

The Park on Violet

February 2024

**Site Analysis
Document**



Introduction

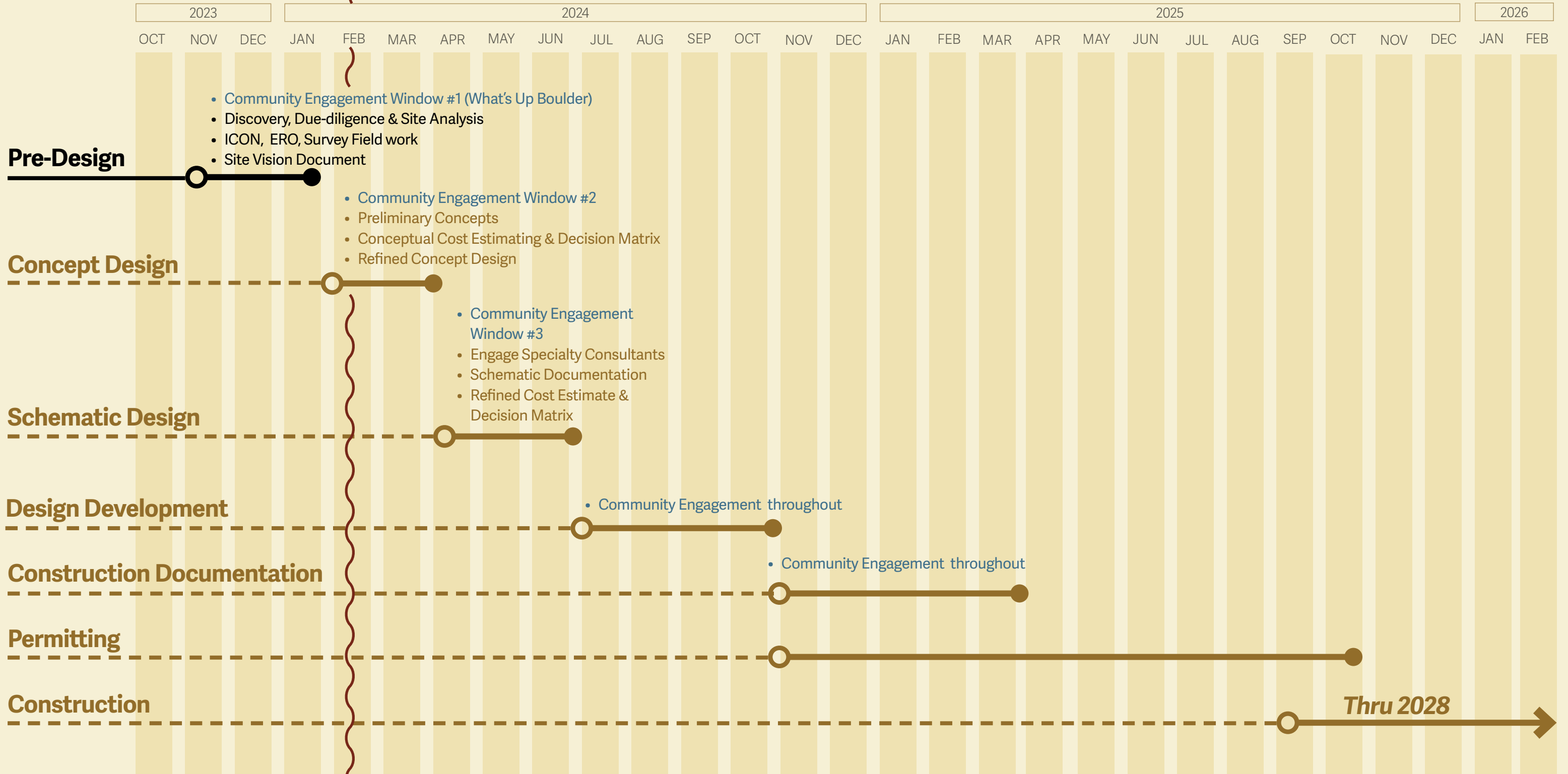
The following document details the first phase of the Park on Violet Design documentation process.

Over the past three months the Boulder Parks and Recreation (BPR) and the Sasaki design team have conducted the project's Pre-Design phase. This portion of the project aimed to understand the Park on Violet's existing conditions including hydrology, ecology, community, and connections to the broader multi-modal transportation systems.

This portion of the project kicked off a robust community outreach effort conducted by BPR that will run the duration of the project process.

The enclosed analysis and findings will serve as the bases of design for the following phases of the project as the Park on Violet becomes a reality!

We're here!



- Community Engagement Window #1 (What's Up Boulder)
- Discovery, Due-diligence & Site Analysis
- ICON, ERO, Survey Field work
- Site Vision Document

- Community Engagement Window #2
- Preliminary Concepts
- Conceptual Cost Estimating & Decision Matrix
- Refined Concept Design

- Community Engagement Window #3
- Engage Specialty Consultants
- Schematic Documentation
- Refined Cost Estimate & Decision Matrix

- Community Engagement throughout

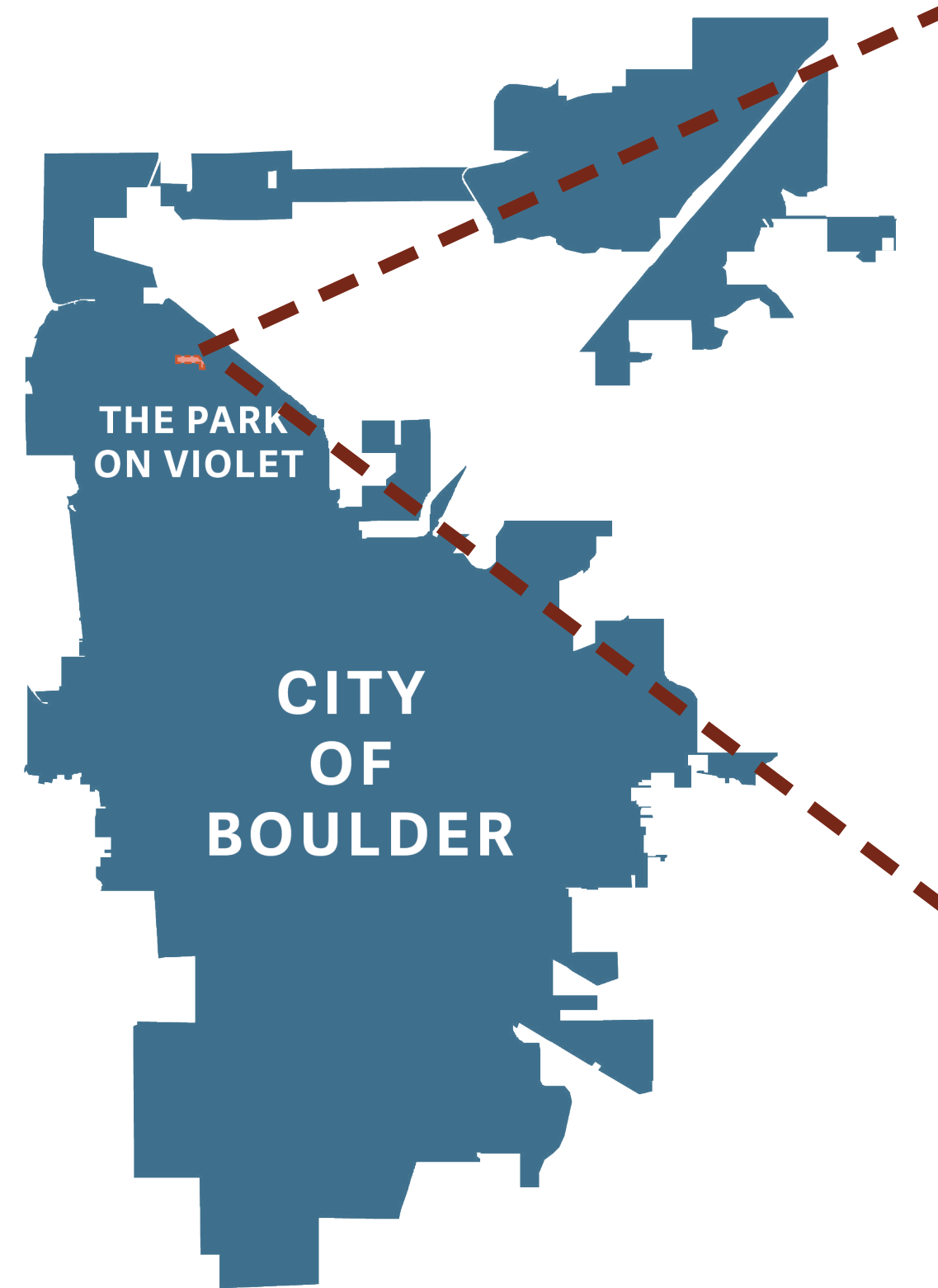
- Community Engagement throughout

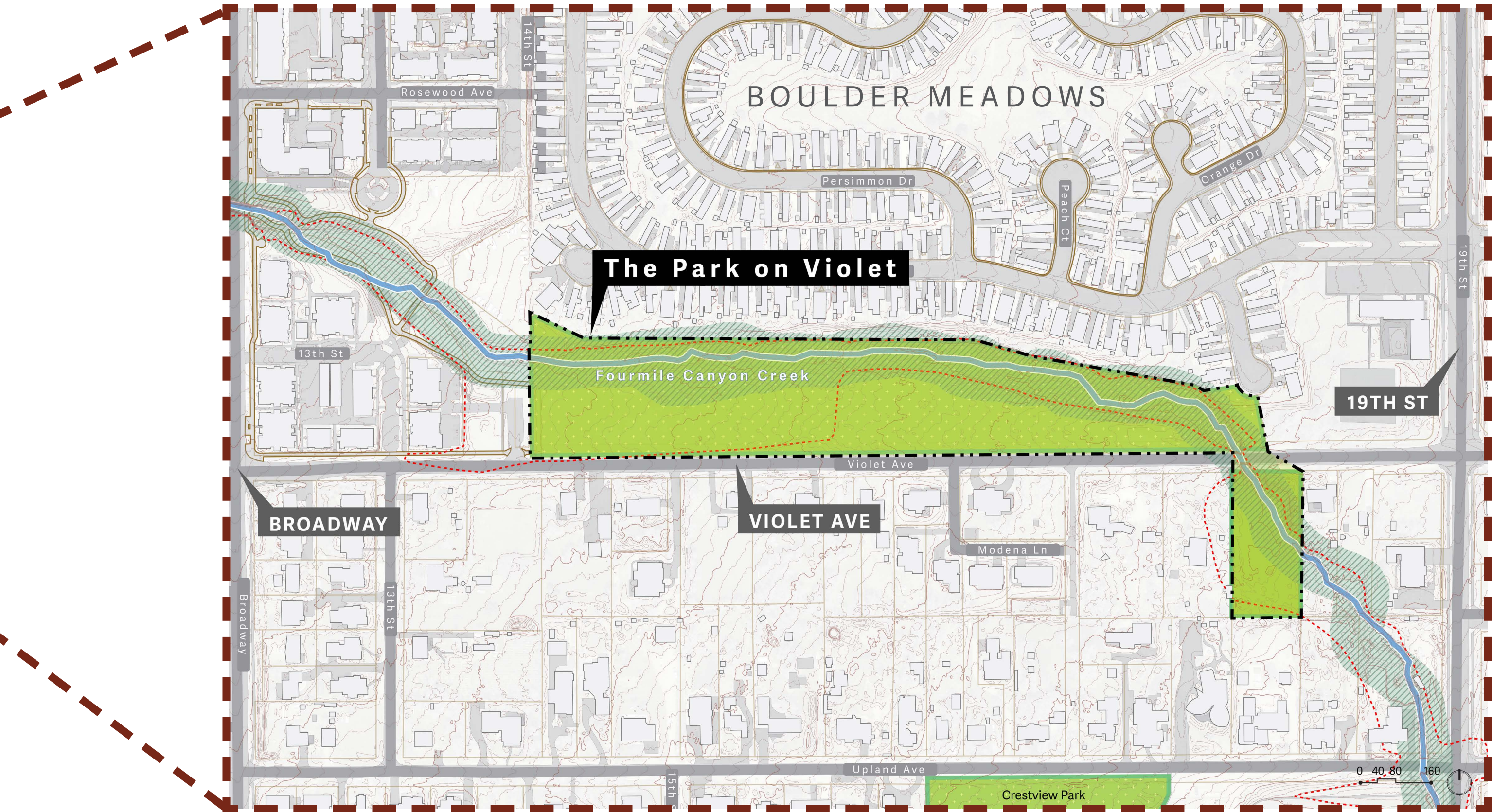
Thru 2028

Site Location

Located in North Boulder, the Park on Violet is a 9-acre undeveloped neighborhood park that runs along Fourmile Canyon Creek.

