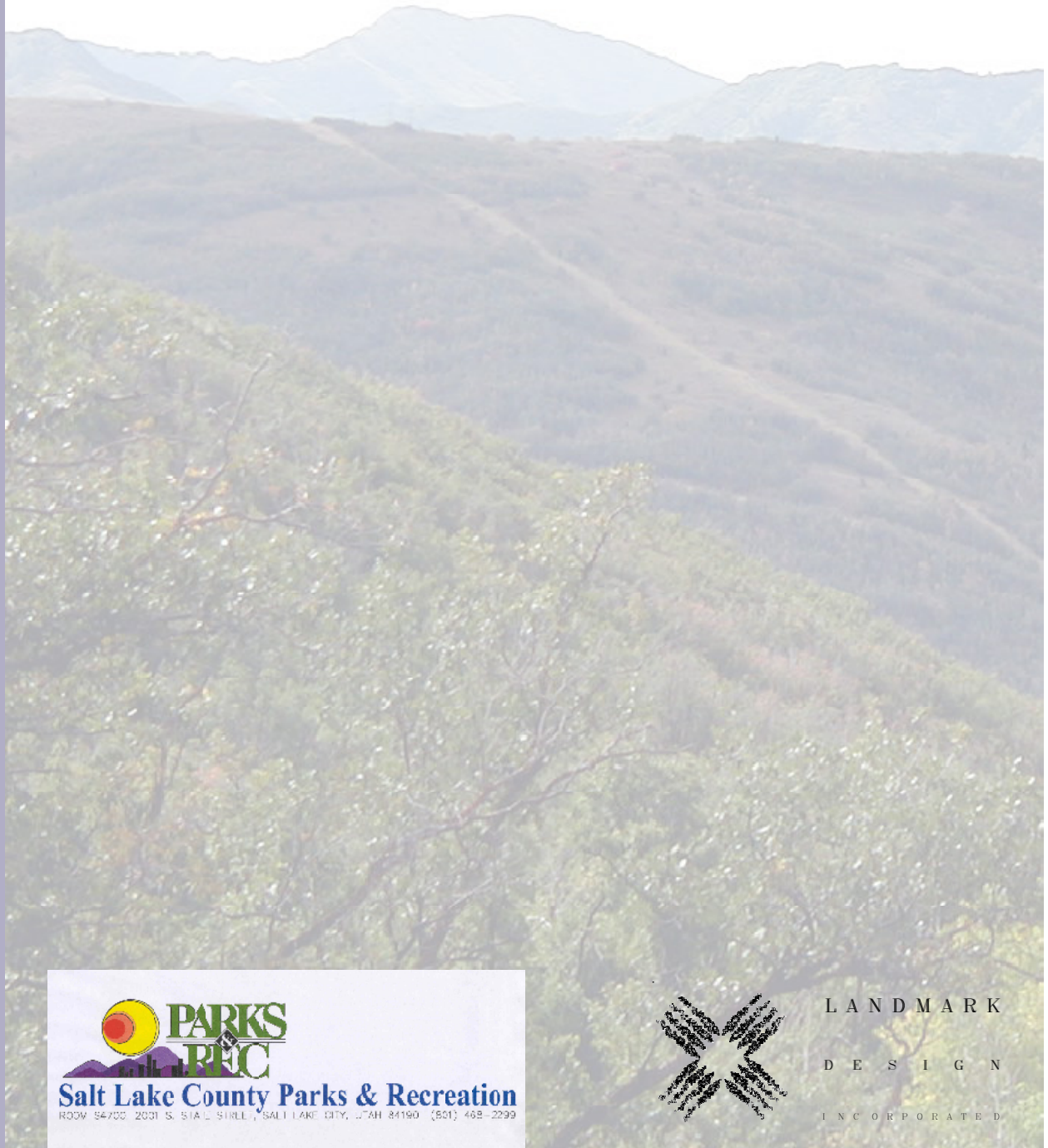


Emigration Canyon Trails Master Plan

Draft -- October 24, 2005



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LANDMARK
DESIGN
INCORPORATED

Emigration Canyon Trails Master Plan - Draft

Prepared by Landmark Design

for

Salt Lake County Parks and Recreation Department

October 24, 2005

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CHAPTER 1 INTRODUCTION AND BACKGROUND

Located just a few minutes from the heart of the Salt Lake Valley, Emigration Canyon is easily accessible, yet worlds apart from the urban valley below. The canyon is home to a substantial and growing residential population, attracted to the natural canyon environment. Existing trails provide physical access to the surrounding natural areas, most of which are located on public land. Unfortunately, the trails are not well connected and tend to be in marginal condition, having evolved over time with little overall planning.



Many county citizens believe that an organized trail system in Emigration Canyon would be a community asset. Instead of the plethora of poorly connected trails and controversial alignments currently found in the canyon, an organized system of trails would help avoid future conflict and direct limited resources toward the establishment, maintenance and improvement of desired trail features.



Emigration Canyon is considered by many to be the main Salt Lake County link between the Bonneville Shoreline Trail and trails of national historic significance to the east. These include the Great Western Trail, the Donner Reed Trail, the Pony Express Trail, and the Mormon Pioneer Trail.

A Trails and Trails Access component was adopted as part of the Emigration Canyon General Plan (1999). With both development and trail use increasing in the canyon since then, conflicts have emerged, pointing to the need for a new plan.

A lengthy and involved public process was utilized in the preparation of this plan. Despite efforts to obtain consensus in the canyon, there remains disagreement on some key trail issues and alignments. In light of the lack of agreement, the planning consultants have merged ideas expressed by the public with sound planning principles to create this Master Plan.

1.1 Purpose of the Emigration Canyon Trails Master Plan

The intent of the Emigration Canyon Trails Master Plan is to identify a preferred trail system for Emigration Canyon. The Plan provides a framework for organizing trails and trail facilities in and through Emigration Canyon. The resulting trails system is intended to be logical and to provide good connectivity with the regional trail system beyond Emigration Canyon.

The Plan is intended to guide actions by canyon residents, trail users, property owners, governmental agencies, and decision makers about the location of trails in Emigration Canyon. The Plan documents and analyzes existing trail conditions, identifies significant trail issues, identifies a preferred trail system, and recommends principles and standards for trail and trail facilities development. A preliminary opinion of probable costs is included.

Once adopted, the Emigration Canyon Trails Master Plan will become a supplement to the existing Emigration Canyon Township Recreational Trails Access Plan, which was adopted as part of the Emigration Canyon General Plan (1999).

1.2 Planning Goal and Objectives

Providing good trail connections within the canyon and at least one regional trail link through the canyon are the primary goals of the plan. Specific objectives include improving local access to trails and facilities, improving connectivity between the various trails, avoiding conflicts with private land whenever possible, and locating alignments on public land wherever possible.

CHAPTER 2 PLANNING PROCESS

2.1 A Community-based Planning Process

A team of planning consultants working for Salt Lake County prepared the Emigration Canyon Trails Master Plan. Efforts were coordinated and managed by the Salt Lake County Parks and Recreation Department, in cooperation with the Emigration Canyon Community Council.

Public involvement was intentionally focused on local canyon residents and the Emigration Canyon Community from the outset. As the process unfolded and a planning direction emerged, input was solicited from the broader community.

2.1.1 Emigration Canyon Trails Master Plan Advisory Committee

This Plan was prepared with the participation and input of the Emigration Canyon Trails Advisory Committee. The group was organized to provide balanced representation and viewpoints of Emigration Canyon residents, trails advocates, neighborhood groups and key agencies dealing with trail-related issues. More specifically, the Advisory Committee included representatives of the following:

- Emigration Canyon Neighborhoods
- Emigration Canyon Community Council
- Emigration Canyon Planning Commission
- Friends of Emigration Canyon Trails and Open Space
- Emigration Oaks Property Owners Association
- Salt Lake County Planning Department
- Salt Lake County Unified Fire Services
- Salt Lake County Sheriff's Office
- Salt Lake City Division of Public Utilities - Watershed
- Utah State Department of Wildlife Resources
- U.S. Forest Service

The group met regularly and often from August 2004 through July 2005. Summary notes from the eight Advisory Committee meetings are contained in Appendix A.

In order to keep efforts on track and start the process with general agreement of the intent of the planning process, the following statement was adopted as the group vision:

“To create a Trails Master Plan for Emigration Canyon that preserves and secures access to multiple-use, non-motorized trails and open space in Emigration Canyon for the purposes of recreation, community enhancement, and increased fire protection. The master plan should promote the creation of a well-designed and interconnected trail system that serves the Emigration Canyon community and neighborhoods, while minimizing impacts to existing neighborhoods, private properties and the natural environment.”

2.1.2 Public Meetings and Presentations

A Public Open House was held at Camp Kostopulos on the evening of October 12, 2004. Summary notes from the meeting are found in Appendix B. The purpose of the meeting was to share existing information regarding trails, and provide an opportunity for members of the public to ask questions and give input as the plan was developed. Some of the key issues which emerged include the following:

- Keep public parking and trailheads away from private property and residential areas.
- Provide a continuous trail on the south side of the canyon.
- Keep public trails and access points away from Emigration Oaks subdivision.
- General support for trails and trails access.
- No trails in or around Charlie’s Canyon.
- No trails in or around Secret Canyon.
- Restore and convert Kilyon’s Canyon into a hiking-only trail.
- Need to control dogs on trails and in backcountry areas.
- Concern for critical winter range for elk, moose and deer on the upper ridges of the canyon.
- Develop multi-use rim trails on both sides of canyon for hiking, biking, horse riding.
- Control “gonzo” mountain bike riders.
- Separate mountain bike trails from hiking trails.
- Concern that trails increase fire hazards
- Improve trails to provide firebreaks and increase backcountry access for fire fighting efforts.
- Protect important watershed lands and water quality, as they are critical for wildlife and people.

