



WESTMINSTER



CITY OF WESTMINSTER  
*2014 Open Space Stewardship Plan*

NOVEMBER 24, 2014





# Acknowledgements

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## Land Stewardship

*The responsibility of a community to preserve the quality and abundance of its natural resources and to manage them in a way that conserves all of the environmental, economic, social and cultural values for future generations.*

### City of Westminster Department of Parks, Recreation and Libraries Mission Statement

*Together we create exceptional opportunities for a vibrant community with a commitment to nature, wellness, and literacy.*

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# Overview

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In 1985, voters in the City of Westminster approved a sales tax specifically earmarked to acquire and maintain open space within the city. At that time, the City of Westminster Open Space Program was only the second municipal sales tax funded open space program in the state of Colorado. Since then, the City has preserved more than 3,000 acres of open space. This is nearly 15% of the City's land mass which was the goal established when the program began.

These lands are valuable resources offering multiple benefits. For the natural environment, preserved open space protects vulnerable ecosystems from development, preserves unique features, and provides an opportunity for wildlife movement through the City with seamless natural habitat. For the public, open space provides "breathing room" between developments, fosters appreciation of the natural environment, provides increased passive recreation opportunities, preserves mountain views, and improves quality of life.

While property preservation through acquisition is the first step, active stewardship in perpetuity will ensure public amenities and natural resources are available for future generations to enjoy. This Stewardship Plan is intended to serve as a guide for current and future open space management, rehabilitation, enhancement, and sustainability for passive recreational uses in an effort to protect natural resources while ensuring high-quality visitor experiences now and in the future.

## History

Water transport via creeks, canals and irrigation ditches was critical for survival and early settlement of Westminster. Livelihoods relied on the availability of water rights for farm crops and residences. The location and importance of waterways to deliver water shares played a critical role in the development of Westminster, and subsequently, the current location of open space corridors within the City's existing framework.

Although Westminster was incorporated in 1911, the City's Parks and Recreation Department didn't exist until 1972. Soon thereafter, the 1973 "Park and Open Space Master Plan- North & West Areas" provided the first formally-adopted guidance for securing property for open space use along naturally occurring drainageways. The Plan specifically stated that the City:

"...should consider securing a strip along Big Dry Creek and Walnut Creek at a minimum of 200 feet in width. This width should be expanded wherever the character of the terrain makes it logical to do so. In this way, most of the natural area along the drainages could be maintained in public use."

Coinciding with rapid development and expansion of the city, the document provided a framework for open space acquisition and preservation. Since that time, Westminster has actively protected drainage corridors from development through Public Land Dedications (PLDs), Fees-In-Lieu of dedication, and direct purchase funded by voter-approved Open Space Sales Tax Revenue. The City also restricts development from occurring within designated flood plain areas. The drainages serve as trail corridors and provide critical links to regional trail systems. Because of the foresight of prior administrations who were committed to open space acquisition, existing residential, commercial development and parks are linked to the open space framework, which has become a celebrated component of the Westminster community.

The City has created a comprehensive network of linked open spaces through acquisition of properties along key creek, drainage, and irrigation canal corridors. These corridors provide residents throughout the City convenient

access to open space and various resources within the City and to trail connections accessing the larger, more complex system of regional trails throughout the greater metropolitan area. Currently, the City maintains 118.5 miles of off-street trails. Major and minor trail systems comprise 105.63 miles and natural trails total 12.87 miles.

Corridors provide essential connectivity of open space and link stand-alone refuges to create a biotic community. For permanent or semi-permanent corridor dwelling species such as plants, insects, reptiles, amphibians, small mammals, and birds, continuity may reduce habitat fragmentation effects created by surrounding development and may allow greater dispersal or recolonization for native wildlife and plants by facilitating physical movement.

The value of the open space properties already preserved is significant when viewed in the context of naturally linked corridors. Much of the Walnut Creek, Big Dry Creek, Little Dry Creek, and Farmers' High Line Canal corridors are preserved and owned by the City. Further, these corridors extend westward outside the City limits to thousands of acres of open space, including Rocky Flats National Wildlife Refuge and Great Western Reservoir Open Space. Extending the reach of natural corridors through the City provides exceptional value within and outside of the City to habitat, scenic quality, and public recreation opportunities.

### **Current Acquisition Trends**

Since the inception of the Open Space program in 1985, trends in open space acquisition and the disposition of those properties have changed dramatically. Large residential and commercial development is being supplemented by infill projects. The easily-obtainable undeveloped open space parcels have been acquired, and remaining pristine, undeveloped parcels- as well as available funding for outright purchase- are difficult to obtain.

The high cost and limited availability of land within the City now makes direct purchase of properties for preservation or recreational purposes expensive and challenging. Potential open space properties are also attractive to developers, making even small open space purchases less affordable given available open space acquisition funding.

For the City of Westminster, the future trend should be to target new open space acquisitions very specifically for the purpose of completing missing links in the local and regional trail systems and to supplement, or widen, current open space properties. Key properties that provide existing missing links to open spaces and those with significant natural resource or historical value should be a priority.

### **Current Management Trends**

In 1985, voters approved a 1/4 of 1% sales tax dedicated to open space acquisition, and the focus and priority has been on acquisition and preservation of land. This priority was necessary in order to preserve as much land as possible with the available sales tax funds. Over the years, the voters extended the tax and included park and recreation acquisitions and improvements along with bonding capacity. The support of the residents in three separate sales tax votes as well as the issuance of the bonds enabled the City to leverage funds and acquire lands that were slated for development. Because of these actions, the City of Westminster has preserved 3,063 acres of prized lands that boast a wide diversity of natural resources.

Now that the City of Westminster Open Space program is well on its way to fulfilling the goal of 15% of the City's land mass as open space (currently 14.2%), the shift of priorities and focus swings to the management and stewardship of these properties; almost one-third of the City of Westminster is "greenspace": parks, open space and parks owned by homeowner associations. These natural resources must be managed in a way that will uphold and enhance the integrity of their environmental, economic, historic, and cultural values. The Open Space program has in the past focused on the preservation of the lands, and rightfully so. Now, it is time to start focusing on the stewardship of these lands in order to conserve them for future generations.



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## **Goals of the 2014 Open Space Stewardship Plan**

After several decades of planning and acquisition, the City of Westminster's open space system now requires a thoughtful approach to long term management of treasured and valuable assets. The 2014 Open Space Stewardship Plan contains tools that will allow city staff to make decisions concerning land management needs, acquisitions, trail usage, and future capital improvements. Focusing heavily on land stewardship, this plan will identify open space land management responsibilities, associated costs, needed resources, and future projected capital improvements. The goal of this plan is to provide a foundation that can be used to assemble an open space management program at a level that is complete and comprehensive.



# General Management Classifications

The City of Westminster 2014 Open Space Stewardship Plan identifies classifications for managing open space and addresses resource management, maintenance, and access. Open Space lands have been analyzed and categorized into a series of five Management Classifications based on site natural features, status or condition of site, site function and, if applicable, the historic value of a site. Open Space parcels may be comprised of one or multiple classification categories.

## 1. Sensitive Landscape Management Areas

**Total Acreage: 78 Acres\***

*Sensitive* landscape open space parcels include sites that have high value landscape features such as threatened and endangered species, wetlands, or relatively complex rich plant communities. Such parcels have the highest value for flora and fauna when viewed at both the localized and community-wide level.

### Management Strategy

- » Preserve the resource as the primary goal.
- » Recreational uses should be restricted to designated trails. Efforts should be made to close and revegetate all social trails in the area.
- » All trailheads should include education and regulation information.
- » Noxious weed management in the area should concentrate on eradication, as well as Russian olive tree removal.

### Examples

*Colorado Butterfly Plant at locations along Walnut Creek and Cottonwood/Snowberry plant communities along the Farmers' High Line Canal from Westminster Parkway east to Sheridan Boulevard.*



*Existing Cottonwood/Snowberry plant community along Farmers' High Line Canal west of US 36 and east of Trendwood Park*

## 2. Urban Natural Landscape Management Areas

**Total Acreage: 1,815 Acres\***

*Urban Natural* landscape parcels include sites that are natural in appearance, accommodate wildlife, and allow people to access non-developed environments. These sites do not include special features or particularly unique or rare species.

### Management Strategy

- » Maintain and enhance a stable, non-erosive, natural, naturalistic landscape including both native and desirable non-native plants, including eradication of noxious weeds.
- » Encourage public access with formalized trails.

### Examples

*The majority of the Big Dry Creek corridor from west Wadsworth Parkway to Standley Lake Dam.*



*Big Dry Creek Open Space*

*\*Total Acreage of Management Area does not include open water, parking, or open space access road acreage within an open space area.*



### 3. Transitional Landscape Management Areas

**Total Acreage: 393 Acres\***

*Transitional* landscape management areas include sites undergoing restoration or sites scheduled for restoration and/or enhancement. This is a temporary classification until site improvements are completed, at which time the site can be reclassified as *Urban Natural* or *Sensitive* landscape.

#### **Management Strategy**

- » Achieve a stable, non-erosive condition through weed mitigation and revegetation so that these areas can eventually be reclassified as *Urban Natural* or *Sensitive* as a result of stewardship strategies.
- » Public access may be temporarily limited.

#### **Examples**

*Along Big Dry Creek Corridor: from north of 120th Avenue to south of 128th Avenue former prairie dog colony sites require reseeding and extensive weed control.*



*Big Dry Creek Open Space*

### 4. Functional Landscape Management Areas

**Total Acreage: 332 Acres\***

*Functional* landscape management areas include sites that serve a specific functional purpose, such as a dam, and are not associated with natural diversity, high value landscape, or public access.

#### **Management Strategy**

- » Achieve and maintain a stable non-erosive condition, natural in appearance as an unprogrammed space or as part of a singular purpose function.
- » No direct public access is provided, but appearance is an important concern.

#### **Examples**

*The roadside infield between Westminster Parkway and US 36, the grassed drainage area at Quail Creek Open Space north of Amherst Park. All trails/ditch corridors where the function of the ditch takes priority. The future park site at Bradburn development.*

**Noxious Weed Management**  
Noxious weed management is required by law and should be a high priority in both the *Sensitive* and *Urban Natural* landscape management areas. The potential for successful restoration of riparian and upland communities, coupled with a comprehensive education program, is high and should be pursued.



*Little Dry Creek Open Space*

*\*Total Acreage of Management Area does not include open water, parking, or open space access road acreage within an open space area.*



## 5. Historic/Agricultural Landscape Management Areas

**Total Acreage: 208 Acres\***

*Historic/Agricultural* landscape management areas include sites identified as Historic Resources by the City of Westminster, including structures and cultivated fields or orchards, and sites with features related to the development of agricultural surface irrigation. These sites are critical to the City's community branding efforts that seek to identify Westminster as a city that has grown from and maintains connections to its agricultural roots.



*Metzger Farm*

### **Management Strategy**

- » *Historic/Agricultural* landscape management areas should be restored to an *Urban Natural* landscape character or in some tracts, be retained as agriculture. Sites may be leased out for agricultural purposes, and during the lease period the following guidelines should apply:
  - **Future Potential Use:** Agricultural sites may be used for grazing, haying or winter wheat. Smaller tracts may be developed as community gardens.
  - **Ornamental and non-agricultural plantings:** The restoration of historic structures may include the development of historic landscapes. In general, only native species should be planted and the introduction of exotic species should be discouraged.
  - **Public Access:** Open space areas classified as *Sensitive* may be posted with "No Trespassing" signs to restrict access to only those with business on the site. No hunting, motorized recreational vehicles or other recreational activities will be allowed on site.
  - **Weeds:** Lessees are required to control noxious weeds on site. Lessees must observe all applicable county, state, and federal regulations
  - **Billboards:** Prohibited.
- » Develop a master plan for each site in the Open Space System that has been identified as an *Historic Resource* by the City of Westminster. At a minimum master planning efforts should:
  - Identify goals and objectives for each site and for each site's role in the City's Open Space System.
  - Identify goals and objectives for the preservation and restoration of each historic structure.
  - Identify potential uses for each historic structure, including specific end users/user groups for each structure, and if there is value to be realized by programming specific uses for historic structure(s).
  - Identify opportunities and constraints for appropriate public access.
  - Identify opportunities for education, interpretation, and for reinforcing City of Westminster branding as a suburban city that has evolved from but still celebrates its agricultural heritage.
- » Establish an inventory of remnant cottonwoods along historic ditches. Mature cottonwoods along existing and historic ditches are an historic cultural resource; in many cases, they are the last visual and physical manifestation of Westminster's agricultural heritage. Many cottonwood groves are a result of lateral ditches that are no longer in use. There may be several opportunities for successional planting as a means of maintaining an important historic attribute that is readily understood by local and regional residents.

### **Examples**

*Metzger Farm, Church's Stage Stop, Semper Farm, Lower Church Ranch, The Ranch Open Space*

*\*Total Acreage of Management Area does not include open water, parking, or open space access road acreage within an open space area.*

## **Identifying Open Space Management Areas**

The City of Westminster Open Space Program is shifting toward an emphasis on stewardship and away from an emphasis on land acquisition. The transition requires identifying diverse attributes of a management program through field verification and mapping, and supplementing the inventory with a user-friendly matrix that reflects inventory, acreage, site attributes and management costs. The matrix serves as an operational tool that can be easily updated as specific management areas are improved. Each Management Area will be monitored based on physical attributes, characteristics and visual access from adjacent properties. Management Areas should be named based on local geographical features, wildlife and/or role of the site in heritage of the community. Each Management Area should then be classified based on the above criteria. It is worth noting that a specific Management Area could potentially receive more than (1) classification.

## **General Management Guidelines: Site**

The General Management Guidelines provide a framework for addressing the most common issues facing open space stewardship.

### **Landscape Management**

Management of urban open space is subject to a number of forces including:

- » **Fragmentation:** Large scale, stable ecosystems in the semi-arid west become vulnerable when reduced in size by encroaching urban development. Prairie dogs confined to small tracts within an urban environment can damage undeveloped lands. Similarly, historic uses such as grazing horses and cattle kept in small, fenced enclosures have ecological impacts on large tracts of land, reducing the value of the open space to the community.
- » **Urban development:** People, dogs, vehicles and the weed seeds they carry are continually brought into close proximity with sites already vulnerable due to fragmentation. Urban development also affects regional and local hydrology, disrupting the underlying seasonal patterns critical to reestablishing and maintaining natural/native landscape.
- » **Drought conditions:** Fifteen years of drought conditions have weakened existing natural resources within the open space system and made dryland restoration more difficult. Uniformly restoring native plant material and/or communities is difficult in this environment, but those ideals remain the foundation of recommended management and restoration practices.

### **Revegetation**

Establishment of native vegetative cover (excluding noxious weeds) is critical to minimizing long term maintenance of open space. Vegetation serves multiple purposes, including prevention of erosion and control of introduced weed species. Guidelines for revegetation planning include:

- » **Plant Materials**
  - Use seed mixes adapted to site-specific soil types
  - Use native species, adapted to specific soil types, to the extent possible
  - Use alternatives to native species (Ex.: Smooth Brome) where the need to stabilize a particular site is deemed to outweigh the potential for establishing native revegetation
  - Do not use bluegrass and/or other species requiring irrigation
  - Use containerized nursery stock for wetlands, trees and shrubs
  - Obtain live stakes, willow bundles and cottonwood poles from local, on-site sources, whenever possible
- » **Site Preparation**
  - Implement no-till seeding improvements, which reduces the introduction of weeds and minimizes loss of soil moisture.
  - No fertilizer or soil amendments will be added to the soil



- » **Seeding and Planting**
  - Following CDOT seeding specifications, seeding should be conducted in the following seasons: Spring Seeding is Spring Thaw- June 1st and Fall Seeding is September 1 to Ground Freeze
  - Drill seed wherever possible. Depth to be 1/3" to 1/2" wherever possible
  - Broadcast or hydro-seed on slopes steeper than 3:1 or on other areas not practical for drill seeding
  - Double seeding rates for broadcast seeding or increased by 50% if using a Brillion drill or hydro-seeding
  - Mulch all seeded areas with straw mulch. Mulch to be crimped in place
  - 80% of established coverage is considered successful. From 5'-0" height, field inspectors should observe 80% coverage of seeded area.
  - Conduct mulching as a second, separate operation if hydro-seeding
  - Install live stakes, willow bundles and cottonwood poles when dormant
  - Provide beaver protection for trees and shrubs known to be attractive to beaver
- » **Maintenance**
  - Inspect new installations at regularly scheduled intervals following planting.
  - Limit access to recently revegetated areas with temporary fencing and educational signage for the first year of establishment
  - Control weeds on site (See "Weed Management" below)
  - Maintain mulch by adding or redistributing material as required
  - Repair areas of erosion
  - Water trees or shrubs monthly from April through September until established

### **Noxious Weed Management**

There are several reasons to manage noxious weeds. The Colorado Noxious Weed Act (2003) and the Federal Noxious Weed Act (1974) require that certain weeds be eradicated. In addition, the Federal Noxious Week Act *mandates* the eradication of certain species. Many weeds choke native plants and often impact the aesthetic integrity of open space. The goals of the Colorado Noxious Week Act aim to:

- » Prevent the introduction of new invasive plant species,
- » Eradicate species with isolated or limited populations, and
- » Contain and manage those invasive species that are well established and widespread.

Goals for Noxious Weed Management for the City of Westminster Open Space expand upon the aforementioned goals:

- » Use an integrated management approach to reduce acreage of Open Space infested with weeds.
- » Prevent the establishment of weedy species within Open Space
- » Establish a weed (and undesirable non-native tree) inventory and monitoring program
- » Create or continue mutually beneficial partnerships with other interested jurisdictions.

Effective integrated management requires the use of the following methods:

- » **Biological:** release of insects native to same regions as exotic plant. The City has also used goats to control noxious weeds at Westminster Hills Open Space. Approximately 800 goats were on site to eat noxious weeds such as Myrtle Spurge, Hoary Cress, and Knapweed. The goats naturally prefer eating weeds over native grasses and eat the entire plant, including any seeds. They have triangular-shaped mouths which grind up the seeds and make them virtually inviable by the time they pass through their body, leaving only organic fertilizer. Their hooves are split and pointed which act to aerate the soil as they graze.
- » **Chemical:** Use of herbicides and insecticides
- » **Cultural:** Cultivation of more desirable species

- » **Mechanical:** Mowing, pulling, burning etc.
- » **Mowing:** Mowing occurs several times a year along trails, fence lines and roadways. Mowing may also be employed to control noxious weeds.
- » **Educational:** Provide public with relevant information on weed management.

Local governments are directed to manage weeds in their jurisdictions. The following noxious weed lists are included in the Appendices:

- » **Colorado Department of Agriculture County Noxious Weed Program - List by County**  
(Adams County, Jefferson County)
- » **Colorado Department of Agriculture Noxious Weed List**  
(<http://www.colorado.gov/cs/Satellite?c=Page&cid=1174084048733&pagename=Agriculture-Main/CDAGLayout>)
- » **014 Jefferson County Noxious Weed List**  
(Website- <http://www.co.jefferson.wa.us/WeedBoard>)

Undesirable non-native trees and shrubs include Russian olive, salt cedar, tamarisk and siberian elm. No new plantings of these species are permitted. Existing non-native trees should be removed and replaced with native species as appropriate. Prioritization of removals will be determined in the Noxious Weed Survey (in progress).

### **Streambank Erosion**

Erosion measures may be required along major channels like Big Dry Creek, Little Dry Creek or Walnut Creek as well as tributary channels like Tanglewood Creek or Hyland Creek. Other erosion control measures may also be required at lake or pond outfalls or to repair rills that develop where sheet flows concentrate over the very broad hillsides above Big Dry Creek.

Erosion control measures include:

- Boulder Channel Edge
- Rip rap
- Buried rip rap
- Installation of erosion control fabric in conjunction with revegetation
- Installation of small culverts where sheet flow concentrates and erodes trails.

### **Trail Construction**

See Trails Master Plan for trails specification.

### **Fencing**

Fencing may be required for protection of natural resources, direct public access, recreational use and to identify open space sites. Uses and types include:

- Fencing at select areas along open space perimeters and at areas to direct access to trails will be buck and rail wooden fence.
- At trailheads, parking and at select street frontages.
- Fencing to protect natural resources will be four strand wire or welded wire installed per CDOT M standards. No barbed wire will be used for any fencing except where grazing at *Historic/Agricultural* areas may require barbed wire.
- Protection of transitional areas during seed establishment.
- Isolation of areas for restoration of *Urban Natural* landscapes in the Westminster Hills Open Space dog off-leash area and other potential/future sites as necessary.
- Protection of wetlands or marsh areas adjacent to areas leased for grazing at *Historic/Agricultural* areas.

**New Structures**

Rare, constructed only to meet carefully defined site needs, i.e. wildlife viewing blind, or small maintenance storage at a remote location.

**General Site Clean-up**

Trash receptacles located at all open space parking lots and/or site entrances; receptacles are emptied at least once a week (or on a regular basis).

**Dog Feces Pick-Up**

Bags are located at all open space parking lots and/or site entrances, access trails, and dog parks.

**Litter Clean-Up**

Regularly scheduled clean-up efforts are needed throughout the City's Open Space System, which currently include those conducted by City of Westminster Volunteer Program and during Community Pride Day.

**Incident Clean-Up**

Certain incidents such as weather-related or accidents that require special clean-up. Clean-up, when required, will be by Open Space Maintenance crews or qualified personnel.

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**General Management Guidelines: Wildlife**

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The Open Space System is comprised of long, continuous drainage corridors and is rich in potential wildlife habitat. Wildlife management goals in an urban environment include:

- » Protecting wildlife and wildlife habitat,
- » Educating the public about what to expect when interacting with wildlife as well as the value of open space to humans and wildlife,
- » Controlling (when necessary) wildlife populations exceeding carrying capacities of the land,
- » Minimizing encroachment on private property, and
- » Minimizing wildlife and human conflict.

**Artificial Structures**

Artificial structures such as perches, birdhouses, bat houses and artificial nest structures are limited to those needed to enhance or protect endangered or threatened species and some structures may be installed without a permit.

**Existing Wildlife Policies**

Feeding: *Coyote Management Plan 2009*

Native species reintroductions: *N/A*

Beaver: *Beaver Management Plan 2008*

Coyotes: *Coyote Management Plan 2009*

Deer: *Wildlife and Natural Resource Management Plan for Open Space Properties 2010*

Mountain Lions and Bears: *Wildlife and Natural Resource Management Plan for Open Space Properties 2010*

Norway Rats: *Wildlife and Natural Resource Management Plan for Open Space Properties 2010*

Prairie Dogs: *Prairie Dog Management Plan 2005*

Skunks and Raccoons: *Wildlife and Natural Resource Management Plan for Open Space Properties 2010*

Geese: *Wildlife and Natural Resource Management Plan for Open Space Properties 2010*

Other Waterfowl: *Wildlife and Natural Resource Management Plan for Open Space Properties 2010*

Raptors: *Wildlife and Natural Resource Management Plan for Open Space Properties 2010*

Native Songbirds: *Wildlife and Natural Resource Management Plan for Open Space Properties 2010*

Fish: *Wildlife and Natural Resource Management Plan for Open Space Properties 2010*

Snakes: *Wildlife and Natural Resource Management Plan for Open Space Properties 2010*

## **General Management Guidelines: Regulatory**

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Refer to City of Westminster Development Code Chapter 5: Sections 13-5-1 through 13-5-12.

### **General - Regulatory**

Concessions/Vendors: Prohibited in open space, unless approved by the PRL Director.

Noise/Disturbing the peace: Prohibited.

Littering/waste disposal: Prohibited except for the disposal of incidental items in trash receptacle provided for that purpose.

Plant Collection and Planting:

- Downed wood may not be removed or rearranged without a permit.
- Seed or plant collecting, which also includes cuttings from trees, shrubs, vines or wild flowers, is prohibited without a permit.
- Planting by anyone other than City of Westminster Open Space Maintenance staff or other designees in open space is prohibited without a permit.

Vandalism: Prohibited

Washing or bathing: Prohibited

### **Recreation - Regulatory**

Open space is often construed by local residents as areas for types of recreation that often are considered passive and permissible on publicly owned lands. However, many types of recreation can negatively impact plant communities, wildlife populations and overall enjoyment and appreciation of nature by other users. In order to provide for visitor enjoyment and safety and to protect natural resources, the following recreational activities are not permitted:

Model Aircraft: Prohibited.

Alcohol: Prohibited.

Bicycles: Unless otherwise posted, bicycles are permitted on designated trails and within public right-of-ways only (refer to Trails Master Plan Diagram).

Boats: Non-motorized boats are permitted on Ketner Lake and McKay Lake. Canoes, kayaks, belly-boats and paddle boards are permitted. **All boat use is currently being reviewed by City of Westminster. Update when complete.**

Camping: Prohibited.

Curfew: Dusk to dawn.

Dog Walking: Dogs are allowed in open space but must be on a leash, unless otherwise posted, except within designated dog park areas. Persons walking dogs must immediately remove and properly dispose of dog feces.

Emergency/Public Safety Training:

Firearms: Prohibited.

Fires: Prohibited.

Fishing: Allowed with valid license required by Colorado Parks and Wildlife. All CPW requirements apply.

Ice Fishing: Prohibited.

Glass: Prohibited.



**Group Events:** Events involving more than 12 people require a permit.

**Horseback riding:** Unless otherwise posted, horseback riding is allowed on or within 10 feet of trails except to avoid imminent danger to other people.

**Model Rockets, Motorized model vehicles:** Prohibited.

**Restrooms, drinking fountains:** These facilities are provided at or near trailheads where appropriate and only as funds are available.

**Roller skating/blading and skateboarding:** Allowed only on roadways or designated trails.

**Sledding, tubing, downhill skiing, and snowboarding:** Prohibited except in designated areas.

**Cross-country skiing:** Allowed except in *Sensitive* areas.

**Swimming/Wading:** Prohibited.

(Swimming/wading access being reviewed by City of Westminster. Update when complete.)

**Trapping:** Not permitted to the public.

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## **General Management Guidelines: Education/Interpretive**

### **Education**

The ongoing success of the City's Open Space Program depends on increasing the public's awareness of open space as an institution and promoting an understanding of natural systems and each individual's place within those systems. Goals for the educational component of the Open Space Program include:

- » Tell the story of the Westminster Open Space Program: Communicate a scientifically and historically accurate description and interpretation of the distinctive aspects of the Westminster Open Space System. For example, tell the story of how regional storm management, agriculture and surface irrigation systems have combined to influence the landscape in the Big Dry Creek corridor.
- » Create an awareness of the value of preservation of natural landscapes and resources therein, including water, wildlife, etc., in an urban setting and instill a sense of stewardship in the individual, neighborhoods and community toward open space.

### **Interpretive Features**

Develop a thematically consistent approach to providing interpretive signage at strategic locations throughout the system. Features of the signage system should include:

- » Descriptions of natural systems in evidence along with their value and purpose;
- » Descriptions of how those systems have been influenced by their interface with urban development; and,
- » Identifying how the phenomena have contributed to shaping Westminster as a distinctive community.

Master plans for improvements and management of open space shall include an interpretive plan that defines interpretive goals for each site along with implementation strategies for meeting those goals.

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## **General Management Guidelines: Leases**

### **Leases**

Leases on open space can be granted under limited special circumstances if they do not conflict with site management goals, and if open space lands remain accessible to the public for intended uses.

- » **Agricultural:** Agricultural/Historic sites may be leased out for agricultural activities as a means of reinforcing the site's interpretive plan or as a means of maintaining a stable condition prior to restoration.  
*Example: Fields at Metzger Farms could be cultivated by a lessee as a means of reinforcing the site's interpretive plan.*



- » **Buildings:** Buildings located on City of Westminster Open Space property may be leased, based on goals and objectives identified during master planning of individual open space parcels.  
*Example: At McKay Lake residents were allowed to lease homes until the City is ready to complete site redevelopment.*
- » **Grazing:** Leases may be granted at Agricultural/Historic sites as a means of reinforcing the site's interpretive plan.  
*Example: The Ranch leases the original open space parcel at Pecos Street and 120th Avenue for grazing.*



# General Management Guidelines Matrix Supporting Narrative

The Open Space Division is responsible for the stewardship of the City’s Trails and Open Space System. Responsibilities include grassland management, noxious weed control, mowing, management of lakes and fishing facilities, trail management, and maintenance of inventory associated with open space facilities and lands including fences, irrigation systems, pumps and signage.

Improved, systematic management and maintenance of open space require customized tools that reflect an accurate assessment and description of evolving conditions of individual open space tracts and trails.

As stated previously in the Stewardship Plan, as a result of the inherent fragmentation or natural areas, the ecology of the Westminster Open Space System is unstable. The major goal of the City’s Open Space Management is to create stable, healthy conditions of individual parcels and ultimately the entire system for the enjoyment of Westminster residents, visitors and, just as importantly, to reduce long term maintenance costs.

### ***Moving Towards Adaptive Management***

The Stewardship Plan recommends that the City work toward achieving a stable condition throughout the system by adopting a data driven “adaptive management” approach to maintenance. Adaptive management is defined as:

***A structured process for decision-making in the face of constant uncertainty by means of monitoring, mapping and adjusting management practices according to assessment of new information.*** (See diagram on the following page)

*Adaptive Management* techniques have been utilized in traditional farming and gardening practices for millennia and have recently been adopted and promoted by the scientific community in acknowledgement of the difficulty of reestablishing an ideal, pre-development state or condition in a fragmented ecology.

***General Management Guidelines Matrix and Map (large scale fold-outs) are included in the pocket at the end of this section.***



*Margaret’s Pond Open Space*



*Little Dry Creek Trail just west of Kennedy Park*

### The Adaptive Management Process

#### **Visioning**

- » Consider social, landscape/ecosystem, and land use issues
- » Identify short and long-term goals
- » Develop a statement of goals

#### **Baseline Inventory**

- » Inventory history, quality significance, relationships, and connections of existing resources
- » Gather specific baseline data
- » Identify relevant resource issues

#### **Evaluation**

- » Develop specific management objectives
- » Identify specific resource study needs
- » Prioritize resource issues and needs
- » Public Input

**Monitor  
Management  
Actions**

**Develop or  
Revise  
Management Plans**

**Implement  
Management  
Actions**



## **The General Management Guidelines Matrix**

The *General Management Guidelines Matrix* is a data driven, adaptive management tool intended to define and control management and maintenance costs. The *Matrix* organizes the City's Open Space System into contiguous *Management Areas* and designates a *Management Classification* for each area. The *Matrix* also includes an inventory of assets for each *Management Area*.

The *Matrix* builds a rational, defensible budget for maintaining open space lands through two sets of budget numbers. The first number describes typical land management activities for acreage in each of the Open Space Management Classifications. The second set of costs relate to the components or inventory items in each area. These numbers are broken out by Open Space Management Area and sub-area. The unit costs are described in a linked spreadsheet. When the unit costs are updated, they are reflected within the *Matrix*.

The *Open Space Management Classification* identifies a per acre cost for implementation of the *Integrated Pest Management Program* (defined below), and emphasizes weed control and revegetation, where required. The *Open Space Inventory* includes trails, fences, signs, paving, furnishings, pumps, irrigation systems, and assumes replacement or repair of a given percentage of each item at a given price, annually. All variables in either category can be updated over time to reflect changing conditions.

Current estimated annual costs for the City's Open Space Management and Maintenance are approximately \$500 per acre for a total of \$1,500,000.

|   |                                     |
|---|-------------------------------------|
| Open Space Management Cost:                       | \$1,000,000 per year/\$333 per acre |
| Open Space Inventory/ Maintenance:                | \$500,000 per year/ \$166 per acre  |
| <b>Total OS Management and Maintenance Costs:</b> | <b>\$500 per acre</b>               |

Costs for areas designated *Transitional* are higher than other Management Classifications at an estimated \$1,700 per acre, annually.

|                               |                   |
|-------------------------------|-------------------|
| <i>Sensitive:</i>             | \$ 128.08         |
| <i>Urban Natural:</i>         | \$ 147.84         |
| <b><i>Transitional:</i></b>   | <b>\$1,713.81</b> |
| <i>Functional:</i>            | \$ 152.70         |
| <i>Historic/Agricultural:</i> | \$ 102.84         |

This greater, per acre cost is primarily driven by the need for extensive weed control and revegetation, which skew the overall per acre cost significantly. Once the *Transitional* areas are stabilized, they can be reclassified as *Urban Natural* or *Functional* areas and per acre costs will be reduced.

An example of a *Transitional Management Area* includes the large areas within Big Dry Creek Open Space from Sheridan Boulevard to 120th Avenue that were formerly colonized by prairie dogs. The prairie dogs died in an outbreak of plague and the remaining acreage is denuded and vulnerable to weeds.

### **Comparable Open Space Management Plans**

This analysis and estimate is consistent with other, large scale studies for open space management including:

- » *Sonoma County Agricultural Preservation & Open Space District: Options for District-Owned Properties - Fee Lands Strategy, November 20, 2012 (See appendix)*
- » *Natural Lands Management Cost Analysis- 28 Case Studies, Prepared by the Center for Natural Lands Management for the Environmental Protection Agency, Grant # x83061601, October 2004 (See appendix)*

Each of these studies analyze multiple open space management areas in several different states and jurisdictions in an attempt to establish an average per acre cost for management and maintenance.

Another means of comparing the City's Open Space Management costs with other systems is to calculate acres of open space per full-time employee (FTE).

Based on information provided by the City, Westminster Open Space currently staffs two (2) full time employees (FTE) in field operations. With 3000 acres of land, this works out to a ratio of 1 FTE:1,500 acres. Comparable open space staffing ratios range from 1:100 to 1:1000 in the California studies. Local information on this topic is limited but ratios identified along the Front Range have ranged from 1:300 to 1:700.

### **Maintenance and Management in Westminster**

The studies cited previously establish a similar range of costs per acre for open space management and acres per FTE. Each study acknowledges that variations in existing conditions of parcels and/or areas makes it difficult and challenging to establish an average per acre cost.

Per the *Sonoma County Agricultural Preservation & Open Space District: Options for District-Owned Properties - Fee Lands Strategy, November 20, 2012*, "... the number of unique conditions on each site that translate to management activities and costs precludes any simple estimating formula. The true denominator of the cost relationship is not only acreage but more importantly, public use/misuse, presence of invasive exotics, uses of the surrounding areas, edge effect and the quality and appropriateness of any restoration efforts."

#### **Management vs. Maintenance**

*Management refers to overall planning and care for the land, including integrated pest and vegetation management.*

*Maintenance is the work involved in taking care of the inventory, the pieces and parts of the open space system.*

The City of Westminster Open Space System has a high cost per acre ratio and a relatively low FTE per acre ratio. Examples of the conditions that contribute to Westminster's particular maintenance requirements include:

- » **Small, fragmented open space parcels increase the vulnerability to management and maintenance issues.** Per the studies cited above, a contiguous 3,000 acre site might be maintained in a stable condition for \$50.00 an acre per year. But small or narrower sites, typical of the Westminster Open Space System, are more vulnerable to weed infestation, and the corresponding increase of linear footage of site edge also requires maintenance and ongoing management.
- » **Wide distribution of small sites throughout the City:** The Westminster Open Space System is a corridor-based system that contains narrow corridors with significant adjacency issues (edges), as opposed to a green belt based system that contains large tracts (often full sections) of open space with fewer adjacency issues. Sites are located throughout the City and access to individual site incurs travel expenses.
- » **Maintaining site inventory in an urban setting:** Costs related to inventory comprise one-third of the projected management and maintenance costs. After the major transitional stabilization work is complete, the cost will be evenly divided between maintaining inventory and managing landscape, and ideally will remain so.

Again, per the *Sonoma County Agricultural Preservation & Open Space District: Options for District-Owned Properties - Fee Lands Strategy, November 20, 2012*, "existing preserve budgets were seldom a help in determining tasks because: 1) labor costs are grouped by the employee or the group of employees rather than broken into the tasks that are performed; 2) budgets also do not reflect amortization of equipment and other capital items already purchased and not yet ready to be repurchased; and 3) some preserves (or open space systems) simply don't have the budget to fulfill their mission over the long-term. The case studies represented (in the studies) are intended to transcend these limitations to reflect the average annual long-term cost of stewardship."



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## **Open Space Management and Maintenance Level of Service**

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The *General Management Guidelines Matrix* shows an ideal annual maintenance budget of \$1.6M, up to \$673K of which is focused in areas classified as *Transitional* where weed control and revegetation efforts are critical needs.

Current Westminster Open Space Management budget, inclusive of salaries operations and materials is \$480K. The Westminster 2014 Open Space Stewardship Plan is recommending a minimum increase of \$445K with a focus on weed control, revegetation, and trails maintenance. This amount would fund three (3) additional Full Time Employees (FTEs) in field operations along with necessary equipment.

There are currently two (2) FTE field operations or one (1) FTE:1500 acres.

- » Broomfield and Aurora estimate they are at 1:600-700 acres (limited to estimates because they have personnel working in different systems: (ie: both parks and open space which provide different levels of service)
- » Adams County would not try to quantify FTE per acre because personnel work in multiple systems.
- » Thornton estimates they are at 1:350 acres but has a small, fragmented system with a high level of inventory developed on open space property.
- » Boulder and Jefferson County are not good comparisons because they have very large greenbelt holdings that do not require comparable levels of service.

This recommended increase for management and maintenance request will not cover the total budget reflected in the *General Management Guidelines Matrix* but it will:

- » Put the system on an equal footing with other, comparable systems in terms of FTE, field personnel per acre (1 FTE per 600 acres ),
- » Allow measured progress on weed control in areas classified as *Transitional*, and
- » Improve the user experience along trails.

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## **Identifying Management and Maintenance Needs**

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The *General Management Guidelines Matrix* identifies and projects preventive and recurring management and maintenance needs for facilities, site infrastructure and roadways. Using the *Matrix* will assist in establishing an annual budget, prioritizing management and maintenance activities and/or identifying where capital improvement projects are required.

The costs and schedule of maintenance can be calculated on a per unit basis and phased to achieve maximum efficiency and/or meet annual – and often fluctuating – budgets. Management actions can be planned and implemented on a recurring basis, or as single, one-time event. For example, recent allocations for revegetation projects are currently referred to by the City of Westminster as “*Capital Maintenance Projects*.” By implementing the *Matrix*, such projects can be more easily integrated into long-term budgeting exercises and can also be phased and/or prioritized, as budgets allow. This approach to site management will allow City staff to:

- » Share information and discuss proposed approach to maintenance needs with persons unfamiliar with existing site conditions;
- » Plan for long term, deferred maintenance;
- » Prioritize areas for attention both in terms of budget and in terms of reducing chronic problems; and,
- » Continue to adapt to changing conditions, such as unanticipated flood events or infestations.

## Management Activities by Management Classification

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### Survey and Mapping

A comprehensive weed mapping survey of all City Open Space should be completed every five years and evaluated by Westminster Open Space Management staff. The survey should identify areas of noxious weeds that require control, as well as weedy areas that interfere with general management objectives. Because weed populations are a significant consideration for management classification, the survey should provide a feedback mechanism to update the *Matrix*. For example, infested acreage may be reclassified as *Transitional*, while stabilized areas will move from *Transitional* to *Urban Natural*. As the survey occurs on a five-year cycle, the frequency in the *Matrix* is noted as 0.2 times per year.

### Integrated Pest Management (IPM)

Integrated Pest Management is an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques including mechanical, chemical, biological, cultural, and education. Pest control options are selected and applied to support the ecosystem and minimize risks to human health, beneficial and non-target organisms, and the environment.

Integrated Pest Management in open space focuses on encouraging native species through weed control. Depending on the specifics of weed populations in any given year, any or all of the following techniques will be employed. The following expectations for a 'typical' year will vary depending on specific conditions.

- » **Mechanical:** Mowing or cutting targets both localized and systemic weed populations.
- » **Chemical:** Herbicides typically target local weed populations using backpack or ATV-mounted herbicide sprayers.
- » **Biological:** Goats will graze all vegetation, and insects can be used for specific weeds.
- » **Cultural:** Seeding will ensure that an appropriate seed bank is present. Portions of *Transitional* acreage will require reseeding to establish native grasses there.
- » **Education:** Educational components include signage, ranger programs and ongoing staff education.

### Successional Planting

Many *Sensitive* areas include aging cottonwood stands and wooded areas. Successional plantings of young cottonwoods will provide a greater diversity of tree ages and increase the stability of this ecosystem that reflects the historic uses prevalent throughout the City of Westminster and is a visual remnant of the City's heritage.

### Transitional Areas

The *Transitional* classification is intended as a temporary assignment (one to two year period, or until stabilized) for ecosystems moving toward *Sensitive* or *Urban Natural* classification. Areas in this classification have been subject to prairie dog colonies, weed infestations, deferred maintenance, or general neglect. The management activities described for these areas are intended to transform them into stable ecosystems, typically *Urban Natural*. The dog park at Westminster Hills Open Space has also been included as *Transitional* because of the high impact nature of the use requires an increased level of attention on an ongoing basis. (See *Cherry Creek State Park Dog Off-Leash Area Management Plan, October 2010*)

### Prioritization

The *General Management Guidelines Matrix* supports a reasoned approach toward prioritizing funding in the event of budget shortfalls. For example, when all of weed control cannot be funded, prioritizing work upstream will limit the spread of weed seed downstream; or, as *Transitional* acreage is the most expensive to address, specific areas may be deferred to another year; or, funding might be targeted to the 'crown jewels' of the City's Open Space System or areas most visible from trails and streets.



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### **Summary of Management Activities by Management Classification**

- » *Sensitive* acreage shall be surveyed and mapped every five years. Integrated Pest Management will involve limited spot mowing as these areas have been identified as highly stable ecosystems, and funded for areas of successional planting.
- » *Urban Natural* acreage shall be surveyed and mapped every five years, with targeted mowing occurring up to 3 times a year.
- » *Transitional* acreage shall be surveyed and mapped every five years, reseeded and managed with a combination of mowing up to three times a year, broadcast herbicide, and biological controls to support seed establishment and gain control of aggressive weed populations.
- » *Functional* acreage shall be surveyed and mapped every five years and have spot mowing occurring up to three times a year.
- » *Historical/Agricultural* acreage shall be included in the survey and mapping every five years, and have spot sprays or mowing occurring up to twice a year.

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### **Management Activities by Inventory Item**

Beyond management of the land itself, all of the components installed in the City's Open Space System also require regular maintenance. The *Matrix* includes an inventory of these items that should be updated on a regular basis by City Open Space Management staff. System components and associated management activities that are currently performed, based on information provided by City Open Space personnel, are described below:

#### **Trails**

- » Concrete Trails: Sweep as needed, mow margins semi-annually, and remove snow as needed.
- » Aggregate Trails: Top-dress annually and repair as needed.
- » Natural Trails: Repair as needed.
- » Boardwalks: Inspect annually, repair as needed, and re-plank on a 10-year cycle.
- » Bridges: Inspect annually, repair as needed, and re-plank on a 20-year cycle.
- » Underpasses: Remove graffiti as soon as practical after being identified, service lighting, and clean annually.

#### **Trailheads**

- » Asphalt Parking Lots: Sweep and remove snow as needed. Annual inspections and repair include line repainting and pothole repair. Mow perimeter annually.
- » Aggregate Parking Lots: Top-dress, repair, mow perimeter and reset wheel stops annually.

#### **Signage**

Inspect, repair, and clear surrounding vegetation annually at all signs including informational kiosks, signage types 2-6 and plaques (see *Trails Wayfinding Strategy* section). Replace signs that include maps as maps are updated. Repaint City Open Space signs on an 8-year cycle.



### **Fences**

Repair wood, plastic and wire fences as needed. Mow and trim twenty four miles of the open space side of property line fences annually.

Open Space Management anticipates adding an unspecified length of both wire and buck and rail fence on an annual basis. Actual quantities can be added to inventory of the *General Management Guidelines Matrix*. Funds for materials and installation currently come out of the Capital Construction Budget.

