



Open Space and Mountain Parks (OSMP) Department

Marshall Mesa-Southern Grasslands Trail Study Area (TSA) Plan

December 2, 2005

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Open Space and Mountain Parks (OSMP) Department Marshall Mesa-Southern Grasslands Trail Study Area (TSA) Plan

Table of Contents

	<u>Page #</u>
A. Plan Vision	
A.1 Opportunities for Additional Public Access and Trail Improvements	05
A.2 Opportunities for Resource Protection	06
B. Planning Context	06
C. Plan Goals	
C.1 Visitor Experience / Recreational Opportunity Goals	07
C.2 Visitor Facility Goals	08
C.3 Resource Protection Goals	08
D. Public Desires	
D.1 Common Ground	09
D.2 Key Differences	09
E. Major Issues and Recommended Issue Resolution	
E.1 Access in the Southern Grasslands Habitat Conservation Area (HCA)	10
E.2 Dog Management	11
F. Trail Study Area Recommendations	12

Recommendations Affecting Multiple Places in the Trail Study Area
--

<i>F.1 Implement a Program to Manage Undesignated (Social) Trails.</i>	
F.1.1 <i>Implement Tiered Priorities for Management of Undesignated Trails for the Passive Recreation Area, Natural Areas, and Habitat Conservation Area (HCA).</i>	13
F.1.2 <i>Designate A Limited Number of Undesignated Trails to Provide Viewpoints or Interpretive Opportunities.</i>	14
<u>Map Location 1</u> New spur trail to Marshall Lake / Greenbelt Plateau overlook	
<u>Map Location 2</u> New loop trail to Marshall Mesa overlook	
<u>Map Location 3</u> Possible new loop trail to Marshall Mesa highpoint	
F.1.3 <i>Utilize the Trail Suitability Criteria to Evaluate How to Manage Specific Undesignated Trails.</i>	15
F.1.4 <i>Evaluate and Implement Strategies to Minimize Undesignated Trails Created by Cattle.</i>	15
<i>F.2 Implement a Package of Trailhead Improvements and Associated Management Actions that Best Provide Desired Visitor Access in a Physically and Environmentally Sustainable Way.</i>	
F.2.1 <i>Close and Relocate the Current Marshall Mesa Trailhead to the City Limits Property but Maintain Current Public Access through the Existing Pedestrian Gate.</i>	16
<u>Map Location 4</u> Current Marshall Mesa Trailhead	
F. 2.2 <i>Build a New Marshall Mesa Trailhead at the City Limits Property and Connecting Trails to the Community Ditch Trail.</i>	17
<u>Map Location 5</u> New Marshall Mesa Trailhead at City Limits	
<u>Map Location 5a</u> Connecting trail to Community Ditch Trail	
<u>Map Location 5b</u> Connecting trail to Community Ditch Trail	

F.2.3	<i>Defer Consideration of Possible New Trailheads near Marshall Rd. and S. 66th or S.H. 128 / Coalton Rd. Intersection.</i>	18
	<u>Map Location 6a</u> Marshall Rd. and S. 66 th	
	<u>Map Location 6b</u> S.H. 128 and Coalton Rd.	
F.2.4	<i>Defer Consideration of the Possible Expansion and Improvement of the Greenbelt Plateau Trailhead until Improvement Needs for the Flatirons Vista Trailhead Are Investigated in the Eldorado Mountain-Doudy Draw Trail Study Area.</i>	18
	<u>Map Location 7</u> Greenbelt Plateau Trailhead	
F.3	<i>Collaborate with Boulder County to Provide Trail Connections between Superior-Area Trails and Marshall Mesa-Area Trails.</i>	
F.3.1	<i>Work with Boulder County to Evaluate a Possible Trail Connection to the Coal Creek Trail by Extending the Cowdrey Draw Trail east of S. 66th Street.</i>	19
	<u>Map Location 8</u>	
F.3.2	<i>Further Investigate the Possibility of Extending the Coal Creek Trail on or alongside Coal Creek Drive west to S. 66th Street.</i>	20
	<u>Map Location 9</u>	
F.4	<i>Implement Best Management Practices for Trail Construction and Maintenance.</i>	20
F.5	<i>Stabilize, Restore, Protect, and Interpret Cultural and Paleontological Resources.</i>	20
F.6	<i>Establish Appropriate Monitoring for the Trail Study Area.</i>	21
F.7	<i>Annually Assess the Status of the Marshall Mesa-Southern Grasslands Trail Study Area Plan Recommendations and Revise the Implementation of the Trail Study Area Plan As Needed.</i>	22
F.8	<i>Require Conservation Easement Landowners to Obtain Habitat Conservation Area (HCA) Off-Trail Permits, Unless Prior Written Agreements Provide Other Access Provisions.</i>	23

Recommendations Affecting the West Marshall Mesa Passive Recreation Area

F.9	<i>Build A New Trail from the New Marshall Mesa Trailhead at City Limits to the Vicinity of the Current Marshall Mesa Trailhead.</i>	23
	<u>Map Location 10</u>	
F.10	<i>Build A Trail Crossing under S.H. 93 Using the Existing Community Ditch Underpass.</i>	24
	<u>Map Location 11</u>	
F.11	<i>Re-Route the Trail Connector between the Community Ditch Trail and the Greenbelt Plateau Trail to Improve Physical and Environmental Sustainability.</i>	24
	<u>Map Location 12</u>	
F.12	<i>Make Sustainability Improvements to Existing Trails.</i>	24
F.13	<i>Provide Enhanced Education and Enforcement to Improve Compliance with Dog Regulations.</i>	25

Recommendations Affecting the East Marshall Mesa Natural Area
--

F.14	<i>Construct A Trail Connection along S. 66th in the Road Right-of-Way.</i>	25
	<u>Map Location 13</u>	

F.15 Remove the Pedestrian Gate on Marshall Road (S.H. 170 near S. 66th Street). 25
Map Location 14

F.16 Require Dogs to Be On-Leash in the East Marshall Mesa Natural Area and Institute a Regulatory Closure of the Cowdrey Draw Drainage and Wetlands. 26
Map Location 15

Recommendations Affecting the Southern Grasslands Habitat Conservation Area—Coal Creek Subarea

F.17 Maintain Restricted Public Access for the Coal Creek Riparian Restoration Area. 27
Map Location 16

F.18 Allow only one new trail crossing of Coal Creek, which is close to S.H. 128 and will accommodate the new Coalton to Greenbelt Trail. 28
Map Location 17

F.19 Allow Limited, Permitted Guided Hikes into the Coal Creek Riparian Restoration Area. 28
Map Location 18

F.20 Provide An Interpretive Sign Explaining the Coal Creek Riparian Area Restoration Process at the Crossing of Coal Creek on the Coalton to Greenbelt Trail (at S.H. 128). 29
Map Location 17

Recommendations Affecting the Southern Grasslands Habitat Conservation Area—Greenbelt Plateau Subarea and the Doudy Draw Natural Area
--

F.21 Build a New Marshall Lake Trail with an On-Trail Requirement and Prohibition on Dogs. 29
Map Location 19

F.22 Do Not Construct A New Trail North of Coal Creek. 33
Map Location 20

F.23 Do Not Construct A New ADA (Americans with Disabilities Act)-Accessible Loop Trail Connected with the Greenbelt Plateau Trailhead. Continue to Seek More Suitable Sites for ADA-accessible Trails. 35
Map Location 21

F.24 Institute A Seasonal Wildlife Closure in the Doudy Draw Natural Area and A Corresponding Seasonal On-Leash / On-Trail Requirement for the Greenbelt Plateau Trail. 35
Map Location 22

F.25 Continue the Status Quo that Allows Off-Trail Visitor Travel through the Matterhorn Cattle Underpass under S.H. 93 west of the Greenbelt Plateau Trail (except for A New Restriction of A Seasonal Wildlife Closure to Protect Ground-Nesting Birds, see recommendation # F.24), until A Decision Is Made on Trail Use of the Community Ditch Underpass. Then Close the Matterhorn Underpass to Public Use and Direct Equestrian Use to the Community Ditch Underpass. 36
Map Location 23

F.26 Designate and Improve the Undesignated Trail that Runs Parallel to the East Side of the Greenbelt Plateau Trail, Sign This Trail for Bicycle Use, and Eliminate the Undesignated Trail on the West Side of the Trail. 37
Map Location 24

Recommendations Affecting the Southern Grasslands Habitat Conservation Area—Rocky Flats Subarea

F.27 Maintain Restricted Public Access by Not Building Trails in This Subarea. 38
Map Location 25

F.28 Do Not Allow Off-Trail Access in The Rocky Flats Subarea, Consistent with Habitat Conservation Area Resource Protections, unless Visitor Travel is Approved under An HCA Off-Trail Permit. 39
Map Location 25

Recommendations Affecting the Southern Grasslands Habitat Conservation Area—Core Area

F.29 Construct A New Coalton to Greenbelt Trail with An On-Trail Requirement and An On-Trail, On-Leash Requirement. 39
Map Location 26

F.30 Selectively Install Fencing on the Coalton to Greenbelt Trail where There Is A Localized Need to Direct Visitors to Stay On-Trail and to Protect Resources. 42
Map Location 26

F.31 Do Not Construct A New Trail South of Coal Creek. 42
Map Location 27

F.32 Do Not Allow Off-Trail Access for Hang Gliding, Paragliding, or Any Other Off-Trail Activity in the Southern Grasslands Habitat Conservation Area, unless They Are Approved under An HCA Off-Trail Permit. 43
Map Location 28

G. Costs and Scheduling for Recommended Trail Study Area Programs and Projects 44

A. Plan Vision

The Marshall Mesa-Southern Grasslands Trail Study Area (TSA) is a large area that offers both diverse natural environments and diverse recreational opportunities. The three different management area designations within the TSA (Passive Recreational Area, Natural Area, and Habitat Conservation Area) provide a continuum of resource protection, where a higher level of protection is provided to places with higher ecological values and sensitivities to human impacts. These management areas also provide a spectrum of recreational opportunities, where trails and facilities can best support recreational activities. With proper planning, both natural ecosystems and recreational opportunities can be sustained over the long term. The TSA Plan is intended to provide enhancements to both recreational opportunities and resource protection, as outlined below.

Opportunities for Public Access and Trail Improvements

- Construction of additional trail links in this TSA, which will provide a long-distance, loop trail system in the Trail Study Area offering multiple-use visitor opportunities and scenic vistas and interconnections with trails west of S.H. 93 on OSMP lands, and east to Boulder County open space lands and the Coal Creek Trail in Superior, Louisville, and Lafayette.

- Possible trail connections to the Boulder County Superior-area trails to the east.
- Improved and safer trailheads that provide expanded parking capacity and visitor amenities.
- One or more new safe trail crossings of S.H. 93.
- Improvements to the existing trail system that enhance physical and environmental sustainability.
- Both new dog walking opportunities and at least one new “no-dog” trail opportunity.
- New education / interpretation opportunities for area history, geology, ranching, and grassland ecosystems.

Opportunities for Resource Protection

- Preservation of the large size and ecological function of the core wildlife habitat block and the Coal Creek riparian area in the Southern Grasslands Habitat Conservation Area (HCA), which provide diverse habitats remote from development that are connected with other undeveloped natural areas managed by Boulder County, Jefferson County, and the Rocky Flats National Wildlife Refuge.
- Protection of endangered, threatened, rare, imperiled, and highly-vulnerable resources listed or identified by various agencies, including the Colorado Natural Heritage Program (CNHP), state and federal agencies, Open Space and Mountain Parks, Boulder County Nature Association, Partners in Flight, and Boulder County Audubon.
- Ecological restoration of the Coal Creek riparian / aquatic ecosystem and the tallgrass, mixed-grass, and short-grass prairie complex in the Southern Grasslands Habitat Conservation Area.
- Stabilization and protection of historical, pre-historical, and paleontological resources.

B. Planning Context for the Marshall Mesa-Southern Grasslands Trail Study Area

The Marshall Mesa-Southern Grasslands Trail Study Area (TSA) includes three Visitor Plan Management Areas and a part of a fourth one. The Marshall Mesa-Southern Grasslands Trails Study Area Plan Map shows management areas designations, subareas used for inventory analysis, water features, and other public lands adjacent to the TSA. The management areas include:

- West Marshall Mesa Passive Recreation Area (PRA)—270 acres
- East Marshall Mesa Natural Area (NA)—223 acres
- Southern Grasslands Habitat Conservation Area (HCA)—3,338 acres (includes 189 acres in conservation easements and 188 acres in jointly-owned City and County land)
- Doudy Draw Natural Area (the part east of State Highway 93)—223 acres

This TSA is a mixture of different types of ecosystems, with the most extensive being native tallgrass and mixed-grass prairies. Other ecosystems include grassland savannas, riparian and wetland areas, and ponderosa pine forests. Historical human use, which includes mining, ranching, and rural residential land uses, has left a legacy that continues today. However, present day natural areas include rare native plant communities, several threatened plant and animal species, many high-value habitat areas, and a wide expanse of continuous habitat that is large and intact enough to support a large suite of wildlife species some of which are sensitive to human presence and impacts and require large areas of habitat. OSMP and private organizations

have invested significant resources to restore the natural conditions and functions of disturbed areas in the Trail Study Area. In addition, unlike many other parts of the OSMP land system, the lands that surround this Trail Study Area are mostly publicly protected natural areas, and the adjacent private land uses are low intensity. Consequently, the ecosystems in this Trail Study Area function more naturally than those in closer proximity to more intense or interspersed human land uses.