A second Public Open House and Presentation was made on May 9, 2005. Summary notes from the meeting are found in Appendix B. The purpose of the meeting was to review alternative trail ideas summarized on a single map (see Appendix C for a copy of the Alternative Trails map that was presented that evening). The meeting was held at the Salt Lake County Complex, and focused on obtaining input from both canyon residents and the general public. The meeting began with a presentation of the trail alternatives, and was concluded with an Open House meeting for members of the public to review details, ask questions and provide comment. A lengthy public comment period followed the meeting, resulting in substantial public input. Comments were generally supportive of the Alternative Trails Map and planning process, although there was significant opposition to some trails ideas by certain canyon residents. Some of the key issues which emerged follow:

- Maintain and obtain public access to trails located on public land.
- Re-establish and maintain public trail connection from Burr Fork to Lookout Peak.

- Provide a trail across public land between Burr Fork and the top of Kilyon's Canyon (Charlie's Canyon Area).
- Establish the North Mid-slope Trail Alignment (R3) as the primary Emigration Canyon trail.
- Do not close Kilyon's Canyon to mountain bikes without providing a reasonable alternative loop trail (Secret Canyon loop would be OK).
- Secure and rehabilitate existing trails in the canyon.
- Establish a trail on the south side of the canyon as a complement to R3 Trail Alignment on the north side of the canyon.
- Provide a regional trail link from the bottom of the canyon to Little Mountain Trailhead and beyond.
- Maintain equestrian access and trailer parking, especially from Little Mountain Summit Trailhead.
- Eliminate the north slope ridgeline trail alignment (R4) - too sensitive/ threatens Red Butte RNA.
- Increased trail activity will increase fire hazard.
- Establish ridge trails on both sides of the canyon as a long-term goal.
- Provide a mid-canyon link from the Main Road to the North Mid-slope Trail Alignment (R3) - reduces trail length, discourages shortcuts through private property.
- Convert Kilyon's Canyon to a hiking-only trail/ place barrier at the top and bottom of the canyon to prevent biking.
- Increased trail activity will increase hunter activity/ conflicts with residents.

2.2 Documentation of Existing Conditions

Existing plans and documents served as the primary sources for documenting existing conditions relevant to trails in the canyon¹. These were reviewed and information updated as necessary, relying primarily on field verification and input from relevant agencies, Salt Lake County authorities and members of the Steering Committee.



A **Base Map** was prepared at the beginning of the process, utilizing digital data from the Salt Lake County Planning and Development Department, with additional input from a database prepared by Salt Lake City Public Utilities – GIS Division (see Map 1). **Land Ownership** data was then updated and mapped utilizing ownership data from the Salt Lake County Recorder's and Assessor's Offices (see Map 2). **Existing Trails and Trail Facilities** were compiled, mapped and field-checked, utilizing digital data compiled by the Salt Lake County Planning and Development Services Department, and augmented by data from Salt Lake City Public Utilities – GIS Division (see Map 3).

An initial field trip was undertaken in September 2004, which members of the Advisory Committee were invited to attend. Existing trails and trailheads were visited, sites of known trail

¹ For details and associated maps, see [Salt Lake County Emigration Canyon General Plan \(1999\)](#); [Salt Lake County Master Plan Program, Emigration Canyon Master Plan \(1985\)](#); [The History of Emigration Canyon: Gateway to Salt Lake Valley](#), Jeffrey Carlstrom and Cynthia Furse (2003).

INSERT MAP 1:
STUDY AREA

INSERT MAP 2: LAND OWNERSHIP

INSERT MAP 3:
EXISTING TRAILS AND TRAIL FACILITIES

conflict reviewed, potential trail opportunities noted, and photographs taken. Additional field trips were carried out during the intervening months, in part to further help the planning team become familiar with the area and the various trails issues, and partly to answer site-specific questions as they emerged.

The following is a summary of existing information relevant to trails and trail planning in Emigration Canyon.

2.2.1 Historic and Regional Setting

Emigration Canyon is located northeast of Salt Lake City. The canyon was the initial route of Mormon Pioneers entering the Salt Lake Valley in 1847, and received its name as a result of that event. The entire canyon is listed on the National Register of Historic Places, and is home to the Last Camp Site of the first Mormon Pioneers, which is located approximately 5.5 miles up the canyon near the Sun and Moon Cafe (formerly known as Crompton's).

Early pioneer activities in the canyon consisted primarily of ranching and limited farming activities. Private residences were first constructed in the pioneer era as summer homes; others appeared later, mainly in conjunction with a popular canyon resort called Pinecrest Inn. Canyon homes gradually became used as year-round residences, nearly all of which relied on private wells and septic systems. New home development has increased substantially in recent decades, resulting in increased demand for modern services. A large water tank was installed in the Burr Fork area of the canyon in an attempt to meet the demand for a reliable water source.

Emigration Canyon was home to one of the first electric railroad lines in the region. The rail line was constructed to haul stone and other natural building materials from the canyon to the growing city in the valley below. A few years afterwards, the railway was opened to passenger service. Rail service throughout the canyon was discontinued soon afterwards. The upper reaches of the rail corridor still exist in the form of a popular trail known locally as the Old Mine Road Trail.

2.2.2 Land Ownership

Land ownership in Emigration Canyon is split fairly evenly between private and public/non-private land. Private land tends to be concentrated in the canyon bottoms; public land is concentrated in the upper slopes of the canyon.

Private Land

The amount and distribution of private land in Emigration Canyon is unique, especially in comparison to other Wasatch Front Canyons, which are almost wholly public. Emigration Canyon contains significant areas of private land and a sizable residential population. Private land is concentrated along the main Emigration Canyon roads (Emigration Canyon Road, Burr Fork, and Kilyon's Canyon Road); in older subdivisions; along private lanes adjacent to Emigration Canyon Road; and in newer subdivisions such as Emigration Place and Emigration Oaks.

Public/Non-Private Land

As illustrated in Map 2, Public lands owned by the Forest Service, the State of Utah, and Salt Lake City Corporation (Watershed) are concentrated in the upper reaches of the canyon. These properties are dominated by Forest Service² and Salt Lake City Watershed lands³, and

² A number of informal trails are currently scattered on public lands owned by the U.S. Government and Salt Lake City, none of which are recognized as official facilities. Trails are a potential use on Forest

configured in a patchwork pattern⁴. Four properties owned by Utah Open Lands are also found in the canyon⁵.

2.2.3 Land Use and Zoning

The Emigration Canyon Township Planning Commission is the land use and planning decision-making body in the canyon. Land use and zoning is managed and enforced by Salt Lake County.

All Public/Non-Private Land in the canyon is zoned for Forestry and Recreation Uses, which allows residential development at one half-acre, one-acre, five-acre and 20-acre densities depending on specific sub-classifications. Three commercially zoned areas are located along Emigration Canyon Road at Ruth's Diner, Perkin's Flat and the Sun and Moon Cafe (formerly known as Crompton's); the Perkin's Flat site is currently undeveloped.

Special zoning conditions apply at Camp Kostopulos near the bottom of the canyon, allowing the operation of an all-age, all-ability camping facility.

Trails and related facilities are allowed land uses in all of these zones, although special review and assessment requirements apply.

2.2.4 Slope and Topography

Emigration Canyon elevations range from approximately 5,100 feet near the mouth of the Canyon to just under 9,000 feet at the summit of Lookout Peak. Slopes are steep and precipitous in many places, exceeding 30 percent and including significant locations with slope stability hazards. Both landslides and debris flows have occurred in the canyon.

North and south-facing aspects dominate Emigration Canyon side slopes. North-facing slopes are generally steeper, have moderate to high erosion potential, high slippage potential, and a shorter warm-weather use season. North-facing slopes are covered in snow for much longer periods than south-facing slopes, reducing their value as wildlife habitat



Service land, although the construction, improvement and official designation of such uses require detailed scrutiny and assessment beyond the scope of this Plan, following National Environmental Policy Act (NEPA) procedures.

³ Although Emigration Canyon is not a protected watershed area, nearby City Creek Canyon and Little Dell Drainage are. Watershed property located in Emigration Canyon can potentially be utilized for trail and other recreation purposes, as long as specific environmental review, design and management guidelines are met .

⁴ The existing pattern of public land ownership is a result in large part to congressional agreements and legislation. Rationalization or change of these patterns would be difficult to achieve.

⁵ Utah Open Lands properties have been preserved in perpetuity as open space. Trails are a potential use on these lands.

and limiting their utility for warm-season recreation. South-facing slopes are generally less steep, with moderate to high erosion and low slippage potential and a longer warm-weather use season. These areas are generally more attractive for wildlife and human use, including trails.

2.2.5 Soils

Emigration Canyon has several types of soil, each with specific implications for development suitability. A substantial amount of the canyon is considered to have moderate constraints for development, requiring careful planning, assessment and engineering prior to development. Smaller portions of the canyon exhibit severe constraints, requiring special engineering and design to mitigate development impacts.

2.2.6 Groundwater Protection

A modern water-supply system was installed near Burr Fork in recent years, allowing a large segment of the canyon population to switch from small community-managed and private wells as their main source of potable water. Still, many residents continue to rely on local wells for the provision of potable water. The use of septic waste systems and the presence of wildlife and other animals in the canyon are the key threats to the new system and other groundwater resources.