Running horizontally between Broadway and 19th Street, the park is immediately adjacent to Boulder Meadows, the city's largest mobile home community.





BOULDER MEADOWS

The Park on Violet

Fourmile Canyon Creek

19TH ST

BROADWAY

VIOLET AVE

Modena Ln

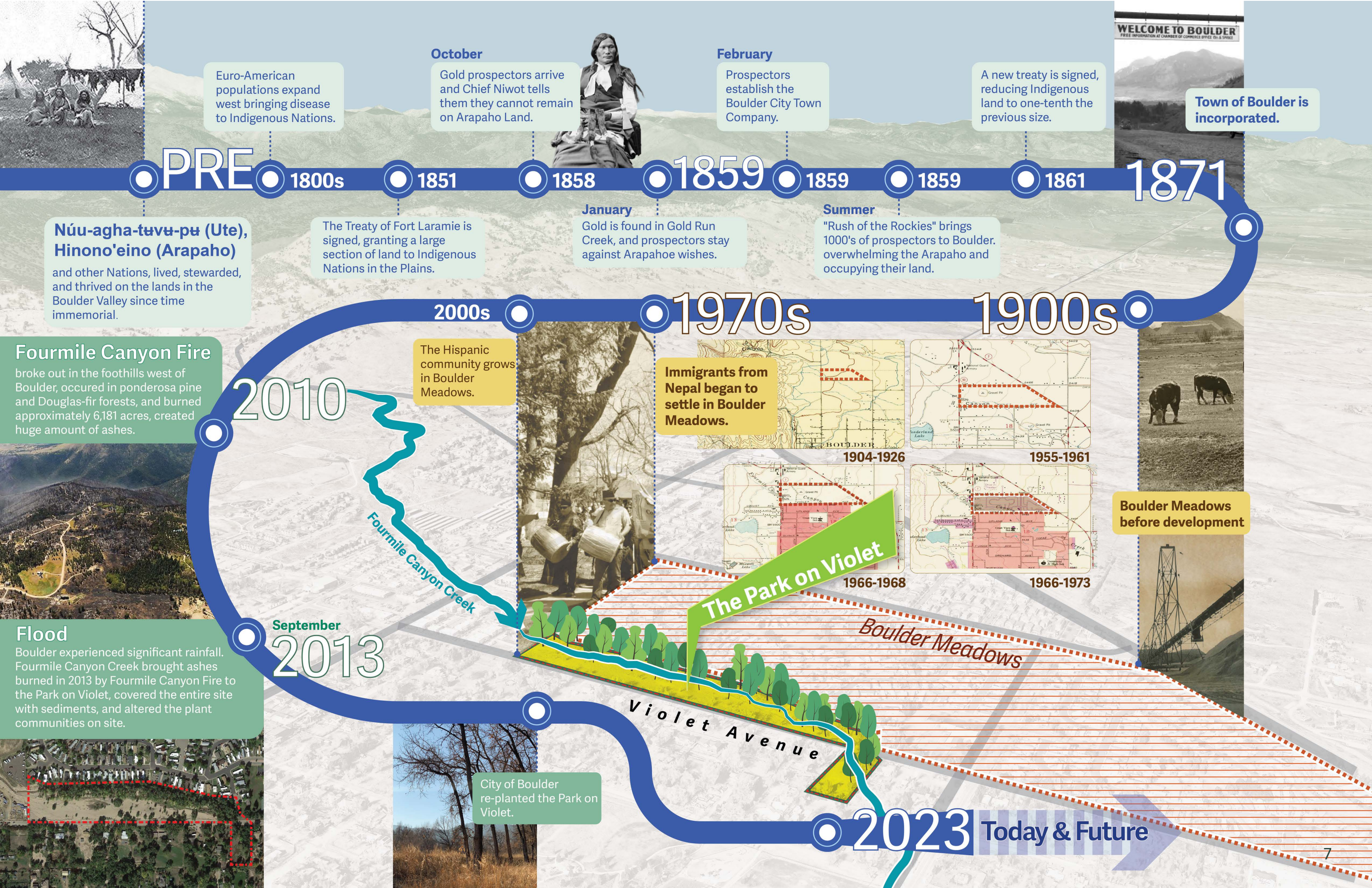
Upland Ave

Crestview Park

0 40 80 160

Site History

The Park on Violet has a layered and rich history, beginning with the Cheyenne, Arapahoe, and Ute Peoples more than ten thousand years ago. Over the past 150 years, the Park on Violet underwent significant landscape change, as gold prospectors incorporated the town and settled the area, displacing Indigenous populations. More recently, the area adjacent to the site has become home to Nepalese and Hispanic communities. The design must celebrate this cultural and environmental history, as well as honor Indigenous stories and voices. Design elements should be culturally inclusive and support the representation of both these historic and current communities through various strategies, such as plant selection, artistic features, and/or cultural symbolism.



PRE

1800s

1851

1858

1859

1859

1859

1861

1871

Euro-American populations expand west bringing disease to Indigenous Nations.

October
Gold prospectors arrive and Chief Niwot tells them they cannot remain on Arapaho Land.

February
Prospectors establish the Boulder City Town Company.

A new treaty is signed, reducing Indigenous land to one-tenth the previous size.

Town of Boulder is incorporated.

Núu-ąha-tǽvǽ-Ꞥ (Ute), Hinono'eino (Arapaho)
and other Nations, lived, stewarded, and thrived on the lands in the Boulder Valley since time immemorial.

The Treaty of Fort Laramie is signed, granting a large section of land to Indigenous Nations in the Plains.

January
Gold is found in Gold Run Creek, and prospectors stay against Arapahoe wishes.

Summer
"Rush of the Rockies" brings 1000's of prospectors to Boulder, overwhelming the Arapaho and occupying their land.

2000s

1970s

1900s

2010

Fourmile Canyon Fire
broke out in the foothills west of Boulder, occurred in ponderosa pine and Douglas-fir forests, and burned approximately 6,181 acres, created huge amount of ashes.

The Hispanic community grows in Boulder Meadows.

Immigrants from Nepal began to settle in Boulder Meadows.

Boulder Meadows before development

Flood
Boulder experienced significant rainfall. Fourmile Canyon Creek brought ashes burned in 2013 by Fourmile Canyon Fire to the Park on Violet, covered the entire site with sediments, and altered the plant communities on site.

September 2013

City of Boulder re-planted the Park on Violet.

The Park on Violet

1904-1926

1955-1961

1966-1968

1966-1973

Violet Avenue

Boulder Meadows

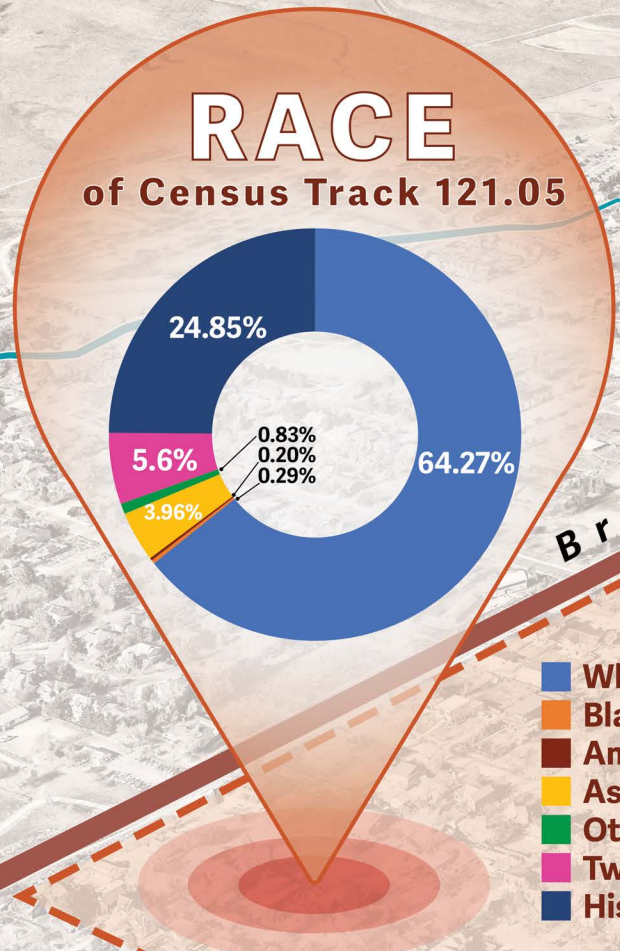
2023 Today & Future

Community Demographics

The Park on Violet's surrounding community is one of the most diverse in all of Boulder. To the north is Boulder Meadows, the largest mobile home community in the area, made up of primarily Hispanic and Nepalese residents. Understanding that these communities have historically been underserved and have had less access to parks will help us create inclusive spaces that feel like the community's own. By working closely with the community, we can create a park that reflects their cultural values, needs, and aspirations.