The natural vistas, opportunities to experience wide open spaces, and the chance to appreciate natural ecosystems draw many visitors. The Marshall Mesa Passive Recreation Area has a high level of visitation from many different types of recreationists—hikers, runners, dog walkers, bicyclists, equestrians, and wildlife watchers. The current Marshall Mesa Trailhead, while serving many of these visitors, is inadequate given the current high levels of use. The other parts of the Trail Study Area currently receive significantly less visitor use. The Greenbelt Plateau Trailhead, at the far southwest corner of the TSA, currently receives light use. However, given high levels of recent and anticipated growth in visitor use by Boulder-area residents, planning that will allow OSMP to accommodate higher levels of visitation with new facilities while maintaining a high level of protection for natural and cultural resources is identifying new and sometimes difficult challenges.

C. Plan Goals

Visitor Experience / Recreational Opportunity Goals

- Provide trails in locations that take advantage of excellent views of the mountain backdrop and other open space properties.
- Where possible, provide trail locations and designs that provide a high quality visitor experience by maintaining distance from structures, roads, utility corridors, and other development.
- Provide a long-distance loop trail system along the periphery of the Trail Study Area (thereby maintaining un-trailed areas in the central portion of the TSA).
- Determine where loop trails are appropriate for visitor travel to desired destinations.
- Evaluate trail connections in the TSA to surrounding areas (Davidson Mesa, South Boulder Creek Trail, Boulder County open space properties to the east and south, trails around Superior, Doudy Draw area trails, Front Range Trail, and the Rocky Flats National Wildlife Refuge).
- Evaluate potential educational / interpretive opportunities for:
 - Historical homesteading, mining, grazing activities and more.
 - Grassland ecosystems (including topics such as grassland biodiversity, role of fire and grazing, threat of invasive weeds, and importance / issues of prairie dog colonies).
 - Geological and paleontological resources.
 - Ecological restoration processes and how they are being used in active restoration projects in the TSA.
 - Leave-No-Trace and / or other low-impact visitor techniques.
- Evaluate potential recreational opportunities for:
 - Trail access for the elderly, the very young, and people with disabilities.

- Multiple-use trails that provide compatible access and recreational opportunities for pedestrians, equestrians, and bicyclists.
- Dedicated-use or limited-use trails that facilitate high-quality opportunities for specific recreational uses.
- Parallel trails that separate dogs and no-dog users or other conflicting users.
- Dog access and management provisions on existing and new trails (including dog walking opportunities and no-dog opportunities).
- Expanded opportunities for bicycling with additional bike-accessible and bike-challenging trails (including single-track).
- Seasonal or year-round sustainable off-trail access for equestrians, hang / paragliders, and others.
- Low-impact access to water for people, pets, and horses.
- Provide trail locations, alignments, and designs that minimize conflicts between different types of visitor use and access.

Visitor Facility Goals

- Locate and design trails and facilities that are physically and environmentally sustainable and provide intended access, safety, and visitor enjoyment.
- Provide new, safer trailhead access at the City Limits property.
- Provide a safe road crossing under State Highway 93 with the Community Ditch underpass.
- Provide appropriate levels of vehicle parking that provide a reasonable level of convenience while managing visitor use and its impacts.
- Provide Americans with Disability Act (ADA) accessibility where feasible.
- Determine what visitor services and amenities are necessary or desirable, such as toilets, dog excrement receptacles, and gates and parking lots that work for equestrians.
- Determine which gates are necessary for visitor access to planned destinations, and determine which gates need to be removed.
- Coordinate visitor access solutions with other property owners that may be affected.
- Coordinate planning for trails and trailheads with the Boulder County Parks and Open Space Department and the City of Superior.

Resource Protection Goals

- Protect the ecological integrity of the large Southern Grasslands habitat block that includes the large un-trailed grassland core area and the riparian corridor along un-trailed stretches of Coal Creek.
- Protect rare, imperiled, and highly-vulnerable resources from the impacts of visitor use.
- Restore habitat quality and natural ecosystem functions, such as:
 - Wetland and riparian ecosystems located in the Cowdrey drainage and reservoir, Eggleston Reservoirs, along the various ditches, and the Coal Creek riparian corridor
 - Mosaic of grassland patches that provide a high quality grassland ecosystem
 - Fire and grazing regimes that support ecosystem functions, native biodiversity, and resilience to human-induced changes
- Ensure that visitor use does not significantly affect historical ranching operations.
- Close inappropriate undesignated trails and restore the natural habitat values.

- Implement protection measures for natural and cultural resources to avoid or mitigate impacts (e.g., setbacks or buffers from sensitive resources, trail alignments or reroutes, seasonal closures, fencing, etc.).
- Prevent the spread of non-native plants and invasive weeds.

D. Public Desires

Public involvement in the Marshall Mesa-Southern Grasslands Trail Study Area has been extensive, with a public questionnaire, multiple meetings, and input on the TSA Inventory Report and Alternatives Analysis Report. Diverse community interests have been represented at the various meetings and in the e-mail and written comments received. A useful sharing of the different points of view has occurred, as well as increased understanding among the planning participants. Much common ground has evolved. Where there are significant differences in philosophy and interests, they were clearly articulated, which could facilitate continued conversations to narrow the differences and successfully implement the Trail Study Area Plan in the future. Some of the key points to record are:

Common Ground:

- A high quality visitor experience and minimizing the impacts of visitor use are both important considerations.
- Trails should be physically and environmentally sustainable. Trail locations should be carefully chosen to support both these attributes. Existing trails should be improved to increase sustainability.
- The overall environmental quality of the Habitat Conservation Area (HCA) should be preserved for the long term.
- Highly-sensitive resources should receive extra protection from human impacts, even if it means placing restrictions on visitor access.
- Because of its unique ecological qualities, the Coal Creek Riparian Restoration Area should be preserved and restored, and a trail should not be located there.
- The eagle nesting closure should be respected.
- Concerns about the impacts of grazing on the health of plant communities and wetlands, soil erosion, and undesignated trails should be addressed. An issue concerning the “fairness” of allowing cattle grazing on the grasslands while restricting visitor use should also be addressed.
- The need for decisions on how to manage social trails is a widely-held concern. The need to close and restore unsustainable social trails is recognized.
- Expanded educational and interpretive efforts are needed to increase visitor knowledge of the area’s ecology, geology, and history and of low-impact visitor use techniques.
- Agreement on the concept of applied adaptive management, where less restrictive means are tried initially if resources are not highly threatened and there is a reasonable expectation of success. Success is then monitored and assessed, and tighter controls would be put in place if needed.

Key Differences:

- Differences in opinion exist on how much public access is acceptable in the core of the Southern Grasslands Habitat Conservation Area. There are very divergent views on the

benefits and impacts of proposals for a new trail north or south of Coal Creek or a single fenced trail crossing on the eastern end of Coal Creek (which would connect the Coalton Trail to the Coal Creek Trail and create a new medium-distance trail loop). Some feel these proposals would be very damaging to the overall ecological integrity of the HCA and the potential for the restoration of the grassland and Coal Creek riparian ecosystems. Others feel that fencing, education, and strict enforcement designed to keep people on-trail, out of the creek corridor, and out of the center of the HCA would provide sufficient resource protections to justify this trail connection.

- Differences in opinion exist on which undesignated trails should be designated or closed and restored. Some feel that undesignated trails are very damaging and should be eliminated in almost all cases; others feel that many or most of these social trails should be designated for continued visitor use.
- Differences in opinion exist on how much impact dogs have on the environment and other visitors; also on what the appropriate mix of dog management provisions should be on both existing and new trails in the Trail Study Area. Differences exist on whether or not to more strictly enforce dog regulations and on how extensively no-dog trails should be provided.

E. Major Issues and Recommended Issue Resolution (i.e., problems and opportunities)

Access in the Southern Grasslands Habitat Conservation Area

The Visitor Master Plan designates Habitat Conservation Areas with a management emphasis on resource protection. The HCAs represent the largest, least human-altered blocks of habitat left in the OSMP system. Some visitors desire to visit these habitat blocks, both to get away to more remote destinations and experience the ample remnants of functioning natural ecosystems still present in HCAs. OSMP seeks to provide visitor opportunities in HCAs by providing trails at the outer edge or periphery of the habitat blocks. This approach is designed to minimize additional human influence and impacts on the high quality habitat that still exists. Many wildlife species are highly sensitive to human presence and can only survive and thrive if human presence is minimized. In addition, while visitor travel on trails minimizes direct impact to vegetation and soils, visitors, their pets and equipment are one of the means of introducing non-native plant species that can change the diversity and functioning of native plant communities. Keeping visitors at the edge of HCAs is an effective means to prevent significant impacts on both native wildlife and plant communities.

Some members of the public question whether visitor trails cause unacceptable impacts when they are located in the core of Habitat Conservation Areas. OSMP believes the best way to protect the remaining high quality habitat blocks left in HCAs is to minimize visitor travel in the interior of HCAs. While there are no certainties, OSMP believes enough empirical and anecdotal evidence exists to justify a cautious approach to protecting the natural values of HCAs by placing trails at their periphery, rather than in the core of the habitat blocks. A combination of trails located at the HCA periphery, along with the possibility of a limited amount of off-trail travel that could be approved under the HCA off-trail permit program, is proposed for the Southern Grasslands HCA, in order to best protect the habitat values and accommodate visitor

desires to experience these natural areas. Many other beautiful but less sensitive areas exist in the OSMP system for visitors to enjoy.

The TSA Plan proposes two new trails at the periphery of the Southern Grasslands HCA, the Marshall Lake Trail at the northern edge of the HCA and the Coalton to Greenbelt Trail at the southern edge. Not only do these trails provide new opportunities to experience the HCA, with incredible views of the grassland ecosystems, but they also provide important links in the overall trail system. They complete or add to the overall loop trail system that would provide trail loops of various sizes to meet the desires of different visitors.

The TSA Plan also proposes providing educational and interpretive signs and guided hikes to increase the public's appreciation for the special qualities of HCAs, their vulnerability to human disturbance, and the need to provide a high level of protection to ensure their natural values and functioning. The Plan proposes that interpretive signs and materials be made available to provide information to visitors at the Greenbelt Plateau Trailhead and at the Coalton to Greenbelt Trail crossing of Coal Creek near S.H. 128. The extensive protected grassland ecosystems and the Coal Creek Riparian Restoration Area both could be covered in these interpretive opportunities.

Dog Management

OSMP inventoried existing dog walking activities and assessed the potential for both new dog walking opportunities and new "no-dog" opportunities. Given the high concentration of dog walking activities on Marshall Mesa, the observed and potential for conflict between dogs and other trail users, and the creation and use of a myriad of undesignated trails by dogs, the TSA Plan recommends a focused education and regulation enforcement effort as a way to reduce visitor conflicts and the number of undesignated trails.

In the Southern Grasslands HCA, dogs are required to be on-leash and on-trail, in line with dog management requirements adopted for all HCAs. These dog management requirements can be expected to reduce the potential for disturbance of wildlife by dogs, especially since close-by prairie dogs and ground-nesting birds are in abundance. The TSA Plan recommends expanding dog walking opportunities in the HCA with the new Coalton to Greenbelt Trail and the new trail connection between the new Marshall Mesa Trailhead at the City Limits property to the current Marshall Mesa Trailhead. These recommendations would mean that dog walking is allowed on all trails in the TSA, except the proposed Marshall Lake Trail.

The TSA Plan also provides one new no-dog trail opportunity. The Visitor Master Plan commits OSMP to establish additional no-dog opportunities on some trails, in response to members of the public who feel there should be more "balance" in the mix of dog and no-dog opportunities. In this Trail Study Area, OSMP examined both existing trails and all proposed trails for possible new no-dog trails. For the Southern Grasslands Habitat Conservation Area, the Plan recommends a no-dog restriction on the proposed Marshall Lake Trail. This no-dog trail would provide a significant new no-dog experience opportunity and also minimize impacts to the extensive prairie dog colony (and associated wildlife) south of Marshall Lake. At this point, this trail would not connect to other no-dog trails.

For the West Marshall Mesa Passive Recreation Area, the possibility of a new no-dog trail was considered given the proposed new Marshall Mesa Trailhead at City Limits and the proposed new trails there. Since the proposed trail from the new Marshall Mesa Trailhead at the City Limits site to the current Marshall Mesa Trailhead runs parallel to the existing Marshall Mesa Trail and the existing Community Ditch Trail and provides access to the same destinations, the possibility of a no-dog trail for one of these trails was considered. However, none of these trails are considered suitable for a no-dog requirement, for several reasons:

- Given the existing and anticipated high levels of use in the West Marshall Mesa Passive Recreation Area and the complexity of visitor use patterns that will change with the new Marshall Mesa Trailhead at City Limits, a new no-dog trail would create a bottleneck in the travel flow pattern.
- Applying a no-dog requirement to one of these trails will require visitors to travel in the opposite way to access the no-dog trail and then double back to their destination or require them to travel uphill and then downhill to get to their destination when a more straight-forward travel path is available. Under these circumstances, achieving a high level of visitor compliance with the no-dog requirement may be very difficult or require an inordinate amount of enforcement presence.
- There is no way to provide a continuous no-dog trail opportunity from the new Marshall Mesa Trailhead at City Limits to the no-dog Marshall Lake Trail, an articulated citizen desire, because of the need for through connections for trails that allow dogs; otherwise visitors with dogs would be blocked from travel in different parts of the West Marshall Mesa Passive Recreation Area.

