A COMPREHENSIVE PLAN FOR THE ASPEN BRANCH OF THE DENVER & RIO GRANDE WESTERN RAILROAD CORRIDOR

PREPARED FOR THE
ROARING FORK RAILROAD HOLDING AUTHORITY

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ATTACHMENTS

Exhibit A: Recreational Trails Plan

Exhibit B: Corridor Access Plan
- **1) Listing of All Utility Easements**
- **2) Notice Of Intention to Undertake Rail Corridor Activities**

Exhibit C: Summary of the Draft Environmental Impact Statement

Exhibit D: Additional Technical Information as Requested by the Local Decision Making Process:
1) Project Objective matrix and Explanatory Memorandum
2) Environmental/Biologic Inventory
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Exhibit E: Reading the Roaring Fork Landscape: An Ideabook for Interpretation and Environmental Education

Exhibit F: Highway 82 Alternative Route

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I. INTRODUCTION

In September of 1991, eight local governmental entities resolved to purchase the Aspen Branch of the Denver & Rio Grande Western railroad right-of-way from the Southern Pacific Transportation Company to preserve the corridor as a public asset. In December of 1994, the eight local governments signed an Intergovernmental Agreement to purchase the property. The urgency of the purchase was realized when the merger of Southern Pacific and Union Pacific railroads was announced. With the dissolution of Southern Pacific, Union Pacific could have abandoned the rail corridor and the land reverted to possible residential and commercial development. The result would have been the loss of the corridor and any opportunity to preserve it for recreational and transportation use. On June 30, 1997, the corridor purchase was finalized.

Traffic congestion on State Highway 82 is and will continue to be a problem as the valley continues to grow and develop. Traffic congestion causes a negative impact on the economic and personal well being of the local communities. It leads to longer commute time and slower freight movements, and it reduces the convenience of travelling throughout the valley. In addition to the recreational opportunities mentioned above, one of the objectives of the purchase is to reduce the amount of traffic congestion by increasing the transportation choices within the valley.

A large percentage of the Roaring Fork valley is in public domain as Bureau of Land Management (BLM), White River National Forest or state holdings. Within recent years, increases in population and resort development, and the escalation of land values have dramatically increased growth in the valley. With this growth, lands available for trail and recreational use along the valley floor are diminishing. Currently, there are numerous trails throughout the valley but there is limited continuity between these trails. In addition to the transportation opportunity mentioned above, the other major opportunity and objective of the purchase is to develop a continuous non-motorized trail along the corridor.

Recreational activities define the lifestyle and economy of the Roaring Fork valley. Skiing, hunting, hiking, rafting, bicycling, and wildlife viewing are just a few of the recreational opportunities in the region. The population in the valley is more active than most regions and as the population and number of visitors grow, so does the demand for outdoor recreation facilities. Wildlife species are abundant in the valley with approximately 160 species throughout the region. All species of wildlife are important for viewing, photographing, and balancing the ecosystem of the valley. The purchase of the right-of-way provides an opportunity to develop environmental and wildlife educational programs and enhance access to public lands and the Roaring Fork River.

The Roaring Fork River through its scenic and recreational opportunities ties the valley together. It is currently used by residents and visitors for a number of recreational activities including fishing, rafting, and kayaking. The river is designated as a "Gold Medal" resource because it is one of the highest quality aquatic habitats in the state. Over 15,000 anglers use the river annually. Proper access points to the river are important for the safe use of the resource. Currently there are six designated boat ramps for watercraft. The purchase of the right-of-way presents the opportunity to provide additional river access and parking on public land to continue and expand the use of this resource.

All of these issues deal with the overall quality of life of the residents, visitors, and guests in the Roaring Fork Valley. The purchase of this corridor has presented an opportunity to develop an integrated transportation and recreation solution to future problems before they are even fully realized. As a part of the agreement to purchase the corridor in 1997, it was required that a comprehensive plan be prepared that would determine the future uses of the corridor. The specific language within the Purchase Agreement requiring the development of a Comprehensive Plan is as follows:

> *"The Governments shall develop, consider and approve the Comprehensive Plan for the Property within twenty-four (24) months of the date this Amended Agreement is signed, unless the Governments mutually agree to extend the time period for the formulation and adoption of such a Plan. The adoption of the Comprehensive Plan and any amendments thereto shall be consistent with the grant conditions set forth in the grant documents referenced at section 5, above. It is anticipated that when the Comprehensive Plan for the Property is approved by all participating Governments, a new Intergovernmental Agreement will be negotiated and become effective to implement the Comprehensive Plan."*

The specific language within the Purchase Agreement the defines the Comprehensive Plan is as follows:

> *"The Plan shall include the following:*

I. *A listing and description of possible uses for the property, including but not limited to such improvements necessary to place and operate a public transportation system, public trail, and/or access to public lands;*

II. *A detailed improvements and operations plan for the ultimate preferred uses(s) on the property, including a recommended management and funding strategy; and*

III. *An interim plan which incorporates the interim use of the rail corridor for a temporary trail following approval from the Surface Transportation Board of a certificate of interim trail use pending the re-establishment of rail service."*

In addition to these specific requirements, the Conservation Easement placed on the corridor also outlines additional requirements regarding access and retention of the property's conservation values.

The purpose of this document is to set out a Comprehensive Plan for the corridor that will be adopted by the Roaring Fork Railroad Holding Authority and its member governments. This Comprehensive Plan will be used to guide all future use of the corridor and its findings will be incorporated into the existing Conservation Easement on the corridor to insure strict adherence to the uses set forth herein.

II. COMPLIANCE OF THE COMPREHENSIVE PLAN WITH THE REQUIREMENTS OF THE CONSERVATION EASEMENT

A Conservation Easement was placed on the railroad corridor when it was purchased in 1997. The Conservation Easement is located along the property from the terminus of the "Wye" (approximately 12th Street in Glenwood Springs), to the end of the tracks in Woody Creek. The purpose of the easement is to assure that the corridor will be maintained as a linear, open space corridor, appropriate for recreation (including trails), wildlife, environmental and educational purposes, while permitting the construction of trails and trailhead facilities and the continuation and construction of rail facilities. The easement also prevents any use of the Property that will significantly impair the "conservation values" of the corridor. The conservation easement contemplates a change in uses, and therefore a modification to the easement once a Comprehensive Plan for the corridor is adopted.

The "conservation values" of the corridor are defined in the conservation easement as follows:

> ***"The Property possess natural, scenic, open space, historical, educational, wildlife, trail and recreational values (collectively, "Conservation Values") of great importance to Grantor, and, in particular, the people of Pitkin, Eagle and Garfield Counties, the Cities of Aspen and Glenwood Springs, and the Towns of Snowmass Village, Carbondale and Basalt, and the People of the State of Colorado."***

Paragraph 5.c. of the Conservation Easement outlines 12 requirements that the Comprehensive Plan must fulfil in order to be considered for approval by the State Board of the Great Outdoors Colorado Trust Fund (GOCO) and the Colorado Department of Transportation (CDoT). Listed below are the 12 requirements and an explanation of how the Comprehensive Plan addresses these requirements:

1. *"Location of both a permanent continuous public recreation trail running along the entire length of the property and the location of a continuous interim trial within the Pitkin County portion of the Property, in accordance with Ordinance 97-7, as amended, of the Board of County Commissioners*

of Pitkin County and the location of an interim trail outside of Pitkin County;"

Exhibit A, Recreational Trails Plan, provides a map and written description of a continuous, permanent trail within the corridor. In addition, an interim trail within Pitkin County is also shown on the mapping. It is proposed that the permanent trail alignment shown on the map be used to place an interim trail on the corridor outside of Pitkin County. This interim trail will consist of a 4- to 6-foot wide dirt surface and/or 10-foot wide paved surface cross-section.

2. "location and description of trailhead facilities;"

Further shown on the mapping and described within Exhibit A, Recreational Trails Plan are locations for potential trailheads along the corridor. Exhibit A also depicts a typical site plan for the trailheads on page 10.

3. "identification of public access points over the Property for the purpose of gaining access to the Roaring Fork River and other public lands along the Property for public recreation;"

Included on the mapping in Exhibit A Recreational Trails Plan are potential points of access to the Roaring Fork River and federal lands. Access to federal lands are depicted as green, dashed arrows on the mapping. Access to the river are depicted as fish symbol with the letter "R" on them.

4. "description of proposed wildlife and environmental education programs on the Property;"

Attached as Exhibit E is a document entitled Reading the Roaring Fork Landscape: An Ideabook for Interpretation and Environmental Education. This document outlines RFRHA future efforts to conduct wildlife and environmental education programs on the corridor. Interpretive elements are also discussed within Exhibit A Recreational Trails Plan on pages 12 and 13.

5. "a signage plan for all activities to be developed within the Property;"

A signage plan is discussed and presented within Exhibit A Recreational Trails Plan on pages 12 and 13.

6. "location and existence of historic structures or areas;"

Within Exhibit D: 1) is a memorandum dated September 2, 1999 from MK Centennial Engineers. On page 6, paragraph 12, of this memorandum, seven potential historic sites are identified. These potential sites are:

a. The old D&RGW Railroad bed (milepost 360.91 – 393.33);

b. Town of Basalt (indirect, milepost 383.0 – 384.0);
c. The Town of Catherine (indirect, milepost 376)
d. The Town of Rathbone (indirect, milepost 393);
e. The Satank Bridge (County Road Bridge, milepost 371.48);
f. The Emma Historic District (indirect, milepost 381.92);
g. The Glenwood Ditch (indirect, milepost 393-394).

7. "a biologic inventory of the Property to amend and update the Baseline Documentation;"

Attached as Exhibit D: 2) Environmental/Biologic Inventory for the corridor. This information is also summarized within the Criteria matrix and explanatory memorandum found within Exhibit D: 1). The inventory discussed within these Exhibits describes potential impacts of the transit and trail systems on wetlands, wildlife movements, river crossings, noise levels, vehicle miles traveled, flora and fauna, water quality, fisheries and energy use.

8. "identification of criteria to be considered in implementing the Comprehensive Plan to protect and preserve the Conservation Values of the Property to the extent reasonable and practical;"

The Roaring Fork Railroad Holding Authority is committed to uphold the values and goals of the Conservation Easement on the property. To that end, the following criteria will be used by RFRHA for evaluating proposed plans for uses of the corridor. These criteria will take the form of a policy statement and shall government the RFRHA's Board of Director and staff in their decisions regarding the development of uses on the property:

Natural Values of the Corridor:

- The degree to which a proposed use disturbs or otherwise changes the natural, existing topography, vegetation and landscape of the corridor will be considered and mitigated in the area(s) where the use will be placed.

- The degree to which the proposed use will enhance or improve the existing site conditions so that they better conform to the surrounding topography, vegetation and landscape of the corridor will be considered when reviewing a proposed use.

Scenic Values of the Corridor:

- No new above-ground structures or buildings shall be allowed on the corridor other than those proposed as a part of the rail or trail/recreational uses defined within the Comprehensive Plan.

