Adventure

ON THE HIGH LINE CANAL

Charting our Course for the Next Century

Chapter 1

Our Journey Begins

Welcome! The High Line Canal Conservancy is leading a broad and inclusive community conversation about the future of the well-loved High Line Canal. Today, we collectively take the first step in the creation of this vision - a forward-looking story of what the Canal can be in the future.

The resulting Vision Plan will ensure the canal reaches its greatest potential as an economic, environmental, recreational, and social asset along not just some, but all of its 71 miles.

What is a "Vision Plan"?

The Vision Plan is the Story of the Canal's next 100 years.

For more than a century, the High Line Canal has served a number of purposes - a water delivery infrastructure, a unique ecosystem and, recently, a recreational asset.

But what does the next century hold in store for the High Line Canal? There are challenges and opportunities ahead ... and new decisions need to be made around each bend.

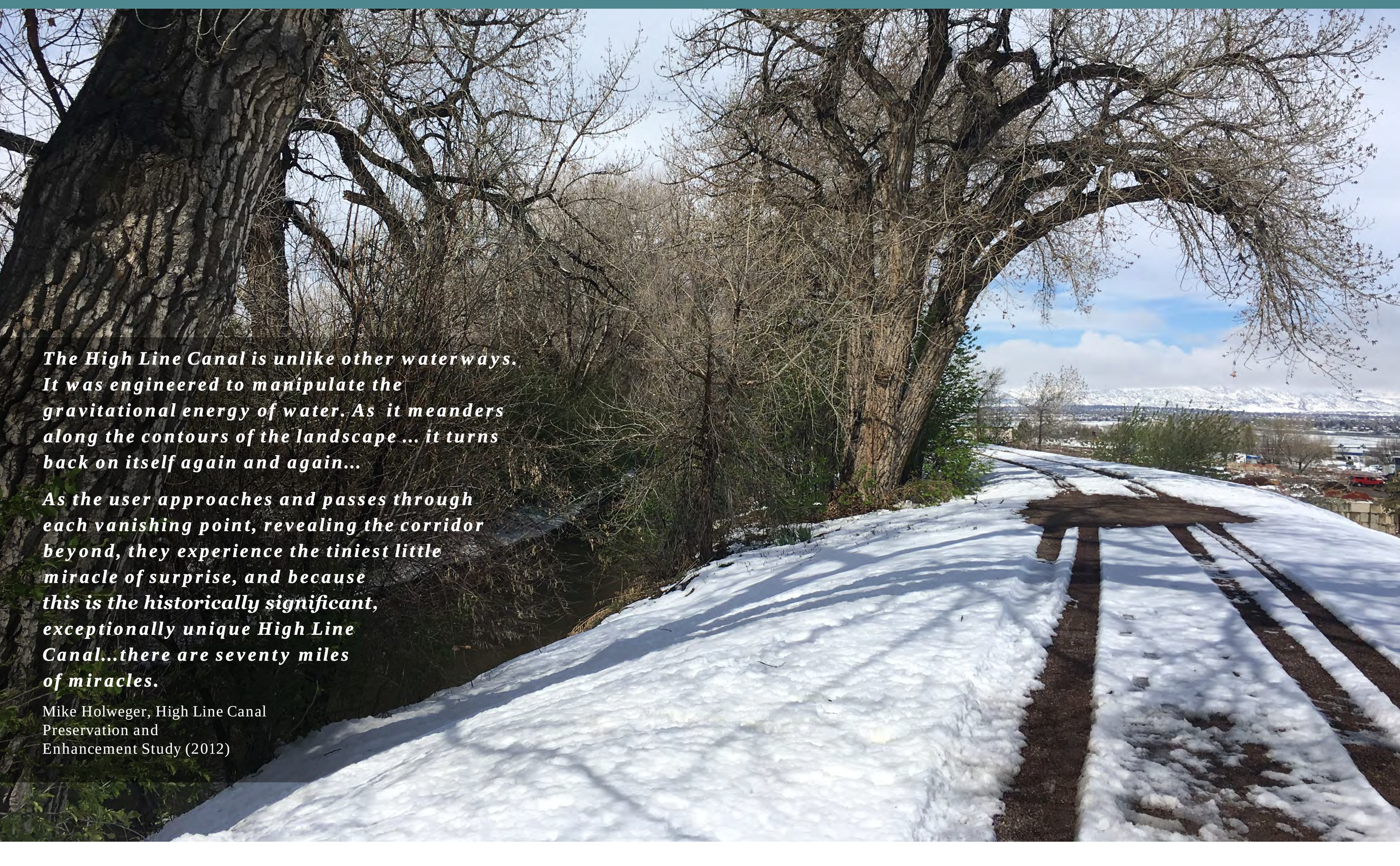
We need your help to write this story. **What do you imagine the Canal can be for future generations?**

A Vision Plan includes:

- Big picture opportunities for preserving and enhancing the Canal's character and identity
- Strategies for celebrating the diverse communities and landscapes along the Canal
- Ideas for future actions and processes to engage the communities, partner organizations, and governmental agencies

This process will be structured like a story.

What's around the next bend?



The High Line Canal is unlike other waterways. It was engineered to manipulate the gravitational energy of water. As it meanders along the contours of the landscape ... it turns back on itself again and again...

As the user approaches and passes through each vanishing point, revealing the corridor beyond, they experience the tiniest little miracle of surprise, and because this is the historically significant, exceptionally unique High Line Canal...there are seventy miles of miracles.

Mike Holweger, High Line Canal Preservation and Enhancement Study (2012)

How does this relate to previous studies?

This Vision Plan is building on previous planning efforts. These reports provide important technical information and detailed analysis about what is feasible. Building on this foundation, the Vision Plan asks, "What do we as a region want for the future of our Canal?"

Previous planning study examples:

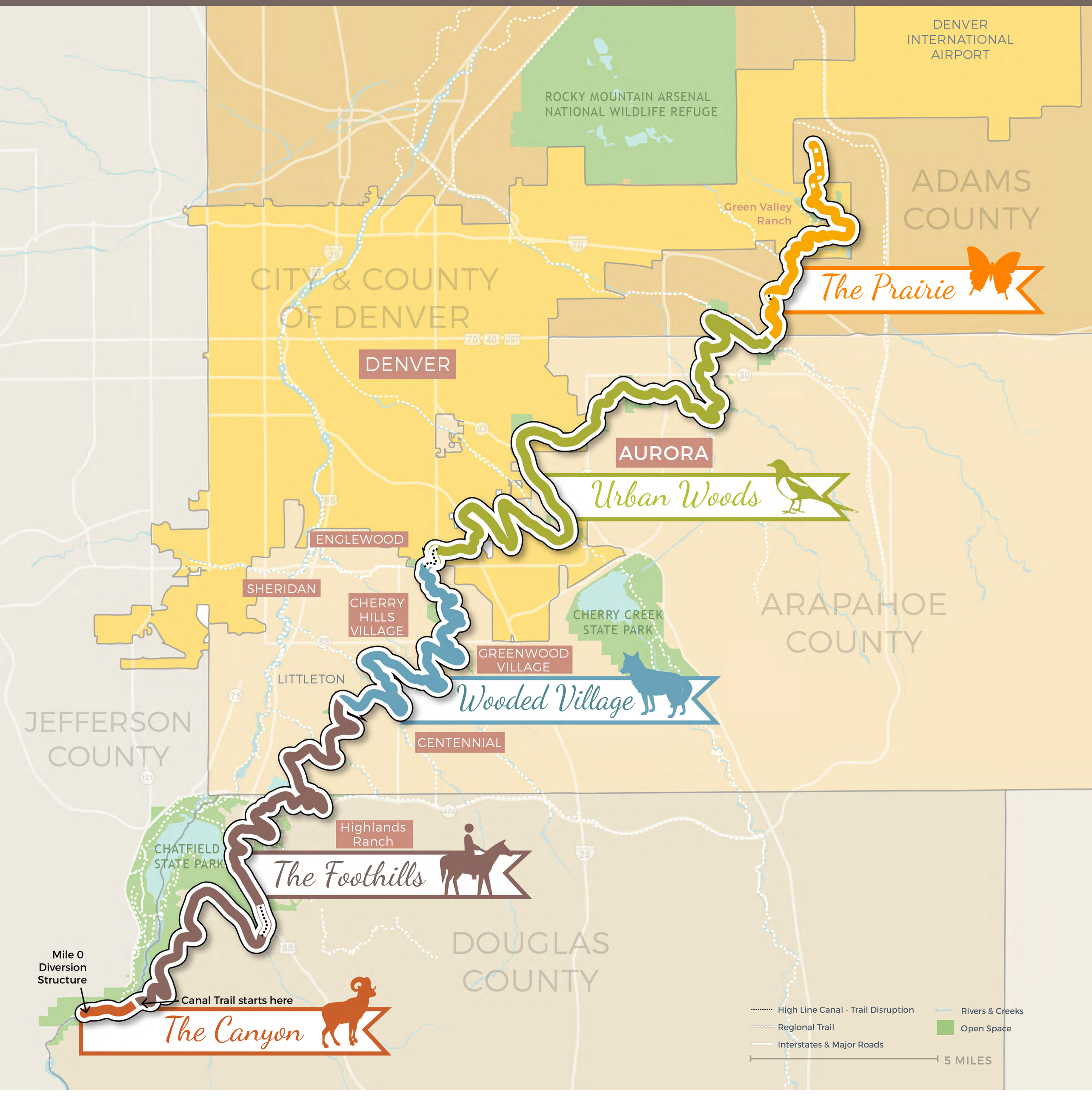
- **Denver Water Tree Assessment Report** (2008-2009 by Jacobi & Goodrich): Recommended two weeks of water in spring and fall to relieve drought stress on cottonwoods. This has become an informal practice when water is available and the Canal's water rights are in priority. Today, the High Line Canal Working Group is undertaking a comprehensive tree assessment, which will document the condition of trees along the Canal.
- **Stormwater Feasibility Study** (2014, RESPEC): Evaluated potential of Canal to hold and release stormwater after rainstorms. Found that stormwater could keep the Canal wet for 100 more days each year. Today, a pilot project is underway in Denver near Eisenhower Park, and additional projects are being considered for Douglas County, Greenwood Village, Littleton, and Aurora.
- **Crossings Feasibility Study** (2014, Felsburg Holt & Ullevig): Prioritized crossing improvements in and along Arapahoe County. Today, improvements are underway in places like Hampden/Colorado Blvd. and Mississippi / Parker Road.

How does Denver Water fit in with this visioning process?

Denver Water supports finding innovative methods and resources to ensure the Canal remains and is enhanced as a treasured urban public space. Denver Water is committed to the long-term preservation and enhancement of the High Line Canal as a key recreational and environmental amenity for the Denver metro region.

The High Line Canal Conservancy has come together with the jurisdictions along the Canal to lead and support this important planning initiative. Denver Water is excited to partner with the Conservancy and the national urban planning team in a comprehensive planning process for the Canal.