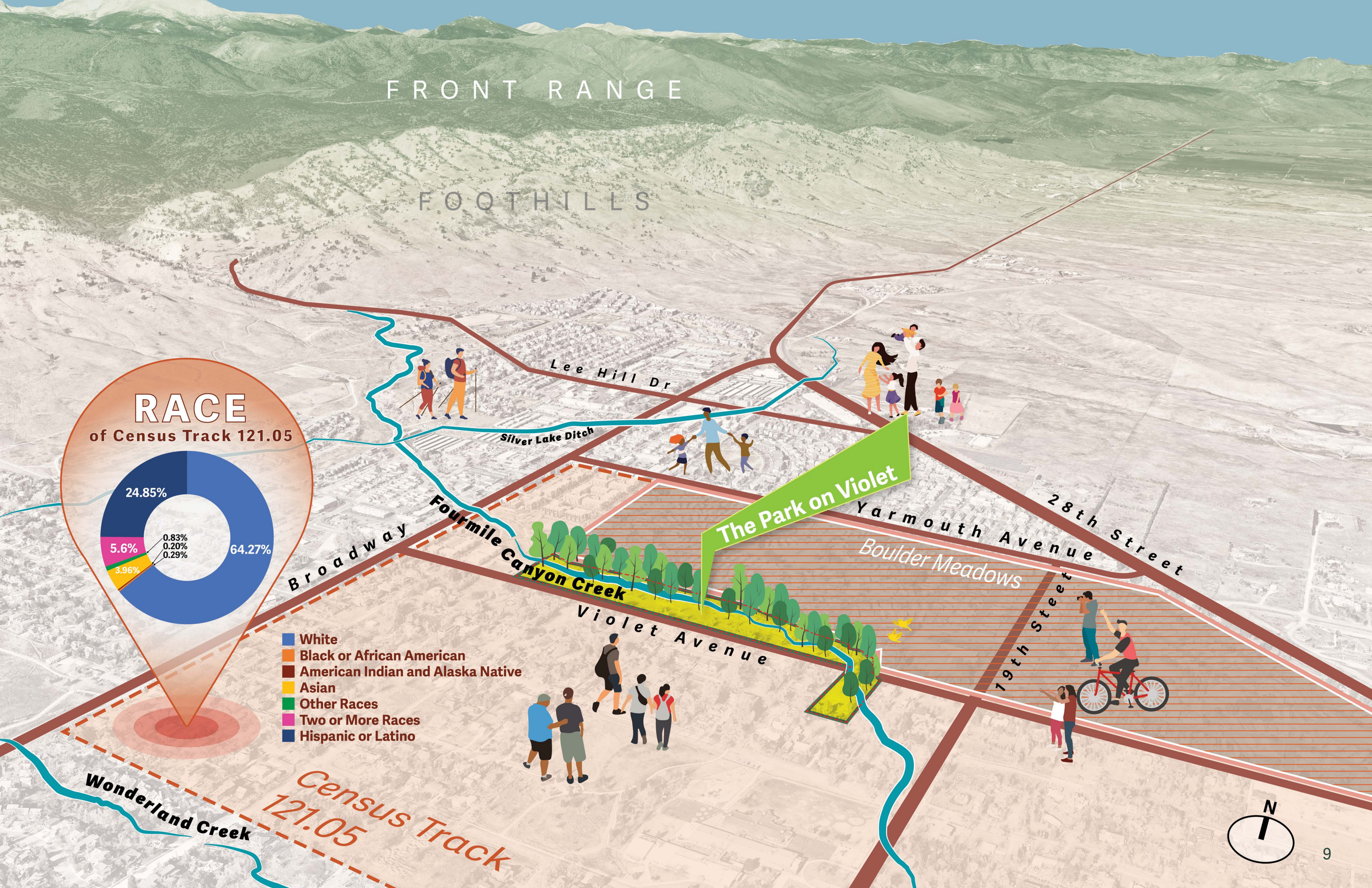
FRONT RANGE

FOOTHILLS



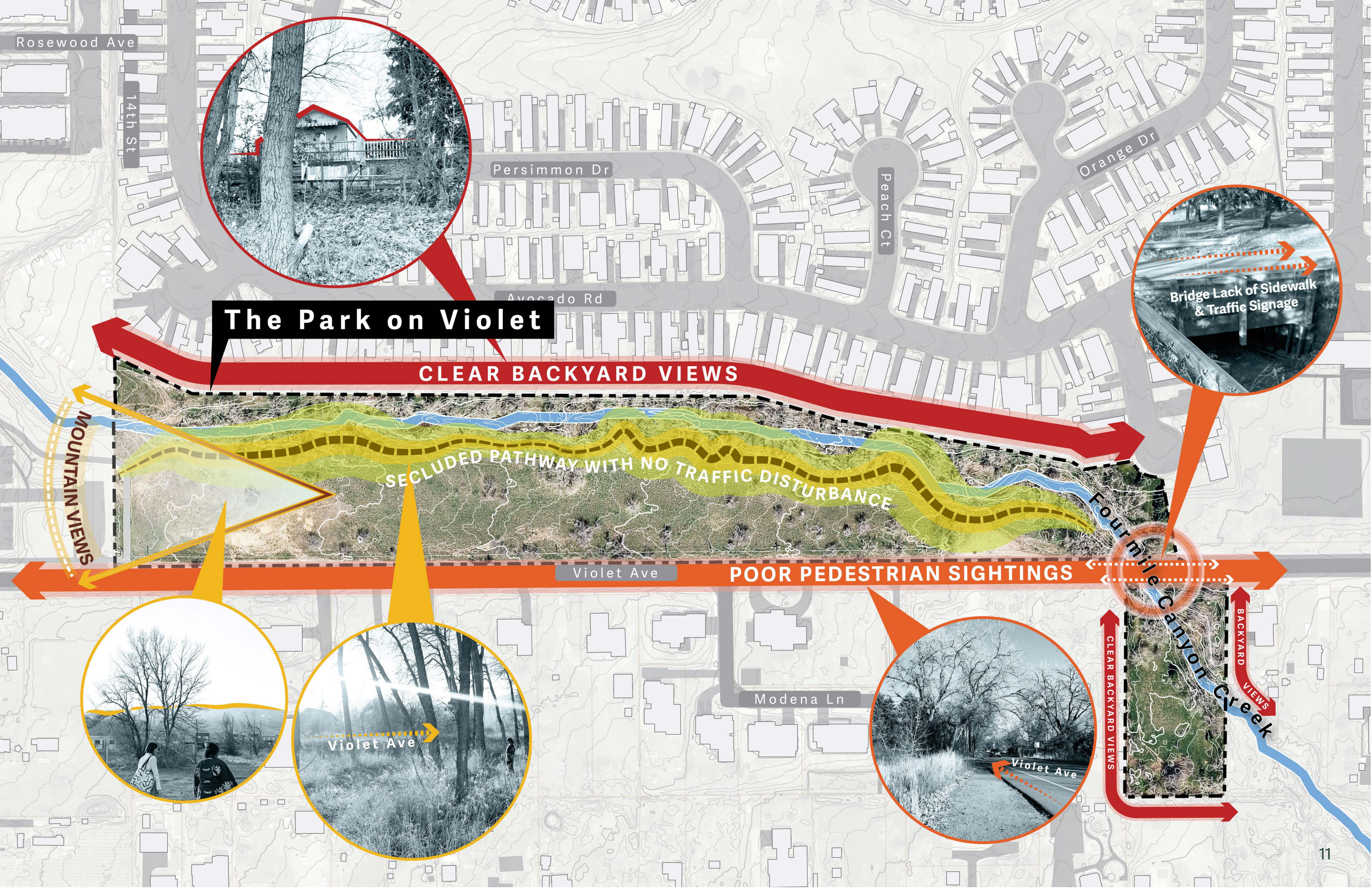
- White
- Black or African American
- American Indian and Alaska Native
- Asian
- Other Races
- Two or More Races
- Hispanic or Latino

The Park on Violet



Viewsheds

The views within the future Park on Violet are varied, from clear backyard views of Boulder Meadows along the north edge, to open views of the mountains to the west, to residential areas to the south. Along Violet Avenue, pedestrians are not often seen due to the lack of sidewalk and high vehicle speeds. Within the park, topography shelters a secluded cottonwood-lined pathway along the creek. Understanding what is and what is not visible within the future Park on Violet and along its edges will help us create a design that considers community safety, privacy, and scenic viewpoints.



The Park on Violet

CLEAR BACKYARD VIEWS

SECLUDED PATHWAY WITH NO TRAFFIC DISTURBANCE

POOR PEDESTRIAN SIGHTINGS

Bridge Lack of Sidewalk & Traffic Signage

MOUNTAIN VIEWS

Four Mile Canyon Creek

BACKYARD VIEWS

Violet Ave

Violet Ave

CLEAR BACKYARD VIEWS

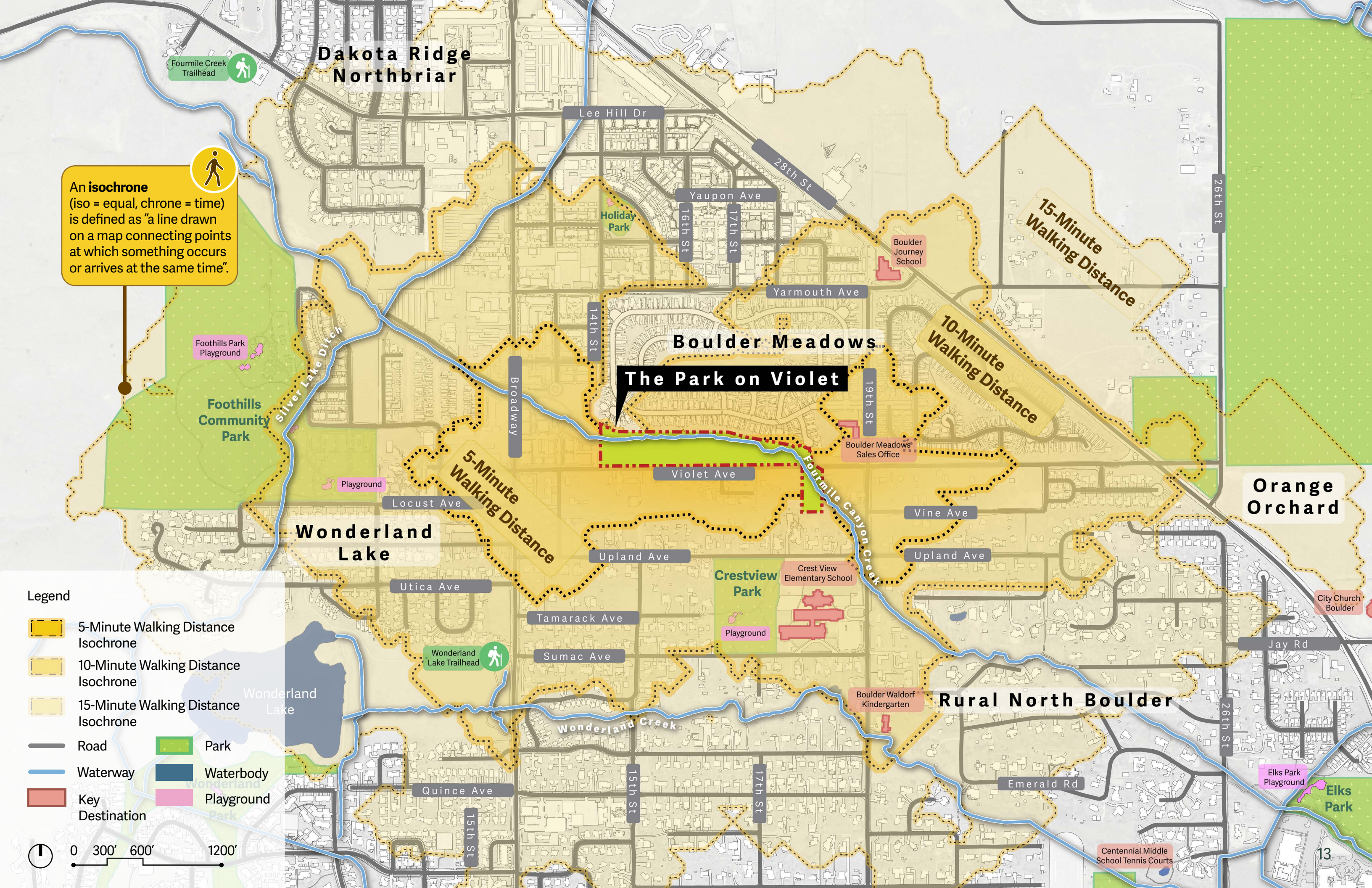
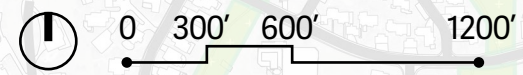
Circulation Walkshed

Despite Boulder Meadow's immediate adjacency to the future Park on Violet, the community is not within a five-minute walking distance and only half of the neighborhood is within a ten-minute walking distance. Chain link fences along the park's north edge restrict access for nearby residents. Due to the lack of neighborhood street connectivity, much of the community to the south is similarly outside of a five-minute walk, with only a slightly larger area within the ten-minute walk. There is an opportunity to improve park connections for the surrounding communities by creating new access points and safer pathways along Violet Avenue. Our design process will seek to improve neighborhood connectivity from both the north and south, for all residents to have more equitable access to the park.

An **isochrone** (iso = equal, chrone = time) is defined as "a line drawn on a map connecting points at which something occurs or arrives at the same time".