### **Site Furnishings**

- » Trash vaults are located at the dog parks, and trash cans are located at trailheads. Empty, haul and dump trash.
- » Inspect benches and drinking fountains annually.

Open Space Management anticipates adding an unspecified number of benches to the City Open Space System on an annual basis, based on a prioritization plan. Funds for materials and installation currently come out of the Capital Construction Budget.

### **Buildings**

- » Shade Shelters: Clean (using using high pressure hot water), inspect, repair, and clear surrounding vegetation annually. Repair includes painting and roof maintenance.
- » Structures: Inspect, paint, and repair including concrete, brickwork and windows annually.

### **Water**

- » Open Water at Ponds: Treat for water quality, excess algae, sedimentation and mosquitoes.
- » Channels: Inspect and repair when damaged. Work includes placing riprap, fill material, erosion control fabric and seed.
- » Jurisdictional Dams: Inspect and maintain on a two year cycle per State mandate. Typical activities include rip-rap replacement, vegetation removal, and valve repair.
- » Overflow Structures, Floating Islands, Fishing Piers, Aeration Systems, and Irrigation Systems: Inspect and repair when damaged. Clean out debris and replace parts.
- » Dewatering Pumps: Inspect, test water, and service annually. The Department of Natural Resources regulates the permit for these pumps.
- » Aeration Systems: Repair parts as needed, replace pumps on a 5-year cycle.
- » Fish Stocking: Six ponds or lakes in the Westminster Open Space System have been identified for the stocking program through the Colorado Department of Parks and Wildlife. Annual stocking rotates through the six sites.

### **Other**

- » Community Gardens: Maintenance includes fence repair, trash removal, and irrigation repair.
- » Dog parks include 20% of their acreage in the Transitional classification as that area is anticipated to require revegetation each year. Maintenance includes high pressure hot water cleaning, upkeep of entry signage, trash removal, and irrigation repair.
- » Hazard Trees: For public safety, prune or remove hazard trees from areas near and along trails and buildings, and prune away from fence lines.

A 'Wildlife Surcharge' is included in area with wildlife populations, based on maintenance costs for areas that host these populations. In areas with prairie dogs, control the population and reseed. In areas near beaver dams, wrap trees, install fences and provide manpower.



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## **Summary: Decision Making and Prioritization Using the Matrix**

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The *General Management Guidelines Matrix* is a tool for exploring decision-making and prioritization within the Westminster Open Space System. The inventory and cost for maintenance and management activities are intended to be kept up-to-date. This will allow the implications of changes to be expressed for the entire system.

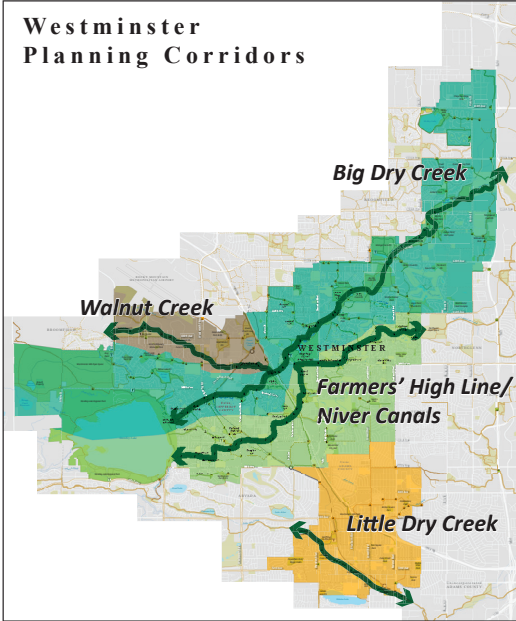
A few examples:

- » Feedback from the community suggests that additional resources be put into aggregate trails. The annual unit cost for maintaining those trails is increased on the *Unit Costs* spreadsheet to account for recharging the material more frequently. The cost implication ripples through the *General Management Guidelines Matrix*, providing an overall budget increase for this change.
- » Open Space Maintenance considers increasing visual inspections of all trails to once a week during the summer and once every three weeks during the winter. Increase the staff hours per linear foot of trail on the *Unit Costs* spreadsheet, and the implications are apparent for the entire system.
- » An outbreak of a new weed requires an increase in integrated pest management. Add one to the frequency of mechanical (mowing) treatments for each of the management classifications and the cost implication will update for the entire system.
- » A philanthropist announces a donation of five (5) new shade shelters to the City Open Space Division. Adding these to the inventory of items to maintain has budget implications.

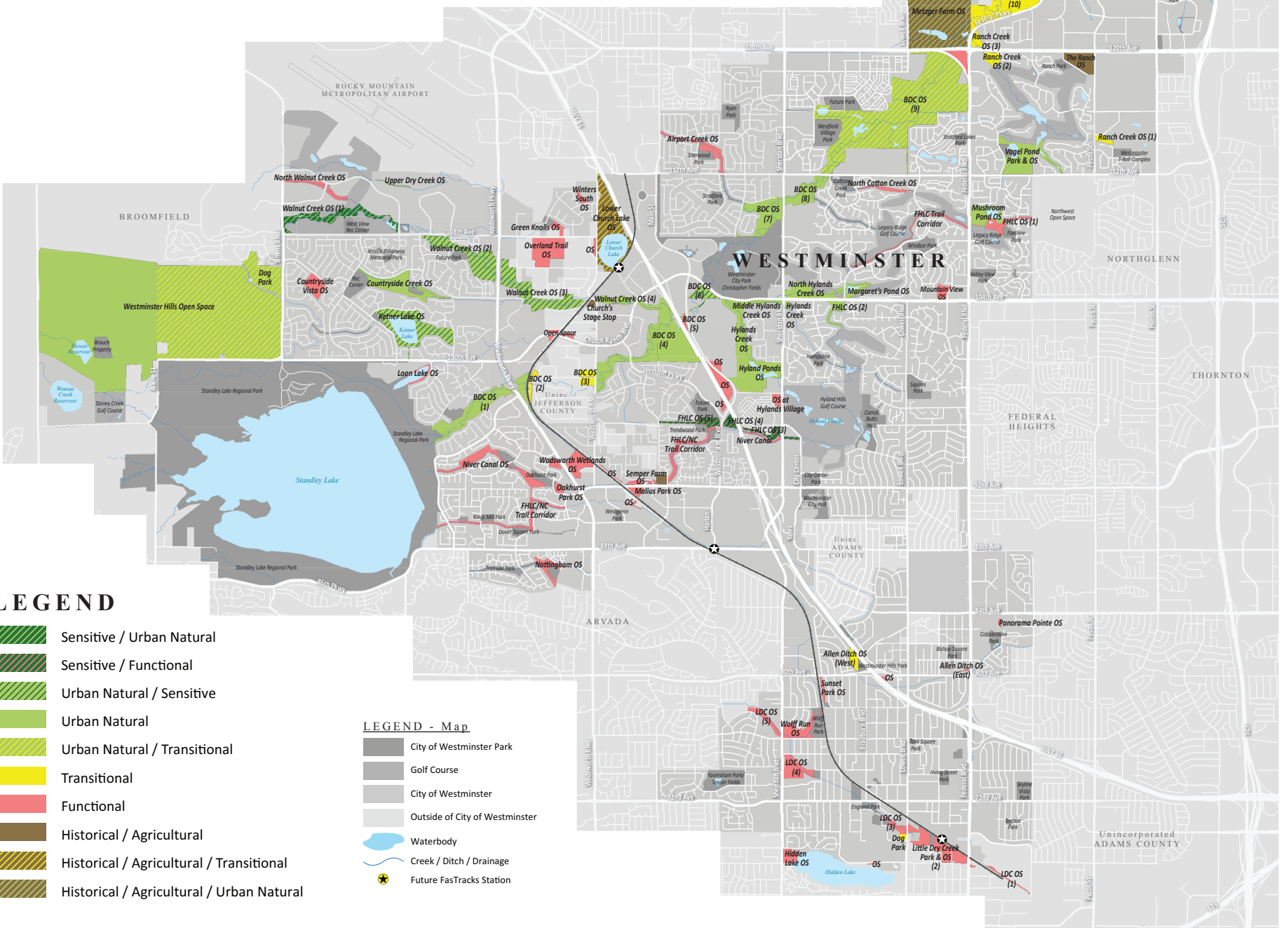
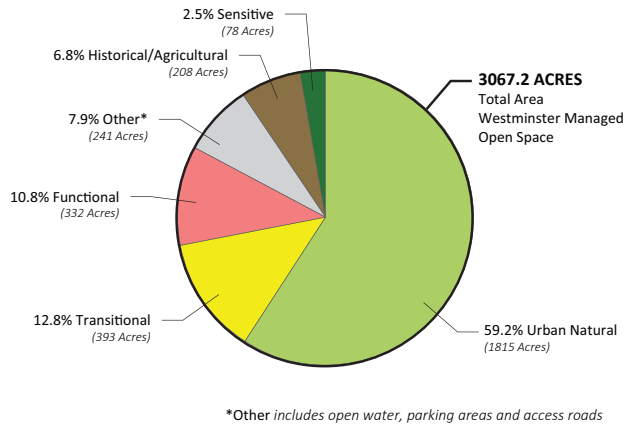
Large scale fold-out version  
of this map is included in the pocket  
at the end of this section

# General Management Guidelines Map

07.28.2014

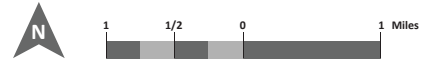


**Breakdown of Westminster Open Space by Management Classification**



## LEGEND

- Sensitive / Urban Natural
  - Sensitive / Functional
  - Urban Natural / Sensitive
  - Urban Natural
  - Urban Natural / Transitional
  - Transitional
  - Functional
  - Historical / Agricultural
  - Historical / Agricultural / Transitional
  - Historical / Agricultural / Urban Natural
- LEGEND - Map**
- City of Westminster Park
  - Golf Course
  - City of Westminster
  - Outside of City of Westminster
  - Waterbody
  - Creek / Ditch / Drainage
  - Future FasTracks Station







# Open Space Historical Structures Survey

**NOTE:** On behalf of the City of Westminster, Ron Sladek of Tatanka Historical Associates, compiled an historic overview for each lake, pond and major irrigation canal within the city boundaries. This information is available on the City of Westminster's website: <http://www.ci.westminster.co.us/ExploreWestminster/AbouttheCity/WestminsterHistory/Water.aspx>

## Lower Church Ranch – Tucker Ranch – Walnut Creek Corridor

### History

George Henry Church was born in Rochester, New York on December 11, 1830, and settled in Independence, Iowa in 1853 (Stone 1918; Westminster Historical Society 2014). Church first came to Colorado in 1859 to investigate potential mining claims (Westminster Historical Society 2014). After returning to Independence and marrying school teacher Sarah H. Miller, the newlyweds came to Colorado in 1861 on their honeymoon, and by 1862 they had settled in Mount Vernon Canyon in western Jefferson County. Church sold the Mount Vernon Canyon property and filed a new claim near Boulder and Left Hand Creeks near Haystack Mountain (City of Westminster 2014). After a fire at the Haystack Mountain property, the Church family again relocated in 1864 to a 160-acre claim along Big Dry Creek and established a stage stop along the Cherokee/Overland Trail (see Church's Stage Stop entry for additional information) (City of Westminster 2014). The Church Ranch would expand to approximately 27,000 acres at the height of its operation, which included the Lower Church Ranch –Tucker Ranch property currently owned by City of Westminster Open Space.



*The barn and clay-tile silo at the Tucker Ranch/Lower Church Lake, located on the east side of West 108th Avenue and Wadsworth Boulevard. Photograph taken facing northeast, January 28, 2014.*

Church, a decorated rancher, is credited with the first irrigation reservoir system in the state sourcing from Clear Creek near Golden, the introduction of pure-bred Hereford cattle to the region in 1869, and the introduction of wheat into high plains agriculture in Colorado (Stone 1918; Bunyak & Associates 2009). In 1863, the Churches welcomed their only son, John "Frank," and later adopted Sarah's niece, Mary Miller (Church) born in Iowa in 1870. Mary Miller Church married Thomas F. Tucker in 1892. Tucker was born in Jefferson County, Colorado in February of 1866 (City of Westminster 2014). On August 9, 1901, George Henry presented the deed for the NE ¼ of Section 11, Township 2 South, Range 69 West of the 6th Prime Meridian to Mary Miller and Tucker, although Tucker had already started construction on the main house of the property in 1900 (City of Westminster 2014). Like his father-in-law, Tucker was also a prominent rancher along the Front Range and also operated the 5,000 acre Tucker Mountain Ranch near Nederland. Structures on the Lower Church Ranch –Tucker Ranch property eventually included a caretaker's house, a frame barn with lean-to addition, a pole corral and loading chute, holding pen, hog house, water tank, sheep shed, and a blacksmith shop (City of Westminster 2014).

The silo and barn that remain today (5JF520)<sup>1</sup> were added to the property between 1910 and 1920 (Bunyak & Associates 2009). The Tucker Ranch struggled through the 1920s with the death of Thomas Tucker and economic hardships in the cattle industry compounded by the Depression. The ranch was operated by the Tucker children through the 1930s after Mary's death. The Colorado Department of Highways became interested in the property during the early 1950s in association with the Denver-Boulder Turnpike/U.S. 36 and in 1952 acquired 40 acres of the Tucker Ranch (City of Westminster 2014). Acquisition of the remaining parts of the original Tucker Ranch by City of Westminster Open Space began in 2003 (City of Westminster 2012). By 2006, all structures of the Tucker Ranch except for the silo and barn (5JF520) had been demolished.

### **Evaluation and Management Recommendations**

The silo and the barn of the Tucker Ranch (5JF520) have been evaluated for their eligibility for listing on the National Register of Historic Places (NRHP) six times from 1988 to 2009. In 2006, 5JF520 was designated a Westminster Local Historic Landmark under the title "Lower Church Lake Barn and Silo" (City of Westminster 2014). In 2009, 5JF520 was officially determined to be eligible for listing on the NRHP (Colorado Office of Archaeology and Historic Preservation 2009). The most recent documentation of 5JF520 was conducted in 2008 by Bunyak Research Associates and both structures were determined to be in good condition, maintaining sufficient historic integrity to demonstrate an association with a type, period, and method of construction as stipulated under Criterion C of the NRHP. ERO concurs with the condition of the structures documented in 2008 and notes that property is maintained and often repaired by volunteers (Larsen 2014, pers. comm).

ERO recommends continuing preservation, whether through grants or continued volunteerism, for 5J520 as well as consultation with the Colorado State Historic Preservation Office (SHPO) prior to any large-scale renovations or rehabilitation of the barn or silo. Should future undertakings propose major structural renovations to the barn and silo, ERO recommends that additional historic resource documentation be conducted adhering to SHPO standards in order to mitigate the adverse impacts posed by modifying, moving, or demolishing 5JF520.

An interpretive sign or pavilion summarizing the history of the property and its association with the development of agriculture in Westminster and the early settlement of Colorado as well as two locally and state-wide significant families, the Churches and Tuckers, would further aid in the active stewardship of the property while bolstering visual interest and public education. Additionally, the eventual expansion of a trail system to include the Lower Church Ranch – Tucker Ranch would maintain and strengthen the property as a passive recreational site. Additional improvements could also include a parking lot on the east side of Old Wadsworth Boulevard at 108th Avenue.

The Tucker Ranch is a City of Westminster Historic Landmark. Any exterior modifications must be approved by the City's Historic Landmark Board.

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1 *This code given after specific historic sites is a Smithsonian trinomial. The Smithsonian trinomial is a unique identifier assigned to historic sites in many states. They are composed of one or two digits coding for the state, typically two letters coding for the county or county-equivalent within the state, and one or more sequential digits representing the order in which the site was listed in that county.*

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## **Church's Stage Stop Well – Twelve Mile House – Walnut Creek Corridor**

### ***History***

Church's Stage Stop, also known as the Twelve Mile House (5JF521), is located north of 103rd Avenue on the west side of Wadsworth Boulevard and represents the site of the original Walnut Creek homestead complex of Sarah H. and George Henry Church. Church's Stage Stop was located on the property from which the 160 acres of the Lower Church Ranch – Tucker Ranch was deeded by George Henry Church to his daughter Mary Miller Church and her husband Thomas F. Tucker (see the Lower Church Ranch – Tucker Ranch entry). George Henry and his wife Sarah H. settled at the Walnut Creek location in 1864 after previous homestead near Haystack Mountain and Mount

Vernon Canyon. Despite being nothing more than a "child's claim with its wretched dirt covered log house" according to Sarah, the Churches quickly opened their doors to travelers on the Overland Trail, also known as the Cherokee Trail, and became the first stage stop along the route from Denver to Cheyenne, Wyoming (City of Westminster 2014a: 2). George and Sarah purchased wooden outbuildings from neighboring ranches and reassembled them on their property surrounding the new two-story frame house George had constructed for his family. As the stage stop grew in popularity, this original frame house became the bunk house for travelers and George eventually built a new private residence on site. In the 1920s, many of the original structures of the stage stop were moved offsite, or damaged and destroyed by fire. One surviving element of the stage stop, the hand-dug well (5JF4665), remains on-site today. The rock-lined well may have been built by George Henry in 1864 and was restored by members of the Church family in 1978. A metal plaque on the well provides visitors with information on the stage stop; a nearby boulder with a similar plaque also serves to educate the public on the history of the site.

The Cherokee Trail was established in 1849 by Native Americans and those seeking mineral wealth further west, becoming a major route of the gold rush of the 1850s (City of Westminster 2014b). The route began at Bent's Fort in southeast Colorado and eventually joined the Oregon Trail at Fort Bridger, Wyoming via Pueblo and Denver. In 1862 as conflicts with native populations became more frequent and travel on the Oregon Trail through central Wyoming was increasingly dangerous, the U.S. Post Office ordered the already established Overland Stage Company to relocate its operations to utilize the more southern passage of the Cherokee Trail. This route became known as the Overland Trail Denver Loop and operated from 1862 until about 1868.

As traffic on the Overland Trail declined, so did the number of visitors to Church's Stage Stop and the family shifted the focus of their homestead from hospitality to agriculture and the stage stop became the Churches' ranch headquarters. In the early 1890s, George and Sarah, along with their son Frank and his wife Katherine constructed a new operational headquarters located at the southeast corner of Church Ranch Boulevard and Wadsworth Boulevard.



*The well at Church's Stage Stop located at 10395 Wadsworth Boulevard. Photograph taken facing west, January 28, 2014.*



### **Evaluation and Management Recommendations**

Church's Stage Stop (5JF521) was officially determined not eligible for listing on the NRHP in 1988 as the remaining structures on site were in poor and deteriorating condition. No trace of the stage stop buildings remain today. Church's Stage Stop Well (5JF4665) was evaluated for listing on the NHRP in 2008 and was determined officially not eligible by the SHPO in 2009. The historic integrity of the well has been adversely affected by the 1978 restoration, as well as the absence of the other structures of the stage stop. The property on which the well is located has been subdivided and no longer conveys an association with the larger Church property that played a significant role in the agricultural development of Westminster. The presence of a modern residence directly south of the well further detracts from the historic feeling of the site.

As of winter 2014, the restored well was in good condition, with the brick, mortar, and plywood cover of the well intact and apparently maintained. ERO recommends continued preservation of the site; however, ERO notes that more in-depth interpretive information of the site and its regional importance would provide greater visual interest and the opportunity for public education. Archaeological testing and excavation could potentially aid in the identification of the location of the structures previously on-site. As the well is not eligible for listing on NRHP, a determination with which ERO concurs, consultation with SHPO prior to further renovations or modifications of the well are not necessary and any consultation would be considered due diligence.

Future landscaping on the site has the potential to offer historical interpretation by highlighting the remaining cottonwoods of the stage stop, as well as the relative location of the bunk house and Church residence as extrapolated from aerial and historical photographs of the site. A more exhaustive interpretive sign or pavilion would provide a more meaningful history of the property and its association with the development of agriculture in Westminster and the early settlement of Colorado as well as the locally and state-wide significant Church family than is currently present on-site.

The eventual expansion of the Walnut Creek Trail system would increase passive recreation on the site and would provide a stronger association with the Lower Church Ranch – Tucker Ranch north of the stage stop. The possible acquisition and removal of the residence directly south of Church's Stage Stop Well would further bolster the historical feeling of the site and may provide a more meaningful educational opportunity. Currently, the site remains a secondary destination along the Walnut Creek Trail system. The implementation of a more thorough historical interpretation of the site in conjunction with a garden or landscaped rest area along the trail would create a better awareness of the site, leading to a more active stewardship.

Church's Stage Stop is a City of Westminster Historic Landmark. Any exterior modifications must be approved by the City's Historic Landmark Board.

### **Works Cited and Additional References**

#### City of Westminster

- 2014a "History of Church Ranch and the Church Family." Explore Westminster. Available at: [http://www.ci.westminster.co.us/Portals/0/Repository/Documents/ExploreWestminster/Church\\_Ranch\\_History\\_PDF.pdf](http://www.ci.westminster.co.us/Portals/0/Repository/Documents/ExploreWestminster/Church_Ranch_History_PDF.pdf). Last accessed: February 13, 2014.
- 2014b "Cherokee Trail." Westminster Landmarks. Available at: <http://www.ci.westminster.co.us/ExploreWestminster/HistoricPreservation/WestminsterLandmarks/CherokeeTrail.aspx>.



## **The Ranch Open Space – Marion Barn**

*Included for Management Purposes in the Big Dry Creek Corridor*

### **History**

A claim was filed for the land that comprises the Ranch Open Space on August 24, 1891, by Joseph H. Marion. Marion was born on May 12, 1847 in Allegheny County, Pennsylvania (Stone 1918). In 1877, Marion left Pennsylvania for the west coast and spent three years in California farming in the Sacramento Valley. By May of 1880, Marion had traveled to Colorado and began working mines in Leadville for approximately three years before again turning to agricultural pursuits near Broomfield (Stone 1918). Marion was married to Philena E. Scott in Ringgold County, Iowa in December 1883. In 1884, Joseph and Philena began homesteading on the 160-acre claim in Westminster

before officially filing for the land in 1891. Marion constructed a small reservoir to irrigate the property. The reservoir was fed by a lateral ditch sourcing from the Farmers' High Line Canal (City of Westminster 2014). Using this irrigation system, the Marion family farmed their homestead until 1940 and were well-known as local agricultural pioneers (City of Westminster 2014). In 1975, the Ranch Country Club opened on the former Marion Farm. In 1998, the Marion barn and windmill were moved approximately 200 feet to the north from the country club onto city-owned open space property. The rest of the structures of the Marion farm were eventually dismantled as the farm once owned by Marion was subdivided and sold off (Sladek 2012). The 18.9 acre Ranch Open Space represents the first open space purchase by the City of Westminster (Larsen 2014 pers. comm: City of Westminster 2014). The Ranch Open Space is unique in that the property features no trails or public access; rather, the City of Westminster issues permits for limited horse boarding in the Marion barn and the use of the 18.9 acres as pasture land (Larsen 2014 pers. comm).

### **Evaluation and Management Recommendations**

The Marion barn at the Ranch Open Space has not been evaluated for its eligibility for listing on the NRHP. ERO recommends that a full documentation, architectural evaluation, and evaluation for NRHP eligibility be conducted prior to any proposed changes to the use or physical structure of the barn. However, until such undertakings are proposed, ERO recommends the continued use of the barn and pasture land under lease agreements.

The special use of the Ranch Open Space has ensured the successful active stewardship, preservation of both natural and historical resources, and the financial sustainability of the property and in turn has created a viable, practical utilization of an open space structure not seen in the other properties documented in winter 2014. The Marion barn has undergone major renovations, having been virtually rebuilt by the City when it was relocated, yet has maintained its original agricultural vernacular style. The current structure is in good physical condition; however, the historical integrity of the building has been impacted by the relocation and rebuilding.



*The Marion barn at the Ranch Open Space located at the southwest corner of 120th Avenue and Pecos Street. Photograph taken facing southeast, January 28, 2014.*

When considering the condition of the Lower Church Ranch – Tucker Ranch property in comparison with the Marion barn at the Ranch Open Space, it is worth noting the discrepancy between volunteer and lease maintained properties. The Lower Church Ranch – Tucker Ranch barn and silo act as more static features of the landscape, while the Marion barn is a functional part of the landscape, maintaining its historical utility. As the Ranch Open Space does not feature public access or trails, expanding existing trail systems to include the property would not provide any passive recreational value. If desired, an interpretative sign added to the Marion barn entrance or near the beginning of the driveway access to the property would provide public education on the site and may ease public concern over the restricted access to the open site via a brief description of the leasing program. Currently, no sidewalk exists adjacent to this open space property along Pecos Street; the installation of a sidewalk in this area would allow for a greater awareness and appreciation of the site.

Marion barn is a City of Westminster Historic Landmark. Any exterior modifications must be approved by the City's Historic Landmark Board.

### **Works Cited and Additional References**

#### **City of Westminster**

- 2014 "Ranch Open Space." Westminster Landmarks.  
Available at: [www.ci.westminster.co.us/ExploreWestminster/OpenSpace/Openspaceareas/Ranch.aspx](http://www.ci.westminster.co.us/ExploreWestminster/OpenSpace/Openspaceareas/Ranch.aspx). Last accessed: February 13, 2014.

#### **Larsen, Rod**

- 2014 Personal communication. Open Space Superintendent with City of Westminster.

#### **Ranch Country Club**

- 2013 "Our History." The Ranch Country Club Wedding Information.  
Available at: <https://theranchcc.memberstatements.com/Clubs/Ranchcc-CO/Uploaded/FacilityPics/Wedding%20Pics/Wedding%20Packet%202013%20no%20price.pdf>. Last accessed: February 13, 2014.

#### **Sladek, Ron**

- 2012 *Marion-Wilkins-Ward Barn & Windmill; The Ranch Open Space* W. 120th Ave. And Pecos St.  
Prepared for the City of Westminster Community Development Department by Tatanka Historical Associations, Inc.

#### **Stone, Wilbur Fiske**

- 1918 *History of Colorado*. Volume 3. The S. J. Clarke Publishing Company. Chicago, IL.



## **Charles and Julia Semper Farm – Allison Farm – Farmers’ High Line Canal Corridor**

### **History**

Charles S. Semper was born in England on July 31, 1830. Semper’s father was sent to the island of Trinidad in 1832 by the Church of England as a missionary where Charles was raised (International Typographical Union 1917). In April of 1859, Charles Semper arrived in Denver, the Pikes Peak gold rush having influenced his settlement in Colorado. Semper was trained as a typographer and printer and operated the presses for the first edition of the Rocky Mountain News, produced by William Byers and John Daily (Bunyak 2009). Semper’s time with the Rocky Mountain News came to an end with a labor strike in April of 1860 and the beginning of the Civil War. Semper enlisted with the

First Louisiana Heavy Artillery Regulars of the Confederate Army and did not return to Colorado until after his marriage to Julia in 1873. After Semper returned to Colorado, he and Julia filed a claim for 160 acres in Jefferson County on November 10, 1882. The Semper homestead was located at the northwest corner of what is now 92nd Avenue and Pierce Street along the route of the Cherokee-Overland Trail from Denver to Boulder, constructing their family house between 1880 and 1883 and a simple, one story barn around the turn of the century (Bunyak and Schlichting 2004). The Semper family exploited their ideal location along the stage route by establishing a post office and grocery store from their home. As the Semper Farm expanded, the Sempers began to promote an agricultural community near their farm. The settlement of Semper grew around a train depot and general store located near 92nd Avenue, not far from the Semper property today. The Sempers donated a portion of their land for a schoolhouse (Bunyak 2009). After Julia’s death in October 1916, Charles sold their homestead to the brothers George and John Allison. Charles Semper died in September 1917.

The Allison brothers bought the Semper Farm on July 19, 1916; however, John was the only of the two brothers to reside at the property. In 1961, Allison added onto the eastern portion of the original Semper residence. Linda Allison, John’s granddaughter, sold the property in 1989 with the agreement the property would be maintained as open space. In 2004, the site successfully gained local landmark status and in 2008, a State Historical Fund grant was used to renovate the exterior of the main house. Additional maintenance and research has been performed by Jeffry Stroud and Jack Kern, two Eagle Scout candidates (Turner 2010). In 2006, Denver Urban Gardens established a community garden at the northeast corner of the property and help look after the state champion apple tree located just east of the Semper – Allison residence.



*The main residence at the Charles and Julia Semper Farm, also known as the Allison Farm, located north of West 92nd Avenue on the east side of Pierce Street. Photograph taken facing southeast, January 28, 2014.*

### **Evaluation and Management Recommendations**

In August 2009, the Colorado SHPO gave the Semper Farm – Allison Farm (5JF4414) an official determination of “Needs Data,” meaning additional research and documentation is necessary before the SHPO can make an official determination of “Eligible” or “Not Eligible” for inclusion of 5JF4414 on the NRHP. As it was renovated in 2008, ERO notes the good exterior condition of the farm house of site 5JF4414. The interior of the farm house has not yet undergone renovation or rehabilitation. In February 2014, the only additional work to any of the structures of 5JF4414 included the stabilization of the brick-lined well and the exterior of the garage (built in 1961) was painted and the garage door repaired. The overall structural condition of the other buildings on-site is poor and the removal of the garage has been considered. The barn is especially in need of repair.

Located in the Farmers’ High Line Canal Corridor, the Semper Farm already demonstrates a strong association with the existing Farmers’ High Line Canal Trail; however, as shown in the Semper Farm Master Plan (2011), the introduction of additional spur/branch trails throughout the Semper property would further the visual appeal and public interaction with the historical features of the site. Additionally, adding picnic and rest areas to the Semper Farm property would enhance the passive recreational value of the site and would shift the role of the farm destination rather than a mere waypoint on an already popular trail.

Active stewardship of the site is already prominent in the restoration of the exteriors of the structures, the Eagle Scout projects, and the introduction of the Denver Urban Garden community plot. This stewardship has the potential to be increased through the maintenance and possible expansion of the exiting apple orchard. Discussion of the main Semper – Allison house being renovated to house an on-site caretaker would further the rehabilitation of the site, returning at least one of the structures to its historical function. Additionally, the Semper – Allison residence could be utilized as a community center, artists’ studio, office for a non-profit organization, or garden center and still promote the historical and natural importance of the site. Interpretative signs are scheduled to be installed on the property in the summer of 2014.

The Allison Farm is a City of Westminster Historic Landmark. Any exterior modifications must be approved by the City’s Historic Landmark Board.

### **Works Cited and Additional References**

#### **Bunyak, Dawn**

2009 *Westminster Selective Intensive Survey*, Jefferson County, Westminster, Colorado Cultural Resource Survey. Prepared for the City of Westminster Department of Community Development and the Westminster Historic Landmark Board by Bunyak Research Associates.

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1917 “A Pioneer Printer Gone.” *Typographical Journal*. Volume 51.

#### **Turner, Carol**

2010 “Semper Farm last remnants of old village of Semper.” *Intriguing Faces and Places from Colorado’s Past*. Available at: <http://caturner.wordpress.com/2010/04/24/semper-farm-last-remnants-of-old-village-of-semper/>. Last accessed: February 13, 2014.



## **Metzger Farm – Big Dry Creek Corridor**

### **History**

The land that comprises the Metzger Farm was historically associated with a parcel that in the late 1880s was split into two, side-by-side 80-acre homestead parcels under separate ownership (National Register of Historic Places Registration Form 2012). A claim for the land occupied by the Metzger Farm was first filed on January 30, 1885, by Albert B. Gay. In August 1935, the Gay family sold their homestead to James T. Burke. An attorney in Denver, Burke was born in Minneapolis in 1898 and arrived in Denver in 1921 and completed his law degree at the Westminster Law School (Tatanka Historical Associates 2007). Burke and his family owned the property until August of 1943 when it was sold to John Metzger.

Metzger, also a Denver attorney, married Bette Amen in December of 1944 after purchasing the homestead from Burke (Rocky Mountain News 2008). Metzger intended to operate the homestead as a “gentleman’s farm,” with nine outbuildings arranged in two, clean, east-west trending rows (City of Westminster 2014).

The main house of the Metzger Farm expanded upon the original Albert Gay residence, with the original structure still at the core of the Metzger Residence (Tatanka Historical Associates 2007). During the 1960s and 1970s as the Metzgers focused their attention on another ranch in Middle Park, the Metzger Farm in Westminster was cared for and managed by a local dairy farmer who had grown up near the property (Tatanka Historical Associates 2007). The City of Westminster Open Space and the City and County of Broomfield acquired the Metzger property and established a foundation for the financing, maintenance, and management of the Metzger Farm (City of Westminster 2014).

### **Evaluation and Management Recommendations**

The Metzger Farm (5AM2830) was officially determined as eligible for listing on the NRHP in June 2012. On September 21, 2012, the National Register Nomination Form was submitted to the National Park Service and on March 20, 2013 was officially listed on the National Register of Historic Places. A master plan for the management of the Metzger Farm property was drafted in winter 2010 and a groundbreaking ceremony marking the commencement of the plan was held on April 23, 2012. The Metzger Farm Open Space was opened to the public in November 2012.

While the Metzger Farm retains historical integrity, the structures of the farm are in poor overall physical condition. Despite the obvious need for cosmetic and structural maintenance on-site, the property is very well maintained. The master plan was created to provide low impact public use with the preservation of the property’s “model farm” characteristics (City of Westminster 2014). ERO notes that the aspects of the master plan that have been carried out to date have been successful in providing the community with visual interest and opportunities for passive recreation.



*The main family residence at the Metzger Farm located on 152 acres at the north-east corner of 120th Avenue and Lowell Boulevard. Photograph taken facing east/northeast, January 28, 2014.*

The creation of additional trails, picnic areas, and interpretive information would add to the recreational and historical value of the property overall. The stabilization of the main house and outbuildings of the Metzger Farm would provide additional opportunities for public access, including such options as an open air museum, community center, or caretaker's residence, similar to the idea of an on-site manager, as discussed with the Semper – Allison property. Additional, more in-depth structural evaluations are recommended to determine exterior and interior conditions on a building-by-building basis and to discuss priorities for any necessary renovations and repairs of all buildings of the Metzger Farm complex. Further studies could also more specifically determine the end-use of the main house and its outbuildings. Since the Metzger Farm is officially listed on the NRHP, ERO advises that any large-scale renovation or rehabilitation of any structures on the property be preceded by that additional historic resource documentation adhering to SHPO standards or NPS HABS/HAER Level II Documentation in order to mitigate any adverse impacts posed by modifying or removing any of the structural features of 5AM2830.

Metzger Farm is a City of Westminster Historic Landmark. Any exterior modifications must be approved by the City's Historic Landmark Board.

### **Works Cited and Additional References**

#### **City of Westminster**

- 2014 "Metzger Farm." Westminster Landmarks. Available at: <http://www.ci.westminster.co.us/ExploreWestminster/HistoricPreservation/WestminsterLandmarks/MetzgerFarm.aspx>. Last accessed: February 13, 2014.

#### **National Register of Historic Places Registration Form**

- 2012 *Metzger Farm*. Property entered into the National Register on March 20, 2013.

#### **Rocky Mountain News**

- 2008 "Betty Metzger, 85, pianist, art museum owner." Obituary. Written by Bill Gallo, Special to the Rocky Mountain News.

#### **Tatanka Historical Associates**

- 2007 *Metzger Farm*. Prepared for the Broomfield-Westminster Open Space Foundation by Tatanka Historical Associates, Inc.



## **Savery Savory Water Tower – Savery Savory Mushroom Farm**

### ***History***

The Savery Savory Mushroom Farm was established in the early 1920s by Charles William Savery in Adams County in the towns of Westminster and Broomfield just east of Federal Boulevard and south of West 112th Avenue near West 110th Court. Savery was born in 1878 in Parkersville, Pennsylvania and worked the lumberyard business in Philadelphia from 1900 to 1908. During that time, in June 1904, Savery married Frances Darlington of Denver and the two soon had two sons, and a daughter. As the lumberyard failed, with debts mounted and finally paid, the Savery family moved to Denver in 1909 with only \$600 to their name (Sladek 2005). In 1910, Savery opened a mining stockbrokerage office under the name Savery-Petrikin in the Mining Exchange Building in Denver. The partners operated the stockbrokerage until 1917, likely parting ways as Savery's partner William Petrikin became one of the most significant executives in the sugar industry as chairman of the board of the Great Western Sugar Company. With the partnership dissolved, Savery invested in a molybdenum mine in Questa, New Mexico, but by 1918 he had returned to the brokerage business and established the C.W. Savery Securities Company in the Deham Building. Savery ran this business until 1920. During his second term in stockbrokerage, Savery bought an 80-acre farm property in 1918 from Jacob and Nettie Milstein located north of Denver in Adams County.

With the purchase of the farm and an interest in mushroom farming carried with him from Pennsylvania, Savery began his mushroom and canning business in the early 1920s. Savery's cousin, Ed Jacobs, who remained in Pennsylvania supposedly had a successful mushroom farm that contributed to Savery's motivation to bring the delicacy to Colorado. After consulting with experts from the Colorado Agricultural College in Fort Collins, Savery discovered the hardships of growing mushrooms in Colorado's dry environment, his first three years of operating the farm having experienced widespread failure. However, after an eight-week visit back to Pennsylvania, Savery and his son Robert returned to Colorado ready to test different growing techniques in small mushroom buildings known as caves. The caves were kept dark, cool, and humid with strips of canvas dampened by troughs of water and an electric fan that blew over the cloth. The success of this system was the catalyst for a much larger operation that eventually grew to include 39 caves with automatic water sprayers, centrifugal pumps, and large fans. The increased production led to an increase in demand for water that could not be met by local irrigation ditches. Fortunately for Savery, his mushroom farm happened to be situated above an artesian aquifer. Water was pumped from the aquifer to the water tower (5AM1856), which was strategically located on a high point of the farm. The water from the tank was distributed via gravity through pipes to the caves and canning buildings and also eventually supplied domestic water for those taking up residence at the farm. Savery had the water tank painted to look like one of the mushroom cans produced by the farm, taking



*Savery Savory Mushroom water tower is the only remaining structure of the Savery Savory Mushroom Farm. Photograph taken facing south towards Federal Boulevard, July 3, 2014.*



advantage of a unique marketing opportunity. Prior to 1950, the mushroom can atop the water tower was enhanced with neon lights, solidifying the tower as a community landmark. By the 1930s, the farm complex had grown to the size of a small company town including a water tower (5AM1856), 15 residences for employees, a schoolhouse, boarding house, a baseball field, tennis court, and a general store as well as 25 additional adobe buildings for laborers, most of whom were Mexican immigrants. At the time, the average annual payroll for the company was \$32,000. Savery also eventually moved to the farm where he lived until 1956 when he was moved to a nursing home in Longmont after the death of his wife, Frances.

In 1927, Savery began to advertise his mushrooms under the Great Western Mushroom Company and by 1935 had opened branches in Los Angeles, San Francisco, and Missouri at which point the company was producing 10,000 pounds of mushrooms each day. Denver residents alone purchased 500 pounds of mushrooms daily (Sladek 2005). Savery retired in 1953 and the Savery Savory Mushroom Company ceased operations. Additional history concerning Savery, his business endeavors, and the mushroom farm is outlined in the Colorado State Register of Historic Properties Nomination Form completed by Ron Sladek with Tatanka Historical Associates and available at the History Colorado Adams County listings of properties included in national and state historic registries (<http://www.historycolorado.org/oahp/adams-county>).

The water tower (5AM1856) is the only remaining structure of the Savery Savory Mushroom Farm. By 2002, the development of the Savory Farms neighborhood had reached the foot of the water tower and the recreational park present during the July 2014 survey had been constructed. Directly south of the water tower, foundations and other structural remnants of the farm were still visible in aerial photographs through 2011. In 2011, all remaining structural features south of the water tower were obliterated with the Mushroom Pond Open Space expansion and trail improvements through the area. In 2006, the City of Westminster commissioned the historically accurate repainting of the water tower, which was found to be in excellent condition during the July 2014 survey.

### **Evaluation and Management Recommendations**

The Savery Savory Mushroom Farm Water Tower (5AM1856) was evaluated for its eligibility for listing on the National Register of Historic Places (NRHP) in July of 2005 by Tatanka Historical Associates and was officially determined to be an eligible resource. In November 2005, 5AM1856 was submitted to the review board for listing on the Colorado State Register of Historic Places. On December 16, 2005, the Savery Savory Mushroom Farm Water Tower was officially listed on the State Register. The July 2005 documentation of 5AM1856 indicates that the paint on the water tower was faded and showed two painting episodes. The documentation by Tatanka Historical Associates also notes that the roof of the water tower was gone, that the tank was slightly deformed and no longer completely circular, exhibited bullet holes, and a rectangular piece of the bottom of the tank had been cut open. Additionally, the whole structure exhibited signs of rust. Also documented in July 2005 were the remnants of neon lighting added prior to 1950 to illuminate the tank, including neon tubing, glass fragments, and electrical wiring. Despite these impacts to the structural integrity of 5AM1856, Tatanka Historical Associates still recommended the water tower eligible for the State Register under Nomination Criteria D—indicating that the property is of geographic importance and contributes to community identity.

The July 2014 survey of 5AM1856 found the structure to be in much better condition, with structural ailments likely improved around the time of the repainting of the tank. ERO found no evidence of the electrical wiring or tubing of the neon elements noted in the 2005 documentation of the resource, nor was there any evidence of bullet holes, extensive rust, or the deformed circular structure of the tank itself.

ERO recommends continuing preservation, whether through grants or volunteerism, for 5AM1856 as well as consultation with the Colorado State Historic Preservation Office (SHPO) prior to any large-scale renovations, rehabilitation, or relocation of the water tower. Should future undertakings propose major structural renovations to the water tower, ERO recommends that additional historic resource documentation be conducted adhering to SHPO standards in order to mitigate the adverse impacts posed by modifying, moving, or demolishing 5AM1856.



Additional access or improvements to the water tower site present a challenge considering the land and park surrounding 5AM1856 are owned and maintained by the Savory Farm subdivision; however, greater public access to the site would increase visual, recreational, and educational interest.

**Works Cited and Additional References**

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- 2005 5AM1856. *Savery Savory Mushroom Farm Water Tower. Colorado Historical Society, Colorado State Register of Historic Properties Nomination Form.* Prepared for the City of Westminster by Tatanka Historical Associates, Inc.



# Prioritization of Needed Area-Specific Master Plans

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The following Westminster Open Space areas listed require master planning for future development, management and/or maintenance. These projects are distinct from planning, design, and construction of “missing links” in the trail system.

## Criteria for Area-Specific Open Space Master Planning

The following are criteria for Area-Specific Master Plans for the City of Westminster Open Space System.

- » Where defining program and conceptual design requires a multi-disciplinary professional expertise. (Example: Big Dry Creek Corridor where landscape architecture, civil engineering (with an emphasis on site hydrology and hydraulics) and environmental science must coordinate efforts to define a balance between increasing and changing use with the restoration of a stable, naturalistic landscape.)
- » Where defining program and conceptual design requires coordination between jurisdictions or with an outside agency. (Example: The existing Metzger Farm Master Plan was completed in cooperation with the City of Broomfield.)
- » Where programming and conceptual design must account for changing use or conditions. (Examples include: Lower Church Ranch Lake where Master Planning must account for the changed condition of the lake and anticipate the future construction of a FasTrack station on the south side of the site.)
- » As a means of ensuring a proper balance between different, possibly competing land uses. (Examples include: Planning for park and open space improvements at Ketner Lake or at the future park site abutting open space classified as *Sensitive* along the Farmers’ High Line and Niver Canals Corridor just west of Westminster Parkway.)
- » Where competing for outside funding for design, construction or maintenance must include supporting planning documents. (Ex. Planning in association with allowing a community garden at Semper Farms.)

