



Eagle Valley Regional Trails Plan

for the Towns of Gypsum, Eagle, Avon, Vail, Minturn,
Red Cliff and Eagle County

December 2001

For additional copies or more information
about this plan, please contact
the ECO Trails Program
at (970) 328-3520

EAGLE VALLEY REGIONAL TRAILS PLAN

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CHAPTER 1

Plan Overview

Introduction



As the population of Eagle County has grown over the last twenty years, so has the demand for walking and bicycle trails for transportation or recreation. This regional trails plan was created to specifically describe the vision for an Eagle Valley Regional Trails System that will connect the communities of the Eagle River and Gore Creek Valleys.

The primary focus of this Plan is the creation of a paved arterial “core” trail, the Eagle Valley Trail, that will span the county from Vail Pass at the east end to Glenwood Canyon at the west end. The Plan also depicts a major “spur” trail traveling from Dowd Junction to the town of Red Cliff, through Minturn. Additionally, links to other existing or planned public trails, paved and unpaved, are included in the Plan information. Shared use of roads by bicycles, pedestrians and motor vehicles is also an important part of the total system.

Together, these components will create a network of non-motorized transportation routes and recreation opportunities throughout Eagle County.

Geographic Scope of the Plan

The Eagle Valley Regional Trails Plan pertains to the portion of Eagle County that coincides with the watershed boundaries of the Eagle River and part of the Colorado River valley. The specific focus of this Plan is the Interstate 70 and Highway 24 corridors.

The Roaring Fork River and Fryingpan River watershed area of Eagle County is not included in this plan. That portion of Eagle County is addressed in separate Eagle County or Town of Basalt planning documents specific to the Roaring Fork Valley side of Eagle County.

The following map depicts that area that is specifically addressed by this plan, the valleys of the Eagle River and Gore Creek, but the mission to create a safe and enjoyable trails network applies to the whole of Eagle County.

Eagle Valley Regional Trails Plan

Core Trail Location Map

Legend

 Rivers

 Roads

 Eagle County Boundary

 Trails Plan Area

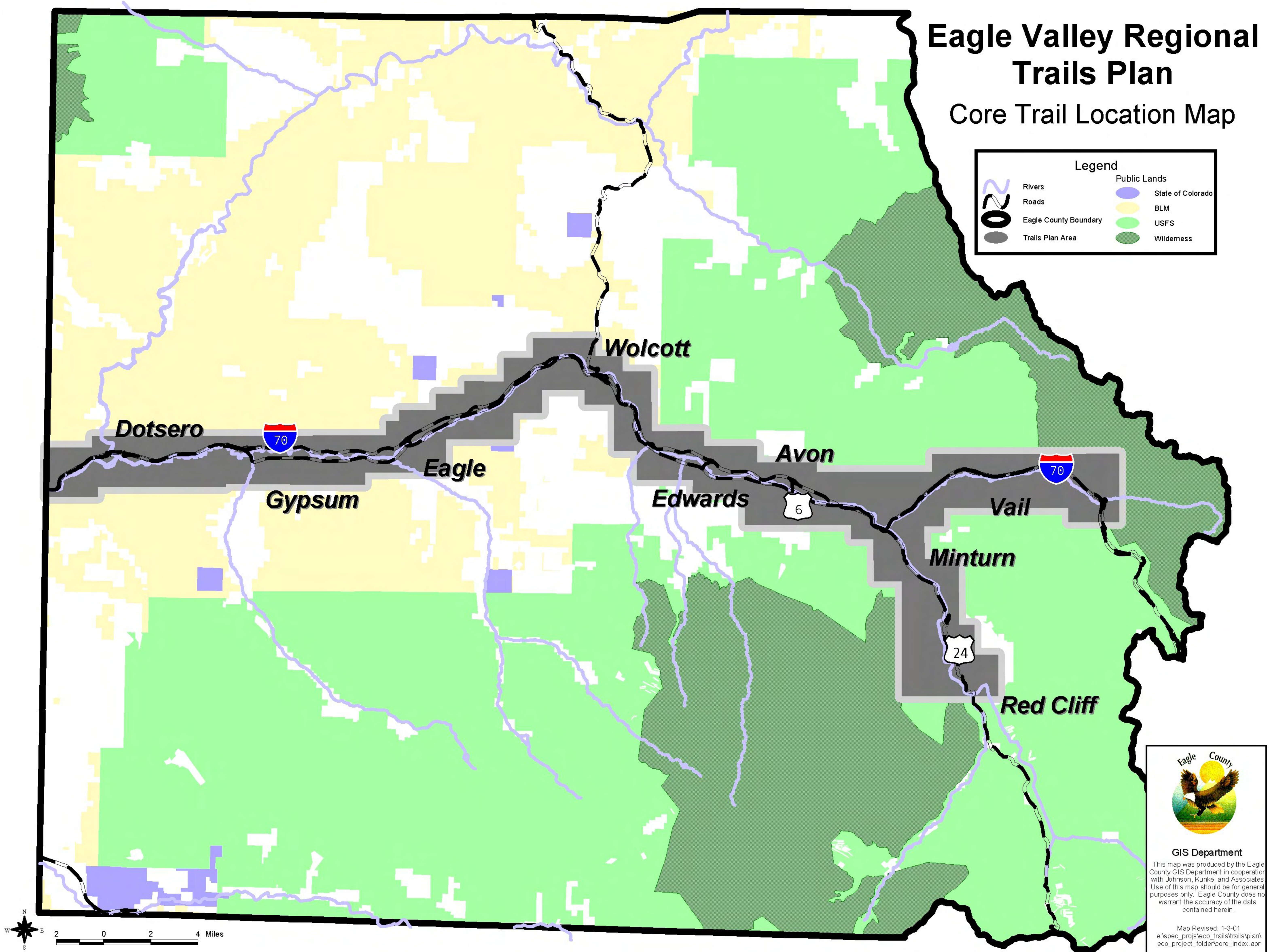
Public Lands

 State of Colorado

 BLM

 USFS

 Wilderness



GIS Department

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Goals of the Eagle Valley Regional Trails Plan



This plan is intended to:

1. Promote **COOPERATIVE PARTNERSHIPS** for trail planning, funding, design, construction and maintenance between local governments, organizations, businesses and citizens.
2. Provide **ALIGNMENT AND DESIGN DETAILS** for a valley-wide, shared use, non-motorized off-road trail system that is safe and enjoyable.
3. Promote **IMPROVEMENT OF LOCAL ROADWAYS** and revision of standards to accommodate certain types of non-motorized uses. This plan promotes both the creation of a valley-wide trail system and the improvement of local roads with wider shoulders, bike lanes or bike routes to improve safety overall.
4. Provide information on **TRAIL SEGMENT CONSTRUCTION COSTS** for capital improvement budgeting and annual work programs. This baseline information is formatted for periodic updating, every three years recommended.
5. Provide a **PRIORITIZED LIST OF CONSTRUCTION PROJECTS** which can be periodically evaluated and updated as necessary.
6. Provide recommendations and **GUIDANCE FOR LAND USE DEVELOPMENT REVIEW** by local governments and supports the goals of existing land use plans regarding provision of trail facilities.
7. Provide documentation that can be referenced and presented while **FUNDRAISING** from private sources and grant agencies.
8. Serve as a **PUBLIC INFORMATION AND SUPPORT BUILDING TOOL** for efforts by ECO Trails, the towns and Eagle County.

Types of Trails

For the purpose of this plan, the word “trail” is used to refer to both paved and unpaved routes, and the exact type differentiated as necessary in the text. Path is commonly used to describe paved bike trails (e.g. bike paths) but for consistency in this plan, only the word “trail” is used.

The regional trail system is planned to be a three season system, with some sections remaining usable throughout the year. Types of trail in the system include:

Off-Road Shared Use Trail - typically a paved trail from which motor vehicles are prohibited and is shared by bicycles, pedestrians, joggers, equestrians, in-line skaters and other non-motorized users. Where such trail or path is part of a highway right-of-way, it is separated from the roadway and from motor-vehicle traffic, by an open space, grade separation, or barrier. A 2000 report issued by the Colorado Department of Transportation documents that paved off street bike paths are preferred over roadways for recreation or commuting by bicycle.



Unpaved Trails - In Eagle County, hiking trails on U.S. Forest Service or Bureau of Land Management public lands are the most common form of this trail type. Most common use is for recreation. Some jurisdictions in Eagle County have constructed unpaved nature walks or pathways along waterways which are typically narrow and meandering and not open to bicycle use. Trail links to, and into, the backcountry are shown on the trail plan maps and additional backcountry detail is available on other maps prepared by Eagle County and ECO Trails. *Some sections of the core trail route may remain unpaved until demand warrants the expense but* at eight to ten feet, the planned core trail and the major spurs will be much wider than the typical unpaved three to four foot wide hiking or nature trail.



Shared Roadways - most roads in Eagle County are open to both motor vehicle and bicycle or pedestrian travel. In some locations, signed bike lanes or bike routes (see Chapter 4 for definitions) exist but generally travel is relegated to the shoulder of the road which is not specifically designed or striped to accommodate non-motorized users. Sidewalks are also parts of a shared roadway system but are typically for pedestrian traffic only. Users of shared roadways include all types - commuters, fitness trainers and for casual recreation.



Types of Trail Users

The following types of users will be considered during the planning, design and management of the Eagle Valley Regional Trail system: Pedestrians, joggers or runners, equestrians, in-line skaters, cross country skiers, hikers, fishermen, boaters and bicyclists. These user types can be grouped into four distinct categories based on the type of use, why they choose that type of use and where they prefer to do it:

The “**Recreational**” trail or shared-road user primarily includes walking or cycling children and families or adults out for social or exercise reasons. Recreational users are generally local residents but may include tourists from outside of the area that want to enjoy some exercise and exploration. In general, recreational users prefer separated trails and low volume streets. Children account for a large percentage of users in neighborhoods and on routes to schools, recreation areas and some commercial centers. Typically, a large percentage of children under 16 ride or own a bike.

The “**Trainer**” category defines cyclists training for competition who generally prefer to travel faster and longer distances than the recreational cyclist. Trainers tend to prefer roads over shared-use trails separated from roads because of allowable higher speeds, fewer intersections that require the road traffic to stop, and conflicts with other paths users. Once in motion, trainers like to keep up their momentum. The Trainer category also applies to runners, joggers and in-line skaters. Those users have influenced shared-use trail design in the last ten years to include adjacent soft-surface running paths or increased width to accommodate in-line skating patterns.



The “**Commuter**” or “**Utility**” user walks or bikes to work or school on a trail or road. This category is usually local residents and they prefer the most direct routes with the least stops and delays. Low volume streets or trails are ideal but a high volume street may be part of their route because of being more direct. Utility trips include trips to the store, library, bank, etc. The perceived benefits of bike and pedestrian commuting include financial savings, improving health and environmental stewardship.

The “**Equestrian**” trail user warrants specific mention because they have different needs or preferences than the other user types. Equestrians generally prefer not to mix with vehicular traffic, especially avoiding busy roads. Horses and bicycles, or horses and pedestrians with pets are sometimes not compatible. Paved trails are generally not designed for use by horses and not preferred by riders. Surface maintenance issues may also arise if the trail is swept on an infrequent basis. Opportunities do exist within the proposed system to construct bridle paths alongside the core trail but located at a safe, compatible distance. The planning maps identify trail sections where a bridle path or horse trailer parking can likely be accommodated. The use and enjoyment of horses is a large part of the region's history and present day lifestyles and this plan advocates accommodating that use where compatible with more common types of users listed above.

Implementation of the Regional Trails Plan

Implementation of this plan will require close coordination among local, state and federal government agencies and private interests.

There are essentially two methods through which the public trails system will be developed:

1. **Initiated by Local Government** on private land with public use easements or on public land, including road rights-of-way. Local government includes towns, Eagle County, metropolitan districts and the multi-jurisdictional ECO Trails program of the Eagle County Regional Transportation Authority. ECO Trails acts as the general coordinating agency to facilitate communications between all involved parties regarding trail issues, but will also be available for specific project tasks such as design coordination, grant applications, construction management, etc. Trail construction will be managed as applicable by towns, county or ECO Trails.
2. **Initiated by Private Land Development**, either voluntarily or as part of an approved development. The specific requirement for trails shall be determined by the local jurisdiction based on the criteria in their land use regulations and typically linked to the scale of the development and its associated impacts. Either a trail easement or trail easement and construction may be required.

Existing trail connections to public lands should be identified on development plans and jurisdictions are encouraged to require retention or replacement of the existing access trails. Creation of new access to adjacent public lands is also encouraged where none exists, provided it is compatible with the character of the public land. Paved surfacing is not recommended for this type of trail.

This Plan identifies potential trail routes but options are not restricted to what is shown on the planning maps. If other opportunities present themselves or obstacles prevent implementation, the route is flexible. The core trail and spur trail alignments depicted within this Plan are conceptual until constructed.

If a trail alignment is shown on the following route maps as traveling through a property, the trail should be included as part of the overall development plan. The development plan should also show how the trail, sidewalk and shared road circulation system internal to the property will link to the overall trails system.

Areas Outside of the Core Trail Corridor:

If a developing area is not addressed by this plan (i.e. tributary side valleys), the specific local government land use plan for that area should be consulted for guidance. If no specific guidance exists, trail construction and/or easements should be required if trail sections exist in that area to which connections can eventually be made and/or a new trail connection is warranted by the scale of the development project.

As stated in the design standards in Chapter 4, spur trails should be at least eight feet wide and the minimum recommended trail easement at least 20 feet wide unless exceptionally wide road rights-of-ways can accommodate a portion of the trail corridor without future road widening threatening the trail.

Relationship to other Land Use Management Plans

Existing land use and trail plans for local governments in the Eagle Valley were consulted as part of this plan preparation, including the Eagle County Trail Plan 1993, Town of Vail Comprehensive Open Lands Plan 1994, Minturn Parks and Recreation Master Plan 1992 and Town of Avon Recreation Master Plan 1992.

This plan is intended to supplement the specific *trail component* of the existing plans, particularly to clarify the location of the core trail route, for the purpose of coordinating local efforts. If a conflict is found to exist between any of the above referenced documents and this plan, this plan does not necessarily supercede the previous trail plans. The underlying jurisdiction will need to evaluate and render the necessary decisions. The language in the adopting resolution by each town and the county should be reviewed for further guidance in these decisions.

Amendment of the Regional Trails Plan

Trail alignments may be subject to change for a variety of reasons such as establishing more effective connections, protection of natural resources, elimination of conflicts, better land use buffering or siting, or because of difficulties in construction or acquisition. As a policy document, this Plan must be open to amendment in order to remain viable and accommodate changing conditions.

Minor amendments, such as altering an alignment in order to improve it's usability or mitigate a land use issue, will be reviewed and acted upon through the standard development review process or through administrative review that can be thoroughly documented and defended as meeting the following criteria:

1. There is justification for the proposed change
2. The proposed change conforms with the goals of the Trails Plan
3. The proposed change would be compatible with existing and planned surrounding land uses.

Review of the plan should take place **every seven years**, or more frequently if necessary (e.g. revise the maps to show significant alignment changes or construction accomplishments, etc.). Major revisions should be processed through the same type of inter-governmental agreement process as this original version.

Recommended Related Studies

Backcountry Trails: The effort to document and plan new routes to and from the public lands in Eagle County, referred to commonly as the “backcountry”, should be continued and gradually integrated with this plan through updated mapping. As the population grows, there will more use demand on existing backcountry trails and increased pressure for new trails to be created. The term “frontcountry trail” which appears in this plan refers to trails that may be located on undeveloped or lightly developed private land between the densely populated urban area and the public lands.

Tributary Valley Trails: This current planning effort is very specific to the main valley of the Eagle River. However, all tributary valleys and the Colorado River valley should be included in future trails planning efforts given the aggressive rate of development and population growth in those valleys which include:

- Lake Creek Valley
- Brush Creek Valley
- Gypsum Creek Valley
- Colorado River Valley, including Dotsero, Burns, McCoy and Bond

A recommended project is the mapping of all existing trail sections and easements in these areas (and currently there are few). This project should be undertaken in the next two years (by 2003).

For the short term, the process outlined in the previous Plan Implementation section should be followed for making trail decisions or recommendations for land development in the tributary valleys.

Trail Plan Process

The Eagle Valley Regional Trail Plan process began in January 2000 and was initiated by a request made by the Eagle Valley Trails Committee to the ECO Trails staff.

The Eagle Valley Trails Committee, created in 1996 as part of the passage of the ½ percent transportation sales tax served as primary steering committee for the creation of this plan. The Committee membership represents bicycling, pedestrian, equestrian and family interests. The Committee works with the staff and board of the Eagle County Regional Transportation Authority, known as ECO, to accomplish it's mission to develop, promote and cooperatively maintain a scenic and safe urban and backcountry multi-use, non-motorized trail system throughout Eagle County.

County and town government staff contributed specific information and guidance on feasible and preferred routes. Public meetings were held at the outset of the process with elected officials from each of the partners in the planning effort which included the towns of Gypsum, Eagle, Avon, Minturn, Red Cliff, and Eagle County. Representatives from state and federal government agencies provided valuable input as well. The local engineering firm was hired to create planning maps and prepare cost estimates of each segment.

Final map work was performed by the Eagle County Geographic Information Systems (GIS) department. A complete list of participants is included in the Plan Appendix B.

After a series of final public worksessions and hearings with each of the partner jurisdictions, the collective adoption of the Plan through Intergovernmental Agreement in 2001.

Funding the Trails System Construction

Paying for the creation of the trail system will require a combination of funding sources and methods since no existing single source can fully pay for the estimated cost to complete the system. It will require partnerships, creativity and aggressive fundraising.

Sources of funding include:

Local Governments:

- 10% of the revenues from the local mass transportation sales tax, as authorized by Eagle County voters, managed by Eagle County Regional Transportation Authority (ECO) and available to the towns and county for trail projects
- Matching funds from the towns and county towards building trails sections within their jurisdictions
- Matching funds from other local governmental entities such as metropolitan districts

Grants, including:

- Colorado State Trail Program Grants
- Great Outdoor Colorado grants from lottery proceeds
- Colorado Department of Transportation “Enhancement” grants
- Federal cost sharing grants (i.e. through Forest Service or BLM)
- Private local, state or national foundations such as the Vail Valley, Gates or Taylor Foundations

Contributions from citizens, businesses or corporations of cash, labor or supplies.

Incidental projects such as development, highway projects, utility projects or improvement districts may also help facilitate construction of some sections of the trail.

Other potential funding methods that have been or can be explored further include:

- Voter approval for bonding for the final sections of the trail. The possibility of selling bonds to raise funds for construction was explored in 2000. Study determined that annual revenues did not generate enough income to pay off a 20 year debt, if bonding for entire cost of the trail system. The final decision was to remain with a “pay-as-you-go” approach and revisit bonding at a later date.
- Dedicate annual lottery entitlements received from the state by the towns and county to fund local trail projects
- Adopting development impact fees for trail construction (sometimes combined with parks and recreation or open space fees) within each jurisdiction
- Minor fees such as trail use fees or bicycle registration fees
- “Sale” of trail items such as benches or landscaping in return for a plaque on that item
- Sales of trail program items (t-shirts)
- Non-profit group events that name the trail project as the funding recipient and trail race sponsorship.

CHAPTER 2

Estimated Costs and Construction Priorities



The following information includes a summary of the estimated cost of construction of specific sections of the planned core trail, the list of construction priorities through the next five years and a summary of the priorities for road improvements that would augment the regional trails system and core trail route in particular.

Summary of Estimated Costs of the Planned Core Trail:

The boundary limits of each cost-estimated trail section are marked on the maps in Chapter 3. See Appendix A for the detailed cost estimates for each section. The estimates include design and construction costs but are preliminary estimates. Prior to final budgeting, each section should be reevaluated to determine current and accurate costs of construction.

Trail Section	Core Trail
GLENWOOD CANYON to DOTSERO	\$10,603.00
DOTSERO to GYPSUM	\$2,176,271.00
TOWN of GYPSUM	\$316,558.00
GYPSUM to EAGLE	\$1,113,216.00
TOWN of EAGLE	\$1,061,103.00
EAGLE to WOLCOTT	\$2,677,261.00
WOLCOTT to WEST EDWARDS	\$2,686,248.00
WEST EDWARDS to AVON	\$480,000.00
TOWN of AVON	\$600,000.00
AVON to DOWD JUNCTION to NORTH MINTURN BRIDGE	\$3,552,455.00
DOWD JUNCTION THROUGH VAIL to VAIL PASS	
Missing links:	
a. Vail Valley Drive Separated Trail to Vail Valley Drive East	\$1,300,000
b. Lionshead Bypass	\$225,000
c. Vail Village Bypass	\$40,000
d. Golf Course Separated Path	\$260,000

MINTURN NORTH BRIDGE to MINTURN	\$162,822.00
TOWN of MINTURN	\$1,232,647.00
MINTURN to RED CLIFF	\$903,489.00
TOTAL	\$18,797,673.00

Criteria for Core Trail Construction Priorities

In establishing the priorities for trail system construction, the following criteria were reviewed by the team working on the Plan including local government staff and the Trails Committee. The projects were compared to these criteria but it is also important to note that priorities do change - opportunities arise, funding abilities are limited, or incidental issues create obstacles or amend the timing of the project. The list of priorities that follows these criteria should be considered as a conceptual list, based on current desires and available funding.

1. Links population centers (communities, neighborhoods) and traffic generators (commercial centers, schools, recreation sites)
2. Minimal physical constraints (low level of natural hazards, amenable topography, room for re-vegetation and stabilization, etc.)/construction will not be extremely difficult
3. Minimal ownership constraints and disruption of existing property use
4. Accommodates a mix of user groups/benefit the most people
5. Improves existing safety issues by reducing conflict with automobiles and incorporate design features that mitigate hazardous conditions
6. Without immediate acquisition/construction, is lost as an opportunity
7. Multiple entities can share costs, design, construction, signs, maintenance, right-of-way, etc.
8. Creates no or minimal impact on the area's wildlife or habitat
9. Is critical link in the establishment of a continuous system or connects existing trails
10. Services an existing heavy demand by commuting or recreation traffic
11. Maximizes opportunities to view or pass through scenic features such as unique land forms, waterways, vistas, vegetation, and wildlife
12. Provides non-motorized, appropriate access to public lands (open spaces, trailheads, waterways)
13. Can be constructed and maintain at a relatively reasonable cost in a reasonable amount of time
14. Creates a variety of trip options via connections
15. Meets funding agency criteria
16. Provides an-opportunity for historic or natural feature interpretation without disturbance
17. Is able to be used year round or at least in three seasons
18. Facilitates the development of an inter-county or statewide non-motorized network of trails.

PRIORITY TRAIL CONSTRUCTION PROJECTS - *Five Year Plan*

Trail Section	Location	Potential Partners
GYPSUM TO EAGLE - PHASE I from Red Table Acres to Gateway Center	Gypsum & County <i>Maps # 5 & 6</i>	Town of Gypsum Eagle County ECO Trails
NORTH MINTURN TRAIL from North Minturn bridge through rail yard to downtown Minturn	Town of Minturn <i>Map #20</i>	Town of Minturn ECO Trails
WEST AVON - PHASE II from West Beaver Creek Blvd to Avon Road	Avon <i>Map #17</i>	Town of Avon ECO Trails
VAIL CORE TRAIL MISSING LINKS <i>Shown on Town of Vail Maps</i>	Town of Vail <i>Maps #26 & 27</i>	Town of Vail ECO Trails
AVON TO DOWD JUNCTION - PHASE I from entrance to River Run Apts to Dowd Junction Pedestrian Bridge	Eagle County <i>Map #19</i>	Eagle County ECO Trails
AVON TO DOWD JUNCTION - PHASE II from Village at Avon I-70 interchange to River Run Apts entrance	Town of Avon & County <i>Maps #18 & 19</i>	Town of Avon Eagle County Developer
GYPSUM TO EAGLE - PHASE II from Gateway Center to Brush Creek Road	Town of Eagle & County <i>Maps #6 & 7</i>	Town of Eagle Eagle County State/Federal ECO Trails
AVON TO DOWD JUNCTION - PHASE III from Dowd Pedestrian Bridge to North Minturn bridge over Eagle River	Town of Minturn & County <i>Map #19</i>	Town of Minturn Eagle County ECO Trails
WEST EDWARDS TRAIL - PHASE II from Eagle River mobile home park to Hillcrest Drive	Eagle County <i>Map #15</i>	Eagle County Edwards Metro ECO Trails

Remaining Trail Sections to Prioritize:

1. Downtown Eagle
2. Eagle to Wolcott to West Edwards
3. Through Minturn to the base of Battle Mountain
4. Battle Mountain to Red Cliff
5. Dotsero to Gypsum
6. Gypsum to Glenwood Canyon

Priorities for Shared Road Improvements:

To resolve safety issues on shared road improvements, the following list is provided as a record of what the participants in this planning process, some of them frequent users of local roads for running, biking or walking, believe to be the highest priorities for widened shoulders, bike lanes or bike routes on the primary local travel routes through the length of the Eagle Valley:

Highway 6:

1. Avon to Edwards - widened shoulders
2. Eagle to Gypsum - widened shoulders
3. Edwards to Wolcott - widened shoulders
4. Wolcott to Eagle - widened shoulders
5. Gypsum to Dotsero - widened shoulders

Highway 24:

1. Minturn to Red Cliff - widened shoulders

Highway 131:

1. Wolcott to State Bridge - widened shoulders

Other Major Roadways:

1. North and South Vail Frontage Roads - Ford Park to East Vail Exit - widened shoulders
2. Pedestrian Bridge to Main Vail Roundabout on North Frontage Road - widened shoulders
3. Brush Creek Road -widened shoulders and/or separated trail
4. Lake Creek Road - widened shoulders and/or separated trail
5. Colorado River Road - widened shoulders

“Share the Road” Sign Priorities:

1. Highway 6 from Gypsum to Glenwood Canyon
2. Lake Creek Road
3. Brush Creek Road
4. Highway 131

All local roads administrated by town or country government should be evaluated for bicycle and pedestrian issues when improvements are under consideration. This includes widening with either asphalt or recycled asphalt (rotomill), improved signing, removing hazards such as grates, ditches, drop-offs, revised striping and timing chip seal projects to accommodate other users besides vehicles.

Chapter 3

Planning Maps for the Eagle Valley Regional Trails System



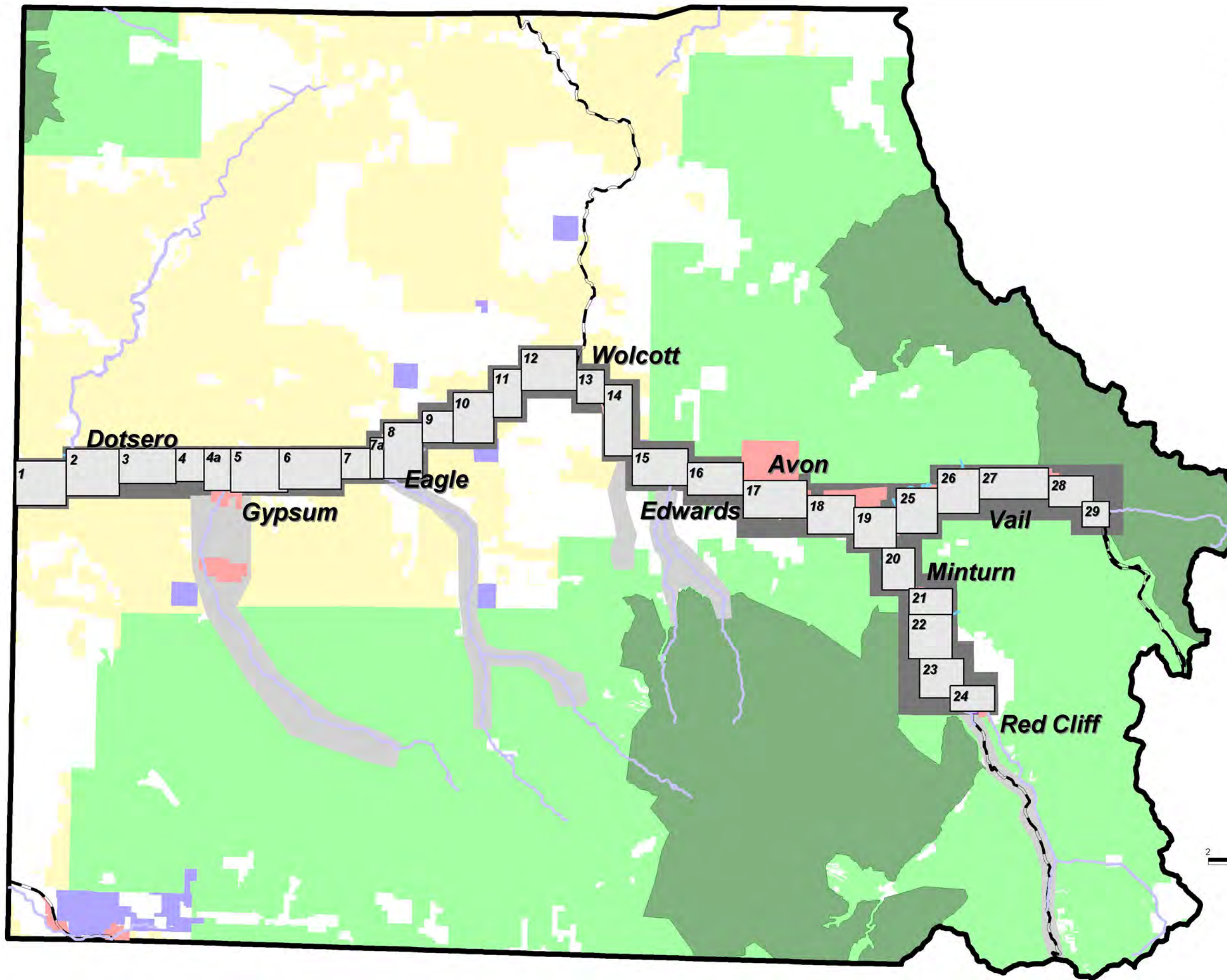
CORE TRAIL

Index Sheet

Entrance of Glenwood
Canyon to East Vail

Legend

-  Proposed Core Trail
-  Alternative to Proposed Core Trail
-  Existing Core Trail
-  Proposed Spur Trail
-  Existing Spur Trail
-  Constrained for Rail and Trail Shared Corridor
-  Railroad - Rail and Trail Can Share
-  Proposed Backcountry Trail
-  Existing Backcountry Trail
-  Exhibit Index
-  Trails Plan Area
-  Town Boundary
-  Eagle County Boundary
-  State of Colorado
-  BLM
-  USFS
-  Wilderness



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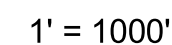
GIS Department

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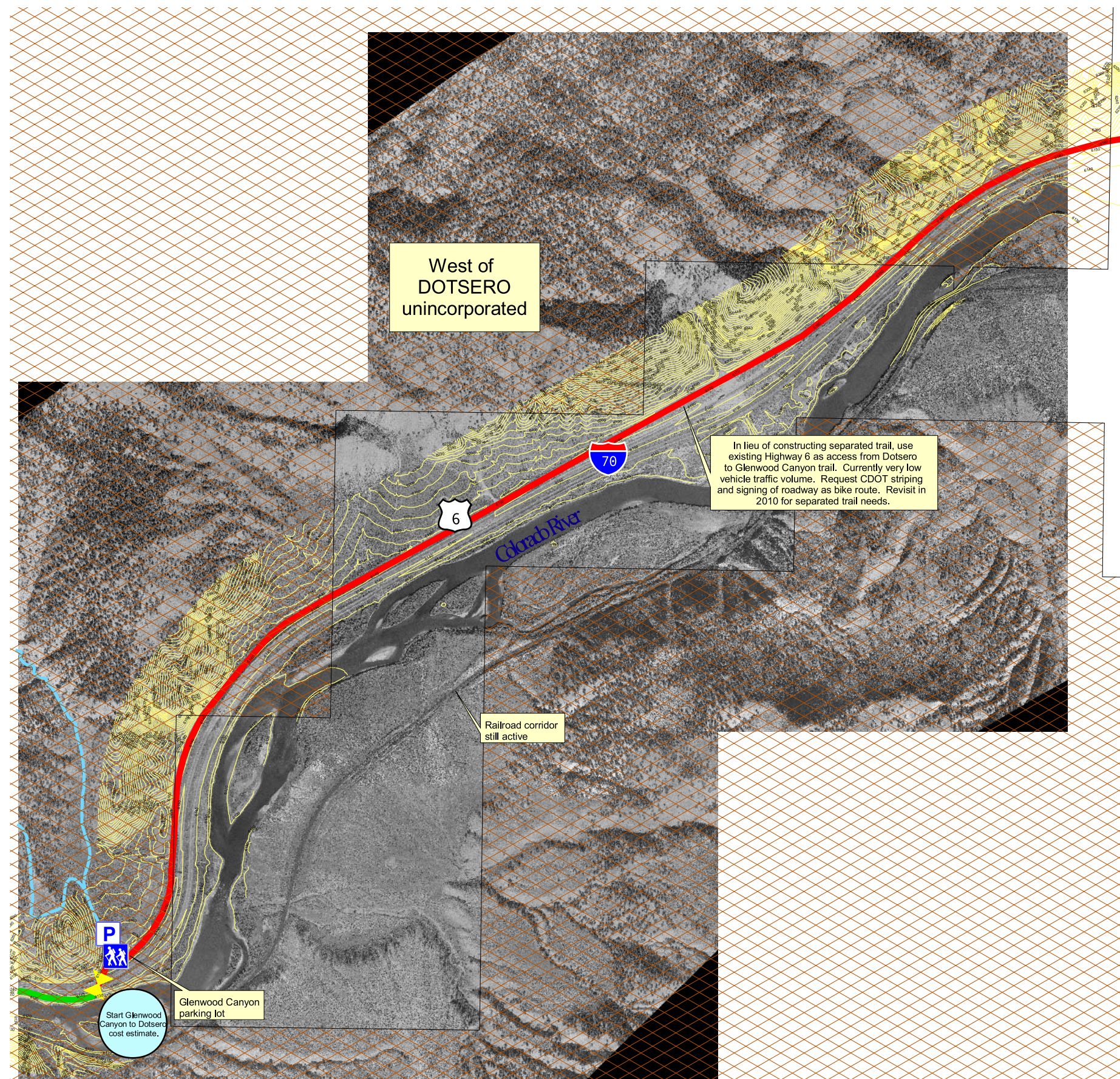
- Existing Core Trail
- Proposed Core Trail
- Existing Backcountry Trail
- Bridge/Underpass
- Parking
- Trailhead
- BLM
- Town Boundary