While newer development areas such as Emigration Oaks are connected to a modern sewer system, the majority of canyon residents continue to rely on local septic systems for the disposal of waste. Emigration Canyon is designated for special water quality preservation efforts by the Utah State Water Quality Division, which requires enhanced enforcement and monitoring of well sites.

2.2.7 Hydrology and Streams

Emigration Creek and its tributaries are the principal drainages in the canyon, conveying runoff down-canyon toward the Salt Lake Valley. In most locations the streams and creeks are well defined with stable channels. Other areas, such as the lower reaches of Kilyon's Canyon, have been significantly degraded as a result of trail and other recreational uses.

2.2.8 Wetlands

Small jurisdictional wetlands have been delineated along Emigration Creek. There may be additional, isolated wetlands along tributary drainages in the canyon. Though small in size, these features are important from a range of environmental and ecologic perspectives.

2.2.9 Wildlife

Wildlife in the canyon is a unique community resource, and one of the primary reasons for human attraction to the area. Wildlife and available habitat needs to be balanced and managed to prevent overpopulation, disease and other problems.

The entire canyon is considered high-value habitat for yearlong use by mule deer, elk, cougar and black bear. Sightings of beaver and sub-tropical bird species are other common sights, primarily near riparian areas associated with Emigration Creek and its tributaries. South-facing slopes in the lower third of the canyon west of Bayliss Fork, including Perkin's Flat, are documented as critical winter use for mule deer, and winter habitat for moose and elk. Bonneville Cutthroat Trout, a protected species of fish, has been documented in the Kilyan's Canyon tributary.

2.2.10 Vegetation and Groundcover

The range of vegetation contributes to the unique environment and special natural characteristics of the canyon. Occurring in zones correlating to elevation, topography, slope and soil types, seven generalized vegetation communities are found in Emigration Canyon, as described below:

- Foothill Communities in the Lower Canyon – vegetation in these areas is dominated by Scrub Oak and Mountain Mahogany.
- South-facing Slopes with Rocky Soil Communities from 6,000 to 8,000 feet – the vegetation regime is dominated by Mountain Mahogany .
- Canyon Streamside Communities – Maple, Chokechery, Alder and Cottonwood dominate vegetation in these areas, with variations as altitude increase from top to bottom of the canyon.
- Lower Montane Forests from 7,000 to 10,000 feet – Aspen, White Fir and Spruce dominate in this higher-altitude vegetative community.
- Lower Coniferous Forests – White Fir and Spruce dominate, with an abundance of Douglas Fir also noted.
- Upper Montane Forest from 9,000 feet to timberline – vegetation in these areas consists primarily of Englemann Spruce and Alpine Fir.
- Alpine Tundra Community - these high altitude areas, which are located in the upper reaches of Pinecrest Canyon, are characterized by low shrubs, forbs and solid rock.

The first three categories - Foothill Communities in the Lower Canyon, South-facing Slopes with Rocky Soil Communities (6,000 to 8,000 feet), and Canyon Streamside Communities - are of particular relevance to trails and trails planning, representing zones with existing trails.

2.2.11 Wildfire

Several years ago Emigration Canyon experienced a wildfire that consumed large tracts of vegetated land and nearly burned several homes. This event illustrates the threat posed by wildfires to the canyon environment and properties, and underscores the need to implement adequate measures to prevent wildfires, and fight them if they should occur.

2.2.12 Cultural and Recreational Features

Cultural and recreational features are important elements of the canyon environment. The following conditions play a major role in the human experience of the canyon.

Parks and Recreation: There are no formal parks or recreation facilities in Emigration Canyon, forcing residents to seek such facilities beyond the canyon boundaries. Camp Kostopoulos provides specialty recreation services for invited groups, and is not generally available for canyon residents. The camp serves as a defacto community center, and is the venue for many public meetings.

The large areas of publicly owned and undeveloped land in the canyon is the recreational focus of the canyon. Key recreational activities include hiking, mountain biking, horse riding, and hunting with bows and guns. Bicycle riding is popular along Emigration Canyon Road. Fishing is possible along Emigration Creek and its tributaries.

Roads: Numerous roads of various standards and conditions provide access to and through the canyon. The system serves the needs of both motor vehicles and bicycles, although bicycles are accommodated with varying degrees of safety and ease. No roads in the canyon

include sidewalks or pedestrian walkways to separate walking and hiking from vehicular movement. Emigration Canyon roads intersect several roadside access points and trailheads.

The following is a detailed description of key Emigration Canyon roads and their relation to existing and potential trail facilities:

- *Emigration Canyon Road*

This is the main road to and through the canyon, linking Emigration Canyon with Salt Lake City via Sunnyside Avenue to the west, and East Canyon/I-80 to the east. A large and relatively informal trailhead is located at Little Mountain summit near the eastern terminus of this road, with several small and informal trail access points distributed along the length of the road.



The roadway is well trafficked by vehicles, and is a popular route for recreational cyclists. The road has been partially widened and striped to accommodate bicycle lanes on both edges of the road; completion of these lanes is slated for the near future.

- *Burr Creek/ Pinecrest Road and Trail Connections*

This narrow, paved canyon road provides access to adjacent homes. The road includes a link with Pinecrest Trailhead, which is located nearly halfway up the road on the west edge. The road terminates at a small turn-around area, which is located on private land. The turnaround is a point of conflict, due in part to unclear and confusing ownership conditions and the desire to park vehicles here. Illegal parking along the sides of the road occurs sporadically, particularly in the vicinity of Pinecrest Trailhead and turnaround. Parking and traffic enforcement is inconsistent, due in part to the relatively remote location.

- *Subdivision and Neighborhood Access Roads*

Numerous neighborhood roads are scattered throughout the canyon, providing access to a range of single-family homes, residential neighborhoods and subdivisions. Most of these are privately owned and maintained. The road through Kilyon's Canyon provides access to an informal trailhead located at the terminus of the built-up neighborhood. The trailhead consists of a small parking area located on private property.

Existing Trails: As illustrated in Map 3, an informal and largely unplanned system of trails has existed in the canyon for years, providing access to nearby regional historic trails, recreation sites and hunting areas. Some canyon trails are former roadways or railway corridors, trails have existed for longer or shorter periods, providing access to adjacent public land and regional trails beyond Emigration Canyon.



Pipeline, power and telephone line corridors serve as informal trail routes in some portions of

the canyon. Being straight-line features by nature, these corridors respond poorly to existing topographic conditions, making their utility as trails marginal. Increased development over the years has impacted traditional access to canyon trails, and resulted in increasing conflict between some property owners and trail users.

- **Historic and Regional Trails:**

Emigration Canyon is considered by many to be the obvious Salt Lake County link between the Bonneville Shoreline Trail in the Salt Lake Valley and other trails of national historic significance, including the nearby Great Western, Donner Reed, Pony Express and Mormon Pioneer Trails. Both the Pony Express and Mormon Pioneer Trails pass through the canyon and are well marked throughout the official route, which follows the main road.



2.2.13 Visual Resources

Emigration Canyon is a place with unique visual resources. Canyon residences and other man-made features such as roads, utility corridors and trails have negatively impacted the natural view sheds and visual qualities of the canyon in some locations.

2.2.14 Red Butte Research Natural Area (RNA)

Red Butte Canyon is located immediately north of Emigration Canyon. Red Butte Canyon is a federally designated Research Natural Area (RNA), and off-limits to use by the general public.

2.2.15 Other Existing Conditions

Backcountry canyon activities are of concern to canyon residents and others interested in the canyon and its environment. These are primarily management and enforcement issues, which make the documentation of specific trends and the impacts difficult. Specific concerns include:

- Off-leash and roaming dogs and the threats they pose to wildlife and water quality (wells);
- Legal and illegal hunting activities;
- Conflicts between mountain bikers and other trail users;
- Conflicts between horse riders and other trail uses;
- Wildfire hazards posed by camping, hiking and other trail activities;
- Crime and trash generated by campers, hikers, and other trail users.

2.3 Summary of Conditions Affecting Trails Development

Following is a summary of key findings and general implications to potential trail development. Areas which will require additional analysis prior to specific trail development projects are also included.

2.3.1 Key Findings

Historic and Regional Setting: Emigration Canyon has a long history of residential and related uses, including trails. Access to historic trails have slowly been impacted by on-going residential development.

Land Ownership: The existing land ownership pattern makes it difficult to access trails located on public land without impacting private land.

Analysis of Land Use and Zoning: Private development in Emigration Canyon is approaching build-out. Existing land use patterns have changed in recent years, moving away from higher-density, small lot development at roadside locations to large lot development in the upper reaches of the canyon.

Analysis of Red Butte Research Natural Area (RNA): New trails and trail facilities in Emigration Canyon should be kept away from this sensitive area in order to discourage public access.

2.3.2 Additional Analysis Required For Specific Trail Development Projects

Slope and Topography: The specific impact of improving and developing any future trails on steep and unstable slopes in the canyon should be adequately assessed before implementation.

Soils: Detailed assessment of soil characteristics is a critical component of determining the development potential and limitations of a site, including trail uses.

Groundwater Protection: New development and the use of septic waste systems are the primary threat to groundwater resources. Trails, pets and similar transient uses represent a relatively small threat to these resources, but should be assessed in detail prior to implementing any new or improved trail systems.

Hydrology and Streams: Detailed assessment of the potential impact to streams and hydrologic systems by trails and trail use should be adequately assessed prior to implementation of any new or modified trails projects. In general, sensitive hydrologic areas should be avoided, and actions undertaken to limit further degradation of currently impacted sites.