Master planning is also the best framework for modeling the impacts that alternative solutions may have on management and maintenance costs. Proposed inventory or acreage identified in preliminary planning phases can be plugged into the *General Management Guidelines Matrix* to test the impact of proposed improvements to overall maintenance costs.

## Existing Open Space Master Plans

The following is a list of existing open space area master plans and dates.

- » Semper Farm Master Plan (February 2011)
- » Metzger Farm Open Space Master Plan (Winter 2010) - Westminster/Broomfield collaboration

## High Priority Area-Specific Open Space Master Plans

As funding becomes available, the following areas of the Westminster Open Space System should be considered a higher priority for master planning to be completed in the next 1-5 years. (See 11x17 Z-Fold Map in this section of Needed Area-Specific Master Plans. Numbers do not necessarily reflect priority but location on the map.)

### **1 - Big Dry Creek Corridor (Westminster City Park east to I-25)**

The Big Dry Creek Corridor is the centerpiece of the Westminster Open Space System and is significant in establishing community identity. This area of the Big Dry Creek Corridor needs to be master planned to:

- » Develop a clear trail hierarchy,
  - Develop the Big Dry Creek Trail as part of both the City's Bikeway System and the Regional Greenway System,
  - Identify existing or potential local loop trails using existing trail connections to the Big Dry Creek Trail and secondary trails as loops serving local neighborhoods
  - Identify a clear trail hierarchy that includes closure/restoration of unwanted social trails and identifies trail materials.
- » Define complete restoration of *Transitional* landscape within the corridor, and
  - The 2014 OSSP classifies over 200 acres of the Big Dry Creek Corridor as *Transitional* landscape that should undergo restoration and/or enhancement until site improvements are completed and the areas can be reclassified *Urban Natural* landscape.
- » Identify opportunities to develop the greatest possible landscape diversity within the corridor by taking advantage of the unique drainage/hydrology/hydraulics of the creek corridor.

### **2 - Little Dry Creek Open Space (at Sheridan Boulevard)**

As the name suggests, Little Dry Creek Open Space should echo the Big Dry Creek Open Space in serving as a key component in the overall image of the City of Westminster. Little Dry Creek is also an important recreation and transportation corridor serving as a critical link in the regional Refuge-to-Refuge Trail and commuter transit system providing a connection to the proposed Westminster Station.

Preparation of an open space master plan for this area should be coordinated closely with the planned revision to the Little Dry Creek Drainage Master Plan currently scheduled for this year (2014).

Plan sponsors, including the Urban Drainage and Flood Control District (UDFCD), Westminster, Arvada and Adams County, will be looking at the potential impacts of changed criteria for defining storm volumes and redefining the flood plain. These changes in criteria may present opportunities to:

- » Reconfigure the channel, restore a more diverse, naturalized landscape and improve/upgrade trail design, and
- » Reconfigure arterial crossings including both Sheridan Boulevard and 76th Avenue.

### **3 - Lower Church Ranch Lake Open Space (Wadsworth Boulevard and 108th Avenue)**

This 70+ acre historic site is an irreplaceable asset linked to Westminster's historic community identity, as well as being adjacent to a potential future FasTracks station. It includes a 15-acre lake that has been going dry during the extended drought conditions, but may be restored and maintained to provide an open space asset and destination.

Proposed program elements for an open space master plan should include:

- » Trailhead, interpretive signage, and trail connections,
- » Loop trail or boardwalk around lake as well as an observation/fishing pier,
- » Improvements to the lake and habitat, and
- » Pedestrian crossings at 108th Avenue and Wadsworth Boulevard.



The master plan should also coordinate with design of future FasTracks station. Approval from the Westminster Historic Landmark Board is necessary prior to any modifications to the site within the designated historic boundary.

The master plan should incorporate the General Management Classification and maintenance strategy of the site as identified in this report (See *General Management Guidelines* section). Approximately 20 percent of Lower Church Ranch has been identified as a *Transitional* landscape in terms of its open space management classification, and should undergo restoration and/or enhancement until site improvements are completed, at which time the site can be reclassified as *Urban Natural* landscape.

#### **4- Westminster Hills Open Space and Dog Park (Northwest of Simms Boulevard and 100th Avenue)**

This expansive 1000+ acre site includes an existing dog off-leash area (approximately 70 acres) as well as areas where dogs are required to be on-leash. The dog off-leash area is very popular and is considered a regional or “destination” facility that attracts users living outside Westminster.

A master plan of the entire Westminster Hills Open Space should include:

- » An alternative trailhead accessing the “no dogs off-leash” area on the south edge of the open space at 100th Avenue and Alkire Street,
- » Trail loops and trail improvements. Trail work to be done in coordination with the Refuge-to-Refuge Trail regional trail project, and
- » Interpretive signage.

The off-leash dog areas are classified as *Transitional* landscape. The City should consider developing a management plan similar to that done by Colorado State Parks for Cherry Creek State Park (October 2010) that would provide a specific management direction for the dog-off-leash area including rotating dog off-leash areas with an ongoing revegetation program.

#### **5 - Farmers’ High Line/Niver Canal Open Space West of US 36 and Future Park**

This area is south of and adjacent to a large proposed future park site and is bisected by Westminster Boulevard. The open space area, which can be seen off of US 36, has been classified in this report as having more than five (5) acres of *Sensitive* landscape which includes a fragment of an abandoned surface irrigation system that has evolved into a Plains cottonwood/ Western snowberry community, which is landscape type unique to the western Great Plains and needs to be celebrated and preserved.

The master plan should include:

- » Trail connections,
- » Interpretive signage, and
- » Integration of proposed park improvements with the *Sensitive* landscape.

#### **6- Vogel Pond Park and Open Space (Ranch Reserve Parkway and 112th Avenue)**

This 42-acre site includes a 5-acre pond and is located along Ranch Reserve Parkway. A master plan should be in conjunction the development of the adjacent future park site and should include:

- » Trailhead serving both the park and open space,
- » Formalizing loop trails and closing/restoring unwanted social trails around the lake,
- » Completing the Mushroom Pond Trail missing link and design a pedestrian crossing at 112th Avenue to connect the trail south,
- » Improvements to fish and wildlife habitat, and
- » Potential community garden.

***7 - Ketner Open Space (Countryside Drive and Moore Street)***

This 50+ acre open space includes a 22-acre reservoir and is adjacent to Kensington Park.

A master plan should include:

- » Developing a clear trail hierarchy that includes closure/restoration of unwanted social trails and concrete trails which connect to schools,
- » Building launch area for allowable boats, and
- » Developing fish and wildlife habitat, re-establishing healthy fish population through a lake stocking program.

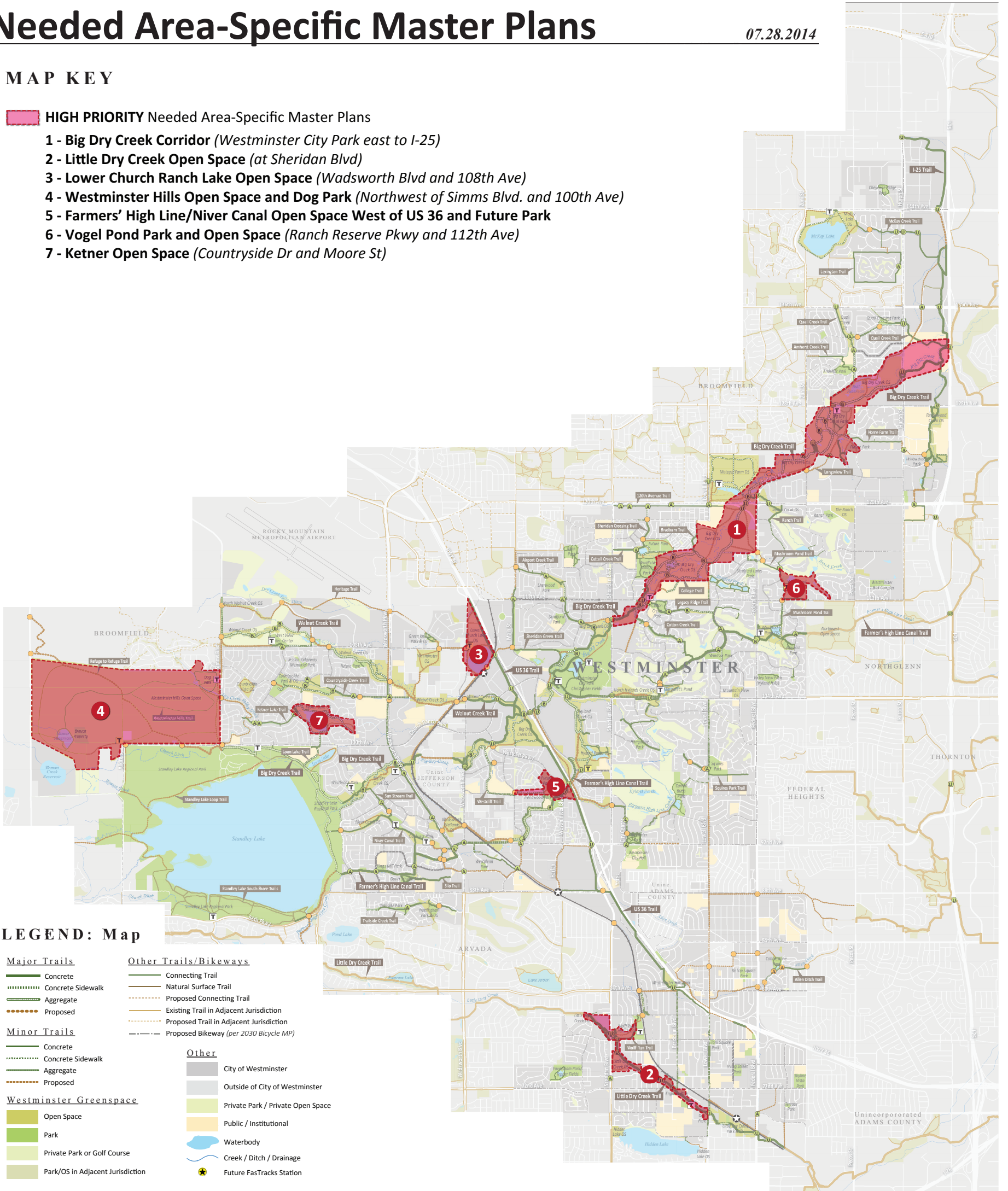
# Needed Area-Specific Master Plans

07.28.2014

## MAP KEY

**HIGH PRIORITY** Needed Area-Specific Master Plans

- 1 - Big Dry Creek Corridor (Westminster City Park east to I-25)
- 2 - Little Dry Creek Open Space (at Sheridan Blvd)
- 3 - Lower Church Ranch Lake Open Space (Wadsworth Blvd and 108th Ave)
- 4 - Westminster Hills Open Space and Dog Park (Northwest of Simms Blvd. and 100th Ave)
- 5 - Farmers' High Line/Niver Canal Open Space West of US 36 and Future Park
- 6 - Vogel Pond Park and Open Space (Ranch Reserve Pkwy and 112th Ave)
- 7 - Ketner Open Space (Countryside Dr and Moore St)





# Capital Improvement Projects List

The following have been identified as high priority Capital Improvement Projects for the City of Westminster.

| <b><i>Capital Improvement Description</i></b>  | <b><i>Estimated Cost</i></b> |
|--|------------------------------|
| <b><i>1. Big Dry Creek (BDC) Trail - Major Trail Improvements/Aggregate Replacement</i></b>  | <b><i>\$ 1,809,940</i></b>   |
| » Upgrade Trail (10' Concrete/4' Aggregate)- Huron Street to 128th Avenue- approximately 4330 linear foot (LF)   | \$ 337,740                   |
| » Bridge- South of 128th Avenue across BDC connecting to BDC Park  | \$ 23,000                    |
| » Upgrade Trail (10' Concrete/4' Aggregate)- 128th Avenue to Zuni Street- approximately 4030 LF (LF may change if bridge is installed creating a more direct route)              | \$ 337,740                   |
| » Upgrade Trail (10' Concrete/4' Aggregate)- west of Federal Parkway through Metzger Property- approximately 5155 LF   | \$ 402,020                   |
| » Upgrade Trail (10' Concrete/4' Aggregate)- south of underpass at 120th Avenue to existing concrete trail at approximately 115th - approximately 3400 LF                        | \$ 265,200                   |
| » Upgrade Trail (10' Concrete/4' Aggregate)- at existing concrete west of bridge, past Westfield Village Park to existing concrete at about 112th Avenue - approximately 3700 LF | \$ 288,600                   |
| » Upgrade Trail (10' Concrete/4' Aggregate)- SW of 104th Avenue adjacent to Butterfly Pavilion to Westminster Boulevard - approximately 1360 LF                                  | \$ 106,080                   |
| » Upgrade Trail (10' Concrete/4' Aggregate)- East of Wadsworth Boulevard, between two concrete segments within the BDC Open Space - approximately 625 LF                         | \$ 48,750                    |
| <b><i>2. Walnut Creek Trail - Major Trail Missing Link Connection Improvements</i></b>   | <b><i>\$ 1,519,500</i></b>   |
| » Railroad grade-separated crossing at BNSF railroad at about 103rd Avenue   | \$ 780,000                   |
| » Enhanced At-Grade Crossing connecting existing Walnut Creek Trail to the east at Church's Stage Stop and future trail to the west  | \$ 10,800                    |
| » Major Trail (10' Concrete) - Wadsworth Boulevard to Wadsworth Parkway- approximately 4630 LF   | \$ 333,360                   |
| » Upgrade Major Trail to (10' Concrete/4' Aggregate)- Wadsworth Parkway to Simms Street - approximately 5990 LF  | \$ 395,340                   |
| <b><i>3. Wolff Run BNSF Railroad grade-separated crossing</i></b>  | <b><i>\$ 780,000</i></b>     |
| » Railroad grade-separated crossing at north end of park at about 78th Avenue  | \$ 780,000                   |



|   |                   |
|---|-------------------|
| <b>4. Mushroom Pond Trail - Minor Trail Connection Improvements</b>                           | <b>\$ 216,000</b> |
| » Enhanced At-Grade Crossing at 112th Avenue at Clay Drive                                    | \$ 10,800         |
| » Minor Trail (8' Concrete) - Ranch Reserve Parkway west to BDC Trail - approximately 2880 LF | \$ 138,240        |
| » Minor Trail (8' Concrete)- 112th Avenue to Ranch Reserve Ridge- approximately 1395 LF       | \$ 66,960         |

**5. Allen's Ditch Trail East - Minor Trail Connection Improvements**

|   |            |
|---|------------|
| » Upgrade Trail (8' Concrete)- Zuni Street to 81st Avenue- approximately. 1425 LF                                 | \$ 110,724 |
| » Upgrade Sidewalk/Trail (8' Concrete)- 81st Avenue from Clay Drive to Eliot Street - approximately. 960 LF       | \$ 64,512  |
| » Upgrade Sidewalk/Trail (8' Concrete)- 81st Avenue to 80th Avenue - approximately 960 LF                         | \$ 110,592 |
| » Enhanced At-Grade Crossing at Federal   | \$ 12,960  |
| » Upgrade Sidewalk/Trail route along ROW to 8' minimum where feasible (Federal Boulevard to Lowell Boulevard)     | \$ TBD     |
| » Signage to mark trail route along existing ROW- See Wayfinding Strategy (Federal Boulevard to Lowell Boulevard) | \$ TBD     |

**6. Countryside Creek Trail - Aggregate Replacement (Connection to Witt Elementary)** **\$ 232,410**

- » Upgrade Trail (8' Concrete)- Mayfair Park to Oak Street - approximately 3810 LF

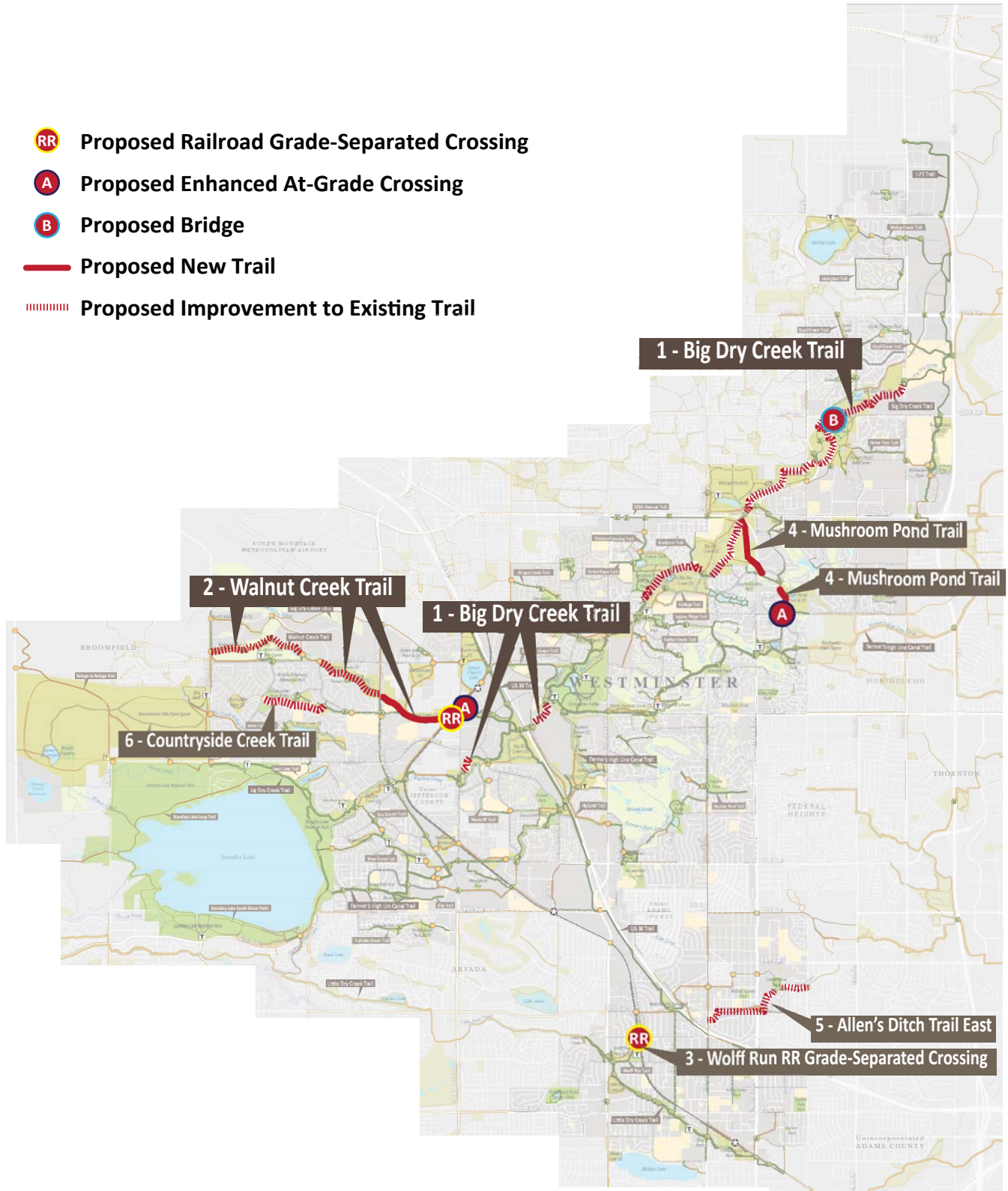
**7. Westminster Trail Signage (See Wayfinding Strategy)** **\$ TBD**

- » The City of Westminster is undergoing significant transition as the site of the former Westminster Mall transitions into the new Westminster Center. This project will serve as a catalyst for a citywide marketing and branding campaign. Signage developed for the city's public amenities, parks and open space, including wayfinding for the City's extensive off-street trails system, should be considered one component of this larger, citywide branding effort to ensure visual continuity and consistency. Logos, fonts, colors from the citywide branding effort should be integrated into future wayfinding signage palettes developed specifically for the City of Westminster Open Space system. All GIS navigation tools, user apps, and on-line information should also integrate similar, pre-approved graphics to create a cohesive graphic identity for city-owned property and amenities.

*Cost estimates for proposed signage listed in the Wayfinding Strategy are based on costs of existing signage/materials and signs currently being installed throughout the City's open space system. Once the citywide branding efforts are finalized, these estimates will need to be adjusted. Unit costs for signage elements listed in the Wayfinding Strategy Cost Matrix should be updated to reflect changes in signage materials, sizes, and graphics per the new branding and identity program.*



- RR** Proposed Railroad Grade-Separated Crossing
- A** Proposed Enhanced At-Grade Crossing
- B** Proposed Bridge
- Proposed New Trail
- |||||** Proposed Improvement to Existing Trail





# Proposed Trail Improvements Prioritization Summary

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The following pages include a summary of the prioritization process for proposed trail improvements (missing links, and existing trail improvements) in the City of Westminster. Priority recommendations relied on ongoing inventory for the trails system completed by the City as provided in the memo *Westminster Trail Widths and Surface Types (Jan 24, 2013)*, as well as on-the-ground, site observations by the consultants.

## Prioritizing Missing Links

This *Trails Master Plan Diagram* illustrates missing links, or locations where the trail connections are missing or inadequate, in the existing trail system, as well as identifying locations for trail crossings (either grade-separated or at-grade to be determined) needed to provide safer trail connections and improve general connectivity. (See page 10 of the *Trails Master Plan Narrative: Criteria for Identifying Underpass Opportunities*)

The *Missing Links: Off-Street Trails Matrix* on the following pages provides information on proposed facility type and approximate length, and categorizes the missing link by priority- higher, medium, or lower. Most higher priority projects have been also listed on the *Capital Improvement Project List*. The criteria established for prioritizing missing links in the trail system include:

- » Completes a missing link along a Major Trail
- » Improves general connectivity (i.e. North/South connections)
- » Provides connection to major transportation destinations (i.e. FasTracks Stations)
- » Contributes to local or short loops off of the Big Dry Creek corridor
- » Improves connectivity to a school
- » Provides equitable distribution of improvements throughout the city
- » Constructibility: Opportunity for trail is tied to new development



| HIGHER PRIORITY<br>(in alphabetical order)                              | PROPOSED IMPROVEMENT                      |            |                   |                     | COMMENTS   |
|---|---|------------|-------------------|---------------------|--|
|   | IMPROVEMENT TYPE                          | TRAIL TYPE | PROPOSED MATERIAL | APPROX. LENGTH (LF) |  |
| <b>Allen Ditch Trail East</b>   | Improve sidewalk along ROW; route signage | Minor      | Concrete          | 3080                | Federal Blvd to Lowell Blvd - needed defined connection to US 36 and further to future FasTracks station from that area. More feasible to defer the Allen Ditch Trail as a route to coincide with on-street bikeway due to the lack of land access/ ownership for trail development, improving the sidewalks and adding "route" confidence marker signage; widen sidewalk to 8' where feasible |
| <b>Allen Ditch Trail West</b>   | New Trail                                 | Minor      | Concrete          | 2210                | Between Harlan St and Pierce St along the 40% city ROW; good direct connection to new mall area, connects into future bikeway routes; along ROW ; widen sidewalk to 8' where feasible  |
| <b>Big Dry Creek Trail<br/>Yarrow Street to BNSF RR</b>                 | New Trail OR improved signage             | Major      | Concrete          | 1825                | Proximity to Jefferson Academy makes safety an issue at certain times of the day. Would require widening street ROW to accommodate path in Unincorporated JEFFCO; interim solution to sign route clearly with sharrows on Yarrow Street and with Sign Type #5 Confidence Markers.  |
| <b>Farmers' High Line Canal Trail (Relocation)</b>                      | New Trail                                 | Major      | Concrete          | 1990                | Legacy Ride Pkwy to Sheridan Blvd (relocate major trail route) - Low priority until Proposed Margaret's Pond Open Space Master Plan (and adjacent OS) is complete. Replace this sidewalk segment with a major trail closer to North Hylands Creek in the City Open Space.  |
| <b>Farmers' High Line Canal Trail (Relocation)</b>                      | New Trail                                 | Major      | Concrete          | 4190                | At 92nd Ave onto OS and Wadsworth Pkwy (relocate major trail route) - Low priority until Wolff Run OS to Wadsworth Wetlands (includes adjacent OS areas) is complete. Must coincide with new underpass at Wadsworth Pkwy.  |
| <b>Green Knolls Park to Walnut Creek Park through Overland Trail OS</b> | New Trail                                 | Minor      | Concrete          | 495                 | Contributes to a North/South Connection; includes 3 segments: (1) Green Knolls Park to 108th   |
|   | New Trail                                 | Minor      | Concrete          | 1930                | (2) through Overland Trail OS Property   |
|   | New Trail                                 | Minor      | Concrete          | 1633                | (3) alignment to connect to Walnut Creek Trail (actual alignment TBD, LF based on alignment shown in the Trails MP Map)  |
| <b>Hyland Trail at US 36/Westminster Blvd to Big Dry Creek Trail</b>    | New Trail                                 | Minor      | Concrete          | 4295                | Already graded in through development, future/in progress underpass connects to Hyland Pond Open Space   |
| <b>Long's View Trail</b>  | New Trail                                 | Minor      | Aggregate         | 890                 | Part of a loop system, should be aggregate. Includes 4 segments: (1) near BDC Park - 890 LF  |
|   | New Trail                                 | Minor      | Aggregate         | 1605                | (2) Segment within new development OS  |
|   | New Trail                                 | Minor      | Aggregate         | 690                 | (3) Connecting directly north to BDC Trail   |
|   | New Trail                                 | Minor      | Aggregate         | 1370                | (4) Connecting west to BDC Trail   |
| <b>Mushroom Pond Trail at Federal</b>                                   | New Trail                                 | Minor      | Concrete          | 2879                | Coincides with future underpass to connect BDC Trail to FHL Trail (critical link); includes 2 trail segments: (1) connect east of Federal continuing on the west side headed north to BDC Trail  |
|   | New Trail                                 | Minor      | Concrete          | 1318                | (2) E/W connection to BDC Trail  |
| <b>Park Centre Trail connection</b>                                     | New Trail                                 | Minor      | Concrete          | 825                 | Need connection to Park Centre business park to the east; includes 2 segments: (1) from the west up to BDC Park  |
|   | New Trail                                 | Minor      | Concrete          | 705                 | (2) East segment through OS to Park Centre   |
| <b>Pillar of Fire Trail</b>   | Improve sidewalk along ROW; route signage | Minor      | Concrete          | 6555                | Needed defined connection to US 36 and further to future FasTracks station from that area. More feasible to defer the Pillar of Fire Trail as a route due to the lack of land access/ ownership for trail development, improving the sidewalks and adding "route" confidence marker signage; widen sidewalk to 8' where feasible   |
| <b>Standley Lake Perimeter Trail</b>                                    | New Trail                                 | Minor      | Aggregate         | 12820               | Creates much desired loop around the lake; includes 2 segments: (1) Loop section   |
|   | New Trail                                 | Minor      | Aggregate         | 1875                | (2) Loop access segment from Alkire Street   |
| <b>Walnut Creek Trail</b>   | New Trail                                 | Major      | Concrete          | 4630                | Completes major missing link connecting Walnut Creek to Big Dry Creek (BDC); should coincide with underpass improvement at RR  |
| <b>Westcliff Trail</b>  | New Trail                                 | Minor      | Concrete          | 710                 | Need connection from FHC Trail to aggregate trail at edge of Betty Adams School.   |

**Prioritizing Missing Links (continued)**

| MEDIUM PRIORITY<br><i>(in alphabetical order)</i>                     | PROPOSED IMPROVEMENT |            |                   |                     | COMMENTS  |
|---|----------------------|------------|-------------------|---------------------|---|
|   | IMPROVEMENT TYPE     | TRAIL TYPE | PROPOSED MATERIAL | APPROX. LENGTH (LF) |   |
| <i>Airport Creek Trail</i>  | New Trail            | Minor      | Aggregate         | 1405                | (1) Proposed segment creates direct access from BDC to Airport Creek Trail adjacent to 110th to Sheridan Blvd (north of BDC); could be concrete, but not necessary  |
|   | Bridge               |            |                   |                     | If segment (1) above, then it would require a bridge over BDC to make connection  |
| <i>Big Dry Creek Trail - Alternate Route</i>                          | New Trail            | Minor      | Concrete          | 2370                | West of Wadsworth Pkwy; provides an alternate route away from backyard fences   |
| <i>Bridge at Walnut Creek at 105th Ave, West of Wadsworth Parkway</i> | New Trail/Bridge     | Minor      | Concrete          |                     | Connects Walnut Creek Trail to Standley Lake HS, (all residents are south of the Walnut Creek Trail - does not appear to be a direct route to the school for them, so not a high priority)  |
| <i>Bull Reservoir trails</i>  | New Trail            | Minor      | Aggregate         | 4445                | Creates loop from BDC trail and neighborhood loop   |
| <i>Calkins Ditch Trail</i>  | New Trail            | Minor      | Aggregate         | 3330                | South of 120th Ave, west of BDC - a social trail or old maintenance patch for the ditch exists; contributes to loop system at BDC; ditch is valuable in terms of history of Westminster; high priority if pressure increases to formalize |
| <i>Mushroom Pond Trail at Vogel Pond</i>                              | New Trail            | Minor      | Concrete          | 1395                | 112th Ave to 114th Ct - This connection would make a nice large loop connecting BDC to Farmers' High Line; improvements should be made in conjunction with crossing improvements at 112th Ave.  |
| <i>Hyland Trail connection to Carrol Butts Park</i>                   | New Trail            | Minor      | Concrete          |                     | Proposed alignment still unclear, crosses Par 3 golf course, alternative route along 93rd Ave and along the east side of the fairway  |
| <i>McKay Creek Trail</i>  | New Trail/Bridge     | Minor      | Aggregate         | 625                 | Connects McKay Creek Trail to Huntington Trails Pkwy on the south side of the elevated spillway channel; bridge needed to make connection above   |
| <i>Panorama Trail to Westcliff Trail</i>                              | New Trail            | Minor      | Aggregate         | 1779                | Proposed aggregate trail would create loop off of BDC   |
| <i>Sheridan Green Trail</i>   | New Trail/Bridge     | Minor      | Aggregate         | 440                 | North segment completes a loop around the pond just west of BDC   |
| <i>West View Recreation Center Trail</i>                              | New Trail            | Minor      | Aggregate         | 2945                | Creates nice loop trail from Rec Center   |



## Prioritizing Missing Links (continued)

| LOWER PRIORITY<br>(in alphabetical order)                        | PROPOSED IMPROVEMENT |            |                       |                     | COMMENTS  |
|--|----------------------|------------|-----------------------|---------------------|---|
|  | IMPROVEMENT TYPE     | TRAIL TYPE | PROPOSED MATERIAL     | APPROX. LENGTH (LF) |   |
| <i>Bradburn/Westfield Park Trail connection</i>                  | New Trail            | Minor      | Concrete              | 2770                | Proposed segments that complete a nice loop between the two parks; however, people are making a loop now as it is, could be formalized with future park master plan for the whole area  |
| <i>City Park Trail connecting trails</i>                         | New Trail            | Minor      | Aggregate             | 2140                | East side of creek from Sheridan to BDC south of 108th - creates nice loop; already has a clear foot path   |
|  | New Trail            | Minor      | Concrete              | 665                 | Promenade Terrace Bridge to 104th Ave - creates nice loop   |
| <i>Community Ditch Trail</i>                                     | New Trail            | Minor      | Concrete              | 6484                | Connects Ketner Lake to Westminster Hills OS; <b>low priority until proposed Westminster Hills OS Master Plan is completed</b>  |
| <i>Heritage Trail (Proposed trail south of Airport)</i>          | New Trail            | Minor      | Concrete or Aggregate | 8675                | 8' concrete trail - desired connection to north area to Future FasTracks at Lower Church Ranch; and on to BDC; fantastic views, could be aggregate trail  |
| <i>Little Dry Creek Trail at 75th</i>                            | New Trail            | Minor      | Concrete or Aggregate | TBD                 | Loop trail through open space   |
| <i>Loon Lake Trail</i>   | New Trail            | Minor      | Aggregate             | 3110                | Creates a nice trail access to Standley Lake and loop around Loon Lake; already has a clear foot path   |
| <i>Lower Church Ranch perimeter trail</i>                        | New Trail            | Minor      | Concrete or Aggregate | TBD                 | Gives public access to open space; <b>low priority until proposed Lower Church Ranch Master Plan is completed</b>   |
| <i>McKay Lake Trail</i>  | New Trail            | Minor      | Concrete              | 1850                | Adjacent to 144th and Zuni - perimeter OS trail/sidewalk  |
| <i>North Walnut Creek Trail</i>                                  | New Trail            | Minor      | Aggregate             | 3930                | Simms to Westmoor Drive   |
| <i>Walnut Creek Trail</i>  | New Trail            | Major      | Concrete              | 1135                | East of Westmoor Drive, North of 108th - major trail connection; <b>low priority until connection through RR has been determined</b>  |
| <i>Turnpike Trail connection</i>                                 | New Trail            | Minor      | Concrete              | 1920                | East of Lowell - directly south and parallel to US36 - essentially an attached sidewalk; needs to coincide with an at-grade crossing over to park at Grove St   |
| <i>Westminster Hills Open Space Trails (West), and Trailhead</i> | New Trail            | Minor      | Aggregate             | 11770               | Defines a dog on-leash area within Westminster Hills OS; provides alternative parking area from dog park. <b>Low priority until Proposed Westminster Hills Open Space Master Plan is complete.</b> LF DOES NOT INCLUDE Refuge to Refuge Trail segment of loop |
| <i>Wolff Run Open Space trail</i>                                | New Trail            | Minor      | Aggregate             | 1660                | Formalize footpath through the open space   |

## Prioritizing Proposed Improvements to the Existing Trail System

While the *Trails Master Plan Diagram* illustrates proposed missing links and crossings, it does not illustrate needs for improvements of existing facilities. During this process, the following proposed improvements were identified as high, medium, and lower priority. Most high priority projects have been also listed on the *Capital Improvement Project List*. The criteria established for prioritizing improvements include:

- » Improves general connectivity by upgrading trail to Major or Minor trail standards.
- » Improves connectivity to a school
- » Improves connection to major transportation destinations (i.e. FasTracks Stations)
- » Improves pedestrian and bicycle safety

| HIGHER PRIORITY<br><i>(in alphabetical order)</i>     | PROPOSED IMPROVEMENT |            |                   |                     | COMMENTS  |
|---|----------------------|------------|-------------------|---------------------|---|
|   | IMPROVEMENT TYPE     | TRAIL TYPE | PROPOSED MATERIAL | APPROX. LENGTH (LF) |   |
| <b>Big Dry Creek Trail<br/>(Big Dry OS)</b>           | Upgrade Material     | Major      | Concrete          | 4330                | As a major, regional trail, BDC Trail existing aggregate should be replaced with a 10' concrete trail with an adjacent aggregate trail for joggers. Segments include: (1) Huron St to 128th Ave                     |
|   | Upgrade Material     | Major      | Concrete          | 4030                | (2) Trail adjacent to BDC Park to Federal Pkwy. Length may change based on potential future master planning of this area.   |
|   | Bridge               |            |                   |                     | Proposed bridge over BDC just south of 128th Ave underpass that allows direct connection from the west side of the creek to BDC Park and parking area/trailhead on the east side of the creek                       |
|   | Upgrade Material     | Major      | Concrete          | 5155                | (3) West of Federal Pkwy, through Metzger Property to 120th Ave   |
|   | Upgrade Material     | Major      | Concrete          | 3400                | (4) BDC OS, south of underpass at 120th Ave to existing concrete trail at approx 115th Ave  |
|   | Upgrade Material     | Major      | Concrete          | 3700                | (5) BDC OS at existing concrete west of bridge, past Westfield Village Park to existing concrete at about 112th Ave   |
|   | Upgrade Material     | Major      | Concrete          | 1360                | (6) SW of 104th Ave adjacent to Butterfly Pavilion to Westminster Blvd  |
|   | Upgrade Material     | Major      | Concrete          | 625                 | (7) East of Wadsworth Blvd, between two concrete segments within the BDC OS   |
| <b>Big Dry Creek Trail<br/>(Yarrow St to BNSF RR)</b> | Sharrow              |            |                   |                     | (6) Ideally this segment will eventually become a trail; however, that would require widening of 99th; in the short term, mark the existing street with a sharrow and identify as route for the Big Dry Creek Trail |
| <b>Countryside Creek Trail</b>                        | Upgrade Trail        | Minor      | Concrete          | 3810                | (1) Segment from Mayfair Park to Countryside Rec Center - existing aggregate trail should be 8' concrete trail. Provides access to Witt Elementary and should extend to Oak Street                                  |
| <b>Farmers' High Line Canal Trail</b>                 | Bridge               |            |                   |                     | West of Federal Blvd - existing 6', should be widened to 10'  |
|   | Upgrade Trail        | Major      | Concrete          | 3110                | Segment adjacent to canal from Westminster Blvd to Pierce St - replace aggregate trail with 10' concrete trail  |
|   | Upgrade Trail        | Major      | Concrete          | 590                 | Segment Pierce St to 92nd Lane - replace aggregate trail with 10' concrete trail  |
|   | Upgrade Trail        | Major      | Concrete          | 480                 | Segment Independence St to Standley Lake Regional Park - replace 4' concrete sidewalk adjacent to privacy fence and replace with 10' concrete trail located further south at edge of canal if feasible.             |
|   | Upgrade Trail        | Major      | Concrete          | 5100                | Segment through Hyland Ponds Open Space - replace aggregate trail with 10' concrete trail - low priority until proposed Hyland Ponds OS master plan is completed  |
| <b>Walnut Creek Trail</b>                             | Upgrade Trail        | Major      | Concrete          | 5520                | West of Westmoor Drive to Simms St - replace aggregate trail with 8' concrete trail   |
|   | Upgrade Trail        | Major      | Concrete          | 4160                | South of 108th to Wadsworth Pkwy - replace aggregate trail with 8' concrete trail   |
| <b>Westcliff Trail</b>                                | Upgrade Trail        | Minor      | Concrete          | 1830                | (1) South of 98th Ave to school - improves trail connection to Betty Adams School   |
|   | Upgrade Trail        | Minor      | Concrete          | 1780                | (2) North of 98th Ave to BDC OS and within BDC OS - improves trail connection to Betty Adams School   |





## Prioritizing Proposed Improvements to the Existing Trail System (continued)

| MEDIUM PRIORITY<br>(in alphabetical order) | PROPOSED IMPROVEMENT |            |                   |                     | COMMENTS   |
|--|----------------------|------------|-------------------|---------------------|--|
|  | IMPROVEMENT TYPE     | TRAIL TYPE | PROPOSED MATERIAL | APPROX. LENGTH (LF) |  |
| <i>Allen Ditch Trail East</i>              | Upgrade Trail        | Minor      | Concrete          | 1425                | (1) Zuni St to 81st Ave - existing 6' wide trail should be replaced with 8' concrete path; poor condition, hazardous, needs repair   |
|  | Upgrade Trail        | Minor      | Concrete          | 960                 | (2) Along 81st Ave from Clay Dr at to Eliot St - existing 4' sidewalk should be replaced with 8' concrete path; poor condition, hazardous, needs repair  |
|  | Upgrade Trail        | Minor      | Concrete          | 480                 | (3) 81st Ave to 80th Ave - existing 4' sidewalk should be replaced with 8' concrete path   |
| <i>Arapahoe Ridge Trail</i>                | Upgrade Trail        | Minor      | Concrete          | 3290                | Arapahoe Ridge Elem School to Big Dry Creek Trail - adjacent to school and Amherst Park, replacing aggregate trail with 8' concrete trail; Consider moving trail to East side of Pecos St to avoid conflicts with the school |
| <i>Countryside Creek Trail</i>             | Upgrade Trail        | Minor      | Concrete          | 975                 | (2) Segment east of Wadsworth Pkwy - existing 4' walk should be widened to 8'. Creates connection from Standley Lake High School to Walnut Creek.  |
| <i>Quail Creek Trail</i>                   | Upgrade Trail        | Minor      | Concrete          | 460                 | Replace aggregate segment with 8' concrete trail; only segment of the trail that is currently aggregate in Quail Creek Park  |
| <i>Stratford Lakes Trail</i>               | Upgrade Trail        | Minor      | Concrete          | 775                 | Segment from west end of Stratford Lakes headed north to BDC Trail; is currently aggregate, replace with 8' concrete trail   |
| <i>Trailside Creek Trail</i>               | Upgrade Trail        | Minor      | Concrete          | 455                 | In Nottingham Park - only one segment that is not concrete, aggregate should be replaced with 8' concrete trail.   |
|  | Upgrade Trail        | Minor      | Concrete          | 770                 | West of Nottingham Park to Dover St - existing 5' concrete walk should be replaced with 8' concrete trail.   |

| LOWER PRIORITY<br>(in alphabetical order) | PROPOSED IMPROVEMENT |            |                   |                     | COMMENTS   |
|---|----------------------|------------|-------------------|---------------------|--|
|   | IMPROVEMENT TYPE     | TRAIL TYPE | PROPOSED MATERIAL | APPROX. LENGTH (LF) |  |
| <i>Airport Creek Trail</i>                | Upgrade Trail        | Sidewalk   | Concrete          | 180                 | (2) Replace 4' sidewalk with 8' sidewalk to make trail connection less hazardous north of 112th Ave  |
|   | Upgrade Trail        | Minor      | Concrete          | 855                 | (3) From Kendall St to Main St, replace 6' concrete path with 8' concrete trail  |
|   | Upgrade Trail        | Minor      | Concrete          | 1655                | (4) From Kensington Park to Kendall St, replace 6' concrete path with 8' concrete trail  |
|   | Upgrade Trail        | Minor      | Concrete          | 1050                | (5) Airport Creek to 113th Pl, replace 4' sidewalk with ideally 8' detached walk if feasible   |
|   | Upgrade Trail        | Minor      | Concrete          | 900                 | (6) Airport Creek to just north of 116th Pl, replace 4' sidewalk with ideally 8' detached walk if feasible   |
| <i>Cotton Creek Trail</i>                 | Upgrade Trail        | Minor      | Concrete          | 3090                | Most of this trail is 6' wide concrete, backed up to backyard fences. In some locations, the trail is in poor condition from tree roots. Ideally this trail should be 8' concrete and be set further away from backyard fences |
| <i>Legacy Ridge Trail</i>                 | Upgrade Trail        | Minor      | Concrete          | 715                 | Segment from BDC to Vrain St - replace aggregate trail with 8' concrete trail  |
|   | Upgrade Trail        | Minor      | Concrete          | 715                 | Segment from Stuart St to Legacy Ridge Pkwy - replace 6' concrete sidewalk with 8' trail, and if feasible move away from backyard fences   |
| <i>Oakhurst Park Trail</i>                | Upgrade Trail        | Minor      | Concrete          | 1225                | East of Wadsworth Pkwy to Trailhead - existing sidewalk functions, but as a major trail should be 8' trail and detached where feasible.  |



# Noxious Weed Survey: Big Dry Creek Corridor Common Teasel and Russian Olive Management

## Weed Biology

One of the principal goals on City of Westminster Open Space is to preserve and maintain native plant communities, protect rare species and communities, and restore native vegetation in suitable areas. Therefore, the City of Westminster sets priorities for the control or elimination of species that have the greatest negative impact potential to significant resources on the Open Space. These priorities reflect each weed's present or future harmful impacts. In general, perennial species pose a greater threat to native ecosystems than do annual or biennial species. More particularly, weed species with deep root systems or creeping rhizomes are especially difficult to control. Descriptions of the potential impacts of Russian olive and common teasel mapped on the Open Space appear below in the *Specific Weed Control Outlines*.



*Russian olive along Big Dry Creek*

## Species Distribution

In addition to legal mandates and weed biology, the existing distribution of Russian olive and teasel in the Big Dry Creek Corridor is an important factor in prioritizing infestations of these weed species for management activities. The analogy of a wildfire has often been used to describe the spread of noxious weeds. Using this analogy, small, isolated patches of weeds are generally considered a higher priority for control activities than large, well-established infestations. Small, isolated patches are easier to eradicate because there is a smaller distribution of plants, smaller seed bank, less-developed root system, and potentially, a desirable vegetation community.

