

DENVER ONE WATER PLAN



ONE COMMUNITY
ONE FUTURE
ONE WATER

SEPTEMBER 2021

ONE COMMUNITY. ONE FUTURE. ONE WATER.

The Denver One Water Plan was developed through a collaborative partnership of the following entities:

ONE WATER PLAN PARTNERS	THEIR RESPECTIVE MISSIONS
City and County of Denver	A city that is equitable, affordable and inclusive; strong and authentic neighborhoods; well connected, safe and accessible places; economically diverse and vibrant; environmentally resilient; healthy and active.
Colorado Water Conservation Board	To conserve, develop, protect and manage Colorado's water for present and future generations.
Denver Water	To expertly manage and supply an essential natural resource to sustain our vibrant community — because water connects us all.
Metro Wastewater Reclamation District	To protect the region's health and environment by cleaning water and recovering resources. We clean water to be suitable for agriculture, aquatic life, recreation, and water supply.
Mile High Flood District	To protect people, property, and our environment through preservation, mitigation, and education.
The Greenway Foundation / The Water Connection	To advance a sustainable water future, focusing primarily on Colorado and the western United States. The Greenway Foundation / The Water Connection protects and revitalizes watersheds, promotes water stewardship, champions environmental education, stimulates innovative policies and practices while also celebrating the historic, recreational, and environmental roles involving water that flows through our communities.



The Metro Wastewater Reclamation District formally changed its name to Metro Water Recovery in September 2021.



Denver One Water Plan

September 2021

The City and County of Denver, Colorado Water Conservation Board, Denver Water, Metro Water Recovery, Mile High Flood District, and The Greenway Foundation/The Water Connection have come together, working with community stakeholders, to help Denver develop a One Water framework. Our agencies are responsible for many aspects of the urban water cycle, including water supply and demand, wastewater, storm and flood protection, water quality, watersheds, and waterways.

Development and climate change are creating new challenges and opportunities for Denver's water infrastructure and waterways. The Denver One Water Plan charts a course for holistic and resilient water management and land use strategies for Denver through collaboration, multi-benefit projects, and strong policies that promote healthy watersheds in an equitable, economically, and environmentally beneficial manner.

By working together, each agency's strengths can be leveraged to potentially implement collaborative water management strategies that reflect and take advantage of the interconnected water cycle.

Our agencies hereby express support for the Plan and pledge to work together to explore potential synergies in managing all aspects of the urban water cycle.




Michael B. Hancock, Mayor
City and County of Denver



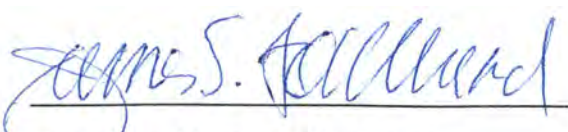
William J. Conway, Chief Executive Officer
Metro Water Recovery



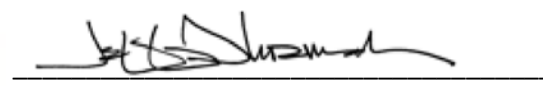
Rebecca Mitchell, Director
Colorado Water Conservation Board



Ken Mackenzie, Executive Director
Mile High Flood District



James S. Lochhead, CEO/ Manager
Denver Water



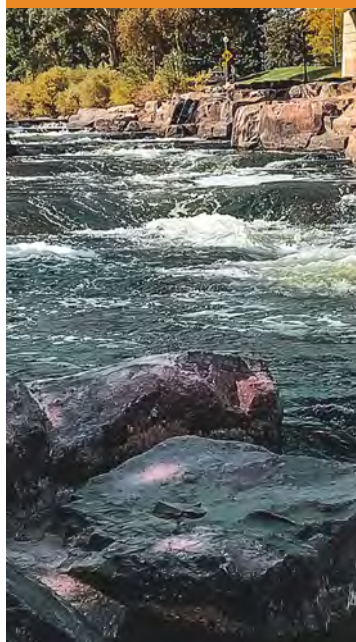
Jeff Shoemaker, Executive Director
The Greenway Foundation

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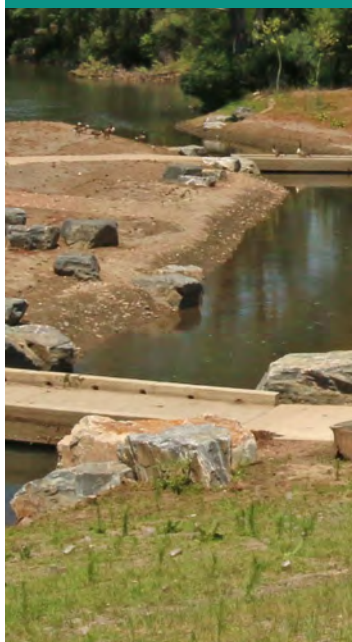
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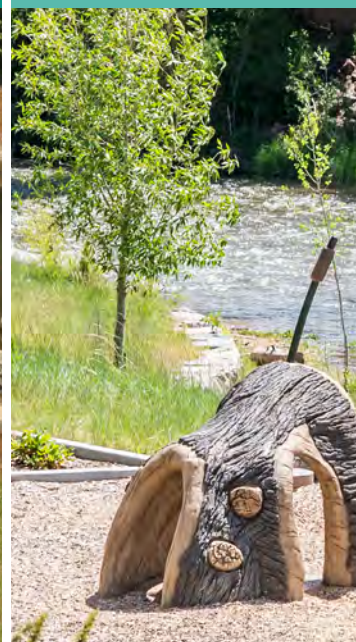
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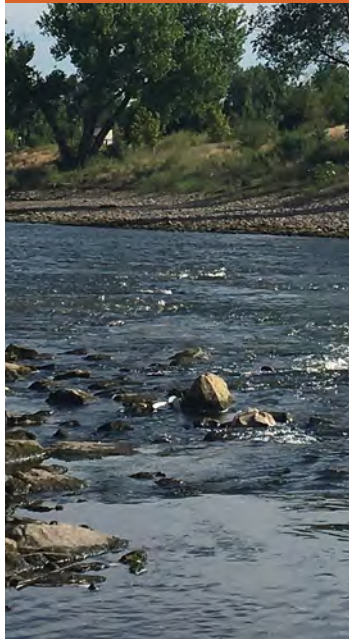
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Future





Confluence Park

Introduction



INTRODUCTION

Planning Denver's Water Future



Westerly Creek

WHY DO WE NEED A ONE WATER PLAN?

Years ago, water managers responsible for a wide range of systems in Denver could see the future start to come into focus: urban redevelopment and growth, coupled with climate change, poses big challenges. In recent years, the western U.S. has experienced record-breaking heat waves that fueled massive wildfires, bringing the consequences of severe drought into the public eye.

Coloradans are no stranger to these intensifying conditions nor their consequences: They directly impact Denver and other Front Range communities, given the trans-basin water supply systems that are critical to meeting water demands. Moreover, the threat of increasingly variable and extreme weather events prompts concerns regarding the potential for catastrophic flooding. At the same time, the recreational, aesthetic, and environmental benefits afforded by Denver's urban waterways are increasingly recognized and valued.

Tackling these issues will require new thinking, new strategies, and a unified approach. In Denver, the path forward is through collaboration on new water projects, programs, and policies.

A UNIFIED APPROACH

In Denver, historical institutional and regulatory practices resulted in a diverse group of water management agencies. Drinking water, wastewater, water reuse, stormwater, and flood management are overseen by separate entities, each with its own service area with independent policies, programs, and goals.

Confronted with the impacts of climate change and an escalating focus on managing urban waterways to achieve multiple benefits, a coalition of agencies and organizations formed to re-imagine Denver's water management practices through the holistic, unified, and sustainability-centered approach of One Water.

One Water encourages standardized collaboration between multiple water agencies to achieve the same objectives. Its overall goal is to create a common framework for reliably managing water systems to meet public and environmental needs while reducing costs, improving resilience, and enhancing community livability.

Since most One Water projects aim to address water supply and demand challenges in a localized setting, they include a variety of site-specific components, such as water recycling, greywater reuse, and rainwater harvesting, which may be incorporated into land use planning. Denver's One Water Plan takes this further by institutionalizing inter-agency collaboration. And in Denver, urban infill creates significant opportunities for One Water approaches to be worked into newly developed and redeveloped areas. This provides a direct pathway to align water management strategies in Denver with Colorado's Water Plan, developed in 2015 by the Colorado Water Conservation Board (CWCB). The state plan calls for a diversification of supply sources and further investments in water efficiency and water reuse to offset projected water shortages. It also strongly encourages establishing stronger linkages between water supply planning and land use planning. Since Denver is the core of the most populous river basin in the state, there is great value in linking water management in Denver to the state's water management goals and strategies.

THE DENVER ONE WATER PLAN'S VISION, GOALS, AND STAKEHOLDERS

The Plan represents the guiding principles for a shared water vision in Denver. Using its directions, sustainable solutions can be implemented encompassing the entire water cycle through deliberate policies, consistent approaches, and streamlined inter- and intraorganizational partnerships.

Aligned with Denver's Comprehensive Plan 2040 and other regional plans, this document is developed by and for local water management agencies who, up until now, have primarily worked independently to supervise water supply and quality, wastewater, storm and flood protection, watersheds, and waterways.

Interconnections between these water systems provides natural guidance for how we should manage them – with shared goals and a unifying platform. This Plan provides that platform.

A BRIGHT FUTURE

As the Denver One Water Plan moves into implementation, regional collaboration through developing the plan has already resulted in vastly improved lines of communication amongst utilities and their partners, spurring individual entities to reevaluate their organizational priorities around One Water and mitigate gaps along the way.

BENEFITS OF ONE WATER



Agency coordination to institutionalize best practices



Predictable and implementable water policies tied to land use



Supports economic development and smart growth



Collaboration in water planning and implementation



Environmental stewardship and conservation of finite resource



Unified vision with a roadmap to achieve goals

Role of the One Water Plan



WHAT IS THE ONE WATER PLAN?

A roadmap to implement sustainable solutions encompassing the entire water cycle based on deliberate policies, consistent approaches, and streamlined collaboration.

A plan that directly sets a course for meeting our shared water vision, and complements *Denver's Comprehensive Plan 2040 ("Denverright")* and other strategic plans that shape Denver's future.

The One Water Plan provides a vision, goals, and strategies to guide collaboration, implement project & policy recommendations, and measure the collective success.

The One Water approach promotes coordination and collaboration among various city departments, organizations, and agencies in charge of managing all aspects of the urban water cycle including: water supply, wastewater, storm and flood protection, water quality, watersheds and waterways. Collective action where these groups intentionally coordinate and collaborate will drive positive outcomes by reducing costs, improving resilience, and enhancing community livability. Coordination encompasses projects and programs, as well as cross-cutting policies and procedures that connect the goals and activities of participating groups. Similarly, institutional collaboration entails planning, implementation and management of strategies that serve multiple One Water benefits.

The One Water Plan brings together key partners that manage Denver’s water resources, to align and coordinate their efforts around the One Water Plan vision and goals. The timing of this Plan is key, as development and climate change are putting new stresses on Denver’s water infrastructure and waterways. By working together – coordinating plans, policies, and projects – the One Water Plan partners can leverage each entity’s strengths to implement collaborative water management strategies, linked to each goal, that reflect and take advantage of the interconnected water cycle.

This Plan provides a framework for implementing holistic and resilient water management strategies. These strategies in turn are designed to shape Denver’s water investments to benefit future generations, enrich how people interact with water in the community, integrate with land use practices and policies, and promote sustainable water management and healthy watersheds.

KEY BENEFITS OF THE PLAN

- **Increased communication and collaboration** between water management entities that have interrelated roles for planning and managing water and land use and implementing projects in Denver.
- **Identification of areas to better align** current water management and land use practices and policies – and a path to mitigating gaps.
- **Increased awareness of water management challenges and opportunities in Denver** through stakeholder engagement and community outreach.

ROLE OF THIS PLAN

City leaders, elected officials, staff, and the community should look to the One Water Plan as the guide for developing, implementing, and refining important water policies and decisions. The One Water Plan partners will use the plan and its supplements to:

- Provide a framework and common goals for water planning and management
- Guide water policy decisions
- Inform changes to city regulations
- Inform the city’s resource and budgeting decisions
- Evaluate and measure progress toward achieving the One Water goals

This Plan can also be used to support planning at the local and regional level, in support of neighborhood planning processes and regional partnerships.

OTHER CITY PLANS

This One Water Plan complements *Denver’s Comprehensive Plan 2040 (“Denverright”)* by detailing water management approaches for Denver to better manage water and land use to address existing and future challenges such as growth and climate change. The One Water Plan also links the water management aspects of the Denverright suite of plans, including *Blueprint Denver* and the *Game Plan for a Healthy City*, and provides a common platform for collaborating and integrating related efforts of the One Water Plan Partners. Specifically, the One Water Plan is the implementation of Denverright Goal 4E, the Environmentally Resilient strategy that calls for a water plan.

ONE WATER PLAN GOALS



GOAL #1
**PROMOTE
INSTITUTIONAL
COLLABORATION**



GOAL #2
**IMPLEMENT
MULTI-BENEFIT
PROJECTS AND
PROGRAMS**



GOAL #3
**FOSTER
COMMUNITY
SUPPORT**



GOAL #4
**INCREASE
RESILIENCE AND
CLIMATE CHANGE
PREPAREDNESS**



GOAL #5
**IMPLEMENT
INTEGRATED WATER
MANAGEMENT
SOLUTIONS**

About One Water



Denver skyline and City Park

One Water is a movement, a paradigm shift in thinking, and the future of how we manage our water resources with practical and bold ideas coming together in a collaborative way. While water knows no boundaries, how we manage and regulate water is highly fragmented—requiring inter-disciplinary solutions that create more equitable, sustainable, and resilient cities. One Water provides an innovative and exciting approach to integrated water management planning.

The Water Research Foundation defines One Water as “an integrated planning and implementation approach

to managing finite water resources for long-term resilience and reliability, meeting both community and ecosystem needs.”

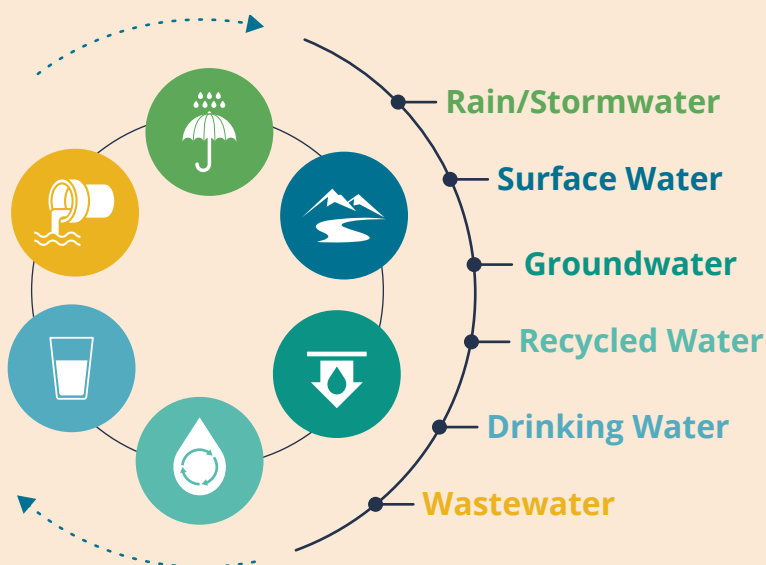
THREE KEY TRANSFORMATIONS DRIVE THE ONE WATER APPROACH:

- 1** Transitioning from managing systems in silos to an integrated planning and management paradigm that fosters collaborative and aligned actions.
- 2** Transitioning to a resource-management model to protect and restore the natural capital of cities.
- 3** Transitioning from a reactive growth driven model to a proactive model to build water systems that provide resilience to climate change impacts and other shocks and stresses.

One Water planning efforts include measures that define, characterize, and quantify progress toward these three transformations, which are embedded in the One Water Plan goals and strategies.

DENVER URBAN WATER CYCLE

The One Water Plan takes a holistic and integrated approach to planning, considering all aspects of the urban water cycle from stormwater, surface water, groundwater, recycled water, potable water, wastewater, and treating it as “One Water.”

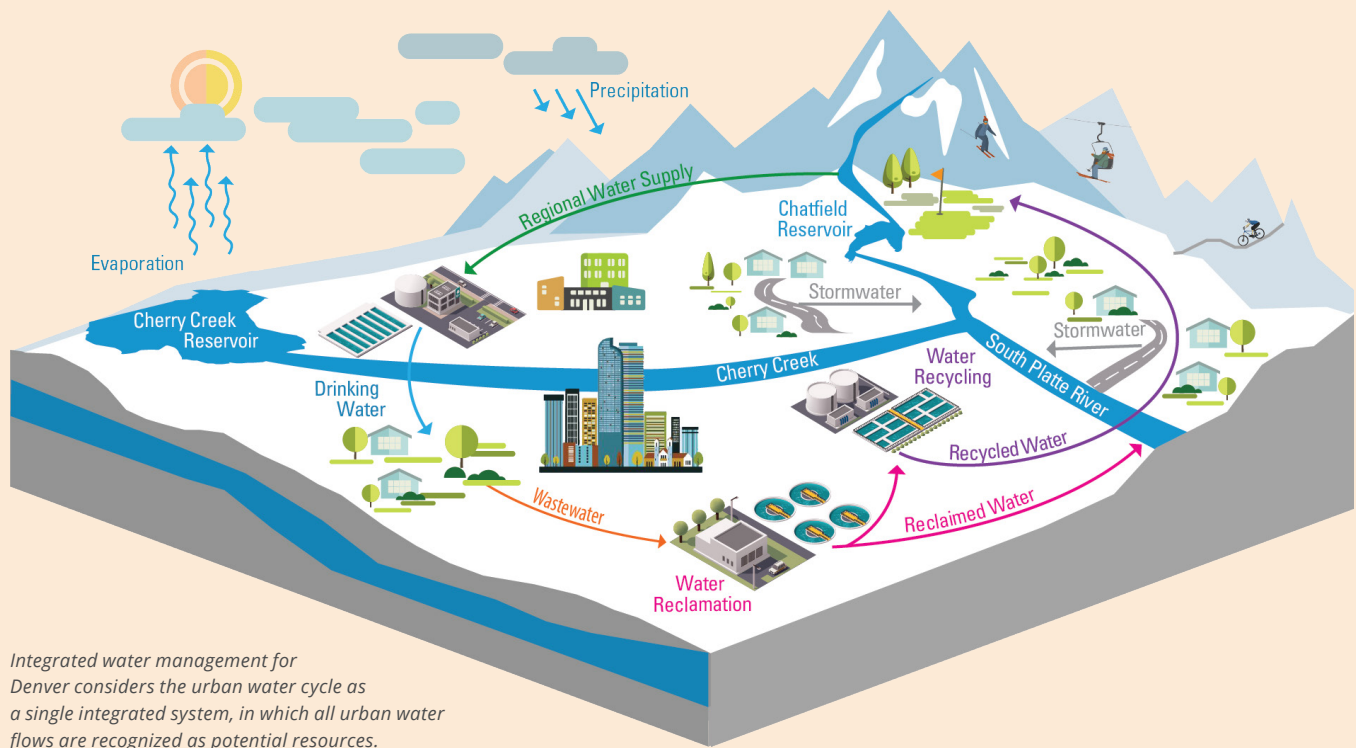


WATER ASPECTS OF DENVERIGHT'S VISION

The One Water Plan provides an implementation pathway for water management, in alignment and support of the six vision elements of *Denver's Comprehensive Plan 2040* ("Denveright").

