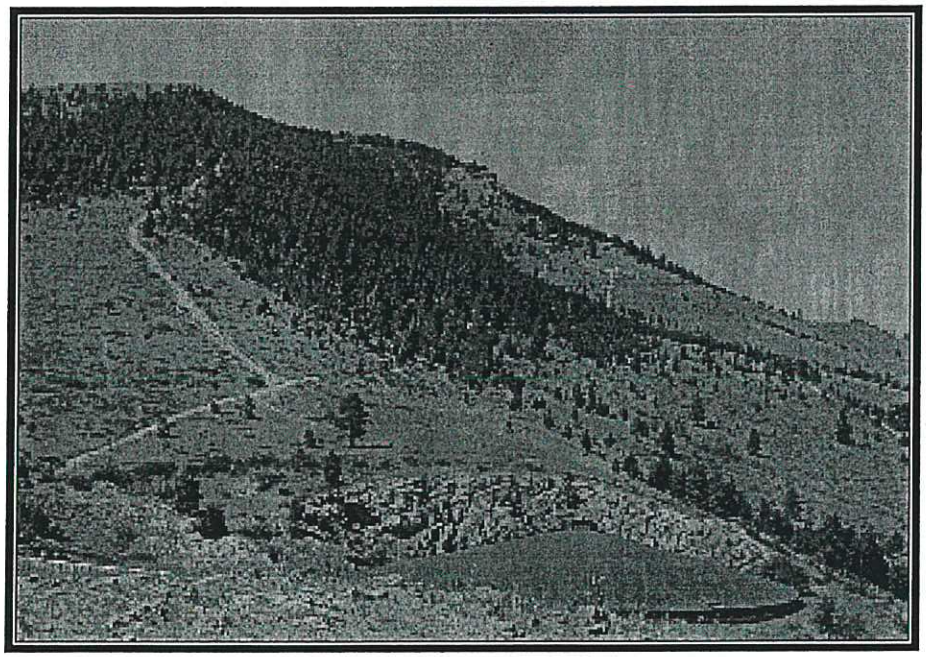
APPENDIX A

South Hills Trail Plan

DRAFT

South Hills Trails Plan

A Sub-plan of the Helena Open Lands Management Plan



Prepared by the Prickly Pear Land Trust
For the
City of Helena Parks and Recreation Department and the
Helena National Forest

April 2003

Table of Contents

Acknowledgements: This plan was created through the valuable assistance and input of many groups and individuals. The City of Helena and the Prickly Pear Land Trust would like to thank the following for their time and effort:

Helena Open Lands Management Advisory Committee

GIS mapping: Trever Brandt, Gwen Pozega, Craig Pozega, Taylor Anderson, Mark Brooke

City/County GIS Services: RJ Zimmer, John Hinshaw

Plan Contributors:

Helena National Forest: Duane Harp, Kurt Cuneo

Montana, Wildlife and Parks:
Bob Walker, Steve Gilbert, Gayle Joslin, Tom Riley

Open Space Bond Advisory Committee

Prickly Pear Land Trust Board of Directors

Helena Bicycle Club

Great Divide Cycling Team

Helena Outdoor Club

Emmett Purcell

Michelle and Mark Franchi

George Oshenski

D.D. Dowden

Big Sky Cyclery

Great Divide Cyclery

Lewis & Clark Archers

City/County Parks Board: Jerry Spencer

Transportation Choices Committee

Dennis McCahon

Judy Harris

Jeff Blend

Tom and Judy Kilmer

Polly Baily

Cedron Jones

I. Introduction

Purpose and Need of the Plan

The Helena area is blessed with an extraordinary system of open space and trails directly adjacent to the downtown and residential neighborhoods. With more than 1,600 acres of City owned public open space and adjoining Helena National Forest lands, residents and visitors to Helena have access to thousands of acres of public land "just outside the backdoor". Connected by a system of trails, this amenity is unique for a city of Helena's size. It is an amenity that many Helenans cherish and use daily for a variety of activities.

Over the years, several planning efforts have considered open space planning and trails in the South Hills. In 1995, the City of Helena and the Helena National Forest prepared the *Mount Helena Management Plan*. This plan, inspired by concerns over trail conflicts on Mt. Helena focused on the lands within the park as well as the Forest Service Lands along the Mt. Helena Ridge Trail. ~~(~~Since 1995, over 200 acres of lands has been added to Mt. Helena City Park.~~)~~ The 1998 *Comprehensive Parks, Recreation and Open Space Plan* commissioned by the City of Helena and Lewis & Clark County focused mainly on public parks. The Helena Area Linked Open Space plan (HALOS) created by a group of interested trail advocates in 1997, envisioned a series of trails and linked open space corridors throughout the Helena Area. This plan never went through an adoption process. Up to now, however, there has never been a comprehensive plan specifically for the analysis, maintenance and development of trails in the South Hills.

The need for such a plan is clear. Only about 18 of the 75 miles of mapped trails in the South Hills p~~P~~lanning area ~~miles~~ are currently designated as recognized trails. The majority of the trail system was never constructed to recognized standards and is not regularly maintained by land management agencies. As a result, some of the "unofficial" trails are in poor condition showing signs of erosion and unsustainable routing. Additionally, this system had not been inventoried or mapped until now. Trail users had little usable information regarding the trail system and ~~land~~ management agencies had no data regarding the location and conditions of the routes on their respective lands. Moreover, some granting entities are reluctant to contribute to proposed projects without a comprehensive plan and corresponding public input process.

The desired result of this plan is to present a clear outline of steps that will help the City of Helena, the Helena National Forest and other groups and agencies create a unified network of trails that is understandable, maintainable and accessible. In addition, an adopted trail plan will demonstrate to granting agencies and organizations that the necessary planning and public outreach have been accomplished. A unified trail system in Helena's South Hills is a key component to the health of the open space system and can be a "showcase" amenity for residents and visitors to the area.

To guide this process the plan contains both general and site specific recommendations for the overall improvement of the trail system. These recommendations include trail maintenance, locations for new trails and trailheads as well as the obliteration/rehabilitation of existing trails that will not be retained. This document should be considered a five-year plan.

Location and Character of the Planning Area

The area incorporated by this study is defined by:

East: the Donaldson open space property to the east of Saddle Drive
West: Mt. Helena Ridge Trail
South: Cox Lake area
North: Upper West Side, South Central and Upper East Side residential neighborhoods.

The study area is approximately 20 square miles in size. ~~(See Figure ___)~~

The land within the study area is owned by the City of Helena, the Helena National Forest and private individuals. There are also several small tracts of Bureau of Land Management lands within the study area. While this plan focuses primarily on public lands, some trails cross private lands and this issue is addressed in the recommendations.

The terrain within the planning area consists of s series of rugged rolling hills dissected by dry gulches. Vegetative cover includes dense coniferous forest to open grassy meadows. The moist gulch bottoms are interspersed aspen and other deciduous trees and shrubs. The tops of many of the hills offer excellent views of the surrounding lands including spectacular views of the City, the Helena Valley and surrounding mountain ranges. The elevation of the study area ranges from about 4,100 feet above sea level in downtown Helena to nearly 6,000 feet in the southern end of the planning area.

A vast system of trails ties this mosaic of landscapes together. This trail network leads to hidden gulches, wildflower-filled meadows and scenic panoramas. In just minutes, a hiker or biker can be in what feels like a distant wilderness. The challenging nature of some of the trails is one element that makes Helena's trails unique and special.

Clues to Helena's history are scattered throughout the area including mine ruins, limestone kilns, city dumps and historic wagon roads. Many of these industrial ruins on public and private lands are currently on, or are eligible for listing in the National Register of Historic Places—a listing of significant heritage properties maintained by the Department of Interior. Protecting the integrity of these ruins from vandalism, destruction and natural degradation is important to many Helena area residents. At the same time, some of these ruins offer opportunities for interpretation along the trail system.

Several county roads radiate from downtown Helena into the South Hills serving the National Forest destinations as well as residential areas. These roads play an important role for access to the trail system.

Trail planning process and public input

In the spring of 2001 the City of Helena Parks Department hired the Prickly Pear Land Trust as its trails coordinator on a contract basis. This contract, funded by open space bond funds, entailed trail planning, organizing volunteer work events, grant writing and public outreach. In the process of grant writing and planning trail related events, the need for a comprehensive trail plan was apparent. There were no clear priorities for trail projects nor a publicly supported planning document to show potential grantors. As a result, PPLT recommended to the City that a

trails planning effort for the South Hills be initiated. Because much of this trail system lies on Helena National Forest land, forest officials were also asked to participate in this planning process.

The planning process was tailored to gain as much public input as possible. The Prickly Pear Land Trust contacted and interviewed user groups, stakeholders, private property owners and other interested parties to get a sense of what they would like to see in the trails plan. Some of these meetings were held in a public forum such as a group's monthly meeting. Others were one-on-one meetings with interested individuals. A summery of the themes heard at these meetings and interviews can be found in Appendix E. Additionally, information has been posted in the Helena City Parks' website at www.ci.helena.mt.us/parks. The website also provides contact information for comments and questions. The plan also was presented at several public meetings to gather additional comment. The South Hills Trail Plan was adopted by the Helena City Commission on _____, 2003.

OSBAC, HOLMAC and the Open Space Management Plan

In 1996, Helena voters approved a $5 million bond to fund the acquisition and management of open space and the construction of parks. Guided by the Open Space Bond Advisory Committee (OSBAC), over 700 of the City's 1,600 acres of open space were purchased with open space bond funds. With its open space holdings nearly doubling in four years, the City decided to dedicate a portion of the remaining open space funds towards an Open Space Management Plan. In early 2001, a volunteer committee, named Helena Open Lands Management Advisory Committee (HOLMAC), agreed to hire and guide a consultant through the Management Plan effort. In March 2002 a consultant was chosen from four proposals submitted to HOLMAC. The Management Plan will study a broad variety of issues affecting open space in the South Hills including ecology, weeds and wildlife. This South Hills Trail Plan prepared by the Prickly Pear Land Trust will serve as a sub-plan to the Open Space Management Plan. There may be some overlap between the two plans on some issues, but generally this plan will address issues related directly to trails.

II. State of the Trails today

Non-motorized recreationists and outdoor enthusiasts are the primary users of the open space system in the South Hills. Trails in the planning area are popular for hiking, walking, jogging, mountain biking and if conditions allow, cross country skiing. In addition, horseback riding and hunting occur on HNF lands in the South Hills. Some use the trails for an intense physical work out, while others are simply out to observe nature. This diversity of opportunities is a great amenity.

According to preliminary mapping estimates, there are approximately 75 miles of trails within the study area. Yet only about 25% of the total trail mileage is officially designated by either the City of Helena or the HNF. On City owned lands in the South Hills, only the primary marked trails on Mt Helena have been officially designated. This plan will determine trail designation on newly acquired open space lands. On HNF lands officially designated trails are the Rodney Ridge Trail, the Waterline Trail and the Mt. Helena Ridge Trail. The remaining routes consist of old jeep and motorcycle trails, mining roads and other routes that have become established by

continual recreational use. Of the 75 miles of the existing mapped trails approximately 33 miles are on city owned open space, 27 miles are on HNF lands, 1.5 miles are on BLM lands and 13.5 are on private land.

The most heavily used trail areas are adjacent to neighborhoods most of which is City owned open lands. Mt. Helena City Park, in particular, is the oldest open space park and has the highest observed use. As one moves away from the City center onto HNF lands, the trail system generally becomes less dense. Use is concentrated in a few areas due primarily to the fact that citizens are unfamiliar with the new open space acquisitions and there are no corresponding published maps, no sign system and few trailheads.

While the system is vast, some of the trails are in poor condition due mainly to erosion. Trail erosion is caused by several factors. First, the trails may not have been designed or planned with erosion control in mind. Many of the old jeep roads and trails run straight up hills parallel to the fall line ("fall line trails") allowing water to flow directly down them creating ruts and gullies. Secondly, there has not been regular maintenance on most trails. Volunteers and other service groups have been great stewards of the trails but the system is too complex for small groups to handle over several days in a season. Simply put, there are too many trails for the current resources available to maintain them. Third, some areas close to neighborhoods have a dense, haphazard web of redundant user-created trails seemingly created to gain more direct access to a desired destination. Inadequate erosion control coupled with high usage promotes more rapid deterioration of these unplanned trails. Once damaged, users will step to the side of the rutted area and in the process create a new parallel track and the process repeats itself leading to a widened scar and more damage to the resource. In winter, poorly drained trails can become filled with ice again causing users to sidestep the hazards creating more trail damage. In many of these cases the trails will have to be eradicated, relocated or rebuilt to have adequate erosion control. In addition, user education on signs, at trailheads and on trail maps will help alleviate some of these problems.

Some of the most popular trails in the South Hills lie across private property. However, very few of these trails are secured with trail easements or similar agreements. In many cases, the property owner simply allows access. In other cases the property owner may not know of the trail use. Some property owners know of the use but would like it to be controlled or rerouted so as not to impact the property or privacy. In any case, a primary goal of this plan is to work cooperatively with property owners to develop access solutions so these popular routes can remain open to non-motorized recreation.

The lack of user education is mainly due to the fact that there are few signs and trailheads in the South Hills Trail System. Additionally, there are no brochures or printed maps of trails except for an outdated map of Mt. Helena trails. The Mt. Helena trailhead at the top of Adams Street is the only official trailhead with signs, maps and parking. Some users park at informal pullouts to access the trail system but there are no signs at these areas to guide and educate users.

Currently, there is little pet control in the South Hills, yet the open space is a very popular for dog owners to run their pets. While not a major problem as yet, the issue was raised at some of

the stakeholder meetings. Some remarked that dog waste must be controlled and that pets should not be allowed to chase wildlife. Again, there is no clear message posted at most access points.

There have not been many recently reported instances of conflicts between trail user groups. One of the primary reasons for this is that mountain bikers have good access to the more remote trails leaving the closer trails to hikers and walkers. Additionally, horseback riding is not allowed on City owned property and is not common on South Hills HNF lands greatly reducing the potential for horse-bike and horse-hiker conflict.

III. Challenges and Opportunities

As with any plan and any area there are challenges to planning and implementation as well as opportunities. In Helena's South Hills, the challenges are not insurmountable and the opportunities are many. Unlike many towns and cities throughout the country, Helena is very fortunate to have abundant open space and trails so close to downtown.

1. Challenges:

a) Many miles of trail to maintain: Helena has many miles of trail but very few resources to maintain this vast network. Some of these trails are "personal trails" that are created by people gaining access to the trail system form their back yards or unauthorized locations.

b) Wildlife habitat to protect: The South Hills are home to a number of animal species that depend on this habitat to survive. Any plans for new trail development must consider the project's effects on wildlife habitat. (This topic will be addressed further in the Open Space Management Plan.)

c) Uncontrolled access: Access to the trail system occurs at a variety of points including directly from private property. There are few formal entry points with posted information, regulations and maps.

d) Few maps or directional signs: ~~If one does not know his or her way around the South Hills trail system, t~~There are few maps or signs to help guide and educate users ~~them.~~especially on newly acquired City open space lands leading to a concentration of use on Mt. Helena.

e) Private property issues: Some of the existing trails cross private property without formal agreements with the property owners. Without easements or agreements, these trails could be closed to public access at any time.

f) Multiple public ownerships: Public ownership in the study area is the City of Helena, the Helena National Forest and some small Bureau of Land Management tracts sprinkled throughout. Additionally, there is a parcel of State Land on the west side of the study area. Each agency has its own trail standards and management requirements.

g) Growing user base: Trails in the South Hills are becoming more popular as people discover them. This creates more pressure to ~~create~~construct trailheads and provide

directional signage as well as to maintain trails. This could also be considered a potential opportunity.

h) Need for Funding: In 1996, the citizens of Helena approved a $5million open space bond to help fund parks, open space and trails. While this funding was vital for the acquisition of open space, the funding has nearly all been allocated, forcing City officials to seek alternative sources of funding to pay for open space properties.

i) Noxious weeds: While weeds are a separate management issue, trail building, usage and maintenance has implications on the proliferation of weeds in the South Hills. (This issue is addressed in the Open Lands Management Plan)

j) Potential incompatible uses: A the time of writing, there is little control over the types of uses on trails in the planning area. In addition to biking, hiking and skiing (mostly forest service) trails are also used for 4-wheeling, ATV use and hunting and may not all be compatible.

k) Preservation of historic resources: In the face of growing recreational use and proposed recreational development in the south Hills it is important that historic resources are documented and potentially preserved. Some recreation uses may not be compatible with actively protecting heritage resources.

l) Safety on roads: Some of the trails documented for this plan cross over roads causing potential safety problems and conflicts with motor vehicles.

2. Opportunities

a) Abundant nearby open space and trails: Having many acres of public land and miles of trail so close to the downtown area is an amazing resource that Helena can be proud of. The potential for looped trails can reduce the potential for conflicts between user groups.

b) Good volunteer participation: Volunteers have been the lifeblood on trail maintenance in Helena. Non-profit organizations and user groups have been vital to mobilizing volunteers for trail workdays.

c) Willing and cooperating agencies: Both the City and HNF have committed financial resources towards trails in the South Hills. They have also agreed to work together to implement the findings in this plan.

d) Good access: Access to public lands and trails is relatively easy. There are numerous points to access the trail system throughout the City.

e) Open Space Bond: This shows the commitment of the citizens to protect open space and trails in the area. While the portion of these funds designated for acquisition has been allocated, there are still resources remaining in the maintenance budget. Thought should be given to initiating a future bond effort.

f) Historic Resources: There are numerous opportunities for interpretation at trailheads and along the system of trails including scenic vistas and landmarks, wildlife and unique flora.

IV. Goals and Objectives of the Trail Plan

These goals were derived from the input of trail enthusiasts and stakeholders and from the trail coordinator's observations.

Overall Goal: To develop a comprehensive trail system that is maintainable, accessible and that provides a fun and interesting and diverse recreational experience while protecting the area's natural and cultural resources.

Goal 1: The City of Helena should work with the Helena National Forest and other user groups and organizations to create, fund and sustain a routine maintenance program that dedicates resources specifically to open space and trail management, maintenance and construction.

Goal 2: Ensure that the wildlife habitat and other natural resources are protected and enhanced through sustainable trail projects, education and enforcement of rules and regulations.

Goal 3: Reclaim or reroute trails that are in poor condition, are unsustainable and/or are redundant.

Goal 4: Create new sustainable trails in appropriate areas that provide access to key destinations and other popular trails.

Goal 5: Develop sections of universally accessible trails for wheelchair users, elderly, young children, and others with disabilities.

Goals 6: Engage private property owners to ensure continued trail access across their property. Agencies and user groups should accept responsibility for education, maintenance and posting signs.

Goal 7: Create trailheads that give the trail system a unique identity and that can be used for all Helena trails. These trailheads should provide information regarding safety, natural resources and trail etiquette. They should also provide maps and trail information. Some trailheads will provide parking and other amenities.

Goal 8: Create a durable and attractive sign system that clearly marks trail directions and features without being obtrusive.

Goal 9: Develop a funding strategy that maximizes and leverages local funds. Work with Prickly Pear Land Trust and other organizations to prepare grant applications and solicit contributions for trail projects.

Goal 10: Continue to develop a volunteer assistance program for trail and trailhead maintenance and construction. Work with local user groups, businesses and service organizations to expand and improve the program.

Goal 11: Prioritize projects that help to disperse use away from heavily used areas such as the "front side" of Mt. Helena. Education and a comprehensive trail map and guide is a vital to this effort.

IV. Plan Recommendations

This section lays out the recommendations for action regarding the South Hills Trail System. They were developed from user comments and field observations. The first section describes recommendations and policies that can be applied to the overall South Hills Trail system. The second section contains recommendations for specific elements on the system.

A. Overall recommendations (non-site specific):

The following recommendations are policies that will guide the overall development of the South Hills Trail system.

Oversight

a) The City, in cooperation with the Helena National Forest should consider hiring or contracting with an open space and trail coordinator that can oversee trail and trailhead maintenance and construction including the implementation of the recommendations contained in this plan. Major projects should be reviewed by a citizen committee such as HOLMAC and approved by City Commission with adequate public comment before work commences.

Maintenance

a) City, County and the Helena National Forest officials should consider creating a dedicated crew charged with maintenance of the area's trail system. This seasonal crew could be patterned after the Montana Conservation Corps where students earn a stipend and work as a team. To accomplish this, a long-term funding source must be identified, perhaps in the form of a trail maintenance endowment.
b) Consolidate redundant trails—multiple trails that access the same destination.
c) Reclaim unsustainable trails such as those that are too erosion prone to maintain.

Trail Design and Character (experience)

a) Use the existing trail system to create a series of looped trail routes that allow trips of varying lengths and provide opportunities for trail users of varying abilities and fitness levels. This may require building sections of new trail to make key connections.
b) Ensure trail connections to existing and future urban trails, neighborhoods and downtown destinations.
c) Trails should be built to consistent trail standards by which all future trails are designed, built and maintained. (Suggested Standards appear in Appendix A of this document.)
d) New and existing trails should be designed to:
    1. minimize erosion and visual scarring.

2. incorporate views, user experience and natural design elements.

e) If new trails over and above those recommended in this plan are proposed, a formal approval process should be followed. That process must consider: the intended type of use, replacement of an existing trail, maintenance responsibilities, and connectivity.

Special Trails

a) Provide at least 1 km of trail that is accessible to people with disabilities, the elderly and those seeking a less rigorous trail experience.

b) Develop a trail that educates users ~~as to~~about the natural and cultural history of the South Hills.

Volunteers and User Groups

a) User groups and volunteer organizations should be encouraged and empowered to create a volunteer "culture" and develop a regular volunteer program that focuses on trail maintenance and construction.

b) Explore the implementation of an adopt-a-trail program in which groups, companies and other organizations would assume annual maintenance responsibilities for a trail or trails.

Agency Cooperation

a) The Helena Parks Department and the Helena National Forest should work cooperatively to plan, develop and maintain the trail system in the South Hills. A revised memorandum of understanding or similar mechanism would establish specific responsibilities as to which trail segments fall under each agencies' jurisdiction.

b) The implementation of this plan should also consider the recommendations of the Helena Non-motorized Transportation Plan where the two plans interface.

Private property issues

a) Continue to identify those trails that cross private property and the owners of those properties.

b) Work with private property owners to ensure long-term non-motorized access across their property through trail easements or permission. User groups and/or public agencies should provide property owners signs and other means of control.

Enforcement and patrol

a) Limit the implementation of new rules and regulations to those necessary for safety and that can be enforced. Consistent signage and user education at trailheads and on maps and brochures is vital to this effort.

Trailheads

a) Develop a series of trailheads at key identified trail system access points. These trailheads will have different levels of development as determined by their location, existing or desired usage. Trailheads can help disperse use of the trail system away from the currently heavily used areas. The hierarchy of trailheads should be as follows:

1. Major Trailhead: Located in areas ~~that have~~where a number of trails or trail systems originate and have adequate space to accommodate vehicles. Include sign

kiosk, parking for 8 to 10 vehicles, access gate, dog waste mitts and, possibly, sanitary and picnic facilities.

2. Minor Trailhead: Located in areas that provide access to trail systems where less developed character is desired and have adequate space for several vehicles. Include information sign and map, parking for 2 –8 cars (pullout), access gate, dog-waste mitts.
3. Neighborhood access point: Located in areas where primarily local residents gain access to trails. No parking is desired in these areas. Include information sign, access gate, dog waste mitts.

b) Trailhead signs should contain the following information:

1. Major trailhead sign kiosk: Detailed map of trail system, agency logo(s), trail etiquette, wildlife, natural resource, cultural resource information, names of sponsors and volunteers that helped build/maintain the trailhead and/or trail.
2. Minor Trailhead and Neighborhood access: Sign with simple map of local trails and trail rules, Agency logo.

Trail Signs

a) Develop and construct a trail sign system that provides: trail name, directional information, and agency logo.
b) Trail signs should be discreet, ~~and~~ unobtrusive ~~as well as~~and vandal resistant. ~~The suggested sign type is outlined in Appendix H.~~
c) If a trail is closed or rerouted, provide signs that give reason for closure and direction to new or alternate route.

Map/Brochure

a) Once this plan is adopted, trail maps will be made available to the general public. These maps will show major trails, connections to urban trails and important destinations, trail rules, and other important information.

Pets

a) Abide by recommendations for pet control outlined in the Open Space Management Plan when adopted.
b) Trailheads and neighborhood access points should have clearly stated rules regarding pet control and picking up pet waste. Dog waste mitts should be provided. Pets chasing wildlife should not be tolerated.
c) Consider revising leash law to keep pets on leash within 100 yards of the trailhead to allow for better control of picking up pet waste.

Wildlife

a) The protection of wildlife habitat should be a priority in the development of this trail system.
b) Work with wildlife experts when planning major new trail construction. Planning of new trails must consider trail density and location so as not to adversely effect wildlife habitat.

Protection and Interpretation of Historic Resources

a) Work with the Helena National Forest to identify and catalogue important historical resources in the South Hills planning area. Develop a strategy to protect these resources and identify potential interpretive opportunities.

Weeds

a) An assessment of weeds should be completed prior to every major trail construction project.
b) All trail construction projects will be in accordance with the weed control plan set forth in the Helena Open Land Management Plan.

New Subdivisions

a) When a new subdivision is proposed, the City and/or County should work with the developer to determine if there is a viable trail opportunity and if so, that that trail access is secured. Trails can be considered as an alternative ~~to~~ in park land dedication requirements.

Trail User Conflicts

a) Segregation of user types is not recommended at this time. However downhill bicycle use should be discouraged on the 1906 Trail and the Powerline Trail on Mt. Helena.
b) ~~The trail system should continue to allow m~~Mountain bikers ~~but~~should be encouraged ~~them~~, through education, signs and brochures, to gain access to more remote trails that lie beyond ~~neighborhood trails frequented by hikers~~heavily used areas such as the north and east sides of Mt. Helena, especially at peak times such as on weekends and afternoons.
c) Equestrian use is not encouraged on city open space especially closer to the urban area.

B. Specific area recommendations (site specific).

This section refers to specific recommended trail projects. The study area has been broken down into the following five sub-areas:

- Mt. Helena including the Mt. Helena City Park and the Mt. Helena Ridge National Recreation Trail (MHRT)
- Wakina Sky Gulch Area between Grizzly Gulch and Orofino Gulch Roads
- Rodney Ridge between Orofino Gulch and Davis Gulch/Tucker Gulch including the Cox Lake area
- Mount Ascension including the Davis Gulch Greenway and Meatloaf Hill, Sugarloaf Hill, Quarry Hill and Bompart Hill.
- East Side from the Mount Ascension area to Donaldson Property near the new water tank.

NOTE #1: Some of these recommendations are purposefully less detailed to allow flexibility to plan and adjust routes in the field. Some of the proposed routes are shown to cross private property. THIS IS FOR ILLUSTRATIVE PURPOSES ONLY. ANY TRAILS INVOVLVING PRIVATE PROPERTY WILL ONLY PROCEED IF A LAND OWNER IS WILLING TO

ALLOW ACCESS OR THE PROPERTY OR TRAIL EASEMENT IS ACQUIRED TO ALLOW TRAIL ACCESS.

NOTE #2: Trails that appear on the final South Hills Trails Plan map that are recommended to remain or be constructed will be prioritized for maintenance and/or construction and should not be considered designated trails until those standards are met. Trail segments located on the National Forest System lands will not be officially designated until they have been evaluated in compliance with NEPA regulations and approved in a NEPA document.

NOTE #3: Although not specifically stated below, all approved trails in this system should be incorporated into a routine maintenance regime. Weed control will be considered an integral part of this maintenance program.

NOTE #4: Most of the trails in the South Hills do not have official names. Many of the names used below are nick manes used by local users or created for this document. These names are in italics. An effort should be made establish an official naming process to identify these trails on maps, etc.

1. Mt. Helena

a) Ownership and private property

1. Work with property owner to develop a trail access from west end of LeGrande Cannon Boulevard (near the top of Silverette Street) to Mt. Helena Park. This access would be established in cooperation with the property owner to prevent wholesale trespass on their property.
2. Acquire 14-acre private inholding on the east side of Mt. Helena Park. The popular Prospect Shafts Trail crosses this property and has been used by the public for decades.
3. Pursue a trail easement where the proposed *Lower North Side Trail* crosses the edge of several lots in the Forrest Estates Subdivision.

b) Trails to be reclaimed, rerouted and/or rebuilt:

1. Consolidate dense web of trails in northeast/Quarry Area to reduce redundancies and resource damage. ~~Work with~~Survey local neighbors to determine most desirable, sustainable routes. Trail to the tops of hills ~~must~~ should be rebuilt or rerouted to more sustainable locations.
2. Consolidate trails on the recently acquired property on the west side of Mt. Helena Park creating a sustainable approach to the Mt. Helena Ridge Trail and trail loops in this area.
3. Work with trail advocates to determine the fate of the switchbacks on the North Access Trail which are poorly constructed and unusable in slippery conditions. Consider closing and replacing with an alternate route or rebuilding portions of this section of the trail.
4. Clear small trees and limbs from lower North Access Trail corridor.
5. Reroute existing access on east end of the paved section of LeGrande Cannon Blvd. off of private lot to City right-of- way just west of present location.

~~5.~~6. Eradicate and reclaim web of eroding trails around the "H". ~~Replace with a new sustainable access. It is very important that signage be used to direct people to the new~~

~~access and explain the reason for the closure.~~ Work with High School Groups to prevent further damage to this area.

~~6.~~7. Rebuild *Powerline Trail* to control erosion and reclaim disturbed soils using a "step" like system to stabilize the tread and keep users from stepping off the trail. The *Powerline Trail* should be considered a hiking only trail.

~~7.~~8. Rebuild and stabilize West End Trail between and 1906 Trail and the Backside Trail to control erosion and widening.

~~8.~~9. Attempt to control erosion and widening of Prospect Shafts Trail.

~~9.~~10. Reclaim fall line trails and consolidate unofficial trails west and south of Reeders Village subdivision and create a sustainable trail connection in this area.

~~10.~~11. Close and/or reclaim or all other steep fall line trails.

c) New trails

~~1. Establish a trail from 1906 Trail to the Prospect Shafts Trail along the northeast flank of Mt. Helena crossing above the "H". A faint trail tread exists here, but needs some minor improvements and clearing of branches. This trail should be a hiking only trail.~~

~~2.~~1. Designate the *Lower North Side Trail,* an existing path that contours along the lower slopes of the north face of Mt. Helena above LeGrande Cannon Blvd. This trail allows for a less strenuous hike or bike ride and connects the Swaney property and the west end of Mt. Helena with the Adams Street Parking Lot/Trailhead.

~~3.~~2. When ~~Swaney parcel is acquired by the City~~the City acquires Swaney parcel, construct a trail that links it to the North Access Trail. ~~and potentially directly to the Prairie Trail.~~

~~4.~~3. Explore possibility of a trail link between Spring Meadow Lake Sate Park and Le Grande Cannon Blvd. Trail. This will bring users directly to the foot of Mt. Helena and its trail system.

~~5. Incorporate *Emmett's Trail/Mini Ridge* and the *Horse Trail* into the Forest Service official trail inventory. Both provide good alternative access to the Mt. Helena Ridge Trail and offer good loop options.~~

~~6.~~4. Investigate potential of trail across state land (Section 27) west of Mt. Helena connecting the west end of LeGrande Cannon Blvd. to the Mt. Helena Ridge Trail.

~~7.~~5. Explore a trail link between Park City/Mt. Helena Ridge Trail and Highway 12 via Nelson Gulch on HNF and BLM lands. Before constructing, ensure that wildlife security can be maintained.

d) Trailheads and signs

1. Major trailhead at Dump Gulch
2. Minor trailhead at Swaney Property
3. Neighborhood accesses: ~~at~~ west side of Mt. Helena, from LeGrande Cannon east of Grant Street, Top of Holter Street and top of Clarke Street
4. Sign at the south trailhead of the Mt. Helena Ridge Trail at Park City
5. Place closure markers at all undesired trails
6. Provide street directional sign to Dump Gulch Trailhead on Park Avenue.

2. Wakina Sky Area

a) Ownership and private property:

1. Support the Helena National Forest's effort to ~~A~~acquire the 457-acre Spring Hill ~~privately owned~~ parcel which encompasses an important trail connection between Grizzly Gulch and Orofino Gulch.~~the meadow at the top of the Wakina Sky Trail into public ownership. This property is in danger of being sold and developed potentially blocking access to this beautiful area.~~
2. Secure access on popular trail ~~leading from~~between Wakina Sky Meadow ~~to~~and Unionville ~~Orofino Gulch also~~ that lies on private property.~~ and was recently closed to access~~. Bike clubs and other user groups should work with the property owners in this area to develop a cooperative access plan that ensures that that users close gates and patrol the area's use to prevent trespass or vandalism problems.
3. Continue to investigate ownership of the land between the Orofino Gulch road and the National Forest boundaries and secure the appropriate easements allowing adequate access ~~from~~ between ~~Orofino gulch and~~ the Waterline Trail ~~to~~and Wakina Sky Gulch.
4. Acquire the 19–acre property directly east of the Dump Gulch Trailhead allowing access to public lands in the Wakina Sky area and the *Black Forest Trail* as well as a possible connection to the Waterline Trail.

b) Trails to be reclaimed, rerouted and/or rebuilt

1. Reclaim the two trails on the east side of Wakina Sky connecting to Orofino Gulch Road due to erosion and private property issues. Replace with new sustainable trail be built to allow access between Orofino Gulch and Wakina Sky Gulch. This new access should align with access to the Waterline trail across Orofino Gulch Road.
2. Reroute lower portion of *Barking Dog Trail* away from residence at bottom of trail. Provide a safe access point off of Orofino Gulch Road.

c) New trails

1. ~~Investigate~~ Provide a sustainable trail connection ~~from~~ between the Wakina Sky area ~~to~~and Orofino Gulch (Waterline Trail).
2. ~~T~~provide a trail connection between Wakina Sky Meadow and Grizzly Gulch Road. ~~via the Glory Hole Mine site. There are existing trails in this area that could be used to construct this trail. This trail lies is mostly on private property and would require at least a trail easement to construct. Preferably this property could be purchased by or for the Helena National Forest.~~

d) Trailheads and signs

1. The Dump Gulch trailhead allows access to both Wakina Sky and the Mt. Helena Ridge Trail.
2. Minor trailhead along Orofino Gulch Road that could also serve the Waterline Trail and Rodney Ridge.

3. Rodney Ridge, Cox Lake and Davis Gulch

a) Ownership and private property

1. Work with private property owners to establish trail from Dale Harris Park to Acropolis Hill and Hale Reservoir area across the city-owned Congress parcel.

2. Work with private property owner to reestablish access to the north segment of the Waterline Trail ~~access to Rodney Street~~ to Hale Reservoir.
3. Work with private property owner to establish a connection ~~to~~ between Cox Lake ~~from~~ and Rodney Ridge that ensures residents' privacy.

b) Trails to be reclaimed, rerouted and/or rebuilt

1. Eradicate eroding jeep roads and fall line trails and replace with sustainable trails if necessary including main connecting trail from Old Shooting Range to the Waterline trail
2. Consolidate the trails on the west side of Rodney Ridge.

c) New trails

~~1.Reestablish access to the north end of the Waterline Trail connecting to Dale Harris Park and South Rodney Street Area.~~

~~2.~~1.An extension of the Waterline Trail to Dale Harris Park would link the Waterline Trail directly to Downtown Helena and the Walking Mall.

~~3.~~2.Establish a trail connection from the north end of the accessible portion of the Waterline Trail to the Rodney Ridge Trail.

~~4.~~3.Work with private landowner to establish trail from Cox Lake to Rodney Ridge.

~~5.~~4.~~Evaluate potential extension of~~Extend the Waterline trail to the south across Dry Gulch to the *Barking Dog Trail* and the Wakina Sky Meadow.

~~6.~~5.Extend Davis Gulch Greenway Trail through the old shooting range south to the intersection with Dry Gulch Road and potentially up Tucker Gulch.

d) Trailheads and signs

1. Major trailhead at the Old Shooting Range to provide access to both Mt. Ascension and Rodney Ridge trails.
2. Minor trailhead to access the Waterline Trail and Rodney Ridge on Orofino Gulch Road ~~on~~ adjacent to property owned by the Prickly Pear Land Trust.
3. Neighborhood access on north end of Waterline Trail when it is reestablished.

4. Mt. Ascension (including Quarry Hill, Meatloaf Hill, Sugarloaf Hill and Bompart Hill)

a) Ownership and private property

1. ~~Work with private landowners to~~ eEstablish a designated ~~route~~ trail ~~from Beattie Street trailhead~~ to the City owned parcel at the top of Mt. Ascension by acquiring a trail easement on or fee title to a 21 acre property that lies between two City owned parcels on the north face of Mt. Ascension. ~~Ensure that this route maintains privacy of these landowners.~~
2. Identify and work with property owners to secure existing trail from the top of Mt. Ascension south to the *Entertainment Trail* connecting City property and Forest Service Lands. This trail crosses about nine lots in the Alpine Meadows subdivision in Jefferson County, which currently has little residential development.
3. Identify owners and secure access across private property adjacent to existing neighborhoods on Quarry Hill, Sugarloaf Hill and the western half of Meatloaf Hill.

4. Work with property owners at the top of Tucker Gulch to secure access to the Brooklyn Bridge Trail and the *Flume Trail*. Ensure that landowner privacy is maintained.

b) Trails to be reclaimed, rerouted and/or rebuilt

1. Eradicate steep and eroding old roads fall line trails on Mt. Ascension some of which lie on private property.
2. Consolidate trails on Meatloaf Hill, Sugarloaf Hill and Quarry Hill creating fewer, more sustainable trails that connect to neighborhoods. Work with private property owners on these projects.
3. Continue to work with Lewis and Clark Archers to ensure that the *Archery Range Trail* is completely safe and buffered from any errant arrows.

c) New trails

1. Plan and construct a looped trail through within the newly acquired Bompart property. This trail will connect Mt. Ascension Park with Lime Kiln Road and the east side neighborhoods.

~~2.Reroute Mt. Ascension Trail away from private residence.~~

3.2. Extend the *Archery Range Trail* along the west flank of Mt. Ascension to upper Tucker Gulch Road. This trail would be almost completely on Forest Service land and will allow an off-road trail connection to the *Flume Trail* and the Brooklyn Bridge Trail.

4.3. A portion of the Davis Gulch Greenway is currently on Davis Gulch road creating an unsafe trail situation. The City of Helena should work to ensure this trail is on a continuous and safe corridor away from auto traffic.

5.4. Establish a trail for people with disabilities older trails users and those with children using old road grades on Mt. Ascension. This trail may not be built to the specifications of the American Disabilities Act (ADA) but it should accommodate wheelchairs by having adequate width, relatively low grades and maintainable natural surfacing.

6.5. Ensure that trails on both east and west side of the Crest View Subdivision are built and maintained to allow access to Mt. Ascension around the subdivision

7.6. Ensure trail access from Brooklyn Bridge Trail and Skihi Peak to upper Tucker Gulch

d) Trailheads and signs

1. Minor trailhead at the end of Beattie Street where ist adjoins the Beattie Street Park.
2. Minor trailhead along the Davis Gulch Greenway near the intersection of the Eagle Scout Trail. (A turn out already exists here.)
3. Neighborhood access points should be located at key points in the south central neighborhoods such as Lime Kiln Road, 2nd Street (west), State Street and the Touchstone area.
4. Work with developers of Crestview Subdivision to establish a trailhead at South End of Phase II to allow access to some Mt. Ascension trails for wheelchair users and others with disabilities.

5. East side area

a) Ownership and private property

1. Identify public and private lands for trail opportunities to make connection to east side neighborhoods and other key destinations such as the Donaldson Property and St. Peters Hospital area. Explore the feasibility of establishing trails in strips of public lands that lie between these neighborhoods.
2. Explore the potential of designating a trail ~~subdivision roads to the east of~~between Mt. Ascension ~~part of the trail system.~~and South Hill Road. This trail could include existing~~the~~ trail easements ~~through the 120 acres of land lot currently owned by the Prickly Pear Land Trust~~ and subdivision roads.
3. Work with the developer of the Red Letter subdivision near ~~Gold Rush Ave~~ to establish a trail connecting ~~to~~Gold Rush Avenue and South Hills Drive.

b) Trails to be eradicated, rerouted and/or rebuilt

1. No ~~heavily used~~designated trails exist in this area as yet. As new trails are built, they will be incorporated into the trail maintenance system.

c) New trails

1. Once property ownership has been verified, plan and construct a formal trail system in this area.
2. Ensure there is a trail connection to the Donaldson Property open space area from Saddle Drive.
3. Explore a trail connection from Mt. Ascension to South Hills Road some of which will be on existing subdivision roads.
4. Work with Jefferson County officials and Montana City residents to establish a trail connection to Montana City and beyond.

d) Trailheads and signs

1. When trail system is established, a major trailhead should be located at the Saddle Drive area near the Donaldson Property.
2. Neighborhood access points should be located at key points in the east side such as Beltview. These points will be identified as trail planning in this area progresses.