The City of Westminster also notes species that are not yet on the Open Space, but are found nearby and could be problems if they spread to the Open Space. The Integrated Pest Management Plan (IPM) in the City's 2010 *Wildlife and Natural Resource Management Plan for Open Space Properties* includes regularly monitoring the Open Space for these species in order to quickly detect and eliminate them if they ever do appear. With this reasoning in mind, for Russian olive and teasel, higher priority will be given to:

- » Infestations that are new to the open space
- » Infestations not well established in surrounding areas
- » Small infestations



*Common teasel*



*Russian olive*

- » Infestations likely to spread because of location (e.g., roadsides, trailsides, drainages, irrigation ditches or wind breaks)
- » Infestations adjacent to or likely to spread into areas containing conservation targets
- » Edges of large infestations

Lower priority will be given to:

- » Large, well-established infestations for which there is little potential for eradication on the Open Space
- » Infestations that are well established in surrounding areas and thus provide a constant seed source to the Open Space
- » Infestations confined to disturbed areas
- » Infestations that are easier to control relative to others

## Mapping

Using aerial photography to identify Russian olive stands and existing GIS data from the City of Westminster for common teasel patches, **Table 1** summarizes for the Big Dry Creek Corridor the number of acres infested on the Open Space within individual reaches as well as by the five open space management classifications. The data helps establish priorities for common teasel and Russian olive management by considering existing management goals and spatial distribution along the creek corridor. It is important to note that specific patches may have a higher management priority than what may be indicated in **Table 1** by the landscape management area classification. Thus, the reach summary helps further prioritize management activities given that the creek itself acts as a vector to transport weed seed.

## Setting Priorities

With both Russian olive and common teasel mapped, it is important to determine achievable goals for weed management in priority areas. For example, the 1.21 acres of Russian olive within Reach 1 (west of Wadsworth to Standley Lake) has a higher management priority than the 1.65 acres of Russian olive within Reach 4 (west of US 36 to Old Wadsworth). However, what is the goal for the 1.21-acre infestation of Russian olive? The answer – “eradication.” A small or scattered infestation should be eradicated, especially when adjacent to areas where the noxious weed species does not occur – note the spatial distribution of Russian olive below Reach 1 (west of Wadsworth to Standley Lake). In short, the Russian olive is relatively scattered until Reach 9 (north of 112th Avenue, west of Federal Boulevard).

**Table 1. Common teasel and Russian olive infestations in acres based on individual reach and management area classification.**

| Westminster Open Space Description                         |  |               | Open Space Management Classification<br>(Acres) |                  |              |             |                             | Open Water<br>(Acres)* |                              | Noxious Weeds<br>(Acres) |               |
|--|--|---------------|---|------------------|--------------|-------------|-----------------------------|------------------------|------------------------------|--------------------------|---------------|
| Individual Reaches<br>Big Dry Creek<br>Open Space Corridor | Descriptive Location   | Total Acreage | Sensitive                                       | Urban<br>Natural | Transitional | Functional  | Historical/<br>Agricultural | Open Water/<br>Wetland | Open Water Creek/<br>Channel | Common Teasel            | Russian Olive |
| <i>Big Dry Creek Open Space (1)</i>                        | West of Wadsworth to Standley Lake; plus area between Wadsworth Pkwy and BNSF RR | 53.48         |   | 50.6             |              |             |                             | 1.10                   | 1.80                         | 3.20                     | 1.21          |
| <i>Big Dry Creek Open Space (2)</i>                        | East of BNSF RR at 99th  | 4.00          |   |                  | 4.0          |             |                             |                        |                              | 0.19                     | 0.00          |
| <i>Big Dry Creek Open Space (3)</i>                        | West of Old Wadsworth and 99th   | 8.06          |   |                  | 8.1          |             |                             |                        |                              | 0.00                     | 0.00          |
| <i>Big Dry Creek Open Space (4)</i>                        | West of US 36 to Old Wadsworth   | 100.97        |   | 98.5             |              |             |                             |                        | 2.50                         | 6.41                     | 1.65          |
| <i>Big Dry Creek Open Space (5)</i>                        | Directly East of US 36 to Westminster Blvd (ROW)                                 | 1.68          |   |                  |              | 1.6         |                             |                        | 0.10                         | 0.50                     | 0.00          |
| <i>Big Dry Creek Open Space (6)</i>                        | East of Westminster Blvd. to 104th   | 9.84          | 1.6   | 7.6              |              |             |                             |                        | 0.63                         | 1.09                     | 0.05          |
| <i>Big Dry Creek Open Space (7)</i>                        | West of Sheridan, North of City Park   | 36.29         |   | 34.2             |              |             |                             |                        | 2.10                         | 12.09                    | 0.12          |
| <i>Big Dry Creek Open Space (8)</i>                        | East of Sheridan, South of 112th   | 23.67         |   | 22.6             |              |             |                             |                        | 1.10                         | 6.83                     | 0.18          |
| <i>Big Dry Creek Open Space (9)</i>                        | North of 112th, West of Federal  | 287.95        |   | 183.9            | 93.1         |             |                             | 8.24                   | 5.20                         | 33.96                    | 9.68          |
| <i>Big Dry Creek Open Space (US 287 Triangle)</i>          | SW of 120th and Federal  | 12.76         |   |                  |              | 12.8        |                             |                        |                              | 0.23                     | 0.05          |
| <i>Metzger Farm</i>  | 120th Ave and Lowell Blvd  | 152.51        | 10.7  |                  |              |             | 134.1                       | 6.67                   | 1.00                         | 2.56                     | 6.79          |
| <i>Big Dry Creek Open Space (10)</i>                       | East of Metzger, West of Federal Pkwy  | 72.05         |   |                  | 68.3         |             |                             | 0.89                   | 2.90                         | 7.44                     | 4.31          |
| <i>Big Dry Creek Open Space (11)</i>                       | East of Federal Pkwy, Adjacent to Big Dry Creek Park                             | 102.17        |   |                  | 100.7        |             |                             | 1.43                   | 1.50                         | 2.17                     | 2.52          |
| <i>Big Dry Creek Open Space (12)</i>                       | North of 128th, West of Huron  | 94.47         |   | 63.6             |              |             |                             | 28.50                  | 2.40                         | 1.75                     | 3.17          |
| <b>BIG DRY CREEK OPEN SPACE CORRIDOR - TOTALS</b>          |  | <b>959.90</b> | <b>12.3</b>                                     | <b>460.9</b>     | <b>274.2</b> | <b>14.3</b> | <b>134.1</b>                | <b>46.83</b>           | <b>21.23</b>                 | <b>78.42</b>             | <b>29.73</b>  |

\*\*The total acreage per GIS includes open water. Open Water acreage for ponds and the creek, as well as parking areas, were subtracted out of the Open Space Management Classification acreage to reflect actual land-based management



## **Specific Weed Control Outlines**

The following section provides control outlines for common teasel, cutleaf teasel, and Russian olive that have been mapped within the Big Dry Creek Corridor. The control outlines are intended to provide a brief overview of the species target for management. While the City of Westminster has mapped all teasel within the Big Dry Creek Corridor as common teasel, control outlines have been provided for both common and cutleaf teasel.

### **Common teasel (*Dipsacus fullonum*)**

#### ***Priority***

High — the species can be an aggressive competitor, and control measures are relatively easy.

#### ***Description***

Common teasel is a biennial forb that is capable of massive seed production and high germination that allow it to quickly invade an area.

#### ***Current Distribution on the Open Space***

Common teasel is found throughout the Big Dry Creek Corridor within all Open Space management areas and creek reaches with the exception of Reach 3 (directly east of U.S. 36 to Westminster Boulevard). Approximately 78 acres or 8.2 percent of the open space area within the Big Dry Creek Corridor are infested.

#### ***Measurable Objectives and Goal***

Goal: Reduce and eventually eradicate.

1. Annually cut stalks of flowering plants.
2. Focus initial control efforts within *Sensitive* Landscape Management Areas.

#### ***Control Options***

The key to controlling common teasel is to eliminate seed production and exhaust the seed bank in the soil. Common teasel does not reproduce vegetatively and dies after seed production. Therefore, cutting the stalks of flowering plant is the best control in natural areas. Cut stalks should be bagged and ideally burned. It is important to ensure that the species mapped is indeed common teasel. Refer to cutleaf teasel control options should the species be present.

#### ***Treatment Schedule***

Cut flowering stalks from July to August.

### **Cutleaf teasel (*Dipsacus laciniatus*)**

#### ***Priority***

High — with consideration that cut leaf teasel is more aggressive than common teasel.

#### ***Description***

Although usually called a biennial, teasel is better described as a monocarpic perennial. The plant grows as a basal rosette for a minimum of one year (this rosette period frequently is longer) then sends up a tall flowering stalk and dies after flowering. The period of time in the rosette stage apparently varies depending on the amount of time needed to acquire enough resources for flowering to occur. Cutleaf teasel blooms from July through September.

#### ***Current Distribution on the Open Space***

It is unknown whether cutleaf teasel occurs on the Open Space. The City of Westminster has mapped all teasel as common teasel.



### ***Measurable Objectives and Goal***

Goal: If present on the Open Space, reduce and work long term to eradicate.

1. Recruit volunteers to annually cut stalks of flowering plants.
2. Focus initial control efforts within *Sensitive* Landscape Management Areas.

### ***Control Options***

For small populations or if large groups of volunteers are available, mechanical methods work quite well. Young rosettes can be dug up using a dandelion digger. Once the rosettes get large, it is difficult to dig the roots up without doing damage to the natural area around the plant. Very small seedlings can be pulled up by hand when the soil is moist. Flowering plants can be cut before seed set. At the initiation of flowering, the flowering heads should be cut off and removed. Removed immature seed heads left in place can still develop some viable seeds. Once the flowering heads have been removed, the flowering stalk should be cut off at or slightly below ground level. Cutting off the flowering stalks just at flowering time will usually prevent resprouting from the root crown. Cutting flowering stalks prior to flowering should be avoided since the plants will resprout and flower again. A later inspection should be performed to catch any root crowns that do resprout.

Probably the most cost effective method of control is the use of foliar applied herbicides. Any of the herbicides recommended below for buffer or disturbed sites can be used, but with greater care to prevent damaging native plants. Spot treatment with backpack sprayers is probably the preferred method in high quality areas as opposed to high volume units. Triclopyr is a good choice during the growing season since it usually does not harm the monocots. Some grass species will be burned back by Triclopyr, but will usually come back. During the dormant season Glyphosate has worked in controlling teasel in some situations.

### ***Treatment Schedule***

Cut flowering stalks from June to September.

### **Russian olive (*Eleagnus angustifolia*)**

#### ***Priority***

Medium — as large, mature stands of Russian olive are nearly impossible to eradicate throughout an entire watershed once it becomes well established. Patches in an area with Ute Ladies'-tresses orchid present should be addressed first.

#### ***Description***

Russian olive is a shrub or small tree that can grow up to 30 feet in height and is often thorny. It can flower and set fruit in three years. Although Russian olive establishes primarily by seed, vegetative propagation can also occur.

#### ***Current Distribution on the Open Space***

Russian olive occurs in a variety of soil and moisture conditions on the Open Space but generally prefers sandy floodplains and is often associated with open, moist riparian habitats. Approximately 30 acres or 3 percent of the Big Dry Creek Corridor has canopy cover dominated by Russian olive.

### ***Measurable Objectives and Goal***

Goal: Reduce Russian olive cover on the Open Space

1. If present, remove existing trees in Ute Ladies'-tresses orchid habitat within 3 years.
2. Eradicate within *Sensitive* Landscape Management Areas within 3 years.

### ***Control Options***

Seedlings and sprouts can easily be hand-pulled when the soil is moist. Once Russian olive becomes firmly established, the most effective control method is the cut-stump herbicide treatment. This method is both labor-intensive and expensive, but can be highly effective (good kill rate if applied correctly), and is more target-specific than foliar applications of herbicide. The stump-cut method consists of the following steps: 1) cut stems of Russian olive within 5 cm of the ground surface; 2) apply herbicide within a few minutes of cutting; 3) cut and treat the entire circumference of the stem cambium; and 4) treat any resprouted foliage between 4 to 12 months after the initial treatment.

### ***Treatment Schedule***

The best time to apply herbicide to control Russian olive is when the plants are actively growing from May through September. Care should be taken to ensure that birds are not nesting in the targeted tree.

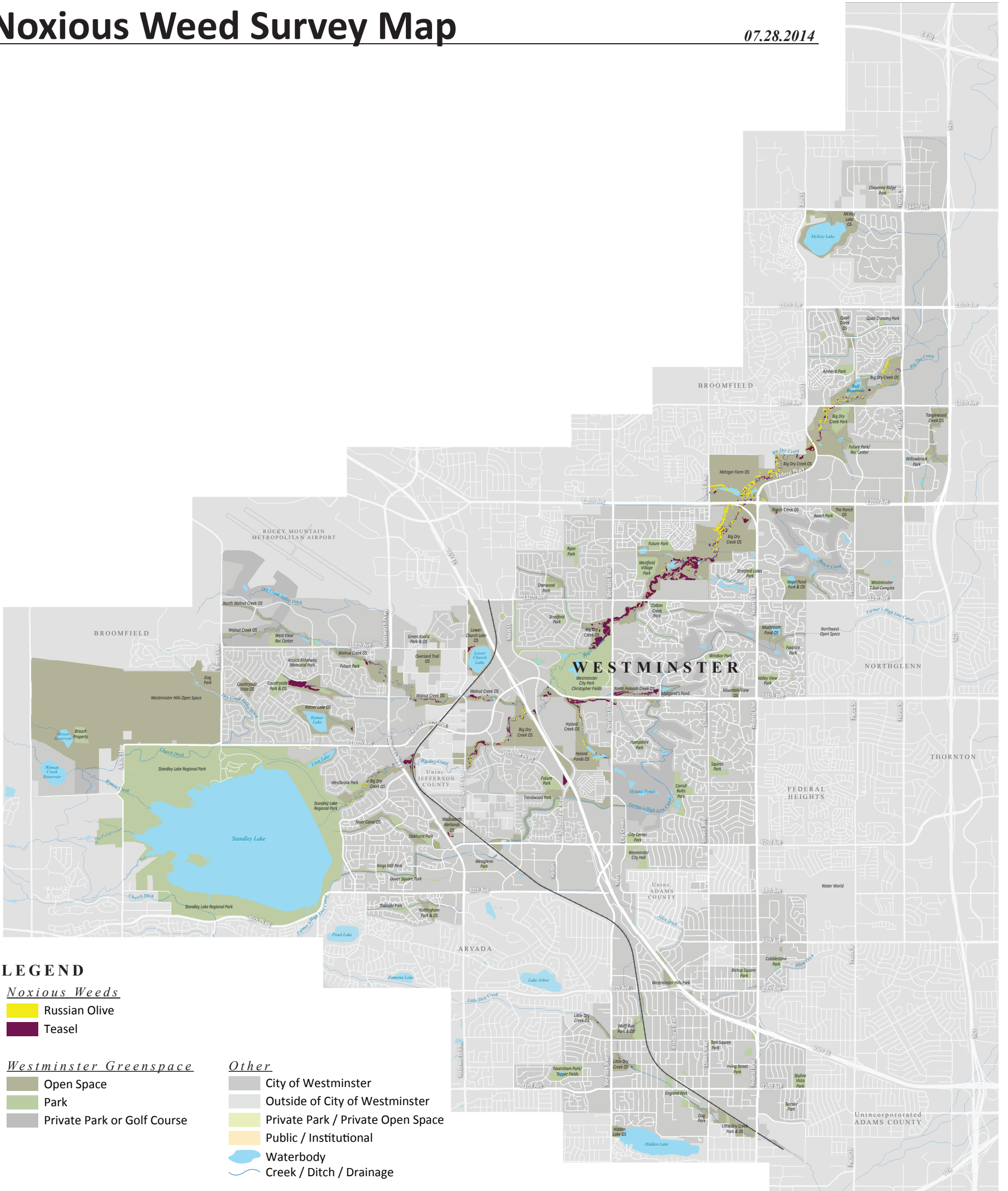
***Table 2. Detailed control calendar for teasel species and Russian olive.***

| <b>Weed Species</b>   | <b>Spring<br/>(April to Mid-June)</b>  | <b>Summer<br/>(Mid-June to August)</b>          | <b>Fall<br/>(September to October)</b>                 |
|-----------------------|--|---|--|
| <b>Common teasel</b>  | <i>Reseed previously controlled areas</i>  | <i>Cut flowering stalks from July to August</i> | <i>Reseed previously controlled areas</i>              |
| <b>Cutleaf teasel</b> | <i>Cut flowering stalks beginning in June</i>  | <i>Cut flowering stalks</i>                     | <i>Cut flowering stalks until September</i>            |
|                       | <i>Consider foliar application of herbicides during growing season</i>   |   |  |
| <b>Russian olive</b>  | <i>Seedlings and sprouts can be hand-pulled or weed wrenched out when soil is moist. Cut-stump herbicide treatment beginning in May.</i> | <i>Cut-stump herbicide treatment.</i>           | <i>Cut-stump herbicide treatment through September</i> |

Large scale fold-out version  
of this map is included in the pocket  
at the end of this section.

# Noxious Weed Survey Map

07.28.2014



## LEGEND

### Noxious Weeds

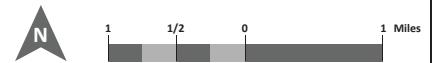
- Russian Olive
- Teasel

### Westminister Greenspace

- Open Space
- Park
- Private Park or Golf Course

### Other

- City of Westminister
- Outside of City of Westminister
- Private Park / Private Open Space
- Public / Institutional
- Waterbody
- Creek / Ditch / Drainage







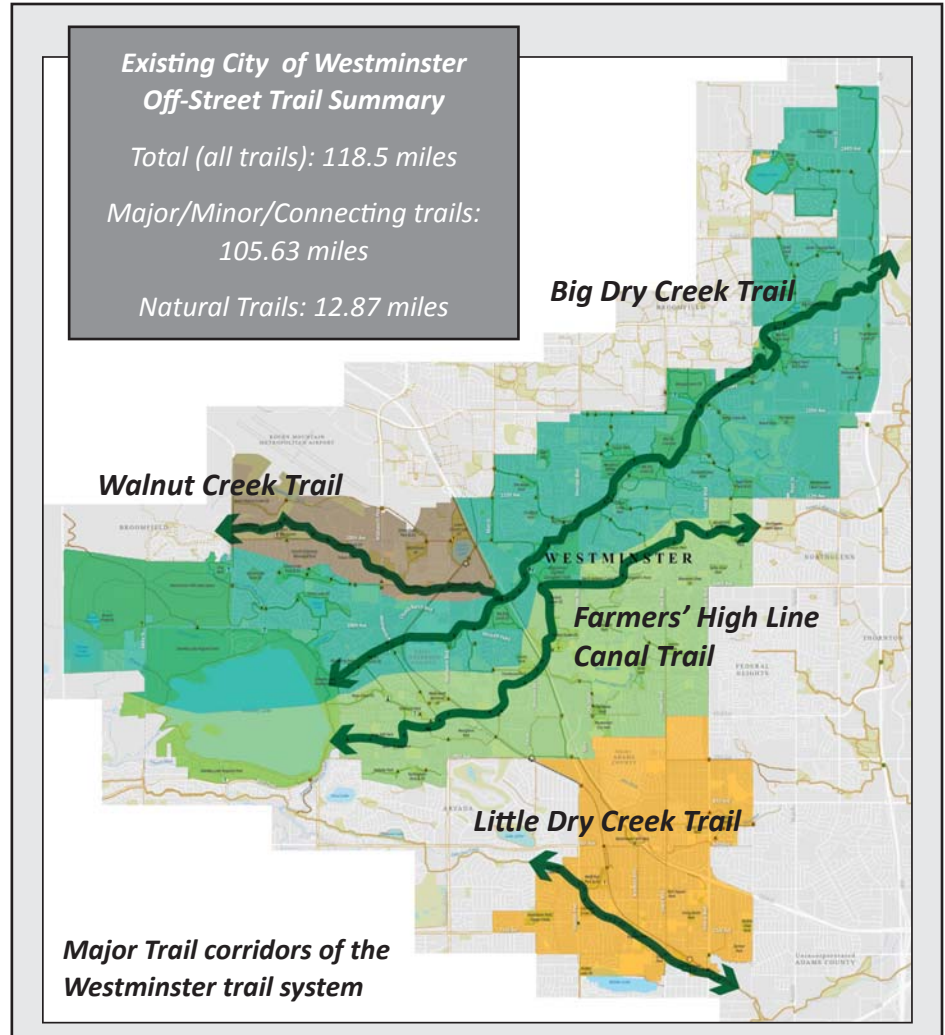
# Trails Master Plan Diagram - Supporting Narrative

The conceptual approach to developing the City of Westminster’s Trails System began with identifying major, linear corridors associated with drainage and irrigation conveyance (i.e. Big Dry Creek, Little Dry Creek and Farmers’ High Line Canal), purchasing and preserving land along those corridors, and constructing a Major Trail (regional) system. Through the subsequent development of residential subdivisions and commercial development, Minor Trails were designed and constructed that link neighborhoods and commercial development to Major Trails; the existing combination of Major and Minor Trails serves as the framework for the Westminster Open Space and Trails System.

## Goals for Trails Planning

This Trails Master Plan, as part of the Open Space Stewardship Plan, seeks to progress the following three primary goals:

- 1) *Complete the Trails System as it was originally conceived by city staff*
- 2) *Mitigate unforeseen consequences of the “Major Trail Corridor/ Minor Trail Links” framework (as mentioned above) for trails development.*
- 3) *Anticipate expansion of the existing trails framework in response to expansion and changing land uses and user groups.*



Trail at Stratford Lakes into Big Dry Creek Open Space

**GOAL 1: Complete the existing trails system as it was originally conceived by city staff.**

- » Identify and construct missing links in Major Trails

*Example: Walnut Creek Trail missing link at Wadsworth Boulevard/Church's Stage Stop west to Wadsworth Parkway*

- » Upgrade both Major Trails and Minor Trails that are used by residents commuting to school and work to concrete trails with aggregate path at one side. Continue to use aggregate paving (crusher fines, etc.) on all other Minor Trails to contribute to the creation of a unified, hierarchical trail system that is consistent with regional standards.

*Example: 1) Big Dry Creek Trail between 112th and 120th Avenues would include a 10' concrete trail with a 2' aggregate path at one side and then Caulkins Ditch Trail on the opposite side of the creek should be an 8'-10' wide aggregate trail along the old ditch maintenance road.*

*(2) Countryside Creek Trail through Countryside Open Space that provides connection to Witt Elementary School*

- » When planning new Minor Trail through a Public Land Dedication (PLD) process, consider how land acquisition for the proposed link could function to further extend and/or expand the open space corridor

*Example: Proposed Long's View Trail within future development at Federal Pkwy and 122nd Ave could have the affect of broadening the corridor.*

**GOAL 2: Mitigate the unforeseen consequences of the focus on "Major Trail / Minor Trail links" framework for future trail expansion**

City expansion and development patterns have resulted in challenges associated with the focus on trail development paralleling drainage corridors. Westminster's primary open space corridors generally run west to east, aligning with major drainage and ditch systems – offering few opportunities to make much needed north/south connections. The two most significant corridors, Big Dry Creek and the Farmers' High Line Canal, run parallel to one another through the northern part of the city leaving the southern part of the city with few opportunities to connect the Major Trails, with the exception of the future U.S. 36 Bikeway.

Objectives to mitigate these unforeseen consequences include:

- » Recognizing the off-street, open space trail system as a major component of a larger system including bike lanes, bike routes, and side paths.
- » Linking off-street, open space trails to the bikeway framework plan identified in the *2030 Westminster Bicycle Master Plan*. Coordinate respective prioritization plans as much as possible.
- » Reinterpreting the Major Trail/Minor Trail connection framework to include interconnecting local loops. Use sidewalks or Minor Trails to create neighborhood loops, enabling short walks that connect users to the trails and open space system without committing them to journeying out to and back from Major Trail corridors.

*Example: The series of Minor Trails from Farmers' High Line to the Big Dry Creek Trail along the southern bluff above the creek create a series of localized, neighborhood loops, i.e: Cottonwood Creek Trail at Legacy Ridge.*



### **GOAL 3: Anticipate and elaborate on the framework in response to growing and changing use.**

The existing open space trail system is a popular public amenity for residents and non-residents. Increasing population, increased residential and commercial development, and redevelopment trends mean increased user trends along both Major and Minor Trails, and the need to connect new development and redevelopment projects to existing corridors.

Objectives to expanding on the existing framework include:

- » Continuing to expand on the trail system within open space by master planning specific areas.

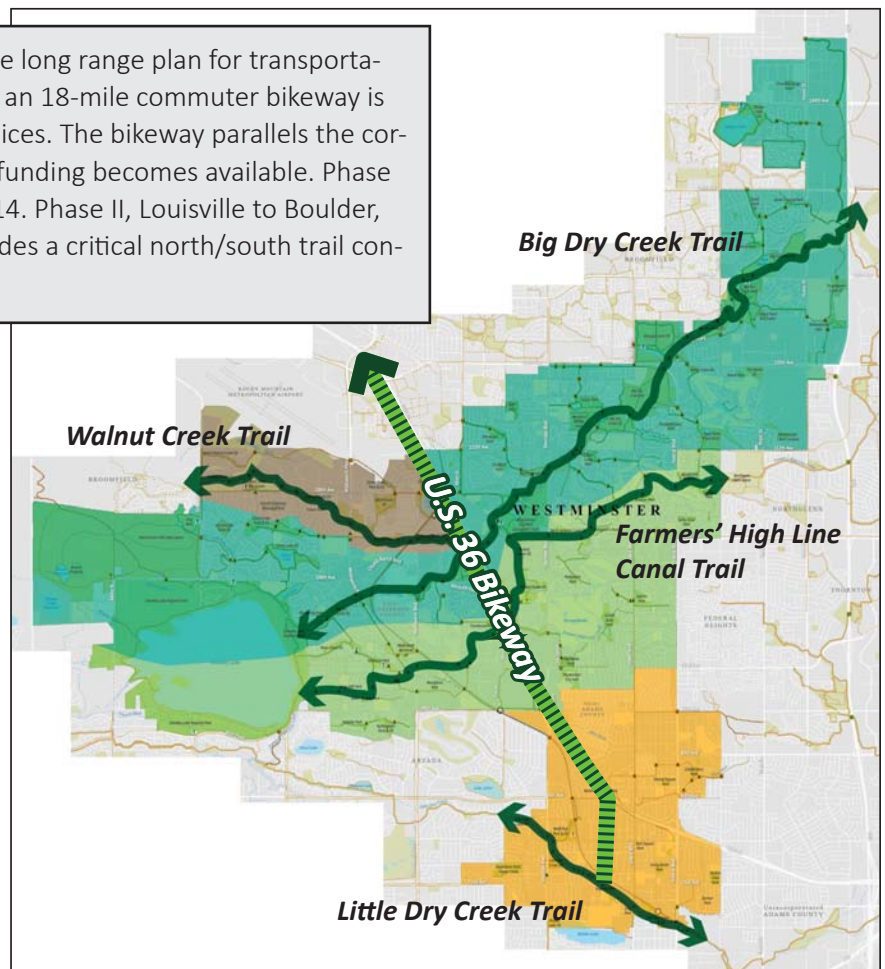
*Example: Develop a network of trails within the Big Dry Creek Open Space from Sheridan Boulevard to I-25. The Major Trail on one side of the creek can be supplemented by a soft trail on the opposite side.*

- » Improving mapping and signage. The city's long term approach to establishing Minor Trail links to Major Trail corridors has resulted in the utilization of a variety of hybrid trail types combining trail/detached sidewalk/attached sidewalk, and bike route configurations. The resulting variety of trail types is difficult to illustrate accurately in mapping and results in unfulfilled trail user expectations on the ground.

*Example: Farmers' High Line Canal trail consists of off-street trails, detached sidewalks through neighborhoods, and sidewalks along arterial streets. Illustrating the different types of trail/route conditions on a map as well as improving signage along the corridor would improve trail user experience through the corridor.*

- » Identify potential connections to major corridors when public land dedications (PLDs) increase open space holdings.

**U.S. 36 Commuter Bikeway** - As part of the long range plan for transportation improvements to the U.S. 36 corridor, an 18-mile commuter bikeway is included in the package of commuting choices. The bikeway parallels the corridor and will be constructed in phases as funding becomes available. Phase I, Westminster to Louisville, opens late 2014. Phase II, Louisville to Boulder, opens late 2015. The U.S. 36 Bikeway provides a critical north/south trail connection for the City of Westminster.



## Coordinate with the 2030 Bicycle Master Plan

This plan, adopted by City Council in June 2011, identifies many off-street shared paths (or trails) as part of the proposed final bikeway network to facilitate recreational and commuter bicycle needs. The plan recommends that Westminster build all new identified bikeway trail segments with concrete and retrofit all existing gravel segments with concrete for use by commuter cyclists. The plan makes recommendations for design and safety as well as recommendations for wayfinding and connection into the on-street bikeway system.

The 2030 Bicycle Master Plan and the Trails Master Plan often overlap and essentially share the same goal. In some instances the Trails Master Plan identifies a proposed trail route when it most likely will be a bikeway or bike lane with a four foot wide detached sidewalk (i.e. Bradburn Boulevard and Lowell Boulevard). If our proposed trails overlap with the proposed bikeways in an urban setting then the trail should be deferred for the bikeway and an improved sidewalk. Appropriate signage should still direct “trail” users to the next “trail” section with confidence markers as identified in the Wayfinding Strategy in this plan.

This Trails Master Plan update coordinates proposed improvement priorities (short/medium/long term) with improvement priorities identified in the bike plan ensuring connections are met.

## Westminster Existing Off-Street Trail System

The existing Westminster Trail System hierarchy includes:

- » **Major Trails**, also referred to as “regional” trails, are the primary connectors of the trail system. These trails connect to major greenways and open space as well as adjacent jurisdictions.
- » **Minor Trails**, also referred to as “local” or “neighborhood” trails, provide links from neighborhoods to the Major Trails, as well as major recreational, cultural, and employment destinations.
- » **Connecting Trails**, also referred to as “access” trails, are often short trail spurs that connect the neighborhood to the Minor and Major Trail system.
- » **Natural Trails** are backcountry trails that provide a route to experience the city’s open space.

## Off-Street Trail Facility Classifications and Design Standards

This section provides recommended design standards for Major and Minor Trail facility types when developing new trail connections within the City of Westminster. These design standards should be used as a tool for City staff to evaluate trail connections in development proposals and plan for new trails within the City.

These recommended design standards are consistent with *The American Association of State Highway and Transportation (AASHTO) Official’s Guide for the Development of Bicycle Facilities, 4th Edition 2012*, a key resource for designing bicycle facilities in the U.S., which includes off-street trails.







### **Off-Street Trail Facility Types**

Within each trail facility type there are a variety of different trail segment types, varying in width and materials. These include:

- » Multi-Use Path
- » Multi-Use Path with adjacent Aggregate Path
- » Aggregate Path
- » Natural Path
- » Detached Sidewalk
- » Attached Sidewalk

The table on the following page summarizes the recommended specifications for each trail segment type.



| Westminster Off-Street Trail Facility Segment Types  |   |   |  |
|--|---|---|--|
| Facility Segment Type  | Typical Width                                   | Typical Material  | Typical Characteristics  |
| <b>Multi-Use Trail</b><br>                              | 8'-12'  | Concrete or Asphalt<br><i>(See highlight box on the following page regarding pros and cons of concrete vs. asphalt)</i> | <ul style="list-style-type: none"> <li>» Designed for low to high speed trail use (walkers, runners, cyclists, in-line skaters)</li> <li>» Continuous route separated from roadway and curb</li> <li>» Frequent directional signage provided at trail intersections and decision making points</li> </ul>  |
| <b>Multi-Use Trail with adjacent Aggregate Path</b><br> | 8'-10' concrete with 4' adjacent aggregate path | Concrete or Asphalt and crusher fines or compacted organic material   | <ul style="list-style-type: none"> <li>» Designed for low to high speed trail use (walkers with strollers, cyclists, in-line skaters) on hard surface and low speed use on soft surface (walkers, runners)</li> <li>» Continuous route separated from roadway and curb</li> <li>» Frequent directional signage provided at trail intersections and decision making points</li> </ul> |
| <b>Aggregate Trail</b><br>                             | 6'-10'  | Crusher fines or compacted organic material   | <ul style="list-style-type: none"> <li>» Designed for low to moderate speed trail use (walkers, hikers, runners, off-road cyclists)</li> <li>» Continuous route separated from roadway and curb</li> <li>» Frequent directional signage provided at trail intersections and decision making points</li> </ul>  |
| <b>Natural Trail</b><br>                              | 3'-6'   | Compacted organic material  | <ul style="list-style-type: none"> <li>» Designed for low speed use (walkers, hikers, trail runners)</li> <li>» Continuous route within an open space area with minimal conflicts with high speed trail users.</li> <li>» Minimal directional signage; may include educational or interpretive signage</li> </ul>  |
| <b>Detached Sidewalk</b><br>                          | 6'-10'  | Concrete or Asphalt   | <ul style="list-style-type: none"> <li>» Designed for low speed users (pedestrians)</li> <li>» Separated by adjacent roadway and curb by a landscape buffer</li> <li>» Follows higher traffic volume streets</li> </ul>  |
| <b>Attached Sidewalk</b><br>                          | 4'-10'  | Concrete or Asphalt   | <ul style="list-style-type: none"> <li>» Designed for low speed users (pedestrians)</li> <li>» Connected to adjacent roadway and curb</li> <li>» Follows lower traffic volume streets</li> </ul>   |

| <b>Concrete vs. Asphalt: Pros and Cons</b> |   |  |  |
|--|---|--|--|
| <b>Material</b>                            | <b>Pros</b>   | <b>Cons</b>  | <b>Installation</b>  |
| <b>Concrete</b>                            | <ul style="list-style-type: none"> <li>» More durable</li> <li>» Better in low traffic or lightweight traffic</li> <li>» Standard for regional trails (This becomes a wayfinding issue: matching other, regional trails)</li> </ul>   | <ul style="list-style-type: none"> <li>» Requires thorough sub-grade preparation. (Consider a lime subgrade treatment on Big Dry Creek clay soils)</li> <li>» Impacts related to access for trail construction -- the proposed trail alignment is often the only means for site access</li> <li>» High costs for repair/replacement if improperly installed</li> </ul>   | <ul style="list-style-type: none"> <li>» Lime sub-grade treatment</li> <li>» Concrete trail- 6"</li> </ul> |
| <b>Asphalt</b>                             | <ul style="list-style-type: none"> <li>» Trail users may prefer the "softer" feel and appearance of asphalt</li> <li>» Appearance: The value of asphalt's "basic black" matches the value of green grass. It is much less reflective than new concrete. Additionally, asphalt allows for aggregate topcoats that can soften the appearance of a small parking lot for example.</li> <li>» Low cost of minor repair</li> </ul> | <ul style="list-style-type: none"> <li>» Asphalt gets brittle if not "worked" by traffic.</li> <li>» Requires thorough subgrade preparation: Examples include: Complete removal of all plant material, Pre-emergent herbicide or use of geotextile to prevent plant growth back through asphalt</li> <li>» Compaction must exceed edge of trail. Shoulder construction can be required. (Very similar to crushed granite aggregate)</li> <li>» Best if horizontally separated from trees.</li> </ul> | <ul style="list-style-type: none"> <li>» Geotextile fabric</li> <li>» Asphalt-6" two lifts</li> </ul>      |

**Major Trails**

Major Trails, also know as "regional" trails, are the primary connectors of the trail system. These trails connect to major greenways and open space as well as adjacent jurisdictions.

Historically, Westminster's Major Trail Corridors were developed along existing creeks and drainageways in a, more or less, east/west direction. These include:

- » Big Dry Creek Trail
- » Walnut Creek Trail
- » Farmers' High Line Canal Trail
- » Little Dry Creek Trail

Recently Major Trail Corridors have developed to make north/south connections in the city. These include:

- » US 36 Commuter Bikeway
- » I-25 Trail (which includes Tanglewood Creek Trail)

As residents are depending more on multi-modal transportation such as biking to get to their destinations, these Major Trails become a critical piece to the proposed final bikeway network. Therefore, Major Trails must be designed to handle the high speeds of commuter cyclists as wells as recreational walkers and runners. Major Trails that consist of soft aggregate paving should be upgraded to concrete and frequent directional signage should be installed to better accommodate this commuter need.



| <b>Major Trail Facility - Recommended Specifications</b> |   |
|--|---|
| Material   | Concrete with adjacent aggregate trail where feasible               |
| Width  | 10-12' concrete or 8'-10' concrete with adjacent 4' aggregate trail |
| Shoulders  | 2-5'  |
| Cross Slope  | 1% min/2% max   |
| Vertical Clearance                                       | 10'   |
| Maximum Grade  | 8.3%  |
| Amenities  | Signage, Lighting, Trash Receptacles, Benches                       |

**Minor Trails**

Minor Trails, also referred to as “local” or “neighborhood” trails, provide links from neighborhoods to the Major Trails, as well as major recreational, cultural, and employment destinations. Examples of Minor Trails facility types located within Westminster include:

- » Airport Creek Trail
- » Allen Ditch Trail
- » Countryside Creek Trail
- » Cotton Creek Trail
- » Home Farm Trail
- » Ketner Lake Trail
- » McKay Creek Trail
- » Mushroom Pond Trail
- » Niver Canal Trail
- » Quail Creek Trail
- » Squire’s Park Trail
- » Trailside Creek Trail
- » Westcliff Trail

While ideally Minor Trails would be comprised of multi-use trail segments constructed to wider standards, the reality is that in some cases due to existing development, detached and attached sidewalk segments are required to make these connections work. At a minimum, clear signage must be used to direct trail users to Major Trail connections as well as local destinations and when the trail intersects with motor vehicle traffic, there should be a signed crossing and marked crosswalk.

| <b>Minor Trail Facility - Recommended Specifications</b> |   |   |   |   |
|--|---|---|---|---|
|  | Multi-Use Trail                               | Aggregate Trail                               | Detached Sidewalk                             | Attached Sidewalk                             |
| Material   | Concrete                                      | Crusher fines                                 | Concrete                                      | Concrete                                      |
| Width  | 8-10'   | 6-8'  | 6-10'   | 4-10'   |
| Shoulders  | 2-5'  | 2-5'  | 2-5'  | N/A   |
| Cross Slope  | 1% min/2% max                                 | 1% min/2% max                                 | 1% min/2% max                                 | 1% min/2% max                                 |
| Vertical Clearance                                       | 10'   | 10'   | 10'   | 10'   |
| Maximum Grade  | 8.3%  | 8.3%  | 8.3%  | 8.3%  |
| Amenities  | Signage, Lighting, Trash Receptacles, Benches | Signage, Lighting, Trash Receptacles, Benches | Signage, Lighting, Trash Receptacles, Benches | Signage, Lighting, Trash Receptacles, Benches |

## Trail Crossings

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In order to maintain continuity and safety along trails, intersections with roadways, utilities, and water features should be carefully designed and maintained. The decision on what type of design treatment is appropriate at a trail/roadway intersection requires balancing user safety and personal comfort needs with prudent traffic engineering principles and project cost and budget considerations. This section provides guidance in determining where different types of trail crossings- grade separated, at-grade- are needed.

### **At-Grade Crossings**

Roadway intersections represent one of the primary collision points for trail users. When intersections occur at-grade, a major design consideration is the establishment of right-of-way for various users. CDOT, AASHTO (*The American Association of State Highway and Transportation Officials' Guide for the Development of Bicycle Facilities, 4th Edition 2011*), NACTO (*The National Association of Transportation Officials Urban Bike way Design Guide 2nd Edition 2012*), and MUTCD (*The Manual of Uniform Traffic Control Devices, 2009 Edition*) have usage warrants and design standards regulating various types of at-grade crossings.

*The City of Boulder: Pedestrian Crossing Treatment Installation Guidelines, November 2011* is another resource for at-grade crossings, including pedestrian crossing location criteria, specific crossing design treatments, technical literature research, and an evaluation of the effectiveness and safety of various treatments being tested at crossing locations in the City of Boulder.

By CDOT definition, a marked crosswalk is any crosswalk, which is delineated by white painted markings placed on the pavement. Legal crosswalks exist at all public street intersections whether marked or unmarked. However, the only way a crosswalk can exist at a mid-block location is if it is marked. All traffic devices, including crosswalk markings and signs, must conform to the federal and state regulations for dimensions, color, wording and graphics. To create highly visible roadway crossing for trail facilities, it is recommended to use ladder-style crosswalk markings in all locations along Westminster's trail system.

Various crossings may be further enhanced by using a combination of the following, based on site-specific needs, opportunities, traffic counts, and usage warrants:

- » **Enhanced mid-block crossings** - raised speed tables, colored and textured pavements within the crosswalk area, retroreflective marking materials, landscape enhancements, or other traffic calming strategies
- » **Raised medians and center pedestrian refuge islands** - to be considered on mid-block crossings on multi-lane roadways to allow pedestrians to find an acceptable gap in traffic for one approach at a time.
- » **Curb extensions** - to be considered for mid-block crossing on streets with on-street parking to enhance pedestrian visibility and shorten distance time required to cross street.
- » **Pedestrian traffic signal** - may be used in a mid-block location after careful study of traffic characteristics. This is a conventional traffic signal with Walk/Don't Walk signals for pedestrians.
- » **Pedestrian hybrid beacon** - a hybrid between a pedestrian traffic signal and a stop sign that is actuated by a pedestrian push button.
- » **Rectangular Rapid Flash Beacons (RRFBs)** - small rectangular yellow flashing lights that are deployed with pedestrian crossing warning signs.
- » **Enhanced crosswalk signing** - may be used to draw further attention to the crossing area, such as signs and bollards that say "State Law- Yield to Pedestrians" (2 or 3-lane crossings) and pedestrian activated flashing signs (multi-lane crossings.)

Existing and proposed at-grade crossings for trails are mapped on the 2014 Trails Master Plan Map. This map is to be used as a long-range planning guideline and will change based on actual trail alignments, developer negotiations, and Capital Improvement Project (CIP) feasibility.





**Grade Separated Crossings**

Grade separated crossings are desirable when a trail intersects with either another trail, a drainageway, a roadway, or a railroad, minimizing conflicts between motorized and non-motorized users.

Ideally, Westminster’s Major Trail System would provided uninterrupted connectivity constructing underpasses and overpasses that would allow safe, continuous routes of travel removed from motor vehicle conflicts, especially at arterial streets. When an underpass or overpass is not feasible, enhanced at-grade crossings can be used as an alternative, and is actually more cost-effective when connecting into the on-street bikeway network because it eliminates the need for connecting trails, ramps and curb cuts. The decision to provide underpasses for trails that follow creeks, drainages and ditches will depend on opportunities for cost-effective implementation, most likely in association with infrastructure improvements.