Denveright Vision Elements	One Water Implementation Pathway
 EQUITABLE, AFFORDABLE AND INCLUSIVE	Focus on managing water, implementing and prioritizing projects, and leveraging funding opportunities in an equitable and inclusive way that incorporates input from underrepresented groups and considers unintended consequences.
 STRONG AND AUTHENTIC NEIGHBORHOODS	Strengthen policies linking land use and water management; Integrate water management into neighborhood planning initiatives.
 CONNECTED, SAFE AND ACCESSIBLE PLACES	Identify opportunities to integrate environmentally beneficial water elements along recreational and multi-modal transportation corridors through collaboration between transportation, land use, and water management entities.
 ECONOMICALLY DIVERSE AND VIBRANT	Develop a multi-benefit project prioritization framework that considers equity and affordability to promote economically diverse and vibrant communities.
 ENVIRONMENTALLY RESILIENT	Implement solutions to promote healthy urban waterways and coordinate with ongoing climate action, sustainability, and resiliency initiatives.
 HEALTHY AND ACTIVE	Integrate with Denver Parks and Recreation water management initiatives; Monitor and advance healthy urban waterways in support of Denverites' recreational use of green spaces and waterways.

Denver's Urban Water Cycle



Denver obtains its drinking water from snowmelt precipitation, originating in the mountains and foothills of the South Platte River and Colorado River watersheds. Drinking water is produced by Denver Water at four water treatment plants and delivered to homes and businesses. Wastewater is collected by the City, then conveyed and treated by Metro Wastewater Reclamation District at two water reclamation facilities. After treatment, the majority of the reclaimed water is returned to the South Platte River or irrigation ditches. A portion of the reclaimed water is further treated by Denver Water at its Recycling Plant and reused for non-potable purposes, such as outdoor irrigation and industrial applications. Stormwater and urban runoff is managed by the Mile High Flood District and the City and County of Denver, supplementing flows in the South Platte River, Cherry Creek, and many other waterways that provide green and blue spaces throughout Denver. The Greenway Foundation / The Water Connection advocates for watershed protection and revitalization of our local rivers and streams.

Key Partner Roles and Responsibilities in Managing Denver's Urban Water Cycle

CITY AND COUNTY OF DENVER

Wastewater collection and stormwater management infrastructure

DENVER WATER

Water supply, treatment, and distribution; recycled water treatment and distribution

METRO WASTEWATER RECLAMATION DISTRICT

Wastewater transmission and treatment

MILE HIGH FLOOD DISTRICT

Regional stormwater and flood protection

THE GREENWAY FOUNDATION / THE WATER CONNECTION

Watershed protection and revitalization

COMMUNITY INPUT

The Community's Vision for Denver's Water

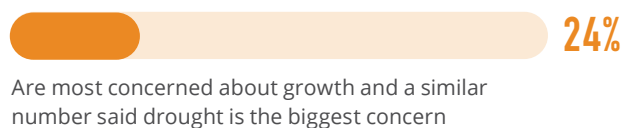
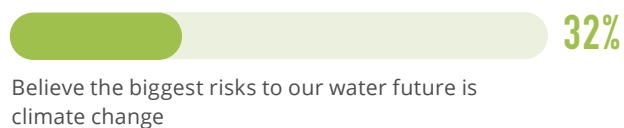
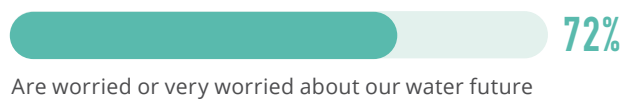
Community engagement was an integral part of the Plan development. Some of the key concerns and objectives shared are:

- Continuing to deliver high quality, clean drinking water
- Managing water efficiently
- Reducing water supply vulnerability to drought and climate change
- Enhancing the environment
- Providing equitable rates and affordability for all
- Mitigating flood risk
- Enhancing recreational opportunities

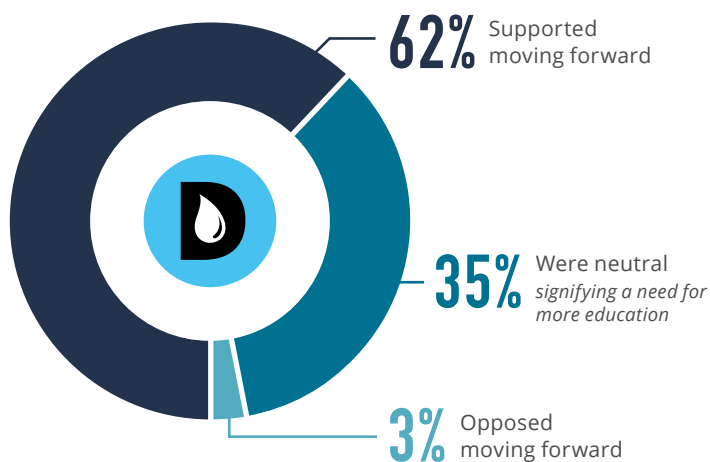
Public Survey Results

A 2021 public survey conducted for the One Water Plan revealed key perspectives from nearly 800 respondents.

MAJOR CONCERNS



ONE WATER PLAN SUPPORT



Public officials tour Confluence Park Project and enjoy the view of Cherry Creek and the South Platte River.

Our Water. Our Future.

ONE WATER PLAN STAKEHOLDER ENGAGEMENT PROCESS

The One Water Plan development process was lead by the Plan Partners, influenced by the One Water Advisory Group, and supported by the Community.



PLAN PARTNERS

One Water Plan Partners include:

- City and County of Denver Department of Transportation and Infrastructure (DOTI)
- City and County of Denver Department of Community Planning and Development (CPD)
- City and County of Denver Department of Parks and Recreation (DPR)
- City and County of Denver Department of Public Health and Environment (DDPHE)
- City and County of Denver Office of Climate Action, Sustainability, and Resiliency (CASR)
- Colorado Water Conservation Board (CWCB)
- Denver Water (DW)
- Metro Wastewater Reclamation District (MWRD)
- Mile High Flood District (MHFD)
- The Greenway Foundation / The Water Connection

COMMUNITY AND STAKEHOLDER ENGAGEMENT PROCESS

The planning process was supported by a robust community and stakeholder engagement process. Elements included:

- Community workshops
- One Water Advisory Group workshops
- One Water Advisory Group polling
- Online/social media engagement
- Community survey

A series of community engagements included community workshops in 2020 and 2021, and a wide-reaching survey that illuminated the community's priority concerns and interests regarding water management in Denver. Information was also conveyed to the public through the City and County of Denver's One Water website.

Community Perspectives

When it comes to water in Denver's homes and businesses, the community's perspectives relative to the One Water Plan include:

- A high level of concern for our water future.
- A strong perception that the One Water Plan can help.
- The One Water approach is a new and complex concept. A deeper understanding of One Water is desired through ongoing community education and outreach.

One Water Advisory Group

A wide spectrum of perspectives was solicited for input to the One Water Plan. The One Water Advisory Group comprised a wide range of perspectives from over 60 representatives of 33 different governmental agencies, registered neighborhood organizations, business improvement districts, nongovernmental organizations, developers, academia, professional organizations, and city and state agencies. These entities guided development of key aspects of the One Water Plan, including vetting the vision and goals, providing input into development of strategies and implementation actions, and helping set the course for implementation of the Plan.

ONE WATER ADVISORY GROUP

The One Water Advisory Group comprised 33 entities representing a spectrum of perspectives on Denver's water future.



Non-Governmental Organizations (NGOs)

- The Greenway Foundation / The Water Connection
- Babbitt Center for Land & Water Policy
- Business for Water Stewardship
- Cherry Creek Stewardship Partners
- Colorado Trout Unlimited
- Conservation Colorado
- Foundation for Sustainable Urban Communities
- National Western Center
- The Nature Conservancy
- Sonoran Institute
- Sun Valley Ecodistrict
- US Water Alliance
- Urban Land Conservancy Colorado
- Urban Land Institute
- Western Resource Advocates



Academia & Research

- Colorado State University
- Metro State University
- University of Colorado Boulder
- University of Colorado Denver



Registered Neighborhood Organizations & Business Improvement Districts (BID)

- Bluebird BID
- Downtown Denver Partnership
- Elyria-Swansea-Globeville Business Assoc.



Government, Regulatory, Basin Roundtable

- City and County of Denver
- Colorado Water Conservation Board
- Colorado Dept. of Public Health & Environment
- Colorado Dept. of Local Affairs
- Denver Office of Immigrant/Refugee Affairs, Agency for Community Partnerships
- Metro Basin Roundtable



Utilities

- Denver Water
- Metro Wastewater Reclamation District
- Mile High Flood District



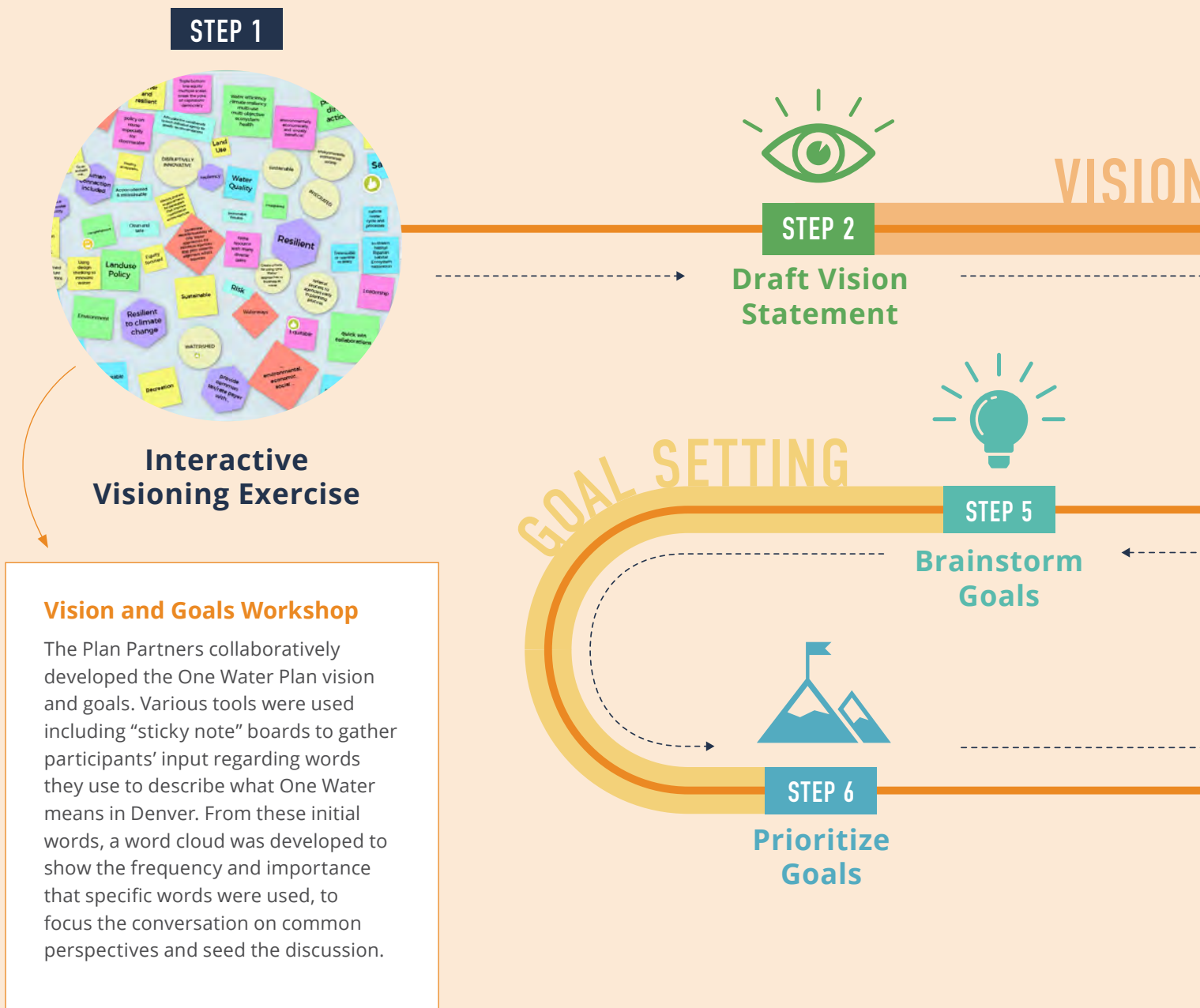
Engineering & Development

- American Council of Engineering Companies of Colorado
- Revesco Properties

From Shared Vision to Goals

ONE WATER VISION

The One Water Plan provides a framework for implementing holistic and resilient water management and land use strategies through collaboration, multi-beneficial projects, and strong policies that promote healthy watersheds in an equitable, economically, and environmentally beneficial manner.





STEP 3

Review Vision Statement



STEP 4

Refine and Finalize Vision Statement



STEP 7

Review of Vision and Goals by One Water Advisory Group



Visioning Word Cloud

The One Water Plan Partners conducted an interactive visioning exercise to identify 5 key words or phrases that were important for the One Water Plan Vision Statement. Results of the visioning exercise are illustrated in this word cloud.

STEP 8

   											
PROJECT MEMORANDUM											
DENVER ONE WATER PLAN											
Mile-High Transit Station, the Station of Remembrance, and the Station of Resilience											
Date: May 22, 2020	Project No.: 12/1533-05										
Prepared by: Robert Johnson, Lead Designer, John Anderson, Lead Designer											
Subject: Assessment of the Denver One Water Plan, and Strategies											
The project memorandum contains the Vision, Goals, and Strategies for the One Water Plan as adopted by the City Planning Team on the April 28, 2020 meeting and the City Board meeting.											
Vision Statement											
The Denver One Water Plan provides a framework for implementing bold and resilient water management that can anticipate future challenges and address the most pressing water security issues that are equitable, economically, environmentally, socially and resilient.											
Goals											
The Denver One Water Plan goal requires the City to integrate strategies for managing water and the goals are: <ul style="list-style-type: none"> • Increase Resilience and Security • Increase Efficiency and Sustainability • Increase Community Engagement • Increase Environmental and Climate Program 											
Strategies											
Strategies for the Denver One Water Plan are defined as a series of strategies that lead to the goal and are defined in the following table:											
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Develop Vision and Goals Briefing Document

One Water Goals

The One Water Plan Partners established five overarching goals for water management in Denver and 24 specific strategies to implement the goals.



GOAL #1

PROMOTE INSTITUTIONAL COLLABORATION

- 1.1** Strengthen communication, coordination, and collaboration within and between the City and County of Denver, Mile High Flood District, Denver Water, Metro Wastewater Reclamation District, and The Water Connection to employ and implement integrated water management processes and to better understand each entity's regulatory and policy dynamics.
- 1.2** Strengthen and institutionalize connections between land use and water planning entities to reconcile policies and management strategies and collaborate on mutually beneficial policies, starting early in a project's life cycle and including all relevant agencies and departments.
- 1.3** Engage elected officials and governing boards to support coordination and cooperation to promote integrated management of water resources and policies.



GOAL #2

IMPLEMENT MULTI-BENEFIT PROJECTS AND PROGRAMS

- 2.1** Identify and implement projects that present opportunities for inter-agency (multi-benefit) collaboration.
- 2.2** Create a framework with comprehensive criteria to identify and prioritize multi-benefit projects or water management strategies based on measures of social, environmental, and economic benefits and costs.
- 2.3** Consider the water-energy nexus when evaluating new developments and land use plans to maximize funding opportunities.
- 2.4** Strengthen land-water-food-energy nexus by linking urban water management more closely to urban agriculture for increased food security, community benefits, and environmental health.



GOAL #3

FOSTER COMMUNITY SUPPORT

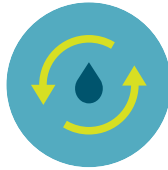
- 3.1** Enhance proactive public and private sector coordination with local stakeholders, including elected officials and the general public, to inform integrated planning and increase community awareness for sustainable water management.
- 3.2** Increase community awareness, support and advocacy for sustainable water use, water quality improvement, and the benefits of a One Water approach, including the interconnected nature of the water cycle, by active engagement, public outreach, education, and multi-media marketing campaigns.
- 3.3** Identify and collaboratively pursue private, local, state and federal funding opportunities to implement multi-benefit projects that equitably add value for rate payers.



GOAL #4

INCREASE RESILIENCE AND CLIMATE CHANGE PREPAREDNESS

- 4.1** Increase resilience by planning and coordinating climate change mitigation and adaptation strategies in all water management actions.
- 4.2** Explore financial incentives to reduce greenhouse gas emissions.
- 4.3** Develop and implement land use and water regulatory policies and programs that support sustainable and resilient water management practices.
- 4.4** Implement projects on public and private sites to improve local water supply reliability by increasing water efficiency and encouraging water reuse.