Wetlands: Federal law mandates specific actions to protect wetlands as a result of development and other site modifications. The specific impact of improving and developing any future trails on wetland areas in the canyon should be adequately assessed before implementing modifications or changes.

Wildlife: The impact of improving or developing trails in prime habitat areas requires detailed scrutiny and analysis beyond the scope of this Plan. Detailed assessment should be undertaken prior to implementing any actions or modifications, particularly on north-facing slopes and other areas attractive to wildlife.

Vegetation and Groundcover: The specific impact of improving and developing any future trails in sensitive foothill, mountain, and riparian vegetation zones should be adequately assessed prior to implementation. Assessments should be carried out in association with assessments related to slope, soils, geologic and slippage conditions, which may be worsened by the removal and modification of existing vegetation.

Wildfire: The specific impact of improving and developing any future trails in Emigration Canyon should be adequately assessed to determine potential impacts and/or benefits for fire protection and fire management before implementing any modifications or changes.

Cultural and Recreational Features: The provision of a well-coordinated and accessible system of trails and trail facilities is critical to maintaining access to recreation opportunities in Emigration Canyon. Any future trails designated along existing and future roadways should adequately assess the need for safe separation of motorized and pedestrian movement. Maintaining public access to trails and public lands from Emigration Canyon roads is essential.

The official alignment of historic trails such as the Pony Express and Mormon Pioneer Trails, and other cultural features should be fully studied. According to some historians and advocacy groups, historic trail alignments deviate from the road in many locations, and should be adjusted according to reflect historic accuracy.

Visual Resources: Protecting the unique visual qualities of Emigration Canyon is an important planning consideration. The specific impact of improving and/or developing future trails should be adequately assessed before proceeding with implementation.

Trail Management: Management and enforcement of trail behavior is a concern that requires assessment before implementing any trail improvements or modifications.

CHAPTER 3 PREFERRED TRAIL SYSTEM

3.1 Balancing the Needs and Desires of Canyon Residents and Various User Groups

The preparation of this plan focused primarily on the needs and desires of canyon residents. Agreement by the Advisory Committee on a single map illustrating potential trail alternatives resulted in a significant planning breakthrough, at which point the process was opened to the general public to incorporate the needs and desires of the broader trails community.

3.2 Preliminary Trail Alignments

Numerous trail alternatives were investigated as part of the planning process. Three main alternatives were eventually developed for further consideration:

- **Alternative One** proposed a South Ridge Regional Trail system with Limited Local Trails;
- **Alternative Two** illustrated a North Ridge Regional Trails with Limited Local Trails; and
- **Alternative Three** represented Regional Trails on Both Ridges with Limited Local Trails.

Each of the three alternatives were designed to meet the needs of canyon residents and non-local trail users, and to accommodate the various needs of hikers, mountain bicyclists, and equestrians, although not necessarily uniformly in each alternative. Other common goals included:

- Maximizing connectivity between Emigration Canyon Neighborhoods and Regional Trails;
- Avoiding private land for trails and trail facilities;
- Maintaining public easements and access to Kilyon's Canyon; and
- Providing both mid-slope and ridgeline alignments to meet the needs of various user groups.

These goals served as the primary screening criteria for evaluating the alternatives.

3.2.1 Trail Alternatives Map

The three Alternatives were presented to the Advisory Committee for their input and advice. After discussing the merits and shortcomings of each, members agreed that Alternative Three should be modified as an Alternative Trails map and presented to the public at Open House Meeting #2 (see Appendix C for a copy of the Alternative Trails map).

To summarize, the Trails Alternative Map illustrated mid-slope and ridgeline regional trails on both sides of the canyon, a limited system of local trails, and a series of regional and local trailheads and trail access points. The development of new trails and the incorporation of existing trails located on private land was avoided wherever possible.

As Detailed in Appendix B, public comments received following Open House # 2 were generally supportive of the Trail Alternatives map, although there was some polarization between canyon residents and other members of the public, the latter tending to support a more extensive trail system and calling for the inclusion of additional trail alignments across public and private land. Canyon residents also tended to support the Trails Alternatives map, although some residents expressed concerns with key alignments and the planning process in general.

3.3 Preferred Trail System

The trail system is based in large part on ideas and input received from members of the Advisory Committee, Emigration Canyon residents and other members of the public. Trail alignments attempt to merge ideas suggested by the steering committee with public comments received following Open House # 2 . Based on the response received and the obvious need to compromise, the Preferred Trail Alignment Plan respects the general direction provided by the Advisory Committee, while incorporating logical modifications from recent public input.

Emigration Canyon holds the promise of offering a much-improved trail experience for both novice and seasoned trail users. The trail system primarily serves recreational trail needs, encompassing more than 38 miles of trails and offering intriguing opportunities to hike, mountain bike, ride horses and cycle in the unique mountain setting.

The trail system encompasses nearly 27-miles of regional trails along three general alignments, and more than eleven miles of local trails following fifteen alignments. Three regional trailheads with comprehensive parking and restroom facilities are distributed along Emigration Canyon Road near the Canyon Mouth, at Perkin's Flat and Little Mountain Summit. Two small and relatively secluded local trailheads are located along Burr Fork and at the end of Kilyon's Canyon Road. The local trailheads will have limited parking and no restroom facilities, which is intended to discourage extensive use and minimize associated traffic and parking conflicts. Five roadside access points without parking are found along the main road, providing additional opportunities for potential trail users not requiring parking to access the trail system.

As illustrated in Map 4, The Preferred Trail Alignment map outlines a multiple-use trail system that accommodate the needs of hikers, runners, mountain bike riders and equestrian riders. These trails traverse a wide range of canyon areas and landscapes, incorporating sections suitable for a range of ability levels. The trail system also incorporates bicycle lanes along Emigration Canyon Road for use by road cyclists

The proposed trail system links local neighborhoods, provides connections to regional facilities and trails outside of the canyon, and avoids private properties, steep slopes and sensitive natural areas to the greatest degree possible. Wherever possible, trails and trail facilities have

INSERT MAP 4: PREFERRED TRAIL ALIGNMENT PLAN

been sited on public land. In areas where no other alternatives exist, the trail crosses private land. Strategies for obtaining permanent access through these segments are included in the implementation chapter of the plan. The system incorporates and improves existing trails and trail facilities where possible, and encourages the closure of underutilized, controversial and poorly integrated existing trails.

3.4 Description of Trails, Trailheads, and Access Points

3.4.1 Trails

Regional Trails

Three regional trails form the “framework” of the Emigration Canyon trail system, providing linkages between local trails and regional trails beyond the canyon. Access to the system is provided directly from regional trailheads, and indirectly from local trails, trailheads and roadside access points. Since the bulk of regional trails are located on Forest Service land, detailed analysis following National Environmental Policy Act (NEPA) procedures will be required before any improvements can be implemented. An outline of these requirements and other review and permitting requirements is provided in Chapter 4.

A description of the three regional trails follows.

- ***North Slope Regional Trail (R1)***

This trail consists of a new mid-slope trail located on the north side of the canyon where the mud and snow season is relatively short, resulting in a longer period of potential trail use. The trail extends from Canyon Mouth Trailhead east toward the Kingdom Lakes connection and Lookout Peak. The alignment is located primarily on public land, and is generally located between the north slope ridgeline and private properties to the south. In the vicinity of Freeze Creek, the trail forms a loop with an existing ridgeline trail.

Although the route is connected by three local trails, there is a five-mile segment above Emigration Oaks subdivision without any trail connections. This long, uninterrupted segment is likely to encourage informal access through adjacent private properties. The provision of additional connecting routes along this segment, and/or interventions which discourage informal access through downhill private properties, should be resolved prior to implementing the trail.

- ***South Slope Regional Trail (R2)***

This new alignment is located on the south side of the canyon, connecting Perkin's Flat Trailhead with Little Mountain Summit Trailhead. Additional access is provided from access points associated with Maple Grove subdivision (L2) and the Old Sheep Trail (L3 and L4). The trail progressively winds up and down existing contours, accommodating both hikers and mountain bike users. The trail incorporates a ridgeline option, which terminates near the upper reaches of Perkin's Hollow. The slope aspect results in a long snow and mud season, and a relatively limited trail use season.

- ***East Slope Regional Trail 3 (R3)***

This trail consists primarily of existing alignments, adjusted slightly to maintain the trail within Emigration Canyon, and thereby avoiding potential impacts to the Little Dell watershed drainage to the east. Segments R3-A and R3-D provide a multi-purpose link with nearby regional trails via Birch Springs, accommodating hikers, mountain bikers and horse riders. Segments R3-B and R3-C are new segments which serve primarily as an out-and-back

mountain bike loop in conjunction with segments R3-A and R3-D⁶. The loop is intended to as a replacement for an existing bicycle loop trail through Kilyon's Canyon. Segments R3-E and R3-F follow relatively steep and difficult terrain, providing access to Lookout Peak and North Slope Regional Trail via Kingdom Lake crossing.

Local Trails

Fifteen local trails ranging in length from one-fifth mile to nearly two miles comprise this 11.1-mile system. Local trails complement the regional trail system, helping to connect Emigration Canyon trails to the larger regional trail system, and providing a finer-grain of access opportunities. Access is provided from local trailheads and roadside access points via local trail connections. A description of each regional trail segment follows.