- No new roads or other surface disturbances shall be allowed other than those proposed within the Comprehensive Plan.

- RFRHA will request that future development on adjacent lands consider the scenic values of the corridor when designing development proposals for approval by local land use authorities.

Historical Values of the Corridor:

- New uses will consider the historical nature of adjacent properties and the rail corridor itself when final design of improvements for those uses are developed.

- Interpretive and informational signing regarding historical community assets will be placed as a part of the trail and recreational improvements.

Educational Values of the Corridor:

- RFRHA shall encourage educational use of the corridor whenever feasible, provided that this use is passive in nature and does not leave permanent impact or change to the property.

- Interpretive and informational signing regarding educational attributes of the corridor shall be pursued as a part of the trail and recreational improvements.

Wildlife Values of the Corridor:

- Impacts of the use of the property on wildlife habitat and migration corridors will be avoided or mitigated if necessary. Mitigation will be provided at the cost of the use that impacts wildlife sensitive portions of the corridor.

- Wildlife viewing opportunities will be pursued by RFRHA and adjacent property owners agreeable to such activities.

- No hunting will be allowed on the property. **Proper hunting safety procedures and protocal shall be observed when using the corridor for hunting access to adjacent public or private lands.**

Trail and Recreational Values:

- The trail plan described within the Comprehensive Plan will be pursued by RFRHA with the goal of completing a trail on the corridor by 2010.

- Access to the Roaring Fork River and adjacent public lands will be opened to public use whenever practicable.

9. "description of structures and facilities necessary to place and operate a rail transportation system and their location within the Property;"

Exhibit C Summary of Draft Environmental Impact Statement, and Exhibit D, items 1), 3), 4), 6), 7), and 8) describe the required structures and facilities necessary to place and operate rail transit within the corridor.

10. "the identification of all areas other than Pitkin County where the Property will not support both trail and rail uses (In these areas the Comprehensive Plan will identify alternate routes for trails);"

Based on Exhibit A: Recreational Trails Plan, it is possible to place both a trail and rail transit within the entire length of the corridor. There is a section just south of Glenwood Springs (milepost 362.7 – 363.8) where topography and proximity to Highway 82 make it difficult and somewhat detrimental to the environment to place the trail in the corridor. In this area, an initial, alternate route has been found between 23rd Street in Glenwood Springs and Garfield County Road #154 (Buffalo Valley). This alternate route would leave the railroad right-of-way and follow the Atkinson Ditch along the Roaring Fork River. The alternate route will avoid potentially adverse impacts and would provide a better trail experience.

11. identification of all utility easements and facilities, both underground and above surface, including, but not limited to, telecommunications facilities; and"

Attached within Exhibit b: 1) is a listing of all utility easements and facilities currently located within the railroad right-of-way.

12. "a detailed improvements and operations plan for all uses, including a management and funding strategy."

An improvement plan for the trail element of property use can be found within Exhibit A: Recreational Trails Plan, Sections 4. Trail System Elements, 5. Trail Descriptions and 6. Phasing Recommendations. Section 7 of this document addresses management, maintenance and operations envisioned for the recreational use of the corridor. Development and management of the valley-wide trail is both a local and regional endeavor with local segments forming the most heavily used portions. An effective operating relationship between the local participants is essential for funding and implementation of trail improvements in a reasonable timeframe. The organization of a management entity with overall responsibility for trail funding, implementation and perpetual management makes the most sense in the long term. One approach would be to extend and maintain the existing Intergovernmental Agreement authorizing RFRHA to provide this

management function. Another approach would be to form a non-profit corporation with tax-exempt status and a Board of Directors.

Costs for the initial, ultimate and Pitkin County interim trail are provided within Section 8 of Exhibit A: Recreational Trails Plan. Funding will likely come from a variety of local, state and possibly federal sources, with the local funding representing the "local match" for state or federal cost sharing. Local funding can come from general or recreation funds already established within the local entities and/or from the formation of a recreation or transportation district.

The transit system selected for the corridor envisions a commuter or light rail system in the rail right-of-way from Glenwood Springs to Carbondale. At the Catherine Store Road east of Carbondale, the preferred system would leave the railroad right-of-way and cross over to the Highway 82 alignment to more directly serve El Jebel and Basalt. East of basalt, the transit system would again connect with the railroad right-of-way and continue up the valley to the Gerbazdale area. Here, the transit system would again cross over to the Highway 82 alignment and follow it into Aspen. Nine stops are anticipated with service every half-hour throughout the day and evening.

Management of a transit system in place on the corridor must be under the supervision of a regional or rural transportation authority. The state legislature has passed enabling legislation to allow for rural transportation districts that can include some or all of participating counties. If approved by the voters, a rural transportation district can generate funding through a $10 vehicle license fee and a ¼-cent sales tax. It is anticipated that overall management will be the responsibility of a transit system will come from this rural transportation authority. Attached as Exhibit D: 9) is documentation describing the proposed rural transportation authority currently being considered by the local governments.

Included within Exhibit D: 3) are two documents that describe the funding strategy for the proposed transit system. The first is a one-page listing entitled "Capital Funding for the Rail Alternative". This listing shows the a possible mix of local, state and federal funding that could be used to fund the capital costs of a transit system. Currently, the funding is in place for 85% of the capital costs. However, nearly $28 million still needs to be raised in local funding to make the project a reality. Further included within Exhibit D: 3) is a memorandum dated September 10, 1999 that discusses the various funding options available to cover this 15% capital funding shortfall and ongoing operations/maintenance costs.

III. SUMMARY OF KEY FINDINGS OF THE RECREATIONAL TRAILS PLAN

The overall intent of the Recreational Trails Plan is to develop a trails and recreation plan for the corridor that provides a wide range of public recreational opportunities including trails, river access, wildlife viewing, habitat conservation and educational and interpretive activities.

The purpose of the Recreational Tails Plan is as follows:

- To provide a continuous trail between Glenwood Springs and Aspen on the railroad right-of-way that will be environmentally cleared through an Environmental Impact Statement (EIS) process;
- To meet the expressed community recreational needs;
- To develop trails programming and design principals that will provide a quality trail experience
- To plan for support facilities such as trailheads and parking;
- To minimize impacts on adjacent landowners;
- To develop implementation costs.

A summary of key findings within the Recreational Trails Plan is as follows:

Design Details: The plan describes an "initial" and "ultimate" trail design along the corridor. The intent of the initial trail is to establish a 3- to 6-feet dirt surface that will extend the length of the corridor. Establishment of this initial trail will allow for public access to the corridor in an expedient manner. The "ultimate" trail identifies what the facility may look like in the long term at final buildout. The plan envisions a 10-foot wide hard surface and a 4-foot wide soft surface as the platform for the ultimate trail. It is likely that the initial trail will be built as one project, connecting Glenwood Springs to Aspen with a multi-use recreational path. The Ultimate trail will likely be built in segments as demand warrants. For example, the ultimate trail will probably be constructed in and around the more urban areas of the valley (Carbondale, Glenwood Springs, and Basalt), with the rural areas being filled in as time progresses. However, there may be some rural areas that for various reasons such as safety or need, are built to the ultimate trail specifications more rapidly than others. A facility investment plan has been included as a part of the Recreational Trails Plan that prioritizes various segments of the alignment in an attempt to illustrate where and when construction of the ultimate trail makes the most sense.

The Recreational Trails Plan also defines the following policies with regard to trail design:

- Every attempt will be made to maximize separation of trail and transit on the corridor;
- Grade-separated intersections will be pursued where the trail crosses the tracks or major public road crossings;
- Soft-surfaced pedestrian paths will be established from the trail alignment to public lands and the river where appropriate;
- A common theme for construction of trail amenities will be encouraged provided that local governments may modify these themes within their own jurisdictions;

- Natural , salvaged and recycled materials will be utilized during the course of trail and facility construction;
- The facilities will be designed for low maintenance and reduction of potential vandalism.

Trail Use: The trail will be designed and operated for multi-purpose use. Uses include walking, running, biking, skating, equestrian and cross-country skiing. The ultimate trail will be designed and operated with the potential for commuting in mind. Local entities will have control over use of the trail in their jurisdiction. No camping or open fires will be allowed on the railroad corridor.

Linkages: Every effort will be made to allow for easy, convenient and direct access to the trail. Connection to existing and proposed trails will be encouraged and coordinated. A regional recreational experience will be stressed as a part of the trail experience.

Environmental Impacts/Mitigation: The overriding goal of trail design and management will be to protect the natural quality of the railroad corridor. This will be done through minimization of impacts to the natural environment through design, management and education. Sensitive areas will be identified and mitigation measurements will be implemented where appropriate. This may include seasonal trail closures on portions of the right-of-way, for example.

Safety: Safety of the trail user and the adjacent landowners will be assured through design and management techniques. This will include providing adequate width to avoid user conflicts, situating trail access points so that they are sensitive to safety, and providing barrier protection where appropriate between trail and transit. Perimeter fencing is also proposed to reduce conflicts with livestock and wildlife. As mentioned above, grade-separated crossings at major intersections will be considered, as will solar-powered call boxes in rural portions of the corridor.

Implementation: Implementation of the overall trail system will be a regional effort that will include the local governments, state government and possibly the private sector. A collaborative final design process including all affected parties will be completed prior to construction of any segment of the trail. This process will include the public, local governments and interest groups.

IV. SUMMARY OF KEY FINDINGS OF THE ACCESS CONTROL PLAN

The overall intent of the Access Control Plan is to promote the stewardship of the corridor by the owner (RFRHA), adjacent property owners, the conservation and trail easement holder and the local governments. In addition, the plan strives to facilitate coordination between RFRHA and the local governments, the Colorado Department of Transportation, and the Colorado Public utilities Commission.

The purpose of the Access Control Plan is three-fold:

- To protect the health and safety of the public using the railroad corridor;
- To preserve the value of the transportation/recreation facilities by minimizing new crossings, ensuring safe operation and maintenance of existing crossings and consolidating crossing wherever practicable;
- To preserve the open space and trail values of the corridor by avoiding adverse impacts to the open space, recreation, scenic and wildlife values, by avoiding impacts to the public enjoyment of the corridor, and when impacts can not be avoided, mitigate those impacts to the greatest extent possible.

A summary of key findings within the Access Control Plan is as follows:

Policy for Existing Crossings: The plan acknowledges, to the best extent possible, all existing crossing on the corridor. It finds that there are at least 102 crossings, 37 public and 65 private. Changes to or creation of new, public crossings will be under the jurisdiction of the Colorado Public Utility Commission (CPUC). The CPUC has procedures in place to deal with proposed changes to or additions of public crossings. Private crossings under RFRHA control will be allowed by permit as opposed to easement or license, and must meet the standards for construction defined within the Access Plan. Existing private crossings shall be allowed to continue on the corridor. If the existing crossing is already licensed, that license shall be adhered to unless it is mutually determined by the licensee and RFRHA that modification of the license is warranted. If an existing crossing is currently not licensed, or a change of use of the existing crossing is requested, the user of the crossing shall apply for a license or license modification under a permitting process administered by RFRHA.