GOAL #5

IMPLEMENT INTEGRATED WATER MANAGEMENT SOLUTIONS

- 5.1** Integrate water aspects of CCD's Green Infrastructure Implementation Strategy, Denver Living Streets, Water Quality Management Plan, and Storm Drainage Master Plan.
- 5.2** Integrate stormwater into the built environment in a socially, economically, and environmentally beneficial way by using low impact development/green infrastructure to improve water quality, reduce runoff, and mitigate the risk of urban regional flooding.
- 5.3** Preserve, restore, and maintain functional ecosystems emphasizing healthy waterways, stream networks, and lakes.
- 5.4** Implement integrated watershed, stream management, water supply, and water management practices in land use planning, zoning codes, and agency operations.
- 5.5** Provide room along waterway corridors for restoration and multi-modal (non-motorized) purposes.
- 5.6** Provide education and consider incentives and/or requirements for water-conserving and climate-resilient landscaping for both privately and publicly owned land.
- 5.7** Establish consistent benchmarks among One Water Plan partners to measure progress towards implementation of One Water principles.
- 5.8** Partner with water agencies, non-profits, academia, and other stakeholders to conduct necessary technical, scientific and regulatory evaluations for assessing the potential for potable reuse and other alternative water supplies.
- 5.9** Encourage and facilitate use of recycled water to meet non-potable and/or environmental water demands as reusable supplies allow.
- 5.10** Develop uniform policies across agencies to enhance or restore the natural water cycle in projects, programs, and policies that involve state, regional and local water systems.

Making it Happen

TURNING A PLAN INTO REALITY

Denver already embraces the strong spirit of collaboration needed to advance the One Water Plan vision. Going forward, we will work together to build upon that spirit and better integrate a holistic approach to manage all aspects of the urban water cycle.

The One Water Plan Partners collaborated to develop the One Water Plan. Looking forward, this group is evolving into the One Water Leaders (OWL) group to implement the recommendations and processes identified in the Plan. The OWL group will comprise representatives of key water management agencies and organizations that share a vision and passion for managing water resources and waterways in Denver.



Look for this owl icon throughout the following chapters of this plan to see where the One Water Leaders group is the Lead Agency for recommended strategies.

The OWL group is essential to implementing the One Water Plan. The group's role encompasses the following:

- 1 Taking a leadership role to advance the One Water Plan strategies and implementation actions.
- 2 Monitoring and updating the metrics annually to assess progress towards the One Water Plan goals.
- 3 Tracking and supporting One Water Project Opportunities by facilitating continued collaboration and providing project sponsors with coordinated multi-agency support.

Initial steps include confirming OWL group membership and organizational structure; confirming roles and responsibilities; and establishing meeting frequencies to advance the One Water Plan's strategies and implementation actions.

ONE WATER PLAN IMPLEMENTATION PROCESS

Engagement in the One Water Plan development phase (center circles) evolves into ongoing actions in the implementation of the Plan (outer ring).

Neighborhood Planning

Informed communities advocating for sustainable solutions in their neighborhoods and driving representatives to fund and implement equitable multi-benefit projects and programs.

Multi-Benefit Approach

Implementing One Water projects and programs that are based on a multi-benefit framework to support healthy watersheds and sustainable water practices.



One Water Leaders

Advancing the One Water Plan's strategies and implementation actions; supporting One Water Project opportunities.

Denveright Connection

Integrating the One Water Plan with Denver's Comprehensive Plan 2040 ("Denveright") and aligning future updates.

HOW TO USE THIS PLAN

The Plan guides our water future and sets a course for achieving the One Water vision via the three stages of increasingly detailed layers, which are: goals, strategies, and implementation actions. With an established vision for the Plan, the One Water Leaders will continue to assess, implement, and adapt water management practices and policies and monitor progress toward the Plan's goals. This process provides specific strategies to strengthen our water management policies, protocols,

and cross-agency collaboration by exploring and evaluating best practices and engaging the community and key stakeholders. While several of Denver's previous plans mention water management, none directly sets a course for meeting our shared water vision. The One Water Plan complements *Denver's Comprehensive Plan 2040 ("Denverright")* and other strategic plans that shape Denver's future.

Goals

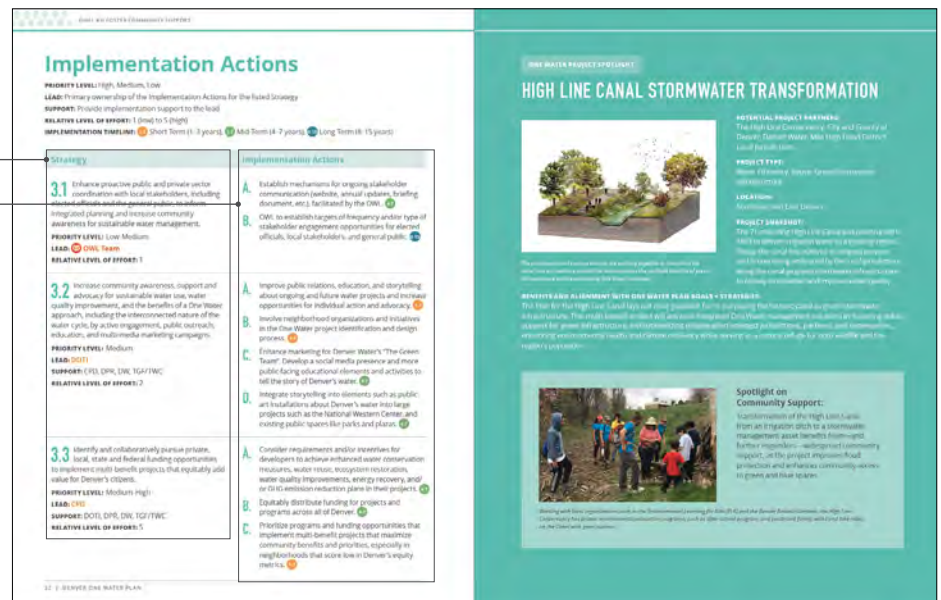
Broad, long-term goals to advance the plan vision. Reading about each of the goals is the best way to understand the plan's holistic approach. The five sections that follow are each dedicated to one of the One Water Plan Goals.

Strategies

The most important actions to achieve the goal. This is not intended to be a comprehensive list of all strategies for a particular goal. Instead, it highlights key actions, typically ones that are less detailed and more likely to stay relevant over time.

Implementation Actions

Detailed direction for how each of the strategies will come to fruition. Implementation actions are prioritized to address the most pressing water management needs in Denver first. Each implementation action is linked to a lead entity, along with key supporting entities that will play prominent roles in executing the necessary actions.



The pages in this plan are organized by One Water Plan Goal. Strategies and Implementation Actions associated with each Goal are documented as shown in this illustration.



Gates Interactive Fountain in City Park

A group of children and adults are playing in a public fountain. The children, many wearing orange t-shirts, are splashing and reaching for the water jets. A woman in a black and pink dress is holding the hand of a young girl. The background shows lush green trees and a clear sky. The fountain is made of stone tiles, and the water is splashing everywhere.

One Water Plan Goals

GOAL #1: Promote Institutional Collaboration



GOAL #1

Promote Institutional Collaboration



First Creek Park at sunrise

WHAT INSTITUTIONAL COLLABORATION MEANS TO DENVER:

- Recognizing the interrelated aspects of the urban water cycle
- Coordinating the actions of agencies with distinct roles in related aspects of the urban water cycle
- Working together to achieve positive outcomes for the benefit of the community and the environment

A commitment to collaboration

The One Water Leaders group will be the hub for collaborative efforts to streamline institutional coordination to manage Denver's water resources, promoting healthy watersheds in an equitable, economical, and environmentally beneficial manner.

Where are we today?

Water management policies and actions are sometimes coordinated between agencies and organizations, but are not an institutionalized way of doing business across all aspects of managing the urban water cycle and our waterways.

COLLABORATION BENEFITS

When water flows through the natural and urban water cycle, it crosses many institutional boundaries and jurisdictions. As a result, urban water systems are typically managed by a disparate set of institutions with targeted goals and objectives that serve to provision water services in an efficient manner. However, many important economic, social, and environmental considerations are often neglected. Under One Water, agencies traditionally focused on singular priorities (e.g., safe and efficient water supplies) would instead engage with others in a collective effort to take on other issues affected by water decisions such as ecological health, recreational development, and environmental justice. For example;

- The One Water approach promotes coordination among various departments or functions of cities, environmental organizations, and agencies in charge of planning, water supplies, wastewater management, storm and flood protection, water quality and watersheds.
- Holistic planning exercises can further link urban/land use planning with water and energy use implications in addition to transportation impacts.
- Collective action, where groups voluntarily cooperate culminates in achieving more positive outcomes while reducing costs, improving resilience, and enhancing community livability.



Water supports recreation of all types in Denver

COLLABORATION STRATEGIES

Below is an overview of strategies for promoting institutional collaboration. The following pages contain more information about the implementation actions and details associated with each strategy.

- 1.1 Strengthen communication, coordination, and collaboration within and between the City and County of Denver, Mile High Flood District, Denver Water, Metro Wastewater Reclamation District, and The Water Connection** to employ and implement integrated water management processes and to better understand each entity's regulatory and policy dynamics.
- 1.2 Strengthen and institutionalize connections between land use and water planning entities** to reconcile policies and management strategies and collaborate on mutually beneficial policies, starting early in a project's life cycle and including all relevant agencies and departments.
- 1.3 Engage elected officials and governing boards** to support coordination and cooperation to promote integrated management of water resources and policies.



Grant Frontier Park provides a riverfront recreational space along the shores of the South Platte River




Implementation Actions

PRIORITY LEVEL: High, Medium, Low

LEAD: Primary ownership of the Implementation Actions for the listed Strategy

SUPPORT: Provide implementation support to the lead

RELATIVE LEVEL OF EFFORT: 1 (low) to 5 (high)

IMPLEMENTATION TIMELINE:  Short Term (1–3 years),  Mid-Term (4–7 years),  Long-Term (8–15 years)

Strategy	Implementation Actions
<p>1.1 Strengthen communication, coordination, and collaboration within and between the City and County of Denver, Mile High Flood District, Denver Water, Metro Wastewater Reclamation District, and The Water Connection to employ and implement integrated water management processes and to better understand each entity's regulatory and policy dynamics.</p> <p>PRIORITY LEVEL: High</p> <p>LEAD:  One Water Leaders (OWL) Team</p> <p>RELATIVE LEVEL OF EFFORT: 1</p>	<p>A. One Water Leader (OWL) work group should have a broad mandate relative to strengthening communication and coordination, and bring regulations into alignment with respect to One Water Goals and related policies. </p> <p>B. Schedule an annual or biannual meeting for management representatives from each of these organizations and the OWL to meet and collaborate on ongoing projects, policy developments, and other initiatives to achieve One Water goals. </p>
<p>1.2 Strengthen and institutionalize connections between land use and water planning entities to reconcile policies and management strategies and collaborate on mutually beneficial policies, starting early in a project's life cycle and including all relevant agencies and departments.</p> <p>PRIORITY LEVEL: High</p> <p>LEAD: CPD</p> <p>SUPPORT: DOTI, DDPHE,  OWL Team</p> <p>RELATIVE LEVEL OF EFFORT: 4</p>	<p>A. Integrate land use and water management discussions into development planning and capital master planning processes related to new projects, programs, and policies. </p> <p>B. Identify, develop, and implement mutually beneficial policies of land use and water planning through collaboration of relevant departments and OWL entities. </p> <p>C. Compare management strategies between entities and integrate water and land use strategies into internal processes and the project life cycle. </p> <p>D. Identify State and local regulatory barriers to implementation of One Water strategies. Where appropriate, work with regulators and stakeholders to update existing regulatory and legislative framework with language that is more supportive of One Water implementation. </p>

Strategy

1.3 Engage elected officials and governing boards to support coordination and cooperation to promote integrated management of water resources and policies.

PRIORITY LEVEL: Medium

LEAD:  **OWL Team**

SUPPORT: DOTI

RELATIVE LEVEL OF EFFORT: 3

Implementation Actions

- A.** Provide a briefing of the One Water Plan to newly elected or appointed City and County of Denver officials, and a separate briefing for City agencies and OWL members' governing entities. Schedule refresher briefings on an annual basis. 4-7
- B.** Arrange for representative(s) of the OWL to present to the State Legislature's Interim Water Resources Review Committee for the state at least once a year. 4-7
- C.** The OWL work group should serve as the liaison of information about upcoming projects, initiatives, and water-related goals and management strategies for organizations and committees at the neighborhood level. 4-7



Spotlight on Institutional Collaboration:

An example of institutional collaboration is coordination between the project proponents and local and regional water management agencies to promote green infrastructure and apply the Denver Green Code in mixed-use developments, aligned with community interests and priorities. As a result, integrated projects can achieve water management functions while also providing beneficial ecological and community assets.



Pasquinel's Landing Park



One Water Plan Goals

GOAL #2:
Implement
Multi-Benefit Projects
and Programs



GOAL #2

Implement Multi-Benefit Projects and Programs



A detention basin during a storm event that is located next to the Joe Shoemaker School at Havana and Girard. The permeable bottom allows runoff to infiltrate into the ground where sediment and pollutants are removed prior to discharge to Cherry Creek, which is in the foreground. The concrete steps on the left and right of the main channel serve as both an overflow and an outdoor learning center during drier weather.

WHAT MULTI-BENEFIT PROJECTS AND PROGRAMS MEANS TO DENVER:

- Implementing projects and programs that can achieve multiple objectives
- Realizing benefits across a spectrum of social, environmental, and economic considerations
- Integrating water policy with land use, energy, urban agriculture, and other aspects that are affected by water management activities

A commitment to multi-benefit projects and programs

Optimizing collaboration through the One Water Leaders group and advancing the One Water Plan implementation actions will foster an environment that actively prioritizes projects and programs with multiple benefits.

Where are we today?

Many of today's water management projects and programs are focused on single objectives or a limited view of the potential to multiply returns on investments; this can be improved through expanded collaboration and active awareness of opportunities to achieve multiple benefits.

MULTI-BENEFIT PROJECT AND PROGRAM OPPORTUNITIES

Nearly any water management activity has the potential to create multiple benefits, when planning and implementation is conducted through a One Water lens. For example:

- A stream restoration project driven by a need to improve waterway ecosystem health can also provide an opportunity to enhance flood protection and improve recreational access or educational signage along the waterway.
- Relocation or repaving of roadways can provide a cost-effective opportunity to also install or replace aging potable or nonpotable or reclaimed water distribution piping at the same time.
- Redevelopment of land in Denver can provide an opportunity to install decentralized water reclamation facilities and sewer heat recovery, which in turn can help meet regional wastewater treatment needs, reduce energy footprint, improve urban stream temperatures, and provide a source of reclaimed water to offset potable water demands.



Colorado Association of Floodplain Managers' 2020 Project of the Year is a state of the art drainage way improvement located in the densely developed Ruby Hill Neighborhood. The improvements to Sanderson Gulch have removed over 100 properties from the floodplain along the South Platte River through a series of box culverts with an open channel stream above.

MULTI-BENEFIT STRATEGIES

Below is an overview of strategies for implementing multi-benefit projects and programs. The following pages contain more information about the implementation actions and details associated with each strategy.

- 2.1 Identify and implement projects that present opportunities for inter-agency (multi-benefit) collaboration.**
- 2.2 Create a framework with comprehensive criteria to identify and prioritize multi-benefit projects or water management strategies** based on measures of social, environmental, and economic benefits and costs.
- 2.3 Consider the water-energy nexus when evaluating new developments and land use plans** to maximize funding opportunities.
- 2.4 Strengthen land-water-food-energy nexus** by linking urban water management more closely to urban agriculture for increased food security, community benefits, and environmental health.



A rain garden next to STEAM on the Platte, near West Colfax Avenue and the South Platte River. The rain garden allows stormwater runoff to infiltrate into the ground where sediment and pollutants are removed prior to discharging to the South Platte River.




Implementation Actions

PRIORITY LEVEL: High, Medium, Low

LEAD: Primary ownership of the Implementation Actions for the listed Strategy

SUPPORT: Provide implementation support to the lead

RELATIVE LEVEL OF EFFORT: 1 (low) to 5 (high)

IMPLEMENTATION TIMELINE:  Short Term (1–3 years),  Mid-Term (4–7 years),  Long-Term (8–15 years)

Strategy	Implementation Actions
<p>2.1 Identify and implement projects that present opportunities for inter-agency (multi-benefit) collaboration.</p> <p>PRIORITY LEVEL: Medium</p> <p>LEAD:  OWL Team</p> <p>SUPPORT: DOTI, City and County of Denver Department of Community Planning and Development (CPD), City and County of Denver Department of Parks and Recreation (DPR)</p> <p>RELATIVE LEVEL OF EFFORT: 3</p>	<p>A. Continuously update and track the One Water Project Opportunities (OWPO) list. Incorporate OWPOs into capital project process and identification. Starting early in the project life cycle, conduct regularly scheduled meetings (including OWL, the project sponsor, and other related entities involved in the project) to monitor how One Water goals will be implemented. </p> <p>B. Establish requirements that master planning of capital expenditures for all new City buildings and infrastructure repairs must include a One Water aspect to project planning and implementation. </p>
<p>2.2 Create a framework with comprehensive criteria to identify and prioritize multi-benefit projects or water management strategies based on measures of social, environmental, and economic benefits and costs.</p> <p>PRIORITY LEVEL: High</p> <p>LEAD: CPD</p> <p>SUPPORT: DOTI, Denver Water (DW), The Greenway Foundation / The Water Connection (TGF/TWC)</p> <p>RELATIVE LEVEL OF EFFORT: 3</p>	<p>A. Develop a framework for an evaluation and prioritization process that assigns an overall score or multi-benefit profile for OWPOs. Consider social, environmental, and economic benefits and costs in the evaluation process. </p> <p>B. Update development regulations to create a definitive path forward for developers to implement enhanced water conservation, water reuse, flood mitigation, ecosystem restoration, water quality, greenhouse gas (GHG) emissions reduction, and energy recovery plans into their projects. </p>
<p>2.3 Consider the water-energy nexus when evaluating new development and land use plans to maximize funding opportunities.</p> <p>PRIORITY LEVEL: Medium</p> <p>LEAD:  OWL Team</p> <p>SUPPORT: CPD</p> <p>RELATIVE LEVEL OF EFFORT: 4</p>	<p>A. OWL should track external funding opportunities related to water management for public and private projects, and prioritize the funding of programs that consider the water-energy nexus. </p> <p>B. Coordinate One Water efforts with the in-progress Denver Urban Renewal Authority (DURA) Strategic Plan. Establish funding criteria for DURA projects and incorporate the water-energy nexus and One Water goals into these criteria. </p>

Strategy

2.4 Strengthen land-water-food-energy nexus by linking urban water management more closely to urban agriculture for increased food security, community benefits, and environmental health.