Existing and proposed underpasses and bridges are mapped on the 2014 Trails Master Plan Map. This map is to be used as a long-range planning guideline and will change based on actual trail alignments, developer negotiations, and funding Capital Improvement Project (CIP) feasibility.

| Crossing Type Criteria                         |  |   |
|--|--|---|
| Trail Intersection Type                        | Trail Facility Types   |   |
|  | Major Trails   | Minor Trails  |
| Freeways & Active Rail Lines                   | » Provide bicycle/pedestrian underpass or overpass   | » Provide bicycle/pedestrian underpass or overpass if feasible and cost-effective; otherwise route to closest existing street crossing.         |
| Arterial Streets without bike lanes            | » Provide bicycle/pedestrian underpass or overpass;<br>» Or provide enhanced mid-block crossing with pedestrian signal   | » Route to closest traffic signal;<br>» Or provide enhanced mid-block crossing with pedestrian signal, or grade separated structure if feasible |
| Arterial Streets with bike lanes               | » Enhanced at-grade crossings are preferred for linkage between on- and off-street road facilities<br>» If grade separated structures are provided, include ramps from trail grade to street grade | » Provide highly visible ladder-style crosswalks with some form of pedestrian crossing light  |
| Local and Collector Streets without bike lanes | » Provide highly visible ladder-style crosswalks<br>» May include elements of enhanced pedestrian crossings  | » Provide highly visible ladder-style crosswalks  |

### **Criteria for Identifying Underpass Opportunities**

Integrating the Westminster Open Space Trail System into existing development patterns within city boundaries requires extending beyond existing drainage and irrigation corridors that comprise the Open Space System.

To date, the City's goal has been to extend trail connections to and from Major Trails into the context of a residential subdivision model where local roads feed into a street hierarchy of progressively busier arterials and collectors. That approach can succeed by using a combination of trails acquired through Public Land Dedications (PLDs), on-street bikeway routes and sidewalk/trail designations to complete missing links, but terminates at arterial roadways where grade-separated crossings were not part of the original subdivision pedestrian and vehicular access and transit design.

User experience on Major Trail corridors is improved by constructing grade-separated crossings at high volume/high-speed arterial streets. Such crossings are often implemented along a major drainage such as Big Dry Creek when trails are being constructed at roughly the same time arterials and collectors are undergoing reconstruction. Criteria for successful grade-separated crossings design are stringent: crossings must accommodate all persons, as required by ADA; crossings must minimize slopes on approach and be clearly visible from the street; sight lines must extend through the crossing; and the length of the crossing must be well lit.

Typical cross-sectional dimensions for an underpass serving both pedestrian and bicycle traffic are 14-16 feet. That width should be increased if the length is greater than 60 feet. (i.e., ROW at Federal Boulevard at intersections is 110 ft.)

The above criteria make the construction of underpasses at arterial streets not associated with site or regional drainage or irrigation requirements very difficult due to a range of issues including:

- » Acquisition of ROW to accommodate approaches;
- » Utility relocation;
- » Narrow, relatively steep approaches; and,
- » Long enclosed spaces with limited sight lines in and out.





Underpasses work best when designed to feel welcoming, safe and accessible. Underpasses are significantly less expensive when integrated and constructed as a component of roadway improvements.

The best opportunities come in association with new bridge construction or existing bridge or culvert reconstruction -- i.e., Urban Drainage and Flood Control District's new criteria for determining flood volumes and defining flood plains may create future opportunities to modify crossings on Little Dry Creek and Walnut Creek-- where the possibility of improving an existing underpass or constructing a new one should always be included in design alternatives.

Where grades are favorable and there is the possibility of constructing an arterial underpass that connects directly to open space, or provides a link in a Major Trail, then that proposed underpass may be worth continued study. (i.e., crossing Federal Boulevard north of Ranch Reserve Parkway.)

Where a connecting on-street bikeway route or sidewalk trail crosses an arterial street with no City-owned land on either side, then the possibility of constructing a successful underpass becomes more remote and the City should consider at-grade solutions that include alternative transportation engineering designs related to intersection modifications.



| Crossing Types  |               |   |  |
|---|---------------|---|--|
| Facility Type   | Typical Width | Typical Surface   | Characteristics  |
| <b>Bicycle/Pedestrian Bridge or Overpass</b><br> | 10'-14'       | Wood, composite, concrete, or metal decking   | <ul style="list-style-type: none"> <li>» Min. clear width same as approaching path, ideally including an additional 2' clearance on either side of trail</li> <li>» 5% max. grade on approach ramps</li> <li>» Railings/fences on both sides shall be a min. height of 42" for pedestrian facilities and 54" for bicycle facilities</li> </ul>   |
| <b>Bicycle/Pedestrian Underpass</b><br>         | 10'-14'       | Concrete  | <ul style="list-style-type: none"> <li>» Min. clear width same as approaching path, ideally including an additional 2' clearance on either side of trail</li> <li>» 10' min. vertical clearance</li> <li>» 5% max. grade on approach ramps</li> <li>» Railings/fences on both sides shall be a min. height of 42" for pedestrian facilities and 54" for bicycle facilities</li> </ul>            |
| <b>Standard At-Grade Crossing</b><br>          | 8'-10'        | Thermoplastic paint   | <ul style="list-style-type: none"> <li>» Trail crossings of all streets should use highly visible ladder-style crosswalk markings</li> <li>» Crosswalk and associated curb ramps should be same width as approaching trail</li> <li>» Acceptable for mid-block locations on local streets. Optional to include pedestrian-actuated signals based on needs</li> </ul>                             |
| <b>Enhanced At-Grade Crossing</b><br>          | 8'-10'        | Thermoplastic or paint<br><br>Optional to apply crosswalk markings over colored or textured pavements | <ul style="list-style-type: none"> <li>» Recommended for mid-block locations on arterials and collectors</li> <li>» Consider use of median refuge islands on multi-lane roadways</li> <li>» Consider use of curb extensions on streets with on-street parking</li> <li>» Optional to include raised speed table crossing treatments and/or pedestrian-actuated signals based on needs</li> </ul> |

## Trail Amenities

This section provides recommendations and guidelines for the design of trail amenities and trailheads.

### Trail Amenities

The following table displays various trail facility amenities to be provided through out the Westminster trail system and the trail facility classification for which it is recommended.

| Trail Amenities Recommendations      |             |             |   |
|--------------------------------------|-------------|-------------|---|
| Trail Amenity                        | Major       | Minor       | Notes   |
| Benches                              | Recommended | Recommended | <ul style="list-style-type: none"> <li>» Benches should be placed at Major Trailheads, trail lighting, and at waiting/resting areas</li> <li>» Locate benches in areas that provide interesting views, shade or shelter from seasonal winds, as well as those that are close to educational or cultural elements.</li> <li>» Locate in close proximity to the trail- typically 3' from the aggregate or paved shoulder.</li> <li>» Drainage should slope away from the trail.</li> <li>» Benches should be securely anchored to a concrete pad, and located at appropriate intervals (1/2 mile is optimum) along the trail.</li> <li>» Seating depth should be 18-20-inches and the length should vary between 60-90-inches.</li> </ul> |
| Bollard                              | Recommended | Recommended | Bollards should have reflective surfaces, be removable and be placed where motor vehicles have potential access to trails.  |
| Delineators                          | Recommended | Recommended | Delineators can be used in place of guard rails and in areas where the trail is adjacent to water features or slopes in excess of 1:4.  |
| Distance Markers                     | Recommended |             | <ul style="list-style-type: none"> <li>» Distance markers should be placed at the beginning of Major Trailheads and at locations where there is high recreational use.</li> <li>» The markers should be placed at ½ mile to 1 mile intervals otherwise. (See Westminster <i>Trails Wayfinding Strategy</i> for mile marker design concept)</li> </ul>   |
| Guard rails/fences                   | Recommended | Recommended | Guard rails should be a minimum height of 42" and used where there is more than 30" vertical drop off at edge of the shoulder.  |
| Informational and Wayfinding Signage | Recommended | Recommended | Informational signage should be located as needed per <i>Westminster Trails Wayfinding Strategy</i> in this report  |
| Lighting                             | Recommended | Recommended | Lighting shall conform to the City's Standards and Specifications   |
| Regulatory Signage                   | Recommended | Recommended | Signage at street crossings should be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) Chapter 9.   |
| Trash Receptacles                    | Recommended | Recommended | Trash receptacles, as well as provisions for recycling, should be provided at street crossings and near benches   |
| Dog Waste Stations                   | Recommended | Recommended | Provide dog waste stations at trailheads and street crossings.  |



## **Trailheads**

Trailheads are typically located at the gateways to the trail system, and thus, should be highly visible and provide appropriate amenities (wayfinding and regulatory signage or kiosk) that make a user's experience enjoyable. Trailhead design should take into account the surrounding environment and context as well as the trail facility classification, Major or Minor Trail.

Trailhead attributes should include:

- » Providing a comprehensive system of parking, transit access, information and function as a gateway to the trail system.
- » Parking should be provided in a lot configuration and may either be paved, unpaved or a combination of both.
- » When possible it will be necessary to explore shared use parking options with other facilities (i.e. schools, parks, churches).
- » When a trailhead is located along a designated RTD fixed-route, at a minimum a transit stop shall be provided with adequate access to the trail.

| <b>Trailhead Amenities Recommendations</b> |  |
|--|--|
| <b>Trail Amenity</b>                       | <b>Notes</b>   |
| Benches                                    | <ul style="list-style-type: none"> <li>» Locate benches in areas that provide interesting views, shade or shelter from seasonal winds, as well as those that are close to educational or cultural elements.</li> <li>» Locate in close proximity to the trail- typically 3' from the aggregate or paved shoulder.</li> <li>» Drainage should slope away from the trail.</li> <li>» Benches should be securely anchored to a concrete pad</li> <li>» Seating depth should be 18-20-inches and the length should vary between 60-90-inches.</li> </ul> |
| Bike Racks                                 | Bike racks should be located near the parking facility and should be covered and lighted when possible.  |
| Lighting                                   | Lighting shall conform to the City standards.  |
| Wayfinding Signage                         | Wayfinding signage should illustrate the entire trail network. (See Westminster <i>Trails Wayfinding Strategy</i> for kiosk design at trailhead)   |
| Parking                                    | Where provided, parking should be signed and located with close proximity to the trail. Parking should also be lighted as necessary.   |
| Port-o-lets                                | Port-o-lets should be located at trailheads that are perceived to have high use. Port-o-lets should be enclosed and should be accessible for wheelchair users (ADA standards).   |
| Regulatory Signage                         | Signage should be provided at Major Trailheads and street crossings in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) Chapter 9.  |
| Transit Access                             | Transit stops should be easily accessible and visible, and provide route and schedule information and typical signage.   |
| Trash Receptacles                          | Trash receptacles, as well as provisions for recycling, should be provided at trailheads and locations of benches and wayfinding signage.  |

Existing and proposed trailheads are mapped on the 2014 Trails Master Plan Map. This map is to be used as a long-range planning guideline and will change based on actual trail alignments, developer negotiations, and Capital Improvement Project (CIP) feasibility. Proposed trailhead locations include (see large fold-out map for locations):

- » Vogel Pond Park and Open Space (*Ranch Reserve Parkway and W 112th Avenue*)
- » Hyland Pond Open Space (*W 98th Avenue West of Northwest Church of Christ*)
- » Lower Church Lake Open Space (*Wadsworth Boulevard and W 108th Avenue*)
- » Westminster Hills Open Space - South (*Alkire Street and 100th Avenue*)

Large scale fold-out version  
of this map is included in the pocket  
at the end of this section

# 2014 Trails Master Plan

07.28.2014

## LEGEND

### Major Trails

- Concrete
- Concrete Sidewalk
- Aggregate
- Proposed

### Minor Trails

- Concrete
- Concrete Sidewalk
- Aggregate
- Proposed

### Other Trails/Bikeways

- Connecting Trail
- Natural Surface Trail
- Proposed Connecting Trail
- Existing Trail in Adjacent Jurisdiction
- Proposed Trail in Adjacent Jurisdiction
- Proposed Bikeway (per 2030 Bicycle MP)

### Trailheads

- Existing
- Proposed

### Trail Crossings

- Existing
- Proposed

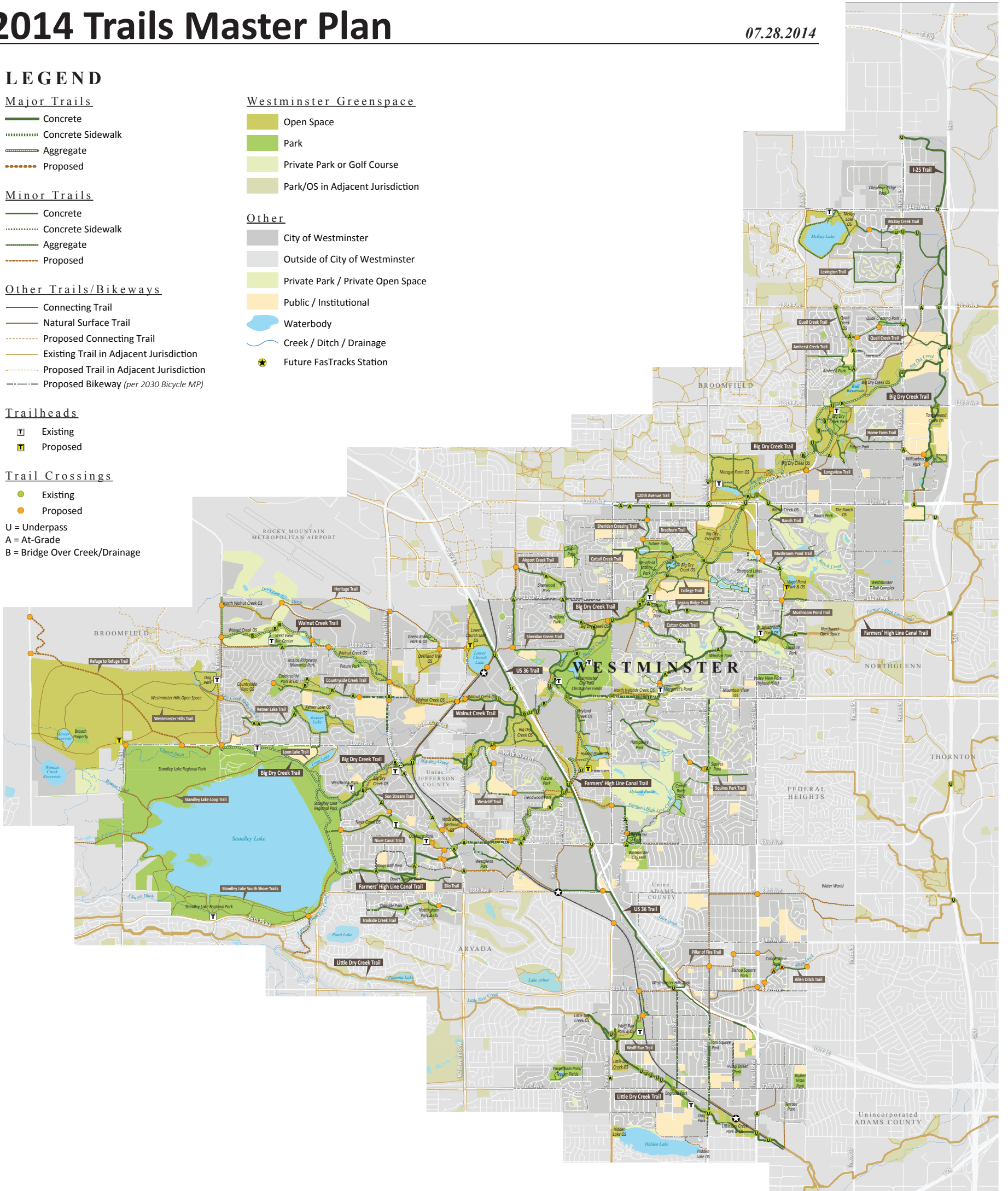
U = Underpass  
A = At-Grade  
B = Bridge Over Creek/Drainage

### Westminster Greenspace

- Open Space
- Park
- Private Park or Golf Course
- Park/OS in Adjacent Jurisdiction

### Other

- City of Westminster
- Outside of City of Westminster
- Private Park / Private Open Space
- Public / Institutional
- Waterbody
- Creek / Ditch / Drainage
- Future FasTracks Station





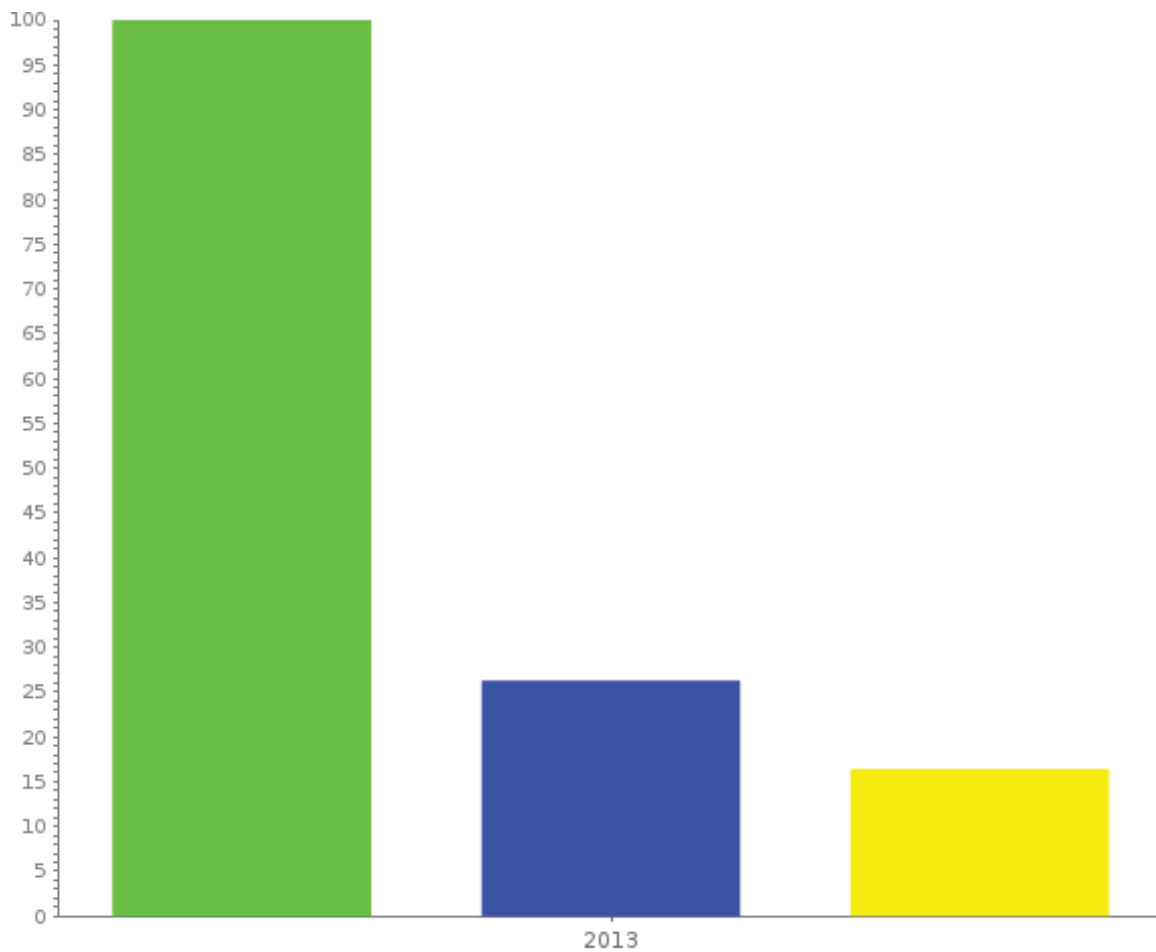
# Resources: 2013 Trail Use Data Report

## Yearly\* totals report

Covering 1 year from 2013-01-01 to 2013-12-31

Report generated on 2014-06-13 14:34:23 (UTC -06:00) by rlarsen@cityofwestminster.us

[TRAFx DataNet \(http://www.trafx.net/\)](http://www.trafx.net/)



| Site Name              | Average   |
|------------------------|-----------|
| BDC Trail              | 144,954.0 |
| FHC Trail              | 40,385.5  |
| Little Dry Creek Trail | 24,300.4  |

\* Based on Average Daily Traffic (ADT)

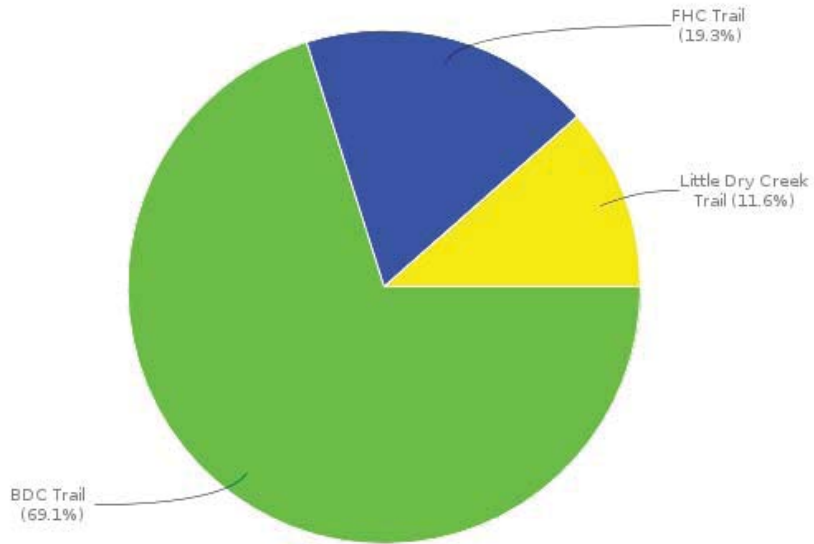


## Compare sites

Data from 2013-01-01 to 2013-12-31

Report generated on 2014-06-13 14:33:25 (UTC -06:00) by rlarsen@cityofwestminster.us

[TRAFx DataNet \(http://www.trafx.net/\)](http://www.trafx.net/)



| Site Name              | Daily Average |
|------------------------|---------------|
| BDC Trail              | 396.9 (69.1%) |
| FHC Trail              | 110.6 (19.3%) |
| Little Dry Creek Trail | 66.5 (11.6%)  |



## Resources: Trails Master Plan

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The Westminster 2014 Trails Master Plan examines current and future needs for off-street trails within the City of Westminster. The plan builds off of existing Major Trail corridors along the Big Dry Creek, Farmers' High Line Canal, Little Dry Creek and Walnut Creek while incorporating future connections as they tie into the 2030 Bicycle Master Plan.

### **Existing Westminster Trails Planning and Mapping - Resources used in the planning process**

This 2014 Westminster Trails Master Plan is supported by many plans, maps and existing digital data, documents, and programs already in place that guide the City's trails planning efforts.

- » **The 2001 Master Plan Map Diagram**  
This map illustrates the City's existing and proposed trails, including existing and proposed sidewalks, existing and proposed trailheads, and existing and proposed grade separated crossings. The map also calls out regional trail connections to adjacent municipalities.
- » **The 2013 Comprehensive Land Use Plan Update**  
Chapter 7.0 – Parks, Recreation, Libraries and Open Space, Sections 7.3- and 7.4, highlights goals and policies as they pertain to trails planning, these include:

#### **GOALS:**

- PRLO-G-4 Provide easy and safe access to the City's Open Space and Trail network.
- PRLO-G-5 Ensure the city's open space and trails network is well-maintained and continues to preserve sensitive habitats and environments.

#### **POLICIES:**

- PRLO-P-3 Continue to identify and evaluate opportunities for property acquisitions that enhance access to the city's trail corridors and public parks.
- PRLO-P-4 Ensure that all new residential development continues to contribute to the provision and maintenance of adequate parks, recreation facilities and open space to meet the needs of its new residents.
- PRLO-P-18 Update and utilize the Trails Master Plan to develop connections between open space areas.
- PRLO-P-19 Work with proposed development projects to provide new linkages to existing trails and create new trails where feasible.
- PRLO-P-15 Work with the Adams County Open Space Program, the City and County of Broomfield Open Space and Trails Program, Jefferson County Open Space Program and Great Outdoors Colorado Trust Fund as partners in open space programs.

The Comprehensive Land Use Plan includes a map – Figure 7-1. Parks, Libraries, Recreation & Open Space – that identifies existing and proposed trails along the main trail corridors of Big Dry Creek, the Farmers' High Line Canal, Little Dry Creek, and Walnut Creek, providing a basis for trail connection in both open space and new development in the city.

**Existing Westminster Trails Planning and Mapping - Resources used in the planning process (continued)**

» **The 2010-2014 Parks and Recreation Master Plan**

While primarily a master plan for Parks and Recreation, Open Space and Trails are inventoried and included in the Open Space section of the document. While the trails map that is included in this section shows existing conditions, it also identifies proposed trail connections. The plan states that the City's "Trails Master Plan" – this 2014 plan – will be inserted as a section of this document.

A Citizens Comment section is included in the Parks & Recreation Master Plan. Two public meetings were held, comment cards were available at all recreation facilities and City Hall, and an e-comment card was available on the city's web site. Comment relating to Open Space and Trails were as follows:

**OPEN SPACE COMMENTS:**

- Concerned about open space at 100th on the west side of Sheridan. Debris from the abandoned McStain project is dangerous and an eyesore.
- Continue to reclaim and re-vegetate open space land through prairie dog management.
- Better weed control in open spaces.

**TRAILS COMMENTS:**

- I enjoy the extensive trail system. Suggest that you have done too well in paving paths. A softer walking surface would be much appreciated.
- 26 Residents of Green Knolls would like trail connections and sidewalks to enable them to safely walk or ride bikes to other trails, along Old Wadsworth and to Walnut Creek Shopping Center. (26 residents)
- Install bicycle path connecting Standley Lake to Federal Heights-allow bicycle traffic along the Farmers High Line Canal through the Hyland Hills Golf Course. This would allow bicycle traffic from the Standley lake area to connect to the Niver Creek path via 96th Avenue and eventually to the Platte River bike path, without using 92nd Avenue or 104th Avenue.
- Complete a continuous bike trail around Standley Lake. (3 residents)
- Build a safe trail connection between Westminster Hills Open Space and Standley Lake. Need a safe bike entrance to Standley Lake. There are no trails or sidewalks at the entrance at 100th and Simms. (2 Residents)
- Need more safe bike paths and trail connections in City Center area.
- Sanolets along trails and open space all year.
- No more concrete trails.
- Complete Walnut Creek Trail from Simms to Walnut Creek shopping area.
- There are no trails, parks or open space near me near 86th Ave & Federal Boulevard.
- Work with other municipalities to link trail systems both existing or planned (i.e., Broomfield, Rocky Flats).
- Build trail access to the Mower Reservoir through the forestry operations connecting to the Standley Lake trail system.
- Install access to mower reservoir from the west on Indiana Street via trailhead/parking.
- I would also like to see the "proposed" section of greenbelt that would connect Countryside neighborhood
- (108th/Wads) to the Dry Creek Open Space completed.

» **The 2030 Bicycle Master Plan**

This plan, adopted by City Council in June 2011, identifies many off-street shared paths (or trails) as part of the proposed final bikeway network to facilitate recreational and commuter bicycle needs. The plan recommends that Westminster build all new identified bikeway trail segments with concrete and retrofit all existing gravel segments with concrete for use by commuter cyclists. The plan makes recommendations for design and safety as well as recommendations for wayfinding and connection into the on-street bikeway system. This Trails Master



Plan update coordinates proposed improvement priorities (short/medium/long term) with improvement priorities identified in the bike plan ensuring connections are met.

» **Westminster Trails: A User's Guide**

The trail user guide map's latest publication is dated August 2009 and will be updated in 2014.. This map highlights the city's trail system illustrating major and Minor Trail connections as well as materials – concrete, gravel or natural – and proposed connections on the map. This map was used on trail signage in various locations on Major Trails. The four Major Trails include:

- Big Dry Creek Trail,
- Farmers' High Line Canal Trail,
- Little Dry Creek Trail, and
- Walnut Creek Trail

» **Westminster Strategic Plan**

(TEXT STRAIGHT FROM OSSP) The City's Strategic Plan, reviewed and adopted annually by Westminster City Council, has identified the goal of 15% of the City's total land area preserved as City Open Space to preserve view corridors, provide buffers between developments, protect habitat, protect creek and irrigation canal corridors, preserve open rural landscapes, and enhance recreational opportunities for residents through a series of interconnected trails. Pursuit of property for acquisition is ultimately determined by Westminster City Council under guidance from the Open Space Advisory Board and City staff.

» **Westminster Comprehensive Land Use Plan**

(TEXT STRAIGHT FROM OSSP) The Westminster Comprehensive Land Use Plan (CLUP) governs future land development and redevelopment in the City. Two Goals and Policies within the CLUP relevant to this Plan are:

- "Preserve the unique visual character of Westminster" (Goal H2) through identification, acquisition, and/or strategic protection of view corridors and environmentally sensitive areas throughout the City (Policy H2a).
- "Enhance the City's open space system to preserve and protect natural areas, vistas and view corridors, and to complete the open space and trail system" (Goal H4). Policies H4a and H4b suggest using "acquisition of open space as a tool to channel growth into appropriate locations and to shape the overall design of the community" and suggest continuing "to develop Big Dry Creek and tributary streams as the "spine" of a comprehensive network of trails linking

» **Existing GIS Data**

The City of Westminster updates the city's parks, open space and trails information on a regular basis. Data from outside sources were used to show parks, open space and trails information in adjacent jurisdictions to illustrate connections. All of this data was used for mapping in this master plan process.

**Complete list of plans reviewed for this planning effort:**

- *City of Westminster Zoning Code and Land Use Map*
- *City of Westminster Guidelines for Traditional Mixed Use Neighborhood Developments*
- *City of Westminster Strategic Plan (2009-2014 -2023)*
- *City of Westminster Trails Plan Map*
- *City of Westminster Existing Trail System Map*
- *City of Westminster 2030 Bicycle Master Plan*
- *City of Westminster Metzger Farm Open Space Master Plan (2010)*
- *City of Westminster Wildlife and Natural Resource Management Plan for Open Space Properties (2010)*
- *City of Westminster Storm Drainage Study (2007)*
- *City of Westminster Open Space & Resource Stewardship Plan (Draft-2012)*
- *City of Westminster Comprehensive Land Use Plan (2013)*
- *City of Westminster Development Code – Chapter 5 Open Space Program (2009)*
- *City of Westminster Grant Applications for Regional trail Wayfinding Project (2011)*
- *City of Westminster Grant Applications for Semper Farm – Colorado State Historical Fund (2013)*
- *America’s Great Outdoors (AGO): Feasibility Study for Connecting Urban Refuges to the Rocky Mountain Greenway Trail Network (2013)*
- *US 36 Corridor Bike Links Map*
- *City of Thornton Parks & Open Space Master Plan (2012)*
- *Arvada Parks, Trails, and Open Space Master Plan (2001)*
- *City/County of Broomfield Open Space, Parks, Recreation and Trails Master Plan (2005)*
- *City/County of Broomfield Existing and Planned Trail Surfaces (2012)*
- *City of Northglenn Open Space Management Plan (2010)*
- *City of Northglenn Parks & Greenway Trail System (2008)*
- *Adams County Parks, Trails, and Open Space Map*
- *Adams County Open Space and Trails Master Plan (2012)*
- *Jefferson County Open Space Master Plan (2013)*
- *DRCOG’s 2010 Guidelines for Successful Pedestrian and Bicycle Facilities in the Denver Region (2010)*



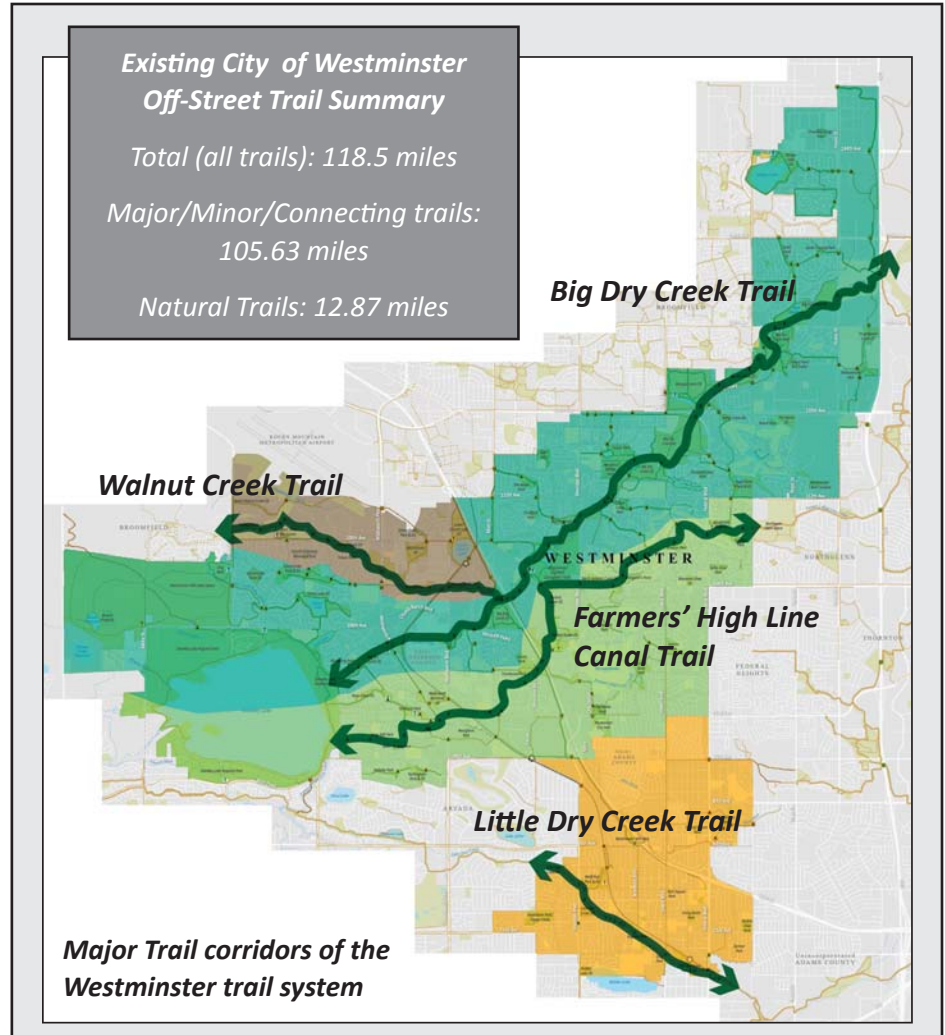
# Trails Master Plan Diagram - Supporting Narrative

The conceptual approach to developing the City of Westminster's Trails System began with identifying major, linear corridors associated with drainage and irrigation conveyance (i.e. Big Dry Creek, Little Dry Creek and Farmers' High Line Canal), purchasing and preserving land along those corridors, and constructing a Major Trail (regional) system. Through the subsequent development of residential subdivisions and commercial development, Minor Trails were designed and constructed that link neighborhoods and commercial development to Major Trails; the existing combination of Major and Minor Trails serves as the framework for the Westminster Open Space and Trails System.

## Goals for Trails Planning

This Trails Master Plan, as part of the Open Space Stewardship Plan, seeks to progress the following three primary goals:

- 1) *Complete the Trails System as it was originally conceived by city staff*
- 2) *Mitigate unforeseen consequences of the "Major Trail Corridor/ Minor Trail Links" framework (as mentioned above) for trails development.*
- 3) *Anticipate expansion of the existing trails framework in response to expansion and changing land uses and user groups.*



Trail at Stratford Lakes into Big Dry Creek Open Space

**GOAL 1: Complete the existing trails system as it was originally conceived by city staff.**

- » Identify and construct missing links in Major Trails

*Example: Walnut Creek Trail missing link at Wadsworth Boulevard/Church's Stage Stop west to Wadsworth Parkway*

- » Upgrade both Major Trails and Minor Trails that are used by residents commuting to school and work to concrete trails with aggregate path at one side. Continue to use aggregate paving (crusher fines, etc.) on all other Minor Trails to contribute to the creation of a unified, hierarchical trail system that is consistent with regional standards.

*Example: 1) Big Dry Creek Trail between 112th and 120th Avenues would include a 10' concrete trail with a 2' aggregate path at one side and then Caulkins Ditch Trail on the opposite side of the creek should be an 8'-10' wide aggregate trail along the old ditch maintenance road.*

*(2) Countryside Creek Trail through Countryside Open Space that provides connection to Witt Elementary School*

- » When planning new Minor Trail through a Public Land Dedication (PLD) process, consider how land acquisition for the proposed link could function to further extend and/or expand the open space corridor

*Example: Proposed Long's View Trail within future development at Federal Pkwy and 122nd Ave could have the affect of broadening the corridor.*

**GOAL 2: Mitigate the unforeseen consequences of the focus on "Major Trail / Minor Trail links" framework for future trail expansion**

City expansion and development patterns have resulted in challenges associated with the focus on trail development paralleling drainage corridors. Westminster's primary open space corridors generally run west to east, aligning with major drainage and ditch systems – offering few opportunities to make much needed north/south connections. The two most significant corridors, Big Dry Creek and the Farmers' High Line Canal, run parallel to one another through the northern part of the city leaving the southern part of the city with few opportunities to connect the Major Trails, with the exception of the future U.S. 36 Bikeway.

Objectives to mitigate these unforeseen consequences include:

- » Recognizing the off-street, open space trail system as a major component of a larger system including bike lanes, bike routes, and side paths.
- » Linking off-street, open space trails to the bikeway framework plan identified in the *2030 Westminster Bicycle Master Plan*. Coordinate respective prioritization plans as much as possible.
- » Reinterpreting the Major Trail/Minor Trail connection framework to include interconnecting local loops. Use sidewalks or Minor Trails to create neighborhood loops, enabling short walks that connect users to the trails and open space system without committing them to journeying out to and back from Major Trail corridors.

*Example: The series of Minor Trails from Farmers' High Line to the Big Dry Creek Trail along the southern bluff above the creek create a series of localized, neighborhood loops, i.e: Cottonwood Creek Trail at Legacy Ridge.*



### **GOAL 3: Anticipate and elaborate on the framework in response to growing and changing use.**

The existing open space trail system is a popular public amenity for residents and non-residents. Increasing population, increased residential and commercial development, and redevelopment trends mean increased user trends along both Major and Minor Trails, and the need to connect new development and redevelopment projects to existing corridors.

Objectives to expanding on the existing framework include:

- » Continuing to expand on the trail system within open space by master planning specific areas.

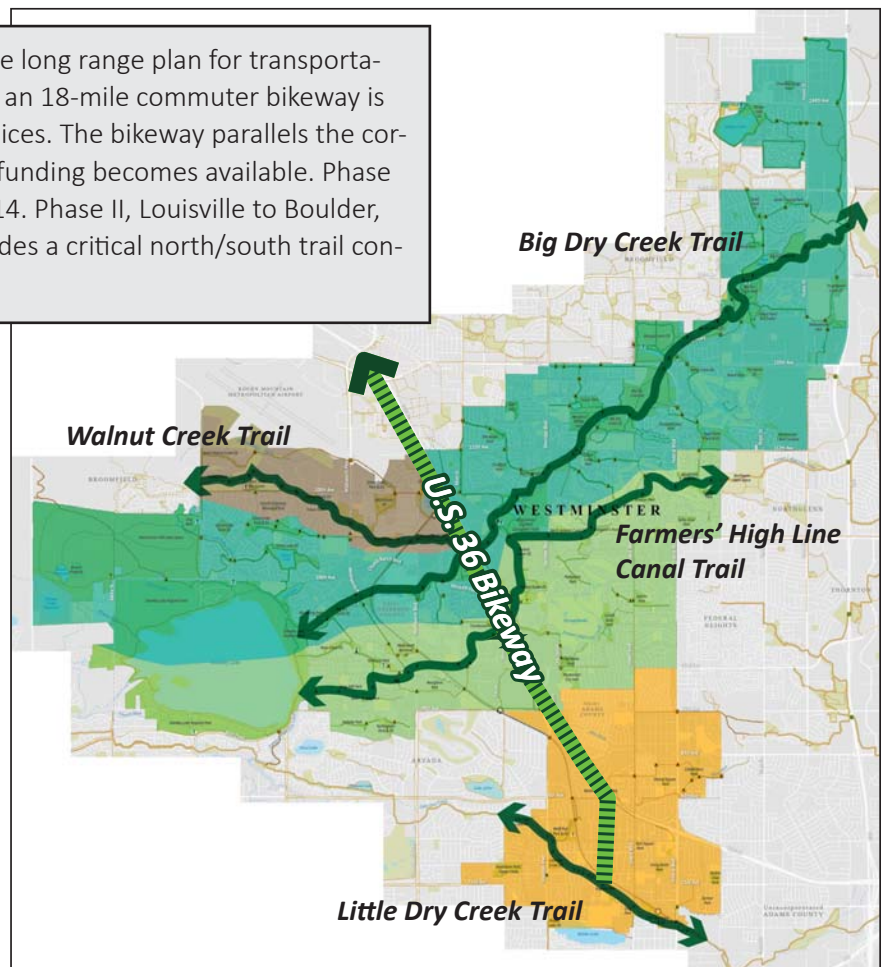
*Example: Develop a network of trails within the Big Dry Creek Open Space from Sheridan Boulevard to I-25. The Major Trail on one side of the creek can be supplemented by a soft trail on the opposite side.*

- » Improving mapping and signage. The city's long term approach to establishing Minor Trail links to Major Trail corridors has resulted in the utilization of a variety of hybrid trail types combining trail/detached sidewalk/attached sidewalk, and bike route configurations. The resulting variety of trail types is difficult to illustrate accurately in mapping and results in unfulfilled trail user expectations on the ground.

*Example: Farmers' High Line Canal trail consists of off-street trails, detached sidewalks through neighborhoods, and sidewalks along arterial streets. Illustrating the different types of trail/route conditions on a map as well as improving signage along the corridor would improve trail user experience through the corridor.*

- » Identify potential connections to major corridors when public land dedications (PLDs) increase open space holdings.

**U.S. 36 Commuter Bikeway** - As part of the long range plan for transportation improvements to the U.S. 36 corridor, an 18-mile commuter bikeway is included in the package of commuting choices. The bikeway parallels the corridor and will be constructed in phases as funding becomes available. Phase I, Westminster to Louisville, opens late 2014. Phase II, Louisville to Boulder, opens late 2015. The U.S. 36 Bikeway provides a critical north/south trail connection for the City of Westminster.





## Coordinate with the 2030 Bicycle Master Plan

This plan, adopted by City Council in June 2011, identifies many off-street shared paths (or trails) as part of the proposed final bikeway network to facilitate recreational and commuter bicycle needs. The plan recommends that Westminster build all new identified bikeway trail segments with concrete and retrofit all existing gravel segments with concrete for use by commuter cyclists. The plan makes recommendations for design and safety as well as recommendations for wayfinding and connection into the on-street bikeway system.

The 2030 Bicycle Master Plan and the Trails Master Plan often overlap and essentially share the same goal. In some instances the Trails Master Plan identifies a proposed trail route when it most likely will be a bikeway or bike lane with a four foot wide detached sidewalk (i.e. Bradburn Boulevard and Lowell Boulevard). If our proposed trails overlap with the proposed bikeways in an urban setting then the trail should be deferred for the bikeway and an improved sidewalk. Appropriate signage should still direct “trail” users to the next “trail” section with confidence markers as identified in the Wayfinding Strategy in this plan.

This Trails Master Plan update coordinates proposed improvement priorities (short/medium/long term) with improvement priorities identified in the bike plan ensuring connections are met.

## Westminster Existing Off-Street Trail System

The existing Westminster Trail System hierarchy includes:

- » **Major Trails**, also referred to as “regional” trails, are the primary connectors of the trail system. These trails connect to major greenways and open space as well as adjacent jurisdictions.
- » **Minor Trails**, also referred to as “local” or “neighborhood” trails, provide links from neighborhoods to the Major Trails, as well as major recreational, cultural, and employment destinations.
- » **Connecting Trails**, also referred to as “access” trails, are often short trail spurs that connect the neighborhood to the Minor and Major Trail system.
- » **Natural Trails** are backcountry trails that provide a route to experience the city’s open space.

## Off-Street Trail Facility Classifications and Design Standards

This section provides recommended design standards for Major and Minor Trail facility types when developing new trail connections within the City of Westminster. These design standards should be used as a tool for City staff to evaluate trail connections in development proposals and plan for new trails within the City.