Policy for New Crossings: New crossings of the railroad corridor shall be generally prohibited. There are exceptions to this policy, including:

- A new public street or road crossing, which is administered through the CPUC;
- A need for a new crossing to provide access to a private property that otherwise cannot be reasonably provided by an existing permitted crossing or another route (i.e. connection to an existing public road).

Parties interested in pursuing a new crossing under the exceptions stated above must apply for such a crossing through either the CPUC procedures or through the permitting procedure administered by RFRHA. It is the burden of the party proposing a new crossing is necessary under the hardships described above.

If a new crossing of the corridor is pursued, the following standards shall be followed:

- A grade-separated crossing will be preferred;

- The new crossing must be shown to have no adverse impact to rail operations or to the trails and open space values of the corridor.
- Consolidation of existing crossings may be required as a part of any approval of a new crossing;
- Coordination with local agencies will be a part of the review/approval process.

Policy for Crossing Consolidation: Consolidation of existing crossings is an effective method of reducing conflicts on the railroad corridor. To that end, RFRHA will encourage the consolidation of existing crossings wherever and whenever practicable. RFRHA may also require crossing consolidations as a part of any new crossing application, proposed development activity, or in conjunction with joint railroad/other transportation facility improvements. For example, if a commuter transit improvement is conducted on the railroad property, some public road crossings may be consolidated as a part of the public works project.

Opportunities for Crossing Consolidation: Opportunities for crossing consolidation will be based on the following criteria:

- Minor crossings within ½-mile of each other;
- Major crossings within 1-mile of each other;
- "Paper" crossings (i.e. crossings that are licensed but are not physically located on the corridor);
- Private crossings where alternative access to public roads are available;
- Crossings that can be combined via frontage roads.

The corridor mapping included within the Exhibit B: Access Plan shows crossings that are suitable for potential consolidation under these criteria. RFRHA will pro-actively pursue crossing consolidation by meeting with license holders individually, evaluating potential consolidations on a case-by-case basis based upon transportation, trail and open space values, conducting safety analysis where applicable, and monitoring development activity on adjacent private lands.

Permit for Crossings and Consolidations: **RFRHA currently requires private interests who are desirous of crossing or otherwise utilizing the corridor to obtain permission to do so from RFRHA. Attached as Exhibit B-2 is the permit form entitled "Notice of Intention to Undertake Rail Corridor Activities". This form will be used by RFRHA to review and approve/deny crossings and other uses of the rail corridor.**

V. SUMMARY AND KEY FINDINGS OF THE CORRIDOR INVESTMENT STUDY

The purpose of the Corridor Investment Study (CIS) is to determine the best, locally feasible, long-range regional transportation system for the Roaring Fork valley. The CIS will also answer the questions posed in the Comprehensive Plan regarding transit on the railroad corridor.

A summary of key findings within the Corridor Investment Study is as follows:

Technology Alternatives: Through an intense public process, 46 technology options were considered. At the end, rail was selected as a "build" alternative for further study. The build alternative was compared to two other alternatives during the more detailed, Draft Environmental Impact Statement Process:

The "No-build" alternative, which looks at our transportation future with only projects that are currently approved or budgeted (also known as the committed projects alternative);

and the "Transportation Systems Management" (TSM) alternative that looks at improving the existing RFTA Bus system (also known as the Enhanced Bus alternative).

Alignment Options: Five potential alignments (A through E) were developed and combined with the rail/build and bus/TSM technology options. Each of the alignments followed either the railroad right-of-way or a combination of the right-of-way and the Highway 82 alignment. All five alignments survived the Phase 1 reality check and fatal flaw screening process. As a result of the Phase 2 comparative evaluation, Alignment C (with a crossing option at Catherine's Store, the northern crossing option at Gerbazdale and the Alignment B option south of Gerbazdale) was chosen for the rail/build alternative to be evaluated for the DEIS analysis. However, Alignment A, which follows the railroad corridor from Glenwood Springs to Woody Creek, will be considered in the Final Environmental Impact Statement process as a possible phasing alternative. All five alignment options are fully described and illustrated within Exhibit C: Summary of the Draft Environmental Impact Statement.

Propulsion Options: Of the 19 total propulsion options determined, eight were selected to be continued for detailed study. They include diesel, gasoline, hydrogen internal combustion, liquid propane, natural gas, electric battery, electric overhead catenary, and electric/gas hybrid.

Station Location Options: Sixteen potential station locations were determined through the initial screening process. Of the sixteen discovered, nine were carried forward into the DEIS for comparative purposes. They are:

- West Glenwood Springs
- Downtown Glenwood Springs
- State Highway 133 (Carbondale)
- Downtown Carbondale
- El Jebel/Willits Lane
- Basalt
- Brush Creek Road

- Pitkin County Airport
- Galena & Main St (downtown Aspen)

Significant Environmental Impacts: Through the Draft Environmental Impact Statement Process, The following environmental impacts were determined for the rail/build alternative:

Beneficial Impacts:

- Reduced air pollution
- Increased transportation capacity
- Safer transportation
- Improved quality of life
- Greater potential to concentrate growth through transit oriented development
- Increased transportation choices
- Reduction in buses

Adverse Impacts:

- Relocation of or encroachment on households and businesses
- Increased noise levels
- Potential for encroachment on bald eagle buffer zone
- New structures creating visual impacts

Public Involvement: An intense public involvement process, funded and staffed over and above the work conducted within the Draft Environmental Impact Statement process, was conducted by RFRHA. In addition to a nested task force/policy committee structure, open houses, public meetings, workshops, focus groups, elected official briefings, newsletters and media outreach programs were conducted.

Capital Costs: Capital costs for the rail/build alternative has been determined at $194 million. This cost was derived using Diesel Multiple Unit (DMU) trains running on Alignment C and stopping at the nine stations listed above. This cost also includes the feeder bus routes, park-and-rides and station improvements required.

Operation and Maintenance Costs: An annual operations and maintenance cost of $10.8 million for opening day, 2003 and $20.85 million for the year 2020 (planning horizon) was determined for the rail/build alternative. This cost is based on a transit schedule that operates every half-hour between 6:00 am and 12:00 am every day. These costs also include the feeder bus systems, stations and maintenance facilities. This cost does not include revenues obtained from fares.

Next Steps: After the Draft Environmental Impact Statement is published in January, 2000, a public comment period will begin on the DEIS that will last 90 days. Work on the Final Environmental Impact Statement will begin in March/April of 2000. The FEIS will respond to all of the comments brought forward during the public comment period and will also determine financing and governance for the system. As a part of the financing work, phasing of the system will also be considered. It is anticipated that a FEIS will be completed and a Record of Decision issued for the project by November, 2000. If the required local financing is accumulated and a regional entity capable of managing the system is approved by the voters by November, 2000, a system can be built and begin operating by September, 2003.

VI. CHANGES TO THE CONSERVATION EASEMENT REQUIRED BY THE COMPREHENSIVE PLAN

Based on the information and definition of uses contained within this Comprehensive Plan, it is recommended that the following modifications, additions or deletions to the scope of the Conservation Easement be approved by the RFRHA Board, member governments and participating state agencies:

Approved Uses. The following uses are determined to be appropriate for the property under the Comprehensive Plan:

Trail and Recreational Use: A regional trail, with associated side trails to access the river and public lands, trailheads and signage program as defined within Exhibit A: Recreational Trails Plan. In addition, placement of interpretive and environmental educational facilities as described within Exhibit E: Reading the Roaring Fork Landscape: An Ideabook for Interpretation and Environmental Education.

Rail Transit and Freight Use: Placement of all facilities, including trackage, stations and associated structures, for a rail transit system in some or all of the corridor, as described within Exhibit C: Summary of Draft Environmental Impact Statement and Exhibit D: Additional Technical Information as Requested Through the Local Decision Making Process.

Highway 82 Alternative Route: On October 21, 1999, the Glenwood Springs City Council adopted Resolution #99-11 designating the Railroad right-of-way from the Colorado River to the vicinity of 23rd and 27th Street as the preferred alternative route for Highway 82. In addition, Glenwood Springs' participation in RFRHA had been conditioned upon the possible use of the railroad right-of-way for an alternative route for Highway 82, provided that such an alternative route would not preclude the use of the right-of-way for rail or trail purposes. Attached as Exhibit F: City of Highway 82 Alternative Route is a copy of Resolution #99-11

and a copy of the conceptual study conducted by Glenwood Springs regarding the various bypass alternatives proposed.

The use of the railroad right-of-way for placement of a Highway 82 alternative route is still in the early stages of design. In addition, no funding for the project has been determined. The cost for construction of a Highway 82 alternative route along the railroad right-of-way is estimated at between $55 and $100 million. Pursing the ultimate placement of the Highway 82 alternative route is seen as a joint effort between Glenwood Springs and RFRHA. **Including the Highway 82 alternative route within the Comprehensive Plan, although anticipated by both parties during the purchase, in no way binds RFRHA to participating in any future funding of the planning or capital expenses related to construction.** As plans are refined and finalized, both partners will work together to insure that the project fulfill the mutual goals of each entity.

Anticipated Future Uses Appropriate to the Corridor: There are some emerging local issues in the Roaring Fork valley that may at some point in the future require the use of the corridor. Such use of the corridor will not impact the conservation values or the approved uses of the corridor, but could enhance the nature of the corridor as a public asset. Two such uses are public telecommunication and existing transit use.

It is becoming apparent that rural access to broadband telecommunications technology is to a large extent being ignored by the private sector, primarily because of it's poor economic return. As a result, rural areas may find themselves forced to provide their own access to this broadband technology if they want to keep pace with their urban counterparts. As a result of this need to stay abreast with new technology, it may be necessary for the railroad right-of-way to be available as a corridor for a future regional telecommunication system. Any use of the corridor for these purposes would likely come in the form of buried cable or fiber optic lines, and should not be undertaken unless it is a part of an overall regional telecommunication master plan. **Any physical undergrounding of utilities in the corridor shall be subordinate to existing and future planned transportation and recreation uses of the corridor.**

Another possible future use of the property could be for placement of facilities needed under existing transit use prior to implementation of rail transit. Use of portions of the right-of-way, as designated within Exhibit D: 4) Transit Oriented Development Study, could be used for existing or enhanced transit. This use of the property will consist of park-and-rides and/or stations for bus improvements to facilitate existing Roaring Fork Transit Agency (RFTA) bus service or to facilitate the Enhanced Bus/TSM transit alternative if this alternative is carried forward as a phasing option within the Record of Decision (ROD).

Any future anticipated use of the corridor deemed appropriate by the RFRHA Board will be reviewed, discussed and considered for adoption into the Comprehensive Plan under the methodology described below.

Removal of the Access Plan from the Conservation Easement: Because the Access Plan sets out policies, standards and procedures for existing and new crossings, as well as for consolidation of crossings, the oversight and approval of crossings on the corridor can now be managed by RFRHA.