PRIORITY LEVEL: Medium

LEAD: CPD, DPR

SUPPORT: DOTI, City and County of Denver Department of Public Health and Environment (DDPHE)

RELATIVE LEVEL OF EFFORT: 4

Implementation Actions

- A.** Identify opportunities where regulatory updates can be made to allow more urban agriculture (urban gardens, plant nurseries, etc.), improve existing agricultural systems and management practices, and streamline the permit process. **4-7**
- B.** Work with CPD to incorporate the One Water Plan into ongoing urban agriculture planning efforts. Collaborate with Colorado State University about their research and efforts related to water resources, water management, and urban agriculture. **4-7**
- C.** Establish policies and regulations that create a path forward for developers to take advantage of the food security goals established by the 2017 *Denver Food Plan* and *Denver's Comprehensive Plan 2040* ("Denverright"). **4-7**

ONE WATER PROJECT SPOTLIGHT

NATIONAL WESTERN CENTER

POTENTIAL PROJECT PARTNERS:

City and County of Denver, National Western Center Authority, Colorado State University Spur at the National Western Center, Western Stock Show Association, Denver Museum of Nature and Science, History Colorado, Metro Wastewater Reclamation District, Denver Water, The Greenway Foundation / The Water Connection, and EAS Energy Partners

PROJECT TYPE:

Redevelopment, Land Use

LOCATION:

North Central Denver

PROJECT SNAPSHOT:

The National Western Center Campus project is one of the largest infill redevelopments in the country with 1/2 mile frontage on the South Platte River. The goals of the project are to honor and celebrate the spirit of the West, while also promoting research and progress in agriculture and providing a broad focus on entertainment, food, animal health and performance, water, energy, and sustainability and the environment (NationalWesternCenter.com).

BENEFITS AND ALIGNMENT WITH ONE WATER PLAN GOALS + STRATEGIES:

The National Western Center offers potential to demonstrate new and innovative One Water solutions with multiple benefits. For example, the educational amenities at the new Colorado State University Spur "Hydro" water building will engage stakeholders from multiple sectors to recognize that all water has value and promote future water related research. In addition, the restoration of the South Platte Riverfront will improve land and water health, opening up opportunities for recreation and environmental education and the campus will source nearly 90 percent of its heating and cooling from an underground sewer pipeline to link energy efficiency to reclaimed water management.

Spotlight on Multi-Benefit Projects and Programs:

Several entities are collaborating on the National Western Center to implement innovative One Water solutions with multiple benefits such as green infrastructure, sewer heat recovery, and riverfront access and restoration.



Grant Frontier Park



One Water Plan Goals

GOAL #3: Foster Community Support



GOAL #3

Foster Community Support



39th Avenue Greenway from Franklin to Steele Streets in northeast Denver is a stormwater improvement project, built to mitigate recurrent flooding issues in this area of town. The project fulfills community desires for new outdoor recreational space, water quality, and improved connections for mobility.

WHAT FOSTERING COMMUNITY SUPPORT MEANS TO DENVER:

- Engaging public and private entities in achieving the One Water Plan goals
- Increasing water awareness through education and transparency of water management decision-making
- Using cost-effective approaches to meet the community's water needs
- Supporting equity in water access and affordability across the entire Denver community

A commitment to foster community support

Denver will foster community support by engaging residents and businesses that call Denver home, increasing community understanding of Denver's water management challenges, the One Water Plan goals, and regularly reporting progress toward the One Water Plan strategies and implementation of actions.

Where are we today?

Denver's community is generally aware of the source of its water supplies and expressed concern about growth and droughts. However, less is known about how water moves through the urban water cycle from stormwater, wastewater, to recycled water. There are opportunities to increase community awareness, and water use efficiency, as well as promote more diverse and equitable community engagement.

COMMUNITY ENGAGEMENT BENEFITS

Community participation, acceptance, and stewardship plays a significant role in implementation of One Water solutions. Public engagement and educational activities focus on increasing awareness about municipal water challenges and opportunities to address them from the household to municipal levels.

Examples include:

- Informed communities will advocate for more sustainable solutions in their neighborhoods and drive their representatives to implement and fund equitable multi-beneficial projects and programs
- Increasing awareness of One Water solutions to public, private and non-governmental organizations creates opportunities for collaboration and prompts entities to think differently about the urban water cycle

Progress toward the One Water Plan goals should be assessed by a variety of stakeholders and gaged by the One Water Leaders group.



Residents informing the City of places they have experienced flooding at a public meeting in Denver.

COLLABORATION STRATEGIES

Below is an overview of strategies for fostering community support. The following pages contain more information about the implementation actions and details associated with each strategy.

- 3.1 Enhance proactive public and private sector coordination with local stakeholders**, including elected officials and the general public, to inform integrated planning and increase community awareness for sustainable water management.
- 3.2 Increase community awareness, support and advocacy for sustainable water use, water quality improvement, and the benefits of a One Water approach**, including the interconnected nature of the water cycle, by active engagement, public outreach, education, and multi-media marketing campaigns.
- 3.3 Identify and collaboratively pursue private, local, state and federal funding opportunities** to implement multi-benefit projects that equitably add value for rate payers.



The Globeville Stormwater Systems Study met onsite with the Vision Implementation Team Meeting to discuss strategies for reducing flood risk in the Globeville neighborhood.

Implementation Actions



PRIORITY LEVEL: High, Medium, Low

LEAD: Primary ownership of the Implementation Actions for the listed Strategy

SUPPORT: Provide implementation support to the lead

RELATIVE LEVEL OF EFFORT: 1 (low) to 5 (high)

IMPLEMENTATION TIMELINE: 1-3 Short Term (1–3 years), 4-7 Mid-Term (4–7 years), 8-15 Long-Term (8–15 years)

Strategy	Implementation Actions
<p>3.1 Enhance proactive public and private sector coordination with local stakeholders, including elected officials and the general public, to inform integrated planning and increase community awareness for sustainable water management.</p> <p>PRIORITY LEVEL: Low-Medium</p> <p>LEAD:  OWL Team</p> <p>RELATIVE LEVEL OF EFFORT: 1</p>	<p>A. Establish mechanisms for ongoing stakeholder communication (website, annual updates, briefing document, etc.), facilitated by the OWL. </p> <p>B. OWL to establish targets of frequency and/or type of stakeholder engagement opportunities for elected officials, local stakeholders, and general public. </p>
<p>3.2 Increase community awareness, support and advocacy for sustainable water use, water quality improvement, and the benefits of a One Water approach, including the interconnected nature of the water cycle, by active engagement, public outreach, education, and multi-media marketing campaigns.</p> <p>PRIORITY LEVEL: Medium</p> <p>LEAD: DOTI</p> <p>SUPPORT: CPD, DPR, DW, TGF/TWC</p> <p>RELATIVE LEVEL OF EFFORT: 2</p>	<p>A. Improve public relations, education, and storytelling about ongoing and future water projects and increase opportunities for individual action and advocacy. </p> <p>B. Involve neighborhood organizations and initiatives in the One Water project identification and design process. </p> <p>C. Enhance marketing for Denver Water’s “The Green Team”. Develop a social media presence and more public-facing educational elements and activities to tell the story of Denver’s water. </p> <p>D. Integrate storytelling into elements such as public art installations about Denver’s water into large projects such as the National Western Center, and existing public spaces like parks and plazas. </p>
<p>3.3 Identify and collaboratively pursue private, local, state and federal funding opportunities to implement multi-benefit projects that equitably add value for Denver’s citizens.</p> <p>PRIORITY LEVEL: Medium-High</p> <p>LEAD: CPD</p> <p>SUPPORT: DOTI, DPR, DW, TGF/TWC</p> <p>RELATIVE LEVEL OF EFFORT: 5</p>	<p>A. Consider requirements and/or incentives for developers to achieve enhanced water conservation measures, water reuse, ecosystem restoration, water quality improvements, energy recovery, and/or GHG emission reduction plans in their projects. </p> <p>B. Equitably distribute funding for projects and programs across all of Denver. </p> <p>C. Prioritize programs and funding opportunities that implement multi-benefit projects that maximize community benefits and priorities, especially in neighborhoods that score low in Denver’s equity metrics. </p>

HIGH LINE CANAL STORMWATER TRANSFORMATION



The community and various entities are working together to transform the canal into an inspiring model that demonstrates the multiple benefits of green infrastructure while accelerating One Water solutions.

POTENTIAL PROJECT PARTNERS:

The High Line Conservancy, City and County of Denver, Denver Water, Mile High Flood District, Local Jurisdictions

PROJECT TYPE:

Water Efficiency, Reuse, Green Stormwater Infrastructure

LOCATION:

Southeast and East Denver

PROJECT SNAPSHOT:

The 71-mile-long High Line Canal was constructed in 1883 to deliver irrigation water to a growing region. Today, the canal has outlived its original purpose and is now being embraced by the local jurisdictions along the canal as green stormwater infrastructure to convey stormwater and improve water quality.

BENEFITS AND ALIGNMENT WITH ONE WATER PLAN GOALS + STRATEGIES:

The Plan for the High Line Canal lays out clear guidance for re-purposing the historic canal as green stormwater infrastructure. This multi-benefit project will advance integrated One Water management solutions by fostering public support for green infrastructure, institutionalizing collaboration amongst jurisdictions, partners, and communities, enhancing environmental health and climate resiliency while serving as a natural refuge for both wildlife and the region's population.



Working with local organizations such as the Environmental Learning for Kids (ELK) and the Denver Botanic Gardens, the High Line Conservancy has piloted environmental education programs, such as after-school program, and youth and family walks and bike rides, on the Canal with great success.

Spotlight on Community Support:

Transformation of the High Line Canal from an irrigation ditch to a stormwater management asset benefits from—and further engenders—widespread community support, as the project improves flood protection and enhances community access to green and blue spaces.



Westerly Creek Flood, September 2013



One Water Plan Goals

GOAL #4:
**Increase Resilience
and Climate Change
Preparedness**



GOAL #4

Increase Resilience and Climate Change Preparedness



First Creek Open Space in Denver

WHAT WATER RESILIENCE AND CLIMATE CHANGE PREPAREDNESS MEANS TO DENVER:

- Implementing our water planning approaches and policies to reliably meet water supply, wastewater, and stormwater management needs through a range of future conditions
- Mitigating growing threats such as extended drought, urban flooding, and wildfires specifically in the upstream watersheds of the Colorado River and South Platte River that supply our water
- Robust asset management programs that reduce the risk of water system interruptions or failures from aging infrastructure, shocks, or stresses
- Implementing sustainable land use and water regulatory policies and programs

A commitment to resilience

Working in partnership with the Denver Office of Climate Action, Sustainability, and Resiliency, the One Water Leaders will integrate water resilience and climate change preparedness into water management best practices in Denver.

Where are we today?

Many individual elements of water supply resilience and climate change preparedness are in place, through the historical and ongoing efforts of the City and County of Denver, Denver Water, the Mile High Flood District, The Greenway Foundation / The Water Connection, Metro Wastewater Reclamation District, and Colorado Water Conservation Board. There are opportunities to integrate these elements and further reduce water supply and flooding risks associated with anticipated climate change impacts.

CLIMATE CHANGE THREATS

Climate change threatens our water supply, water quality, and risk of flooding in numerous ways. Examples include:

- Increased likelihood of persistent drought, reduction in snowpack and reservoir storage resulting in reduced availability of existing water supplies.
- Increased threat of severe wildfires that could impact the availability and quality of water in upstream mountain watersheds that supply the Denver community's needs, similar to what was observed through the 2002 Hayman Fire.
- Earlier snowmelt and peak runoff patterns due to increasing temperatures, creating a shift and potential misalignment between peak runoff flows and peak summer water demands.
- Increased risk of severe and variable weather events, in turn increasing the potential for urban flooding in Denver like parts of the community endured in 1965, 1973 and 2013.
- Reduced instream flows and degraded water quality during peak summer recreational use resulting in some amenities being unusable.



Flooding in Montbello Channel at Andrews & Tulsa Court in July 2018

RESILIENCE STRATEGIES

Below is an overview of strategies for increasing resilience and climate change preparedness. The following pages contain more information about the implementation actions and details associated with each strategy.

- 4.1 Increase resilience by planning and coordinating climate change mitigation and adaptation strategies** in all water management actions.
- 4.2 Explore financial incentives to reduce greenhouse gas emissions.**
- 4.3 Develop and implement land use and water regulatory policies and programs** that support sustainable and resilient water management practices.
- 4.4 Implement projects on public and private sites to improve local water supply reliability** by increasing water efficiency and encouraging water reuse.



Flooding at Kelley Road Dam in the Lowry neighborhood in July 2018




Implementation Actions


PRIORITY LEVEL: High, Medium, Low

LEAD: Primary ownership of the Implementation Actions for the listed Strategy

SUPPORT: Provide implementation support to the lead

RELATIVE LEVEL OF EFFORT: 1 (low) to 5 (high)

IMPLEMENTATION TIMELINE:  Short Term (1–3 years),  Mid-Term (4–7 years),  Long-Term (8–15 years)

Strategy	Implementation Actions
<p>4.1 Increase resilience by planning and coordinating climate action strategies in all water management efforts.</p> <p>PRIORITY LEVEL: Low-Medium</p> <p>LEAD:  DOTI</p> <p>SUPPORT: CPD, DPR, DW, City and County of Denver Office of Climate Action, Sustainability and Resiliency (CASR)</p> <p>RELATIVE LEVEL OF EFFORT: 4</p>	<p>A. Pursue capital improvement projects that incorporate or achieve climate change mitigation and adaptation strategies (e.g., <i>Sustainability Action Plans</i>, <i>2018 Goals of Denver 80x50 Climate Action Plan</i>, and <i>2014 Climate Action Plan</i>). </p> <p>B. Continue to learn from, collaborate with, and implement best practices from other cities that are combating climate change through water management strategies. </p>
<p>4.2 Explore financial incentives to increase climate action, including adaptation and resilience initiatives.</p> <p>PRIORITY LEVEL: Medium</p> <p>LEAD:  OWL Team</p> <p>SUPPORT: CASR</p> <p>RELATIVE LEVEL OF EFFORT: 3</p>	<p>A. OWL group should work with the Denver Office of Climate Action, Sustainability and Resiliency to identify existing financial incentives, and establish new funding streams/incentives/credits for climate mitigation, adaptation, and resilience strategies that are applicable to water projects. </p>
<p>4.3 Develop and implement land use and water regulatory policies and programs that support sustainable and resilient water management practices.</p> <p>PRIORITY LEVEL: High</p> <p>LEAD:  DOTI,  CPD</p> <p>SUPPORT: DPR</p> <p>RELATIVE LEVEL OF EFFORT: 5</p>	<p>A. Coordinate with Denver Water Quality Management Plan to combine the One Water Plan policies matrix with their efforts: “Identification and review of regulations and existing Denver planning documents affecting or interfacing with stormwater quality management strategies in Denver.” </p> <p>B. Update rules and recommendations to encourage and require use of sustainable and resilient water management strategies and reuse in development. </p> <p>C. Implement regulatory policies that promote water use efficiencies and good water management strategies. </p> <p>D. Identify the cause of primary sources of harmful runoff and create strategies to eliminate those sources of runoff and their negative impacts on the watershed, in conjunction with the Municipal Separate Storm Sewer System (MS4) permit policies. </p>

Strategy

4.4 Implement projects on public and private sites to improve local water supply reliability by increasing water efficiency and encouraging water reuse.

PRIORITY LEVEL: Medium

LEAD: CPD, DPR

SUPPORT: DOTI, DW

RELATIVE LEVEL OF EFFORT: 5

Implementation Actions

- A.** Implement water efficiency and consider expanding water reuse projects on public and private sites to improve local water supply reliability. 4-7
- B.** Align implementation efforts with Denver Parks & Recreation Water Management Plan's recommendations on increasing water efficiency and reuse. 4-7

ONE WATER PROJECT SPOTLIGHT

SOUTH PLATTE RIVER NEEDS ASSESSMENT



The needs assessment will provide an overview of river health, quality human experiences, and connected mobility along the South Platte River.

POTENTIAL PROJECT PARTNERS:

City and County of Denver, Metro Wastewater Reclamation District, Mile High Flood District, The Greenway Foundation / The Water Connection, Denver Trout Unlimited, Colorado Water Conservation Board

PROJECT TYPE:

Healthy Watersheds

LOCATION:

Central Denver

PROJECT SNAPSHOT:

The South Platte River Corridor Needs Assessment and Recommendations is a planning process that will assess gaps and prioritize project plans to restore and protect the entire 11 miles of the South Platte River within Denver County.

BENEFITS AND ALIGNMENT WITH ONE WATER PLAN GOALS + STRATEGIES:

This multi-benefit project will advance integrated One Water management solutions by placing priority on a healthy South Platte River, on quality human experiences within the river corridor, and on mobility strategies that create better community connections and access to the South Platte River.

Spotlight on Resilience:

Restoration of the South Platte River as it winds through Denver provides an opportunity to enhance management of peak flow events and mitigate flooding potential. At the same time, this coordinated planning effort offers opportunities to improve the aquatic ecosystem and increase public access to this recreational and aesthetic community amenity.