These recommended design standards are consistent with *The American Association of State Highway and Transportation (AASHTO) Official’s Guide for the Development of Bicycle Facilities, 4th Edition 2012*, a key resource for designing bicycle facilities in the U.S., which includes off-street trails.







### **Off-Street Trail Facility Types**

Within each trail facility type there are a variety of different trail segment types, varying in width and materials. These include:

- » Multi-Use Path
- » Multi-Use Path with adjacent Aggregate Path
- » Aggregate Path
- » Natural Path
- » Detached Sidewalk
- » Attached Sidewalk

The table on the following page summarizes the recommended specifications for each trail segment type.



| Westminster Off-Street Trail Facility Segment Types  |   |   |  |
|--|---|---|--|
| Facility Segment Type  | Typical Width                                   | Typical Material  | Typical Characteristics  |
| <b>Multi-Use Trail</b><br>                              | 8'-12'  | Concrete or Asphalt<br><i>(See highlight box on the following page regarding pros and cons of concrete vs. asphalt)</i> | <ul style="list-style-type: none"> <li>» Designed for low to high speed trail use (walkers, runners, cyclists, in-line skaters)</li> <li>» Continuous route separated from roadway and curb</li> <li>» Frequent directional signage provided at trail intersections and decision making points</li> </ul>  |
| <b>Multi-Use Trail with adjacent Aggregate Path</b><br> | 8'-10' concrete with 4' adjacent aggregate path | Concrete or Asphalt and crusher fines or compacted organic material   | <ul style="list-style-type: none"> <li>» Designed for low to high speed trail use (walkers with strollers, cyclists, in-line skaters) on hard surface and low speed use on soft surface (walkers, runners)</li> <li>» Continuous route separated from roadway and curb</li> <li>» Frequent directional signage provided at trail intersections and decision making points</li> </ul> |
| <b>Aggregate Trail</b><br>                             | 6'-10'  | Crusher fines or compacted organic material   | <ul style="list-style-type: none"> <li>» Designed for low to moderate speed trail use (walkers, hikers, runners, off-road cyclists)</li> <li>» Continuous route separated from roadway and curb</li> <li>» Frequent directional signage provided at trail intersections and decision making points</li> </ul>  |
| <b>Natural Trail</b><br>                              | 3'-6'   | Compacted organic material  | <ul style="list-style-type: none"> <li>» Designed for low speed use (walkers, hikers, trail runners)</li> <li>» Continuous route within an open space area with minimal conflicts with high speed trail users.</li> <li>» Minimal directional signage; may include educational or interpretive signage</li> </ul>  |
| <b>Detached Sidewalk</b><br>                          | 6'-10'  | Concrete or Asphalt   | <ul style="list-style-type: none"> <li>» Designed for low speed users (pedestrians)</li> <li>» Separated by adjacent roadway and curb by a landscape buffer</li> <li>» Follows higher traffic volume streets</li> </ul>  |
| <b>Attached Sidewalk</b><br>                          | 4'-10'  | Concrete or Asphalt   | <ul style="list-style-type: none"> <li>» Designed for low speed users (pedestrians)</li> <li>» Connected to adjacent roadway and curb</li> <li>» Follows lower traffic volume streets</li> </ul>   |

| <b>Concrete vs. Asphalt: Pros and Cons</b> |   |  |  |
|--|---|--|--|
| <b>Material</b>                            | <b>Pros</b>   | <b>Cons</b>  | <b>Installation</b>  |
| <b>Concrete</b>                            | <ul style="list-style-type: none"> <li>» More durable</li> <li>» Better in low traffic or lightweight traffic</li> <li>» Standard for regional trails (This becomes a wayfinding issue: matching other, regional trails)</li> </ul>   | <ul style="list-style-type: none"> <li>» Requires thorough sub-grade preparation. (Consider a lime subgrade treatment on Big Dry Creek clay soils)</li> <li>» Impacts related to access for trail construction -- the proposed trail alignment is often the only means for site access</li> <li>» High costs for repair/replacement if improperly installed</li> </ul>   | <ul style="list-style-type: none"> <li>» Lime sub-grade treatment</li> <li>» Concrete trail- 6"</li> </ul> |
| <b>Asphalt</b>                             | <ul style="list-style-type: none"> <li>» Trail users may prefer the "softer" feel and appearance of asphalt</li> <li>» Appearance: The value of asphalt's "basic black" matches the value of green grass. It is much less reflective than new concrete. Additionally, asphalt allows for aggregate topcoats that can soften the appearance of a small parking lot for example.</li> <li>» Low cost of minor repair</li> </ul> | <ul style="list-style-type: none"> <li>» Asphalt gets brittle if not "worked" by traffic.</li> <li>» Requires thorough subgrade preparation: Examples include: Complete removal of all plant material, Pre-emergent herbicide or use of geotextile to prevent plant growth back through asphalt</li> <li>» Compaction must exceed edge of trail. Shoulder construction can be required. (Very similar to crushed granite aggregate)</li> <li>» Best if horizontally separated from trees.</li> </ul> | <ul style="list-style-type: none"> <li>» Geotextile fabric</li> <li>» Asphalt-6" two lifts</li> </ul>      |

**Major Trails**

Major Trails, also know as "regional" trails, are the primary connectors of the trail system. These trails connect to major greenways and open space as well as adjacent jurisdictions.

Historically, Westminster's Major Trail Corridors were developed along existing creeks and drainageways in a, more or less, east/west direction. These include:

- » Big Dry Creek Trail
- » Walnut Creek Trail
- » Farmers' High Line Canal Trail
- » Little Dry Creek Trail

Recently Major Trail Corridors have developed to make north/south connections in the city. These include:

- » US 36 Commuter Bikeway
- » I-25 Trail (which includes Tanglewood Creek Trail)

As residents are depending more on multi-modal transportation such as biking to get to their destinations, these Major Trails become a critical piece to the proposed final bikeway network. Therefore, Major Trails must be designed to handle the high speeds of commuter cyclists as wells as recreational walkers and runners. Major Trails that consist of soft aggregate paving should be upgraded to concrete and frequent directional signage should be installed to better accommodate this commuter need.



| <b>Major Trail Facility - Recommended Specifications</b> |   |
|--|---|
| Material   | Concrete with adjacent aggregate trail where feasible               |
| Width  | 10-12' concrete or 8'-10' concrete with adjacent 4' aggregate trail |
| Shoulders  | 2-5'  |
| Cross Slope  | 1% min/2% max   |
| Vertical Clearance                                       | 10'   |
| Maximum Grade  | 8.3%  |
| Amenities  | Signage, Lighting, Trash Receptacles, Benches                       |

**Minor Trails**

Minor Trails, also referred to as “local” or “neighborhood” trails, provide links from neighborhoods to the Major Trails, as well as major recreational, cultural, and employment destinations. Examples of Minor Trails facility types located within Westminster include:

- » Airport Creek Trail
- » Allen Ditch Trail
- » Countryside Creek Trail
- » Cotton Creek Trail
- » Home Farm Trail
- » Ketner Lake Trail
- » McKay Creek Trail
- » Mushroom Pond Trail
- » Niver Canal Trail
- » Quail Creek Trail
- » Squire’s Park Trail
- » Trailside Creek Trail
- » Westcliff Trail

While ideally Minor Trails would be comprised of multi-use trail segments constructed to wider standards, the reality is that in some cases due to existing development, detached and attached sidewalk segments are required to make these connections work. At a minimum, clear signage must be used to direct trail users to Major Trail connections as well as local destinations and when the trail intersects with motor vehicle traffic, there should be a signed crossing and marked crosswalk.

| <b>Minor Trail Facility - Recommended Specifications</b> |   |   |   |   |
|--|---|---|---|---|
|  | Multi-Use Trail                               | Aggregate Trail                               | Detached Sidewalk                             | Attached Sidewalk                             |
| Material   | Concrete                                      | Crusher fines                                 | Concrete                                      | Concrete                                      |
| Width  | 8-10'   | 6-8'  | 6-10'   | 4-10'   |
| Shoulders  | 2-5'  | 2-5'  | 2-5'  | N/A   |
| Cross Slope  | 1% min/2% max                                 | 1% min/2% max                                 | 1% min/2% max                                 | 1% min/2% max                                 |
| Vertical Clearance                                       | 10'   | 10'   | 10'   | 10'   |
| Maximum Grade  | 8.3%  | 8.3%  | 8.3%  | 8.3%  |
| Amenities  | Signage, Lighting, Trash Receptacles, Benches | Signage, Lighting, Trash Receptacles, Benches | Signage, Lighting, Trash Receptacles, Benches | Signage, Lighting, Trash Receptacles, Benches |

## Trail Crossings

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In order to maintain continuity and safety along trails, intersections with roadways, utilities, and water features should be carefully designed and maintained. The decision on what type of design treatment is appropriate at a trail/roadway intersection requires balancing user safety and personal comfort needs with prudent traffic engineering principles and project cost and budget considerations. This section provides guidance in determining where different types of trail crossings- grade separated, at-grade- are needed.

### **At-Grade Crossings**

Roadway intersections represent one of the primary collision points for trail users. When intersections occur at-grade, a major design consideration is the establishment of right-of-way for various users. CDOT, AASHTO (*The American Association of State Highway and Transportation Officials' Guide for the Development of Bicycle Facilities, 4th Edition 2011*), NACTO (*The National Association of Transportation Officials Urban Bike way Design Guide 2nd Edition 2012*), and MUTCD (*The Manual of Uniform Traffic Control Devices, 2009 Edition*) have usage warrants and design standards regulating various types of at-grade crossings.

*The City of Boulder: Pedestrian Crossing Treatment Installation Guidelines, November 2011* is another resource for at-grade crossings, including pedestrian crossing location criteria, specific crossing design treatments, technical literature research, and an evaluation of the effectiveness and safety of various treatments being tested at crossing locations in the City of Boulder.

By CDOT definition, a marked crosswalk is any crosswalk, which is delineated by white painted markings placed on the pavement. Legal crosswalks exist at all public street intersections whether marked or unmarked. However, the only way a crosswalk can exist at a mid-block location is if it is marked. All traffic devices, including crosswalk markings and signs, must conform to the federal and state regulations for dimensions, color, wording and graphics. To create highly visible roadway crossing for trail facilities, it is recommended to use ladder-style crosswalk markings in all locations along Westminster's trail system.

Various crossings may be further enhanced by using a combination of the following, based on site-specific needs, opportunities, traffic counts, and usage warrants:

- » **Enhanced mid-block crossings** - raised speed tables, colored and textured pavements within the crosswalk area, retroreflective marking materials, landscape enhancements, or other traffic calming strategies
- » **Raised medians and center pedestrian refuge islands** - to be considered on mid-block crossings on multi-lane roadways to allow pedestrians to find an acceptable gap in traffic for one approach at a time.
- » **Curb extensions** - to be considered for mid-block crossing on streets with on-street parking to enhance pedestrian visibility and shorten distance time required to cross street.
- » **Pedestrian traffic signal** - may be used in a mid-block location after careful study of traffic characteristics. This is a conventional traffic signal with Walk/Don't Walk signals for pedestrians.
- » **Pedestrian hybrid beacon** - a hybrid between a pedestrian traffic signal and a stop sign that is actuated by a pedestrian push button.
- » **Rectangular Rapid Flash Beacons (RRFBs)** - small rectangular yellow flashing lights that are deployed with pedestrian crossing warning signs.
- » **Enhanced crosswalk signing** - may be used to draw further attention to the crossing area, such as signs and bollards that say "State Law- Yield to Pedestrians" (2 or 3-lane crossings) and pedestrian activated flashing signs (multi-lane crossings.)

Existing and proposed at-grade crossings for trails are mapped on the 2014 Trails Master Plan Map. This map is to be used as a long-range planning guideline and will change based on actual trail alignments, developer negotiations, and Capital Improvement Project (CIP) feasibility.



**Grade Separated Crossings**

Grade separated crossings are desirable when a trail intersects with either another trail, a drainageway, a roadway, or a railroad, minimizing conflicts between motorized and non-motorized users.

Ideally, Westminster’s Major Trail System would provided uninterrupted connectivity constructing underpasses and overpasses that would allow safe, continuous routes of travel removed from motor vehicle conflicts, especially at arterial streets. When an underpass or overpass is not feasible, enhanced at-grade crossings can be used as an alternative, and is actually more cost-effective when connecting into the on-street bikeway network because it eliminates the need for connecting trails, ramps and curb cuts. The decision to provide underpasses for trails that follow creeks, drainages and ditches will depend on opportunities for cost-effective implementation, most likely in association with infrastructure improvements.

Existing and proposed underpasses and bridges are mapped on the 2014 Trails Master Plan Map. This map is to be used as a long-range planning guideline and will change based on actual trail alignments, developer negotiations, and funding Capital Improvement Project (CIP) feasibility.

| Crossing Type Criteria                         |  |   |
|--|--|---|
| Trail Intersection Type                        | Trail Facility Types   |   |
|  | Major Trails   | Minor Trails  |
| Freeways & Active Rail Lines                   | » Provide bicycle/pedestrian underpass or overpass   | » Provide bicycle/pedestrian underpass or overpass if feasible and cost-effective; otherwise route to closest existing street crossing.         |
| Arterial Streets without bike lanes            | » Provide bicycle/pedestrian underpass or overpass;<br>» Or provide enhanced mid-block crossing with pedestrian signal   | » Route to closest traffic signal;<br>» Or provide enhanced mid-block crossing with pedestrian signal, or grade separated structure if feasible |
| Arterial Streets with bike lanes               | » Enhanced at-grade crossings are preferred for linkage between on- and off-street road facilities<br>» If grade separated structures are provided, include ramps from trail grade to street grade | » Provide highly visible ladder-style crosswalks with some form of pedestrian crossing light  |
| Local and Collector Streets without bike lanes | » Provide highly visible ladder-style crosswalks<br>» May include elements of enhanced pedestrian crossings  | » Provide highly visible ladder-style crosswalks  |

### **Criteria for Identifying Underpass Opportunities**

Integrating the Westminster Open Space Trail System into existing development patterns within city boundaries requires extending beyond existing drainage and irrigation corridors that comprise the Open Space System.

To date, the City's goal has been to extend trail connections to and from Major Trails into the context of a residential subdivision model where local roads feed into a street hierarchy of progressively busier arterials and collectors. That approach can succeed by using a combination of trails acquired through Public Land Dedications (PLDs), on-street bikeway routes and sidewalk/trail designations to complete missing links, but terminates at arterial roadways where grade-separated crossings were not part of the original subdivision pedestrian and vehicular access and transit design.

User experience on Major Trail corridors is improved by constructing grade-separated crossings at high volume/high-speed arterial streets. Such crossings are often implemented along a major drainage such as Big Dry Creek when trails are being constructed at roughly the same time arterials and collectors are undergoing reconstruction. Criteria for successful grade-separated crossings design are stringent: crossings must accommodate all persons, as required by ADA; crossings must minimize slopes on approach and be clearly visible from the street; sight lines must extend through the crossing; and the length of the crossing must be well lit.

Typical cross-sectional dimensions for an underpass serving both pedestrian and bicycle traffic are 14-16 feet. That width should be increased if the length is greater than 60 feet. (i.e., ROW at Federal Boulevard at intersections is 110 ft.)

The above criteria make the construction of underpasses at arterial streets not associated with site or regional drainage or irrigation requirements very difficult due to a range of issues including:

- » Acquisition of ROW to accommodate approaches;
- » Utility relocation;
- » Narrow, relatively steep approaches; and,
- » Long enclosed spaces with limited sight lines in and out.





Underpasses work best when designed to feel welcoming, safe and accessible. Underpasses are significantly less expensive when integrated and constructed as a component of roadway improvements.

The best opportunities come in association with new bridge construction or existing bridge or culvert reconstruction -- i.e., Urban Drainage and Flood Control District's new criteria for determining flood volumes and defining flood plains may create future opportunities to modify crossings on Little Dry Creek and Walnut Creek-- where the possibility of improving an existing underpass or constructing a new one should always be included in design alternatives.

Where grades are favorable and there is the possibility of constructing an arterial underpass that connects directly to open space, or provides a link in a Major Trail, then that proposed underpass may be worth continued study. (i.e., crossing Federal Boulevard north of Ranch Reserve Parkway.)

Where a connecting on-street bikeway route or sidewalk trail crosses an arterial street with no City-owned land on either side, then the possibility of constructing a successful underpass becomes more remote and the City should consider at-grade solutions that include alternative transportation engineering designs related to intersection modifications.



| Crossing Types  |               |   |  |
|---|---------------|---|--|
| Facility Type   | Typical Width | Typical Surface   | Characteristics  |
| <b>Bicycle/Pedestrian Bridge or Overpass</b><br> | 10'-14'       | Wood, composite, concrete, or metal decking   | <ul style="list-style-type: none"> <li>» Min. clear width same as approaching path, ideally including an additional 2' clearance on either side of trail</li> <li>» 5% max. grade on approach ramps</li> <li>» Railings/fences on both sides shall be a min. height of 42" for pedestrian facilities and 54" for bicycle facilities</li> </ul>   |
| <b>Bicycle/Pedestrian Underpass</b><br>         | 10'-14'       | Concrete  | <ul style="list-style-type: none"> <li>» Min. clear width same as approaching path, ideally including an additional 2' clearance on either side of trail</li> <li>» 10' min. vertical clearance</li> <li>» 5% max. grade on approach ramps</li> <li>» Railings/fences on both sides shall be a min. height of 42" for pedestrian facilities and 54" for bicycle facilities</li> </ul>            |
| <b>Standard At-Grade Crossing</b><br>          | 8'-10'        | Thermoplastic paint   | <ul style="list-style-type: none"> <li>» Trail crossings of all streets should use highly visible ladder-style crosswalk markings</li> <li>» Crosswalk and associated curb ramps should be same width as approaching trail</li> <li>» Acceptable for mid-block locations on local streets. Optional to include pedestrian-actuated signals based on needs</li> </ul>                             |
| <b>Enhanced At-Grade Crossing</b><br>          | 8'-10'        | Thermoplastic or paint<br><br>Optional to apply crosswalk markings over colored or textured pavements | <ul style="list-style-type: none"> <li>» Recommended for mid-block locations on arterials and collectors</li> <li>» Consider use of median refuge islands on multi-lane roadways</li> <li>» Consider use of curb extensions on streets with on-street parking</li> <li>» Optional to include raised speed table crossing treatments and/or pedestrian-actuated signals based on needs</li> </ul> |



## Trail Amenities

This section provides recommendations and guidelines for the design of trail amenities and trailheads.

### Trail Amenities

The following table displays various trail facility amenities to be provided through out the Westminster trail system and the trail facility classification for which it is recommended.

| Trail Amenities Recommendations      |             |             |   |
|--------------------------------------|-------------|-------------|---|
| Trail Amenity                        | Major       | Minor       | Notes   |
| Benches                              | Recommended | Recommended | <ul style="list-style-type: none"> <li>» Benches should be placed at Major Trailheads, trail lighting, and at waiting/resting areas</li> <li>» Locate benches in areas that provide interesting views, shade or shelter from seasonal winds, as well as those that are close to educational or cultural elements.</li> <li>» Locate in close proximity to the trail- typically 3' from the aggregate or paved shoulder.</li> <li>» Drainage should slope away from the trail.</li> <li>» Benches should be securely anchored to a concrete pad, and located at appropriate intervals (1/2 mile is optimum) along the trail.</li> <li>» Seating depth should be 18-20-inches and the length should vary between 60-90-inches.</li> </ul> |
| Bollard                              | Recommended | Recommended | Bollards should have reflective surfaces, be removable and be placed where motor vehicles have potential access to trails.  |
| Delineators                          | Recommended | Recommended | Delineators can be used in place of guard rails and in areas where the trail is adjacent to water features or slopes in excess of 1:4.  |
| Distance Markers                     | Recommended |             | <ul style="list-style-type: none"> <li>» Distance markers should be placed at the beginning of Major Trailheads and at locations where there is high recreational use.</li> <li>» The markers should be placed at ½ mile to 1 mile intervals otherwise. (See Westminster <i>Trails Wayfinding Strategy</i> for mile marker design concept)</li> </ul>   |
| Guard rails/fences                   | Recommended | Recommended | Guard rails should be a minimum height of 42" and used where there is more than 30" vertical drop off at edge of the shoulder.  |
| Informational and Wayfinding Signage | Recommended | Recommended | Informational signage should be located as needed per <i>Westminster Trails Wayfinding Strategy</i> in this report  |
| Lighting                             | Recommended | Recommended | Lighting shall conform to the City's Standards and Specifications   |
| Regulatory Signage                   | Recommended | Recommended | Signage at street crossings should be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) Chapter 9.   |
| Trash Receptacles                    | Recommended | Recommended | Trash receptacles, as well as provisions for recycling, should be provided at street crossings and near benches   |
| Dog Waste Stations                   | Recommended | Recommended | Provide dog waste stations at trailheads and street crossings.  |



## **Trailheads**

Trailheads are typically located at the gateways to the trail system, and thus, should be highly visible and provide appropriate amenities (wayfinding and regulatory signage or kiosk) that make a user's experience enjoyable. Trailhead design should take into account the surrounding environment and context as well as the trail facility classification, Major or Minor Trail.

Trailhead attributes should include:

- » Providing a comprehensive system of parking, transit access, information and function as a gateway to the trail system.
- » Parking should be provided in a lot configuration and may either be paved, unpaved or a combination of both.
- » When possible it will be necessary to explore shared use parking options with other facilities (i.e. schools, parks, churches).
- » When a trailhead is located along a designated RTD fixed-route, at a minimum a transit stop shall be provided with adequate access to the trail.

| <b>Trailhead Amenities Recommendations</b> |  |
|--|--|
| <b>Trail Amenity</b>                       | <b>Notes</b>   |
| <b>Benches</b>                             | <ul style="list-style-type: none"> <li>» Locate benches in areas that provide interesting views, shade or shelter from seasonal winds, as well as those that are close to educational or cultural elements.</li> <li>» Locate in close proximity to the trail- typically 3' from the aggregate or paved shoulder.</li> <li>» Drainage should slope away from the trail.</li> <li>» Benches should be securely anchored to a concrete pad</li> <li>» Seating depth should be 18-20-inches and the length should vary between 60-90-inches.</li> </ul> |
| <b>Bike Racks</b>                          | Bike racks should be located near the parking facility and should be covered and lighted when possible.  |
| <b>Lighting</b>                            | Lighting shall conform to the City standards.  |
| <b>Wayfinding Signage</b>                  | Wayfinding signage should illustrate the entire trail network. (See Westminster <i>Trails Wayfinding Strategy</i> for kiosk design at trailhead)   |
| <b>Parking</b>                             | Where provided, parking should be signed and located with close proximity to the trail. Parking should also be lighted as necessary.   |
| <b>Port-o-lets</b>                         | Port-o-lets should be located at trailheads that are perceived to have high use. Port-o-lets should be enclosed and should be accessible for wheelchair users (ADA standards).   |
| <b>Regulatory Signage</b>                  | Signage should be provided at Major Trailheads and street crossings in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) Chapter 9.  |
| <b>Transit Access</b>                      | Transit stops should be easily accessible and visible, and provide route and schedule information and typical signage.   |
| <b>Trash Receptacles</b>                   | Trash receptacles, as well as provisions for recycling, should be provided at trailheads and locations of benches and wayfinding signage.  |

Existing and proposed trailheads are mapped on the 2014 Trails Master Plan Map. This map is to be used as a long-range planning guideline and will change based on actual trail alignments, developer negotiations, and Capital Improvement Project (CIP) feasibility. Proposed trailhead locations include (see large fold-out map for locations):

- » Vogel Pond Park and Open Space (*Ranch Reserve Parkway and W 112th Avenue*)
- » Hyland Pond Open Space (*W 98th Avenue West of Northwest Church of Christ*)
- » Lower Church Lake Open Space (*Wadsworth Boulevard and W 108th Avenue*)
- » Westminster Hills Open Space - South (*Alkire Street and 100th Avenue*)

Large scale fold-out version  
of this map is included in the pocket  
at the end of this section

# 2014 Trails Master Plan

07.28.2014

## LEGEND

### Major Trails

- Concrete
- Concrete Sidewalk
- Aggregate
- Proposed

### Minor Trails

- Concrete
- Concrete Sidewalk
- Aggregate
- Proposed

### Other Trails/Bikeways

- Connecting Trail
- Natural Surface Trail
- Proposed Connecting Trail
- Existing Trail in Adjacent Jurisdiction
- Proposed Trail in Adjacent Jurisdiction
- Proposed Bikeway (per 2030 Bicycle MP)

### Trailheads

- Existing
- Proposed

### Trail Crossings

- Existing
- Proposed

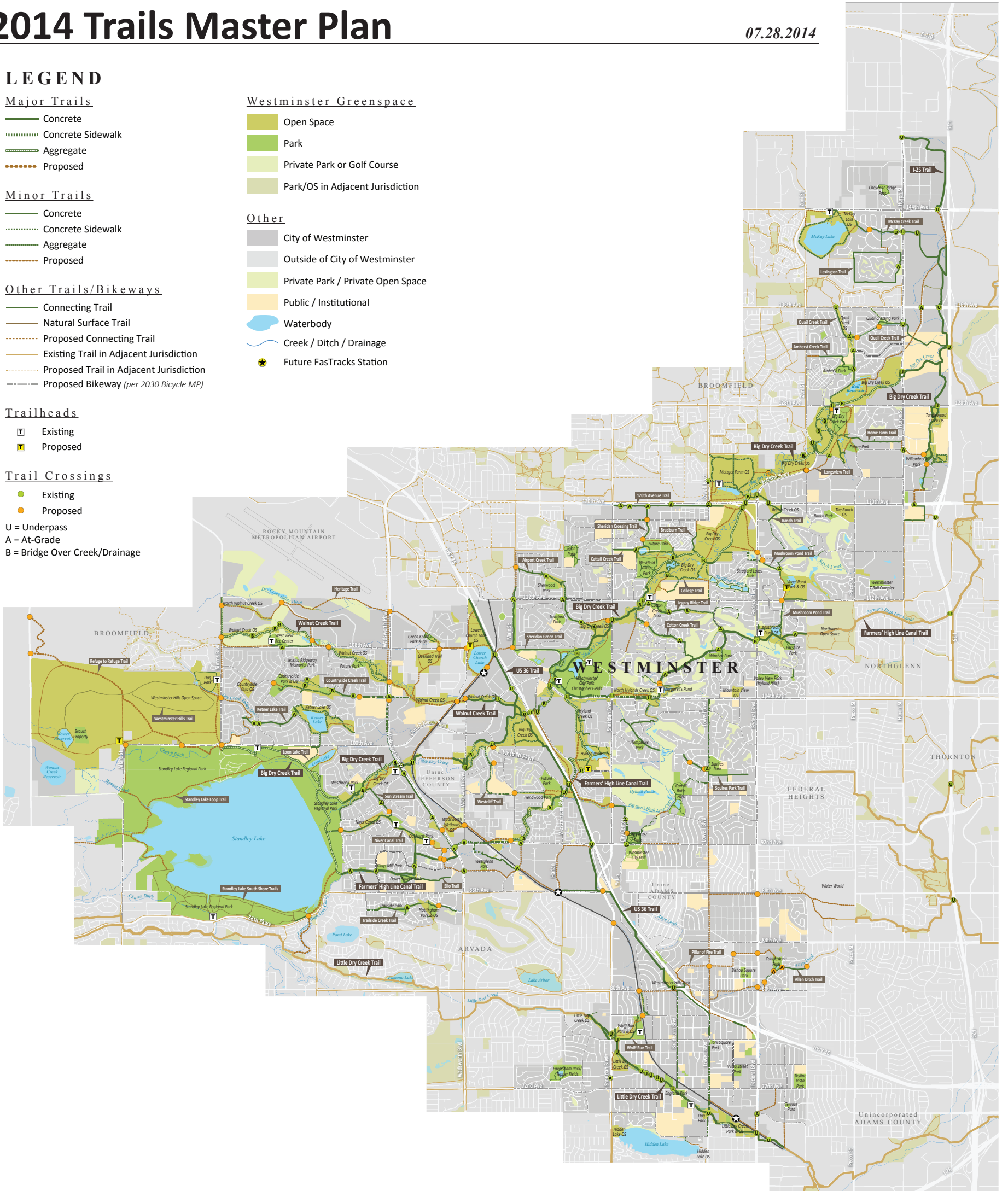
U = Underpass  
A = At-Grade  
B = Bridge Over Creek/Drainage

### Westminster Greenspace

- Open Space
- Park
- Private Park or Golf Course
- Park/OS in Adjacent Jurisdiction

### Other

- City of Westminster
- Outside of City of Westminster
- Private Park / Private Open Space
- Public / Institutional
- Waterbody
- Creek / Ditch / Drainage
- Future FasTracks Station





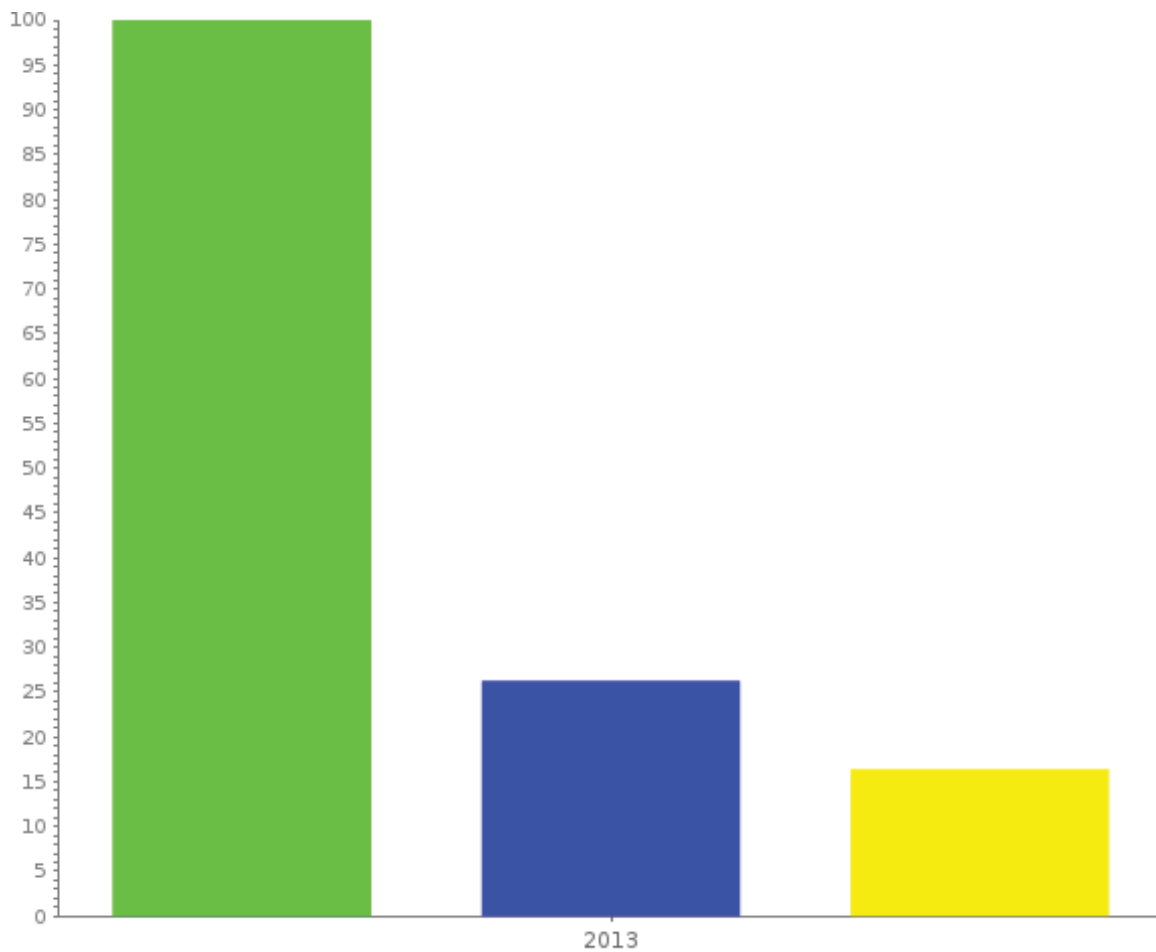
# Resources: 2013 Trail Use Data Report

## Yearly\* totals report

Covering 1 year from 2013-01-01 to 2013-12-31

Report generated on 2014-06-13 14:34:23 (UTC -06:00) by rlarsen@cityofwestminster.us

[TRAFx DataNet \(http://www.trafx.net/\)](http://www.trafx.net/)



| Site Name              | Average   |
|------------------------|-----------|
| BDC Trail              | 144,954.0 |
| FHC Trail              | 40,385.5  |
| Little Dry Creek Trail | 24,300.4  |

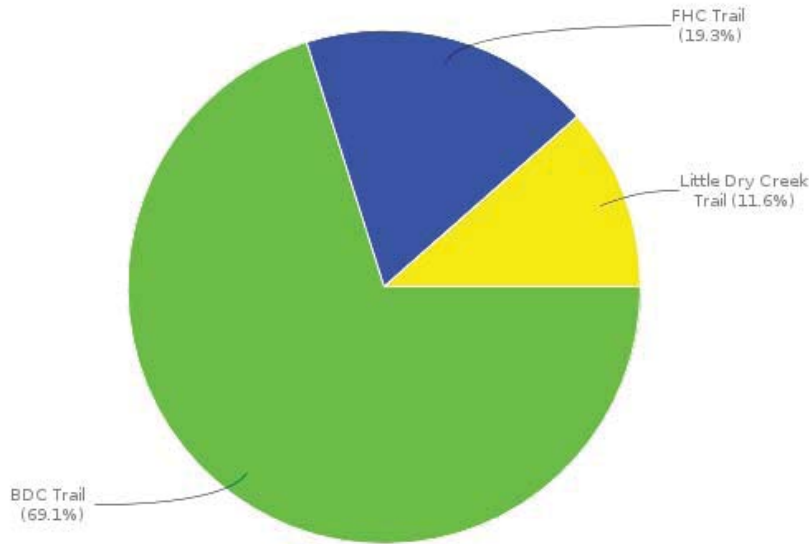
\* Based on Average Daily Traffic (ADT)

## Compare sites

Data from 2013-01-01 to 2013-12-31

Report generated on 2014-06-13 14:33:25 (UTC -06:00) by rlarsen@cityofwestminster.us

[TRAFx DataNet \(http://www.trafx.net/\)](http://www.trafx.net/)



| Site Name              | Daily Average |
|------------------------|---------------|
| BDC Trail              | 396.9 (69.1%) |
| FHC Trail              | 110.6 (19.3%) |
| Little Dry Creek Trail | 66.5 (11.6%)  |



## Resources: Trails Master Plan

---

The Westminster 2014 Trails Master Plan examines current and future needs for off-street trails within the City of Westminster. The plan builds off of existing Major Trail corridors along the Big Dry Creek, Farmers' High Line Canal, Little Dry Creek and Walnut Creek while incorporating future connections as they tie into the 2030 Bicycle Master Plan.

### **Existing Westminster Trails Planning and Mapping - Resources used in the planning process**

This 2014 Westminster Trails Master Plan is supported by many plans, maps and existing digital data, documents, and programs already in place that guide the City's trails planning efforts.

- » **The 2001 Master Plan Map Diagram**  
This map illustrates the City's existing and proposed trails, including existing and proposed sidewalks, existing and proposed trailheads, and existing and proposed grade separated crossings. The map also calls out regional trail connections to adjacent municipalities.
- » **The 2013 Comprehensive Land Use Plan Update**  
Chapter 7.0 – Parks, Recreation, Libraries and Open Space, Sections 7.3- and 7.4, highlights goals and policies as they pertain to trails planning, these include:

#### **GOALS:**

- PRLO-G-4 Provide easy and safe access to the City's Open Space and Trail network.
- PRLO-G-5 Ensure the city's open space and trails network is well-maintained and continues to preserve sensitive habitats and environments.

#### **POLICIES:**

- PRLO-P-3 Continue to identify and evaluate opportunities for property acquisitions that enhance access to the city's trail corridors and public parks.
- PRLO-P-4 Ensure that all new residential development continues to contribute to the provision and maintenance of adequate parks, recreation facilities and open space to meet the needs of its new residents.
- PRLO-P-18 Update and utilize the Trails Master Plan to develop connections between open space areas.
- PRLO-P-19 Work with proposed development projects to provide new linkages to existing trails and create new trails where feasible.
- PRLO-P-15 Work with the Adams County Open Space Program, the City and County of Broomfield Open Space and Trails Program, Jefferson County Open Space Program and Great Outdoors Colorado Trust Fund as partners in open space programs.

The Comprehensive Land Use Plan includes a map – Figure 7-1. Parks, Libraries, Recreation & Open Space – that identifies existing and proposed trails along the main trail corridors of Big Dry Creek, the Farmers' High Line Canal, Little Dry Creek, and Walnut Creek, providing a basis for trail connection in both open space and new development in the city.

**Existing Westminster Trails Planning and Mapping - Resources used in the planning process (continued)**

» **The 2010-2014 Parks and Recreation Master Plan**

While primarily a master plan for Parks and Recreation, Open Space and Trails are inventoried and included in the Open Space section of the document. While the trails map that is included in this section shows existing conditions, it also identifies proposed trail connections. The plan states that the City's "Trails Master Plan" – this 2014 plan – will be inserted as a section of this document.

A Citizens Comment section is included in the Parks & Recreation Master Plan. Two public meetings were held, comment cards were available at all recreation facilities and City Hall, and an e-comment card was available on the city's web site. Comment relating to Open Space and Trails were as follows:

**OPEN SPACE COMMENTS:**

- Concerned about open space at 100th on the west side of Sheridan. Debris from the abandoned McStain project is dangerous and an eyesore.
- Continue to reclaim and re-vegetate open space land through prairie dog management.
- Better weed control in open spaces.

**TRAILS COMMENTS:**

- I enjoy the extensive trail system. Suggest that you have done too well in paving paths. A softer walking surface would be much appreciated.
- 26 Residents of Green Knolls would like trail connections and sidewalks to enable them to safely walk or ride bikes to other trails, along Old Wadsworth and to Walnut Creek Shopping Center. (26 residents)
- Install bicycle path connecting Standley Lake to Federal Heights-allow bicycle traffic along the Farmers High Line Canal through the Hyland Hills Golf Course. This would allow bicycle traffic from the Standley lake area to connect to the Niver Creek path via 96th Avenue and eventually to the Platte River bike path, without using 92nd Avenue or 104th Avenue.
- Complete a continuous bike trail around Standley Lake. (3 residents)
- Build a safe trail connection between Westminster Hills Open Space and Standley Lake. Need a safe bike entrance to Standley Lake. There are no trails or sidewalks at the entrance at 100th and Simms. (2 Residents)
- Need more safe bike paths and trail connections in City Center area.
- Sanolets along trails and open space all year.
- No more concrete trails.
- Complete Walnut Creek Trail from Simms to Walnut Creek shopping area.
- There are no trails, parks or open space near me near 86th Ave & Federal Boulevard.
- Work with other municipalities to link trail systems both existing or planned (i.e., Broomfield, Rocky Flats).
- Build trail access to the Mower Reservoir through the forestry operations connecting to the Standley Lake trail system.
- Install access to mower reservoir from the west on Indiana Street via trailhead/parking.
- I would also like to see the "proposed" section of greenbelt that would connect Countryside neighborhood
- (108th/Wads) to the Dry Creek Open Space completed.

» **The 2030 Bicycle Master Plan**

This plan, adopted by City Council in June 2011, identifies many off-street shared paths (or trails) as part of the proposed final bikeway network to facilitate recreational and commuter bicycle needs. The plan recommends that Westminster build all new identified bikeway trail segments with concrete and retrofit all existing gravel segments with concrete for use by commuter cyclists. The plan makes recommendations for design and safety as well as recommendations for wayfinding and connection into the on-street bikeway system. This Trails Master





Plan update coordinates proposed improvement priorities (short/medium/long term) with improvement priorities identified in the bike plan ensuring connections are met.

» **Westminster Trails: A User's Guide**

The trail user guide map's latest publication is dated August 2009 and will be updated in 2014.. This map highlights the city's trail system illustrating major and Minor Trail connections as well as materials – concrete, gravel or natural – and proposed connections on the map. This map was used on trail signage in various locations on Major Trails. The four Major Trails include:

- Big Dry Creek Trail
- Farmers' High Line Canal Trail
- Little Dry Creek Trail
- Walnut Creek Trail

» **Westminster Strategic Plan**

(TEXT STRAIGHT FROM OSSP) The City's Strategic Plan, reviewed and adopted annually by Westminster City Council, has identified the goal of 15% of the City's total land area preserved as City Open Space to preserve view corridors, provide buffers between developments, protect habitat, protect creek and irrigation canal corridors, preserve open rural landscapes, and enhance recreational opportunities for residents through a series of interconnected trails. Pursuit of property for acquisition is ultimately determined by Westminster City Council under guidance from the Open Space Advisory Board and City staff.

» **Westminster Comprehensive Land Use Plan**

(TEXT STRAIGHT FROM OSSP) The Westminster Comprehensive Land Use Plan (CLUP) governs future land development and redevelopment in the City. Two Goals and Policies within the CLUP relevant to this Plan are:

- "Preserve the unique visual character of Westminster" (Goal H2) through identification, acquisition, and/or strategic protection of view corridors and environmentally sensitive areas throughout the City (Policy H2a).
- "Enhance the City's open space system to preserve and protect natural areas, vistas and view corridors, and to complete the open space and trail system" (Goal H4). Policies H4a and H4b suggest using "acquisition of open space as a tool to channel growth into appropriate locations and to shape the overall design of the community" and suggest continuing "to develop Big Dry Creek and tributary streams as the "spine" of a comprehensive network of trails linking

» **Existing GIS Data**

The City of Westminster updates the City's parks, open space and trails information on a regular basis. Data from outside sources were used to show parks, open space and trails information in adjacent jurisdictions to illustrate connections. All of this data was used for mapping in this master plan process.

**Complete list of plans reviewed for this planning effort:**

- *City of Westminster Zoning Code and Land Use Map*
- *City of Westminster Guidelines for Traditional Mixed Use Neighborhood Developments*
- *City of Westminster Strategic Plan (2009-2014 -2023)*
- *City of Westminster Trails Plan Map*
- *City of Westminster Existing Trail System Map*
- *City of Westminster 2030 Bicycle Master Plan*
- *City of Westminster Metzger Farm Open Space Master Plan (2010)*
- *City of Westminster Wildlife and Natural Resource Management Plan for Open Space Properties (2010)*
- *City of Westminster Storm Drainage Study (2007)*
- *City of Westminster Open Space & Resource Stewardship Plan (Draft-2012)*
- *City of Westminster Comprehensive Land Use Plan (2013)*
- *City of Westminster Development Code – Chapter 5 Open Space Program (2009)*
- *City of Westminster Grant Applications for Regional trail Wayfinding Project (2011)*
- *City of Westminster Grant Applications for Semper Farm – Colorado State Historical Fund (2013)*
- *America’s Great Outdoors (AGO): Feasibility Study for Connecting Urban Refuges to the Rocky Mountain Greenway Trail Network (2013)*
- *US 36 Corridor Bike Links Map*
- *City of Thornton Parks & Open Space Master Plan (2012)*
- *Arvada Parks, Trails, and Open Space Master Plan (2001)*
- *City/County of Broomfield Open Space, Parks, Recreation and Trails Master Plan (2005)*
- *City/County of Broomfield Existing and Planned Trail Surfaces (2012)*
- *City of Northglenn Open Space Management Plan (2010)*
- *City of Northglenn Parks & Greenway Trail System (2008)*
- *Adams County Parks, Trails, and Open Space Map*
- *Adams County Open Space and Trails Master Plan (2012)*
- *Jefferson County Open Space Master Plan (2013)*
- *DRCOG’s 2010 Guidelines for Successful Pedestrian and Bicycle Facilities in the Denver Region (2010)*



# Trails Wayfinding Strategy

This section of the 2014 Open Space Stewardship Plan defines a trails wayfinding strategy and program within the City of Westminster’s Open Space System. The *Trails Wayfinding Strategy* examines the existing wayfinding system, establishes goals and objectives for trails wayfinding, coordinates with the 2030 Bicycle Master Plan, proposes a conceptual signage hierarchy, maps the location for each sign type along each Major Trail corridor, and provides a plan for implementation.