- **Local Trail L1**
This trail provides a short loop in association with Perkin's Flat Trailhead. Both trail and trailhead are located on privately owned land, although it is likely that the land will be purchased for public open space and recreation purposes in the near future.
- **Local Trails L2, L3, L4**
These trails provide local trail connections with access points along Emigration Canyon Road via Maple Grove neighborhood and the Old Sheep Trail. The trails are located on local and federal public land, with the exception of the Maple Grove segment, which follows the private road serving this neighborhood.
- **Local Trail L5**
This short trail provides access to the mountain bike loop on Regional Trail 3 from a roadside access point. It is located in Salt Lake City Watershed land via a private property connection near Kilyon's Canyon.
- **Local Trail L6, L7, L12**
These trail segments link backcountry segments along the lower portions of Burr Fork and Kilyon's Canyon Roads. The trails do not include sidewalks or other traffic-separated trail facilities, and will be designated through signs only.⁷

⁶ This loop system was highly disliked by many mountain bike users who submitted comments after Open House #2; they expressed concern that the loop is a poor substitute for the existing Kilyon's Canyon loop trail. An alternative idea extends the loop further to the north across Secret Canyon, linking it with Birch Springs. This idea was highly disliked by residents of Kilyon's Canyon. In the spirit of compromise, the decision was made to implement the shorter loop trail as illustrated.

⁷ A complementary trail to the Burr Fork road connection that was considered during the planning process was an alignment extending east from Pinecrest Trailhead through the Charlie's Canyon area toward Birch Springs (see Figure 1). This alignment is located primarily on Forest Service land, and is purported to be fraught with sensitive environmental conditions, including upland wetlands. The option was highly disliked by residents of Kilyon's Canyon, but received public support as part of the public input following Open House #2. Since the concept (1) requires the establishment of a new trail partially located on private land, (2) links with Upper Kilyon's Canyon (which is proposed for closure to mountain bike use and requires substantial upgrading), and (3) assumes that both hiking and mountain bike traffic will be accommodated, the decision was made to postpone consideration of this option until the Trails Master Plan has been fully implemented. This will allow trail improvements proposed along Burr Fork Road and Kilyon's Canyon to be fully assessed.

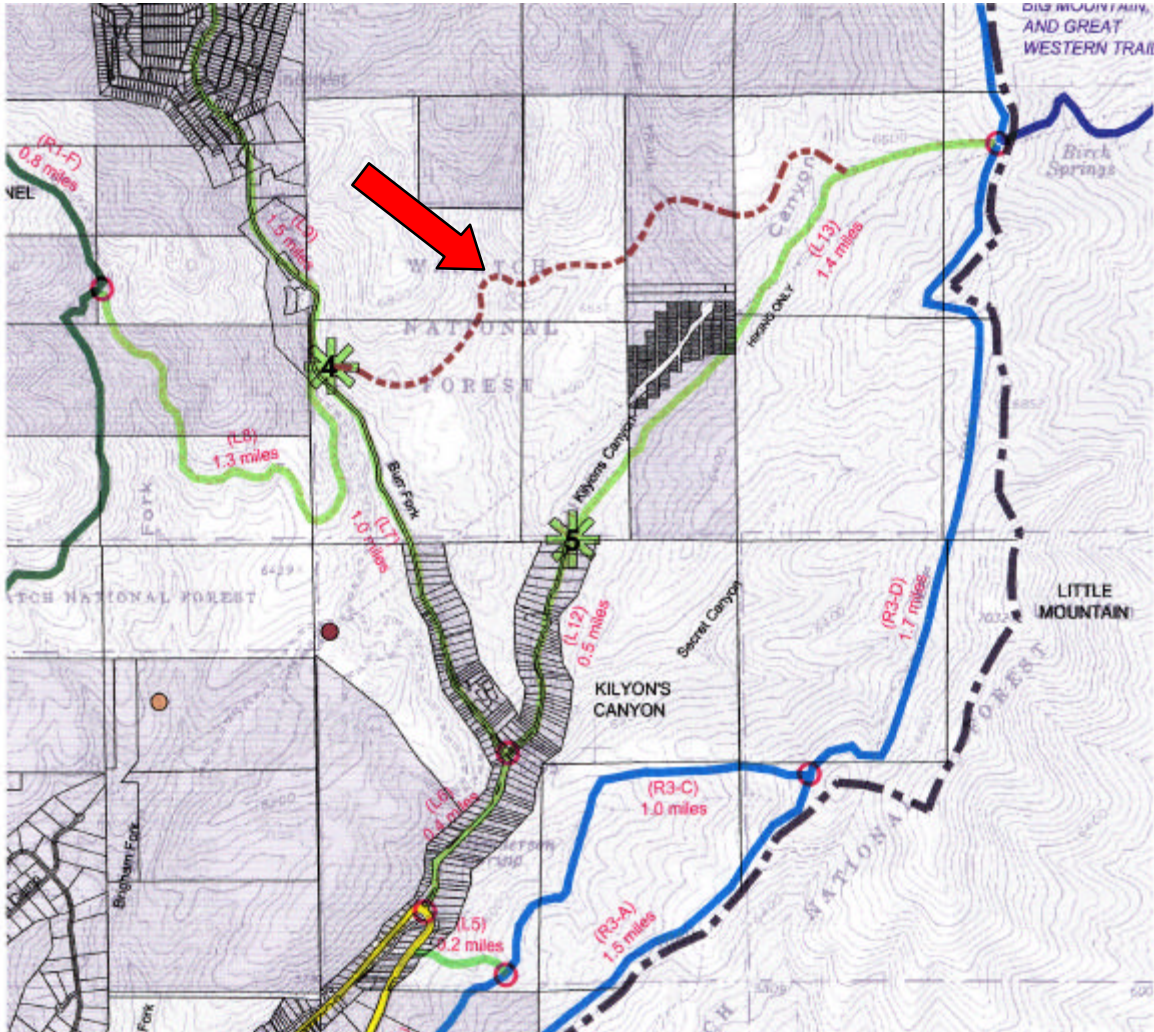


Figure 1

Complement to Local Trail 7 (L7) - Charlie's Canyon for Future Consideration

- **Local Trail L8**
This trail connects with looped segments of Regional Trail 1 (R1) from Pinecrest Trailhead, following an old rail alignment also known as Old Mine Road. The trail is located primarily on Forest Service land.
- **Local Trail L9**
This segment links backcountry segments along Burr Fork/Pinecrest Road, from Pinecrest Trailhead to road terminus. The trail continues along an easement through private property north of the terminus as a backcountry trail.
- **Local Trail L10, L11**
These trail segments are located on Salt Lake County easements through private property north of the Pinecrest Road terminus (Blue Gate). The trails provide a connection to Lookout Peak via Kingdom Lakes crossing, and to public lands to the east across Utah Open Lands properties. Even though the easements exist, important issues related to trail design, steep slopes, narrow corridors and related site impacts must be addressed before the trail can be implemented.

- *Local Trail L13*
This existing trail through Kilyon's Canyon has been modified to allow hiking only, thereby improving the degraded condition of Kilyon's Canyon Creek and associated natural systems. Mountain bike use will be prohibited, which will require, substantial re-design, site enhancements, and education. The trail is located primarily on public land.
- *Local Trail L14, L15*
This trail connects Regional Trail 1 with Emigration Road via roadside access points. The trails are located on Salt Lake City Watershed and Forest Service land.

Emigration Canyon Road Bike Lanes

Emigration Canyon Road is a popular recreational bike route, and an emerging commuter cycling route. The road has been widened and re-striped in recent years for most of its length, providing dedicated bicycle lanes in both directions. Completing these improvements along the entire length of the road will greatly enhance the road biking element of the trail system.

3.4.2 Trailheads and Access Points

Regional Trailheads/ Access Points

Three Regional Trailheads are located along Emigration Canyon Road. Each of these trailheads should be designed with adequate parking to accommodate the envisioned use, and include restrooms, picnic areas and other typical trailhead facilities. The trailheads should be located on official maps and well signed to encourage use.

- *Canyon Mouth Trailhead*
A new trailhead should be located near the mouth of the canyon, along the north edge of the road. Two existing trailheads could possibly be incorporated into a single facility, perhaps in conjunction with the future expansion of Hogle Zoo. The new trailhead should be fully separated from the roadway, incorporating adequate parking for at least fifty cars, modern bathroom facilities, drinking fountains and picnic facilities. The trailhead should be designed and landscaped to fit in with the surrounding natural character of the area.
- *Perkin's Flat Trailhead*
A new trailhead should be carefully sited in the unique meadow setting. The trailhead should be fully separated from the roadway, incorporating adequate parking for at least twenty-five cars, modern bathroom facilities, drinking fountains and picnic areas. If the Perkins Flat property is eventually purchased for public open space use, the trailhead should be designed and landscaped as part of the park. If the land is developed, an easement for the trailhead and associated trails should be negotiated with the property owner. The trailhead/park should be designed and landscaped to fit in with the surrounding natural character of the area.
- *Little Mountain Summit Trailhead*
This existing trailhead should be upgraded to encourage greater use and understanding of the site. The revised trailhead should be fully separated from the roadway, incorporating adequate parking for at least fifty cars, ten horse trailers and associated turn-around areas. Existing bathroom facilities should be upgraded, and additional picnic areas, hitching posts and other trailhead facilities provided. The trailhead should be designed and landscaped to fit in with the stark natural character of the area.

Local Trailheads/ Access Points

A local trailhead is located along Burr Fork less than halfway up the canyon; a second local trailhead is located at the top of Kilyon's Canyon Road. Both trailheads currently exist, but require improvement.

These trailheads should provide minimal parking to meet basic trail access needs, while discouraging parking along the adjacent roads and private properties. No restrooms, drinking fountains, picnic areas or other park-like services should be provided, helping to maintain the subdued and passive character of the trailheads, and discouraging overuse. The trailheads should be discreetly signed to fit in with the character of the area.