Appendix A: Trail Standards

This plan focuses primarily on the mountain trail system on rugged terrain in the South Hills. The primary users of these trails are hikers and mountain bikers. On Forest Service lands horseback riders occasionally use the trails but equestrian use is prohibited on City open space. The plan also calls for segments of trails that can accommodate persons with disabilities including wheelchair users, the elderly, and people that want a less rigorous trail experience.

With this in mind, trails in the South Hills should be constructed and maintained for accommodate all intended users. In addition trails must be sustainable to reduce maintenance costs and to protect the natural resource. Sustainable trail design incorporates standards for grade, tread and erosion control. ~~First and foremost these trails should be designed to be sustainable. By sustainable we mean trails that are built to shed water so as not to be prone erosion. Trail grade, trade design and erosion control must be considered in the design of new trail.~~ Many of the existing undesignated trails that will become part of the official trail system will need to be rebuilt and/or rerouted over time to incorporate these elements.

Before constructing a trail it is important that the trail be thoroughly laid out by knowledgeable trail planners. Grades should be calculated using a clinometer. Flagging and/or paint can be used to mark the trail route. Use paint if trail is not to be built immediately as vandals will remove flagging. If volunteer labor is used to build the trails, they should be educated in the philosophy of sustainable trail building and the safe use of trail building tools.

Mountain trails

One of the best resources for sustainable trail building is *Building Better Trails* published by the International Mountain Biking Association. Although IMBA represents the sport of mountain biking, this book considers all intended users. (This book is also available on-line at http://www.imba.com/resources). Although these guidelines call for less steep trails then we are generally used to in Helena, trails can still be designed to be fun and challenging.

The following are the design guidelines for mountain trails. (Consult the *Building Better Trails* Book for more in depth information on designing and building sustainable trails.)

Trail grade:

The Half Rule: "Trail tread grade should not exceed half the grade of the hillside or ~~sideslope~~side slope the trail is traversing". For example if~~s~~ a hillside ~~is~~ has a 20 percent grade, the trail across it should not have more than a 10 percent grade. This will allow water to flow over a trail rather than down it. Of course there are caveats to this rule including instances when steeper grades are unavoidable. Short sections of trail with grades up to 15% are acceptable.

The 10% rule: Try and keep overall rail grade to 10 percent or less. If soil conditions allow sections of trail can be steeper than this.

Tread width: Helena trail users are used to single track trails. Generally the tread need only to be wide enough for a person walking or riding their bike. However, in certain areas near popular trailheads the trail may be wider to accommodate passing in these potentially congested areas. The lower 1906 Trail is a good example of a wider trail near a trailhead. In other cases, it may be desired to convert old roads into a narrower trail corridor. This can be done by placing rocks and debris in the corridor to create a more twisting trail that drains water more effectively.

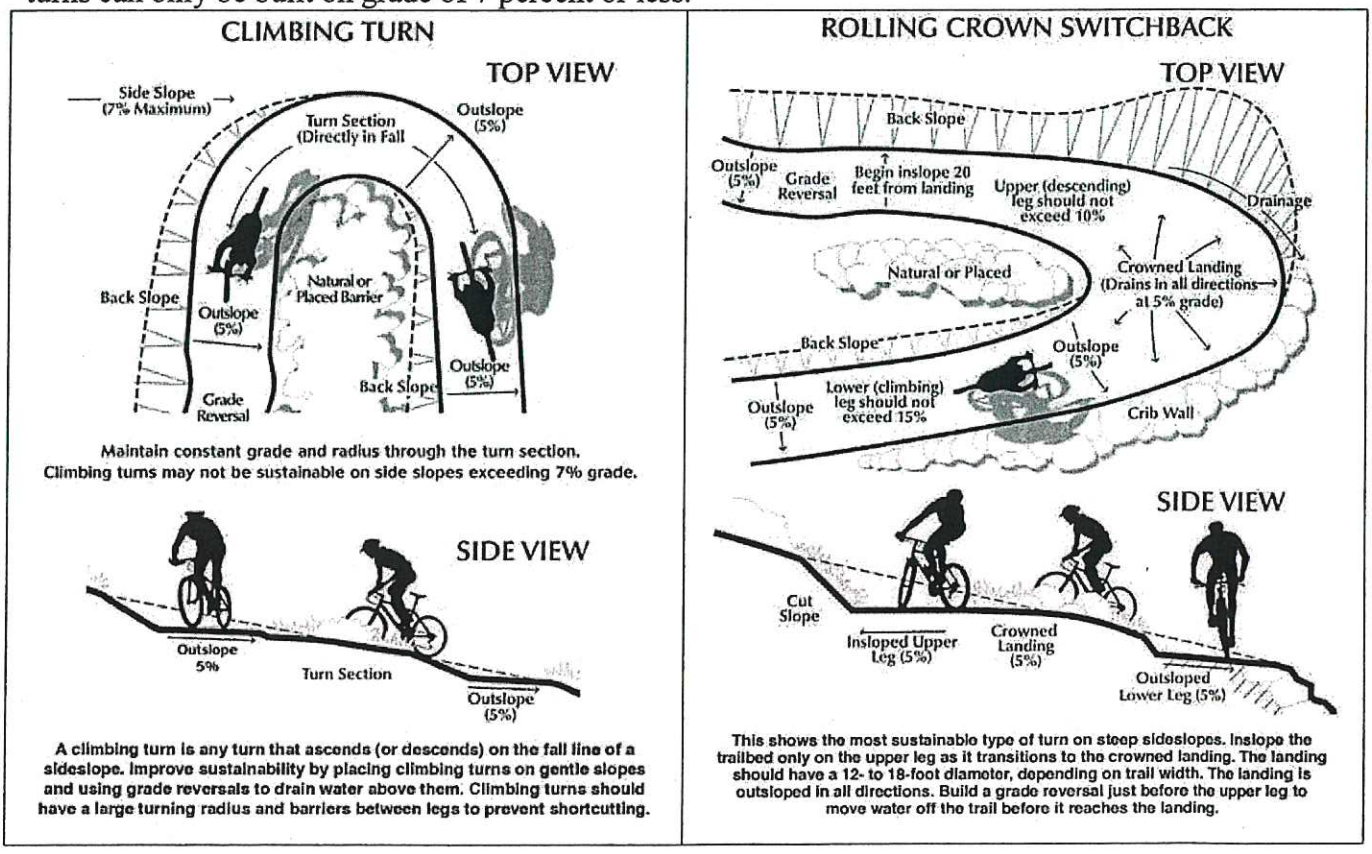
Outslope: Trail treads should be built with a slight "tilt" towards the downhill side approximately 5 percent. Outslope allows water to ~~readily~~easily drain off the side of the trail and not collect on the tread.

Grade reversals: Gentle rolls or undulations in a trail provide areas that divert water off of a trail. Building grade reversals into a trail initially prevents the need to place erosion control structures (i.e. water bars) in the trail tread.

Clearing vegetation: Generally the trail corridor should be twice as wide as the tread width. Clear tree limbs and small trees that may be a hazard to mountain bikers (i.e. catching handlebars) and the eyes of hikers.

Turns:

Climbing Turn: a climbing turn is more desirable because it allows a more gradual direction change. The radius of a climbing turn is generally about 30 feet. However, climbing turns can only be built on grade of 7 percent or less.

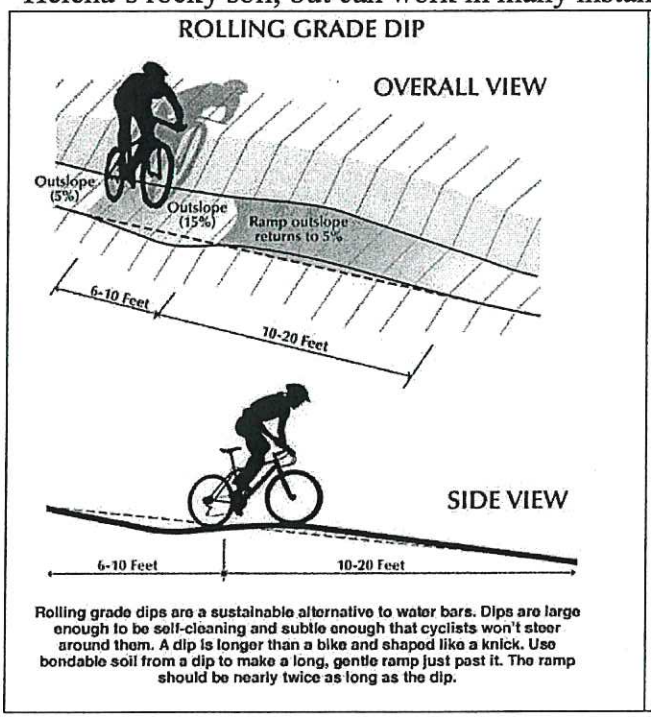


Switchback: Switchbacks are necessary for making turns on steeper terrain and are much "tighter" than climbing turn. The South Hills trail system has many examples of switchbacks both good and bad. See the IMBA manual for a good description of switchback construction.

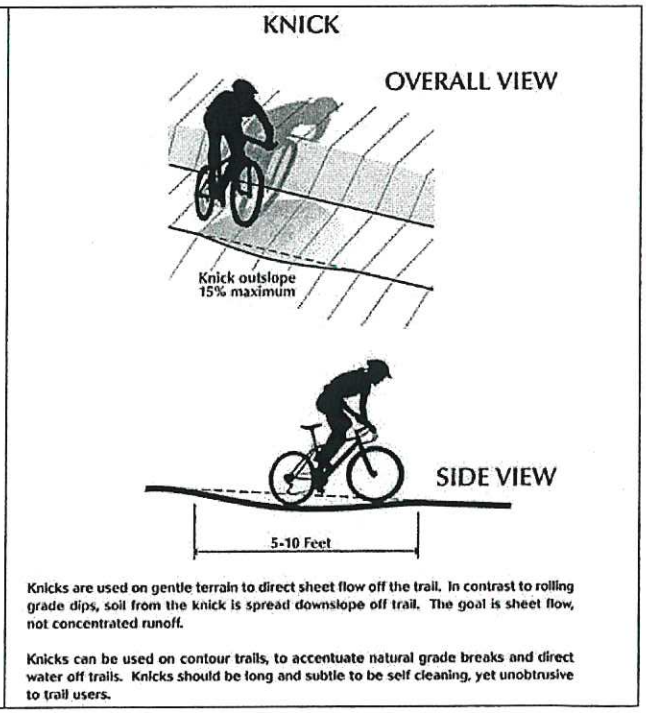
Natural features: In some cases it may be necessary to remove obstacles, such as rocks and trees, from a trail corridor to make it safer and usable for the desired user. However if these natural features do not~~r~~ ~~e~~affect the overall safety of the trail user, ~~natural features~~ they should be left in place. ~~because t~~They can add character to a trail as well as making the trail experience more interesting.

Drainage Features: If an existing trail has drainage problems the following features can be added to help alleviate the problem. If at all possible foreign structures such as water bars should be avoided. They can interfere with the "flow" of the trail and require more maintenance and replacement. In addition, water bars encourage trail users to walk or ride around them creating more trail maintenance problems.

Rolling Grade Dip: A RGD is generally a long (6-10 feet), shallow depression built into the trail with a gentle rise built on one end (10-20 feet long). If built correctly, these structures are difficult to detect, yet allow efficient drainage of water. RGD may be difficult to build in Helena's rocky soil, but can work in many instances.



Rolling grade dips are a sustainable alternative to water bars. Dips are large enough to be self-cleaning and subtle enough that cyclists won't steer around them. A dip is longer than a bike and shaped like a knick. Use bendable soil from a dip to make a long, gentle ramp just past it. The ramp should be nearly twice as long as the dip.



Knicks are used on gentle terrain to direct sheet flow off the trail. In contrast to rolling grade dips, soil from the knick is spread downslope off trail. The goal is sheet flow, not concentrated runoff.

Knicks can be used on contour trails, to accentuate natural grade breaks and direct water off trails. Knicks should be long and subtle to be self cleaning, yet unobtrusive to trail users.

Knick: Knicks are gentle fanned shaped depressions about five to ten feet in diameter built into the trail that open towards the downhill side of the trail. These features are easy to build and are effective at shedding water from flatter sections of trail.

"Accessible" Trails:

There are opportunities to create trails that are more accessible for wheelchair users, the elderly or others that want a more leisurely trail experience. Although there are not many places in the South Hills that can accommodate this type of trail, the old roads along the base of Mt. Ascension may be well suited for this use. It is recommended that these trail be designed in cooperation with those knowledgeable in accessible trail and intended users.

~~According to [cite source]~~ A ~~"~~moderately~~"~~ accessible trail should be at least 36 inches wide, have a maximum running slope of 8.3 percent and a cross slope not to exceed 5 percent. Sections of such a trail may be up to 14 percent for distances not to exceed 50 feet. (Source: _____)

Accessible trails will require trailheads that provide accessibility with designated parking spaces and access gates that will allow wheelchair access to the trails.

Closing, ~~and~~ Reclaiming and Rerouting Damaged Trails

~~(Adapted from IMBA Trail News Fall 2002 Volume 15, Issue 4 p.9)~~

Sometimes the best solution for eroded trails isn't aggressive maintenance. Instead, it may be more effective to close the trail and if appropriate, replace it with a new, sustainable, re-route. Designing and building a re-route may be time-consuming and hard work, but in the long run closing a poorly functioning trail is better for the environment. A critical aspect of any re-route project is closing and reclaiming the old route. The following eight elements are important to trail restoration.
(Source: IMBA Trail News Fall 2002 Volume 15, Issue 4 p.9)

1. Create an outstanding new route.
A key component of any trail closure plan is creating a fun and sustainable alternative. It is vital to provide a new trail that is more appealing than the old route. Otherwise, some will continue to use the original trail.

2. Design a smooth intersection.
Create a natural, seamless transition onto the new section. Trail users shouldn't be able to recognize where the re-route begins.

3. Educate trail users.
Most conflict surrounding trail closures can be avoided if people understand why a route must be closed. Make sure to spread the word about what you are doing and why. Post signs to let people know what changes will be taking place. Ask for public feedback and recruit volunteers for the ~~trailwork~~trail work. Once work is complete, consider posting maps showing the new trail and explaining why the old trail is closed. Be positive and focus on the benefits of the re-route.

4. Break up the old tread.

Completely break up, or scarify, the compacted soil in the old trail tread to allow the seeds and roots of new plants to penetrate. Don't skimp on this key step. Use pulaskis, pick-mattocks, or even a rototiller.

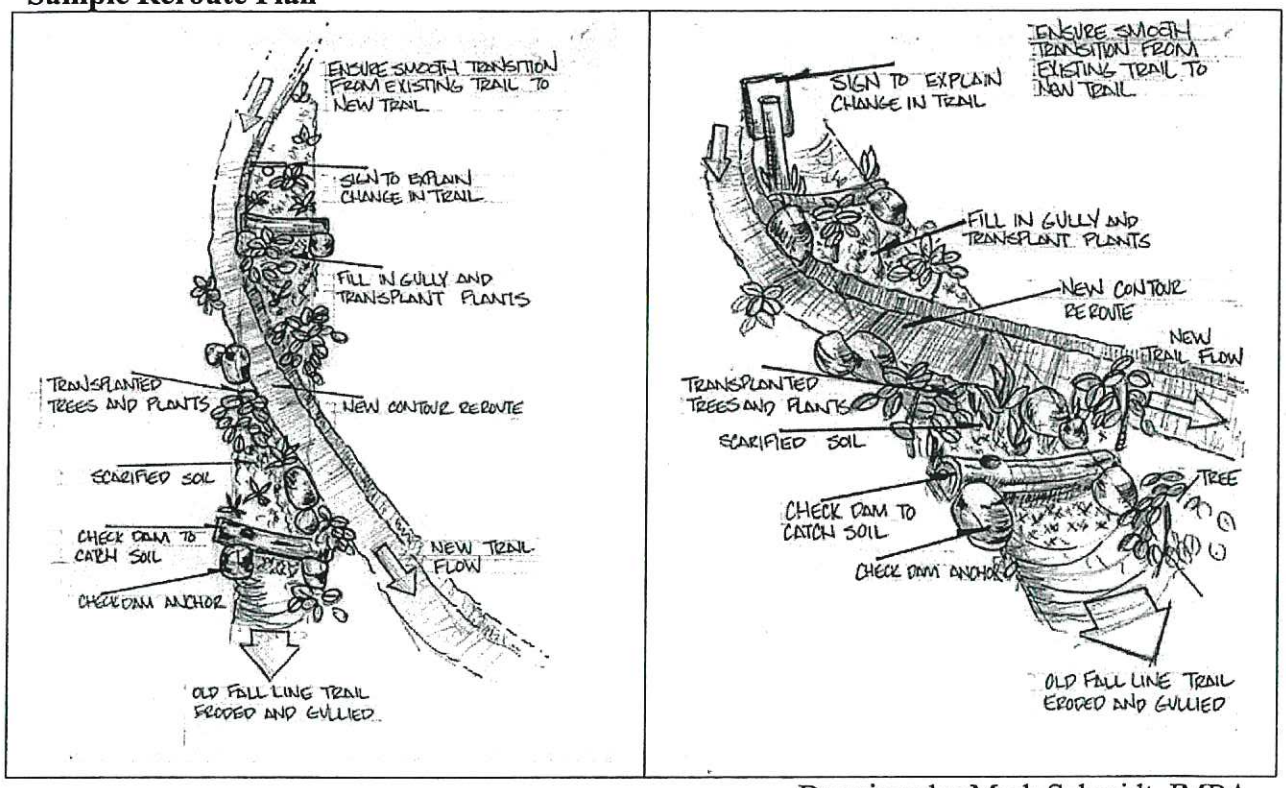
5. Control erosion.
It is essential to stop water flowing down the route. Check dams are easy-to-build structures, typically made of logs, rocks or straw bales fixed across the trail to trap soil. Be sure check dams are tall to trap the soil, and well secured so that they won't wash away. A wide range of manufactured erosion control materials are available that are designed to absorb and retain water while providing an ideal microclimate for the growth of vegetation. These include straw wattles, erosion control blankets and commercial mulches that combine fiber, seed, fertilizer and bonding agents. If the trail you're closing is especially rocky and little soil remains on the surface, try using burlap bags filled with dirt as your check dams. Cut an "X" into the top of a moist bag and transplant a local shrub.

6. Transplant vegetation.
Starting plants on the old trail is the best way to restore the landscape. Disturbed soil often provides an opportunity for invasive plant species to take hold. Combat these invasives by planting only native species. Transplant shrubs and small trees from your re-route construction. Use proper transplanting techniques, fertilizer and a portable drip irrigation system to reduce transplant shock.

7. Disguise the corridor.
The best way to keep people off the closed trail is to make it look like it was never there. The goal is to eliminate the visual corridor, including the airspace above the old trail tread. Drag logs and branches across the tread. Plant deadfall in the ground vertically to block the corridor at eye level. Rake leaves and other organic matter over the tread as the final step to complete the disguise and aid new plants.

8. Block the corridor.
As a last resort you can block the beginning and end of the trail with a fence and signs. The fence will look out of place, and could draw more attention to the closure, which may cause controversy. Answer expected questions by posting signage explaining the closure on, or near, the fence. When the trail has been closed for a while the fence can be removed.

Sample Reroute Plan



Drawings by Mark Schmidt, IMBA

Appendix B: Project Responsibility and Timeline

This section is derived from the recommendations contained in Section V.

Insert Project Responsibility file
~~[To be completed]~~

Appendix C: Potential Project Funding Sources

A long-term commitment to funding is essential to ensuring that the South Hills Trail system can be improved and maintained into the future. Without funding the system will continue to suffer from neglect. As stated above, volunteers contribute a great deal to trails in Helena but can only address a fraction of the work to be done. A primary goal of a funding program should be create an endowment or account that will sustain a regular seasonal work crew year after year.

Funding can come from a number of different sources as listed below. As with any fundraising endeavor, it is important that this is a professional and coordinated effort. The City may want to consider contracting out for grant writing and other fundraising activities.

1. Grants: There are several private foundations and organizations that fund trail related projects. Usually these grant opportunities are very competitive. Granting cycles and requirements change frequently so the organizations should be contacted directly for this information. Below is a partial list of potential granting organizations.

- The Tuner Foundation
- The Kodak American Greenways
- Patagonia, Inc.
- International Mountain Biking Association
- The Conservation Fund
- L.L. Bean Inc.
- The Bikes Belong Coalition

2. Government sources: The City of Helena has been very successful in securing grant through the Recreational Trails Program (RTP) and the Land and Water Conservation Fund (LWCF). Both of these federal programs are administered by the Montana Department of Fish, Wildlife & Parks. RTP offers funding for projects related to all types of recreational trails. These grants require matching funds which can include both cash and in-kind labor. LWCF is more stringent as what types of trails are funded. Usually this means that the trail must meet the Americans With Disabilities Act standards for accessibility. LWCF funds can also fund acquisition of key properties such as those needed for open space or a key trail connection.

Another important potential funding source is the Helena National Forest. The majority of land area covered by this plan is on the HNF. Many of the trails that originate on City open space lands provide access National Forest lands The HNF and The City of Helena should continue to work cooperatively to on trail and trailhead projects.

3. Open Space Bond funds: As of this writing, most of the open space bond funds earmarked for acquisition from the 1996 bond initiative have been appropriated. However, approximately ~~$_____~~$260,000 remain in the maintenance budget. A portion of these funds may be set aside in an endowment that could fund long-term maintenance of trails and open space. As these are government funds the structure of such an endowment should be clarified. Potentially this fund may be set up through a qualified non-profit organization.

4. Corporate: It has been shown in other areas that access to trails and open space can improve the quality of life in a community. Many times corporations and businesses see an investment in open space as an investment into the health and well being of their employees. A good quality open space and trail system also helps businesses attract employees looking for a healthy environment. In return for press and recognition businesses may be willing to fund trail projects in the Helena area. ~~Specifically, businesses may be willing to fund trailhead signs if their name or logo is printed on that sign.~~

5. Volunteers and In-kind: Volunteers have been the backbone of the trail program in Helena. Through the coordination of organizations like the Prickly Pear Land Trust, volunteers have contributed thousands of hours to build, maintain and reroute trails. While the trail system cannot be sustained entirely by volunteers alone, a consistent volunteer program should be maintained every year. Volunteer projects garner community investment into the trail program and allow trail users an opportunity to give back to the areas that they love. The City should consider hiring or contracting with a volunteer coordinator to organize projects and workdays.

The volunteer program should seek out user groups, businesses and service organizations to sponsor their own workdays with supervision of the coordinator.

A fundamental element to volunteerism is adequately thanking all participants and this should be included in the volunteer coordinator's duties.

For specific projects, in-kind labor and donated materials should be pursued. Local businesses may be able to provide goods and services at no cost or a reduced rate. This can be especially valuable when there is a need for work that is too complex or specialized for volunteers or city employees. For example grading for parking areas or reclamation of steep jeep roads that require heavy equipment and qualified operators.

6. Adopt-a-trail: Another option for routine maintenance of certain trails is an Adopt-a-trail program in which a group, service club or business would chooses a trail segment and dedicate one or more days every year to perform routine maintenance on it. This work may include improving drainage, clearing debris, and pruning branches. These groups should be recognized at the trailhead.

Appendix D: Cost Estimates

Labor:

Just as every trail is different so are the requirements for its maintenance. Some trails are in excellent condition while others should be closed due to severe erosion. As part of the trail inventory for this plan, GPS mappers were responsible recording a maintenance recommendation for each trail segment. This information will assist in roughly determining maintenance needs. However, each trail will have different needs requiring varying amounts of time and resources.

The following cost estimates are based on the costs associated with the hiring a Montana Conservation Corps crew to do the work. This basis is most appropriate because MCC has been paid to do work on Helena's trail over the past several years and provides the most accurate benchmark of the time required for different types of projects. An MCC crew is usually composed of five to eight people and costs $2,000 per week. That figure breaks down to $400 per day. Costs for each recommendation were derived from estimating the number of days it would take to complete one mile of trail. This figure is then multiplied by the number of miles within that category of maintenance. These costs do not account for volunteer labor which can lower project expenses.

The trail maintenance recommendation categories are as follows:

- No Immediate Action: routine maintenance only
- Needs Maintenance: trail is beginning to show signs of erosion and needs repair
- Reroute or Rebuild Trail: Section are severely eroded and need to be rebuilt or rerouted to a more sustainable location
- Close Trail: because trail is, a) redundant, b) a fall line trail b) eroding severely and causing resource damage, d) impacts private property.

The following table of cost estimates was derived from the Geographic Information System data compiled by GPS mapping process described in Appendix F. Each trail project is different and volunteer labor may help decrease costs. Some of the land identified as "private" is actually in City ownership due to lack of accurate GIS date for property ownership in this area.

Item		Distance (miles)	Unit cost	Subtotal
Trail Closure/Reclamation [1]				
	City of Helena	6.0	2,000.00 per mile	$11,963.85
	Helena National Forest	4.3	2,000.00 per mile	$8,654.46
	BLM	0.2	2,000.00 per mile	$477.21
	Private/other	5.9	2,000.00 per mile	$11,743.92
	TOTAL	16.4 Miles	2,000.00 per mile	$32,844.44
Priority Trail Maintenance				
	City of Helena	7.9	666.00 per mile	$5,270.58
	Helena National Forest	6.6	666.00 per mile	$4,398.22
	BLM	0.0	666.00 per mile	$0.00
	Private/other	1.8	666.00 per mile	$1,212.12
	TOTAL	16.3 Miles	666.00 per mile	$10,880.92
Reroute/Rebuild				
	City of Helena	2.2	2,000.00 per mile	$4,365.75
	Helena National Forest	0.8	2,000.00 per mile	$1,621.78
	BLM	0.0	2,000.00 per mile	$0.00
	Private/other	2.0	2,000.00 per mile	$3,981.75
	TOTAL	5.0 Miles	2,000.00 per mile	$9,969.28
Routine Maintenance				
	City of Helena	12.6	400.00 per mile	$5,046.53
	Helena National Forest	17.3	400.00 per mile	$6,903.52
	BLM	0.5	400.00 per mile	$193.62
	Private/other	9.0	400.00 per mile	$3,601.38
	TOTAL	39.4 Miles	400.00 per mile	$15,745.05
Subtotal Maintenance/Reclamation				
	City of Helena	28.7		$26,651.71
	Helena National Forest	29.0		$21,577.98
	BLM	0.7		$670.83
	Private/other	18.7		$20,539.16
	TOTAL	**77.1 Miles**		**$69,439.68**
New Trail				
	City of Helena	3.5	3,200 per mile	$11,224.45
	Helena National Forest	4.4	3,200 per mile	$14,089.72
	BLM	1.6	3,200 per mile	$4,963.02
	Private/other	8.9	3,200 per mile	$28,435.93
	TOTAL	18.3 Miles		$58,713.12

New Trailheads				
major [2]				
	City of Helena		4,000.00 per site	
	Helena National Forest		4,000.00 per site	
	TOTAL	3 sites	4,000.00 per site	$12,000.00
minor [3]				
	City of Helena		1,500 per site	
	Helena National Forest		1,500 per site	
	TOTAL	4 sites	1,500 per site	$6,000.00
neighborhood access [4]				
	City of Helena	11 sites	$500 per site	$5,500.00
	Subtotal Trailheads			$23,500.00
Trail Signage	Approximately	75 signs	$30 per sign[5]	$2,250
Trail Map/brochure				$3,000
			GRAND TOTAL TRAIL IMPROVEMENTS	**$156,903**

(1) This assumes that the entire trail will be reclaimed which may not be necessary all cases.
(2) Includes sign kiosk (large map with trail rules and regs.), parking, fencing
(3) Includes smaller map/sign fencing and parking
(4) Includes rules and regs sign and walk-through gate
(5) Includes labor

Appendix E: Summary of Stakeholder Comments

Stakeholder Comments by Category as of 2/14/02

1. New trails and trail connections
    - **a. More loops**
    - **b. Connect to urban trails**
    - c. Use sustainable and natural design in new trails
    - d. Attempt to provide a universally accessible trail
    - e. East/west trail connection
    - f. Specific suggestions
        - **i. Restore access to Waterline Trail and Top of Rodney Ridge**
        - ii. Connect Mt. Helena Ridge Trail with Wakina Sky, LeGrande Cannon, Rodney Ridge, etc.
        - iii. Improved connections to Wakina Sky from Grizzly and Orofino Gulches

iv. Connect Rodney Ridge to Cox Lake
v. Connect to Montana City
vi. Connections to other USFS trails: Brooklyn Bridge, Blackhall Meadow, Colorado Mtn., Rimini
vii. Connection to Spring Meadow

2. Maintenance
   a. Close eroding, low use, and redundant trails (i.e. Mt. Ascension)
   b. Need better and ongoing maintenance of trails
   c. Need to identify specific trail maintenance responsibility
   d. Necessity for volunteers and user groups
   e. Need specific trail standards

3. Trailheads, Signs and Amenities
   a. Develop new trailheads in unserved areas: LeGrande, Dump gulch, Grizzly gulch, Waterline, Beattie St., East Side
   b. Show rating system for difficulty, time, etc
   c. Education regarding wildlife, cultural, etiquette, etc.
   d. Good maps for signs and brochures
   e. Coordinate sign and trailhead design with HNF

4. Trail use issues
   a. Separating uses: is it needed or appropriate in some areas
   b. Develop system that caters to all abilities including sections for disabled, elderly, etc.
   c. Dogs: control, waste, designated off-leash areas, waste, enforcement
   d. Work with various user groups and clubs
   e. Prohibit off-road vehicles
   f. Consider banning bikes when trails are wet
   g. Archery Range: conflicts and safety
   h. Horses on HNF trails
   i. Avoid cultural sites for safety and vandalism purposes
   j. Hunting, shooting and camping on HNF

5. Private property issues
   a. Acquire easements across private property
   b. Acquire private inholdings, and critical parcels including Mt. Ascension
   c. Engage private landowners early
   d. Post signs that respect private property
   e. HNF will assist on easements to their trails

6. Management and Planning
   a. Archery Range:
      i. Need to deal with vandalism and interruptions
      ii. Lease should allow them to control access
      iii. Can't do improvements without long term lease

iv. Possible move Archery Range Ttrail away from range

b. Impacts to wildlife (trail density)

c. Weeds:
   i. Who will deal with them
   ii. How trails effect problem

d. Pets control and effects on wildlife

e. Enforcement

f. Work with Jeff Co. and other agencies

g. Look at plans from other areas such as Bozeman and Missoula

h. Before building new trail determine use and experience desired

i. Create specific approval process for new trails

j. Coordinate with zoning and subdivision regs

k. Determine economic advantage to trails

l. Create better trails not necessarily new ones

m. Prohibit unauthorized trail building

n. HOLMAC and HNF should agree on standards

o. HNF trails in this plan projects may be able be done under categorical exclusion. Future projects go through NEPA.

p. Look at creative ways to sponsor trail building and maintenance.

Appendix F: Trail Mapping and Inventory

From the outset of this planning process it was apparent that there was a great need to inventory every trail within the planning area. In the summer and early fall of 2001, a group of volunteers set out to map the trail system using a global positioning system (GPS) on loan from the city/county GIS Department. The GPS system was programmed so that the mapper could assign each trail segment with a series of characteristics by choosing from a menu of pre-selected attributes. Point features such as signs and trailheads could be mapped as well. This customized GPS trail menu appears below.

This trail inventory accomplishes two things: First, it allows the trails to be accurately mapped to a geographic information system (GIS) format. ~~This allows trails to~~Trails can then be displayed and analyzed in relation to other spatial data including topography, roads, orthographic photos and any other information contained in the city/county GIS system. Secondly, the GPS information provides a database of trails that will allow the managing agencies to identify and track the status of each trail including maintenance, improvements, and other trail management information.

Menu of Trail Characteristics Used by the GPS Mappers

"Name", (If any)
"Trail Type": Improved Mountain, Unimproved Mountain, Urban multi-use, Bike route, Street or sidewalk
"Condition": Good, Fair, Poor
"Recommendation": None, Maintenance Needed, Reroute, Close

"Status": Existing, Proposed
"Comments" (If any)

"Sign Type": Kiosk, Directional, Locator, Other
"Sign Status": Existing, Proposed, Other,
"Condition": Good, Needs Replacement
"Comments" (If any)

"Trailhead"
"Name"
"Status": Existing, Proposed
"Type of Trailhead": Major, Minor

"Special Features"
"Type": Bench, View point, Exercise Station, Picnic table, Point of Interest, Gate, Stile, Other
"Comments" (If any)

Appendix G: Trailhead and Trail Sign Concepts and Standards

~~[To be completed]~~

Trailheads

There is currently only one trailhead with parking, a map and trail information on the entire South Hills trail system – the Adams Street Trailhead at Mt. Helena. Street signs on Park Avenue point to this trailhead as access to Mt. Helena Park. Most people wishing to visit the trail system and find information on the trails go to this trailhead. As a result, the trails radiating form this site are the most heavily used in the entire South Hills trail system leading to increased erosions and maintenance needs. In turn the remainder of the trail system both on City and National Forest lands, is relatively underutilized. A key goal of the trailhead system is to disperse use throughout the system and introduce users to other parts of the system. This will also help reduce pressure off of the front side of Mt. Helena. The accompanying trail recommendation map shows the potential locations of future trailheads.

Three levels of trailheads are envisioned in this plan: Major Trailhead, Minor Trailhead and Neighborhood Access Point. The features of each are outlined in Chapter V of this plan. The following list outlines the recommended character of trailheads when they are being planned and developed.

Trailheads should:

- be consistent in layout and design
- be easily identifiable yet remain unobtrusive
- be relatively informal
- have no paving (unless necessary to control erosion)
- have no defined parking spaces even if parking is permitted.
- have minimal signs so as not to confuse the important messages to be conveyed.

- have a simple map at Major and Minor trailheads
- be vandal resistant
- have attractive fencing and gates if necessary to control unauthorized vehicle use

Trail signs

With the significant open space acquisitions through the Open Space Bond, there have been miles of additional trails added to the trails system. In addition, The Helena National Forest, through this plan, now has an inventory of existing trails on its lands in the South Hills. Many of these trails, however, are known only to local trail users and are difficult to locate for the uninitiated. The adoption of this plan by the City of Helena and the subsequent approval by the Helena National Forest will essentially authorize a new designated trail system. This plan also identifies trails that will be closed to further use. In order to meet the plans goals of making this trail system usable and identifiable a clear system of on-trail signs is recommended.

A clear and consistent sign program will:

- direct users to appropriate trails and away from closed trails
- reduce trespass
- help disperse use and avert overuse of certain areas and potential conflicts (i.e. the front side of Mt. Helena)
- provide a clear message of the appropriate use of the trails and open space system
- create a distinctive identity of Helena's trail system
- be modest, simple and fit into natural surroundings
- be made of inexpensive material such as Carsonite markers
- contain logo and directional info
- be easily modified, changed or moved
- be vandal resistant

Types of Trail Signs

Directional/Identification Signs

- Placed at trail intersections to give users a sense of location and direction

Advisory Signs

- Used to provide information regarding trail use.
- Placed at trail closures
- Mark property boundaries to avert trespass
- Identify hazards or safety issues
- Provide recommended route for mountain bikers to avoid potential conflicts

Sign Design and Planning

When this plan is adopted, planning the trailhead and trail sign systems should be initiated immediately including identification of funding sources. Potential sign concepts sign designs and

materials should be presented to HOLMAC for approval. If necessary, the City Commission could also be asked to approve these concepts.

Identity: A name and a logo

It would be very advantageous to give the South Hills trail system an identity. Giving the system a name and a logo will allow the trails to be identified and marked easily. Naming the system also identifies it as a community amenity. In addition, it shows potential funders that our community takes pride in this amazing resource. The trail system name could also be used to name the trails identified in the Non-motorized Transportation Plan. Again this identity concept should be presented to HOLMAC and possibly the City Commission for approval.

Possible Trailhead and Neighborhood Access Sample Sign Language

This language was adapted from the 1995 Mt. Helena Management Plan, p12.

WELCOME TO HELENA OPEN LANDS [or chosen name]
Helena Open Lands are a unique and fragile resource that provides a wide variety of recreational opportunities. To ensure and enjoyable recreational experience by all, and to maintain these land's natural condition, the City of Helena asks that you observe the following rules of etiquette.

Prohibited Uses:
Recreational fires
Horses
Camping
Motor Vehicles
No littering. All trash must be packed out

Please:
Use common courtesy. Be aware that we all share these trails.
All trail users yield to uphill users, faster users yield to slower users until it is safe to pass
Stay on marked and off any trails marked closed
Do not disturb wildlife
Avoid use when trails are wet

Dog Owners:
Dogs must be within sight of the owner and under control
Remove dog waste

Bikes:
Always ride under control, yield to uphill and all slower users
Stay on trails
Slow or walk bike when approaching blind corners and narrow trails
Do not lock brakes or skid tires when descending

Recommended Bikes Routes:
[list trails]

Recommended Dog Routes:
[list trails]

~~*Appendix H: Sign Concepts and Contents*~~

~~[To be completed]~~

APPENDIX B

Memorandum of Understanding

MEMORANDUM OF UNDERSTANDING
BETWEEN
CITY OF HELENA, MONTANA
AND
THE UNITED STATES DEPARTMENT OF AGRICULTURE
HELENA NATIONAL FOREST

This Memorandum of Understanding (MOU) is made and entered into between City of Helena, Montana, hereinafter referred to as the City, and the U.S. Department of Agriculture, Helena National Forest, hereinafter referred to as the Forest Service.

I. PURPOSE

The purpose of this MOU is to establish a framework for mutual support and cooperation between the City and the Forest Service. The City and the Forest Service propose to achieve common goals of enhancing the recreational uses and natural resource conditions of the Mount Helena City Park and the adjacent Helena National Forest lands. Such cooperation will serve the parties mutual interests. It is the intention of the City and the Forest Service that this agreement serve to facilitate better communication and understanding of how each entity's individual actions benefit the area's resources and people.

II. STATEMENT OF MUTUAL INTEREST AND MUTUAL BENEFITS

The City of Helena and the surrounding area provides a home to more than 40,000 people who use Mount Helena City Park and adjacent National Forest System Lands for year round recreational pursuits. Mount Helena City Park is one of the largest natural city parks in the nation. The Park, along with adjacent National Forest System Lands provide several thousand acres of undeveloped semi-primitive recreational experiences, including hiking, biking, cross country skiing, watching wildlife, photography, and sight-seeing.

During the past decade, Helena area has experienced a significant increase in population as people move to Montana for the quality of life and scenic beauty it offers. Just as the population has grown and diversified, the desire for outdoor recreation in more natural settings in areas close to home has grown. Use of the Park and adjacent National Forest System Lands has increased both in kind and number over the last decade.

The City Commissioners serve as the governing body for the City and are charged with providing the services and leadership necessary to maintain the health and safety of the Park users. In a larger sense, the Commissioners are challenged to manage the changes and demands of a growing number of users in the City Park.

National Forest System Lands contribute to the scenic and economic backdrops of the City of Helena. The resources of these lands are important to the City of Helena and the users of the City Park. Diverse

populations of wildlife and plant species are abundant on the National Forest as well as within Mount Helena City Park.

The Forest Service, as the federal agency charged with administering National Forest System Lands, is challenged with maintaining the ecological integrity of these lands. An important component of this responsibility is the recognition that people are an integral part of the ecosystem and have needs and interests which must be incorporated in management decisions. The Forest Service undertakes a wide variety of activities each year to provide goods and services to the public and to restore, enhance, or maintain National Forest resources. The framework for the management of National Forest lands is contained in the comprehensive Helena National Forest Plan.