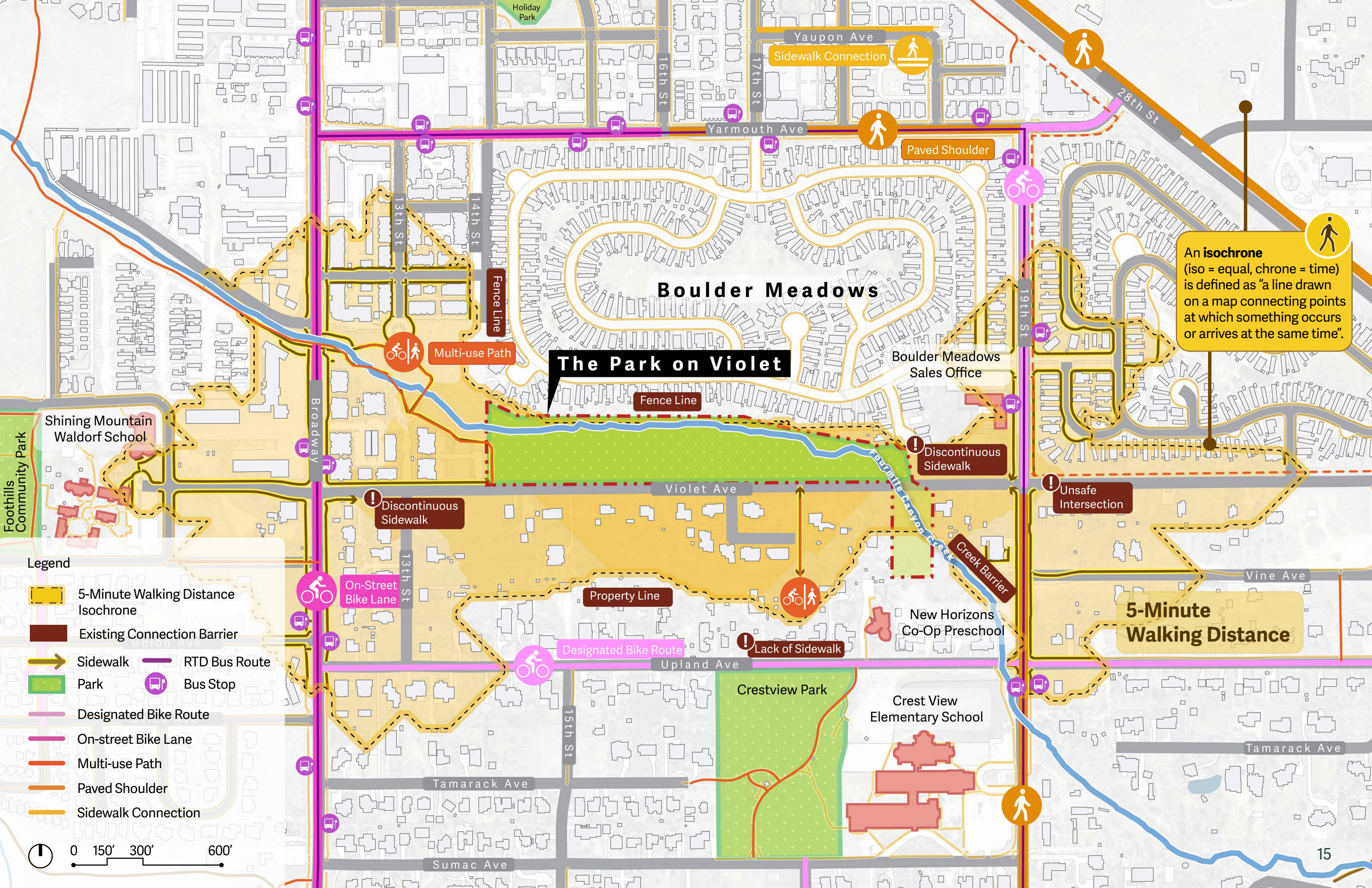


- Legend**
- 5-Minute Walking Distance Isochrone
 - 10-Minute Walking Distance Isochrone
 - 15-Minute Walking Distance Isochrone
 - Road
 - Waterway
 - Key Destination
 - Park
 - Waterbody
 - Playground



Circulation

Several safety concerns, including discontinuous sidewalk, unsafe intersections, and high traffic speeds, impact access to the future Park on Violet. Fences bordering Boulder Meadows also inhibit neighborhood access, meaning many residents living directly adjacent to the park cannot easily access it. While bus and cycling networks are available on Broadway and 19th Street, these are disconnected from the park itself. There is a gap in the multi-use path network that adjoins the future park on Violet with Foothill Community Park and the openspace beyond. There is a need to improve sidewalk and micro-mobility connections, particularly along Violet Avenue, to ensure all pedestrians including families and children can access the park safely.



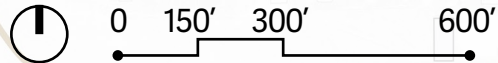
An **isochrone** (iso = equal, chrone = time) is defined as "a line drawn on a map connecting points at which something occurs or arrives at the same time".

The Park on Violet

5-Minute Walking Distance

Legend

- 5-Minute Walking Distance Isochrone
- Existing Connection Barrier
- Sidewalk
- Park
- Designated Bike Route
- On-street Bike Lane
- Multi-use Path
- Paved Shoulder
- Sidewalk Connection
- RTD Bus Route
- Bus Stop



Pedestrian & Bike Circulation

Pedestrian and bike circulation is limited in proximity to the future Park on Violet. From the east, the sidewalk ends partway down Violet Avenue, creating unsafe conditions for pedestrians visiting the park by foot. Along the remainder of the road, there are no bike lanes or sidewalks, and only a minimal shoulder that can be used to access the park. A shared bike-pedestrian multi-use path connects the site with neighborhoods and greenspace to the northwest; however, this connection is not continued to the southeast. By understanding the lack of connectivity between the Park on Violet and the surrounding neighborhoods, we can create a design that improves pedestrian and cyclist safety, ease of access, and ultimately integrates the park more strongly into the heart of this neighborhood.

The Park on Violet

Existing Fence

Trail

Multi-use Path

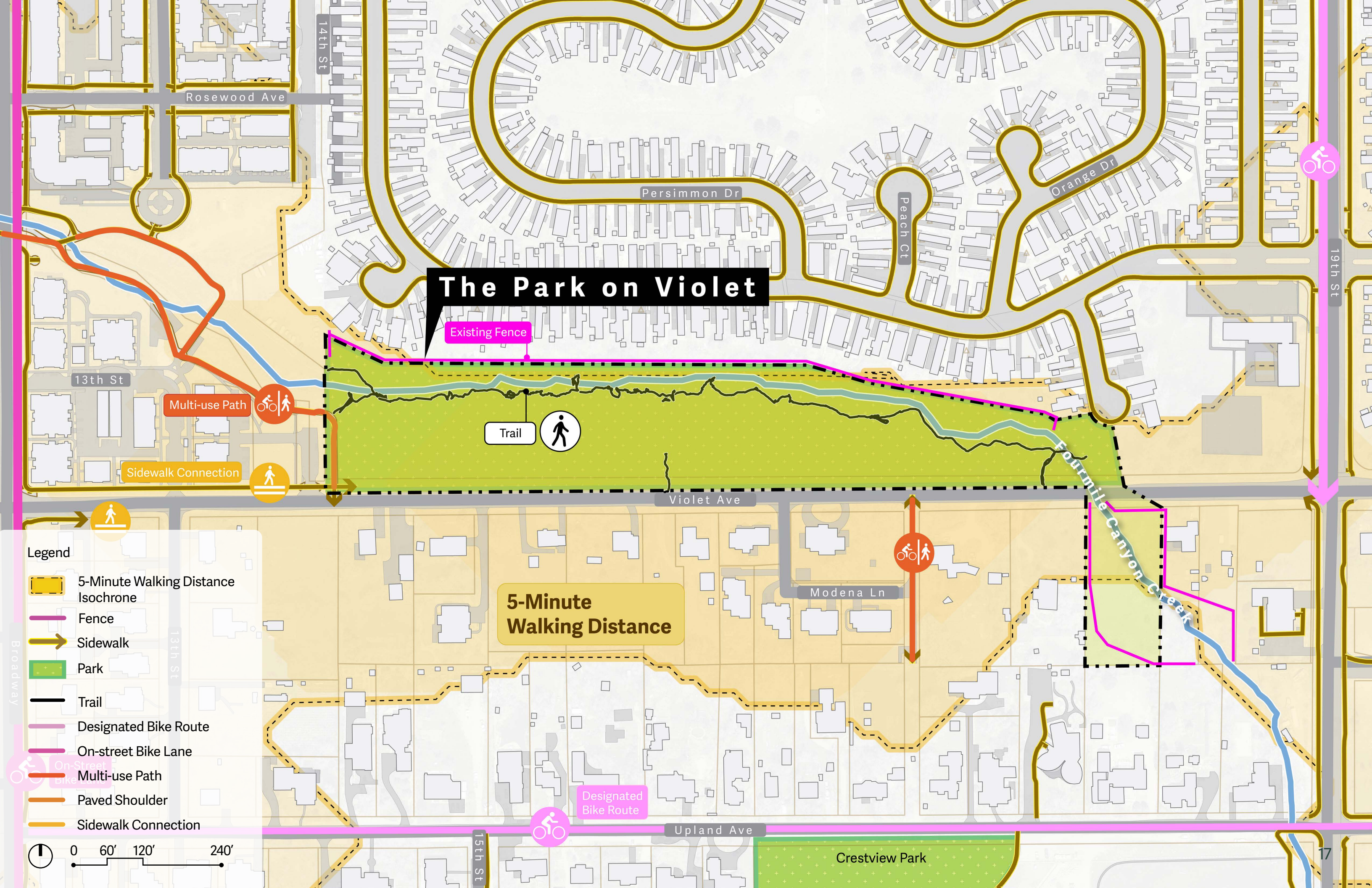
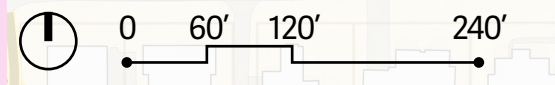
Sidewalk Connection

5-Minute Walking Distance

Designated Bike Route

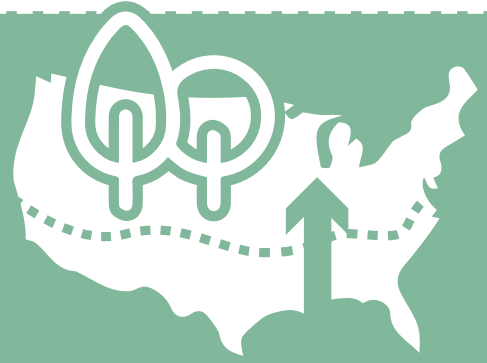
Crestview Park

- Legend
- 5-Minute Walking Distance Isochrone
 - Fence
 - Sidewalk
 - Park
 - Trail
 - Designated Bike Route
 - On-street Bike Lane
 - Multi-use Path
 - Paved Shoulder
 - Sidewalk Connection



Climate Adaptability

The future Park on Violet's climate is projected to become significantly warmer and more variable in the coming decades. In addition, the frequency and intensity of extreme weather, such as droughts, floods, and large seasonal temperature swings, is anticipated to increase, requiring the Park on Violet to have a robust and resilient climate adaptation plan. Plant hardiness zones are also shifting for the park, meaning design must consider species that may be different from current species on the site. These species will likely be those that have historically thrived in more southern climates.

