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Marshall Mesa–Southern Grasslands Trail Study Area (TSA)

Draft Report on Trail Alternatives--Summary

Correction 9/7/05

Staff has compiled the desires for the Marshall Mesa-Southern Grasslands Trail Study Area that were received from the public through the TSA Questionnaire or at the recent Task Group meeting (August 18, 2005). These public desires include proposals for new trails and trailheads or improvements, resource protection measures, and actions to management specific recreational activities. This extensive list of public desires, along with staff proposals, was consolidated into the list of alternatives and options that are evaluated in the following Draft Report on Trail Alternatives—Summary.

The ‘mappable’ alternatives are on Map 9a – Numbered Locations of Trail Alternatives and Map 9b – Trail Alternatives with Composite of Key Natural and Cultural Resources. Most alternatives are in a specific location, but some are not. Examples of proposals that are not yet mappable are: trail improvements where sites are not yet selected (e.g., spur trails to points of geologic or historic interest, grassland ecosystem interpretive trails or overlooks, or elimination of unneeded or undesirable social trails) and management actions that are not geographically specific (e.g., enhanced education and enforcement of dog regulations). Map 9b shows the alternatives alongside a spatial overlay of several key resources that affect the suitability of visitor access and trails.

The analysis of the alternatives in the trail alternatives report addresses the pros, cons, and possible mitigation measures for each alternative and option. In analyzing these considerations for each alternative, staff utilized the trail suitability criteria (factors related to the quality of visitor experience, physical sustainability, environmental sustainability, and cultural / paleontological resource protection). Staff also considered cost, feasibility, and management considerations (such as enforcement of regulations).

Please review the Draft Report document and maps for accuracy and completeness. **An Open House will be held on September 8, 2005, 5 -7:00 pm at the OSMP Annex, 7315 Red Deer.** At that time, the public will have the opportunity to tell us where we have missed the mark on alternatives, pros, cons, and / or mitigation measures. The Open House will be followed immediately (7 – 9:00 that evening) with a Task Group meeting to discuss these alternatives including comments raised at the Open House.

The Draft Marshall Mesa–Southern Grasslands Trail Study Area Plan will be developed from these documents and the input received at the September 8 meetings. This Draft Plan will be published on September 23 with a public meeting scheduled on September 29 for further discussion.

We would like to, again, thank each of you for your continued interest and contributions to this process.

Jim Reeder and Joe Mantione, Project Managers

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**Report on Trail Alternatives—Summary for
Marshall Mesa-Southern Grasslands Trail Study Area (TSA)**

9/2/05

West Marshall Mesa Subarea

Alternative # 1 Marshall Mesa Trailhead (mapped)

Option 1: Reconfigure existing trailhead (fewer parking spaces with expanded bike lanes, strict enforcement of no-parking rule on S.H. 170)

Option 2: Close trailhead and replace with City Limits Trailhead (remove vehicle parking and reclaim areas to natural condition)

Option 2A: Maintain pedestrian / bicyclist access with pedestrian gate

Option 2B: Close public access with fencing

Option 1--Reconfigure existing trailhead

Pros:

- Maintains current public access. Historic use patterns in this area have been established.
- Trailhead parking and trailhead amenities currently exist and could still be utilized.
- Improved visitor safety. County-installed bike lanes will make the roadway safer for bikers to get to the trailhead parking.

Cons:

- Fewer parking spaces.
- Boulder County widening of the road to accommodate a bike lane will provide even less room for off-street parking and vehicle backing up area in the road right-of-way (ROW).
- Would still require users to back into traffic (an unsafe condition).
- Parking enforcement will still be needed.
- No room to provide adequate space for horse trailer parking.
- Existing trailhead is adjacent to existing wetland.
- Would require substantial impact to surrounding wetlands to expand in existing location.
- Maintains disturbed area adjacent to OSMP (compacted soil and other habitat characteristics that contribute to weed invasion and growth).

Measures to Mitigate Impacts / Make Proposal Work:

- Extend parking to the west and south.
- Attempt to get the Colorado Department of Transportation (CDOT) to install a pedestrian / bike crossing with signs across Marshall Road (S.H. 170) at this trailhead.

Option 2--Close trailhead and replace with City Limits Trailhead

Pros:

- Problems with safety concerns would be eliminated by removing parking from S.H. 170 (especially unsafe vehicle backing up for egress) and by eliminating illegal roadside parking.
- Adequate space and amenities could be provided at nearby City Limits site.
- Provides opportunity for restoration and protection of wetlands at Marshall Mesa Trailhead.
- Restoration of roadside vegetation can buffer adjacent OSMP areas from weed encroachment.

Cons:

- Visitors accustomed to this location would have to make a change in where they park and access OSMP.
- Will continue unsafe bicycle ingress and egress from the trailhead onto S.H. 170.

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Measures to Mitigate Impacts / Make Proposal Work:

- Maintain pedestrian / bike access with a pedestrian gate for use by neighbors, bicyclists, and other visitors (Option 2A).
- Work with Colorado Department of Transportation to place no parking signs along S.H. 170. and to install a pedestrian / bike crossing with signs across Marshall Road (S.H. 170) at this trailhead.

Option 2A--Maintain pedestrian / bicyclist access

Pros:

- Maintains existing public access.
- Provides convenient access for neighborhood use.
- Trailhead amenities are already provided.
- Currently a designated trail already exists to this access.
- Provides some ability to restore wetland area.

Cons:

- Could encourage parking alongside S.H.170.
- Could encourage formation of undesignted trails.
- Would be one more designated access that would have to be serviced and maintained (with new City Limits trailhead).

Measures to Mitigate Impacts / Make Proposal Work:

- None.

Option 2B--Close public access

Pros:

- Best option to reduce all unsafe interactions between pedestrians, highway vehicles, bikes, and parked cars.
- Should reduce OSMP enforcement and maintenance needs.
- Would provide a greater potential for reclaiming natural habitat, including the entire wetland area.

Cons:

- Would cut off neighborhood access.
- Would require some users to travel further to access OSMP.

Measures to Mitigate Impacts / Make Proposal Work:

- Best Management Practices (BMPs) followed for trail closures and ongoing monitoring and management of weeds.

Alternative # 2 New Trailhead at City Limits (mapped)

Option 1: No-action; no new trailhead built

Option 2: New trailhead built and new trail connection to Community Ditch Trail

Option 1—No action; no new trailhead

Pros:

- No need to build connecting trails.
- Cost savings to the Department, which saves funding for other projects.
- Parking is currently provided off of S.H. 170.

Cons:

- Public has expressed an interest in using this property as a new trailhead.
- No easy trailhead replacement besides City Limits if Marshall Mesa Trailhead is closed.
- With possible new trail connections in the area and possible increase of visitor use, parking and trailhead amenities in the area are not adequately provided for.

Measures to Mitigate Impacts / Make Proposal Work:

- Expand Marshall Mesa Trailhead or build new trailhead on South 66th.

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- City Limits site must be restored and managed, or weeds will continue to threaten adjacent OSMP areas.

Option 2--New trailhead built and new trail connection to Community Ditch Trail

Pros

- 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.
- Public has expressed interest in the new trailhead and trail connections.
- City Limits Trailhead has better vistas than Marshall Mesa Trailhead. Better trail connectivity at City Limits than at Marshall because it is more directly between Greenbelt Plateau (and Jefferson County connection along S.H. 93) and Boulder via Marshall Road. The connection to Boulder is also safer because people do not have to travel along the busy section of Marshall Road, and the vehicle speeds are slower when crossing Marshall Road.
- Trailhead site is large enough to provide parking safely for horse trailers and other users.
- Could provide a site for a visitor outreach kiosk, separate horse trailer parking, and possibly an ADA trail loop.
- Opportunities for interpretive informational signs are available.
- Water and electricity are available.
- Provides opportunity for restoration at Marshall Mesa Trailhead.
- Mining history interpretation could be built into the trailhead and connecting trails.

Cons:

- Increased maintenance cost for OSMP.
- Coal mining subsidence problem must be addressed for trailhead design, which may add costs.
- May be used as “Park-and Ride” due to its location on S.H. 93 (e.g., carpooling for ski trips).
- New weeds may be introduced to the trailhead.
- Potential impact to occupied prairie dog habitat.