Contours are at 10' Intervals



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CORE TRAIL

Exhibit 2

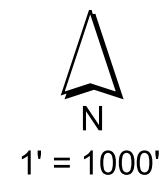
Entrance of Glenwood
Canyon to Dotsero

Sheet 2 of 29

LEGEND

-  Proposed Core Trail
-  Alternate to Proposed Core Trail
-  Proposed Spur Trail
-  Existing Backcountry Trail
-  Driveway
-  Intersecting Roads
-  Busy Intersection
-  Bridge/Underpass
-  Park
-  Parking
-  Railroad Crossing by Trail
-  Nesting Site
-  BLM
-  Town Boundary

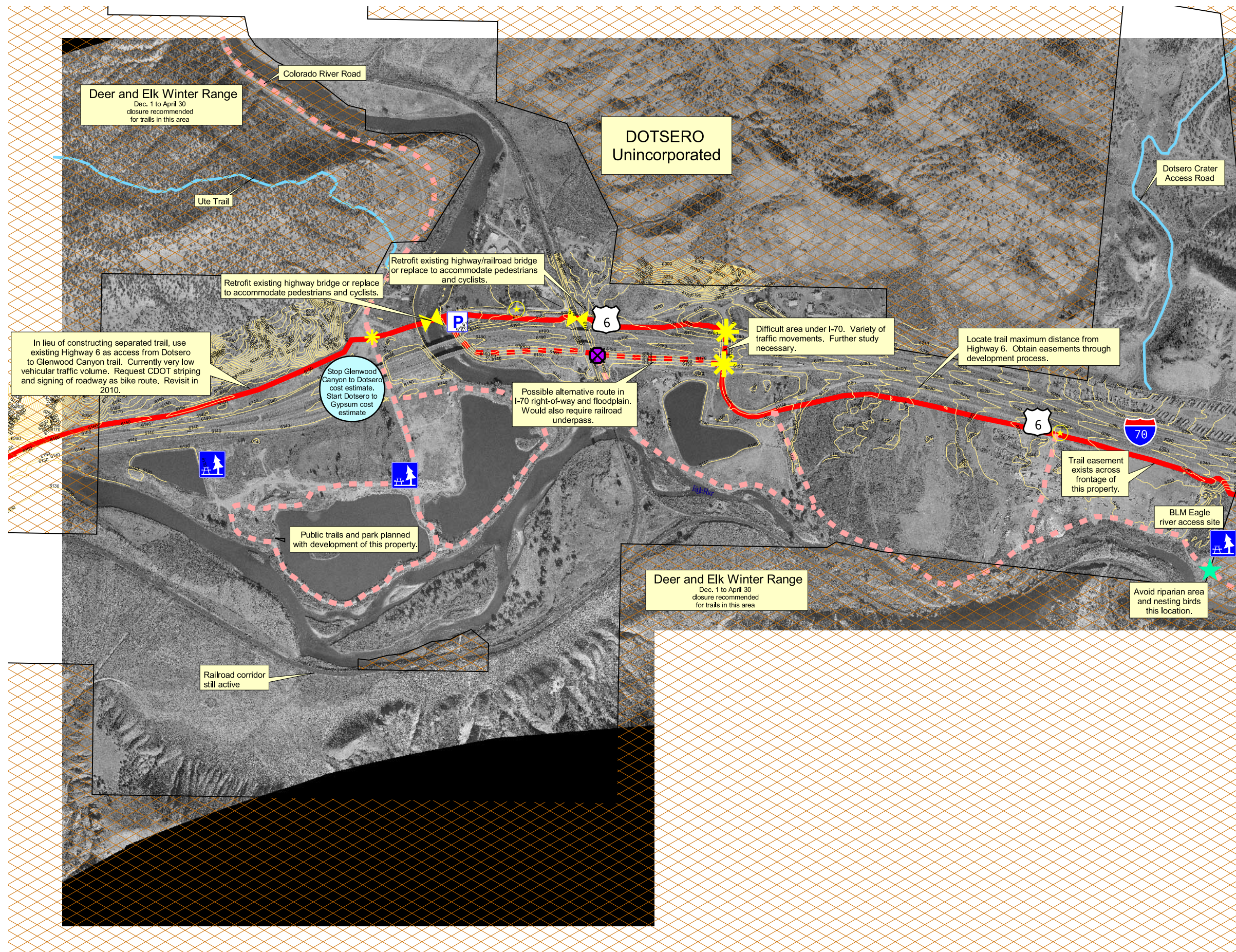
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CORE TRAIL

Exhibit 3

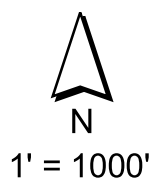
Dotsero to Gypsum

Sheet 3 of 29

LEGEND

-  Proposed Core Trail
-  Alternative to Proposed Core Trail
-  Driveway
-  Park
-  River & Wetlands Area Avoidance or Mitigation Required
-  BLM
-  Town Boundary

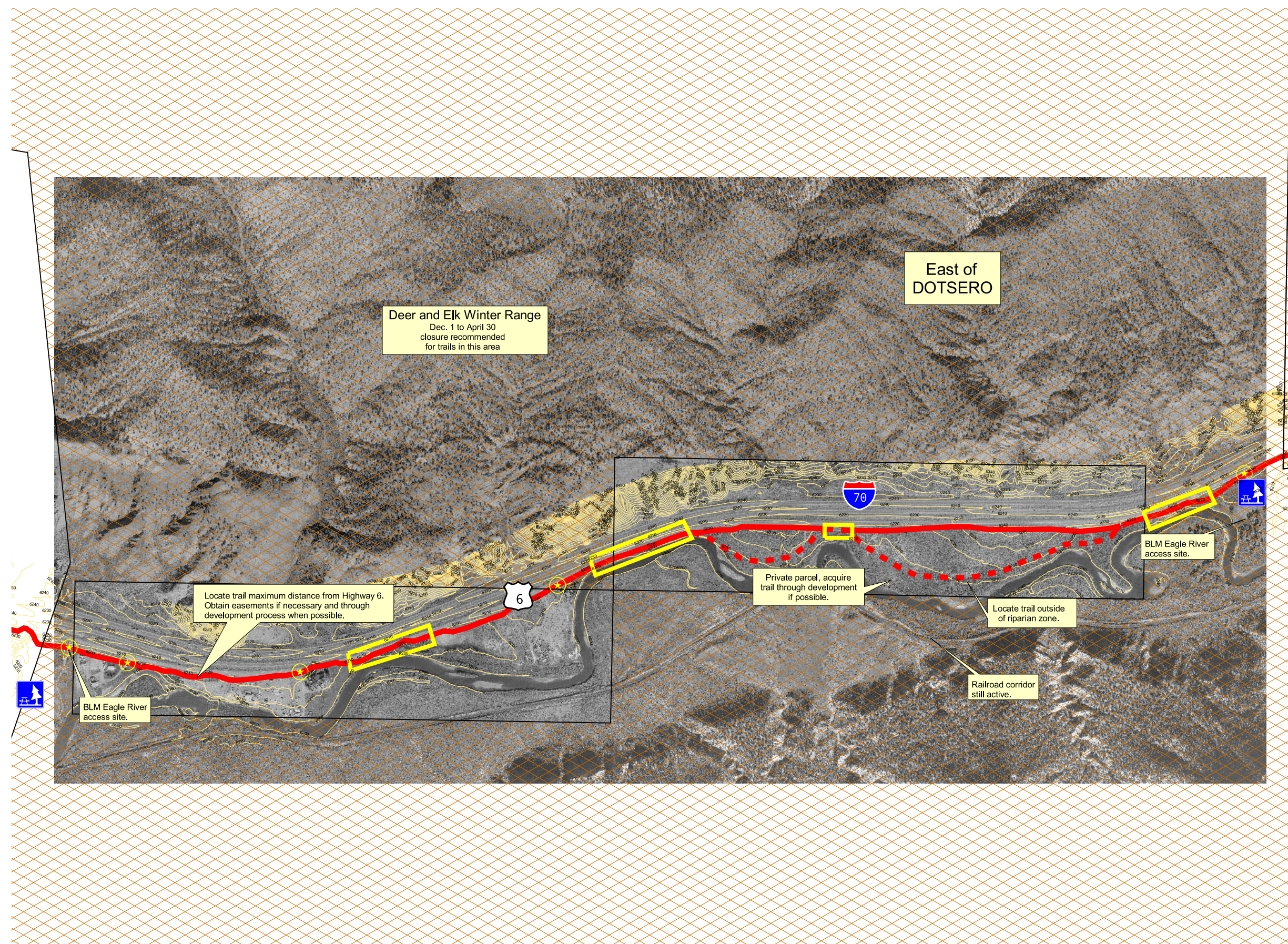
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CORE TRAIL

Exhibit 4

Dotsero to Gypsum

Sheet 4 of 29

LEGEND

-  Proposed Core Trail
-  Alternate to Proposed Trail
-  Existing Core Trail
-  Existing Spur Trail
-  Proposed Spur Trail
-  Driveway
-  Intersecting Roads
-  Busy Intersection
-  Bridge/Underpass
-  Park
-  Restroom
-  Parking
-  BLM
-  Town Boundary

Contours are at 10' Intervals



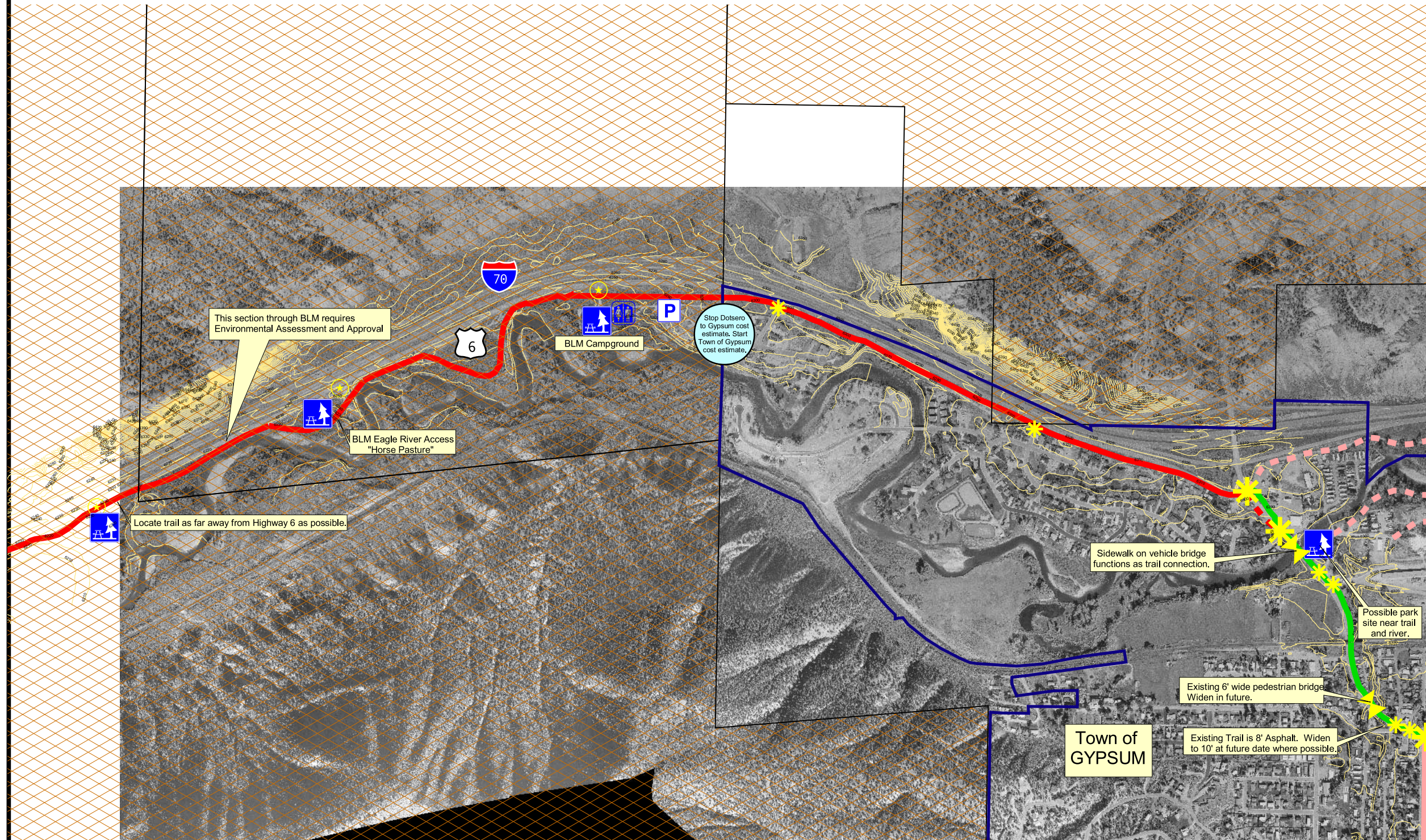
GIS Department



1' = 1000'

Map Revised: 6-13-01
e:\spec_proj\eco_trails\trails\plan\
eco_project_folder\ecotrailsd1_revis.apr

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CORE TRAIL**Exhibit 4a**

Gypsum
Sheet 4a of 29

LEGEND

-  Proposed Core Trail
-  Existing Core Trail
-  Existing Spur Trail
-  Proposed Spur Trail
-  Driveway
-  Intersecting Roads
-  Busy Intersection
-  Bridge/Underpass
-  Park
-  Parking
-  BLM
-  Town Boundary

Contours are at 10' Intervals



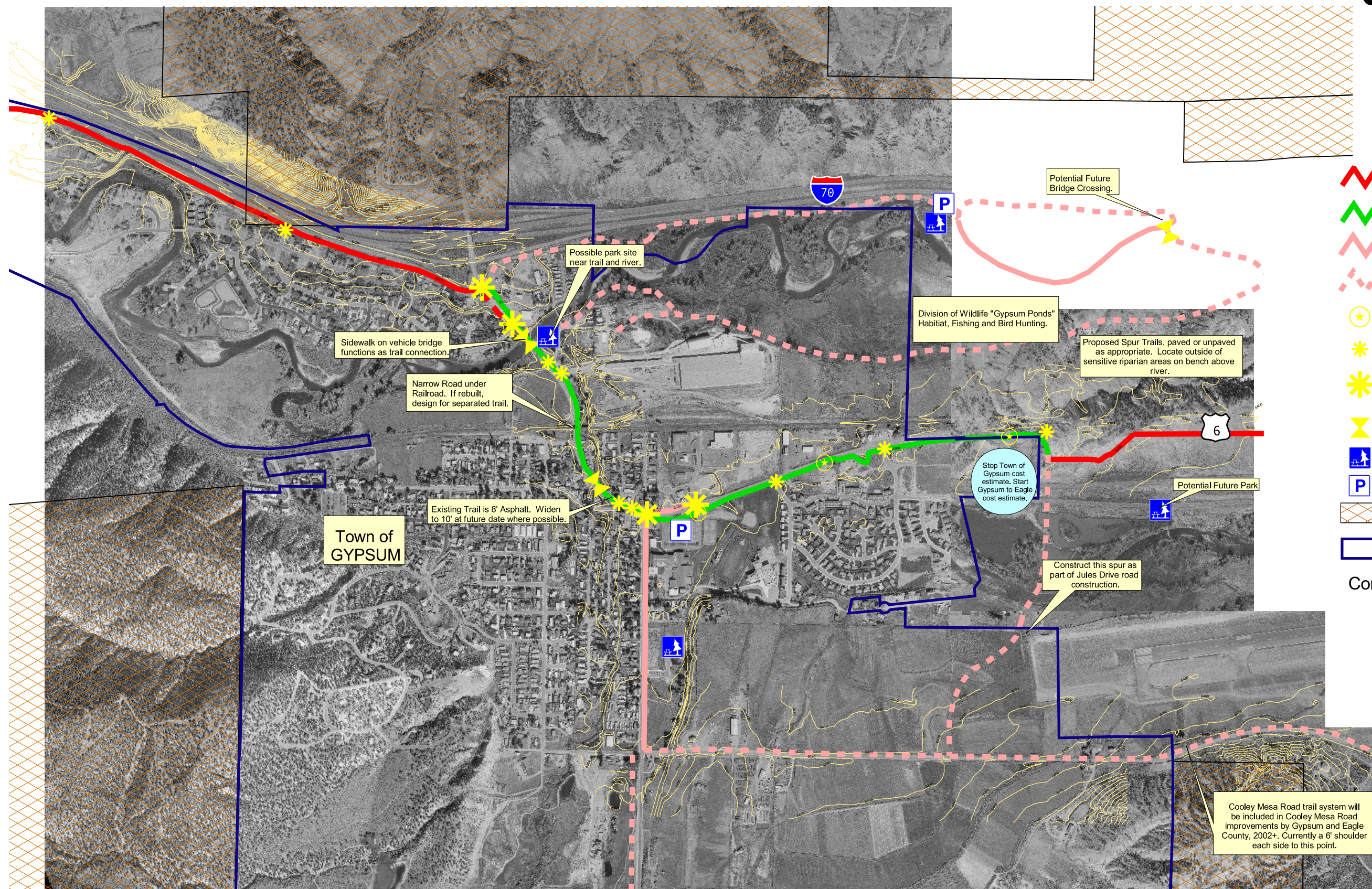
1' = 1000'



GIS Department

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Map Revised: 6-13-01
e:\spec_proj\eco_trails\trails\plan\
eco_project_folder\ecotrailscd1_revis.apr



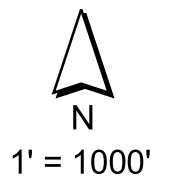
CORE TRAIL

Exhibit 5

Gypsum to Eagle
Sheet 5 of 29

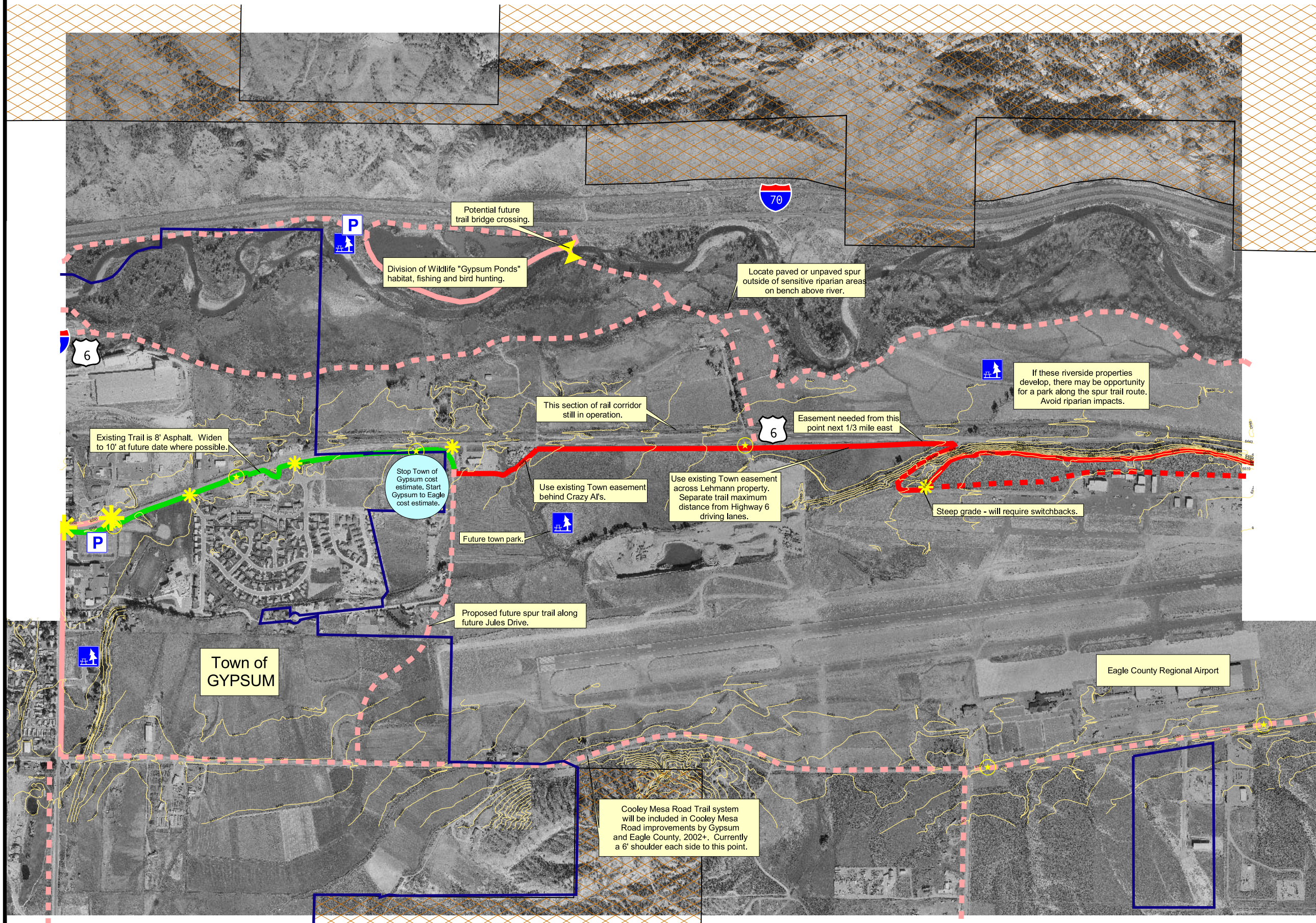
LEGEND

-  Proposed Core Trail
 -  Alternate to Proposed Core Trail
 -  Existing Core Trail
 -  Existing Spur Trail
 -  Proposed Spur Trail
 -  Driveway
 -  Intersecting Roads
 -  Busy Intersection
 -  Bridge/Underpass
 -  Park
 -  Parking
 -  BLM
 -  Town Boundary
- Contours are at 10' Intervals



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Map Revised: 6-05-01
e:\spec_projs\eco_trails\trails\plan\
eco_project_folder\ecotrailsd1_revis.apr



CORE TRAIL

Exhibit 6

Gypsum to Eagle
Sheet 6 of 29

LEGEND

-  Proposed Core Trail
-  Alternative to Proposed Core Trail
-  Existing Core Trail
-  Existing Spur Trail
-  Proposed Spur Trail
-  Existing Backcountry Trail
-  Railroad - Rail and Trail Can Share
-  Driveway
-  Intersecting Roads
-  Busy Intersection
-  Bridge/Underpass
-  Railroad Bridge
-  Railroad Crossing by Trail
-  BLM
-  Town Boundary

Contours are at 10' Intervals

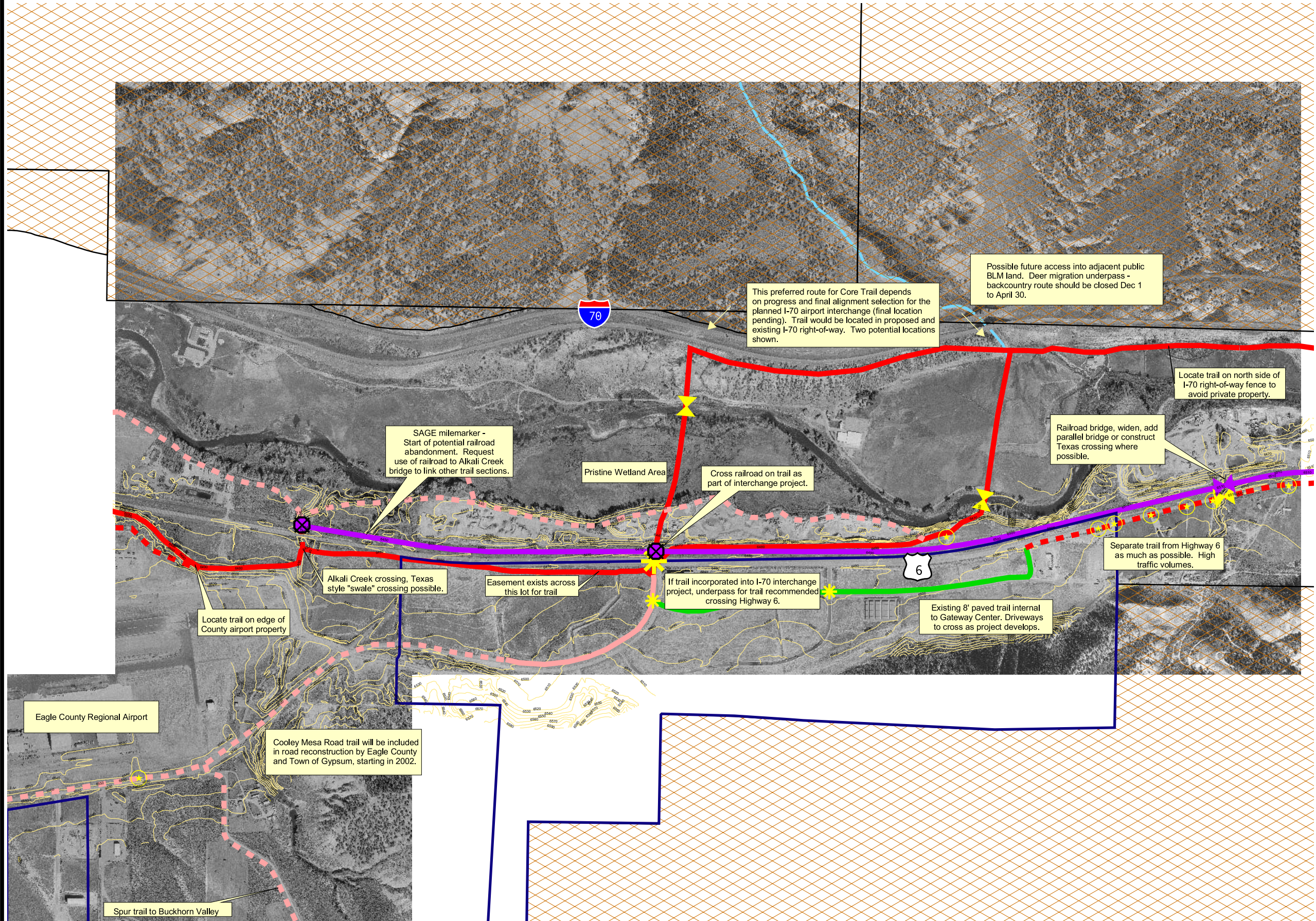

N
1' = 1000'



GIS Department

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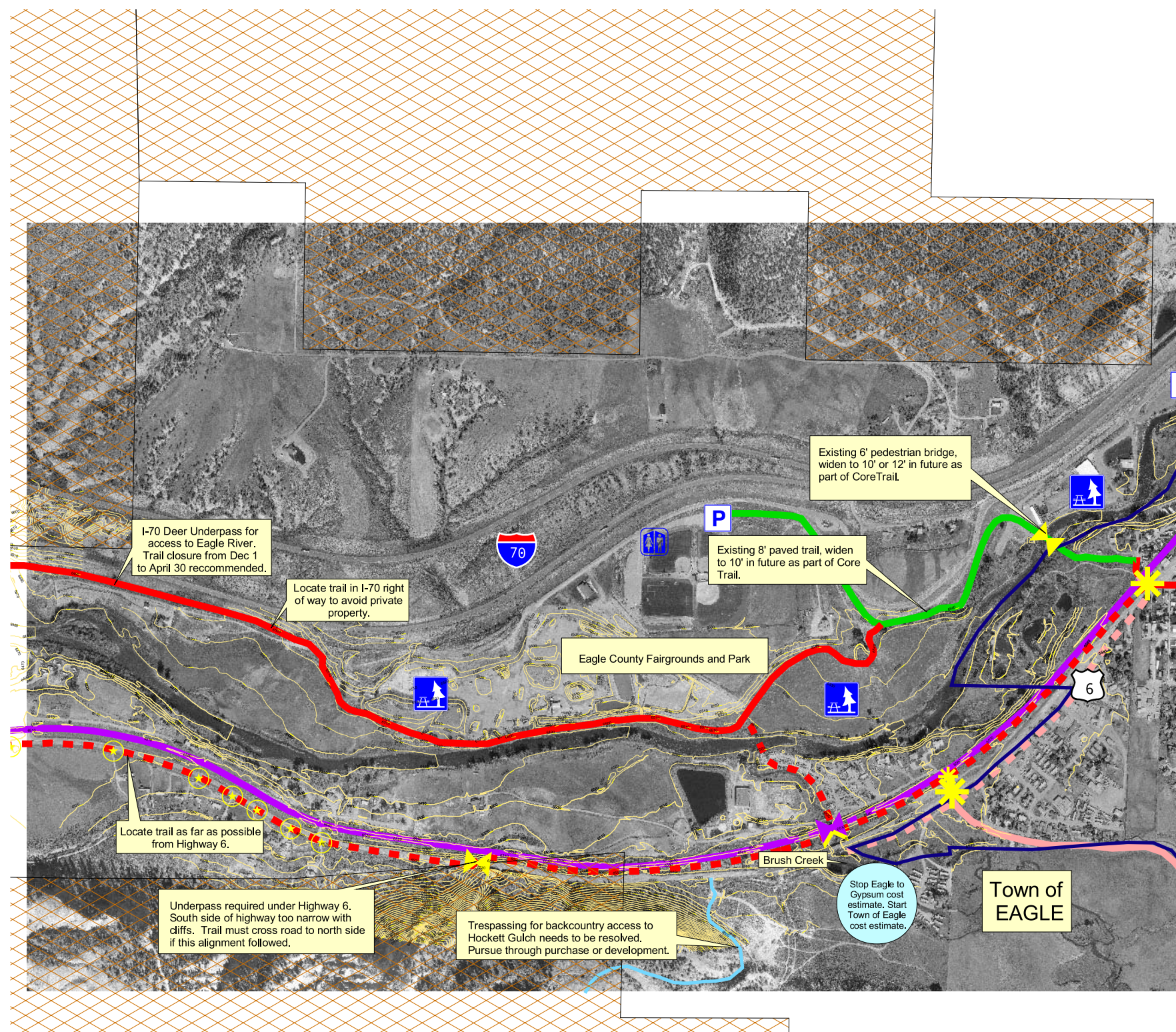
Map Revised: 6-05-01
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eco_project_folder\ecotrailsd1_revis.apr



CORE TRAIL**Exhibit 7**Gypsum to Eagle
Sheet 7 of 29**LEGEND**

-  Proposed Core Trail
-  Alternative to Proposed Core Trail
-  Existing Core Trail
-  Existing Spur Trail
-  Proposed Spur Trail
-  Railroad - Rail and Trail Can Share
-  Constrained for Rail and Trail Shared Corridor
-  Driveway
-  Intersecting Roads
-  Busy Intersection
-  Bridge/Underpass
-  Railroad Bridge
-  Park
-  Parking
-  Restrooms
-  Equestrian Use
-  BLM
-  Town Boundary

Contours are at 10' Intervals



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Map Revised: 6-05-01
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eco_project_folder\ecotrailscd1_revis.apr

CORE TRAIL

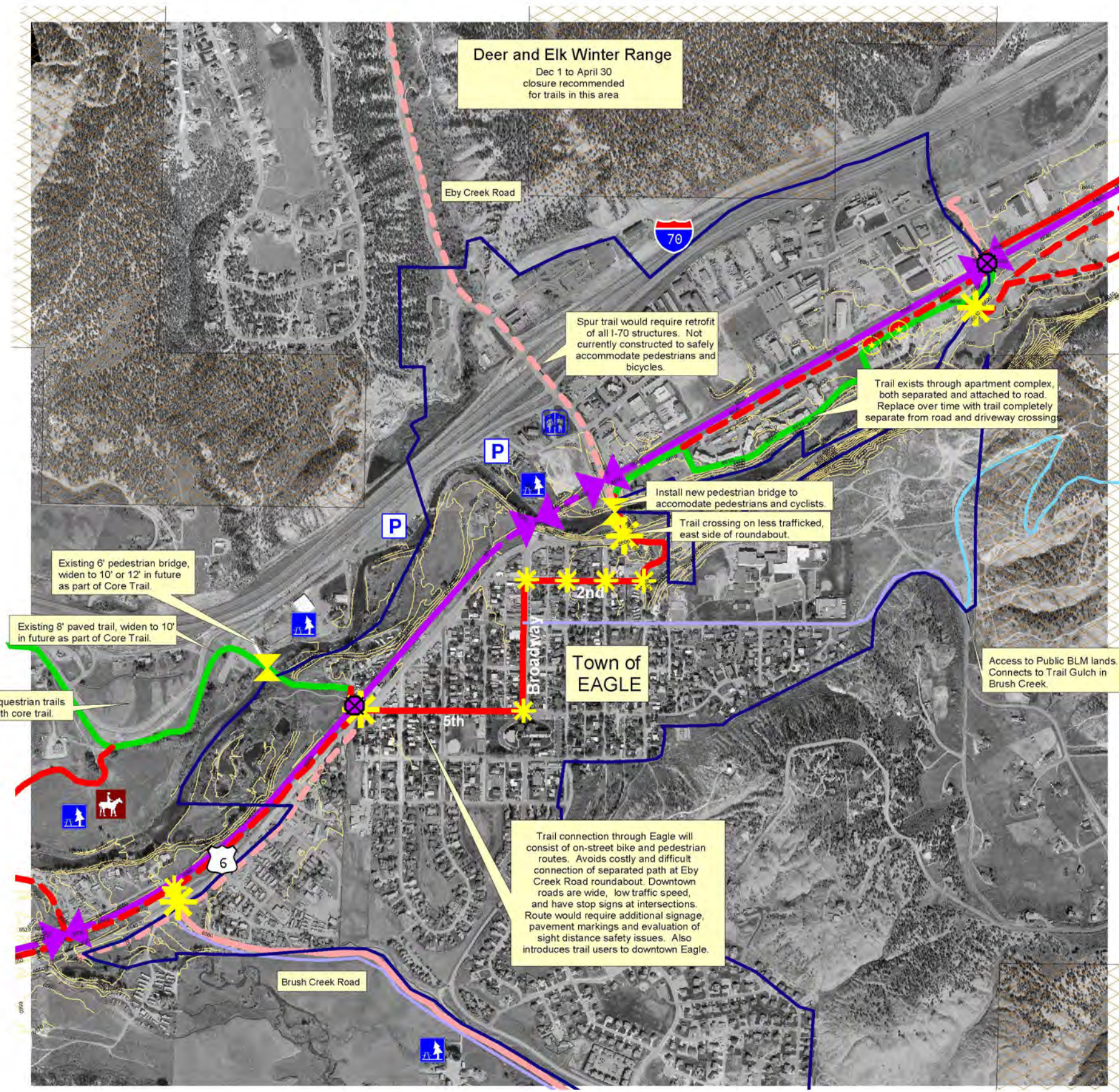
Exhibit 7a

Eagle
Sheet 7a of 29

LEGEND

-  Proposed Core Trail
-  Alternative to Proposed Core Trail
-  Existing Core Trail
-  Proposed Spur Trail
-  Existing Backcountry Trail
-  Railroad - Rail and Trail Can Share
-  Constrained for Rail and Trail Shared Corridor
-  Driveway
-  Intersecting Roads
-  Busy Intersection
-  Bridge/Underpass
-  Railroad Bridge
-  Box Culvert - Under Railroad (retrofit for trail, add small bridge or construct Texas crossing where possible)
-  Equestrian Use
-  Park
-  Parking
-  Restroom
-  Railroad Crossing by Trail
-  BLM
-  Town Boundary