The City and the Forest Service have recognized their mutual interests and are cooperating in many ways. Specific examples are:

*Recreation Management

*Forest/Urban Fire Interface

*Law Enforcement

*Weed Control

*Air and Water Quality

*Trail Management and Maintenance

The City and the Forest Service recognize that their authorities and responsibilities are distinctly different. Each is guided by the specific laws and regulations which pertain to their respective level of government and the administration of federally-managed public lands. However, both parties recognize the need to better coordinate with each other and share a broader vision of how their individual actions can contribute to a greater good for the Park. City officials know the people, the challenges of the changing character of the Park, and the issues. The Forest Service has expertise associated with the environment, natural resources, and the ability to provide goods and services. The City and Forest service need to jointly share their knowledge of conditions and emerging issues and trends to best achieve common goals of enhancing the economic, social, and natural resource conditions.

III. AS MUTUALLY AGREED UPON, THE FOREST SERVICE WILL:

1. Keep the City aware and informed of activities being considered and conducted on National Forest lands that could potentially affect City resources or City activities.

2. Involve the City in cooperative planning efforts such as monitoring, amendments, and revisions of the Forest Plan.

3. Participate with the City, to the extent that available resource, personnel, authorities, and funds permit, in cooperative planning, cooperative law enforcement, fire management, trail management, and maintenance, weed control, and other similar projects.

4. In accordance with its multiple use mission, continue to provide a range of goods and services from the Helena National Forest, recognizing that the people of the City are an integral part of the ecosystem.

IV. AS MUTUALLY AGREED UPON, THE CITY WILL:

1. Keep the forest service aware and informed of activities being considered that could potentially affect National Forest resources or Forest Service activities.

2. Involve the Forest Service in City planning efforts.

3. Participate with the Forest Service, to the extent that available resources, personnel, and funds permit, in cooperative planning, cooperative law enforcement, fire management, road maintenance, weed control, economic development, and other similar projects.

4. Help the Forest Service establish general public understanding for activities by facilitating discussions of particular issues.

5. Offer perspectives of the communities' values, opinions, and perceptions for consideration by the Forest Service.

6. Recognize the multiple-use philosophy and ecosystem management principles of the Forest Service, and that a range of goods and services is provided to all people who choose to use and enjoy our National Forests.

V. TOGETHER, THE FOREST SERVICE AND THE CITY WILL:

1. Explore opportunities to further expand and strengthen cooperative planning and implementation efforts where there is mutual benefit to sharing resources, expertise, and information.

2. Develop and exchange information related to land management decisions, socio-cultural values, economic considerations, and natural resource conditions.

VI. IT IS MUTUALLY AGREED AND UNDERSTOOD BY AND BETWEEN SAID PARTIES THAT:

1. Specific work projects or activities that involve the transfer of funds, services, or property between the parties to this MOU will require execution of separate agreements or contracts, contingent upon the availability of funds. Each subsequent agreement or arrangement involving the transfer of funds, services, or property between the parties to this MOU must comply with all applicable statues and regulations, including those statues and regulations applicable to procurement activities, and must be independently authorized by appropriate statutory authority.

2. Nothing in this memorandum shall obligate the Forest Service or the City to expend appropriations or to enter into any contract or other obligations.

3. The parties agree to review and assess the effectiveness of the MOU annually. This MOU may be modified or amended upon written consent of both parties. Any party may withdraw from this agreement. At any time, by written notice to the other party.

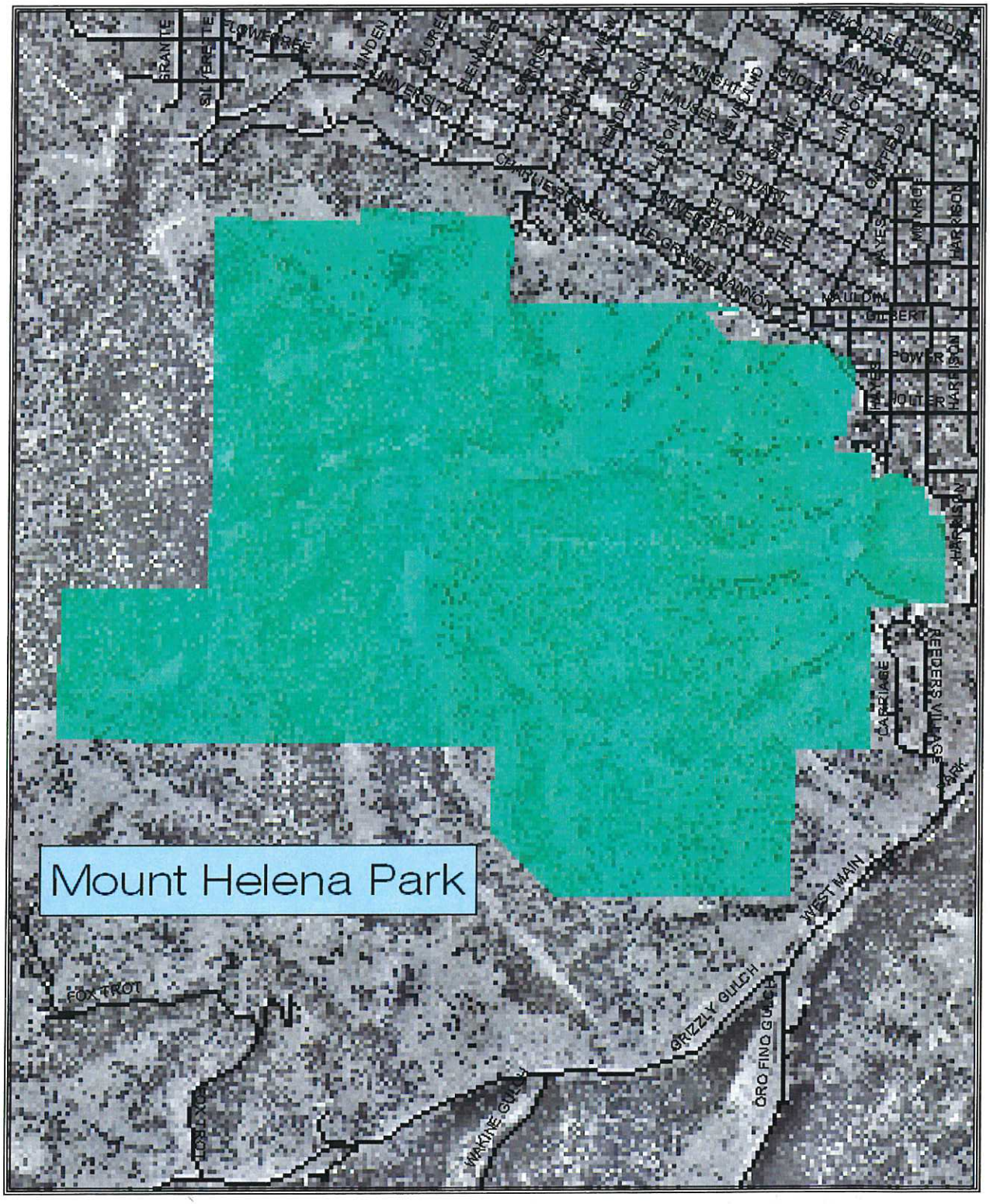
4. Principal points of contact for execution of this Agreement shall be the Forest Supervisor of the Helena National Forest and the three City Commissioners of Helena, Montana. The Helena District Ranger will be the Forest Service representative for execution of this agreement.

5. No part of this agreement modifies existing authorities under which the Forest Service or the City currently operate.

6. There shall be no discrimination against any person because of race, creed, color, age, religion, national origin, handicap, or gender.