Connecting Communities — Connecting Nature , from the foothills to the plains



The High Line Canal stretches ***71 miles*** *- all the way from Waterton Canyon in Douglas County to nearly the Denver International Airport.*

By the numbers ...

- **The Canal includes a 100 foot right-of-way; 100 feet x 71 miles = 860 acres. That makes the Canal slightly larger than Central Park in New York!**
- It connects more than **8,000 acres** of other open space.
- The Canal passes through **11 different jurisdictions** including cities, counties, and special districts.
- More than **350,000 residents** live within one mile of the Canal, and **over 500,000** people use the Canal each year.
- The Canal has **6 major trail interruptions,** 10 existing underpasses, and 80 at-grade crossings.

A project of national significance

The proposed 71 miles of the High Line Canal urban trail surpasses the scale and impact of any similar existing or proposed initiative in the U.S. today. The High Line Canal is a unique opportunity to create a significant enduring recreation and cultural greenway legacy celebrating the rich and diverse physical and social mosaic that we call Denver.

Tony Pickett, Vice President, Master Site Development, Urban Land Conservancy;
Board Member, High Line Canal Conservancy

Many cities across the country are currently investing in the creative reclamation and enhancement of formerly industrial infrastructure for community benefit. Many of these initiatives also share these common themes:

- Recreation, healthy living, & active recreation
- Historic legacies
- Economic development
- Connecting communities
- Natural resources, wildlife habitat, & ecology

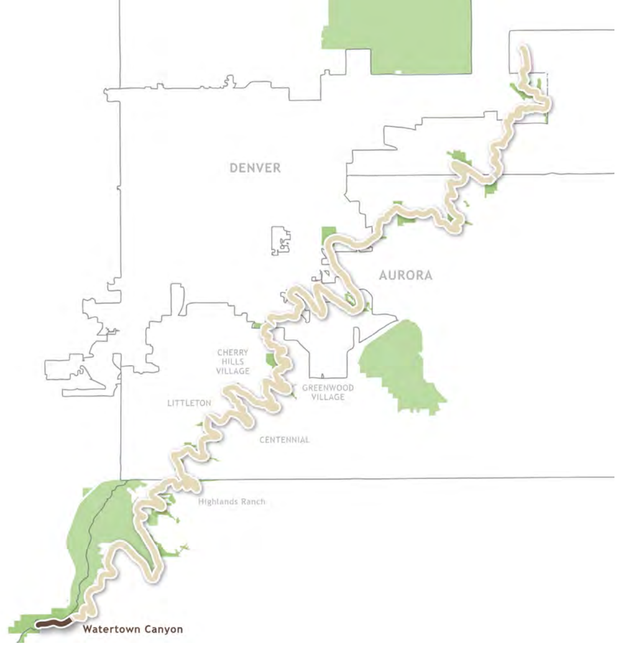
Look for these themes throughout your High Line Canal journey!

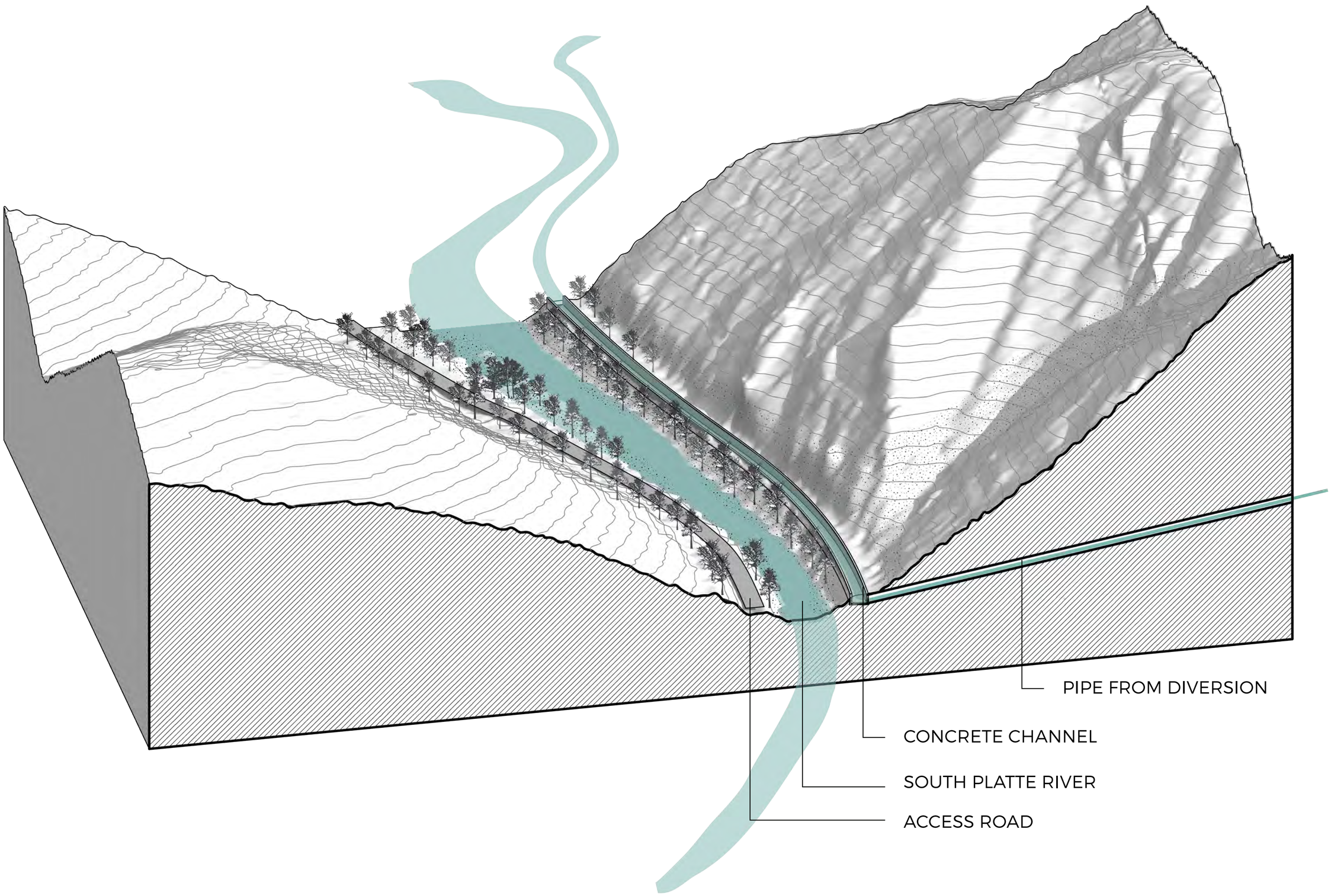
The Canyon

“**Mile 0** – The High Line Canal begins at 5,600 feet above sea level, 1.8 miles up Waterton Canyon. There, a wood and stone dam erected on the South Platte River in 1879 backs up water that flows into a granite tunnel, marking the beginning of the canal.”

- Denver Water, High Line Canal Trail Guide

The Canyon





Waterton Canyon is the beginning of the High Line Canal. A gravel maintenance road winds alongside the South Platte River. The walls of the canyon tower overhead. Looking up and across the river, you can see the concrete channel that carries the Canal's water. The river flows past a grove of cottonwoods, which could be the ancestors of the Canal's cottonwoods. The Canal passes through the sandstone hogback ridges and emerges into the Foothills.

WILDLIFE

USES

TRAIL SURFACE

Gravel

DID YOU KNOW?

If you continue hiking upstream from the diversion structure, you can continue on the Colorado Trail, which connects Denver to Durango.

THE CANAL AS...

Historic Legacy

1859

ORIGINS

A gold rush in 1859 brought settlers and farmers to the Denver region. In 1870, Scotsman James Duff conceived the idea for the High Line Canal as an irrigation waterway to support farms east of Denver.

1881

CONSTRUCTION

This engineering feat, named because it follows the highest contour line to deliver water furthest, began construction in 1881.

Image credit: High Line Canal Conservancy

Image credit: High Line Canal Conservancy

1883

WATER DELIVERY

The 71-mile Canal was completed in 1883. It crosses over and under streams as it winds through the Denver region via flumes and channels. In these early days, the Canal irrigated 20,000 acres of land through 165 headgates.

1924

OWNER SHIFT

In 1924, Denver Water acquired the Canal from the Farmer's High Line Canal and Reservoir Company.

1970

RECREATION

Beginning in 1970, Denver Water opened the Canal to the public, allowing the public to use the existing maintenance road adjacent to the Canal as a trail.

2016

TODAY

The High Line Canal was originally created to support economic development through agriculture and farms. Today, the Canal also has high value as a recreational trail. How do we envision the future of the Canal?

HIGH LINE CANAL 101

IT'S NOT A... STREAM	IT'S NOT A... DITCH	IT'S A... CANAL!
Naturally Formed	Man-made	Man-made
Can Join Other Water Channels	Can Join Other Water Channels	Water Kept Separate
Shared Water Rights	Water Rights Sold Separately	Water Rights Owned By DW

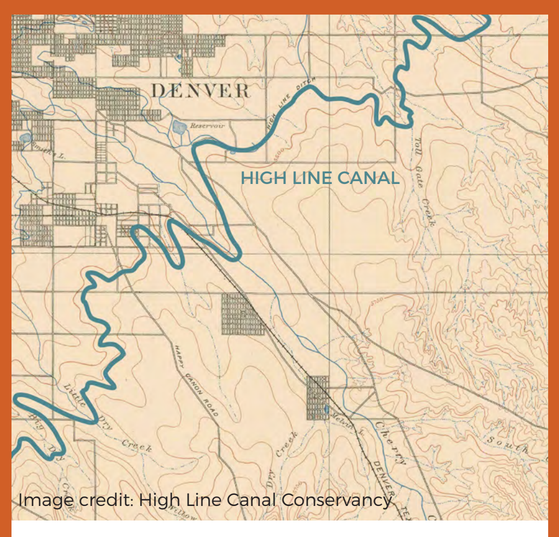


Image credit: High Line Canal Conservancy

The Canal follows the **highest topography line** through the Denver region to stretch as far as possible, dropping only 140 feet in 71 miles.