Measures to Mitigate Impacts / Make Proposal Work:

- Well thought-out trailhead design and coal mine mitigation.
- BMPs followed for trail building and ongoing monitoring and management of weeds.
- Avoidance of prairie dog colony.

Alternative # 3 New Community Ditch Trail Crossing under S.H. 93 using Existing Community Ditch Underpass (mapped)

Pros:

- Would eliminate at-grade crossing of a dangerous highway.
- Major visitor safety problem could be resolved with a safe crossing under S.H. 93.
- Ditch underpass already exists in this location.
- Dramatic vistas. An important trail connection.
- If the Community Ditch underpass trail crossing for Community Ditch Trail under S.H. 93 removes the option for a new trail from Greenbelt Plateau Trail to the livestock underpass on Greenbelt Plateau (further south on East Rudd property, Alternative # 25), then there will be less impact to grassland bird habitat and greater protection of rare plant species and tallgrass community (and associated wildlife).

Cons:

- Unresolved lawsuit with the ditch company.
- Nesting swallows are seasonally present in the livestock underpass culvert and could be disturbed. They must be protected.
- Removes some existing vegetation and creates new weed habitat, but existing conditions are

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disturbed and additional disturbance may not increase threats from weeds if management occurs.

Measures to Mitigate Impacts / Make Proposal Work:

- Coordinate any actions / permits with CDOT and the ditch company.
- Not allowing horses would reduce the height at which physical disturbance to the nesting swallows can occur.
- BMPs followed for trail building and ongoing monitoring and management of weeds.

Alternative # 4 New Trail Connection from the New City Limits Trailhead (# 2) to Marshall Mesa Trailhead (mapped) (on the old railroad grade), which would form a new trail loop with the Community Ditch Trail

Pros:

- Would provide a new recreational opportunity and a link in the existing trail system.
- Possible ADA trail loop.
- Could minimize or eliminate creation of new undesignated trails (which might occur if not built).
- Existing abandoned railroad grade could possibly be used for sustainable trail construction.
- Opportunity to reclaim social trails.

Cons:

- If the trail is on the south side of the ditch, it will be more inviting for bikers and others to shortcut through the forested section.
- May be routed through existing prairie dog colony and wetlands.
- Cuts through rare butterfly habitat and un-fragmented north-facing shrubland habitat.
- Davidson Ditch water may seep into the trail area causing Coal mine subsidence and soil debris, which need to be avoided or addressed during trail design from City Limits to the old railroad grade.
- Air quality may be an issue along proposed trails due to coal mine fire gases venting thru cracks and holes.
- Trail may need to be fenced in some places to keep visitors on-trail to avoid mining hazards or unsustainable conditions.
- Livestock / visitor use will be in a narrow corridor between forest edge and private property.

Measures to Mitigate Impacts / Make Proposal Work:

- Avoid the rare butterfly habitat.
- Avoid the wetlands, shrubland habitat, and prairie dog town with the alignment.
- Keep dogs on trail through the shrubland habitat.
- BMPs followed for trail building and ongoing monitoring and management of weeds.
- Locate all mining maps from the State to locate mine settlements and old shafts, and consult with the State Division of Minerals and Geology as necessary to investigate trail route options in relation to mine vents and settlements.

Alternative # 5 Improvements to Existing Trails (mapped)

- **Marshall Mesa Trail:** trail tread and erosion control improvements
- **Community Ditch Trail:** trail tread and erosion control improvements

Pros:

- Add to both physical and environmental sustainability.
- Need to re-grade trail surfaces to channel runoff away from the ditches.
- Improves conditions for adjacent native vegetation by controlling erosion, and reducing weed habitat (repair and prevention of braiding and trail widening).

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<p>Cons:</p> <ul style="list-style-type: none"> • Cost of the improvements. • Trail maintenance leaves freshly disturbed areas that are often invaded by weeds.
<p>Measures to Mitigate Impacts / Make Proposal Work:</p> <ul style="list-style-type: none"> • Work with the ditch companies regarding improved trail surfaces and drainage. • BMPs followed for trail building and ongoing monitoring and management of weeds.
<p><i>Alternative # 6 New Spur Trails to Historical or Geological Sites (not mapped) (Where?)</i></p>
<p>Pros:</p> <ul style="list-style-type: none"> • Improved visitor experience and educational opportunities. • May allow for closure of some social trails (i.e., removal of multiple existing social spur trails and the designation of one spur).
<p>Cons:</p> <ul style="list-style-type: none"> • Potential for vandalism of historic or geologic resources. • If new spur, then removes existing vegetation and further fragments Marshall Mesa area. • Potentially increases the fragmentation of habitat and encourages social trailing beyond destination points.
<p>Measures to Mitigate Impacts / Make Proposal Work:</p> <ul style="list-style-type: none"> • Carefully plan locations, keep number of spur trails low and spur lengths as short as possible, with only best locations and destinations considered. • Fence resources from public access, where necessary, to avoid impact to sensitive resources or historic artifacts. • BMPs followed for trail building and ongoing monitoring and management of weeds. • Potential habitat impacts and possible mitigation would have to be evaluated on case-by-case basis depending on the location.
<p><i>Alternative # 7 Elimination of Social Trails, Trail Widening, and Parallel Trails (not mapped) and appropriate reclamation of natural areas... Where are priority improvements?</i></p> <ul style="list-style-type: none"> • Eliminate all social trails that do not become designated trails through the TSA process.
<p>Pros:</p> <ul style="list-style-type: none"> • Fewer off-trail resource impacts. • Restoration of vegetation and reduction of fragmentation. Wildlife habitat improvement. • Fewer weed problems in the long run.
<p>Cons:</p> <ul style="list-style-type: none"> • Initial (3 to 5 years) increase in weed cover and need to monitor and manage weeds intensively.
<p>Measures to Mitigate Impacts / Make Proposal Work:</p> <ul style="list-style-type: none"> • BMPs followed for trail closures and ongoing monitoring and management of weeds.
<p><i>Alternative # 8 Enhanced Education and Enforcement to Improve Compliance with Dog Regulations (not mapped)</i></p>
<p>Pros:</p> <ul style="list-style-type: none"> • Already planned in the Visitor Master Plan (VMP). • Reduction of dog off-trail use reduces opportunity for weed spread, wildlife disturbance, and ancillary trail development.
<p>Cons:</p> <ul style="list-style-type: none"> • None.
<p>Measures to Mitigate Impacts / Make Proposal Work:</p> <ul style="list-style-type: none"> • Ranger and outreach staff presence will need to be prioritized as new trail connections are made. • OSMP needs to plan for good, comprehensive signs at new trailheads with info kiosks.

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Alternative # 9 Improvements for Bike Access on the Community Ditch Trail (not mapped) (making trails narrower, planned obstacles, reroutes, etc.)

Pros:

- These improvements would provide a more diverse and interesting experience for bicyclists.
- Narrowing of trails may allow native plant reestablishment in previously used trail margins.

Cons:

- This wide trail / service access road provides an efficient emergency access for fires, emergencies, etc. and allows the ditch company to maintain the ditch; narrowing the trail would not serve these purposes.
- Creating “obstacles” for bicyclists may conflict with other uses and create safety issues (more bicyclists riding faster) for other recreationists.
- We have a contested ownership of Community Ditch Trail, and the ditch company has legal access to the canal, so any improvements might be removed or contested.
- Reroutes may disturb currently intact vegetation and soils. Planned obstacles are not a function and objective for OSMP and are contrary to Open Space Charter purposes. If natural obstacles encourage bikers to widen trail and intensify rutting during muddy periods, this can remove trailside vegetation, create weed habitat, compact soils, and cause excess soil erosion.

Measures to Mitigate Impacts / Make Proposal Work:

- Would have to be evaluated on case-by-case basis depending on the trail alignment.
- BMPs followed for trail building and ongoing monitoring and management of weeds.
- Carefully weigh the trade-offs involved with making a trail more fun for bikers and degrading trailside condition of soils and vegetation.
- Communicate with the ditch company regarding the requirements to drive or use the ditch bank and have enforcement power authorized by agreement or by OSMP / City Council action.