APPENDIX C

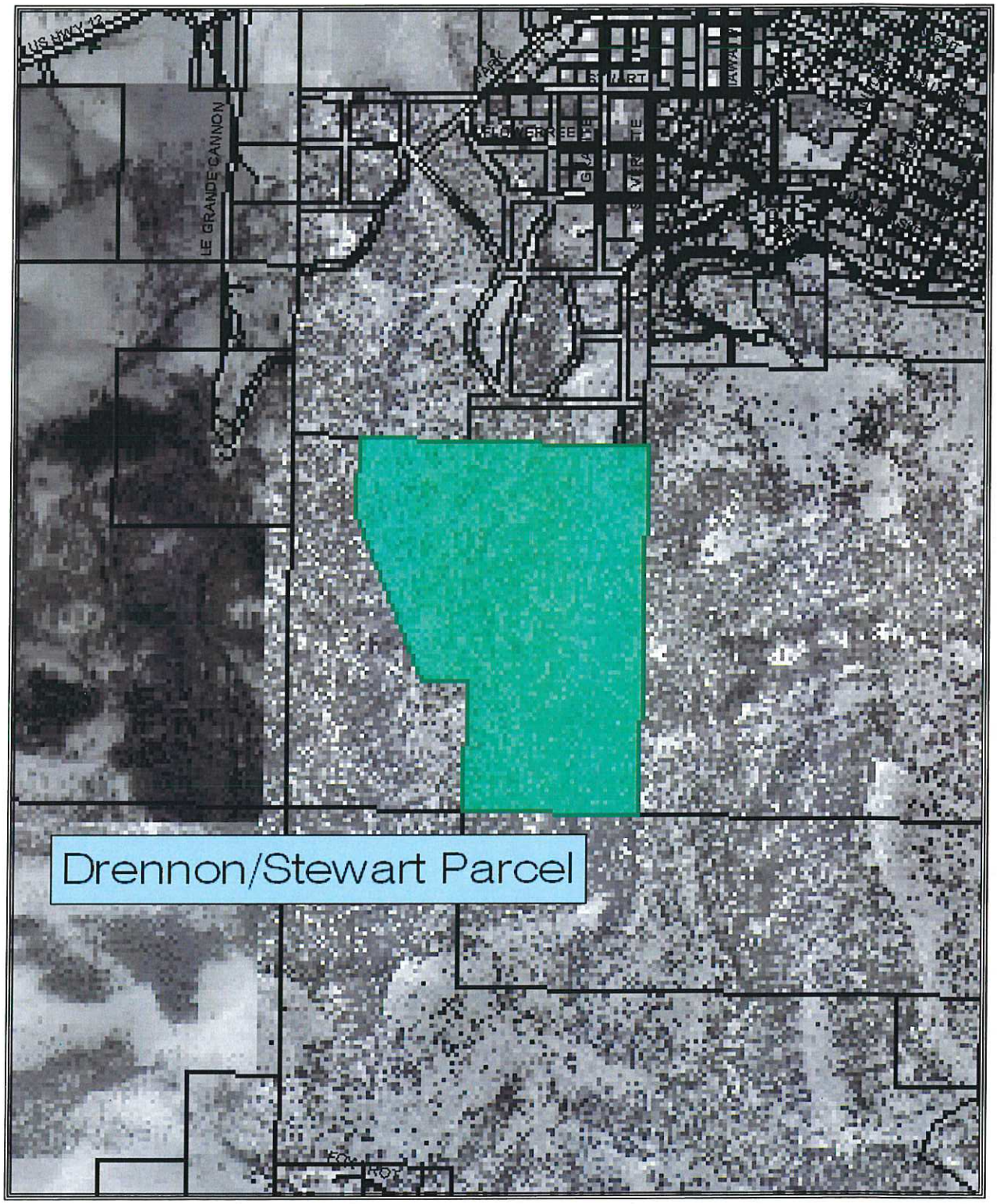
Parcel Maps



1 inch equals 1,200 feet

City of Helena

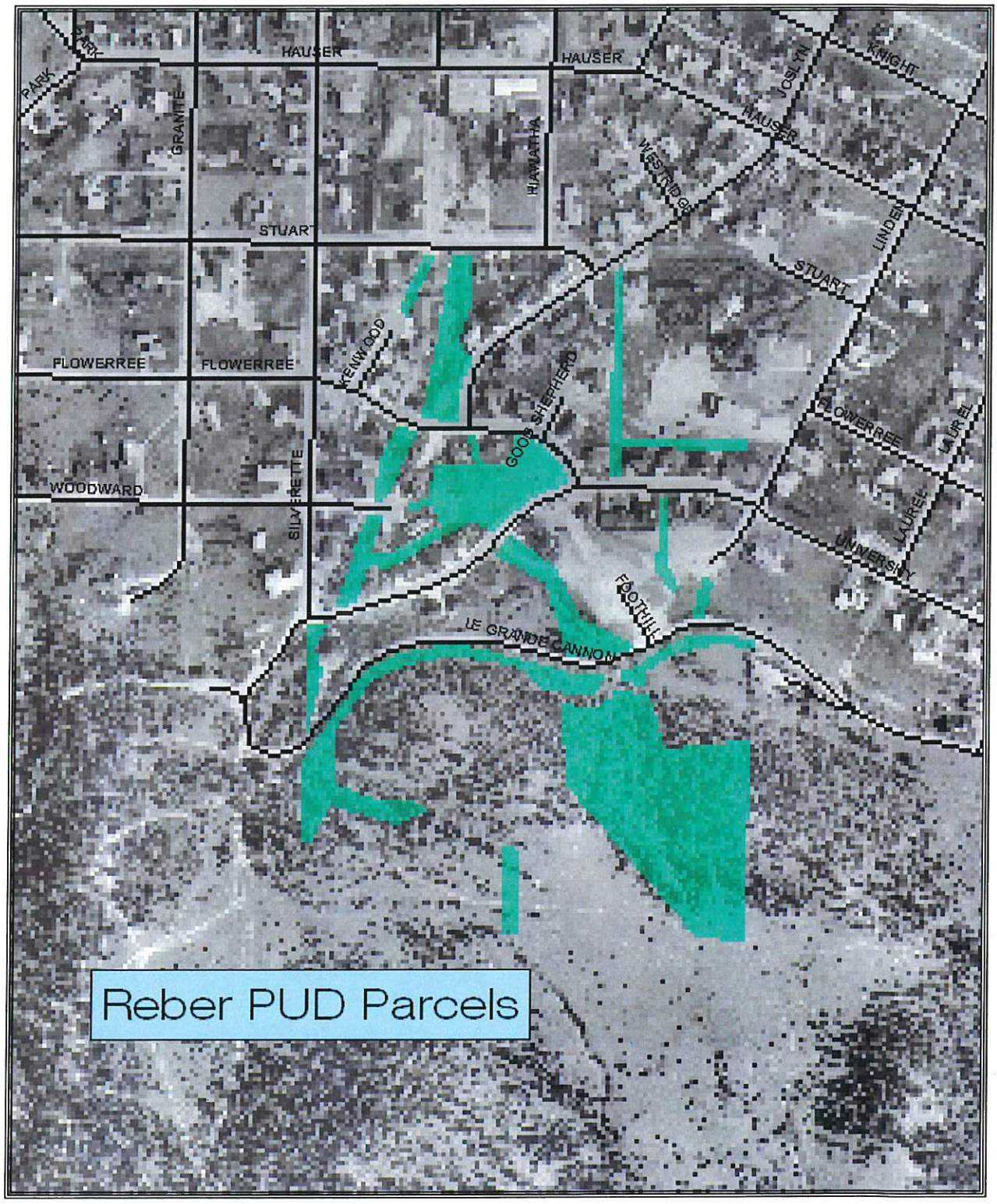
Mount Helena Park



1 inch equals 1,000 feet

City of Helena

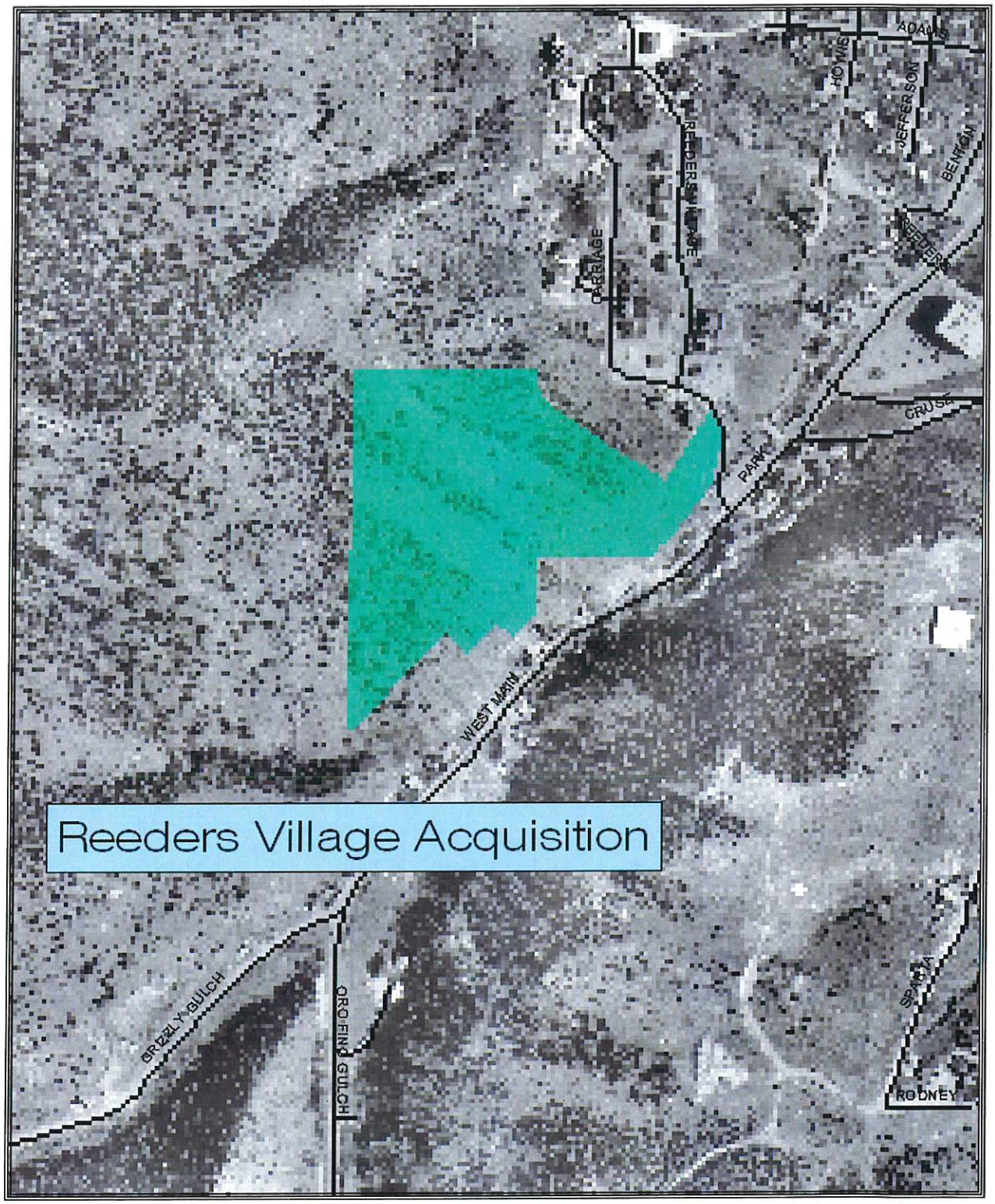
Drennon/Stewart Parcel



1 inch equals 400 feet

City of Helena

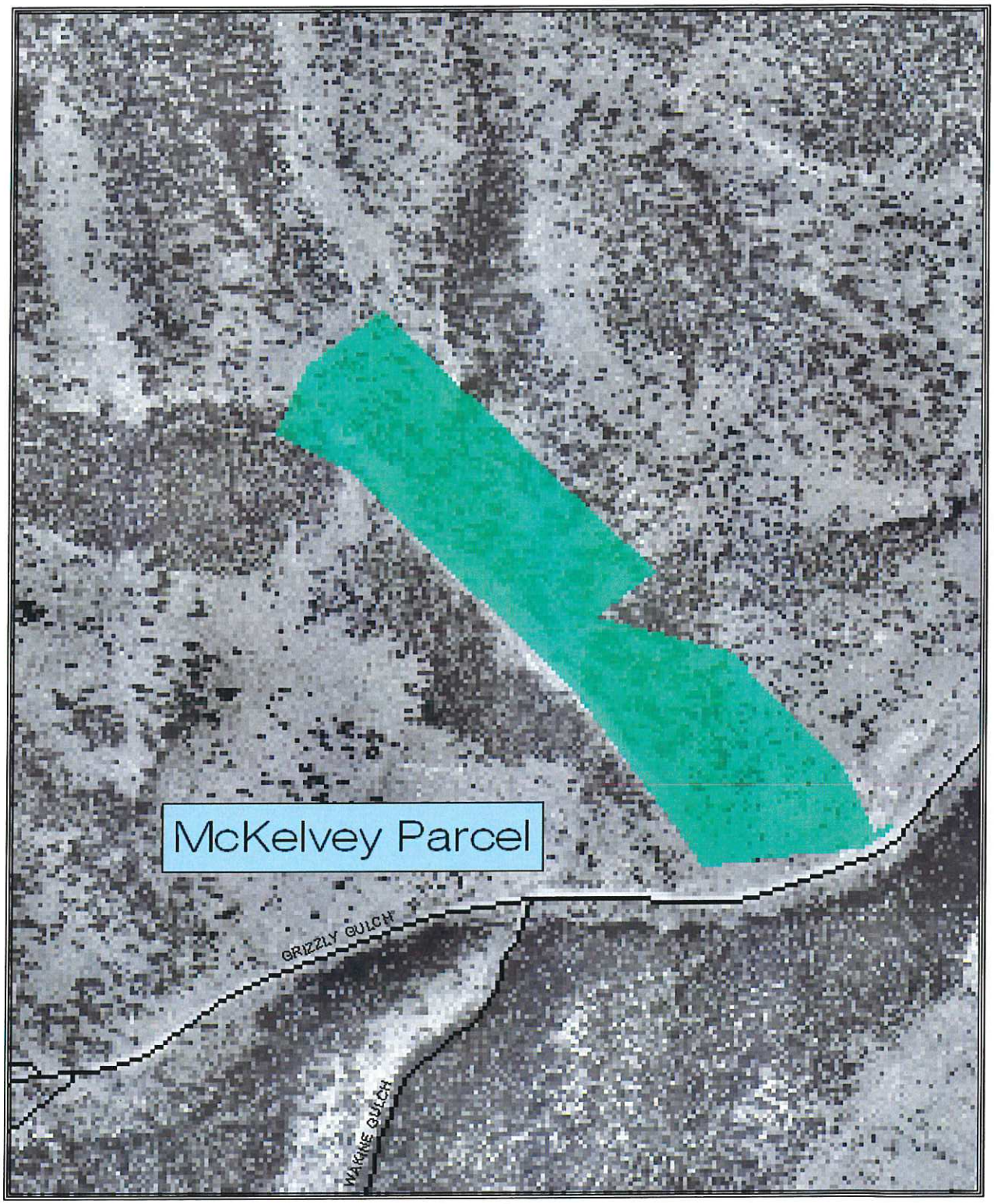
Reber PUD Parcel



1 inch equals 500 feet

City of Helena

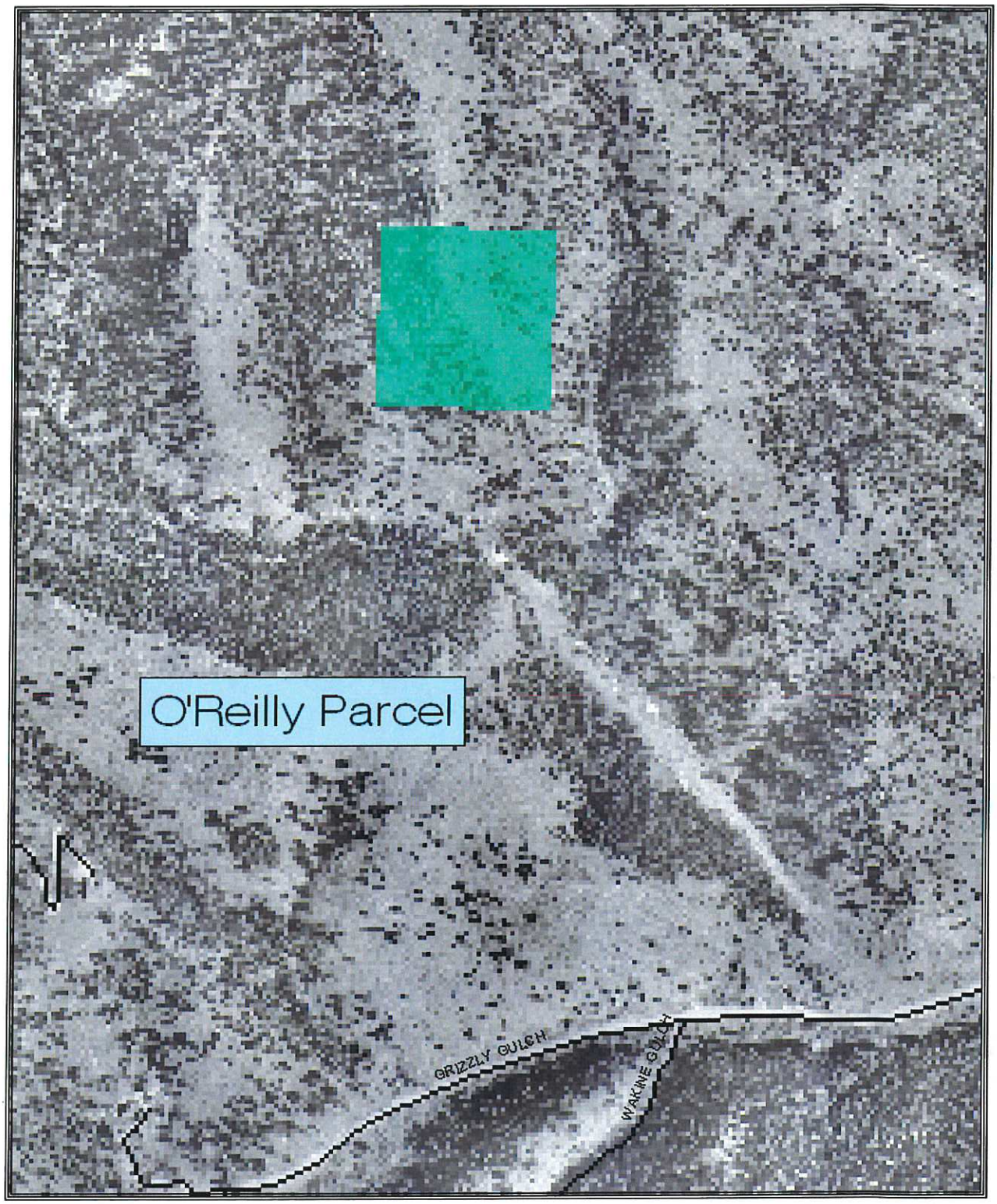
Reeders Village Acquisition



1 inch equals 500 feet

City of Helena

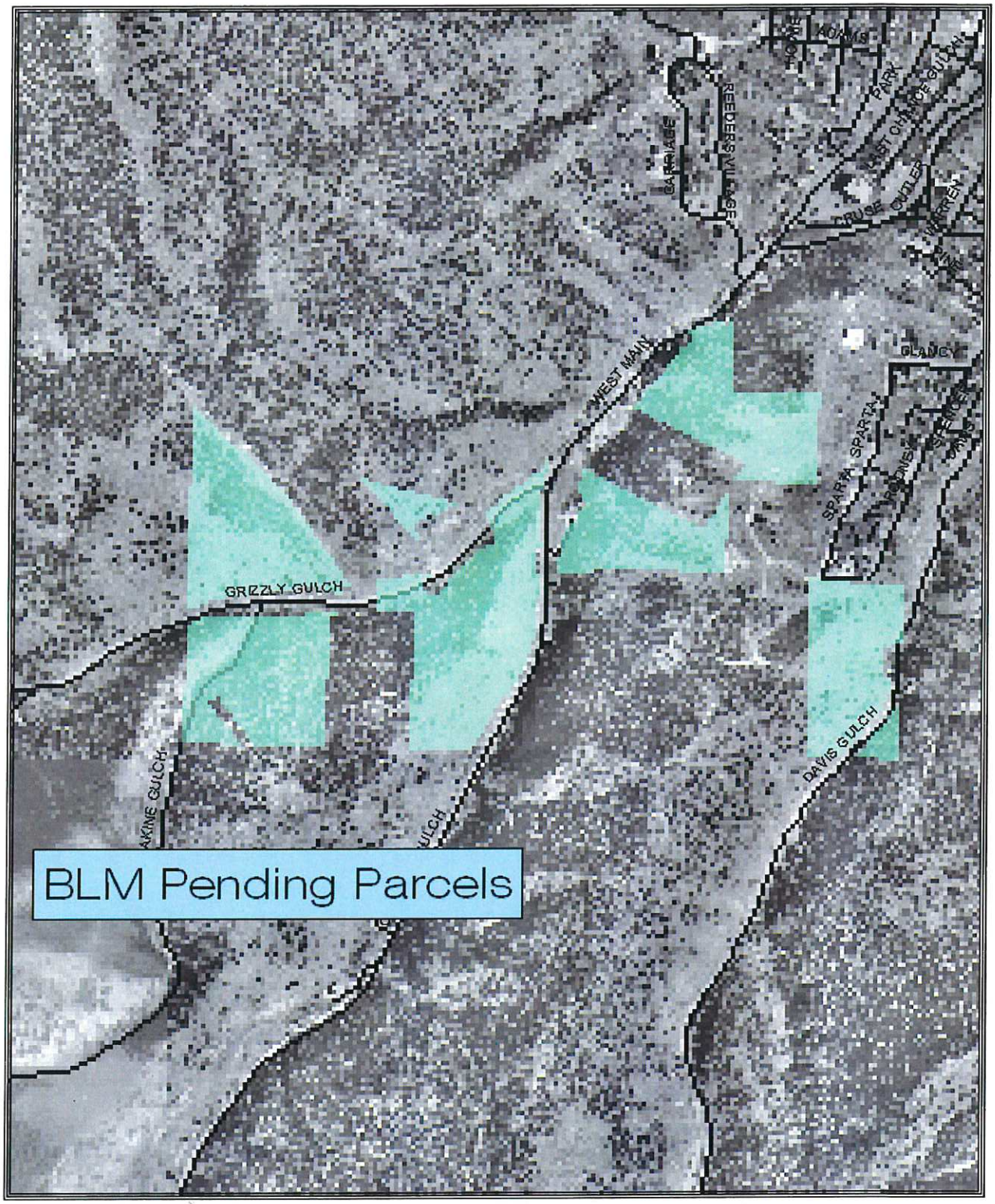
McKelvey Parcel



1 inch equals 500 feet

City of Helena

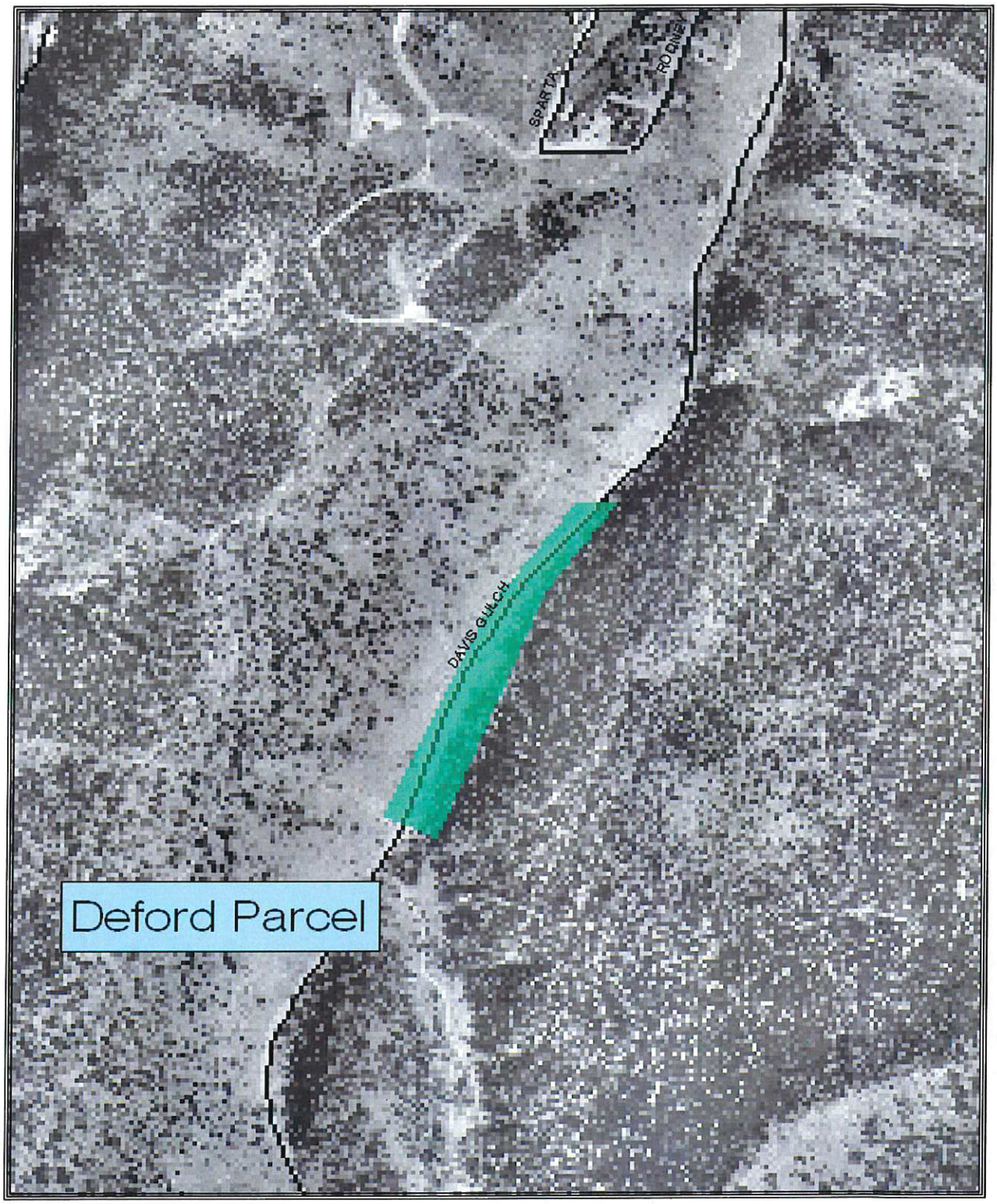
O'Reilly Parcel



1 inch equals 1,000 feet

City of Helena

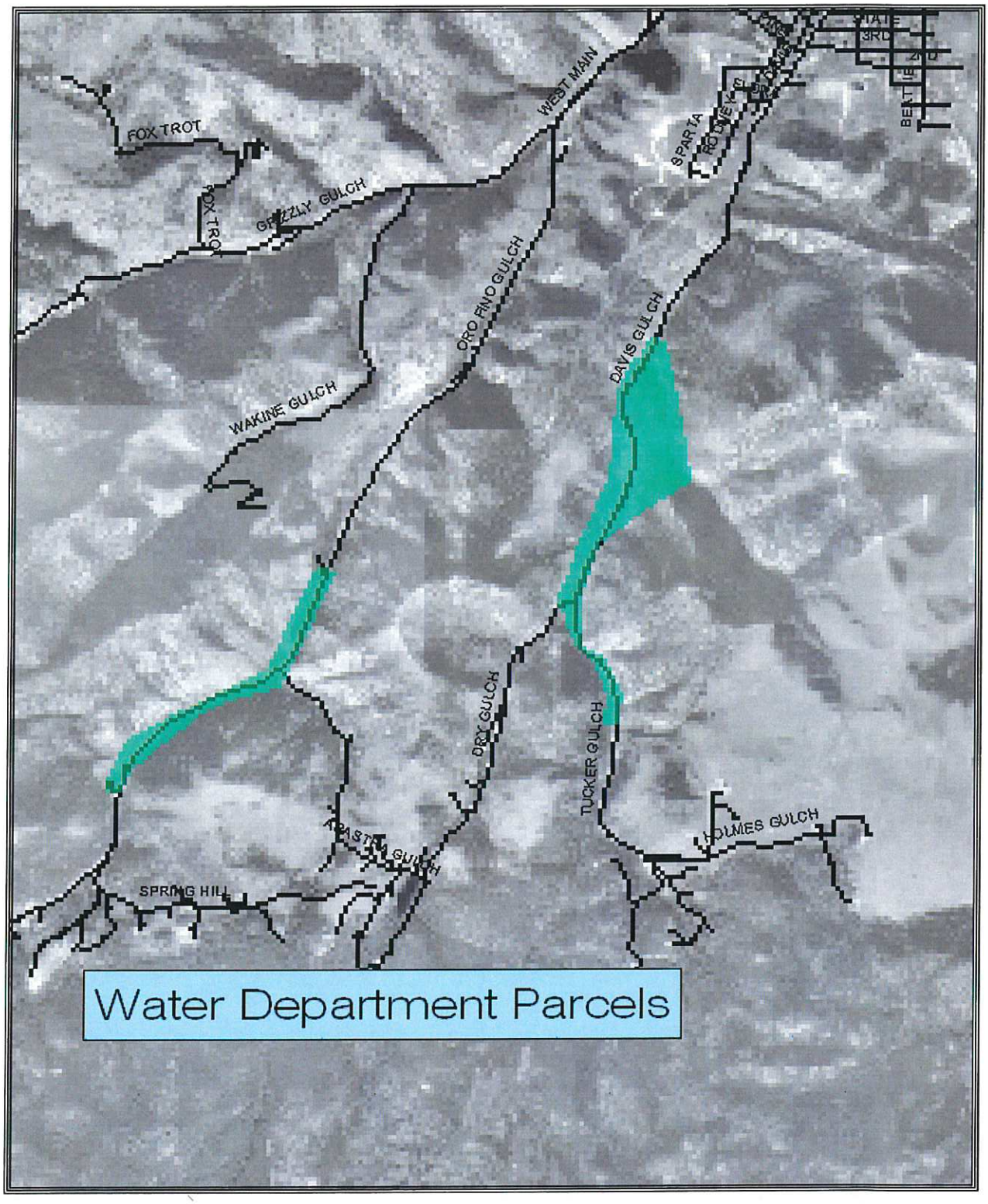
BLM Pending Parcels



1 inch equals 500 feet

City of Helena

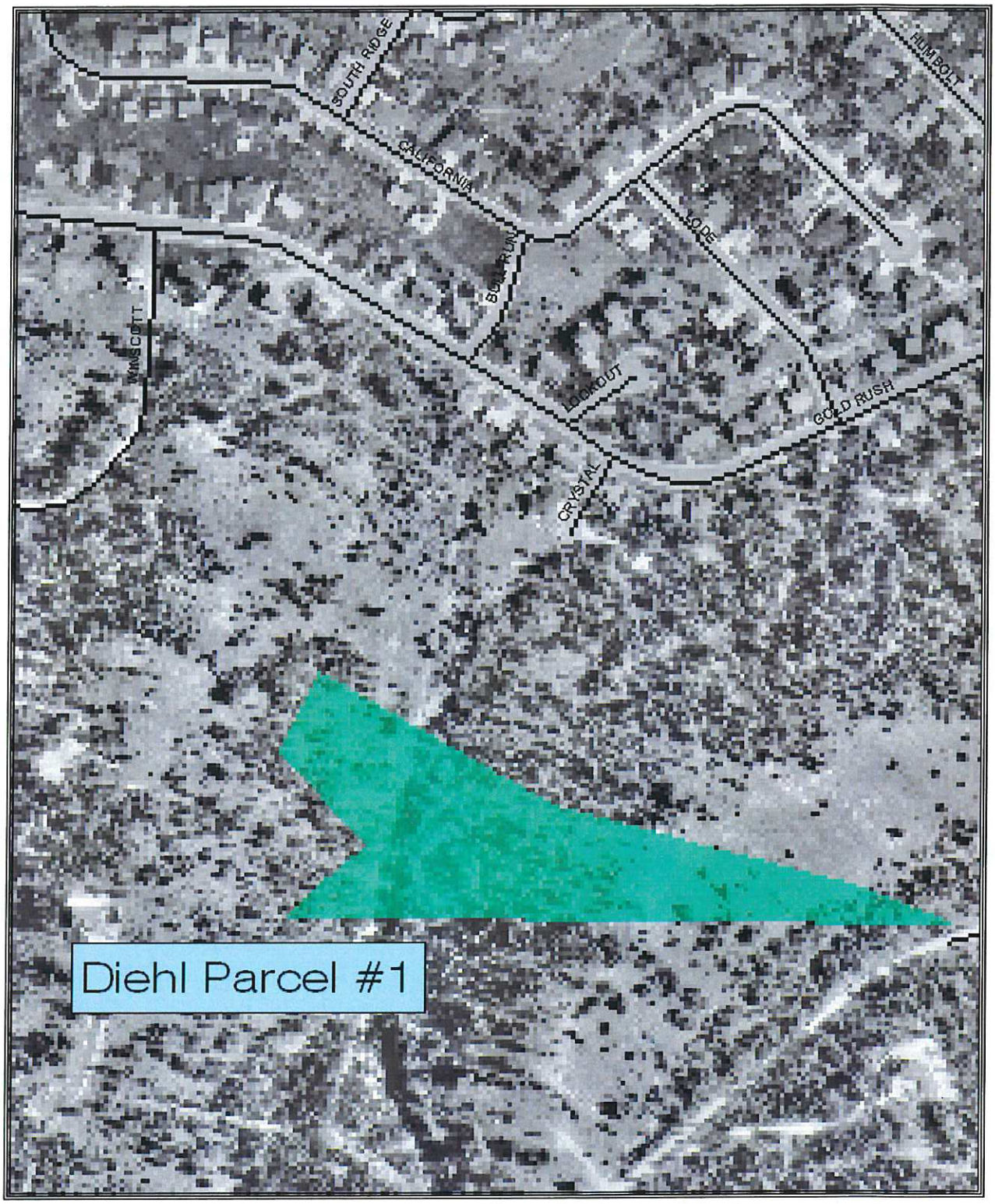
Deford Parcel



1 inch equals 2,000 feet

City of Helena

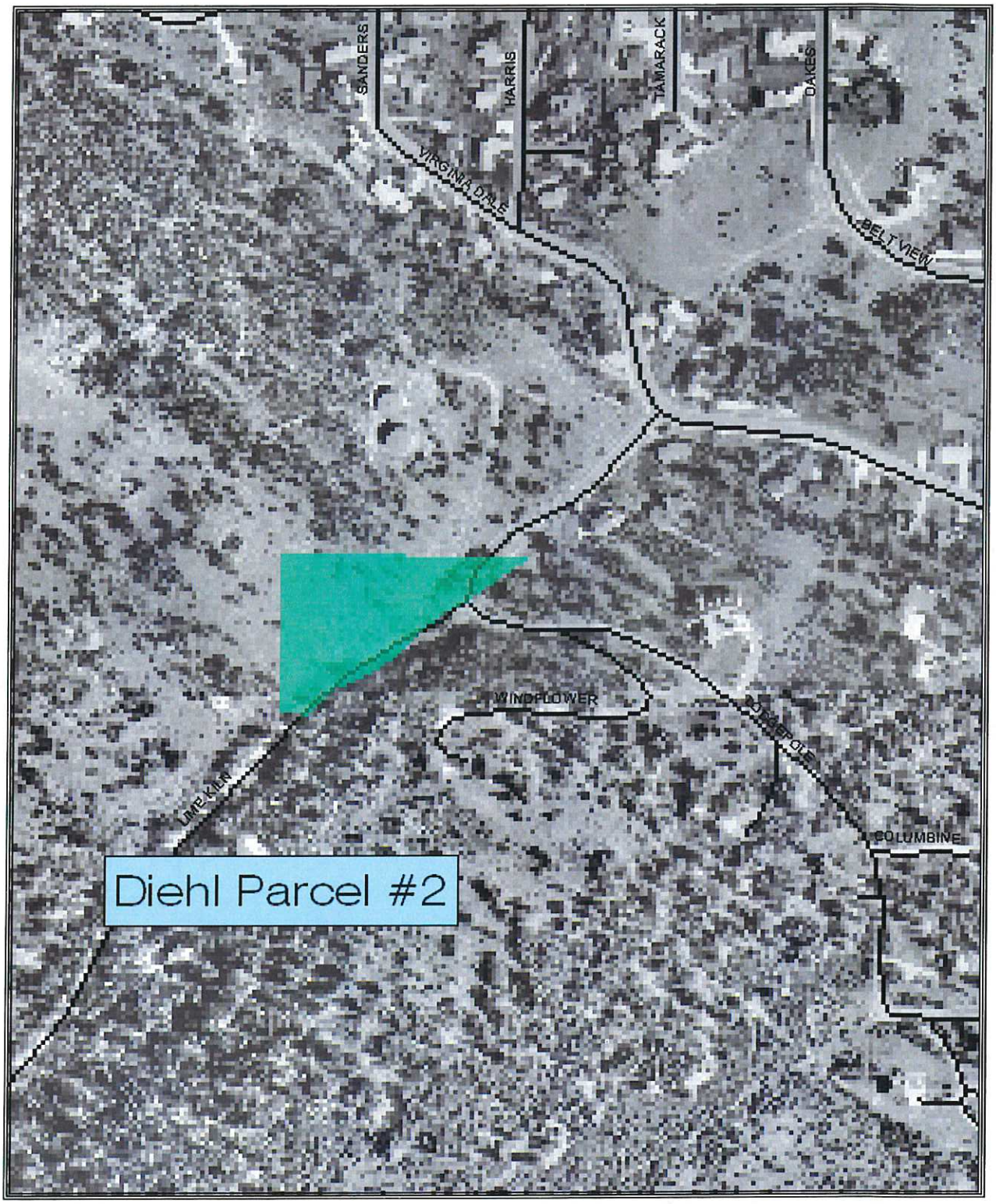
Water Department Parcels



1 inch equals 300 feet

City of Hilton

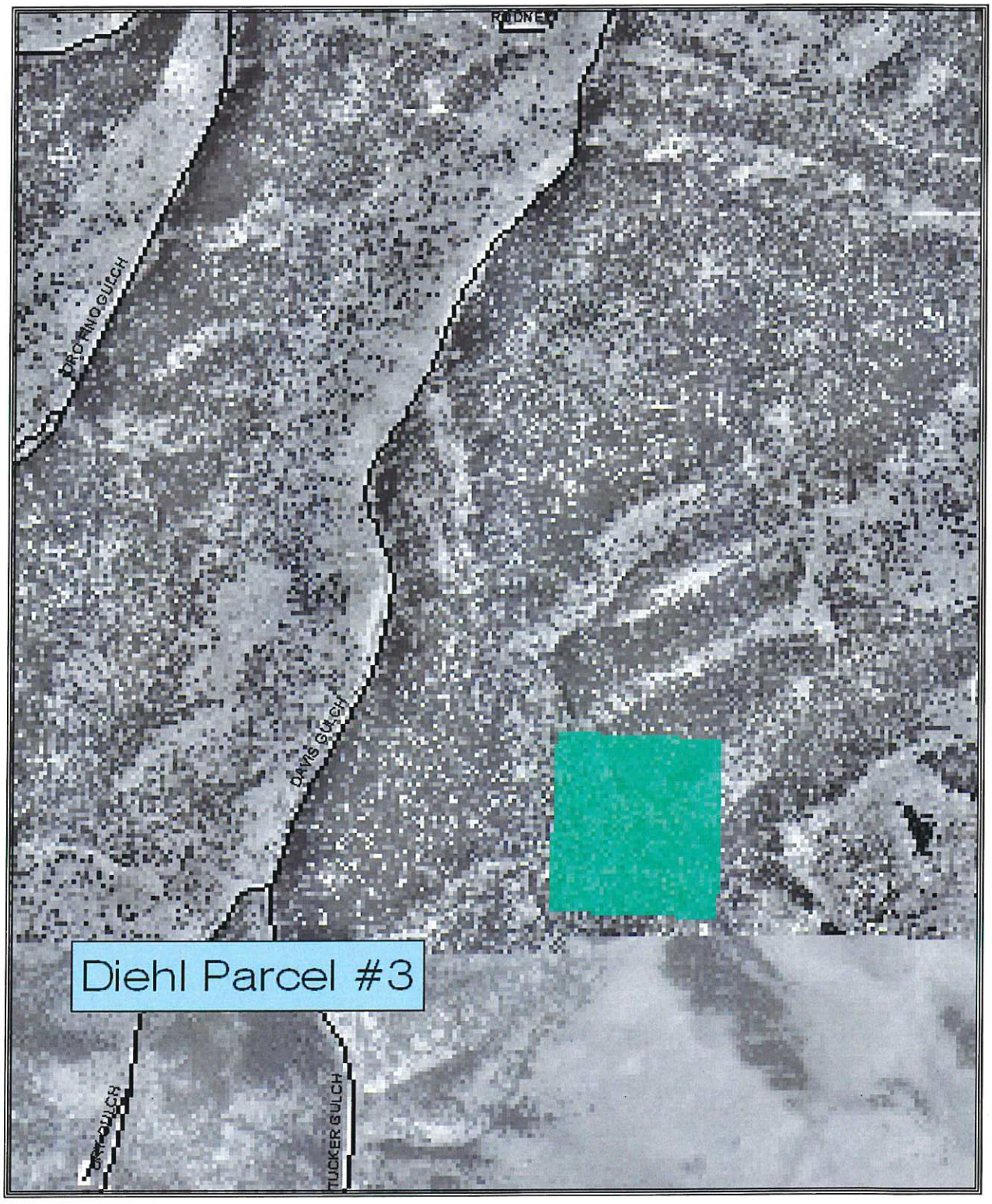
Diehl Parcel #1



1 inch equals 300 feet

City of Helena

Diehl Parcel #2



1 inch equals 1,000 feet

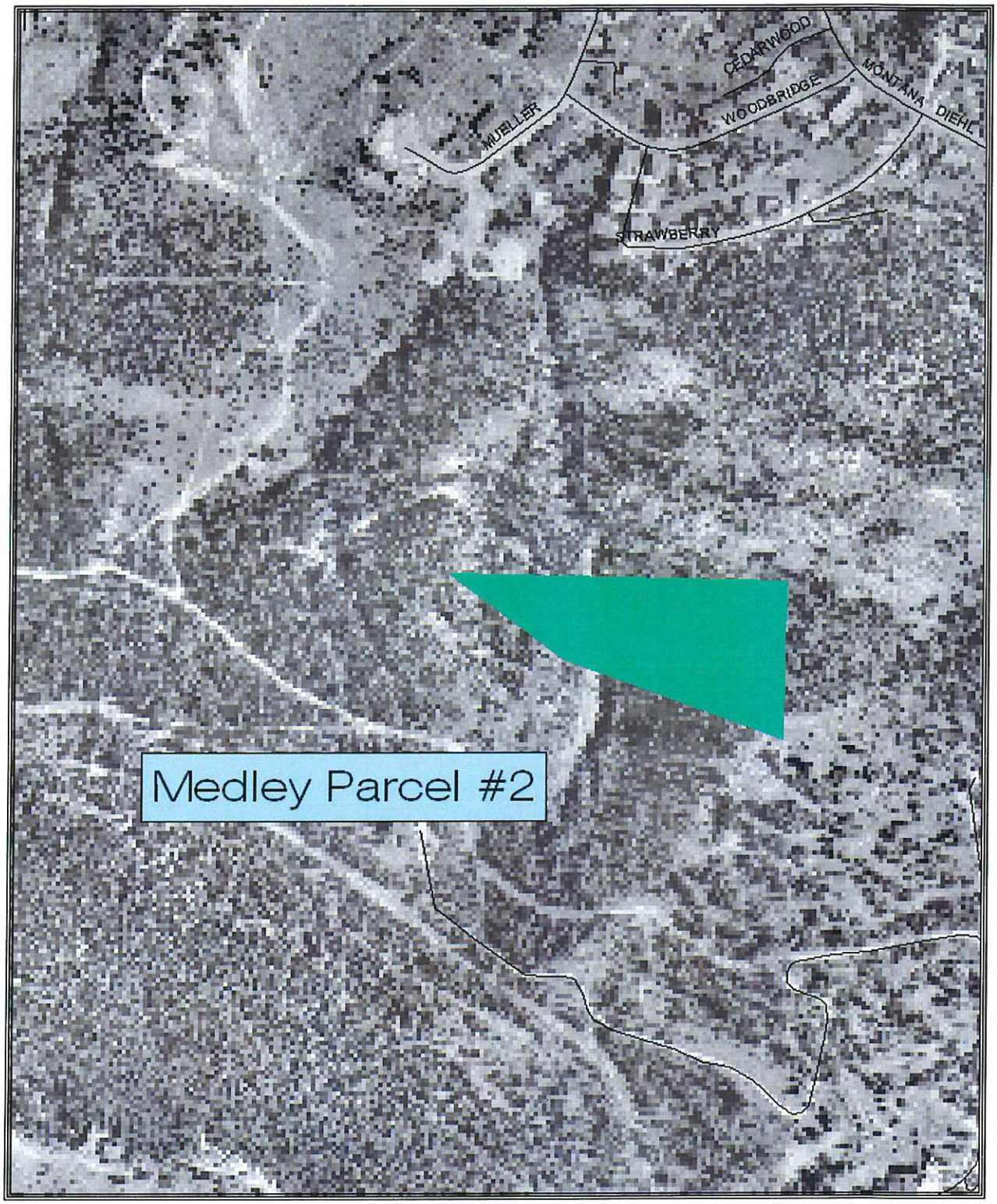
City of Helena

Diehl Parcel #3

1 inch equals 800 feet

City of Hilton

Medley Parcel #1



1 inch equals 400 feet

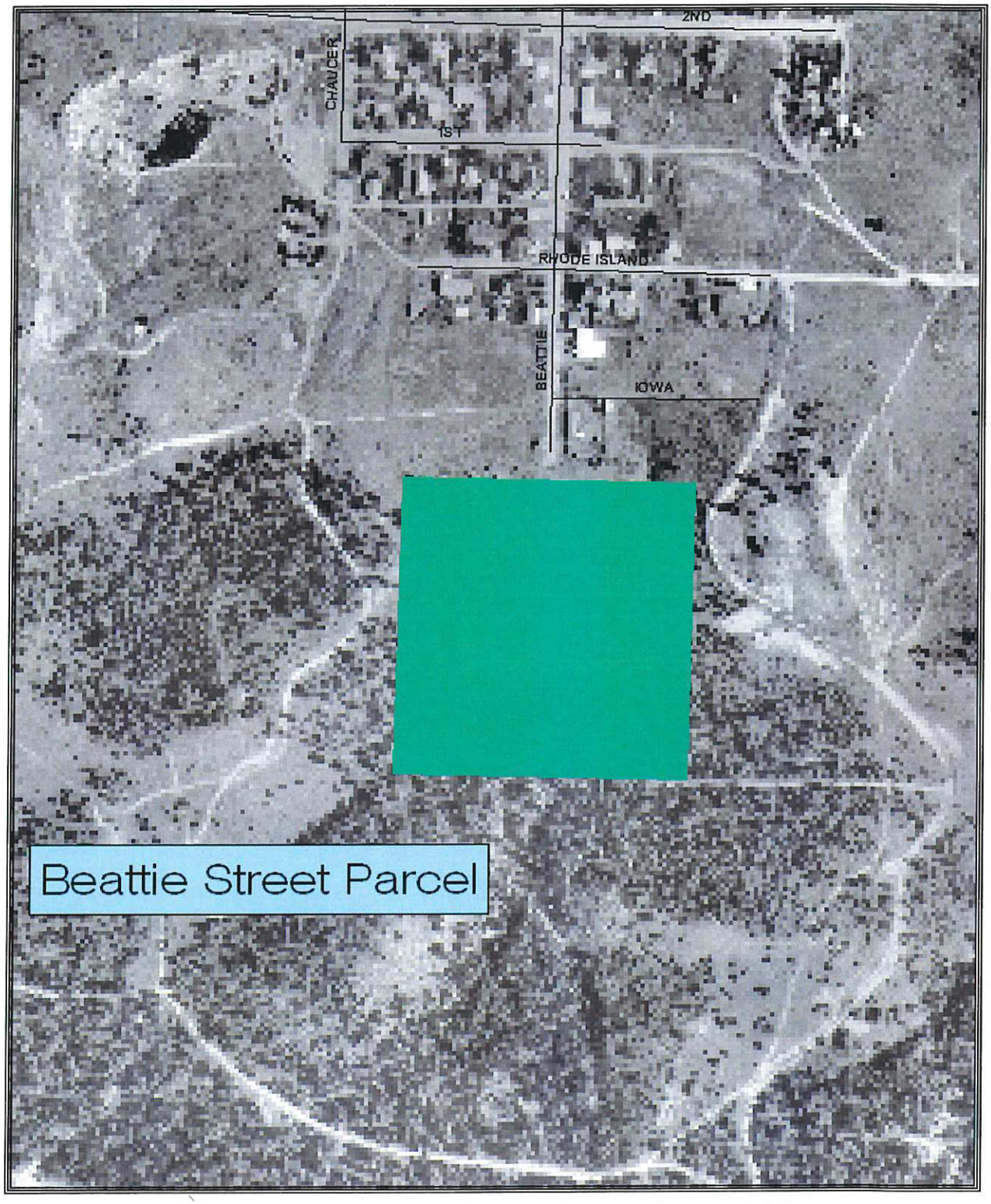
City of Helena

Medley Parcel #2

1 inch equals 800 feet

City of Helena

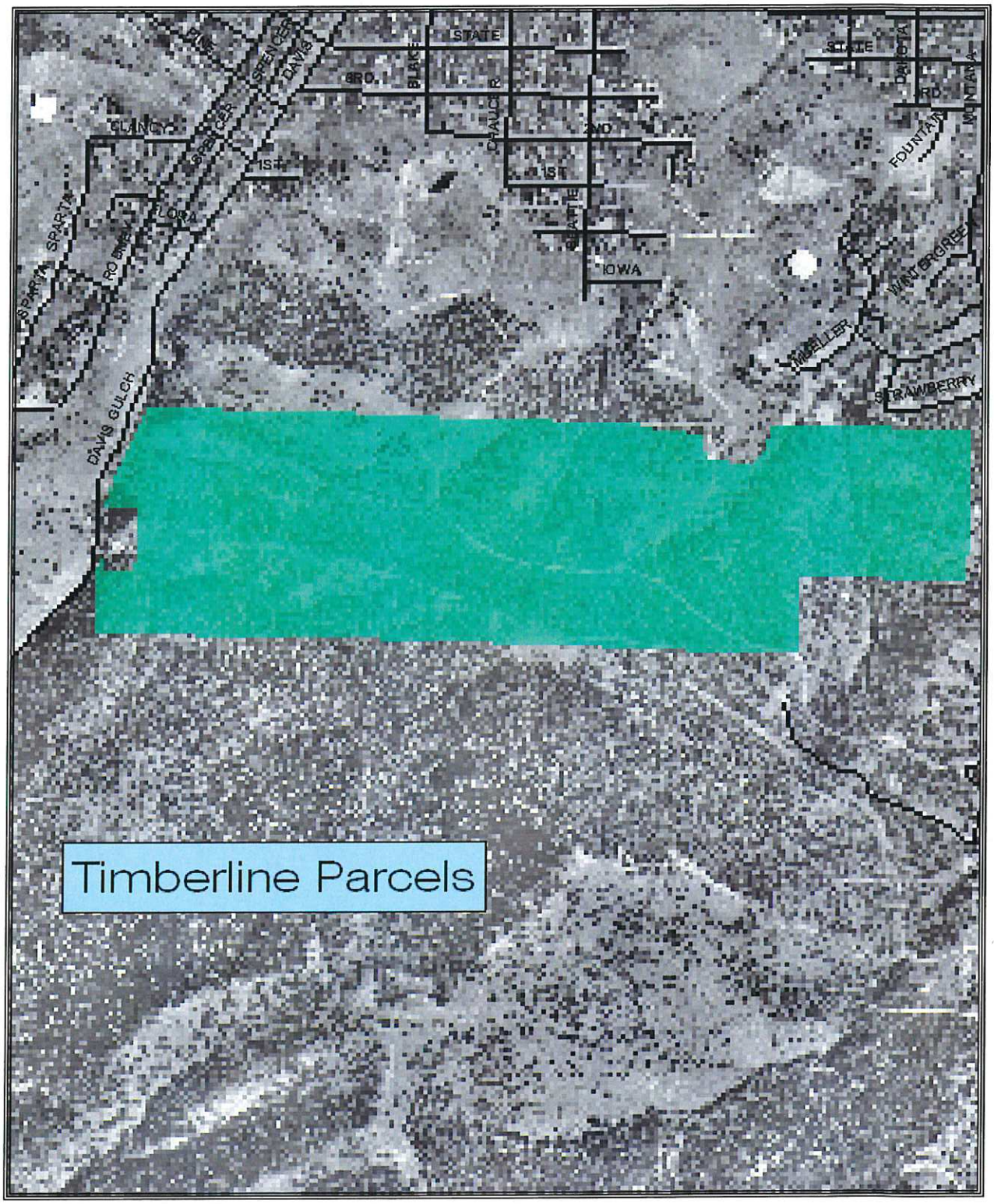
Medley Parcel #3



1 inch equals 300 feet

City of Helena

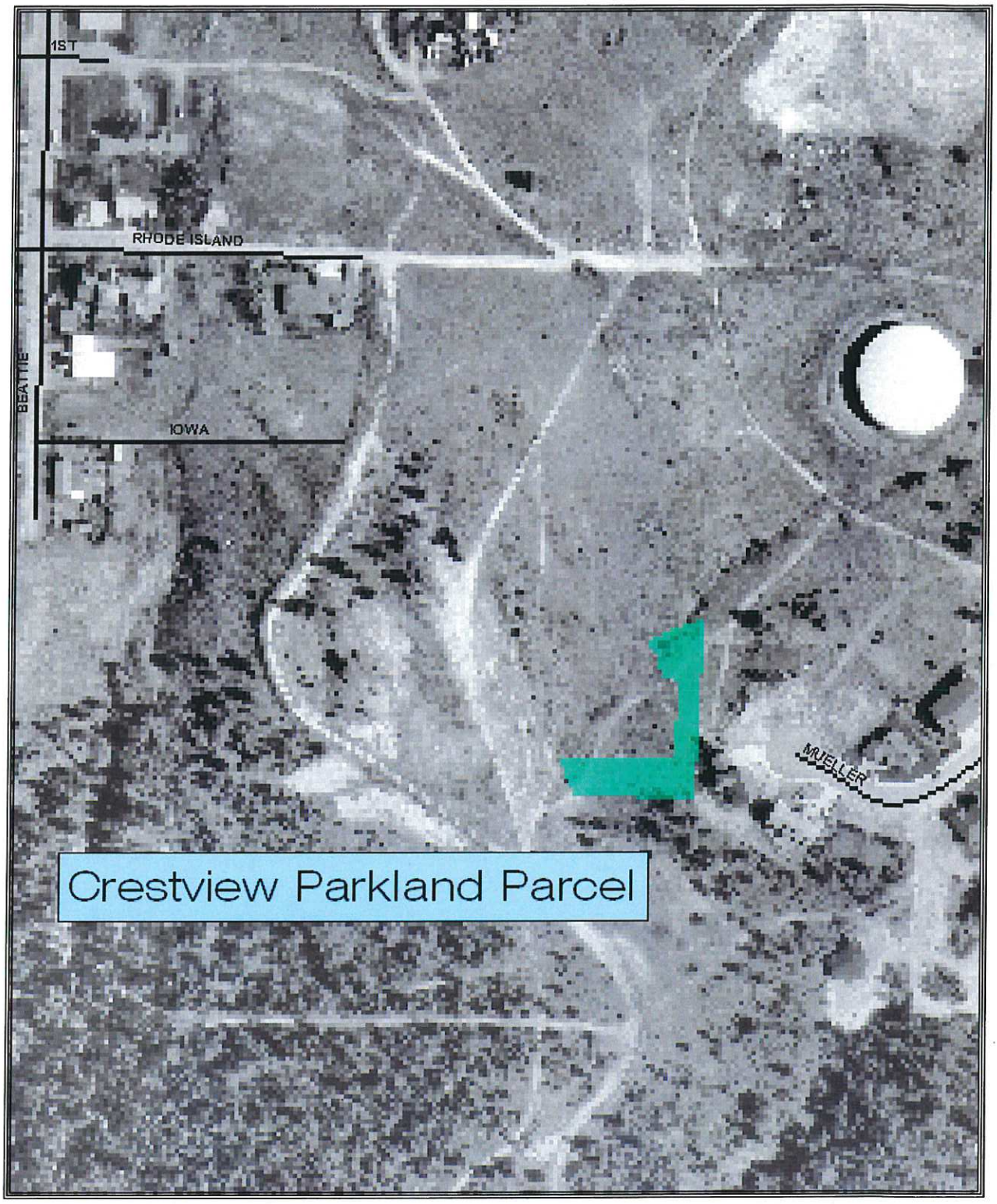
Beattie Street Parcel



1 inch equals 800 feet

City of Helena

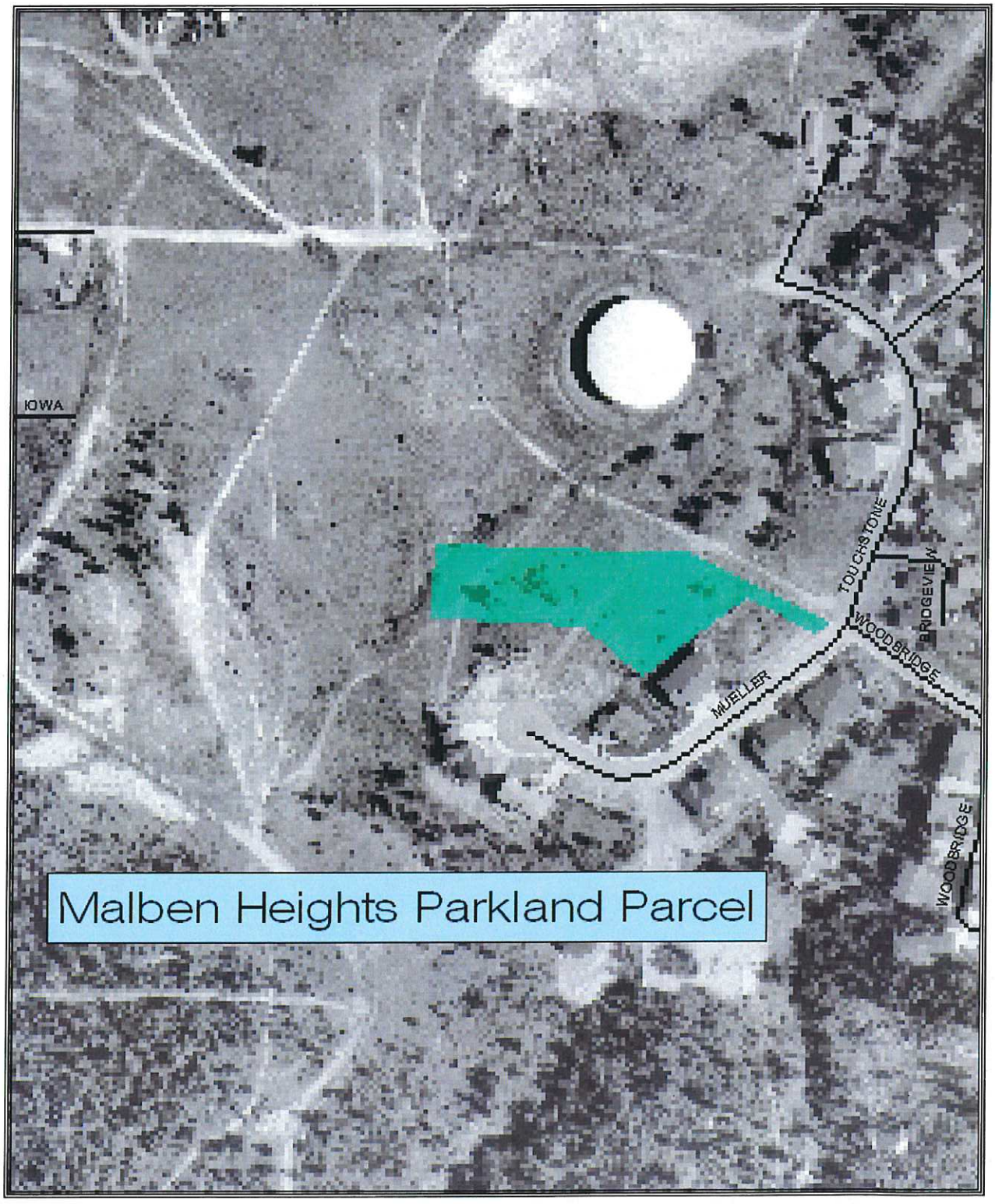
Timberline Parcels



1 inch equals 200 feet

City of Hiawatha

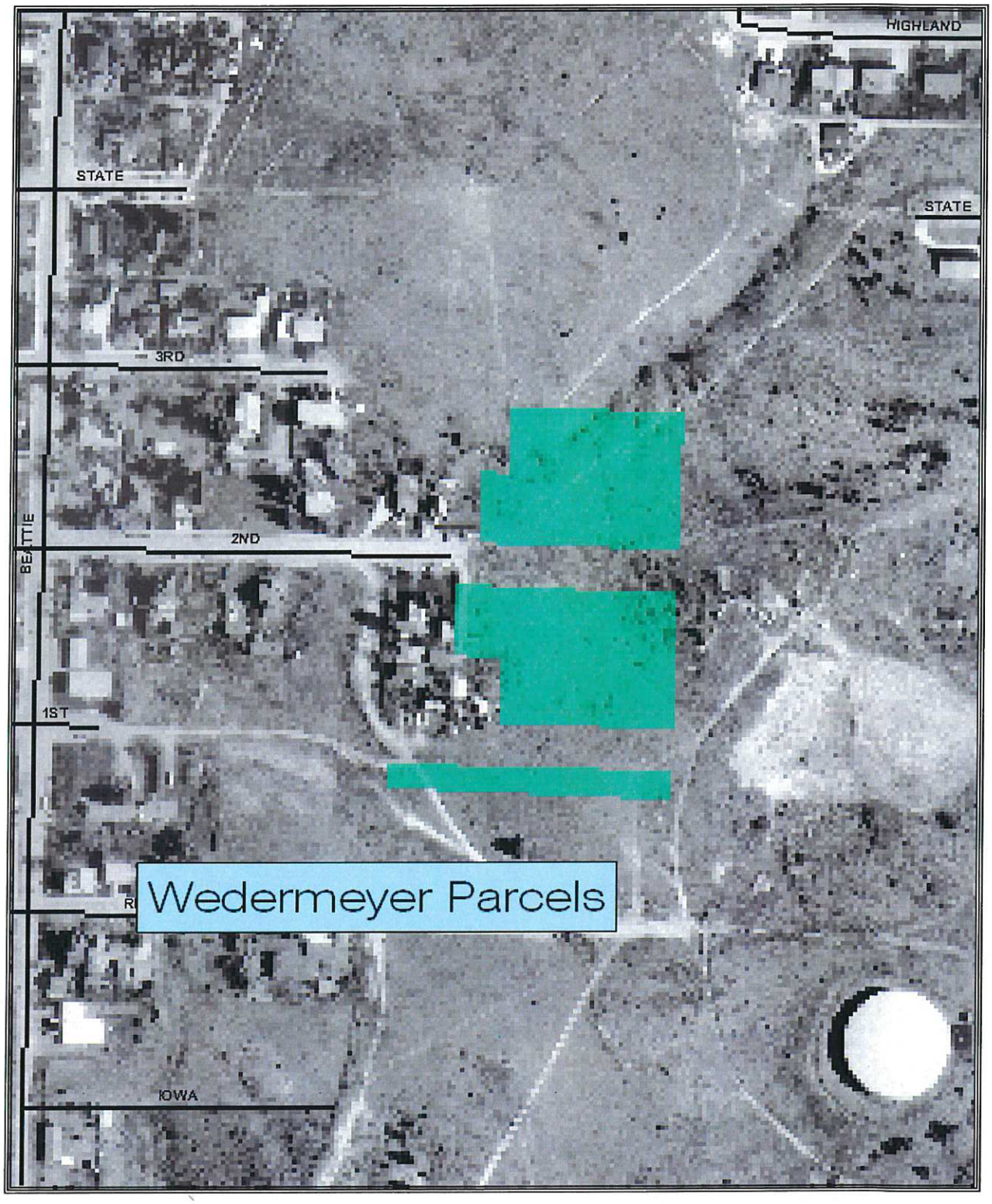
Crestview
Parkland Parcel



1 inch equals 200 feet

City of Helena

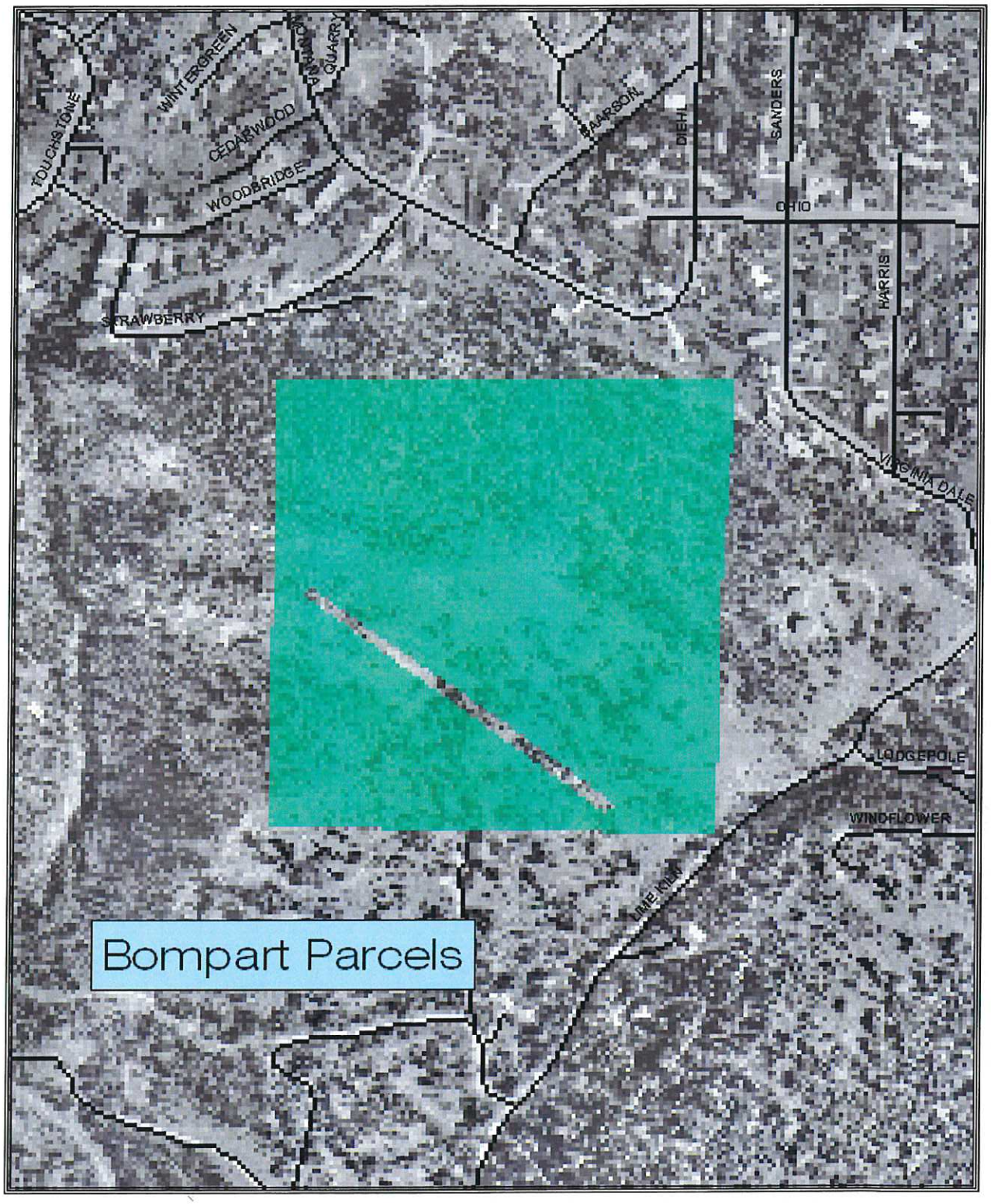
Malben Heights
Parkland Parcel



1 inch equals 200 feet

City of Helena

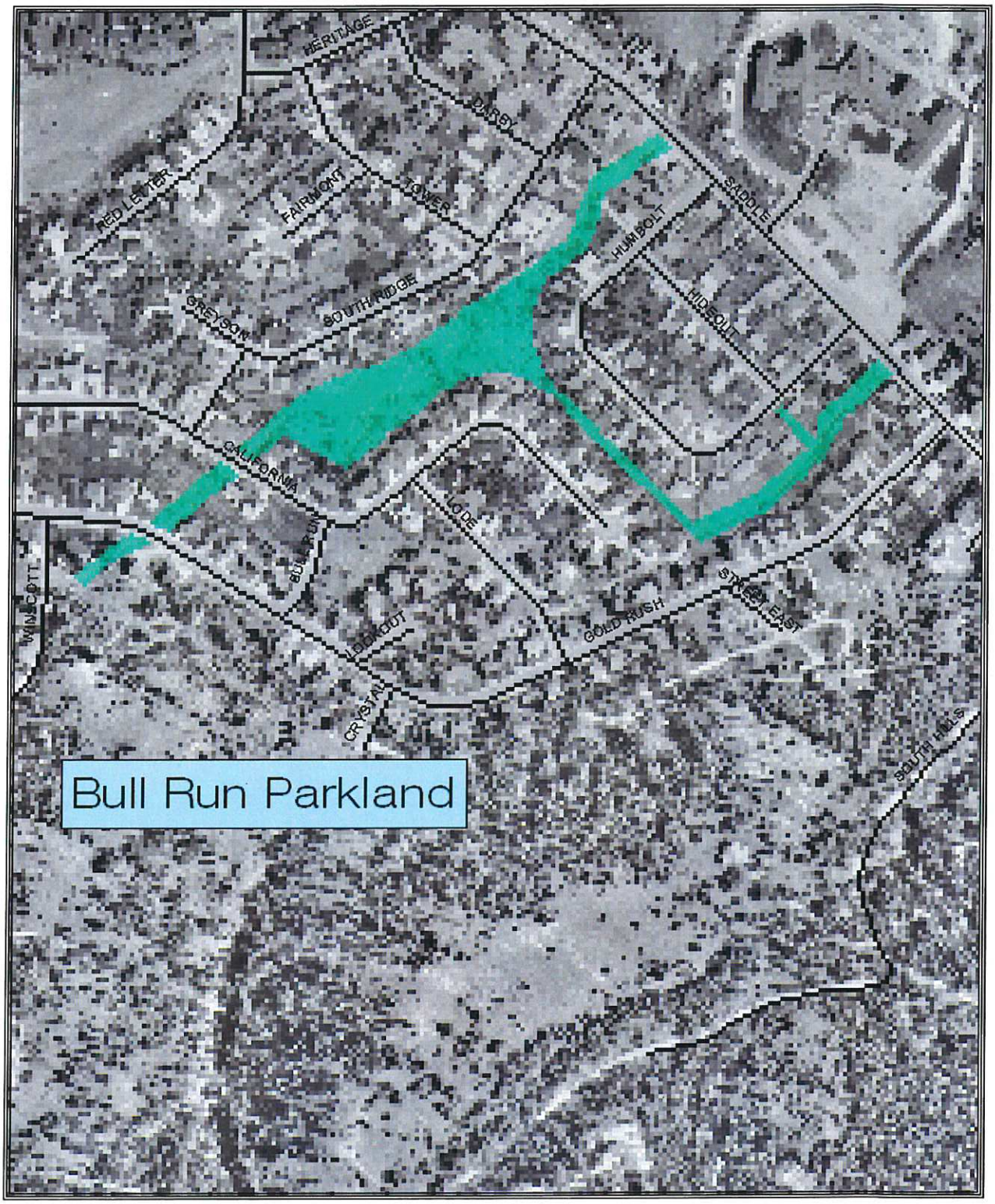
Wedermeyer Parcels



1 inch equals 400 feet

City of Hilton

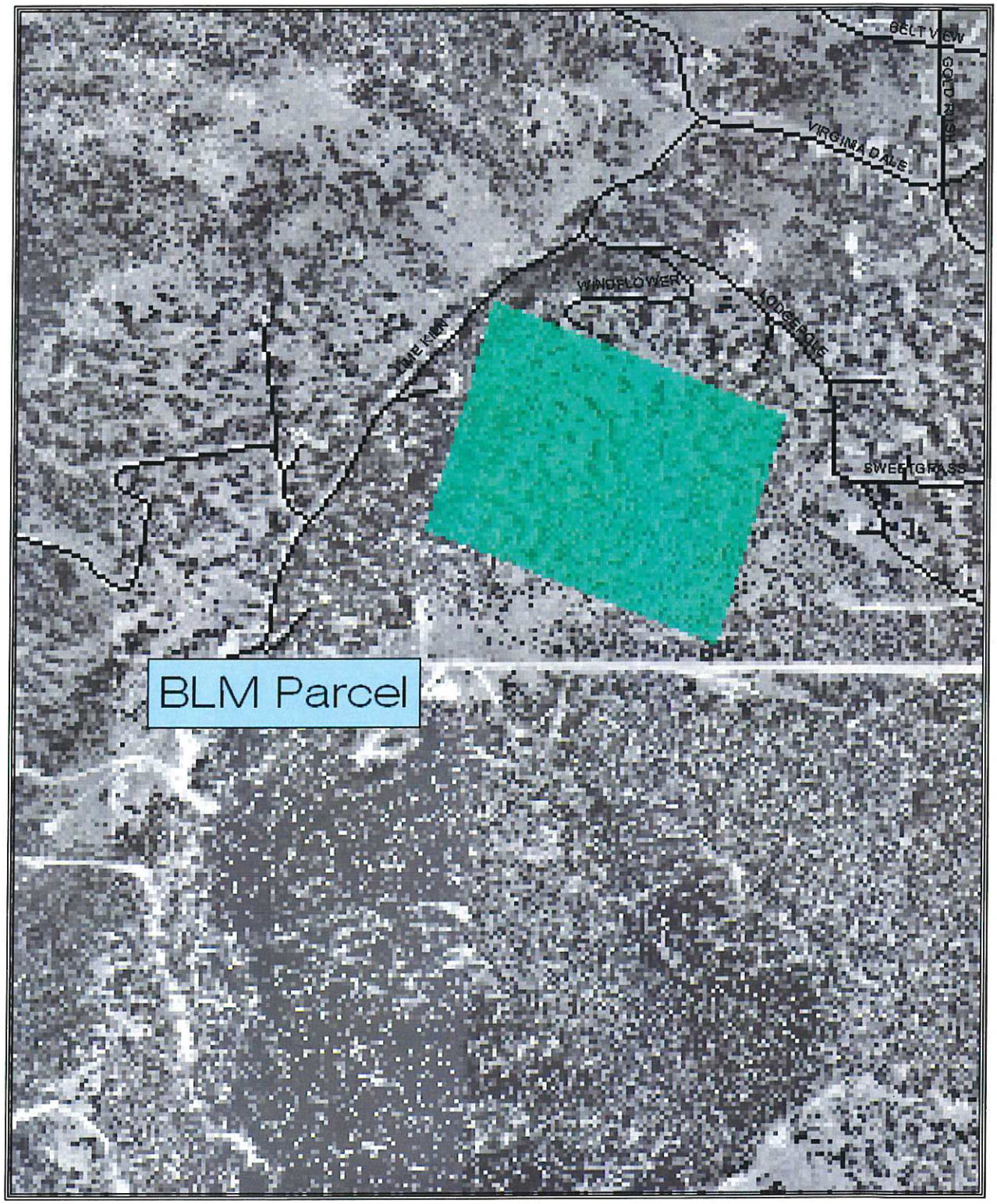
Bompart Parcels



1 inch equals 400 feet

City of Hillsboro

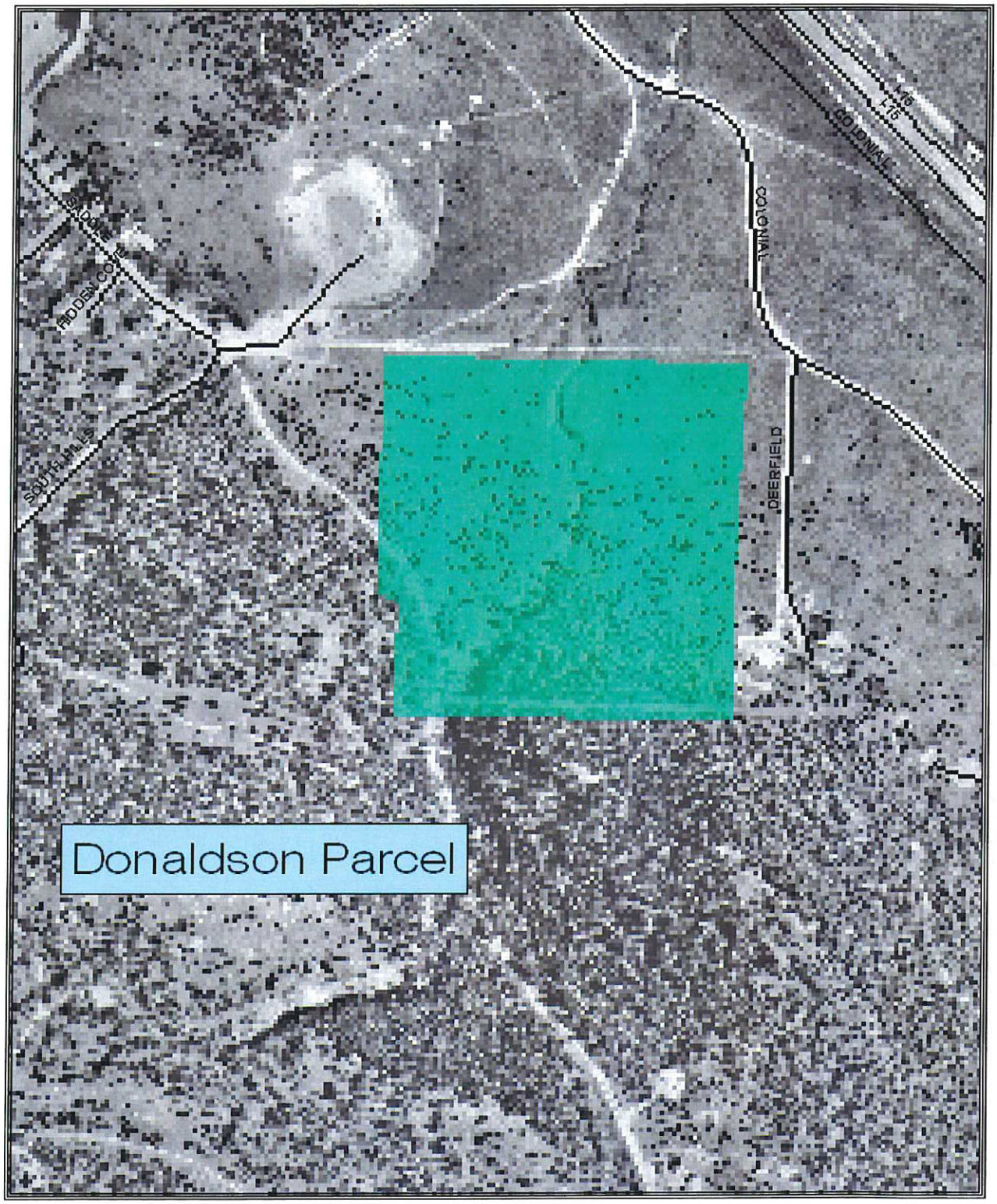
Bull Run Parkland



1 inch equals 500 feet

City of Helena

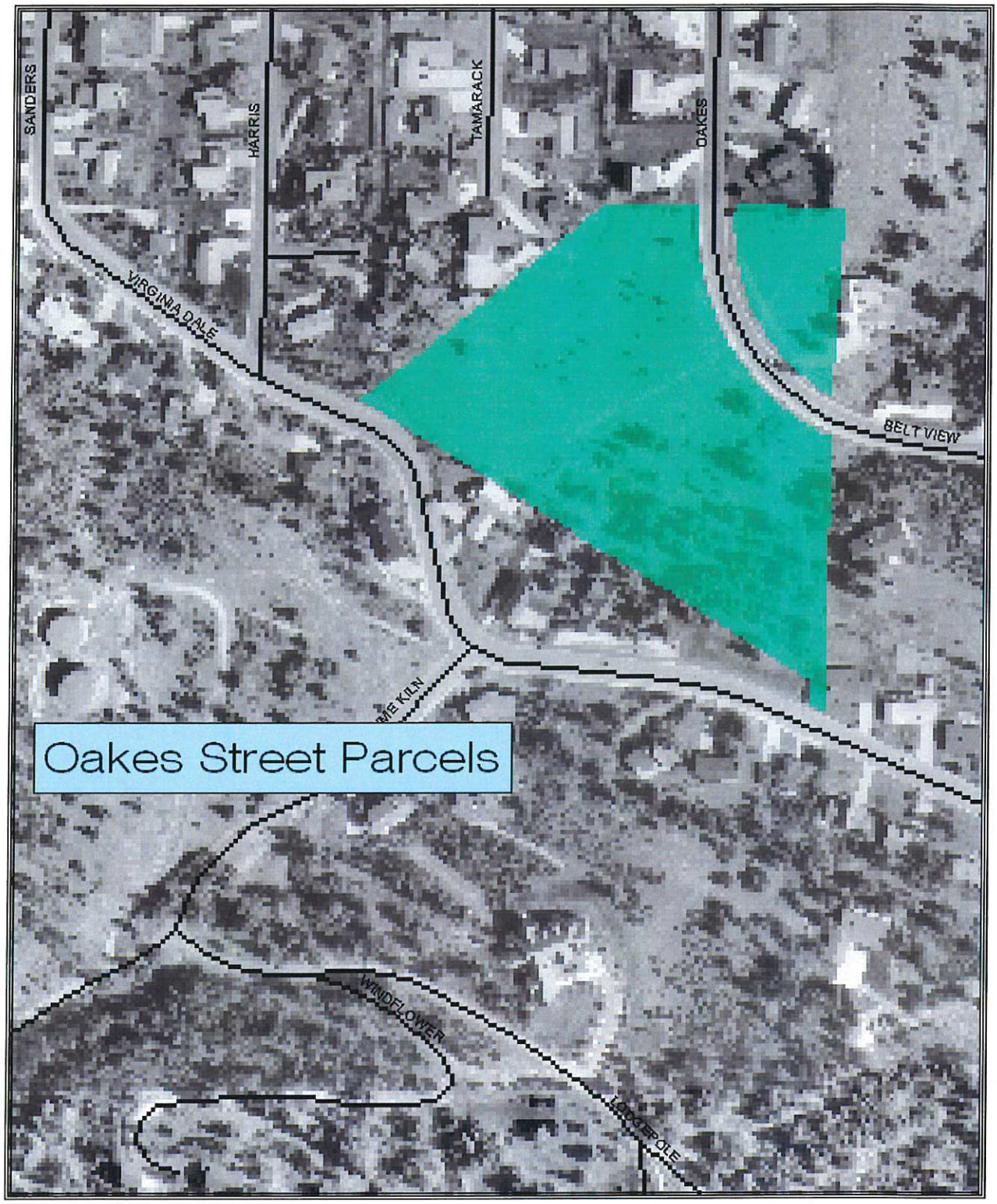
BLM Parcel



1 inch equals 500 feet

City of Hilton

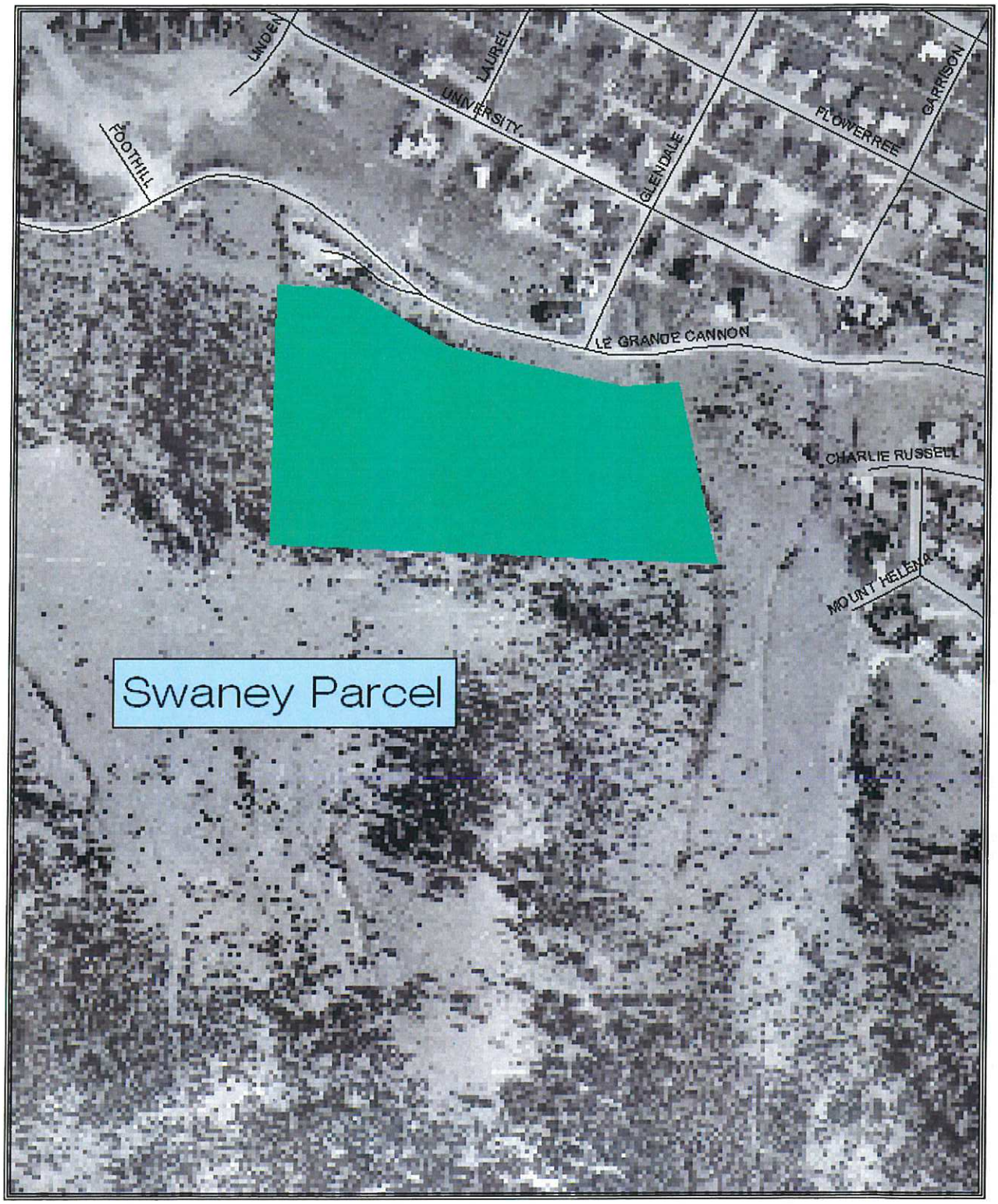
Donaldson Parcel



1 inch equals 200 feet

City of Helena

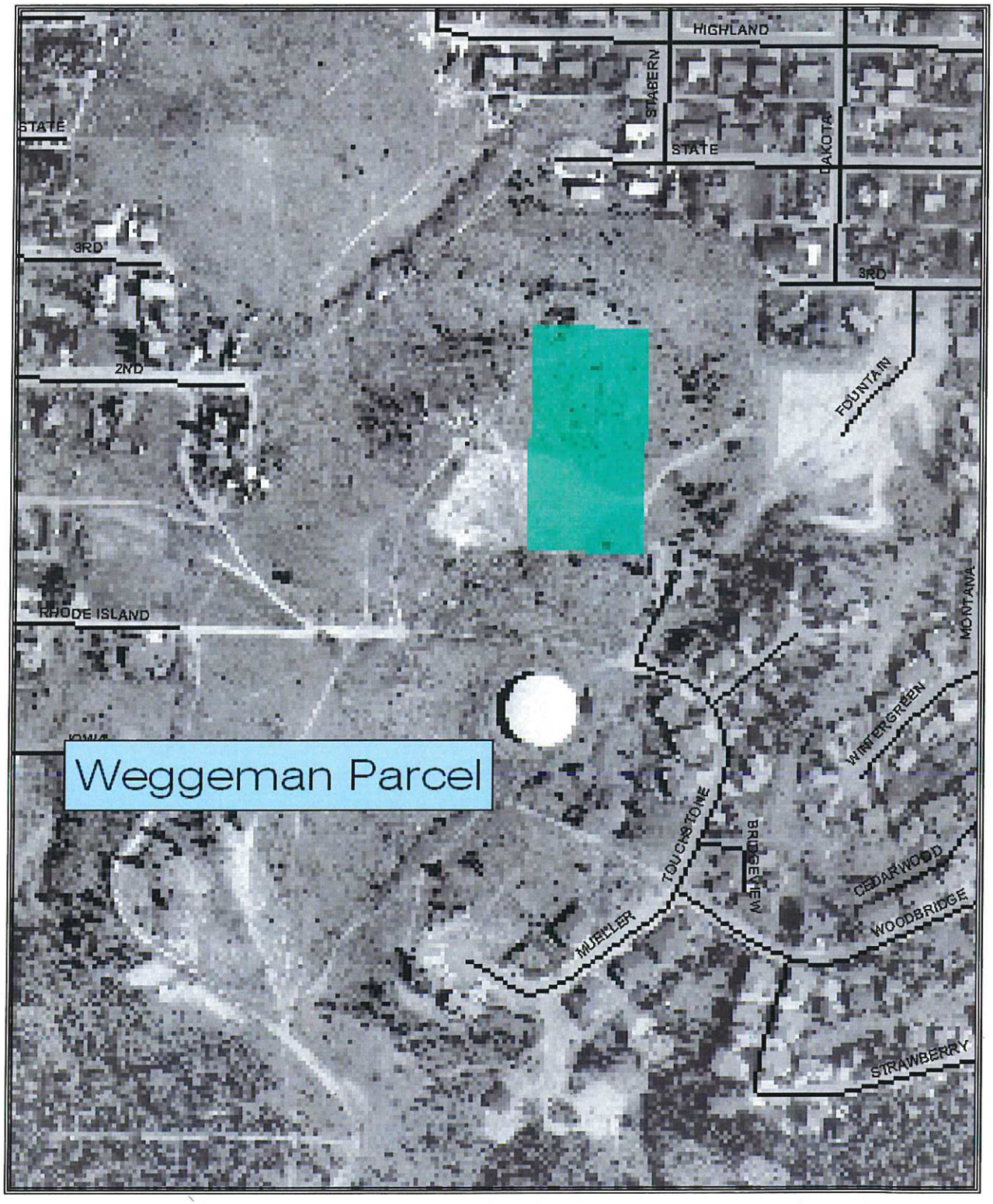
Oakes Street Parcels



1 inch equals 300 feet

City of Hilton

Swaney Parcel



1 inch equals 300 feet

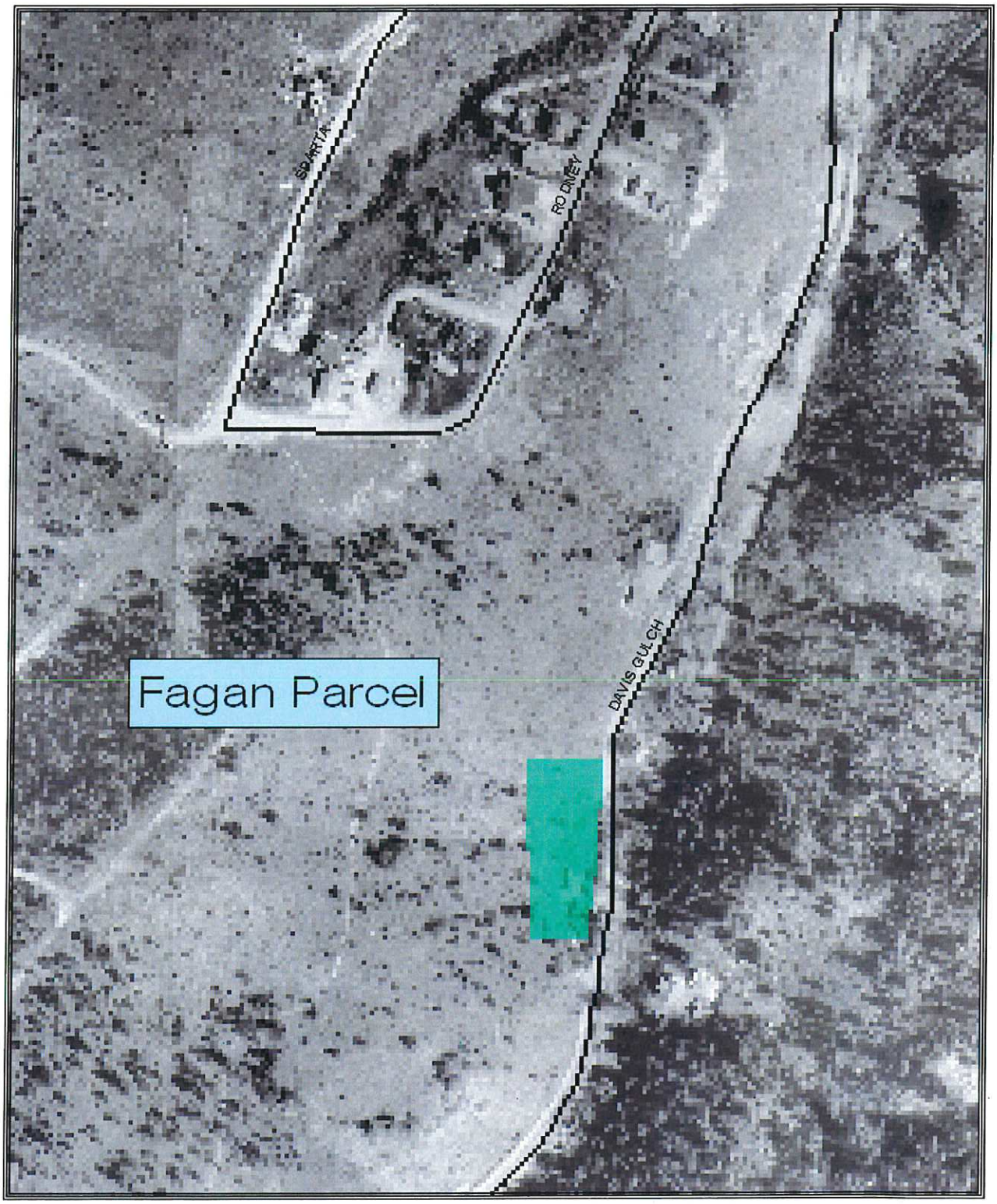
City of Hudson

Weggeman Parcel

1 inch equals 300 feet

City of Helena

American Building Parcels



1 inch equals 200 feet

City of Helena

Fagan Parcel

PARCEL MAPS TABLE OF CONTENTS

The maps on following pages show details of individual HOL parcels. The boundaries represented in these maps are approximate, detailed digitized survey data was not available at the writing of this Plan. Existing and proposed trails, and weed data was supplied by the Lewis and Clark County GIS Department. Approximate land cover has been estimated from 30-meter pixel Landsat data.

APPENDIX D

Public Process Issue Identification Report

PUBLIC PROCESS ISSUE IDENTIFICATION REPORT

HELENA OPEN LANDS MANAGEMENT PLAN

Draft

July 3, 2002

Prepared for:

Helena Open Lands Management Advisory Committee
Helena, MT

Prepared by:

Ecosystem Research Group
Missoula, MT

TABLE OF CONTENTS

Comment on priority issues was collected from agency stakeholders, from the public, and from HOLMAC members. The priorities are summarized and presented below within categories identified in the RFP.

1. AGENCY STAKEHOLDER COMMENT

1.1 Summary

Agency stakeholder comment was obtained through a May 9 meeting, through e-mail and telephone correspondence, and through written comment at the June 13 public open house.

The consistently highest priority issue for agency stakeholders is the importance of wildfire mitigation. The high level of fuel in and around the parts of open lands adjacent to residential areas is a top concern for the fire department and for disaster relief services. Foresters, too, stressed the importance of thinning in order to prevent property- and life-threatening fires, and also emphasized the importance of thinning for forest health.

Wildlife protection and trail maintenance and costs were the two second-highest priority issues. The Department of Fish, Wildlife and Parks would like to see trail use levels that do not disturb spring calving or winter range for ungulates; the need to maintain wildlife corridors was also mentioned. Wildlife protection also ties in with another relatively high-priority issue for agency stakeholders: weed management and native plant protection. Weed containment is essential for a healthy forage base and native plant community health. Agency stakeholders recommend both spraying weeds and addressing the spread of weeds through trails.

Trail maintenance and use is a priority for agency stakeholders. Stakeholders felt that coordination between agencies is essential, due to the high level of overlapping jurisdictional boundaries and recreational trails that cross various ownership areas. User levels are expected to increase, and agencies would like to plan for this increase with connection trails, a variety of difficulty levels, proper signage, and trail head development. Access problems and issues were brought up as a high priority as well.

Access is an issue that refers directly back to wildfire mitigation, as most agency stakeholders felt that increased access will bring a need for increased management such as disaster relief services and fire department calls. Stakeholders felt that access should be improved with increased signage and use spread out over a larger part of the Helena open lands system.

1.2 Agency Stakeholder Issue Identification – Quantitative

Issue	Number of Priority Responses
Wildfire Mitigation	13

Issue	Number of Priority Responses
Wildlife Protection	8
Trail Maintenance and Costs	8
Access Problems and Issues	7
Forest Management	6
Management Strategies	5
Native Plant Protection	5
Noxious Weed Control	4
Boundary Identification and Mapping	4
Recreation Use Conflicts	2
Aesthetic Values	2
Long-term Funding	1

1.3 Agency Stakeholder Comments – Qualitative

Priority Issue: Wildfire Mitigation

Problem or Conflict	Solutions
Public protest of fuel modification project (cutting or burning) (3)	Public information and education is key to resolving this potential problem. (2)
Fire hazard increase due to increased use	Restrictions and closures
Wildland/urban interface: 1600 homes in and around open space. (4) Potential loss of life and property. (2)	Disaster management. Anticipate fire response, provide access access, and medical/rescue issues. (2)
Fire hazard areas (3)	Would like to reduce fuels by cutting. There is the potential for harvest. Create fuel load/fuel mitigation plan for timberland. (4)

Priority Issue: Forest Management

Problem or Conflict	Solutions
Improper stewardship creates risk. Current unnatural state of open lands (3)	Fuel reduction program to return to natural state (3)
Potential for noxious weed spread after harvest	Stewardship must include cutting to reduce risk.
Method of disposal of trees	Burning, chipping, hauling to landfill
Inadequate current data	Map weeds, trees (age mosaic), and native plants.

Priority Issue: Noxious Weed Control

Problem or Conflict	Solutions
Weed proliferation (2)	Consider weeds when designing trail placement and types of use.
Improper stewardship (2)	Stewardship must involve weed spraying. (2)

Priority Issue: Recreation Use Conflicts

Problem or Conflict	Solutions
Conflicts between horse use, hikers, and bikers (3)	Address bike, hike, and horse conflicts by making some trails for certain uses only (2)
Need for variety of recreation experiences	Provide for developed and undeveloped rec areas
The people of Helena passed a bond for recreation.	Take the initial purpose of the open space bond into consideration when making management decisions.

Priority Issue: Wildlife Protection

Problem or Conflict	Solutions
Impacts on wildlife (2)	Wildlife corridor preservation along Continental Divide Corridor. Do not allow dogs and cats to roam free anywhere in county.
Wildlife management	Work with Montana Department of Fish, Wildlife, and Parks in crafting wildlife strategy.
Protection of important seasonal habitats	Protect spring fawning and calving areas and winter ranges. Evaluate trail locations and how they connect to National Forest and BLM lands that provide essential summering habitat.
Dwindling forage base	curtail spread of weeds and maintain native plants
Dwindling habitat	avoid annexation of areas to south and west of city of Helena.
The deer are coming into town increasingly.	There is talk about opening up Mt. Helena to bow-hunting.

Priority Issue: Aesthetic Values

Problem or Conflict	Solutions
Consider seismology and mining history of area.	
The people of Helena passed the open space bond for reasons including providing for an aesthetic background and perspective.	Take the initial purpose of the open space bond into consideration when making management decisions.

Priority Issue: Trail Maintenance and Costs

Problem or Conflict	Solutions
Trails issues – do not want to expand; but want reasonable amount. Concerned about maintenance costs. (3)	National Recreational Trail is already on USFS land. NF will make some money available to city to study trails. Maintenance, relocation, reasonable properly located system.
Mt. Ascension and Mt. Helena have overuse in some areas (ad hoc trails).	Need trail mitigation.
Need to connect trails and other recreation and open space areas.	Look at bigger area such as connection to other parks/ corridors.
There will be issues about gnarly-steep trails, vs. woodchipped trails with park benches.	Anticipate and plan for a variety of user levels and needs.
USFS would have to make NEPA decisions for trail enhancement/ maintenance that the city would not have to comply with. concern: how much work is this going to entail for USFS?)	Communicate with agencies (USFS, DNRC, BLM) when planning trails and recreational access improvements.
There will be congestion.	Plan for more use. Trail head development, signage. (2)

Priority Issue: Access Problems and Issues

Problem or Conflict	Solutions
Helena Fire Department is concerned about getting to medical patients. we are expanding/developing as urban park. currently there is a lack of access for emergency response.	Seven fire agencies involved, 3 agencies, 2 counties. complexities of situation: 10 to 12 medical rescues on Mt. Helena a year. Concerned about increased responses and access.
Increased access. need to look at use estimates. they are always underestimated in transportation plans. there is a big chunk of state land to the west of Mt. Helena. It is school trust land – people need permits to access it right now	Trail access will require payment to the state through easements/ trust.
Fire problem will increase with increased access and use.	State may restrict access in case of fire danger.
Would like it to be user friendly: access is hidden right now. (2)	Good signage, trailhead markings, how to get there from town (access). need facilities (bathrooms).
We are going to see more everyday people using Mt. Helena. This will cause a problem. The South Hills are going to be used a lot.	Need to anticipate and plan for large increase in user days. We need to get the word out. Spread usage over large area rather than concentrating development and heavy use in one area.
Development impact on recreation	Assess potential efect of development of current level of recreation.

Priority Issue: Management Strategies

Problem or Conflict	Solutions
Planning method	Coordination between various governmental agencies
Multiple agencies and counties overlapping jurisdictions (3)	Strong teamwork and communication is needed. Ties into school trust land will need input from DNRC.
Consider the special zoning regulations for the South Hills	

Priority Issue: Long-Term Funding

Problem or Conflict	Solutions
Costs of operation and improvement	Provide for/address

2. PUBLIC (CITIZEN) STAKEHOLDER COMMENT

2.1 Summary

Citizens of Helena took the opportunity to comment at a June 13 open house, through comment forms available at the meeting, and through ERG's web site.