- ***Pinecrest Trailhead***

The existing trailhead along Burr Fork should be improved to form a safe parking facility that minimizes traffic conflicts and accommodates parking for up to ten cars. The trailhead should be designed and landscaped in a simple fashion to fit in with the surrounding natural character.

- ***Kilyon's Canyon Trailhead***

The existing trailhead is located on private property. Negotiation for a permanent public easement for a trailhead at the present location should be encouraged as a first priority. If this is not successful, a new trailhead should be constructed on Forest Service land to the north. The trailhead should be designed to minimize traffic conflicts, accommodating parking for up to ten cars. The trailhead should be designed and landscaped in a simple fashion to fit in with the surrounding natural character of the area, and to minimize impact to nearby residential properties.

Roadside Access Points

Roadside access is available at five locations along Emigration Canyon Road. No parking or other trail facilities are located at these locations, nor should they be indicated on official maps. Access points should be discreetly signed to discourage informal parking from taking place, while indicating access is available to passing trail users, cyclists in particular.

3.4.3 Trail Types

As illustrated in Map 5, the Emigration Canyon Trails system encompasses five types of trails, as described in detail below.

Multi-use Trails

A single multi-use trail capable of accommodating hikers, bikers and equestrian trail users is located on the eastern edge of the canyon. The trail connects Little Mountain Summit Trailhead with regional trails to the north and east via Birch Springs. The trail should be upgraded, maintaining the alignment within Emigration Canyon watershed, and ensuring that multiple trail users can comfortably and safely utilize the trail at the same time.

Hiking/Biking Trails

With the exception of Kilyon's Canyon Trail (L13) and Upper Pinecrest Trail (L10, L11) the bulk of trails in Emigration Canyon are designated for both mountain biking and hiking use. The design of these facilities is discussed in detail in Chapter 4 - Implementation, but in general should be developed in a flexible fashion to accommodate a variety of site and environmental conditions. These trails should be as narrow as possible while accommodating the intended traffic, utilizing Salt Lake County "Primitive Trail" or similar design standards.

INSERT MAP 5:
TRAIL USE

Hiking Only Trails

Pinecrest Trail (L9, L10, L11) and Kilyon's Canyon Trail (L13) are hiking-only trails. These trails should be designed and rehabilitated to ensure that the surrounding trails fit in with the surrounding land, and that the future trails impact is minimal.

Pinecrest Trail will require special design attention to create a feasible route within the narrow easement. Design efforts should be coordinated with negotiations between Salt Lake County and the property owner to secure an alternative alignment that better responds to topographic site conditions.

Kilyon's Canyon trail requires significant design attention prior to implementation. The creek and surrounding areas have been degraded through use over the years, and now require significant rehabilitation. Rehabilitation efforts should improve the creek and surrounding environment in a comprehensive fashion, incorporating improvements such as trail realignments, creek bed improvements, improved stream crossings, hillside revegetation, and the introduction of gates and signage to discourage bicycle and equestrian use.

Road Linkages (Hiking/Biking)

Lower Kilyon's Canyon Road and Burr Fork/Pinecrest Road are important trail linkages. Both roads are popular biking and walking sites, although neither roadway includes sidewalks or other pedestrian facilities. In the short term these roadways should accommodate hikers and bikers, incorporating additional signage to discourage fast vehicular movements. In the longer term, a separated walking path should be developed along one or both edges of the roadway.

Roadside Bike Lanes

Bicycle lanes along both edges of Emigration Canyon Road are integral components of the Emigration Canyon Trail System. In addition to accommodating bicycle traffic to and through the canyon, the lanes allow mountain bikes to access backcountry trails from designated trailheads and roadside access points.

3.4.4 Trail Status – Incorporating Existing and New Trails

The Emigration Canyon Trails system merges new trail alignments with existing alignments currently in use.

Most of North Slope Regional Trail (R1) and South Slope Regional Trail (R2) require new trail construction. In comparison, the eastern-most segments of both those trails, and nearly the entire length of East Slope Regional Trail (R3) incorporate existing trails into the trail system. Specific design and development guidelines for these facilities are contained in Chapter 4 – Implementation.

3.4.5 Existing Trails not Included in the Official System

Numerous informal trails currently in place are not included in the preferred trail system. As the official trail system is implemented, it is assumed that existing trails not included in the system will eventually be closed and rehabilitated. This will discourage improper use, reduce land use conflicts, and help clarify maintenance responsibilities. Trail closures should be carried out on a case-by-case basis, taking into consideration the desires of land owners through which the trails pass.

CHAPTER 4 IMPLEMENTATION

4.1 Determination of Environmental Impact

The following are known requirements for receiving development approval for trails in Emigration Canyon. Additional procedures may be necessary. It is assumed that as the responsible development authority, Salt Lake County will coordinate the review, assessment and approval process necessary for implementation.

Salt Lake County and Emigration Canyon Township Planning Commission Requirements

Salt Lake County is the responsible land use and development authority for Emigration Canyon. Development permits must be secured from County authorities, preceded by required development and planning review.

NEPA Review on Forest Service Properties

All trails which pass through Forest Service land will require assessment according to the National Environmental Policy Act (NEPA). NEPA assessments address the purpose and need for the trail; document potential impacts to surrounding properties; assess slope, topography, soils, hydrologic systems, wildlife, vegetation, wildfire and other site conditions; and analyze potential alternative alignments. Once completed, the process determines whether the proposed trails should be implemented and how any adverse impacts may be avoided or mitigated.

Funding for NEPA studies must be secured before the assessment can take place, with a final Record of Decision to be made by the responsible federal agency, i.e. the Forest Service. NEPA reviews can be lengthy and costly, and should be planned accordingly.

Salt Lake City Watershed Requirements

Trails are a potential use within Salt Lake City Watershed properties in Emigration Canyon. Permission for trail uses on these properties should be sought with the Salt Lake Department of Public Utilities, Watershed Division, which will trigger a prescribed review process. It is likely that Salt Lake City will be a participant in any NEPA environmental assessment process.

Utah Open Lands Requirements:

Trails are potential uses on Utah Open Lands properties. Approvals are granted on a case-by-case basis. A key consideration for granting permission is that the natural condition will not be unduly impacted by the potential trail use. It is likely that Utah Open lands will be a participant in any NEPA environmental assessment process.

4.2 Determination of Final Trail Alignments and Implementation Costs

The Preferred Trail Alignments illustrated on Map 4 are conceptual in nature, based in large part on general site information and assessments. Prior to implementation, the identified routes should be verified in the field and adjusted to reflect specific site conditions. Once funding is secured, detailed design studies will need to be carried out to ensure the trails are functional and safe.

4.2.1 Preliminary Opinion of Probable Implementation Cost

The magnitude of costs for implementing the preferred trail network follows. Costs are based on implementation of similar projects, and include materials and labor. All costs are in 2005 dollar amounts.

- New Trails – Primitive standard \$25,000 per lineal mile
- Existing Trails – Primitive standard \$10,000 per lineal mile
- Rehabilitation of Kilyon’s Canyon trail⁸ \$40,000 per lineal mile
- Regional Trailhead \$275,000 each
- Local Trailhead \$40,000 each

The costs are subject to change as specific design details are established. If the trails and facilities are constructed by the U.S. Forest Service or through volunteer efforts, costs may be substantially lower. Feasibility studies for the trail system will further refine these numbers.

Due to variable land prices and alternative methods of securing trail easements, the costs for acquiring land and securing easements are not included. Likewise, the volatility of maintenance inputs precludes the calculation of annual upkeep costs.

4.3 Funding Opportunities

Funding trails projects is one of the most challenging aspects of the plan. Public funding is increasingly competitive, and many programs are either not being funded or have been substantially reduced. Money from foundations and other philanthropic organizations and groups is also difficult to acquire, in part because available funds are highly sought-after. Nevertheless, all potential sources should be explored to the fullest. Having a good trails master plan is the first step toward securing implementation funding.

4.3.1 Salt Lake County Sources

Salt Lake County General Fund

Salt Lake County general funds are regularly allocated for the implementation of trails projects, the Bonneville Shoreline Trail and Jordan River Parkway being just two examples. Available funds are limited, and competition is extremely tight between the various on-going county trails projects. Projects which can leverage these funds to secure additional matching funds are more likely to receive positive consideration than stand-alone funding proposals.

County Funding - Bonding

Salt Lake County can fund trails directly from its general fund or can bond for trail development and spread the cost over many years. Bonding is a common approach, where repayment of the bonds comes from general revenue sources such as property and sales tax, or other earmarked tax revenue. However, unless it is a large project that benefits many people, bonding is not likely.

ZAP Tax

The Zoos, Arts, and Parks (ZAP) Tax has been used to fund many trails throughout Salt Lake County. The ZAP Tax is a potential source for trails development in Emigration Canyon. The program is administered by Salt Lake County, and was recently extended to 2016 as a result of a countywide vote.

⁸ Estimated costs for improving Kilyon’s Canyon are higher due to the scope of rehabilitation efforts required.

Community Development Block Grants

Community Development Block Grants (CDBG) can be used for park development in areas of the County that qualify as low and moderate-income areas. CDBG funds may be used to upgrade trails and improve accessibility according to the Americans With Disabilities Act (ADA).

4.3.2 State Sources

Centennial Non-Motorized Paths and Trails Crossings

The Utah Department of Natural Resources, Parks and Recreation Division administers this program. The funds are to be allocated towards the provision of safe and continuous pedestrian, bicyclist, and other human-powered and equestrian transportation paths and trails, and to provide access across highways and other impediments. A local match is required. As of January 2005, no money was available.