East Marshall Mesa Subarea

Alternative # 10 New Trail from Marshall Mesa Trail to South 66th Street (mapped)

Option 1: Mid-slope alignment

Option 2: Lower-slope alignment

Option 1—Mid-slope alignment

Pros:

- Increased visitor access and completion of a trail connection. May allow closure of social trails in the area.
- Dramatic vistas (better than Option 2).
- All aspects of trail sustainability criteria can be accomplished building this alignment.
- Good sight lines throughout alignment provide for safe multi-use trail.
- Gentle grades and side slope throughout, nothing to exceed 7 %.
- Mid-slope alignment has superior views to the lower-slope alignment. It also provides more of a buffer for Cowdrey ponds / riparian area and cultural areas and provides more trail connection options, while providing good sightlines on South 66th Street.
- Generally no pros for vegetation – unless all social trails are closed on East Marshall, new social trails are prevented via monitoring and management action. A new trail theoretically will prevent further social trailing, because visitors will have a suitable trail that completes an important connection.
- Avoids the prairie dog town.
- Interpretive opportunity for old water cistern.

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Cons:

- Trail connects to a county road corridor.
- Removes vegetation. Bisects native grassland habitat. Impinges on two rare plant communities (mid-slope). Will create weed habitat and require intensified weed monitoring and management for at least 3 to 5 years after trail building.

Measures to Mitigate Impacts / Make Proposal Work:

- Select alignment that best avoids any rare and sensitive plant habitat.
- Design trail to discourage shortcutting.
- BMPs followed for trail building and ongoing monitoring and management of weeds.
- The mining history of Marshall Mesa is part of the existing Marshall Mesa trail. The trail connection alignment from the Marshall Mesa trail to South 66th Street runs next to or near some additional historic mining structures or structural remnants. It is not expected that the proposed trail will affect any of the identified historical structures / sites. Access to the mine structures will have to be directed (signed as no-access or interpreted) or restricted (fenced and signed).
- Cover cistern to keep visitors and animals out and add interpretive signs to inform public of the history and dangers of the site.

Option 2—Lower-slope alignment

Pros:

- Increased visitor access and completion of a trail connection. May allow closure of social trails in the area.
- Nice vistas (but not as dramatic as Option 1)
- Trail would be in closer proximity to existing disturbance on S.H. 170.
- Generally no pros for vegetation – unless all social trails are closed on East Marshall, new social trails are prevented via monitoring and management action. New trail theoretically will prevent further social trailing, because visitors will be able to go where they desire.
- Interpretive opportunity for old water cistern.

Cons:

- Trail connects to a county road corridor.
- Close proximity to Cowdrey drainage, which is important for migratory waterfowl and amphibians including Northern Leopard Frogs. Greater impacts to wetlands and associated fauna.
- Removes vegetation. Bisects native grassland habitat. Impinges on wetland communities. Will create weed habitat and require intensified weed monitoring and management for at least 3 to 5 years after trail building.
- Brings trail close to or through an unmapped prairie dog colony that currently does not have a trail close by.

Measures to Mitigate Impacts / Make Proposal Work:

- Fence off Cowdrey drainage wetlands and prairie dog colony, but, must be constructed in a way to avoid creating a barrier to movement of wildlife.
- BMPs followed for trail building and ongoing monitoring and management of weeds.
- The mining history of Marshall Mesa is part of the existing Marshall Mesa trail. The trail connection alignment from the Marshall Mesa trail to South 66th Street runs next to or near some additional historic mining structures or structural remnants. It is not expected that the proposed trail will affect any of the identified historical structures / sites. Access to the mine structures will have to be directed (signed as no-access or interpreted) or restricted (fenced and signed).
- Cover cistern to keep visitors and animals out and add interpretive signs to inform public of the

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history and dangers of the site.

- On-leash, on-trail restriction with significant enforcement (if trail is not fenced) to restrict dog access.

Alternative # 11 Stabilization / Hazard Mitigation Measures on Damyanovich Property East of South 66th (mapped)

- **To ensure public safety from contaminated soils, OSMP should apply clay topsoil over contaminated soils to prevent airborne exposure of the public and add fencing and warning signs.**

Alternative # 12 Existing Pedestrian Gate south of S.H. 170 (mapped)

Option 1: Remove the pedestrian gate (could be reinstalled in the future)

Option 2: Maintain the gate until public access / trail decisions are made for the Tallgrass Prairie East Trail Study Area

Option 1--Remove the pedestrian gate

Pros:

- Would remove an existing undesignated trail and clear up confusion for visitors around “designated” trails and social trails. Allows revegetation of current social trail.
- Would focus visitor use on the designated trail system.
- This gate is lightly used.
- Protects Cowdrey Draw wetlands, decreases potential for further social trailing, and allows restoration of trails and impacted wetlands in area.
- Would protect resources from inappropriate off-trail activities and prevent continuation of existing visitor use patterns on the Tallgrass Prairie East HCA that may be damaging.

Cons:

- Closure might not be the long-term solution if in the future is a trail connection across S.H. 170 onto Davidson Mesa is designated / constructed.

Measures to Mitigate Impacts / Make Proposal Work:

- BMPs followed for trail closures and ongoing monitoring and management of weeds.

Option 2—Maintain the gate until public access / trail decisions are made for the Tallgrass Prairie East Trail Study Area

Pros:

- Maintains existing visitor access.
- The Tallgrass Prairie East TSA planning process is scheduled to be completed in 2006, so deferring a decision on the gate would only be temporary.

Cons:

- Continued use of undesignated trails in this area. Encourages use of undesignated accesses and trails.
- Maintaining the social trail promotes a weed corridor and removes the opportunity to restore. Creates mixed messages to public about “designated” vs. “undesignated” trails – in an area where we are currently conducting long-term trail planning with one objective of making decisions on whether social trails should remain or not. This confusion can lead to a lack of understanding across the system of the importance of staying on designated trails.
- Potential impacts to wetlands in the Cowdrey drainage.

Measures to Mitigate Impacts / Make Proposal Work:

- Sign and encourage visitors to use new designated access.

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Alternative # 13 Trail Connection from South 66th Street to Coal Creek Drive (mapped)

Option 1: Trail built within the 66th Street road right-of-way (ROW) or on-street

Option 2: Trail located east outside the road ROW onto County Open Space connecting over to the Boulder County Open Space Singletree Trailhead

Option 1--Trail built within 66th Street road right-of-way

Pros:

- Increased visitor access by completing a trail connection to Superior.
- Trail could be located in the road ROW to the side of the roadway.
- Trail could use the existing road pavement due to low volume of traffic. Pavement striping could be installed to delineate the trail so vehicles are informed of on street bike pedestrian trail.
- Trail would be built in the existing disturbed area.
- Trail would be low cost and can provide an immediate trail connection. Vistas of the horizon and stream area are good.
- Avoids removing grassland vegetation on OSMP land (and creation of weed corridor) and fragmentation associated with a new trail.
- Use of existing corridor minimizes new disturbance to habitat.

Cons:

- Visitors would be sharing a trail corridor with motorized vehicle traffic.
- Some view a trail in the road ROW as reduced visitor experience.
- Trail using existing road pavement is not as safe as a cross country, off-road trail.
- Need permission from Boulder County to stripe pavement for on-road trail.

Measures to Mitigate Impacts / Make Proposal Work:

- Consult with County transportation on all issues in their ROW.
- BMPs followed for trail building and ongoing monitoring and management of weeds.

Option 2--Trail located east outside the road ROW onto Boulder County Open Space

Pros:

- Increased visitor access and completion of a trail connection.
- Higher quality visitor experience than close proximity to a road (South 66th).
- Users would be directed away from vehicle traffic.
- Connection to the county Singletree Trail could be provided by this alignment.
- Boulder County would be responsible for constructing most of this trail connection.
- This option would use a trail easement behind the Sagamore neighborhood in Superior.
- This trail connection would potentially have less impact on the Coal Creek Riparian area.