## Existing Conditions and Analysis

The existing Westminster Trail System is comprised of four Major Trail corridors, or regional trails - Big Dry Creek, Farmers’ High Line Canal/Niver Canal, Little Dry Creek, and Walnut Creek-linked by Minor Trails through neighborhoods. Existing trails are constructed of concrete or aggregate (crusher fines) and range from 10’ wide multi-use trails that traverse open space to 4’ sidewalks that meander through neighborhoods, as well as 10’ wide sidewalks adjacent to arterial streets.

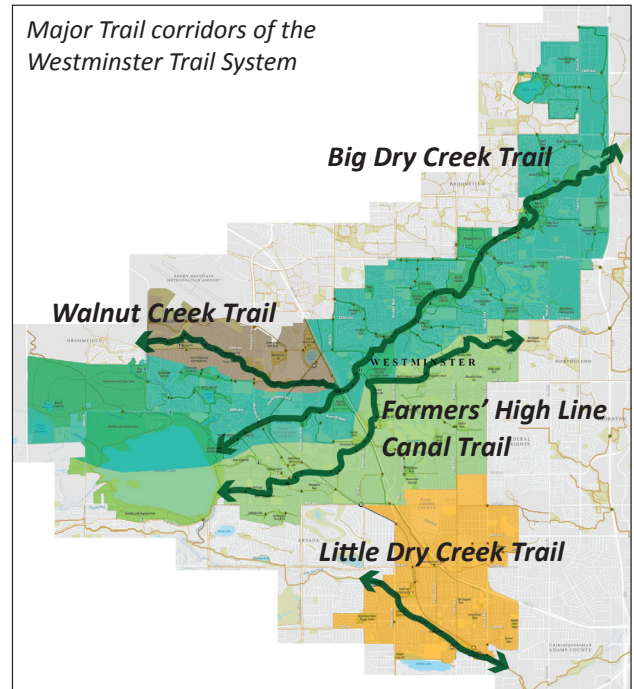
The Westminster Trail System is challenging to navigate because of three factors:

- » Signage is sparse and inadequate
- » Inconsistency of trail surface material (concrete or aggregate) and/or trail type (off-street trail, detached sidewalk, or attached sidewalk) along a trail corridor
- » Existing wayfinding signage is inconsistent in design contributing to a lack of Open Space/Trail system identity.

Existing signage for the Big Dry Creek Trail establishes an identity for adjacent open space; however, the signs are difficult to view from a distance or at higher speeds by cyclists (per the 2030 Bicycle Master Plan) and the directional arrows are unclear (#1 left). The Mushroom Pond Trailhead style sign (#2 left) is clear and informative and is in the same color and style as the Open Space signage throughout the city. The older, blue trail signs (#3 left) are easy to spot, but lack the “open space” character.

Kiosks along the Big Dry Creek Trail are used for wayfinding purposes and provide maps that illustrate the trail system and regulatory information. Twelve kiosks were recently designed and constructed, and will be installed per the wayfinding strategy. (#4 left)

The City of Westminster is currently undergoing a citywide branding and marketing effort. The signage palette for the Open Space and Trail System should be fully integrated into this effort.



## Wayfinding Strategy: Goals and Objectives

The following are goals and objectives for a comprehensive Westminster Open Space/Trails wayfinding strategy:

### **Goals:**

1. Develop a trail signage strategy that reinforces the strengths of the Open Space/Trail System.
2. Create a clear, navigatable system.
3. Reinforce the Open Space System unity and community identity.
4. Provide prioritization strategy for phased implementation.

### **Objectives:**

- » Promote Westminster's Open Space and Trails System as a friendly, well-planned, organized and safe environment that offers links to both major (regional) and minor (neighborhood or local) trails.
- » Allow for the integration of a variety of wayfinding tools, including electronic/GPS tools.
- » Improve pedestrian safety and accessibility.
- » Develop a trail signage hierarchy consistent with the Westminster Trail System's Major and Minor Trail design standards hierarchy.
- » Create a wayfinding signage palette that supports and is consistent with other, larger branding and marketing efforts throughout the City, but that also retains unique identifying symbols, colors and fonts that will be readily recognizable and associated with the City's open Space System.
- » Coordinate with 2030 Bicycle Master Plan.
- » Coordinate with ongoing Open Space kiosk design and installation.



## Coordination With Existing Plans

### **2030 Bicycle Master Plan**

The 2030 Bicycle Master Plan includes a summary of bicycling wayfinding, types and best practices for Shared Use Paths including Shared Use Path Markers, Directional Signing, and Distance Signing. The report includes an evaluation of Westminster's existing system and identifies the following issues:

- » Comparatively sparse and incomplete wayfinding system
- » Two existing sign types - the older signs are more effective in terms of color and scale
- » Instances of on-street/off-street intersections that lack signage

The following Wayfinding and Signing Recommendations and Action Items relating to off-street trails are also included in the plan:

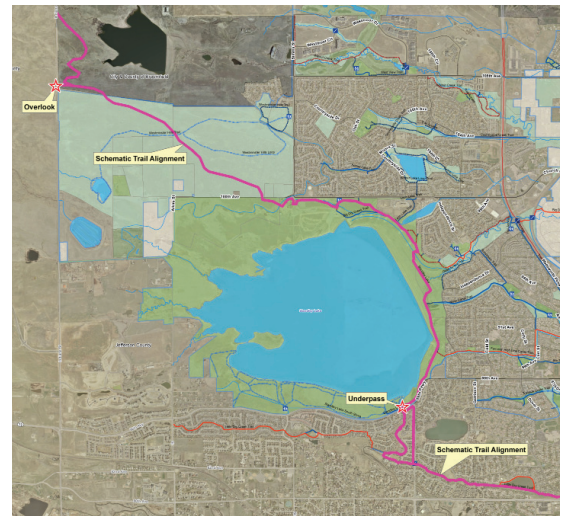
- » Action #3- Install bicycle appropriate regulatory, guide and warning signs wherever new bikeway facilities are implemented.
- » Action #4- Design path entrance markers to reflect and complement on-street bicycle wayfinding signs.
- » Action #5- Install trail markers at the entrance of every off-street trail. The city should survey and identify every path entrance that adjoins a roadway. A phasing plan should then identify potential funding sources to implement the path markers.
- » Action #6- Install directional signs at every key decision making point within the off-street network. The city should survey the path network to determine the key decision-making points and install directional signs that indicate the destination served by intersecting paths and their spurs. The city should coordinate with the parks department to install directional signage where a path connects to a roadway or abutting sidewalk.
- » Action #7- Redesign existing off-street directional and distance signs to ensure legibility at typical bicycling speeds.
- » Action #8- Remove confusing signs on designated paths that forbid bicycle use

### **Refuge to Refuge Trail**

In September 2013, the America's Great Outdoors (AGO) completed the Feasibility Study for Connecting Urban Refuges to the Rocky Mountain Greenway Trail Network. The Rocky Mountain Greenway Project, formalized in March 2012, is a federal/state/local partnership to create a continuous trail connection between Rocky Mountain National Park and the Rocky Mountain Arsenal. The Refuge to Refuge Trail Project is a key component of the larger Rocky Mountain Greenway Project and is a result of the AGO initiative – an effort by the federal government to partner with states and local communities to protect and encourage recreation and conservation activities across the country.

Wayfinding for the Refuge to Refuge Trail will be considered during the design phase of the Refuge to Refuge Trail project. Section 3.4.2 Wayfinding of the Feasibility Report (America's Great Outdoors: Feasibility Study for Connecting Urban Refuges to the Rocky Mountain Greenway Trail Network ) addresses wayfinding for the Refuge to Refuge Trail as follows:

*To brand the Refuge to Refuge Trail and alert users to trail connections, wayfinding should be consistent throughout the trail. A successful wayfinding program should involve a range of treatments including benches, lighting, signing, similar plantings, and so forth. If the Steering Committee develops a logo for the Rocky Mountain Greenway, it could be included on signage for this segment of trail.*



### **US 36 Bikeway**

As part of the long range plan for transportation improvements to the US 36 corridor, an 18-mile commuter bikeway is included in the package of commuting choices. The bikeway will be completed by late 2015.

The US 36 Bikeway will have consistent and unique signage throughout the US 36 corridor through Boulder, Superior, Louisville, Broomfield, and Westminster. The signage has been conceptually designed under the direction / leadership of CDOT & US 36 Commuting Solutions with plenty of input from the municipalities.

Base package signage included with the trail construction package include MUTCD regulatory and warning signs (such as “yield”) and MUTCD Traveler Information Signage. Traveler Info signs include the US 36 Bikeway logo, trail name, directional arrows identifying the route for US 36 Bikeway at major junctions / decision points, and directional arrows toward Denver or Boulder (east or west travel).

Additional signs still in the negotiation phase between CDOT and municipalities include:

- » Mile Marker / emergency locator signage on brown flexible delineators (like the Forest Service uses) with reflective stickers, at a ¼-mile spacing along the entire bikeway. This is under negotiation at the moment but highly likely to be installed just prior to trail opening.
- » Demarcation of intersecting trails by name.
- » Demarcation of distance between major destinations
- » Possible map signs
- » Distances to local non-US 36 Bikeway destinations



## Potential Tools for Wayfinding

### Smartphone Technology

Most trail users today rely on cell phones/smart phones to supplement printed maps. Trail signs should include a QR code (matrix patterns that can be read by smartphone cameras) that immediately directs the phone user to a web page that supplies additional information about the trail, destinations along the trail and nearby public amenities and businesses. Designated City staff would be required to maintain the website information. Network storage capabilities would also be a factor.

QR codes are easy to generate, scan and can be easily applied to existing signage as well as be incorporated into a new signage template. Locations for QR codes would be at trailheads and Major Trail junctions.

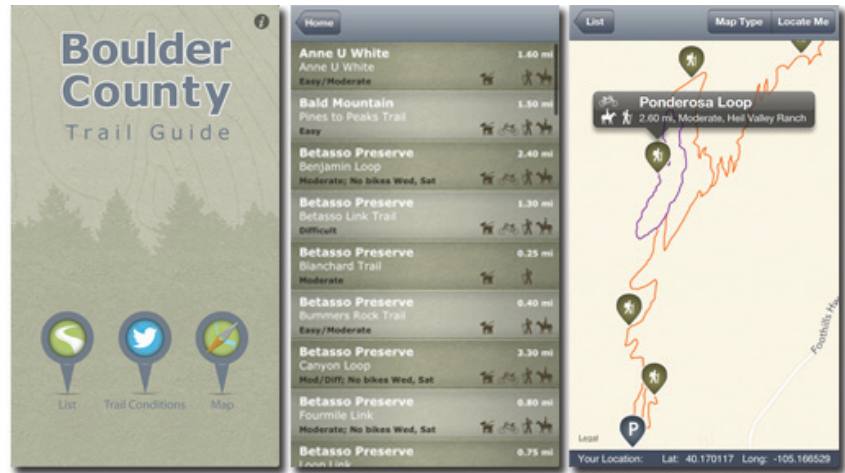
### Trail System Apps

Some communities have built apps to help smartphone users navigate their trail systems. The following are examples of successful apps that have been created to help enhance city wayfinding and community identity:

» **Boulder County Trail Guide App – Boulder, CO**

It is the official GPS trails map for Boulder County Parks and Open Space. Features trail length, difficulty, parking locations, allowed uses (dogs, equestrian), a “locate me” option, trail conditions, and satellite map.

*Boulder County Trail Guide App*  
<http://www.bouldercounty.org/pages/mobile.aspx>



» **RGreenway App - Raleigh, NC -**  
<http://rgreenway.com/>

This app, a CityCamp 2012 winner, is an interactive map of greenway trails with additional features such as weather reports, submitting issues via SeeClickFix, and the ability to track time and distance travelled.

The application is not a product of the City of Raleigh. It was created by the RGreenway team and was built using open data available through the official Raleigh Geoportal. The free application is available for mobile devices running the Android and iOS operating systems.



Home About Us Download Greenway Resources Help



The RGreenway application, designed for smartphones, functions as a guide to the Raleigh Greenway systems. Long-term, the application is designed to make the 3800 acre 115 mile Raleigh Greenway system an integrated park. No other City or community of cities has invested as much as Raleigh and the Triangle in a system like ours. Few have committed themselves to the principle of open data like Raleigh has. Together this presents an opportunity to create America's Smartest Park.

Available on the **App Store** ANDROID APP ON **Google play**



**Discover Greenways**

Information is provided for each greenway including detailed description, mileage, paved/unpaved and additional resources. Find the closest parking for each of the greenways.

**Interact**

Check in on the greenways using Foursquare. Easily report issues on the greenway such as graffiti and needed trail maintenance using SeeClickFix.

**Enhance Your Experience**

Workout mode allows you to keep track of the time and distance spent running on the greenways. The app will speak the distance and time of your workout every mile. See current weather conditions in your area.

## Proposed Signage Types, Palette and Locations

### **Signage Types**

A family of six (6) wayfinding signage types, as well as a mile marker type, is proposed in this wayfinding strategy. The *Proposed Signage Types/Guidelines Matrix* on the following page describes each signage type and graphically illustrates the information to be included on each sign type as well as providing typical locations for each type of sign.

### **Signage Palette**

Signage should reflect be compatible with design standards for both bikeways and parks. The sign graphics included in the *Proposed Signage Type/Guidelines Matrix* on the following page is intended to be used *only as an example* as to what type of information should be included on each sign and suggest a typical scale. Sign design and character will be determined at a later date and will coordinate with current City branding/marketing efforts.

### **Typical Sign Locations**

Finding a balance between adequate wayfinding signage and visually intrusive elements is an important factor in determining where to locate signage throughout the city. The *Wayfinding Strategy Map* (Page 9) identifies proposed locations for each of the six (6) sign types.





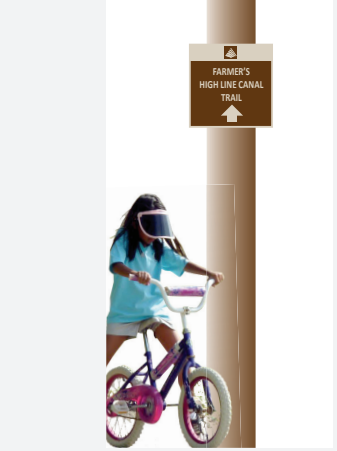
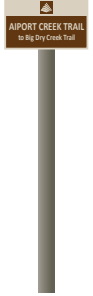
The 2030 Bicycle Master Plan has identified future bikeway corridors. Off-street trail signage must be in place as on-street bikeway corridors are implemented.

***NOTE: Signage Schematic Design will be coordinated with current Westminster branding efforts.***

*The City is currently undergoing a new city branding/marketing effort within the Parks, Recreation and Libraries Department. New sign design character for trails and open space will be coordinating with these efforts, as well as other redevelopment and planning efforts (Westminster Center).*



**Signage Types/Guidelines Matrix**

| <i>Sign Type</i>                                | <b>Kiosk</b>  | <b>Trail ID/Map</b>   | <b>Trail ID/Direction</b>   | <b>Trail D (Major)</b>   | <b>Confidence Marker</b>   | <b>Trail ID (Minor)</b>   |
|---|---|---|---|--|--|---|
| <i>Sign Code</i>                                | <b>1</b>  | <b>2</b>  | <b>3</b>  | <b>4</b>   | <b>5</b>   | <b>6</b>  |
| <i>Typical Example</i>                          |    |   |    |   |   |    |
| <i>Description and Typical Sign Information</i> | <ul style="list-style-type: none"> <li>• More Structural (12 kiosks were recently designed and built)</li> <li>• Identifies Major Trail/Trailhead/Open Space</li> <li>• Identifies trail users</li> <li>• Provides orientation through maps of the entire Westminster trail system</li> <li>• Provides a place to post community information and regulatory signs</li> <li>• Provides QR code, or other information for using smart-phone technology</li> <li>• Includes City logo</li> </ul> | <ul style="list-style-type: none"> <li>• Identifies Major Trail</li> <li>• Provides orientation map that identifies adjacent trail connections and loops; nearby parks/os, landmarks and points of interest; trail surface; mileage</li> <li>• Provides directional information at trail junction using arrows and/or mileage as needed</li> <li>• Identifies trail users</li> <li>• Provides QR code, or other information for using smart-phone technology</li> <li>• Includes City logo</li> </ul> | <ul style="list-style-type: none"> <li>• Identifies Major Trail</li> <li>• Provides directional information at trail junction using arrows and/or mileage as needed</li> <li>• Identifies trail users</li> <li>• Provides QR code, or other information for using smart-phone technology</li> <li>• Includes City logo</li> </ul> | <ul style="list-style-type: none"> <li>• Identifies Major Trail when directional signage is not needed</li> <li>• Identifies trail users</li> <li>• Provides QR code, or other information for using smart-phone technology</li> <li>• Includes City logo</li> </ul> | <ul style="list-style-type: none"> <li>• Identifies a Major Trail along sidewalk sections of a Major Trail route (ensures trail user that they are going the right way)</li> <li>• Includes directional arrow</li> <li>• Includes City logo</li> </ul> | <ul style="list-style-type: none"> <li>• Identifies a Minor Trail that connects into a Major Trail or larger neighborhood park/os</li> <li>• May include directional arrow</li> <li>• Includes City logo</li> </ul> |
| <i>Typical Location</i>                         | <ul style="list-style-type: none"> <li>• Trailhead Parking area adjacent to trail</li> <li>• Major park/Major Trail interface (i.e. Little Dry Creek Park &amp; OS)</li> </ul>  | <ul style="list-style-type: none"> <li>• Located at Major Trail entry points from arterial streets</li> <li>• Bikeway/Major Trail junctions</li> </ul>  | <ul style="list-style-type: none"> <li>• Located at junctions along Major Trails</li> </ul>   | <ul style="list-style-type: none"> <li>• Located along Major Trails when entering a major open space/park/City boundary but no junction</li> </ul>   | <ul style="list-style-type: none"> <li>• Locations along a trail where there might be confusing (i.e. when an major/minor trail sections becomes a sidewalk or changes surfaces)</li> </ul>  | <ul style="list-style-type: none"> <li>• Along a minor trail that ensures connection to a major trail or larger park/os</li> </ul>  |
| <i>Design/Specifications</i>                    | <ul style="list-style-type: none"> <li>• Forthcoming / Coord w/ Marketing</li> </ul>  | <ul style="list-style-type: none"> <li>• Forthcoming / Coord w/ Marketing</li> </ul>  | <ul style="list-style-type: none"> <li>• Forthcoming / Coord w/ Marketing</li> </ul>  | <ul style="list-style-type: none"> <li>• Forthcoming / Coord w/ Marketing</li> </ul>   | <ul style="list-style-type: none"> <li>• Forthcoming / Coord w/ Marketing</li> </ul>   | <ul style="list-style-type: none"> <li>• Forthcoming / Coord w/ Marketing</li> </ul>  |



## Wayfinding and Signing Recommendations

- » The wayfinding program for all Major Trail corridors (Big Dry Creek, Farmers' High Line Canal, Walnut Creek, and Little Dry Creek Trails) should be consistent with a clear signage palette of minimal sign types and a wayfinding program that creates a system unity and reinforces community identity.
- » Installation of trail signage along off-street bikeway should be coordinated with the Bikeway Plan implementation schedule.
- » Provide symbols for permitted uses on all Major Trails – bicycle, pedestrian, dog on-leash, etc.
- » Develop an strategy for using smartphone technology to reinforce wayfinding. (This should be coordinated with the current City branding/marketing effort)
  - Provide a QR code (matrix patterns that can be read by smartphone cameras), or other information for use with smartphone technology.
  - Develop a website page or app that helps trail users navigate the City for use with smartphone technology.
- » Surface material for Major Trails should be consistent within the Park or Open Space to strengthen wayfinding.
- » Use proposed sign types at locations identified in the *Proposed Signage Type/Guidelines Matrix*.
- » Use Sign Type #5 Confidence Markers along trail “routes” on existing rights-of-way, i.e. Lowell Blvd Trail, Pillar of Fire Trail, and Bradburn Trail routes.

## Implementation

As soon as the current City branding/marketing effort is completed, and a graphic identity has been established for the City's Open Space/Trails System, implementing the proposed wayfinding strategy should be a priority starting with all Major Trail corridors and trail “routes” to the future Westminster FasTracks Station.

The following pages identify estimated costs for implementing the Wayfinding Strategy for each planning corridor.



# Wayfinding Strategy Map

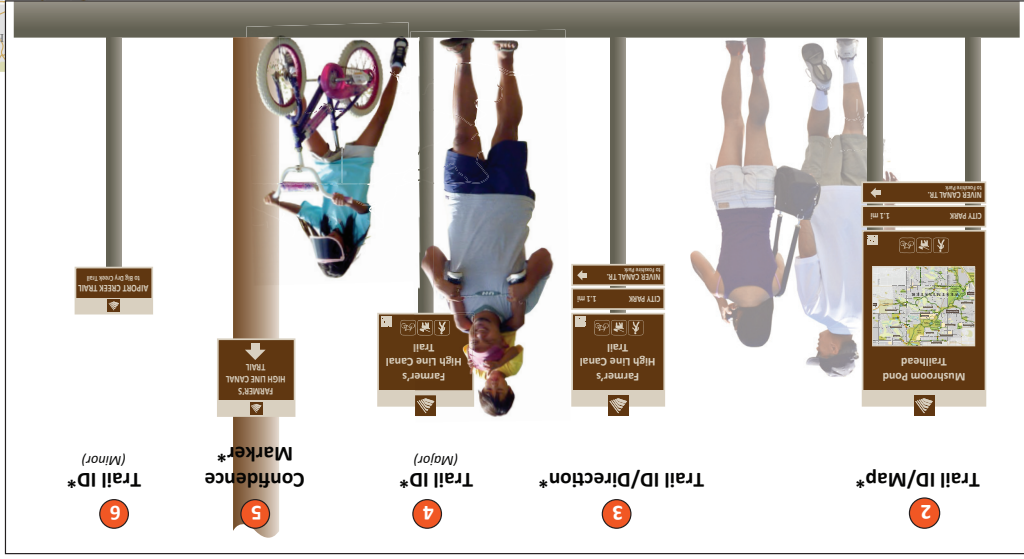
07.28.2014

Large scale fold-out version of this map is included in the pocket at the end of this section.

## Sign Types

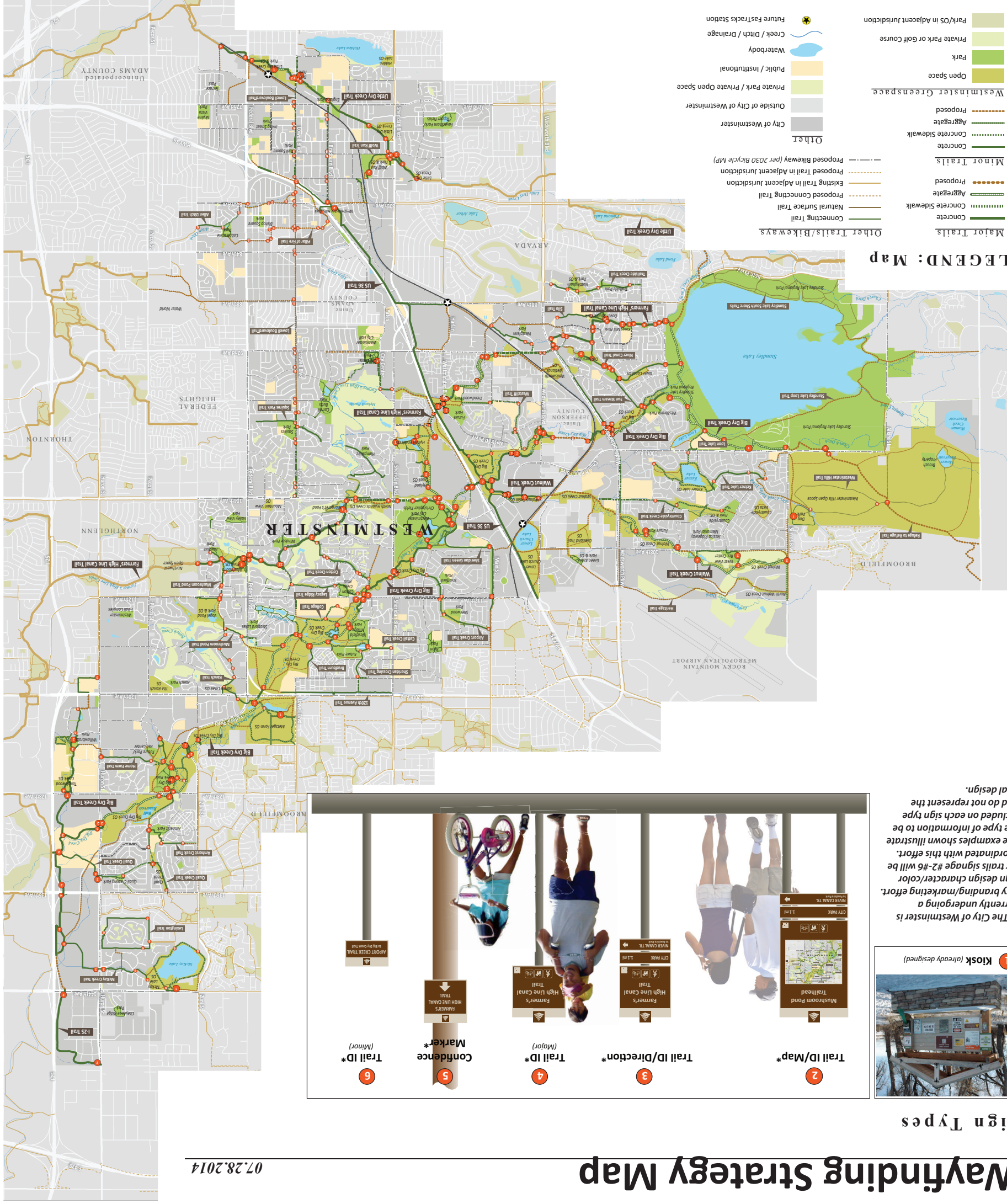
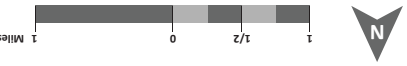


\* The City of Westminster is currently undergoing a sign design character/color coordinated with this effort. The examples shown illustrate the type of information to be included on each sign type and do not represent the final design.



## LEGEND: Map

- Major Trails**
  - Concrete
  - Concrete Sidewalk
  - Aggregate
  - Proposed
- Minor Trails**
  - Concrete
  - Concrete Sidewalk
  - Aggregate
  - Proposed
- Other Trails/Bike ways**
  - Connecting Trail
  - Natural Surface Trail
  - Proposed Connecting Trail
  - Existing Trail in Adjacent Jurisdiction
  - Proposed Bikeway (per 2030 Bicycle MP)
- Westminster Greenspace**
  - Open Space
  - Park
  - Park or Golf Course
  - Private Park or Golf Course
  - Westminster Greenspace
- Other**
  - City of Westminster
  - Outside of City of Westminster
  - Private Park / Private Open Space
  - Public / Institutional
  - Waterbody
  - Creek / Ditch / Drainage
  - Future FastTracks Station



Wayfinding Strategy: Estimated Costs by Signage Types

| Big Dry Creek Planning Corridor                                     |             |                         |           |            |                    |                      |
|---|-------------|-------------------------|-----------|------------|--------------------|----------------------|
| Trail Name  | Sign Type   | Sign Type Description   | Unit Cost | Qty        | Cost per Sign Type | Total Cost per Trail |
| Airport Creek Trail   | 6           | Trail ID (Minor)        | \$ 295    | 5          | \$ 1,475           | \$ 1,475             |
| Amherst Creek Trail   | 6           | Trail ID (Minor)        | \$ 295    | 1          | \$ 295             | \$ 295               |
| Arapahoe Ridge Trail  | 3           | Trail ID + Direction    | \$ 505    | 1          | \$ 505             | \$ 505               |
|   | 6           | Trail ID (Minor)        | \$ 295    | 2          | \$ 590             | \$ 590               |
| Big Dry Creek Trail (I-25 to 128th)                                 | 2           | Trail ID + Map          | \$ 750    | 4          | \$ 3,000           | \$ 4,335             |
|   | 3           | Trail ID + Direction    | \$ 505    | 2          | \$ 1,010           |                      |
|   | 4           | Trail ID                | \$ 325    | 1          | \$ 325             |                      |
| Big Dry Creek Trail (at Big Dry Creek Park)                         | 1           | Kiosk                   | \$ 1,500  | 1          | \$ 1,500           | \$ 6,685             |
|   | 2           | Trail ID + Map          | \$ 750    | 3          | \$ 2,250           |                      |
|   | 3           | Trail ID + Direction    | \$ 505    | 4          | \$ 2,020           |                      |
|   | 4           | Trail ID                | \$ 325    | 1          | \$ 325             |                      |
|   | 6           | Trail ID (Minor-Access) | \$ 295    | 2          | \$ 590             |                      |
| Big Dry Creek Trail (Federal Pkwy to 120th)                         | 1           | Kiosk                   | \$ 1,500  | 1          | \$ 1,500           | \$ 3,555             |
|   | 2           | Trail ID + Map          | \$ 750    | 1          | \$ 750             |                      |
|   | 3           | Trail ID + Direction    | \$ 505    | 2          | \$ 1,010           |                      |
|   | 6           | Trail ID (Minor-Access) | \$ 295    | 1          | \$ 295             |                      |
| Big Dry Creek Trail (120th to 112th)                                | 2           | Trail ID + Map          | \$ 750    | 4          | \$ 3,000           | \$ 7,040             |
|   | 3           | Trail ID + Direction    | \$ 505    | 8          | \$ 4,040           |                      |
| Big Dry Creek Trail (112th to Sheridan)                             | 2           | Trail ID + Map          | \$ 750    | 1          | \$ 750             | \$ 2,085             |
|   | 3           | Trail ID + Direction    | \$ 505    | 2          | \$ 1,010           |                      |
|   | 4           | Trail ID                | \$ 325    | 1          | \$ 325             |                      |
| Big Dry Creek Trail (Sheridan to US 36)                             | 2           | Trail ID + Map          | \$ 750    | 7          | \$ 5,250           | \$ 8,965             |
|   | 3           | Trail ID + Direction    | \$ 505    | 5          | \$ 2,525           |                      |
|   | 4           | Trail ID                | \$ 325    | 1          | \$ 325             |                      |
|   | 5           | Confidence Marker       | \$ 190    | 3          | \$ 570             |                      |
|   | 6           | Trail ID (Minor-Access) | \$ 295    | 1          | \$ 295             |                      |
| Big Dry Creek Trail (US 36 to Wadsworth Pkwy)                       | 2           | Trail ID + Map          | \$ 750    | 5          | \$ 3,750           | \$ 6,285             |
|   | 3           | Trail ID + Direction    | \$ 505    | 4          | \$ 2,020           |                      |
|   | 4           | Trail ID                | \$ 325    | 1          | \$ 325             |                      |
|   | 5           | Confidence Marker       | \$ 190    | 1          | \$ 190             |                      |
| Big Dry Creek Trail (Wadsworth Pkwy to Standley Lake)               | 2           | Trail ID + Map          | \$ 750    | 2          | \$ 1,500           | \$ 12,090            |
|   | 3           | Trail ID + Direction    | \$ 505    | 4          | \$ 2,020           |                      |
|   | 4           | Trail ID                | \$ 325    | 2          | \$ 650             |                      |
| Big Dry Creek Trail Mile Markers                                    | MM          | Mile Marker             | \$ 880    | 9          | \$ 7,920           |                      |
| Big Dry Creek Trail/Refuge-Refuge Trail                             | 1           | Kiosk                   | \$ 1,500  | 1          | \$ 1,500           | \$ 2,510             |
|   | 3           | Trail ID + Direction    | \$ 505    | 2          | \$ 1,010           |                      |
| Cattail Creek Trail   | 3           | Trail ID + Direction    | \$ 505    | 1          | \$ 505             | \$ 1,095             |
|   | 6           | Trail ID (Minor)        | \$ 295    | 2          | \$ 590             |                      |
| College Trail   | 6           | Trail ID (Minor)        | \$ 295    | 2          | \$ 590             | \$ 590               |
| Countryside Creek Trail   | 6           | Trail ID (Minor)        | \$ 295    | 3          | \$ 885             | \$ 885               |
| Home Farm Trail to Big Dry Creek Trail                              | 3           | Trail ID + Direction    | \$ 505    | 1          | \$ 505             | \$ 505               |
|   | 6           | Trail ID + Direction    | \$ 295    | 1          | \$ 295             | \$ 295               |
| I-25 Trail (North of 128th)   | 2           | Trail ID + Map          | \$ 750    | 4          | \$ 3,000           | \$ 3,000             |
|   | 3           | Trail ID                | \$ 505    | 2          | \$ 1,010           | \$ 1,010             |
|   | 4           | Trail ID                | \$ 325    | 1          | \$ 325             | \$ 325               |
| I-25 Trail at Tanglewood Creek                                      | 2           | Trail ID + Map          | \$ 750    | 1          | \$ 750             | \$ 750               |
|   | 3           | Trail ID + Direction    | \$ 505    | 1          | \$ 505             | \$ 505               |
|   | 4           | Trail ID                | \$ 325    | 1          | \$ 325             | \$ 325               |
|   | 6           | Trail ID (Minor)        | \$ 295    | 2          | \$ 590             | \$ 590               |
| I-25 Trail Access (at Huron St/S of 120th)                          | 3           | Trail ID + Map          | \$ 505    | 1          | \$ 505             | \$ 505               |
| Ketner Lake Trail   | 6           | Trail ID (Minor)        | \$ 295    | 5          | \$ 1,475           | \$ 1,475             |
| Legacy Ridge Trail  | 6           | Trail ID (Minor)        | \$ 295    | 3          | \$ 885             | \$ 885               |
| Lexington Loop Trail  | 6           | Trail ID (Minor)        | \$ 295    | 4          | \$ 1,180           | \$ 1,180             |
| McKay Creek Trail   | 3           | Trail ID + Direction    | \$ 505    | 2          | \$ 1,010           | \$ 1,010             |
|   | 6           | Trail ID (Minor)        | \$ 295    | 2          | \$ 590             | \$ 590               |
| McKay Lake Loop Trail   | 6           | Trail ID (Minor)        | \$ 295    | 3          | \$ 885             | \$ 885               |
| McKay Open Space  | 1           | Kiosk                   | \$ 1,500  | 1          | \$ 1,500           | \$ 1,500             |
| Mushroom Pond Trail   | 3           | Trail ID (Minor)        | \$ 505    | 1          | \$ 505             | \$ 505               |
|   | 6           | Trail ID (Minor)        | \$ 295    | 9          | \$ 2,655           | \$ 2,655             |
| Panorama Trail  | 6           | Trail ID (Minor)        | \$ 295    | 3          | \$ 885             | \$ 885               |
| Quail Creek Trail (136th to I-25/BDC Trail)                         | 2           | Trail ID + Map          | \$ 750    | 1          | \$ 750             | \$ 2,350             |
|   | 3           | Trail ID + Direction    | \$ 505    | 2          | \$ 1,010           |                      |
|   | 6           | Trail ID (Minor)        | \$ 295    | 2          | \$ 590             |                      |
| Ranch Creek Trail   | 5           | Confidence Marker       | \$ 190    | 5          | \$ 950             | \$ 950               |
|   | 6           | Trail ID (Minor)        | \$ 295    | 3          | \$ 885             | \$ 885               |
| Refuge-Refuge Trail (from BDC Trailhead at Standley Lake north)     | 2           | Trail ID + Map          | \$ 750    | 1          | \$ 750             | \$ 2,265             |
|   | 3           | Trail ID + Direction    | \$ 505    | 3          | \$ 1,515           |                      |
| Sheridan Crossing Trail   | 6           | Trail ID (Minor)        | \$ 295    | 2          | \$ 590             | \$ 590               |
| Sheridan Green Trail  | 3           | Trail ID + Direction    | \$ 505    | 2          | \$ 1,010           | \$ 1,010             |
| Westcliff Trail   | 6           | Trail ID (Minor)        | \$ 295    | 7          | \$ 2,065           | \$ 2,065             |
| Westminster Hills OS  | 1           | Kiosk                   | \$ 1,500  | 1          | \$ 1,500           | \$ 1,500             |
|   | 6           | Trail ID (Minor)        | \$ 295    | 7          | \$ 2,065           | \$ 2,065             |
| <b>Estimated Totals for Signing Big Dry Creek Planning Corridor</b> |             |                         |           | <b>188</b> |                    | <b>\$92,045.00</b>   |
| Summary by Sign Type for Big Dry Creek Planning Corridor            | Sign Type   | Sign Type Description   | Unit Cost | Qty        | Cost per Sign Type | Total Cost           |
|   | 1           | Kiosk                   | \$ 1,500  | 5          | \$ 7,500           | \$ 92,045            |
|   | 2           | Trail ID + Map          | \$ 750    | 34         | \$ 25,500          |                      |
|   | 3           | Trail ID + Direction    | \$ 505    | 50         | \$ 25,250          |                      |
|   | 4           | Trail ID                | \$ 325    | 9          | \$ 2,925           |                      |
|   | 5           | Confidence Marker       | \$ 190    | 9          | \$ 1,710           |                      |
|   | 6           | Trail ID (Minor)        | \$ 295    | 72         | \$ 21,240          |                      |
| MM  | Mile Marker | \$ 880                  | 9         | \$ 7,920   |                    |                      |
| <b>Estimated Totals for Signing Big Dry Creek Planning Corridor</b> |             |                         |           | <b>188</b> |                    | <b>\$92,045.00</b>   |



**Wayfinding Strategy: Estimated Costs by Signage Types (continued)**

| <b>Walnut Creek Planning Corridor</b>   |           |                       |           |            |                    |                      |
|---|-----------|-----------------------|-----------|------------|--------------------|----------------------|
| Trail Name  | Sign Type | Sign Type Description | Unit Cost | Qty        | Cost per Sign Type | Total Cost per Trail |
| Walnut Creek Trail  | 2         | Trail ID + Map        | \$ 750    | 7          | \$ 5,250           | \$ 8,280             |
|   | 3         | Trail ID + Direction  | \$ 505    | 6          | \$ 3,030           |                      |
| <b>Estimated Total Cost for Signing Walnut Creek Planning Corridor</b>                      |           |                       |           |            |                    | <b>\$8,280.00</b>    |
| <b>Farmers' High Line/Niver Canals Planning Corridor</b>                                    |           |                       |           |            |                    |                      |
| Trail Name  | Sign Type | Sign Type Description | Unit Cost | Qty        | Cost per Sign Type | Total Cost per Trail |
| City Centre Park Trail  | 2         | Trail ID + Map        | \$ 750    | 1          | \$ 750             | \$ 750               |
|   | 6         | Trail ID (Minor)      | \$ 295    | 2          | \$ 590             |                      |
| Cotton Creek Trail  | 6         | Trail ID (Minor)      | \$ 295    | 6          | \$ 1,770           | \$ 1,770             |
| Farmers' High Line Canal Trail<br>(Standley Lake to Wadsworth Pkwy)                         | 2         | Trail ID + Map        | \$ 750    | 3          | \$ 2,250           | \$ 8,385             |
|   | 3         | Trail ID + Direction  | \$ 505    | 7          | \$ 3,535           |                      |
|   | 4         | Trail ID              | \$ 325    | 8          | \$ 2,600           |                      |
| Farmers' High Line Canal Trail<br>(Wadsworth Pkwy to US 36)                                 | 2         | Trail ID + Map        | \$ 750    | 5          | \$ 3,750           | \$ 6,855             |
|   | 3         | Trail ID + Direction  | \$ 505    | 4          | \$ 2,020           |                      |
|   | 4         | Trail ID              | \$ 325    | 1          | \$ 325             |                      |
|   | 5         | Confidence Marker     | \$ 190    | 4          | \$ 760             |                      |
| Farmers' High Line Canal Trail<br>(US 36 to Sheridan/N of 104th -<br>Hyland Ponds Creek/OS) | 2         | Trail ID + Map        | \$ 750    | 6          | \$ 4,500           | \$ 7,550             |
|   | 3         | Trail ID + Direction  | \$ 505    | 4          | \$ 2,020           |                      |
|   | 4         | Trail ID              | \$ 325    | 2          | \$ 650             |                      |
|   | 5         | Confidence Marker     | \$ 190    | 2          | \$ 380             |                      |
| Farmers' High Line Canal Trail<br>(E of Sheridan/N of 104th -<br>to Federal)                | 1         | Kiosk                 | \$ 1,500  | 1          | \$ 1,500           | \$ 7,465             |
|   | 2         | Trail ID + Map        | \$ 750    | 3          | \$ 2,250           |                      |
|   | 3         | Trail ID + Direction  | \$ 505    | 5          | \$ 2,525           |                      |
|   | 4         | Trail ID              | \$ 325    | 1          | \$ 325             |                      |
|   | 5         | Confidence Marker     | \$ 190    | 3          | \$ 570             |                      |
|   | 6         | Trail ID (Minor)      | \$ 295    | 1          | \$ 295             |                      |
| Farmers' High Line Canal Trail<br>(E of Federal)  | 1         | Kiosk                 | \$ 1,500  | 1          | \$ 1,500           | \$ 3,405             |
|   | 2         | Trail ID + Map        | \$ 750    | 1          | \$ 750             |                      |
|   | 3         | Trail ID + Direction  | \$ 505    | 1          | \$ 505             |                      |
|   | 4         | Trail ID              | \$ 325    | 2          | \$ 650             |                      |
| Niver Canal Trail   | 2         | Trail ID + Map        | \$ 750    | 2          | \$ 1,500           | \$ 4,170             |
|   | 3         | Trail ID + Direction  | \$ 505    | 4          | \$ 2,020           |                      |
|   | 4         | Trail ID              | \$ 325    | 2          | \$ 650             |                      |
| Silo Trail  | 6         | Trail ID (Minor)      | \$ 295    | 2          | \$ 590             | \$ 590               |
| Squires Park Trail  | 6         | Trail ID (Minor)      | \$ 295    | 1          | \$ 295             | \$ 295               |
| Trailside Creek Trail   | 6         | Trail ID (Minor)      | \$ 295    | 5          | \$ 1,475           | \$ 1,475             |
| Westglenn Park Area Trail   | 6         | Trail ID (Minor)      | \$ 295    | 3          | \$ 885             | \$ 885               |
| <b>Estimated Total Cost for Signing Farmer's High Line Planning Corridor</b>                |           |                       |           | <b>93</b>  |                    | <b>\$44,185.00</b>   |
| Summary by Sign Type for Farmers'/Niver Planning Corridor                                   | Sign Type | Sign Type Description | Unit Cost | Qty        | Cost per Sign Type | Total Cost           |
|   | 1         | Kiosk                 | \$ 1,500  | 2          | \$ 3,000           | \$ 44,185            |
|   | 2         | Trail ID + Map        | \$ 750    | 21         | \$ 15,750          |                      |
|   | 3         | Trail ID + Direction  | \$ 505    | 25         | \$ 12,625          |                      |
|   | 4         | Trail ID              | \$ 325    | 16         | \$ 5,200           |                      |
|   | 5         | Confidence Marker     | \$ 190    | 9          | \$ 1,710           |                      |
|   | 6         | Trail ID (Minor)      | \$ 295    | 20         | \$ 5,900           |                      |
|   | MM        | Mile Marker           | \$ 880    | 0          | \$ -               |                      |
| <b>Estimated Totals for Signing Farmers'/Niver Planning Corridor</b>                        |           |                       |           | <b>93</b>  |                    | <b>\$ 44,185</b>     |
| <b>Little Dry Creek Planning Corridor</b>   |           |                       |           |            |                    |                      |
| Trail Name  | Sign Type | Sign Type Description | Unit Cost | Qty        | Cost per Sign Type | Total Cost per Trail |
| Allen Ditch Trail East (Route)  | 5         | Confidence Marker     | \$ 190    | 8          | \$ 1,520           | \$ 1,520             |
|   | 6         | Trail ID (Minor)      | \$ 295    | 1          | \$ 295             |                      |
| Bradburn Trail (Route)  | 3         | Trail ID + Direction  | \$ 505    | 1          | \$ 505             | \$ 505               |
|   | 5         | Confidence Marker     | \$ 190    | 6          | \$ 1,140           |                      |
| Little Dry Creek Trail  | 1         | Kiosk                 | \$ 1,500  | 2          | \$ 3,000           | \$ 11,700            |
|   | 2         | Trail ID + Map        | \$ 750    | 4          | \$ 3,000           |                      |
|   | 3         | Trail ID + Direction  | \$ 505    | 10         | \$ 5,050           |                      |
|   | 4         | Trail ID              | \$ 325    | 2          | \$ 650             |                      |
| Lowel Blvd Trail (Route)  | 3         | Trail ID + Direction  | \$ 505    | 1          | \$ 505             | \$ 505               |
|   | 5         | Confidence Marker     | \$ 190    | 29         | \$ 5,510           |                      |
| Pillar of Fire Trail (Route)  | 5         | Confidence Marker     | \$ 190    | 1          | \$ 190             | \$ 190               |
| US 36 Trail   | 2         | Trail ID + Map        | \$ 750    | 1          | \$ 750             | \$ 750               |
| Wolff Run Trail   | 2         | Trail ID + Map        | \$ 750    | 1          | \$ 750             | \$ 750               |
| <b>Estimated Total Cost for Signing Little Dry Creek Planning Corridor</b>                  |           |                       |           |            |                    | <b>\$ 22,865</b>     |
| Summary by Sign Type for Little Dry Creek Planning Corridor                                 | Sign Type | Sign Type Description | Unit Cost | Qty        | Cost per Sign Type | Total Cost           |
|   | 1         | Kiosk                 | \$ 1,500  | 2          | \$ 3,000           | \$ 22,675            |
|   | 2         | Trail ID + Map        | \$ 750    | 6          | \$ 4,500           |                      |
|   | 3         | Trail ID + Direction  | \$ 505    | 12         | \$ 6,060           |                      |
|   | 4         | Trail ID              | \$ 325    | 2          | \$ 650             |                      |
|   | 5         | Confidence Marker     | \$ 190    | 43         | \$ 8,170           |                      |
|   | 6         | Trail ID (Minor)      | \$ 295    | 1          | \$ 295             |                      |
|   | MM        | Mile Marker           | \$ 880    | 0          | \$ -               |                      |
| <b>Estimated Totals for Signing Farmers'/Niver Planning Corridor</b>                        |           |                       |           | <b>66</b>  |                    | <b>\$ 22,675</b>     |
| <b>Estimated Total Cost for Implementing Entire Wayfinding Strategy</b>                     |           |                       |           |            |                    | <b>\$167,375.00</b>  |
| Summary by Sign Type for All Corridors  | Sign Type | Sign Type Description | Unit Cost | Qty        | Cost per Sign Type | Total Cost           |
|   | 1         | Kiosk                 | \$ 1,500  | 9          | \$ 13,500          | \$ 167,185           |
|   | 2         | Trail ID + Map        | \$ 750    | 68         | \$ 51,000          |                      |
|   | 3         | Trail ID + Direction  | \$ 505    | 93         | \$ 46,965          |                      |
|   | 4         | Trail ID              | \$ 325    | 27         | \$ 8,775           |                      |
|   | 5         | Confidence Marker     | \$ 190    | 61         | \$ 11,590          |                      |
|   | 6         | Trail ID (Minor)      | \$ 295    | 93         | \$ 27,435          |                      |
|   | MM        | Mile Marker           | \$ 880    | 9          | \$ 7,920           |                      |
| <b>Estimated Total Cost for Implementing Entire Wayfinding Strategy</b>                     |           |                       |           | <b>360</b> |                    | <b>\$ 167,185</b>    |





# Potential Funding Sources

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## Overview

The following pages offer a comprehensive description of funding sources that can be used to support the acquisition of land, development of trail facilities, and operation of the open space and trails program for the City of Westminster. The sources are organized and defined by local, state, and federal resources and agencies.

