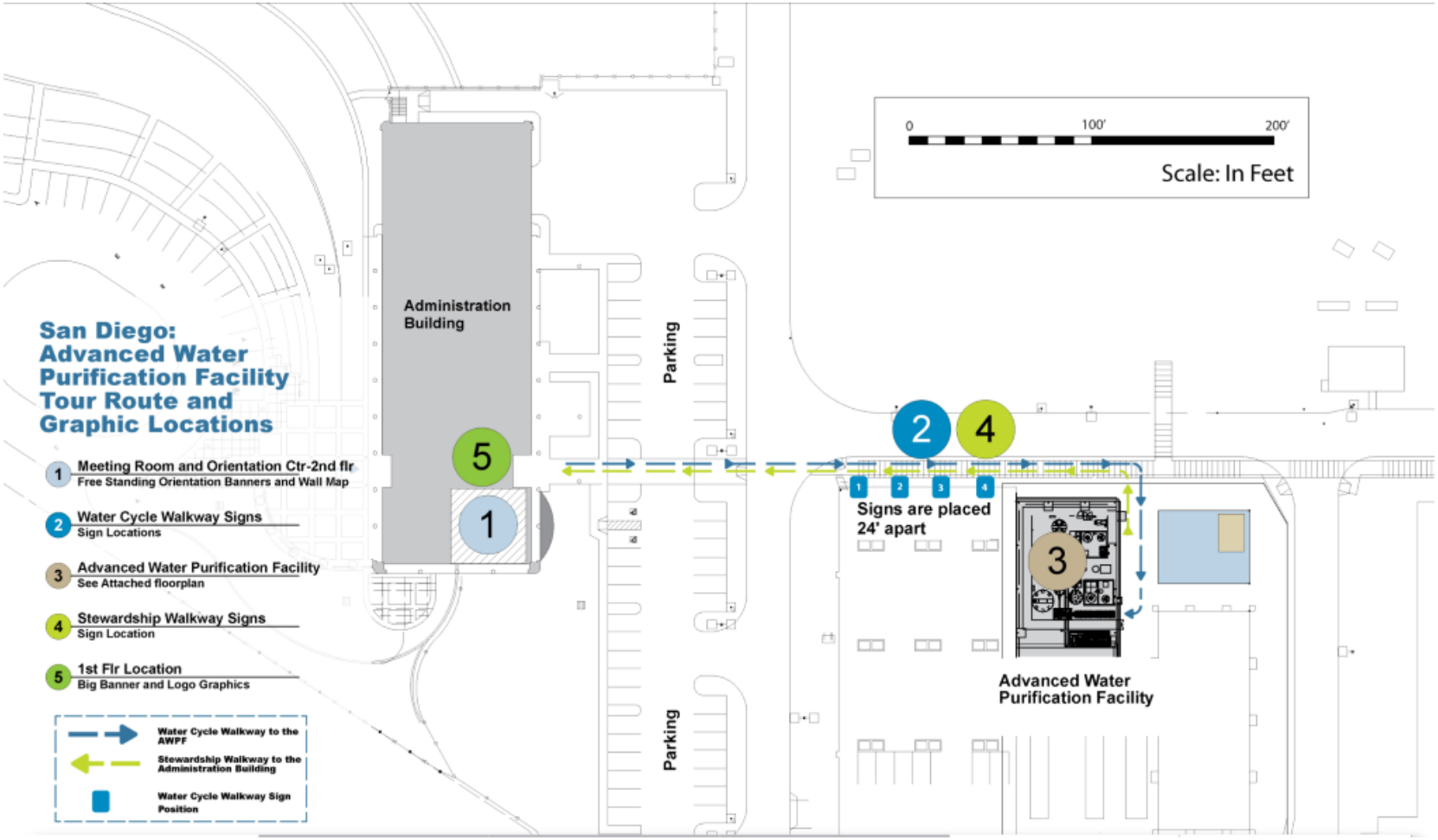
RSVP by Saturday, June 15, 2019 to confirm your tour spot at tours.purewatersd.org.

Want to know more?
Contact us at **purewatersd@sandiego.gov** or **619-533-7572**
Visit **purewatersd.org** for directions and more information.

SD Pure Water San Diego

Advanced water purification facility

Aerial view of tour

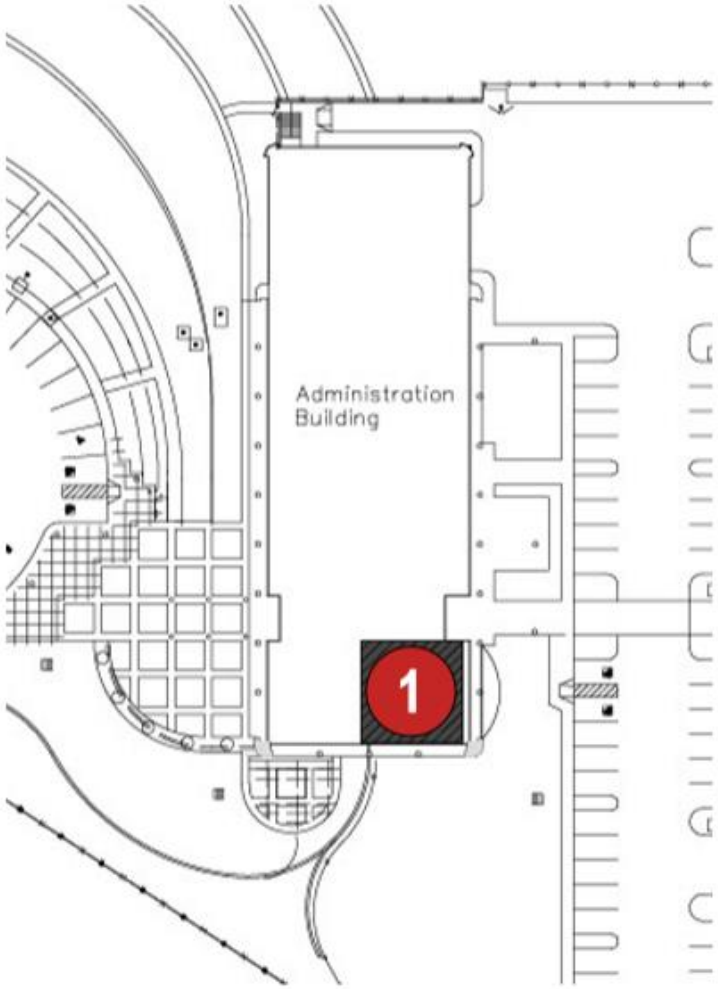


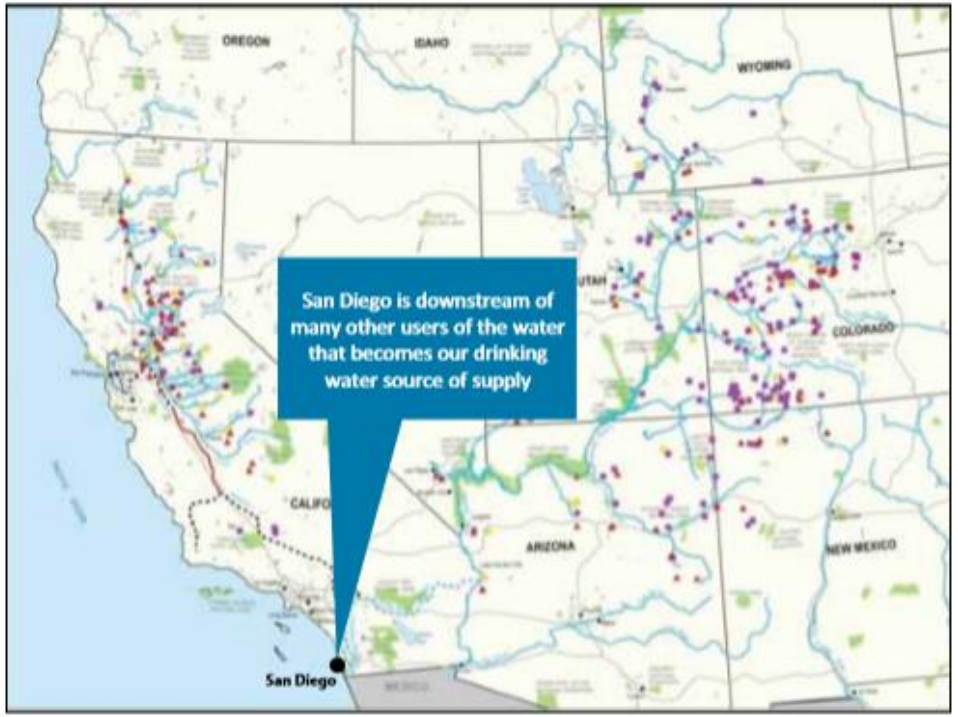
"Tour guides should be committed to the goals of showing rather than telling"

1 Meeting Room
Assembly, Welcome and Orientation

Freestanding Orientation Banners and Wall Map

Duration of welcome/orientation: 15 minutes

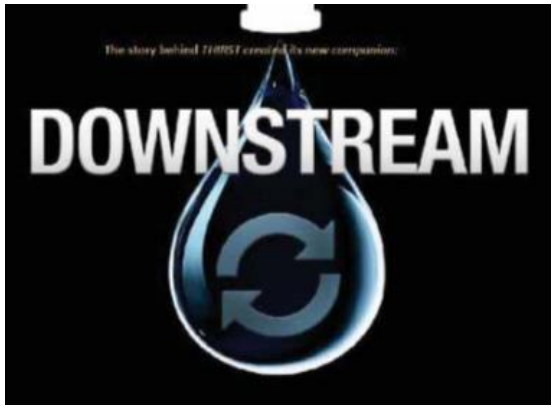




Let's take a look at where most of San Diego's water supply comes from. As you can see on this map—and as you may have seen on the screen as you came in – we are ALL downstream—from somebody or something.

San Diego's water –as we speak—is being imported from hundreds of miles away—from the Colorado River and Northern California—with hundreds of discharges along the way. . .(346 to be specific) represented here by the colored dots on the map.

"Please enjoy the presentation of 'Downstream' and the materials on the wall."