Cons:

- Vistas of the horizon are good, but there are few views of the stream area, and the trail would be behind a neighborhood when it reaches Superior.
- Part of the trail would be in close proximity to a known contaminated site (Damyanovich property).
- OSMP does not own all the land to make the connection, so the trail would depend on a joint decision with Boulder County.
- Removes grassland vegetation, creates corridor of weed habitat, and fragments grassland habitat.
- Some of the areas are irrigated and will lead to increased trail maintenance and the likelihood of occasional trail flooding.
- Trail would affect livestock grazing management on the Damyanovich property.

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<p>Measures to Mitigate Impacts / Make Proposal Work:</p> <ul style="list-style-type: none"> • Avoid the contamination by making the connection on the southern part of the Damyanovich property. • Work with Boulder County on trail design and location. • BMPs followed for trail building and ongoing monitoring and management of weeds.
<p>Alternative # 14 Dog Management on New Trail to South 66th (not mapped)</p> <p>Option 1: Voice-and-sight control</p> <p>Option 2: On-leash, on-trail requirement</p>
<p><u>Option 1—Voice-and-sight control</u></p> <p>Pros:</p> <ul style="list-style-type: none"> • Does not impose a restriction. <p>Cons:</p> <ul style="list-style-type: none"> • Voice-and-sight control has been shown to be unrealistic when adjacent to water. If use patterns become established where dogs go to the wetlands in the Cowdrey Draw, OSMP will have similar issues with resource damage as we currently have at Dry Creek. • Dogs will have access to Cowdrey drainage and associated important wildlife. Dogs will disturb waterfowl using the wetlands in Cowdrey Draw. • Will allow dogs to be in the prairie dog town along the trail. • Promotes or allows social trailing to develop, increases swath of human / dog influence on grassland habitat, and increases the opportunity for spread of weeds by humans and dogs. • With natural attraction of dogs to the water, this option may be effective only if significant education and enforcement efforts are established. <p>Measures to Mitigate Impacts / Make Proposal Work:</p> <ul style="list-style-type: none"> • Place fencing on south side of Cowdrey drainage, but, this must be planned in a way to prevent impacting wildlife movement through the area.
<p><u>Option 2—On-leash, on-trail requirement</u></p> <p>Pros:</p> <ul style="list-style-type: none"> • Would reduce user conflicts on this multi-use trail. • Keeps dogs out of the water in the Cowdrey drainage and riparian area, which will protect associated species and other wildlife. • Will prevent dogs from impacting trailside prairie dog town. • Prevents social trailing by dogs and people, narrows swath of human / dog influence on grassland habitat, and reduces the opportunity for spread of weeds by human / dog vectors beyond trail corridor. <p>Cons:</p> <ul style="list-style-type: none"> • Restricts dogs. <p>Measures to Mitigate Impacts / Make Proposal Work:</p> <ul style="list-style-type: none"> • If informal parking continues on South 66th, it could be signed easily there to inform visitors of the various dog management requirements in different areas.
<p>Alternative # 15 Elimination of Social Trails, Trail Widening, and Parallel Trails (not mapped) and appropriate reclamation of natural areas...Where are priority improvements?</p>
<p>Pros:</p> <ul style="list-style-type: none"> • Restoration of vegetation and reduction of fragmentation. Wildlife habitat improvement.
<p>Cons:</p> <ul style="list-style-type: none"> • Initial (3 to 5 years) increase in weed cover and need to monitor and manage weeds intensively.
<p>Measures to Mitigate Impacts / Make Proposal Work:</p> <ul style="list-style-type: none"> • BMPs followed for trail closures and ongoing monitoring and management of weeds.

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Alternative # 16 New Interpretive Improvements for Historical or Geological Sites (not mapped) (Where?)

Pros:

- Improved visitor experience and educational opportunities.
- Grant funding may be available for these improvements.

Cons:

- May lead to increased vandalism of the resources.
- If new spur, then removes existing vegetation and further fragments Marshall Mesa area.
- Potentially increases the fragmentation of habitat and encourages social trailing beyond destination points.

Measures to Mitigate Impacts / Make Proposal Work:

- Work with local historic preservation groups.
- If spur trails are part of the improvements, carefully plan locations, keep number of spur trails low and spur lengths as short as possible, with only best locations and destinations considered.
- Fence resources from public access, where necessary, to avoid impact to sensitive resources or historic artifacts.
- BMPs followed for trail building and ongoing monitoring and management of weeds.
- Potential habitat impacts and possible mitigation would have to be evaluated on case-by-case basis depending on the location.

Coal Creek Subarea

Alternative # 17 No New Trails in the Fenced Riparian Restoration Area (mapped)

No option other than continuation of the public access closure.

Pros:

- Maintaining public access closure is key for successfully meeting the long-term restoration and management goals for this subarea and for the Southern Grasslands Habitat Conservation Area (HCA). Allows for and minimizes impacts to ongoing restoration of riparian and wetland plant communities (many of which are rare and sensitive) and associated uplands within the fenced corridor. Provides rare (along the Front Range on public land) riparian un-trailed habitat for many non-human-tolerant wildlife species.
- Will protect nesting bald eagles and other protected or species of special concern, including Prebles Meadow Jumping Mouse, Leopard Frogs, and 35 bird species of special concern.
- Will protect recovering habitat in restoration area that provides habitat for 142 species of birds, reptiles, small mammals, and native fish.
- Maintains un-trailed and connected habitat along the creek corridor.
- Maintains movement corridor for wildlife such as elk.
- Protects habitat critical for success of future Plains Sharp-tailed Grouse reintroduction.
- Maintains legal contract with the Terra Foundation to preclude public access crossing of the creek in the restoration area restored with Terra. If a trail was built within the riparian restoration area, OSMP would be required to return \$450,000 of grant funds to the Terra Foundation, and the prospect of future funding would be eliminated.

Cons:

- Keeps visitors out of an area that might be of interest to visitors.

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Measures to Mitigate Impacts / Make Proposal Work: <ul style="list-style-type: none">The Coal Creek riparian area has several identified cultural and historical sites that contribute to its resource significance. The sites or localities should be avoided and not identified. One of the historic structures (stone building -- old stage stop) has been stabilized and may be suitable for interpretation (using low (3') wooden fence) if a trail is built in proximity to the stone structure.
Alternative # 18 Continuation of the Eagle Nesting Closure (mapped) (within ½ mile buffer area)
Pros: <ul style="list-style-type: none">OSMP has a legal responsibility under the Federal Endangered Species Act and Eagle Protection Act to protect nesting bald eagles.
Cons: <ul style="list-style-type: none">New trails could be drastically affected with public access closures when eagles are nesting.
Measures to Mitigate Impacts / Make Proposal Work: <ul style="list-style-type: none">None.
Alternative # 19 Elimination of Social Trails, Trail Widening, and Parallel Trails (not mapped) and appropriate reclamation of natural areas...Where are priority improvements?
Pros: <ul style="list-style-type: none">Restoration of vegetation and reduction of fragmentation. Wildlife habitat improvement.
Cons: <ul style="list-style-type: none">Initial (3 to 5 years) increase in weed cover and need to monitor and manage weeds intensively.
Measures to Mitigate Impacts / Make Proposal Work: <ul style="list-style-type: none">BMPs followed for trail closures and ongoing monitoring and management of weeds.
Alternative # 20 Limited Guided Hikes into the Coal Creek Riparian Restoration Area (not mapped)
Pros: <ul style="list-style-type: none">Educational or bird watching activities could be accommodated on a small scale via guided hikes. Guided hikes will educate the public on the ecological value of the Coal Creek corridor and reasons for keeping the restoration area un-trailed and will draw support for conservation goals for the area.
Cons: <ul style="list-style-type: none">Potential for additional weed species introduction. Potential for disturbing sensitive wildlife.
Measures to Mitigate Impacts / Make Proposal Work: <ul style="list-style-type: none">Access must be regulated to a degree that protects habitat and wildlife.HCA off-trail permits would be required and would specify low-impact conditions under which guided hikes could occur. If there are fewer than 5 guided hikes per year, and they do not occur during bird migrating and nesting, spring elk use, or under muddy conditions – potential negative impacts may be mitigated.
Alternative # 21 Interpretive Signs / Materials Explaining the Restoration Process from a Remote Viewpoint? (not mapped) <ul style="list-style-type: none">Possible suitable sites: Coal Creek crossing S.H. 128; near the Varra gate on South 66th
Pros: <ul style="list-style-type: none">Interpretive signs / materials will educate public on reasons for keeping the Coal Creek restoration area un-trailed and will draw understanding and support for conservation goals for the area.
Cons: <ul style="list-style-type: none">Remoteness of the site for viewing may make it more challenging to create interpretive interest.