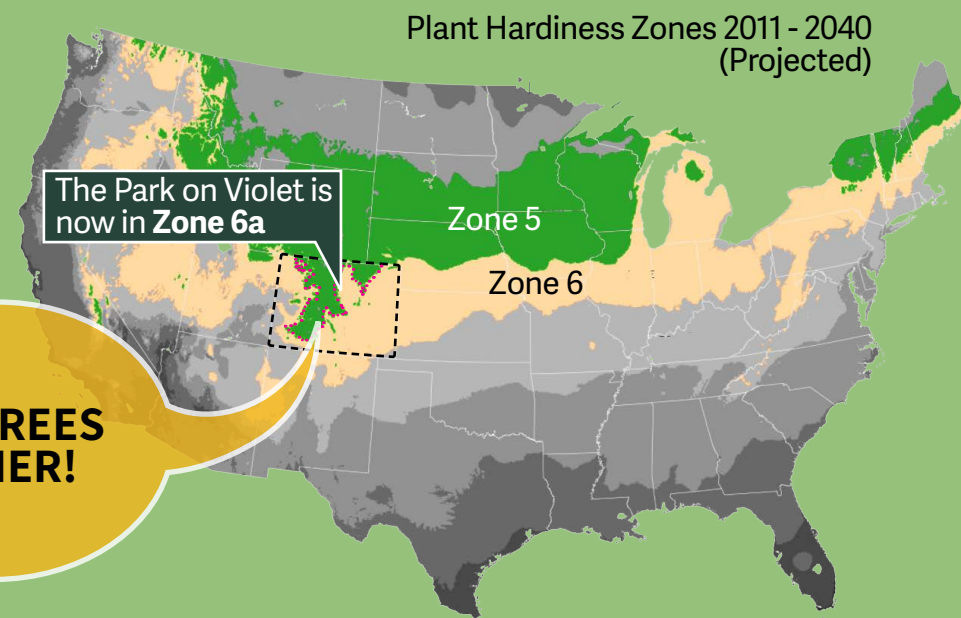
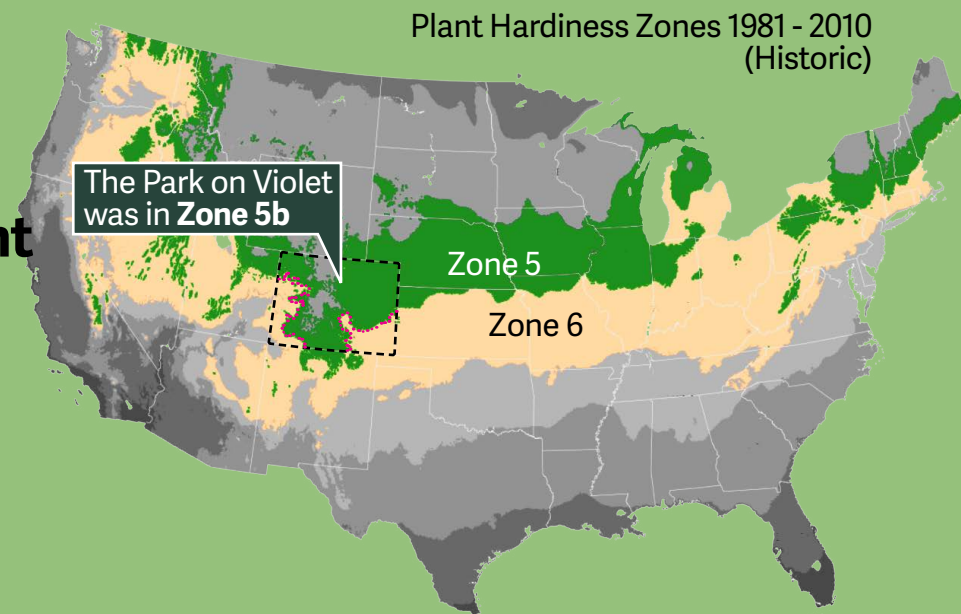


Plant Hardiness Zone Shifting North

The Park on Violet's plant hardiness zone affects **what plant species** can be used on site.

Average Winter Lows in Each Hardiness Zone

- Zone 5a -20 °F to -15 °F
- Zone 5b -15 °F to -10 °F
- Zone 6a -10 °F to -5 °F
- Zone 6b -5 °F to 0 °F



5 DEGREES WARMER!

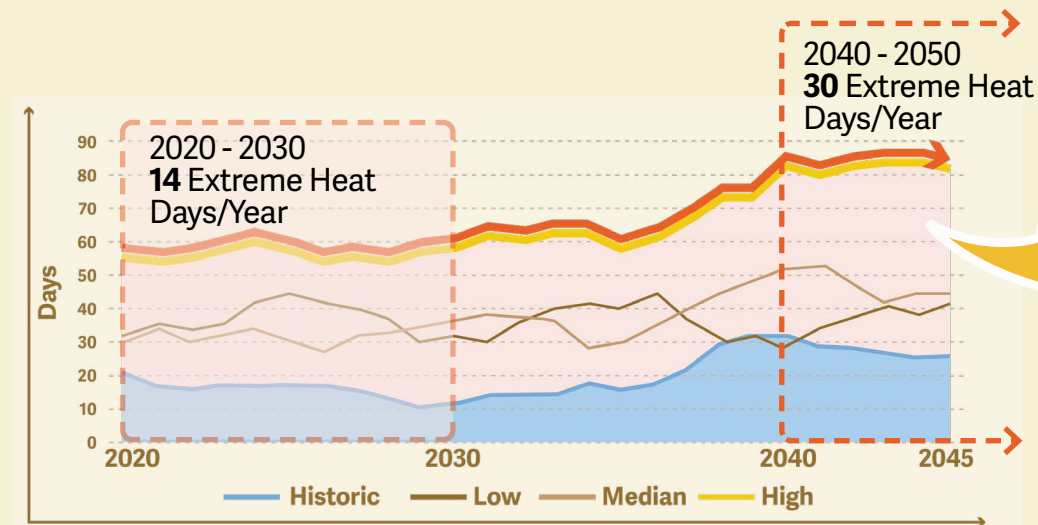
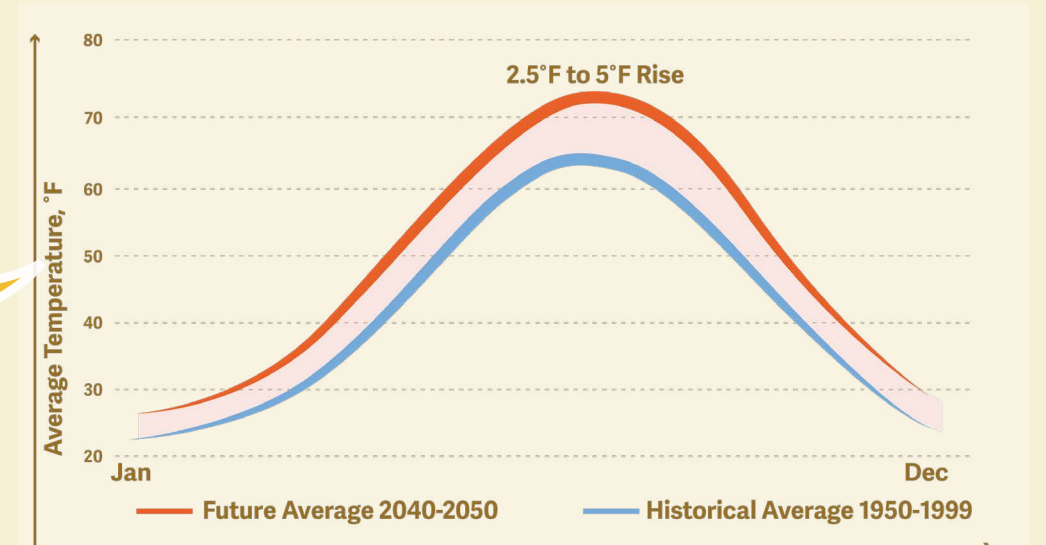


Temperature Rise 2.5°F to 5°F

The City of Boulder's climate is semi-arid /humid subtropical. By 2050, the average annual temperature in Boulder County is set to rise by 2.5 to 5 degrees. Temperature rise increases **heat-related illnesses**, makes **soil dryer**, and increase **in damage caused by invasive species**.

Temperature Rise

IT IS GETTING WARMER



MORE HOT DAYS!

5-Year Average: Extreme Heat Events

Climate Adaptability

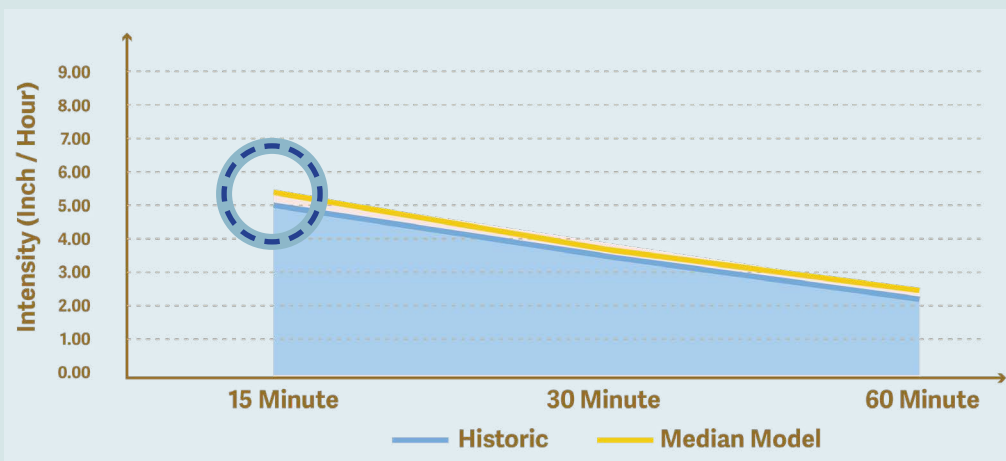
Increases in large precipitation events will require the Park on Violet to have robust drainage systems. The park's design must also consider diverse plant communities and other design elements that can adapt to increased temperature and reduce fire risk, respectively.



Precipitation

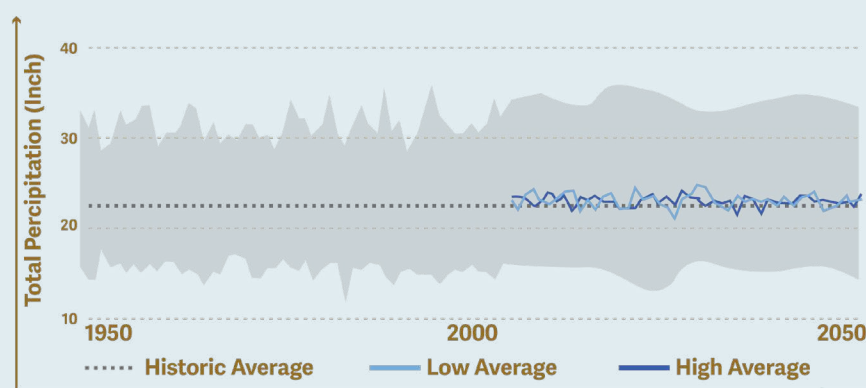
more intense,
short duration storm events

An increase in extreme precipitation events will require the Park on Violet to have **larger drainage systems** to store additional water on site.

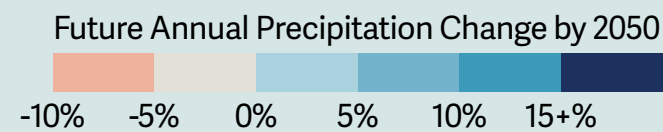


HEAVIER RAIN IN SHORTER TIME

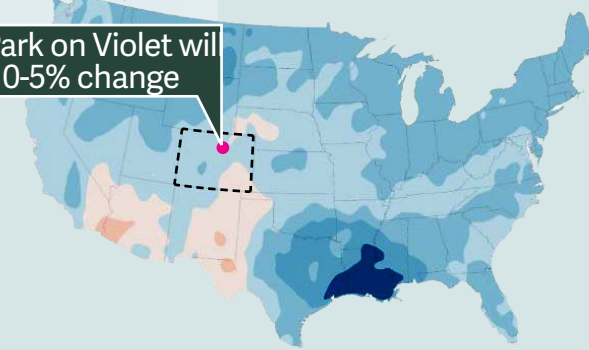
Boulder County: 100-Year Event Rainfall Intensity Curve
Major Storm Rainfall Intensity Projections (2020-2050)



Historic Average
22.34 Inches
High Average in 2050s
23.01 Inches
Low Average in 2050s
22.97 Inches



The Park on Violet will have 0-5% change

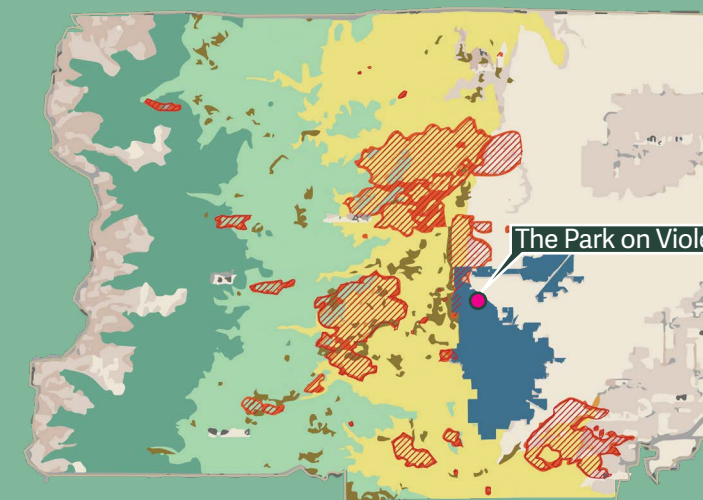


Wildfire and Flooding

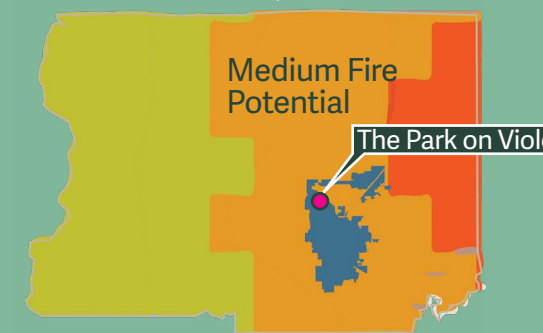


A warmer and drier climate leads to an increase in number and size of future wildfires.