39th Avenue Greenway

One Water Plan Goals

GOAL #5: Implement Integrated Water Management Solutions





GOAL #5

Implement Integrated Water Management Solutions



Platte Farm Open Space was a community driven, brownfield to open-space project in Globeville. Completed in 2020, Platte Farm Open Space is now a unique and important example of how to re-purpose formerly contaminated land for community benefit and recreation. The 5.5-acre brownfields site features restored short-grass prairie, crusher fines trails, and play space. Project partners included City and County of Denver DOTI, Denver Parks, Mile High Flood District, Groundwork Denver, and the community.

WHAT INTEGRATED WATER MANAGEMENT MEANS TO DENVER:

- Identifying and leveraging interrelated water system components
- Preserving and protecting natural ecosystems, while meeting the community's water supply and flood protection needs
- Implementing holistic approach to watershed management that consider all aspects of the urban water cycle
- Integrating water management solutions in planning, design, and policies by non-water sector entities where it is beneficial for the community and/or environment.

A commitment to integrated water management

Denver's focus on integrated water management via this One Water Plan goal and its supporting strategies will be used to holistically assess our water recommendations and achieve the multiple benefits that can be afforded by the One Water approach.

Where are we today?

Limited collaboration between different agencies with individual water management responsibilities tends to limit holistic planning and implementation approaches. Collaboration through the One Water Leaders group will yield additional opportunities to assess ongoing and proposed water implementation actions in a more systematic way, assessing the interconnected implications of each water management action, and promoting multi-benefit approaches through collaboration and resource sharing.

WATER MANAGEMENT BENEFITS

Integrated water management approaches are beneficial to not only managing, but also continuously re-balancing and adapting to various challenges, such as: water demand changes (e.g., development and redevelopment), aging infrastructure, improving water quality, climate variability and droughts, natural disasters, regulatory changes, stream flows and habitat needs, and recreational water needs. As a holistic and collaborative integrated water management approach, One Water transcends typical institutional boundaries and helps water industry leaders to think differently about how water is managed supporting the development and implementation of integrated solutions.

Specifically, Integrated Water Management approaches benefit our communities by:

- Solving more complex water management challenges that require institutional collaboration
- Increasing public awareness and concerns about water supply reliability and water quality and building public trust
- Realizing efficiencies across collaborative organizations, including personnel resources, planning studies, project capital and operating costs
- Changing the mindset of water leaders to think broader about watershed wide improvements and community benefits

STRATEGIES

Below is an overview of strategies for implementing integrated water management solutions. The following pages contain more information about the implementation actions and details associated with each strategy.

- 5.1 Integrate water aspects of City and County of Denver's Green Infrastructure Implementation Strategy, Denver Living Streets, Water Quality Management Plan, and Storm Drainage Master Plan.**

- 5.2 Integrate stormwater into the built environment in a socially, economically, and environmentally beneficial way** by using low impact development/green infrastructure to improve water quality, reduce runoff, and mitigate the risk of urban regional flooding.
- 5.3 Preserve, restore, and maintain functional ecosystems** emphasizing healthy waterways, stream networks, and lakes.
- 5.4 Implement integrated watershed, stream management, water supply, and water management practices** in land use planning, zoning codes, and agency operations.
- 5.5 Provide room along waterway corridors for restoration and multi-modal (non-motorized) purposes.**
- 5.6 Provide education and consider incentives and/or requirements for water-conserving and climate-resilient landscaping** for both privately and publicly owned land.
- 5.7 Establish consistent benchmarks among One Water Plan partners to measure progress towards implementation of One Water principles.**
- 5.8 Partner with other stakeholders to assess the potential for potable reuse and other alternative water supplies.**
- 5.9 Encourage and facilitate use of recycled water** to meet non-potable and/or environmental water demands as reusable supplies allow.
- 5.10 Develop uniform policies across agencies to enhance or restore the natural water cycle in projects, programs, and policies** that involve state, regional and local water systems.




Implementation Actions

PRIORITY LEVEL: High, Medium, Low

LEAD: Primary ownership of the Implementation Actions for the listed Strategy

SUPPORT: Provide implementation support to the lead

RELATIVE LEVEL OF EFFORT: 1 (low) to 5 (high)

IMPLEMENTATION TIMELINE:  Short Term (1–3 years),  Mid-Term (4–7 years),  Long-Term (8–15 years)

Strategy	Implementation Actions
<p>5.1 Integrate water aspects of City and County of Denver's Green Infrastructure Implementation Strategy, Denver Living Streets, Water Quality Management Plan, and Storm Drainage Master Plan.</p> <p>PRIORITY LEVEL: High</p> <p>LEAD: DOTI,  OWL Team</p> <p>SUPPORT: CPD, DW</p> <p>RELATIVE LEVEL OF EFFORT: 5</p>	<p>A. DOTI to prepare an umbrella document, plan, or tool that combines and aligns recommendations of plans noted in Strategy 5.1. </p> <p>B. Encourage developers to install utilities to accommodate recycled water or graywater use that is also aligned with goals of DOTI's plans (see 5.1A). </p> <p>C. Use DOTI pilot projects as an opportunity to test new requirements and innovative water treatment and conservation strategies as established in the plans noted in Strategy 5.1. </p> <p>D. Inventory and characterize CCD staff roles and responsibilities related to water management; align skill sets to reflect water management functions. </p>
<p>5.2 Integrate stormwater into the built environment in a socially, economically, and environmentally beneficial way by using low impact development/green infrastructure to improve water quality, reduce runoff, and mitigate the risk of urban regional flooding.</p> <p>PRIORITY LEVEL: Medium-High</p> <p>LEAD: DOTI</p> <p>SUPPORT: CPD, Mile High Flood District (MHFD)</p> <p>RELATIVE LEVEL OF EFFORT: 4</p>	<p>A. Involve OWL members and other water-related entities in efforts to update urban design standards to provide clearer guidance for implementing green infrastructure (Ultra-Urban Green Infrastructure Guidelines, Storm Drainage Criteria Manual, and others). </p> <p>B. Develop incentives to promote use of Low-Impact Developments (LIDs) and Green Infrastructure (GI) for stormwater management rather than gray infrastructure. </p>
<p>5.3 Preserve, restore, and maintain functional ecosystems emphasizing healthy waterways, stream networks, and lakes.</p> <p>PRIORITY LEVEL: High</p> <p>LEAD: DOTI</p> <p>SUPPORT:  OWL Team</p> <p>RELATIVE LEVEL OF EFFORT: 3</p>	<p>A. OWL members should work together to develop and implement enforceable policies to realize existing recommendations in <i>Denver's Comprehensive Plan 2040</i> ("Denverright") and other previous Denver plans for the preservation and restoration of riparian corridors. </p>

Strategy

5.4 Implement integrated watershed, stream management, water supply, and water management practices in land use planning, zoning codes, and agency operations.




PRIORITY LEVEL: High

LEAD: CPD

SUPPORT: DOTI, DPR, DW, MHFD,  OWL Team

RELATIVE LEVEL OF EFFORT: 5

Implementation Actions

- A.** Develop comprehensive watershed plans (including stream management plans addressing flow and water quality) for the South Platte River and its tributaries through Denver that are updated every 10 years. 
- B.** Research what other cities have done to improve water management practices in land use planning and zoning. Implement these improvements into the planning and development process. 
- C.** Coordinate with Mile High Flood District's urban stream assessment procedure that focuses on the physical condition of the urban watersheds including indicators and metrics for hydrology, hydraulics, geomorphology, and vegetation to recognize the importance of watersheds physical condition, chemical and biological condition. 


5.5 Provide room along waterway corridors for restoration and multi-modal (non-motorized) purposes.

PRIORITY LEVEL: High

LEAD: CPD

SUPPORT: DOTI, DPR

RELATIVE LEVEL OF EFFORT: 4

- A.** Update zoning to include regulatory policies developed by OWL to protect and/or create room along waterway corridors for flood mitigation, environmental, mobility, and recreational benefits. 



5.6 Provide education and consider incentives and/or requirements for water-conserving and climate-resilient landscaping for both privately and publicly owned land.

PRIORITY LEVEL: High

LEAD: CPD, DPR

SUPPORT: DOTI

RELATIVE LEVEL OF EFFORT: 4

- A.** OWL should create or update requirements that increase water conservation and identify strategies for resilient landscaping, including requiring developers to create a water conservation plan. 
- B.** Update water use and landscaping standards for new public and private development every 5 years. 



5.7 Establish consistent benchmarks among One Water Plan partners to measure progress towards implementation of One Water principles.

PRIORITY LEVEL: Medium

LEAD: DOTI

SUPPORT: CPD, DPR

RELATIVE LEVEL OF EFFORT: 2

- A.** OWL should measure the success of current and ongoing One Water projects, and provide an annual report. OWL members shall participate in data gathering and reporting as outlined in the One Water Monitoring Plan. 
- B.** OWL members shall annually review the benchmarks and metrics used to measure progress toward achieving One Water goals, and revise as needed. 

Strategy

5.8 Partner with other stakeholders to assess the potential for potable reuse and other alternative water supplies.


PRIORITY LEVEL: High

LEAD: DW

SUPPORT: DOTI,  **OWL Team**

RELATIVE LEVEL OF EFFORT: 3

Implementation Actions

A. Assess the potential for potable reuse and other alternative water supplies. 


5.9 Encourage and facilitate use of recycled water to meet non-potable and/or environmental water demands as reusable supplies allow.


PRIORITY LEVEL: High

LEAD: DW

SUPPORT: DOTI, DPR

RELATIVE LEVEL OF EFFORT: 3

A. Periodically evaluate recycled water expansion opportunities. 


B. Educate developers and encourage the use of recycled water for developments adjacent to existing recycled water infrastructure. 

5.10 Develop uniform policies across agencies to enhance or restore the natural water cycle in projects, programs, and policies that involve state, regional, and local water systems.

PRIORITY LEVEL: High

LEAD:  **OWL Team**

RELATIVE LEVEL OF EFFORT: 3

A. OWL members, the State Legislature's Interim Water Resources Review Committee, and other water-related entities should meet to discuss existing policy for restoring the natural water cycle and to establish uniform policy language. 



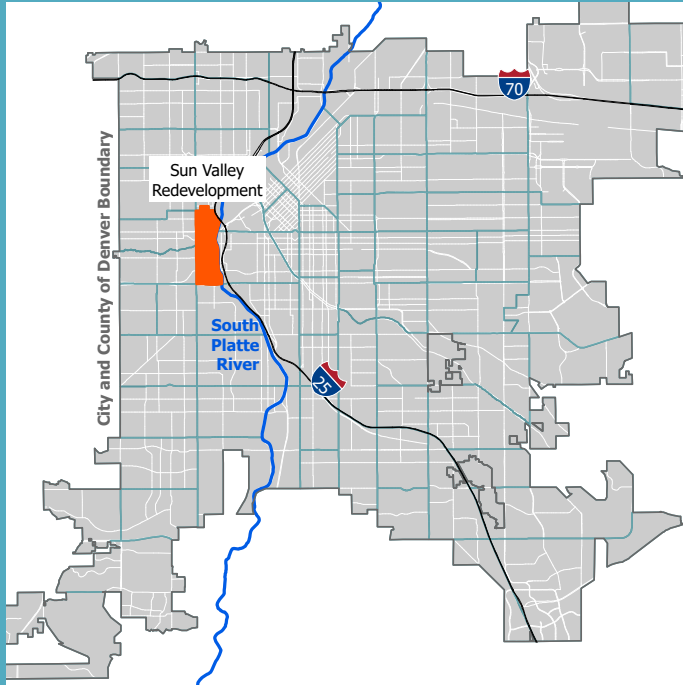
This bioretention water quality facility located at 21st and Broadway in downtown Denver removes pollutants from stormwater runoff before releasing the water to the storm sewer.



Water quality bioswale at the iconic Red Rocks Amphitheater

ONE WATER PROJECT SPOTLIGHT

SUN VALLEY ECODISTRICT



Sun Valley Redevelopment project location within Denver

POTENTIAL PROJECT PARTNERS:

City and County of Denver, Denver Housing Authority, Housing and Urban Development, Metro Wastewater Reclamation District, Sun Valley Eco District

PROJECT TYPE:

Water Efficiency/Reuse

LOCATION:

Central Denver

PROJECT SNAPSHOT:

Located just west of downtown Denver, Sun Valley is the lowest-income neighborhood in the City with 80% of residents living at or below the poverty level. The Denver Housing Authority and the City and County of Denver were awarded a \$30 million Choice Neighborhoods Implementation Grant to implement the Sun Valley Neighborhood Transformation Plan. The Sun Valley Redevelopment vision includes youth and education, food access, growth opportunities, intentional housing, connections to open space, and sustainable infrastructure.

BENEFITS AND ALIGNMENT WITH ONE WATER PLAN GOALS + STRATEGIES:

The Sun Valley Ecodistrict Redevelopment contains multiple One Water benefits including: the implementation of the Riverfront Park to promote renaturalization and reconnecting the neighborhood to the South Platte River; restoration of Weir Gulch to provide a healthy, safe stream corridor with access to the natural environment; and the Sun Valley Healthy Living Initiative will influence the overall design by considering how the built environment may best encourage healthy living opportunities within the neighborhood. The development will also include several green infrastructure initiatives such as detention and retention facilities. The site may also offer opportunities for sewer heat recovery.



Spotlight on Integrated Water Management:

Redevelopment of the Sun Valley neighborhood can be a showcase for integrated water management. By restoring the South Platte River waterfront and Weir Gulch, community access will be enhanced and flood protection can be improved. Redevelopment also provides opportunities to implement green infrastructure and use of alternate water supplies as part of a holistic approach to water management for the area.



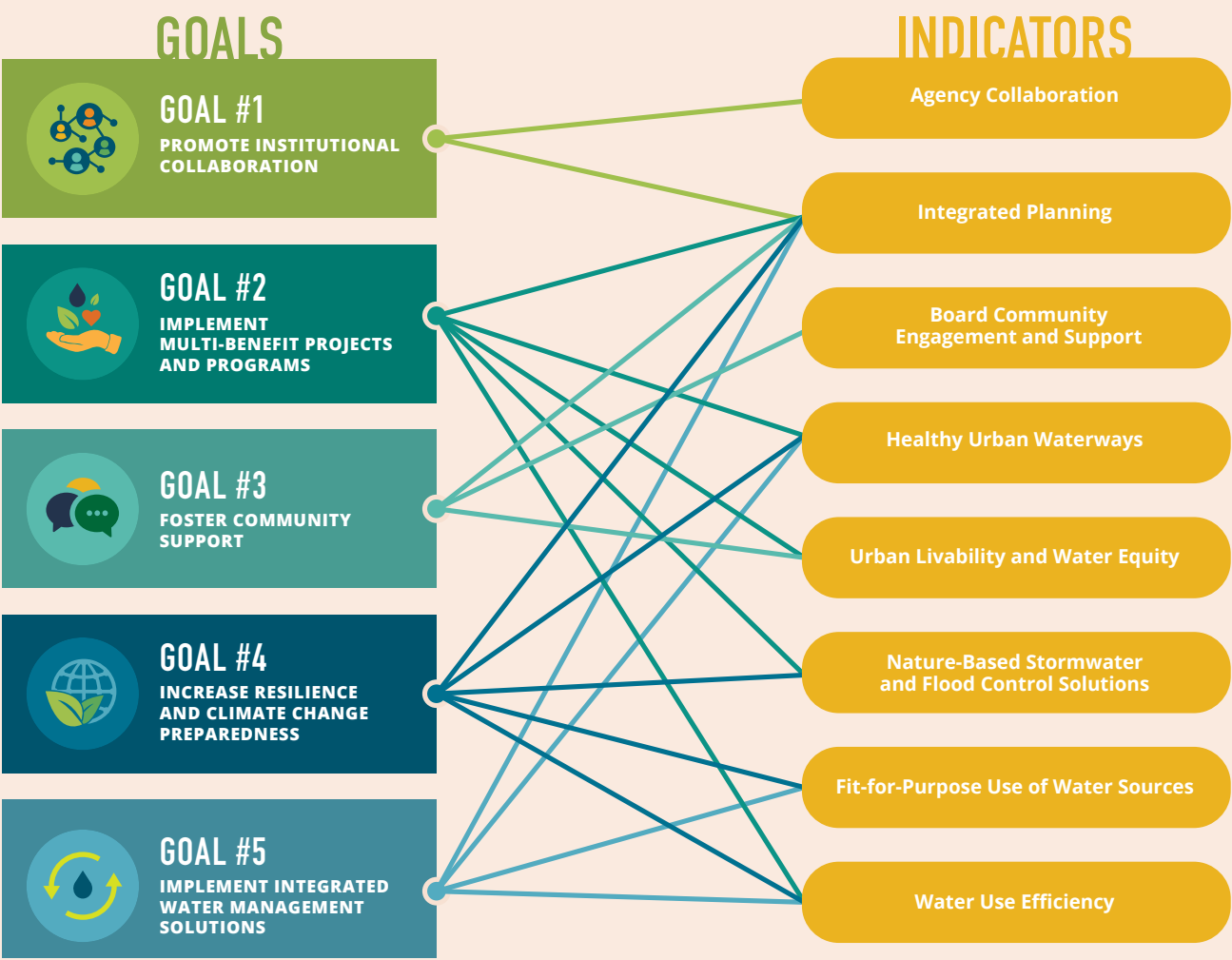
South Platte River restoration

Measuring Success



Measuring Success of the One Water Plan

The following indicators and associated metrics characterize and quantify the progress made toward achieving the One Water Plan goals. Each metric is quantifiable and easy to measure enabling the OWL Team to assess alignment with and measure progress toward the long term vision of this plan and one or more One Water Plan goals. As shown in the graphic below, the each metric is aligned with one of the following 8 indicators, which are also aligned with one or more One Water Plan goals:



The metrics developed in this plan are a starting point to measure progress toward achieving the One Water Plan goals. The OWL Team will collaboratively review and refine the metrics and identify the respective lead and supporting entities that will be responsible for tracking and updating the metrics over time. Progress toward achieving the One Water plan goals will be measured, updated, and shared with management of the entities who developed this plan and the broader community via the future Denver One Water website.