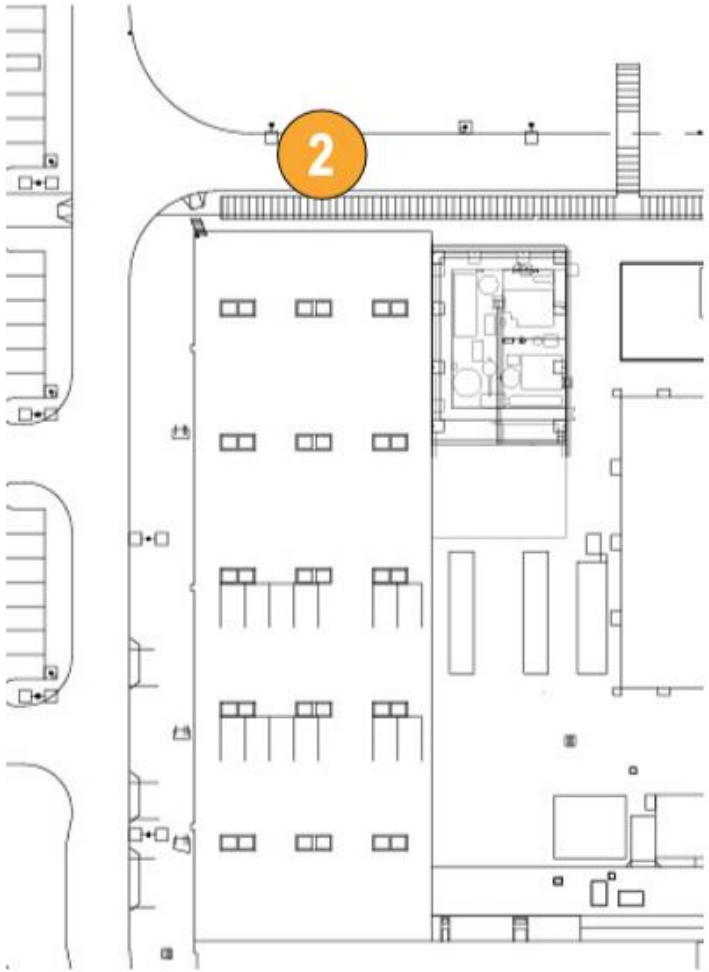
Free Standing Banner One

Free Standing Banner Two

2 Water Cycle Walkway Signs

Water Cycle Signs going to the AWPF

Duration of walk to AWPF: 5 minutes

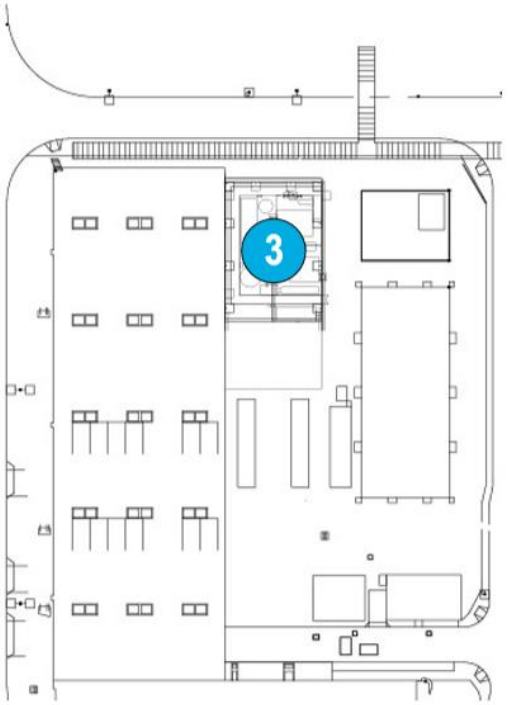


"The water cycle walkway reminds us that water is critical to life and should be valued. It also points out that we often take water for granted."

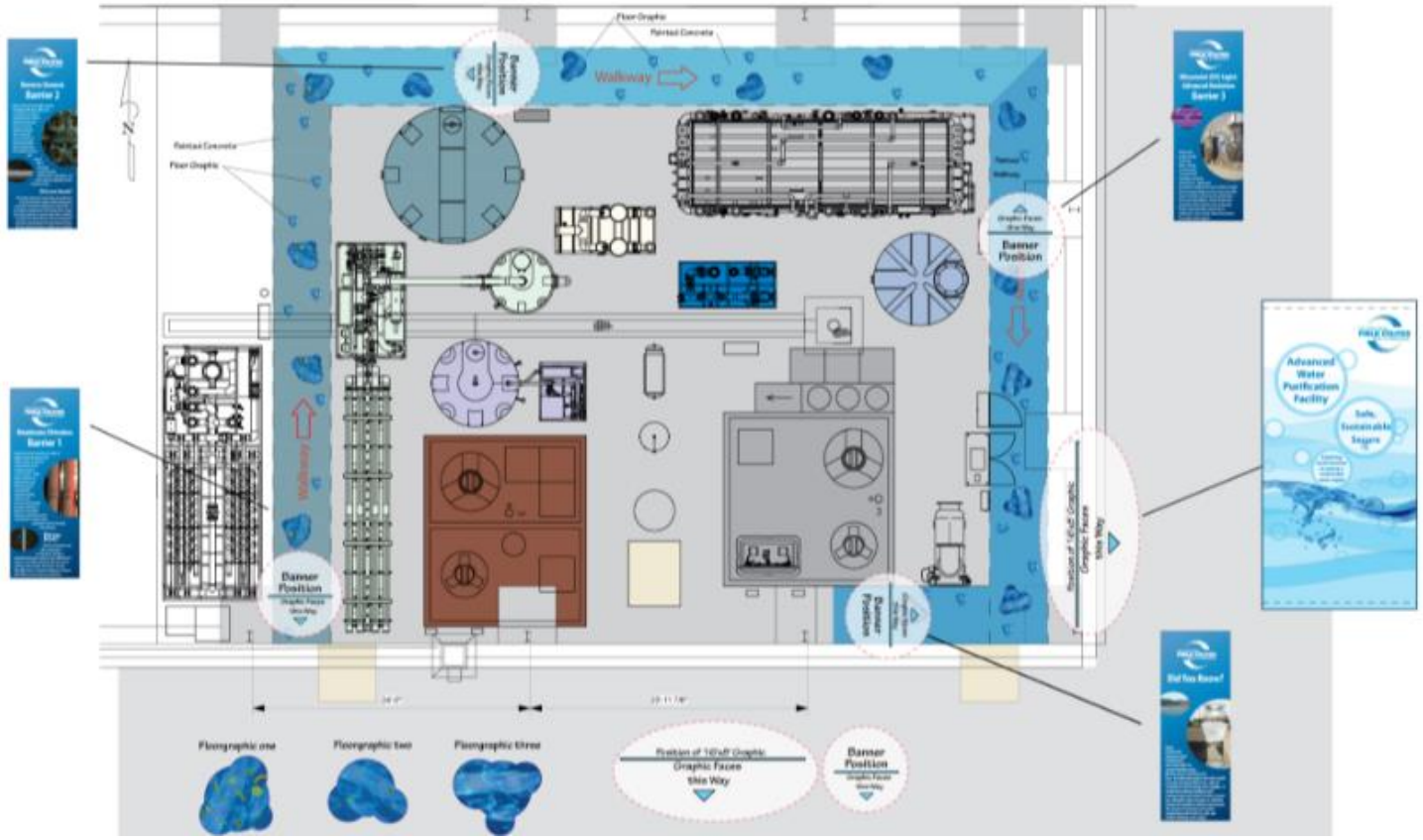
3 Advanced Water Purification Facility

Barrier Banners, Floor Graphics and Curtain Banner

Duration of tour through AWPF: 25 minutes



"At this facility, two types of membrane filtration are being tested…microfiltration and ultrafiltration… both are similar in performance, but each is being tested to determine the pros and cons of the specific membrane on this specific water."



Many demonstration plants have the technology behind glass because of the noise; it is difficult and distracting to have exhibits or animations that explain the technology. San Diego's site is already under the flight path, so there is some ambient noise. This means they can let people walk among the technology, which visitors tend to like.


safe, reliable, sustainable

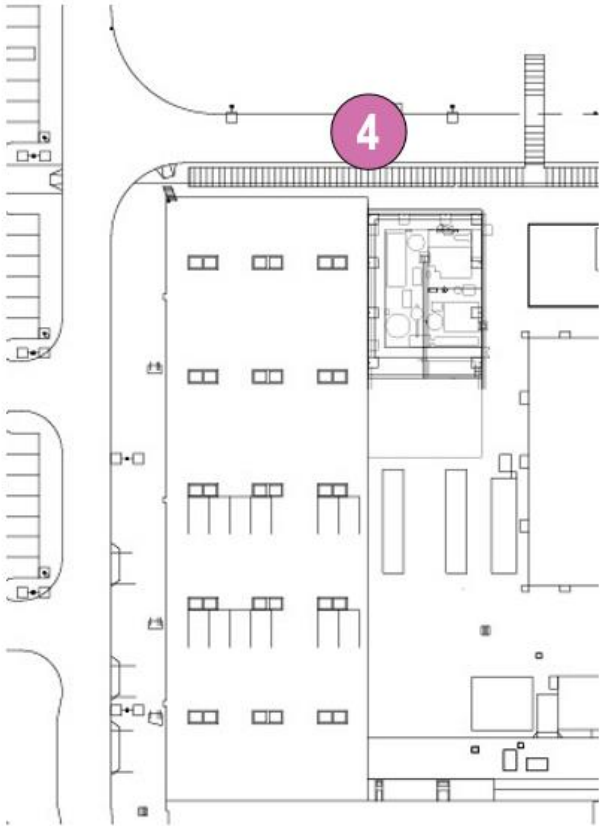

pleting our
ter Cycl
esting in
Future


Completing our
Water Cycle,

4 Water Sustainability Walkway

Stewardship signs going to the Administration Building

Duration of walk from AWPF: 5 minutes



"The messages along this walkway remind us of the things that we can do to protect and preserve our water supplies. Water conservation alone will not be enough: water can and is being reused."

