## TAYA – A New Vision for Community Reuse

## REUSE MORE WITH LESS!





# By 2032, US demand for centralized wastewater infrastructure is expected to grow by 23%



### But where is this demand coming from?

Source – ASCE's 2017 Infrastructure Report Card

# Growth of exurbs and emerging suburbs, outpacing urban core by 3 : 1

#### FIGURE 1

Annual growth rates for urban and suburban counties 2000-2017\*



Exurb / Suburb Growth Outpacing Urban By 3:1

AFFORDABILITY is driving homebuyers to the exurbs, and developers are stepping in to meet this demand.

\* Counties in metropolitan areas over 500,000 using Brookings classification system

Source: William H Frey analysis of US Census Population Estimates, released March 22, 2018 Metropolitan Policy Program at BROOKINGS The further the distance from the core, the greater the cost of connecting to water infrastructure. This cost is passed on to the buyer.



For exurb communities looking to maintain control over water resources and long-term costs, decentralized reuse is the answer

#### **CENTRALIZED TREATMENT**

- Pay for conveyance infrastructure
- Double-pay for water and wastewater
- Increased water and wastewater tap fees
- No control over future utility costs
- No independence over water supply



#### **DECENTRALIZED REUSE**

- Pay once for treatment
- Decreased water & wastewater tap fees
- Offset water costs
- Reduced water rights
- 100% water independence



# TAYA is a simple, sustainable and affordable reuse solution, with 10+ years of commercial validation

1. Municipal



2. Industrial



3. Agricultural



Community ReuseRiver Discharge

- ✓ Organic Reduction
- ✓ Advanced Denitrification
- Effluent Polish for Reuse
- Total-N reductionManure Management

### How does TAYA work?

TAYA is an extensive wastewater solution comprised of an earth basin,

### TAYA delivers best-in-class performance, robust process design and flexible operation – **without compromising on simplicity**



#### PERFORMANCE

- Complete reduction of BOD, TSS, NH4, TN
- 100% exposure to atmospheric oxygen
- In-situ degradation of secondary sludge through starvation

#### ROBUSTNESS

- Attached growth
- Long retention time
- Large dilution factor
- Complete mix feed system prevents toxicity

#### FLEXIBILITY

- Adjustable cycles for variable conditions
- Modular construction for easy upgrading
- Ability to leverage existing infrastructure

#### SIMPLICITY

- 80% less energy than activated sludge
- 60% less labor and maintenance
- No dedicated operator, remotely controlled

## TAYA is easy to construct and simple to maintain -with only one moving part!



# TAYA is powered by a single electro-mechanical system – making O&M a breeze!

#### Our "Brain-in-a-Box"

- 2 high efficiency propeller pumps
- Proprietary control software
- Electric board and controller
- Level transmitters
- o Gate valves
- Influent and effluent connection
- Boom crane for pump maintenance

#### **DID YOU KNOW?**

Our pumps are installed on rails, so repairing a pump takes 1-2 hours and doesn't lead to downtime!



## TAYA delivers significant cost-savings across every major operational metric

Savings Over



**50% REDUCTION IN LIFECYCLE COSTS** 

### Wastewater Treatment, Made Beautiful.



TAYA is constructed underground, enabling the development of the land above for public use.

## TAYA - US Case Study

How a small community in Colorado is leveraging Israeli technology to solve their biggest water challenge. Bennett is one of many fast-growing communities on the CO Front Range, who's growth is constrained by water.





- Developers are eager to fuel the expansion of new communities to meet increased housing demand, but water scarcity is a major limiting factor for growth!
- Water rights are the most expensive in the US, ranging from \$25-35K / acre-ft
- Conservation, storm water capture and wastewater recycling are critical elements to sustained growth on the Front Range.
- Bennett recognizes that innovation is the key to unlocking sustainable growth

## Bennett turned to Israel, the pioneer and world leader in water innovation

- Israel's unique geopolitical history has lead to some of the greatest water innovations of all time, including: Seawater Desalination, Drip Irrigation and Wastewater Reuse
- Today, Israel **recycles over 85%** of all its wastewater; farmers prefer treated wastewater over potable!
- In Israel, Triple-T is widely recognized as a leader in sustainable reuse with +10 years of full-scale commercial validation



Our demonstration at Bennett will establish a new benchmark for sustainably and affordability, for small communities throughout the US

- Final Project 0.3 MGD reuse facility in Bennett, capable of supporting a new 1,500 home development
- Treatment to the highest standard CDPHE Reg 84, CAT 3 (treatment + disinfection).
- Use for public irrigation, gardening and indoor toilet flushing.
- Exploring addition solutions including grey water capture, in-home water conservation and solar integration

# **OBJECTIVE** → Validate the lifecycle economics of decentralized reuse VS centralized utility

## Stay tuned for more results...

### BENNETT UPDATE – JULY '19

CONSTRUCTION COMPLETE. COMISSIONING NOW. FULLY OPERATIONAL SEP '19.

# THANK YOU!

## **REUSE MORE**



Ben Perlman ben@wfi-group.net smartwatergroup.com