Contours are at 10' Intervals



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Map Revised: 9-11-01
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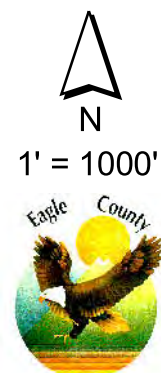
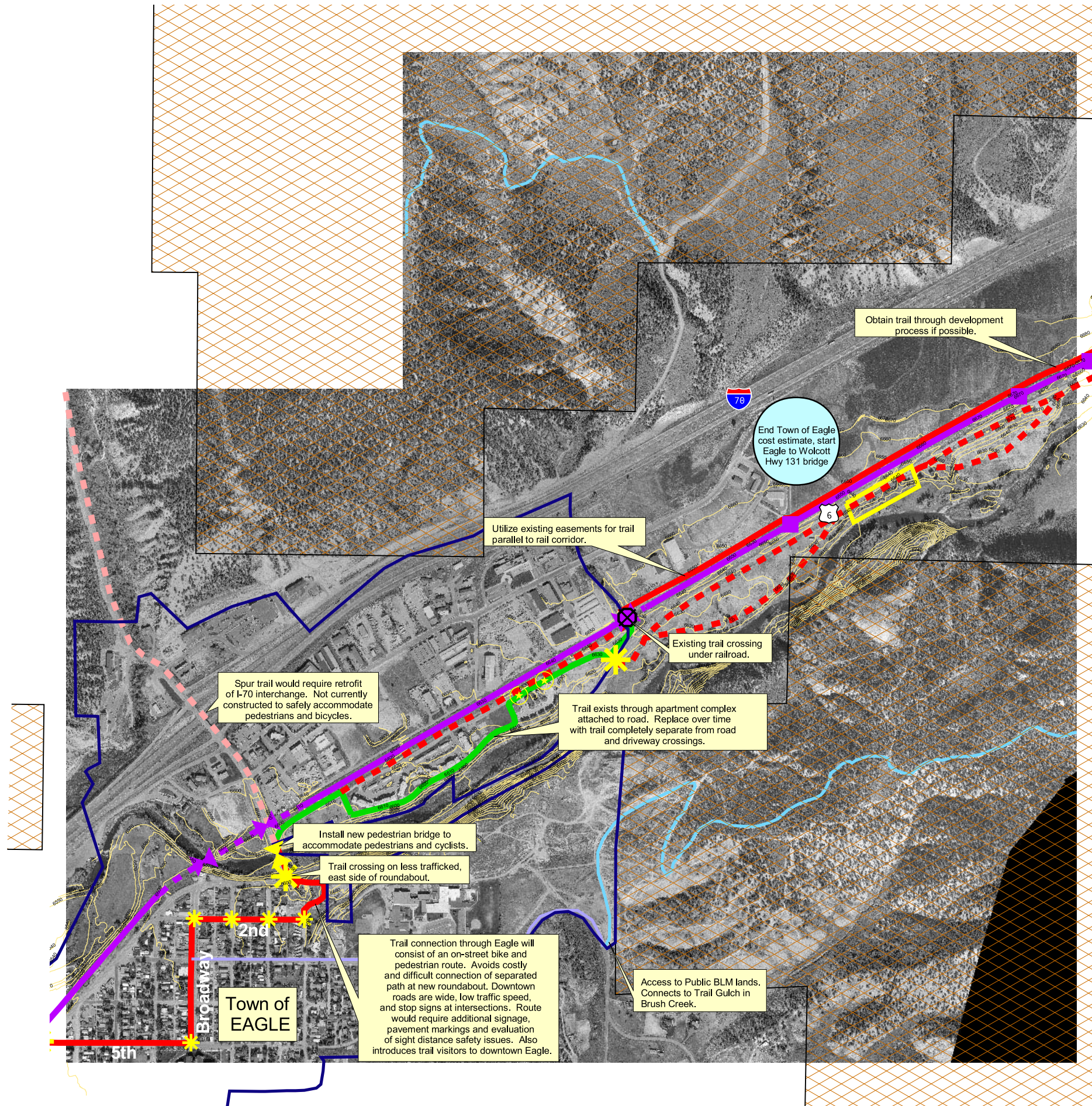
CORE TRAIL

Exhibit 8

Eagle to Wolcott
Sheet 8 of 29

LEGEND

-  Proposed Core Trail
 -  Alternative to Proposed Core Trail
 -  Existing Core Trail
 -  Proposed Spur Trail
 -  Existing Backcountry Trail
 -  Route to Trailhead
 -  Railroad - Rail and Trail Can Share
 -  Constrained for Rail and Trail Shared Corridor
 -  Railroad Crossing by Trail
 -  Driveway
 -  Intersecting Roads
 -  Busy Intersection
 -  Bridge/Underpass
 -  Railroad Bridge
 -  Box Culvert Under Railroad (retrofit for trail, add small bridge or construct Texas crossing where possible)
 -  River & Wetlands Area Avoidance or Mitigation Required
 -  BLM
 -  Town Boundary
- Contours are at 10' Intervals



GIS Department

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Map Revised: 6-05-01
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CORE TRAIL

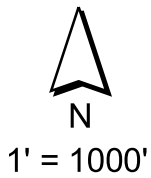
Exhibit 9

Eagle to Wolcott
Sheet 9 of 29

LEGEND

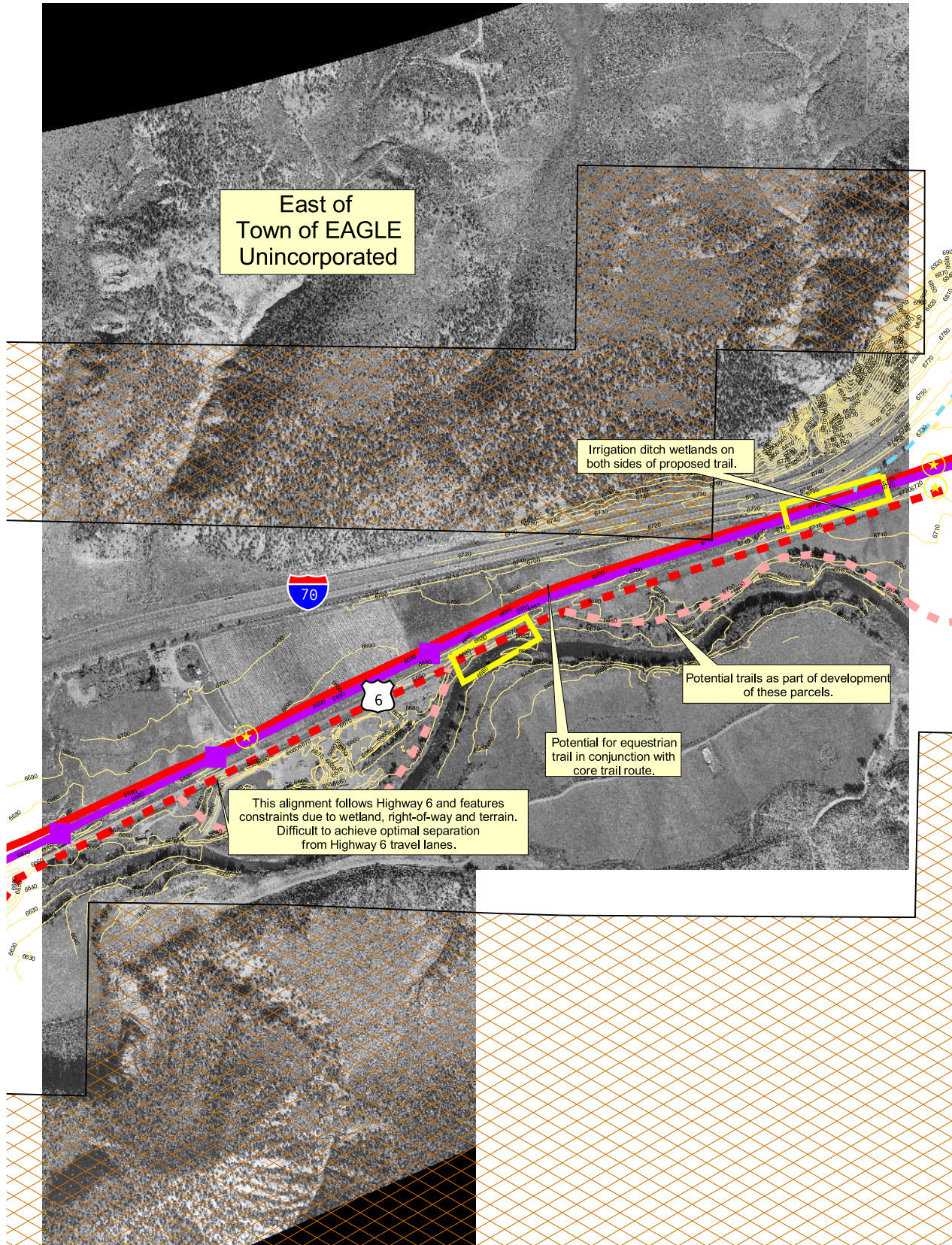
-  Proposed Core Trail
-  Alternative to Proposed Core Trail
-  Proposed Spur Trail
-  Railroad - Rail and Trail Can Share
-  Proposed Backcountry Trail
-  Driveway
-  Equestrian Use
-  Box Culvert Under Railroad (retrofit for trail, add small bridge or construct Texas crossing where possible)
-  River & Wetlands Area Avoidance or Mitigation Required
-  BLM
-  Town Boundary

Contours are at 10' Intervals



Map Revised: 6-05-01
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eco_project_folder\ecotrailscd2_revis.apr

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CORE TRAIL

Exhibit 10

Eagle to Wolcott
Sheet 10 of 29

LEGEND

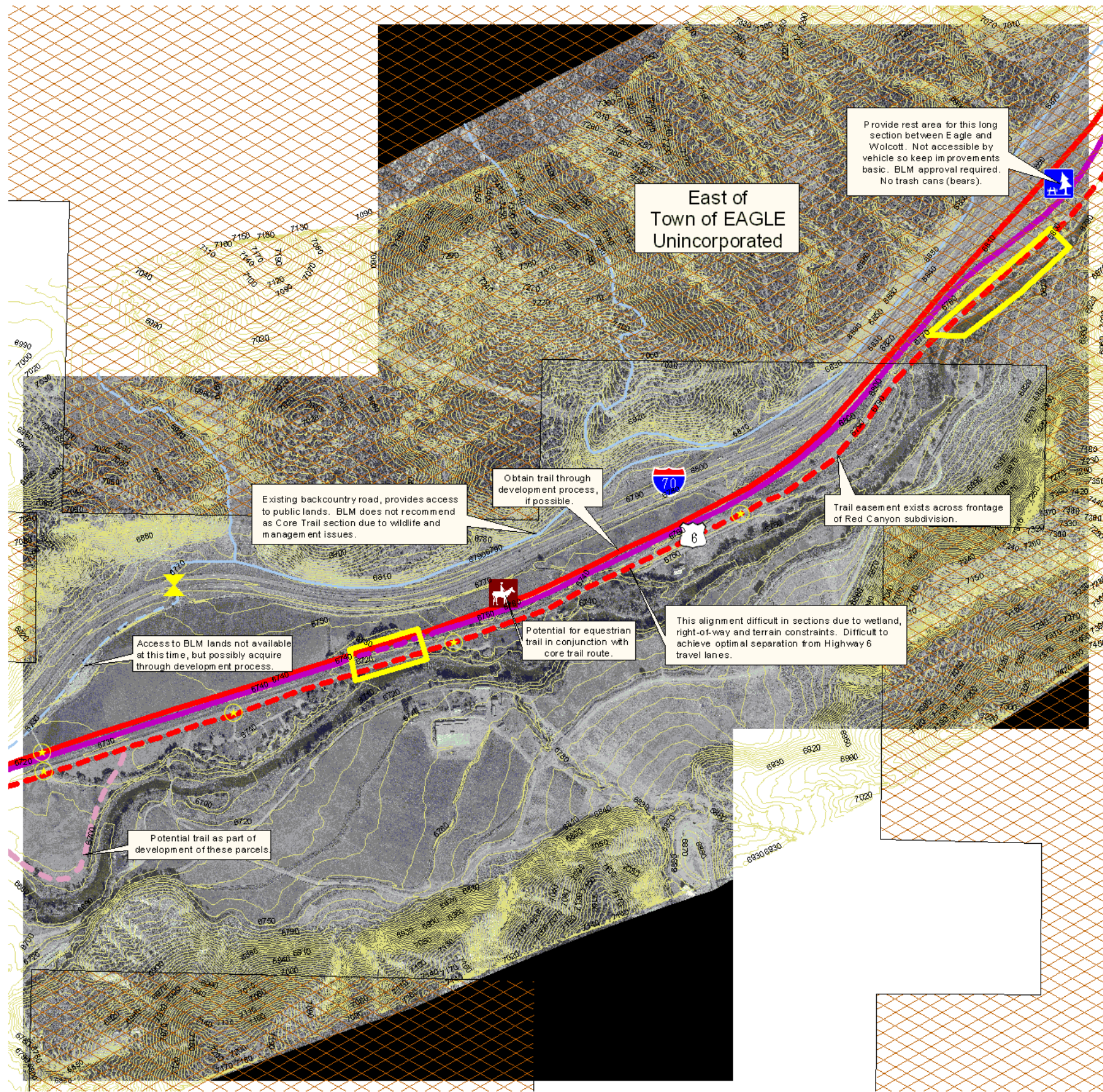
- Proposed Core Trail
- Alternative to Proposed Core Trail
- Proposed Spur Trail
- Existing Backcountry Trail
- Proposed Backcountry Trail
- Railroad - Rail and Trail Can Share
- Constrained for Rail and Trail Shared Corridor
- Park
- Equestrian Use
- Driveway
- Bridge/Underpass
- River & Wetlands Area Avoidance or Mitigation Required
- BLM
- Town Boundary

Contours are at 10' Intervals



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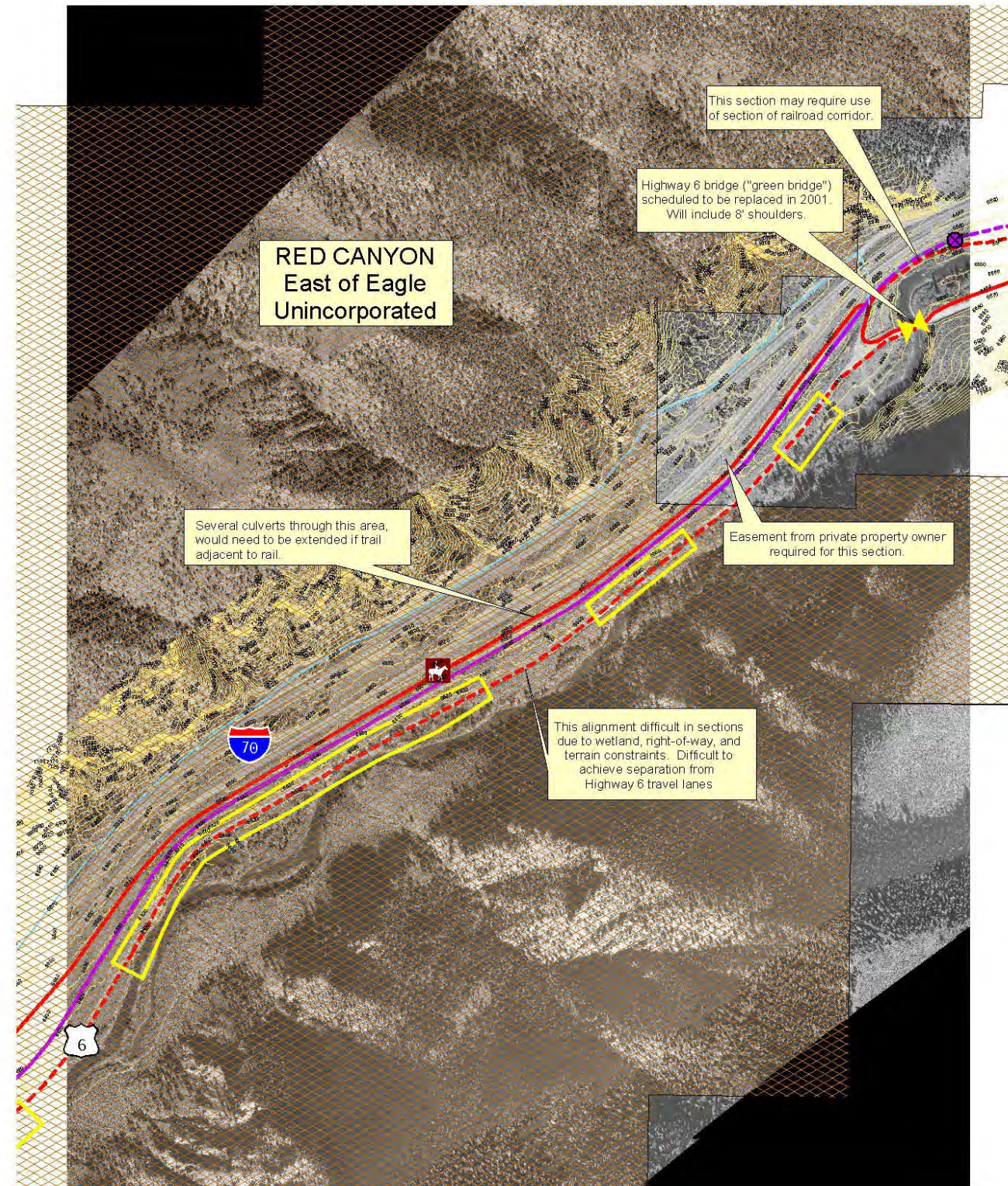
Map Revised: 2-22-00
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CORE TRAIL

Exhibit 11

Eagle to Wolcott
Sheet 11 of 29



LEGEND

-  Proposed Core Trail
-  Alternative to Proposed Core Trail
-  Existing Backcountry Trail
-  Railroad - Rail and Trail Can Share
-  Constrained for Rail and Trail Shared Corridor
-  Equestrian Use
-  Railroad Crossing by Trail
-  Bridge/Underpass
-  River & Wetland Area Avoidance or Mitigation Required
-  BLM
-  Town Boundary

Contours are at 10' Intervals



1" = 500'



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Map Revised: 2-22-00
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eco_project_folder\ecotrailscd1_revis.apr

CORE TRAIL

Exhibit 12

Eagle to Wolcott

Sheet 12 of 29

LEGEND

-  Proposed Core Trail
-  Alternative to Proposed Core Trail
-  Railroad - Rail and Trail Can Share
-  Constrained for Rail and Trail Shared Corridor
-  Driveway
-  Bridge/Underpass
-  Railroad Bridge
-  Park
-  Restroom
-  Parking
-  River & Wetlands Area Avoidance or Mitigation Required
-  BLM
-  Town Boundary

Contours are at 10' Intervals



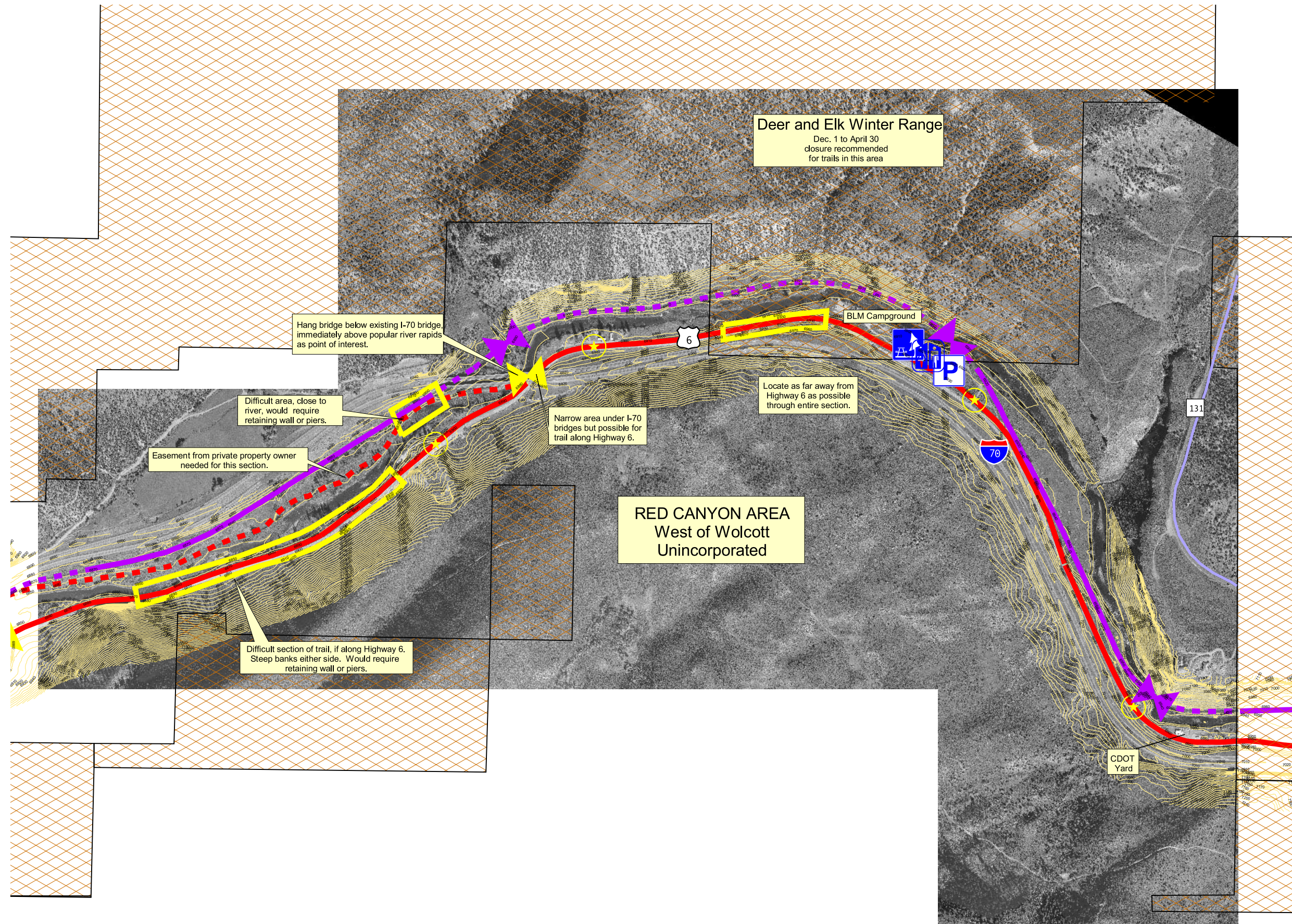
GIS Department



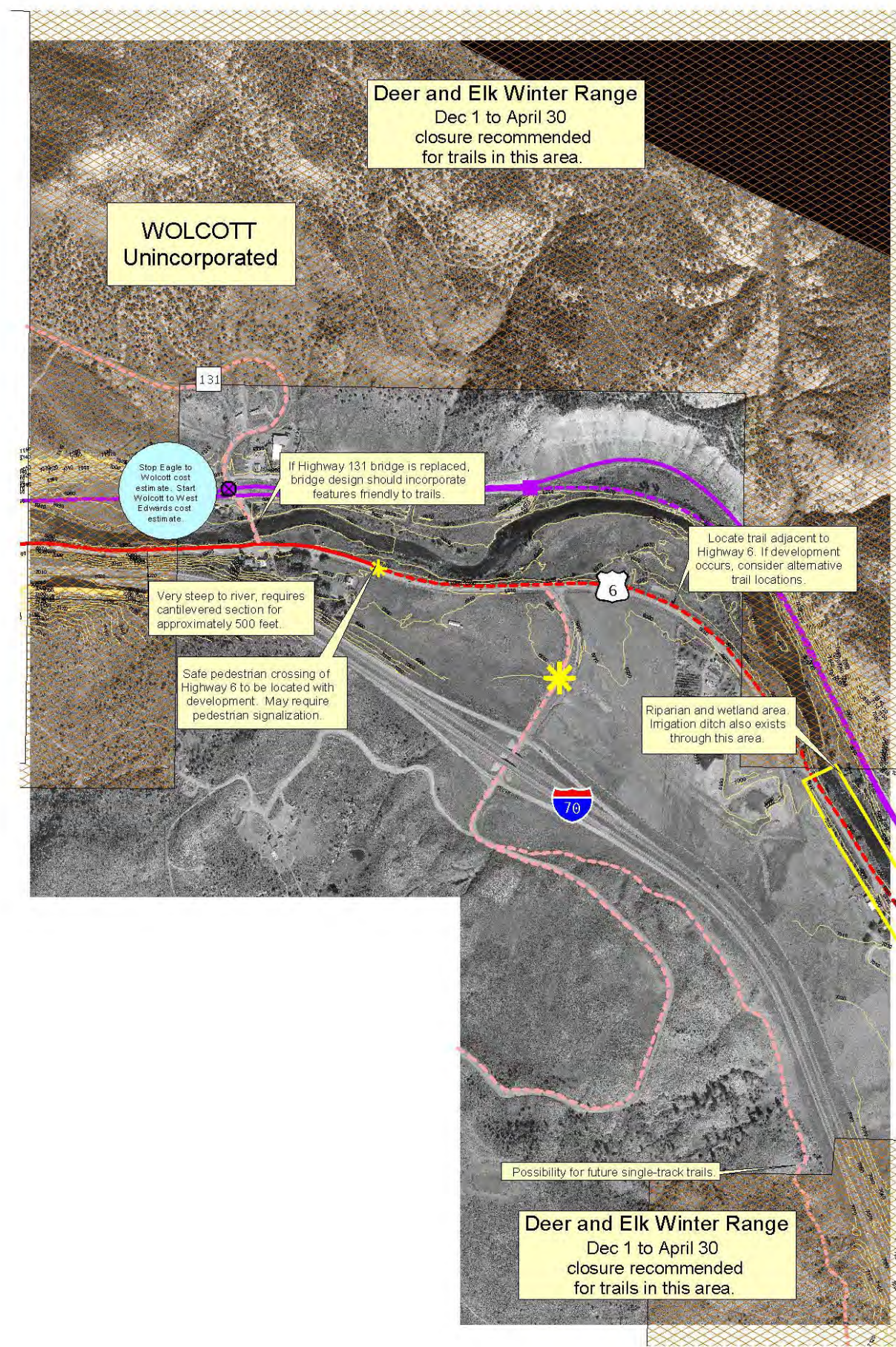
1' = 1000'

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Map Revised: 5-9-01
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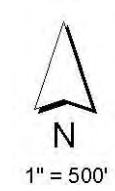
CORE TRAIL
Exhibit 13
Wolcott to Edwards
Sheet 13 of 29



LEGEND

-  Proposed Core Trail
-  Alternative to Proposed Core Trail
-  Proposed Spur Trail
-  Railroad - Rail and Trail Can Share
-  Constrained for Rail and Trail Shared Corridor
-  Railroad Crossing by Trail
-  Intersecting Roads
-  Busy Intersection
-  Box Culvert- (Under railroad, retrofit for trail, add small bridge or construct Texas crossing where possible.)
-  Bridge/Underpass
-  River & Wetland Area Avoidance or Mitigation Required
-  BLM
-  Town Boundary

Contours are at 10' Intervals



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Map Revised: 2-22-00
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CORE TRAIL

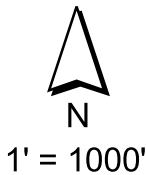
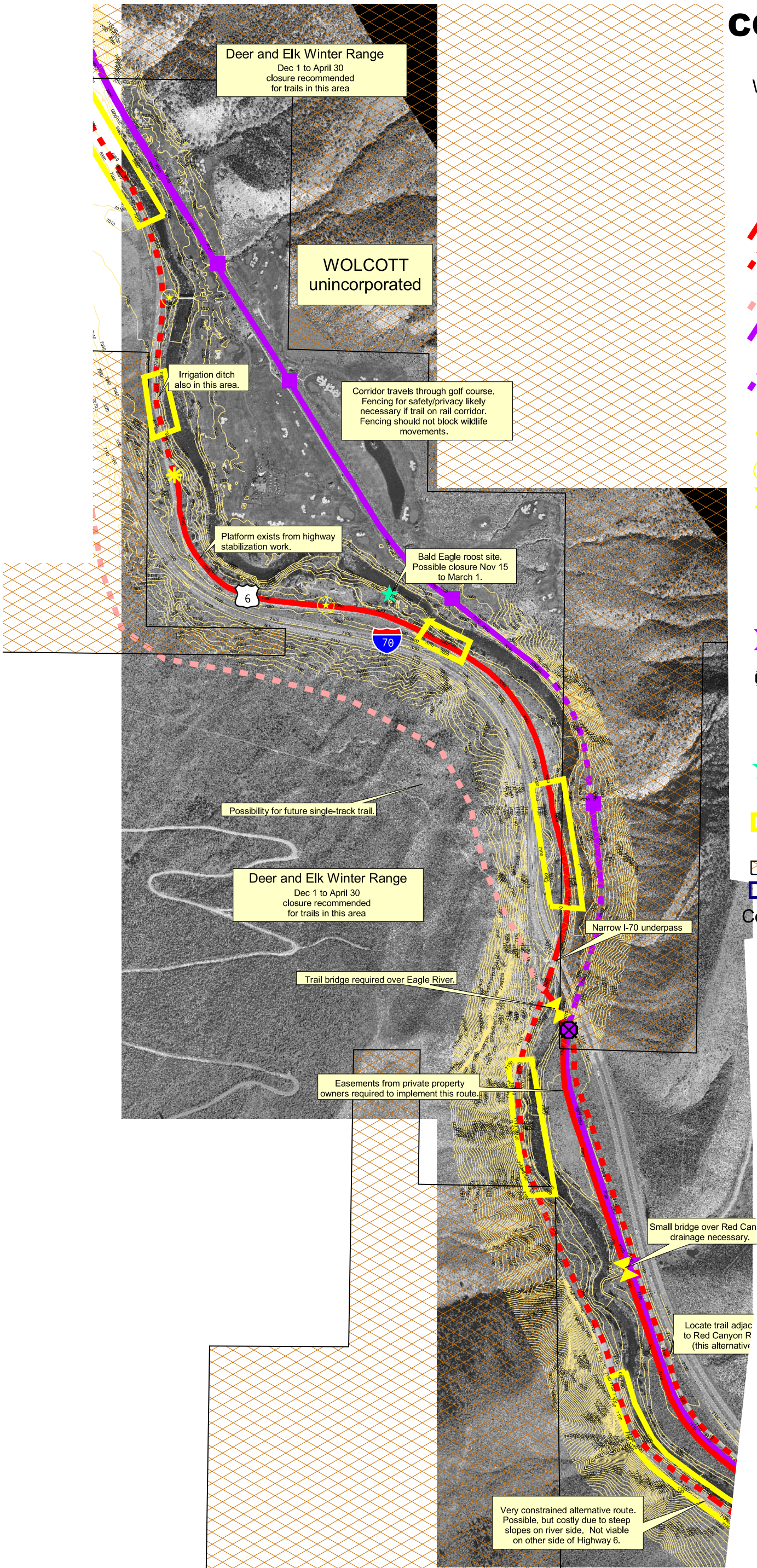
Exhibit 14

Wolcott to Edwards

Sheet 14 of 29

LEGEND

- Proposed Core Trail
 - Alternative to Proposed Core Trail
 - Proposed Spur Trail
 - Railroad - Rail and Trail Can Share
 - Constrained for Rail and Trail Shared Corridor
 - Intersecting Roads
 - Driveway
 - Bridge/Underpass
 - Box Culvert (Under railroad, retrofit for trail, add small bridge or construct Texas crossing where possible)
 - Railroad Bridge
 - Trail must cross railroad. At grade preferred if line inactive
 - Nesting Site
 - River & Wetlands Area
 - Avoidance or Mitigation Required
 - BLM
 - Town Boundary
- Contours are at 10' Intervals



GIS Department

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Map Revised: 6-05-01
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CORE TRAIL

Exhibit 15

Wolcott to Edwards
Sheet 15 of 29

LEGEND

-  Proposed Core Trail
-  Alternative to Proposed Core Trail
-  Existing Core Trail
-  Existing Spur Trail
-  Proposed Spur Trail
-  Railroad - Rail and Trail Can Share
-  Constrained for Rail and Trail Shared Corridor
-  Existing Backcountry Trail
-  Route to Trailhead
-  Driveway
-  Intersecting Roads
-  Bridge/Underpass
-  Railroad Crossing by Trail
-  USFS
-  Town Boundary

Contours are at 10' Intervals

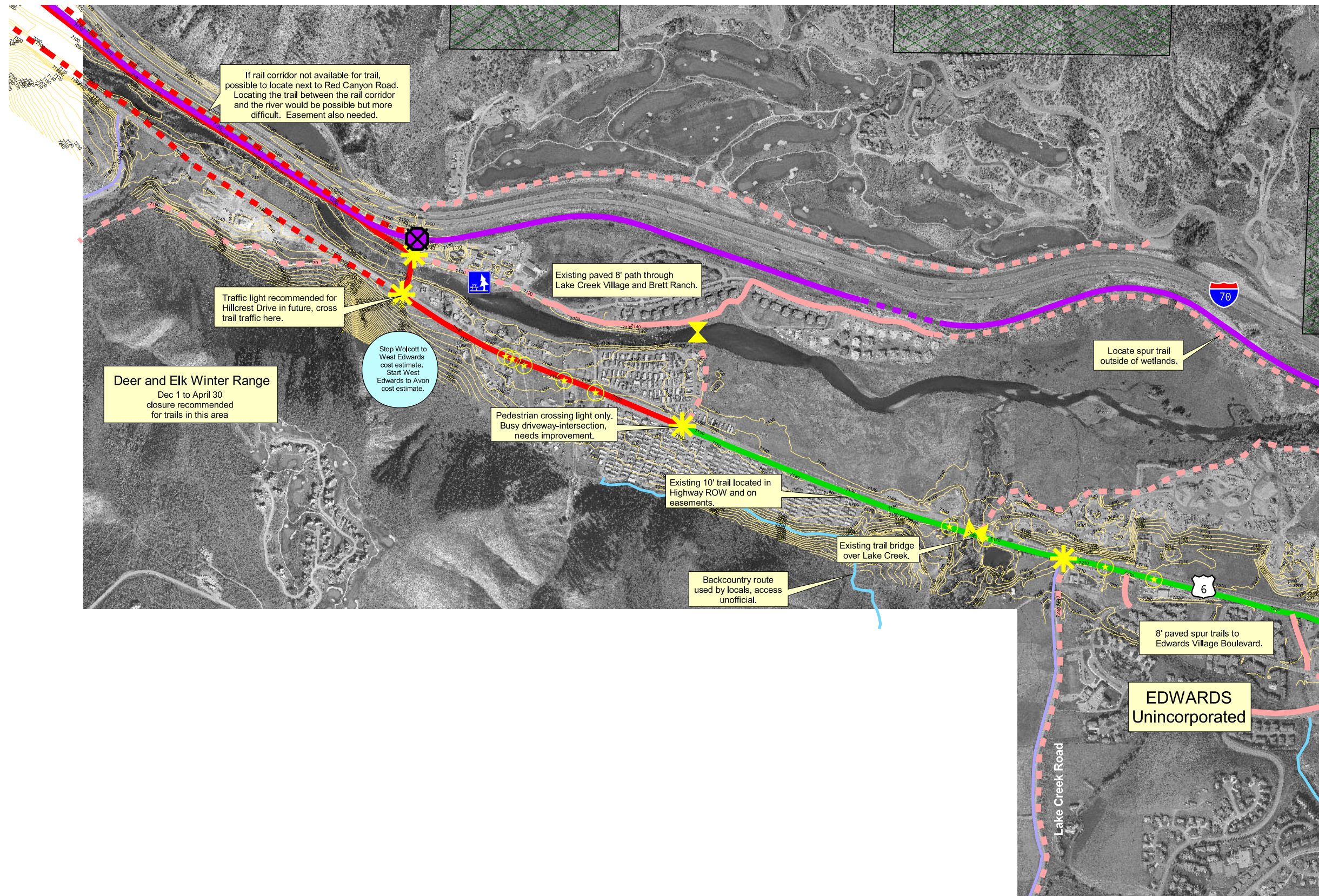


1' = 1000'