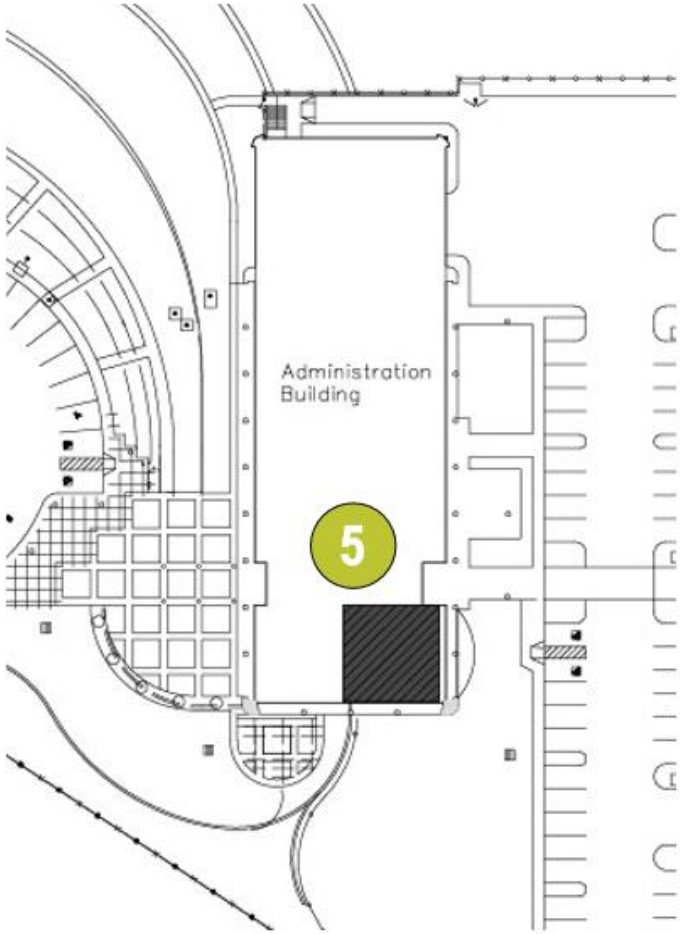
_Y

5 Tour Conclusion - First Floor

Banners with San Diego Public Utilities and Project logos

In the lower level of the Administration Building

Duration of conclusion: 10 minutes



"Here we have 3 samples of water – tap water, recycled water and purified recycled water. Who can identify which is which?"

"We would like to conclude the tour by taking a group photo."

Orange County

H2O Learning Centre, Orange County, California

- Orange County's public outreach campaign in the 1990s is considered the 'textbook' for community engagement on purified recycled water for drinking
- The H2O Learning Centre came online in 2016

Scheme type

Groundwater augmentation
Supplies 380 MLD.

Details

- Scheme drivers: Seawater ingress, supply diversification, increasing capacity.
- The H2O Learning Centre opened 30+ years after Water Factory 21 began operating in the 1970s, and several years after the Groundwater Replenishment System began operating in 2008.
- On the same site as the WWTP.
- The dedicated visitor space is relatively simple – a long narrow hallway – the exhibits provide depth and texture.
- Not connected to the plant. Tours go from Board Room – Auditorium – H2O Learning Centre Hallway – then visit various process buildings, finish at tasting area.

Tasting area

- Yes.

ORANGE COUNTY WATER DISTRICT
ORANGE COUNTY'S GROUNDWATER AUTHORITY
SINCE 1933

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Master view


WHAT'S IN A DROP OF WATER?
Explore the Orange County Water District's past, present and future to learn the facts about Orange County's water.
ORANGE COUNTY WATER DISTRICT
SINCE 1933

Exhibits – left to right

The Water 360 Global Connections Map


MICRO
Microorganis
bacteria and
possible pres
SAMPLE 1
SAMPLE 2
SAMPLE 3
SAMPLE 4
SAMPLE 5


SAMPLE 1
SAMPLE 2
SAMPLE 3
SAMPLE 4
TOUCH A BUTTON TO DISCOVER WHAT'S INSIDE THE WATER SAMPLE

GWRS ADVANCED WATER PURIFICATION IS A MULTI-STEP PROCESS

Orange County Sanitation District (OCSD)

OCSD supplies OCWD with stringently controlled, secondary-treated wastewater that then undergoes a three-step purification process:

Microfiltration (MF)

This process draws treated wastewater through bundles of hollow fibers to remove particulate contaminants. Micofiltration filters out suspended solids, protozoa, bacteria, and some viruses.

Reverse Osmosis (RO)

Microfiltered water is then pumped under high pressure through semipermeable polyamide RO membranes. RO filters out unwanted components like dissolved salts, organic chemicals, viruses, and pharmaceuticals.

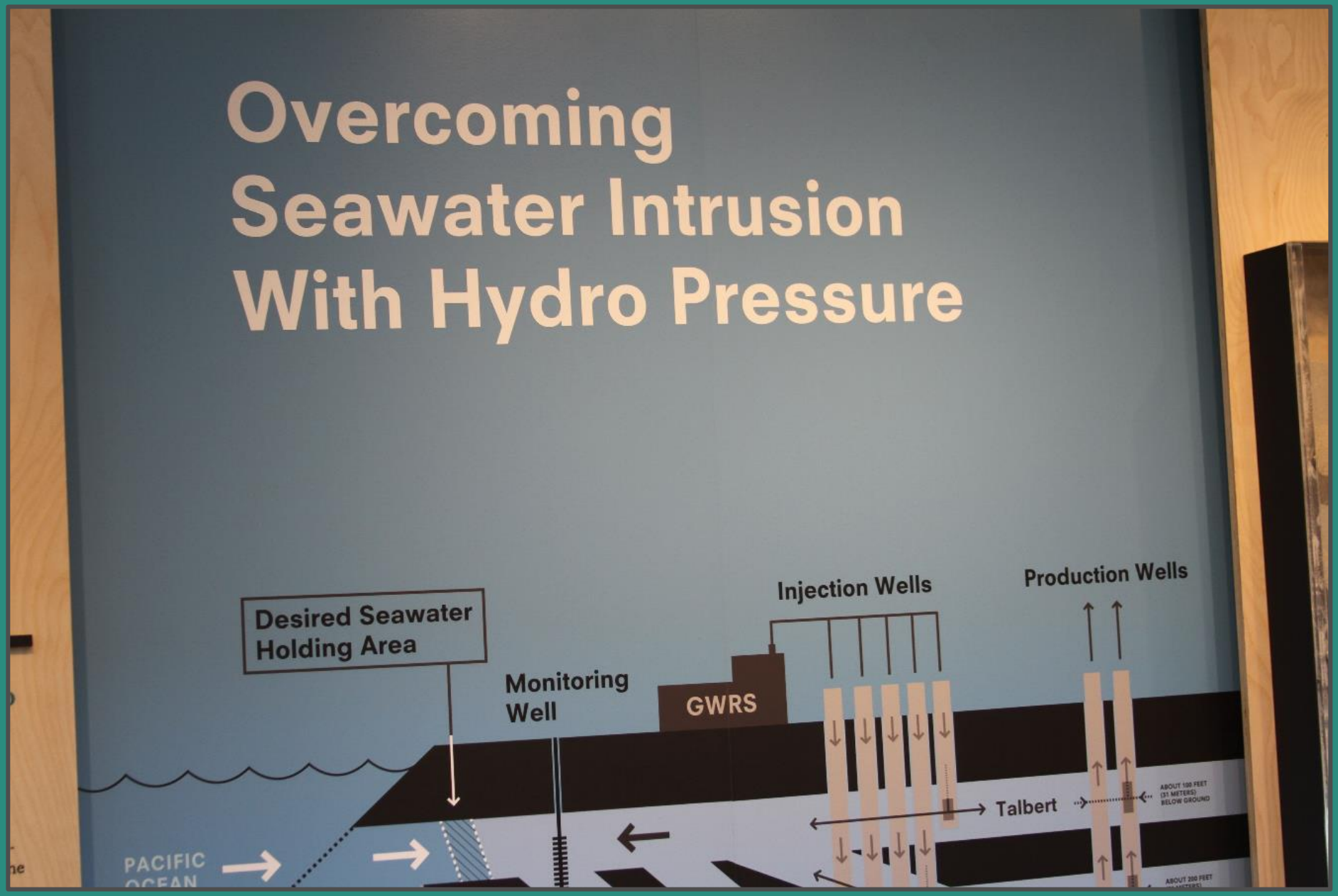
Ultraviolet (UV) Light with Hydrogen Peroxide

After purification with MF/RO, water is exposed to high-intensity UV light and hydrogen peroxide to disinfect the water and destroy remaining organic compounds. The water that emerges is so pure that minerals must be added for stabilization and pH adjustment.


OCWD WAS CREATED TO SAFEGUARD ORANGE COUNTY'S GROUNDWATER SUPPLY
Protecting Orange County's Water Resources
OCWD's Board of Directors and staff are committed to serving the people of Orange County. As a public agency, OCWD takes on the water challenges of today and prepares to meet the region's water demands for generations to come. Solid science and state-of-the-art technologies guide its decisions.
California Is Water Challenged
Drinkable Water Is Scarce in Southern California
Most of California's rain and snowmelt occur in the northern part of the state. However, the heart of agriculture, as well as the majority of its population, is located in the Central Valley and Southern California.
California's average annual rainfall of 23 inches (584.2 millimeters) is not nearly enough water to supply this most populous state in the U.S. Yet, day in and day out, Californians get clean and uninterrupted water delivered to their residences, businesses, farms, factories, and institutions.
75% OF PRECIPITATION FALLS NORTH OF SACRAMENTO
75% OF WATER IS USED SOUTH OF SACRAMENTO
NORTH AND CENTRAL ORANGE COUNTY
About 30% Imported Water
About 70% Local Groundwater
SOUTH ORANGE COUNTY
About 95% Imported Water
About 5% Local Groundwater and Other
Drinkable Water Is Scarce on Earth
2.5%
This gray circle represents all of Earth's freshwater, which is only 2.5% of all the water on Earth.