~~Physical~~ Modification of the Conservation Easement/Restriction: The conservation values of the corridor are defined as being the natural, scenic, open space, historical, educational, wildlife, trail and recreational values. The Comprehensive Plan addresses and preserves all of these values with the exception of the natural and ~~open space~~ **wildlife** values. The conservation easement, which now covers the entire corridor, is reduced in physical scope to cover only those areas where natural features, such as riparian areas, critical wildlife habitats and prime wetland areas. **With this reduction in size, the conservation easement may be modified to become a restriction or covenant on the property. The boundaries of the reduced conservation easement/restriction are described within Exhibit G.** The criteria proposed to protect the conservation values on the remainder of the corridor can be used by RFRHA to govern use (or non-use) of the property in the future.

Retention of the Trail Easement: It is proposed that the trail easement be retained by the easement holder. The trail easement will burden the entire property until the trail is actually placed, at which time it will be reduced to a 20-foot wide easement, 10-feet either side of the centerline of the trail.

Procedure for Modification to the Comprehensive Plan: Every five years, the RFRHA Board shall review the Comprehensive Plan and make changes to it if deemed necessary. In addition, RFRHA staff or Board members may propose to initiate a modification to the Comprehensive Plan because of a perceived need to do so. The RFRHA Board must approve the initiation of the modification process before it is to proceed. After approval to proceed, any amendment to the Comprehensive Plan will be initially drafted and presented to the Board. After receiving comments from the RFRHA Board, the draft will be distributed to all member governments, including Great Outdoors Colorado and The Colorado Department of Transportation, for their comments. A final draft of the amendment(s) will then be brought back to the RFRHA Board for their final acceptance. Once accepted by the RFRHA Board, the amendment(s) will be sent back to the member governments for their ratification. All member governments must approve of the amendment(s) before they are incorporated into the Comprehensive Plan.

Transferability of the Comprehensive Plan: In the Intergovernmental Agreement forming RFRHA, it is anticipated that ownership of the rail corridor

may be transferred to another public agency. If this is the case, the Comprehensive Plan will be tied to the property and will transfer with property ownership to that new ownership entity.

Roaring Fork Railroad Access Control Plan

Final Draft

Glenwood Springs to Aspen

PREPARED FOR

Roaring Fork Railroad Holding Authority

PREPARED BY

otak

June 24, 1999

Introduction

This document contains the proposed Access Control Plan for the Roaring Fork Railroad Holding Authority (RFRHA). The plan area covers the Roaring Fork Railroad corridor between Glenwood Springs and Aspen, Colorado. The plan is intended to implement the planning requirements of the Great Outdoors Colorado Conservation Easement, and contribute to the Comprehensive Plan for the Roaring Fork Railroad.

The Access Control Plan is comprised of the following four parts:

- Part I Policy for Managing Railroad Crossings
- Part II Railroad Access Control Plan Maps
- Part III State Highway 82 Access Control Plan Map
- Part IV Appendices (Design Specifications, and Supporting Technical Memoranda)

It will be necessary for RFRHA, Colorado Department of Transportation, and local jurisdictions in the plan area to enter into intergovernmental agreements to implement the Access Control Plan.

Part 1 – Policy for Managing Railroad Crossings

Part I - Policy for Managing Railroad Crossings

Sections:

1.0 Title.
2.0 Purpose and Intent.
3.0 Authority.
4.0 Jurisdiction.
5.0 Interpretation, Conflict, and Separability.
6.0 Amendments.
7.0 Existing Crossings Defined.
8.0 New Crossings Defined.
9.0 Owner Defined.
10.0 Responsibility for Crossings.
11.0 Design Standards for Up-Grading Existing Crossings.
12.0 Consolidation of Crossings.
13.0 Crossing Improvements and Maintenance (Existing Crossings).
14.0 Crossing Repair Permits.
15.0 Closure of Crossings and Alternatives to Closure.
16.0 RFRHA Fees for Maintenance and Repair of Crossings.
17.0 Policy and Design Standards for New Crossings.
18.0 Permits for New Crossings and Consolidations.
19.0 Adjustments to Standards.
20.0 Coordination of Development Review With Local Jurisdictions.

Part I- Policy for Managing Railroad Crossings.

Continued

1.0 Title.

This Policy shall officially be known, cited, and referred to as the Policy for Managing Crossings of the Roaring Fork Railroad Holding Authority, hereinafter "this Policy".

2.0 Purpose and Intent.

A. The purpose of this Policy is to:

1. Protect the health and safety of rail passengers, railroad employees and service personnel, and those using adjacent property.
2. Minimize the number of new road crossings over the railroad.
3. Ensure the safe operation of existing railroad crossings, and require maintenance thereof.
4. Consolidate existing railroad crossings when practicable.
5. Implement the Conservation Easement objectives, by avoiding adverse impacts to the open space, recreation, scenic and wildlife values of the corridor, and adjacent lands that add to the scenic value and enjoyment of the corridor. When adverse impacts cannot be avoided, they shall be mitigated to the extent practicable.

B. This Policy is intended to promote stewardship of the railroad by the Roaring Fork Railroad Holding Authority (RFRHA), adjacent property owners, and the Aspen Valley Land Trust, in cooperation with local governments. It is also intended to facilitate coordination with the requirements and review procedures of other permitting agencies, including but not limited to Colorado Department of Transportation (CDOT) and the Public Utilities Commission (PUC).

3.0 Authority.

The Roaring Fork Railroad Holding Authority Board of Directors, hereinafter "Board", is vested with the authority to review, approve, conditionally approve and disapprove applications for construction, reconstruction, realignment, consolidation, and modification of railroad crossings. The Board's authority emanates from intergovernmental agreements, adopted pursuant to Section 29-1-ZO.l C.R.S.

Part I - Policy for Managing Railroad Crossings

Continued

4.0 Jurisdiction.

This Policy applies to all railroad crossings located within the Roaring Fork Railroad Right of Way and Easement.

5.0 Interpretation, Conflict, and Separability.

A. *Interpretation.* In their interpretation and application, the provisions of this Policy shall be held to be the minimum requirements for the promotion of the public health, safety, and general welfare. This Policy shall be construed broadly to promote the purposes for which it is adopted.

B. *Conflict.*

1. *Public Provisions.* This Policy is not intended to interfere with, abrogate, or annul any other ordinance, rule or regulation, statute, or other provision of law except as provided in the Policy. Where any provision of this Policy imposes restrictions different from those imposed by any other provision of this Policy or any other ordinance, rule or regulation, or other provision of law, the provision which is more restrictive or imposes higher standards shall control.

2. *Private Provisions.* This Policy is not intended to abrogate any easement, covenant or any other private agreement or restriction, provided that where the provisions of this Policy is more restrictive or imposes higher standards or regulations than such easement, covenant, or other private agreement or restriction, the requirements of this Policy shall govern. Private provisions, when not in conflict with this Policy, shall be operative and supplemental to the Policy and determinations made under the Policy.

c. *Separability.* If any part or provision of this Policy or the application of the Policy to any person or circumstance is adjudged invalid by any court of competent jurisdiction, the judgment shall be confined in its operation to the part, provision, or application directly involved in the controversy in which the judgment shall be rendered and it shall not affect or impair the validity of the remainder of the Policy or the application of them to other persons or circumstances. The Board hereby declares that it would have enacted the remainder

of the Policy even without any such part, provision, or application which is judged to be invalid.

6.0 Amendments.

For the purposes of protecting the public health, safety, and general welfare, and consistent with the purpose and intent in Section 2.0, the Board may from time to time adopt amendments to this Policy in accordance with RFRHA procedures.

7.0 Existing Crossings Defined.

An "existing crossing" means a railroad crossing by a public street, private drive, trail, utility, or similar facility. Permitted crossings are those that are recognized by RFRHA as permitted, based on the following criteria:

A. The crossing had a license agreement, easement, or pending contract effective at the time of RFRHA's purchase of the railroad from Southern Pacific Transportation Company (List "A" on file with RFRHA); or

B. RFRHA, CDOT, and GOCO approved the crossing as a "proposed new crossing" at the time of the railroad purchase (List "B" on file with RFRHA); or

C. RFRHA has approved an access permit and the crossing has been constructed in accordance with the permit. This includes crossings initiated by RFRHA. (See also, "Policy for Reviewing New Railroad Crossings".)

D. All other crossings are considered encroachments. RFRHA is hereby authorized to remove or close encroachments, or take appropriate legal action to do the same. (See also, Section 15.0- Closure of Crossings and Alternatives to Closure.)

8.0 New Crossings Defined.

A "new crossing" means a new railroad crossing by a public street, private drive, trail, utility, or similar facility approved by RFRHA or the PUC (as applicable) which did not exist prior to the effective date of this Policy.

Part I - Policy for Managing Railroad Crossings

Continued

9.0 Owner Defined.

"Owner" means the owner of real property or the contract purchaser of real property of record as shown on the current assessment roll in the office of the county assessor; or the holder of an easement. Owners may include public bodies, as in the case of a street right-of-way, or a private entity (e.g., private land owners and utility companies).

10.0 Responsibility for Crossings.

A. *Public and Utility Crossings.* All public and utility crossings shall be maintained in good condition, and in a manner that does not conflict with railroad operations. The owner(s) of a public street or utility crossing shall be responsible for maintaining and repairing their respective crossing(s), and obtaining required permits from the Colorado Public Utilities Commission (PUC), RFRHA and any other applicable permit authority (e.g., local government or CDOT) prior to commencing such work. RFRHA shall be responsible for maintaining rail crossing signals, signs, gates, and associated hardware. The PUC is the permit authority for public crossings.

B. *Private Crossings.* RFRHA shall be responsible for repair and maintenance of private crossings and shall charge a fee to cover its costs, in accordance with Section 16.0. RFRHA is the permit authority for all private crossings.

C. *Construction Specifications.* RFRHA shall maintain general construction specifications for crossings, and use the specifications to determine compliance with this Policy. RFRHA shall provide copies of the specifications to any person upon request, and make the specifications available for public inspection during normal office hours.

11.0 Design Standards for Up-Grading Existing Crossings.

All crossings shall meet the minimum design standards in subsections A through D. An owner may be required to upgrade an existing crossing that does not comply with the design standards when a subdivision or site development is proposed, or when the crossing itself is proposed to be improved, realigned or reconstructed. RFRHA shall coordinate with local jurisdictions and the PUC to determine when improvements are required.

Part I - Policy for Managing Railroad Crossings

Continued

A *Grade-Separated Crossings.* RFRHA shall use the guidelines in subsections 1-6, below, in determining when an existing private crossing must be grade-separated. The standards may also be used by RFRHA in providing comments to the PUC to assist in the agency's review of public crossing requests. Public crossings are subject to review and approval by the PUC.

1. All collector streets, arterial streets, and highways (public streets) should be grade-separated when they exceed an exposure factor of 35,000 (number of trains daily times average daily traffic count); except that the exposure factor threshold may be increased to 75,000 for street crossings in areas with slower train speeds (e.g., within municipalities and unincorporated urban areas). In such areas, rail crossings are treated as streetcar type crossings, for purposes of analysis and in determining design standards.