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Map Revised: 6-5-01
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eco_project_folder\ecotrailscd2_revis.apr



CORE TRAIL

Exhibit 16

Edwards to Avon
Sheet 16 of 29

LEGEND

- Proposed Core Trail
 - Existing Core Trail
 - Existing Spur Trail
 - Proposed Spur Trail
 - Railroad - Rail and Trail Can Share
 - Constrained for Rail and Trail Shared Corridor
 - Existing Backcountry Trail
 - Busy Intersections
 - Bridge/Underpass
 - Driveway
 - Park
 - Parking
 - Restroom
 - Equestrian Use
 - Railroad Crossing at Trail
 - USFS
 - Town Boundary
- Contours are at 10' Intervals



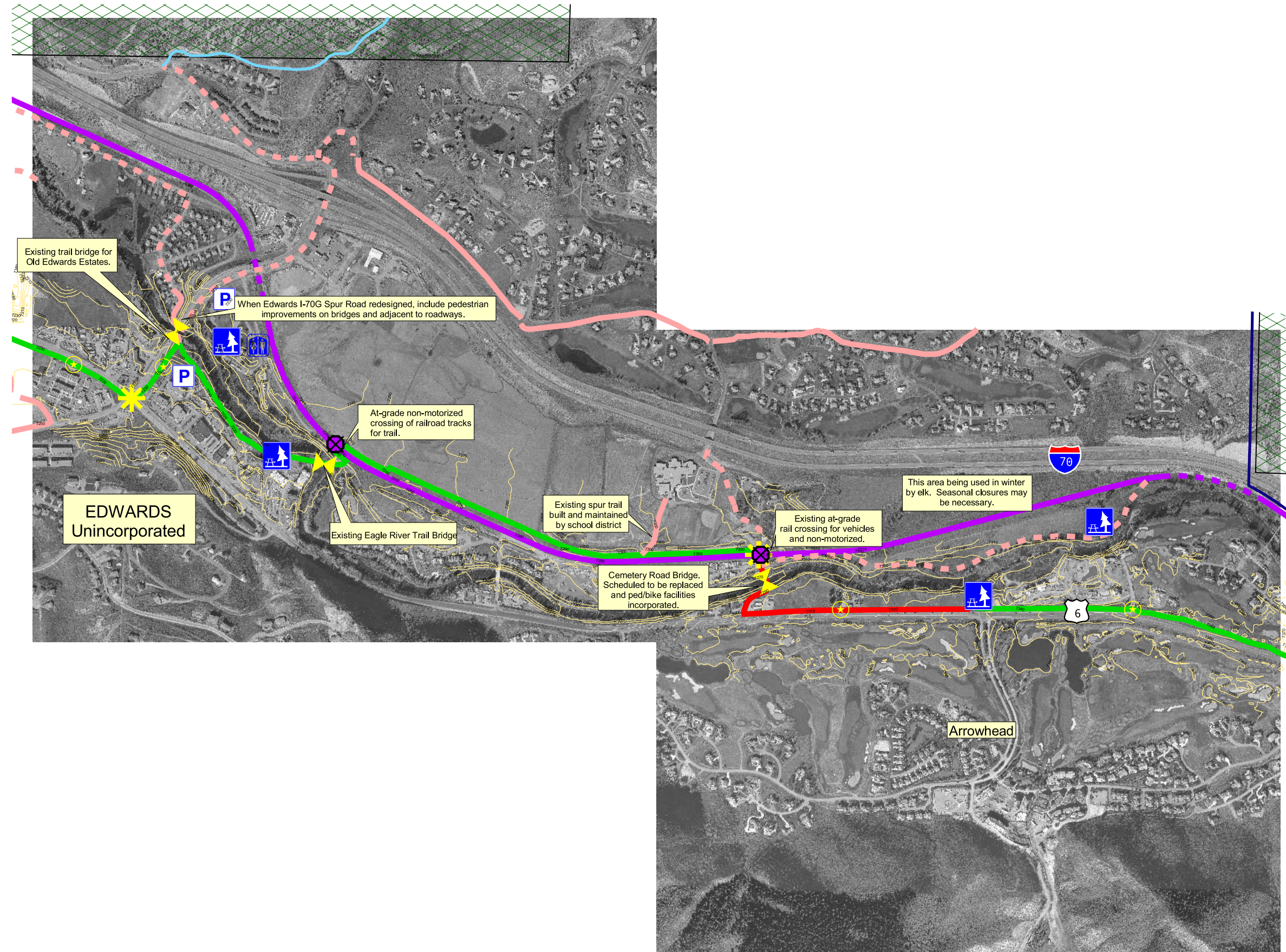
GIS Department



1' = 1000'

Map Revised: 6-05-01
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eco_project_folder\ecotrailsd3_revis.apr

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CORE TRAIL
Exhibit 17
Avon
Sheet 17 of 29

LEGEND

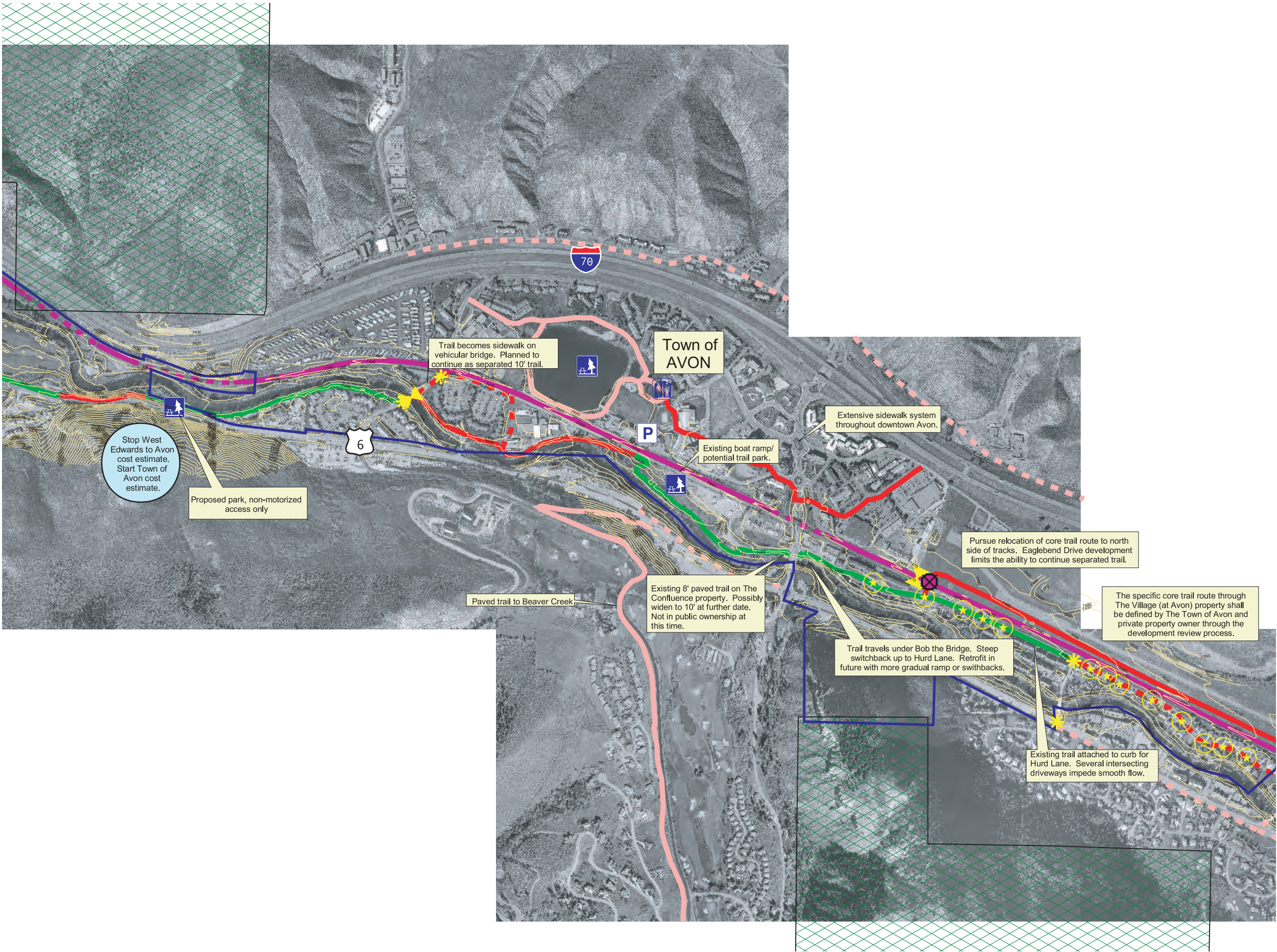
- Proposed Core Trail
- Alternative to Proposed Core Trail
- Existing Core Trail
- Existing Spur Trail
- Proposed Spur Trail
- Railroad - Rail and Trail Can Share
- Constrained for Rail and Trail Shared Corridor
- Driveway
- Intersecting Roads
- Bridge/Railroad Crossing
- Public Park
- Railroad Crossing by Trail
- USFS
- Town Boundary

Contours are at 10' Intervals



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Map Revised: 6-05-00
e:\spec_projs\eco_trails\trails\plan\eco_project_folder\ecotrailscd3_revis.apr



CORE TRAIL

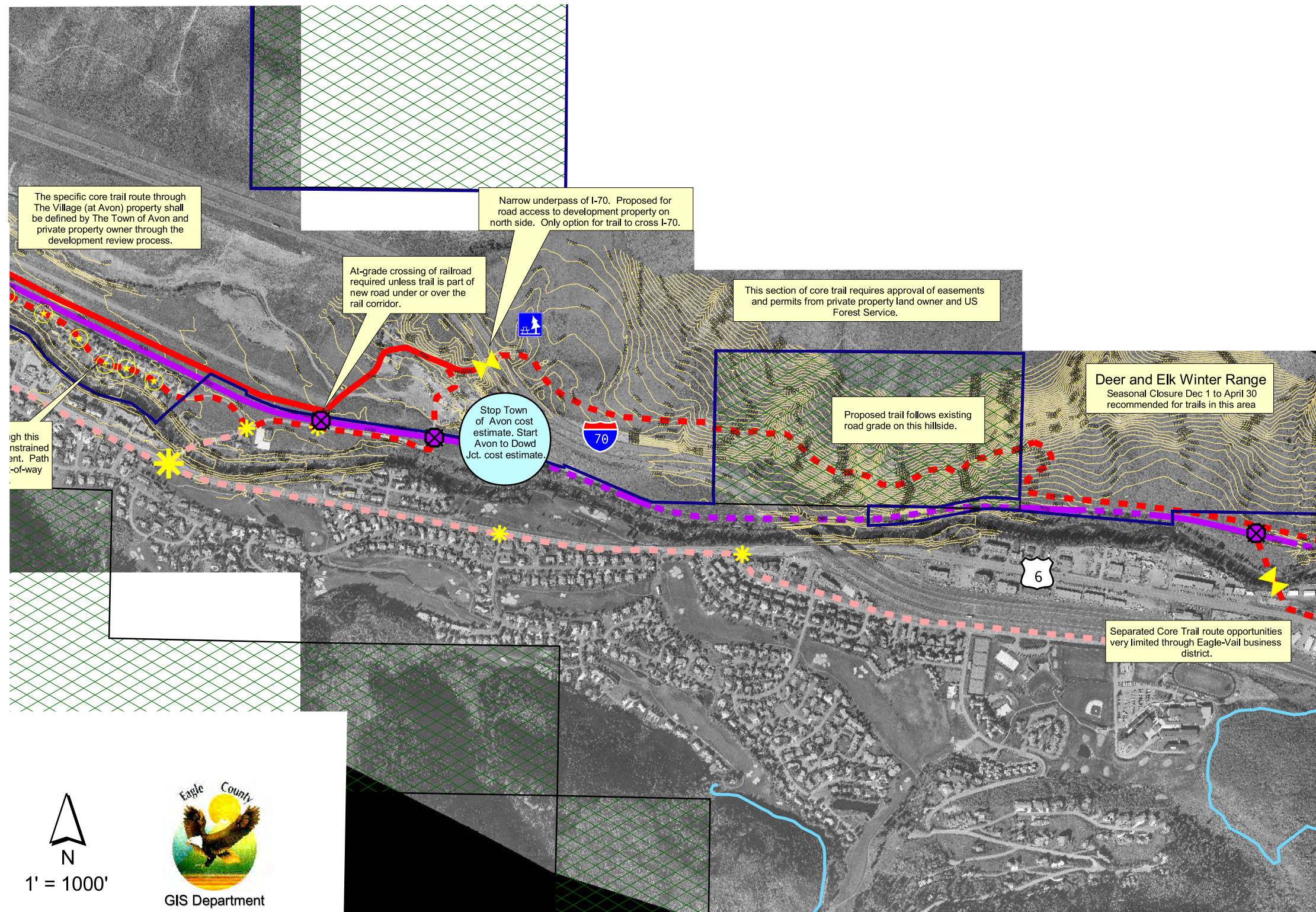
Exhibit 18

Avon
Sheet 18 of 29

LEGEND

-  Proposed Core Trail
-  Alternate to Proposed Core Trail
-  Existing Core Trail
-  Existing Spur Trail
-  Proposed Spur Trail
-  Railroad - Rail and Trail Can Share
-  Constrained for Rail and Trail Shared Corridor
-  Existing Backcountry Trail
-  Driveway
-  Intersecting Roads
-  Busy Intersections
-  Bridge/Underpass
-  Public Park
-  Railroad Crossing by Trail
-  USFS
-  Town Boundary

Contours are at 10' Intervals



N
1' = 1000'



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Map Revised: 7-18-01
e:\spec_projs\eco_trails\trails\plan\eco_project_folder\ecotrailscd3_revis.apr

CORE TRAIL

Exhibit 19

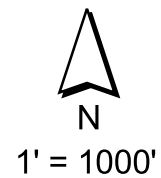
Avon to Vail

Sheet 19 of 29

LEGEND

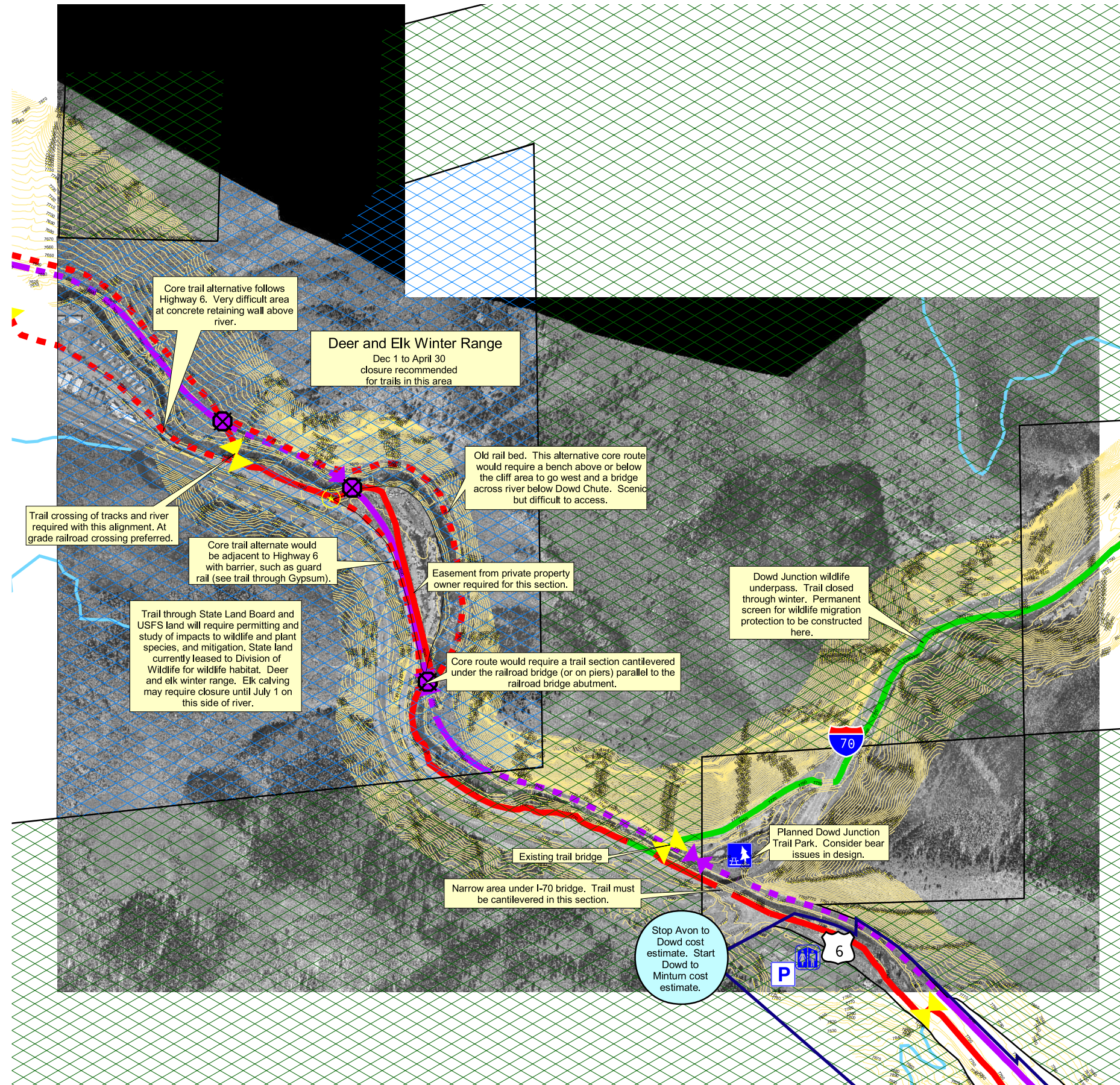
-  Proposed Core Trail
-  Alternative to Proposed Core Trail
-  Existing Core Trail
-  Railroad - Rail and Trail Can Share
-  Constrained for Rail and Trail Shared Corridor
-  Existing Backcountry Trail
-  Busy Intersections
-  Bridge/Underpass
-  Railroad Bridge
-  Railroad Crossing by Trail
-  Public Park
-  Parking
-  Restroom
-  State Land Board
-  USFS
-  Town Boundary

Contours are at 10' Intervals



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Map Revised: 7-18-01
e:\spec_projs\eco_trails\trails\plan\eco_project_folder\ecotrailscd3_revis.apr



CORE TRAIL**Exhibit 20**

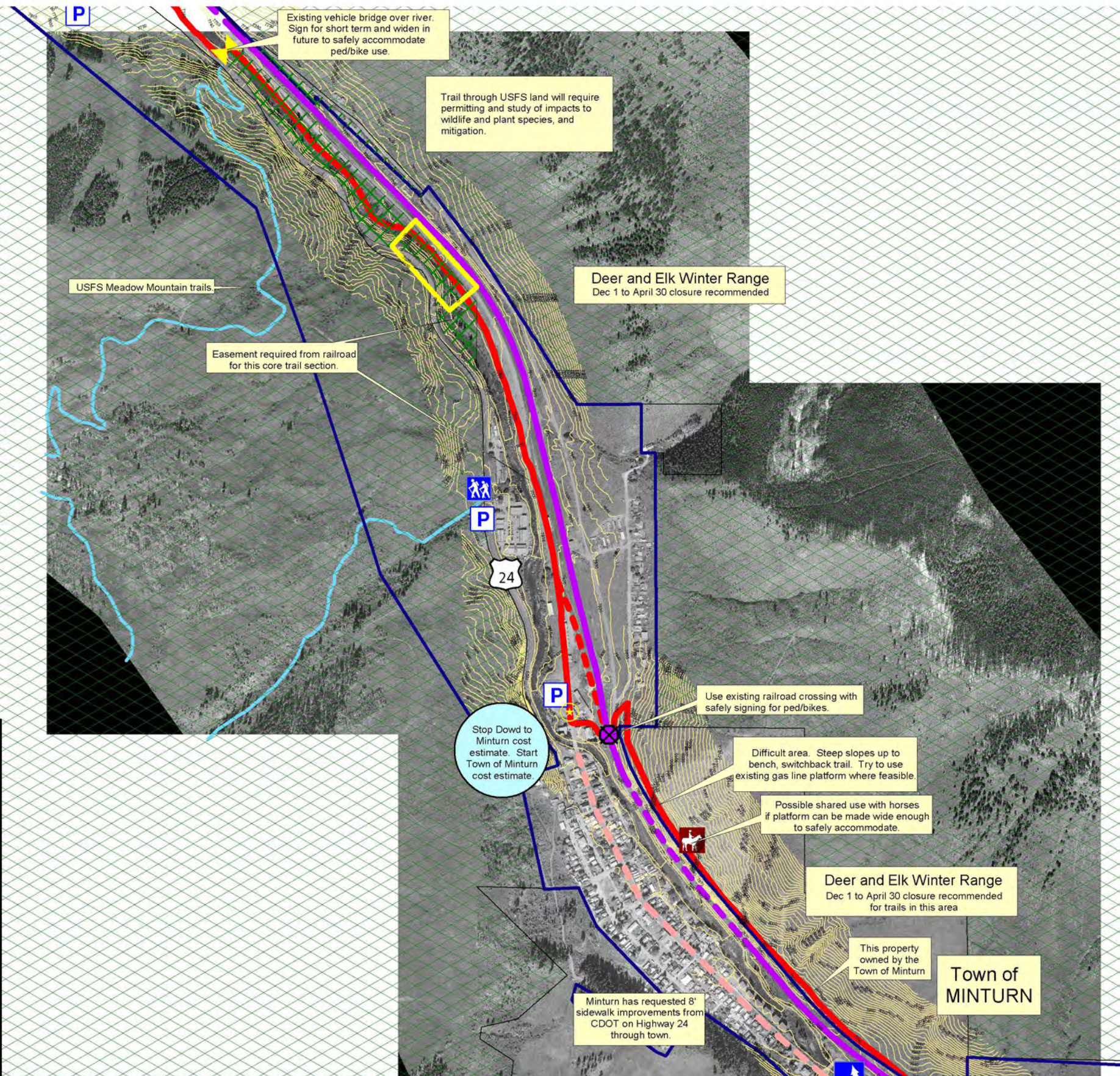
Dowd Junction to Minturn

Sheet 20 of 29

LEGEND

-  Proposed Core Trail
-  Alternative to Proposed Core Trail
-  Existing Core Trail
-  Proposed Spur Trail
-  Railroad - Rail and Trail Can Share
-  Constrained for Rail and Trail Shared Corridor
-  Existing Backcountry Trail
-  Trailhead
-  Parking
-  Busy Intersections
-  Bridge/Underpass
-  Park
-  Equestrian Use
-  Railroad Crossing by Trail
-  River & Wetlands Area
-  Avoidance and Mitigation Required
-  USFS
-  Town Boundary

Contours are at 10' Intervals



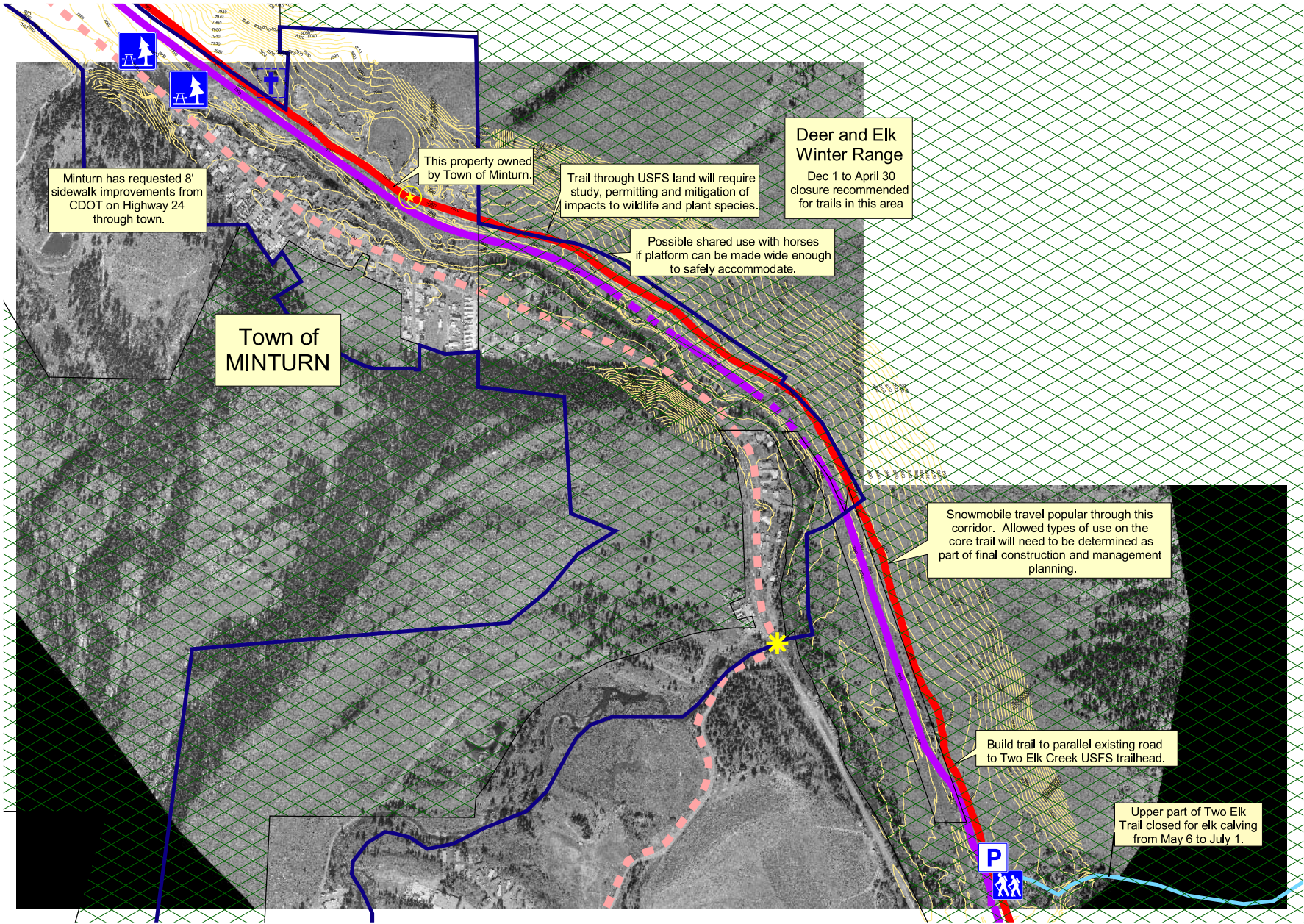
This map was produced by the Eagle County GIS Department in cooperation with Johnson, Kunkel and Associates. Use of this map should be for general purposes only. Eagle County does not warrant the accuracy of the data contained herein.

Map Revised: 6-05-01
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CORE TRAIL

Exhibit 21

Dowd Junction to Minturn
Sheet 21 of 29



LEGEND

-  Proposed Core Trail
-  Existing Backcountry Trail
-  Railroad - Rail and Trail Can Share
-  Constrained for Rail and Trail Shared Corridor
-  Park
-  Cemetery
-  Trailhead
-  Parking
-  Equestrian Use
-  USFS
-  Town Boundaries

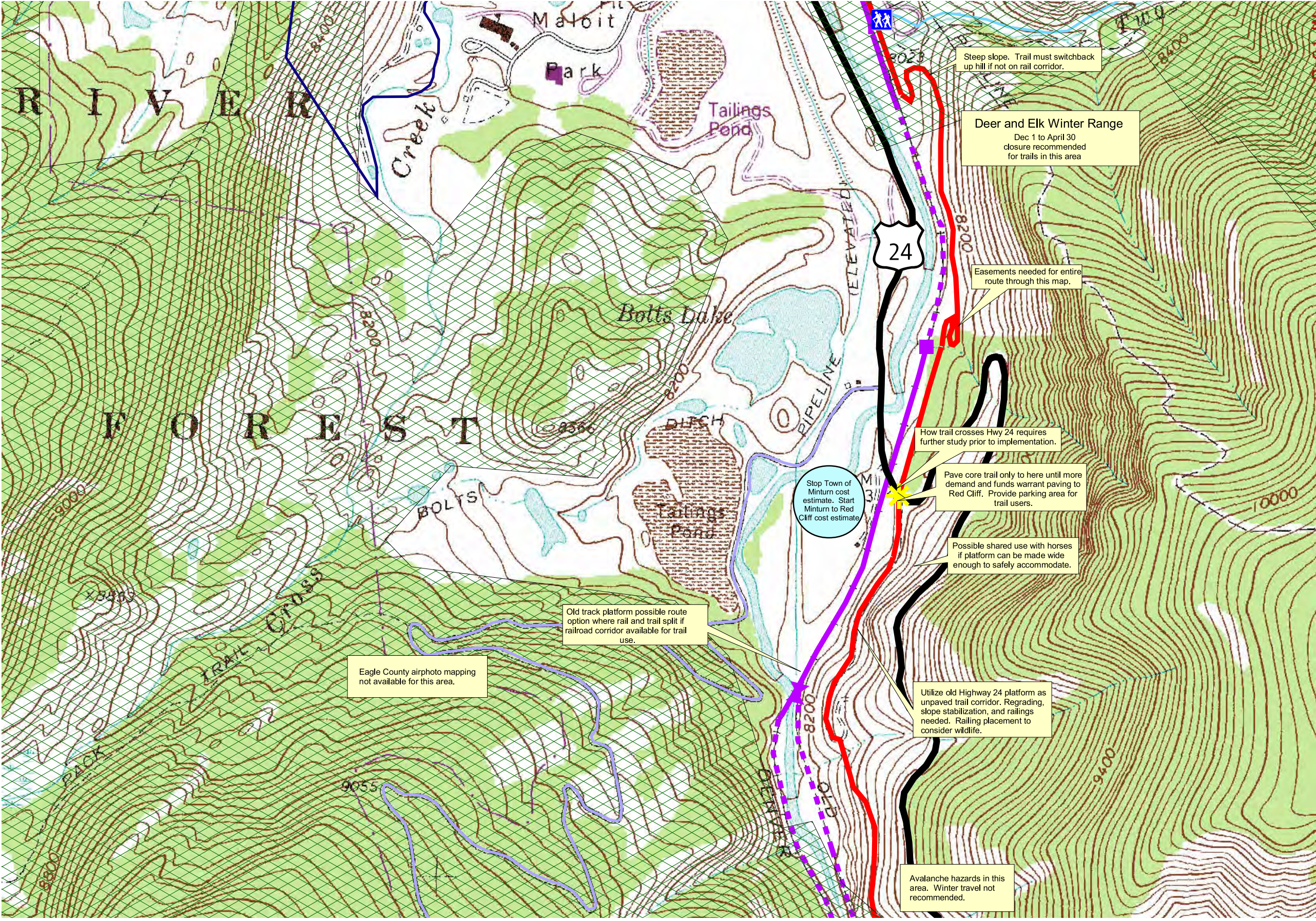
Contours are at 10' Intervals



1' = 1000'

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Map Revised: 6-05-01
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CORE TRAIL
Exhibit 22
Minturn to Red Cliff
Sheet 22 of 29

LEGEND

- Proposed Trails
- Railroad - Rail and Trail Can Share
- Constrained for Rail and Trail Shared Corridor
- Existing Backcountry Trail
- Highway 24
- Busy Intersection
- Railroad Bridge
- Trailhead
- Equestrian Use
- Box Culvert Under Railroad (retrofit for trail, add small bridge or construct Texas crossing where possible)
- USFS
- Town Boundary

N
1' = 1000'

GIS Department

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Map Revised: 6-13-01
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CORE TRAIL