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Measures to Mitigate Impacts / Make Proposal Work:

- Carefully evaluate and select the location and design of an interpretive site to maximize interpretive interest and minimize resource impact.

Southern Grasslands—Greenbelt Plateau Subarea

Alternative # 22 New Trail North of Coal Creek (mapped) (public suggestion was to designate and improve the no longer used and partially re-vegetated gravel haul road, which gets a small amount of visitor use currently)

Pros:

- Could provide a unique remote prairie trail experience.
- Trail could follow the abandoned two-track road in many places.
- Good vistas, but not as dramatic as other vistas on the ridge above the valley. Good views of the creek vegetation, but fence keeps people out of riparian area.
- Some visitor use impacts to the area are present.

Cons:

- Trail would bisect the Habitat Conservation Area and parallel a protected riparian restoration corridor.
- A major portion of the gravel haul road mentioned as a possible trail was re-graded and restored with native plants in 2001 as part of the Coal Creek restoration project. The old road has largely been re-vegetated and much of old route has no evidence of social trailing or other visitor use. Much of the road is also in the fenced riparian protection area.
- A new trail would create a disturbance corridor and habitat for existing and new weed species to colonize and spread.
- This new trail would impede long-term restoration of rare and other plant communities due to the maintenance of a permanent, bisecting disturbance corridor, and the potential for social trail development. A trail would draw an increasing population of visitors over the next decade and beyond. Along with this increase in human presence comes an increase in the potential for new weed species to be introduced and additional social trails to develop. Numerous wildlife species will either not tolerate regular human presence or will change natural behavior due to increased human (and dog) presence.
- Crosses through the eagle nesting closure area, which is closed from Nov 1- July 31 of each year when birds nest.
- Extremely diverse and valuable bird communities may be affected by recreational use.
- Passes through a small prairie dog colony and may impact areas of winter raptor use; close proximity to critical habitat used by a variety of wildlife in the Coal Creek restoration area.
- Breaks up grassland-riparian habitat transition—a unique and important area.
- Passes through habitat included in the potential release area for Plains Sharp-tailed Grouse and important for their year-round survival.
- Has potential to impair our ability to reach conservation goals objectives for Coal Creek and the entire Southern Grasslands Habitat Conservation Area by fragmenting habitat and bringing people and dogs into close contact with wildlife not tolerant of disturbance.
- The Southern Grasslands Habitat Conservation Area, which is un-trailed and low use, presents the opportunity to keep this large habitat block and riparian corridor intact and free from visitor use that would penetrate the core of the management area.
- Overall, the Southern Grasslands HCA presents the best opportunity on the OSMP system to preserve and restore grassland ecosystem dynamics and wildlife communities and populations in a setting allowing natural and unimpeded functioning.

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- Keeping future visitor use at the periphery of the habitat block would support a high level of habitat effectiveness that derives from many diverse habitat patches where many types of wildlife can be sustained.
- The value of this large un-trailed grassland habitat block (the largest single block of intact grassland in OSMP) lies in being able to support a very diverse suite of wildlife species that depend on little human disturbance and various natural processes that can only occur in large habitat blocks.
- The unique nature of this habitat in the OSMP land system 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.
- Protect rare, imperiled, and highly-vulnerable resources from the impacts of visitor use.
- Trail would pass through two livestock grazing pastures.
- OSMP does not have the enforcement capabilities to effectively patrol this remote, out-of-sight trail.
- Potential private property trespass issues confound this proposal.
- A fenced corridor to control visitor use here would undermine the visitor experience and interrupt wildlife movement and cattle grazing.
- Isolated cultural sites along Coal Creek add to the resource significance of this area and support protecting the area without trails.

Measures to Mitigate Impacts / Make Proposal Work:

- None.

Alternative # 23 New Trail South of Marshall Lake (mapped) (from Community Ditch Trail to South 66th / Coalton Road)

Pros:

- This alignment would provide another loop trail opportunity in the area.
- Nice vistas would provide for a quality visitor experience, but not as dramatic as other vistas on the ridge above the valley. Good views of Marshall Lake and Coal Creek, but fences keep people out of lake area and the creek riparian area.

Cons:

- Several environmental cons identified under Alternative # 22 apply to this alternative; this northern part of the HCA is distant from Coal Creek. These comments focus on the importance of keeping the Southern Grasslands HCA core area free from trails or roads, in order to support the ecosystem's long-term restoration goals and maintain this habitat as a large, uniquely intact, habitat block.
- Removes vegetation and creates weed habitat that will require intensified weed monitoring and management for at least 3 to 5 years after trail building.
- Cuts through the habitat of a rare butterfly--Ottoe Skipper.
- Passes through largest prairie dog colony in the Southern Grasslands HCA, an important hunting area for wintering raptors, which may not tolerate regular human presence; the size of the colony provides potential habitat for Burrowing Owls.
- Impacts OSMP's ability to follow guidelines set up in the Black-tailed Prairie Dog Conservation Plan designating this area as a prairie dog conservation area.
- Located in an important raptor hunting area used by bald eagles during nesting season.
- Alignments that might go up onto the mesa slopes to the south also have prairie dog burrows and occurrences of xeric tallgrass (rare plant community).
- The trail would involve a slight incursion into the eagle nest closure area and intersect the eagle flyway from the Coal Creek nest site to Marshall Lake.

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- Trail would pass through three current livestock pastures.
- Trail would bring visitors close to the Hayes Conservation Easement, which might invite increased current visitor trespass.

Measures to Mitigate Impacts / Make Proposal Work:

- Implement seasonal closures for eagles.
- Work with the adjacent property owners on managing visitor access.
- A low fence in sections may work to encourage on-trail visitor travel, if kept in good condition.
- Avoid rare butterfly habitat.
- Avoid fragmentation and proximity to the large prairie dog town to minimize impact to wintering raptors, and other species associated with prairie dogs.
- Avoid constricting growth and movement of the prairie dog town in the future to comply with designation as a prairie dog conservation area.
- BMPs followed for trail building and ongoing monitoring and management of weeds.

Alternative # 24 New ADA Trail Loop from the Greenbelt Plateau Trailhead (mapped) (into Doudy Draw Natural Area)

Pros:

- Area is flat and would provide ADA access on a trail loop that offers dramatic views and the opportunity to experience native grassland habitat.
- If this were a pedestrian-only trail (no bikes, horses, or dogs), it would provide a trail highly suited to people with disabilities, elderly visitors, or very young visitors.

Cons:

- A trail loop from Greenbelt Plateau trailhead would need to be fairly long in order to reach good views, get away from the highways, and be constructed sustainably (meeting ADA specifications). Additional trails in that block of rare grassland plant community between S.H. 93 and the Greenbelt-Marshall Mesa trail corridor would remove xeric tallgrass vegetation, and create a disturbance corridor along which there would be good potential for existing and new weed species to spread. Weeds degrade the quality of tallgrass habitat, which would negatively affect several butterfly species (some rare). This high-quality grassland habitat patch is known to support a high incidence of grassland nesting birds, and additional fragmentation from trails would reduce the patch size and degrade the quality of habitat for grassland birds.
- The area's high value for ground nesting birds, and possible seasonal wildlife access restrictions suggest an alternate location for an ADA trail. Opportunities for an ADA trail is being considered elsewhere in the OSMP system.

Measures to Mitigate Impacts / Make Proposal Work:

- Seasonal trail closure during nesting bird season May 1- July 31.
- Find another location in another part of the OSMP system to build or to improve an existing trail as an ADA trail with good views in native grassland habitat.

Alternative # 25 New Trail from the Greenbelt Plateau Trail to the Existing Cattle Underpass near the Old Matterhorn Site (mapped) (with connections to Community Ditch Trail and Doudy Draw Trail; open to equestrians)

Pros:

- Would provide additional safe crossing under S.H. 93 using an existing box culvert.
- Dramatic vistas.