2. Exposure factors are determined based on projected rail usage and trip generation rates published by the Institute of Transportation Engineers (latest edition of the ITE Trip Generation Manual), or other traffic forecasting model if approved by RFRHA.

3. Private streets and drives that meet the exposure factors in subsection 2, above, shall be grade separated, except as the standard may be modified under Section 19.0- Adjustments.

4. RFRHA or the PUC may require grade separation for crossings which have exposure factors less than the levels in subsections 2 and 3, above, when necessary due to unsafe site conditions(e.g., sight distance, road grades, accident history, etc.).

5. An exception to the grade-separation requirement may be approved for public streets (i.e., existing at-grade crossings may continue to exist) if a similar public street at-grade crossing in the vicinity is closed or consolidated, subject to PUC approval.

Part I - Policy for Managing Railroad Crossings

Continued

6. All grade-separated crossings shall comply with applicable RFRHA, CDOT, and County roadway standards, and provide for minimum clearancesin accordance with Table 1.

Table 1
Minimum Vertical and Horizontal Clearance
for Grade-Separated Crossings

	Vertical Clearance	*Horizontal Clearance*
Rail above highway	16.5 feet - from the bottom of the structure to a roadway surface	2 feet - from edge of travel lane to a concrete barrier. Distance may increase to include a roadway shoulder if required by the local or state roadway agency*
Highway above rail	22.5 feet - from top of rail to the underside of the track	8.5 feet - from the centerline of the fixed structure obstruction

Source of Rail Above Highway Clearance standards is CDOT. Source of Highway Above Rail Clearance standards is CPUC. Note: these are minimum standards. In some situations, greater clearance may be required to address unique site conditions. Required dimensions shall be determined through project design.

*Where a maintenance road is adjacent to the track there must also be room for the road under the structure. All vertical members of the structures adjacent to the rail must be designed to withstand crash loading from the train.

Part I - Policy for Managing Railroad Crossings

Continued

B. *Public At-Grade Street and Highway Crossings.* All public at-grade street and highway crossings require the following improvements, constructed and maintained in conformance with the details and specifications in Appendix A., and subject to review and approval by the Public Utilities Commission (PUC):

1. Cross-bucks with reflector tape, warning lights and bells;
2. Automated railroad protection gates to stop traffic from all directions;
3. Permanent audible warning device required at crossings in residential areas (i.e., where whistle ban is in effect); and
4. Approved platform with median to prevent driving around gates.
5. Signage and pavement markings on the roadway approach, in accordance with MUTCD, to identify the railroad crossing.
6. Other safety improvements as may be required by the PUC.

c. *Private At-Grade Vehicle Crossings.* Private at-grade vehicular crossings require the following safety improvements, constructed and maintained in conformance with the standard details and specifications in Appendix A.:

1. All private at-grade crossings shall provide an approved platform.
2. Private crossings with low projected traffic volumes (e.g., fewer than 50 average daily trips) and field approaches require stop signs and cross-bucks with reflector tape. Paved crossings shall also provide stop bars and pavement markings to identify the railroad crossing.
3. Private crossings with projected average daily traffic of between 50 trips and 450 trips shall provide cross-bucks with reflector tape, warning lights and bells, in addition to the stop signs, stop bars and pavement markings.
4. Private crossings with projected average daily traffic greater than 450 trips shall, at a minimum, comply with the standards for public at-grade Crossings (Sections A and B, above).

5. RFRHA may require safety features in addition to those identified in subsections 1-4 (i.e., grade-separated crossings, overhead mast arm lights, etc.), when necessary due to unsafe site conditions (e.g., sight distance, road grades, accident history, etc.).

D. *Trail Crossings.* Trail crossings of the railroad require PUC approval and shall comply with the Public Recreation Trail Plan. Grade-separated crossings are required, except that RFRHA may recommend approval grade-crossings when all of the following conditions are met:

1. Site constraints (e.g., slope, right-of-way/easement width, etc.) prevent development of a separated crossing;

2. The crossing is essential to implement the Public Recreation Trail Plan; and.

3. The at-grade trail crossing, at a minimum, provides: stop signs; cross-bucks; bells; and pavement markings for both directions of travel (when trail is paved). Other safety features such as z-crossings may be required as site conditions warrant. Construction and reconstruction of trail crossings shall comply with the Public Recreation Trail Plan and the details and standard specifications in Appendix A.

E. *Underground Utilities.* All existing underground utility crossings shall continue to be underground. Any above-ground utilities may continue to cross the railroad above ground, but shall comply with the vertical clearance standards in Table 1, as a minimum. Reconstruction of utility crossings shall comply with the details and standard specifications in Appendix A.

12.0 Consolidation of Crossings.

RFRHA encourages consolidation of existing crossings whenever practicable. RFRHA may require consolidation of private crossings (i.e., a private crossing with another private crossing; or a private crossing with a public crossing) when a new crossing is proposed adjacent to one or more existing crossings under the same ownership- or control; or when an opportunity for consolidation exists through a land division, joint railroad/other

transportation improvements, or proposed site development. Private crossings shall be consolidated when the criteria in subsections A through E, below, are met. (The criteria may also be used in recommending the consolidation of public crossings, subject to PUC approval.)

A. *Site Feasibility.* Consolidation is feasible based on site topography, existing parcel configuration and use, right-of-way, and property ownership; or can be made feasible through reasonable requirements (e.g. lot line adjustments, dedication of right-of-way, easements, grading, or other improvements).

B. *Out of Direction Travel.* The out-of-direction travel which would result is a reasonable trade-off for the safety benefit to be gained from the consolidation.

C. *State Highway 82.* Consolidation would not adversely impact operation or safety of State Highway 82. Access consolidations that affect Highway 82 shall also be subject to review and approval by the issuing authority as defined in the State Highway Access Code (Volume 2, CCR 601-1).

D. *Consistency with City and County Standards.* Access consolidations that require city or county land use approval, or require a street access permit from a local jurisdiction, shall also be subject to review and approval by the applicable local jurisdiction(s). See also, subsection C.

E. *Consistency with Conservation Easement.* Existing crossings shall be consolidated so long as the trail, open space, recreational, parks, and wildlife uses and values will not be impaired.

F. *Permit Required.* The owner shall obtain a permit in accordance with Section 18.0.

13.0 Crossing Improvements and Maintenance (Existing Crossings)

A. *Improvements.* Existing crossings may be improved either as part of a general railroad improvement initiated by RFRHA, or by separate proceedings. RFRHA shall determine the materials to be used and

specifications for all construction, in accordance with this Policy. Improvements shall require a permit in accordance with Section 18.0.

B. *Maintenance.* It is the duty of each owner to maintain their roadway approach in good repair. Maintenance shall include, but not be limited to, removing rocks, soil, vegetation and other material that may fall, slide, wash, or be placed onto crossing areas; and maintaining the railroad crossing free of other obstructions (e.g., snow storage, parked vehicles, equipment, etc.). RFRHA retains the right to undertake supplemental maintenance, as necessary, and shall be responsible for maintaining all crossing surfaces. See also, Section 16.0 - RFRHA Fees for Maintenance and Repairs.

14.0 Crossing Repair Permits.

RFRHA shall issue Repair Permits upon receiving a written or verbal request from a public entity or utility company seeking to repair grade-crossings (i.e., roadways and rail platforms within RFRHA right-of-way). The permit shall prescribe the kind of repair to be made, the material to be used, and specifications therefore. Any person desiring to construct or reconstruct a crossing shall first obtain a permit as prescribed in Section 18.0.

15.0 Closure of Crossings and Alternatives to Closure

RFRHA shall have the authority, per existing license agreements and easements (as applicable), to close private crossings. In order to further the public health, safety, and welfare, RFRHA will work cooperatively with property owners to identify options and alternatives to closure; e.g., crossing realignment, relocation, consolidation, grade separation, conditions on type of access, and similar measures, as appropriate. RFRHA will also work cooperatively with the PUC and local governments to resolve conflicts related to public crossings.

16.0 RFRHA Fees for Maintenance and Repair of Crossings

Owners shall pay an annual fee to RFRHA to cover the cost of maintenance and repair of crossings (i.e., crossing surfaces and equipment). The fees shall be based on projected annual maintenance, repair and replacement costs, and include overhead costs to administer the maintenance and repair program. The fee schedule shall be adopted by the RFRHA Board after a public hearing, and kept on file at RFRHA offices. In the event that an entity refuses or is unable to pay the annual fees, RFRHA may initiate

closure of the crossing in conformance with Section 15.0, or seek alternative dispute resolution.

17.0 Policy and Design Standards for New Crossings.

As a general policy, RFRHA seeks to minimize the number of railroad crossings to ensure the safe and efficient operation of the railroad and to avoid adverse impacts to the open space, trail, recreational, parks and wildlife uses and values of the corridor. New crossings generally are prohibited, except that they may be allowed for public street crossings when approved by the PUC, and private crossings may be approved by RFRHA when property access cannot reasonably be provided by an existing permitted crossing or another route. New crossings, when permitted, shall comply with the following standards in subsections A-B, below. Crossings may be improved either as part of a general railroad improvement initiated by RFRHA, or by separate proceedings. RFRHA shall determine the materials to be used and specifications for all construction, in accordance with this Policy.

A *Type I Crossing.* A Type I (Grade Separated) Crossing is the preferred type of crossing. This type of crossing may be permitted by the PUC for public crossings; and by RFRHA for private crossings when access cannot reasonably be provided by an existing permitted crossing, subject to the following standards:

1. The crossing is grade separated, and complies with the horizontal and vertical clearance standards in Section ll.A.6 (Table 1).

2. The crossing does not adversely impact the operation of the rail facility.

3. The crossing does not adversely impact the trail or open space values (recreation, wildlife, scenic), or such impacts are mitigated.

4. In the case where a roadway requires an access permit and railroad crossing approval (access to State Highway 82, county right-of-way, etc.), an access permit has been approved in accordance with the State Highway Access Code or local government standards, as applicable.

Part I - Policy for Managing Railroad Crossings

Continued

5. The applicant shall receive a crossing permit, in accordance with Section 18.0.

B. ***Type II Crossing.*** A Type II (At-Grade Crossing) may be permitted in areas where the train operates at slow speeds (i.e., a streetcar). Type II crossings may also be approved when the owner closes or consolidates existing rail crossing(s), and the new at-grade crossing complies with subsections 1 through 6, below:

1. *Overall Crossing Safety.* The consolidation and/or closure improves overall crossing safety in the vicinity;

2. *Improvements.* The new crossing provides the following improvements, constructed in conformance with the details and specifications in Appendix A:

   a. Cross-bucks with reflector tape, warning lights and bells;
   b. Automated railroad protection gates to stop traffic from all directions (except sidewalks and trails, which shall provide "Z-crossing or other acceptable safety measure);
   c. Permanent audible warning device required at crossings in residential areas (i.e., where whistle ban is in affect); and
   d. Approved platform with median to prevent driving around gates.
   e. Signage and pavement markings on the roadway approach, in accordance with the standards in Appendix A, to identify the railroad crossing.
   f. Other safety improvements as may be required by the PUC for public crossings.