WATER RIGHTS

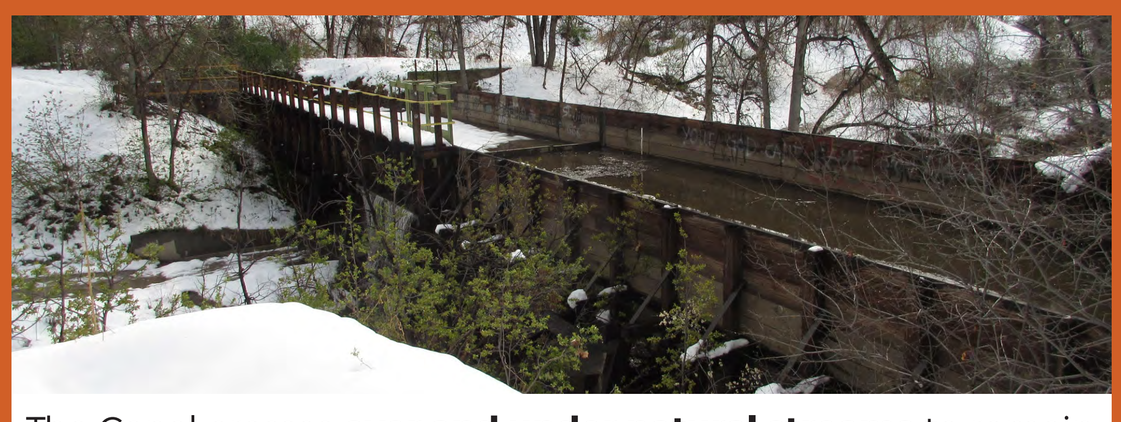
in Colorado are claimed according to who historically got there first. The Canal falls further down this statewide list of priority, and so Denver Water (DW) is only able to run water through the Canal about **twice a year.** The Canal delivers water through sluice gates to about **70 DW customers**.

did you know?

The Canal drops only **2 feet** every mile.

did you know?

The Canal carries only **non-potable** water (not for drinking).



The Canal crosses **over and under natural streams** to remain separated, so that the irrigation can travel as far as possible.

did you know?

Over **70%** of water in the Canal is lost from seepage before reaching its destination.

Canyon

Choose your own adventure...

PUT A STICKER BY IDEAS THAT APPEAL TO YOU!

What if everyone could learn the amazing story of the High Line Canal?

IMAGINE:

- Mobile apps
- Environmental and cultural education stations
- Interpretive experiences
- Your idea here!

What if the Canal had a unified and memorable 71-mile identity?

IMAGINE:

- Wayfinding signage
- Website and Branding
- Map and Field Guide
- Stencils, Painting, Trail Markers
- Your idea here!

What if the Canal became the destination for urban recreation and adventure in the region?

IMAGINE:

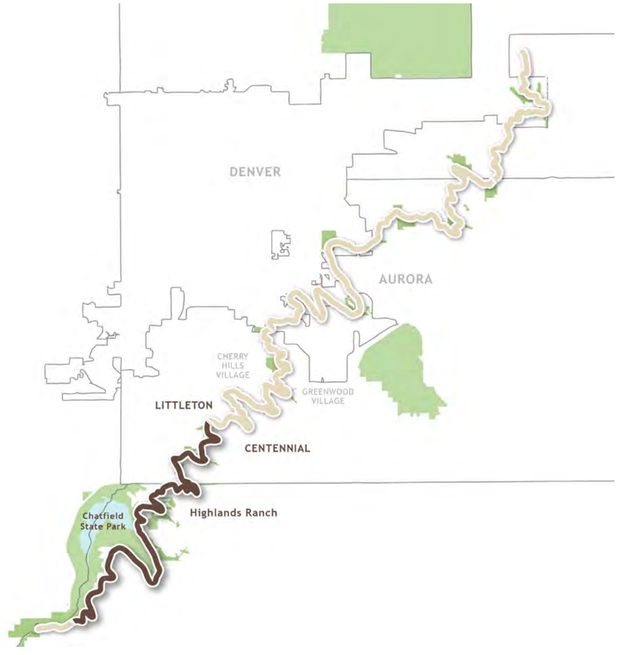
- A High Line Canal marathon
- Bike races
- Fishing Tournaments
- Parcours training
- Your idea here!

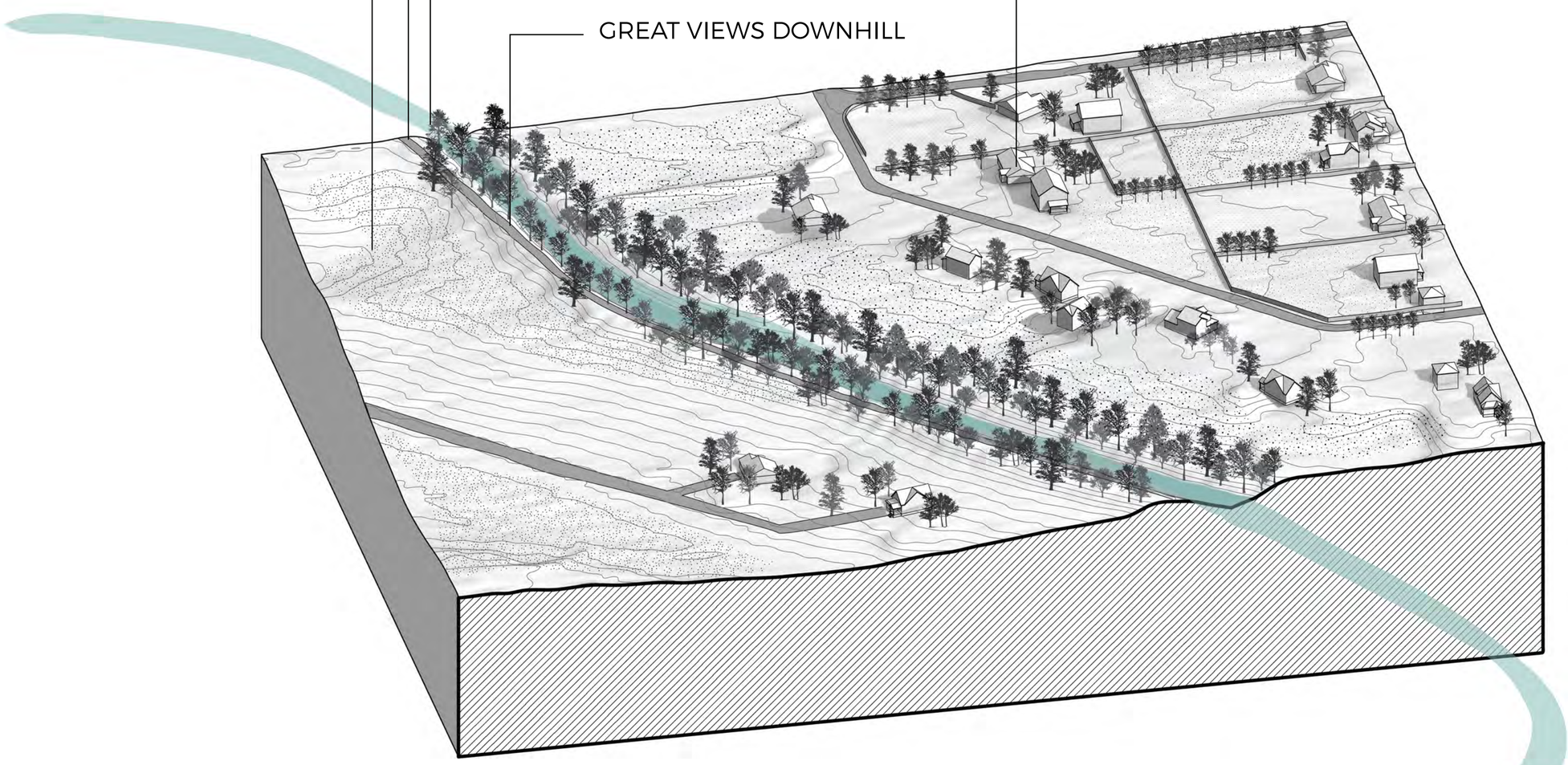
The Foothills

“**Mile 15.0** – McLellan Reservoir is to the north. It holds some High Line water and is the raw water source for Englewood. Prepare for a very scenic portion of the trail.”

- Denver Water, High Line Canal Trail Guide

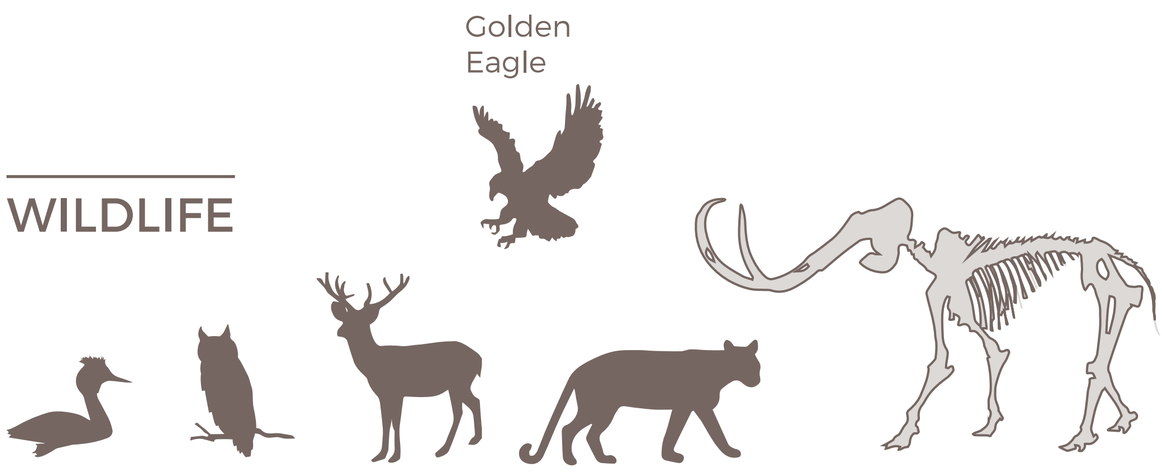
The Foothills





The Foothills feature dramatic views as the Canal threads along ridgelines and around open spaces like McLellan Reservoir and Chatfield State Park. Over this stretch, rural and future residential developable land transitions to newer communities like Highlands Ranch. Around Plum Creek, the trail disappears for almost a mile, and then reemerges in an industrial area.

WILDLIFE



USES

TRAIL SURFACE

Unpaved - dirt & sandy surface

DID YOU KNOW?