While many issues were identified as high priorities (see tables below), the highest priority issues were recreational use conflicts, urban area growth containment, wildlife protection, aesthetic values, and noxious weed control. Some of these issues showed a diversity of strong opinion in proposed actions, while others, such as noxious weed control, showed solutions that were relatively accommodating of a variety of solutions.

Many citizens of Helena are concerned about the continued increase in use of Helena's open lands system both by out-of-towners and by an increasing number of mountain bikers and dog walkers. Stakeholders would like to see planning for the anticipated increase in use, by separating some trail uses to minimize dog and biker conflicts with hikers. The recreational use conflict between dogs and hikers is more contentious than the conflict between hikers and bikers. Dogs were also characterized as the main problem in protecting wildlife. Solutions suggested ranged from keeping dogs under voice control, to public education, to closing some trails to all use, especially during calving times and for wildlife winter forage needs.

Helenans who weighed in on the high-priority issue of Urban Area Growth Containment were uniformly in favor of limiting development that infringes on public lands access, that moves into wildlife habitat, or that is low density. The word "sprawl" was used often to describe subdivisions adjacent to public land. Stakeholders indicated they would like to see development take place in town rather than on the fringes.

The last highest-priority issue, noxious weeds, was approached very differently by citizens stakeholders than by agency personnel. Citizens overwhelmingly favored a multi-faceted approach to weed control, and preferred hand-pulling, goats, and environmentally-friendly techniques. Some stakeholders felt that hand-application of pesticides could be part of the solution. Chemical sensitivity was brought up as a problem with spraying; others felt aggressive weed control tactics, including aerial spraying, were necessary.

2.2 Citizen Stakeholders Issue Identification – Quantitative

Stakeholders were asked to identify the four highest priority issues in managing Helena's Open Lands.

Issue	Number of High-Priority Responses
Recreation Use Conflicts	17
Urban Area Growth Containment	14
Wildlife Protection	13
Aesthetic Values	13
Noxious Weed Control	12
Native Plant Protection	9
Wildfire Mitigation	9
Boundary Identification and Mapping	8
Trail System Access/Expansion/Linking	7
Soil & Trail Erosion/Maintenance	6
Forest Management	6
Interpretive Opportunities	6
Priority Improvement Projects	5
Other: Stimulate local economy	1

2.3 Public Stakeholder Comment – Qualitative

Priority Issue: Forest Management

Problem or Conflict	Solutions
Do not experiment.	Use only proven methods of management.
Keep minimal. Space is for parks; city is not in the business of wood products manufacturing.	Do not harvest trees for timber production. Forest Management should be implemented for the health of the forest only as necessary.

Problem or Conflict	Solutions
Return woods to something resembling pre-settlement condition.	Reintroduce fire (through controlled burns) and management for small-grain mosaic of succession stages. Conduct thorough inventory of existing forest.
Avoid duplication or omission of services due to involvement of multiple government agencies.	Coordination and long-term plan needed.

Priority Issue: Wildfire Mitigation

Problem or Conflict	Solutions
Thinning on the north side of Mt. Helena may destroy shade cover, which protects the grass and moss growing there. Tree removal may cause the area to dry out, thereby increasing fire danger.	The area remains damp year round and poses little apparent hazard, as the trees are small and unlikely to aid fire crowning. Any thinning should be done properly, without leaving branches behind to exacerbate fire danger.
Keep projects small.	Confine to limits of a given homogenous woodland type. Project should include clean-up. (2)
Dead trees left in forest below Prairie Trail present fire danger.	Remove trees before August, and then burn them when fire danger is low.
Increase public awareness; long-term plan needed. (2)	Educate public about the process, fire hazards, safety, and prevention. (2)
Moderate clearing.	Maintain/preserve variety of trees of different sizes, ages, and species. (2)
Clearing trees and underbrush ladder fuels could impact wildlife and cause artificial appearance.	Explore solutions; prioritize critical fringe and ridge crest areas that appear most vulnerable.

Priority Issue: Noxious Weed Control

Problem or Conflict	Solutions
Limit use of chemicals to treat weeds. Many people are chemically sensitive.	No aerial spraying. Only apply herbicides by hand to specific, limited sites. People should be notified of chemical use prior to application, especially if fumes/spray can drift to adjoining lands. Any use of chemicals should be well-marked.
Large areas need to be treated; need to identify most crucial areas.	Long-term plan needed.
Weeds spread from adjoining properties.	Enforce weed management on adjoining properties. Use biological control (or environmentally-friendly chemicals only); reintroduce goats.
Left untreated, weeds will consume the mountain.	Attack weeds aggressively to eliminate. Do not use aircraft or ORVs; use people with backpack spray units and hand tools.

Problem or Conflict	Solutions
Weed proliferation	Try the goats again.(2) Weekly weed pull. (1)
Sectioning areas for goats apparently unsuccessful.	Consider aerial spraying or alternative method to control the spread and reintroduction of noxious weeds.

Priority Issue: Native Plant Protection

Problem or Conflict	Solutions
Native plants severely threatened by weeds. (4)	Weed control by groups on foot spraying and uprooting; no motors. Use variety of weed control methods (2). Pull/spray/introduce goats and sheep
Weeds are choking out native plants.	Efforts to control noxious weeds should be sensitive to native plants.
Native plants are threatened by trampling by people.	Educate people to stay on trails.

Priority Issue: Recreation Use Conflicts

Problem or Conflict	Solutions
Influx of out-of-town users degrades quality of trail system for Helena users. (2)	Public monies should not be used to develop resource at the expense of many for the economic benefit of a few. Don't promote tourism related to open lands. (2)
Use increases every year.	Protect sustainability and minimize management. Secure a consistent management crew and funding. Follow Prickly Pear Land Trust's lead/plan and pursue grant money for trails.
Over-use of limited area. (2)	Preserve recreational areas in and around the city to the maximum extent possible. Anticipate conflicts that will inevitably arise from increased traffic on trails.
Eliminating steeper trails eliminates opportunity for those interested in more difficult trails.	Trails should be available to and appropriate for users of various ability levels. (2)
Bike/Hiker Conflict	**Solutions**
Speeding mountain bikers present a safety problem for other users.	Some trails should be closed to mechanized use to protect resources and the safety of hikers.
Create more biking opportunities	Make west side roads into single-track looped trail system. Keep North Approach switchbacks open; fix 3rd and 6th switchbacks.
Bike/Hiker conflict.	Restrict bikers to Prairie Trail and lower trails only.

Problem or Conflict	Solutions
Bikes/Hiker conflict not a significant problem, should not over-regulate.	Some minimal user conflict near Adams street/water tank parking lot. Perhaps separate users by closing 1906 to downhill bike traffic below Prairie Trail, and banning foot traffic on Prospect Shafts and Buckside Trail.
Dog/Human Conflict	**Solutions**
Dog/Hiker conflict on Mt. Helena; trail users have been growled at. Unleashed dogs present safety problem. (2)	Restrict dogs to certain, well-marked trails.
Dog and hiker conflict, removal of dog waste.	Dogs should be prohibited on some trails. Trail markings should indicate "dog-friendly" or "dog-discouraged" areas. Educate dog owners about waste removal. Post signs asking owners to clean up after and control pets. Areas of the south hills should remain dog-friendly for dog-walkers, although some would prefer no dogs on any trails. Make leashes and clean-up mandatory.
Dog waste; dogs are noisy and dirty.	Mandatory use of short leashes at all times in the open space.
Dog and human waste, trail degradation. Dog waste is all over the open space, and dogs are running loose. People also do not know how to hike a trail; the urge to walk side by side widens the trails to excessive widths.	Teach these basic skills in. Make short leashes and "doggy diapers" mandatory.
Dogs need a place to go.	Provide dog-friendly areas.
Dog/Hiker conflict.	Prohibit dogs from all trails.
Limit restrictions and user separation.	Create pet-specific areas on limited basis, leaving majority of land open to interpretation or later determinations.
Archer/Non-Archer Conflict	**Solutions**
Access to Davis Gulch has been fenced off south of the archery range. This trail should remain open for bikes and hikers. The land is city-owned and only leased to the archery club for their purposes. Public access to city land should be more important than the archery club's concerns for safety. Is it legal for the archery club to block public access? If so, what will become of the fine single-track trail that circles the side of the hill from the northeast and ends at the fence?	The historical use of the trail by cyclists should be considered. Perhaps the range should be re-oriented to shoot towards the west, where trees and other obstructions would most likely prevent arrows from hitting the road.

Problem or Conflict	Solutions
Open Space Mgmt plan should incorporate outdoor archery range and support existing lease agreement between the Lewis & Clark Archers archery club and the City of Helena.	The archery club urges HOLMAC to recommend that the outdoor archery range remain at the present location with a long-term lease agreement, and that the range not be incorporated for use for any other purpose.

Priority Issue: Urban Area Growth Containment

Problem or Conflict	Solutions
Limit over-development. Urban sprawl in South Hills increases fire danger and has adverse effect on wildlife, recreation use, aesthetic value, overall city appearance and quality of life. (3)	Open Space Bond measure was passed to preserve resource, not for development. Need another open space bond to continue connecting the open space system. Procure money to purchase land in South Hills as future investment against urban sprawl.
Privatization of natural lands; public land is limited resource. (3)	No more land sales to private sector. No more houses on public lands.
Developers/home builders impact area shared by many, causing segmentation and contributing to erosion; thereby increasing cost and effort to remedy.	Continue to promote and support Prickly Pear Land Trust efforts. Create a skyline protection FDEA and issue options to keep development off the ridges.
Urban sprawl and over-population decreases quality of life and contribute to wind-funnel/fire danger.	Secure areas in and around the city as designated open space. Open space should consist of natural beauty, areas of natural drainage and steep slopes, and wildlife havens. These open spaces will afford flood and fire mitigation, wildlife preservation, and nearby access to day-recreation use.
Low-density sprawl, open-space to urban-space interface. Present growth pattern (ie: patchy residential development) causes human/wildlife conflict at urban interface. General consumption of pristine areas.	Keep positive visual and pedestrian-access connection. Adopt Helena-specific building and subdivision regulations for "interface zone"; address visual corridors, sightlines, pedestrian facilities. Learn from existing positive interface in parts of the old south side.
Development and construction south of Le Grand Cannon Blvd is eating up Mount Helena.	No development and construction should occur south of Le Grand Canon Blvd. The city should acquire or condemn all remaining private land to the south of this road.
Evidently no zoning taking place in county. The Valley is filling with houses with no sense of order. Developers have encroached too far up the slopes, in some cases gouging huge portions of the hillsides. (2)	Make zoning work in Lewis & Clark County. Need a resolution to prevent loss of hillside to private development. (3)
Conflict with deer, mountain lions, etc. at urban interface due to patchy residential development.	Encourage growth within reasonable radius of the city limits; discourage patchy development further from city services.