What Is the True Value of Water?
Water maintains life, creates econom opportunity, provides recreation, and sustains our future.
WHAT'S IN A DROP OF WATER?
Explore the Orange County Water District's past, present and future to learn the facts about Orange County's water.
ORANGE COUNTY WATER DISTRICT


Where Does Orange County's Water Come From?
Orange County's water comes from the local groundwater basin and imported sources from far away.
ORANGE COUNTY HAS TWO MAJOR WATER SOURCES
The Orange County Groundwater Basin
Imported Water From Hundreds of Miles Away
Moving Water to Orange County
California's major water conveyance systems distribute this important resource throughout the state.
OCWD MANAGES THREE OF SOUTHERN CALIFORNIA'S GREATEST WATER SUPPLIES
THE SANTA ANA RIVER
THE ORANGE COUNTY GROUNDWATER BASIN
THE GROUNDWATER REPLENISHMENT SYSTEM (GWRS)
HOW IS WATER MEASURED?
OCWD Uses a Variety of Measurements
Water Measurements Have Different Terms
Other Water Measurements
HOW MUCH WATER DO WE USE?
The Water Footprint of Everyday Items Can Be Very Large


Overcoming
Seawater Intrusion
With Hydro Pressure
Desired Seawater
Holding Area
Monitoring
Well
GWRS
Injection Wells
Production Wells
Talbert
PACIFIC

Perth

Water Corporation's Groundwater Replenishment Visitor Centre, Western Australia

- Perth is the first Australian city to operate a purified recycled water for drinking scheme.
- The visitor centre was a core part of an extensive, grass roots outreach campaign targeting the community itself and key influencers
- Opened 2010, as part of Groundwater Replenishment Trial
- Separate buildings, linked by walkways

Scheme type

Groundwater augmentation
Currently has the capacity to supply 14GL a year – Stage 2 operational from 2022 with phased increases in capacity to 28GL a year.

Details

- Scheme drivers: Diversify water supplies due to significantly reduced rainfall in the context of climate change. Perth has steadily reduced its reliance on rainfall, with desalination, groundwater, recycling for non-drinking purposes as other sources.
- The visitor experience was created around the Beenyup Demonstration Project. The visits continue today, in an adapted format now that the Trial is over.
- The Trial concluded in 2012. In 2013 the state government approved Groundwater Replenishment as the next new water source.
- On the same site as the WWTP.

Tasting area

- No.

WATER CORPORATION

WATER SERVICES ASSOCIATION OF AUSTRALIA

The vision

"Persuading others to share your vision works best when you issue an invitation."

Sue Murphy
Former WaterCorporation CEO
February 6, 2010

- The Water Corp Demonstration Project at Beenyup provided a strategic opportunity to invite the community to be a partner and to showcase treatment technology

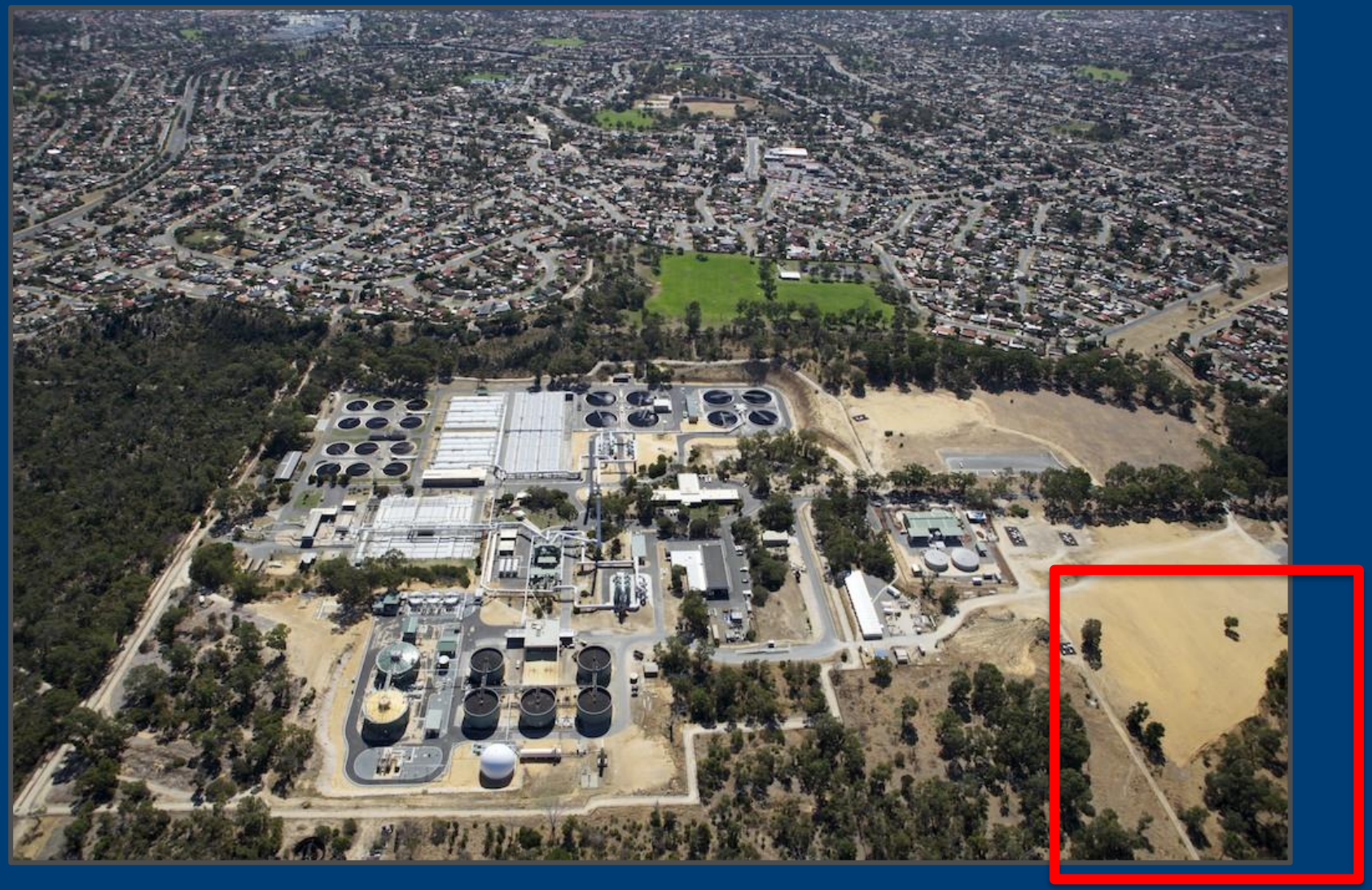
Two phases

1. Original tour – during the Demonstration project

- Frog mascot – ‘follow my footsteps’
- See the Demonstration Plant in action
- The visit focused on the water cycle generally and community feedback gathered during the Water Forever 50-year plan consultation. Groundwater Replenishment was presented as *an option* among others – not a foregone conclusion.

2. The tour today

Proximity to WWTP



Early aerial showing the Beenyup facility in Craigie, including the site of the future GWRS and visitor centre (in red)

Site layout (at time of construction)

Advanced Water Treatment Plant (actual GWRS)

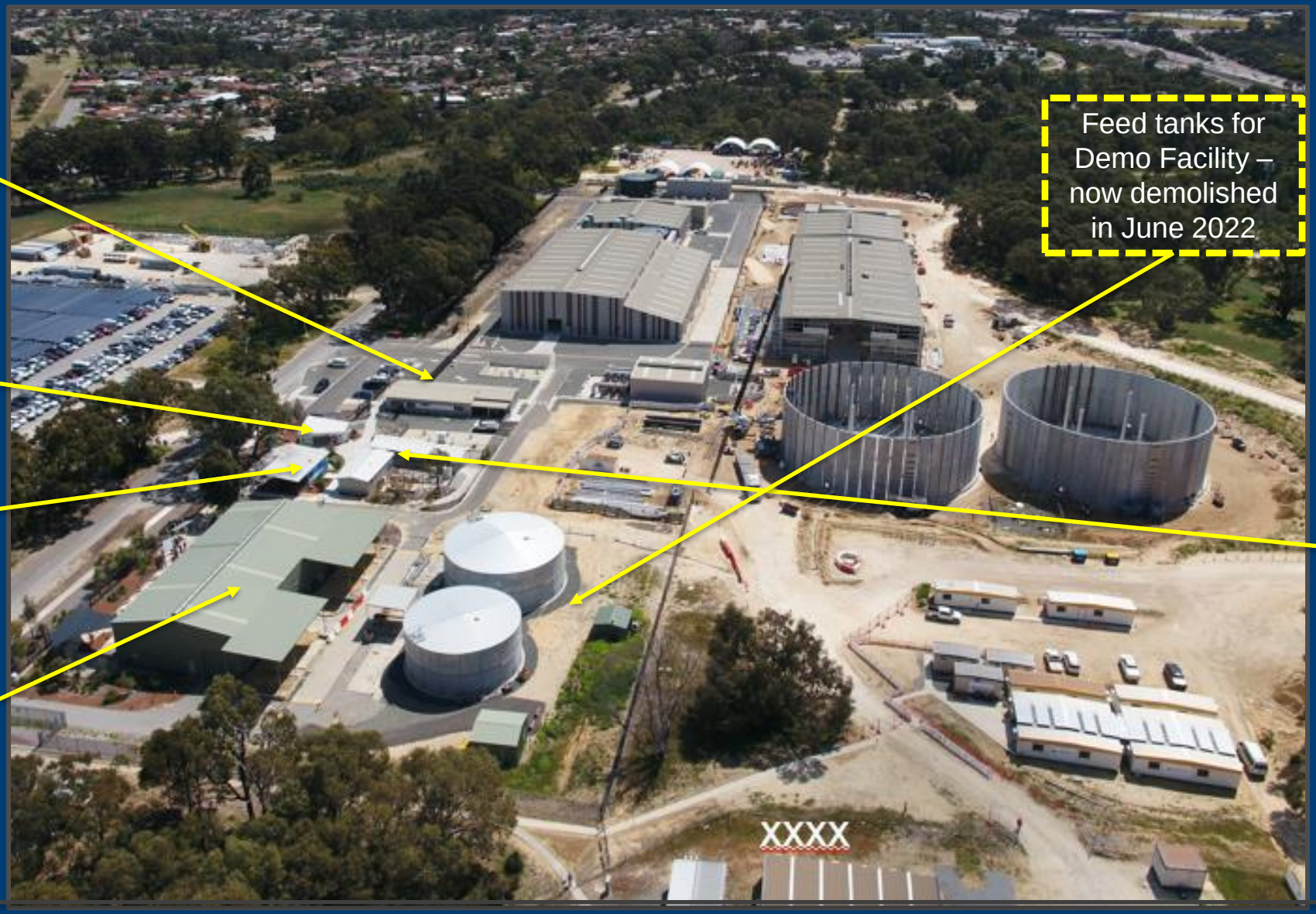
Feed/ balance tanks for full plant

Feed tanks for Demo Facility (now demolished in June 2022)

Visitor tour area

Demonstration Facility, now repurposed for storage and critical spares

Site layout (at time of construction)