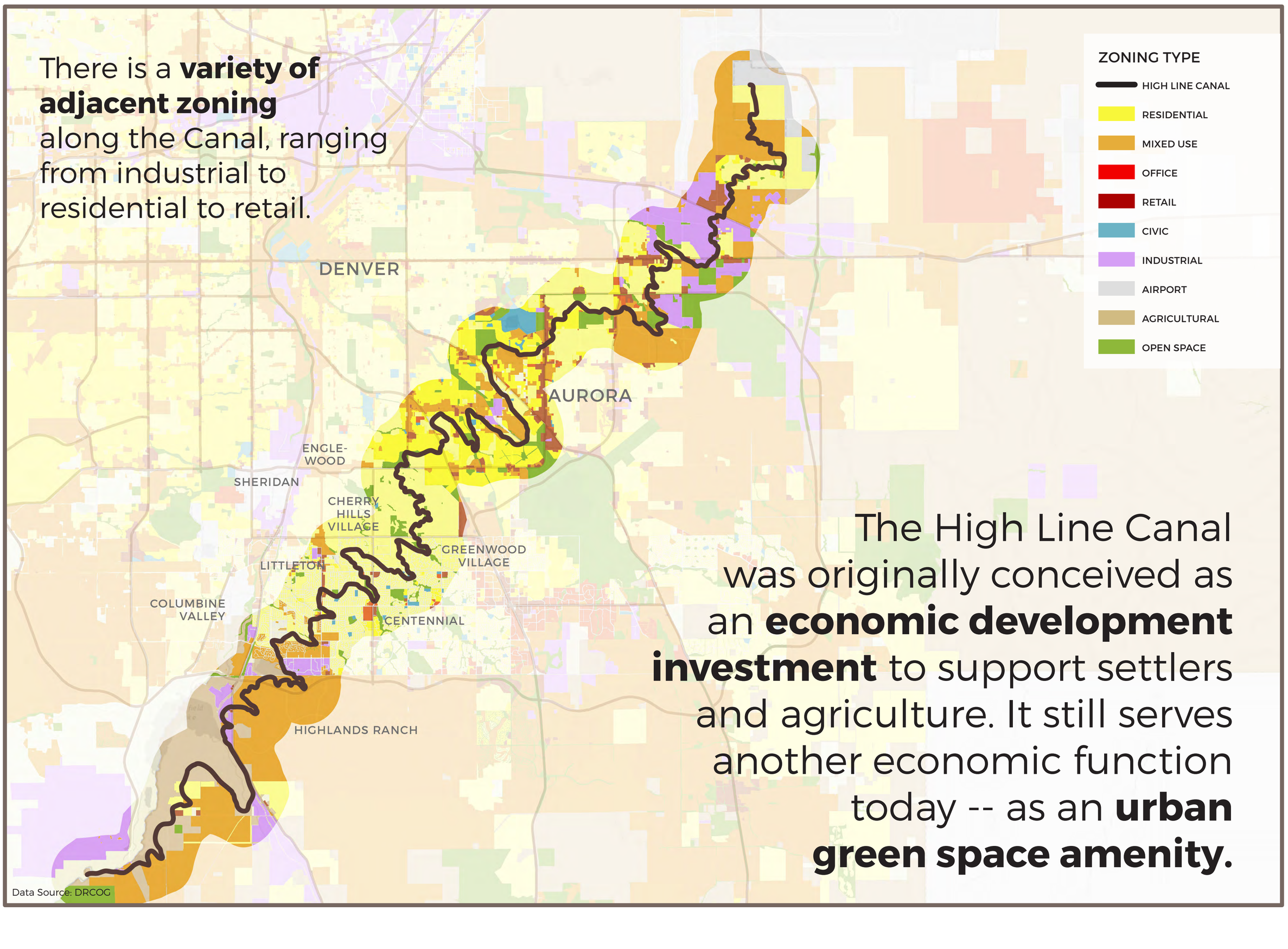
The Fly'n B Ranch, a well-known landmark on the Canal, has had a diverse history including vegetables and ornamental plants, cattle ranching, and even illegal gambling.

Source: Interpretive Master Plan for the Community of Highlands Ranch, Colorado

THE CANAL AS...

Economic Driver

There is a **variety of adjacent zoning** along the Canal, ranging from industrial to residential to retail.



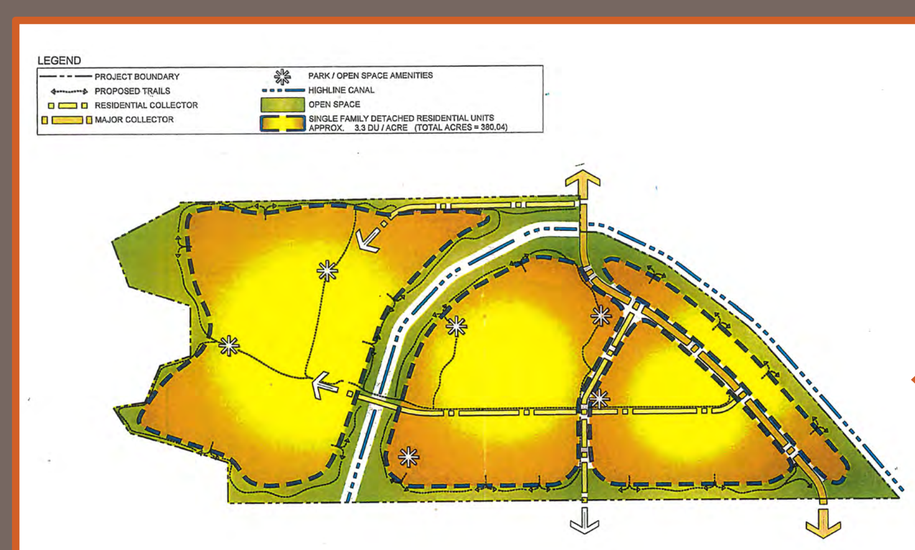
Data Source: DRCOG

The High Line Canal was originally conceived as an **economic development investment** to support settlers and agriculture. It still serves another economic function today -- as an **urban green space amenity.**

FUTURE DEVELOPMENT

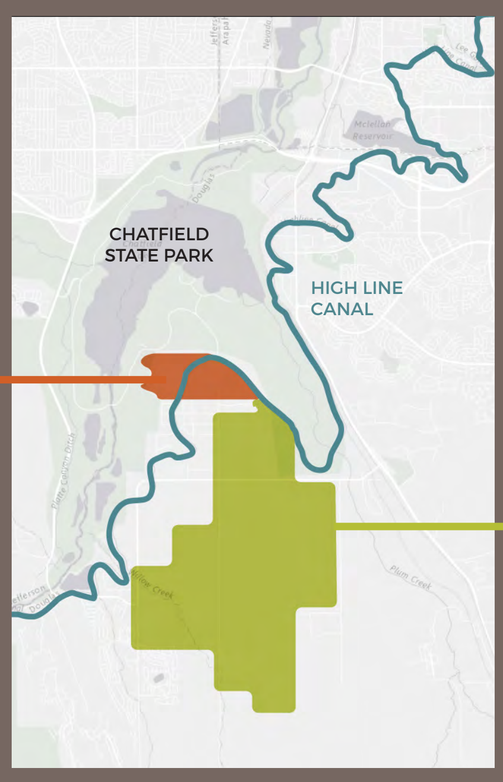
On the southern end of the High Line Canal near Waterton Canyon, **two new developments** are planned. Adjacent to both the High Line Canal and Chatfield State Park, Plum Creek by Shea Homes and Sterling Ranch Village will soon offer **over 13,000 homes, retail, and open space and trails.**

Images shown are publicly accessible from http://sterlingranchcolorado.com (right) and http://www.roxboroughliving.com (below).



Plum Creek by Shea Homes

380 ACRES
1,250 HOMES



Sterling Ranch Village

9 VILLAGES
30 MILES OF TRAILS

3,400 TOTAL ACRES
12,000 HOMES

Foothills

Choose your own adventure...

PUT A STICKER BY IDEAS THAT APPEAL TO YOU!

What if the Canal was an inviting frontage for all who visit or reside along it?

IMAGINE:
- Development that engages the canal
- Conserving and connecting to open space beyond the 100’ ROW
- Your idea here!

What if the Canal helped to link a larger land-conservation vision?

IMAGINE:
- Water resources
- Habitat
- Existing open spaces
- Your idea here!

What if the Canal served as a new kind of green infrastructure and the backbone of new green development?

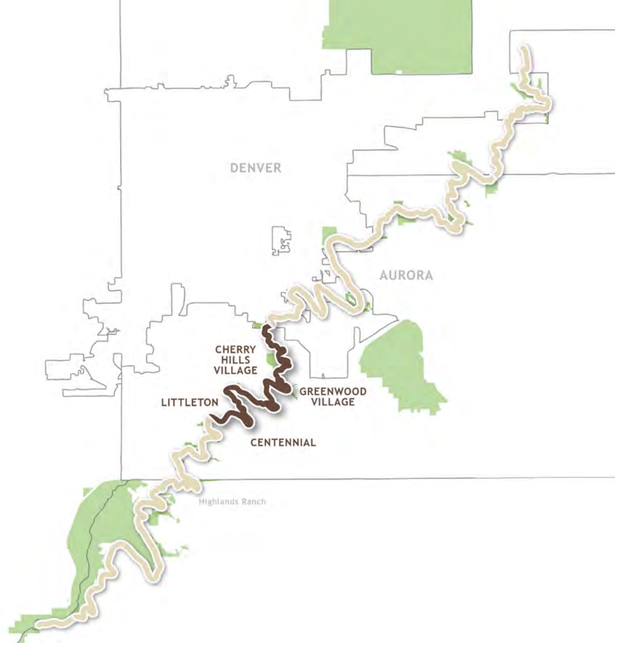
IMAGINE:
- Stormwater Management
- Tree Planting Programs
- Regional connectivity
- Your idea here!

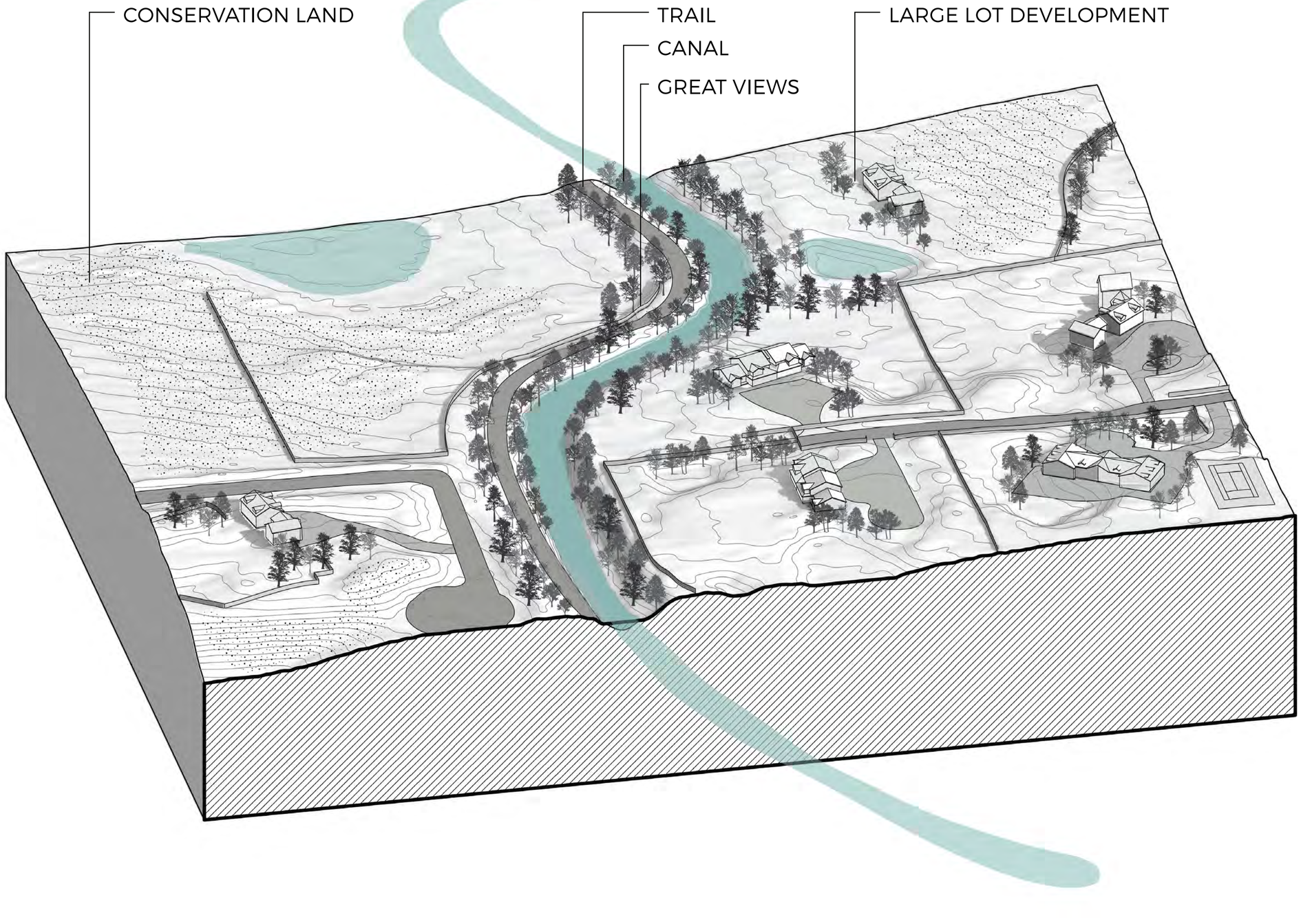
Wooded Village

“**Mile 25.0** – Eagles and great horned owls have been seen in the open space here. To the southwest is a great view of the Rocky Mountains. A private pasture adjacent to open space is used to feed horses.”

