# Cherry Creek 12-Mile Park Proposal: Reclaiming the Stream while Enriching the Dog Park Experience



Photo: Cherry Creek 12-Mile Park (Feb. 2010)

Stephan Hall / Amanda Jeter Master's of Landscape Architecture Students / University of Colorado at Denver LA-5573 Advanced Ecology / Instructor Charlie Chase Project Advisor Mr. Bill Ruzzo



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### INTRODUCTION

This packet is the culmination of an Advanced Ecology course at the College of Architecture and Planning at the University of Colorado, Denver. During the spring 2010 semester, Stephan Hall and Amanda Jeter conducted field visits, interviews with experts and research. This packet offers proposals for reclaiming the heavily eroded areas of Cherry Creek 12-Mile Park and for enriching the offleash dog park experience.

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Charlie Chase, Senior Instructor University of Colorado at Denver College of Architecture and Planning (303) 556-3475 charlie.chase@ef-den.org

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## FORCES & FACTORS : SURFACE RUNOFF

**OVERVIEW** 



Surface runoff is an important factor in the erosion occurring in Cherry Creek 12-Mile Park. Surface runoff occurs during precipitation events

or snow melt events. The park naturally drains towards Cherry Creek and initial gullies have expanded due to additional factors of vegetation loss and social paths created by users. The Cherry Creek Trail also directs runoff into the gullies causing more erosion.

#### **POTENTIAL SOLUTIONS**

- Restore vegetation to slow down storm water runoff.
- Regrade Cherry Creek Trail to drain away from the creek at a 2% slope into the existing swale. Expand the swale and vegetate to help filter and slow down surface May need to do additional work to runoff. improve infiltration for dog park runoff treatment.
- Pick key gullies to redirect runoff, and reinforce those gullies with rock armor to protect structure and slow runoff.



Left: This image shows Cherry Creek Trail and an eroded gully. The red arrows show how water travels on the trail and empties into the gully.

Right: This images shows how runoff runs directly into the eroded gullies. Vegetation or armored gullies would slow the speed and deflect the force of the runoff.



## FORCES & FACTORS : SOCIAL USE

**OVERVIEW** 



Cherry Creek 12-Mile Park is a popular park for pedestrians walkers, horse riders and dog owners. The park offers unparalleled access to the unique riparian and

grassland ecosystems of Cherry Creek. Popular trails and social trails lead to soil compaction and vegetation destruction. To access the creek, people and dogs must climb down steep, eroded slopes, further adding to the erosion into the creek

#### POTENTIAL SOLUTIONS

- Regrade Cherry Creek Trail and improve the trail surface to handle the amount of traffic.
- Create accessible points for people and dogs to access Cherry Creek without causing more erosion. Limit other points for restoration.
- Add interpretive programs and signage to help educate users to stay on trails and become stewards of the park.



Left: This image shows the many footprints of users trying to access Cherry Creek. A makeshift wood bridge has been placed to cross the creek break out area. Designed spaces that can accommodate traffic and user needs is an important tool to help make these spaces work for the ecology and the user groups. Right: This images shows a happy dog exploring the creek. Social trails are extensive throughout the park. Although exploring the park is a valued experience, this can cause damage to vegetation and erosion.

## FORCES & FACTORS : HYDROLOGY



## OVERVIEW

Cherry Creek is a braided creek. In the site area, the stream grade ranges from a 1 to 2% slope creating a rapid flow.

Upstream water management and development effect the flows in the park. High flows typically are in the late spring, but any storm event can cause a high flow during the storm's duration.

...breach of the right bank ...

A break through of Cherry Creek occurs at the north portion of the site. This break throughhas re-routed the flow of Cherry Creek into a established a project objective fast, steep drainage. The Basin Authority has setthe criteria to restore the drainage and stop thebreak through area.

at this location. Further upstream it has a different characteristics If this slope is correct, it is likely due to breach of the right bank. To be braided requires much flatter slopes (less than 0.1%??)

#### POTENTIAL SOLUTIONS

Reinforce bank curve and stabilize toe

#### ...soil and ..

 Plug existing creek break with rip-rap techniques

Restore invert profile...

- Lay invert bed to slow velocity of Cherry
  Creek and the break through area.
- Use existing disturbance at break through area as a potential shoreline access area for people and dogs.



Left: A typical view of Cherry Creek at 12-Mile Park. The creek naturally moves large sand particles to form sand bars where willow and other species grow. Erosion adds smaller particles of loam that carry naturally occurring phosphorus that causes water quality problems. Right: The break through of Cherry Creek. The creek originally ran to the left of this area.

## FORCES & FACTORS : ACCESSIBILITY

**OVERVIEW** 



Currently, most social access points to the creek are very steep and denuded of vegetation. These points are not accessible to those who have physical

impairments. Because the slopes are so steep, those who can access the site cause additional erosion and compaction that limits the ability of plants to revegetate and stabilize the area.

#### **POTENTIAL SOLUTIONS**

- Choose key access points and reinforce those areas for erosion while designing universal accessibility for all users.
- Over half of the stream bank is eroded. Limit access to the key points and protect the remaining areas.
- Regrade, revegetate and reinforce the protected areas.



Left: A typical access point to the creek is highly eroded and denuded of vegetation. The remaining tree is in danger of dying. Right: People with physical impairments (permanent or temporary) can not access the creek. **SLOPE & KEY POINTS** 







HYDROLOGIC DATA

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## SITE AERIAL & TOPOGRAPHY





## PROPOSED SITE PLAN (larger version next page)



**OVERVIEW** 