Priority Issue: Wildlife Protection

Problem or Conflict	Solutions
Too many deer and skunks already (2)	
Sensitive wildlife issues.	Make information available to users about issues, ie: spring season and presence of young animals. (2)
Dog/Wildlife Conflict	**Solutions**
Perception of destruction caused by dogs	Allow unleashed dogs with the understanding and encouragement of people to clean up after their pets and keep them under control.
Unleashed dogs pose threat to wildlife. (2)	Educate dog owners about dogs chasing and posing a threat to wildlife.
Presence of too many dogs leads to less wildlife in the open space. (3)	Keep dogs on a short, mandatory leash at all times in the open space.
Unleashed dogs–especially on weekends and in the evenings–threaten wildlife (within city as well).	Human access to sensitive wildlife areas may need to be restricted at times. Dogs on city lands should be confined to select number of trails.
Human/Wildlife Conflict	**Solutions**
Development drives wildlife away. Inadequate open space will cause disappearance of wildlife.(4)	Establish human/wildlife balance. Limit urban development. (3) Forbid "improvements" that involve man-made structures or sites, logging, motors, or roads.

Priority Issue: Boundary Identification and Mapping

Problem or Conflict	Solutions
Poor identification of public vs. private lands. (2)	Clearly delineate and educate public on appropriate access to avoid conflicts. Make maps available and display signs where appropriate. (3)
Public/private land conflict.	Users will comply with boundaries if clearly marked. Educate people about staying on trails.
Limited ID/mapping. (5)	Provide maps of trails on open lands system. (4) Name trails to build sense of ownership and help in navigation.
Lack of orientational signage on the ground. (2)	Mark compass orientation on all permanent trail signs. Small trailhead markers at key intersections

Priority Issue: Interpretive Opportunities

Problem or Conflict	Solutions
Signage/displays may be subject to vandalism. Such development will increase maintenance/management costs and may lead to the imposition of fees, thereby limiting public access. (2)	Interpretation can be accomplished with paper trail guides/maps, thereby limiting potential for vandalism and increased costs. Do not use public funds for interpretive signage.

Problem or Conflict	Solutions
Signs will detract from natural beauty. (3)	Retain natural character by limiting signage and displays. Use maps and limit visual displays. (2)
Blending aesthetic placement, etc. into interpretive structures.	Careful planning and several meetings (with open discussions) are necessary for better product. Limit amount of data on signs.
Need and desire for interpretive maps.	Supply pamphlets at major trailheads (such as native plant brochures). Maps could also show loaction of old mine adits, lime kilns, and special plant locations, and explain trail etiquette.
Need to educate public about natural resources and proper stewardship.	Signage ideas: respect wildlife, explanation of weed management.
Community knows very little about local rocks, woods, land forms, fire history, etc.	Increasing knowledge may increase/improve stewardship. Inventory information and best sites for presentation (geology, geomorphology, forest types, etc.). Develop a brochure and map keyed to site locations on trails.

Priority Issue: Priority Improvement Projects

Problem or Conflict	Solutions
Proposed Lime Kiln Trailhead could increase traffic on county roads maintained by property owners.	Property owners should not have to subsidize east access to open space.
Open Space Bond funding should not be spent in full, ensuring a sufficient, perpetual source for maintenance funding. User fees to public recreational lands should not be imposed.	$500,000 should be set aside in an "Open Space Management Trust" to provide continual/future funding for maintenance. Any plans for maintenance/improvement should not exceed the amount of interest generated by such a trust. This money, as well as accepted donations and grants, should eliminate the need for user fees.

Priority Issue: Aesthetic Values

Problem or Conflict	Solutions
Keep South Hills/Mt. Helena visually appealing from town.	Improve trails/views, particularly from Mt. Helena. Support volunteer days and keep funding going for maintenance/improvements.
Tendency to manage open spaces and trails as strictly athletic-recreational resources ignores potential for aesthetic enjoyment.	Inventory visual features, sightlines, and landscape units with particular aesthetic value. Site new trails to provide interesting sequence of spaces, exposures, long-range and short-range views, etc. Use F.S. landscape/architecture manual, or develop our own (preferable).
Trail "improvement" may interfere with pristine beauty of natural lands. (2)	Do not develop to extent that trails are paved or lighted so as to preserve beauty.

Problem or Conflict	Solutions
Any commercialization or industrial usage of Mt. Helena, designated as a natural park, is unacceptable.	Eliminate notions of "improving" Mt. Helena park with motors, roads, logging of any extent, buildings, structures, or other man-made sites.
Power lines, antennas, parking lots, and too many trails are inconsistent with open space. Open spaces should be natural, not developed areas. (2)	No use of antennas or power lines. Limit the number of trails to small, essential, narrow trails. Do need to develop new parking lots; people can walk or bicycle to open space.
Unable to act on aesthetic values when community does not know what they are. (2)	Define aesthetic values as a community. (2)
Including Panhandle, Quartzite, and East Face trails in the open space planning may cause these routes to become bike chutes and running tracks.	Some trails should remain "rough" – complete with sharp corners and erosion bars – for those hikers that regard Mount Helena primarily as a semi-natural area, to be managed for aesthetics and biodiversity, rather than as a piece of athletic apparatus.

Priority Issue: Trail System Access/Expansion/Linking

Problem or Conflict	Solutions
Expanding open space will cross I-15 to the East.	Continue open space planning.
Crowded trails.	Provide access to other routes.
Do not eradicate popular trails. (3)	Should not be based on arbitrary decision; must seek input from affected parties to determine whether necessary/justified.
More access desired. (2)	Keep North approach switchbacks open to users. Keep existing trails open to the extent that they do not ascend straight up the hill. Create neighborhood access at top of Raleigh. The Panhandle Trail, Quartzite Trail, and East Face Trail should be made part of the officially-designated trail system, unless doing so will contribute to erosion problems and adversely affect aesthetics. Parts of these trails are indistinct and poorly marked.
Right-of-way acquisition and easement, re-opening of historic trails.	Re-open trail from Mt. Ascension ridge toward the west (Medley property); this trail has maintained itself for years, and easement should be gained. Or, build an alternative route at a decent grade down the front of Ascension and replace the steep jeep trail on the west side. Existing game trails may be used to create switch-back system there. Re-open Waterline Trail: negotiate access to city easement for non-motorized use. Signage can indicate prohibition of leaving the trail.

Problem or Conflict	Solutions
Pedestrians and cyclists have difficulty traveling from valley to city and connecting to trail system on city's south side. Connections needed along north, west, and eastern fringes of the city.	Create a trail system along transportation routes into valley (ie: Canyon Ferry Rd, Green Meadow, etc.). Link system to city trail system.

Priority Issue: Soil Erosion and Trail Erosion/Maintenance

Problem or Conflict	Solutions
Soil erosion due to frequent use of steep trails causing chutes for rapid runoff. Damage to hillsides from "unofficial" trails. (3)	Conserve soil by closing steep trails; re-route or reclaim poor trails. Restore with native grasses. (2)
Mountain bikes braking on steep trails cause erosion, cause trails to steepen.	Restrict bikes to certain trails.
Current trail-use policy makes long-term erosion control difficult. Contradiction exists between the desire to minimize erosion and the desire to make trails safe and convenient for mountain bikers and runners; making trails smooth and free of obstructions permits storm runoff.	Open space planning should consider using a two-tier trail classification system that provides some trails, managed to accommodate all special needs of bikers and runners, and other trails managed for hikers only.

Priority Issue: Stimulate Local Economy

Problem or Conflict	Solutions
Develop trail system in open lands.	Stimulate local economy.

3. HOLMAC STAKEHOLDER COMMENT

3.1 Summary

HOLMAC members weighed in on their priorities for Open Lands Management at a May 9 meeting, when all members were asked to list eight previously identified issues in order of importance. Through meeting discussion and individual comment forms, HOLMAC stakeholder opinions were then assessed qualitatively.

Recreation was the first priority for HOLMAC members. Issues ranging from trespassing, accessibility, trail maintenance, archer and dog/hiker conflicts, to management strategies for urban vs. wilder areas should be addressed as top priority. Wildfire mitigation was identified as the second highest priority issue. Solutions suggested a natural thinning pattern and disposing of current slash piles on Mt. Helena.

3.2 HOLMAC Stakeholder Issue Identification – Quantitative

HOLMAC members were asked to rank eight high priority issues; the top four responses of each member were tallied below.

Issue	Number of Top Four Responses
Recreation	9
Wildfire Mitigation	7
Noxious Weed Control	5
Long Range Funding	5
Boundary Identification and Mapping	4
Forest Management	3
Erosion/Trail maintenance	3

3.3 HOLMAC STAKEHOLDER COMMENT – QUALITATIVE

Priority Issue: Forest Management

Problem or Conflict	Solutions
Forest health (4)	
Forest health related to wildfire mitigation and erosion.	Should be tied in with wildfire and successional stages.
Pests - bark beetle epidemic.	Extension service entomologist could help with this.

Priority Issue: Wildfire Mitigation

Problem or Conflict	Solutions
Dangerous fuel load in open lands system	Should begin immediately, use volunteer help with thinning..
What are acceptable practices? Some people oppose tree thinning.	Not clear-cut pattern; thin more naturally. Acceptable slash disposal.
Special features.	Manage here first: bedrock, giant ponderosas.

Priority Issue: Noxious Weed Control

Problem or Conflict	Solutions
Proliferation of weeds	Should begin immediately; spray. (2)
Weed management; bio-recreation user conflicts.	Goats, pesticides.
What methods should be implemented? (2)	Use goats for weed control. Research other biological controls besides goats. Combine management, identification, and mapping.
City was divided on goats.	Education, community involvement. Check literature on effectiveness of goats.

Priority Issue: Native Plant Protection

Problem or Conflict	Solutions
Need to identify key pristine areas.	Dennis has map of surviving quaking aspen stand. Native Plant Society wants former prairie areas thinned.
Educational opportunities:	grasses, ponderosa stands; ecological succession and evolution; heritage program overlays.
Sensitive areas.	Trail closures.

Priority Issue: Recreation

Problem or Conflict	Solutions
Landowners next to open space, possibility of vandalism and trespassing.	Define where access is appropriate and improve signage.
Urban vs. wilder areas (ie: Meatloaf vs. Mt. Ascension).	Analyze current limit of access in relation to level of use.
Lack of accessibility for handicapped, elderly users.	Make available to different user groups. Management should vary; different values.
Trail maintenance.	Encourage volunteer sector.
What to do with the "H"? Many trails around it cause erosion.	
What amount of rules/regulation on the mountain is desirable?	Address user conflicts.
Horses: not allowed on city property; what is Helena's feeling on this?	
Dog waste, and dog lovers vs. non-dog lovers. (2)	Accessible placement of "doggy bag" centers.
Trail users and archery range users.	Resolve through compromise leaving archers where they are.

Priority Issue: Erosion Control

Problem or Conflict	Solutions
Erosion	Trail closures. Establish maintenance standards. Old roads - keep access for wildfire mitigation. Main trails need to be identified and maintained.

Priority Issue: Wildlife and Wildlife Habitat Protection

Problem or Conflict	Solutions
Data gap on wildlife/people interaction. winter range.	Have specialist come and speak on this topic. FWP has mapping of occurrences and winter range.

Problem or Conflict	Solutions
Threatened and endangered species.(2)	
Dogs chasing wildlife.	
Mountain lions/people.	
Deer population reduction; many people upset over deer "invasion" in city.	Research how does current open lands management affect the herd?
Opportunities for habitat development for birds.	

Priority Issue: Mapping and Boundary Identification

Problem or Conflict	Solutions
Lack of public awareness; need for trail maps. (2)	Mapping for recreation resource and public education. PPLT received a small grant to do mapping for trails system. ERG should do a map with basic trails.
Property boundaries.	Identification of property owners' boundaries on trail maps and on trails.

Priority Issue: Long-Term Funding

Problem or Conflict	Solutions
Long and short-term funding needs, strategy, options identification	Pin down necessary amounts: annual cost of weed management? trails? fire managment?
Understand what voting public wants.	Work with Carroll College or other grad students to do statistical characterization of what public would fund.

Priority Issue: Maintenance

Problem or Conflict	Solutions
Vandalism at trailheads.	Long-term maintenance and standards.
What is open space called? With trails in the town?	Name trails and hills to build sense of ownership. Need a logo.

APPENDIX E

McCahon Maps

Introduction:

The maps on the following seven pages depict the varying character of the woodland in the Mount Helena portion of the Helena open lands system, as of the summer of 2001.

Maps 1, 2, and 3 show eight general categories of woodland, with distinctions based on exposure, species mix, predominant size of the trees, density of tree cover, groundcover, degree of sapling encroachment, and wildfire hazard as indicated by the build-up of fuels on all levels.

Maps 4 and 5 show areas where the build-up of fuels is particularly worrisome, and where some sort of human pre-intervention (treatment) might allay the worry a bit. It is suggested that these areas be the first ones treated.

Map 6 shows non-wooded areas and areas where bare rock or talus appears to have stopped or diverted fires in the past. Map 7 shows a few places where early treatment is recommended in order to protect woodlands with an aesthetic character unique in the system. Map 7 should be regarded as only the first small step in what, eventually, would be an extensive study and "inventory" of the aesthetic resource in the open-lands system.

The two areas colored pink, on all maps, were the areas already undergoing treatment in 2001, when the maps were prepared.

The maps were prepared, by a volunteer, over a period of ten months, from data collected during 240 hours (approximately) of direct field observation. Aerial photographs were used sparingly, in deference to on-the-site footwork.

The system employed for data collection was developed to allow field workers to cover a large area fairly quickly. The shorthand used in the field (and included under the main headings in the keys for maps 1, 2, and 3) is explained as follows:

"T" indicates predominance of trees over thirty feet tall;
"P" indicates predominance of "pole-size" trees, ten to thirty feet tall;
"S" indicates sapling-sized trees, three to ten feet tall;
"E" indicates "establishment"-sized trees, new growth less than three feet tall;

"T1" is a closed stand of T-sized trees, distance between crowns averaging less than 20 feet;
"T2" is an open stand of T-sized trees, distance between crowns averaging 20 feet or more;

"P1" is a dense stand of P-sized trees, distance between crowns averaging less than 10 feet;
"P2" is an open stand of P-sized trees, distance between crowns averaging 10 feet or more;

"S1" and "E1," ten feet or less between saplings or "establishment" trees;

"S2" and "E2," more than ten feet between saplings or "establishment" trees;

"Large fuels" are usually standing dead or fallen logs of a diameter of three inches or more;
"Medium fuels" are stems (dead or alive) with a diameter of one to three inches;
"Small fuels" are stems (dead or alive) with a diameter if 1/4 inch to one inch;
"Flash fuels" include such things as cured grass, low brush, hanging dead twigs, pine-needles hung up in grass, etc.

The field observer's judgement regarding whether any of these fuels could be called "dense," "mixed," or "sparse" at any given site, based on a number of additional criteria, was sharpened at a day-long training session conducted by professional foresters prior to the field work.

Map 1

SOUTH SLOPE PONDEROSA PINE WOODLANDS

A TALL OR POLE-SIZE PONDEROSA PINE STANDS WITH LITTLE OR NO SAPLING ENCROACHMENT.
(Typically T2 and/or P2 with patches of T1 and/or P1; S2 and E2, or S and E often scarce or absent. Dead large, medium and small fuels typically sparse to mixed; flash fuels mixed to dense; heavy accumulation of pine needles in many areas. Typically a wide gap exists between low fuels and crowns).

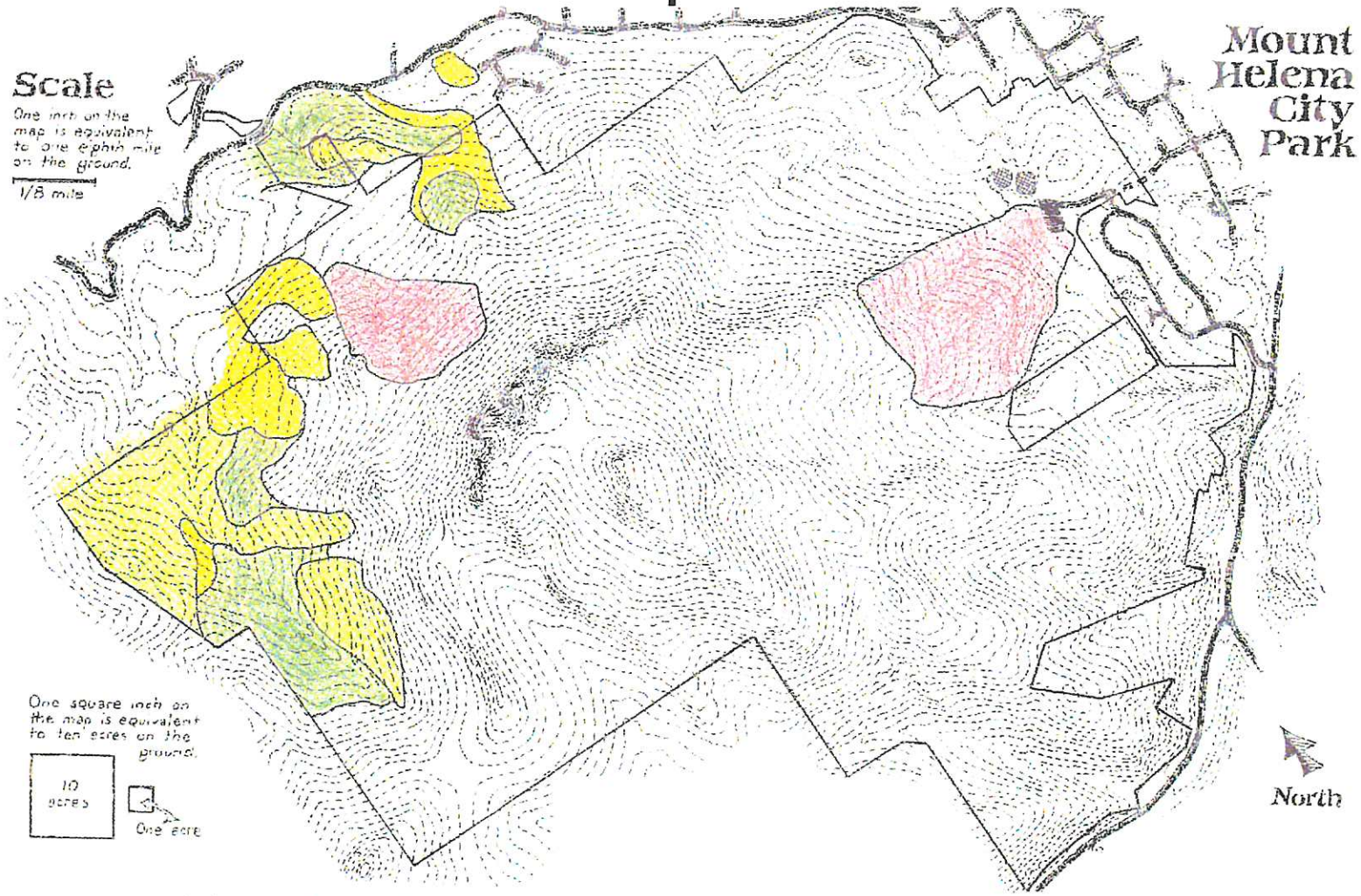
B TALL OR POLE-SIZE PONDEROSA PINE STANDS WITH THE BEGINNINGS OF SAPLING ENCROACHMENT.
(Typically T2 and/or P2 with patches of T1 and/or P1; frequent large patches of S1 and/or E1, including some Douglas-fir. Dead large, medium and small fuels typically sparse to mixed, but living small and flash fuels mixed to dense. Typically the gap between low fuels and crowns still exists – but it's closing).

C TALL OR POLE-SIZE PONDEROSA PINE STANDS WITH HEAVY SAPLING ENCROACHMENT. (Typically T2 and/or P2 with patches of T1 and/or P1; S1 widespread with areas of S2; E1 to E2; Dead large, medium and small fuels typically mixed to sparse, but living medium, small and flash fuels present in quantities sufficient to make a frequent or continuous "ladder" from low fuels into crowns. P, S and E sometimes Douglas-fir under T2 Ponderosa Pine).

D STANDS SIMILAR TO (A) OR (B), BUT WITH LOWERING CANOPY, INCREASING DENSITY, GREATER SPECIES MIX, AND GREATER PROPORTION OF SMALLER TREES, BUT NOT TO EXTENT OF (C).
(Typically T2 and/or P2 mixed with T1 and/or P1; S2 and E2; increasing presence of Douglas-fir, Juniper, and deciduous shrub; Dead large, medium and small fuels mixed to sparse; living medium and small fuels mixed; flash fuels sometimes dense, due to heavy low shrub.

E PONDEROSA PINE SAPLING STANDS
(T and P absent or widely scattered; typically S1 and/or E1 throughout; large fuels typically absent, but living medium, small and flash fuels mixed to dense; grass etc. often tall and dense; low shrub common). These are usually formerly-open areas recently colonized by pine.

Map 2



LOWER NORTH SLOPE PONDEROSA PINE WOODLANDS

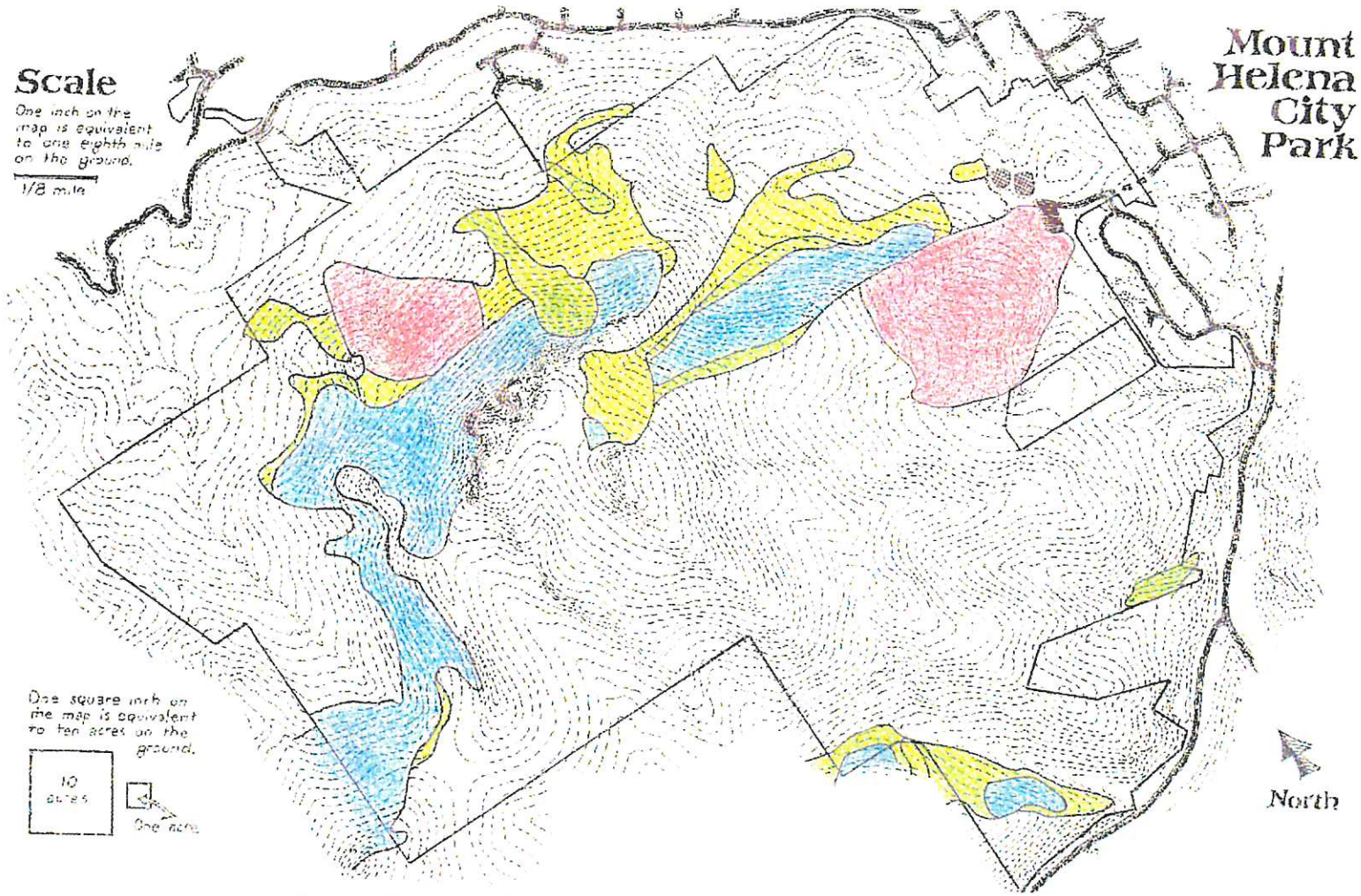
A A SMALL, OPEN PONDEROSA PINE GROVE WITH LITTLE SAPLING ENCROACHMENT. CT2 and P2; S and E nearly absent; large, medium and small fuels sparse, flash fuels mixed. Grove surrounded by heavier fuels). Smaller patches, similar to this one, are scattered through the large tract of (B) to the west.

B TALL OR POLE-SIZE PONDEROSA PINE STANDS WITH THE BEGINNINGS OF SAPLING ENCROACHMENT. Typically T2 and/or P2 with patches of T1 and/or P1; frequent large patches of S1 and/or E1, including some Douglas-fir; dead large, medium and small fuels typically mixed to sparse, but living small and flash fuels mixed to dense. Typically a gap exists between low fuels and crowns, but it is beginning to close).

C TALL OR POLE-SIZE PONDEROSA PINE (OR MIXED) STANDS WITH HEAVY SAPLING ENCROACHMENT. Typically T2 and/or P2 with patches of T1 and/or P1; S1 widespread with areas of S2; E1 to E2; dead large, medium and small fuels typically mixed to sparse, but living medium, small and flash fuels present in quantities sufficient to make a frequent or continuous "ladder" from low fuels into the crowns. P, S, and E are often Douglas-fir under T2 Ponderosa Pine).

E PONDEROSA PINE SAPLING STANDS (T and P absent or widely scattered; typically S1 and/or E1 throughout, large fuels typically absent; but living medium, small and flash fuels mixed to dense;). These are formerly open areas recently colonized by pine and scattered Douglas-fir.

Map 3



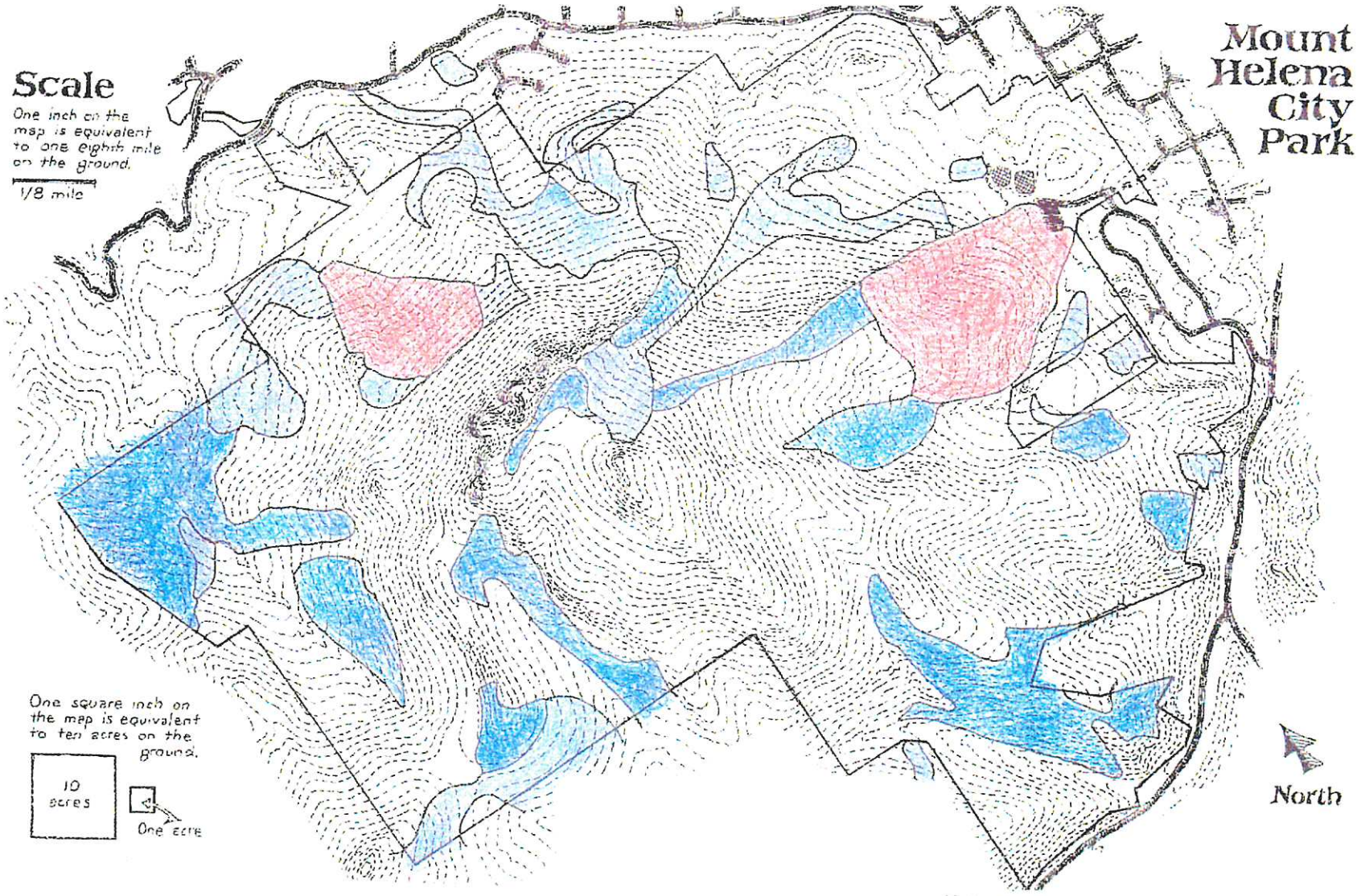
NORTH SLOPE DOUGLAS-FIR WOODLANDS

F OLDER CLOSED-CANOPY DOUGLAS-FIR STANDS (WITH SOME PONDEROSA PINE OR MIXED GROVES) WITH RELATIVELY LITTLE SAPLING ENCROACHMENT. (Typically T1 and/or P1 overall; S2 and E2 but S and E sometimes absent; dead large, medium and small fuels typically mixed to rather sparse; flash fuels often sparse due to shade; though there are areas of low shrub, Juniper, etc.).

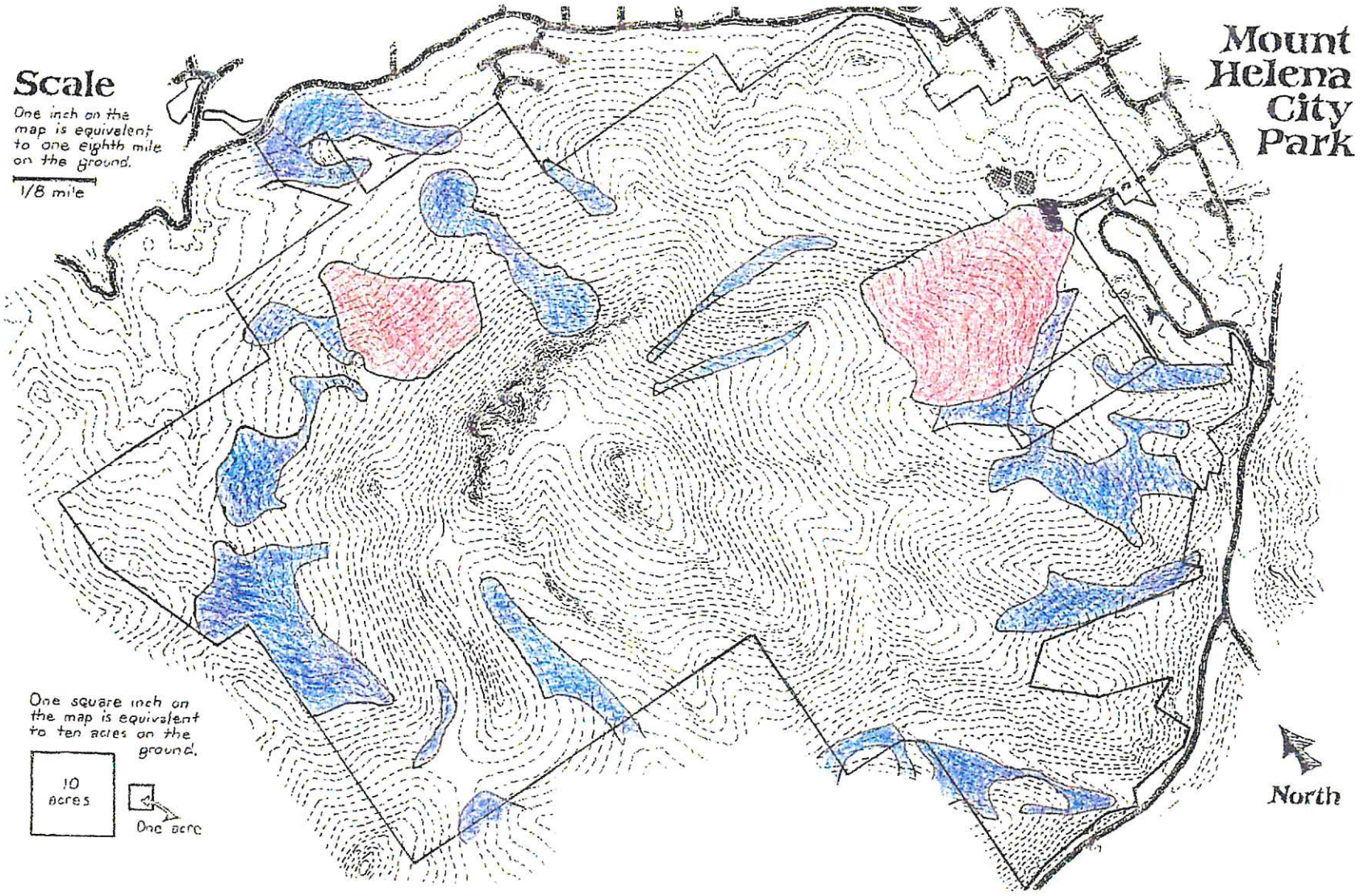
G OLDER DOUGLAS-FIR AND MIXED DOUGLAS-FIR AND PONDEROSA PINE STANDS WITH HEAVY SAPLING ENCROACHMENT. (Typically T1 and/or P1; S1 widespread; E1 to E2; dead large, medium and small fuels typically mixed to rather sparse; though sometimes heavy due to Ponderosa Pine mortality; living medium, small and flash fuels present in quantities sufficient to make frequent or continuous "ladder" from low fuels into the crowns).

H Douglas-fir SAPLING STANDS. (INCLUDES SOME SCATTERED PONDEROSA PINE). (T and P absent or widely scattered; typically S1 and/or E1 throughout; large fuels typically absent — except in the 1973 burn, where there's lots of deadfall — but living medium, small and flash fuels mixed to dense; grass etc. often tall and dense). These are usually formerly-open areas recently colonized by Douglas fir.

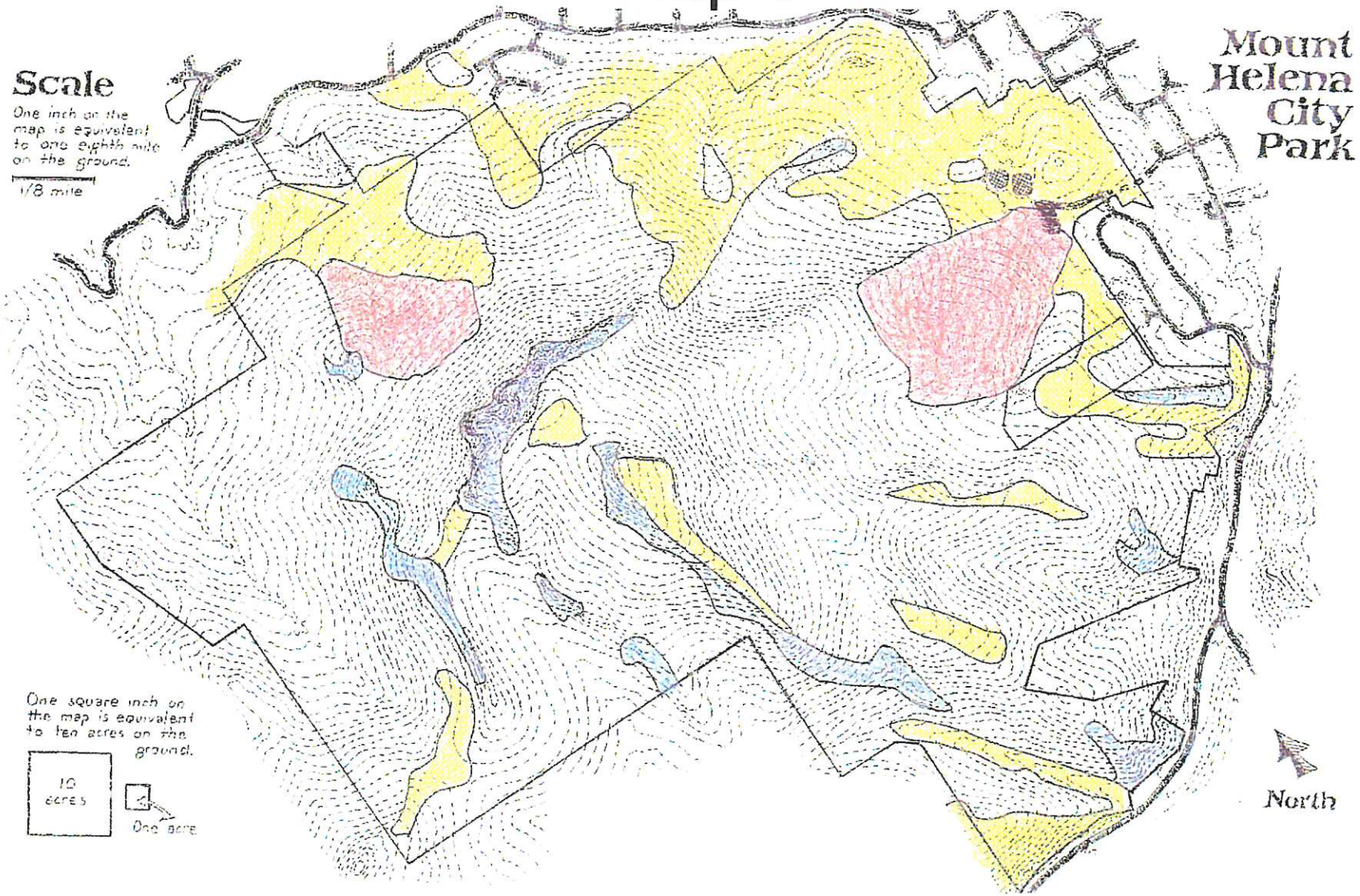
Map 4


Mount Helena City Park
Scale
One inch on the map is equivalent to one eighth mile on the ground.
1/8 mile
One square inch on the map is equivalent to ten acres on the ground.
10 acres
One acre
North
AREAS WHERE THE SAME SORTS OF WORK ALREADY BEING DONE IN THE TWO TREATED TRACTS (PINK) WOULD PROBABLY DO SOME GOOD:
DOUGLAS-FIR AND PONDEROSA PINE SAPLING STANDS WITH LITTLE OR NO OVERSTORY (E and H on the woodland maps)
TALL OR POLE-SIZE PONDEROSA PINE STANDS WITH THE BEGINNINGS OF SAPLING ENCROACHMENT (B on the woodland maps)

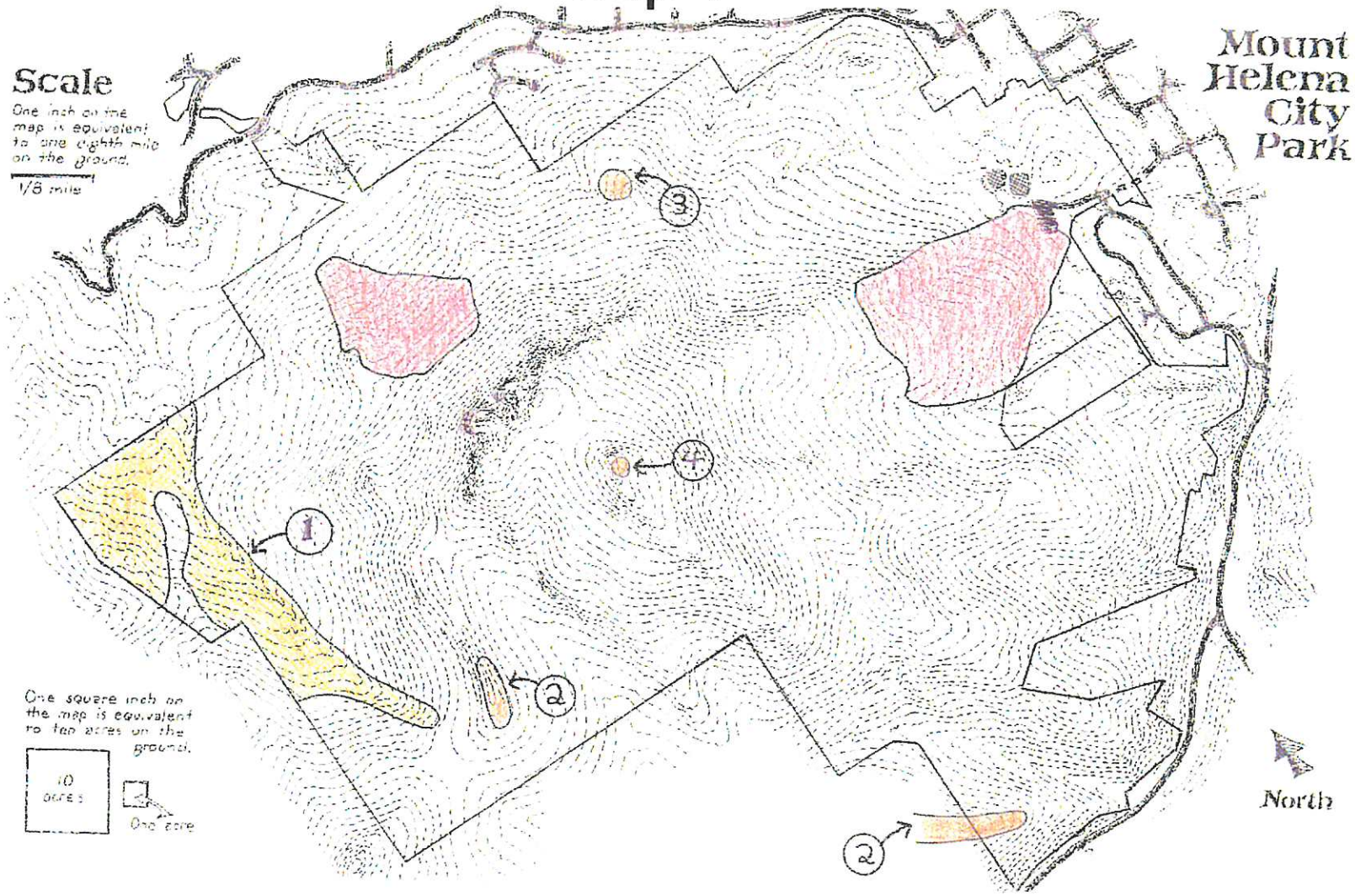
Map 5


Mount Helena City Park
Scale
One inch on the map is equivalent to one eighth mile on the ground.
1/8 mile
One square inch on the map is equivalent to ten acres on the ground.
10 acres
One acre
North
AREAS WHERE FUEL BUILD-UP ON ALL LEVELS SEEMS TO BE GREATEST, AND WHERE THINNING — BEYOND THE SORT ALREADY BEING DONE IN THE TWO TREATED AREAS (PINK) — WOULD PROBABLY BE NEEDED (C and G on the woodland maps).