- Denver Water, High Line Canal Trail Guide

Wooded Village

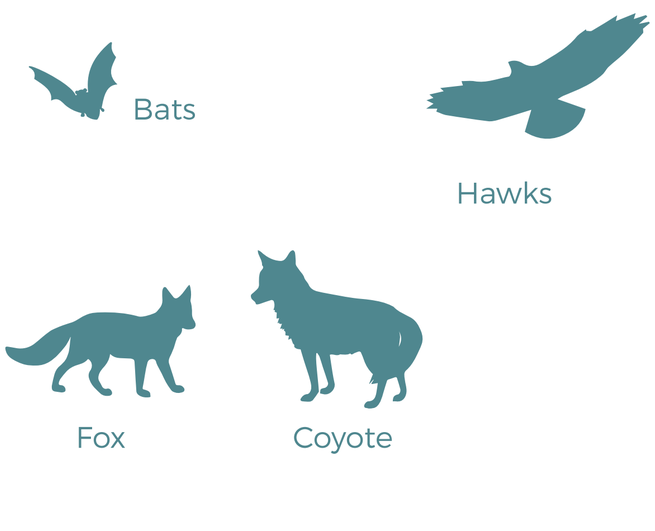




The Wooded Village stretch of the Canal winds between large-lot homes, conservation land, and parks. Some of the open spaces along the way are Horseshoe Park, deKoevend Park, and Marjorie Perry Nature Preserve. This stretch is one of the most popular; more than 300,000 people use it each year.[1] The quiet, secluded feel of the Canal is interrupted, however, as it crosses several busy streets. For example, one segment is nicknamed the "Broadway Triple-Threat" because the Canal crosses this street three times in less than one mile.

1 Source: Denver Water Trail Guide

WILDLIFE



USES

TRAIL SURFACE

Unpaved - crushed granite base

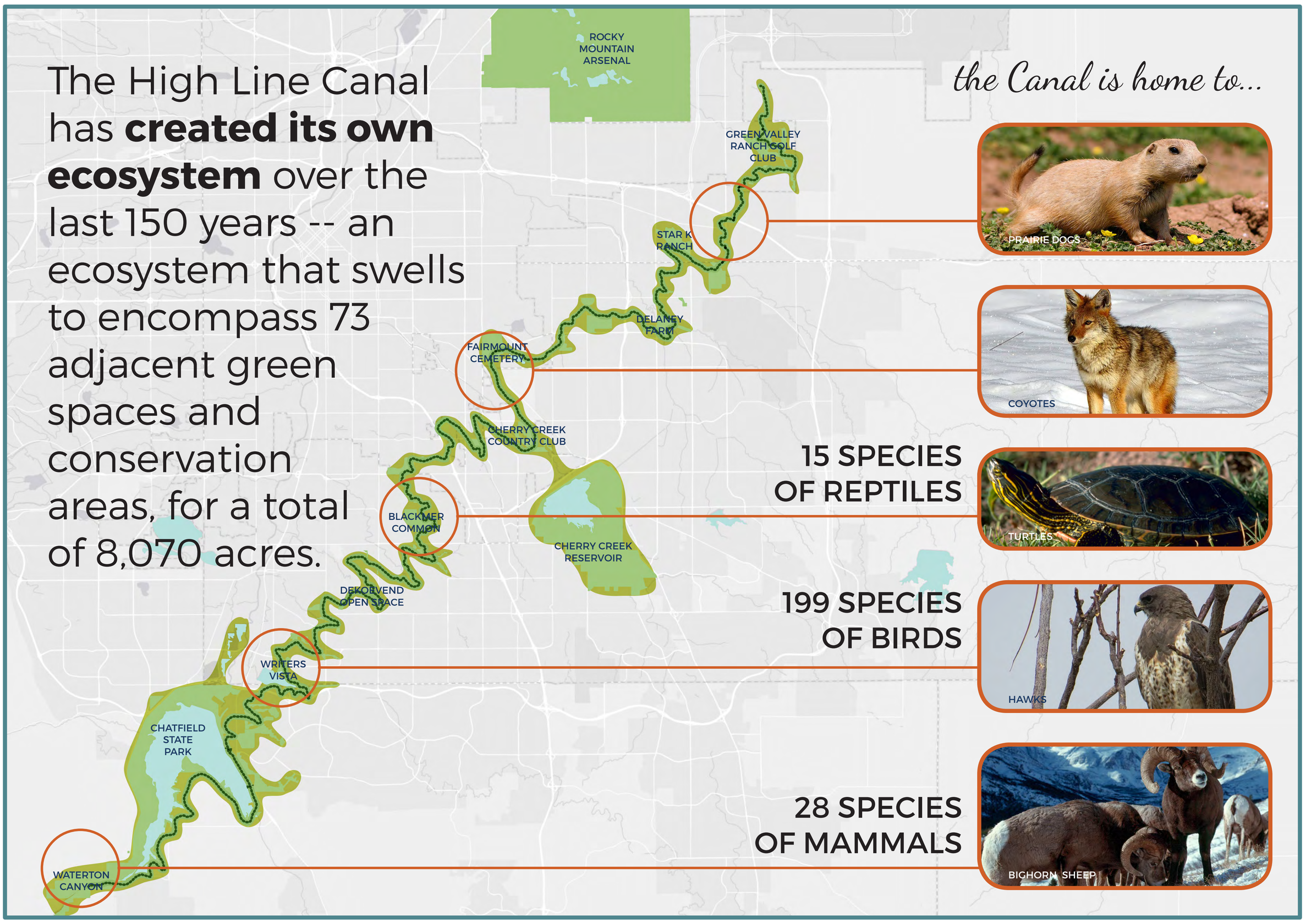
DID YOU KNOW?

It takes about 24 hours for water to flow from the South Platte Diversion to the beginning of the Wooded Village section. With such a flat slope, water flows slowly in the Canal!

THE CANAL AS...

Unique Ecosystem

The High Line Canal has **created its own ecosystem** over the last 150 years -- an ecosystem that swells to encompass 73 adjacent green spaces and conservation areas, for a total of 8,070 acres.



the Canal is home to...

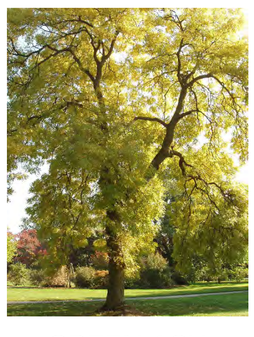
15 SPECIES OF REPTILES

199 SPECIES OF BIRDS

28 SPECIES OF MAMMALS

CLIMATE-READY ALTERNATIVES

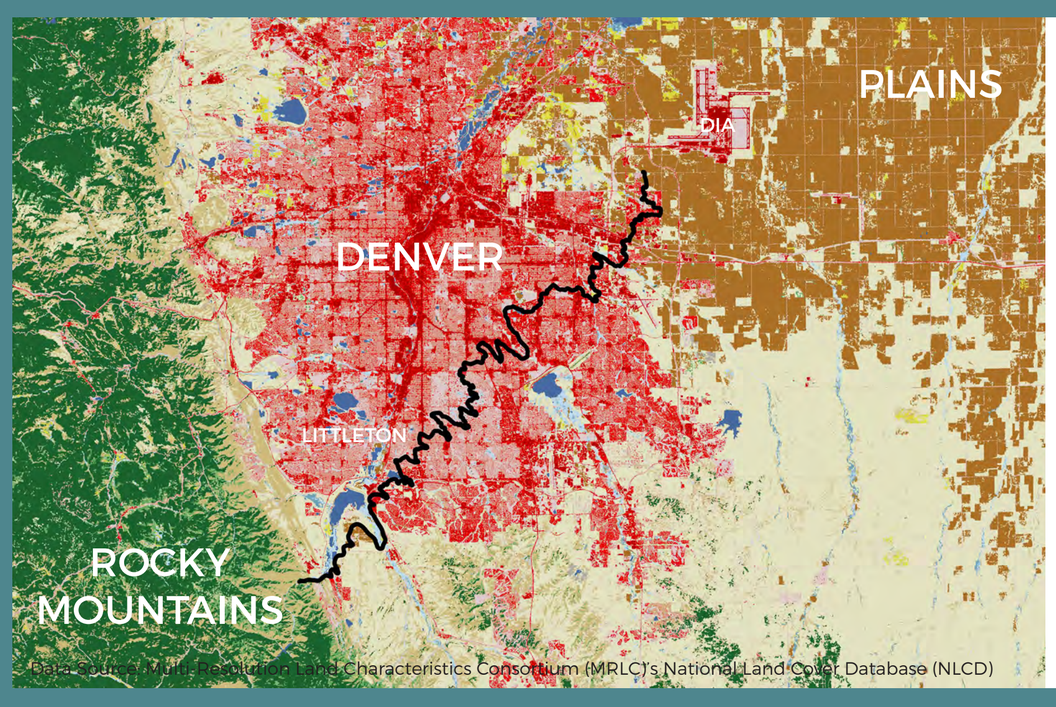
BUR OAK



GREEN ASH

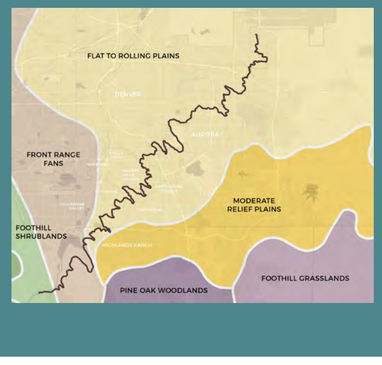
KENTUCKY COFFEE

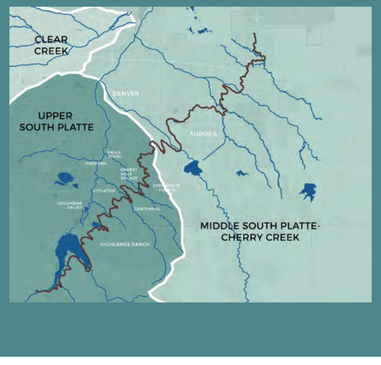
REGIONAL CONTEXT



Data Source: Multi-Resolution Land Characteristics Consortium (MRLC)'s National Land Cover Database (NLCD)

The High Line Canal runs through a region with a variety of **land uses and conditions** (above), with 7 different **ecoregions** (right), and across 2 **watersheds** (far right).