In the East Marshall Mesa Natural Area, the new Cowdrey Draw Trail from the Community Ditch Trail to S. 66th Street was recently constructed. Visitor use, including dog walking, is expected to substantially increase in this area because of the new trail. Because of the potential for dogs to have a significant impact on wetlands, prairie dogs, and rare plant communities, the TSA Plan recommends that dogs be kept on leash within the entire Natural Area. OSMP considered the alternative of requiring dogs to be both on-leash and on-trail in this area. A less-restrictive approach to protecting the resources in this Natural Area is recommended. Visitors are strongly encouraged to stay on trail in the Natural Area, and it is hoped that resources can be adequately protected with the on-leash approach. If not, more restrictive means will be implemented in the future.

F. Trail Study Area Recommendations

In order to provide a high quality of visitor experience, sustainable visitor trails and facilities, and adequate protection of natural and cultural resources, the Marshall Mesa-Southern Grasslands Trail Study recommends several new programs and projects. These include proposed improvements to visitor trails and facilities, resource protection / impact mitigation measures, and activity-specific management measures.

Recommendations Affecting Multiple Places in the Trail Study Area

F.1 Implement a Program to Manage Undesignated (Social) Trails.

F.1.1 Implement Tiered Priorities for Management of Undesignated Trails for the Passive Recreation Area, Natural Areas, and Habitat Conservation Area.

Priority 1: Southern Grasslands HCA

Eliminate and reclaim undesignated trails and actively prevent the creation of new undesignated trails.

Most of the undesignated trails are currently located south of the Community Ditch Trail and in the vicinity of Coal Creek.

Priority 2: East Marshall Natural Area and Doudy Draw Natural Area

Eliminate and reclaim undesignated trails and actively prevent the creation of new undesignated trails.

Given the recent construction of the new Cowdrey Draw Trail in the East Marshall Mesa Natural Area, the network of undesignated trails near this trail needs to be evaluated for management actions. Already occurring increased visitor use of these undesignated trails will exacerbate their resource impacts. Some of these undesignated trails originate with cattle. While some of these trails may be considered for designation, most of them will need to be closed and re-vegetated.

Priority 3: West Marshall Mesa Passive Recreation Area

Establish priorities for elimination / reclamation of undesignated trails, with the highest priority given to situations where significant resource damage has occurred or is likely to occur.

This triage approach is recommended because of the large number of undesignated trails that have resulted from the large number of visitors and dogs, drawn to multiple destinations and interesting features. The goal is to eliminate and reclaim all undesignated trails. This goal will be difficult to reach unless a significant amount of staff resources are directed at physical improvements and barriers, visitor education, and enforcement in certain areas.

Rationale:

Given competing infrastructure needs in this Trail Study Area and in other parts of the OSMP system, undesignated trail priorities are essential. They will help address the most important needs first and provide impetus to complete the task of both eliminating harmful and unneeded social trails and appropriately designating sustainable social trails to become part of the OSMP trail system.

F.1.2 Designate A Limited Number of Undesignated Trails to Provide Viewpoints or Interpretive Opportunities.

Rationale:

Investing in the expansion of interpretive opportunities will provide significant benefits and add to the enjoyment of, and stewardship by, visitors.

- Designate and improve a new spur trail with an on-trail requirement to an overlook of Marshall Lake / Greenbelt Plateau located on the east side of the Community Ditch inlet. Eliminate undesignated trails in the vicinity and restore these damaged areas.

Map Location 1

Rationale:

A significant number of visitors travel off the Community Ditch Trail to this location to get a panoramic view in all direction. Without a designated trail, a highly disturbed area with little vegetation and compacted soil has resulted. The proposal is to provide visitors with a designated trail to the viewpoint, with an on-trail requirement, since the trail is located in the Southern Grasslands Habitat Conservation Area. Fencing would be used to direct visitors to stay on trail. Signs would be installed to inform visitors of the on-trail requirement for this spur trail. OSMP would repair the damaged area and restore native grasses.

- Designate, re-route, and improve a loop trail to an overlook on the north edge of Marshall Mesa (located north of the existing interpretive sign about underground mine coal fires).

Map Location 2

Rationale:

This viewpoint in the West Marshall Mesa Passive Recreation Area offers high-quality views of historical settlement and mining areas close to Marshall Mesa, geological features, other natural landscape patterns, and the mountain backdrop. Fencing can be installed to discourage unsafe climbing of the steep drop-off over the side of Marshall Mesa and to encourage people to stay on the newly designated trail. Interpretive signs can be provided to enrich visitors' understanding and appreciation of the area.

- Further investigate whether or not to designate additional spur trails to appropriate designations offering viewpoints and interpretive opportunities for historical, geological, or other natural features.

Rationale:

The larger Marshall Mesa area is rich with resources that could provide excellent interpretive opportunities. Many people in the community have expressed interest in expanding interpretive opportunities and have offered

their assistance in identifying and implementing these opportunities. OSMP will use input from the community to select other appropriate places for geological interpretation. OSMP will follow up on leads to identify all significant mining sites in the Marshall Mesa area, in order to identify possible interpretive opportunities and public safety protection measures. A combination of interpretive signs, numbered locations in an interpretive brochure, and / or internet-based information could be utilized. These places may be alongside designated trails, but they also could involve spur trails in places where impacts would not be significant.

As part of this investigation, OSMP will further investigate the possibility of a new loop trail to the highest point in the East Marshall Natural Area, which would connect with the newly-constructed Cowdrey Draw Trail with both a west-access and east-access trail connection. This destination offers high-quality views of the larger landscape—the settlement and mining cultural features, geological features and processes, other natural landscape patterns, and the mountain backdrop. Issues of resource impacts, trail sustainability, and how to connect with the Cowdrey Draw Trail need to be further investigated.

Map Location 3

F.1.3 Utilize the Trail Suitability Criteria to Evaluate How to Manage Specific Undesignated Trails.

These criteria address factors related to the quality of visitor experience, physical sustainability, environmental sustainability, and cultural / paleontological resources. They can be used to analyze the existing and planned visitor use patterns in an area and evaluate how undesignated trails can be managed within a broader context.

Rationale:

These criteria are useful in evaluating the relative merits of alternative trail improvement, resource protection, and activity-specific management actions. These criteria can be adapted for use in evaluating alternatives for social trail management where there is a complicated situation of multiple destinations and social trails.

F.1.4 Evaluate and Implement Strategies to Minimize Undesignated Trails Created by Cattle.

Rationale:

Cattle grazing in many parts of the Trail Study Area create undesignated trails, many of which are damaging to the natural resources. The existence of these cattle-created undesignated trails creates the situation where visitors sometimes travel on these undesignated trails, which can further embed these trails and cause additional resource damage. OSMP is committed to explore ways of minimizing cattle trails and allowing re-vegetation of them, as a way of reducing resource impacts and visitor use of cattle trails. Some of these strategies involve rotation of grazing in ways that allow grasses to

rebound sufficiently to the trampling impacts of cattle so that undesignated trails can be minimized.

F.2 Implement a Package of Trailhead Improvements and Associated Management Actions that Best Provide Desired Visitor Access in a Physically and Environmentally Sustainable Way.

F.2.1 Close and Relocate the Current Marshall Mesa Trailhead to the City Limits Property, but Maintain Current Public Access through the Existing Pedestrian Gate.

Map Location 4

This action would involve several aspects:

- Remove the vehicle parking, which is partially in the road right-of-way, and restore these areas to a natural condition.
- Post no-parking signs along Marshall Rd. (S.H. 170), and work with Boulder County to enforce this regulation.
- Post informational signs that explain why the current Marshall Mesa Trailhead was closed and direct visitors to the new Marshall Mesa Trailhead at the City Limits property.
- Maintain visitor access by keeping the pedestrian gate open for non-vehicular access.
- Allow vehicular access only in the event of emergencies and utility access.
- Narrow the trail and restore adjacent disturbed areas.

Rationale:

- Closing the off-street trailhead parking alongside Marshall Road (S.H. 170) will eliminate existing safety concerns caused by insufficient space for vehicles to safely maneuver out of the trailhead parking area, as well as improve safety for non-motorized access at that location. The existing situation may be exacerbated in the summer of 2006 when Boulder County constructs new bikeway shoulders along Marshall Road (S.H. 170). Concentrated efforts to prevent unsafe illegal roadside parking will be required along with trailhead closure.
- Maintaining visitor access through the pedestrian gate is important to nearby residents, bicyclists, and other trail users.
- A larger capacity, safer, and improved trailhead will be provided at the nearby City Limits site.
- Replacing the Marshall Mesa Trailhead will reduce the amount of public access through the pedestrian gate and will provide the opportunity for restoration and enhanced protection of the wetlands at the site.
- Restoration of roadside vegetation can buffer adjacent OSMP areas from weed encroachment.
- Vehicular access for emergencies and utility maintenance will be maintained with a locked vehicle access gate. Several utilities have facilities in utility rights-of-way on Marshall Mesa, including telephone, electrical power, underground natural gas line, and transformers south of the Marshall Mesa Trailhead.

Other Alternatives Considered:

- **Close All Public Access at the Marshall Mesa Trailhead by Removing the Pedestrian Gate.** This option would provide the opportunity for more extensive restoration of the disturbed areas and protection of the wetlands. However, the benefit of maintaining public access outweighed this consideration.

F.2.2 Build a New Marshall Mesa Trailhead at the City Limits Property and Connecting Trails to the Community Ditch Trail.

Map Location 5 New Marshall Mesa Trailhead at City Limits

Map Location 5a Connecting trail to Community Ditch Trail

Map Location 5b Connecting trail to Community Ditch Trail

A new trailhead at the City Limits property will provide a modern, well designed trailhead with 45-60 vehicle parking spaces, pull-through horse trailer parking spaces, primitive toilet facilities, and a trailhead information and interpretive kiosk.

Two connecting trails to the Community Ditch Trail will be built: a trail heading south then west leading to the proposed Community Ditch underpass under S.H. 93 and a trail heading south then east that would provide access to the Community Ditch Trail and the Marshall Mesa Trail.

Rationale:

- A new trailhead at this location can solve problems at the existing Marshall Mesa Trailhead and provide visitor parking capacity and services to accommodate a high level of use in the larger Marshall Mesa area.
- The trailhead site is large enough to provide safe parking for horse trailers and other users.
- Mining history interpretation could be built into the trailhead and connecting trails.
- Two connecting trails are deemed necessary, in order to provide ease of use in both travel directions and to avoid user-created social trails. These trail alignments were selected to minimize the impact to the natural environment, especially to shrublands, wetlands, and drainages.

Other Alternatives Considered:

- **No Action.** This option was considered and offered cost savings to the Department if not built. But the benefits of replacing the Marshall Mesa Trailhead with a safer and bigger trailhead justify the costs.
- **Separate Trail for Bicyclists in Steep Sections of the Connection Trails.** This option was considered for the obvious benefit of reducing potential conflict between bicyclists and other visitors. However, this option was dropped because of the potential for increased impacts to the natural resources and the feasibility of accommodating the various trail users with a properly-designed multi-use trail.
- **A No-Dog Trail in the Marshall Mesa Passive Recreation Area (PRA).** An assessment of the feasibility of a no-dog trail in this PRA was completed (including existing trails, the proposed City Limits trail connections, and the proposed trail connecting the new Marshall Mesa trailhead at the City Limits property and the

current Marshall Mesa Trailhead). It was concluded that a no-dog trail here was not feasible, given existing and expected visitor use patterns and the difficulty of enforcement in such a heavily used Passive Recreation Area.

2.3 *Defer Consideration of Possible New Trailheads near Marshall Rd. and S. 66th or S.H. 128 / Coalton Rd. Intersection.*

Map Location 6a Marshall Rd. and S. 66th

Map Location 6b S.H. 128 and Coalton Rd.

Rationale:

- Building new trails, trail connections and loops in the Marshall Mesa-Southern Grasslands Trail Study Area and County open space lands to the east will likely increase the overall level of recreational activities in the larger area. With this anticipated increase in visitor use, the need for additional trailheads can also be anticipated. However, it is premature to consider whether or not to build specific new trailheads. Emerging visitor use levels and patterns need to become clear before these or other new trailheads are built. How many trailheads and where they should be located will not be known until some time in the future. Consequently, it makes sense to defer consideration of any new trailheads until the new Marshall Mesa Trailhead at the City Limits property is built and one or both of the County's proposed trailheads are built (at Singletree and at Coalton Trail / McCaslin Boulevard). This recommendation involves waiting for new visitor use patterns to emerge, and reevaluating overall trailhead needs in the future.