Non-motorized Trails and River Enhancement Programs

The Division of Utah Parks and Recreation has two funding programs for trails: the Non-motorized Trails program and the Riverway Enhancement program. The former provides funds for signing, trails, and right-of-way; the latter provides funding for projects along rivers and streams. A local match by the sponsoring jurisdiction is required; however, as of January 2005, no funding was available.

LeRay McAllister Critical Land Conservation Fund

The fund is administered by the Utah Quality Growth Commission and provides funds each year to preserve or restore critical open or agricultural lands in Utah. Money from the fund must be used to preserve or restore agricultural lands. Applicants must provide matching funds equal to or greater than the amounts of money received from the fund. Fund must be spent within one year from the date of the grant award. The size of parcels for a purchase is limited to 20 acres or less. Purchases of conservation easements or restoration projects are exempt from this restriction. In recent years, the LeRay McAllister fund provided close to \$2 million each year for conservation projects. However, available funding has been cut back significantly in recent Legislative sessions, with only \$800,000 available for 2005 projects.

Land and Water Conservation Fund

This Federal fund is available to States, and in Utah is administered by the Utah State Division of Parks and Recreation. Funds are matched with local funds for the acquisition and development of trails, redevelopment of trails and facilities, improvements to accessibility, and other trail programs and facilities that provide close-to-home recreation opportunities for youth, adults, senior citizens, and persons with physical and mental disabilities.

4.3.3 Federal Sources

Transportation Efficiency Act-21 (TEA- 21) Reauthorization Bill/ SAFETEA-LU

The Transportation Efficiency Act-21 (TEA-21) was recently reauthorized by Congress as the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). The bill authorizes the Federal surface transportation programs for highways, highway safety, and transit for the 5-year period 2005-2009, providing \$286 billion for a wide variety of transportation and roads projects throughout the nation.

Although specific project details are still being formulated, these funds are a potential source for funding portions of the Emigration Canyon Trails system. In the past, TEA -21 funds funded several Salt lake County trails projects, including portions of the Bonneville Shoreline, Jordan

River Parkway and Dimple Dell trail systems. Assuming that funding will follow previous TEA-21 processes, funds will likely be made available to Salt Lake County directly through the Utah Department of Transportation or Wasatch Front Regional Council.

4.3.4 Private and Public Partnerships

Private Fundraising

While not addressed as a specific strategy for trails and trail facilities, it is not uncommon that public monies are leveraged with private donations. Examples in the Salt Lake Valley include the Sorenson Recreation Center in Glendale and the Steiner Aquatic Center in Salt Lake City. Private funds were a part of the funding recently assembled to secure the Perkin's Flat properties in Emigration Canyon as permanent open space.

Joint Development

Joint development opportunities can occur between Salt Lake County and other agencies or jurisdictions. In the case of Emigration Canyon, trails and related facilities might be developed in cooperation with the Forest Service, Salt Lake City Watershed, the State of Utah and Utah Open Lands. In order to make these kinds of opportunities happen, there must be on-going and constant communication between people, governments, business interests, and others.

4.3.5 Voluntary Efforts, Contributions and Miscellaneous Funding Sources

Service Organizations

Many service organizations and corporations have funds available for trail facilities. Recently, Salt Lake City and local and international Rotary Clubs combined resources to develop a universally accessible playground located in Liberty Park, which was dedicated at the opening of the 2002 Paralympic Winter Games. Other organizations such as Home Depot are often willing to partner with local communities in the development of trails and other park and recreation facilities.

Development Contributions

Development contributions are a means for requiring, as a condition of development approval, a builder or developer to give something to the County for the development of public facilities. Contributions can range from impact fees to land dedications for public trail facilities.

Dedications

The dedication of land for trails has long been an accepted development requirement, and is another valuable tool for implementing trails. Salt Lake County can require the dedication or, if larger-sized parcels are desired, can offer development "bonuses" such as increased density of development in exchange for the dedication of land for trails. In some cases, the developer may also be responsible for trail improvements, which may be maintained by a Homeowner's Association. In such cases, it is important to determine whether the trail is private or public, and what the desired and appropriate facilities are that should be provided.

In-Kind and Donated Services or Funds

Several options for local initiatives are possible to further the implementation of the trails plan. These kinds of programs would require a proactive recruiting initiative to generate interest and sponsorship, and may include:

- Adopt-a-trail, whereby a service organization or group either raises funds or constructs a given facility with in-kind services;
- Corporate sponsorships, whereby businesses or large corporations provide funding for a

- particular facility, similar to adopt-a-trail;
- Public trail construction programs, in which local citizens donate their time and effort to trail facility construction and/or maintenance; and
- Organizations such as the International Mountain Bike Association (IMBA), which have provided funds and leadership in similar situations.

4.4 Trail Development and Management Standards

The guidelines and standards which follow are intended to direct the detailed design and construction of the trail system. The standards are purposely simple, unified and comprehensive.

The Emigration Canyon Trails system is envisioned to be primarily rustic and naturalistic, reflecting the image of nearby trails of the Wasatch-Cache National Forest. A natural-style trail is appropriate for hiking, mountain biking and horse riding activities.

Salt Lake County and/or U. S. Forest Service design and construction standards serve as models for Emigration Canyon backcountry trails. Where not specified or where additional clarification is required, the following publications should be referenced for ideas and guidance:

- Salt Lake County Regional Trails Plan (1993).
- Forest Service Manual (FSM) 2350.
- Forest Service Handbook (FSH) 2309.18.
- Standard Specifications for the Construction of Trails (Forest Service Publication EM-7720-102).
- Alaska Region Trails Construction and Maintenance Guide (Forest Service Publication R10-MB-158).
- Trail Development and Construction for Mountain Bicycling (International Mountain Bicycling Association).
- Managing Mountain Bikes: A Guide for Activists and Land Managers (International Mountain Bicycling Association).
- Introduction to Basic Trail Maintenance (International Mountain Bicycling Association).
- Official Handbook and Training Guide (The National Bike Patrol).

4.4.1 Guidelines and Standards for Trails and Trailheads

General Trail Design and Development Principles

- Emigration Canyon Trails should be designed and developed to provide easy access for hikers, mountain bikers and horse riders, according to the designated use of each trail segment.
- With the exception of trail segments specifically designated for the sole use of hikers, no stairs, steps, barriers or other hindrances should be developed that prevent the free passage of mountain bikes.
- With the exception of areas where the trail passes through future development areas, trail surfaces should be constructed of native compacted dirt, with the minimal use of gravel and wood chips as necessary.
- Easy and simple trail construction methods should be utilized wherever possible.

- Parking areas should be designed to minimize potential conflicts with hikers, bikers and horse riders on adjacent trails, and traffic on adjacent roadways.
- Given the hot summer climate, it is recommended that parking be adequately shaded. The implementation of a well designed shading strategy provides a level of order and structure that transforms surface of parking lots from undifferentiated asphalt expanses into clearly articulated parking areas
- Connections between the trail and trailhead should be clear and obvious. Trailhead signs should be well sited to clearly identify the trailhead from the road and to provide a visual clue of where the trail starts.

Trailhead and Trail Barriers

- Large stones, bollards, modified cattle gates or other barriers might be required to prevent motorized vehicles from entering the trail from the trailhead. Barriers should be carefully sited and designed to allow hikers, mountain bikers and horse riders to pass, but prevent cars, trucks, ATVs and motorcycles from crossing.
- Gates and special barriers should be utilized at entrances to hiking-only trails to prevent unwanted biking traffic. These facilities should be carefully sited and designed to allow hikers to pass while preventing bicycles from passing.
- Signs and educational programs are important for informing the public of allowed trail uses.

Trailhead Entrance Gates

- Entrance gates are expensive and obtrusive, and should only be included if vandalism or security is an issue.

4.4.2 Guidelines and Standards for Destination Facilities

Picnic Sites, Rest Area and Viewing Sites

- Parks and recreation facilities associated with the trail should be designed in a unified manner. Facilities should be “naturalistic” and simple, and laid-out in a manner that takes advantage of specific site conditions.
- Simple trailside picnic sites should be provided in areas that have shade and ambience. Site furnishings should be minimal and non-obtrusive, consisting of rustic picnic tables and benches where required.
- Rest areas should be sited in shaded areas that offer unique viewing or in areas of special beauty. Site furnishings should be limited to rustic benches.
- Viewing sites should be furnished with rustic benches as appropriate.

Switchbacks

- Switchbacks trails should be utilized on steep slopes where grades exceed twelve percent, or where special site conditions warrant their use.
- Transitions between switchbacks should be sufficiently wide to comfortably accommodate the turning radius of mountain bikes on multi-use trails.
- The grade of switchback segments should be sufficiently shallow to prevent erosion. Retaining walls should be avoided.

4.4.3 Guidelines and Standards for Furnishings and Signs

General Guidelines and Standards

- Trail furnishings encompass a wide variety of elements such as trash receptacles, benches and picnic tables. If treated in a careful and consistent manner, trail furnishings can contribute significantly to the overall order and appearance of the trail system.

Bikeway Signs

- Signs should be placed along Emigration Canyon Road, identifying the road as an official bicycle route and part of the Emigration Canyon trails system, utilizing a standard Emigration Canyon Trails logo.

Trail Junction Signs

- Signs should be located at trail junctions to indicate directions and distances to potential destinations. The signs should be rustic, simple and unobtrusive, utilizing Salt Lake County standards and a standard Emigration Canyon Trails logo.