Map 6


Mount Helena City Park
Scale
One inch on the map is equivalent to one eighth mile on the ground.
1/8 mile
One square inch on the map is equivalent to ten acres on the ground.
10 acres
One acre
North
NON-WOODED AREAS, INCLUDING AREAS OF WIDELY-SCATTERED TREES, AS WELL AS GRASSLANDS AND AREAS OF LOW BRUSH (some of these brushy areas would support a tall fire).
AREAS OF BARE ROCK, OR AREAS WHERE THERE IS EVIDENCE THAT TALUS OR OUTCROPPINGS HAVE STOPPED OR DIVERTED FIRE IN THE PAST.

Map 7



SPECIAL PRIORITY AREAS: IF THE CITY WERE TO ADOPT A POLICY THAT PARTICULAR, UNIQUE, PATCHES OF WOODS DESERVE SPECIAL PROTECTION FROM WILDFIRE, FOR REASONS OF AESTHETICS OR WILDLIFE HABITAT, ETC., THESE ARE SOME OF THE THINGS THAT MIGHT BE CONSIDERED:

(1) A SCATTERED STAND OF BIG, OLD, CINNAMON-BARKED PONDEROSA PINE, NOW IN PERIL DUE TO SAPLING ENCROACHMENT (in my opinion, these deserve top priority).

(2) INTERESTING RIDGE-TOP VEGETATION, INCLUDING STANDS OF SMALL, SLOW-GROWTH, PONDEROSA PINES, ETC.

(3) THE LARGEST GROVE OF LIMBER PINE ON THE MOUNTAIN.

(4) THE ONLY SURVIVING CLUMP OF QUAKING ASPEN ON THE MOUNTAIN

– ETC.

APPENDIX F

Lewis & Clark County Noxious Weed List

Lewis & Clark County Noxious Weed List

Common Name	Scientific Name	State Designation[a]	Located in HOL
Whitetop (hoary cress)	*Cardaria draba*	Category 1	x-P
Diffuse knapweed	*Centaurea diffusa*	Category 1	x-P
Spotted knapweed	*Centaurea maculosa*	Category 1	x-P
Russian knapweed	*Centaurea repens*	Category 1	
Yellow starthistle	*Centaurea solstitialis*	Category 3	
Rush skeletonweed	*Chondrilla juncea*	Category 3	
Oxeye daisy	*Chrysanthemum leucanthemum*	Category 1	x-P
Canada thistle	*Cirsium arvense*	Category 1	x-P
Field bindweed	*Convolvulus arvensis*	Category 1	x
Common crupina	*Crupina vulgaris*	Category 3	
Houndstongue	*Cynoglossum officinale*	Category 1	x-P
Leafy spurge	*Euphorbia esula*	Category 1	x-P
Meadow hawkweed	*Hieracium pratense*	Category 2	x
Orange hawkweed	*Hieracium aurantiacum*	Category 2	x
St. Johnswort (goatweed)	*Hypericum perforatum*	Category 1	
Dyer's woad	*Isatis tinctoria*	Category 2	
Tall pepperweed	*Lepidium densiflorum*	County	
Dalmatian toadflax	*Linaria dalmatica*	Category 1	x-P
Purple loosestrife	*Lythrum salicaria* and *Lythrum virgatum*	Category 2	
Sulfur cinquefoil	*Potentilla recta*	Category 1	x
Tall buttercup	*Rannunculus acris*	Category 2	
Tansy ragwort	*Senecio jacobaea*	Category 2	
Canada goldenrod	*Solidago canadensis*	County	
Salt cedar	*Tamarix ramosissma*	Category 2	
Common tansy	*Tanacetum vulgare*	Category 1	

[a] State designation categories:

MT-1 - Currently established and generally widespread populations.
MT-2 - Recently introduced or rapidly spreading.
MT-3 - Not yet detected or only small populations.

P Denotes weeds that have been specifically identified in the HNOSIMP for control.
x Denotes occurrence.
Blank cell denotes no occurrences on HOL

APPENDIX G

Draft Reclamation Plan

Helena Open Lands Reclamation Plan
Seedbed Preparation and Seeding

The following specifications apply to all disturbed areas within the Helena Open Lands system. These areas may or may not have current vegetative cover and also to those intentionally kept plant free or have some trail related maintenance. Vegetative cover areas include native or introduced plant communities that provide protection from erosional forces and competition against weed establishment and spread. Disturbed areas will be reseeded.

The objective of reseeding for this project within the HOL is four-fold; 1) to retard the spread of existing weed populations, 2) to ensure that no new weed species infest the area, 3) to prevent or minimize erosion, and 4) to improve native plant communities and wildlife habitat. It is not the intention of this reclamation plan to control weeds on already infested HOL or to establish graminoid dominated plant communities within previously existing weed stands.

Disturbed areas will be seeded with temporary nurse crops or cover crops if trail or adjacent area construction is completed during the summer months (June through August). Existing vegetation will be cleared only from areas scheduled for immediate trail or recreation related construction work (within 10 days) and only for the width needed for active construction activities.

A. Soil Preparation

1. Compacted soil will be scarified by ripping prior to reseeding- Those areas to be scarified will be mutually agreed upon (e.g-, trail heads, trails scheduled for retirement, trails, etc.).

2. Soil on areas to be seeded shall be left in a roughened condition favorable to the retention and germination of seed. A minimum of ½ inch of surface soil shall be in a loose condition, unless otherwise specified.

3. Areas to be seeded, which are damaged by erosion or other causes, shall be restored prior to seeding. Except for slopes intentionally left in a roughened condition, all areas to be seeded shall be finished and then cultivated to provide a reasonably firm but pliable seedbed (applies to gently sloping ground). In all areas, care will be taken to assure a good seedbed.

4. When scarification is required to break up compacted surfaces, soils shall be ripped to a depth of not less than 6 inches with rippers not more than 16 inches apart unless otherwise agreed upon. Care should be taken to rip rather than plow the areas.

B. Seeding Seasons

No application work shall be done during extremely windy or rainy weather. No seed shall be applied to frozen ground. Seeding should occur within 7 days of final grading, ripping or other disturbing activities.

C. Application Methods for Seed and Fertilizer

1. The kinds of seed and amounts to be applied in terms of Pure Live Seed (PLS) are shown in the seed mixtures. Seed mixture rates are for broadcast seeding. Pounds of seed to be furnished per acre shall be obtained by dividing the pounds of PLS required per acre by the product of the percent purity and percent germination.

Example: Pounds of Pounds of Pure Live Seed Per Acre Commercial Percent Purity x Percent Germination Seed Per Acre

2. Fertilizer shall be furnished and applied to all areas that require vegetation establishment. Areas that require vigorous growth will need initial fertilization and refertilization after 2 years is recommended.

For example, an application of 200 pounds per acre of 10-16-10 or 17-17-17 or 16-16-16 would provide the needed fertilization. The best way to apply fertilizer is 100 pounds per acre at the time of seeding and 100 pound per acre the following spring after germination and before the end of the rainy season, normally prior to June 15, A one time application of 200 pounds can be done but will not give the maxim benefit to the young plants. When fertilizer and seed are applied from the same bin, they should not be mixed for more than a few hours (4 hours is the maximum). Periods longer than 4 hours will destroy germination of the seeds. It is preferred not to mix the two, but to apply the two items from 5eperaLe bins or in separate operations.

D. Application of Mulch

Mulch maybe applied as vegetative or wood cellulose mulch on all areas seeded-

1. Vegetative mulch
Vegetative mulch shall be applied after seeding and fertilizing is completed. The mulch shall be applied uniformly at the rate of 2,000 pounds per acre. Mulch material shall be clean straw or grass hay. Hay and straw shall be certified weed free.

2. Wood Cellulose Fiber Mulch
Wood cellulose fiber mulch and fertilizer or paper mulch, and fertilizer may be applied in one operation by means of hydraulic equipment that uses water as the carrying agent. A continuous agitator action that keeps the materials in uniform suspension must be maintained throughout the distribution cycle. The discharge line shall provide an even distribution of the solution to the seedbed. Application shall start at the top of the slope and work downward. If necessary, the use of extension hoses may be required to roach the extremities of the slopes. The rate of application shall be 2,000 pounds of wood cellulose mulch per acre.

E. Care During Revegetation

The seeded areas shall be protected and cared for during establishment. Any damage (surface erosion or gullies to seeded areas caused by construction operations shall be repaired, which may include reseeding and refertilizing.

F. Monitoring

Seeded areas should be checked after allowing sufficient germination period. Sites with poor germination or low application rates should be reseeded or overseeded to provide the desired soil protection. The city will monitor revegetation efforts for a five-year period after completion of construction to determine adequate and successful revegetation. Final revegetation success should be evaluated five years after all human support (e.g., replanting and fertilization) has ceased.

Seed Mix for Helena Open Lands.

Table 1 Native seed mix for droughty sites (south aspects)

Common name	Scientific name	Cultivar	Seeding rate
Slender wheatgrass	*Elymus trachycalus*	Revenue	4
Mountain Brome	*Bromus marginatus*	Bromar	4
Idaho Fescue	*Festuca idahoensis*	Joseph	3
Bluebunch wheatgrass	*Pseudorogneria spicata*	Secar	4
Prairie Junegrass	*Koelaria cristata*		2

Table 2 Moderately cool sites (north aspects)

Common name	Scientific name	Cultivar	Seeding rate
Slender wheatgrass	*Elymus trachycalus*	Revenue	4
Canby bluegrass	*Poa secunda*	Canbar	2
Bluebunch wheatgrass	*Pseudorogneria spicata*	Goldar	4
Blue wildrye	*Elymus glaucus*		4
Mountain Brome	*Bromus marginatus*	Bromar	4
Richardson's needlegrass	*Stipa richardsonii*		3

APPENDIX H

Threatened, Endangered, and Special Status Plant Species

	State and Federal Status					Occurrence	
Scientific Name Common Name	Global Rank[1]	State Rank[1]	USFWS Status[2]	USFS Status[3]	BLM Status[4]	Lewis and Clark Co.	Helena NF
Vascular Plants of Montana							
Amerorchis rotundifolia Roundleaf orchid	G5	S2S3		S	W	X	X
Aquilegia brevistyla Short-styled columbine	G5	S1		S			X
Astragalus convallarius var. *convallarius* Lesser rushy milkvetch*	G5T5	S2			W	X	
Atriplex truncata Wedge-leaved saltbrush	G5	SH			W	X	
Botrychium ascendens Upward-lobed moonwort	G3	S1		S		X	
Botrychium crenulatum Crenulate moonwort	G3	S2		S			X
Botrychium paradoxum Peculiar moonwort	G2	S2		S			X
Carex livida Pale sedge	G5	S3		S		X	X
Carex paupercula Poor sedge	G5	S3		S			X
Cirsium longistylum Long-styled thistle	G2	S2		S		X	X
Cypripedium parviflorum Small yellow lady's slipper*	G5	S3		S	W	X	X
Cypripedium passerinum Sparrow's egg lady's slipper	G4G5	S2		S		X	X
Downingia laeta Great Basin downingia	G5	S1			W	X	
Draba densifolia Dense-leaf draba	G5	S2				X	
Drosera anglica English sundew	G5	S2		S		X	X
Drosera linearis Linear-leaved sundew	G4	S1		S		X	X
Eleocharis rostellata Beaked spikerush	G5	S2		S	W	X	X
Epipactis gigantea Giant helleborine	G4	S2		S	W		X
Erigeron lackschewitzii Lackschewitz' fleabane	G3	S3		S		X	

Scientific Name Common Name	State and Federal Status					Occurrence	
	Global Rank[1]	State Rank[1]	USFWS Status[2]	USFS Status[3]	BLM Status[4]	Lewis and Clark Co.	Helena NF
Erigeron linearis Linearleaf fleabane	G5	S1				X	
Grindelia howellii Howell's gum-weed	G3	S2S3		S			X
Howellia aquatilis Water howellia	G2	S2	LT	T			
Juncus hallii Hall's rush	G4G5	S2		S			X
Phlox kelseyi var. *missoulensis* Missoula phlox	G2	S2		S		X	X
Polygonum douglasii ssp. *austinae* Austin's knotweed	G5T4	S2S3		S		X	X
Salix wolfii var. *wolfii* Wolf's willow	G5T4	S3		S			X
Saussurea densa Dwarf saw-wort	G3G5	S2				X	
Scirpus subterminalis Water bulrush	G4G5	S2		S		X	X
Silene spaldingii Spalding's campion	G2	S1	PE				
Spiranthes diluvialis Ute ladies' -tresses	G2	S2	LT		W		
Veratrum californicum *California false-hellebore*	G5	S1		S	W	X	X
Viola renifolia Kidney-leaf white violet	G5	S3		S	W		X
Nonvascular Plants of Montana							
Sphagnum fimbriatum	G5	S1				X	
Tetraplodon angustatus	G3?	S1				X	

[1]Global Rank/State Rank.

G=Global rank indicator; denotes rank based on rangewide status.

T= Denotes rangewide status of infraspecific taxa.

S=State rank indicator; denotes rank based on status within Montana

1=Critically imperiled because of extreme rarity or because some factor of its biology makes it especially vulnerable to extinction (typically 5 or fewer occurrences).

2=Imperiled because of rarity or because other factors demonstrable make it very vulnerable to extinction (typically 6 to 20 occurrences).

3=Rare or uncommon but not imperiled (typically 21 to 100 occurrences).

4=Not rare and apparently secure, but with cause for long-term concern (usually more than 100 occurrences).

5=Demonstrably widespread, abundant, and secure.

[2]USFWS Status. LT=Listed Threatened SC=Species of Concern LE=Listed Endangered C=Candidate PE=Proposed Endangered.
[3]USFS Status. S=Sensitive W=Watch.
[4]BLM Status. S=Sensitive W=Watch.
X=Occurrence
* denotes occurrence in the HOL
Blank cells in status clumns indicate no special status designation has been assigned by agency.
Black cells in occurrence columns indicate no known occurrences within that jurisdiction.

APPENDIX I

List of Mount Helena Plant Species

Flora of Mount Helena

Genus	Species	Family	Common name	Origin
Acer	glabrum	Aceraceae	Mountain Maple	Native
Achillea	millefolium	Asteraceae	Yarrow	Native
Agoseris	glauca	Asteraceae	Pale Agoseris	Native
Agropyron	cristatum	Poaceae	Crested Wheatgrass	Exotic
Allium	cernuum	Liliaceae	Nodding Onion	Native
Allium	textile	Liliaceae	Textile Onion	Native
Alyssum	alyssoides	Brassicaceae	Pale Alyssum	Exotic
Amaranthus	albus	Amaranthaceae	Pigweed	Native
Amelanchier	alnifolia	Rosaceae	Western Serviceberry	Native
Androsace	occidentalis	Primulaceae	Western Fairy-candelabra	Native
Anemone	multifida	Ranunculaceae	Cliff Anemone	Native
Anemone	patens	Ranunculaceae	Pasqueflower	Native
Antennaria	dimorpha	Asteraceae	Low Pussy-toes	Native
Antennaria	microphylla	Asteraceae	Rosy Pussy-toes	Native
Antennaria	parvifolia	Asteraceae	Nuttall's Pussy-toes	Native
Antennaria	racemosa	Asteraceae	Raceme Pussy-toes	Native
Antennaria	umbrinella	Asteraceae	Umber Pussy-toes	Native
Apocynum	androsaemifolium	Apocynaceae	Spreading Dogbane	Native
Arabis	holboellii	Brassicaceae	Holboell's Rockcress	Native
Arabis	microphylla	Brassicaceae	Little Rockcress	Native
Arabis	nuttallii	Brassicaceae	Nuttall's Rockcress	Native
Arctostaphylos	uva-ursi	Ericaceae	Bearberry	Native
Arenaria	capillaris	Caryophyllaceae	Thread-leaved Sandwort	Native
Aristida	purpurea	Poaceae	Red Threeawn	Native
Arnica	cordifolia	Asteraceae	Heart-leaf Arnica	Native
Arnica	sororia	Asteraceae	Twin Arnica	Native
Artemisia	campestris	Asteraceae	Northern Wormwood	Native
Artemisia	cana	Asteraceae	Silver Sage	Native
Artemisia	dracunculus	Asteraceae	Tarragon	Native
Artemisia	frigida	Asteraceae	Fringed Sagewort	Native
Artemisia	ludoviciana	Asteraceae	Prairie Sagewort	Native
Artemisia	michauxiana	Asteraceae	Michaux Mugwort	Native
Asclepias	viridiflora	Asclepiadaceae	Green Milkweed	Native
Asparagus	officinalis	Liliaceae	Asparagus	Exotic
Asperugo	procumbens	Boraginaceae	Catchweed	Exotic
Aster	ascendens	Asteraceae	Long-leaved Aster	Native
Aster	campestris	Asteraceae	Western Meadow Aster	Native
Aster	conspicuus	Asteraceae	Showy Aster	Native
Aster	falcatus	Asteraceae	White Prairie Aster	Native
Astragalus	adsurgens	Fabaceae	Standing Milkvetch	Native
Astragalus	agrestis	Fabaceae	Field Milkvetch	Native
Astragalus	convallarius	Fabaceae	Lesser Rushy Milkvetch	Native
Astragalus	crassicarpus	Fabaceae	Ground Plum	Native
Astragalus	flexuosus	Fabaceae	Wiry Milkvetch	Native
Astragalus	gilviflorus	Fabaceae	Plains Orophaca	Native
Astragalus	gracilis	Fabaceae	Slender Milkvetch	Native
Astragalus	inflexus	Fabaceae	Hairy Milkvetch	Native
Astragalus	lotiflorus	Fabaceae	Lotus Milkvetch	Native
Astragalus	miser	Fabaceae	Weedy Milkvetch	Native
Astragalus	missouriensis	Fabaceae	Missouri Milkvetch	Native
Astragalus	purshii	Fabaceae	Pursh's Milkvetch	Native

Flora of Mount Helena

Genus	Species	Family	Common name	Origin
Balsamorhiza	sagittata	Asteraceae	Arrowleaf Balsamroot	Native
Berteroa	incana	Brassicaceae	Berteroa	Exotic
Besseya	wyomingensis	Scrophulariaceae	Wyoming Kittentails	Native
Bouteloua	gracilis	Poaceae	Blue Grama	Native
Brickellia	eupatorioides	Asteraceae	False Boneset	Native
Bromus	brizaeformis	Poaceae	Rattlesnake Brome	Exotic
Bromus	inermis	Poaceae	Smooth Brome	Exotic
Bromus	japonicus	Poaceae	Japanese Brome	Exotic
Bromus	tectorum	Poaceae	Cheatgrass	Exotic
Calamagrostis	rubescens	Poaceae	Pinegrass	Native
Calochortus	nuttallii	Liliaceae	Sego Lily	Native
Camelina	microcarpa	Brassicaceae	False Flax	Exotic
Campanula	rotundifolia	Campanulaceae	Harebell	Native
Cardaria	chalepensis	Brassicaceae	Chalapa Hoarycress	Exotic
Cardaria	draba	Brassicaceae	Hoary Pepperwort	Exotic
Carduus	nutans	Asteraceae	Musk Thistle	Exotic
Carex	deweyana	Cyperaceae	Dewey's Sedge	Native
Carex	filifolia	Cyperaceae	Thread-leaved Sedge	Native
Carex	foena	Cyperaceae	Bronze Sedge	Native
Carex	geyeri	Cyperaceae	Elk Sedge	Native
Carex	petasata	Cyperaceae	Liddon's Sedge	Native
Carex	praegracilis	Cyperaceae	Clustered Field Sedge	Native
Carex	stenophylla	Cyperaceae	Narrow-leaved Sedge	Native
Castilleja	lutescens	Scrophulariaceae	Yellowish Paintbrush	Native
Castilleja	pallescens	Scrophulariaceae	Palish Indian-paintbrush	Native
Centaurea	diffusa	Asteraceae	Tumble Knapweed	Exotic
Centaurea	maculosa	Asteraceae	Spotted Knapweed	Exotic
Cerastium	arvense	Caryophyllaceae	Field Chickweed	Native
Chaenactis	douglasii	Asteraceae	Hoary Chaenactis	Native
Cheilanthes	feei	Polypodiaceae	Fee's Lip-fern	Native
Chenopodium	album	Chenopodiaceae	Lambsquarter	Exotic
Chenopodium	desiccatum	Chenopodiaceae	Slimleaf Goosefoot	Native
Chenopodium	fremontii	Chenopodiaceae	Fremont's Goosefoot	Native
Chrysanthemu	leucanthemum	Asteraceae	Oxeye Daisy	Exotic
Chrysothamnus	nauseosus	Asteraceae	Common Rabbitbrush	Native
Chrysothamnus	viscidiflorus	Asteraceae	Green Rabbitbrush	Native
Cirsium	arvense	Asteraceae	Canada Thistle	Exotic
Cirsium	undulatum	Asteraceae	Wavy-leaf Thistle	Native
Clematis	columbiana	Ranunculaceae	Columbia Clematis	Native
Clematis	hirsutissima	Ranunculaceae	Vaseflower Clematis	Native
Clematis	ligusticifolia	Ranunculaceae	Western Virgins-bower	Native
Cleome	serrulata	Capparidaceae	Rocky Mountain Bee Plant	Native
Collinsia	parviflora	Scrophulariaceae	Blue-eyed Mary	Native
Collomia	linearis	Polemoniaceae	Narrow-leaf Collomia	Native
Comandra	umbellata	Santalaceae	Bastard Toadflax	Native
Convolvulus	arvensis	Convolvulaceae	Field Bindweed	Exotic
Corydalis	aurea	Fumariaceae	Golden Corydalis	Native
Coryphantha	missouriensis	Cactaceae	Missouri Ballcactus	Native
Crepis	acuminata	Asteraceae	Tapertip Hawksbeard	Native
Crepis	atribarba	Asteraceae	Slender Hawksbeard	Native
Crepis	modocensis	Asteraceae	Low Hawksbeard	Native

Flora of Mount Helena

Genus	Species	Family	Common name	Origin
Cryptantha	celosioides	Boraginaceae	Northern Cryptantha	Native
Cryptantha	watsonii	Boraginaceae	Watson's Cryptantha	Native
Cymopterus	bipinnatus	Apiaceae	Hayden's Cymopterus	Native
Cystopteris	fragilis	Polypodiaceae	Brittle Bladder-fern	Native
Delphinium	bicolor	Ranunculaceae	Little Larkspur	Native
Descurainia	pinnata	Brassicaceae	Pinnate Tansymustard	Native
Descurainia	richardsonii	Brassicaceae	Mountain Tansymustard	Native
Descurainia	sophia	Brassicaceae	Flixweed Tansymustard	Exotic
Disporum	trachycarpum	Liliaceae	Wart-berry Fairybell	Native
Dodecatheon	conjugens	Primulaceae	Slimpod Shooting Star	Native
Douglasia	montana	Primulaceae	Douglasia	Native
Draba	nemorosa	Brassicaceae	Woods Draba	Exotic
Draba	oligosperma	Brassicaceae	Few-seeded Draba	Native
Elymus	canadensis	Poaceae	Canada Wildrye	Native
Elymus	cinereus	Poaceae	Great Basin Wildrye	Native
Elymus	glaucus	Poaceae	Blue Wheatgrass	Native
Elymus	hispidus	Poaceae	Intermediate Wheatgrass	Exotic
Elymus	repens	Poaceae	Quackgrass	Exotic
Elymus	smithii	Poaceae	Western Wheatgrass	Native
Elymus	spicatus	Poaceae	Bluebunch Wheatgrass	Native
Elymus	trachycaulus	Poaceae	Bearded Wheatgrass	Native
Elymus	virginicus	Poaceae	Virginia Wildrye	Native
Epilobium	angustifolium	Onagraceae	Fireweed	Native
Erigeron	caespitosus	Asteraceae	Tufted Fleabane	Native
Erigeron	compositus	Asteraceae	Cut-leaved Fleabane	Native
Erigeron	corymbosus	Asteraceae	Long-leaved Fleabane	Native
Erigeron	divergens	Asteraceae	Spreading Fleabane	Native
Erigeron	pumilus	Asteraceae	Shaggy Fleabane	Native
Erigeron	speciosus	Asteraceae	Showy Fleabane	Native
Erigeron	subtrinervis	Asteraceae	Three-veined Fleabane	Native
Eriogonum	flavum	Polygonaceae	Yellow Buckwheat	Native
Eriogonum	umbellatum	Polygonaceae	Sulfur Buckwheat	Native
Eritrichium	howardii	Boraginaceae	Howard's Alpine Forget-me-not	Native
Erysimum	asperum	Brassicaceae	Western Wallflower	Native
Erysimum	inconspicuum	Brassicaceae	Small Wallflower	Native
Euphorbia	esula	Euphorbiaceae	Leafy Spurge	Exotic
Euphorbia	glyptosperma	Euphorbiaceae	Corrugate-seeded Spurge	Native
Festuca	idahoensis	Poaceae	Idaho Fescue	Native
Festuca	ovina	Poaceae	Sheep Fescue	Exotic
Festuca	scabrella	Poaceae	Rough Fescue	Native
Filago	arvensis	Asteraceae	Fluffweed	Exotic
Fragaria	virginiana	Rosaceae	Virginia Strawberry	Native
Frasera	speciosa	Gentianaceae	Giant Frasera	Native
Fraxinus	pennsylvanica	Oleaceae	Green Ash	Native
Fritillaria	atropurpurea	Liliaceae	Checker Lily	Native
Fritillaria	pudica	Liliaceae	Yellow Bell	Native
Gaillardia	aristata	Asteraceae	Blanket Flower	Native
Galium	aparine	Rubiaceae	Cleavers	Native
Galium	boreale	Rubiaceae	Northern Bedstraw	Native
Gaura	coccinea	Onagraceae	Scarlet Gaura	Native
Gentianella	amarella	Gentianaceae	Northern Gentian	Native

Flora of Mount Helena

Genus	Species	Family	Common name	Origin
Geranium	viscosissimum	Geraniaceae	Sticky Geranium	Native
Geum	triflorum	Rosaceae	Prairie Smoke	Native
Glycyrrhiza	lepidota	Fabaceae	Wild Licorice	Native
Grindelia	squarrosa	Asteraceae	Gumweed	Native
Gutierrezia	sarothrae	Asteraceae	Broom Snakeweed	Native
Gypsophila	paniculata	Caryophyllaceae	Baby's Breath	Exotic
Habenaria	unalascensis	Orchidaceae	Alaska Rein-orchid	Native
Hackelia	floribunda	Boraginaceae	Many-flowered Stickseed	Native
Hackelia	micrantha	Boraginaceae	Blue Stickseed	Native
Haplopappus	acaulis	Asteraceae	Cushion Goldenweed	Native
Hedeoma	drummondii	Lamiaceae	Drummond False Pennyroyal	Native
Hedysarum	boreale	Fabaceae	Northern Hedysarum	Native
Helianthus	annus	Asteraceae	Common Sunflower	Native
Hesperis	matronalis	Brassicaceae	Dame's Rocket	Exotic
Heterotheca	villosa	Asteraceae	Hairy Golden Aster	Native
Heuchera	cylindrica	Saxifragaceae	Roundleaved Alum	Native
Heuchera	parvifolia	Saxifragaceae	Small-leaved Alumroot	Native
Hieracium	albiflorum	Asteraceae	White-flowered Hawkweed	Native
Hieracium	cynoglossoides	Asteraceae	Hounds-tongue Hawkweed	Native
Hymenopappus	polycephalus	Asteraceae	Hymenopappus	Native
Hymenoxys	acaulis	Asteraceae	Stemless Hymenoxys	Native
Iris	missouriensis	Iridaceae	Rocky Mountain Iris	Native
Iva	axillaris	Asteraceae	Poverty Weed	Native
Juncus	balticus	Juncaceae	Baltic Rush	Native
Juniperus	communis	Cupressaceae	Common Juniper	Native
Juniperus	scopulorum	Cupressaceae	Rocky Mountain Juniper	Native
Koeleria	macrantha	Poaceae	Prairie Junegrass	Native
Lactuca	pulchella	Asteraceae	Blue Lettuce	Native
Lactuca	serriola	Asteraceae	Prickly Lettuce	Exotic
Lappula	myosotis	Boraginaceae	Bristly Stickseed	Exotic
Lappula	redowski	Boraginaceae	Western Stickseed	Native
Lepidium	campestre	Brassicaceae	Field Pepperweed	Exotic
Lepidium	densiflorum	Brassicaceae	Prairie Pepperweed	Native
Lepidium	virginicum	Brassicaceae	Tall Pepperweed	Native
Lesquerella	alpina	Brassicaceae	Alpine Bladderpod	Native
Lewisia	rediviva	Portulacaceae	Bitterroot	Native
Liatris	punctata	Asteraceae	Dotted Blazing Star	Native
Linaria	dalmatica	Scrophulariaceae	Dalmatian Toadflax	Exotic
Linum	australe	Linaceae	Yellow Flax	Native
Linum	lewisii	Linaceae	Blue Flax	Native
Lithospermum	arvense	Boraginaceae	Corn Gromwell	Exotic
Lithospermum	incisum	Boraginaceae	Yellow Gromwell	Native
Lithospermum	ruderale	Boraginaceae	Western Gromwell	Native
Lomatium	dissectum	Apiaceae	Fern-leaved Desert Parsley	Native
Lomatium	triternatum	Apiaceae	Nine-leaf Lomatium	Native
Lonicera	tartarica	Caprifoliaceae	Tartarian Honeysuckle	Exotic
Lupinus	argenteus	Fabaceae	Silvery Lupine	Native
Lupinus	sericeus	Fabaceae	Silky Lupine	Native
Machaeranthera	canescens	Asteraceae	Hoary Aster	Native
Mahonia	repens	Berberidaceae	Creeping Oregon-grape	Native
Medicago	lupulina	Fabaceae	Black Medic	Exotic

Flora of Mount Helena

Genus	Species	Family	Common name	Origin
Medicago	sativa	Fabaceae	Alfalfa	Exotic
Melilotus	alba	Fabaceae	White Sweetclover	Exotic
Melilotus	officinalis	Fabaceae	Yellow Sweetclover	Exotic
Mentzelia	decapetala	Loasaceae	Evening Star	Native
Mentzelia	dispersa	Loasaceae	Small-flowered Mentzelia	Native
Mertensia	oblongifolia	Boraginaceae	Oblongleaf Bluebells	Native
Mirabilis	linearis	Nyctaginaceae	Narrow-leaved Four-o'clock	Native
Monarda	fistulosa	Lamiaceae	Horsemint	Native
Monolepis	nuttalliana	Chenopodiaceae	Monolepsis	Native
Muhlenbergia	richardsonis	Poaceae	Mat Muhly	Native
Musineon	divaricatum	Apiaceae	Leafy Musineon	Native
Nepeta	cataria	Lamiaceae	Catnip	Exotic
Oenothera	villosa	Onagraceae	Common Evening Primrose	Native
Opuntia	polyacantha	Cactaceae	Prickly Pear	Native
Orobanche	fasciculata	Orobanchaceae	Clustered Broomrape	Native
Orthocarpus	luteus	Scrophulariaceae	Yellow Owl-clover	Native
Orthocarpus	tenuifolius	Scrophulariaceae	Owl Clover	Native
Oryzopsis	hymenoides	Poaceae	Indian Ricegrass	Native
Oryzopsis	micrantha	Poaceae	Littleseed Ricegrass	Native
Oxytropis	besseyi	Fabaceae	Bessey's Crazyweed	Native
Oxytropis	lagopus	Fabaceae	Rabbitfoot Crazyweed	Native
Oxytropis	sericea	Fabaceae	Silky Crazyweed	Native
Parietaria	pensylvanica	Urticaceae	Pellitory	Native
Paronychia	sessiliflora	Caryophyllaceae	Stemless Whitlow-wort	Native
Pedicularis	contorta	Scrophulariaceae	Coiled-beak Lousewort	Native
Pellaea	occidentalis	Polypodiaceae	Cliff-brake	Native
Penstemon	attenuatus	Scrophulariaceae	Sulphur Penstemon	Native
Penstemon	eriantherus	Scrophulariaceae	Fuzzytongue Penstemon	Native
Phacelia	hastata	Hydrophyllaceae	Silverleaf Phacelia	Native
Phacelia	heterophylla	Hydrophyllaceae	Varileaf Phacelia	Native
Phacelia	linearis	Hydrophyllaceae	Threadleaf Phacelia	Native
Philadelphus	lewisii	Hydrangeaceae	Mock Orange	Native
Phleum	pratense	Poaceae	Timothy	Exotic
Phlox	albomarginata	Polemoniaceae	White-margined Phlox	Native
Phlox	alyssifolia	Polemoniaceae	Alyssum-leaved Phlox	Native
Phlox	bryoides	Polemoniaceae	Moss Phlox	Native
Phlox	hoodii	Polemoniaceae	Hood's Phlox	Native
Pinus	flexilis	Pinaceae	Limber Pine	Native
Pinus	ponderosa	Pinaceae	Ponderosa Pine	Native
Plantago	patagonica	Plantaginaceae	Indian-wheat	Native
Poa	compressa	Poaceae	Canada Bluegrass	Exotic
Poa	cusickii	Poaceae	Cusick's Bluegrass	Native
Poa	fendleriana	Poaceae	Muttongrass	Native
Poa	interior	Poaceae	Inland Bluegrass	Native
Poa	pratensis	Poaceae	Kentucky Bluegrass	Exotic
Poa	secunda	Poaceae	Sandberg's Bluegrass	Native
Polygonum	achoreum	Polygonaceae	Knotweed	Native
Polygonum	douglasii	Polygonaceae	Douglas' Knotweed	Native
Populus	tremuloides	Salicaceae	Quaking Aspen	Native
Potentilla	concinna	Rosaceae	Early Cinquefoil	Native
Potentilla	glandulosa	Rosaceae	Sticky Cinquefoil	Native

Flora of Mount Helena

Genus	Species	Family	Common name	Origin
Potentilla	gracilis	Rosaceae	Slender Cinquefoil	Native
Potentilla	hippiana	Rosaceae	Woolly Cinquefoil	Native
Potentilla	pensylvanica	Rosaceae	Prairie Cinquefoil	Native
Prunus	virginiana	Rosaceae	Chokecherry	Native
Pseudotsuga	menziesii	Pinaceae	Douglas-fir	Native
Purshia	tridentata	Rosaceae	Bitterbrush	Native
Ranunculus	glaberrimus	Ranunculaceae	Sagebrush Buttercup	Native
Ratibida	columnifera	Asteraceae	Prairie Coneflower	Native
Rhamnus	alnifolia	Rhamnaceae	Alder Buckthorn	Native
Rhus	trilobata	Anacardiaceae	Skunk-bush Sumac	Native
Ribes	aureum	Grossulariaceae	Golden Currant	Native
Ribes	cereum	Grossulariaceae	Wax Currant	Native
Ribes	viscosissimum	Grossulariaceae	Sticky currant	Native
Rosa	arkansana	Rosaceae	Prairie Rose	Native
Rosa	woodsii	Rosaceae	Woods Rose	Native
Salsola	collina	Chenopodiaceae	Russian Thistle	Exotic
Schoenocramb	linifolia	Brassicaceae	Plainsmustard	Native
Sedum	lanceolatum	Crassulaceae	Lanceleaved Stonecrop	Native
Selaginella	densa	Selaginellaceae	Compact Selaginella	Native
Senecio	canus	Asteraceae	Woolly Groundsel	Native
Shepherdia	canadensis	Elaeagnaceae	Canada Buffaloberry	Native
Sisymbrium	altissimum	Brassicaceae	Tumblemustard	Exotic
Sisymbrium	loeselii	Brassicaceae	Loesel Tumblemustard	Exotic
Sisyrinchium	montanum	Iridaceae	Blue-eyed Grass	Native
Smilacina	racemosa	Liliaceae	False Spikenard	Native
Smilacina	stellata	Liliaceae	Starry Solomon's Seal	Native
Solanum	dulcamara	Solanaceae	Climbing Nightshade	Exotic
Solidago	missouriensis	Asteraceae	Missouri Goldenrod	Native
Solidago	multiradiata	Asteraceae	Many-rayed Goldenrod	Native
Sonchus	asper	Asteraceae	Prickly Sow Thistle	Native
Sonchus	uliginosus	Asteraceae	Marsh Sow Thistle	Native
Sorbus	domestica	Rosaceae	Mountain Ash	Exotic
Sphaeralcea	coccinea	Malvaceae	Red Globe Mallow	Native
Spiraea	betulifolia	Rosaceae	Shiny-leaf Spiraea	Native
Sporobolus	cryptandrus	Poaceae	Sand Dropseed	Native
Stephanomeria	tenuifolia	Asteraceae	Narrow-leaved Skeletonweed	Native
Stipa	comata	Poaceae	Needle-and-thread	Native
Stipa	nelsonii	Poaceae	Western Needlegrass	Native
Stipa	richardsonii	Poaceae	Richardson's Needlegrass	Native
Stipa	viridula	Poaceae	Green Needlegrass	Native
Symphoricarpos	albus	Caprifoliaceae	Common Snowberry	Native
Symphoricarpos	occidentalis	Caprifoliaceae	Western Snowberry	Native
Syringa	vulgaris	Oleaceae	Lilac	Exotic
Taraxacum	officinale	Asteraceae	Common Dandelion	Exotic
Tetradymia	canescens	Asteraceae	Gray Horsebrush	Native
Thalictrum	occidentale	Ranunculaceae	Western Meadowrue	Native
Townsendia	hookeri	Asteraceae	Hooker's Townsendia	Native
Townsendia	parryi	Asteraceae	Parry's Townsendia	Native
Tragopogon	dubius	Asteraceae	Goat's Beard	Exotic
Urtica	dioica	Urticaceae	Stinging Nettle	Native
Valeriana	dioica	Valerianaceae	Northern Valerian	Native