Village

Choose your own adventure...

PUT A STICKER BY IDEAS THAT APPEAL TO YOU!

BLOOMINGDALE TRAIL, CHICAGO, IL

What if the Canal was more connected and welcoming for everyone?

IMAGINE:

- Multi-modal opportunities (horse, bike, walk, run, rollerblade...)
- Better trailheads
- Bike repair stations
- Your idea here!

SILVER FALLS STATE PARK, OREGON

What if the Canal was more of an outdoor classroom?

IMAGINE:

- Playful Learning Stations
- Interpretation
- Binoculars/Sight-seeing
- Classroom Spaces
- Adventure Play
- Your idea here!

MOUNTAIN LAKE PARK PARCOURSE, PRESIDIO, SANFRANCISCO

What if the Canal helped to promote active lifestyles & healthy living?

IMAGINE:

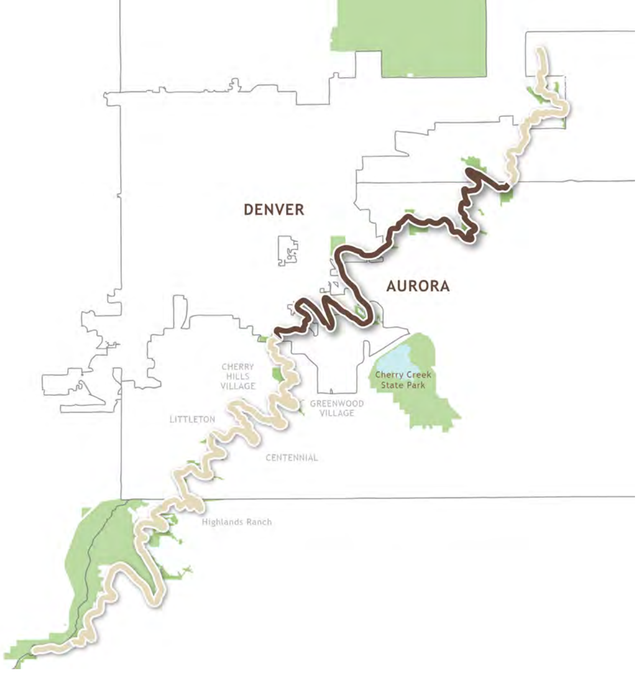
- Fitness Stations
- Adult play and Recreation
- Senior Programming/Circuit
- Your idea here!

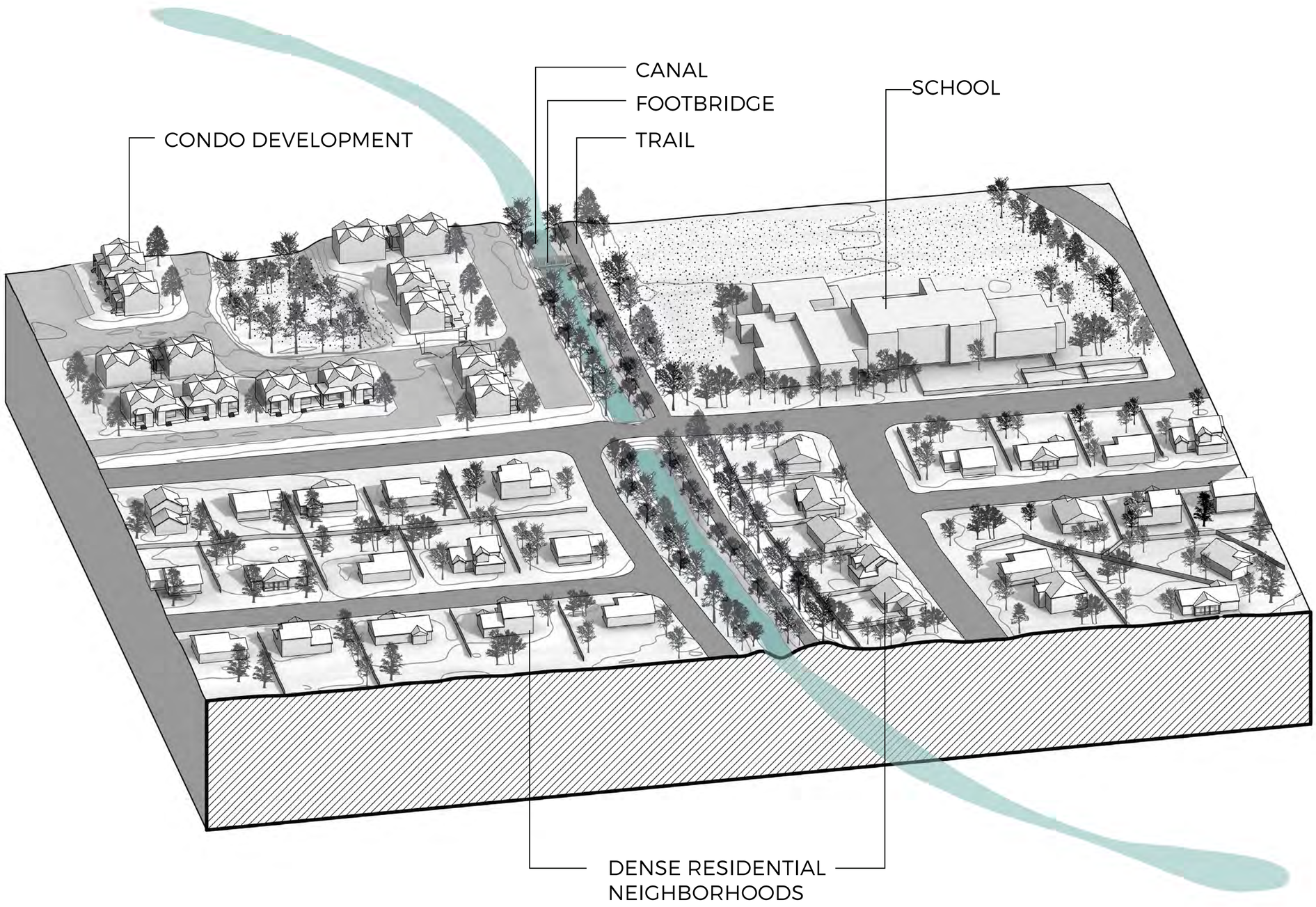
Urban Woods

"**Mile 37.9** – Large cottonwoods above provide a lush, green cover for wildlife. Red fox, deer and even coyote have been spotted along here. Keep an eye out for them when you pause at the picnic table nearby. The hum of Interstate 25 traffic can be heard."

- Denver Water, High Line Canal Trail Guide

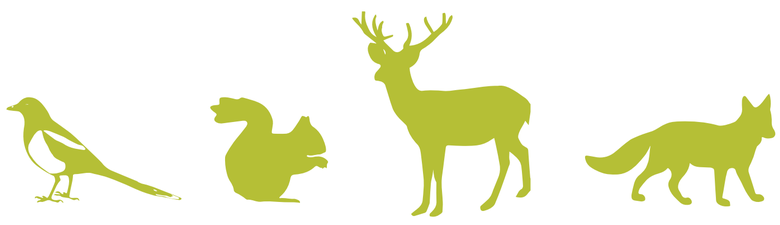
Urban Woods





The Urban Woods section passes through denser neighborhoods, apartment complexes, schools, and parks. After Wellshire Golf Course, the surface shifts to pavement, reflecting the more urban character of this stretch. Bridge connections along the Canal connect to apartments, schools, and neighborhoods on the other side. The Canal passes Fairmount Cemetery and continues past Windsor Lake. No water users lie beyond this point.

WILDLIFE



USES

TRAIL SURFACE

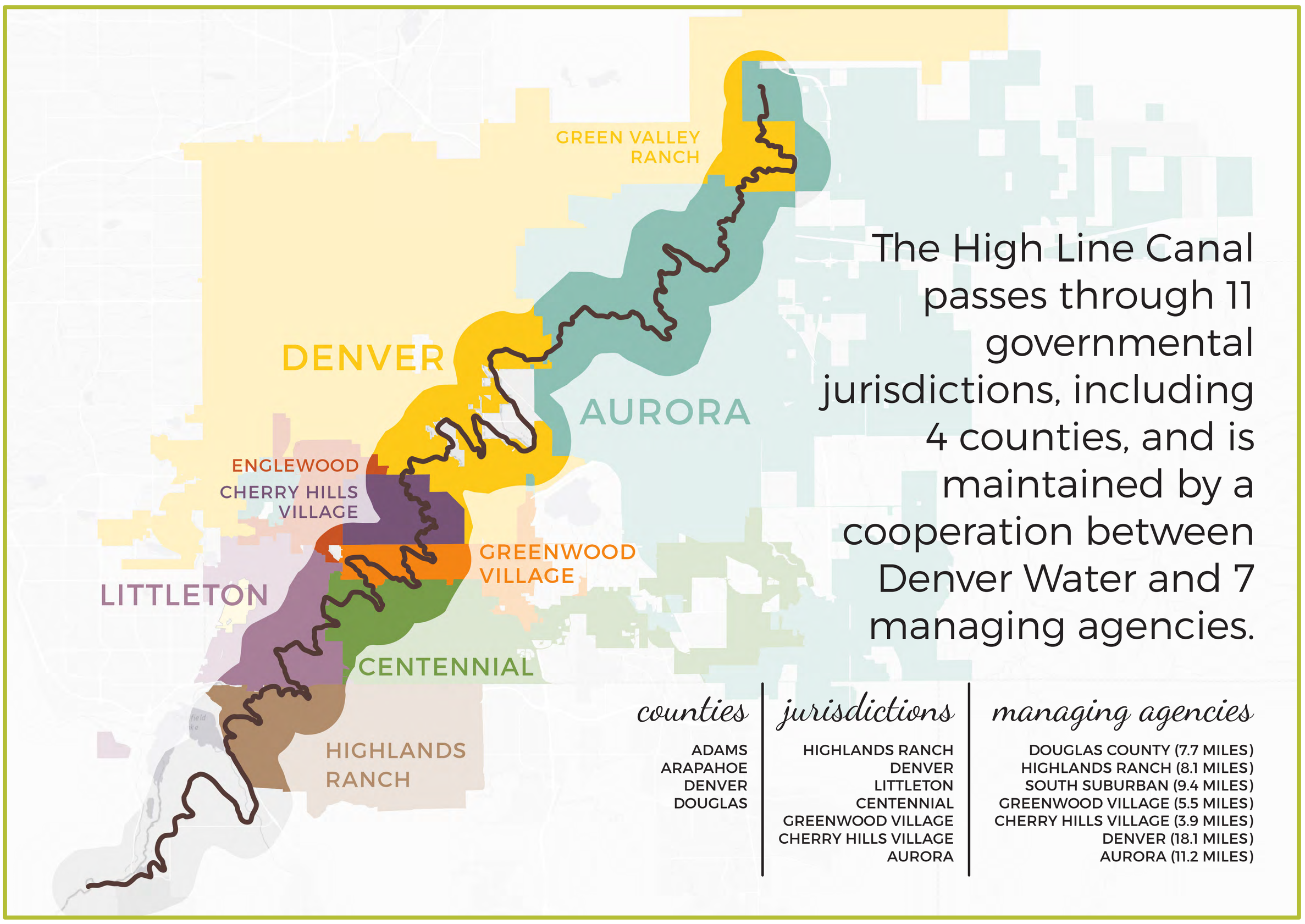
Paved

DID YOU KNOW?