## Local Sources

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### **Sales Tax**

The City of Westminster Open Space Program was established in 1985. Since 1985, the 1/4 of one percent, or 25 cents on a \$100 purchase, sales tax has been extended by voters three times: first in 1989, with half of sales tax revenues dedicated to parks and recreation improvements; again in 1996 when the citizens also authorized the city to issue \$26 million of bonds to fund additional open space purchases, recreation facility construction and park development; and most recently (2006), when voters approved an additional bond sale of up to \$20 million. In 2013, the City collected \$6,652,152.68 from the Open Space Sales Tax Fund. Initially, 100% of all funding was allocated for open space acquisition. In 1989, voters approved using funding to offset maintenance of open space.

Per City Council's direction, the achievement of preserving 15% of the City's land area as open space and the overall evolution of the City's open space program, the City of Westminster is shifting its focus from aggressive acquisition of properties to stewardship of those properties already preserved. To assist with these stewardship and maintenance efforts, additional funding is anticipated in the near future due to retirement of several obligations. 2016 is the final year of payment for certificates of participation (COPs) associated with the Metzger Farm property, but most of this payment in 2016 is anticipated to be covered by funds in the required debt service reserve fund associated with these COPs. Therefore, additional ongoing funds will be available for stewardship and maintenance activities in 2016. Specific proposals for use of these funds will be considered by City Council as part of the City's regular budget development process. In addition, the retirement of additional debt associated with open space acquisitions is anticipated in the 2017/2018 timeframe and will provide additional revenues to be considered for programming through the City's budget process.

### **Bonds**

Bonds have been a very popular way for communities across the country to finance their open space programs. Bonds offer the ability for a city to leverage its sales tax program and gain access to the bulk of the total revenues (plus debt service). This enables a city to pursue a more aggressive conservation and protection program. A number of bond options are listed below. Since bonds rely on the support of the voting population, an education and awareness program is an important component of a proposed ballot measure.

- » **Revenue Bonds** - Revenue bonds are bonds that are solely secured by a pledge of the revenues from a certain local government activity, such as a sales tax program. The entity issuing bonds pledges to generate sufficient revenue annually to cover the program's operating costs, plus meet the annual debt service requirements (principal and interest payment). Revenue bonds are not constrained by the debt ceilings of general obligation bonds, but they are generally more expensive than general obligation bonds.
- » **General Obligation Bonds** - Local governments generally are able to issue general obligation bonds that are secured by the full faith and credit of the entity. In this case, the local government issuing the bonds pledges to raise its property taxes, or use any other sources of revenue, to generate sufficient revenues to make the debt service payments on the bonds. A general obligation pledge is stronger than a revenue pledge, and thus may

carry a lower interest rate than a revenue bond. Frequently, when local governments issue general obligation bonds for public enterprise improvements, the public enterprise will make the debt service payments on the general obligation bonds with revenues generated through the public enterprise's rates and charges. However, if those rate revenues are insufficient to make the debt payment, the local government is obligated to raise taxes or use other sources of revenue to make the payments. General obligation bonds distribute the costs of open space acquisition and make funds available for immediate purchases. Voter approval is required.

- » **Special Assessment Bonds** - Special assessment bonds are secured by a lien on property that benefits by the improvements funded with the special assessment bond proceeds. Debt service payments on these bonds are funded through annual assessments to the property owners in the assessment area.

### ***Fees and Service Charges***

The City of Westminster implements fees and service charges to offset the cost of community growth and development.

#### ***Cash-In-Lieu***

A choice of paying a front-end charge for off-site open space protection is provided as an alternative to requiring developers to dedicate on-site open space that would serve their development. The City of Westminster requires that land be dedicated by developers of residential projects for open space, parks and other public uses. Residential developers are required to dedicate 12 acres per 1,000 projected future residents. Developers pay a cash-in-lieu fee if land is not donated. The fee is based on the amount per acre paid for the property or its current value, whichever is higher. These funds must be used to acquire park or open space land.

#### ***Adams County***

Adams County voters demonstrated their dedication to parks and open space by approving the 1/5 of one percent (20 cents on a \$100 purchase) Open Space Sales Tax in 1999. This sales tax was authorized through 2006. In 2004, the sales tax was increased to 1/4 of one percent, or 25 cents on a \$100 purchase, and the sales tax was reauthorized by voters to remain through 2026. Proceeds from the sales tax benefit parks, recreation and open space projects throughout the county. Through 2011, over \$95 million has been generated to fund parks and open space projects in cities and unincorporated areas of Adams County.

Funds are distributed three ways:

- 68 percent is awarded through a competitive grant program.
- 30 percent is distributed back to the jurisdiction where the tax was generated. The City received \$475,080.91 from Adams County through the 30% share back program. In addition, the City received a total of \$1,468,899 through grants from Adams County in 2013 for two open space acquisitions and one underpass project.
- 2 percent is allocated to administration costs.

From 2000 to 2011, the competitive grant program disbursed over \$10.2 million in funds for parks and open space projects to the City of Westminster.

#### ***Jefferson County***

Jefferson County Open Space has been identified as the nation's first sales tax-funded county open space program. It has grassroots beginnings dating back to 1972 with the proposal of a unique concept to preserve the scenic vistas and open lands within the county using the collection of 1/2 of one percent sales tax. The enabling resolution requires these funds to be used, "exclusively for the planning for, developing necessary access to, acquisition, maintenance and preservation of open space real property for the use and benefit of the public."

In 1980, this resolution was amended by the voters to add authorization for the expenditure of these funds for construction, acquisition, and maintenance of park and recreation capital improvements. When Jefferson County voters approved the Open Space Enabling Resolution, no "sunset" or end date was included, thereby ensuring perpetual land



conservation, stewardship of open space and parklands, and access for public enjoyment. Among Jefferson County's five-year goals are to preserve an additional 1,700 acres and expand the trail system by 25 miles. To date, the City of Westminster has received \$1,374,930 for parks and open space from Jefferson County through their attributable share program funded by the county's open space sales tax.

In addition, Jefferson County issued a \$100,000,000 bond, which funded many county projects, including the acquisition of Lower Church Ranch Lake and the Sisters of the New Covenant.

### ***Charitable Donations***

The City of Westminster has acquired land at a discount, with the discounted value being a charitable donation.

## **Other Local Options**

### ***Open Space and Trail Sponsors***

A sponsorship program for park and trail amenities allows smaller donations to be received from both individuals and businesses. Cash donations could be placed into a trust fund to be accessed for certain construction or acquisition projects associated with the open space system. Some recognition of the donors may be appropriate and can be accomplished through the placement of a plaque, the naming of a trail segment, and/or special recognition at an opening ceremony. Types of gifts other than cash could include donations of services, equipment, labor, or reduced costs for supplies.

The City of Westminster encourages residents and other concerned persons or parties to donate certain lands or monies for use in the Open Space Program. City Council may by resolution accept such donated properties into the Open Space Program (Westminster Municipal Code 13-5-8).

### ***Development Installed Trail Program***

Developers are required to install at their expense any trails shown on the City of Westminster's official trail plan, which cross their property.

### ***Volunteer Work***

The Westminster Open Space Volunteer Program was created to help maintain and preserve the over 3,000 acres of open space. A variety of projects are scheduled monthly (weather permitting) and include trail building, tree wrapping, fence repair and installation, wetland plantings and Russian olive management. Projects are open to individuals, families, groups and civic organizations. Volunteers must be at least 16 years of age unless accompanied by an adult. These volunteers could also work with other elements of the City of Westminster Open Space Program to solicit and/or leverage private contributions and additional financial support for the program. In 2013, the total value of volunteer hours was \$155,257 (6885 hours X \$22.55/hour). These hours include open space volunteers, Adopt-a-Park, Open Space & Trails Volunteers, Bicycle Trail Hosts and Community Pride Day volunteers.

### ***Trust Fund***

The City of Westminster may want to consider working in partnership with other public sector agencies and private sector groups to establish an Open Space Trust Fund. This fund would be a dedicated source of funding that supports the operation and management of portions of the open space system. The City of Westminster can work with a private financial institution to set up an investment account or work with a local foundation to establish the endowment. Contributions to the fund would be solicited from parks, open space and trail advocates, businesses, civic groups, and other foundations. The goal would be to establish a capital account that would earn interest and use the interest monies to support maintenance and operations. Special events could be held whose sole purpose is to raise capital money for the trust fund. A trust fund can also be used in the acquisition of high-priority properties that may be lost if not acquired by private sector initiative.



## State Sources

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### ***The Colorado Lottery for Conservation and Great Outdoors Colorado***

Profits from the sale of Lottery products are mandated to be distributed according to this formula: 50 percent to the Great Outdoors Colorado (GOCO) Trust Fund, 40 percent to the Conservation Trust Fund, and 10 percent to the Colorado Division of Parks and Wildlife. GOCO funds are capped at \$35 million, adjusted for inflation (this translates to \$60.3 million for fiscal year 2014), and funds that exceed the GOCO cap go to the Colorado Department of Education, Public School Capital Construction Assistance Fund.

### ***Great Outdoors Colorado (GOCO)***

In 1992, voters placed on the ballot and approved the creation of the Great Outdoors Colorado Trust Fund. GOCO is funded by the proceeds of the Colorado Lottery, receiving 50 percent with a \$35 million cap, adjusted for inflation (proceeds above that return to the State General Fund). The GOCO Trust Fund is administered by a 17-member Board of Trustees. Based on the four funding areas mandated by the Colorado Constitution, several grant programs have been developed.

- » ***Local Government Parks and Recreation / Mini Grants*** - The Local Government Park, Outdoor Recreation and Environmental Education (LPOR) Grants – and Mini Grants for smaller projects costing \$60,000 or less – are designed for the following types of projects:
  - New park development: Creating a park where one does not exist.
  - Enhancing existing park facilities: Improving current park facilities, including installing or creating new facilities at existing parks.
  - Park land acquisition: Acquiring land for a future park.
  - Environmental education facilities: Building new facilities or enhancing existing ones.Cities, counties, and parks and recreation districts are eligible for LPOR and Mini Grants. Eligible entities can sponsor projects on behalf of ineligible entities like school districts, unincorporated cities and towns, and community groups.
- » ***Open Space Grants*** - Open space grants help fund the acquisition and protection of unique open space and natural areas of statewide significance through fee acquisitions or conservation easements. Project areas include: buffers/inholdings, greenways/stream corridors, community separators, agricultural land, natural areas and non-game wildlife habitat, scenic viewsheds, and urban open space parcels. Non-profit land-conservation organizations, municipalities, counties, political subdivisions of the state, and the Colorado Division of Parks and Wildlife are eligible for open space grants.
- » ***Planning Grants***- Planning grants are designed to help eligible entities develop strategic master plans for outdoor parks and recreation projects, trails or site-specific plans. Local governments are eligible to apply for planning grants.
- » ***Trail Grants***- The Colorado State Recreational Trails Grant Program helps develop trails for non-motorized activities including hiking, biking, wildlife-watching, horseback riding, cross-country skiing, and snowshoeing. Grants for large and small trail projects and trail planning and maintenance are available through this program, which is a partnership among the Colorado Division of Parks and Wildlife, Great Outdoors Colorado, the Colorado Lottery, the federal Recreational Trails Program, and the Land and Water Conservation Fund. Trail grants are offered once a year through the Colorado State Trails Program (see Non-Motorized Trails Grant Program below).
- » ***Conservation Excellence Grants***- Conservation Excellence Grants address changing needs within the conservation community. The redesigned program strives to foster exploration of complicated issues – i.e., oil and gas development on conserved lands, orphan easements, water, amendments – via pilot projects and/or research so that the conservation community can begin searching for potential solutions. Projects will fall into one or



more of four main categories that cover the major challenges and issues: Policy, Standards and Education, Community Engagement, and Stewardship and Long-term Sustainability. Counties, municipalities or other political subdivisions of the state, and non-profit land conservation organizations are eligible to apply.

### **Conservation Trust Fund**

The Colorado Constitution (Article XXVII, Section 3), as amended in 1992, directs 40 percent of the net proceeds of the Colorado Lottery to the Conservation Trust Fund for distribution to municipalities and counties and other eligible entities for parks, recreation, and open space purposes.

The Department of Local Affairs distributes Conservation Trust Fund dollars from net Lottery proceeds to over 460 eligible local governments (i.e., counties, cities, towns) and Title 32 special districts that provide park and recreation services in their service plans. Conservation Trust Fund funds are distributed quarterly on a per capita basis.

Funding can be used for the acquisition, development, and maintenance of new conservation sites or for capital improvements or maintenance for recreational purposes on any public site. A public site is defined by the department as a publicly owned site, or a site in which a public entity/local government holds an interest in land or water. New conservation sites are defined in statute as being interests in land and water, acquired after establishment of a conservation trust fund, for park or recreation purposes, for all types of open space, including but not limited to flood plains, green belts, agricultural lands or scenic areas, or for any scientific, historic, scenic, recreation, aesthetic or similar purpose (CRS 29-21-101).

### **Colorado Division of Parks and Wildlife**

The Colorado Division of Parks and Wildlife has several programs to help fund projects developed or led by outside personnel or groups. Programs are available to assist landowners with habitat conditions, to help communities build trails or improve fishing opportunities, to work with ranchers to reduce conflicts with big game, and much more. Focus areas, eligibility requirements, matching fund requirements and other aspects vary for each program. Funding opportunities relevant to the City of Westminster's Open Space program are highlighted below:

- » **Fishing is Fun Program**- The Fishing Is Fun program provides up to \$400,000 in matching grants annually to local and county governments, park and recreation departments, water districts, angling organizations and others for projects to improve angling opportunities in Colorado. Among the types of projects supported through Fishing Is Fun are stream and river habitat improvements, access improvements, perpetual easements for public access, pond and lake habitat improvements, fish retention structures, development of new fishing ponds, and amenity improvements such as shade shelters, benches and restrooms.

Project sponsors must provide nonfederal matching funds or in-kind contributions equal to at least 25 percent of the total project cost. Match in excess of the 25 percent minimum is encouraged and will help make a project more competitive in the review and ranking process; historically, project partners have provided roughly 40 percent of project costs. Project grants have ranged from \$2,500 to \$400,000, with an average of \$85,000. Program announcements are typically made in late November, with proposals due at the Colorado Division of Parks and Wildlife area offices by early March.

The City of Westminster has funded the following projects with Fishing is Fun grants:

- » 2002: Faversham Pond \$75k
- » 2004: McKay Lake \$76k
- » 2005: Standley Lake: \$40k
- » 2007: Standley Lake \$40k

- » **Outdoor Classroom Grants**- Up to \$1,000 matching grants are available to support outdoor classroom projects. Outdoor classrooms come in a variety of shapes and sizes and should be designed based on the needs of the community. Whether by funding trees for shade, a garden for harvesting healthy produce, or native wildflowers to attract pollinators, this grant program is designed to help increase communities' use and enjoyment of their public outdoor spaces.

The Colorado Division of Parks and Wildlife sponsors this grant program through Colorado Project WILD workshops, which immerse educators in hands-on, interdisciplinary activities focusing on wildlife and conservation. A significant portion of workshop fees goes to support the Outdoor Classrooms Grant Program, which is administered by the Colorado Parks and Recreation Association Foundation. Educators are encouraged to work with students to design and create an outdoor classroom, where kids can spend time outside and learn first-hand about wildlife and the environment.

- » **Non-Motorized Trails Grant Program**- The Colorado State Recreational Trails Grant Program funds projects for large recreational trail grants, small recreational trail grants, trail planning, and trail support grants. This program is a partnership among the Colorado Division of Parks and Wildlife, Great Outdoors Colorado (GOCO), the Colorado Lottery, the federal Recreational Trails Program (RTP), and the Land and Water Conservation Fund (LWCF). The availability of funding for the Non-Motorized Trail Grants is based on the funding levels provided by the funding sources. Availability of funds for successful applicants may vary due to legislative processes, fiscal year parameters and/or written authorization of spending authority. Awarded funds are for 2 to 2 1/2 years.
- » **Wetlands Partnership**- The Colorado Wetlands Partnership is an endeavor to protect wetlands and wetland-dependent wildlife through the use of voluntary, incentive-based mechanisms. Furthermore, the Wetlands Initiative embraces cooperation with private landowners, municipalities, other state and federal agencies, and other non-governmental organizations in the pursuit of voluntary wetlands protection. Program services include: funding for all phases of wetland and riparian creation, restoration, and enhancement; funding for conservation easements and fee-title purchase through the Wildlife Habitat Protection Program; wildlife and aquatic resource inventories; education and outreach; and project monitoring and evaluation.

### ***Conservation Easement Tax Credit***

Colorado has an innovative tax program that allows the transfer of conservation easement income tax credits from landowners to taxpayers with Colorado income tax liabilities. The credit is based on the fair market value of the easement (§39-22-522, C.R.S.). The donation must be made to a governmental entity or a charitable organization that is exempt under section 501(c) (3) of the Internal Revenue Code and created at least two years prior to receipt of the easement (§38-30.5-104(2), C.R.S.). The donation must also qualify as a charitable contribution for federal income tax purposes [Internal Revenue Code section 170(h)]. As of 2007, donors of conservation easements can receive tax credits at the rate of 50 percent of their donation value. For example, a \$400,000 donation will yield \$200,000 in state income tax credits. The maximum credit that a landowner can earn in one year is \$375,000 (based on a \$750,000 donation). In 2013, legislation was signed into law that increases the annual tax credit cap to \$45 million.

### ***Colorado Tourism Office – Marketing Matching Grant Program***

The Colorado Tourism Office administers the Statewide Marketing Matching Grant Program (which assists organizations with promotion of the state as a whole) and the Regional Matching Grant Program (which assists organizations with the promotion of specific regions in Colorado). Within the context of marketing projects, the funds may be spent on promotion, product packaging, networking and communication and education. Not-for-profit organizations are eligible to apply. For every \$1 the organization allocates to the program, the Colorado Tourism Office will provide \$2 in matching funds.



### **State Historical Fund**

The State Historical Fund was created by the 1990 constitutional amendment allowing limited gaming in the towns of Cripple Creek, Central City, and Black Hawk. The amendment directs that a portion of the gaming tax revenues be used for historic preservation throughout the state. Funds are distributed through a competitive process and all projects must demonstrate strong public benefit and community support. Grants vary in size, from a few hundred dollars to amounts in excess of \$200,000. The State Historical Fund assists in a wide variety of preservation projects including restoration and rehabilitation of historic buildings, architectural assessments, archaeological excavations, designation and interpretation of historic places, preservation planning studies, and education and training programs.

- » **State Historical Fund – Competitive Grants**- Competitive grants are made for any of the three projects types: acquisition and development; education; and survey and inventory. There are three essential elements to applying for a competitive State Historical Fund Grant: 1) one must be or work with an eligible grant applicant; 2) if the plan is to do physical work on a structure, building, site, or object, the resource must be historically designated. If this is a survey and planning, archaeological survey, or education project, the focus of the project must be directly related to historic preservation; 3) one must apply for projects, activities, and costs that qualify for assistance from the State Historical Fund.
- » **State Historical Fund – Non-Competitive Grants** - These grants may be submitted at any time of the year and are for smaller amounts of money than the competitive grants. They include the Historic Structure Assessment Grant, Archaeological Assessment Grant, and Emergency Grant.
- » **State Historical Fund – Emergency Grant** - Emergency grants are awarded to provide assistance to significant resources that are in imminent danger of being lost, demolished, or seriously damaged, when such threat is sudden and unexpected such as a fire, flood, hail storm, or other act of nature. A specific event (e.g., a tornado) that occurred on a specific date should be cited in the application. Building failure/damage attributed to defer maintenance is not defined as an emergency.

It is important to contact the office immediately after the event has occurred. If a significant amount of time has transpired between the time of the event and the request for funding, it may affect eligibility. Emergency grants are typically limited in scope to the temporary stabilization of a building, structure, or site until permanent preservation actions can take place.

- » **Certified Local Government Grants**- History Colorado through the Office of Archaeology and Historic Preservation (OAHP) administers the U.S. Department of Interior’s Historic Preservation Fund Program in cooperation with the U.S. Department of the Interior, National Park Service. Under this program the National Park Service has specified that at least 10 percent of Colorado’s annual program funds be subgranted to Certified Local Governments. Since 2000, Colorado’s 10 percent requirement has been augmented with an internal grant from the State Historical Fund.

Eligibility for participation in this federally-funded grant program requires that each applicant is a Certified Local Government. Requirements for certification may be requested from History Colorado. Any political subdivision of the state, such as a city or county, meeting the criteria set forth in the Colorado Certified Local Government Program Handbook is eligible to apply for certification.

The City of Westminster has used State Historical Funds for improvements to Semper Farm.

### **Colorado Department of Public Health and Environment**

The Colorado Department of Local Affairs partnered with the Colorado Department of Public Health and Environment to promote the cleanup and redevelopment of brownfield sites around the state.

- » **Colorado Brownfields Revolving Loan Fund**- As a public-private partnership, the Colorado Brownfields Revolving Loan Fund encourages the cleanup of unused or underused contaminated properties by offering financing with reduced interest rates, flexible loan terms, and flexibility in acceptable forms of collateral. The Revolving Loan Fund can also provide cleanup grants to qualifying local governments and non-profits. All cleanups financed through the Revolving Loan Fund must have previous approval under the Voluntary Cleanup Program. The Colorado Housing and Finance Authority serves as financial manager for the Revolving Loan Fund, but does not vote on where to allot the fund. The City of Westminster has used this funding for cleanup of properties within the future Little Dry Creek Park and Open Space in south Westminster.
- » **State Cleanup Program**- The state of Colorado offers financial incentives for cleaning up contaminated land in the form of grants. House Bill 00-1306 provided for limited state authority to clean up sites where there is no other federal or state program that can accomplish the cleanup. It authorized \$250,000 annually for such cleanup, which is designed first to protect human health and the environment, and also to enhance the redevelopment potential of these properties.

### **Denver Regional Council of Governments (DRCOG) – Transportation Improvement Program (TIP)**

TIP identifies all current federally funded transportation projects to be completed in the Denver region over a six-year period with federal, state or local funds. Demonstrating DRCOG's commitment to collaboration, at the DRCOG table local governments decide on a process and criteria for including projects in the TIP and awarding DRCOG-controlled federal funds, which allows the region to set and agree upon its transportation priorities. All TIP projects must meet current air quality standards. Currently, DRCOG is developing a new TIP, one that will cover the federal fiscal years 2016-2021 time period:

- Late spring 2014 – Adopt TIP Policy Document to outline policies and procedures for project selection
- Summer 2014 – Solicit call for projects from local governments, CDOT, RTD and others; sponsors complete applications
- Fall 2014 – Evaluate project submittals
- Winter/spring 2014-2015 – Select projects to fund; approve the 2016-2021 TIP

The City of Westminster has received many grants from DRCOG, including funds to improve the intersection of 120th Avenue and Federal Boulevard which will improve trail connections to the Big Dry Creek trail.

### **Department of Local Affairs – Energy and Mineral Impact Assistance**

Energy and Mineral Impact Grants administered by the Department of Local Affairs (DOLA) assist communities affected by the growth and decline of extractive industries. The applicability of these funds to cultural heritage tourism lies mostly in their ability to fund improvements to public facilities and local government planning efforts where cultural heritage tourism-related goals can be furthered through economic development initiatives. Municipalities, counties, school districts, special districts and state agencies are eligible for the funds. Because these grants require matching funds, applications with higher matches receive more favor as they highlight community support.

### **Department of Local Affairs – Colorado Heritage Planning Grant**

Nearly \$2 Million was awarded to projects involving over 100 local governments since the program was first introduced in 2000. The projects funded addressed many of the impacts of growth including traffic congestion, loss of agriculture, loss of open space, fiscal impacts to local governments, wildfire hazards, and a lack of affordable housing to name a few. The program is not currently funded due to state budget cuts.



### **Colorado Department of Transportation (CDOT) – MAP-21**

On July 6, 2012, the President signed H.R. 4348, the Moving Ahead for Progress in the 21st Century Act (MAP-21). The legislation updates and replaces the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users Act of 2005 (SAFETEA-LU), specifically reauthorizing federal transportation programs, providing budget authority for federal transportation apportionments, and updating federal statutes governing the U.S. Department of Transportation (USDOT) and its various agencies and programs. A brief summary of the bill's provisions follows.

- **Duration.** MAP-21 is a 27-month authorization bill, providing spending authority through September 30, 2014.
- **Federal Spending and Colorado Apportionments.** The bill continues existing funding levels with a small inflationary adjustment. Colorado's federal highway apportionments are estimated to be \$517.0 million in fiscal year (FY) 2013 and \$522.4 in FY 2014. By comparison, Colorado's federal apportionment for FY 2012 is \$517.0 million.
- **Program Consolidation.** MAP-21 consolidates approximately 90 federal transportation programs into 30 new and existing programs, providing CDOT with more discretion and significant policy decisions to be made as a result.

### **Colorado Department of Transportation – National Highway Performance Program (NHPP)**

MAP-21 consolidates the Interstate Maintenance Program, National Highway System formula programs, and the on-system portion of the Highway Bridge Program into a consolidated National Highway Performance Program. The new program is heavily focused on system improvement and preservation, and serves as the primary formula grant program to CDOT. Eligible NHPP projects include:

- National Highway System projects, bridges, and tunnels;
- inspection and evaluation of on-system bridges, tunnels, and related assets (e.g., retaining walls, and signage);
- training of bridge and tunnel inspectors;
- construction of and improvements to off-system federal-aid highways;
- transit projects;
- bicycle transportation and pedestrian walkways;
- safety improvements for on-system highways
- capital and operating costs for traffic and traveler information facilities and programs;
- development of a state asset management plan;
- intelligent transportation systems capital improvements;
- environmental restoration and mitigation;
- pollution abatement;
- noxious weed control; and
- construction of publicly owned bus terminals servicing the National Highway System.

### **Colorado Department of Transportation – Transportation Alternatives Program (TA)**

Prior to MAP-21, three federal programs provided dedicated funding for bicycle and pedestrian projects: Recreational Trails (RT); Safe Routes to Schools (SRTS); and Transportation Enhancements (TE). MAP-21 folds all three programs into a single, newly created program – Transportation Alternatives. Under the new TA program, eligible activities funded by the program are a hybrid of eligible projects from the previous three programs, plus new eligibility for environmental mitigation and minor road construction projects not currently allowed under RT, SRTS, or TE. The new program may fund projects originally eligible under the RT and SRTS programs; planning, designing, or constructing boulevards and other roadways largely in rights-of-way; and new alternatives are summarized below:

- **Trail Facilities.** Construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation, including sidewalks, bicycle infrastructure, pedestrian and bicycle signals, traffic calming techniques, lighting and other safety-related infrastructure, and transportation projects to achieve compliance with the Americans with Disabilities Act
- **Safe Routes for Non-Drivers.** Construction, planning, and design of infrastructure-related projects and systems that will provide safe routes for non-drivers, including children, older adults, and individuals with disabilities to access daily needs.
- **Use of Abandoned Railroad Corridors.** Conversion and use of abandoned railroad corridors for trails for pedestrians, bicyclists, or other non-motorized transportation users.
- **Scenic Areas.** Construction of turnouts, overlooks, and viewing areas.
- **Community Improvement Activities.** Community improvement activities, including:
  - inventory, control, or removal of outdoor advertising;
  - historic preservation and rehabilitation of historic transportation facilities;
  - vegetation management practices in transportation rights-of-way to improve roadway safety, prevent against invasive species, and provide erosion control;
  - archaeological activities relating to impacts from implementation of a transportation project.
- **Environmental Mitigation Activity.** Environmental mitigation activity, including pollution prevention and pollution abatement activities and mitigation to:
  - address stormwater management, control, and water pollution prevention or abatement related to highway construction or due to highway runoff;
  - reduce vehicle-caused wildlife mortality or to restore and maintain connectivity among terrestrial or aquatic habitats.

### ***Colorado Department of Transportation – Safe Routes to School***

Safe Routes to School (SRTS) was established in 2005 to enable and encourage children, including those with disabilities, to walk and bicycle to school; to make walking and bicycling to school safe and more appealing; and to facilitate the planning, development and implementation of projects that will improve safety, and reduce traffic, fuel consumption, and air pollution in the vicinity of schools.

Eligible applicants include a local government; a regional transportation authority; a transit agency; a natural resource or public land agency; a school district, local education agency or school; a tribal government; and any other local or regional governmental entity with responsibility for or oversight of transportation or recreational trails that the state determines to be eligible, consistent with the goals of this grant application.

Grants are awarded through a statewide competitive process, and in proportion to the geographic distribution of the student population K-8 grades. Of the total Safe Routes to School funds, 10 to 30 percent will be dedicated to non-infrastructure (education and encouragement) projects, with remaining funds going towards infrastructure (capital) projects.

The 2014 Safe Routes to School Grants were 100 percent federally funded. This means that there was no local cash match required and applications were not scored or prioritized based on demonstration of local match commitment. The 2014 grants were funded using a different type of federal transportation dollars that did not require a local cash match. Maximum project funding for infrastructure projects was \$300,000. This is an increase from the \$250,000 maximum project funding in previous grant cycles.



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## **Federal Sources**

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Most federal programs provide block grants directly to states through funding formulas. For example, if a Colorado community wants funding to support a transportation initiative, it would contact the Colorado Department of Transportation and not the U.S. Department of Transportation to obtain a grant. Despite the fact that it is rare for a local community to obtain a funding grant directly from a federal agency, it is relevant to list the current status of federal programs and the amount of funding that is available to the City of Westminster through these programs.

### ***Surface Transportation Act***

The Surface Transportation Act has been the largest single source of funding for the development of bicycle, pedestrian, trail, and greenway projects. Prior to 1990, the nation, as a whole, spent approximately \$25 million on building community-based bicycle and pedestrian projects, with the vast majority of this money spent in one state. Since the passage of Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), funding was increased dramatically for bicycle, pedestrian and greenway projects, with total spending north of \$5 billion. The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) more than doubled the total amount of funding for bicycle/pedestrian/trail projects as compared to its predecessor, the Transportation Equity Act for the 21st Century (TEA-21), with approximately \$800 million available each year.

There are many current programs that deserve mention. The authorizing legislation is complicated and robust. The following provides a summary of how this federal funding can be used to support the City of Westminster Open Space Program. All of the funding within these programs would be accessed through the Colorado Department of Transportation.

### ***Moving Ahead for Progress in the 21st Century Act (MAP-21)***

Funding surface transportation programs at over \$105 billion for fiscal years (FY) 2013 and 2014, MAP-21 is the first long-term highway authorization enacted since 2005. MAP-21 extended current law, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), for the remainder of FY 2012, with new provisions for FY 2013 and beyond taking effect on October 1, 2012. Funding levels were maintained at FY 2012 levels, plus minor adjustments for inflation – \$40.4 billion from the Highway Trust Fund (HTF) for FY 2013, and \$41.0 billion for FY 2014.

### ***Surface Transportation Program (STP)***

MAP-21 continues the STP, providing an annual average of \$10 billion in flexible funding that may be used by states and localities for projects to preserve or improve conditions and performance on any federal-aid highway, bridge projects on any public road, facilities for non-motorized transportation, transit capital projects and public bus terminals and facilities. Activities of some programs that are no longer separately funded are incorporated, including recreational trails.

### ***Congestion Mitigation and Air Quality (CMAQ)***

Map-21 continues this funding with average annual funding of \$3.3 billion. Historically, about five percent of these funds have been used to support bicycle, pedestrian, and trail projects. This would equal about \$165 million under Map-21.

### ***Highway Safety Improvement Program (HSIP)***

Map-21 continues this funding with average annual funding of \$2.4 billion, including \$220 million per year for the Rail-Highway Crossings program. Some of the eligible uses of these funds would include traffic calming, bicycle and pedestrian safety improvements, and installation of crossing signs. This is not a huge source of funding, but one that could be used to fund elements of a project.

### ***Transportation Alternatives (TA)***

MAP-21 establishes a new program to provide for a variety of alternative transportation projects that were previously eligible activities under separately funded programs. The Transportation Alternatives (TA) program will receive about



\$780 million to carry out all projects, including Recreational Trails Program (RTP) and Safe Routes to School (SRTS) programs and projects across the country, which represents about a 35 percent reduction from the current \$1.2 billion spent on these programs. States will sub-allocate 50 percent of their TA funds to Metropolitan Planning Organizations and local communities to run a grant program to distribute funds for projects. States could use the remaining half for TA projects or could spend these dollars on other transportation priorities.

- » **Recreational Trails Program (RTP)**- Under MAP-21, the Recreational Trails Program (RTP) is continued at the current funding levels as a set-aside from TAP. RTP will continue to operate as it did under SAFETEA-LU. However, the governor of each state may opt out of the RTP if it notifies the U.S. Department of Transportation Secretary not later than 30 days prior to apportionments being made for any fiscal year. Funding is through the Colorado State Recreational Trails Grant Program, which funds projects for trial planning and design, construction, maintenance, equipment, and special projects.
- » **Safe Routes to School Program (SRTS)** - The Safe Routes to School (SRTS) program is eliminated as a stand-alone program, but SRTS projects are eligible for funding under the TAP. As such, SRTS projects are now subject to all TAP requirements, including the same match requirements – 80 percent federal funding, with a 20 percent local match.
- » **Scenic Byways**- The National Scenic Byways program is completely eliminated under MAP-21. However, some scenic byway type projects, like turnouts, overlooks, and viewing areas will be eligible under one of the TAP categories.

### ***Land and Water Conservation Fund***

The Land and Water Conservation Fund is the largest source of federal money for park, wildlife, and open space land acquisition. The program's funding comes primarily from offshore oil and gas drilling receipts, with an authorized expenditure of \$900 million each year. However, Congress generally appropriates only a fraction of this amount. The program provides up to 50 percent of the cost of a project, with the balance of the funds paid by states or municipalities. These funds can be used for outdoor recreation projects, including acquisition, renovation, and development. Projects require a 50 percent match.

### ***Environmental Protection Agency – Brownfields Program***

The Environmental Protection Agency's (EPA) Brownfields Program provides direct funding for brownfields assessment, cleanup, revolving loans, and environmental job training. To facilitate the leveraging of public resources, EPA's Brownfields Program collaborates with other EPA programs, other federal partners, and state agencies to identify and make available resources that can be used for brownfields activities. In addition to direct brownfields funding, EPA also provides technical information on brownfields financing matters.

### ***Community Block Development Grant Program***

The U.S. Department of Housing and Urban Development (HUD) offers financial grants to communities for neighborhood revitalization, economic development, and improvements to community facilities and services, especially in low and moderate-income areas. Administered by the Department of Local Affairs, Community Development Block Grants can be spent on a wide variety of projects, including property acquisition, public or private building rehabilitation, construction of public works, public services, planning activities, assistance to nonprofit organizations and assistance to private, for-profit entities to carry out economic development. At least 70 percent of the funds must go to benefit low and moderate-income populations. The funds must go to a local government unit for disbursement. A detailed citizen participation plan is required.

### ***Economic Development Administration***

Funding is available through this federal program in the form of several different grants. Two grants that may be applicable to cultural heritage tourism are the Economic Adjustment Assistance Grant (which helps communities develop



comprehensive redevelopment efforts that could include cultural heritage tourism programs) and the Planning Program Grant (which helps planning organizations create comprehensive development strategies). Only governmental units are eligible.

### ***Farm Service Administration***

Two Farm Service Administration programs help to preserve sensitive farmland and grassland. The Conservation Reserve Enhancement Program is a land retirement program for ecologically sensitive land. The Grassland Reserve Program supports working grazing operations to maintain the land's grassland appearance and ecological function. The funds are available to private farmers and ranchers, although local governments, tribes and private groups can also solicit them. These funds are intended to be combined with other funding, but there is no set match requirement.

### ***National Trust for Historic Preservation***

This endowment funds 14 different grants. The Preservation Funds Matching Grants and Intervention Funds assist nonprofit and public agencies with planning and educational projects or preservation emergencies, respectively. The Johanna Favrot Fund for Historic Preservation provides matching grants for nonprofit and public organizations whose projects contribute to preservation and/or recapturing an authentic sense of place. The Cynthia Woods Mitchell Fund for Historic Interiors provides grants for professional expertise, communications, materials and education programs. Individuals and for-profit groups may apply. The latter two grants only apply to National Historic Landmark sites.

### ***National Endowment for the Arts***

The National Endowment for the Arts organizes its grants around artistic disciplines and fields such as folk and traditional arts; local arts agencies; state and regional entities; and museums. Within these categories, the applicable grants are listed. The grants provide funding for artistic endeavors, interpretation, marketing, and planning. Not-for-profit 501(c)(3) organizations and units of state or local government, or a recognized tribal community are eligible. An organization must have a three-year history of programming prior to the application deadline.

### ***National Endowment for the Humanities***

The National Endowment for the Humanities is a federal program that issues grants to fund high-quality humanities projects. Some grant categories that may be well suited to cultural heritage tourism are: grants for preservation and creation of access to humanities collections; interpreting America's historic places; implementation and planning; museums and historical organizations; preservation and access research; and development projects. The grants go to organizations such as museums, libraries, archives, colleges, universities, public television, radio stations, and to individual scholars. Matches are required and can consist of cash, in-kind gifts or donated services.

### ***Preserve America***

The Preserve America grants program funds "activities related to heritage tourism and innovative approaches to the use of historic properties as educational and economic assets." Its five categories are: research and documentation, interpretation and education, planning, marketing, and training. The grant does not fund "bricks and mortar" rehabilitation or restoration. This grant is available to State Historic Preservation Officers (SHPOs), Tribal Historic Preservation Officers (THPOs), designated Preserve America communities, and Certified Local Governments (CLGs) applying for designation as Preserve America Communities. Grants require a dollar-for-dollar nonfederal match in the form of cash or donated services.

### ***Small Business Administration***

Many cultural heritage tourism businesses are small businesses. The Small Business Administration does not itself loan money, but guarantees loans from banks or from specially chosen small business investment companies. These loans can be used for business expenses ranging from start-up costs to real estate purchases. Rural business investment companies target their funds toward companies located in rural areas. Eligible companies must be defined as "small" by the Small Business Administration.

### ***U.S. Fish and Wildlife Service***

The U.S. Fish and Wildlife Service has a long list of grant programs that benefit the conservation or restoration of habitats. These include grants for private landowners to assist in protecting endangered species, restoring the sport fish population, habitat conservation planning, and land acquisition. The amount, matching requirements, and eligibility for each grant vary. Practical information about successful projects and conserving specific habitats is available at: [www.fws.gov/grants](http://www.fws.gov/grants)

## **Foundations and Philanthropic Sources**

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### ***El Pomar Foundation***

The El Pomar Foundation supports Colorado projects related to health, human services, education, arts and humanities, and civic and community initiatives. Generally, El Pomar does not fund seasonal activities, travel or media projects, but their funding has supported other aspects of cultural heritage tourism, including regional planning and development. Recipients must be not-for-profit 501(c)(3) organizations.

### ***Tourism Cares***

Tourism Cares supports the efforts of tourism to “preserve, conserve and promote” the things that are our cultural and historic assets through its worldwide grant program. Grants provide money for capital improvements on important sites as well as the education of local communities and the traveling public about conservation and preservation. Only 501(3)(c) not-for-profit corporations are eligible. Grant applications that leverage other sources of funding, are endorsed by the local, state, or regional tourism office and have strong support from the local community have a better chance of being funded.