3. *Permit for Consolidation.* The applicant shall receive a permit for consolidating crossings, in accordance with Section 18.0. PUC approval is required for public crossings and RFRHA approval is required for private crossings.

4. *Restriction on New Crossings to Serve New Parcels or Lots.* No new at-grade crossings will be permitted to serve any new parcels or lots. "New" means the lot or parcel was created (i.e., by plat or deed) after the effective date of this Policy. New at-grade crossings may be permitted to provide access to lots or parcels created prior to the effective date of this Policy if no other access is available.

5. *Denial of Private Type II Crossing.* RFRHA retains the right to deny an at-grade private crossing request if the crossing:

   a. Could be a grade separated crossing as listed in A above;

   b. Could be a combined with or eliminate other at-grade crossings as listed in B above;

   c. The crossing would adversely impact the operation of the rail facility;

   d. The crossing would adversely impact the trail, open space, recreation, wildlife uses or values of the rail corridor, and such impacts cannot be mitigated;

   e. Other reasonable means of access to the lot or parcel exist; or

   f. The crossing would impose an unusual and excessive burden on RFRHA (e.g., maintenance, repair, safety monitoring, or similar burden).

6 *Comments on Type II Public Crossing.* RFRHA may provide comments to the PUC recommending approval, approval with conditions, or denial of type II public crossing requests, based on findings of fact made in conformance with a-f, above.

18.0 Permits for New Crossings and Consolidations.

When a private crossing is located within RFRHA right-of-way, owners shall obtain permits from RFRHA prior to commencing work on rail crossing improvements and consolidations. When the crossing is located within CDOT right-of-way, owners shall obtain permits from both CDOT and RFRHA. When a public crossing is proposed, the owner shall obtain required permits from the PUC.) The following permit process applies only to RFRHA permits:

A *Applications.* Permit applications for private crossing improvements and consolidations within RFRHA right-of-way shall provide the following:

1. Complete application form. RFRHA shall keep a standard application form for crossing improvements and consolidations. The application form (available from RFRHA offices) shall provide address and contact information for the owner and his/her contractor(s).; contractor license/registration number(s); description of the proposed improvements; construction schedule; proposed traffic control measures; and other pertinent information as deemed necessary by RFRHA.

2. Application fee to cover the cost of processing the application. The fee schedule shall be adopted by the RFRHA Board, and kept on file at RFRHA offices.

3. Site plan prepared by a qualified professional (e.g., engineer, surveyor, planner, landscape architect). The site plan shall be drawn to a scale of at least 1 inch equals 40 feet. It shall list materials to be used, and provide section details and construction specifications in accordance with RFRHA standards. Applications for crossing consolidation shall include two site plans: one for the proposed crossing, and one for the crossing(s) to be closed.

4. The RFRHA Executive Director, or his/her designee, shall be responsible for deeming an application complete when subsections 1-3 are met.

B. *Approval Criteria.* Permits for private crossing improvements and consolidations shall comply with the following approval criteria:

1. All of the applicable standards of this policy and the specifications in Appendix A;

2. The State Highway Access Code, as applicable;

3. Any applicable local government land use and access permit requirements (e.g., permit to construct in the public way);

4. Conservation Easement requirements, including: avoidance of adverse impacts to the open space, recreational, parks, and wildlife uses and values of the railroad corridor to the extent practicable. This shall be accomplished through careful consideration of alternative access alignments, consolidations, construction techniques, materials, and appropriate mitigation measures (e.g., erosion control, landscaping, screening, buffering, etc.); and

5. Plans for crossings to be closed shall provide a permanent barrier in accordance with RFRHA specifications (Appendix A).

C. *RFRHA Review Process for Private Crossings.* The following review procedures shall apply to applications for private crossings (i.e., new crossings and consolidations). For public crossing application procedures, please refer to the PUC.

1. Upon receiving a complete application, RFRHA shall distribute copies of the application to the affected local government(s) (i.e., those with land use jurisdiction), the Pitkin County Open Space Board, and Aspen Valley Land Trust, as applicable, for review and comment. RFRHA shall notify by certified letter all property owners directly adjacent to the parcel for which a permit is requested that an application for crossing improvements and/or consolidation has been made. A copy of said notice shall be posted at RFRHA offices and at the proposed crossing location. Additionally, RFRHA shall cause the notice to be published in at least one local newspaper. Notices shall provide information on the proposal, how to

obtain copies of application materials, public meeting date and how to submit written comments. RFRHA reserves the right to make additional referrals as necessary to assist in its review.

2. RFRHA shall accept written comments on the application from agencies and other interested parties for a period of 30 days after the initial notice is posted at RFRHA offices.

3. The RFRHA Board shall conduct a public meeting within 45 days of the application being accepted as complete. At the hearing, the Board shall approve, deny, or approve with conditions based on findings of fact all complete applications. The Board may also continue the hearing, as necessary, to request additional information from the applicant or staff.

4. Notice of the Board's decision shall be mailed to the applicant, and copies of the notice shall be provided to affected local government(s), state agencies, and interested parties who request a copy of the decision. The Board's decisions are final, except that decisions may be appealed to the court with jurisdiction.

5. RFRHA shall keep files with all permit decisions and findings of fact.

19.0 Adjustments to Standards.

The RFRHA Board may approve adjustments to this Policy upon finding that an adjustment is necessary to protect the public health, safety or welfare. "Adjustment" means a modification, waiver, or exemption to a standard or procedure. RFRHA shall prepare a notice when adjustments are made. The notice shall contain findings of fact, and be kept on file at RFRHA offices.

20.0 Coordination of Development Review With Local Jurisdictions

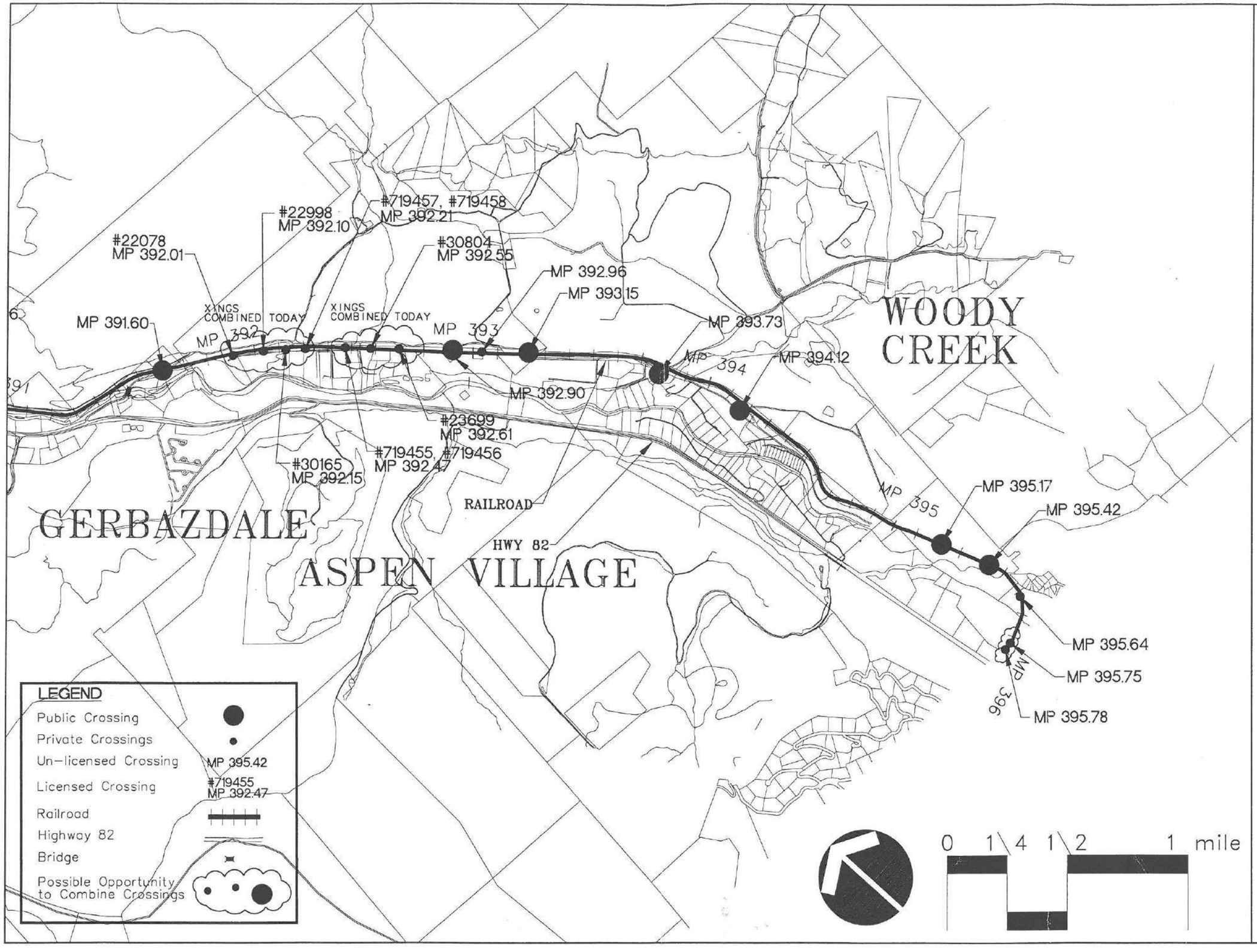
It is the policy of RFRHA to participate in the review of planning, zoning, and development applications, as necessary, to safeguard the interests of the railroad. RFRHA will coordinate with property owners, local governments, CDOT, and other affected agencies, in order to identify railroad crossing requirements at the earliest possible stage in the development review process (i.e., preferably before a formal application has been submitted to a local jurisdiction)., consistent with the Access Control Plan

Intergovernmental Agreement. Review by RFRHA staff of local planning, zoning, and development proposals does not imply approval of RFRHA permits. or local land use applications.

Part 2– Railroad Access Control Plan Maps

Part2
Railroad Access Control Plan Maps

Railroad Access Control Plan Maps are being distributed separately for the Final Draft of the Access Control Plan. The maps are hereby incorporated by reference.