Cons:

- The box culvert is narrow and has a low ceiling height for equestrian use. Riders will have to dismount their horses.
- Environmental impact comments for Alternatives # 24 serve for this alternative. In this alternative, the trail would bisect the high-quality xeric tallgrass community that is an important

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nesting area – and would include new trails west of S.H. 93 as well.

- The trail would bisect high quality ground nesting bird habitat (highest density of nests on all studied locations on OSMP).
- Nesting swallows are seasonally present and must be protected.
- The Doudy Draw Natural Area section east of S.H. 93 would be bisected.
- Safe connection across S.H. 93 already made at stoplight near Greenbelt Plateau Trailhead and the planned underpass at Community Ditch Trail. These two connections also have dramatic vistas.
- A trail connection to the Community Ditch Trail on the west side of the underpass would have to get approval of the ditch company.

Measures to Mitigate Impacts / Make Proposal Work:

- Replace the existing box culvert to accommodate equestrians.
- Place signs to inform users of small size of crossing and “to avoid dangerous conflicts with other trail users”.
- Seasonal closure of trail during nesting bird season May 1- July 31.
- Design trail to minimize impacts to the Natural Area.
- Several cultural / paleontological locales and sites have been identified in this area, but can be mitigated by a walk-through on the ground of any potential trail alignments. Any identified sites with stone circles or rock cairns should be avoided by keeping any trails 100 meters or more away. Historic ditches should be bridged or crossed using culverts, maintaining the ditches in historic condition.

Alternative # 26 New Trailhead in the Vicinity of South 66th (mapped)

Option 1: Location near the intersection of South 66th and Coal Creek Drive

Option 2: Location near the intersection of S.H. 170 and South 66th Street

Option 3: No action; no new trailhead

Option 1--Location near the intersection of South 66th and Coal Creek Drive

Pros:

- An end-of-road trailhead might work with the Varra gate / fence being the southern trailhead boundary.
- With realignment of South 66th and Coal Creek Drive, a trailhead on east side of South 66th would be a good flat location.
- Would help reduce off-road parking along South 66th.
- Boulder County may be willing to share cost.
- Additional use in the area could support the need for trailhead in this area.

Cons:

- Trailhead at this location may not be needed when Singletree Trailhead on Coal Creek Drive is completed by Boulder County.
- Remote location away from major roads; little visibility for ranger patrol.
- Concentrates visitors at the edge or actually in the wildlife closure, and close to areas that will likely be un-trailed. Trailhead would displace xeric tallgrass vegetation. May encourage use of the area south of the trailhead along Coal Creek and the core of the grassland habitat block.
- Close proximity to eagle nesting closure.
- Numerous prairie dogs on east side of 66th Street.

Measures to Mitigate Impacts / Make Proposal Work:

- Locate the trailhead outside the eagle nesting closure.
- Increased ranger patrol in the area.
- Monitor South 66th to see if another trailhead is needed after construction of the County Singletree trailhead off Coal Creek Drive; placement of no-parking signs on Coal Creek Drive

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and part of S 66th; and building of the City Limits Trailhead.

Option 2--Location near the intersection of S.H. 170 and South 66th Street

Pros:

- Location would be highly visible and accessible for visitors near S.H. 170.
- Would eliminate off-road parking along South 66th.
- Location is conducive to ranger patrol.
- Additional use in the area could support the need for a new trailhead in this area.

Cons:

- Might not be needed with the development of the City Limits Trailhead and the County Singletree Trailhead.
- Would be in proximity to Cowdrey drainage, which would need protection from runoff and entry of dogs.

Measures to Mitigate Impacts / Make Proposal Work:

- Monitor South 66th to see if another trailhead is needed after construction of the County Singletree trailhead
- Placement of no-parking signs on Coal Creek Drive and part of S 66th.
- Building of the City Limits Trailhead.

Option 3--No action; no new trailhead

Pros:

- Cost savings for the Department.
- It would focus parking to existing trailheads.
- Avoids impacts to as much native vegetation.

Cons:

- Does not provide for public desire to have additional trailheads.
- Increased visitor use to the area may necessitate additional parking facilities.
- Off-road parking can be expected to increase thereby creating a de-facto trailhead in this area.
- Parking on present South 66th ROW could damage existing prairie dog habitat.

Measures to Mitigate Impacts / Make Proposal Work:

- Ask Boulder County to enforce no parking regulations.
- Expand existing trailheads or build elsewhere in TSA.

Alternative # 27 Elimination of Social Trails, Trail widening, and Parallel Trails (not mapped) and appropriate reclamation of natural areas...Where are priority improvements?

Pros:

- Restoration of vegetation and reduction of fragmentation. Wildlife habitat improvement.

Cons:

- Initial (3 to 5 years) increase in weed cover and need to monitor and manage weeds intensively.

Measures to Mitigate Impacts / Make Proposal Work:

- BMPs followed for trail closures and ongoing monitoring and management of weeds.

Alternative # 28 Seasonal Wildlife Closures / On-Trail and On-Leash Requirements in the Douby Draw Natural Area (mapped) (to protect ground-nesting birds)

Pros:

- Protects ground-nesting birds (in an area with high density of ground-nesting bird use) from disturbance and promotes the success of their reproduction.
- Protects one of the few areas on the OSMP system with all five grassland species nesting.
- Reduces trampling and opportunity for spread of weeds into the rare plant community (xeric tallgrass).

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<p>Cons:</p> <ul style="list-style-type: none">• Restricts off-trail travel in a Natural Area.• Increases need for enforcement activities.
<p>Measures to Mitigate Impacts / Make Proposal Work:</p> <ul style="list-style-type: none">• Intensify enforcement during closure. Inform visitors of closure purpose.
<p><i>Alternative # 29 Allow Continuation of Parallel Biking Trail alongside Greenbelt Plateau Trail (mapped)</i></p>
<p>Pros:</p> <ul style="list-style-type: none">• Legitimizing and continuing a parallel trail for bicyclists would separate bikers from other users, minimize visitor conflicts with pedestrians, dogs, and horses, and possibly provide a better experience for the various types of visitors.• The parallel trail, in this case, is close to the Greenbelt Plateau Trail, so it keeps visitors within a relatively narrow corridor.• Disturbance exists next to an existing designated trail, thereby generating minimal additional impacts.
<p>Cons:</p> <ul style="list-style-type: none">• Continued erosion (trail deepening and “dishing” from trail alignment down the fall line), and braiding resulting in loss of xeric tallgrass vegetation.• Additional means of weed dispersal.• Increased habitat impact to vegetation and nesting birds.• Encourages parallel trails and trail widening—something OSMP tries to avoid.
<p>Measures to Mitigate Impacts / Make Proposal Work:</p> <ul style="list-style-type: none">• Need to add signs delineating allowed uses.• Monitor for additional weed dispersal.• Investigate different, more attractive, surfacing material and increase meanders in the trail. Sign trail requesting on-trail use and listing reasons to stay on the trail (e.g., weed spread) and slash undesigned trails.• Allow parallel trail only on one side for bikers. Possible close other side. Sign with explanations for limiting parallel trails. Eliminate braiding as per social trail closures, educate (signs, website info., etc.) bicyclists on why to avoid creating braided areas, monitor, and close parallel trails if compliance is poor (i.e., braiding continues, trails continue to form on both sides of the main Marshall-Greenbelt trail).
<p><i>Alternative # 30 Retrofitting of the Existing Trail for Biking Interest (mapped)</i> (narrowing the trail and building in some serpentine curves <u>or</u> add a separate single-track bike loop)</p>
<p>Pros:</p> <ul style="list-style-type: none">• Could make trail more “interesting” for bike users (retrofitting).• Would separate bike use from other users (separate bike loop).
<p>Cons:</p> <ul style="list-style-type: none">• Emergency access and agricultural operations could be hindered by narrowing the trail and adding curves.• Could set precedent for separating trail users.• Building in curves would remove significantly more xeric tallgrass vegetation and create a new and more extensive swath of disturbance for weed introduction and spread. Mostly native vegetation has long been established at the edges of the old S.H. 93 corridor (Marshall-Greenbelt Plateau Trail). Diffuse knapweed and other noxious weeds along this corridor have been managed for many years. A new, longer, freshly disturbed trail would cause a set back in weed control, and removal and degradation of the (rare) xeric tallgrass community which serves as important bird and butterfly habitat. An additional bike loop would fragment this

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high-quality bird habitat and rare plant community.