Projected property damage from wildfires will increase by almost **50%** from 2020 to 2050 in Boulder County. **Properties next to undeveloped wildland vegetation** face the high risk of wildfire.



- City of Boulder
- Historic Wildfire Area (past 50 years)
- Low Montane
Fire Frequency 8 to 30 Years
- Upper Montane
Fire Frequency 50 to 300 Years
- Sub-alpine
Fire Frequency 300 to 500+ Years



Historic Fire Potential

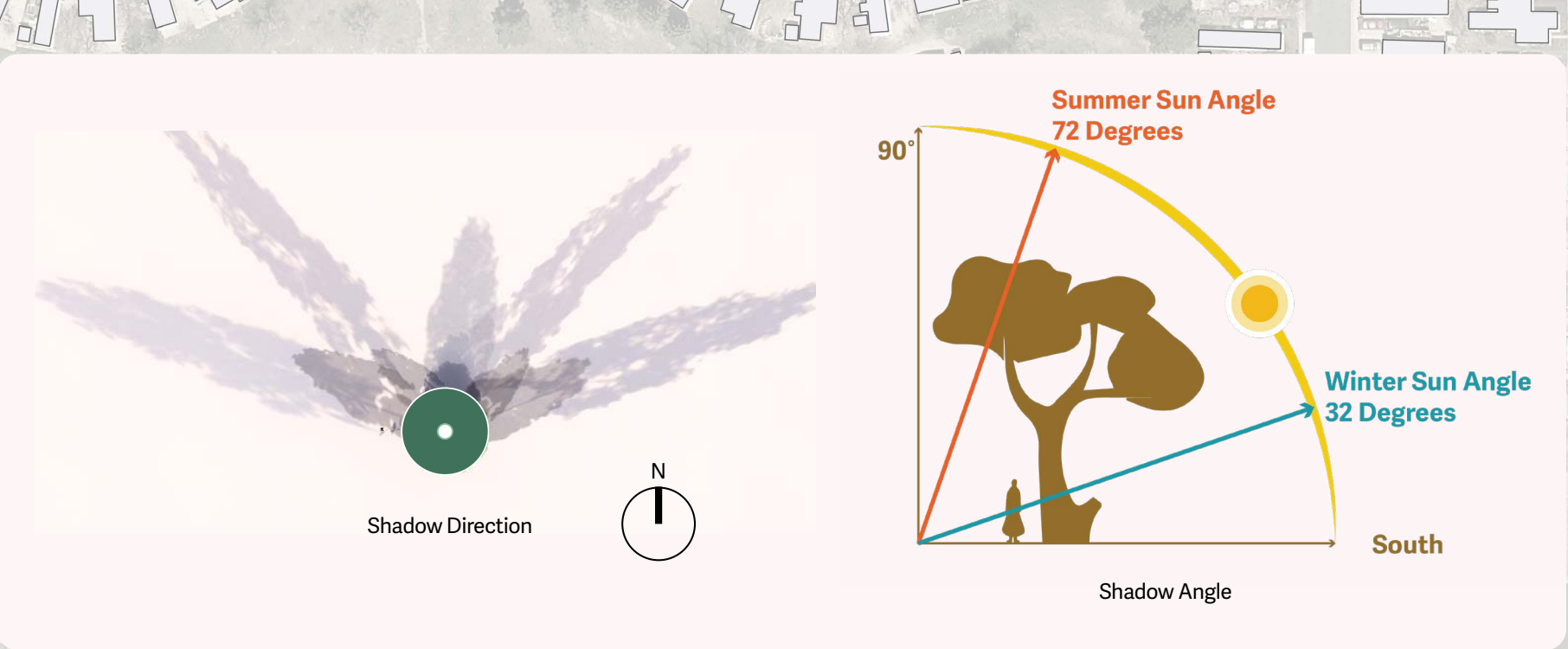


2050 Fire Potential

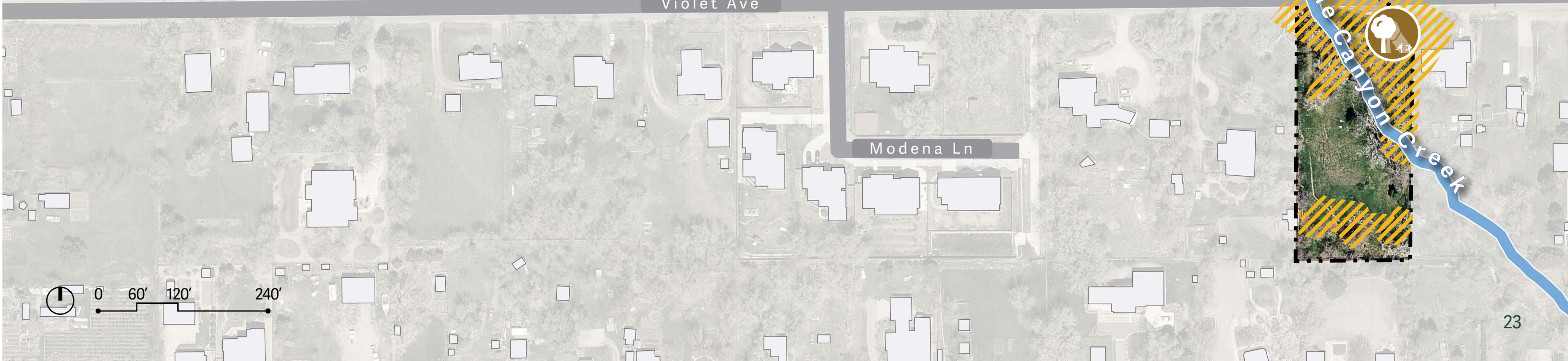
Flooding events are projected to increase by almost **50%** from by 2050. Properties on South of Violet Ave face more flooding hazards. **Sediment capture areas and stronger storm drain system** are required.

Sun/ Shade

The site is comprised of two microclimate zones impacted the presence of tree canopy, creek, and southern exposure. The canopied creek offers the greatest area for human comfort regulation with cooling shade in summer and northern wind protection in winter. The open grasslands experience the greatest temperature swings between summer and winter, but offer important warmth in the shoulder seasons of spring and fall. Understanding present-day microclimate effects helps us design a wide array of comfortable outdoors spaces and plan for future climate change effects.

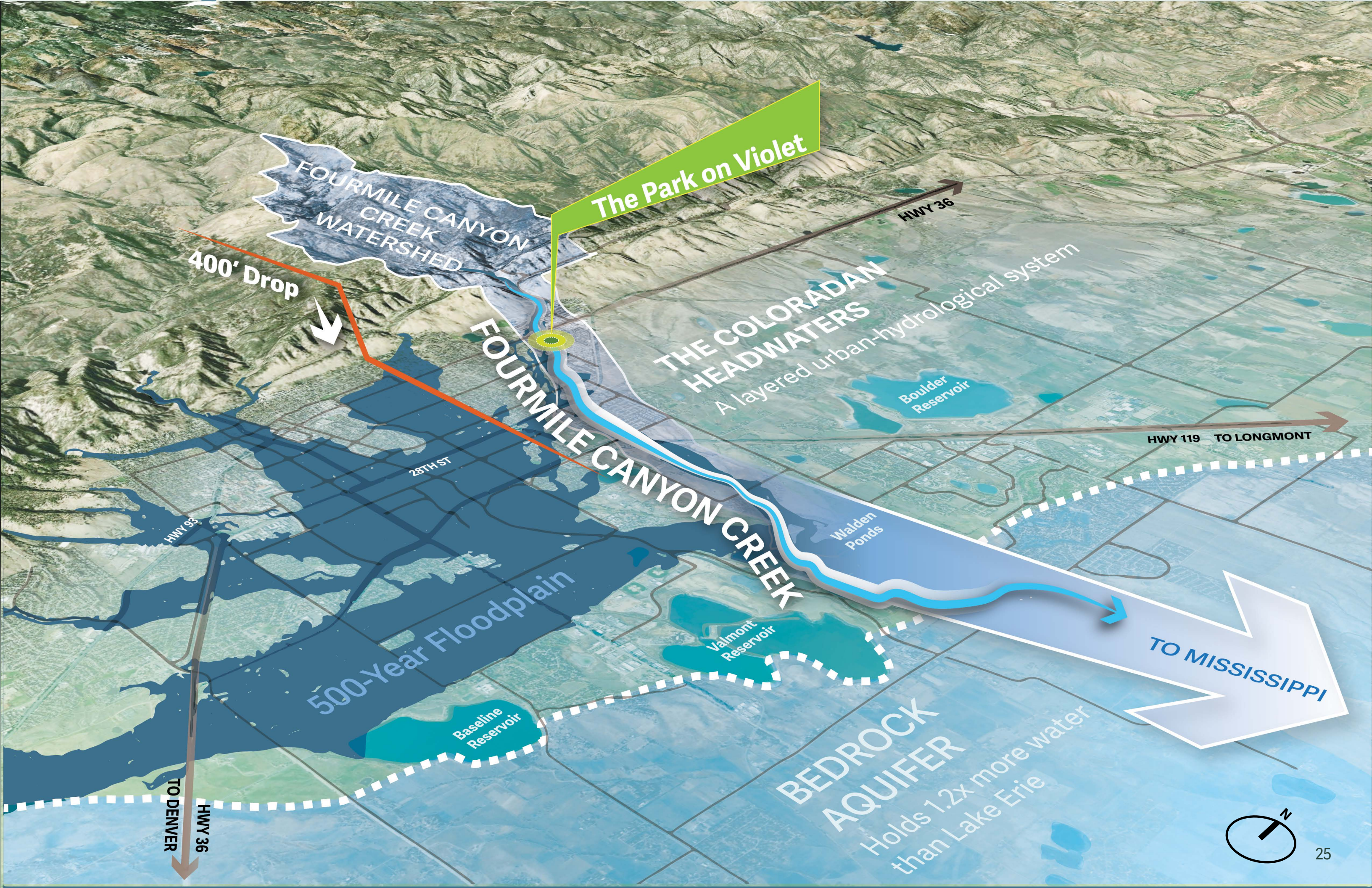


The Park on Violet



Context Hydrology

As a headwater state, any intervention to a Colorado waterway will have a downstream impact that must be considered in design. The Park on Violet, which is connected to a rich hydrological system by Fourmile Canyon Creek, is an opportunity to enhance downstream water quality for human and wildlife species. The creek's headwaters are in the Rocky Mountains and pass through urban environments, sensitive wetlands, and plains ecosystems before ultimately joining the Mississippi River. Park design must reduce the sediment load in the water by converting the suspended particles into material that could be used by plants on-site. Additionally, park design must support aquatic plant species that can help remove toxic substances from the water. Understanding this larger hydrological context will help create a design intervention that focuses on improving water quality both on-site and downstream.