RAILROAD ACCESS CONTROL PLAN

EXISTING KNOWN CROSSINGS

June 15, 1999

otak
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Lake Oswego, Oregon 97035
Phone: (503) 635-3618
FAX: (503) 635-5395

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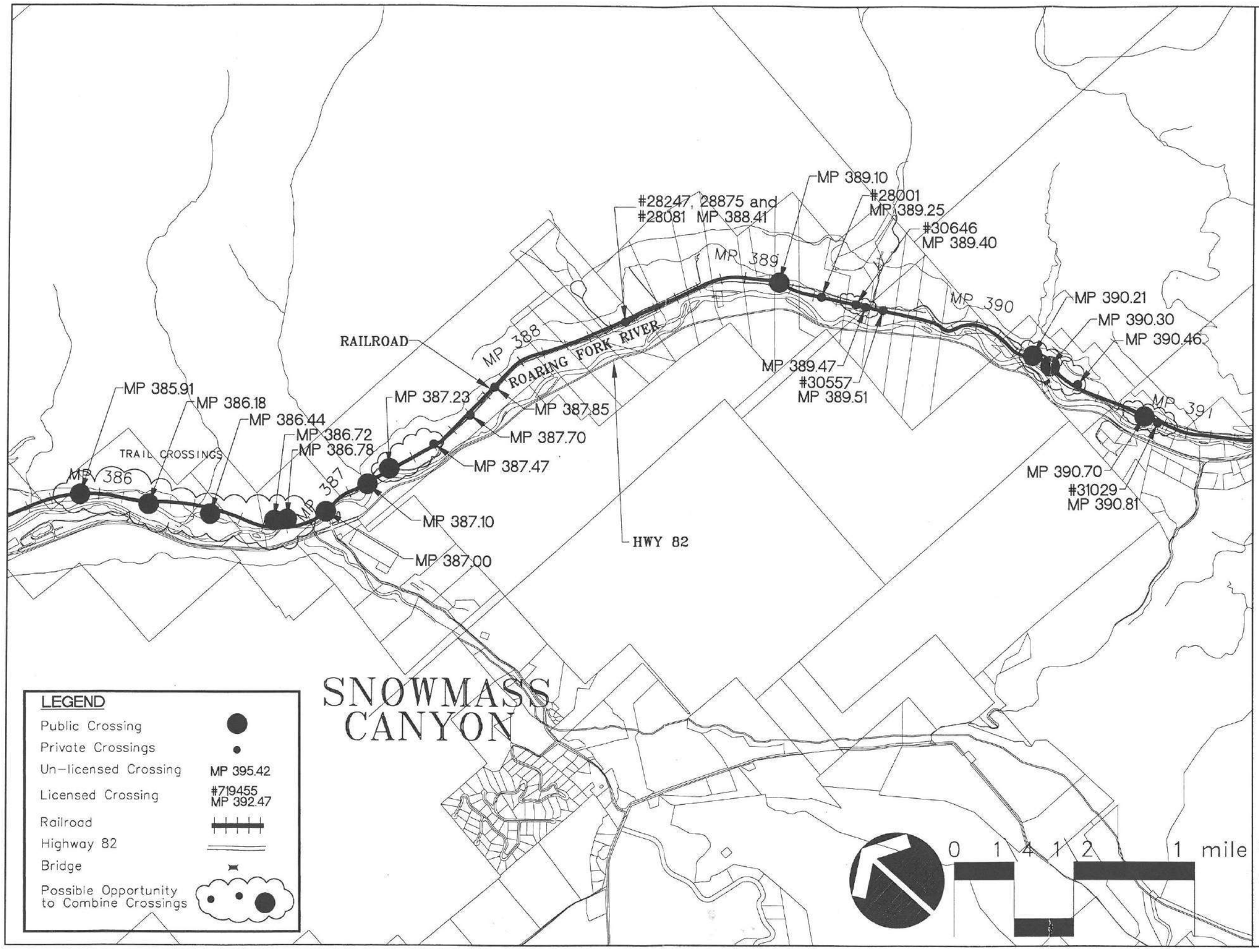

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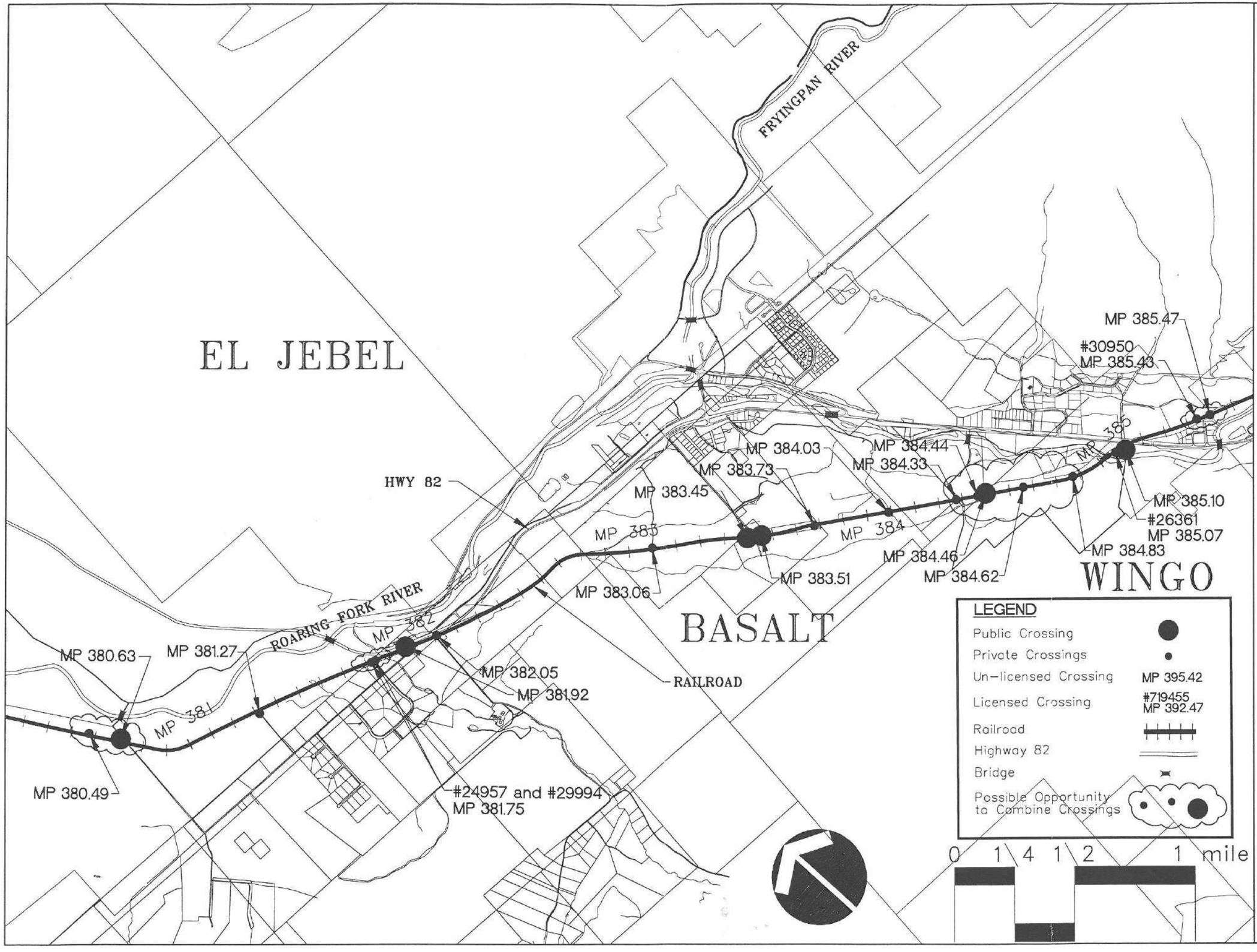

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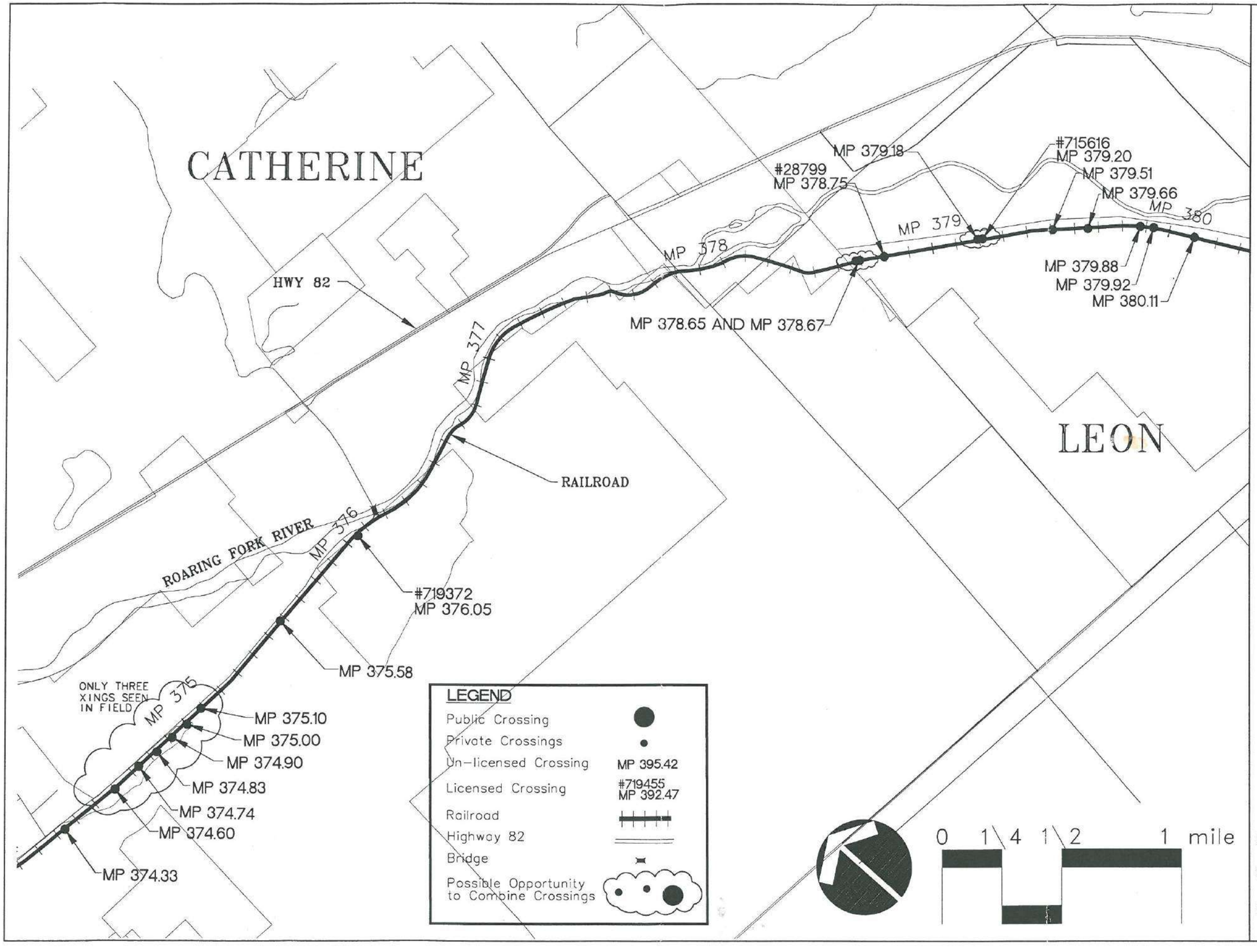