Interpretive Signs

- Interpretive signs should be distributed along the trail to provide educational information related to the trail. Interpretive signs might include information about wildlife protection, unique geological and ecological features, local history, trail etiquette, and historic trail alignments. The signs should incorporate a standard Emigration Canyon Trails logo.

Mileposts

- Mileposts should be distributed at regular distances along the trail to inform trail users of their location. Milepost locations should be indicated on the trailhead information sign maps.
- Mileposts should be rustic and simple, possibly in the form of a low wooden post or bollard.

Trailhead Direction Signs

- Trailhead direction signs should be located along Emigration Canyon Road to easily lead motorists to the three regional trailheads. The signs should be well designed and highly visible. The Emigration Canyon Trails logo system should be utilized to increase public awareness of canyon trailheads. The logo will also reinforce the idea that the trail system is an important county recreation feature.

Trailhead Location Signs

- Trailhead location signs should be sited at each trailhead. The signs should be well designed and sufficiently large to be seen from the trailhead entrance road, incorporating a standard Emigration Canyon Trails logo.

Trailhead Information Signs

- Trailhead information signs should be located at regional and local trailheads to provide important trail information. The type of information provided might include the following:
 - A map indicating the trailhead location in relation to the overall trail system, trail junctions, mileposts, special features such as picnic sites and rest areas, and unique natural areas.
 - A description of permitted uses, hours of operation and trail etiquette.
 - Other important information, such as emergency phone numbers and addresses for additional information, comments or complaints.
 - Boxes or slots for storing hand-held trail maps, submitting trail donations and signing-in.
- Trailhead information signs should be rustic yet well designed and easy to maintain. Text should be sufficiently large to be easily read. Signs should include the selected Emigration Canyon Trails logo.

4.4.4 Guidelines and Standards for Erosion Control and Slope Stabilization

General Guidelines

- Exposed and disturbed slopes along the trail system reduce downstream water quality, increase storm water runoff and lessen the visual quality of the surroundings. Measures should be taken to rehabilitate existing degraded trail segments, and to prevent erosion from occurring during trail development.

Erosion Control During Trail Construction

- In areas slated for new construction, measures should be taken to prevent erosion. Actions should limit the area of disruption and preserve existing trees and vegetation to the greatest extent possible.

Slope Stabilization for Existing Eroded Areas, Post-development and Closed Trails

- Appropriate plants and vegetation should be re-established along new trails with exposed and disturbed slopes. Re-vegetation efforts will help to stabilize slopes and easily eroded soils, and help absorb excess storm water
- Plant species should be appropriate for the life zone and precipitation regimes of the area, and respond to the difference between dry and moist site variations. Planting techniques should be appropriate for the specific site and availability of water.
- A number of soil preparation and plant material guidelines should be followed to facilitate successful re-vegetation. Hard-packed soil should be ripped prior to adding soil amendments and seeding or planting. Moreover, areas with a smooth surface should be roughened to decrease erosion, increase infiltration of water, and provide diversity for vegetation establishment. More detailed guidelines should be coordinated with Salt Lake County in response to site-specific needs.

4.4.5 Guidelines and Standards for New Trail Construction

The construction of new trails should utilize Salt Lake County Primitive Trail design standard as illustrated in Figure 2. These trails are un-surfaced, and typically range three to five feet in

width. Application of the standard should be carried out in a flexible manner, taking into account specific site conditions and needs. As a general condition, trails should utilize minimum widths to meet envisioned uses.

4.4.6 Modification and Improvement of Existing Trails Incorporated into the System

The Salt Lake County Primitive Trail design standard should be utilized as the design goal for existing trails (see Figure 2). Application should be flexible, in order to accommodate existing variations. Existing trails on steep alignments should be as narrow as possible to meet envisioned traffic while minimizing erosion and other site impacts.

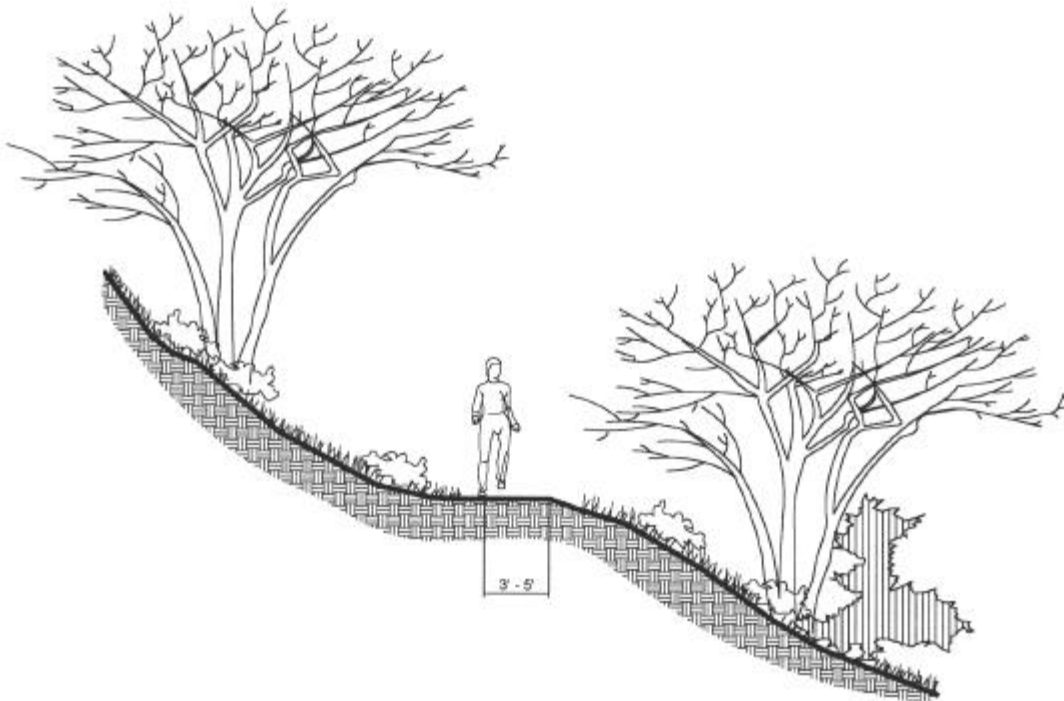


Figure 2
Primitive Trail – Typical Section

4.5 Maintenance and Management Guidelines

Adequate maintenance is essential to ensure that the trail is safe and passable, while presenting a positive public image. Ease of maintenance is directly tied to the development and construction standards that have been used.

4.5.1 Guidelines and Standards for Trail Maintenance

General Maintenance Guidelines

- The development of the Emigration Canyon Trails system as proposed represents a major commitment of public funds. In order to maximize the substantial investment necessary for implementing the system, trails must be properly designed and developed to promote easy maintenance.
- The success of the trail system is dependent on an integrated and well-programmed system of maintenance. Maintenance requirements include weeding, plant replacement, erosion

control, as well as litter control and patrol, trailhead cleaning and the repair of surfaces and furnishings.

- A maintenance and management program specific to the needs of the trail will be required as the system is developed and implemented. This program should not be limited to traditional items, but should also address trailhead surface repairs and the maintenance of trail furnishings. Among its numerous duties, designated trail authorities should ensure that a maintenance program is established and properly implemented.

4.6 Trail Etiquette and Safety

Trail etiquette is an essential component of a successful trail system, particularly for a multi-use trail system such as this. Trail users should understand and utilize “rules of the trail” that address who has the right-of-way, and what is expected of them. A proactive approach for educating the public about trail etiquette is suggested. Information regarding the trail and trail use should be provided to the public through pamphlets, maps, trail and trailhead information boards, trail and trailhead signs, through public announcements and media programs, and by word-of-mouth.

It is recommended that a volunteer “trail patrol” be established to monitor trail use, to provide useful tips and information, and to assist users as necessary. Volunteer trail patrols have been a key component of successful trail systems throughout the country, and are often an offshoot of an “umbrella” or sponsor organization. Some of the potential groups that might help to organize a trail patrol for the Emigration Canyon Trails include the following:

- Emigration Canyon Community Council
- Salt Lake County Sheriff’s Office
- U.S. Forest Service (Trails Coordinator)
- Utah State Department of Parks and Recreation (Trails Coordinator)
- Utah Department of Wildlife Resources
- Utah Back Country Horsemen’s Association
- International Mountain Bicycling Association (IMBA)
- Friends of Emigration Canyon Trails and Open Space
- Bonneville Shoreline Trail Committee
- Salt Lake County Mayor’s Bicycle Advisory Committee
- Save Our Canyons

4.7 Volunteer Efforts

Volunteer efforts should be encouraged to help maintain and construct the trail, volunteers are essential for trail patrols and other operations as well. It is recommended that the designated trail authority coordinate volunteer inputs.

4.8 Potential for Agency and Organization Cooperation

Salt Lake County should pursue partnerships with other public agencies and localities to help establish the Emigration Canyon Trail system. Cooperative efforts are possible with the following entities and groups:

- Salt Lake City: Relationships should be established with Salt Lake City in general, key departments such as Parks & Recreation and Public Works (Watershed), and lay organizations such as the Mayor's Bicycle Advisory Committee.
- The U.S. Government: The Forest Service manages much of the land through which the trail passes, and will ultimately approve any trail alignment through their land as part of the NEPA review process. Cooperation with this agency is an essential part of implementation.
- Wasatch Front Regional Council coordinates regional planning efforts along the Wasatch Front. The council should help guide and coordinate trail activities in Salt Lake County to ensure that efforts are coordinated and actions are not duplicated.
- Utah Open Lands, Save Our Canyons, Sons and Daughters of the Utah Pioneers, Wasatch Mountain Club and other open space, recreation and trail advocacy groups.