- Increasing curves in the trail would increase the area of habitat impacted, including the high density ground-nesting bird habitat.

Measures to Mitigate Impacts / Make Proposal Work:

- Install short-term signs to explain reasons for re-building the trail. Take signs down after several months.

Southern Grasslands—Rocky Flats Subarea

Alternative # 31 Elimination of Social Trails, Trail Widening, and Parallel Trails (not mapped) and appropriate reclamation of natural areas...Where are priority improvements?

Pros:

- Restoration of vegetation and reduction of fragmentation. Wildlife habitat improvement.

Cons:

- Initial (3 to 5 years) increase in weed cover and need to monitor and manage weeds intensively.

Measures to Mitigate Impacts / Make Proposal Work:

- BMPs followed for trail closures and ongoing monitoring and management of weeds.

Alternative # 32 Implement the Habitat Conservation Area Closure to Current Off-Trail Activities (mapped) (hiking, dog training, model airplane flying)

Pros:

- Closing this area to off-trail use would provide the most effective level of protection and make management of this area consistent with other Habitat Conservation Areas; possible consideration of limited off-trail use under the HCA off-trail permit program.
- Reduction of trampled vegetation, weed introduction, and disturbance of wildlife.
- The block of habitat represents an important area for the future reintroduction of Plains Sharp-tailed Grouse, which is contiguous with the larger block of federal land to the south.
- Dog training for hunting is not passive recreational use.

Cons:

- Reduction of recreational opportunities at this location.

Measures to Mitigate Impacts / Make Proposal Work:

- Commitment to enforcement of new HCA on-trail and on-leash requirements.
- Working with user groups to find alternate suitable sites for these activities.
- Possible to consider an HCA off-trail permit with restrictions that protect the resources.

Southern Grasslands Core Area (Subarea)

Alternative # 33 New Trail Connection from Greenbelt Plateau Trailhead to Coalton Trail (mapped)

Option 1: Trail that hugs the OSMP fence close to S.H. 128 (to minimize penetration into the HCA and impact to agriculture)

Option 2: Trail that moves into the HCA to a limited extent (to provide visitors more separation from the highway)

Option 1--Trail that hugs the OSMP fence close to S.H. 128

Pros:

- Completion of a trail connection from Superior to OSMP.
- Keeps recreational activity on the edge of the HCA.
- Could allow for fencing cattle out.
- Would minimize impacts of visitor use to large grassland habitat block, if fenced on east side. Would go through prairie dog colony on western periphery, avoiding more interior routes.

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- Minimizes reduction in habitat size and connectivity.
- Protects ground-nesting bird habitat especially for Grasshopper Sparrows.

Cons:

- Difficult to construct in a physically sustainable manner. Grades exceeding 20%.
- Some visitors feel that their experience is reduced when the trail is located next to a highway or fences.
- Undesignated trail proliferation may increase with this alignment.
- Would impact more area of rare plant habitat (mesa tops).
- Trail will go through two livestock grazing areas (limits management flexibility).

Measures to Mitigate Impacts / Make Proposal Work:

- Trail corridor could have a leash requirement (an enforcement challenge) due to prairie dogs and grassland bird nesting.

Option 2--Trail that moves into the HCA to a limited extent

Pros:

- Completion of a trail connection from Superior to OSMP.
- Would allow design of a physically sustainable trail, which would minimize erosion, trail widening and braiding.
- Trail would provide a higher-quality visitor experience (removed from road noise).
- Lessen the likelihood of undesignated trails developing.
- This option would have more dramatic vistas along more of the trail.
- Overall placement the trail could still minimize the entry into the core of the HCA and could support other goals related to improving the visitor experience and providing possible viewpoints for prairie education and interpretation.
- May avoid the prairie dog colony or allow placement of the trail on the eastern periphery of colony. May reduce area of rare plant community (on mesa tops) impacted by trail construction. May allow more avoidance of wetland areas.

Cons:

- Pulls visitor use further into the large grassland habitat block resulting in a net reduction in core, un-trailed habitat. Poses a threat to the integrity of the HCA and its restoration potential (long-term conservation goals), if no fence is constructed on the eastern boundary of the trail.
- Bringing visitors closer to the interior of the large un-trailed habitat block does affect its size and functioning to some degree.
- Increases reduction in habitat size and connectivity.
- Increases disturbance to ground-nesting bird habitat, especially for Grasshopper Sparrows.
- Potential wetland impacts.
- Trail will go through two livestock grazing areas (limits management flexibility).

Measures to Mitigate Impacts / Make Proposal Work:

- Fence at least part of the trail to direct people along the trail and decrease off-trail use and impact to vegetation and wildlife.
- Place signs stating the requirement to stay on trail and the reasons for the rule (e.g. weed spread, un-fragmented habitat, etc.).

Alternative # 34 New Trailhead at Intersection of S.H. 128 and the Coalton Trail (mapped)

Pros:

- Would provide additional parking and amenities for visitor use.
- Good location to access the trails with great views and vistas.

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Cons:

- Need is not yet established; could be added later if needed.
- No water or shade for horses or dogs.
- Greenbelt Plateau trailhead currently serves this trail connection less than 2 miles to the west.
- This area currently receives minimal vehicle use currently.
- Large portion of this site is located in the CDOT right-away.
- This area is remote and difficult to patrol, which could make the trailhead an attractive place for unlawful activity.
- Possible locations to the northwest of the trail entrance would remove a significant area of rare needle and thread grass community vegetation. Locations to the southeast would impact native vegetation, but not a rare plant community.

Measures to Mitigate Impacts / Make Proposal Work:

- Monitor use and add small trailhead if needed.
- Work with CDOT on access issues; negotiate with CDOT to build trailhead in the S.H. 128 ROW.
- Could place trailhead to the southeast of trail entrance on OSMP and Boulder County Parks and Open Space land.

Alternative # 35 New Trail South of Coal Creek (mapped) (connecting Greenbelt Plateau Trailhead to the Coalton Trail and to Coal Creek Drive)

Pros:

- Could provide a unique remote prairie trail experience.
- Dramatic vistas. Good views of the creek vegetation, but fence keeps people out of riparian area.

Cons:

- Several environmental concerns identified under Alternative # 22 (new trail north of Coal Creek) apply to this alternative. This proposed trail compromises the conservation goals for the HCA. This proposed trail in combination with the Greenbelt to Coalton trail (Option 2) would greatly reduce the area of un-trailed grassland habitat in this large grassland HCA. The trail would bi-sect the middle of the Southern Grasslands HCA. The combination of negative effects on native plant communities, wildlife communities, 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.
- Bisecting the large grassland habitat block vastly decreases the connectivity of wildlife habitat in the HCA.
- Crossing the Coal Creek drainage reduces the value of the drainage as a movement corridor for wildlife and compromises the restoration of the intact, un-trailed riparian corridor.
- Crosses the Prebles Meadow Jumping Mouse conservation area, which will entail potential federal mitigation requirements.
- Crosses occupied prairie dog habitat.
- Bisects one of the core areas identified as important habitat for future Plains Sharp-tailed Grouse reintroduction.
- If a trail crossed the riparian restoration area, OSMP would be required to return \$450,000 of grant funds to the Terra Foundation, and the prospect of future funding would be eliminated.
- Trails in this area could increase the likelihood of undesignated trails into the Coal Creek riparian area.
- Would put visitors right in the middle of a large agricultural (grazing) area.
- OSMP does not have the enforcement capabilities to effectively patrol this remote, out-of-sight trail.

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- Potential private property trespass issues accompany this proposal.
- A fenced corridor to control visitor use here would undermine the visitor experience that visitors are looking for.
- Trail will pass through a high livestock use area (Eggleston #3).
- Trail will pass through three livestock grazing pastures (limiting management flexibility).

Measures to Mitigate Impacts / Make Proposal Work:

- Fencing of the trail corridor.