Admin building

Outdoor Classroom

Theatrette

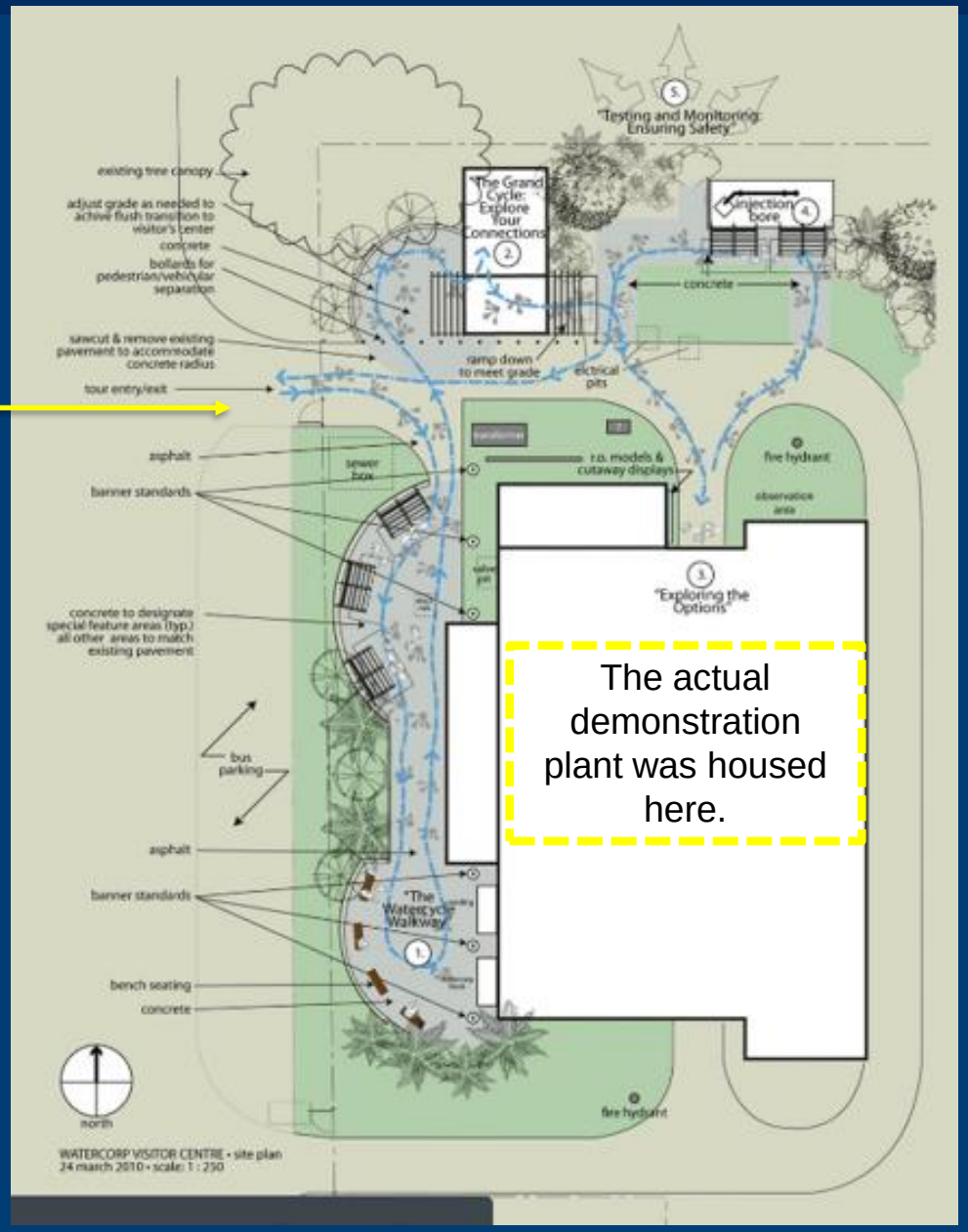
Demo facility – now repurposed for storage and critical spares

Feed tanks for Demo Facility – now demolished in June 2022

GWR Interactive Hub

Original tour

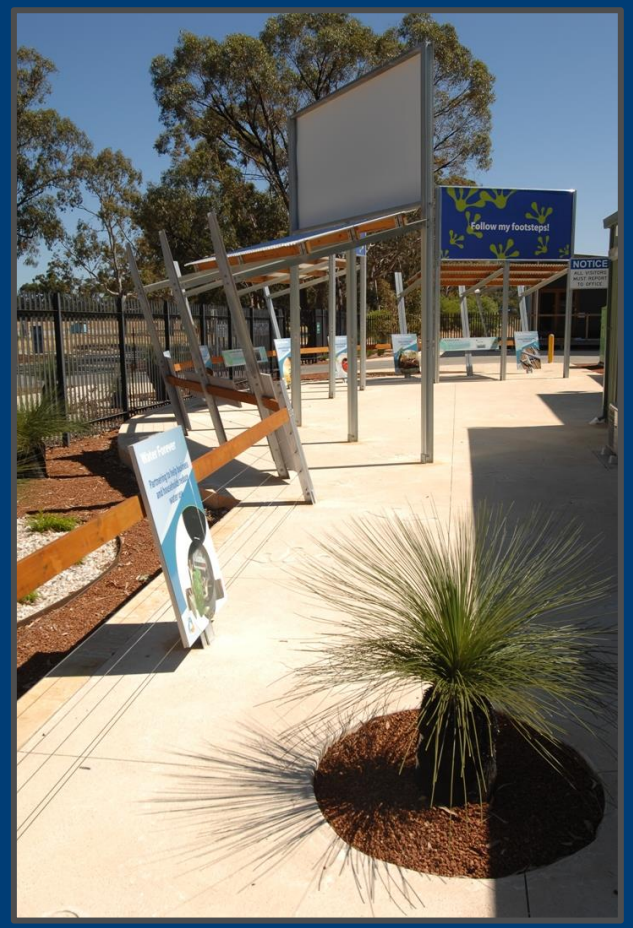
Entry/ exit:



The actual demonstration plant was housed here.

Area 1 – Water Cycle Walkway

The long edge of the Demonstration Plant is used as a message-driven walkway – pausing to absorb educational signage and tour guide discussion



Water Cycle Walkway

Introducing our mascot

Educational signage

All the quotes came from actual community feedback during the Water Forever consultation process

Area 2 – Theatrette

Framing the story within a larger picture

We learn that water is cleaned by nature and technology - we see and animation of how the water is cleaned to extremely high standards before we go to look at the Advanced Water Purification Facility

Then WA Water Minister Graham Jacobs with students

Area 3 – Water Cycle Walkway

Viewing platform to see into demonstration facility

An open roller door houses a viewing platform, this avoided the need for visitors to wear full PPE

Area 4 – Recharge Bore viewing area

Two phases

1. Original tour

2. The tour today:

- Slightly different itinerary – includes Interactive Hub, treatment train infrastructure (reverse osmosis cutaways), Outdoor Classroom
-
- Demonstration facility no longer active
- Education collateral updated – ‘Freddie the Frog’ no longer in use
- Upscaled water wise landscaping including water wise plant information

Today

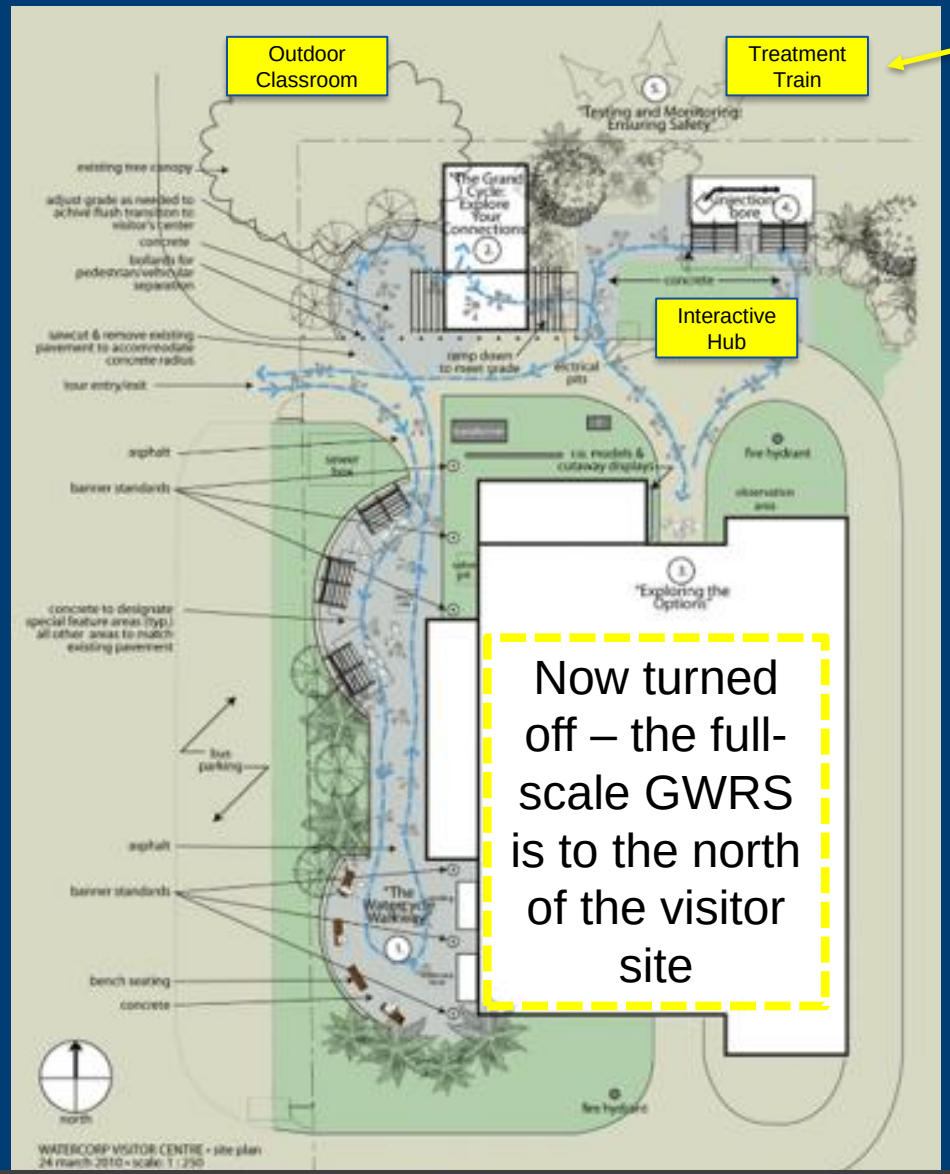
Entry/ exit:

Admin building

Outdoor Classroom

Treatment Train

Interactive Hub



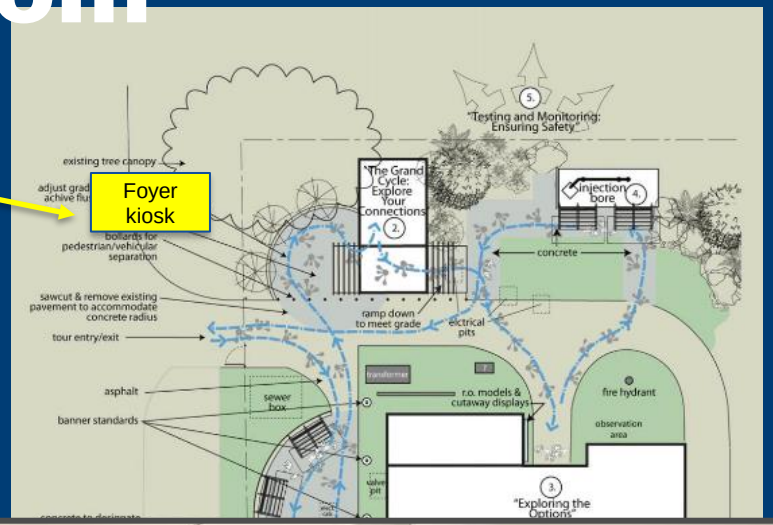
Now turned off – the full-scale GWRS is to the north of the visitor site

Actual treatment train infrastructure (ultrafiltration, reverse osmosis, ultra violet), used in the Trial, is on display where visitors can see up close and touch.

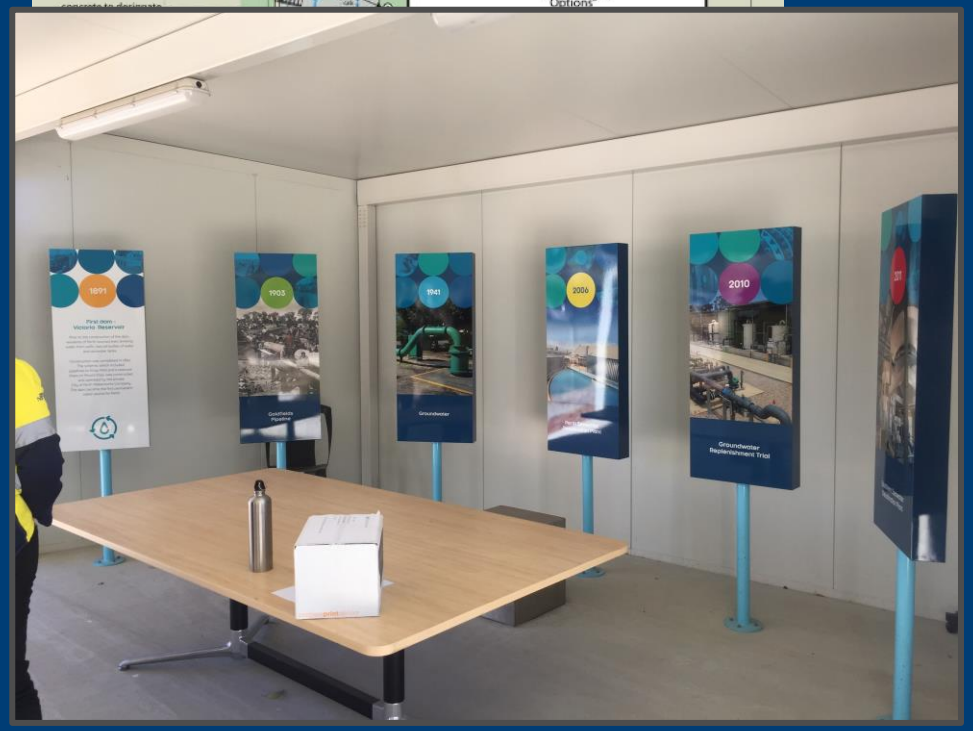
Area 0 – Outdoor Classroom

An open bus-stop style space with posters. Staging area to put on PPE, do entry survey, tour guide introduction.

Entry/ exit:

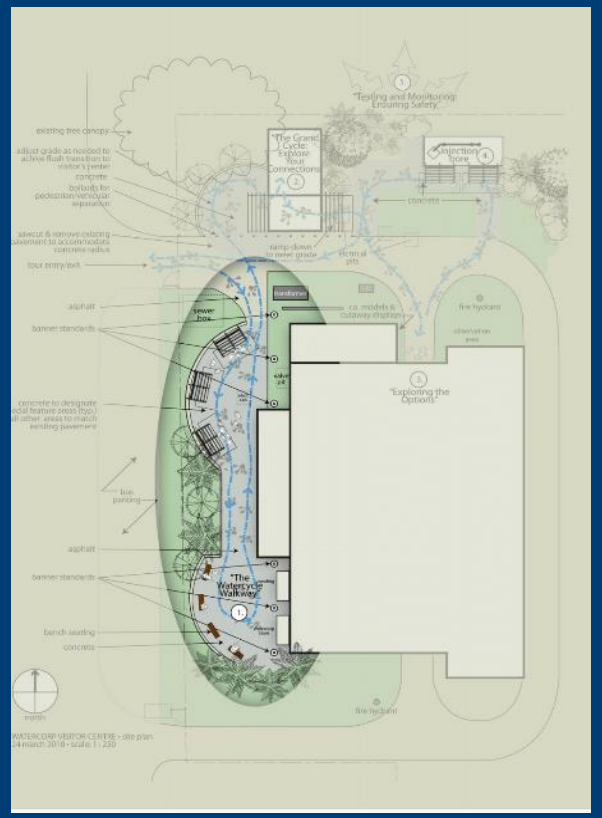


Visitors fill out a short attitudes survey before and after the tour.



Area 1 – Water Cycle Walkway

Walk past Demo Plant as you walk through the adjacent open space with shade sail & landscaping.



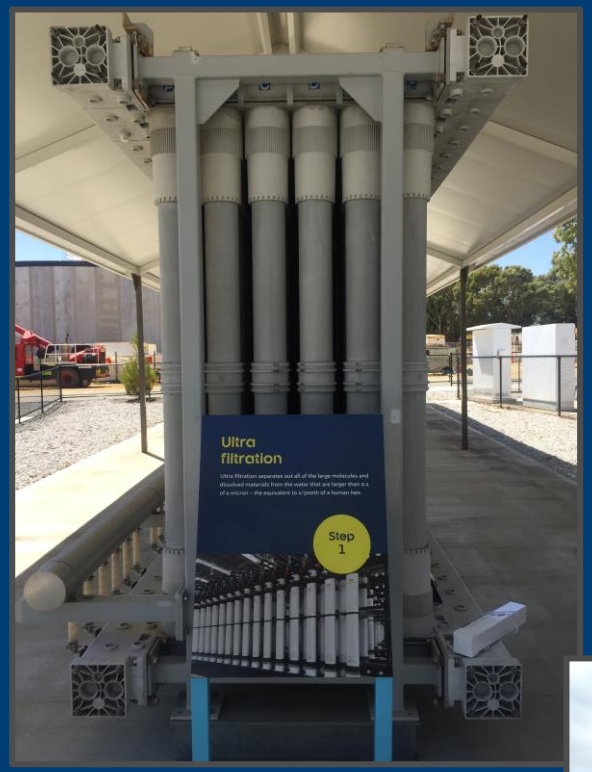
Signage on demonstration plant in 2019 is different from original

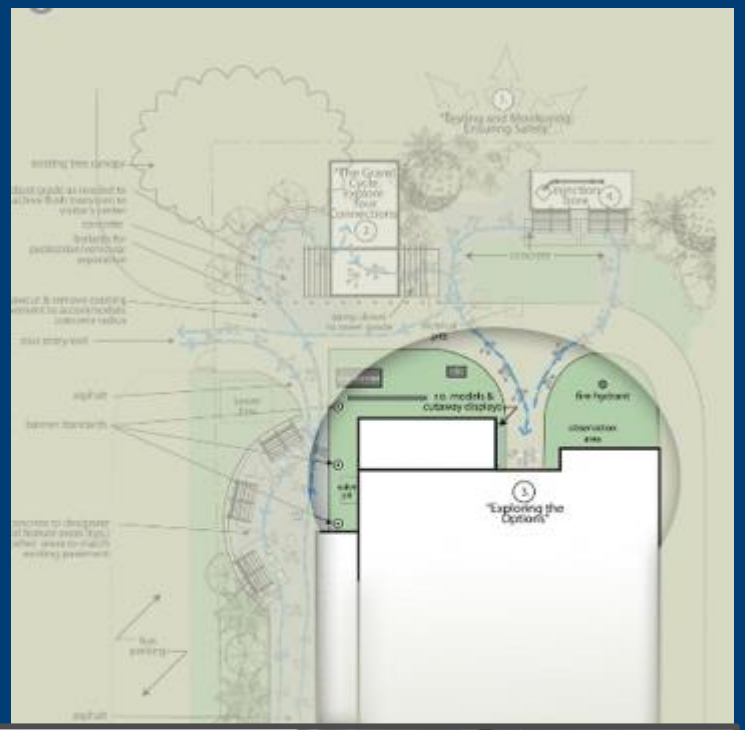
Area 1 – Water Cycle Walkway

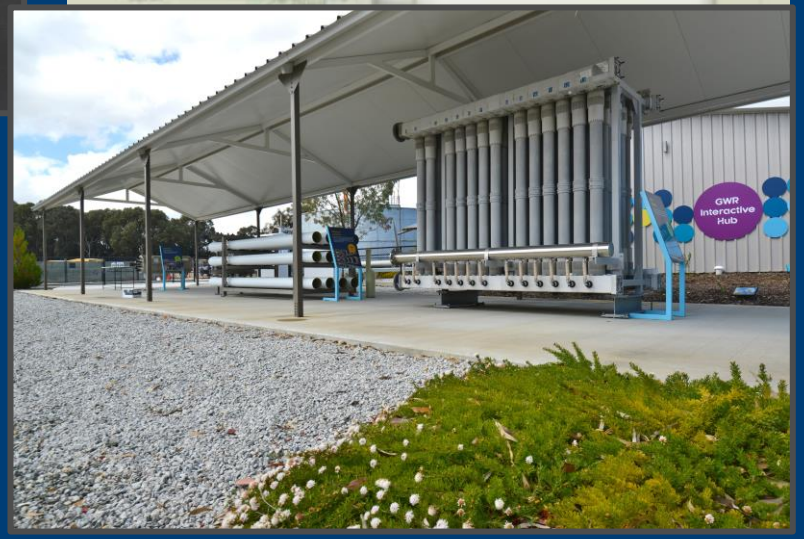
Pause at aerial site map & poster of WWTP process & GWRS treatment train – tour guide leads contextual discussion about AWRP feedwater source (secondary treated wastewater from the WWTP next door) & question time.