Exhibit 23

Minturn to Red Cliff

Sheet 23 of 29

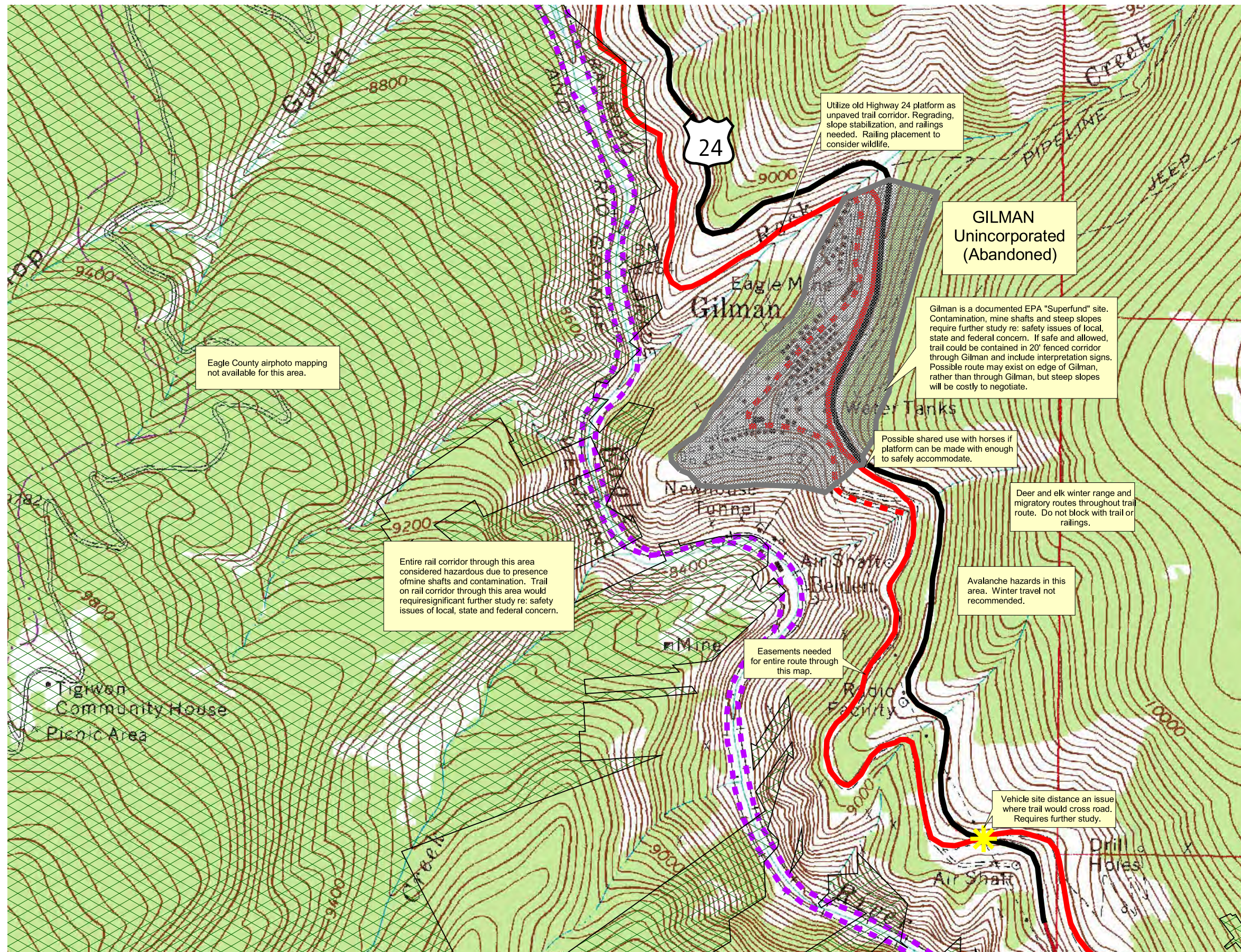
LEGEND

-  Highway 24
-  Proposed Trails
-  Alternative to Proposed Core Trail
-  Railroad - Rail and Trail Can Share
-  Constrained for Rail and Trail Shared Corridor
-  EPA Superfund Site
-  Busy Intersection
-  Equestrian Use
-  USFS
-  Town Boundary



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Map Revised: 5-16-01
e:\spec_proj\eco_trails\trails\plan\eco_project_folder\ecotrailszipdisk5_revis1.apr



CORE TRAIL

Exhibit 24

Minturn to Red Cliff

Sheet 24 of 29

LEGEND

-  Proposed Trails
-  Railroad - Rail and Trail Can Share
-  Constrained for Rail and Trail Shared Corridor
-  Existing Backcountry Trail
-  Highway 24
-  Busy Intersection
-  Equestrian Use
-  USFS
-  Town Boundary
- Contours are at 10' Intervals



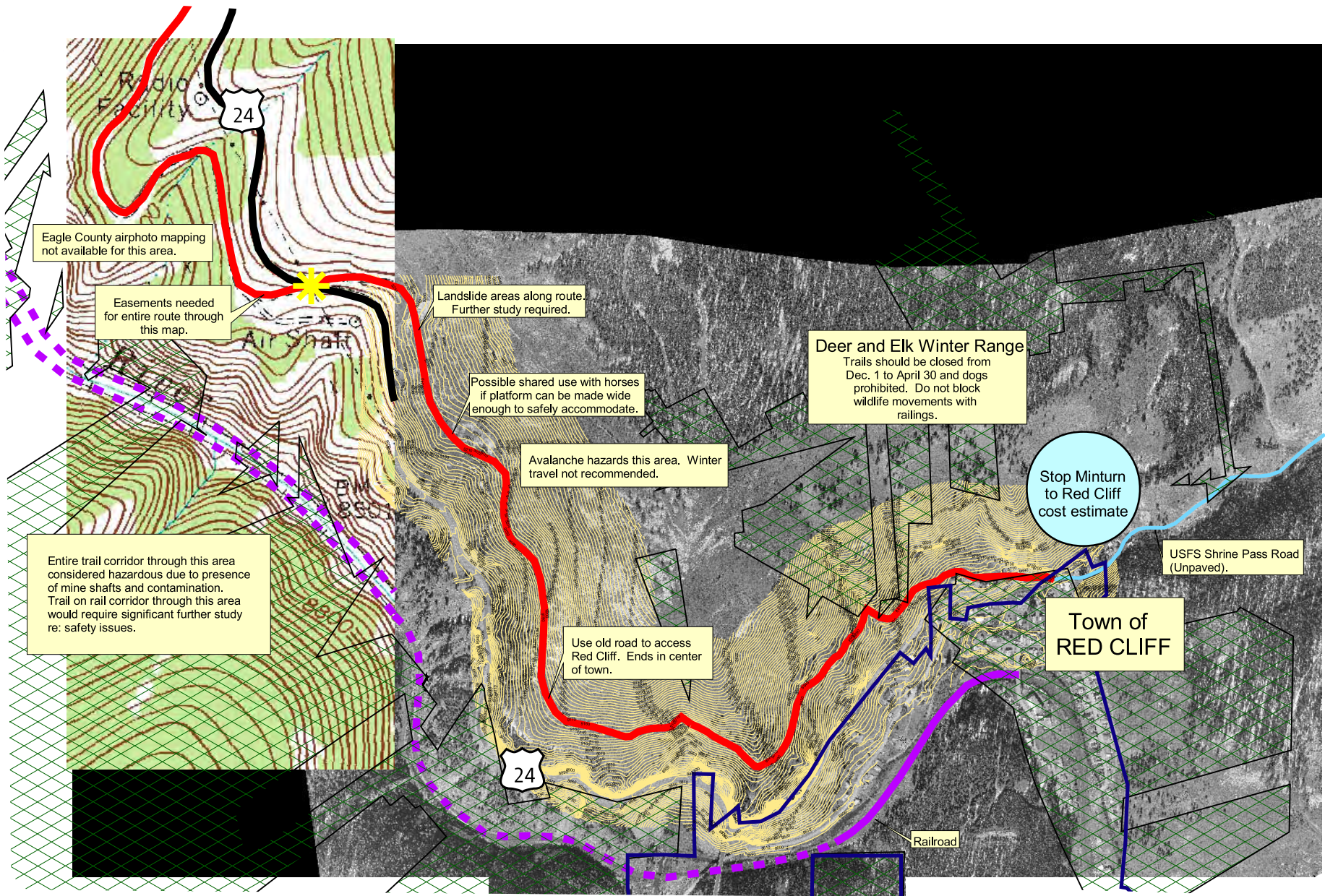
1' = 1000'



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CORE TRAIL

Exhibit 25

Vail
Sheet 25 of 29

LEGEND

-  Existing Core Trail
-  Existing Spur Trail
-  Proposed Spur Trail
-  Existing Backcountry Trail
-  Route to Trailhead
-  Park
-  Parking
-  Restroom
-  Trailhead
-  Intersection
-  USFS
-  Town Boundary

Contours are at 10' Intervals



GIS Department

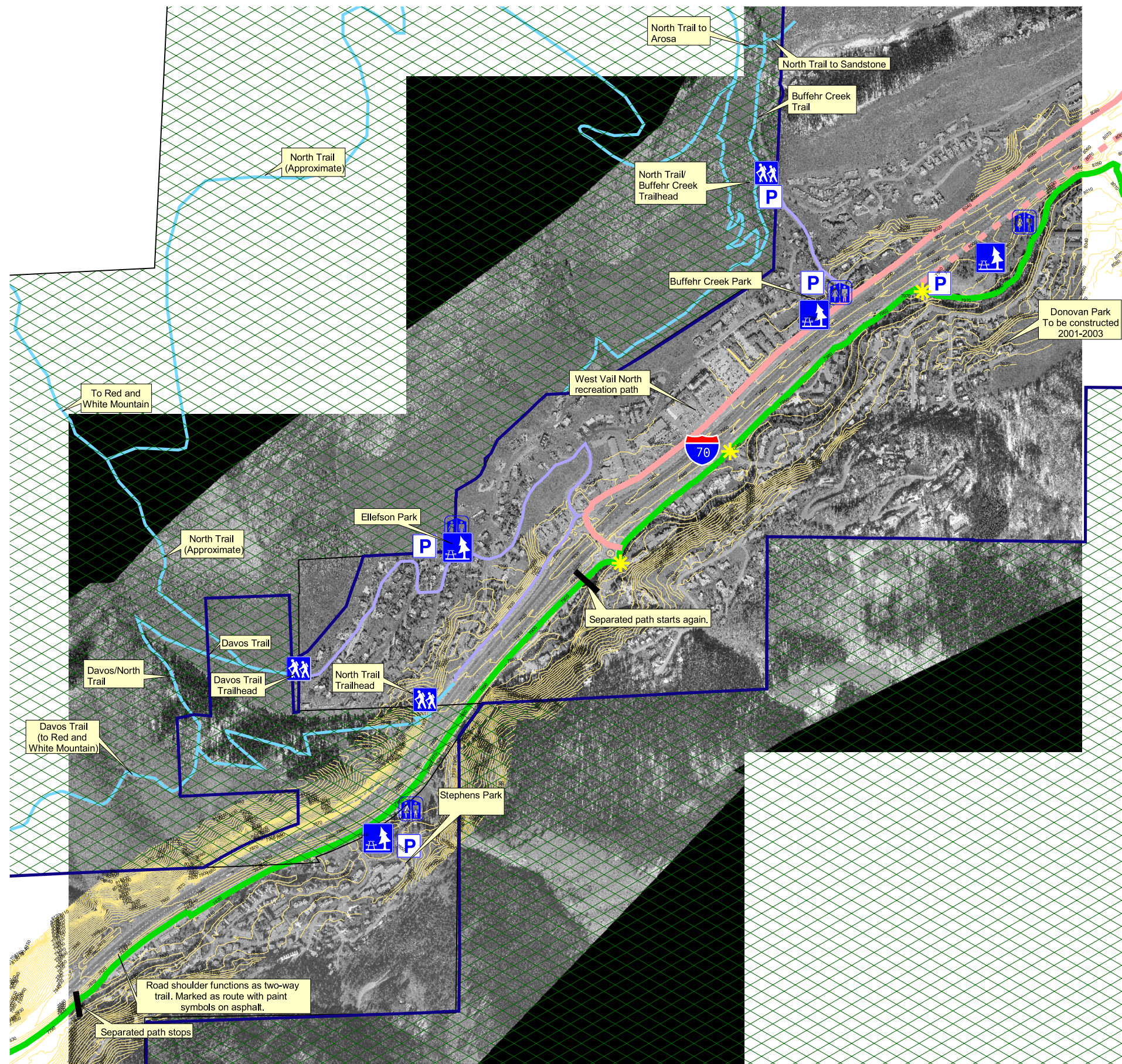


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CORE TRAIL

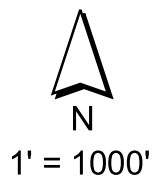
Exhibit 26

Vail
Sheet 26 of 29

LEGEND

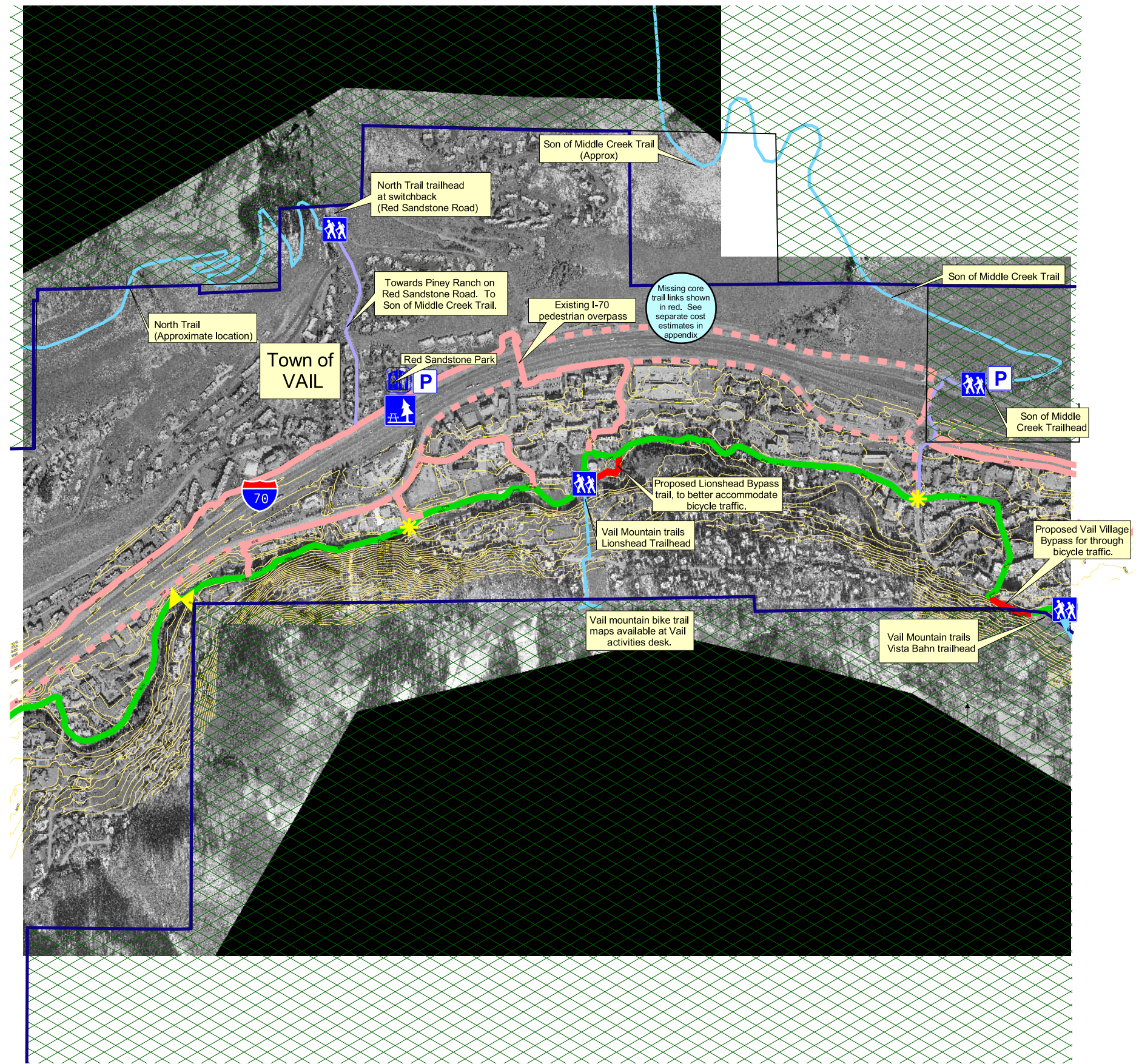
-  Proposed Core Trail
-  Existing Core Trail
-  Existing Spur Trail
-  Proposed Spur Trail
-  Existing Backcountry Trail
-  Route to Trailhead
-  Intersecting Roads
-  Bridge/Underpass
-  Parking
-  Restrooms
-  Trailhead
-  Park
-  USFS
-  Towns

Contours are at 10' Intervals



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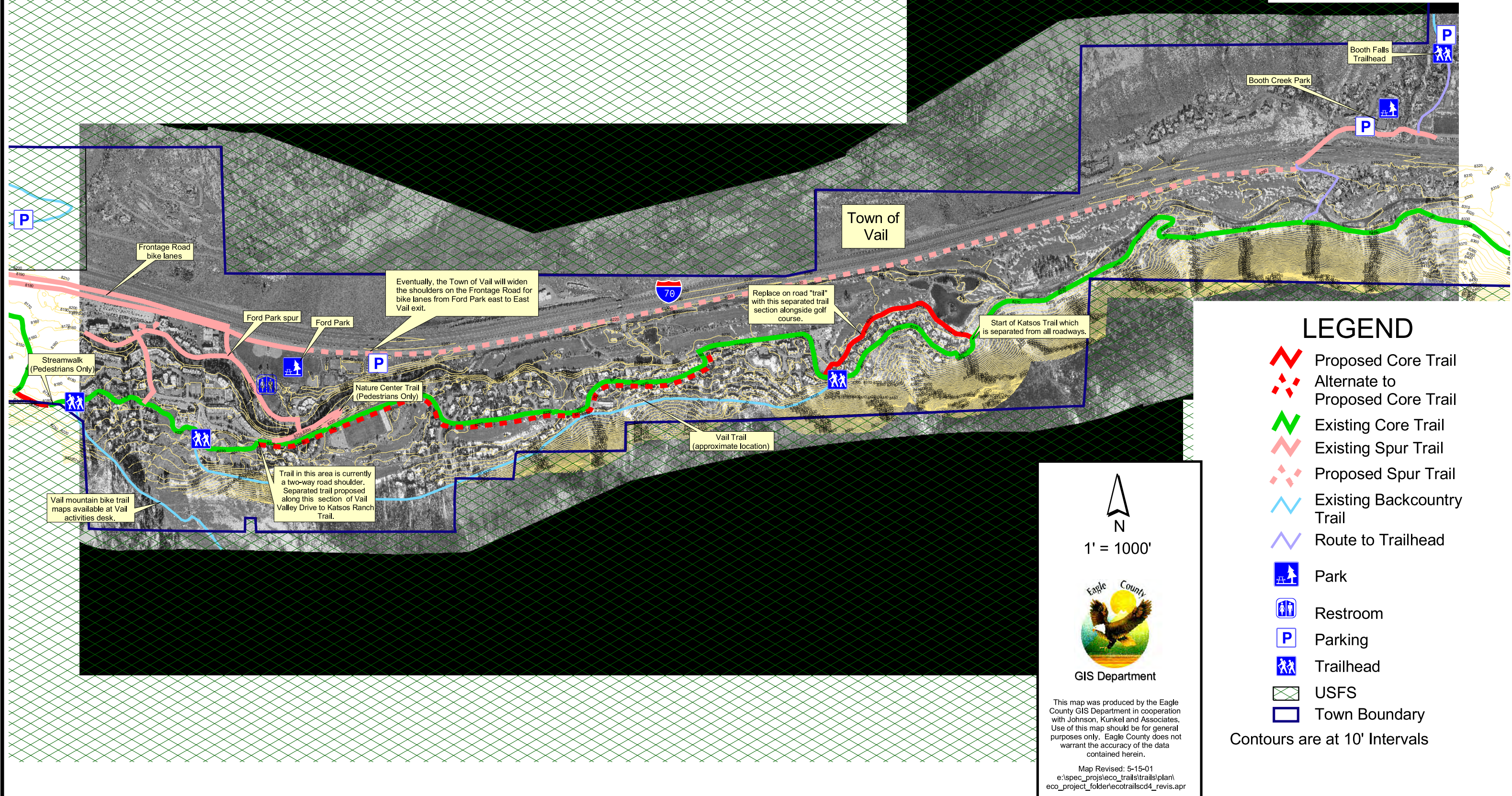
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CORE TRAIL

Exhibit 27

Vail
Sheet 27 of 29

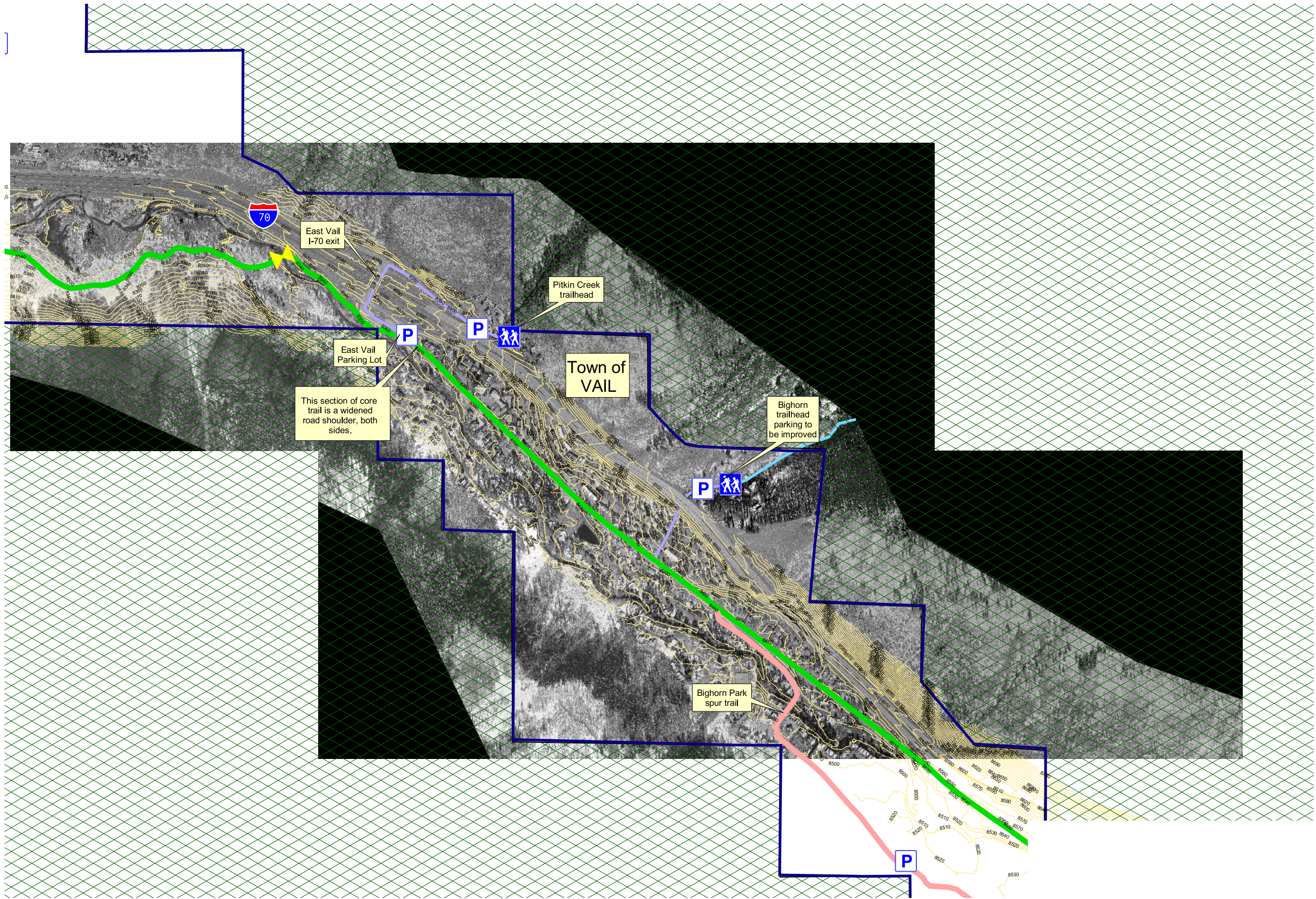


CORE TRAIL

Exhibit 28

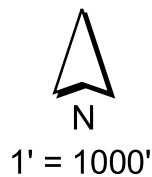
Vail

Sheet 28 of 29



LEGEND

- Existing Core Trail
 - Existing Spur Trail
 - Route to Trailhead
 - Bridge/Underpass
 - Trailhead
 - Parking
 - USFS
 - Town Boundary
- Contours are at 10' Intervals



GIS Department

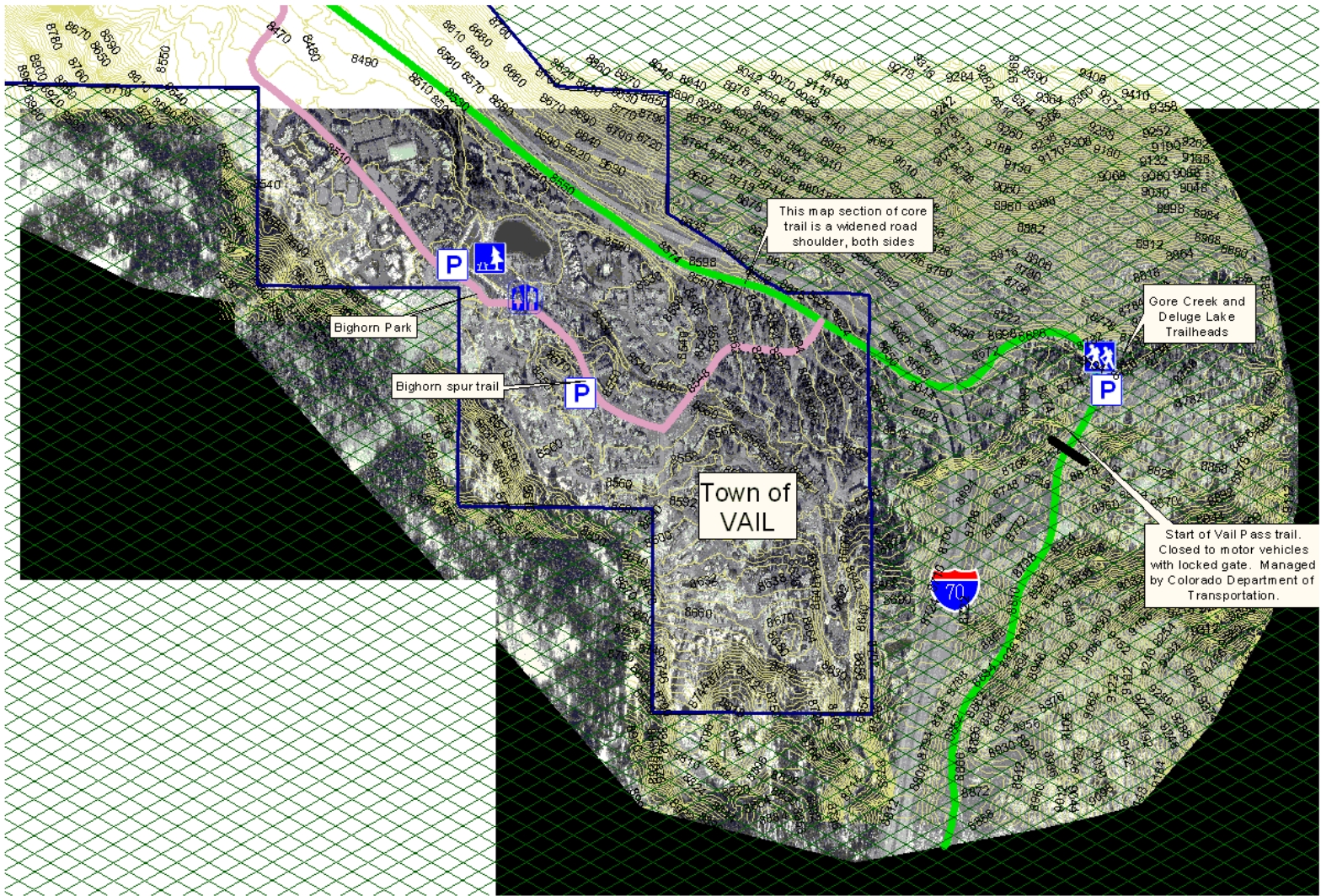
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CORE TRAIL

Exhibit 29

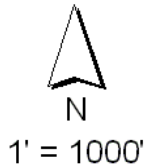
Vail
Sheet 29 of 29



LEGEND

- Existing Core Trail
- Existing Spur Trail
- Park
- Trailhead
- Parking
- Restrooms
- USFS
- Town Boundary

Contours are at 10' Intervals



GIS Department

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Map Revised: 5-15-01
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CHAPTER 4

Trail Design and Construction Standards



Core Trail at Riverwalk in Edwards

Introduction

This chapter includes recommended standards for design and construction of the Regional Core Trail and connecting Spur Trails that are separated from roadway and offer a transportation option and recreation opportunity. These trails are intended for use by the public. Also addressed in this section are standards for unpaved trails, private trails, sidewalks, and safely sharing roadways with non-motorized uses.

Fundamentals of Trail Design

These standards are based primarily on the 1999 guidelines from the American Association of State Highway and Transportation Officials (AASHTO) for the development of bicycle facilities, particularly their recommendations regarding shared use paths and shared Roadways. Several other studies and standards resources were consulted in the formulation of this chapter as well (see References, Appendix C).

In addition to following the detailed design recommendations, implementation of this plan should reflect several basic design philosophies. In developing the route for the Core Trail, these philosophies were considered:

1. **CONSIDER THE POTENTIAL USER RANGE OF ABILITIES** and carrying capacity when designing a trail segment. Trail width, slope, surface and accessibility determine the type of trail user (e.g. road bike vs. mountain bike) and overall carrying capacity (e.g. 6' trail vs. 10' trail). The Core Trail project, for example, is being designed with a certain user in mind – a family on a bike ride with children either in a burley or on their own bikes. That image helps define the level of safety, grade, design speed, and overall quality of experience.
2. **LOCATE TRAILS IN THE MOST EFFICIENT, DIRECT TRAVEL ROUTE WHERE POSSIBLE** except where the purpose of the trail has been determined to be primarily scenic and recreational.
3. **DESIGN TO AVOID OR MITIGATE ENVIRONMENTAL IMPACTS** by not encroaching upon wetlands or riparian corridors, critical habitat areas, and erosive landforms. Follow natural contours to minimize cut and fill activities. Meander around fragile or established features. Make every effort to preserve existing vegetation. If environmental impacts are unavoidable, mitigate with proven successful methods. Where possible, utilize areas of existing disturbance such as utility line easements, abandoned rail corridors or ditches.

4. **MINIMIZE OR MITIGATE IMPACTS OF TRAIL UPON ADJACENT LANDOWNERS.** Some trail sections may be in close proximity to residential, commercial, industrial or agricultural development. These conflicts must be identified as part of the analysis for each trail segment. Mitigation measures shall be identified and may include but are not limited to realignment, fencing, berming, and screening. This aspect of the trails segment analysis and design is very important to the community success of the system. The “good neighbor” policy is particularly important during the construction period.
5. **MAXIMIZE SCENIC VIEWS.** Site the alignment to view scenic features while actively using the trail and at rest stops.
6. **CONSIDER SAFETY IN ALL LEVELS OF SITING AND DESIGN.** Safety is the primary focus of the following recommended design standards.
7. **DESIGN FOR EASE OF USE AND NAVIGATION.** Keep construction (uniform surface type and width) and accessories (signs, striping, lighting, striping, trailheads) consistent throughout the system to promote an image of reliability and ease of use.
8. **DESIGN FOR EASE OF MAINTENANCE.** If possible, avoid constructing trail sections through areas of poor drainage, unstable soils, rock or snow slide areas, through shaded icy spots, immediately adjacent to winter sanded roadways, vehicular use areas or snow storage sites, or in areas of mature vegetation that is prone to deadfall, debris or surface roots. Consider vandalism susceptibility and prevention when selecting materials and accessories (lighting, bollards, furniture, etc.).
9. **DESIGN AS A FOUR-SEASON TRAIL,** if possible, in the most heavily populated areas. This will require prior commitment to winter maintenance by the managing agency and mitigatable wildlife issues.

Design Standards For Trails

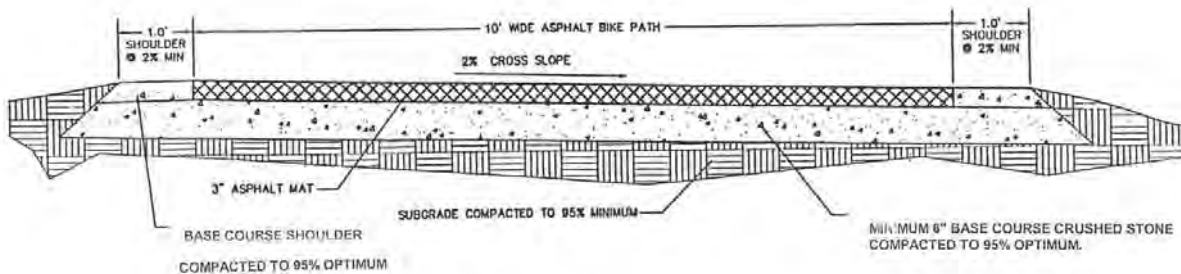
In certain cases, deviation from these recommended standards should be allowed by the managing jurisdiction where safety or user experience are not compromised, and the rationale for the deviation is defensible. For example, narrowing the core trail to less than the recommended width in areas where there are exceptional property or environmental impacts may be allowable if minimized to the greatest extent possible.

For more specific guidance or for items not addressed in the following standards, consult the most current American Association of State Highway and Transportation Officials and Colorado Department of Transportation guidelines.

Trail Width:

- 10 feet wide for the majority of the Core Trail System for medium levels of use by a variety of user types, with 1 to 2 foot clear areas, graded for drainage, on each side of the trail.
- 8 feet wide for Spur Trail sections connecting to the Core Trail, or on other public trails where traffic is expected to be moderate, even on typical peak days during peak hours, and there are safe opportunities to pass. Provide 1 to 2 foot clear areas, graded for drainage on each side of the trail.

TYPICAL TRAIL CROSS SECTION



- 12 feet wide for trail sections with expected heavy use by a variety of user types (pedestrians, bicycles, occasional maintenance vehicles, cycling two abreast, roller skaters), with 1 to 2 foot clear areas graded for drainage on each side of the trail.
- For any width of trail listed above, where demand exists and budget allows, a 3 to 5 foot soft surface trail is recommended for separate jogging use, either immediately adjacent to the trail or separation.

Adjacent Slopes:

- Adjacent uphill slopes, 3:1 preferred, 1.5:1 maximum
- Adjacent downhill slopes, 3:1 preferred, 2:1 maximum. Railing, fence or dense landscape barrier required for greater than 2:1 slopes.

Surfacing:

- A minimum of 3 inches Bituminous Asphalt over 6 inches of compacted CDOT Class 6 aggregate base course (ABC) over a compacted subgrade. A soils report is advisable to determine appropriate pavement and submaterial thickness.
- Concrete trails are encouraged when feasible and constructed with 4 inches of reinforced 3,000 psi concrete over 6 inches of compacted CDOT Class 6 ABC. In areas prone to erosion or flood, concrete may be required.
- Transitions between different surfacing types (e.g. new asphalt to existing asphalt, asphalt to concrete, asphalt to base course) should be flush with no more than a 1/4" differential.

Compaction:

- All asphalt, base course (including shoulders) and subgrade material to be compacted to 95% of maximum density obtained at optimal moisture content as determined by AASHTO T180-57, Method A, Testing. Subgrade and base course must be dry and free of frost when asphalt is

placed. Shoulders may require additional treatment to retain compaction and methods include adding lime or sakrete to base course in areas where shoulders are exceptionally prone to erosion.

Design Speed:

- 20 mph for the paved trail specified above/15 mph for unpaved paths

Bicyclists can travel faster than 20 mph but it is inappropriate to do so in a mixed-use setting. Meanders may be used to encourage reduced bicycle speed. Raised surface methods, such as speed bumps and upright barriers, such as bollards, should not be used to reduce speeds as they create more of a hazard than a deterrent. (See Barriers section below).

Sight Distance:

- All alignments should incorporate safe sight distance in compliance with the AASHTO design guidelines, especially at narrow sections, intersections, curves and shall give special attention to wet, shaded, unpaved or otherwise hazardous sections.