Alternative # 36 Improvements to Existing Greenbelt Plateau Trailhead (mapped)

- Ingress, egress improvements
- Expansion of capacity and paving
- Accommodation of horse trailer parking

Pros:

- Increase safety issues exiting the trailhead.
- Could provide for additional horse trailer parking.
- Might be possible to add an outhouse for the southern end of OSMP system.
- Possible ADA accessibility upgrades.

Cons:

- Any expansion of trailhead will remove xeric tallgrass vegetation. Extensive expansion to accommodate horse trailers will remove a large area of rare plant community vegetation.
- Disturbance creates openings for weed infestations.
- Additional cost and staff time involved.

Measures to Mitigate Impacts / Make Proposal Work:

- CDOT would have to approve another driveway entrance, so an application must be submitted.
- An alternative would be to expand the trailhead at Flatirons Vista to accommodate horse trailers. Vegetation adjacent to the Flatirons Vista Trailhead is mostly non-native, weedy and of little ecological value.
- Salvage native plants (build salvage into project costs and construction timeline).
- Do not expand the Greenbelt Trailhead if the Flatirons Vista Trailhead and the Coalton Trailhead are expanded and constructed.
- BMPs followed for trail building and ongoing monitoring and management of weeds.

Alternative # 37 Grassland Ecosystem Interpretive Trail / Overlook (not mapped)

- Possible sites that offer dramatic vistas of the large block of native prairie may exist near the intersection of the Coalton Trail and S.H. 128, at the 90 degree turn of the Coalton Trail, and one or more “bump ins” along the Coalton to Greenbelt Trail alignment (on a mesa high point).

Pros:

- This type of interpretative trail / overlook would help build public understanding and appreciation for the complexity, diversity, and specialness of this protected grassland habitat block.
- None of these sites are very far into the interior of the habitat block.

Cons:

- Additional spur trails and overlook areas further fragment landscape, remove native vegetation, and create corridors for the introduction and spread of weeds. Increases the reduction in continuous habitat existing in the Southern Grasslands HCA.
- May impact high-quality ground-nesting bird habitat.
- Bringing visitors closer to the interior of the large un-trailed habitat block does affect its size and functioning to some degree.
- Potential to entice people to explore off-trail areas of the HCA seen from overlook despite on-

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trail regulations.

Measures to Mitigate Impacts / Make Proposal Work:

- Carefully select the location of an interpretive site; best places from a habitat protection point of view are at the periphery of the habitat block, which is the case with the above identified sites.
- Reduce the degree to which trail penetrates into southern grasslands habitat area.
- Implement a high level of enforcement to ensure on-trail requirements are followed
- Consider alternate locations for prairie interpretation, such as on-trail opportunities along the Coalton Trail, Coalton to Greenbelt trail, Marshall to Greenbelt trail, Flatirons Vista-Dowdy Draw Trail, Big Bluestem Trail, South Boulder Creek West trail, South Boulder Creek East Trail, Community Ditch (west) Trail, Foothills Trail, Lefthand Trail, Hogback Trail, portions of Boulder Valley Ranch trails, portions of the Mesa Trail. Many existing trails throughout the OSMP system offer excellent vistas, routes through various grassland community types (including all of our rare community types), and excellent opportunities for interpretation.

Alternative # 38 Fencing of Trail Corridor for New Trail from Greenbelt Plateau Trailhead to Coalton Trail (not mapped)

Option 1: Use fencing to limit visitor use to the defined trail corridor

Option 2: Do not create any additional fencing; rely on the HCA on-trail, on-leash requirements to adequately protect resources

Option 1--Use fencing to limit visitor use to the defined trail corridor

Pros:

- Fencing would deter a higher level of off-trail use and, therefore, would provide a higher level of resource protection than only enforcement of the on-trail requirement. Fencing would contain visitor use and prevent social trail proliferation into the large grassland block.
- On-trail, on-leash requirements should be easily enforceable.
- Protects ground-nesting birds during the breeding season.

Cons:

- Cost would be high.
- Provides a barrier to wildlife moving through area.
- Fence will make a smaller pasture, which will limit grazing management options.
- Fence will have to include a water source, which reduces a water source for other pastures.
- Fencing on both sides of a trail makes a portion of the grassland unusable for livestock grazing.

Measures to Mitigate Impacts / Make Proposal Work:

- Utilize fence designs less likely to keep wildlife from moving through the area.

Option 2--Do not create any additional fencing; rely on the HCA on-trail, on-leash requirements

Pros:

- Very costly to install fence along the entire trail.
- With the HCA on-trail requirement, fencing along the whole trail may not be needed. However, as visitors come off the Coalton trail, it would be advantageous to put up some short sections of low fence to steer them onto the new corridor with effective signs of on-trail requirements.

Cons:

- Not installing a fence would not be as effective in keeping visitor use on-trail. On-trail requirement likely would be difficult to enforce in this more remote part of OSMP system. Lack of controlled access will pose a high threat to the restoration potential and current ecological integrity of the core block of the HCA.
- May result in additional undesignated trails and require more staff time to manage.

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Measures to Mitigate Impacts / Make Proposal Work: <ul style="list-style-type: none">• Selective use of fences where visitors may need reminders to stay on trail.
Alternative # 39 Elimination of Social Trails, Trail widening, and Parallel Trails (not mapped) and appropriate reclamation of natural areas...Where are priority improvements?
Pros: <ul style="list-style-type: none">• Restoration of vegetation and reduction of fragmentation. Wildlife habitat improvement.
Cons: <ul style="list-style-type: none">• Initial (3 to 5 years) increase in weed cover and need to monitor and manage weeds intensively.
Measures to Mitigate Impacts / Make Proposal Work: <ul style="list-style-type: none">• BMPs followed for trail closures and ongoing monitoring and management of weeds.
Alternative # 40 Management of Hang Gliding (mapped) Option 1: Close area to hang gliding Option 2: Create limited-use area for hang gliding
<u>Option 1--Close area to hang gliding</u> Pros: <ul style="list-style-type: none">• Closing this area to off-trail use by hang gliders would provide the most effective level of protection and make management of this area consistent with other Habitat Conservation Areas; possible consideration of limited off-trail use under the HCA off-trail permit program.• Removes trampling of vegetation (launch and route to launch impacts three rare plant community types). Reduces potential for introduction and spread of new weeds to site (e.g., jointed goatgrass).• Decreases the potential for impact to habitat or wildlife species using area. Cons: <ul style="list-style-type: none">• Removes one of only two existing sites for hang gliding. Measures to Mitigate Impacts / Make Proposal Work: <ul style="list-style-type: none">• None.
<u>Option 2--Create limited-use area for hang gliding</u> Pros: <ul style="list-style-type: none">• Could allow continuation of this use, but contain it to a limited, defined area. Cons: <ul style="list-style-type: none">• An incursion into the HCA habitat block; landing sites could involve a significantly-sized area.• Would result in construction of a spur trail or trails from Greenbelt to Coalton trail to access launch site(s) and focus traffic from multiple landing spots. Could draw other public to spur trails and open up the possibility of other visitors going off-trail. High potential for transport of weeds from other paragliding and hang gliding sites to this site. Based on recent rapid expansion of jointed goatgrass along trails and associated with paragliding launch sites in North Boulder Valley and on West Rudd – the threat of spread of jointed goatgrass to interior HCA areas is high. Staff would have to conduct annual, intensive surveys for new invasions – specifically in the access areas (trails, launch, and landing).• Could open up the possibility of other visitors going off-trail, with increased disturbance to wildlife. Measures to Mitigate Impacts / Make Proposal Work: <ul style="list-style-type: none">• If allow hang gliding / paragliding, do only by HCA off-trail permit. Limit numbers of hang glider / paragliders through permit system, and impose regulations regarding cleaning of equipment and clothing as part of permit requirements. Delineate a boundary beyond which landing is not allowed. Conditions imposed on the permit would be intended to keep resource impacts within an acceptable limit.• Evaluate whether impacts to native plant and animal communities are better mitigated by

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omitting hang gliding / paragliding on the Southern Grasslands HCA location or on the Dowdy Draw NA (West Rudd, Dunn II), or both. Evaluation will involve consideration of management area context, system-wide context, distance involved to access launches and walk out of landings, whether formal access (trail) or off-trail permit will be used, impacts to hang glider / paraglider desired use, and impacts to plant and animal communities.