The Park on Violet

FOURMILE CANYON CREEK WATERSHED

400' Drop

THE COLORADAN HEADWATERS
A layered urban-hydrological system

Boulder Reservoir

FOURMILE CANYON CREEK

Walden Ponds

HWY 119 TO LONGMONT

28TH ST

HWY 93

Valmont Reservoir

500-Year Floodplain

Baseline Reservoir

BEDROCK AQUIFER
Holds 1.2x more water than Lake Erie

TO DENVER
HWY 36

TO MISSISSIPPI



Site Hydrology

Nearly all of the future Park on Violet is flooded by Fourmile Canyon Creek during the 100-Year Storm, or a storm with a 1% chance of occurring in a year. During this heavy storm, much of the park is unsafe to access and is required to move flood waters down the creek. Park design will avoid any negative impacts to the floodplain and areas downstream of the park. Opportunities to improve floodplain function will be sought and maximized; however, the 9-acre park site is only a fraction of a much larger, complex watershed. Therefore, opportunities to substantially reduce flood risk for surrounding homes are limited.

The section of Fourmile Canyon Creek within the future park on Violet has a required 50-foot buffer on either side of the creek to limit development to protect riparian ecosystem function. Park design must support enhancement of the corridor and minimize disturbance within the buffer area.

Rosewood Ave

14th St

Persimmon Dr

Peach Ct

Avocado Rd

Violet Ave

Modena Ln

5475

5470

5465

The Park on Violet

Wetland Buffer Zone

Wetland areas are regulated by the City of Boulder. Fourmile Canyon Creek is a **High-Functioning Wetland**, known as Category A. This wetland type requires a 50-foot buffer from each point on the Creek that limits various development activities for the protection of this valuable ecosystem.



500-Year Floodplain

Land in this zone is needed to move and store floodwaters from the **500-Year Flood**, a storm that has a 0.2% chance of occurring in a year.



100-Year Floodplain

Land in this zone is needed to move and store flood waters from the **100-Year Flood**. The **100-Year Flood** is a storm that has a 1% chance of occurring in a year or once in 100 years.



The height of floodwater through the **100-Year Floodplain** is known as the **Base Flood Elevation**. See how deep the **100-Year Flood** gets through this **floodplain** on the map.

Conveyance Zone

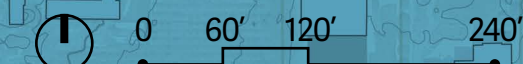
When a flood happens, this land is needed to move flood waters down the Creek.

This zone is needed for the Creek to safely pass the **100-Year Flood** and is equal to 6" of flood from the edges of the Creek. Land in this zone is preserved to allow flood waters to return to the Creek without increasing flood impacts in the **floodplain**.



High Hazard Zone

Areas of this zone pose the greatest danger to people during floods. Flood waters in this zone are strong enough to sweep people off their feet. This zone is created by the City of Boulder.



Existing Trees

Of the roughly 350 existing trees on site, the City Forester estimates that roughly 90 need to be removed because they are invasive, in poor condition, and/or a safety hazard. As design advances, it will ensure maximum conservation of the existing riparian forest. New trees will also be established where needed to enhance habitat quality, visitor experience, and public health. Unsafe trees will be removed and, where possible, re-used on-site in a different capacity, such as for habitat creation or play opportunities. Park design will manage good condition trees to ensure longevity and success while bolstering the site's biodiversity and ecosystem resilience by planting additional trees and shrubs.

The Park on Violet

Tree Preservation

Of the nearly 350 existing trees on site, roughly half have been identified as the most important for preserving

Trees to be Evaluated

Tree condition analysis has not yet been completed in this area of the park.

Other Trees

Park design will preserve as many trees as possible; however, roughly 90 trees may need to be replaced with new trees.

Rosewood Ave

14th St

Persimmon Dr

Peach Ct

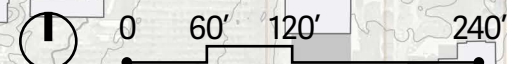
Orange Dr

Avocado Rd

Violet Ave

Modena Ln

Four Mile Canyon Creek



Existing Plant Communities

The typical cross section of Park on Violet illustrates the two main habitat typologies found on-site, riparian forest and grassland, as well as their associated species. Of the species observed on-site, nearly half the species in the park are non-native. Invasive grass species are particularly dominant and outcompete the native high plains prairie ecosystem. Park design must support a robust and climate-resilient planting palette that will perform multiple functions. Spaces within the park must enhance, restore, and create habitat for grassland species and forest species. There is an opportunity to create a phased successional plan for long-term understory and canopy success as existing cottonwoods approach their end-of-life. The design may support an on-site nursery, allowing plant propagates to successfully establish and adapt to the park's unique climate and soils prior to construction. Park design will use soils and plant species with local provenance to bolster the site's post-flood low quality soils.

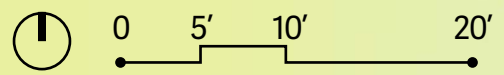
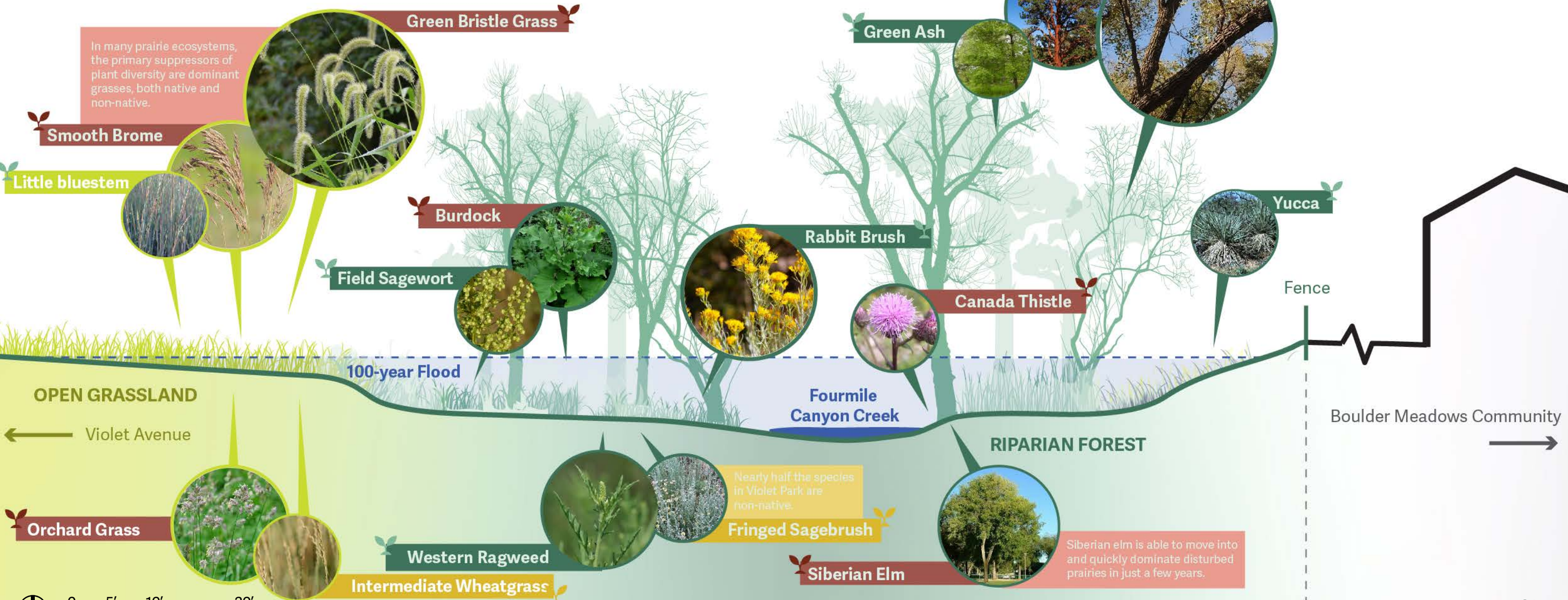
Nearly half of the species observed at the Park on Violet are non-native.

Native 
 Introduced Non-invasive 
 Invasive Species 

Species

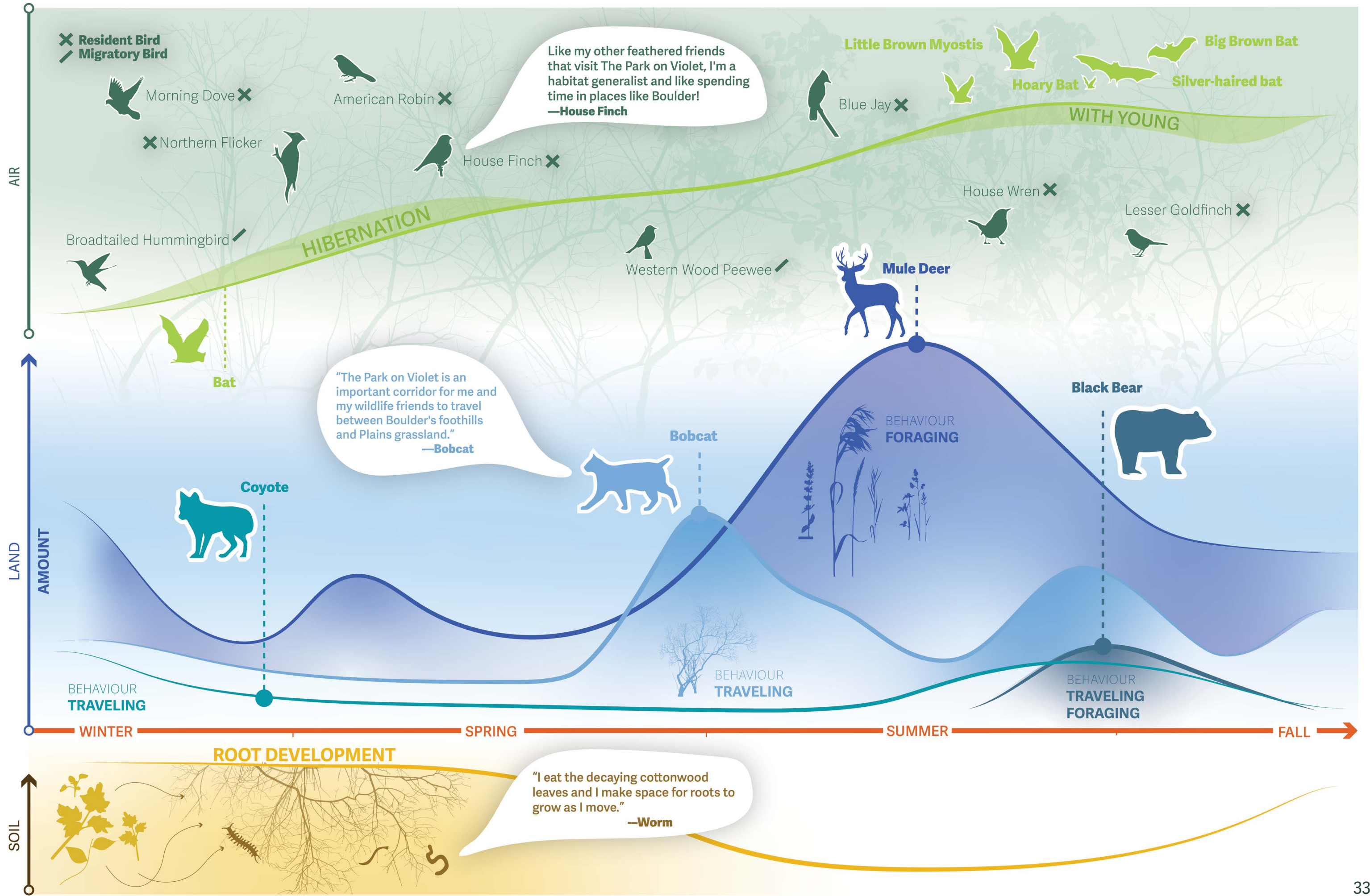
29
 Species Observed

Habitat Typologies



Existing Wildlife

The Park on Violet is home to a diverse range of mammal and bird species. Many of these species are habitat generalists and adaptable to different environments. Park spaces must support these species by enhancing existing habitat, i.e., by providing seasonal forage following animal use patterns of the Park on Violet. Deer, for example, will require forage grounds throughout the year, including areas devoid of snow in the winter with small regenerating trees and shrubs. The park is also used frequently as a wildlife corridor for bobcats, bears, coyotes, and mule deer to travel between Boulder's foothills and the plains grasslands. Park design must continue to support this critical corridor function by providing continuous sheltered spaces with minimal light pollution for traveling wildlife. As many of park's bird species are year-round residents, it will be important to establish a plant community with multiple layers (herbs, shrubs, and trees of different heights) that will support bird nesting and foraging needs.