Minimum Curve Radius:

- The recommended minimum curve radius for a 20 mph design speed is 36 feet, based on a 15 degree lean angle.
- When substandard radius curves must be used on shared use trails because of right-of-way, topographical or other considerations, standard curve warning signs and supplemental pavement markings should be installed. It is advisable to widen the trail in order to increase the lateral space available to bicyclists as they lean to the inside of the turn.

Cross Slope:

- 2 - 3% maximum cross slope, may be increased to up to 5% on curves but overall disabled access should be evaluated as part of the design decision.

Grade:

- 2% to 3% slope preferred, 1% acceptable but drainage should be considered.
- Grades on shared use trails should be kept to a minimum; especially on long inclines. Grades should be kept to 5% or less as much as possible. On shared use paths, where terrain dictates, designers may need to exceed the 5% grade recommended for bicycles on some short section.

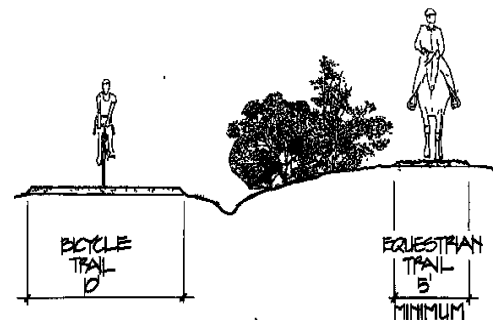
Accessibility:

- The summarized American with Disabilities Act trail guidelines adopted in 2000, are as follows and should be accommodated. This list also includes AASHTO standards for the category of 5% to 8.33% which are not specifically addressed by the ADA standards.

- 5% grade or less for any distance
 - 5-6% for up to 800 feet (per AASHTO)
 - 7% for up to 400 feet (per AASHTO)
 - Up to 8.33% grade for 200 feet maximum. Resting intervals no more than 200 apart.
 - Up to 10% for 30 feet maximum. Resting intervals at 30 feet.
 - Up to 12.5% maximum. Resting intervals at 10 feet.
 - No more than 30% of the trail may exceed a running slope of 8.33%
 - Passing Space: provided at least every 1000 feet where trail width is less than 5 feet.
 - Signs shall provided indicating the length of the accessible trail segment. Good signing at trail access points that identify situations that could be difficult to negotiate will help users determine for themselves whether to use the trail.
- ADA guidelines recognize that in some cases it may be difficult to meet the recommended standards. It is understood that it may be very difficult to build fully accessible trails but every effort should be made in design and construction to accommodate disabled access.
 - Excessive grades may be mitigated by widening the trail, signing to alert trail users to grades and allowable speeds, providing longer sight distance and wider clearance, installing railings, or incorporating short switchbacks where possible.

Equestrian Trails/Bridle Paths:

- Bridle paths separated from paved shared use paths are recommended because of potential conflicts between horses, bicycles, dogs, in-line skaters and pedestrians
- Recommended width is 5 to 8 foot, graded to drain properly. Surfacing should be soil, fine gravel, crusher fines or wood chips.
- Recommended separation between a paved shared-use trail and a bridle path is 10 feet or greater.

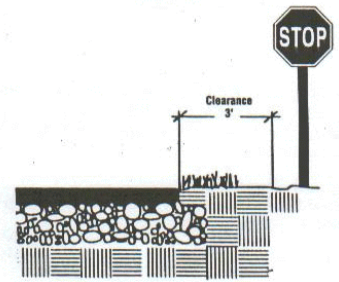


Standard Trail Easement Width:

- 20 foot minimum for off-road, paved trail
- 30 foot minimum for combination paved, off-road trail and unpaved, equestrian trail
- It may be acceptable to request less than 20 feet, depending on the location.
- Abandonment of any easement required for a portion of the trail system may be requested by the property owner or initiated by the local government if it is determined that the easement and trail segment are no longer necessary as part of the trails system.

Clearance:

- Lateral: 1 foot to 2 foot graded clear area with a maximum 6:1 slope should be maintained adjacent to both sides of the trail. 3 feet or more is desirable to provide clearance from trees, poles, retaining walls, fences, railings, guardrails or other lateral obstructions.
- Where the trail is adjacent to ditches or slopes down steeper than 3:1, a wider separation should be considered. A 5 foot separation from the edge of pavement to top of slope is desirable. Depending on height of embankment, and condition at bottom, a physical barrier such as a railing, fence or dense shrubbery may need to be installed.
- Vertical : 10 feet or higher is optimum, 12 feet minimum for equestrians for passing under structures or vegetation.
- For existing structures (i.e. bridges, underpasses) with substandard clearances, hazard signs and dismount signs should be posted where necessary.



Railings/Fences:

- 54 inches (4.5 feet) minimum height recommended when the trail users include bicyclists. 42 inches is the minimum railing height for railings on pedestrian-only trails.
- Smooth surfaces recommended including sanded and painted steel or wood or vinyl coated chain link.
- An attractive yet safe railing and fence design should be selected for the Core Trail and used consistently throughout.
- Railing or fence should extend 4 to 8 feet beyond the edge of the drop-off or hazard area.
- Railing ends should be flanged or flared to prevent users from colliding with the exposed end of the railing. The flanged end also helps to visually tie the railing to the site (also see Bridge section below).

Separation from Adjacent Roadway:

- 10 foot minimum, wider separation strongly recommended. 5 foot minimum from parking lot and trail separation.
- In extreme cases of less than a 10 foot separation, a barrier a maximum of 42 inches high such as guardrail or shrubs may be required. Attention must be paid to sight distance during design and placement. Other structures designed to withstand vehicular impact may also be used, upon review and approval.

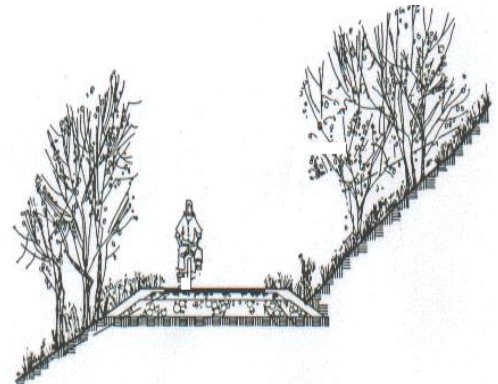
Trail and Road or Driveway Intersections:

- Crossings should be 90 degrees and feature a flat approach.

- Trail users should come to a complete stop at appropriately signed intersections. Signs will include Stop Ahead, Stop and for minor driveways (i.e. single family residences), Yield.
- Establish exceptionally clear sight lines to and from roadway for safe crossing. Remove or mitigate visual obstructions.
- For crossings of high traffic roadways, consult AASHTO for detailed guidelines. Traffic control devices such as timed or user-activated signals may be necessary at certain crossings.
- Where possible, trail crossings should be placed at existing stop-signed or signalized road intersections.
- Commercial or industrial driveways that are paved as part of the trail should be evaluated to determine need for thicker pavement to withstand higher loading, a wider path section to prevent edge raveling and curve radius to prevent scattering of road shoulder gravel across the path by motor vehicles.
- Overpass or underpass structures, while the optimum method of crossing high volume roadways, are often cost prohibitive. If an overpass or underpass becomes a real option, consult AASHTO and CDOT standards (see section on Underpasses/Tunnels below).

Drainage:

- Sloping in one direction at an optimum of 2% (5% on curves) is preferred over crowning to provide drainage and simplify construction and maintenance (see section on Cross Slope above).
- Hillside trails may require drainage swales on the uphill side to intercept downhill drainage. Swales should be located outside of the shoulder area. An exception to this recommended guideline is when the area available to construct the trail is very constrained and the trail must be narrowed for a distance. The uphill shoulder could be deleted and the uphill disturbed area revegetated to the edge of asphalt. The revegetation will control some drainage and debris coming from the uphill side prior to sheet flowing across the path.
- Design should include retention of natural groundcover or revegetation to aid in drainage retention.
- Catch basins and cross culverts may be necessary. Culvert openings should be protected and hidden if possible. Stone facings are recommended but flared end sections shall be used at minimum. Clearance between the edge of the culvert and the trail surface should be 3 feet so as not to create a hazard.
- When box culverts are used as part of the trail system, drainage must be considered in design or retrofitting.



Erosion Control:

- Erosion control regulations and best management practices adopted by the pertinent jurisdiction shall be adhered to during the trail construction.

Barriers to Motor Vehicles:

- Shared use trails may occasionally need some form of physical barrier at highway intersections to prevent unauthorized motor vehicles on the trail. Because barriers are sometimes a hazard, they should only be used where encroachment by vehicles is a chronic problem, enforcement is difficult and they can be clearly seen by trail users.
- Common barrier types include bollards, boulders, low landscaping, plastic breakaway posts or fencing and should be at least 3 feet tall. Barrier selected should be vandal resistant and able to be moved.
- Bollards should be of the removable, lockable variety to permit authorized vehicles.
- All barriers other than landscaping should be reflectorized for visibility and painted a bright color for daytime visibility. Striping an envelope around the barrier is recommended.
- Barriers should be spaced to allow wheelchairs and bicycles with trailers to pass through.

Utility Structures:

- Utility structures such as valve boxes, manhole frames, lids and grates, sanitary sewer clean outs and storm drain inlets shall be located outside of the trail corridor. If they cannot be removed, they shall be flush with pavement, non-skid and bicycle safe. All other utility structures should conform to the lateral clearance standards noted above.

Bridges:

- New bridges should be 2 to 4 feet wider than approaching path and a minimum of 12 feet for shared pedestrian/bicycle bridges.
- The top horizontal rail should be a minimum of 54 inches high (4.5 feet). Rub (hand) railings mounted below should be a minimum of 42 inches high (3.5) and of a smooth material such as sanded, stained wood or steel.
- Bridge railings should extend a minimum of 5 feet beyond end of bridge and flare out away from the bridge and match the approach grades. Longer approach rails between 12 to 15 feet are recommended when the connecting path is on an incline.
- New bridges should be built for weight loads associated with maintenance vehicles, a minimum of 10,000 pounds with the weight limit posted. 12,500 pounds is preferred.



- Decking shall be of a high friction type and laid perpendicular to the direction of travel. Joints should be bicycle safe. Drainage off of the bridge must be considered in the bridge design.
- Bridges shall be designed in accordance with local flood regulations and other pertinent state and federal regulations. Clearance for rafting and other watercraft should be considered in the site design.
- Highway bridges undergoing renovation or reconstruction should be designed to accommodate bike traffic if a bike lane or route leads bikes to that bridge.

Underpasses or Tunnels:

- Minimum width should be 10 feet with 12 feet or more desirable.
- Minimum overhead clearance should be 10 feet or more if vehicles will use the structure, 8 feet is sufficient if no vehicles likely.
- Walls should be coated with epoxy paint for easy graffiti removal.
- Include gutters on one or both sides for drainage.
- Where possible, vandal resistant lighting should be mounted on the walls.
- Signs shall be mounted in the approach zones to warn of hazards.
- All of the above should be considered in retrofitting existing underpasses (e.g. box culverts) but if minimum width and height will remain substandard, reflectors and black and yellow hazard symbols and signs should be posted.



At-Grade Railroad Crossings:

- Crossings are typically subject to specific standards per railroad policy and state regulations. Signs, signalization, widths and type of crossing will typically be specified in the railroad's conditions of approval.
- In making a proposal for a crossing, design the trail crossing at a right angle to the railroad tracks and with a flat approach (0.5% to 2%) to the crossing.

Lighting:

- Lighting of the entire Core Trail system is not proposed. However, lighting of certain sections that will service commuting traffic or are areas of potential hazard or conflict (tunnels, road intersections) should be considered. Placement should be considerate of adjacent land uses.
- Light standards should be at a scale appropriate for pedestrian uses (e.g. 12' high posts with lights shielded to shine downward upon the path), meet minimum clearances and be vandal proof if possible. Maintenance responsibility for the lights must be established prior to installation.
- Style of lighting fixtures should remain consistent throughout the system.

Signs:

- The Core Trail system is proposed to pass through several jurisdictions and consistency of sign type and design becomes an important issues in order to promote reliability and continuity particularly since one goal of the system is to link existing and proposed trail systems together.
- Construction plans for each trail segment should include specifications for location and type of signs necessary for the specific trail. There are generally three types of sign types: Safety (Caution or Regulatory), Etiquette, and Information.
- 18" x 18", 24" x 24" or 12" x 18" are the standard sizes for trail safety signs, per the MUTCD.



Regarding the Core Trail Sign Plan:

- The current Manual of Uniform Traffic Control Devices (MUTCD) should be followed as closely as possible for standard sizes, colors, and shapes but custom signs are sometimes necessary to address a specific trail situation.
- Trailhead signs should be coordinated for similar design and content along the trail with the pertinent jurisdictions.
- A Core Trail symbol should be affixed to select signs at various intervals along the Core Trail route to promote the identity and continuity of the trail system e.g. 4" x 4" rounded edge square with name of trail - The Eagle Valley Trail - inscribed.
- Post mile markers approximately every two miles in rural areas and every mile in developed areas. However, sign clutter should be avoided and the mile marking program should not commence until several long sections (3+ miles) have been established.

- Signs to community centers should be installed at select locations along the Core Trail including mileage.
- Locations where the trails ends temporarily, informational signs should be installed to direct users to the safest route through the gap in the system
- Signs should be installed in a consistent manner along the trail according to the following specification for free standing poles. Low profile monument signs may be appropriate in certain locations such as for trailhead signs or at activity center entry points. Signs will be placed to avoid conflicts with vegetation growth.
- Each trail segment should be evaluated for appropriate signs, such as the following commonly used caution or regulatory signs: Slow, Hill Ahead, Curve symbols, Posted Speed, No Motor Vehicles, Railroad/Road Crossing, Trail Narrows, Narrow Bridge, Bridge and Trail May be Icy, Rough Pavement, Low Clearance, Trail Ends Ahead, Trail Ends, Stop, Yield, Signs advising motor vehicles of trail (Watch for Pedestrians or Trail Crossing).
- Common information and etiquette signs are: Bikes Yield to Peds, etc., Keep to the Right, Name of Trail, Bridge, River or Creek, Share the Trail, Directional Signs to Towns, Activity Centers, City Limits, Please No Trespassing, Trailhead Signs.
- Off-road paved trails that end and become either shared road trails or unpaved trails should include a Trail Ends warning sign. Depending on the particular location, a directional sign may also be warranted to direct users to the next section of trail.

Sign Installation:

- Core Trail sign installation should remain consistent with the following installation specifications:
 - Signs should be mounted on 4" by 4" treated posts that are either pretreated or coated with sealant prior to installation.
 - Post will be six feet measured from ground level.
 - Post should be buried at least 2 to 3 feet in the ground.
 - Top of backfill should be ramped slightly away from post for drainage.
 - Mix dry cement into backfill before filling in the hole and tamp.
 - Top of sign shall be flush with top of post.
 - Sign will affixed with lag bolts, vandalism proof variety recommended.

Trail Accessories:

- See Appendix B for styles selected for the Core Trail System. Place furniture to meet the recommended clearance of 3' feet or farther from the trail.
 - Bicycle racks - at trailheads and access points. Developers shall be encouraged to provide bicycle racks where applicable.
 - Furniture - Benches and picnic tables should be made of durable material, in a style that reflects the natural setting and is consistent throughout the system. Benches should be placed at rest areas and at trailheads along the trail.

- Trash containers - located in rest areas and at trailheads, made of a durable material and consistent in style throughout the system. Consider containers that encourage recycling where feasible.
- Restrooms - locate facilities or direct trail to public restroom facilities at 10 mile intervals. Design should be easily maintained, environmentally sound and reflect the natural surroundings (e.g. no blue plastic “porto-potties”).
- Drinking Water - facilities or access to potable water every 10 miles. Where restrooms with a water and sewer system are proposed a spigot, handpump or post type is acceptable.
- Pet Waste “Stations” - dispenser for bags to pick up pet waste so not left on trail or in shoulders.

Trailhead or Rest Area Design:

- Trailhead sites should be selected based on access, least impacts on adjacent neighborhood, ease of maintenance and no environmental impacts. Parking lots, restrooms, signs, etc. should be sited so as not to obstruct scenic views. Construction materials should blend in with the adjacent surroundings.
- Rest areas along the trail should be located in areas of likely need, such as at the end of an incline or at a shady spot after an exposed stretch, but they should also be considerate of the view opportunities.
- Trailhead accommodations will vary but the following items should be considered:
 - trailhead sign
 - parking
 - bike racks
 - trash receptacles
 - benches
 - picnic tables
 - landscaping
 - restrooms
 - drinking fountains
- Trailhead Signs should include pertinent usable or interesting information such as a trail map with distance information, Trail Rules, Contact Information, Flora and Fauna information, Trail Contact Information (e.g. for comments or reporting maintenance or enforcement issues), special considerations i.e. handicapped accessibility, hazards or interpretation, rest room or rest area locations. This photo is of a trailhead sign in Edwards.



- Construction plans for each trail segment shall address landscaping. Prominent existing vegetation shall be indicated on the plan in relation to the trail location and protected in the field for preservation. Areas of landscaping for mitigation or general beautification (e.g. around rest areas

or restrooms) shall also be identified on the plans with emphasis on native, low maintenance species. Supplemental irrigation to aid in plant establishment and first year survival must be specified on the plans.

- All areas disturbed during construction shall be revegetated with an appropriate groundcover seed mix (see Appendix C for sample mixes). Steep areas may require additional stabilization (fiber matting, etc.) during plant establishment.

Pavement Striping:

- In areas where traffic is steady or high at peak hours, a center stripe is recommended.
- Center striping is also recommended on curved or straight inclines to manage flow of uphill and downhill traffic.
- Crosswalks should be painted at all road and major driveway intersections.

Maintenance and Emergency Access:

- If new trails are designed with proper clearances, bridge weight loads and trail width, trail maintenance should be efficient and relatively uncomplicated. However, special attention should be paid to maintenance vehicle access points and turnarounds and turning radius for vehicles through trail curves.
- Emergency Access points should be identified during planning for construction of each segment, if not within 100 feet of a roadway.

Standard Specifications and General Notes for Trail Construction Plans:

- Available from the ECO Trails Program for inclusion in construction plan set. Use of similar construction techniques and management practices is encouraged among jurisdictions cooperating in the trail building program outlined by this plan.

As-built Construction Drawings:

- Shall be required at the discretion of the particular jurisdictions. As-builts should at a minimum include the surveyed final path location described by centerline or edges, culverts with inverts and sign location and type.

Private Trails:

- Designers of trails which are contained within a new or existing development and are for the exclusive use of its residents or owners are encouraged to use these standards for design.

Unpaved Trails:

- These standards are for trails not built adjacent to a paved trail but built as independent hiking, biking or equestrian trails in the frontcountry or backcountry.

- Desired minimum width is 3 feet. Overhead clearance for bike use is 8 feet. Maximum sustained grades should not exceed 10%, for stretches of less than 150 feet, grades should not exceed 15%.
- Include structures necessary to prevent erosion of surface material, such as concrete pans at cross drainage locations and water bars or short paved sections on slopes.
- Accessibility to these types of trails should be evaluated per current ADA standards and designed accordingly.

Shared Roadways:

- For the purposes of this plan, shared roadways refers to essentially all roads in all jurisdictions in Eagle County except those where non-motorized users such as pedestrians and bicyclists are expressly prohibited.
- Non-motorized users are typically not in the vehicle travel lanes but on the edges of the road platform in the shoulder, or on bike lanes or a bike route. These terms are often used interchangeably, but are defined as follows by the Colorado Department of Transportation Bikeway Design Guidelines:

Bike Lane: “A portion of a roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use by bicyclists”. Bikes lanes should be incorporated where possible into new street design or retrofit of existing streets. The minimum width of any bike lanes should be 5 feet excluding the gutter pan. Additional widths are desirable when substantial truck traffic, parallel parking, speeds over 55 mph or curves are present. Bike lanes should travel in one direction with traffic. Two way bike lanes on same side of roadway are not recommended. Consult current AASHTO or local road standards for bike lane specifications.

Bike Route: “A roadway distinguished by (bicycle-related) signs only, which provides continuity to other bicycle facilities, or is designated as the proposed (bicycle) route through high demand corridors”. Each jurisdiction is encouraged to incorporate bike routes into their comprehensive streets plan. Establishing bike routes, that are fairly direct, with relatively few stop signs or intersections and well signed, can reduce hazards to bicyclists on other shared routes. Signs and symbols painted on the road surface will also improve vehicle awareness of alternative modes of transportation. Shoulders often function as a de-facto bike lane or bike route and should be inspected for hazards prior to establishing a route (manholes, sewer inlets, blind driveways, etc.). Bike routes should travel in one direction with traffic. Incorporating bike routes into a streets system is typically easier than a bike lanes system because it utilizes existing pavement. Consult current AASHTO or local road standards for bike route specifications.



Shoulder: “That portion of a roadway exclusive of the travel lane designated and ordinarily used for vehicle travel. It is that portion of the roadway to the outside of the white line. Colorado Bicycle Law 42-4-106.5-(5) states “...where a paved shoulder suitable for bicycle riding is present, persons operating bicycles shall ride on the paved shoulders.” A paved shoulder is a de facto bikeway when present, but is different from a Bike Lane in that it is not signed nor meant exclusively for the use of bicycles”. Shoulders should be provided and maintained on roads where is anticipated that cyclists will ride, pedestrians may walk and no off road facilities are available. A minimum of four feet of shoulder width is recommended, 6

feet or greater is preferred. If rumble strips are present, that area should be not be included in the above widths. If funding or right-of-way is limited, shoulder widening should occur first on uphill sections of roadway. Consult AASHTO or local road standards for additional specifications.

See comment regarding two-way shoulder traffic below in *Retrofit of Existing Facilities*.

Sidewalks:

- Sidewalks are typically intended for pedestrians, built in conjunction with a roadway and generally six feet wide or less. Bicyclists are typically not legally permitted on sidewalks. Sidewalks are not considered safe for higher speed use because of width, pedestrian conflicts, copious intersections, poor sight distance and inconsistent maintenance levels.
- Sidewalk design standards are not addressed in this plan. Sidewalks are encouraged throughout the developed areas of Eagle County as conduits to and from neighborhoods, community centers and other activity areas. Direct sidewalk connections to the Core Trail and Spur Trail system are also encouraged. Consult the pertinent Town or County improvement standards for sidewalk requirements.
- The requirement for a sidewalk system (generally 6' wide or less) or a separated trail system (8' wide or greater) or a combination of both shall be the decision of the individual jurisdiction.

Retrofitting Existing Facilities:

- Non-compliance with the recommended standards listed here does not imply that an existing trail facility is unsafe. It may be very serviceable for the level of use or compared to other trail systems. These standards are primarily a guideline for new trail development. Retrofitting of trail segments and structures throughout the entire system is encouraged over time. Retrofitting will most often apply to these items: curb ramps, clearance to obstructions or marking as unavoidable hazards, signs, intersections, edge drop offs, vehicular bridges without bicycle or pedestrian facilities.
- Road shoulders that have been designed, widened or striped and signed to accommodate two-way non-motorized traffic should be modified for improved safety. Separation between the roadway and the two-way shoulder by a barrier or grade change (i.e. adding curb and gutter and elevating the platform) is recommended.

Wildlife Protection:

Trails improperly located or designed can have negative impacts upon resident wildlife including the initial impacts of construction disturbance, trampling of habitat, fragmentation of habitat and introducing humans into areas previously not accessible. The Colorado Division of Wildlife recommends the following design and management principles for the regional trail system to help reduce impacts on wildlife. The intent is to cause no significant impacts on our local wildlife population and if impacts are not mitigatable, the route should not be pursued:

- Try to locate trails in already disturbed areas
- Disturb as narrow an area as possible when constructing the trail
- Consider screening trails with vegetation in known habitat areas

- Try to curb opportunities to create casual spurs off of the main trail, particularly along stream banks
- Be particularly sensitive to wildlife routes to local water sources and avoid crossing those routes
- Include interpretive displays along the trail about respecting wildlife and habitat
- Trails traveling through winter range should be closed during the critical survival period of December 1 to April 30. If a trail is adjacent to a major roadway, closure may not be necessary
- Dogs should be restricted or not allowed in sensitive habitat areas
- Railing and fences should be constructed to not impede wildlife movement
- Riparian corridors and wetlands should be protected during and after construction, with no negative impacts to these prime habitats
- Bear proof trash cans should be installed if trash cans are included trailhead or trail rest area facilities

Chapter 5

The Railroad Corridor as a Trail Corridor

The intent of this chapter is to identify how the rail corridor, if available for lease or purchase in all or part, could be incorporated into the core trail route. A range of potential scenarios is described below and each section of the corridor evaluated for feasibility as either a part of the core trail route or replacing the core trail route.



Background

The Union Pacific Railroad and the Southern Pacific Railroad were approved for merger in 1997 by the federal government's Surface Transportation Board (STB). Included in the merger application was a request to abandon the 179-mile Tennessee Pass line from Canon City, Colorado to Sage (Gypsum), Colorado. Operational difficulties associated with the high altitude portion of the line were cited as the major reason for the abandonment request.

The merger was approved but the abandonment was not. The STB questioned the Union Pacific's ability to reroute traffic from the Tennessee Pass line to other track lines north and south of Colorado. The STB stated that they would reconsider the abandonment after the traffic rerouting had successfully occurred. Despite solving problems associated with that transition, UP has opted to not resubmit their request for abandonment of the Tennessee Pass line because of concerns about future demands for service and issues related to the Moffat Tunnel near Winter Park, Colorado.

At the time, the portion of the line through Eagle County remains wholly under the ownership of Union Pacific Railroad (UP).

Options for Trail Use of the Rail Corridor

Each of the options defined below is entirely depended on approval action from UP as current owners of the corridor. As of October, 2000, representatives stated that the company is not interested in selling the entire corridor at this point in time. However, if their position were to change at some time in the near (1-5 years) or long term (5+ years), the following options could become possibilities:

Option 1: Railroad sells to another railroad or non-railroad private sector owner.

Impact on Core Trail Plan: The Core Trail can be constructed without using the rail corridor, but along many sections would be more expensive and less direct than if the railroad corridor were available. The Core Trail Plan does depend on obtaining permission to cross the railroad corridor in a minimum of four locations so cooperation

from the railroad or other owner is critical for implementation. If a private, non-railroad party were to acquire ownership, negotiations for purchase of sections, edges, or crossings would occur with that entity.

- Option 2:** **Railroad corridor is acquired by state or local government and the existing rails remain intact** for future commuter rail use and some possible freight traffic.
Impact on Core Trail Plan: There are many locations along the length of the track line through Eagle County where rail and trail can share the corridor. There are other sections where it is extremely difficult or impossible. The section by section analysis below addresses those locations.
- Option 3:** **Railroad corridor is acquired by state or local government and the rails are removed, but future rail transit use is planned.** Trail shares the corridor.
Impact on Core Trail Plan: Same comments as above.
- Option 4:** **Railroad corridor is acquired by state or local government and rails are permanently removed** with no future plans for rail. Bridges can be easily retrofitted if only for trail use. All other constraints can be addressed with the exception of the contamination and hazard issues that exist in the area of the Gilman mines.
Impact on Core Trail Plan: Trail could be constructed directly on existing rail platform. From a trails implementation viewpoint, this is the ideal scenario.
- Option 5:** **Railroad agrees to sell selected portions of the corridor** to local government for the purposes of completing critical section that are difficult to construct along the non-rail core trail alignment.
Impact on Core Trail Plan: This option would allow bottlenecks in the core trail route to be resolved. By purchasing outside edges of the corridor in key locations, the rail operations would not be impacted and the trail implementation would not be curtailed or halted in certain areas such as Avon, Sage to Eagle, or Minturn.

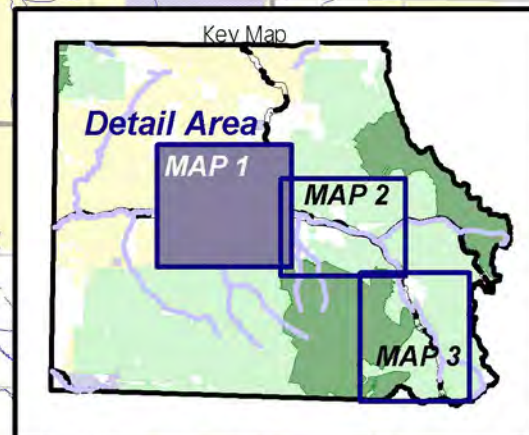
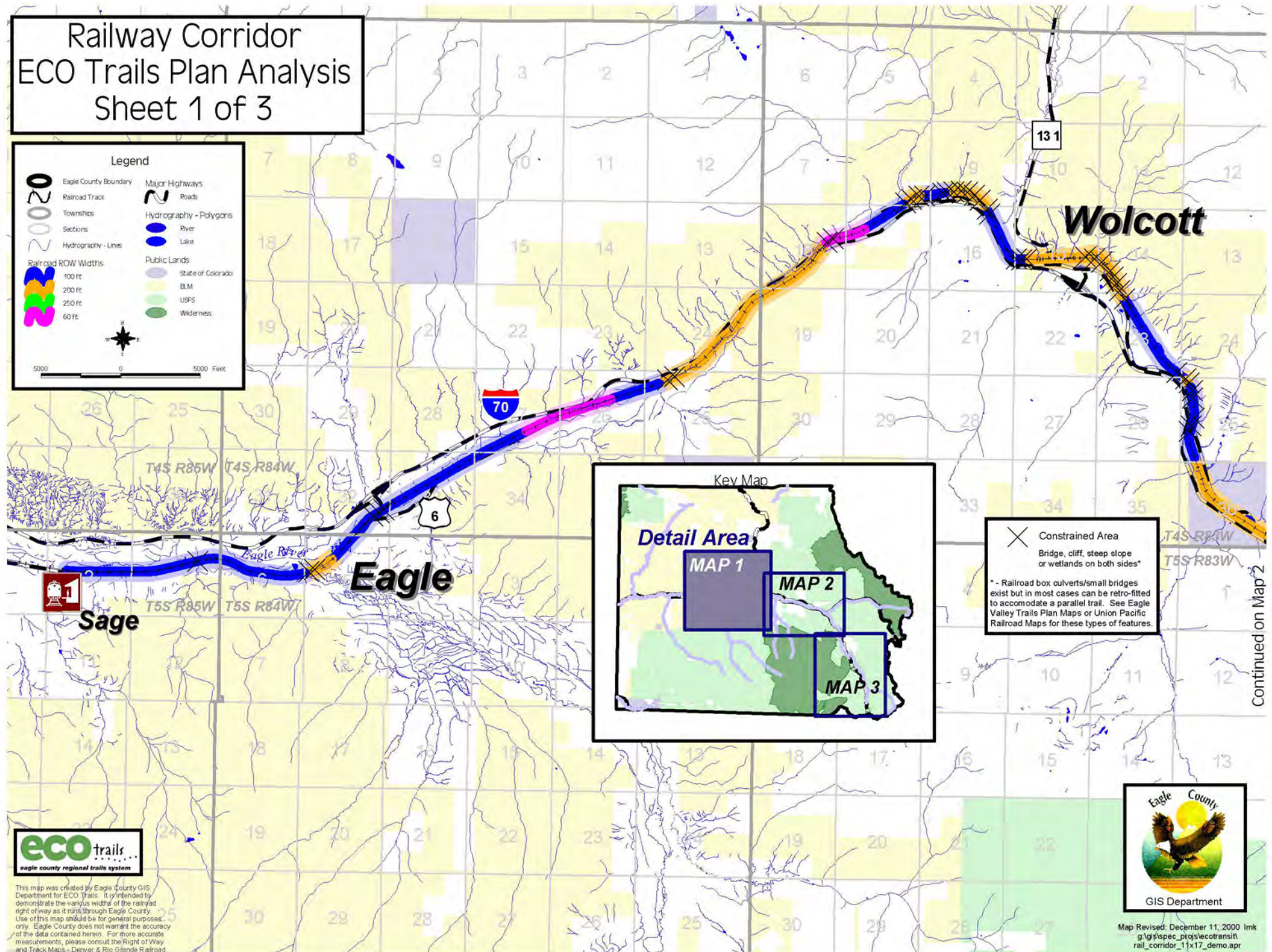
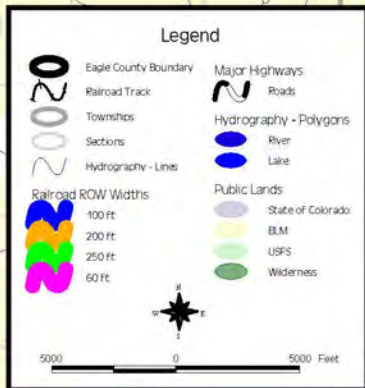
Summary of Options:

Option 4, trail on rail corridor after rails are removed, is most ideal from a trail building perspective and since is the easiest option to implement, it is not part of the section by section analysis that follows.

If at any point in the life span of this plan any of the above options become available, the rail corridor should be employed as the way to close the gaps that remain in the trail system at that time. Option 2 and 3 feature transit options which can blend easily with trails, although a rail freight component complicates matters.

The following summarized analysis identifies issues that would be faced under Option 2 and 3 “Trails with Rails”; and Option 5, pursuing purchase of narrow corridors on the outside edge of the corridor in the most critical locations. The following maps depict the width of the railroad right-of-way through Eagle County and constrained areas for shared rail and trail.

Railway Corridor ECO Trails Plan Analysis Sheet 1 of 3



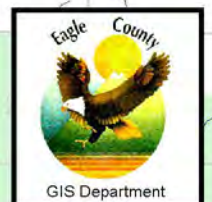
Constrained Area
Bridge, cliff, steep slope or wetlands on both sides*

* - Railroad box culverts/small bridges exist but in most cases can be retro-fitted to accommodate a parallel trail. See Eagle Valley Trails Plan Maps or Union Pacific Railroad Maps for these types of features.

Continued on Map 2



This map was created by Eagle County GIS Department for ECO Trails. It is intended to demonstrate the various widths of the railroad right of way as it runs through Eagle County. Use of this map should be for general purposes only. Eagle County does not warrant the accuracy of the data contained herein. For more accurate measurements, please consult the Right of Way and Track Maps - Denver & Rio Grande Railroad.