Area 2 – Treatment train

Small water sample station area showing actual process units from the full treatment train used in the Trial – UF/RO/UV.
Look at cutaway RO membrane & water samples, plus recharge bore.



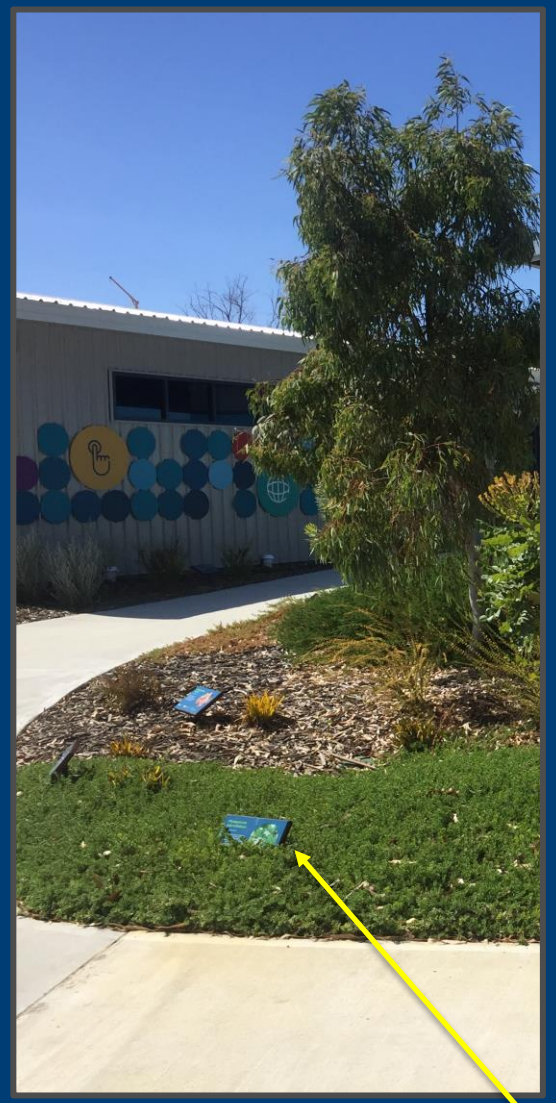




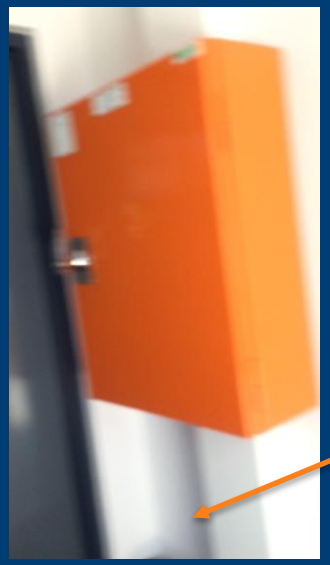
Area 3 – Theatrette

Air-conditioned and thematic seating - watch video (6 minutes) re water cycle & the now fully operating GWRS scheme

Area 4 – GWR interactive hub



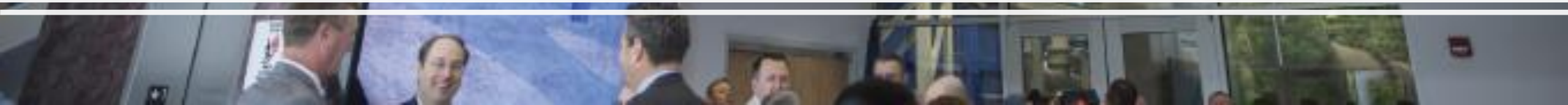
Water wise plant signage



GWR Interactive Hub – wall displays, interactive screen games, etc.

The video file (left) shows all interior layout.

Hampton Roads



SWIFT Research Centre, East Virginia USA

- The SWIFT Research Centre is a new venue for public outreach and education as well as research, it opened in 2018
- This scheme augments an aquifer with drinking water that will one day be consumed, a long way into the future.

Scheme type

Managed aquifer recharge (groundwater augmentation)
Will supply 450 MLD by 2032.

Details

- Scheme drivers: Depletion of groundwater in Potomac Aquifer; river health from wastewater discharges; cost of other wet weather overflow solutions; rising sea level; land subsidence.
- Regulators had already approved the pilot (small scale) at another plant, and the recharge occurring at this Research Centre. Now awaiting approval to build full scale facility by 2025.
- Adjoining - a common wall forms a single viewing gallery.
- On the same site as the WWTP.

Tasting area

- Yes, inside and outside.

swift Sustainable Water Initiative for Tomorrow

WATER SERVICES ASSOCIATION OF AUSTRALIA

This short* video celebrates the opening of the centre (2018)

*3 minutes

https://youtu.be/lO9t1ijr6tw

Proximity to WWTP

SWIFT Research Center at HRSD Nansemond Treatment Plant (120 MLD)

Exterior view

Inside there is a long viewing window between the adjacent spaces

Plant (grey)

Visitor centre (blue)

Lobby with interpretive elements

Right hand side feature wall

AV screens feature images of lapping water, local scenes

Aquifer bore graphic – lift + stairs

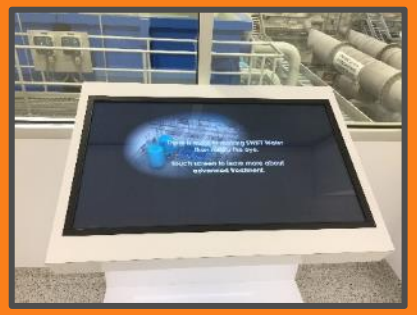
Vaulted graphic of a sinking bore – encloses the lift to first floor

Rear wall of lift depicts the Extensometer

Interpretive elements in stairwell

Stair risers say *Sustainable Water Initiative For Tomorrow*

Mezzanine with interpretive kiosks



Glass viewing gallery demonstrates the technology in action, each window with its own kiosk

Plant view

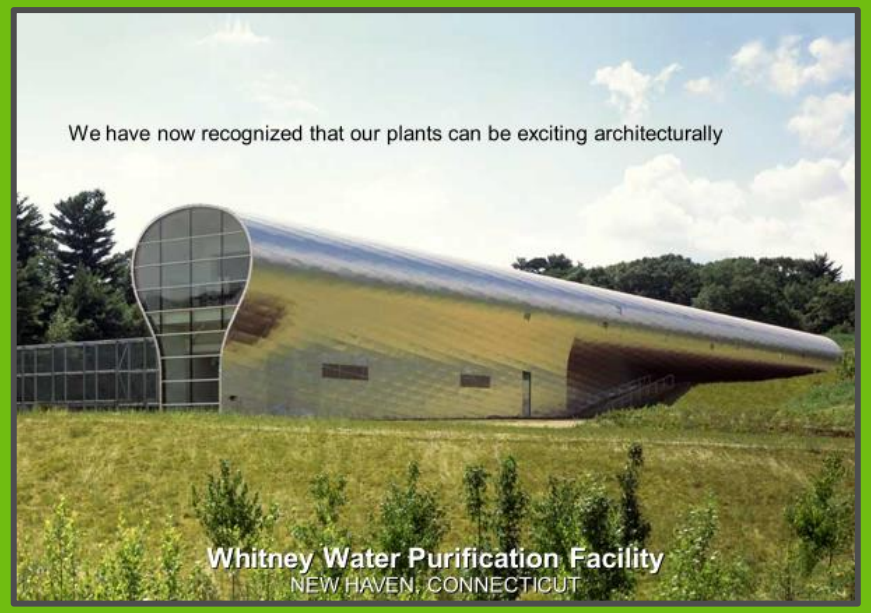
Opportunity to taste SWIFT water

Artefacts from sinking boreholes on display

Outdoor sampling areas

Oxnard, California – a water centre with significant architectural investment

And just for inspiration



At the more modest end…

Soquel Creek Water District Mobile Exhibit – Monterey, California

Whitney is a WFP, not an AWTP, but shows what a water facility can be

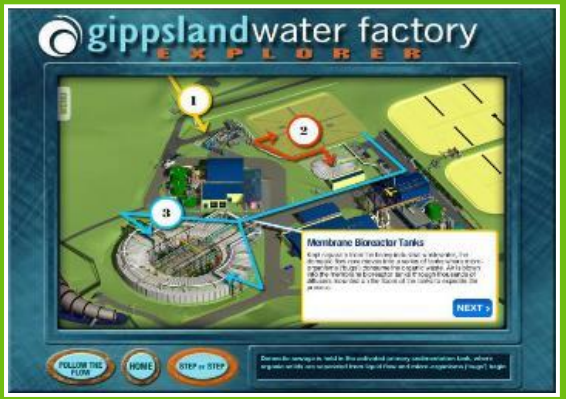

The preserve's Springs Amphitheater can hold up to 1,800 people for live performances and other events.