Flora of Mount Helena

Genus	Species	Family	Common name	Origin
Verbascum	thapsus	Scrophulariaceae	Mullein	Exotic
Verbena	bracteata	Verbenaceae	Bracted Verbena	Native
Vicia	americana	Fabaceae	American Vetch	Native
Viola	nuttallii	Violaceae	Yellow Prairie Violet	Native
Viola	vallicola	Violaceae	Valley Yellow Violet	Native
Woodsia	oregana	Polypodiaceae	Oregon Woodsia	Native
Zigadenus	elegans	Liliaceae	Mountain Death Camas	Native
Zigadenus	venenosus	Liliaceae	Meadow Death Camas	Native

APPENDIX J

Wildlife List

Wildlife List (from Turner et.al, 1997; Joslin 2002)

Species - Common name (*scientific name*)	
Amphibians	
Boreal (Western) toad (*Bufo boreas*)	Long-toed salamander (*Ambystoma macrodactylum*)
Reptiles	
Common garter snake (*Thamnophis sertalis*)	Rubber boa (*Charina bottae*)
Gopher snake (*Petuophis catenfir*)	Western garter snake (*Thamnophis elegans*)
Painted turtle (*Chrysemys picta*)	Western rattlesnake (*Crotalus viridis*)
Racer (*Coluber constrictor*)	
Mammals	
Badger (*Taxidea taxus*)	Montane shrew (*Sorex monicola*)
Big brown bat (*Eptesicus fuscus*)	Montane vole (*Microtus montanus*)
Black bear (*Ursus americanus*)	Moose (*Alces alces*)
Bobcat (*Lynx rufus*)	Mountain cottontail (*Sylvilagus nuttallii*)
Bushy-tailed woodrat (*Neotoma cinerea*)	Mountain lion (*Felis concolor*)
Columbian ground squirrel (*Spermophilus columbianus*)	Mule deer (*Odocoileus hemionus*)
Coyote (*Canis latrans*)	Northern flying squirel (*Glaucomys sabrinus*)
Deer mouse (*Peromyscus maniculatus*)	Northern pocket gopher (*Thomomys talpoides*)
Elk (*Cervus elaphus*)	Porcupine (*Erethizon dorsatum*)
Gapper's red-backed vole (*Clethrionomys gapperi*)	Red fox (*Vulpes vulpes*)
Golden-mantled ground squirrel (*Spermophilus lateralis*)	Red squirrel (*Tamiasciurus hudsonicus*)
Gray wolf (*Canis lupus*)	Red-tailed chipmunk (*Eutamias ruficaudus*)
Hoary bat (*Nycteris cinerea*)	Snowshoe hare (*Lepus americanus*)
Little brown bat (*Myotis lucifugus*)	Striped skunk (*Mephitis mephitis*)
Long-tailed vole (*Microtus longicaudus*)	White-tailed deer (*Odocoileus virginianus*)
Long-tailed weasel (*Mustela frenata*)	Wolverine (*Gulo gulo*)
Masked shrew (*Sorex cinereus*)	Yellow-bellied marmot (*Marmota flaviventris*)
Meadow vole (*Microtus pennsylvanicus*)	Yellow-pine chipmunk (*Eutmias amoenus*)
Birds	
American robin (*Turdus migratorius*)	Mountain chickadee (*Parus gambeli*)

Species - Common name (*scientific name*)	
American crow (*Corvus brachyrhynchos*)	Mourning dove (*Zenaida macroura*)
Black-billed magpie (*Pica pica*)	Northern pygmy owl (*Glaucidium gnoma*)
Black-capped chickadee (*Parus atricapillus*)	Northern flicker (*Colaptes auratus*)
Blue grouse (*Dendragapus obscurus*)	Prairie falcon (*Falco mexicanus*)
Bohemian waxwing (*Bombycilla garrulus*)	Raven (*Corvus corax*)
Brewer's blackbird (*Euphagus cyanocephalus*)	Red crossbill (*Loxia curvirostra*)
Calliope hummingbird (*Stellula calliope*)	Red-breasted nuthatch (*Sitta canadensis*)
Cassin's finch (*Carpodacus cassinii*)	Red-tailed hawk (*Buteo jamaicensis*)
Cedar waxwing (*Bombycilla cedrorum*)	Rock wren (*Salpinctes obsoletus*)
Chipping sparrow (*Spizella passerina*)	Rosy finch (*Leucosticte atrata*)
Clark's nutcracker (*Nucifraga columbiana*)	Ruby-crowned kinglet (*Regulus calendula*)
Dark-eyed junco (*Junco hymalis*)	Rufous hummingbird (*Selasphorus rufus*)
Downy woodpecker (*Picoides pubescens*)	Solitary vireo (*Vireo solitarius*)
Dusky flycatcher (*Empidonax oberholseri*)	Spotted towhee (*Pipilo maculatus*)
Golden-crowned kinglet (*Regulus satrapa*)	Stellar's jay (*Cyanocitta stelleri*)
Gray jay (*Perisoreus canadensis*)	Townsend's solitaire (*Myadestes townsendi*)
Green-tailed towhee (*Pipilo chlorurus*)	Turkey vulture (*Cathartes aura*)
Hairy woodpecker (*Picoides villosus*)	Vesper sparrow (*Pooecetes gramineus*)
Hammond's flycatcher (*Empidonax hammondii*)	Western meadowlark (*Sturnella neglecta*)
Hermit thrush (*Catharus guttatus*)	Western wood-pewee (*Contopus sordidulus*)
House finch (*Carpodacus mexicanus*)	Western tanager (*Piranga ludoviciana*)
Lark sparrow (*Chondestes grammacus*)	White-breasted nuthatch (*Sitta carolinensis*)
Lazuli bunting (*Passerina amoena*)	White-crowned sparrow (*Zonotrichia leucophrys*)
Merlin (*Falco columbarius*)	Yellow warbler (*Dendroica petechia*)
Mountain bluebird (*Sialia currucoides*)	Yellow-rumped warbler (*Dendroica coronata*)

APPENDIX K

Stakeholder Contact List

Helena Open Lands List of Contacts

Last Name	*First Name*	*Company Name*	*City*	*State*
		Gold Country Rails-to-Trai	Helena	MT
	Helena Bicycle Club		Helena	MT
	Lewis & Clark Archers		Helena	MT
	Montana Historical Societ	Montana Historical Societ	Helena	MT
		Growing Friends of Helen	Helena	MT
		The Nature Conservancy	Helena	MT
		Great Divide Cyclery/Cycli	Helena	MT
		Montana Wildlife Federati	Helena	MT
		Lewis & Clark Library		
Anderson	Debbie	USFS, Helena Forest Fou		
Anson	David	City of Helena	Helena	
Bailey	Lydia	Montana Department of Fi	Kalispell	MT
Bailey	Polly		Helena	MT
Barnes	Dawn Henriksen	Helena Outdoor Club	Helena	MT
Barton	Drake		Clancy	MT
Baur	Andy	Prickly Pear Land Trust	Helena	MT
Beckner	Randy	Nordic Ski Club	Helena	MT
Berry	Leo	Open Space Bond Comm		
Boone	Lynne	citizen, general rec. user	Helena	MT
Bowsher	Joan	City County Parks Board,	Helena	MT
Byron	Eve	Independent Record	Helena	MT
Cancroft	Jim	HOLMAC	Helena	MT
Carter	John	City County Parks Board		
Casteel	Ric			
Christnacht	Jim	Citizen council	Helena	MT
Cohea	Phil		Helena	MT
Cohea	Nick		Helena	MT
Cortright	Rita	Lewis & Clerk County We	Helena	MT

Last Name	*First Name*	*Company Name*	*City*	*State*
Cuneo	Kurt	Helena Ranger District	Helena	MT
Dalthorp	Dave		Helena	MT
Deola	Shawn	citizen, general recreation	Helena	MT
Dowden	DD		Helena	MT
Downey	Michael	Montana FW&P	Helena	MT
Edwards	Paul		Helena	MT
Ely	Kathleen		Helena	MT
Franks-Ongoy	Bernadette	Montana Advocacy Progr	Helena	MT
Freistadt	Norane		Helena	MT
Geiger	Connie			
Grady	Rick	MT DNRC		
Griffith	Earl	City County Parks Board		
Habeck	Bob	Citizen council, HCC	Helena	MT
Harp	Duane	USFS	Helena	MT
Harrington	John	Independent Record	Helena	MT
Harris	Kathy		Helena	MT
Haugen	Sharon	Helena Planning Departm		
Herrin	John		Helena	MT
Hibbard	Chase	HOLMAC	Helena	MT
Hinshaw	John	Lewis & Clark County GIS	Helena	MT
Hoffman	Larry			
Hudnall	Robert (Bob)	Lewis & Clark County Par	E. Helena	MT
Johnson	Phil			
Johnson	Pete	Open Space Bond Comm	Helena	MT
Jones	Cedron	Natural Heritage Program		
Joslin	Gayle	Montana DFWP	Helena	MT
Kilmer	Judy		Helena	MT
Kilmer	Tom		Helena	MT
Kirkland	Carol	Parks & Recreation	Helena	MT
Kolb	Peter	UM Forestry Extension		

Last Name	*First Name*	*Company Name*	*City*	*State*
Larson	Steve	Helena Fire Department	Helena	MT
Lilje	Randy	Helena Parks Dept.	Helena	MT
Lloyd	Kathy	Montana Native Plant Soc	Helena	MT
Lloyd	Kathy	citizen, Native Plant Socie	Clancy	MT
Lombardi	Jan		Helena	MT
Lynd	Rich	Parks Department		
Macefield	Kathy		Helena	MT
McCahon	Dennis		Helena	MT
McGee	Stephen	Lewis & Clark Archers	Helena	MT
McGee	Jerry	Citizen council		
McHugh	Michael	Lewis & Clark Co. Plannin	Helena	MT
McKelvey	Pat	Tri-County Fire Group	Helena	MT
Morris	Greg	MT DNRC	Helena	MT
Morris	Barb	Citizen council	Helena	MT
North	Dawn	HOLMAC	Helena	MT
Ochenski	George		Helena	MT
O'Neill	Peggy	Independent Record	Helena	MT
Payne	Dave	USFS Helena National Fo	Helena	MT
Person	Bob		Helena	MT
Poston	Joan	Open Space Bond Adviso	Helena	MT
Purcell	Emmett		Helena	MT
Reeves	Amy	Big Sky Youth Archery	Helena	MT
Reichert	Paul	AERO's Smart Growth an		
Roberts	Bill	Helena Citizens Council,	Helena	MT
Sampson	Dave	Citizen council	Helena	MT
Schmoldt	Ralph	Helena Bicycle Club	Helena	MT
Shovers	Brian	citizen, hiker, Audubon S	Helena	MT
Siefert	Charles		Helena	MT
Sing	Sharlene		Bozeman	MT
Spencer	Jerry	City County Parks Board	Helena	MT

Last Name	*First Name*	*Company Name*	*City*	*State*
Spengler	Paul	Lewis & Clark Co. Disaste	Helena	MT
Stanley	Alice	HOLMAC	Helena	MT
Stiger	Everett	Montana Prescribed Fire	Wolf Creek	MT
Straub	Dell	Fairgrounds User's Group		
Summerer	Cheryl		Helena	MT
Summerer	Bob		Helena	MT
Sutherland	Bob		Hamilton	MT
Teegarden	Amy	USFS		
Thun	JoAnne		Helena	MT
Toubman	Sara			
VanHook	Charles	MT Wetlands Trust		
Walker	Bob	Fish, Wildlife, & Parks	Helena	MT
Wellbank	Mary Ann	Helena Bicycle Club		
White	Clay		Helena	MT
Wilbur	Jim		Helena	MT
Wilsnack	Ann	citizen, general rec. user	Helena	MT
Youmans	Heidi	citizen, general rec. user	Helena	MT

APPENDIX L

HOLMAC Membership

HOLMAC Membership

Name	Email	Telephone	Term
Alice Stanley, Chair (General public)	lightbrigade@onewest.net	442-5588	6-30-04
Jim Cancroft (General public)	denali@montana.com	443-8831	6-30-03
Chase Hibbard (General public)	ctbard@in-tch.com	442-1803	6-30-04
Dawn North (General public)	mtnorth@juno.com	443-4284	6-30-03
Bill Roberts (Helena Citizens Commission)	bill_roberts@attglobal.net	443-4993	6-30-04
Vacant (Parks Board)			
Pete Johnson (OSBAC)	pjjohnson@amfedsb.com	442-3625	2-28-03

APPENDIX M

Resolutions and Ordinances

RESOLUTION NO. 10961

A RESOLUTION DEDICATING MOUNT HELENA CITY PARK AS A NATURAL PARK

WHEREAS, Mount Helena City Park has long been recognized as the symbol of the natural and beautiful setting of Montana's capital city; and

WHEREAS, the City of Helena's founders granted most of the existing Mount Helena City Park "forever, to be used as a public park."; and

WHEREAS, Mount Helena City Park comprises over 700 acres, with Mount Helena rising majestically above the City of Helena, while the park still retains the natural character for which it was acquired; and

WHEREAS, for over 90 years, Mount Helena City Park has provided a scenic backdrop for our community and fills a unique recreational niche for Helena's citizens and visitors; and

WHEREAS, while the City has an abundance of other parks that provide a wide variety of recreational opportunities to the general public, Mount Helena City Park is exceptional in its primarily undeveloped and natural condition and, in order to maintain that natural condition, the City Commission has determined to maintain Mount Helena City Park as it now is, both to ensure Helena's picturesque backdrop and to provide diverse recreational opportunities for the future; and

WHEREAS, the City offers this special dedication of Mount Helena City Park as a natural park to ensure that the park's natural character is maintained in perpetuity for visual and recreational enjoyment of future generations. The intent of such a dedication is to preserve, protect and maintain the park's natural, scenic, historic, educational, and recreational resources for the enjoyment of all present and future citizens; and

existing Mount Helena City Park "forever, to be used as a public park."; and

WHEREAS, Mount Helena City Park comprises over 700 acres, with Mount Helena rising majestically above the City of Helena, while the park still retains the natural character for which it was acquired; and

WHEREAS, for over 90 years, Mount Helena City Park has provided a scenic backdrop for our community and fills a unique recreational niche for Helena's citizens and visitors; and

WHEREAS, while the City has an abundance of other parks that provide a wide variety of recreational opportunities to the general public, Mount Helena City Park is exceptional in its primarily undeveloped and natural condition and, in order to maintain that natural condition, the City Commission has determined to maintain Mount Helena City Park as it now is, both to ensure Helena's picturesque backdrop and to provide diverse recreational opportunities for the future; and

WHEREAS, the City offers this special dedication of Mount Helena City Park as a natural park to ensure that the park's natural character is maintained in perpetuity for visual and recreational enjoyment of future generations. The intent of such a dedication is to preserve, protect and maintain the park's natural, scenic, historic, educational, and recreational resources for the enjoyment of all present and future citizens; and

WHEREAS, it appears to be in the best interests of the City of Helena and its inhabitants that Mount Helena City Park be dedicated as a natural park.

NOW, THEREFORE, BE IT RESOLVED BY THE COMMISSION OF THE CITY OF HELENA, MONTANA:

Section 1. That the Helena City Commission hereby grants the

special designation of "natural park" to Mount Helena City Park to ensure the park's natural character in perpetuity for the visual and recreational enjoyment of present and future generations.

Section 2. In accordance with said special designation, development activities within the boundaries of Mount Helena City Park are permitted as follows:

(a) improvements necessary to ensure safe public use of the Park;

(b) resurfacing of access roads and Reeder's Village Drive parking area;

(c) installation of restrooms in the Reeder's Village Drive parking area;

(d) expansion of the Reeder's Village Drive parking area to the south and east, if required by increased use;

(e) establishment of new unpaved hiking trails, maintenance and improvement of existing unpaved hiking trails, and establishment of trails accessible to people with disabilities consistent with the spirit of the Americans with Disabilities Act;

(f) installing minimal signs and/or kiosks for trail identification, trail interpretation and Park protocol;

(g) fencing, gates and barriers along the Park boundaries and parking area;

(h) fencing to limit use of eroding areas;

(i) planting, revegetation, restoration and management of native plants;

(j) access to and maintenance and replacement of existing structures at present sizes and locations, including:

(1) power transmission lines;

(2) public radio antenna and communication equipment building;

(a) improvements necessary to ensure safe public use of the Park;

(b) resurfacing of access roads and Reeder's Village Drive parking area;

(c) installation of restrooms in the Reeder's Village Drive parking area;

(d) expansion of the Reeder's Village Drive parking area to the south and east, if required by increased use;

(e) establishment of new unpaved hiking trails, maintenance and improvement of existing unpaved hiking trails, and establishment of trails accessible to people with disabilities consistent with the spirit of the Americans with Disabilities Act;

(f) installing minimal signs and/or kiosks for trail identification, trail interpretation and Park protocol;

(g) fencing, gates and barriers along the Park boundaries and parking area;

(h) fencing to limit use of eroding areas;

(i) planting, revegetation, restoration and management of native plants;

(j) access to and maintenance and replacement of existing structures at present sizes and locations, including:

(1) power transmission lines;

(2) public radio antenna and communication equipment building;

(3) Private television antenna and communication equipment building;

(4) Woolston reservoir, fencing, and water lines;

(5) picnic tables.

(k) weed management through use of biological, chemical and mechanical methods consistent with the intent of this dedication to

ensure the park's natural character;

(l) forest management for the enhancement of the forest resources, wildlife habitat, watershed protection and, specifically, thinning to promote growth, habitat diversity, fire protection/rescue, disease control, and harvesting of trees that pose a hazard to people or property; and

(m) except as limited herein, any uses not inconsistent with the intent of this dedication.

Section 3. Development activities within the boundaries of Mount Helena City Park that are specifically prohibited are as follows:

(a) creation of temporary or permanent roads;

(b) installation of utilities for water, sewer, electricity or cable;

(c) installation of additional communication towers, antenna towers or dishes;

(d) clear cutting of timber;

(e) installation of any structure not expressly permitted by dedication;

(f) livestock grazing, except as permitted for weed management; and

(g) dumping of refuse, including any toxic or hazardous waste.

Section 4. This resolution is consistent with the Helena City Charter, is effective upon its signing, and supersedes any conflicting designation made by the City of Helena.

PASSED AND EFFECTIVE BY THE CITY COMMISSION OF THE CITY OF HELENA, MONTANA, THIS 11TH DAY OF DECEMBER, 1995.

J. Ray McKenna

MAYOR

(...) except as limited herein, any uses not inconsistent with the intent of this dedication.

Section 3. Development activities within the boundaries of Mount Helena City Park that are specifically prohibited are as follows:

(a) creation of temporary or permanent roads;

(b) installation of utilities for water, sewer, electricity or cable;

(c) installation of additional communication towers, antenna towers or dishes;

(d) clear cutting of timber;

(e) installation of any structure not expressly permitted by dedication;

(f) livestock grazing, except as permitted for weed management; and

(g) dumping of refuse, including any toxic or hazardous waste.

Section 4. This resolution is consistent with the Helena City Charter, is effective upon its signing, and supersedes any conflicting designation made by the City of Helena.

PASSED AND EFFECTIVE BY THE CITY COMMISSION OF THE CITY OF HELENA, MONTANA, THIS 11TH DAY OF DECEMBER, 1995.

J. Ray McKenna
MAYOR

ATTEST:

Debbie Pullam
CLERK OF THE COMMISSION

Parks

RESOLUTION NO. 11500

A RESOLUTION DESIGNATING MOUNT ASCENSION AS A NATURAL CITY PARK

WHEREAS, Mount Ascension is a prominent landmark on the south central edge of the City of Helena that is a part of the natural and beautiful setting of Montana's capital city; and

WHEREAS, much of Mount Ascension has been in private ownership, and the City of Helena recently acquired a substantial portion thereof from The Diehl Company and from the Prickly Pear Land Trust which acquired property previously owned by Adron Medley, both parcels being legally described as follows:

DIEHL PROPERTY: A 40-acre parcel known as Government Lot 7, located in Section 6, T9N, R3W, M.P.M., Lewis and Clark County, Montana (Ref. 6 Pats 600)

MEDLEY PROPERTY:

A tract of land in the NE1/4 of Section 6, T9N, R3W, P.M.M., in Jefferson County, Montana, more particularly described as follows:

Beginning at the north quarter corner of Section 6, thence S 13°18'48" E, 1413.6 feet to the northwest corner of said tract and true point of beginning; thence S 00°15'54" W, 683.39 feet to the southwest corner of said tract; thence N 88°56'18" E, 1332.62 feet to COS #141324 Folio 304C; thence N 00°00' E, 673.89 feet to Medley property; thence S 89°20'42" W, 1329.32 feet along Medley and Porter properties to the true point of beginning. Said tract contains 20.73 acres, more or less.

All of Government Lots 3, 4, 5, and 6 in Section 6, T9N, R3W, P.M.M., in Lewis and Clark County, Montana.

WHEREAS, Mount Ascension provides a scenic backdrop for our community together with Mount Helena to the west and other scenic open space to the east; and

WHEREAS, while the City of Helena has many parks that provide

a wide variety of recreational opportunities to the public, the Mount Ascension land is exceptional in its primarily undeveloped and natural condition and, in order to maintain that natural condition, it appears to be in the best interests of the City of Helena and its inhabitants that this land should be maintained as a natural city park to ensure Helena's picturesque backdrop and to provide diverse recreational opportunities for the future; and

WHEREAS, the deed of the Mount Ascension land from the Prickly Pear Land Trust contains certain conservation restrictions requiring the land to be used as a natural city park and the City of Helena desires to abide by these conservation restrictions.

NOW THEREFORE BE IT RESOLVED BY THE COMMISSION OF THE CITY OF HELENA, MONTANA:

Section 1. It is in the best interests of the City of Helena and its inhabitants that the Mount Ascension land be designated as a natural city park to preserve, protect and maintain the park's natural, scenic, historic, educational, and recreational resources for the enjoyment of all present and future citizens.

Section 2. The Helena City Commission hereby designates the above-described property as a city park to be known as the Mount Ascension Natural City Park and grants the special designation of "natural park" to Mount Ascension Natural City Park to ensure the park's natural character in perpetuity for the visual and recreational enjoyment of present and future generations. This resolution shall also apply to property acquired by the City in the future that is contiguous to the park and is designated by the

Commission to be part of Mount Ascension Natural City Park.

Section 3. In accordance with this special designation, development activities within the boundaries of Mount Ascension Natural City Park are defined and limited as set forth in the deed from Prickly Pear Land Trust, and include the following:

A. **Improvements:** The right to make improvements necessary to ensure safe public use of Mount Ascension Natural City Park.

B. **Trails:** The right to establish new unpaved hiking trails, to maintain and improve, but not pave, existing unpaved hiking trails, and to establish trails accessible to persons with disabilities consistent with the spirit of the Americans with Disabilities Act, or any successor law. Natural material will be used where possible for maintaining trails or creating new trails.

C. **Signs:** The right to install minimal signs and kiosks, in keeping with the natural park where possible, for trail identification, trail interpretation, and park protocol.

D. **Fencing:** The right to construct and maintain fences, gates, and barriers along the park's boundaries, and to limit use of eroding areas.

E. **Water resources:** The right to develop water resources on Mount Ascension Natural City Park, provided that such development is accomplished in a manner consistent with the maintenance and enhancement of water courses and wetlands in a reasonably natural condition and in furtherance of the use of the land as natural park land.

F. **Maintenance:** The right to maintain, repair, remodel, and

make limited additions to improvements expressly recognized and described in this resolution.

G. **Weed Management:** The right to manage and control the spread of weeds through the use of biological, chemical, and mechanical methods consistent with the intent of this dedication to ensure Mount Ascension Natural City Park's natural character. ✓

H. **Vegetation and Forest Management:** The right to plant, re-vegetate, restore, and manage native plants, and the right to manage the forest resources on Mount Ascension Natural City Park for the enhancement of the forest resources, wildlife habitat, watershed protection, and thinning to promote growth, habitat diversity, fire protection, disease control, and harvesting of trees that pose a hazard to people or property.

Section 3. Activities that are specifically prohibited or restricted within the boundaries of Mount Ascension Natural City Park are as follows:

A. Clear cutting of timber is prohibited.

B. No industrial or mining activities shall be permitted, and no commercial activity or construction of any facility for the manufacture or distribution of any product shall be permitted.

C. Except as otherwise specifically permitted under this resolution, no rights-of-way, easements for ingress or egress, driveways, roads, utility line easements, or pipelines shall be constructed, developed, or maintained into, on, over, under, or across Mount Ascension Natural City Park. This prohibition also applies to the installation of any communication towers, antenna

towers, and satellite dishes.

D. There shall be no disturbance of the surface, including but not limited to filling, excavation, removal of topsoil, sand, gravel, rocks, or minerals, or change of the topography of the land in any manner, except for reclamation of previously disturbed sites and as may be reasonably necessary to carry out the uses permitted in Mount Ascension Natural City Park.

E. The placement, collection, or storage of trash, organic waste, human and pet waste, or any other unsightly or offensive material shall not be permitted in Mount Ascension Natural City Park except at such locations, if any, and in such a manner as shall be consistent with the use of the land as a natural park.

F. The grazing or keeping of livestock is prohibited except as necessary for weed management.

G. The use of motorized vehicles is prohibited except for the City of Helena's limited administrative purposes and for actual search and rescue operations.

Section 4. This resolution is consistent with the Helena City Charter, is effective upon its signing, and supersedes any conflicting resolution adopted by the City of Helena.

PASSED AND EFFECTIVE BY THE COMMISSION OF THE CITY OF HELENA, MONTANA, THIS 24TH DAY OF APRIL, 2000.

MAYOR

ATTEST:

CLERK OF THE COMMISSION

Parks Section

ORDINANCE NO. 2762

AN ORDINANCE AMENDING CHAPTER 12 OF TITLE 7 OF THE HELENA CITY CODE

BE IT ORDAINED BY THE COMMISSION OF THE CITY OF HELENA, MONTANA:

That Chapter 12 of Title 7 of the Helena City Code is hereby amended as follows:

CHAPTER 12

CITY PARKS

SECTION:

7-12-1: DEFINITIONS: Deleted in its entirety and the following added in lieu thereof: Whenever used in this Chapter, the following words shall have the meanings herein set forth:

PARK: The term "park" shall include playlots, neighborhood playgrounds, neighborhood parks, community playfields, special use sites, conservancy areas, and greenspaces as the same are defined on the Park Inventory Classifications Definitions list which is available for review in the City's Parks and Recreation Office.

NATURAL PARK: The term "natural park" is a specific designation of a City park to ensure its natural character in perpetuity. Mount Helena City Park has been designated, by resolution, as a natural park.

7-12-2: RULES AND REGULATIONS FOR PARKS: No change.

7-12-3: RULES AND REGULATIONS FOR NATURAL PARKS: The following rules and regulations shall apply to all natural parks as defined above:

A. It is unlawful to camp or sleep overnight within the boundaries of any natural parkidentified herein without the written permission of the Director of Parks and Recreation or his designated representative.

B. It is unlawful for any person or persons to cause to be started or to maintain any open fire of any nature in any natural park identified herein. Hot coal fires for barbecuing are permitted only in barbecue pits provided for that purpose.

CHAPTER 12

CITY PARKS

SECTION:

7-12-1: **DEFINITIONS:** Deleted in its entirety and the following added in lieu thereof: Whenever used in this Chapter, the following words shall have the meanings herein set forth:

PARK: The term "park" shall include playlots, neighborhood playgrounds, neighborhood parks, community playfields, special use sites, conservancy areas, and greenspaces as the same are defined on the Park Inventory Classifications Definitions list which is available for review in the City's Parks and Recreation Office.

NATURAL PARK: The term "natural park" is a specific designation of a City park to ensure its natural character in perpetuity. Mount Helena City Park has been designated, by resolution, as a natural park.

7-12-2: **RULES AND REGULATIONS FOR PARKS:** No change.

7-12-3: **RULES AND REGULATIONS FOR NATURAL PARKS:** The following rules and regulations shall apply to all natural parks as defined above:

A. It is unlawful to camp or sleep overnight within the boundaries of any natural parkidentified herein without the written permission of the Director of Parks and Recreation or his designated representative.

B. It is unlawful for any person or persons to cause to be started or to maintain any open fire of any nature in any natural park identified herein. Hot coal fires for barbecuing are permitted only in barbecue pits provided for that purpose.

C It is unlawful to hunt, trap, gather firewood or use motor vehicles in any natural park except as specifically authorized.

D. No person shall enter a natural park or remain within a natural park while his or her privilege to use the public parks is suspended or rescinded.

7-12-4: **DEVEOPMENT ACTIVITIES PERMITTED:** The following development activities are permitted within the boundaries of

Mount Helena City Park:

A. Improvements necessary to ensure safe public use of the Park;

B. Resurfacing of access roads and Reeder's Village Drive parking area;

C. Installation of restrooms in the Reeder's Village Drive parking area;

D. Expansion of the Reeder's Village Drive parking area to the south and east, if required by increased use;

E. Establishment of new unpaved hiking trails, maintenance and improvement of existing unpaved hiking trails, and establishment of trails accessible to people with disabilities consistent with the spirit of the Americans with Disabilities Act;

F. Installing minimal signs and/or kiosks for trail identification, trail interpretation and Park protocol;

G. Fencing, gates and barriers along the Park boundaries and parking area;

H. Fencing to limit use of eroding areas;

I. Planting, revegetation, restoration and management of native plants;

J. Access to and maintenance and replacement of existing structures at present sizes and locations, including:

1. power transmission lines;

2. public radio antenna and communication equipment building;

3. private television antenna and communication equipment building;

4. Woolston reservoir, fencing, and water lines; and

5. picnic tables.

K. Weed management through use of biological, chemical and mechanical methods consistent with the intent of this dedication to ensure the park's natural character;

L. Forest management for the enhancement of the forest resources, wildlife habitat, watershed protection and, specifi-cally, thinning to promote growth, habitat diversity, fire protection/rescue, disease control, and harvesting of trees that pose a hazard to people or property; and

M. Except as limited herein, any uses not inconsistent with the intent of this dedication.

7-13-6: DEVELOPMENT ACTIVITIES PROHIBITED: The following [illegible]

south and east, if required by increased use;

E. Establishment of new unpaved hiking trails, maintenance and improvement of existing unpaved hiking trails, and establishment of trails accessible to people with disabilities consistent with the spirit of the Americans with Disabilities Act;

F. Installing minimal signs and/or kiosks for trail identification, trail interpretation and Park protocol;

G. Fencing, gates and barriers along the Park boundaries and parking area;

H. Fencing to limit use of eroding areas;

I. Planting, revegetation, restoration and management of native plants;

J. Access to and maintenance and replacement of existing structures at present sizes and locations, including:

1. power transmission lines;

2. public radio antenna and communication equipment building;

3. private television antenna and communication equipment building;

4. Woolston reservoir, fencing, and water lines; and

5. picnic tables.

K. Weed management through use of biological, chemical and mechanical methods consistent with the intent of this dedication to ensure the park's natural character;

L. Forest management for the enhancement of the forest resources, wildlife habitat, watershed protection and, specifi-cally, thinning to promote growth, habitat diversity, fire protection/rescue, disease control, and harvesting of trees that pose a hazard to people or property; and

M. Except as limited herein, any uses not inconsistent with the intent of this dedication.

7-12-5: **DEVELOPMENT ACTIVITIES PROHIBITED:** The following development activities are prohibited within the boundaries of Mount Helena City Park:

A. Creation of temporary or permanent roads;

B. Installation of utilities for water, sewer, electricity or cable;

C. Installation of additional communication towers, antenna towers or dishes;

D. Clear cutting of timber;

E. Installation of any structure not expressly permitted by dedication;

F. Livestock grazing, except as permitted for weed management; and

G. Dumping of refuse, including any toxic or hazardous waste.

7-12-~~36~~: PENALTY: No change.

FIRST PASSED BY THE COMMISSION OF THE CITY OF HELENA, MONTANA, THIS 18th DAY OF December, 1995.

J. Ray McKenna
MAYOR

ATTEST:

Barbara Brown
CLERK OF THE COMMISSION

FINALLY PASSED BY THE COMMISSION OF THE CITY OF HELENA, MONTANA, THIS 8TH DAY OF JANUARY, 1996.

Colleen M. O'Day
MAYOR

ATTEST:

Debbie Pullman
CLERK OF THE COMMISSION

FIRST PASSED BY THE COMMISSION OF THE CITY OF HELENA, MONTANA, THIS 18th DAY OF December, 1995.

J. Ray McKenna
MAYOR

ATTEST:

Barbara Branom
CLERK OF THE COMMISSION

FINALLY PASSED BY THE COMMISSION OF THE CITY OF HELENA, MONTANA, THIS 8TH DAY OF JANUARY, 1996.

Colleen M. Dowdall
MAYOR

ATTEST:

Debbie Pullman
CLERK OF THE COMMISSION

APPENDIX N

Best Management Practices

MSU EXTENSION SERVICE BEST MANAGEMENT PRACTICES (2001)

SOILS

Soil Compaction

1. Tractor skid where compaction, displacement and erosion will be minimized. Avoid tractor or wheeled skidding on unstable wet or easily compacted soils.

THINNING

Thinning Systems

1. Plan thinning in consideration of your management objectives and the following:

   a. Soils and erosion hazard identification
   b. Rainfall
   c. Topography
   d. Silvicultural objectives
   e. Critical components (aspect, water courses, landform, etc.)
   f. Habitat types
   g. Potential effects on water quality and beneficial water uses
   h. Watershed condition and cumulative effects of multiple timber management activities on water yield and sediment production
   i. Wildlife habitat

2. Use thinning system that best fits the topography, soil type, and season, while minimizing soil disturbance and economically accomplishing silvicultural objectives.

Whole Tree Thinning

1. Locate skid trails to avoid concentrating runoff and provide breaks in grade. Locate skid trails and landings away from natural drainage systems and divert runoff to stable areas.

2. Limit the grade of constructed skid trails on geologically unstable, saturated, highly erosive or easily compacted soils to a maximum of 30 percent. Use mitigating measures, such as waterbars and grass seeding, to reduce erosion on skid trails.

3. Tractor skid when compaction, displacement and erosion will be minimized. Avoid tractor or wheeled skidding on unstable, wet or easily compacted soils and on slopes that exceed 40 percent unless operation can be conducted without causing excessive erosion. Avoid skidding with the blade lowered. Suspend leading ends of logs during skidding whenever possible.

4. Ensure adequate drainage on skid trails to prevent erosion. On gentle slopes with slight disturbance, a light ground cover of slash, mulch or seed may be sufficient. Appropriate spacing between waterbars is dependent on the soil type and slope of the skid trails. Timely implementation is important.

5. When existing vegetation is inadequate to prevent accelerated erosion before the next growing season, apply seed or construct waterbars on skid trails, landings and fire trails. A light ground cover of slash or mulch will retard erosion.

Hand Thinning

1. Design and locate skid trails and skidding operations to minimize soil disturbance. Using designated skid trails is one means of limiting site disturbance and soil compaction.

2. Consider the potential for erosion and possible alternative yarding systems prior to planning tractor skidding on steep or unstable slopes

REFORESTATION

Slash Treatment/Site Preparation

1. Rapid reforestation of harvested areas is encouraged to re-establish protective vegetation.

Slash Treatment/Site Preparation on Gentle Terrain

1. Minimize or eliminate elongated exposure of soils up and down the slope during mechanical scarification.

2. Carry out brush piling and scarification when soils are frozen or dry enough to minimize compaction and displacement.

3. When piling slash, care should be taken to preserve the surface soil horizon by using appropriate techniques and equipment. Avoid use of dozers with angle blades.

4. Scarify the soil only to the extent necessary to meet the resource management objectives. Some slash and small brush should be left to slow surface runoff, return soil nutrients and provide shade for seedlings.

Slash Treatment/Site Preparation on Steep Terrain

1. Carry out scarification on steep slopes in a manner that minimizes erosion. Broadcast burning and/or herbicide application is the preferred means for site preparation, especially on slopes greater than 40 percent.

2. Limit water-quality impacts of prescribed fire by constructing waterbars in firelines, not placing slash in drainage features and avoiding intense fires unless needed to meet silvicultural goals. Avoid slash piles in the SMZ when using existing roads for landings.

WINTER PLANNING

Winter Thinning Precautions

1. Conduct winter thinning operations when the ground is frozen or snow is adequate (generally more than one foot) to prevent rutting or displacement of soil. Be prepared to suspend operations if conditions change rapidly and when the erosion hazard becomes high.

2. Consult with operators experienced in winter thinning techniques.

3. Consider snow-road construction and winter harvesting in isolated wetlands and other areas with high water tables or soil erosion and compaction hazards.

4. In wet unfrozen soil areas, use tractors or skidders to compact the snow for skid road locations only when adequate snow depth exists. Void steeper areas where frozen skid trails may be subject to erosion the next spring.

Winter Road and Drainage Considerations

1. For road systems across areas of poor bearing capacity, consider hauling only during frozen periods. During cold weather, plow any snow cover off of the roadway to facilitate deep freezing of the road grade prior to hauling.

2. Before thinning, mark existing culvert locations. During and after thinning, make sure that all culverts and ditches are open and functional.

3. Use compacted snow for roadbeds in unroaded, wet sensitive sites. Construct snow roads for single-entry or for temporary roads.

4. Return the following summer and build erosion barriers on any trails that are steep enough to erode.

5. Be prepared to suspend operations if conditions change rapidly and when the erosion hazard becomes high.

APPENDIX O

List of Preparers

List of Preparers

Name/Role	Agency/Firm	Education	Yrs. Experience
Gregory Kennett Senior Environmental Scientist	Ecosystem Research Group	B.S. Forestry, Watershed Management	24
Sady Babcock Resource Conservationist	Ecosystem Research Group	B.S. Agricultural Business	15
Gibson Hartwell Environmental Scientist	Ecosystem Research Group	M.S. Forestry (anticipated)	13
Sandra Koelle Environmental Scientist, Editor	Ecosystem Research Group	M.S. Environmental Studies	7
Mike Beltz GIS Specialist	Ecosystem Research Group	M.S. Geography (anticipated)	9
Richard Casteel Landscape Architect	LandARC	M.L.A. Landscape Architecture	13
Sonja Wall Environmental Intern	Ecosystem Research Group	B.S. Forestry (anticipated)	4
Allison Handler Environmental Scientist, Planner	Ecosystem Research Group	M.S. Environmental Studies	8
Jon Schulman Environmental Engineer	Ecosystem Research Group	M.S. Environmental Engineering	12
Jennifer McCullogh Staff Designer	LandARC	B.S. History	7
Andy Baur Executive Director	Prickly Pear Land Trust	M.A. Landscape Architecture	11