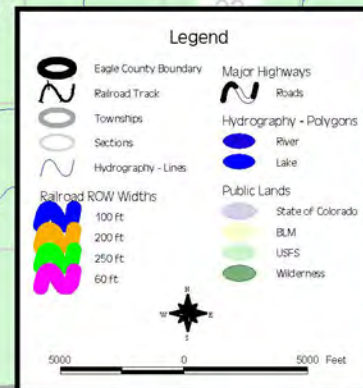


Map Revised: December 11, 2000
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Volcott

Continued on Map 1

Railway Corridor ECO Trails Plan Analysis Sheet 2 of 3



*White River
National Forest*

Avon

Edwards

Eagle-Vail

Minturn Rail Yard

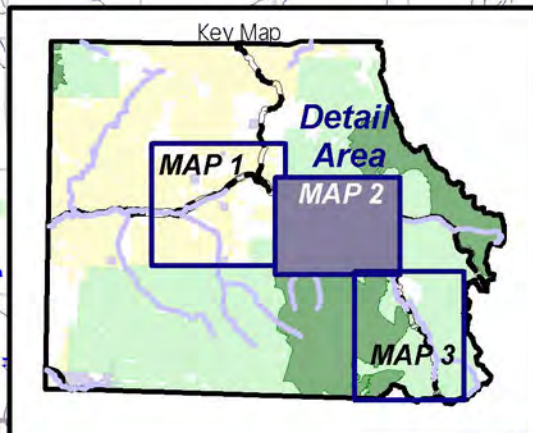
Minturn



Map Revised: December 11, 2000 lmk
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This map was created by Eagle County GIS Department for ECO Trails - a project designed to demonstrate the various widths of the railroad right of way as it runs through Eagle County. Use of this map should be for general purposes only. Eagle County does not warrant the accuracy of the data contained herein. For more accurate measurements, please consult the Right of Way and Track Maps - Denver & Rio Grande Railroad.

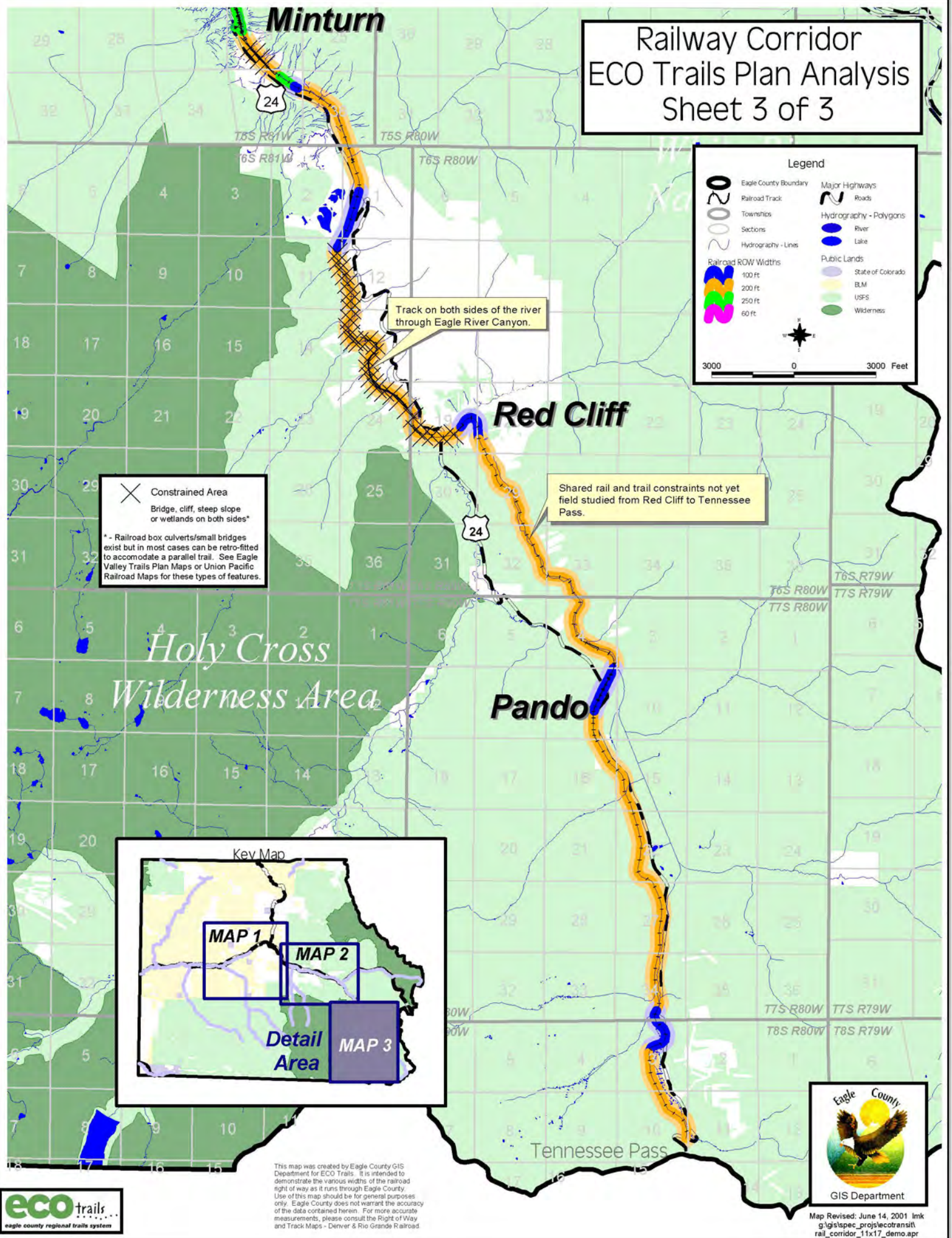


Constrained Area
Bridge, cliff, steep slope or wetlands on both sides*

* - Railroad box culverts/small bridges exist but in most cases can be retro-fitted to accommodate a parallel trail. See Eagle Valley Trails Plan Maps or Union Pacific Railroad Maps for these types of features.

Continued on Map 3

Railway Corridor ECO Trails Plan Analysis Sheet 3 of 3



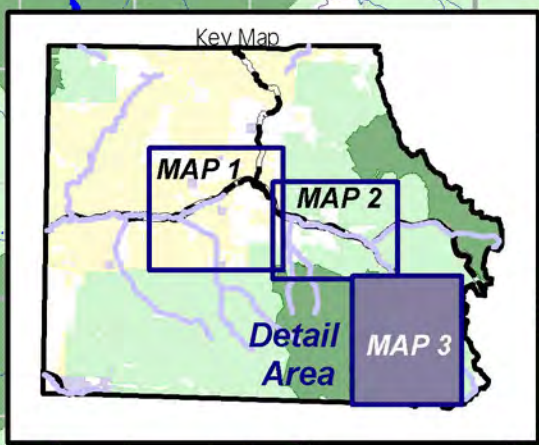
Legend

- Eagle County Boundary
- Railroad Track
- Townships
- Sections
- Hydrography - Lines
- Railroad ROW Widths: 100 ft, 200 ft, 250 ft, 60 ft
- Major Highways
- Roads
- Hydrography - Polygons
- River
- Lake
- Public Lands
- State of Colorado
- BLM
- USFS
- Wilderness

3000 0 3000 Feet

Constrained Area
 Bridge, cliff, steep slope or wetlands on both sides*
 * - Railroad box culverts/small bridges exist but in most cases can be retro-fitted to accommodate a parallel trail. See Eagle Valley Trails Plan Maps or Union Pacific Railroad Maps for these types of features.

Shared rail and trail constraints not yet field studied from Red Cliff to Tennessee Pass.



This map was created by Eagle County GIS Department for ECO Trails. It is intended to demonstrate the various widths of the railroad right of way as it runs through Eagle County. Use of this map should be for general purposes only. Eagle County does not warrant the accuracy of the data contained herein. For more accurate measurements, please consult the Right of Way and Track Maps - Denver & Rio Grande Railroad.



Map Revised: June 14, 2001 lmk
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Analysis by Section:

The majority of the corridor can accommodate the rail and trail together but in many areas a separation barrier should be installed and in all cases minor and larger bridges will require retrofitting.

There are some segments where **it is not feasible for the rail and trail to share the corridor** due to severe constraints such as steep banks above and/or below the platform, sensitive areas such as wetlands on both sides, or hazard areas such as in Gilman and Belden. In these areas, it would be necessary for the trail to depart the corridor and be located in another alignment in existing road-rights of way or on private property easements. These areas include Eagle-Vail to Minturn North Bridge and Battle Mountain to Red Cliff.

The railroad was evaluated from Sage to Red Cliff. Red Cliff to Tennessee Pass was not included in this evaluation because trails in the populated areas are the priority focus of the current version of this trails plan. Each section of railroad corridor was evaluated in the field and with railroad maps for widths (varies from 75 feet to 250 feet), terrain constraints, demand for trail from the surrounding population, cost to mitigate shared rail impacts or costs to retrofit for trail, comparative cost of the non-rail core trail route, and ability to transition back and forth from the rail corridor to the core trail, if necessary.

Sage to Downtown Eagle (Eby Creek Road):

Railroad corridor is very conducive to shared use with trail on outer edge of corridor, north edge best. Rail power lines located on south side from Sage to Brush Creek. Width is 100' for the majority of the distance between Sage and Eagle.

There are some short sections of double track line. Obstacles include narrow Brush Creek railroad bridge and Eagle River railroad bridge, bridge over Eby Creek Road and two other small bridges/box culverts along the route.

There is a high demand by the local population to link Gypsum and Eagle via a trail. Non-railroad Core Trail routes are hampered by timing issues (e.g. airport interchange in 2004, Cooley Mesa Road in 2003) or property ownership issues (e.g. Highway 6 trails near airport).



Eagle (Eby Creek Road) to Wolcott:

The railroad corridor is generally very conducive to shared use with trail on outer edge of corridor, best on the northern edge because of railroad power lines along the south side of the tracks. Width varies from 100 feet to 200 feet, with a section of 60 feet on the west side of Red Canyon, but the terrain is relatively flat through the 60 foot wide section.

Pockets of wetlands exist on the north edge of the tracks, including man-made near irrigated fields and natural wetlands near Milk Creek.



Small bridges and box culverts do exist along this stretch including one bridge over a perennial stream, Milk Creek. It is possible to retrofit all spans for shared trail use. Closer to Wolcott, a bigger challenge exists to retrofit two Eagle River rail bridge crossings between Milk Creek and Wolcott.

Also just west of Wolcott, the rail corridor is constrained by steep slopes on the north side of the river near the BLM campground and across from the Department of Transportation yard.

At this time, there is low demand for this trail section for transportation purposes because there is no nearby population center. This section would function primarily as a very scenic recreational route for the foreseeable future.



If the corridor is not available, there are Core Trail route options through planned development in the Red Canyon area east of Eagle. Public land through Red Canyon and into Wolcott could accommodate some sections of the core trail, but in several locations it would have to follow the Highway 6 corridor because of the steep terrain and narrow valley through this area.

Wolcott to Edwards:

The railroad corridor through this section is the best route option for the trail because of the narrowness of the valley from Wolcott to Edwards. The other routes for the core trail are very constrained by the locations of Highway 6, Interstate 70, the Eagle River, and the hilly terrain. There are several constrained areas along this portion of rail corridor but they appear to be mitigatable. Obstacles include the Eagle Springs Golf Club, cliff areas and close proximity to the river in a few locations. There are no major railroad bridge crossings of the Eagle River on this section that would require a bridge retrofit to accommodate the trail. Width varies between 100 feet to 200 feet. The south side of the tracks is more conducive to a trail platform. At this time, this section ranks as a low demand because there is not a population center nearby but it is very likely that Wolcott will experience development within the life of this plan and demand for a trail route will increase substantially.



Edwards to Avon:

If the railroad corridor were to become fully available for public uses, this section would be part of providing a continuous trail experience through the valley. If it is an interim matter of purchasing the outside edge of the existing corridor to create links between communities, this section is not a high priority for acquisition because a continuous separated trail that parallels Highway 6 and the Eagle River will exist from West Edwards to West Beaver Creek Boulevard in West Avon by mid-2001.

Avon to Eagle-Vail:

Use of a few select portions of the rail corridor in Avon would be very helpful in creating a continuous trail through Avon to Nottingham Ranch Road such as near the wastewater treatment plant in West Avon and crossing Avon Road. Otherwise, a significant portion of the trail through the town of Avon can be realized through development that is planned on land adjacent to the railroad corridor. At least one crossing of the railroad corridor will be necessary to create a continuous system in the Chapel Square area. Because Avon is a population center, the dormant track line is already heavily used by pedestrians. The corridor through Avon is predominantly 100 feet wide with short 200 feet wide sections. The railroad power lines are generally located along the north side of the tracks making the south side more viable for locating the trail.



Eagle-Vail to Dowd Junction Pedestrian Bridge:

This rail corridor section is seriously constrained by either man-made or natural obstacles including Interstate 70 structures causing narrow underpasses, cliffs, falling rock, steep river banks, retrofit of long railroad bridges and adjacent cut slopes. Widths vary from 100 feet wide to 200 feet wide.



Demand is very high for a safe trail route through this narrow area of the valley but if the corridor must be shared with rail, it is impossible except for a few short stretches.

The non-rail core trail route in this area is also very difficult and will involve expensive construction but few route options exist through this area.

Dowd Junction Pedestrian Bridge to Downtown Minturn:

This rail corridor section is physically too narrow for a shared rail and trail location until it intersects with the County Road bridge over the Eagle River. At that point, the rail corridor is wide and level, ranging from 100 feet wide to over 250 feet wide. There are multiple track lines because of the rail switching yard that formerly operated in Minturn but the corridor could be shared and still maintain distance between all of the track lines in place and a trail. The corridor is already used by pedestrians, bicyclists and even vehicles. Demand is high and constraints to construction are minimal. The other Core Trail routes are difficult because of terrain, such as on the Highway 24 side of the Eagle River, or would be relegated to following the right-of-way of the county road on the east side of the railyard. The ideal location for the trail, as reflected on the core trail maps in Chapter 3 is on the western edge of the railroad property, paralleling the Eagle River.

Downtown Minturn to Battle Mountain:

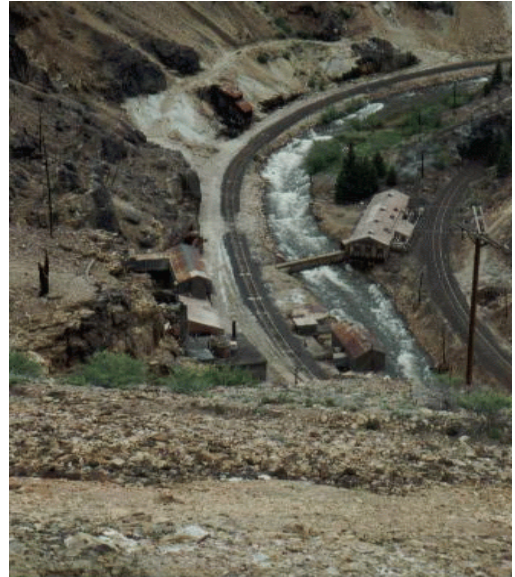
At the south end of the railyard, the rail corridor becomes constrained by cliffs on the east side for approximately $\frac{1}{2}$ mile. It becomes more conducive for shared use after that cliff section and remains viable until west of the Two Elk trailhead area where there is another cliff area. These two sections could possibly be mitigated for shared use (e.g. cantilevered trail or separated by fence) depending on the type of rail use. Otherwise it requires costly sections of trail to be built away from the rail corridor on the hillside benches above. The rail corridor through this portion of Minturn ranges between 100, 200 and 250 feet wide. Demand is potentially high. Dormant corridor already heavily used by local residents walking, driving or snowmobiling.



Battle Mountain to Red Cliff:

This section of rail corridor is very dramatic and scenic but also features several types of natural and man-made hazards including cliffs, rock fall, mining shafts, mine building and hazardous or “hot” tailing piles. For much of the distance between the base of Battle Mountain and Red Cliff, there is a track on both sides of the Eagle River which would seem to allow for train traffic to occur on one side while a trail occupies the other side but the issues noted prevent that seemingly simple solution.

The corridor through this section is 200 feet wide. The use would be as a recreational route as opposed to transportation although a few hardy citizens may use it to commute to and from Red Cliff in the summer season. Winter use of this section would not be recommended due to avalanche hazards.



The other Core Trail route into Red Cliff features its own set of issues, primarily navigating around or through the abandoned mining town of Gilman, also a hazardous waste site. In this case, the issues associated with the Core Trail route may be easier to overcome than those that accompany the rail corridor down in the canyon.

Red Cliff to Tennessee Pass:

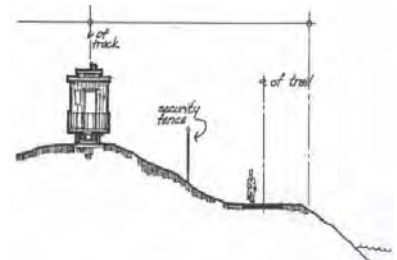
This section is very scenic and it would function as a recreational route only since it is well removed from population centers. There are sections of the corridor that land itself to shared use and others that are constrained by adjacent slopes. Additional study would be required on this section, if it were to become available for rail with trail or trail only use. The majority of the corridor through this section is 200 feet wide.

Summary of the Rail Corridor Analysis:

At this point in time, **the highest demand for Core Trail completion is in the Minturn to Edwards area and the Gypsum to Eagle area.**

If the **entire rail corridor is not available**, and only narrow edge portions of these individual sections can be obtained (as depicted by the illustration below) from the railroad either by lease or by purchase, the recommended priorities for partial acquisition are:

1. Dowd Junction to Downtown Minturn through the railyard
2. West Avon from West Beaver Creek Boulevard to Avon Road
3. Sage to Downtown Eagle



If the **entire rail corridor is available** and it is not financially or physically feasible to develop the trail as one project, the recommended priorities for construction of a trail with or without the tracks left in place are:

1. Dowd Junction to Downtown Minturn
2. West Avon to Avon Road
3. Sage to Downtown Eagle
4. Minturn to Battle Mountain
5. Wolcott to Edwards
6. Eagle to Edwards

Finally, **if neither of the two above scenarios** materializes within the life span of this plan, at minimum the following at-grade trail crossings are needed to successfully complete the Core Trail on its non-rail corridor route through the valley:

1. East of Eagle at Red Canyon (convert existing private crossing to public)
2. From Hurd Lane to proposed Village of Avon (new pedestrian-only crossing)
3. West of Dowd Junction, across the river from the Colorado Department of Transportation yard (new crossing)
4. In Dowd Junction, a new crossing under the railroad bridge at east end of River Run condominiums.

CHAPTER 6

Core Trail Maintenance

Maintenance of the trails systems is essential for safe and enjoyable use. And if not maintained properly over the long term, the infrastructure of the trail system may become a wasted investment of invaluable financial and natural resources.



Spring Clean-up on the Vail Pass Trail

The Core Trail Maintenance Program envisioned by this plan is comprised of two basic approaches:

1. A short term maintenance program for the core trail system
2. A long term maintenance program for the core trail system after it has attained some connectivity

For the purposes of this plan and it's described system, trails other than the Core Trail and select spur trails, shall be the responsibility of the entity that constructed, currently maintains or otherwise controls that route.

It is not the intent of this planning document to recommend a method of maintenance for every paved or unpaved, urban or backcountry trail or neighborhood sidewalk in incorporated and unincorporated Eagle County. The program recommended below applies to the core trail and select spurs only.

Recommended Core Trail Maintenance Program

Short Term: up to 5 years:

Each jurisdiction that is part of cooperative effort to construct the core trail system will be responsible for the maintenance of the portion of the core trail located within their boundaries.

Long Term: 5 years +

Cooperatively develop a single-entity maintenance program to serve the need for coordinated multi-jurisdictional trail maintenance. Work towards combining equipment needs through the different jurisdictions and hire the necessary staff to handle associated maintenance tasks.

Recommended Maintenance Schedule:

- Sweep trail once a month, starting in April, but sweep sections that are heavily impacted by debris from adjacent road, hillsides, etc. every two weeks as needed.
- Inspect trail surface, shoulders and structures such as bridges, walls, sign posts, etc. periodically using a checklist, every two weeks is suggested. A meticulous inspection should take place in the spring after the snow has fully melted and the path has been swept for the first time.

- Perform weed and vegetation control including mowing up to 2 feet on each side of the trail as needed.
- Repair and retrofit trail surface cracks or holes, shoulder erosion, structure damage, etc. or arrange for repair as needed.
- Clean culverts as needed.
- Install or replace signs and trail furniture as needed.
- Empty trash containers as needed.
- Remove trash from adjacent ground as needed.
- Repaint trail or road crosswalk striping as needed.
- Plowing is left up to the discretion of the individual jurisdiction.
- Seal coating is left up to discretion of the individual jurisdiction but is encouraged every 5 years minimum.

Other Considerations:

1. The Eagle County Regional Transportation Authority is currently committed to an annual per mile contribution to individual town and county jurisdictions to maintain their sections of core trail, subject to approval by the Authority Board. Authority partners may also request maintenance contributions as necessary for periodic overlays or reconstruction.
2. The Authority will coordinate annual forums with maintenance personnel to review the core trail maintenance program, issues and funding. The towns and county will collectively determine when it is financially feasible to create an independent maintenance entity to care for the entirety of the core trail system.
3. Annual inspections of the trail should be performed by each jurisdiction to determine potential internal budget issues and Authority trail maintenance funding requests for the following year.
4. Non-public sections of the core trail should be converted to public sections through grant of easement to the underlying jurisdiction to eliminate issues of inconsistent or inadequate maintenance and potential loss of access. Trails should be brought into conformance to safety standards prior to acceptance. Endowment for maintenance from the grantor should be sought to defray the additional costs of maintenance for the responsible jurisdiction.
5. Jurisdictions should avoid responsibility for the maintenance of trail easements until a trail has been constructed upon them. Until that time, easement maintenance (weeds, drainage, etc.) if necessary, should be the responsibility of the easement grantor unless otherwise specified by the easement document.

6. In the case of widened shoulder or specially designated bike lanes on Town, County, State or Federal roadways, maintenance should include increased attention to debris clearing, pavement repair of edges and potholes, and scheduling of chip seals.
7. Volunteer maintenance shall be encouraged wherever appropriate. Volunteer efforts may be limited to clean-up of trash, sign and trail accessory placement or vegetation control, but certain minor construction or drainage projects could be undertaken by volunteers at the discretion of the pertinent jurisdiction.
8. Maintenance responsibility should be determined as part of the construction planning process and publicly documented.

Appendix A

Detailed Cost Estimates by Trail Section

**TRAIL SECTION
GLENWOOD CANYON TO DOTSERO**

Total Section Length: 14,838 feet - all on Highway 6, to be retrofitted with striping, signs (2.8 miles)

Item	Estimated Quantity	Units	Unit Price in Yr 2001	Estimated Cost
PLANNING AND DESIGN				
ROW and Land Purchase		AC		\$0.00
ROW and Land Easement (survey, legal, etc.)		EA		\$0.00
Permit Processing	1	LS	\$2,000.00	\$2,000.00
Engineering/Design (typ. 12% const. cost)	1	LS	\$726.00	\$726.00
GENERAL CONSTRUCTION COSTS				
Bonds and Insurance (typ. 3%)	1	LS	\$181.50	\$181.50
Mobilization (3K - 5K)	1	LS	\$1,000.00	\$1,000.00
Clean Up	1	LS	\$1,500.00	\$1,500.00
TRAIL CONSTRUCTION COSTS				
Clear and Grub	-	AC		\$0.00
Topsoil (Removal and Stockpile)	-	CY		\$0.00
Unclassified Excavation	-	CY		\$0.00
Embankment	-	CY		\$0.00
Subgrade Grading	-	SY		\$0.00
Base Course, Class 6 - 6"	-	TN		\$0.00
Asphalt Pavement - 3"	-	TN		\$0.00
Topsoil Slopes	-	CY		\$0.00
Revegetation	-	AC		\$0.00
Traffic Control / Signage	6.00	LS	\$175.00	\$1,050.00
Striping	1,597.00	LF	\$0.50	\$799.00
DRAINAGE CONSTRUCTION				
Culvert, CPP - 18"	-	LF		\$0.00
End Section, CMP - 18"	-	EA		\$0.00
Rip Rap	-	CY		\$0.00
Erosion Control	-	LS		\$0.00
STRUCTURES AND SPECIAL FEATURES				
Guard Rail Railing	-	LF		\$0.00
Guard Rail End Anchors	-	EA		\$0.00
Crossing Warning Lights	1.00	EA	\$500.00	\$500.00
RR Crossing (At-Grade)	-	EA		\$0.00
Bridges (10' width standard)	-	LS		\$0.00
Bridge Abutment and Wing Walls	-	CY		\$0.00
Retaining Walls	-	SF		\$0.00
Tunnels	-	LS		\$0.00
Relocate Utilities	-	LS		\$0.00
INDIRECT CONSTRUCTION				
Surveying (typ. 5%)		LS		\$205.00
Material Testing (typ. 5%)		LS		\$205.00
Construction Management (typ. 2%)		LS		\$82.00
TOTAL PLANNING AND CONSTRUCTION ESTIMATE				
				\$8,482.00
TOTAL PROJECT CONTINGENCY (20%)				
				\$2,120.60
TOTAL PROJECT COST ESTIMATE				
				\$10,603.00

**TRAIL SECTION
DOTSERO TO GYPSUM**

Starts at Colorado River Road and ends at West Gypsum Town Boundary

Total Section Length: 29,347 feet / none built at this time (5.5 miles)

Item	Estimated Quantity	Units	Unit Price in Yr 2001	Estimated Cost
PLANNING AND DESIGN				
ROW and Land Purchase		AC		\$0.00
ROW and Land Easement (survey, legal, etc.)		EA		\$0.00
Permit Processing	1	LS	\$6,000.00	\$6,000.00
Engineering/Design (typ. 12% const. cost)	1	LS	\$170, 295.00	\$170, 295.00
GENERAL CONSTRUCTION COSTS				
Bonds and Insurance (typ. 3%)	1	LS	\$42, 573.00	\$42, 573.00
Mobilization (3K - 5K)	1	LS	\$3,000.00	\$3,000.00
Clean Up	1	LS	\$1,500.00	\$1,500.00
TRAIL CONSTRUCTION COSTS				
Clear and Grub	13.10	AC	\$2,000.00	\$26,200.00
Topsoil (Removal and Stockpile)	2,100.00	CY	\$5.00	\$10,500.00
Unclassified Excavation	850.00	CY	\$4.50	\$3,825.00
Embankment	850.00	CY	\$2.50	\$2,125.00
Subgrade Grading	38,000.00	SY	\$1.25	\$47,500.00
Base Course, Class 6 - 6"	16,000.00	TN	\$20.00	\$320,000.00
Asphalt Pavement - 3"	5,350.00	TN	\$50.00	\$267,500.00
Topsoil Slopes	2,100.00	CY	\$7.00	\$14,700.00
Revegetation	5.20	AC	\$4,000.00	\$20,800.00
Traffic Control / Signage	57.00	LS	\$175.00	\$9,975.00
Striping	360.00	LF	\$0.50	\$180.00
DRAINAGE CONSTRUCTION				
Culvert, CPP - 18"	855.00	LF	\$35.00	\$29,925.00
End Section, CMP - 18"	114.00	EA	\$200.00	\$22,800.00
Rip Rap	-	CY		\$0.00
Erosion Control	1.00	LS	\$3,000.00	\$3,000.00
STRUCTURES AND SPECIAL FEATURES				
Guard Rail Railing	600.00	LF	\$20.00	\$12,000.00
Guard Rail End Anchors	4.00	EA	\$650.00	\$2,600.00
Crossing Warning Lights	-	EA		\$0.00
RR Crossing (At-Grade)	-	EA		\$0.00
Bridges (Colorado River, RR)	1.00	LS	\$575,000.00	\$575,000.00
Bridge Abutment and Wing Walls	-	CY		\$0.00
Retaining Walls	2,509.00	SF	\$20.00	\$50, 180.00
Tunnels	-	LS		\$0.00
Relocate Utilities	-	LS		\$0.00
INDIRECT CONSTRUCTION				
Surveying (typ. 5%)		LS		\$70, 956.50
Material Testing (typ. 5%)		LS		\$70, 956.50
Construction Management (typ. 2%)		LS		\$28, 382.60
TOTAL PLANNING AND CONSTRUCTION ESTIMATE				
				\$1,812, 475.00
TOTAL PROJECT CONTINGENCY (17%)				
				\$363, 796.00
TOTAL PROJECT COST ESTIMATE				
				\$2,176, 271.00

**TRAIL SECTION
TOWN OF GYPSUM**

Starts at West Town Boundary and ends at Jules Drive

Total Section Length: 10,736 feet (2.0 miles) / 5,540 feet built/ 5,196 remains to be built (.98 miles)

Item	Estimated Quantity	Units	Unit Price in Yr 2001	Estimated Cost
PLANNING AND DESIGN				
ROW and Land Purchase		AC		\$0.00
ROW and Land Easement (survey, legal, etc.)		EA		\$0.00
Permit Processing	1	LS	\$2,000.00	\$2,000.00
Engineering/Design (typ. 12% const. cost)	1	LS	\$24,771.00	\$24,771.00
GENERAL CONSTRUCTION COSTS				
Bonds and Insurance (typ. 3%)	1	LS	\$6,192.80	\$6,192.80
Mobilization (3K - 5K)	1	LS	\$3,000.00	\$3,000.00
Clean Up	1	LS	\$1,500.00	\$1,500.00
TRAIL CONSTRUCTION COSTS				
Clear and Grub	2.40	AC	\$2,000.00	\$4,800.00
Topsoil (Removal and Stockpile)	400.00	CY	\$5.00	\$2,000.00
Unclassified Excavation	500.00	CY	\$4.50	\$2,250.00
Embankment	500.00	CY	\$2.50	\$1,250.00
Subgrade Grading	7,100.00	SY	\$1.25	\$8,875.00
Base Course, Class 6 - 6"	3,000.00	TN	\$20.00	\$60,000.00
Asphalt Pavement - 3"	1,000.00	TN	\$50.00	\$50,000.00
Topsoil Slopes	400.00	CY	\$7.00	\$2,800.00
Revegetation	1.00	AC	\$4,000.00	\$4,000.00
Traffic Control / Signage	12.00	LS	\$175.00	\$2,100.00
Striping	750.00	LF	\$0.50	\$375.00
DRAINAGE CONSTRUCTION				
Culvert, CPP - 18"	165.00	LF	\$35.00	\$5,775.00
End Section, CMP - 18"	22.00	EA	\$200.00	\$4,400.00
Rip Rap	-	CY	\$50.00	\$0.00
Erosion Control	1.00	LS	\$3,000.00	\$3,000.00
STRUCTURES AND SPECIAL FEATURES				
Guard Rail Railing	300.00	LF	\$20.00	\$6,000.00
Guard Rail End Anchors	2.00	EA	\$650.00	\$1,300.00
Crossing Warning Lights	2.00	EA	\$500.00	\$1,000.00
RR Crossing (At-Grade)	-	EA		\$0.00
Bridges	-	LS		\$0.00
Bridge Abutment and Wing Walls	-	CY		\$0.00
Retaining Walls	2,000.00	SF	\$20.00	\$40,000.00
Tunnels	-	LS		\$0.00
Relocate Utilities	-	LS		\$0.00
INDIRECT CONSTRUCTION				
Surveying (typ. 5%)		LS		\$10,321.25
Material Testing (typ. 5%)		LS		\$10,321.25
Construction Management (typ. 2%)		LS		\$4,128.50.00
TOTAL PLANNING AND CONSTRUCTION ESTIMATE				
				\$262,160.00
TOTAL PROJECT CONTINGENCY (17%)				
				\$54,398.00
TOTAL PROJECT COST ESTIMATE				
				\$316,558.00

TRAIL SECTION GYPSUM TO EAGLE Starts at Jules Drive in Gypsum and ends at Brush Creek Eagle Town Boundary (Estimate for alignment along Highway 6. Interchange alignment not feasible to estimate at this time)				
Total Section Length: 41,084 feet (7.78 miles) / 36,936 feet (6.99 miles) remains to be built				
Item	Estimated Quantity	Units	Unit Price in Yr 2001	Estimated Cost
PLANNING AND DESIGN				
ROW and Land Purchase		AC		\$0.00
ROW and Land Easement (survey, legal, etc.)		EA		\$0.00
Permit Processing	1	LS	\$4,000.00	\$4,000.00
Engineering/Design (typ. 12% const. cost)	1	LS	\$87,110.00	\$87,110.00
GENERAL CONSTRUCTION COSTS				
Bonds and Insurance (typ. 3%)	1	LS	\$21,777.00	\$21,777.00
Mobilization (3K - 5K)	1	LS	\$3,000.00	\$3,000.00
Clean Up	1	LS	\$1,500.00	\$1,500.00
TRAIL CONSTRUCTION COSTS				
Clear and Grub	7.40	AC	\$2,000.00	\$14,800.00
Topsoil (Removal and Stockpile)	3,960.00	CY	\$5.00	\$19,800.00
Unclassified Excavation	250.00	CY	\$4.50	\$1,125.00
Embankment	250.00	CY	\$2.50	\$625.00
Subgrade Grading	43,200.00	SY	\$1.25	\$54,000.00
Base Course, Class 6 - 6"	1,820.00	TN	\$20.00	\$36,400.00
Asphalt Pavement - 3"	610.00	TN	\$50.00	\$30,500.00
Topsoil Slopes	3,960.00	CY	\$7.00	\$27,720.00
Revegetation	3.70	AC	\$4,000.00	\$14,800.00
Traffic Control / Signage	65.00	LS	\$175.00	\$11,375.00
Striping	110.00	LF	\$0.50	\$550.00
DRAINAGE CONSTRUCTION				
Culvert, CPP - 18"	975.00	LF	\$35.00	\$34,125.00
End Section, CMP - 18"	130.00	EA	\$200.00	\$26,000.00
Rip Rap	-	CY		\$0.00
Erosion Control	1.00	LS	\$3,000.00	\$3,000.00
STRUCTURES AND SPECIAL FEATURES				
Guard Rail Railing	400.00	LF	\$20.00	\$80,000.00
Guard Rail End Anchors	4.00	EA	\$650.00	\$2,600.00
Crossing Warning Lights	-	EA		\$0.00
RR Crossing (At-Grade)	1.00	EA	\$20,000.00	\$20,000.00
Bridges (Brush Creek)	1.00	LS	\$90,000.00	\$90,000.00
Bridge Abutment and Wing Walls	-	CY		\$0.00
Retaining Walls	-	SF		\$0.00
Tunnel at Highway 6	1.00	LS	\$250,000.00	\$250,000.00
Relocate Utilities	-	LS		\$0.00
INDIRECT CONSTRUCTION				
Surveying (typ. 5%)		LS		\$36,296.00
Material Testing (typ. 5%)		LS		\$36,296.00
Construction Management (typ. 2%)		LS		\$14,518.00
TOTAL PLANNING AND CONSTRUCTION ESTIMATE				
TOTAL PROJECT CONTINGENCY (17%)				\$921,918.00
TOTAL PROJECT COST ESTIMATE				\$191,298.00
				\$1,113,216.00

**TRAIL SECTION
TOWN OF EAGLE**

From Brush Creek to East Town Boundary at end of Chambers Avenue

Total Section Length: 15,420 feet (2.9 miles) / 3700 feet exists / 11,720 feet left to construct/retrofit