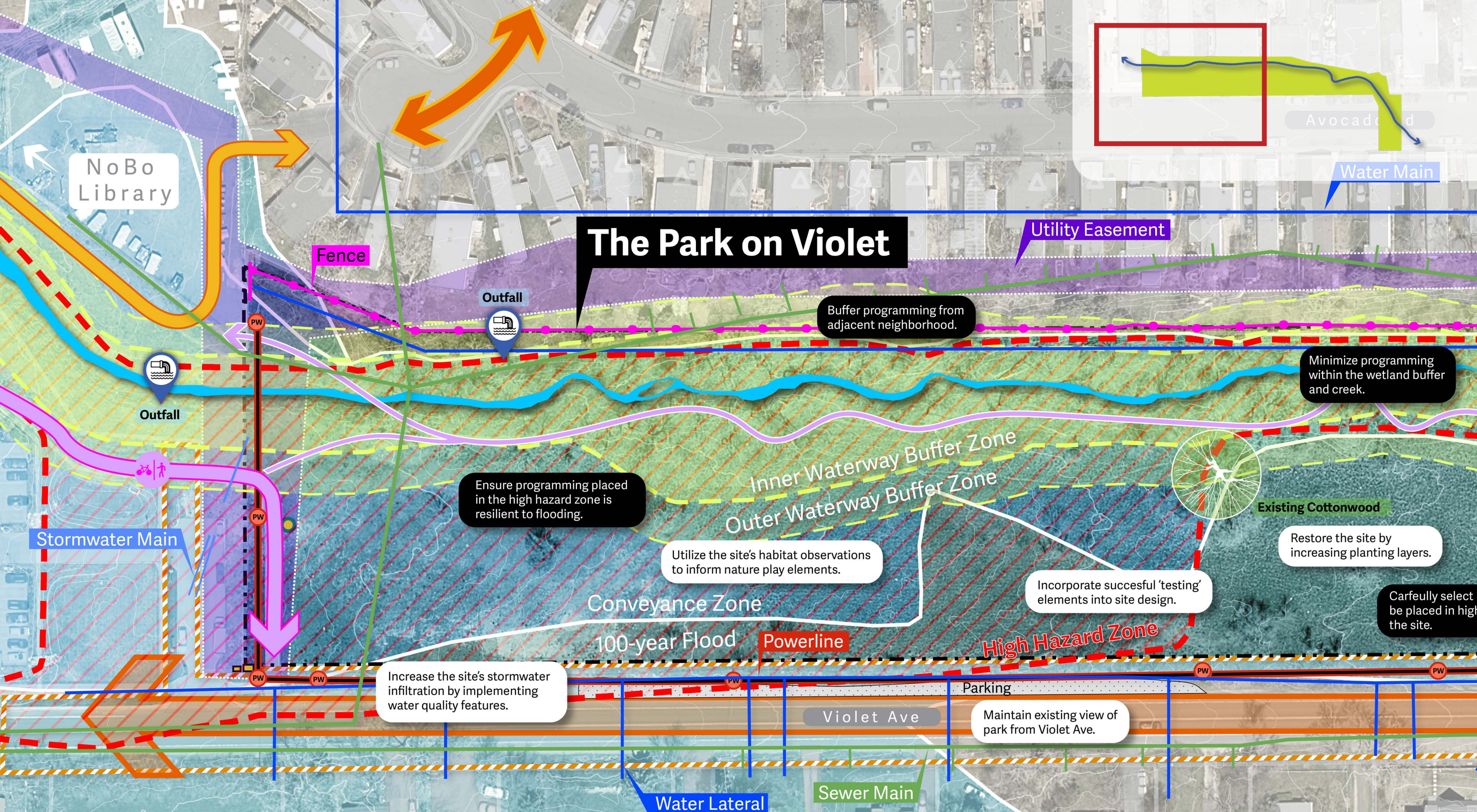


Opportunities & Constraints

Viewsheds: Views to the west are awe-inspiring, as is the scenic experience along the tree-lined creek bed. Viewsheds should be maintained, designed and managed in balance with community safety and privacy for neighboring homes.

Plant communities: Roughly half of all plant species on site are non-native, such as invasive grasses that outcompete the native high plains prairie ecosystem. Sediment capture, soil quality, and a more resilient plant palette will improve water quality, better support wildlife, and help establish a pollinator pathway in partnership with the community.

Tree conditions: Roughly 25% of existing trees on site may need to be removed because they are invasive, in poor condition, and/or pose safety risks to the public. Park design will maximize conservation of the existing riparian forest.



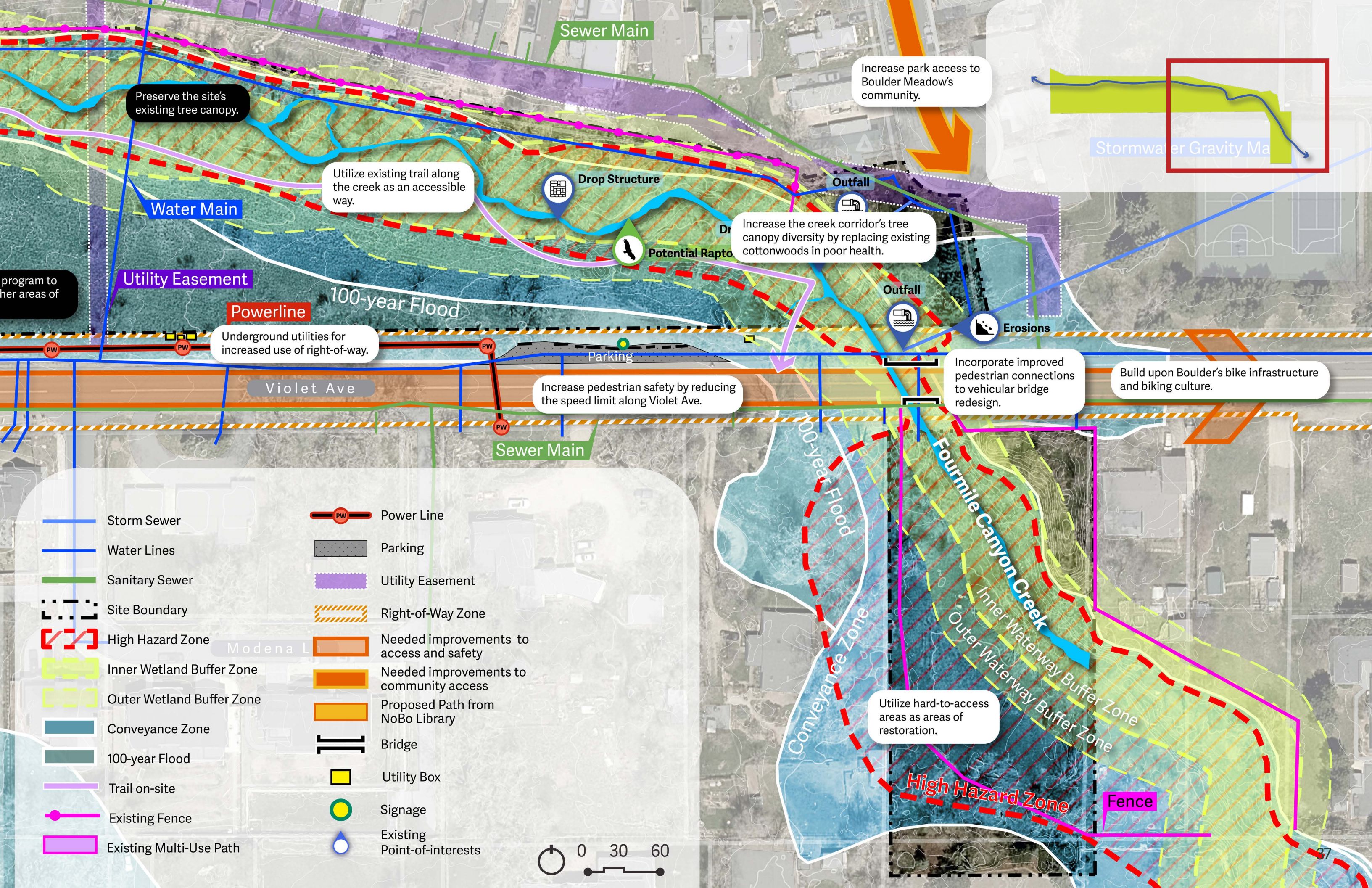
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|----------------|---------------------------|-----------------|-------------------------|-----------------------------|--|
| Storm Sewer | High Hazard Zone | Conveyance Zone | Utility Easement | Utility Box | Needed improvements to access and safety |
| Water Lines | Inner Wetland Buffer Zone | 100-year Flood | Existing Multi-Use Path | Signage | Needed improvements to community access |
| Sanitary Sewer | Outer Wetland Buffer Zone | Trail on-site | Right-of-Way Zone | Existing Point-of-interests | Proposed Path from NoBo Library |
| Power Line | Parking | Existing Fence | Bridge | | |



Climate adaptability: Increased frequency and intensity of extreme weather, such as droughts, floods, and drastic, seasonal temperature extremes, must be taken into account in designing and maintaining floodplain infrastructure, drainage systems, and shelter from extreme temperatures. To address pervasive feelings of climate anxiety, locally and across the world, park design and programming should also integrate recommendations from Growing Up Boulder's Eco-healing Project.

Hydrology: All 9 acres of the park site are within the 100-year floodplain. On-site improvements to floodplain function will be sought and maximized; however, the site is only a small fraction of a much larger, complex watershed. Therefore, opportunities to substantially reduce flood risk for surrounding homes are limited.

Circulation (active travel): Despite Boulder Meadow's immediate adjacency to the Park on Violet, the community is not within a five-minute walking distance and only half of the neighborhood is within a ten-minute walking distance. New access points, safer pathways along Violet Avenue, and safer routes to and from the park are necessary to ensure neighbors and people with disabilities feel welcome and comfortable accessing the future park.



Preserve the site's existing tree canopy.

Utilize existing trail along the creek as an accessible way.

Increase park access to Boulder Meadow's community.

Stormwater Gravity Main

Water Main

Drop Structure

Outfall

Increase the creek corridor's tree canopy diversity by replacing existing cottonwoods in poor health.

Potential Raptor

Outfall

Erosions

Powerline

100-year Flood

Underground utilities for increased use of right-of-way.

Parking

Increase pedestrian safety by reducing the speed limit along Violet Ave.

Incorporate improved pedestrian connections to vehicular bridge redesign.

Build upon Boulder's bike infrastructure and biking culture.

Violet Ave

Sewer Main

100-year Flood

Fourmile Canyon Creek

Inner Waterway Buffer Zone

Outer Waterway Buffer Zone

Modena L

Utilize hard-to-access areas as areas of restoration.

High Hazard Zone

Fence

Storm Sewer

Water Lines

Sanitary Sewer

Site Boundary

High Hazard Zone

Inner Wetland Buffer Zone

Outer Wetland Buffer Zone

Conveyance Zone

100-year Flood

Trail on-site

Existing Fence

Existing Multi-Use Path

Power Line

Parking

Utility Easement

Right-of-Way Zone

Needed improvements to access and safety

Needed improvements to community access

Proposed Path from NoBo Library

Bridge

Utility Box

Signage

Existing Point-of-interests



SASAKI