Resilience
Heavy rain events & flood risks
More frequent heat waves
Water supply & demand
CSOs & urban run-off
Shocks & stressors
Sea level rise

Livability
Biodiversity & Wellbeing
Affordability & Equity
Cohesive Communities
Aging Populations
Green Jobs
Not enough ...
...and inequitably, too much.
Systems built for drips...
...not downpours
Rising tides...
...and surging seas
Water Management Drivers

**REGULATORY DRIVERS**
- Sewer Backups and Overflows
- CSO Control
- Water Quality

**EXPANDED DRIVERS**
- Climate Change
- Urban Flooding
- Aquatic Health
- Water Supply
- Sea Level Rise
- Asset Condition
- Maintenance
- Seismic Risk
- Growth
- Equity
- Affordability
ALL WATER IS ONE WATER

- Rain/Stormwater
- Groundwater
- Wastewater
- Recycled Water
- Drinking Water
No matter who we are, where we live, or what we do, water connects all of us. When we embrace the belief that water in all its forms has value...the full water life cycle can be optimized to build strong economies, vibrant communities, and healthy environments.

All around the country we are seeing silo-busting examples of integrated and inclusive approaches to water resource management. These approaches exemplify the view that all water has value and should be managed in a sustainable, inclusive, integrated way. We call this perspective One Water.
Innovative Wastewater + Stormwater Management: Portland’s Lloyd Center District
Green Infrastructure and Workforce Development: Philadelphia’s PowerCorpsPHL
Innovative Flood Risk Management: Oro Loma Sanitary District Horizontal Levee, San Francisco
Co-Creation, Crowd Sourcing: Sea Level Rise Story Map, Vancouver
Social/Equity Benefits
- Recreation
- Public Health
- Crime Reduction
- Community Benefits

Environmental Benefits
- Fishable & Swimmable
- Habitat Enhancement
- Air Quality
- Energy Savings
- Climate Adaptation + Climate Mitigation

Economic Benefits
- Property Values
- Job Creation
- Competitive City
- Green Industry Growth
- New workforce development tools and programs
- Avoided social costs
Integrated, distributed and flexible infrastructure and institutions. Priority given to maintaining resilience through adaptability and reflexivity.
Building Circular Economy: From One Water to Zero Waste

Principle: Making waste and toxic pollution obsolete through informed purchases, keeping products and materials in use and regenerating natural systems.
A Materials Management Approach

- All durables must retain their value and be reused but never discarded or down cycled.
- All consumables should be used as often as possible before safely returning to the biosphere.
- Natural resources may only be used to the extent that they can be regenerated.
Tackling a Big Contributor to GHG Emissions

Illustrative Example - Production Emissions and Waste
System Emissions (Impacts per person)

Production | Recycling | Incineration | Landfill
---|---|---|---
High consumption / high recycling / incineration
High consumption / low recycling / incineration
High consumption / high recycling / landfill
High consumption / low recycling / landfill
Low consumption / high recycling / incineration
Low consumption / low recycling / incineration
Low consumption / high recycling / landfill
Low consumption / low recycling / landfill

-200 0 200 400 600 800 1,000 1,200 1,400
kg CO2 equivalent per capita

The Carbon Footprint

Electricity
Transport
Offsets
Waste
Water
Gas
Fuel
Recycling
Personnel
Keeping It Local Through Virtuous Partnerships

1. Ugly Fruits and Veggies
2. Food Rescue for people experiencing food insecurity
3. Composting

“Compost feeds the soil creatures that keep soil loose and fertile. Soil life also protects plants from diseases and helps hold water and nutrients. You’ll save money on water, fertilizer and pesticides, and have a healthier yard too.”
Sustainability
One Resource/One Water/Zero Waste

(Economy) Affordability + Accountability   (Environment) Risk + Resilience   (Equity) Equity + Empowerment
Operational Excellence   Public Health + Environment   Workforce Development

(Approach) Engagement + Partnership
Community Centered
   Customer Focus
Triple Bottom Line Evaluation + Lifecycle Costing

Healthy Community + Healthy Utility
\[
\left( \text{Regulations} \quad + \quad \text{One Water} \right)
\]

Build trust through compliance

Develop viable alternatives based on sound data, analysis, and planning

\textit{No changes to compliance pathway until regulators say so}