2.4 *Defer Consideration of the Possible Expansion and Improvement of the Greenbelt Plateau Trailhead until Improvement Needs for the Flatirons Vista Trailhead Are Investigated in the Eldorado Mountain-Doudy Draw Trail Study Area.*

Map Location 7

Rationale:

- Possible improvements to the Greenbelt Plateau Trailhead have been identified. These improvements include vehicle ingress and egress improvements, parking space capacity expansion, surface paving, new pull-through horse trailer parking, and a new informational and interpretive kiosk. Interpretive topics for the kiosk could cover the ecological values, functioning, and diversity of the Southern Grasslands Habitat Conservation Area and the ecological importance and process for restoring the Coal Creek Riparian Restoration Area.
- It makes sense to defer decisions on the physical improvements for the Greenbelt Plateau Trailhead because choices may vary depending on what improvements are made to the Flatirons Vista Trailhead (and also what is built at the new Marshall Mesa Trailhead at City Limits). In particular, the number of parking spaces and the accommodation of horse trailer parking are interrelated between the two trailheads. And decisions on improving the Greenbelt Plateau Trailhead vehicle access and paving surface are intertwined with decisions on how much, if any, to expand this trailhead.

- The Eldorado Mountain-Doudy Draw Trail Study Area will be the next TSA tackled after the Marshall Mesa-Southern Grasslands TSA Plan is complete.

F.3 Collaborate with Boulder County to Provide Trail Connections between Superior-Area Trails and Marshall Mesa-Area Trails.

F.3.1 Work with Boulder County to Evaluate a Possible Trail Connection to the Coal Creek Trail by Extending the Cowdrey Draw Trail east of S. 66th Street.

Map Location 8

Rationale:

- The Open Space and Mountain Parks Department and Boulder County have proposed a joint city-county examination of possible trail connections from Marshall Mesa-area trails to the Coal Creek Trail. A possible northern trail connection option is being examined. This northern trail connection would extend the Cowdrey Draw Trail to the east of S. 66th Street and then turn south to the Coal Creek Trail. If constructed, the new trail connection would provide a large trail loop from the Marshall Mesa Trailhead at the City Limits property, to Superior, to the Southern Grasslands HCA (along S.H. 128), and back up to the new Marshall Mesa Trailhead at City Limits. In addition, the trail connection would allow trail users to access the Coal Creek Trail east of Superior and the Community Ditch / Doudy Draw trails west of Marshall Mesa and S.H. 93.
- A decision on whether or not to build this northern trail connection option has not yet been made. A detailed site feasibility and environmental assessment for this trail connection still needs to be completed. Several access and alignment issues need to be evaluated, including possible trail easements, crossing of the Community Ditch, and possible use of the Xcel utility right-of-way.
- The northern trail connection would require that the Open Space and Mountain Parks Department extend the Cowdrey Draw Trail through the Damyanovich property on the east side of S. 66th, if the County constructs its connection to the proposed Singletree Trailhead. Completion of this trail segment through the Damyanovich property would require mitigation of the contaminated industrial / mining tailing piles to ensure public safety. OSMP would likely locate the trail to the south of the tailing piles with an appropriate buffer. To stop airborne dust exposure, OSMP will cover the piles with clean fill topsoil and re-vegetate. If necessary, fencing to prevent visitor access would be installed. Once these hazard mitigation measures are in place, OSMP will lift the current public access closure on the east side of the Damyanovich property.
- A new signed, at-grade trail crossing of S. 66th would need to be constructed. An at-grade crossing would be acceptable due to the low volume of traffic on this road.

F.3.2 Further Investigate the Possibility of Extending the Coal Creek Trail on or alongside Coal Creek Drive west to S. 66th Street.

Map Location 9

Rationale:

- Boulder County is currently examining two options for extending the Coal Creek Trail west of its junction with Coal Creek Drive. The northern trail connection option is described in recommendation # F.1. A southern trail connection option would be to construct a trail on or alongside Coal Creek Drive west to S. 66th Street. This option would require constructing a trail segment from Coal Creek Drive to S. 66th (through OSMP's Mesa Sand and Gravel property), which would be needed to provide a trail with a reasonable, physically-sustainable trail grade.
- A decision on whether or not to build this southern trail connection option has not yet been made. A detailed site feasibility and environmental assessment for the southern trail connection option still needs to be completed. Several trail alignment and habitat impact (e.g., prairie dog) issues need to be evaluated for this option.
- If both the northern and southern trail connection options are constructed (along with a connecting trail in the S. 66th right-of-way), a new mid-distance trail loop would be created from Marshall Road at S. 66th to the Singletree Trailhead, to the Coal Creek Trail, and then back to S. 66th. If the proposed trail from Marshall Mesa south of Marshall Lake to S. 66th / Coal Creek Trail were also built, a double, stacked figure-eight trail loop would result. The Open Space and Mountain Parks Department would support Boulder County in constructing both the northern and southern trail connections, if county funding allows.

F.4 Implement Best Management Practices for Trail Construction and Maintenance.

Rationale:

- Best Management Practices (BMPs) are standard operating procedures that guide selection of trail locations, design, construction, and maintenance. BMPs are intended to support both physical and environmental sustainability for trails and facilities. Physically sustainable trails hold up over time with minimal regular maintenance. Environmentally sustainable trails minimize impacts on the natural environment. Location and design of trails, using Best Management Practices, provide a travel route and travel experience that encourage users to stay on-trail and avoid off-trail travel, and they minimize degradation of habitat qualities, trampling of vegetation, soil erosion and compaction, the spread of non-native plant species, and other resource impacts.

F.5 Stabilize, Restore, Protect, and Interpret Cultural and Paleontological Resources.

Rationale:

- The Marshall Mesa-Southern Grasslands Trail Study Area contains a rich collection of cultural and paleontological resources. Artifacts from prehistory and settlement times and from mining activities are located in many areas. These resources need stewardship to restore and protect them. In some cases, these resources need to be protected from the impacts of visitation.

- At the same time, cultural and paleontological features offer rich opportunities for instilling knowledge and appreciation among OSMP visitors about the rich history of this area of the Boulder Valley.

F.6 Establish Appropriate Monitoring for the Trail Study Area.

Rationale:

- The Visitor Master Plan provides guidance on improving the quality of the visitor experience and the quality of the natural environment. The actions called for in the TSA Plan are for the most part specific examples of broader strategies described in the Visitor Master Plan. The plan calls for monitoring the effectiveness of these strategies.
- Monitoring is used to determine the effectiveness of various strategies at improving conditions where necessary and maintaining acceptable conditions elsewhere. Measuring the effectiveness of strategies involves several steps including identifying the range of acceptable conditions, selecting indicators that will be measured, developing protocols for measuring those indicators, and then implementing the monitoring on the ground. Effectiveness monitoring often requires the collection of baseline data to formally document the conditions in place before a strategy is put into action. Monitoring provides the Open Space and Mountain Parks Department with information not only to assess how well the TSA plan strategies are working, but also to refine the nature, location, or extent of implementation.

Specific monitoring actions proposed for this TSA include:

- Dog Management in the TSA
The TSA proposes that dogs be leashed on the Coalton to Greenbelt Trail, the eastern portion of the Cowdrey Draw Trail, and excluded from the Marshall Lake Trail. Maintaining the quality of the visitor experience and the health of the natural systems in the area are influenced by compliance with dog management regulations. Dog and dog guardian behaviors will be measured through direct observation.
- On-Trail Use
The Visitor Master Plan calls for on-trail use in HCAs. In this TSA, the recommended trails in the Southern Grasslands HCA include the Coalton to Greenbelt Trail and Marshall Lake Trail. Maintaining the ecological integrity of the HCA relies upon compliance with the on-trail requirement. The degree to which visitors are staying on trail will be assessed through direct observation.
- Trail Condition
The Open Space and Mountain Parks Department has developed trail construction and maintenance standards that support trail condition monitoring. Annual or periodic monitoring of trail condition can be used to direct maintenance activities and identify segments of trail that are physically unsustainable. Indicators of trail condition include tread width, incision, and side slope.
- Undesignated Trail Development
Closely related to on-trail use (above) and reclamation (below) is the development of new undesignated or social trails. Periodic observation by OSMP staff will establish the location and extent of undesignated trail development.

- Reclamation of Native Vegetation
The success of closure and reclamation of undesignated trails, the existing Marshall Mesa trailhead, and other disturbed areas will be assessed by measuring changes in vegetative cover and composition.
- Establishment and Spread of Weeds
The new trails, trailheads, and other visitor facilities will be constructed according to practices designed to minimize the establishment and spread of weeds. The effectiveness of these practices is not well established. Monitoring will help OSMP staff set standards, make needed corrections, and determine when disturbed areas are successfully restored. The composition and cover of weeds will be a measure of weed establishment and spread.
- Effects upon Wildlife
Changes in trails and access patterns have the potential to affect the abundance, diversity, and behaviors (e.g., predator use of an area) of wildlife in the TSA. Baseline data are available from some areas of the TSA, but more will be needed where trail modifications are proposed. These data will be compared with data collected after changes are made (new trails, undesignated trails closed, etc.). A variety of techniques will be used to measure wildlife abundance, distribution and behavior.

F.7 Annually Assess the Status of the Marshall Mesa-Southern Grasslands Trail Study Area Plan Recommendations and Revise the Implementation of the Trail Study Area Plan As Needed.

Rationale:

- The Visitor Master Plan commits OSMP to monitor implementation progress, assess monitoring results, and incorporate them into the annual work plan, budget, and Capital Improvements Program (CIP). The Visitor Master Plan also commits OSMP to provide “open dialog” forums at least once a year to coincide with the timing of assessment of monitoring results and formulation of the next year’s work plan, budget and CIP.
- Trail Study Area Plans are an important implementation component of the Visitor Master Plan. OSMP will annually assess the status of the Marshall Mesa-Southern Grasslands TSA Plan recommendations to determine what progress was accomplished, what worked and what did not, and what plan revisions are needed (e.g., specific implementation policies and actions and scheduling of capital improvements). This assessment will take into account new information and learning from experience, success of interrelated management efforts (such as education and enforcement of new on-trail and dog management requirements, the Habitat Conservation Area off-trail permit program, and management decisions for specific recreational activities), and progress in building trails and improvements.
- Planning for visitor access and resource protection will be focused on the Trail Study Area. To the extent that decisions in other Trail Study Areas affect how the Marshall Mesa-Southern Grasslands Trail Study Area Plan recommendations can best be implemented, the need for possible plan changes will be considered.

F.8 Require Conservation Easement Landowners to Obtain Habitat Conservation Area (HCA) Off-Trail Permits, unless Prior Written Agreements Provide Other Access Provisions.

Rationale:

- The on-trail and on-leash requirements of Habitat Conservation Areas are intended to provide a high level of resource protection. Travel into the HCAs from adjacent conservation easement lands will be regulated by the HCA off-trail permit program. Conservation easement landowners will be required to apply for these HCA off-trail permits in the same manner required of other visitors. If there are any pre-existing written access provisions in the conservation easement agreements, these will be respected.

Recommendations Affecting the West Marshall Mesa Subarea

F.9 Build A New Trail from the New Marshall Mesa Trailhead at City Limits to the Vicinity of the Current Marshall Mesa Trailhead (going southeast from the trailhead, turning east, and eventually following the north side of the Davidson Ditch).

Map Location 10

Rationale:

- This trail proposal is a different alignment than proposed by citizens (which was along the old railroad grade). It provides the same benefit of providing a new larger trail loop from the new Marshall Mesa Trailhead at the City Limits property to the Community Ditch Trail and / or the Marshall Mesa Trail.
- This trail would follow, in part, a social trail along the north side of Davidson Ditch, which indicates a desire for visitors to travel along this ditch.
- This trail alignment would keep people on the north side of Davidson Ditch, thereby discouraging off-trail access through important north-facing shrublands and up the drainages.
- This new trail could minimize or eliminate creation of new undesignated trails (which might occur if not built).
- Fencing could be used in some places to keep visitors on-trail in order to avoid residual mining hazards and unsustainable conditions.

Other Alternatives Considered:

- **Railroad Grade Alignment.** This alignment would make the same trail connection, but it would not offer as nice a visitor experience, with lower quality views and a location closer to Marshall Road. This alignment would also bring visitors very close to the back side of two homes along Marshall Road.
- **Alignment on the South Side of Davidson Ditch.** This option was not recommended because this upslope alignment would not discourage off-trail access through important north-facing shrublands, wetlands, drainages, and forested areas to the south of the ditch.

F.10 Build A Trail Crossing under S.H. 93 Using the Existing Community Ditch Underpass.
Map Location 11

Rationale:

- Visitors on the Community Ditch Trail cross S.H. 93 to continue travel between the west and east sides of the highway. This at-grade crossing is very dangerous. The underpass will eliminate this safety problem.
- Because of the large existing underpass for Community Ditch, the cost of this new trail crossing would be a fraction of what it would cost if a new underpass were to be constructed.
- Trail crossing design and project impact mitigation will minimize the resource impacts of constructing the new underpass.

Resource Protection / Impact Mitigation Measures:

- **OSMP will post a sign in the underpass that educates visitors about the nesting swallows and advises them of the federal protections against harassment or disturbance.** Swallows that nest in the ceiling and walls of the underpass structure are protected by the International Migratory Bird Treaty Act.

F.11 Re-Route the Trail Connector between the Community Ditch Trail and the Greenbelt Plateau Trail to Improve Physical and Environmental Sustainability.