Item	Estimated Quantity	Units	Unit Price in Yr 2001	Estimated Cost
PLANNING AND DESIGN				
ROW and Land Purchase		AC		\$0.00
ROW and Land Easement (survey, legal, etc.)		EA		\$0.00
Permit Processing	1	LS	\$6,000.00	\$6,000.00
Engineering/Design (typ. 12% const. cost)	1	LS	\$83,032.00	\$83,032.00
GENERAL CONSTRUCTION COSTS				
Bonds and Insurance (typ. 3%)	1	LS	\$20,758.00	\$20,758.00
Mobilization (3K - 5K)	1	LS	\$3,000.00	\$3,000.00
Clean Up	1	LS	\$1,500.00	\$1,500.00
TRAIL CONSTRUCTION COSTS				
Clear and Grub	3.40	AC	\$2,000.00	\$6,800.00
Topsoil (Removal and Stockpile)	550.00	CY	\$5.00	\$2,750.00
Unclassified Excavation	400.00	CY	\$4.50	\$1,800.00
Embankment	400.00	CY	\$2.50	\$1,000.00
Subgrade Grading	9,750.00	SY	\$1.25	\$12,187.50
Base Course, Class 6 - 6"	4,100.00	TN	\$20.00	\$82,000.00
Asphalt Pavement - 3"	1,400.00	TN	\$50.00	\$70,000.00
Topsoil Slopes	550.00	CY	\$7.00	\$3,850.00
Revegetation	1.40	AC	\$4,000.00	\$5,600.00
Traffic Control / Signage	15.00	LS	\$175.00	\$2,625.00
Striping	300.00	LF	\$0.50	\$150.00
DRAINAGE CONSTRUCTION				
Culvert, CPP - 18"	225.00	LF	\$35.00	\$7,875.00
End Section, CMP - 18"	30.00	EA	\$200.00	\$6,000.00
Rip Rap	-	CY		\$0.00
Erosion Control	1.00	LS	\$3,000.00	\$3,000.00
STRUCTURES AND SPECIAL FEATURES				
Guard Rail Railing	200.00	LF	\$20.00	\$4,000.00
Guard Rail End Anchors	2.00	EA	\$650.00	\$1,300.00
Crossing Warning Lights	1.00	EA	\$500.00	\$500.00
RR Crossing (At-Grade)	1.00	EA	\$20,000.00	\$20,000.00
Bridges (Eagle River)	1.00	LS	\$390,000.00	\$390,000.00
Bridge Abutment and Wing Walls	-	CY	\$500.00	\$0.00
Retaining Walls	3,000.00	SF	\$20.00	\$60,000.00
Tunnels	1.00	LS		
Relocate Utilities	-	LS		\$0.00
INDIRECT CONSTRUCTION				
Surveying (typ. 5%)		LS		\$34,596.00
Material Testing (typ. 5%)		LS		\$34,596.00
Construction Management (typ. 2%)		LS		\$13,839.00
TOTAL PLANNING AND CONSTRUCTION ESTIMATE				
				\$878,761.00
TOTAL PROJECT CONTINGENCY (17%)				
				\$182,342.00
TOTAL PROJECT COST ESTIMATE				
				\$1,061,103.00

TRAIL SECTION EAGLE TO WOLCOTT From East Town Boundary at Chambers Ave. to Highway 131 Bridge in Wolcott Total Section Length:44,552 feet (8.4 miles), none built at this time				
Item	Estimated Quantity	Units	Unit Price in Yr 2001	Estimated Cost
PLANNING AND DESIGN				
ROW and Land Purchase		AC		\$0.00
ROW and Land Easement (survey, legal, etc.)		EA		\$0.00
Permit Processing	1	LS	\$6,000.00	\$6,000.00
Engineering/Design (typ. 12% const. cost)	1	LS	\$170,378.00	\$170,378.00
GENERAL CONSTRUCTION COSTS				
Bonds and Insurance (typ. 3%)	1	LS	\$42,594.00	\$42,594.00
Mobilization (3K - 5K)	1	LS	\$0.00	\$0.00
Clean Up	1	LS	\$0.00	\$0.00
TRAIL CONSTRUCTION COSTS				
Clear and Grub	6.00	AC	\$2,000.00	\$12,000.00
Topsoil (Removal and Stockpile)	970.00	CY	\$5.00	\$4,850.00
Unclassified Excavation	7,700.00	CY	\$4.50	\$34,650.00
Embankment	7,700.00	CY	\$2.50	\$19,250.00
Subgrade Grading	17,500.00	SY	\$1.25	\$21,875.00
Base Course, Class 6 - 6"	7,350.00	TN	\$20.00	\$147,000.00
Asphalt Pavement - 3"	2,475.00	TN	\$50.00	\$123,750.00
Topsoil Slopes	970.00	CY	\$7.00	\$6,790.00
Revegetation	2.40	AC	\$4,000.00	\$9,600.00
Traffic Control / Signage	27.00	LS	\$175.00	\$4,725.00
Striping	300.00	LF	\$0.50	\$150.00
DRAINAGE CONSTRUCTION				
Culvert, CPP - 18"	405.00	LF	\$35.00	\$14,175.00
End Section, CMP - 18"	54.00	EA	\$200.00	\$10,800.00
Rip Rap	-	CY		\$0.00
Erosion Control	1.00	LS	\$3,000.00	\$3,000.00
STRUCTURES AND SPECIAL FEATURES				
Guard Rail Railing	8,100.00	LF	\$20.00	\$162,000.00
Guard Rail End Anchors	8.00	EA	\$650.00	\$5,200.00
Crossing Warning Lights	-	EA		\$0.00
RR Crossing (At-Grade Exists w/Horn Ranch Road)	-	EA		\$0.00
Bridges	-	LS		\$0.00
Bridge Abutment and Wing Walls	-	CY		\$0.00
Retaining Walls	41,700.00	SF	\$20.00	\$834,000.00
Tunnels	-	LS		\$0.00
Relocate Utilities	-	LS		\$0.00
INDIRECT CONSTRUCTION				
Surveying (typ. 5%)		LS		\$70,991.00
Material Testing (typ. 5%)		LS		\$70,991.00
Construction Management (typ. 2%)		LS		\$28,396.00
TOTAL PLANNING AND CONSTRUCTION ESTIMATE				
TOTAL PROJECT CONTINGENCY (33%)*				\$874,146.00
TOTAL PROJECT COST ESTIMATE				\$2,677,261.00

*Higher contingency percentage used on this and next section due to many variables in selection of final alignment.

TRAIL SECTION WOLCOTT TO WEST EDWARDS From Highway 131 Bridge in Wolcott to Hillcrest Drive Bridge				
Total Section Length: 24,385 feet (4.6 miles) to be built, none built at this time				
Item	Estimated Quantity	Units	Unit Price in Yr 2000	Estimated Cost
PLANNING AND DESIGN				
ROW and Land Purchase		AC		\$0.00
ROW and Land Easement (survey, legal, etc.)		EA		\$0.00
Permit Processing	1	LS	\$8,000.00	\$8,000.00
Engineering/Design (typ. 12% const. cost)	1	LS	\$190,838.00	\$190,838.00
GENERAL CONSTRUCTION COSTS				
Bonds and Insurance (typ. 3%)	1	LS	\$47,709.00	\$47,709.00
Mobilization (3K - 5K)	1	LS	\$0.00	\$0.00
Clean Up	1	LS	\$0.00	\$0.00
TRAIL CONSTRUCTION COSTS				
Clear and Grub	6.00	AC	\$2,000.00	\$12,000.00
Topsoil (Removal and Stockpile)	970.00	CY	\$5.00	\$4,850.00
Unclassified Excavation	3,400.00	CY	\$4.50	\$15,300.00
Embankment	3,400.00	CY	\$2.50	\$8,500.00
Subgrade Grading	17,500.00	SY	\$1.25	\$21,875.00
Base Course, Class 6 - 6"	7,350.00	TN	\$20.00	\$147,000.00
Asphalt Pavement - 3"	2,475.00	TN	\$50.00	\$123,750.00
Topsoil Slopes	970.00	CY	\$7.00	\$6,790.00
Revegetation	2.40	AC	\$4,000.00	\$9,600.00
Traffic Control / Signage	27.00	LS	\$175.00	\$4,725.00
Striping	300.00	LF	\$0.50	\$150.00
DRAINAGE CONSTRUCTION				
Culvert, CPP - 18"	405.00	LF	\$35.00	\$14,175.00
End Section, CMP - 18"	54.00	EA	\$200.00	\$10,800.00
Rip Rap	-	CY		\$0.00
Erosion Control	1.00	LS	\$3,000.00	\$3,000.00
STRUCTURES AND SPECIAL FEATURES				
Guard Rail Railing	400.00	LF	\$20.00	\$8,000.00
Guard Rail End Anchors	2.00	EA	\$650.00	\$1,300.00
Crossing Warning Lights	1.00	EA	\$500.00	\$500.00
RR Crossing (At-Grade)	-	EA		\$0.00
Bridges (over Eagle River at I-70 Bridge)	1.00	LS	\$510,000.00	\$510,000.00
Bridge Abutment and Wing Walls	-	CY		\$0.00
Retaining Walls	34,000.00	SF	\$20.00	\$680,000.00
Tunnels	-	LS		\$0.00
Relocate Utilities	-	LS		\$0.00
INDIRECT CONSTRUCTION				
Surveying (typ. 5%)		LS		\$79,516.00
Material Testing (typ. 5%)		LS		\$79,516.00
Construction Management (typ. 2%)		LS		\$31,806.00
TOTAL PLANNING AND CONSTRUCTION ESTIMATE				
				\$2,019,736.00
TOTAL PROJECT CONTINGENCY (33%)*				\$666,512.00
TOTAL PROJECT COST ESTIMATE				\$2,686,248.00

*Higher contingency percentage used on this and next section due to many variables in selection of final alignment.

TRAIL SECTION
WEST EDWARDS TO TOWN OF AVON

Hillcrest Drive Bridge to Town of Avon West Boundary

Total Section Length: 26,596 feet total (5 miles) 19,874 feet built/6,722 feet remains to be built.

The 5000 foot trail section between Hillcrest Bridge and the Eagle River Mobile Home Park is currently in the planning phase for construction in 2002. Given the imminent status of project, no detailed data is shown below to substitute for the accurate construction estimating that is underway. Previous preliminary estimates for the that section are \$250,000 to \$300,000 depending on necessary utility relocations. The remaining 1722 feet to be built is in the area of Cemetery Road and will likely be incorporated into the reconstruction of Cemetery Road and bridge.

Item	Estimated Quantity	Units	Unit Price in Yr 2001	Estimated Cost
PLANNING AND DESIGN				
ROW and Land Purchase		AC		\$0.00
ROW and Land Easement (survey, legal, etc.)		EA		\$0.00
Permit Processing	1	LS	\$0.00	\$0.00
Engineering/Design (typ. 12% const. cost)	1	LS	\$0.00	\$0.00
GENERAL CONSTRUCTION COSTS				
Bonds and Insurance (typ. 3%)	1	LS	\$0.00	\$0.00
Mobilization (3K - 5K)	1	LS	\$0.00	\$0.00
Clean Up	1	LS	\$0.00	\$0.00
TRAIL CONSTRUCTION COSTS				
Clear and Grub	-	AC	\$2,000.00	\$0.00
Topsoil (Removal and Stockpile)	-	CY	\$500.00	\$0.00
Unclassified Excavation	-	CY	\$4.50	\$0.00
Embankment	-	CY	\$2.50	\$0.00
Subgrade Grading	-	SY	\$1.25	\$0.00
Base Course, Class 6 - 6"	-	TN	\$20.00	\$0.00
Asphalt Pavement - 3"	-	TN	\$50.00	\$0.00
Topsoil Slopes	-	CY	\$7.00	\$0.00
Revegetation	-	AC	\$4,000.00	\$0.00
Traffic Control / Signage	-	LS	\$175.00	\$0.00
Striping	-	LF	\$0.50	\$0.00
Curb and Gutter	-	LF		\$0.00
DRAINAGE CONSTRUCTION				
Culvert, CPP - 18"	-	LF	\$35.00	\$0.00
End Section, CMP - 18"	-	EA	\$200.00	\$0.00
Rip Rap	-	CY		\$0.00
Erosion Control	-	LS		\$0.00
STRUCTURES AND SPECIAL FEATURES				
Guard Rail Railing	-	LF	\$20.00	\$0.00
Guard Rail End Anchors	-	EA	\$650.00	\$0.00
Crossing Warning Lights	-	EA	\$500.00	\$0.00
RR Crossing (At-Grade)	-	EA	\$20,000.00	\$0.00
Bridges	-	LS		\$0.00
Bridge Abutment and Wing Walls	-	CY		\$0.00
Retaining Walls	-	SF	\$20.00	\$0.00
Tunnels	-	LS		\$0.00
Relocate Utilities	-	LS		\$0.00
INDIRECT CONSTRUCTION				
Surveying (typ. 5%)		LS		\$0.00
Material Testing (typ. 5%)		LS		\$0.00
Construction Management (typ. 2%)		LS		\$0.00
TOTAL PLANNING AND CONSTRUCTION ESTIMATE				
				\$336,000.00
TOTAL PROJECT CONTINGENCY (17%)				
				\$81,600.00
TOTAL PROJECT COST ESTIMATE				
				\$480,000.00

**TRAIL SECTION
TOWN OF AVON**

West Town Boundary to Village at Avon Interchange

Total Section Length: 18,196 feet (3.4 miles) / 8102 feet built/10,093 remains to be built / 2,700 feet located west of Avon Road and estimated below, remainder in Village at Avon

The trail section between West Beaver Creek Boulevard and Avon Road (+/- 2,700 feet) is currently in the planning phase for construction in 2002. Given the imminent status of project, no detailed data is shown below to substitute for the accurate construction estimating that is underway. Previous preliminary estimates for the that section are \$500,000 to \$600,000 total.

Given the preliminary status of trails through the Village at Avon development, no estimates are shown for that trail section.

Item	Estimated Quantity	Units	Unit Price in Yr 2001	Estimated Cost
PLANNING AND DESIGN				
ROW and Land Purchase		AC		\$0.00
ROW and Land Easement (survey, legal, etc.)		EA		\$0.00
Permit Processing		LS	\$2,000.00	\$0.00
Engineering/Design (typ. 12% const. cost)		LS	\$19,707.00	\$0.00
GENERAL CONSTRUCTION COSTS				
Bonds and Insurance (typ. 3%)		LS	\$4,927.00	\$0.00
Mobilization (3K - 5K)		LS	\$3,000.00	\$0.00
Clean Up		LS	\$1,500.00	\$0.00
TRAIL CONSTRUCTION COSTS				
Clear and Grub		AC	\$2,000.00	\$0.00
Topsoil (Removal and Stockpile)		CY	\$5.00	\$0.00
Unclassified Excavation	-	CY		
Embankment	-	CY		
Subgrade Grading		SY	\$1.25	\$0.00
Base Course, Class 6 - 6"		TN	\$20.00	\$0.00
Asphalt Pavement - 3"		TN	\$50.00	\$0.00
Topsoil Slopes		CY	\$7.00	\$0.00
Revegetation		LS	\$4,000.00	\$0.00
Traffic Control /Signage		EA	\$175.00	\$0.00
Striping		LF	\$0.50	\$0.00
DRAINAGE CONSTRUCTION				
Culvert, CPP - 18"	-	LF	\$35.00	\$0.00
End Section, CMP - 18"	-	EA	\$200.00	\$0.00
Rip Rap	-	CY		\$0.00
Erosion Control	-	LS		\$0.00
STRUCTURES AND SPECIAL FEATURES				
Guard Rail Railing	-	LF	\$20.00	\$0.00
Guard Rail End Anchors	-	EA	\$650.00	\$0.00
Crossing Warning Lights	-	EA	\$500.00	\$0.00
RR Crossing (At-Grade)	-	EA	\$20,000.00	\$0.00
Bridges	-	LS		\$0.00
Bridge Abutment and Wing Walls	-	CY		\$0.00
Retaining Walls	-	SF	\$20.00	\$0.00
Tunnels	-	LS		\$0.00
Relocate Utilities	-	LS		\$0.00
INDIRECT CONSTRUCTION				
Surveying (typ. 5%)		LS		
Material Testing (typ. 5%)		LS		
Construction Management (typ. 2%)		LS		
TOTAL PLANNING AND CONSTRUCTION ESTIMATE				\$500,000.00
TOTAL PROJECT CONTINGENCY (20%)				\$100,000.00
TOTAL PROJECT COST ESTIMATE				\$600,000.00

**TRAIL SECTION
AVON TO DOWD JUNCTION**

Village at Avon Interchange to Town of Minturn North Bridge

Total Section Length: 16,653 feet (3.15 miles), none built at this time

Item	Estimated Quantity	Units	Unit Price in Yr 2001	Estimated Cost
PLANNING AND DESIGN				
ROW and Land Purchase		AC		\$0.00
ROW and Land Easement (survey, legal, etc.)		EA		\$0.00
Permit Processing	1	LS	\$2,000.00	\$2,000.00
Engineering/Design (typ. 12% const. cost)	1	LS	\$279,940.50	\$279,940.50
GENERAL CONSTRUCTION COSTS				
Bonds and Insurance (typ. 3%)	1	LS	\$69,985.00	\$69,985.00
Mobilization (3K - 5K)	1	LS	\$5,000.00	\$5,000.00
Clean Up	1	LS	\$1,500.00	\$1,500.00
TRAIL CONSTRUCTION COSTS				
Clear and Grub	9.30	AC	\$2,000.00	\$18,600.00
Topsoil (Removal and Stockpile)	1,500.00	CY	\$5.00	\$7,500.00
Unclassified Excavation	3,200.00	CY	\$4.50	\$14,400.00
Embankment	3,200.00	CY	\$2.50	\$8,000.00
Subgrade Grading	26,950.00	SY	\$1.25	\$33,687.50
Base Course, Class 6 - 6"	11,350.00	TN	\$20.00	\$227,000.00
Asphalt Pavement - 3"	3,800.00	TN	\$50.00	\$190,000.00
Topsoil Slopes	1,500.00	CY	\$7.00	\$10,500.00
Revegetation	3.80	AC	\$4,000.00	\$15,200.00
Traffic Control/Signage	41.00	LS	\$175.00	\$7,175.00
Striping	1,500.00	LF	\$0.50	\$750.00
DRAINAGE CONSTRUCTION				
Culvert, CPP - 18"	615.00	LF	\$35.00	\$21,525.00
End Section, CMP - 18"	82.00	EA	\$200.00	\$16,400.00
Rip Rap	-	CY		\$0.00
Erosion Control	1.00	LS	\$3,000.00	\$3,000.00
STRUCTURES AND SPECIAL FEATURES				
Guard Rail Railing	500.00	LF	\$20.00	\$10,000.00
Guard Rail End Anchors	4.00	EA	\$650.00	\$2,600.00
Crossing Warning Lights	-	EA		\$0.00
RR Crossing (At-Grade)	2.00	EA	\$20,000.00	\$40,000.00
Bridges - 2 (Eagle River, Under Railroad Bridge)	2.00	LS	\$325,000.00	\$650,000.00
Bridge Abutment and Wing Walls	-	CY		\$0.00
Retaining Walls	52,400.00	SF	\$20.00	\$1,048,000.00
Tunnels (Railroad Tunnel may be required but not included in this estimate - +/- \$200,000)	-	LS		\$0.00
Relocate Utilities	-	LS		\$0.00
INDIRECT CONSTRUCTION				
Surveying (typ. 5%)		LS		\$116,641.90
Material Testing (typ. 5%)		LS		\$116,641.90
Construction Management (typ. 2%)		LS		\$46,656.80
TOTAL PLANNING AND CONSTRUCTION ESTIMATE				
				\$2,962,704.00
TOTAL PROJECT CONTINGENCY (17%)				
				\$589,751.00
TOTAL PROJECT COST ESTIMATE				
				\$3,552,455.00

TRAIL SECTION DOWD JUNCTION TO MINTURN From Minturn North Bridge through Railyard to Minturn Downtown (Turntable Restaurant)				
Total Section Length:9,887 feet (1.8 miles), none built at this time				
Item	Estimated Quantity	Units	Unit Price in Yr 2001	Estimated Cost
PLANNING AND DESIGN				
ROW and Land Purchase		AC		\$0.00
ROW and Land Easement (survey, legal, etc.)		EA		\$0.00
Permit Processing	1	LS	\$6,000.00	\$6,000.00
Engineering/Design (typ. 12% const. cost)	1	LS	\$12,741.00	\$12,471.00
GENERAL CONSTRUCTION COSTS				
Bonds and Insurance (typ. 3%)	1	LS	\$3,185.00	\$3,185.00
Mobilization (3K - 5K)	1	LS	\$3,000.00	\$3,000.00
Clean Up	1	LS	\$1,500.00	\$1,500.00
TRAIL CONSTRUCTION COSTS				
Clear and Grub	1.20	AC	\$2,000.00	\$2,400.00
Topsoil (Removal and Stockpile)	100.00	CY	\$5.00	\$500.00
Unclassified Excavation	2,700.00	CY	\$4.50	\$12,150.00
Embankment	2,700.00	CY	\$2.50	\$6,750.00
Subgrade Grading	3,500.00	SY	\$1.25	\$4,375.00
Base Course, Class 6 - 6"	1,500.00	TN	\$20.00	\$30,000.00
Asphalt Pavement - 3"	500.00	TN	\$50.00	\$25,000.00
Topsoil Slopes	100.00	CY	\$7.00	\$700.00
Revegetation	0.30	AC	\$4,000.00	\$1,200.00
Traffic Control/Signage	38.00	LS	\$175.00	\$6,650.00
Striping	100.00	LF	\$0.50	\$50.00
DRAINAGE CONSTRUCTION				
Culvert, CPP - 18"	60.00	LF	\$35.00	\$2,100.00
End Section, CMP - 18"	4.00	EA	\$200.00	\$800.00
Rip Rap	-	CY		\$0.00
Erosion Control	1.00	LS	\$3,000.00	\$3,000.00
STRUCTURES AND SPECIAL FEATURES				
Guard Rail Railing	-	LF	\$20.00	\$0.00
Guard Rail End Anchors	-	EA	\$650.00	\$0.00
Crossing Warning Lights	-	EA		\$0.00
RR Crossing (At-Grade)	-	EA		\$0.00
Bridges	-	LS		\$0.00
Bridge Abutment and Wing Walls	-	CY		\$0.00
Retaining Walls	-	SF		\$0.00
Tunnels	-	LS		\$0.00
Relocate Utilities	-	LS		\$0.00
INDIRECT CONSTRUCTION				
Surveying (typ. 5%)		LS		\$5,309.00
Material Testing (typ. 5%)		LS		\$5,309.00
Construction Management (typ. 2%)		LS		\$2,124.00
TOTAL PLANNING AND CONSTRUCTION ESTIMATE				\$134,843.00
TOTAL PROJECT CONTINGENCY (17%)				\$27,979.00
TOTAL PROJECT COST ESTIMATE				\$162,822.00

**TRAIL SECTION
TOWN OF MINTURN**

From Downtown Minturn at Turntable Restaurant to Tigiwon Road at Base of Battle Mountain

Total Section Length: 19,641 feet (3.7 miles), none built at this time

Item	Estimated Quantity	Units	Unit Price in Yr 2001	Estimated Cost
PLANNING AND DESIGN				
ROW and Land Purchase		AC		\$0.00
ROW and Land Easement (survey, legal, etc.)		EA		\$0.00
Permit Processing	1	LS	\$6,000.00	\$6,000.00
Engineering/Design (typ. 12% const. cost)	1	LS	\$96,456.00	\$96,456.00
GENERAL CONSTRUCTION COSTS				
Bonds and Insurance (typ. 3%)	1	LS	\$24,114.00	\$24,114.00
Mobilization (3K - 5K)	1	LS	\$4,000.00	\$4,000.00
Clean Up	1	LS	\$1,500.00	\$1,500.00
TRAIL CONSTRUCTION COSTS				
Clear and Grub	6.00	AC	\$2,000.00	\$12,000.00
Topsoil (Removal and Stockpile)	1,400.00	CY	\$5.00	\$7,000.00
Unclassified Excavation	2,000.00	CY	\$4.50	\$9,000.00
Embankment	2,000.00	CY	\$2.50	\$5,000.00
Subgrade Grading	25,200.00	SY	\$1.25	\$31,500.00
Base Course, Class 6 - 6"	10,600.00	TN	\$20.00	\$212,000.00
Asphalt Pavement - 3"	3,550.00	TN	\$50.00	\$177,500.00
Topsoil Slopes	1,400.00	CY	\$7.00	\$9,800.00
Revegetation	3.40	AC	\$4,000.00	\$13,600.00
Traffic Control/Signage	38.00	LS	\$175.00	\$6,650.00
Striping	200.00	LF	\$0.50	\$100.00
DRAINAGE CONSTRUCTION				
Culvert, CPP - 18"	570.00	LF	\$35.00	\$19,950.00
End Section, CMP - 18"	76.00	EA	\$200.00	\$15,200.00
Rip Rap	-	CY		
Erosion Control	1.00	LS	\$3,000.00	\$3,000.00
STRUCTURES AND SPECIAL FEATURES				
Guard Rail Railing	-	LF		\$0.00
Guard Rail End Anchors	-	EA		\$0.00
Crossing Warning Lights	-	EA		\$0.00
RR Crossing (At-Grade Exists at Taylor Road)	1.00	EA	\$20,000.00	\$20,000.00
Bridges (Two Elk Creek)	1.00	LS	\$90,000.00	\$90,000.00
Bridge Abutment and Wing Walls	-	CY		\$0.00
Retaining Walls	8,000.00	SF	\$20.00	\$160,000.00
Tunnels	-	LS		\$0.00
Relocate Utilities	-	LS		\$0.00
INDIRECT CONSTRUCTION				
Surveying (typ. 5%)		LS		\$40,190.00
Material Testing (typ. 5%)		LS		\$40,190.00
Construction Management (typ. 2%)		LS		\$40,190.00
TOTAL PLANNING AND CONSTRUCTION ESTIMATE				
				\$1,020,826.00
TOTAL PROJECT CONTINGENCY (17%)				
				\$211,821.00
TOTAL PROJECT COST ESTIMATE				
				\$1,232,647.00

**TRAIL SECTION
MINTURN TO RED CLIFF**

From Tigiwon Road/Battle Mtn. to Downtown Red Cliff

Total Section Length: 27,447 feet(5.2 miles), none built at this time

Item	Estimated Quantity	Units	Unit Price in Yr 2001	Estimated Cost
PLANNING AND DESIGN				
ROW and Land Purchase		AC		
ROW and Land Easement (survey, legal, etc.)		EA		
Permit Processing	1	LS	\$6,000.00	\$6,000.00
Engineering/Design (typ. 12% const. cost)	1	LS	\$70,699.00	\$70,699.00
GENERAL CONSTRUCTION COSTS				
Bonds and Insurance (typ. 3%)	1	LS	\$17,674.00	\$17,674.00
Mobilization (3K - 5K)	1	LS	\$5,000.00	\$5,000.00
Clean Up	1	LS	\$1,500.00	\$1,500.00
TRAIL CONSTRUCTION COSTS				
Clear and Grub	3.00	AC	\$2,000.00	\$6,000.00
Topsoil (Removal and Stockpile)	460.00	CY	\$5.00	\$2,300.00
Unclassified Excavation	2,250.00	CY	\$4.50	\$10,125.00
Embankment	2,250.00	CY	\$2.50	\$5,625.00
Subgrade Grading	44,150.00	SY	\$1.25	\$55,187.50
Base Course, Class 6 - 6"	7,200.00	TN	\$20.00	\$144,000.00
Asphalt Pavement - 3"	1,200.00	TN	\$50.00	\$60,000.00
Topsoil Slopes	460.00	CY	\$7.00	\$3,220.00
Revegetation	6.00	AC	\$4,000.00	\$24,000.00
Traffic Control/Signage	66.00	LS	\$175.00	\$11,550.00
Striping	200.00	LF	\$0.50	\$100.00
DRAINAGE CONSTRUCTION				
Culvert, CPP - 18"	990.00	LF	\$35.00	\$34,650.00
End Section, CMP - 18"	132.00	EA	\$200.00	\$26,400.00
Rip Rap	-	CY		\$0.00
Erosion Control	1.00	LS	\$3,000.00	\$3,000.00
STRUCTURES AND SPECIAL FEATURES				
Guard Rail Railing	2,000.00	LF	\$20.00	\$40,000.00
Guard Rail End Anchors	-	EA		\$0.00
Crossing Warning Lights	1.00	EA	\$500.00	\$500.00
RR Crossing (At-Grade)	-	EA		\$0.00
Bridges (Two Elk Creek)	1.00	LS		
Bridge Abutment and Wing Walls	-	CY		\$0.00
Retaining Walls	7,500.00	SF	\$20.00	\$150,000.00
Tunnels	-	LS		\$0.00
Relocate Utilities	-	LS		\$0.00
INDIRECT CONSTRUCTION				
Surveying (typ. 5%)		LS		\$29,458.00
Material Testing (typ. 5%)		LS		\$29,458.00
Construction Management (typ. 2%)		LS		\$11,783.00
TOTAL PLANNING AND CONSTRUCTION ESTIMATE				
				\$748,231.00
TOTAL PROJECT CONTINGENCY (17%)				
				\$155,258.00
TOTAL PROJECT COST ESTIMATE				
				\$903,489.00

TOWN of VAIL CORE TRAIL IMPROVEMENTS “The Missing Links”		
TRAIL SECTION	Length	2001 Preliminary Estimate*
VAIL VALLEY DRIVE TRAIL from Gold Peak to Sunburst Lane	5600 feet	\$1,300,000
LIONSHEAD BYPASS TRAIL	435 feet	\$225,000
VAIL VILLAGE BYPASS	383 feet	\$40,000
VAIL GOLF COURSE SEPARATED PATH	2137 feet	\$260,000

* Summary of Preliminary Cost Estimates provided by Town of Vail staff.

Appendix B

Trail Plan Process Participants

Eagle Valley Trails Committee

Dick Cleveland
Ginny Culp
Louise Randall
Amy Losa
Fred Haslee
Thomas Guthrie
Paul Gotthelf
John Bailey
Buff Arnold
Ken Rhoads
Jeff Auxier
Leslie Kehmeier
Bill Fisher
Mike Toughill
Martha Miller
Kip Mayer
Chip Tallon
Katherine Nannin

Eagle County Regional Transportation

Authority

Kevin Foley, Town of Vail
Debbie Buckley, Town of Avon
Bob McIlveen, Beaver Creek and Town of Avon
Larry Grafel, Beaver Creek
Willy Powell, Town of Eagle
Donna Meyer, Town of Eagle
Tom Stone, Eagle County
Mike Gallagher, Eagle County
George Roussos, Eagle County
Jeff Shroll, Town of Gypsum
Francis Barela, Town of Gypsum
Jim Kleckner, Town of Minturn
Alan Lanning, Town of Minturn
Robert Slagle, Town of Red Cliff

Private Sector Participants:

Johnson and Kunkel Engineering
Monroe and Newell Engineering
Union Pacific Railroad
Riverwalk at Edwards

The Citizens Serving on the:

Eagle Town Board
Eagle Town Planning Commission

Gypsum Town Council
Gypsum Town Planning Commission
Avon Town Council
Avon Planning Commission
Vail Town Council
Vail Planning Commission
Minturn Town Council
Minturn Planning Commission
Red Cliff Town Council
Red Cliff Planning Commission
Eagle County Board of County Commissioners
Eagle County Planning Commission
Edwards Metropolitan District
Arrowhead Metropolitan District
Eagle-Vail Metropolitan District

Local, State and Federal Government Staff:

Norm Wood, Town of Avon
Anne Martens, Town of Avon
Vern Brock, Town of Eagle
Larry McKinzie, Town of Eagle
Lisa DeGraaf, Town of Minturn
Greg Hall, Town of Vail
Gregg Barrie, Town of Vail
Todd Oppenheimer, Town of Vail
Brent Wilson, Town of Vail
Brad Higgins, Eagle County
Bob Narracci, Eagle County
Joe Forinash, Eagle County
Keith Montag, Eagle County
Helen Migchelbrink, Eagle County
Peter Sulmeisters, Eagle County
Mike Gruber, Eagle County
Leslie Kehmeier, Eagle County GIS
John Staight, Eagle County GIS
Sean Koenig, Eagle County GIS
Ellie Caryl, ECO Trails
Janet Field, ECO
Ann Allums, ECO
Bill Heicher, Colorado Division of Wildlife
Bill Andree, Colorado Division of Wildlife
Keith Powers, Colorado Department of Transportation
Brian Hopkins, US Bureau of Land Management
Beth Boyst, US Forest Service
Joe Doerr, US Forest Service

Appendix C

References

- AASHTO Guide for the Development of Bicycle Facilities, 1999
- Florida Bicycle Facilities Planning and Design Manual 1996, Florida Department of Transportation
- Colorado Department of Transportation's Bikeway Design Guidelines, 1994
- Bicyclinginfo.org website, Produced by the Pedestrian and Bicycle Information Center, Exerpts from January, 2001
- National Bicycle and Pedestrian Clearinghouse, Technical Assistance Series Number 9, August 1996
- Successful Strategies for Trail Development, Rails-to-Trails Conservancy, Workshop Proceedings, November, 1998
- Commentary and Text, Section 14, ADA Accessibility Guidelines
- Bicycle Facility Planning, Planning Advisory Service, Report Number 459, American Planning Association, 1995
- Summit County Recreational Pathways Master Plan, 1989
- Trails 2000 Program, Jefferson County Open Space Master Plan, 1998
- Scottsdale (Arizona) Bike Path Improvement Study, 1992
- Historic Union Pacific Rail Trail Master Plan, 1991
- Heart of the Rockies Historic Corridor, Trail Feasibility Study, 1996
- Eagle County Land Use Regulations 1998
- Eagle County Trail Plan 1993
- Town of Vail Comprehensive Open Lands Plan, 1994
- Minturn Parks and Recreation Master Plan, 1992
- Town of Avon Recreation Master Plan, 1992
- Boulder's Stream Corridors Design Guidelines, 1989
- Bicycling and Walking in Colorado, Colorado Department of Transportation, 2000
- Yampa Valley Trails and Recreation Conceptual Plan, 1992
- The Intermountain Connection, Rails and Trails Report, 1998
- Glenwood Springs Park, Recreation, Open Space, Greenway and Pathway Master Plan, 1998
- Heart of the Rockies Historic Corridor Trail Feasibility Study, 1996
- Planning Trails with Wildlife in Mind, Colorado State Parks, 1998

Appendix D

Recommended Core Trail Furniture and Accessories



Recommended Picnic Table Style

Order in Forest Green Recycled Plastic with galvanized base for low maintenance.
Anchored in concrete to discourage vandalism.

Available from RJ Thomas Manufacturing DBA Pilot Rock Products.



Recommended Bench Style

Order in Forest Green Recycled Plastic with galvanized base for low maintenance.
Anchored in concrete to discourage vandalism.

Available from RJ Thomas Manufacturing DBA Pilot Rock Products.