By the time water reaches Eisenhower Park (Mile 37), only half of the original water from Waterton Canyon remains because of lease holder use, evaporation, and absorption into the ground.

THE CANAL AS...

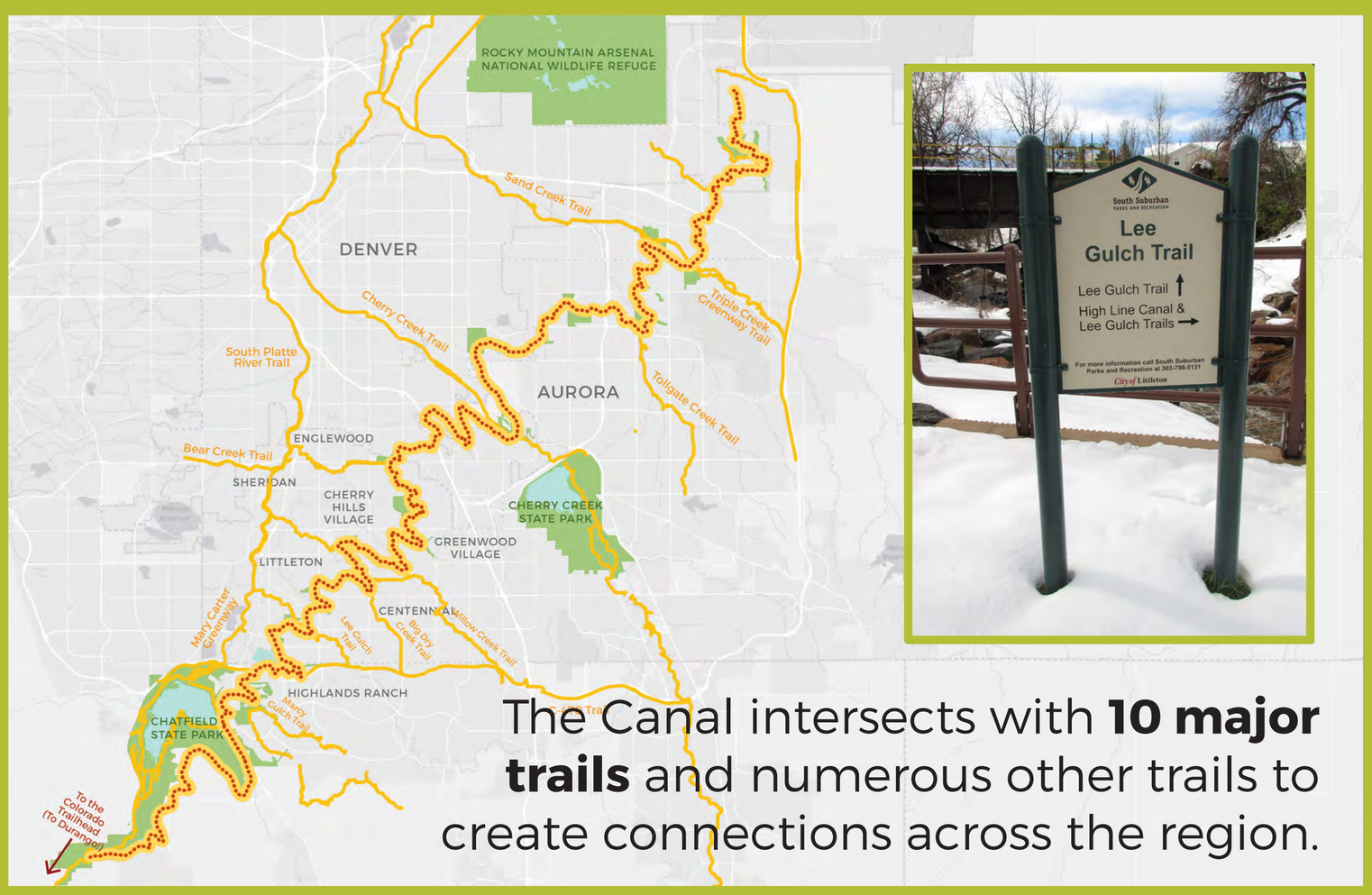
Regional Connector



The High Line Canal passes through 11 governmental jurisdictions, including 4 counties, and is maintained by a cooperation between Denver Water and 7 managing agencies.

counties	*jurisdictions*	*managing agencies*
ADAMS	HIGHLANDS RANCH	DOUGLAS COUNTY (7.7 MILES)
ARAPAHOE	DENVER	HIGHLANDS RANCH (8.1 MILES)
DENVER	LITTLETON	SOUTH SUBURBAN (9.4 MILES)
DOUGLAS	CENTENNIAL	GREENWOOD VILLAGE (5.5 MILES)
	GREENWOOD VILLAGE	CHERRY HILLS VILLAGE (3.9 MILES)
	CHERRY HILLS VILLAGE	DENVER (18.1 MILES)
	AURORA	AURORA (11.2 MILES)

CONNECTING COMMUNITIES AND TRAILS



The Canal intersects with **10 major trails** and numerous other trails to create connections across the region.

The Canal has **6 major trail interruptions**, 10 existing underpasses, and 80 at-grade crossings. Many pedestrian bridges enable adjacent neighborhoods to access the trail.

How can the Canal fill these missing gaps in the trail? How can the Canal be connective to the surrounding neighborhoods?

Urban

Choose your own adventure...

PUT A STICKER BY IDEAS THAT APPEAL TO YOU!

MAGGIE DALEY PARK, CHICAGO, IL

What if there were more ways for community to come together on the Canal?

IMAGINE:

- Food carts
- Adventure playgrounds
- Public art or art classes
- Outdoor performance
- Your idea here!

THE CANNERY AGRIHOOD, DAVIS, CA

What if the landscaping along the Canal were more productive?

IMAGINE:

- Urban Agriculture
- Forestry
- Stormwater management
- Your idea here!

KELOWNA GREENWAY, BRITISH COLUMBIA

What if the Canal became a place to intentionally connect to nature in the city?

IMAGINE:

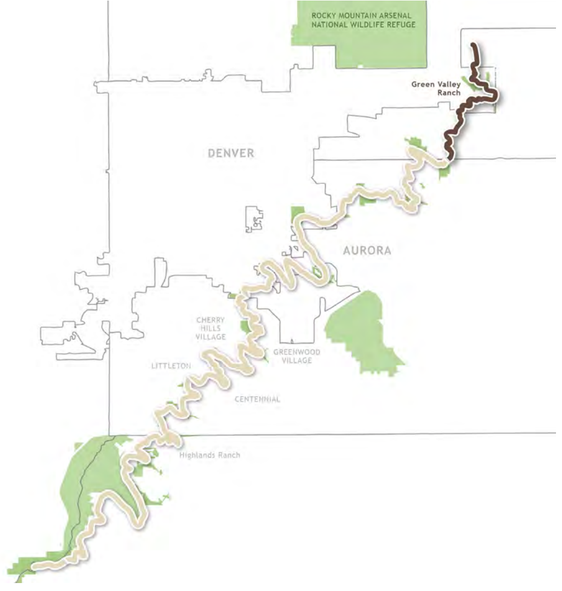
- Ecology learning stations
- Habitat preservation
- Peaceful retreat
- Your idea here!