The following ten (10) metrics were identified by the Plan Partners and will be reviewed and refined by the OWL Team:

Indicator	Metric No.	Metric Description
AGENCY COLLABORATION	1	Increase the amount of mutually beneficial land use and water policies collaboratively reviewed, identified, developed or implemented.
INTEGRATED PLANNING	2	Increase the amount of public and private sector projects implemented using the One Water multi-benefit analysis framework.
BROAD COMMUNITY ENGAGEMENT AND SUPPORT	3	Increase the number of stakeholders and students who participate in collaborative One Water activities to enhance understanding of One Water goals and strategies.
HEALTHY URBAN WATERWAYS	4	Improve water quality to support recreation, aquatic life, and habitat, as measured by the Water Quality Index.
URBAN LIVABILITY AND WATER EQUITY	5	Increase number of households with access to acres of green space.
	6	Increase number of households with access to miles of blue space.
	7	Increase affordability of all water related services to reduce the number of Denver households below the Environmental Protection Agency (EPA) affordability index.
NATURE-BASED STORMWATER AND FLOOD CONTROL SOLUTIONS	8	Reduce number of impervious acres.
FIT-FOR-PURPOSE USE OF WATER SOURCES	9	Increase the amount of water reuse and number of onsite water systems in projects led by the City and County of Denver.
WATER USE EFFICIENCY	10	Reduce rolling average annual per-capita potable water use within Denver through implementation of the Denver Green Code.



Cherry Creek flows through areas of significant redevelopment as it approaches Confluence Park

Denver's One Water Future



Denver's One Water Future



Young Americans group enjoying a cookout along the South Platte River

**“IF YOU WANT TO GO FAST, GO ALONE.
IF YOU WANT TO GO FAR, GO TOGETHER.”**

- African proverb

One Water Vision

The One Water Plan provides a framework for implementing holistic and resilient water management and land use strategies through collaboration, multi-beneficial projects, and strong policies that promote healthy watersheds in an equitable, economically, and environmentally beneficial manner.

Creating a vision and setting a course for Denver's One Water future, the Plan Partners are proactively managing Denver's precious water resources and all aspects of the urban water cycle. By collaboratively developing this Plan and thinking differently about how to manage Denver's water resources, Denver and the community it serves will benefit for years to come.

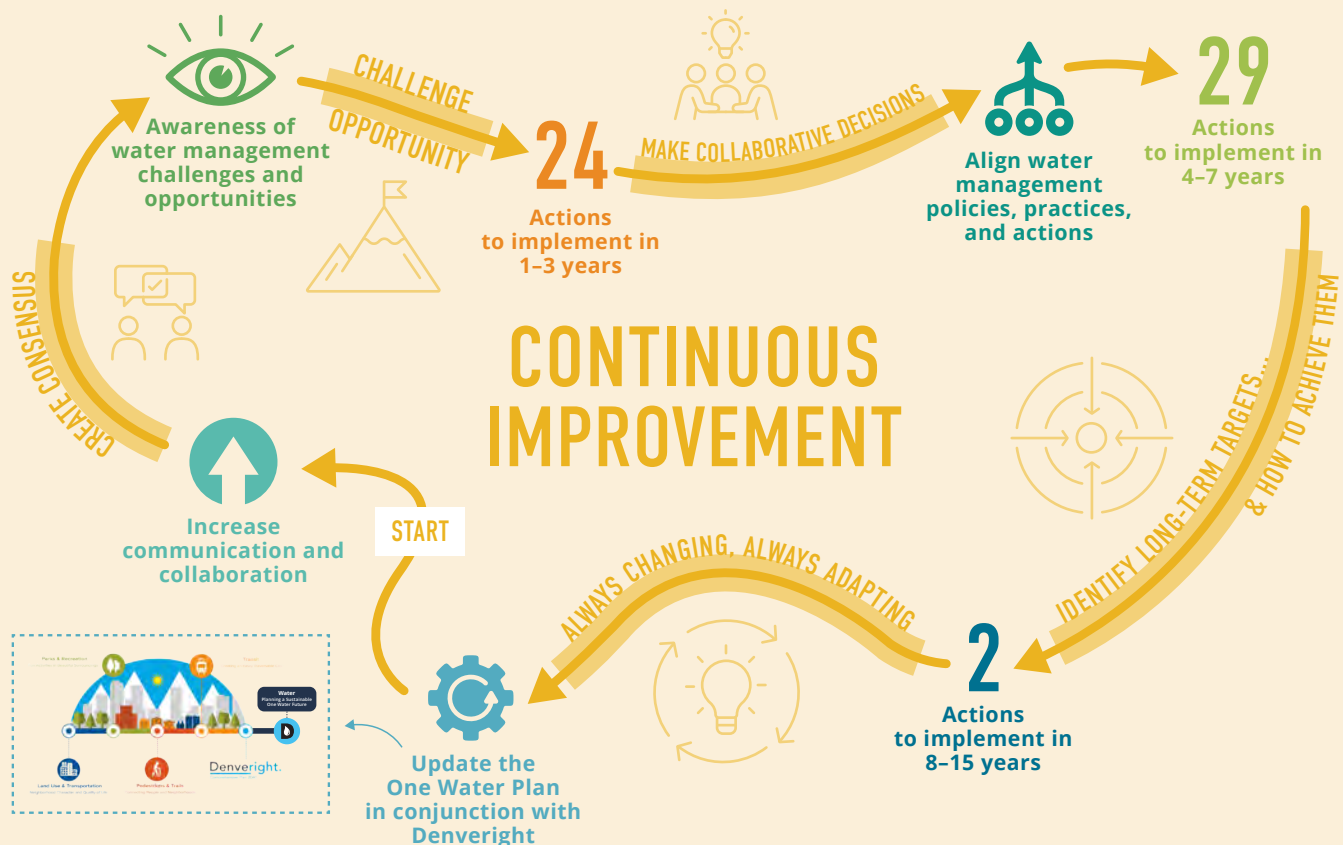
Denver already embraces the strong spirit of collaboration needed to advance the One Water Plan vision into a reality. Going forward, the Plan Partners will work together as members of the One Water Leaders

(OWL) Team to build upon that spirit and better integrate a holistic approach to manage the urban water cycle. The OWL Team is essential to implementing the One Water Plan. Their role encompasses the following:

- 1 Taking a leadership role to advance the One Water Plan strategies and implementation actions.
- 2 Reviewing and updating the metrics to assess progress toward the One Water Plan goals.
- 3 Tracking and supporting One Water Project Opportunities by facilitating continued collaboration and providing project sponsors with coordinated multi-agency support.

CONTINUOUS IMPROVEMENT

The One Water Plan provides a common platform for collaborating and integrating related water management efforts. City leaders, elected officials, staff, and the community should look to the One Water Plan as the guide for developing, implementing, and refining important water policies and decisions. This Plan can also be used to support planning at the local and regional level, in support of Denver's neighborhood planning processes and in support of regional partnerships with adjoining communities and entities that help manage our water environment across the Denver metro area. **The One Water Plan's vision, goals, and strategies will guide Denver to better manage water and land use to address existing and future challenges.**



Appendices

- A. Acknowledgments**
- B. Abbreviations and Glossary**
- C. References**
- D. One Water Project Opportunities –
Spotlight Projects Fact Sheets**
- E. One Water Plan Implementation Actions
sorted by Timeline**

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One Water Plan Partners consistently contributed time and insights to develop this Plan, including:

- City and County of Denver
 - David Jula (Department of Transportation and Infrastructure)
 - Kathleen LeVeque (Department of Parks & Recreation)
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- Colorado Water Conservation Board
 - Kevin Reidy
- The Greenway Foundation / The Water Connection
 - Devon Buckels

One Water Advisory Group members invited to participate included representatives from:

- American Council of Engineering Companies of Colorado
- Babbitt Center for Land & Water Policy
- Bluebird Business Improvement District
- Business for Water Stewardship
- Cherry Creek Stewardship Partners
- City and County of Denver
- Colorado Water Conservation Board
- Colorado Dept. of Public Health and Environment

- Colorado Dept. of Local Affairs
- Colorado Trout Unlimited
- Conservation Colorado
- Denver Office of Immigrant/Refugee Affairs, Agency for Community Partnerships
- Denver Water
- Downtown Denver Partnership
- Elyria-Swansea-Globeville Business Assoc.
- Foundation for Sustainable Urban Communities
- Metro Basin Roundtable
- Metro State University
- Metro Wastewater Reclamation District
- Mile High Flood District
- National Western Center
- Revesco Properties
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B. ABBREVIATIONS AND GLOSSARY

Abbreviations

CASR – City and County of Denver Office of Climate Action, Sustainability and Resiliency

CCD – City and County of Denver

CPD – City and County of Denver Department of Community Planning and Development

CWCB – Colorado Water Conservation Board

CDPHE – Colorado Department of Public Health and Environment

DDPHE – City and County of Denver Department of Public Health and Environment

DPR – City and County of Denver Department of Parks and Recreation

DOTI – City and County of Denver Department of Transportation and Infrastructure

DURA – Denver Urban Renewal Authority

DW – Denver Water

EPA – United States Environmental Protection Agency

GHG – Greenhouse gas

GI – Green Infrastructure

LID – Low Impact Development

MHFD – Mile High Flood District

MWRD – Metro Wastewater Reclamation District

MS4 – Municipal Separate Storm Sewer System

OWAG – One Water Advisory Group

OWP – One Water Plan

OWPO – One Water Project Opportunities

OWL – One Water Leaders

SMP – Stream Management Plan

TGF – The Greenway Foundation

TWC – The Water Connection

Glossary

BLUE SPACES In urban planning and design comprise areas dominated by surface water bodies or watercourses; can also refer to publicly-accessible land and trails located adjacent to these water bodies.

CLIMATE ADAPTATION Efforts to prepare for and adjust to the current and future impacts of climate change. Examples of climate adaptation include increasing energy efficiency to help offset increases in energy consumption due to extreme weather, ensuring the availability of cooling centers in the face of extreme heat events and upgrading stormwater infrastructure to better withstand extreme rainfall events. (Denver Climate Action Plan)

CLIMATE CHANGE Refers to any significant change in the measures of climate lasting for an extended period of time. Climate change includes major changes, occurring over several decades or longer, in temperature, precipitation or wind patterns. (Denver Climate Adaptation Plan)

CLIMATE MITIGATION Efforts to reduce or prevent greenhouse gas emissions. Examples of mitigation efforts can include increasing renewable energy use, upgrading and replacing equipment to more energy efficient models and informing consumer behavior to make sustainable decisions. Policy and infrastructure mitigation efforts range from increasing public transportation and bicycle pathways to enhancing natural carbon sinks (areas that accumulate and store carbon) such as trees. (Denver Climate Action Plan)

DRINKING WATER Water that meets established water quality regulatory standards for human consumption. Also referred to as “potable water.”

EQUITY When everyone, regardless of who they are or where they come from, has the opportunity to thrive (Colorado Department of Public Health). Equity in water management means providing equal and affordable access to drinking water and maintaining healthy watersheds throughout the community.

FLOOD An overflow of water onto lands that are used or usable by and not normally covered by water. Floods have two essential characteristics: The inundation of land is temporary; and the land is adjacent to and inundated by overflow from a river, creek, or lake.

GOALS As they pertain to One Water Plan, goals are broad, long-term aims that support the vision.

GRAYWATER Graywater includes wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks, dishwashers, or toilets.

GREEN INFRASTRUCTURE Public or private assets—including both natural and engineered facilities—that protect, support or mimic natural systems to provide stormwater management, water quality, reduced flooding risks, urban heat island effect mitigation, reduced energy demands, climate change resiliency and enhanced community livability. For the purposes of this plan, green infrastructure reflects a broad definition that includes trees, plants, parks, and greenways.

GREEN SPACES In urban planning and design comprises all areas of grass, trees, or other vegetation set apart for recreational, ecological, or aesthetic purposes in an otherwise urban environment.

GROUNDWATER Any water under the surface of the ground that is not surface water or groundwater under the direct influence of surface water.

IMPERVIOUS SURFACES Land surfaces that repel water and do not let rainwater infiltrate (soak into) the ground. This can include roads, sidewalks, driveways, and parking lots. These surfaces contribute to the “urban heat island” effect and can exasperate flooding because of rapid runoff.

INDICATORS Measuring progress relies on thoughtful and deliberate tracking of key parameters or characteristics (indicators) that represent elements of the metrics.

INFRASTRUCTURE Refers to the fundamental facilities and systems serving a country, city, or other area, including the services and facilities necessary for its economy to function. Examples of infrastructure include roads, sidewalks, water and sewer systems, power and telecommunications lines.

INSTITUTIONAL COLLABORATION Initiatives or arrangements between two or more organizations working to accomplish specific goals.

INTEGRATED WATER MANAGEMENT A method for looking ahead using environmental, engineering, social, financial, and economic considerations; includes using the same criteria to evaluate both supply and demand options while involving customers and other stakeholders in the process.

LAND USE Broad term encompassing all the different ways that humans use or develop land for economic, residential, recreational, and governmental purposes. The concept of land use is closely intertwined with human community development.

METRICS Metrics provide a snapshot of One Water Plan progress each year and are a way to measure if we are headed in the right direction to realize the One Water vision and accomplish the One Water goals. None of the metrics are effective on their own and none is intended to capture everything that is relevant for a particular indicator. Instead, taken collectively, the metrics provide a helpful framework for evaluating progress over time.

MULTI-BENEFIT Projects and programs that provide more than one public benefit or serve more than one purpose.

NATURAL ENVIRONMENT All living and non-living things that occur naturally in a particular region.

NEIGHBORHOOD PLANNING A type of small area planning that happens at the neighborhood level and achieves the following benefits:

- Engages the community in identifying a future vision for the area and then provides strategies and recommendations for achieving that vision.
- Provides detailed recommendations for land use and future investments to help ensure neighborhoods grow as envisioned by the plan.
- Provides a level of analysis, detail, and guidance on issues affecting local areas that citywide plans cannot.

ON-SITE WASTEWATER TREATMENT SYSTEM An absorption system of any size or flow, or a system or facility for treating, neutralizing, stabilizing, or dispersing wastewater generated in the vicinity, which system is not a part of or connected to a regional water reclamation facility.

ONE WATER An integrated planning and implementation approach to managing finite water resources for long-term resilience and reliability, meeting both community and ecosystem needs. (Water Research Foundation, Blueprint for One Water)

POTABLE WATER See “drinking water.”

RECLAIMED WATER Water sourced from impaired quality sources, including wastewater from domestic sources and brackish water, and treated to produce a water of suitable quality for the intended use.

RECYCLED WATER Treated wastewater that meets appropriate water quality requirements established by CDPHE and is reused for a specific purpose.

REGULATIONS Rules that derive their authority from legislation (laws) or municipal code and provide the specific ways in which those laws are interpreted and applied. Examples include the zoning code and rules and regulations adopted by city departments.

RESILIENCE The ability of a community to adapt to both internal and external social, economic and environmental challenges without adverse effect to its residents, essential functions and identity.

STAKEHOLDERS Individuals or organizations with an interest and/or ability to take action on a water-related issue.

STORMWATER When water from rain and snowmelt flows over land or impervious surfaces (like paved streets, parking lots, and building rooftops) and is not absorbed into the ground. As the stormwater runoff flows over the land or impervious surfaces, it may accumulate debris, chemicals, sediment or other pollutants.

STRATEGIES As they relate to this plan, the important actions that will help achieve the plan’s goals.

SURFACE WATER Any water source that is open to the atmosphere and subject to surface runoff. Groundwater found to be under the direct influence of surface water is classified as surface water.

SUSTAINABILITY The long-term social, economic and environmental health of a community. A sustainable city survives today without compromising the ability of future generations to meet their needs.

TRANS-BASIN WATER Water that is conveyed from one river basin to another to help meet the water supply needs of the receiving basin.

URBAN WATER CYCLE The water cycle in an urban environment; includes the consequences of increased development. More development and more impervious surface area typically reduces infiltration of rainwater into the soil and increases runoff.

VISION The backbone of the One Water Plan — a description of a desired future state. It knits together a set of long-term, integrated goals that provide a guide for the future.

WASTEWATER Refers to used water from homes and businesses in the community that is conveyed to an industrial or municipal water reclamation facility for treatment to standards suitable for discharge or beneficial reuse.

WATERSHED The area or region of land draining into a common outlet such as a river or body of water. Synonymous with river basin or drainage basin.

WATER CYCLE The circuit of water movement from the oceans to the atmosphere, to the Earth, and returning to the atmosphere through various stages or processes such as precipitation, interception, runoff, infiltration, percolation, storage, evaporation, and transpiration.

WATER QUALITY The degree to which water is clean and whether it is suitable for drinking, for making plants grow, for aquatic ecosystems, etc.

WATER RECYCLING OR WATER REUSE The process of treating wastewater for beneficial use, storing and distributing recycled water, and the actual use of recycled water.

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Apendix D

One Water Project Opportunities – Spotlight Projects Fact Sheets



ONE COMMUNITY.
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High Line Canal Stormwater Transformation

PROJECT SUMMARY | APRIL 2021

Project Snapshot: The 71-mile-long High Line Canal was constructed in 1883 to deliver irrigation water to a growing region. Today, the canal has outlived its original purpose and is now being embraced by the local jurisdictions along the canal as green stormwater infrastructure to convey stormwater and improve water quality. The City and County of Denver is collaborating closely with Denver Water, the owner of the canal, local government partners, Mile High Flood District and the High Line Canal Conservancy to repurpose and revitalize the canal as a green infrastructure corridor and a linear park connecting neighborhoods, people, and nature. The Plan for the High Line Canal (The Plan), completed in 2019 and endorsed by the City, lays out clear guidance for re-purposing the historic canal for green stormwater infrastructure, improving the health of people and the environment and increasing accessibility and enjoyment for generations to come.