Map Location 12

Rationale:

- The existing trail is in poor condition because its location and design are physically unsustainable. The proposal is to relocate this trail to the west on a more physically and environmentally sustainable alignment, while still providing access to the existing bridge that crosses the Community Ditch.

F.12 Make Sustainability Improvements to Existing Trails.

Segments of the Marshall Mesa Trail and the Community Ditch Trail need trail tread and erosion control improvements.

Rationale:

- These trail improvements will add to both physical and environmental sustainability. Drainage improvements or trail surfacing may need to be made to reduce trail braiding and widening.
- These trail improvements would improve conditions for adjacent native vegetation by controlling erosion and reducing weed habitat (with the repair and prevention of braiding and trail widening).

F.13 Provide Enhanced Education and Enforcement to Improve Compliance with Dog Regulations.

Rationale:

- A large proportion of visitors to the Marshall Mesa area bring dogs with them. Conflicts among visitors may be reduced by enhanced education and enforcement of dog regulations.
- Better control of dogs on-leash or under voice-and-sight control will likely reduce dog impacts related to weed spread, wildlife disturbance, and social trail development.

Recommendations Affecting the East Marshall Mesa Natural Area
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F.14 Construct A Trail Connection along S. 66th in the Road Right-of-Way.

Map Location 13

Rationale:

- This trail link is needed if the new Marshall Lake Trail is built by OSMP, in order to connect the Marshall Lake Trail and the Cowdrey Draw Trail near Marshall Road (S.H. 170). This trail connection would form the last link in a new medium-distance trail loop. The S. 66th trail connection would also form the last link of another trail loop to the east if Boulder County extends the Coal Creek Trail west to S. 66th and extends the Cowdrey Draw Trail east to the Singletree Trailhead.
- The trail would need to be built in the road right-of-way because of private land on both sides of the road. The trail would need to be located on the east side of S. 66th, because of the tight space and drainage ditch on the west side of the road.
- This trail connection would be coordinated between the Open Space and Mountain Parks Department and the Boulder County Transportation Department.

F.15 Remove the Pedestrian Gate on Marshall Road (S.H. 170 near S. 66th Street).

Map Location 14

Rationale:

- This existing pedestrian gate, while not heavily used, contributes to a network of undesignated trails with impacts on the vegetation. Removing the gate will decrease the potential for further social trailing and allow restoration of this habitat.
- Removing the gate will better protect the Cowdrey Draw wetlands from direct visitor disturbance or soil erosion into the drainage.

If the Tallgrass Prairie East Trail Study Area determines that there should be a trail connection between Davidson Mesa (north of Marshall Road) and Marshall Mesa (south of Marshall Road), an evaluation of the best design solution for a trail connection will be undertaken. A trail connection could occur in the vicinity of S. 66th Street, which would provide access to the Cowdrey Draw Trail at South 66th, thereby providing a sustainable Marshall Mesa access on a designated trail.

Other Alternatives Considered:

- **Maintain the Gate until Public Access / Trail decisions Are Made for the Tallgrass Prairie East Trail Study Area.** This option was not recommended because the new Cowdrey Draw Trail from the Community Ditch Trail to S. 66th will bring many more people into the vicinity of the existing pedestrian gate, and because the lack of a legitimate destination and a designated trail through the gate will exacerbate the impacts from this off-trail use.

F.16 Require Dogs to Be On-Leash in the East Marshall Mesa Natural Area and Institute a Regulatory Closure of the Cowdrey Draw Drainage and Wetlands.**Map Location 15****Rationale:**

- The new Cowdrey Draw Trail from the Community Ditch Trail to S. 66th Street has opened up this Natural Area to increased visitor use. This Natural Area contains several rare plant communities, wetlands, and a prairie dog colony that need protection from visitor use impacts. Given the natural attraction of dogs to the Cowdrey Draw drainage and wetlands and to the prairie dogs, protecting these resources will require that dogs not go in the water or interact with the prairie dogs. The recommendation is to require dogs to be on-leash in the East Marshall Mesa Natural Area. On-trail requirements for people or dogs are not being proposed at this point. A choice was made to start with a less restrictive regulation (on-leash with encouragement to stay on-trail), with the hope that these resources will be adequately protected by compliance of visitors with the on-leash requirement. Visitors will be encouraged to stay on trail, in order to protect the grassland habitat, wetlands, and prairie dogs. If monitoring demonstrates an inadequate level of compliance with the on-leash requirement, then more restrictive means could be implemented.
- In addition to the on-leash requirement in the Natural Area, a regulatory closure is recommended for the Cowdrey drainage and wetlands, which will be signed to deter access by people or dogs to the water. This closure is intended to prevent the wetlands and riparian area from being damaged by visitors, as well as to protect visitors from exposure to residual water pollution that is a legacy from past mining and industrial operations.

Other Alternatives Considered:

- **Fencing of Cowdrey Draw Drainage and Wetlands.** Fencing would be a solution that would keep dogs out of the water. However, fencing would not deal with the potential impacts of dogs not on-leash or not under voice-and-sight control on rare plant communities and prairie dogs. In addition, fencing that acts as an effective barrier to dogs may also be a barrier to wildlife movement. Also, fencing off the wetlands from people and dogs would fence off cattle that need access to water, which would reduce the area that could be grazed by cattle.
- **On-Leash, On-Trail Requirement.** Requiring leashed dogs to stay on the new trail in the Natural Area, given adequate compliance, would effectively protect resources. However, trying a lesser restriction first is an attempt to balance resource protection with visitor opportunities.

- **Voice-and-Sight Control.** Even with focused education and enforcement activities, experience suggests that the natural attraction of dogs to water and prairie dogs would make it very difficult to achieve adequate protection of these and other natural resources.

Recommendations Affecting the Southern Grasslands Habitat Conservation Area--Coal Creek Subarea
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F.17 Maintain Restricted Public Access for the Coal Creek Riparian Restoration Area.
Map Location 16

Rationale:

- No trails are planned in the Coal Creek Restoration Area. Its ecological importance and the significant public and private investment in its ecological restoration justify maintaining the Coal Creek Restoration Area as an un-trailed stretch of Coal Creek.
- Some of the reasons that the Coal Creek riparian area is so important ecologically is the un-trailed seven-mile stretch of the creek (Coal Creek is one of the only un-trailed plains streams in the Front Range), the abrupt transition from foothills to plains riparian ecosystems, and the contiguity of the riparian area with adjacent large patches of high-quality grassland, which supports diverse habitats for different life-cycle stages and foraging needs of reptiles, amphibians, birds, and large and small mammals.
- Resource conservation and ecological restoration is the top priority for the Coal Creek Riparian Restoration Area. Not building a trail and maintaining very limited public access are key to successfully meeting the long-term restoration and management goals for this subarea and for the Southern Grasslands Habitat Conservation Area as a whole. Not building a trail and allowing only limited public access through the HCA off-trail permit program will minimize impacts to ongoing restoration of riparian and wetland plant communities (many of which are rare and sensitive) and associated uplands within the fenced corridor.
- This un-trailed riparian corridor provides a unique and rare (along the Front Range on public land) habitat for many wildlife species who cannot tolerate human presence and disturbance. This habitat supports nesting bald eagles and other species of special concern, including federally-listed Preble's Meadow Jumping Mouse, Leopard Frogs, and 35 bird species of special concern.
- Keeping this riparian restoration area un-trailed will protect recovering habitat that provides habitat for 142 species of birds, reptiles, small mammals, and native fish and will maintain an important continuous wildlife movement corridor.
- Not constructing a trail will maintain the legal agreement that OSMP has with the Terra Foundation that precludes public access and crossing of the creek in the area restored with Terra Foundation funds.
- The seasonal wildlife closure to protect bald eagles nesting on Coal Creek would prevent visitor use of a trail in the Coal Creek Riparian Restoration Area eight or nine months of the year.

F.18 Allow only one new trail crossing of Coal Creek, which is close to S.H. 128 and will accommodate the new Coalton to Greenbelt Trail.

Map Location 17

This trail crossing is discussed under the Southern Grasslands Habitat Conservation Area—Core Area. The Creek crossing will be close to S.H. 128, either on top of the existing box culvert that allows the creek to flow under S.H. 128 (if allowed by the Colorado Department of Transportation) or on a new bridge located close to the north side of S.H. 128.

Rationale:

- Multiple creek crossings would be fundamentally in conflict with the protection of the Coal Creek Riparian Restoration Area and its ecological functioning. Additional creek crossings would disrupt the wildlife movement function of the corridor, fragment the riparian habitat, and potentially introduce weeds.

Other Alternatives Considered:

- **New Trail Connection from the Coalton Trail to the Coal Creek Trail crossing Coal Creek and Community Ditch** (east of the private Rothman conservation easement property). This trail connection would provide a medium-distance loop and cross Coal Creek at a place that has historically been disturbed by humans (e.g., ditch road and diversion spillway, creek / ditch dredge piles, concrete lining of the creek, weedy species, and social trails). However, this creek crossing and associated trail would not be compatible with the long-term restoration goals for Coal Creek (including this localized area of disturbance) or resource protection goals for the HCA, because it could potentially undermine the wildlife movement function of the creek corridor, would cut through a large prairie habitat block on OSMP and Boulder County Parks and Open Space (BCPOS) lands, and could provide a significant new source of weeds to this recovering plant community. Further, an additional Coal Creek crossing from the Coalton Trail to the Coal Creek Trail may be accommodated by a new County trail connection from the Coalton Trail to the proposed Singletree trailhead.

F.19 Allow Limited, Permitted Guided Hikes into the Coal Creek Riparian Restoration Area.

Map Location 18

These types of guided hikes would occur under a new Habitat Conservation Area off-trail permit program. Permits would limit the number of visits and impose conditions to minimize the impacts of the activity. These hikes could be conducted by OSMP or other entities conducting educational activities.

Rationale:

- Educational and bird watching activities would be accommodated on a small scale via guided hikes. Guided hikes will educate the public on the ecological value of the Coal Creek Riparian Restoration Area and the reasons for keeping the area un-trailed and providing a high level of protection.

F.20 Provide An Interpretive Sign Explaining the Coal Creek Riparian Area Restoration Process at the Crossing of Coal Creek on the Coalton to Greenbelt Trail (at S.H. 128).

Map Location 17

Rationale:

- An interpretive sign explaining the ecological value of the Coal Creek Riparian Restoration Area and the reasons for keeping the area un-trailed and providing a high level of protection for the area would benefit visitors.

Recommendations Affecting the Southern Grasslands—Greenbelt Plateau Subarea and the Doudy Draw Natural Area

F.21 Build A New Marshall Lake Trail with an On-Trail Requirement and Prohibition on Dogs.

Map Location 19

The proposed Marshall Lake Trail would start at a new bridge crossing west of the Community Ditch inlet to Marshall Lake, go south, follow Marshall Lake close to its west side, then the south side of Marshall Lake, and ultimately connect into S. 66th Street. This trail would be located in the Southern Grasslands Habitat Conservation Area, and consequently visitors would be required to stay on trail. The entire length of this trail would be sited at the periphery of the HCA. The conceptual trail alignment would be sited on the west side of Marshall Lake just west of the old feeder ditch, where there is an old roadbed that has been largely re-vegetated, and along the lightly-used two-track road on the south side of Marshall Lake. This location would be very close to the OSMP property line with the Farmer's Reservoir and Irrigation Company's (FRICO) Marshall Lake property.

The conceptual trail alignment of the Marshall Lake Trail is shown on the Marshall Mesa-Southern Grasslands Trail Study Area Plan Map. The precise alignment of the proposed Marshall Lake Trail will be determined after several of the issues described below are dealt with and more detailed site planning is completed. Trade-offs inherent in different alignments will be evaluated. An example is the setback distance from Marshall Lake; maybe a trail alignment farther from the Marshall Lake shore would better protect eagles and other wildlife (such as shore birds) and provide a trail tread with better drainage characteristics, but it might not be better in protecting prairie dogs and grassland habitat.

Rationale:

- The proposed Marshall Lake Trail provides a medium-length loop trail for hikers, bikers, and equestrians (i.e., from the new Marshall Mesa Trailhead at City Limits to Community Ditch Trail to Marshall Lake Trail, to S. 66th Trail, to Cowdrey Draw Trail and back to the new Marshall Mesa Trailhead). It offers amenities of proximity to water, water views, a "remote" trail setting, and the visual experience of a large prairie habitat block.
- The specific trail alignment at the edge of the OSMP property and at the periphery of the HCA is preferred to other alignments closer to the interior of the HCA, which have greater resource impacts. The specific trail alignment close to the Marshall Lake locates the trail where there is already considerable recreational activity (by members of the Louisville Rod

and Gun Club) and other human disturbance. The resource impacts of building the Marshall Lake Trail are described below, along with proposed resource protection / impact mitigation measures.

- The trail can be constructed and maintained in a sustainable manner with trail design features that provide for adequate drainage.
- The trail alignment on the south side of Marshall Lake will be constructed in a way that avoids direct impact to the prairie dog burrows.

Resource Protection / Impact Mitigation Measures:

OSMP completed a detailed trail suitability analysis for the Marshall Lake Trail proposal. The trail suitability ratings varied considerably. The quality of visitor experience criteria rated mostly medium-to-high suitability. The physical sustainability criteria rated mostly medium suitability. The environmental suitability rated mostly low-to-medium suitability.