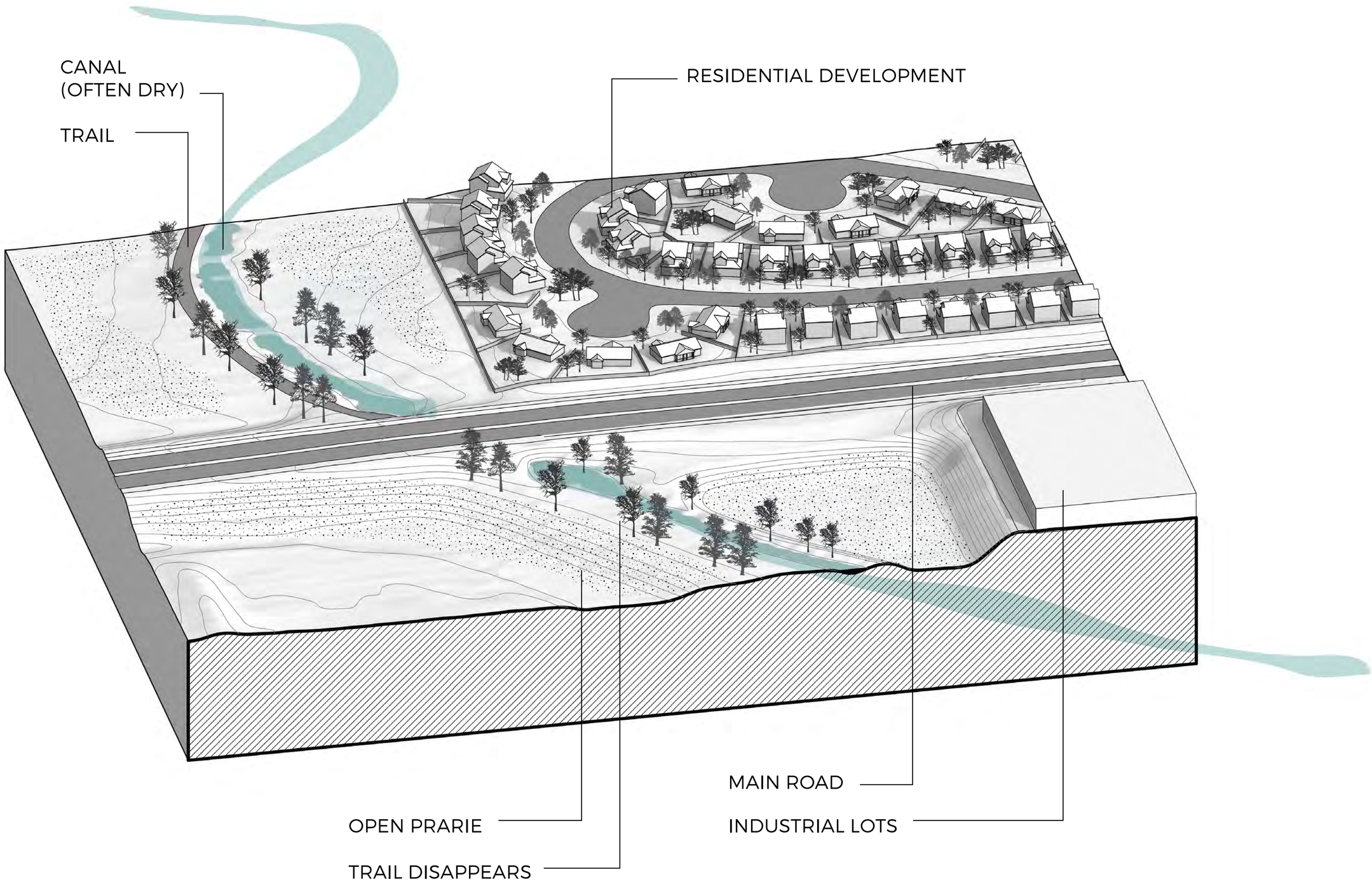
The Prairie

“**Mile 71.0** – The canal, little more than a furrow, turns northwest under Piccadilly Road, and near 64th Avenue bends back toward the Rocky Mountains, from where it came. Headgate No. 165, the last on the canal, is inactive. From this gate, the tower of Denver International Airport is visible to the northeast.”

- Denver Water, High Line Canal Trail Guide

The Prairie

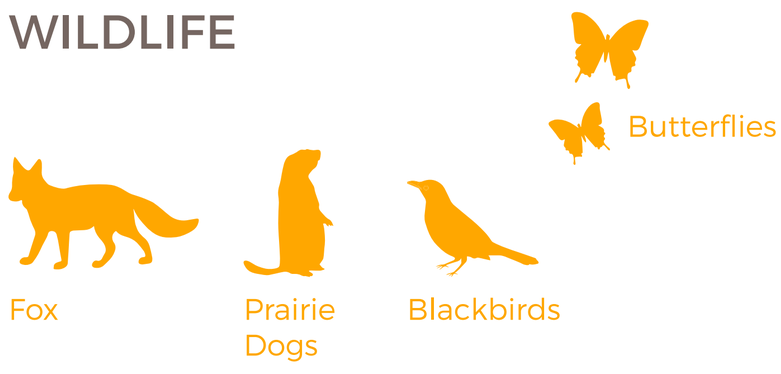




The Prairie features a more open landscape. Trees are more scattered and smaller. This type of landscape would be found naturally along other parts of the Canal, too, but in those areas the Canal's water has created a new ecosystem.

The Canal winds through open fields, beside industrial uses, and through residential areas. Passing through Green Valley Ranch, the trail's scored concrete surface feels like a sidewalk. It could be easy to forget that this "sidewalk" leads all the way to Waterton Canyon, sixty miles to the southwest. Beyond Green Valley Ranch, more future development is anticipated, along with a few new miles of trail to the north.

WILDLIFE



USES

TRAIL SURFACE

Paved in some areas; unpaved or missing in others

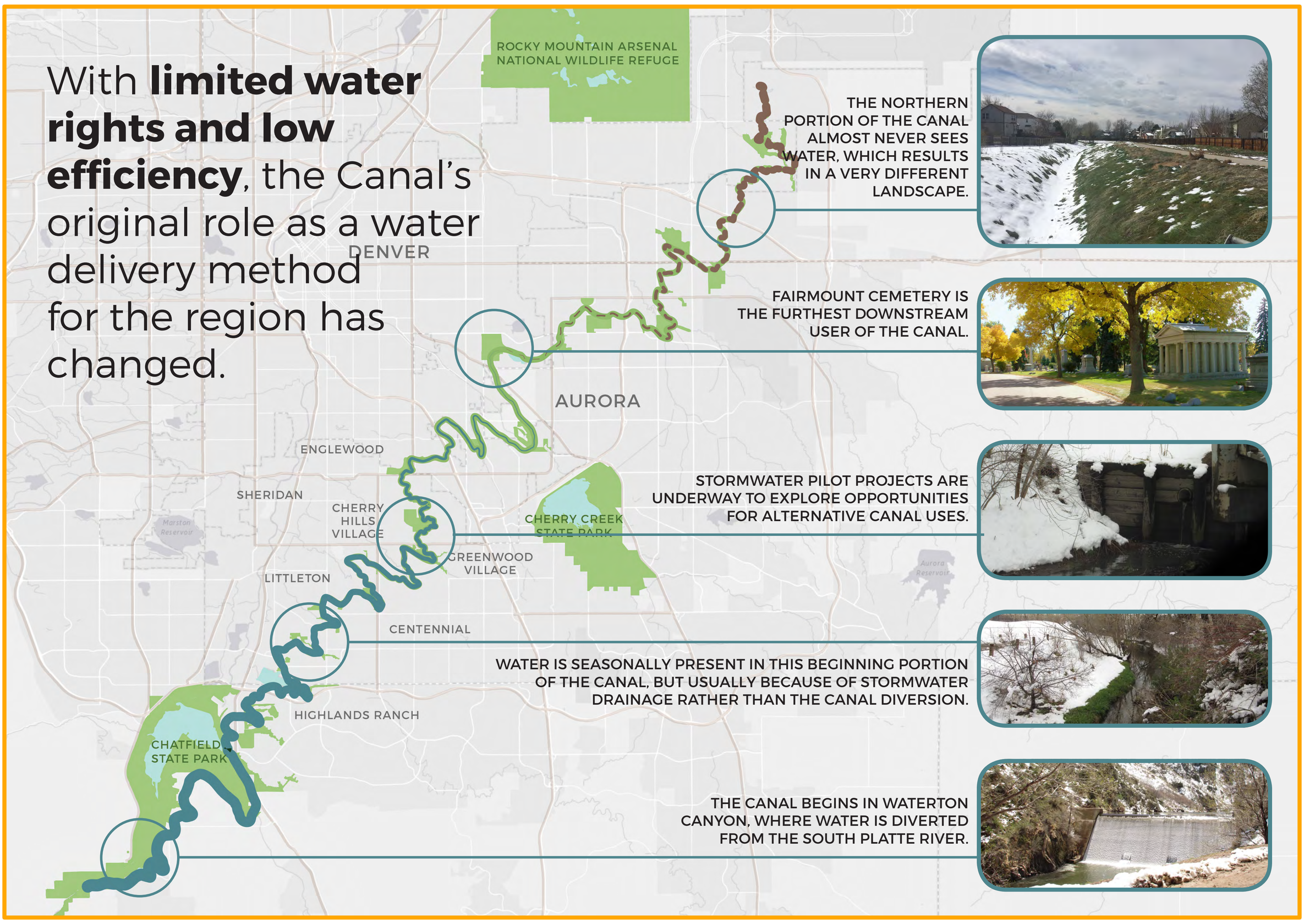
DID YOU KNOW?

The High Line Canal's water contributed to Aurora's growth. It helped attract the Rocky Mountain Arsenal and Fitzsimons Medical Center, which have played important roles in Aurora's economy.

THE CANAL AS...

Water Source

With **limited water rights and low efficiency**, the Canal's original role as a water delivery method for the region has changed.



REGIONAL CLIMATE

15	64	36
inches	degrees	degrees
AVERAGE ANNUAL RAINFALL	AVERAGE HIGH TEMPERATURE	AVERAGE LOW TEMPERATURE

DENVER WATER'S PART

Because the Canal is lower on the statewide priority list for water rights, Denver Water can only do about **two water runs a year**. Over the last 20 years, the Canal has held water for an average of 65 days a year, while over the last 10 years, the Canal has only held water for an average of 37 days a year.

Even when the Canal is running, roughly **70% of water evaporates or seeps out** by the time it reaches Denver Water customers.

There are about **70 water users remaining** on the Canal; Fairmount Cemetery is furthest downstream.

Prairie

Choose your own adventure...

PUT A STICKER BY IDEAS THAT APPEAL TO YOU!

TANNER SPRINGS PARK, PORTLAND OR

What if the Canal captured water in new ways?

IMAGINE:

- Stormwater pilots
- Rainwater harvesting
- Temporary flood storage
- Your idea here!

QUEEN ELIZABETH OLYMPIC PARK, LONDON

What if the Canal were a defining feature for new and existing neighborhoods?

IMAGINE:

- Open space connections
- Public Art
- Signage and wayfinding
- Your idea here!

BIRDS NESTS AT THE LADY BIRD JOHNSON WILDFLOWER CENTER, AUSTIN TX

What if we enhanced the Canal's prairie sections to be a healthier ecosystem?

IMAGINE:

- Ecological restoration/plantings
- Habitat creation
- Attracting birds and butterflies
- Environmental Education
- Your idea here!

How was your journey?

"We shall not cease from exploration, and the end of all our exploring will be to arrive where we started and to know the place for the first time."
TS Eliot

Congratulations! You have now joined a select group of individuals who have completed the entire High Line.

Steven and Liz hiked the Canal with a group of friends last year.

We hiked nearly 67 miles in just two days. It started out as a goofy idea to try something that was different from the trails we are used to hiking; a way to explore the city we call home...The trail was pretty with its large cottonwoods and wild junipers ... but as with most hikes, what I'll remember most about the trail is the friendship and connections that happen with those that you hike with.

Steven 'Twinkle' Shattuck, https://stevenjshattuck.wordpress.com/2015/03/30/my-first-urban-thru-hike-denvers-high-line-canal-trail/

No matter how much our modern society tries to insulate social classes from one another, that such disparate places are close enough to walk from one to the other underlined for me that Denver is one community and not just a collection of rich and poor neighborhoods.

Liz "Snorkel" Thomas, http://www.eathomas.com/2015/03/31/hclt2015/

A few runners have completed the entire Canal in one go (That's nearly 3 marathons in a row!)

This is a surprisingly good route! Up to about Mile 50 it is especially nice -- rural, peaceful, lined with cottonwoods, and with frequent big views of the city and the Front Range of the Rocky Mountains to the west. After 50 it becomes a little more "urban" feeling... While 64 miles is definitely long, the trail is basically flat, the surface is good, and resupply is easy.

Andy Palmer crushed my time on April 5, 2013, running the whole HLCT in 9h35m29s... Jeremy Bradford made 3 unsuccessful attempts at Palmer's time, before finally taking the FKT [Fastest Known Time] by just 4 minutes on June 7, 2014, 9h31m14s.

Peter Bakwin, Fastest Known Time. http://fastestknowntime.proboards.com/thread/71/high-line-canal-trail-denver

What is your High Line Canal story?