Project Partners: The High Line Conservancy, City and County of Denver, Denver Water, Mile High Flood District, Local Jurisdictions

Project Type: Water Efficiency/Reuse/Green Stormwater Infrastructure

Potential One Water Plan Goals + Strategies

The Plan, developed through a collaborative process with key agency stakeholders and extensive community engagement, seeks to improve environmental quality, enhance human connection to nature, and support the canal's unique ecology. Denver Water estimates that 60-80% of water diverted into the canal for irrigation delivery is lost to seepage or evaporation, which necessitated a rethinking of the canal's functional role and initiated its transition to green stormwater infrastructure. This multi-benefit project will advance integrated One Water management strategies by fostering public support for green infrastructure, institutionalizing collaboration amongst jurisdictions, partners, and communities, enhancing environmental health and climate resiliency while serving as a natural refuge for both wildlife and the region's population.

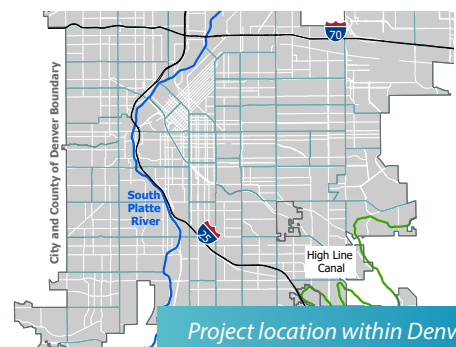


ELK Youth and Families Participate in a Program on the canal



SPOTLIGHT ON ENVIRONMENTAL EDUCATION

The High Line Canal has the potential to be an outdoor classroom, where community members, including youth, can connect with nature and learn about Colorado's natural environment. Working with local organizations such as Environmental Learning for Kids (ELK) and the Denver Botanic Gardens, the High Line Conservancy has piloted environmental education programs on the canal with great success. Environmental education programs with ELK have included after-school programs with students at South Middle School in Aurora, as well as a series of youth and families walks and bike rides, connecting diverse residents of Denver and Aurora to a variety of canal segments.



Project location within Denver



HOW DOES THE HIGH LINE CANAL PROJECT ALIGN WITH THE ONE WATER PLAN GOALS?

» Implements Multi-Benefit Projects and Programs

Create a framework with comprehensive criteria to identify and prioritize multi-benefit projects or water management strategies based on measures of social, environmental, and economic benefits and costs.

» Fosters Community Support

Enhance proactive public and private sector coordination with local stakeholders, including elected officials and the general public, to inform integrated planning and increase community awareness for sustainable water management.

Increase community awareness, support and advocacy for sustainable water use and the benefits of a One Water approach, including the interconnected nature of water cycle, by active engagement, public outreach, and education.

» Increases Resilience and Climate Change Preparedness

Implement projects on public and private sites to improve local water supply reliability by increasing water efficiency and expanding water reuse.

Develop and implement land use and water regulatory policies and programs that support sustainable and resilient water management practices.

» Implements Integrated Water Management Strategies

Integrate stormwater into the built environment in a socially, economically, and environmentally beneficial way by using low impact development/green infrastructure to improve water quality, reduce runoff, and mitigate the risk of urban regional flooding.

Preserve, restore, and maintain functional ecosystems emphasizing healthy waterways, stream networks, and lakes.

Project Background

The City, the High Line Canal Conservancy, Denver Water, Mile High Flood District and the local jurisdictions are working together to transform the canal into an inspiring model that demonstrates the multiple benefits of green infrastructure while accelerating One Water practices. These partners developed a stormwater feasibility study in 2014 and stormwater master plan in 2018 to guide this transition. These studies recommend installing water quality berms to manage the flow of water and improve water quality in addition to spillways and constructed overflows to mitigate localized flooding risks. Five stormwater pilot projects are currently underway transitioning 10 of the 62 miles of the canal that are eligible for stormwater management, including nearly two miles in southeast Denver from Hampden Avenue to I-25 along Wellshire Golf Course and Eisenhower Park. The Denver stormwater demonstration project, which began construction in March 2021, includes the installation of three water quality berms to manage water flow, four forebays to clean water before it reaches the canal and two underground water quality vaults to prevent trash and debris from entering the channel.

BY THE NUMBERS

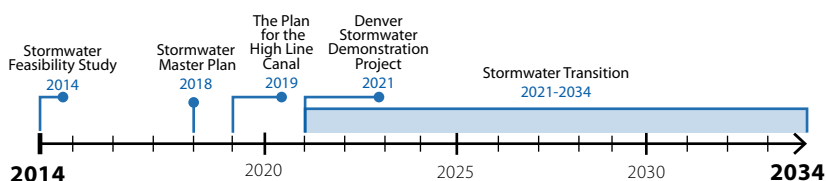
62 MILES
eligible for
stormwater
management

850 ACRES
of open space compared
to City Park's 320 acres

5K RESIDENTS
participated in the
planning process

11 JURISDICTIONS
from Douglas County to Aurora

Anticipated Implementation Timeline



DENVER ONE WATER ELEMENTS



Stormwater



Reused and
Recycled Water



Green
Infrastructure



Collaboration

For further information, please contact:

Email: OneWater@DenverGov.org

Online: denvergov.org/content/denvergov/en/transportation-infrastructure/programs-services/one-water.html

Sources: <https://highlinecanal.org/>



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National Western Center Campus

PROJECT SUMMARY | APRIL 2021

Project Snapshot: The National Western Center (NWC) Campus is a project led by the City and County of Denver (CCD) and the National Western Authority, and it involves other project partners listed below. As one of the largest infill redevelopments in the country and with ½ mile frontage on the South Platte River, NWC offers potential to demonstrate new and innovative One Water practices, including educational programming at the new Colorado State University Spur Hydro that is planned on site. It could be a model recognized regionally and nationally.

Project Partners: National Western Center Authority, Colorado State University Spur at the National Western Center, Western Stock Show Association, Denver Museum of Nature and Science, History Colorado Metro Wastewater Reclamation District, City and County of Denver, Denver Water, The Greenway Foundation / The Water Connection, and EAS Energy Partners

Project Type: Land Use/Development, Redevelopment

Potential One Water Plan Goals + Strategies

The NWC Campus engages a broad spectrum of stakeholders from local project partners, to farmers and ranchers around the globe, as well as K-12 students, local businesses, and residents from surrounding communities. The project recognizes that water has value as it involves reused and recycled water in addition to the creation of a new Hydro building to promote future water related research. Additionally, restoration of the South Platte Riverfront will improve land and water health, opening up opportunities for recreation and environmental education. Furthermore, the campus will source nearly 90 percent of its heating and cooling from an underground sewer pipeline to link energy efficiency to stormwater.

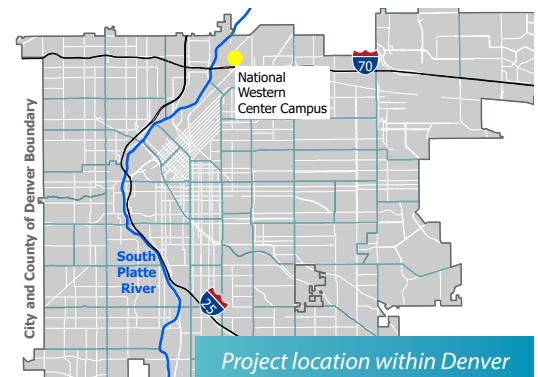


RIVERFRONT SPOTLIGHT

The South Platte River runs along the west edge of the future National Western Center (NWC). For generations, the river's edge was inaccessible from the site. Now, this section of river is on its way to becoming a community amenity and a destination for recreation, education and gatherings. It's a space for planned and impromptu activities — from live music in a 250-person open-air amphitheater and citizen science projects to quiet walks and bike rides. Several colorful public art pieces will help bring the area to life. For the first time, the NWC site will connect to the neighborhood and nearby parks, via two new river bridges and the regional trail system.



Rendering of future NWC facilities (source: NationalWesternCenter.com)



Project location within Denver



HOW DOES THE NWC CAMPUS PROJECT ALIGN WITH THE ONE WATER PLAN GOALS?

» **Promote Institutional Collaboration**

Strengthens and institutionalizes connections between land use and water planning entities to reconcile policies and management strategies and collaborate on mutually beneficial policies, starting early in a project's life cycle and including all departments that are relevant, (e.g., public works, engineering).

» **Implement Multi-Benefit Projects and Programs**

Creates a framework with comprehensive criteria to identify and prioritize multi-benefit projects or water management strategies based on measures of social, environmental, and economic benefits and costs.

» **Fosters Community Support**

Increases community awareness, support and advocacy for sustainable water use and the benefits of a One Water approach, including the interconnected nature of water cycle, by active engagement, public outreach, and education.

» **Implements Integrated Water Management Strategies**

Integrates water aspects of CCD's Green Infrastructure Implementation Strategy, Denver Living Streets, Water Quality Management Plan, and Storm Drainage Master Plan.

Integrates stormwater into the built environment in a socially, economically, and environmentally beneficial way by using low Impact development/green infrastructure to improve water quality, reduce runoff, and mitigate the risk of urban regional flooding.

Project Background

The NWC Campus project began construction in 2018 and is scheduled to be completed in 2024. It includes the construction of a new Stockyards Event Center, an Equestrian Center, a Livestock Center, and restoration of the South Platte Riverfront. The goals of the project are to honor and celebrate the spirit of the West, while also promoting research and progress in agriculture for the next 100 years. The revolutionary campus will provide a broad focus on entertainment, food, animal health and performance, water, energy, agriculture, rodeo, livestock, equestrian, and sustainability and the environment (NationalWesternCenter.com)

BY THE NUMBERS

6 AREA
STAKEHOLDERS

fostering collaboration between
six area stakeholders

92% REDUCTION
in water use over
traditional development

2,600 METRIC
TONS

of CO₂ saved each year via
sewer heat recovery system

1 million
visitors per year from all walks of life



Photo Credit: City and County of Denver

DENVER ONE WATER ELEMENTS



Stormwater



**Reused and
Recycled Water**



**Green
Infrastructure**



**Heat
Recovery**



Collaboration

For further information, please contact:

Email: OneWater@DenverGov.org

Online: denvergov.org/content/denvergov/en/transportation-infrastructure/programs-services/one-water.html



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South Platte River Needs Assessment

PROJECT SUMMARY | APRIL 2021

Project Snapshot: The South Platte River Corridor Needs Assessment and Recommendations (River Needs Assessment) is a planning process for determining and addressing gaps and opportunities between current conditions and desired conditions as envisioned by River North and River South Greenway Masterplans and the South Platte River Urban Waterways Study. The discrepancy between the current and desired conditions shall be measured to appropriately identify needs and opportunities. These guiding documents aim to place priority on a healthy South Platte River, on quality human experiences within the river corridor, and on mobility strategies that create better community connections and access to the South Platte River.

Potential Project Partners: City and County of Denver, Mile High Flood District, The Greenway Foundation / The Water Connection, Denver Trout Unlimited, Colorado Water Conservation Board, and Metro Wastewater Reclamation District

Project Type: Healthy Watersheds

Potential One Water Plan Goals + Strategies

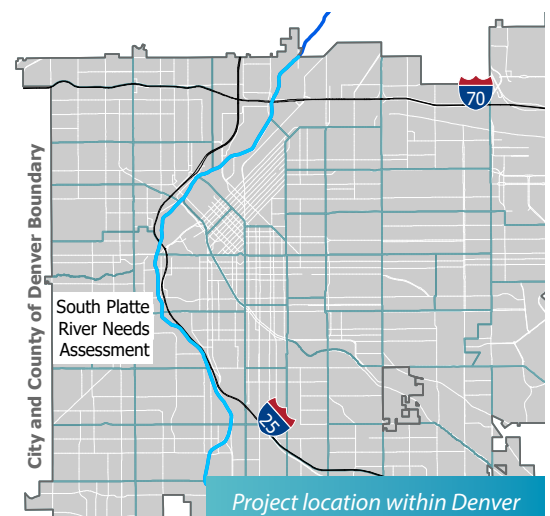
The intent of this assessment is to provide an overview for the following:

- **River Health** - The physical condition of the South Platte River with an emphasis on understanding natural systems and characteristics of the river (hydrology, hydraulics, geomorphology, vegetation) that encourage stability and resilience.
- **Quality Human Experiences** - The suitability of the river corridor for accommodating equitable, thriving, and appropriate spaces for people with an emphasis on providing equitable level of services, developing consistent river identity, and understanding adjacent land-uses, recreation, buffers, and quality of life indicators.
- **Connected Mobility** - Enhanced access and mobility that helps connect people to the river and improve links to the greater City with an emphasis on providing safe connections and access for people to nature and the river while promoting river-oriented enhancements and services.



SPOTLIGHT ON SEDIMENT TRANSPORT MODEL

Studying the movement of sediment along the South Platte River to identify areas of erosion and deposition is vital to understanding how potential projects will influence sediment transport. To improve our understanding of erosion and sedimentation along the River, the City and County of Denver, MHFD, and their consultant team are developing a numeric model to simulate sediment transport. It is rare to have a comprehensive model developed for 11 miles of river through an urban area. This tool will aid future projects in utilizing a more holistic approach to stream management and will allow for more successful maintenance and restoration along the South Platte.





HOW DOES THE SOUTH PLATTE RIVER NEEDS ASSESSMENT PROJECT ALIGN WITH THE ONE WATER PLAN GOALS?

» Promotes Institutional Collaboration

Strengthen and institutionalize connections between land use and water planning entities to reconcile policies and management strategies and collaborate on mutually beneficial policies, starting early in a project's life cycle and including all departments that are relevant, (e.g., public works, engineering).

» Implements Multi-Benefit Projects and Programs

Identify and implement projects that present opportunities for inter-agency (multi-benefit) collaboration.

» Fosters Community Support

Increase community awareness, support and advocacy for sustainable water use and the benefits of a One Water approach, including the interconnected nature of water cycle, by active engagement, public outreach, and education.

» Implements Integrated Water Management Strategies

Preserve, restore, and maintain functional ecosystems emphasizing healthy waterways, stream networks, and lakes.

Provide room along waterway corridors for restoration and multi-modal (non-motorized) purposes.

Strengthen requirements for water-conserving and climate-resilient landscaping for both privately and publicly owned land.

Project Background

Mile High Flood District, City and County of Denver, The Greenway Foundation / The Water Connection, Denver Trout Unlimited, and the other project sponsors have worked collaboratively planning, designing, and implementing projects along the South Platte River. Collectively, they have enhanced and restored sections of the River to mimic natural stream processes while enhancing recreation and open space amenities for the Denver community. The River Needs Assessment will be another great partnership to continue this vital work. The River Needs Assessment will develop and prioritize project plans to restore and protect the entire 11 miles of the South Platte River within Denver County. Developing a needs assessment complements the objectives of the previous planning efforts to restore and protect water, land, and natural resources while integrating a multi-objective approach to enhance recreational and community connections along the South Platte River.

BY THE NUMBERS

22

riverside parks

2,700+ TREES

within the river corridor

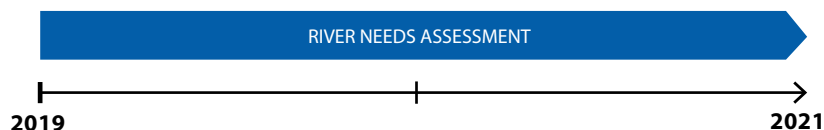
13 MILES

of trail along the river

14

pedestrian bridge crossings

Anticipated Implementation Timeline



DENVER ONE WATER ELEMENTS



Stormwater



Green Infrastructure



Collaboration



Community Connections



Mobility

For further information, please contact:

Email: OneWater@DenverGov.org

Online: denvergov.org/content/denvergov/en/transportation-infrastructure/programs-services/one-water.html



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Sun Valley

BOAT LAUNCH
+ CONFLUENCE
NATURE PLAY AREA

PHASE 1

SOUTH PLATTE RIVER

PROJECT SUMMARY | APRIL 2021

Project Snapshot: The Denver Housing Authority and the City and County of Denver were awarded a \$30 million FY2016 Choice Neighborhoods Implementation Grant for the Sun Valley neighborhood. Located just west of downtown Denver, Sun Valley is the lowest-income neighborhood in the city, and the Sun Valley Homes and Sun Valley Annex public housing developments are among the housing authority's most distressed and isolated sites. Despite these challenges, Sun Valley holds incredible potential, with a new light rail station and significant planned private and public investments. Several GROW Priorities helped shape the vision of the Sun Valley Redevelopment including youth and education, food access, growth opportunities, intentional housing, connections to open space, and sustainable infrastructure. These priorities, in conjunction with the Healthy Living Design Guidelines, will help transform the neighborhood and community.

Project Partners: City and County of Denver, Denver Housing Authority, Housing and Urban Development, Metro Wastewater Reclamation District, and Sun Valley Eco District

Project Type: Water Efficiency/Reuse

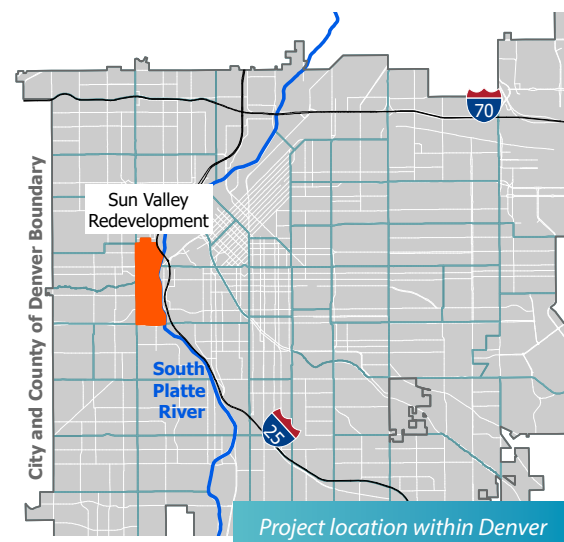
Sun Valley One Water Plan Goals + Strategies

The Sun Valley Ecodistrict Redevelopment contains multiple elements that parallel One Water opportunities and strategies. For example, the implementation of the Riverfront Park will help promote renaturalization and reconnecting the people to their lifeblood – the South Platte River. Additionally, restoration of Weir Gulch will provide a healthy, safe stream corridor with access to the natural environment. In addition, the Sun Valley Healthy Living Initiative will influence the overall design by considering how the built environment may best encourage healthy living opportunities within the neighborhood. The development will also include several green infrastructure initiatives such as detention and retention facilities. The redevelopment process has fostered community support through several meetings with a Community Advisory Committee, which is composed of community leaders, business owners, residents, and members of the planning and development team in the Sun Valley Neighborhood.