With regard to the quality of visitor experience, the Marshall Lake Trail would provide a new trail loop and a possible connection to the Coal Creek Trail east of S. 66th, provide a no-dog trail opportunity, and offer views of Marshall Lake, high mesa tops, and prairie grasslands. The trail would offer a wide variety of interpretive opportunities for the grassland ecosystem and the large prairie dog colony.

With regard to physical sustainability, the proposed Marshall Lake Trail is feasible but presents challenges because its relatively flat terrain and predominant soil types are not conducive to water draining off the trail. However, this deficiency can be mitigated by creating a side slope for the trail tread, installing water bars, barrow ditches and culverts where needed, and importing trail surface material such as crusher fines. These types of trail facilities, however, do require more maintenance than a trail that has slope and soil characteristics that optimally drain water.

With regard to environmental sustainability, the proposed Marshall Lake Trail is anticipated to create impacts that will reduce habitat values. The larger area in which the trail will be built provides valuable tallgrass prairie, wetland, and lake habitats that support prairie dogs, raptors including bald eagles, ground-nesting birds, wading and shore birds, and diverse small and large mammals. The most significant potential environmental impacts of the trail may be providing increased human presence that could disturb or alter the natural behavior of wildlife including species such as prairie dogs, hunting predators (e.g., raptors, coyotes, and badgers), wading or shore birds, and grassland nesting birds. In addition, even with location of the trail at the periphery of the HCA, the effectiveness of the larger habitat block (that includes other public and private lands to the east) will be reduced to some extent.

OSMP recognizes that building the Marshall Lake Trail will cause environmental impacts. The benefits of providing a new trail opportunity in this area are important. OSMP will attempt to mitigate to an acceptable level as many of the impacts as possible. Given an assessment of alternatives to the Marshall Lake Trail, OSMP has concluded that the proposed Marshall Lake Trail is the best alternative when compared to other higher-impact alternatives closer to the interior of the HCA. However, OSMP's support for the Marshall Lake Trail is contingent on

successfully implementing recommended resource protection / impact mitigation measures and meeting several other factors, as described below.

Resource protection / impact mitigation measures that must be implemented include:

- **Visitor travel is required to be on-trail.** On-trail travel is required in all Habitat Conservation Areas. An on-trail requirement is critical for the Marshall Lake Trail because of the relatively undisturbed and diverse native prairie setting in its vicinity. Many of the most significant potential impacts of building the Marshall Lake Trail would be caused if visitors on the trail decide to go off-trail. Both education and enforcement efforts will be required to effectively achieve compliance with the on-trail requirement. As is the case in most Habitat Conservation Areas, enforcement of the on-trail requirement will likely require a significant effort in a relatively remote location.
- **Fencing will be installed as a way to encourage on-trail travel.** OSMP will install fencing in specific places to prevent or reduce off-trail travel and the creation or persistence of undesignated trails. Fencing on the east side of the Greenbelt Plateau Trail will be installed west of the Marshall Lake Trail and north of the Hayes Conservation Easement. Fencing will direct visitors to stay on-trail and not shortcut to the Greenbelt Plateau Trail or wander off-trail in the HCA.
- **Dogs will be prohibited on this trail.** This no-dog trail will minimize potential impacts on the significant natural resources, particularly the large prairie dog colony. This prairie dog colony is the largest colony in this prairie dog conservation area identified in the Black-Tailed Prairie Dog Management Plan. The no-dog requirement would also provide a significant no-dog opportunity in this part of the OSMP system, which is a need identified in the Visitor Master Plan.
- **OSMP will seek cooperation with the Louisville Rod and Gun Club and FRICO to implement cooperative efforts to protect habitat and water quality values in and around Marshall Lake.** Even though the proposed trail alignment is located at the periphery of the Habitat Conservation Area, the trail would be located in a larger habitat mosaic of open water, native grassland, and a prairie dog colony that together provide important foraging areas for raptors, including ferruginous hawks and bald eagles that nest nearby. The lower-intensity private land use around Marshall Lake and to the east contributes to a larger, relatively effective habitat area that the trail crosses through. Cooperative land management efforts are needed to adequately protect the habitat values and water quality values in the HCA and surrounding lands.
- **Trail design features will provide adequate drainage to make the trail physically-sustainable.** These include those trail features mentioned above, but also installation of a bridge or boardwalk crossing the drainage west of Marshall Lake, which will prevent the drainage and associated wetlands from being degraded. A wetland permit may be required to obtain approval of this trail crossing of the drainage.
- **Seek cooperative partners to provide adequate baseline information on wildlife use of the Marshall Lake area, and specifically bald eagle use of Marshall Lake for perching, roosting, and hunting.** In order to decide the best location of the Marshall Lake Trail and specific ways to manage visitor use on the trail, which will best protect wildlife values in the area, baseline information on how wildlife use the Marshall Lake area is needed.

Approval and construction of the Marshall Lake Trail is contingent on three factors, which are prerequisites for further consideration of this trail:

1. **Approval and Construction of a New Bridge Crossing over Community Ditch.**
No engineering and construction issues are anticipated with building this bridge. A “ditch crossing permit” from the ditch company (Farmer’s Reservoir and Irrigation Company—FRICO) will need to be negotiated between FRICO and the City of Boulder. The timeframe for this negotiation is undetermined at this time.
2. **Best Available Information on Bald Eagle Use of the Marshall Lake Area Indicates that the Marshall Lake Trail Will Not Create Significant Adverse Impacts on Bald Eagles Nesting, Perching, Roosting, or Foraging in the Vicinity of the Trail.**

As indicated above, OSMF will seek partners to establish adequate baseline information on how bald eagles use the Marshall Lake Area. Given the fact that the trail is not scheduled to be built for several years, the opportunity to establish this baseline information is available. This baseline information will be used to decide the Marshall Lake Trail location and ways of managing use on this trail, in order to minimize impacts on bald eagles.

The U.S. Fish and Wildlife Service (FWS) has made the following finding regarding possible impact of the proposed Marshall Lake Trail on bald eagles at the current nest site on Coal Creek:

“Based on the information provided, we believe that construction and use of the trail would not directly affect bald eagles at their current nest location. Any increase in human presence may affect foraging patterns of the eagles. However, eagles range widely in search of food and resources in close proximity of the trail would appear minimal in comparison to those available to the birds elsewhere. Therefore, we have no reason to believe that the proposed trail would present a significant concern in regard to foraging.”

The purpose of establishing baseline information on actual bald eagle use of the Marshall Lake Area over the next several years (prior to building the new Marshall Lake Trail) is to confirm this FWS assessment of no significant impacts and to improve the best available information to aid in fine tuning the trail location and management decisions to protect the eagles.

OSMF requested a FWS determination on the possible impact of the Marshall Lake Trail on the nesting bald eagles because the eastern extent of the proposed trail is within the one-half mile protection buffer for the bald eagle nest located on Coal Creek. If the FWS had found that visitor presence on the trail during nesting season would likely create a direct disturbance to the nesting bald eagles, then a seasonal wildlife protection closure would have been required and prevented visitor use of the trail for up to eight or nine months of the year. Trail closure over this length of time would negate much of the benefit of constructing and maintaining this trail.

Consequently, approval of this proposed trail was contingent on a finding of “No Significant Impact” by the Fish and Wildlife Service.

3. **Demonstrated Success in Managing the Southern Grasslands Habitat Conservation Area with its Emphasis on Resource Protection.** Effective protection of resources in Habitat Conservation Areas will require a high level of visitor compliance with new requirements for on-trail travel in HCAs. Education, signs, fencing, and enforcement will be used to motivate visitors to stay on-trail and not create undesignated trails.

OSMP will monitor the level of compliance with the on-trail requirement for the Coalton to Greenbelt Trail, which is the other new trail proposed for the Southern Grasslands Habitat Conservation Area and is located at the southern periphery of the HCA. The Coalton to Greenbelt Trail is scheduled for construction in 2006 and will likely be constructed several years ahead of the Marshall Lake Trail. The Coalton to Greenbelt Trail provides a test case for the feasibility of protecting the ecological values of the HCA with an on-trail requirement. Both HCA trails are relatively remote and therefore present challenges for enforcement of the on-trail requirement. Another important factor in protecting resources in the Southern Grasslands HCA is the degree of success in closing undesignated trails in the HCA. If OSMP is not successful in managing visitor use in the HCA in accordance with resource protection, then OSMP will have to reevaluate overall management strategies in the HCA and trail construction plans for the Marshall Lake Trail.

Other Alternatives Considered:

- **Trail Connection from Greenbelt Plateau Trail to South 66th.** This trail alternative would be farther upslope from Marshall Lake, offers panoramic views, and would avoid a drainage crossing at the southwest tip of the lake. This trail would not require a bridge across Community Ditch. It would offer a side slope that would allow it to drain well without significant use of engineered drainage solutions. However, this trail alternative would cut through the core of the Habitat Conservation Area and a high-quality patch of native prairie east of the Greenbelt Plateau Trail (including rare plant communities), would create greater impacts on the prairie dog colony and ground-nesting birds, and may generate more off-trail activity with the normal visitor attraction to Marshall Lake (i.e., visitors may attempt to get closer to the lake, even though there is no close-by trail).

F.22 Do Not Construct A New Trail North of Coal Creek.

Map Location 20

This proposal to construct a trail north of Coal Creek was suggested by the public. Many in the public believe that this trail could follow the old gravel haul road, which has been used by visitors in the past. The current situation is that much of this two-track road no longer exists, because it has been re-vegetated as well as fenced off along several stretches of the Coal Creek Riparian Restoration Area. Much of this old route is no longer in evidence and therefore attracts few current visitors.

Rationale:

- The large Southern Grasslands Habitat Conservation Area, which contains the largest and most intact block of xeric tallgrass prairie in the OSMP system, offers the best opportunity for OSMP to preserve and restore grassland ecosystem dynamics and wildlife communities and populations in a setting that allows largely unimpeded natural functions and wildlife movement. The HCA is large (about 3,200 acres) and is surrounded by many thousands of acres of other protected public lands (other OSMP lands, Boulder County Parks and Open Space lands, the National Wind Technology Center, and the Rocky Flats National Wildlife Refuge). In addition, no intensive private land uses are in the vicinity of this HCA.
- The Southern Grasslands HCA contains many diverse habitats (that support a diverse suite of native species) and a multitude of sensitive resources that can best be protected with limited public access. This plan proposes two new trails, one at the northern edge of the HCA (Marshall Lake Trail) and one at the southern edge (Coalton to Greenbelt Trail). With trails limited to the periphery of the habitat block and only the possibility of very limited off-trail access in the interior of the habitat block (under the HCA off-trail permit program), a high level of resource protection will be provided in the HCA. Restricting trails to the periphery of the HCA will support the continued restoration and functioning of the habitat block and provide a refuge for a diverse suite of wildlife species. Many of these wildlife species have a low tolerance for human presence and impact and depend on landscape-wide natural processes such as predator-prey dynamics that can only occur in large habitat blocks.
- OSMP believes that a trail north (or south) of Coal Creek would have a significant effect of reducing the habitat values and wildlife movement in this large prairie habitat block and in the Coal Creek Riparian Restoration corridor. Keeping the interior of the HCA largely free from human activity by not building a trail north (or south) of Coal Creek is an effective strategy for protecting habitat values and reducing the potential for new weed species to be introduced. Benefits will accrue to many different wildlife species—the large assembly of bird species that use the Coal Creek environs, ground-nesting birds, raptors, small mammals, elk and other large mammals, and prairie dogs.
- Some portions of any new trail north (or south) of Coal Creek would likely be located within the seasonal bald eagle nest closure area, which could make the trail off-limits to visitors for up to eight or nine months of the year.
- A new trail north (or south) of Coal Creek would take away the unique natural setting benefiting prairie dogs, the species that benefit by their presence, and their predators. The Southern Grasslands HCA includes several large important undisturbed prairie dog colonies and is the largest designated Prairie Dog Habitat Conservation Area in Open Space and Mountain Parks. The extensive prairie dog colonies, because of the large habitat block, can expand, contract, and migrate over the landscape naturally over time, and natural predator-prey relationships and behaviors can be maintained.
- Isolated cultural sites along and near Coal Creek add to the resource significance of this area and support protecting the area without trails.
- The unique nature of the large, un-trailed habitat block in the Southern Grasslands HCA presents the opportunity for research examining the impacts of fragmentation, urbanization, and other disturbances in a setting less impacted than many other OSMP grassland areas. The un-trailed areas serve as control sites for smaller, more fragmented grassland areas.

F.23 Do Not Construct A New ADA (Americans with Disabilities Act)-Accessible Loop Trail Connected with the Greenbelt Plateau Trailhead. Continue to Seek More Suitable Sites for ADA-Accessible Trails.

Map Location 21

Rationale:

- This citizen proposal was evaluated but is not recommended. The proposal was to offer a loop trail that would provide an easy, accessible tallgrass prairie experience without the presence of bicycles, equestrians, and dogs. The area proposed for this loop trail is relatively flat, offers dramatic views, and would provide the opportunity to experience native grassland habitat. However, while the proposal in concept has merit, the location is not suitable for this type of opportunity. This trail would not offer suitable shade and relief from a very hot environment many months of the year. The proposed trail at this location would be relatively close to a very busy S.H. 93, which would detract from the visitor experience. Significant resource impact concerns include the loss of xeric tallgrass habitat, additional habitat fragmentation given the configuration of a short loop trail, and the potential to disturb ground-nesting birds. Furthermore, if a seasonal wildlife closure to protect ground-nesting birds were put in place, the available time to use this specialized trail would be reduced.
- OSMP is committed to providing ADA accessible trail opportunities to meet community desires in appropriate places. Throughout the Trail Study Area planning process, which will involve eight or more additional TSA planning efforts, OSMP will consider accessibility needs and build trails, where suitable, to meet those needs.