Las Vegas Springs Preserve, Nevada

The Gwinnett Environmental and Heritage Centre, Georgia

Marine Park, Vancouver, Washington

Vortex Visitors Centre, Gippsland/LAtrobe



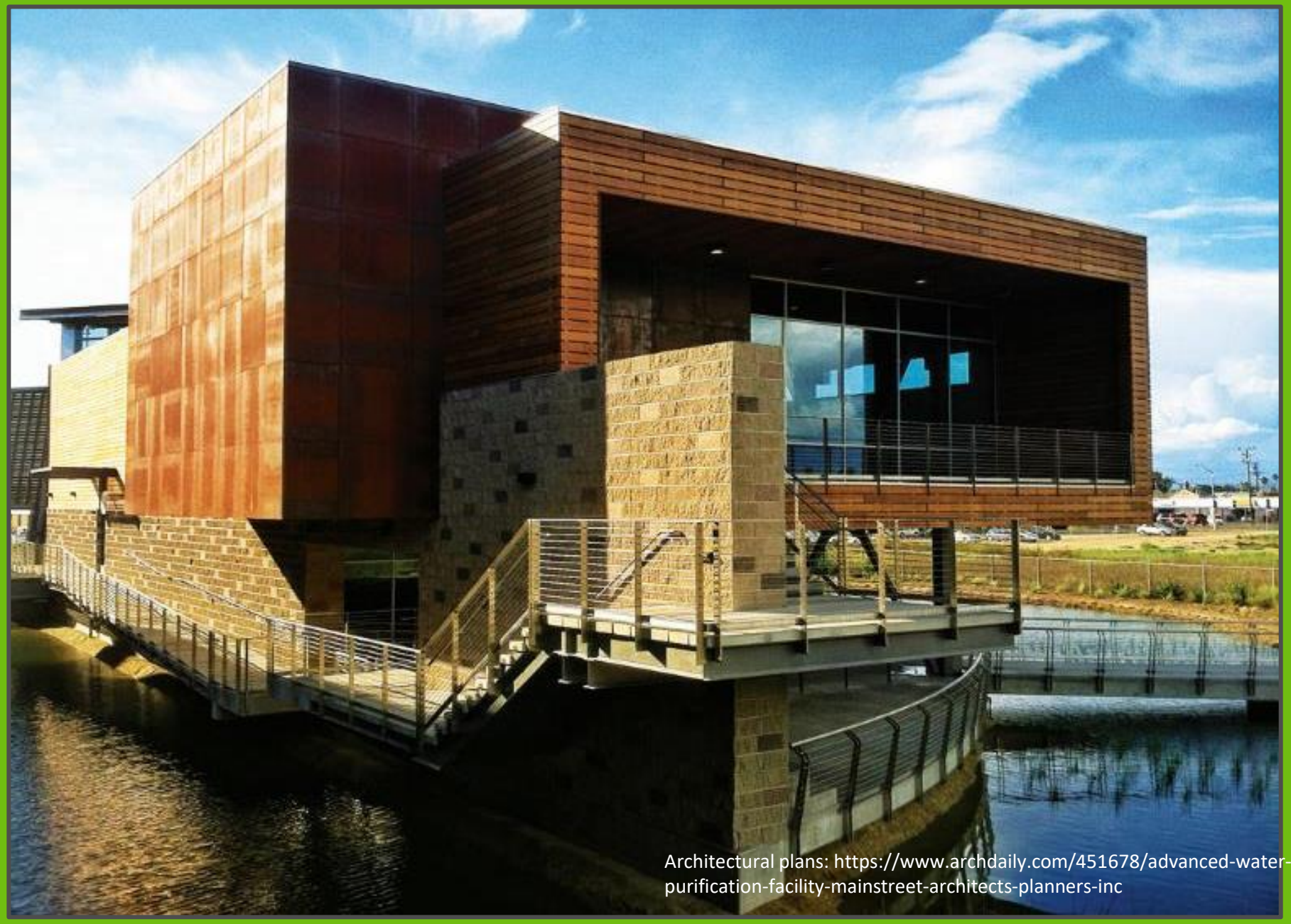
Vortex Visitors Centre, Gippsland/LAtrobe

Marina Barrage, Singapore

Padre Dam near San Diego

AWPF

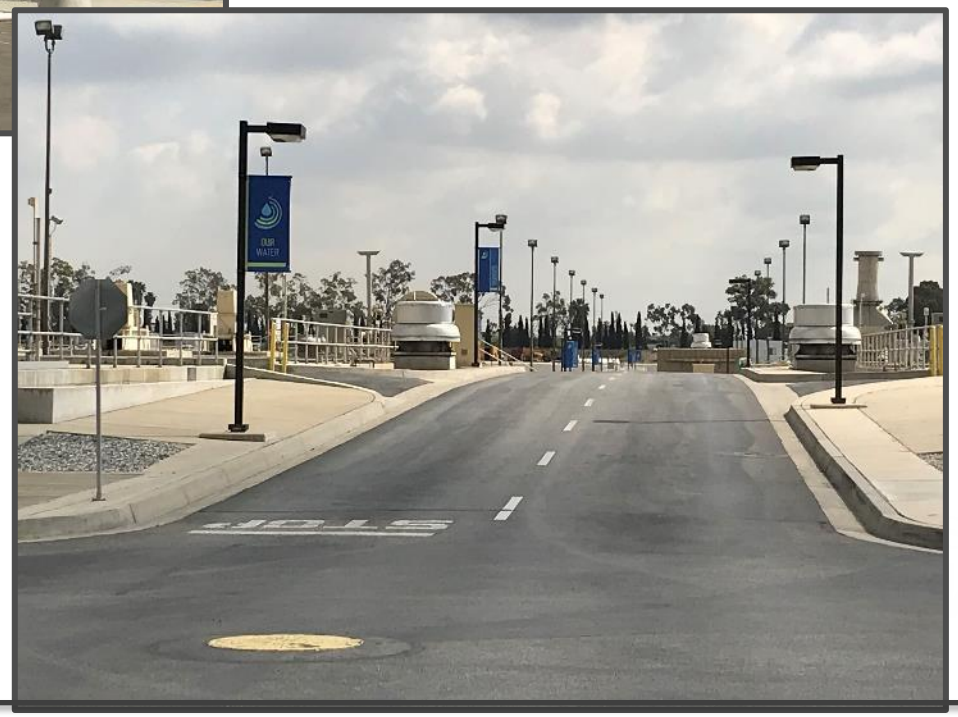
Oxnard, California



Architectural plans: https://www.archdaily.com/451678/advanced-water-purification-facility-mainstreet-architects-planners-inc

AWPF

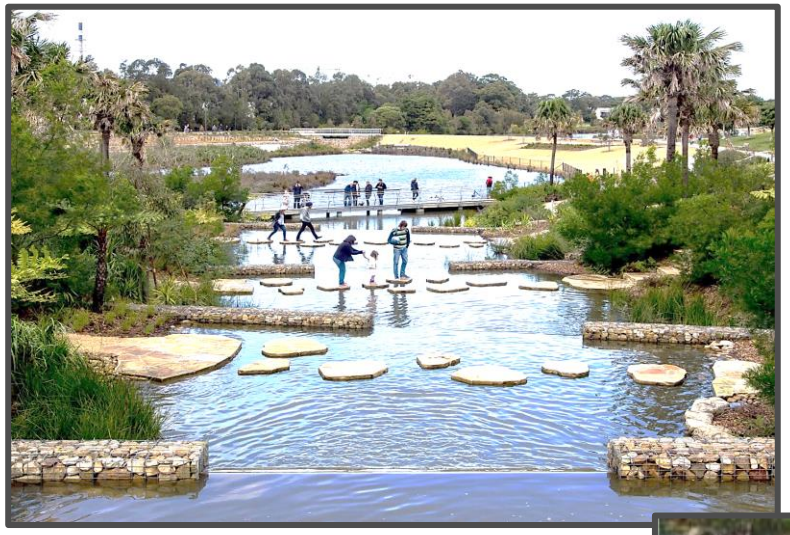
Oxnard, California



Water District of
Southern California

Water sensitive design

Outdoor spaces can profile water too, with differing inferences



Visitor centres can be an effective part of education

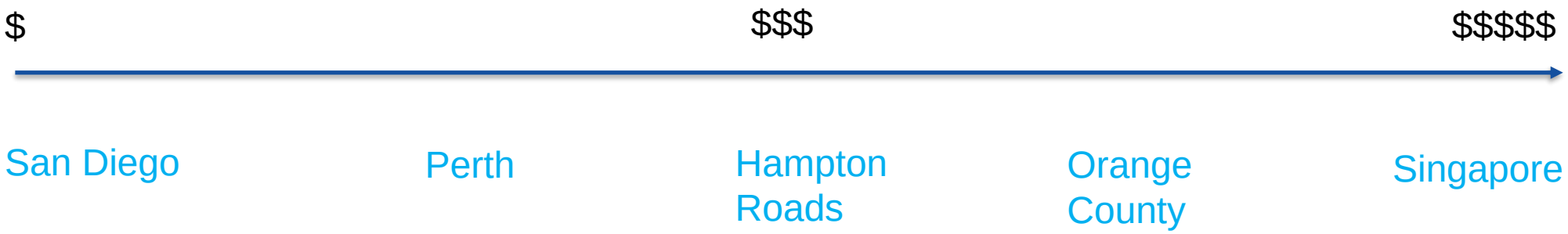
- **1. Santa Clara Valley Water District (San Jose):** 93.4% of tour visitors support groundwater replenishment for drinking; 85.5% support direct distribution (treated water augmentation)
- **2. Perth:** Prior to the tour support averaged 74%; after, it jumped to 93%.
- **3. Singapore:** 98% acceptance rate – 82% of respondents would drink NEWater directly, another 16% would drink it mixed with reservoir water
- **4. San Diego:** A 2012 study found that after being read a description of the demonstration project, 78% supported it.
- **5. El Paso:** 84% supported it before outreach commenced (including a visitor centre and other elements); 3 years later 77% strongly supported it (an increase).

Bang for buck

It is possible to invest a lot or a little in a visitor experience….

…Plenty of lower-budget examples still deliver high impact.

Estimated ranking in terms of cost for the 5 case studies considered here:



Note that:

- Some cities make use of existing buildings and assets (eg re-purpose an existing Administration room), which can reduce costs
- Creating a multi-purpose, multi-objective visitor centre can enhance its cost effectiveness
- Others spend more on other aspects of community engagement, such as public relations, marketing activity etc.
- There are existing education materials freely available for use that avoid the need to create new collateral.

Conclusion – essentials:

- ✓ Visitor centres are at the heart of an education and engagement program
- ✓ A wide range of global examples provide inspiration
- ✓ A water facility can be a space of architectural merit and community value

WATER SERVICES
ASSOCIATION OF AUSTRALIA

Visitor Centre Concepts

Visitor centres around the world

Water Services Association of Australia
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