SPOTLIGHT: RIVERFRONT PARK

Flowing along the eastern side of the Sun Valley Redevelopment, the South Platte River provides an excellent opportunity to reconnect the community to its major waterway. Community input and a River Sisters partnership help determined the future amenities within the park. The designs for the park celebrate the cultures of the surrounding community and include a circular plaza to honor the First Nations. Other exciting amenities include an event lawn, an ethnobotanical garden, a tranquility garden, a boat launch, and a nature play area to be enjoyed by Denverites of all walks of life.



Project location within Denver



HOW DOES THE SUN VALLEY PROJECT ALIGN WITH THE ONE WATER PLAN GOALS?

» Promotes Institutional Collaboration

Engage elected officials and governing boards to support coordination and cooperation to promote integrated management of water resources and policies.

» Implements Multi-Benefit Projects and Programs

Create a framework with comprehensive criteria to identify and prioritize multi-benefit projects or water management strategies based on measures of social, environmental, and economic benefits and costs.

» Fosters Community Support

Identify and collaboratively pursue private, local, state and federal funding opportunities to implement multi-benefit projects that equitably add value for rate payers.

» Increases Resilience and Climate Change Preparedness

Implement projects on public and private sites to improve local water supply reliability by increasing water efficiency and expanding water reuse.

» Implements Integrated Water Management Strategies

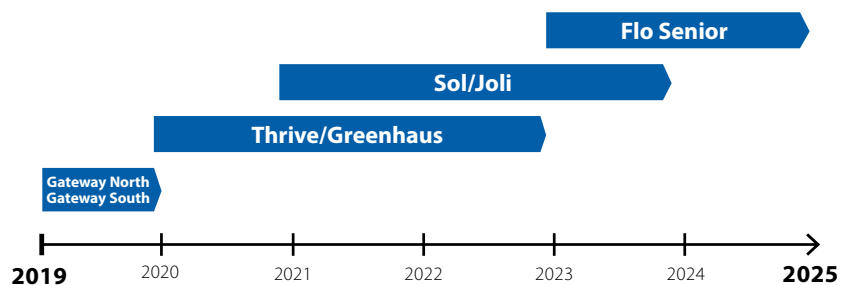
Integrate stormwater into the built environment in a socially, economically, and environmentally beneficial way by using low Impact development/green infrastructure to improve water quality, reduce runoff, and mitigate the risk of urban regional flooding.

Encourage and facilitate increased use of recycled water to meet non-potable and/or environmental water demands.

Project Background

Sun Valley, one of Denver's formally recognized neighborhoods is bound by Colfax Avenue and the Broncos Stadium on the north, Federal Boulevard on the west, 6th Avenue and the light industrial district on the south, and the South Platte River on the east. Currently, the disconnected street grid and concentrated poverty isolate Sun Valley from economic opportunity and area amenities, creating one of the lowest income neighborhoods in Denver with 80% of residents living at or below the poverty level. In 2016, Denver Housing Authority (DHA) was awarded a \$30 million Choice Neighborhood Initiative (CNI) Implementation Grant from HUD for the Sun Valley Eco District (SVED) and DHA to implement the Sun Valley Neighborhood Transformation Plan. The resulting development plan includes the replacement of 333 obsolete public housing units with newly constructed, energy efficient developments on and off-site throughout the neighborhood. In total, the Plan will create over 800 mixed-income units in four phases.

Anticipated Implementation Timeline



DENVER ONE WATER ELEMENTS



Stormwater



Green Infrastructure



Collaboration



Reused and Recycled Water



Heat Recovery

For further information, please contact:

Email: OneWater@DenverGov.org

Online: denvergov.org/content/denvergov/en/transportation-infrastructure/programs-services/one-water.html



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Appendix E

One Water Plan Implementation Actions sorted by Timeline

The Implementation Actions associated with each One Water Plan Goal are replicated in this section and sorted by implementation phase. As a result, the Implementation Actions are not all listed in sequential order.

Strategy	Implementation Actions
SHORT-TERM (1-3 YEARS)	
<p>1.1 Strengthen communication, coordination, and collaboration within and between the City and County of Denver, Mile High Flood District, Denver Water, Metro Wastewater Reclamation District, and The Water Connection to employ and implement integrated water management processes and to better understand each entity's regulatory and policy dynamics.</p>	<p>A. One Water Leader (OWL) work group should have a broad mandate relative to strengthening communication and coordination, and bring regulations into alignment with respect to One Water Goals and related policies.</p> <p>B. Schedule an annual or biannual meeting for management representatives from each of these organizations and the OWL to meet and collaborate on ongoing projects, policy developments, and other initiatives to achieve One Water goals.</p>
<p>1.2 Strengthen and institutionalize connections between land use and water planning entities to reconcile policies and management strategies and collaborate on mutually beneficial policies, starting early in a project's life cycle and including all relevant agencies and departments.</p>	<p>A. Integrate land use and water management discussions into development planning and capital master planning processes related to new projects, programs, and policies.</p> <p>B. Identify, develop, and implement mutually beneficial policies of land use and water planning through collaboration of relevant departments and OWL entities.</p> <p>C. Compare management strategies between entities and integrate water and land use strategies into internal processes and the project life cycle.</p>
<p>2.2 Create a framework with comprehensive criteria to identify and prioritize multi-benefit projects or water management strategies based on measures of social, environmental, and economic benefits and costs.</p>	<p>A. Develop a framework for an evaluation and prioritization process that assigns an overall score or multi-benefit profile for OWPOs. Consider social, environmental, and economic benefits and costs in the evaluation process.</p>
<p>3.2 Increase community awareness, support and advocacy for sustainable water use, water quality improvement, and the benefits of a One Water approach, including the interconnected nature of the water cycle, by active engagement, public outreach, education, and multi-media marketing campaigns.</p>	<p>A. Improve public relations, education, and storytelling about ongoing and future water projects and increase opportunities for individual action and advocacy.</p> <p>B. Involve neighborhood organizations and initiatives in the One Water project identification and design process.</p>
<p>3.3 Identify and collaboratively pursue private, local, state and federal funding opportunities to implement multi-benefit projects that equitably add value for Denver's citizens.</p>	<p>C. Prioritize programs and funding opportunities that implement multi-benefit projects that maximize community benefits and priorities, especially in neighborhoods that score low in Denver's equity metrics.</p>

Strategy

Implementation Actions

SHORT-TERM (1-3 YEARS)

4.3 Develop and implement land use and water regulatory policies and programs that support sustainable and resilient water management practices.

A. Coordinate with CCD Water Management Plan to combine the One Water Plan policies matrix with their efforts: “Identification and review of regulations and existing Denver planning documents affecting or interfacing with stormwater quality management strategies in Denver.”

B. Update rules and recommendations to encourage and require use of sustainable and resilient water management strategies and reuse in development.

D. Identify the cause of primary sources of harmful runoff and create strategies to eliminate those sources of runoff and their negative impacts on the watershed, in conjunction with the Municipal Separate Storm Sewer System (MS4) permit policies.

5.1 Integrate water aspects of City and County of Denver’s Green Infrastructure Implementation Strategy, Denver Living Streets, Water Quality Management Plan, and Storm Drainage Master Plan.

C. Use DOTI pilot projects as an opportunity to test new requirements and innovative water treatment and conservation strategies as established in the plans noted in Strategy 5.1.

D. Inventory and characterize CCD staff roles and responsibilities related to water management; align skill sets to reflect water management functions.

5.2 Integrate stormwater into the built environment in a socially, economically, and environmentally beneficial way by using low impact development/green infrastructure to improve water quality, reduce runoff, and mitigate the risk of urban regional flooding.

A. Involve OWL members and other water-related entities in efforts to update urban design standards to provide clearer guidance for implementing green infrastructure (Ultra-Urban Green Infrastructure Guidelines, Storm Drainage Criteria Manual, and others).

5.3 Preserve, restore, and maintain functional ecosystems emphasizing healthy waterways, stream networks, and lakes.

A. OWL members should work together to develop and implement enforceable policies to realize existing recommendations in *Denver’s Comprehensive Plan 2040 (“Denverright”)* and other previous Denver plans for the preservation and restoration of riparian corridors.

Strategy	Implementation Actions
SHORT-TERM (1-3 YEARS)	
5.5 Provide room along waterway corridors for restoration and multi-modal (non-motorized) purposes.	A. Update zoning to include regulatory policies developed by OWL to protect and/or create room along waterway corridors for flood mitigation, environmental, mobility, and recreational benefits.
5.6 Provide education and consider incentives and/or requirements for water-conserving and climate-resilient landscaping for both privately and publicly owned land.	A. OWL should create or update requirements that increase water conservation and identify strategies for resilient landscaping, including requiring developers to create a water conservation plan.
	B. Update water use and landscaping standards for new public and private development every 5 years.
5.7 Establish consistent benchmarks among One Water Plan partners to measure progress towards implementation of One Water principles.	B. OWL members shall annually review the benchmarks and metrics used to measure progress toward achieving One Water goals, and revise as needed.
5.8 Partner with other stakeholders to assess the potential for potable reuse and other alternative water supplies.	A. Assess the potential for potable reuse and other alternative water supplies.
5.9 Encourage and facilitate use of recycled water to meet non-potable and/or environmental water demands as reusable supplies allow.	A. Periodically evaluate recycled water expansion opportunities.
	B. Educate developers and encourage the use of recycled water for developments adjacent to existing recycled water infrastructure.
5.10 Develop uniform policies across agencies to enhance or restore the natural water cycle in projects, programs, and policies that involve state, regional, and local water systems.	A. OWL members, the State Legislature's Interim Water Resources Review Committee, and other water-related entities should meet to discuss existing policy for restoring the natural water cycle and to establish uniform policy language.

Strategy

Implementation Actions

MID-TERM (4–7 YEARS)

1.2 Strengthen and institutionalize connections between land use and water planning entities to reconcile policies and management strategies and collaborate on mutually beneficial policies, starting early in a project's life cycle and including all relevant agencies and departments.

D. Identify State and local regulatory barriers to implementation of One Water strategies. Where appropriate, work with regulators and stakeholders to update existing regulatory and legislative framework with language that is more supportive of One Water implementation.

1.3 Engage elected officials and governing boards to support coordination and cooperation to promote integrated management of water resources and policies.

A. Provide a briefing of the One Water Plan to newly elected or appointed City and County of Denver officials, and a separate briefing for City agencies and OWL members' governing entities. Schedule refresher briefings on an annual basis.

B. Arrange for representative(s) of the OWL to present to the State Legislature's Interim Water Resources Review Committee for the state at least once a year.

C. The OWL work group should serve as the liaison of information about upcoming projects, initiatives, and water-related goals and management strategies for organizations and committees at the neighborhood level.

2.1 Identify and implement projects that present opportunities for inter-agency (multi-benefit) collaboration.

A. Continuously update and track the One Water Project Opportunities (OWPO) list. Incorporate OWPOs into capital project process and identification. Starting early in the project life cycle, conduct regularly scheduled meetings (including OWL, the project sponsor, and other related entities involved in the project) to monitor how One Water goals will be implemented.

B. Establish requirements that master planning of capital expenditures for all new City buildings and infrastructure repairs must include a One Water aspect to project planning and implementation.

2.2 Create a framework with comprehensive criteria to identify and prioritize multi-benefit projects or water management strategies based on measures of social, environmental, and economic benefits and costs.

B. Update development regulations to create a definitive path forward for developers to implement enhanced water conservation, water reuse, flood mitigation, ecosystem restoration, water quality, greenhouse gas (GHG) emissions reduction, and energy recovery plans into their projects.

Strategy	Implementation Actions
MID-TERM (4–7 YEARS)	
<p>2.3 Consider the water-energy nexus when evaluating new development and land use plans to maximize funding opportunities.</p>	<p>A. OWL should track external funding opportunities related to water management for public and private projects, and prioritize the funding of programs that consider the water-energy nexus.</p> <hr/> <p>B. Coordinate One Water efforts with the in-progress Denver Urban Renewal Authority (DURA) Strategic Plan. Establish funding criteria for DURA projects and incorporate the water-energy nexus and One Water goals into these criteria.</p>
<p>2.4 Strengthen land-water-food-energy nexus by linking urban water management more closely to urban agriculture for increased food security, community benefits, and environmental health.</p>	<p>A. Identify opportunities where regulatory updates can be made to allow more urban agriculture (urban gardens, plant nurseries, etc.), improve existing agricultural systems and management practices, and streamline the permit process.</p> <hr/> <p>B. Work with CPD to incorporate the One Water Plan into ongoing urban agriculture planning efforts. Collaborate with Colorado State University about their research and efforts related to water resources, water management, and urban agriculture.</p> <hr/> <p>C. Establish policies and regulations that create a path forward for developers to take advantage of the food security goals established by the <i>2017 Denver Food Plan</i> and <i>Denver’s Comprehensive Plan 2040</i> (“<i>Denverright</i>”).</p>
<p>3.1 Enhance proactive public and private sector coordination with local stakeholders, including elected officials and the general public, to inform integrated planning and increase community awareness for sustainable water management.</p>	<p>A. Establish mechanisms for ongoing stakeholder communication (website, annual updates, briefing document, etc.), facilitated by the OWL.</p>
<p>3.2 Increase community awareness, support and advocacy for sustainable water use, water quality improvement, and the benefits of a One Water approach, including the interconnected nature of the water cycle, by active engagement, public outreach, education, and multi-media marketing campaigns.</p>	<p>C. Enhance marketing for Denver Water’s “The Green Team”. Develop a social media presence and more public-facing educational elements and activities to tell the story of Denver’s water.</p> <hr/> <p>D. Integrate storytelling into elements such as public art installations about Denver’s water into large projects such as the National Western Center, and existing public spaces like parks and plazas.</p>

Strategy	Implementation Actions
MID-TERM (4–7 YEARS)	
3.3 Identify and collaboratively pursue private, local, state and federal funding opportunities to implement multi-benefit projects that equitably add value for Denver’s citizens.	<p>A. Consider requirements and/or incentives for developers to achieve enhanced water conservation measures, water reuse, ecosystem restoration, water quality improvements, energy recovery, and/or GHG emission reduction plans in their projects.</p> <p>B. Equitably distribute funding for projects and programs across all of Denver.</p>
4.1 Increase resilience by planning and coordinating climate action strategies in all water management efforts.	A. Pursue capital improvement projects that incorporate or achieve climate change mitigation and adaptation strategies (e.g., <i>Sustainability Action Plans</i> , <i>2018 Goals of Denver 80x50 Climate Action Plan</i> , and <i>2014 Climate Action Plan</i>).
4.2 Explore financial incentives to increase climate action, including adaptation and resilience initiatives.	A. OWL group should work with the Denver Office of Climate Action, Sustainability and Resiliency to identify existing financial incentives, and establish new funding streams/incentives/credits for climate mitigation, adaptation, and resilience strategies that are applicable to water projects.
4.3 Develop and implement land use and water regulatory policies and programs that support sustainable and resilient water management practices.	C. Implement regulatory policies that promote water use efficiencies and good water management strategies.
4.4 Implement projects on public and private sites to improve local water supply reliability by increasing water efficiency and encouraging water reuse.	<p>A. Implement water efficiency and consider expanding water reuse projects on public and private sites to improve local water supply reliability.</p> <p>B. Align implementation efforts with Denver Parks & Recreation Water Management Plan’s recommendations on increasing water efficiency and reuse.</p>
5.1 Integrate water aspects of City and County of Denver’s Green Infrastructure Implementation Strategy, Denver Living Streets, Water Quality Management Plan, and Storm Drainage Master Plan.	<p>A. DOTI to prepare an umbrella document, plan, or tool that combines and aligns recommendations of plans noted in Strategy 5.1.</p> <p>B. Encourage developers to install utilities to accommodate recycled water or graywater use that is also aligned with goals of DOTI’s plans (see 5.1A).</p>



Strategy	Implementation Actions
MID-TERM (4–7 YEARS)	
5.2 Integrate stormwater into the built environment in a socially, economically, and environmentally beneficial way by using low impact development/green infrastructure to improve water quality, reduce runoff, and mitigate the risk of urban regional flooding.	B. Develop incentives to promote use of Low-Impact Developments (LIDs) and Green Infrastructure (GI) for stormwater management rather than gray infrastructure.
5.4 Implement integrated watershed, stream management, water supply, and water management practices in land use planning, zoning codes, and agency operations.	A. Develop comprehensive watershed plans (including stream management plans addressing flow and water quality) for the South Platte River and its tributaries through Denver that are updated every 10 years.
	B. Research what other cities have done to improve water management practices in land use planning and zoning. Implement these improvements into the planning and development process.
	C. Coordinate with Mile High Flood District’s urban stream assessment procedure that focuses on the physical condition of the urban watersheds including indicators and metrics for hydrology, hydraulics, geomorphology, and vegetation to recognize the importance of watersheds physical condition, chemical and biological condition.
5.7 Establish consistent benchmarks among One Water Plan partners to measure progress towards implementation of One Water principles.	A. OWL should measure the success of current and ongoing One Water projects, and provide an annual report. OWL members shall participate in data gathering and reporting as outlined in the One Water Monitoring Plan.

Strategy	Implementation Actions
LONG-TERM (8-15 YEARS)	
3.1 Enhance proactive public and private sector coordination with local stakeholders, including elected officials and the general public, to inform integrated planning and increase community awareness for sustainable water management.	B. OWL to establish targets of frequency and/or type of stakeholder engagement opportunities for elected officials, local stakeholders, and general public.
4.1 Increase resilience by planning and coordinating climate action strategies in all water management efforts.	B. Continue to learn from, collaborate with, and implement best practices from other cities that are combating climate change through water management strategies.



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