Other Alternatives Considered:

- **Other Trails in this TSA.** OSMP examined the potential for building in ADA-accessibility into the recommended new trails in the Marshall Mesa-Southern Grasslands HCA. Given topography involving steep grades and extreme weather-related environmental conditions, none of the proposed trails were deemed suitable for ADA access. In the Marshall Mesa-Southern Grasslands TSA, OSMP will consider the feasibility of providing short, accessible segments of trails originating from the New Marshall Mesa Trailhead and the Greenbelt Plateau Trailhead. These accessible trail opportunities would be out-and-back trails, not loop trails, because of the resource impacts associated with building new loop trails in the tallgrass prairie.

F.24 Institute A Seasonal Wildlife Closure in the Doudy Draw Natural Area and A Corresponding Seasonal On-Leash / On-Trail Requirement for the Greenbelt Plateau Trail.

Map Location 22

The details of these proposed seasonal wildlife protection restrictions are as follows. The seasonal closure includes the Doudy Draw Natural Area west of the Greenbelt Plateau Trail and east of S.H. 93. The time period will be May 15- July 15 to include the majority of the nesting bird activity in the area. During this period, an on-leash, on-trail requirement on the Greenbelt Plateau Trail would be in place, since the trail runs between the HCA and the seasonally-closed Natural Area. In addition, east of the Greenbelt Plateau Trail, HCA off-trail permits will be precluded during the ground-nesting bird nesting season (May 15-July 15), in order to provide the same level of protection on both sides of the trail.

Rationale:

- The Greenbelt Plateau Trail is included in the Doudy Draw Natural Area and is the boundary with the Southern Grassland Habitat Conservation Area to the east.
- Both the Doudy Draw Natural Area and the Southern Grasslands HCA-Greenbelt Plateau Subarea contain large patches of native xeric tallgrass dominated by various Big Bluestem plant communities—some of the best occurrences in the OSMP system. These areas provide a refuge for rare and imperiled plant communities and species listed by the Colorado Natural Heritage Program (CNHP), as well as occurrences of rare CNHP-listed butterflies. Both these areas are very important for grassland nesting birds. These areas support both high avian species richness (i.e., many different kinds of species including those of special concern) and high overall bird nesting density; this locality is one of only two known places on OSMP lands that support the full suite of the five primary grassland bird species.
- The area east of the Greenbelt Plateau Trail is in the Southern Grasslands Habitat Conservation Area, so the grassland and bird habitat there is protected by the on-trail and on-leash requirements. However, the Doudy Draw Natural Area west of and including the Greenbelt Plateau Trail does not offer the same level of protection, even with equally valuable habitat, because off-trail travel is normally allowed in the Natural Area.
- The proposal for a seasonal wildlife closure in the Doudy Draw Natural Area which would exclude people and dogs during the nesting season, along with the proposal for a seasonal on-leash and on-trail requirement for the Doudy Draw Trail, are intended to provide a needed remedy to a gap in protection in the Natural Area. These seasonal restrictions will protect ground-nesting birds from disturbance and promote the success of their reproduction. This restriction will also reduce trampling of the vegetation during much of the growing season and the opportunity for spread of weeds into the rare plant community.

F.25 Continue the Status Quo that Allows Off-Trail Visitor Travel through the Matterhorn Cattle Underpass under S.H. 93 west of the Greenbelt Plateau Trail (except for A New Restriction of A Seasonal Wildlife Closure to Protect Ground-Nesting Birds, see recommendation # F.24), until A Decision Is Made on Trail Use of the Community Ditch Underpass. Then Close the Matterhorn Underpass to Public Use and Direct Equestrian Use to the Community Ditch Underpass.

Map Location 23**Rationale:**

- The underpass (near the old Matterhorn restaurant site) is a highway box culvert and has been used historically for allowing cattle to cross under the highway. This recommendation would allow pedestrians and equestrians (not bicycles in the absence of a designated trail) to continue to travel under S.H. 93 from one side to the other of the Doudy Draw Natural Area in those months when prairie ground-nesting birds are not nesting. There is an unlocked gate that visitors currently may open and shut when they travel through the underpass. Continued visitor use of this underpass, with its low ceiling and the presence of nesting swallows part of the year, is not an optimal solution for a safe crossing under S.H. 93. Given limited options available to them to safely cross S.H. 93 at other locations, many equestrians have indicated the cattle underpass is a very important place to maintain public access, even though they need to dismount while traveling through the underpass. It is not yet certain that the

proposed trail crossing using the Community Ditch underpass will be built, and whether or not equestrian use will be allowed there. In addition, many equestrians do not find the at-grade stoplight crossing at S.H. 128 and S.H. 93 optimal for equestrian use.

- If equestrians are ultimately allowed to use the Community Ditch underpass, OSMMP will close the Matterhorn cattle underpass access. The Community Ditch underpass would provide a safer alternative, and natural resources would be better protected by closing the Matterhorn underpass to general public access.
- This recommendation does not include providing a new trail connection from the Greenbelt Plateau Trail through the underpass. A new trail is undesirable here because it will encourage increased public access (both on-trail and off-trail) through this patch of valuable prairie habitat. The portion of the Doudy Draw Natural Area east of S.H. 93 contains high-value and relatively rare, xeric tallgrass prairie habitat (i.e., Big Bluestem complex) and supports one of the highest concentrations and diversity of prairie ground-nesting birds. The consequences of increased visitor travel and presence in this area could include trampling of vegetation, the spread of weeds into this rare plant community, and disturbance of wildlife. This recommendation is an attempt to balance public access with resource protection.

Resource Protection / Impact Mitigation Measures:

- **OSMP will post a sign in the underpass that educates visitors about the nesting swallows and advises them of the federal protections against harassment or disturbance.** Swallows that nest in the ceiling and walls of the underpass structure are protected by the International Migratory Bird Treaty Act.

F.26 Designate and Improve the Undesignated Trail that Runs Parallel to the East Side of the Greenbelt Plateau Trail), Sign This Trail for Bicycle Use, and Eliminate the Undesignated Trail on the West Side of the Trail.

Map Location 24

Rationale:

- A well-used, relatively narrow social trail on the east side of the Greenbelt Plateau Trail has developed and is used by a variety of different types of users. Bicyclist and trail runners are the most frequent users. In addition, a less defined and less continuous social trail has developed on the west side of the Greenbelt Plateau Trail. The Greenbelt Plateau Trail, an old road, is ten feet wide. Visitors who use these social trails seek the experience of a narrower (“single-track”) trail and / or desire to avoid other users on the main trail.
- This recommendation would legitimize and improve the parallel undesignated trail on the east side of the Greenbelt Plateau Trail. While having one or more parallel trails widens the effective width of the trail corridor, which has impacts on the native grassland, the benefit of continuing the use of this parallel trail outweighs its detriments, assuming that visitors will stay on the parallel trail and not widen the trail corridor further. The major benefits of retaining this trail is that it would accommodate separation of faster trail users (principally bicyclists and runners) from other trail users, thereby minimizing some of the conflicts that occur among these different users and improving the quality of visitor experience. The recommendation, therefore, includes designating this parallel trail for bicycle use.
- Often parallel trails can cause unnecessary loss of vegetation and soil erosion. However, this particular parallel trail could be improved and managed to be a sustainable trail. This parallel

trail is close to the Greenbelt Plateau Trail in most places, so it does not greatly expand the trail corridor width.

- In order to minimize the impacts from an expanded trail corridor, the recommendation is to close the parallel undesignated trails (using signs and physical barriers) on the west side of the Greenbelt Plateau Trail, eliminate multiple braided trails on the west side of the Greenbelt Plateau Trail, and restore the natural habitat.
- OSMP will need to monitor the use of the main trail, the newly-designated east parallel trail, and the closure and rehabilitation of the west parallel trail. If visitor use patterns cause new trail braiding with impacts to vegetation, soils, or weed introduction, then the overall situation here may need to be reevaluated with the possibility that the parallel trail could be made one way for bicyclists or it could be closed if unacceptable impacts occur.

Other Alternatives Considered:

- **Retrofitting of the Existing Greenbelt Plateau Trail.** This citizen proposal would involve narrowing the trail and building in some serpentine curves, which would slow down trail users and provide some added interest or enhanced experience in traveling the trail (especially for bicyclists). This option was not recommended because: a wider, straighter trail provides significant benefits for emergency access and agricultural operations; a more curving trail would remove more xeric tallgrass vegetation and wildlife habitat and potentially create more disturbance that weedy species could take advantage of, and the cost of the trail changes.

Recommendations Affecting the Southern Grasslands Habitat Conservation Area—Rocky Flats Subarea

F.27 Maintain Restricted Public Access by Not Building Trails in This Subarea.

Map Location 25

Rationale:

- Highly restricted public access is justified here because of the high ecological values and sensitivities present in this subarea. No trails currently exist in this subarea. Not building trails here is the best way of protecting the resources.
- The Rocky Flats Subarea portion of the Southern Grasslands HCA contains a multitude of sensitive resources that can best be protected with limited public access. It contains a diverse mix of ecosystems and habitats—xeric tallgrass (including important ground-nesting bird habitat), upland areas with north-facing and prairie escarpment shrublands, forested savannas, and extensive spring- and creek-fed wetlands and riparian areas (including a wide corridor of the Coal Creek Riparian Restoration Area).
- While adjacent to two highways (S.H. 93 and S.H. 128) and relatively small in land area (around 400 acres), the ecological value of the Rocky Flats Subarea is greatly magnified because of its diverse ecosystems and the fact that it is part of a larger block of intact xeric grassland habitat including both OSMP lands and adjacent lands owned by the federal government (6,200 acres including the National Wind Technology Center and Rocky Flats National Wildlife Refuge). The larger block of habitat represents an important area for the future reintroduction of the Plains Sharp-Tailed Grouse. The subarea includes several rare

and imperiled plant communities listed by the Colorado Natural Heritage Program, as well as high-quality habitat for the federally-threatened Preble's meadow jumping mouse and a rare pocket gopher subspecies.

F.28 Do Not Allow Off-Trail Access in The Rocky Flats Subarea, Consistent with HCA Resource Protections, unless Visitor Travel Is Approved under An HCA Off-Trail Permit.

Map Location 25

Rationale:

- Some limited off-trail access in this subarea may be considered under the HCA off-trail permit program. With public access restricted to only those activities that potentially could be approved under the HCA off-trail permit program, a high level of resource protection is planned for this subarea. Some activities that have occurred in the past in this subarea (e.g., dog training and model airplane flying), will not be allowed to continue unless they are approved under the new HCA off-trail permit program. If requested, OSMP would work with user groups to try to find alternate suitable sites for former activities no longer allowed here.

Southern Grasslands Habitat Conservation Area--Core Area

F.29 Construct A New Coalton to Greenbelt Trail with An On-Trail Requirement and An On-Trail, On-Leash Requirement.

Map Location 26

This trail will connect the Coalton Trail to the Greenbelt Plateau Trailhead and will allow visitors to travel around the periphery of the Southern Grassland Habitat Conservation Area. With other planned trail connections to the east on County open space land, this link will contribute to a long-distance trail loop between Marshall Mesa and Superior.

The conceptual trail alignment of the Coalton to Greenbelt Trail is shown on the Marshall Mesa-Southern Grasslands Trail Study Area Plan Map. The precise alignment of the proposed Coalton to Greenbelt Trail will be determined after several of the issues described below are dealt with and more detailed site planning is completed.

Rationale:

- The recommended trail alignment is intended to provide a quality visitor experience, while protecting ecological values. This trail will provide a physically sustainable trail, which will minimize erosion and trail widening and braiding. The trail alignment has been selected to balance locating close to S.H. 128 (for protection of the large prairie habitat block and HCA ecological values) and locating some distance from S.H. 128 (for visitor experience and physical sustainability reasons). The trail alignment moves into the HCA to a limited extent, while still minimizing entry into the core of the HCA, and it is located near the edge of the prairie dog colony.
- The trail alignment, for the most part, provides separation of visitors from the highway (and road noise and pollution) and provides dramatic vistas of the large grassland ecosystem.

- The trail can be constructed and maintained in a sustainable manner with trail design features that provide for adequate drainage.
- The trail will be constructed in a way that avoids direct impact to the prairie dog burrows.
- The trail alignment brings visitors in a few selected places to the edge of the mesa and offers high quality views of the grassland ecosystem. These viewpoints will allow OSMP to provide one or more interpretive signs that provide information about the rare and highly valuable grassland ecosystem and why it has been given a high level of protection with on-trail requirements.

Resource Protection / Impact Mitigation Measures:

OSMP completed a detailed trail suitability analysis for the Coalton to Greenbelt Trail proposal. The trail suitability ratings varied considerably. The quality of visitor experience criteria rated mostly high suitability. The physical sustainability criteria rated mostly medium-to-high suitability. The environmental suitability rated mostly low-to-medium suitability.

With regard to the quality of visitor experience, the Coalton to Greenbelt Trail would provide: an important connection between the Coalton Trail and the Greenbelt Plateau Trail; a key piece of the long-distance trail loop at the periphery of the Trail Study Area; and spectacular views of the continental divide and mountain backdrop, the large block of native tallgrass prairie in the Southern Grasslands HCA, and Coal Creek. The trail offers a wide variety of interpretive opportunities for the grassland ecosystem and the restoration process for the Coal Creek Riparian Restoration Area.

With regard to physical sustainability, the proposed Coalton to Greenbelt Trail alignment is feasible but includes some trail segments that present challenges because their relatively flat terrain and predominant soil types are not conducive to water draining off the trail. However, these deficiencies can be mitigated by creating a side slope for the trail tread, installing water bars, barrow ditches and culverts where needed, and importing trail surface material such as crusher fines. These types of trail facilities, however, do require more maintenance than a trail that has slope and soil characteristics that optimally drain water.

With regard to environmental sustainability, the proposed Coalton to Greenbelt Trail is anticipated to create impacts that will reduce habitat values. The trail passes through two rare plant communities listed by the Colorado Natural Heritage Program. However, the trail alignment minimizes the dissection of larger grassland patches into smaller patches, and the trail is close to the highway in many places where road construction and maintenance have disturbed vegetation and soils in the past. The larger area in which the trail will be built provides valuable tallgrass and mixed-grass prairie, shrubland, and wetland habitats that support prairie dogs, hunting raptors, ground-nesting birds, butterfly species of special concern, and diverse small and large mammals. While the proposed trail alignment cuts the prairie dog colony into two smaller blocks of habitat, this portion of the trail is relatively close to S.H. 128 and is unlikely to impede the natural movement and growth of the colony along its edges. The high concentration of ground-nesting birds close to the trail may require focused education and enforcement to instruct visitors to stay on trail. Since a significant portion of the trail is relatively close to S.H. 128, the trail's impact on the effectiveness of the larger habitat block is reduced. The impacts of the Coal

Creek trail crossing, close to S.H. 128, will need to be minimized or avoided with a well-designed bridge with fencing. Consultation with U.S. Fish and Wildlife Service will be required to determine whether or not the Coal Creek trail crossing involves potential impacts to the federally-listed Preble's Meadow Jumping Mouse.

OSMP recognizes that building the Coalton to Greenbelt Trail will cause environmental impacts. The benefits of providing a new trail opportunity in this area are important. OSMP will attempt to mitigate to an acceptable level as many of the impacts as possible. The proposed trail would provide a critical trail connection between the Coalton Trail and the Greenbelt Plateau Trail. OSMP has concluded that no better alternatives exist for this trail connection at the periphery of the HCA when compared to other higher-impact alternatives closer to the interior of the HCA. However, OSMP's support for the Coalton to Greenbelt Trail is contingent on successfully implementing recommended resource protection / impact mitigation measures, as described below.

Resource protection / impact mitigation measures that must be implemented include:

- **Visitor travel is required to be on-trail.** On-trail travel is required in all Habitat Conservation Areas. An on-trail requirement is critical for the Coalton to Greenbelt Trail because of the relatively undisturbed and diverse native prairie setting in the Southern Grasslands Habitat Conservation Area. Many of the most significant potential impacts of building the Coalton to Greenbelt Trail would be caused if visitors on the trail decide to go off-trail. Visitor activities in the core of the habitat block would displace wildlife species that have low tolerance for human presence or disturbance, introduce or spread weeds into native grasslands, and trample rare and sensitive plant communities. Both education and enforcement efforts will be required to effectively achieve compliance with the on-trail requirement. As is the case in most Habitat Conservation Areas, enforcement of the on-trail requirement will likely require a significant effort in a relatively remote location.
- **Fencing will be installed in specific places as a way to encourage on-trail travel.** See recommendation # F.29.
- **Dogs will be required to be on-leash.** Dogs are required to be on-leash and on-trail in the Southern Grasslands Habitat Conservation Area and all other HCAs (unless dogs are prohibited), in order to provide a high level of protection for the natural resources in the HCA. An on-leash requirement is important for the Coalton to Greenbelt Trail to: protect the prairie dog colony, tallgrass and mixed-grass prairie habitat, and wetlands; prevent disturbance to grassland birds and other wildlife species; prevent trampling of rare plant communities; and prevent creation of undesignated trails.
- **A bridge for the trail to cross Coal Creek will be built.** Protection of the Coal Creek Riparian Restoration Area and associated wetlands will require a well-designed bridge crossing of Coal Creek. Various wetland and construction permits will be needed for OSMP to construct any kind of bridge for the Coal Creek trail crossing. The least-impact bridge solution would be to locate the trail on top of the existing box culvert under S.H. 128. If the Colorado Department of Transportation does not approve this use of the highway culvert, a bridge north and east of the culvert, still close to S.H. 128, would have to be constructed. Fencing off public access to Coal Creek and the highway culvert will be required.

- **Drainage structures will be installed to protect water resources.** There are several drainages with associated wetlands that the trail will cross and will need to be protected. Installation of bridges, boardwalks, and culverts, along with on-trail and on-leash requirements, will provide the necessary level of resource protection.

F.30 Selectively Install Fencing where There Is A Localized Need to Direct Visitors to Stay On-Trail and to Protect Resources.

Map Location 26

Rationale:

- Selective fencing will direct visitors to where they need to go when entering an area that is not fenced. Additional fencing will be minimized to the extent possible and will be used primarily for resource protection.
- Selective fencing avoids the significant degradation to the view of the grassland, which would occur from continuous trailside fencing.
- Selective fencing does not obstruct wildlife movement to the degree that continuous fencing would. It will not disrupt livestock grazing regimes to the extent that continuous fencing would.
- Selectively adding a limited amount of fencing will significantly reduce OSMP expenditures as compared to continuous fencing.
- The need for continuous fencing to restrict visitor travel into the core of the HCA is lessened by some existing grazing area (pasture) interior fences that could provide a deterrent for travel into the interior of the HCA and could be signed to discourage entry. The strategy of using selective fencing and monitoring its effectiveness may be best applied to these areas lacking interior fencing. Signs will be placed on these interior grazing fences informing visitors of the requirement to stay on trail and the reasons for the rule (e.g. weed spread, unfragmented habitat, etc.).
- If monitoring shows that selective fencing does not induce a high level of on-trail compliance, then a reevaluation of the management situation would be completed and continuous fencing could still be installed or visitor access could be curtailed in the future.

Other Alternatives Considered:

- **Continuous Fencing of the Trail Corridor.** While continuous fencing alongside the trail would provide the most deterrent to visitor and pet entry into the interior of the HCA, it would be very costly, would detract from the high-quality views of the grassland, could be a barrier to wildlife movement, and could disrupt optimal grazing operations.

F.31 Do Not Construct A New Trail South of Coal Creek.

Map Location 27

This proposal was suggested by the public. The specific proposal was to create a new trail from the Greenbelt Plateau Trailhead running east, crossing Coal Creek, running south of Eggleston Reservoir # 3, and connecting with the Coalton Trail. This connection would create a trail loop from the new Marshall Mesa Trailhead at City Limits to S. 66th, to the Coalton Trail and this new trail, to Greenbelt Plateau Trail, and back to the new Marshall Mesa Trailhead at City Limits.

Rationale:

- Most of the environmental concerns identified in the discussion of the proposed trail north of Coal Creek (see # F.20 above) apply to this proposal for a trail south of Coal Creek and will not be duplicated here. In both cases, these trails would compromise the restoration and conservation goals for the Southern Grasslands HCA and the Coal Creek Riparian Restoration Area. The proposed trail south of Coal Creek would bi-sect the middle of the Southern Grasslands HCA and greatly reduce the area of un-trailed grassland habitat in this large grassland HCA. The additional trail crossing of the Coal Creek drainage would reduce the value of the creek as a movement corridor for wildlife and compromise the restoration of the intact, un-trailed riparian corridor.
- The combination of negative effects on ecosystem functions, native plant communities, wildlife communities and movement, grassland habitat restoration potential, and natural area research potential would greatly degrade the attributes that led to the designation of this area as an HCA.
- Keeping the interior of the HCA largely free from human activity by not building a trail either north or south of Coal Creek is an effective strategy for protecting habitat values and will benefit the many species that have a low tolerance for human presence and impact and depend on landscape-wide natural processes that can only occur in large habitat blocks.

F.32 Do Not Allow Off-Trail Access for Hang Gliding, Paragliding, or Any Other Off-Trail Activity in the Southern Grasslands Habitat Conservation Area, unless They Are Approved under An HCA Off-Trail Permit.

Map Location 28**Rationale:**

- In order to adequately protect important resource values in the Southern Grasslands HCA (as well as other HCAs), off-trail activities will be limited to places, situations, and times that do not create adverse impacts to the resources. Off-trail activities may only occur if an off-trail permit is approved, with appropriate conditions placed on the activity to ensure adequate resource protection.
- Hang gliding and paragliding have historically occurred at a location inside the Southern Grasslands HCA in an area north of where the Coalton Trail intersects with S.H. 128 (although currently not allowed). Gliders have taken off on the high rim of a bowl depression and landed further downslope. Hang gliding and paragliding enthusiasts are eligible to apply for an HCA off-trail permit for this location. However, consideration of an off-trail permit application would ultimately decide whether or not this activity would be permitted. The decision would be based on whether or not the activity would create harmful trampling of native plant communities (including three rare plant community types at this location), introduce or spread new weeds to the site (e.g., jointed goatgrass), or negatively affect wildlife species using the area.

Other Alternatives Considered:

- **Create A Limited-Use Area for Hang Gliding and Paragliding.** This option would allow resumption of the historical use at the Coalton / S.H. 128 site but restrict the use to a limited, defined area. The size of this defined area, however, could be fairly large, because of the multiple take off points and a dispersed area for landings. Creating a dedicated use area for

hang gliding / paragliding would not provide the most effective level of resource protection and would not be consistent with the overall management goals of the Habitat Conservation Area. A dedicated use area could draw other visitors to this off-trail area, which could create a significant amount of other off-trail travel, a situation that will not have the same level of management oversight and restrictions to protect resources.

G. Costs and Scheduling for Recommended Trail Study Area Programs and Projects

Ongoing Activities to Implement the TSA Plan
Utilize trail suitability criteria in deciding management actions for undesignated trails
Monitor creation of undesignated trails and take appropriate management actions
Evaluate and implement strategies to minimize cattle trails
Defer new trailheads or trailhead improvements until need and feasibility are determined
Collaborate with Boulder County on eastern trails, connections, and trailheads
Implement best management practices for trail construction and maintenance
Manage cultural / paleontological resources
Establish appropriate monitoring of trails, compliance with on-trail and on-leash requirements, and resource impacts
Make sustainability improvements to existing trails
Provide enhanced education and enforcement for dog regulation compliance
Maintain restricted public access for the Coal Creek Riparian Restoration Area
Allow limited, permitted guided hikes in the Coal Creek Riparian Restoration Area
Maintain areas north and south of Coal Creek free of trails
Continue to explore opportunities for ADA accessibility
Allow continued access under S.H. 93 cattle underpass
Consider Habitat Conservation Area off-trail permits in the Southern Grasslands HCA

TSA Projects / Programs	Total Cost	2006	2007	2008	2009	2010	2011
Undesignated trail closure / reclamation	\$10,000	X	X	X	X		
New Marshall Lake overlook spur trail	\$5,000	X					
New Marshall Mesa overlook spur trail	\$5,000	X					
Investigation of Marshall Mesa high point spur trail	\$1,000	X					
Closure of current Marshall Mesa Trailhead and restoration	\$10,000	X					
New Marshall Mesa Trailhead at City Limits	\$45,000	X					
New connecting trails from the new Marshall Mesa Trailhead at City Limits to	\$30,000	X					

TSA Projects / Programs	Total Cost	2006	2007	2008	2009	2010	2011
Community Ditch Trail							
New trail from new Marshall Mesa Trailhead at City Limits to the current Marshall Mesa Trailhead	\$30,000	X					
New trail crossing on Community Ditch underpass under S.H. 93	\$90,000	X					
Re-Route of trail connector between Community Ditch Trail and Greenbelt Plateau Trail	\$5,000	X					
Trail connector in S. 66 th ROW	\$5,000				X		
Removal of the pedestrian gate on Marshall Rd. near S. 66 th	Minimal	X					
Requirement for dogs to be on-leash in East Marshall Natural Area and regulatory closure and signs	Signs: Minimal	X					
New interpretive sign for Coal Creek restoration at Coal Creek and S.H. 128	Staff / consultant costs	X					
New Marshall Lake Trail (with on-trail and no-dog requirements)	\$275,000			X	X		
New seasonal wildlife closure in Doudy Draw Natural Area and seasonal on-trail, on-leash requirements for Greenbelt Plateau Trail	Signs:	X					
Designation and improvement of undesignated trail east of Greenbelt Plateau Trail (including bicycle use) and closure of undesignated trail west of trail	\$1,000	X					
New Coalton to Greenbelt Trail (with selective fencing and on-trail and on-leash requirements)	\$220,000	X					