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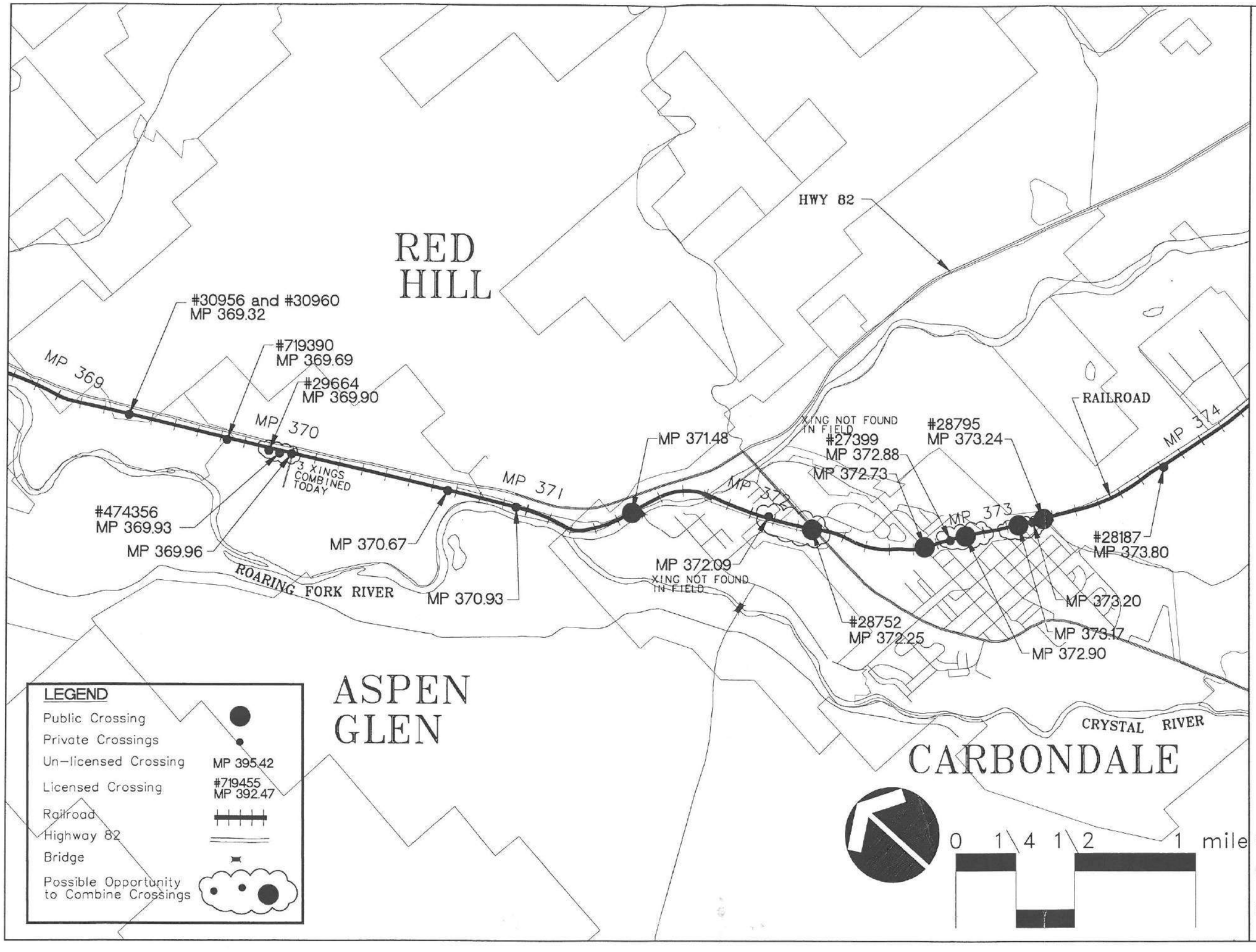

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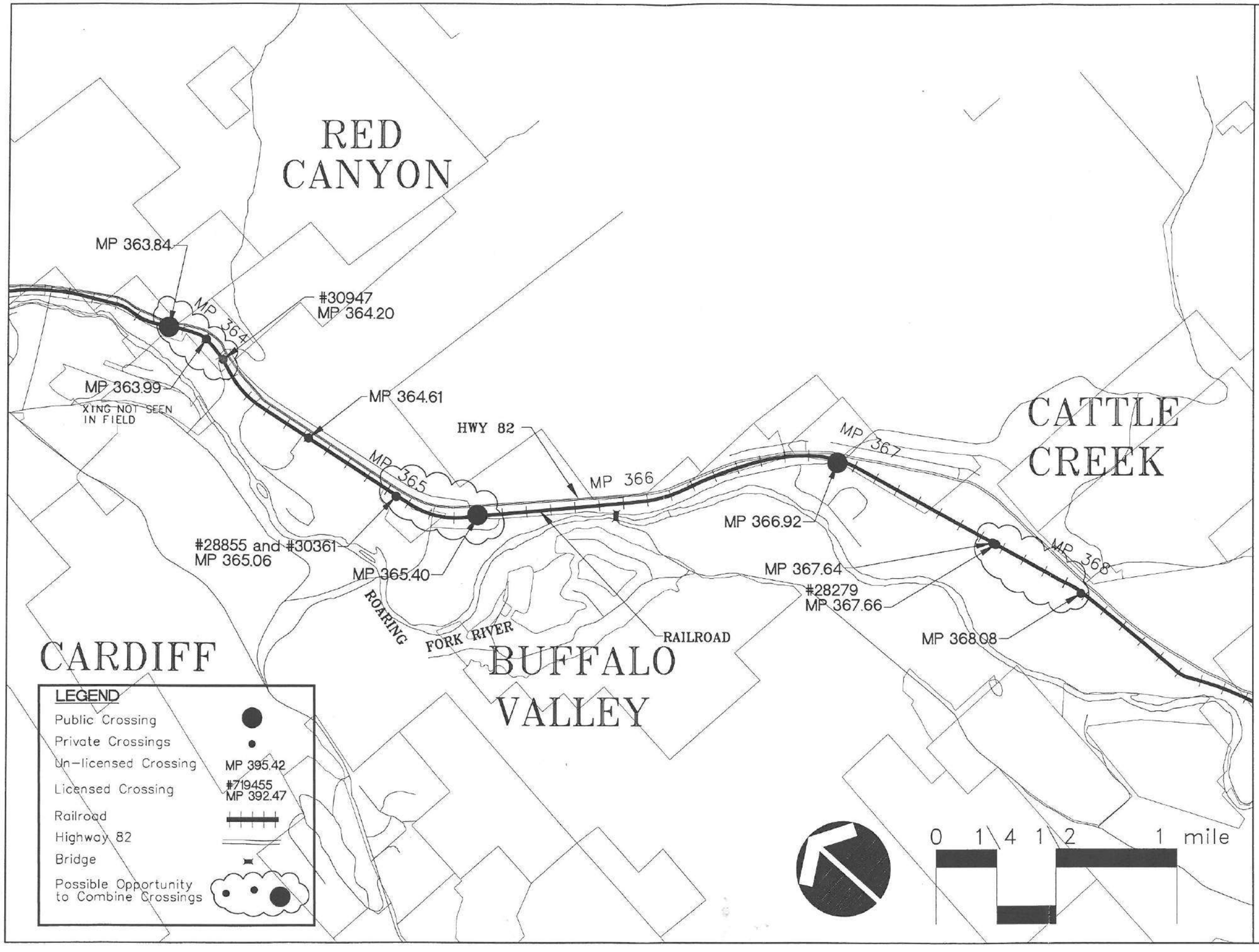

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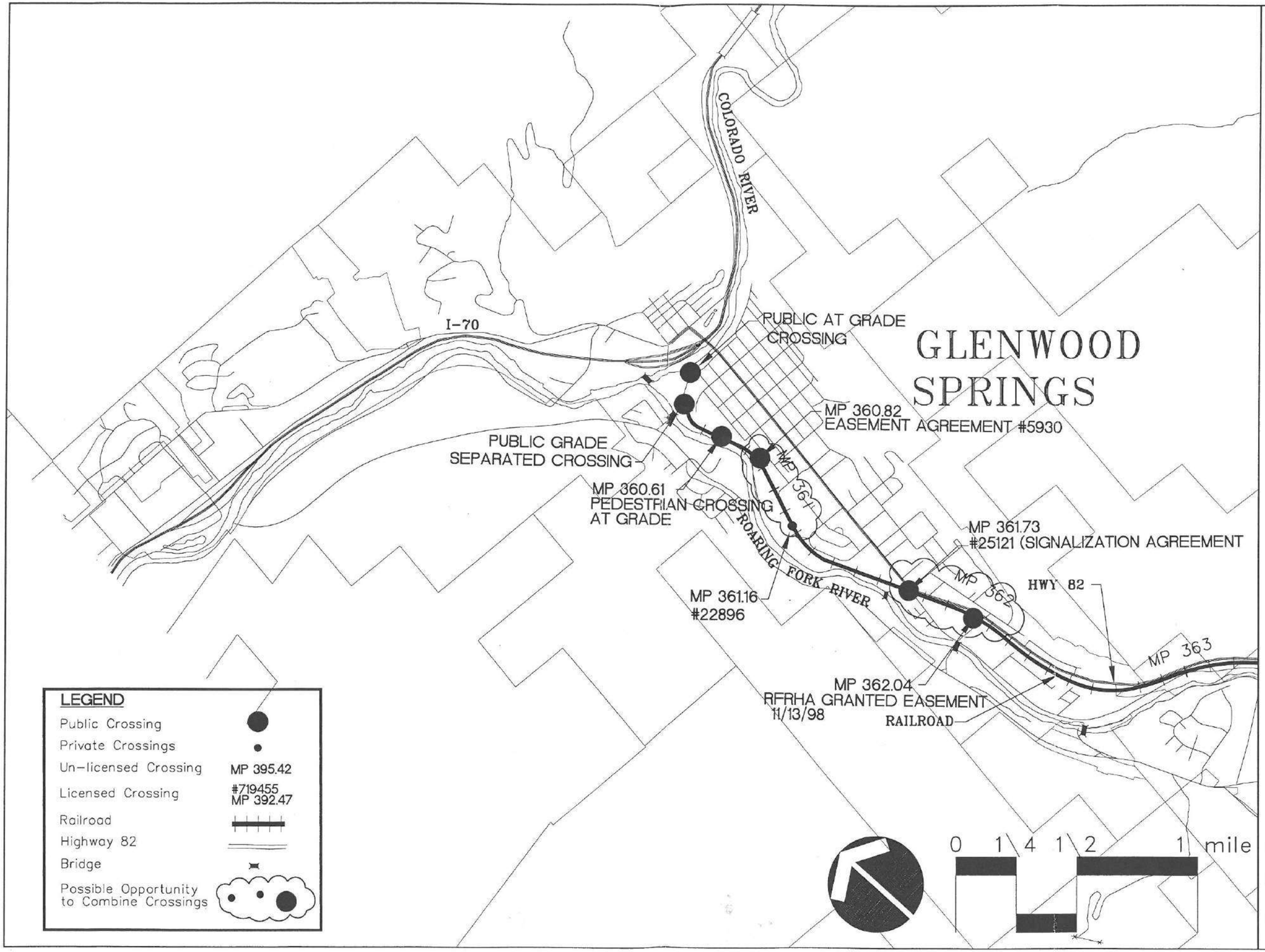

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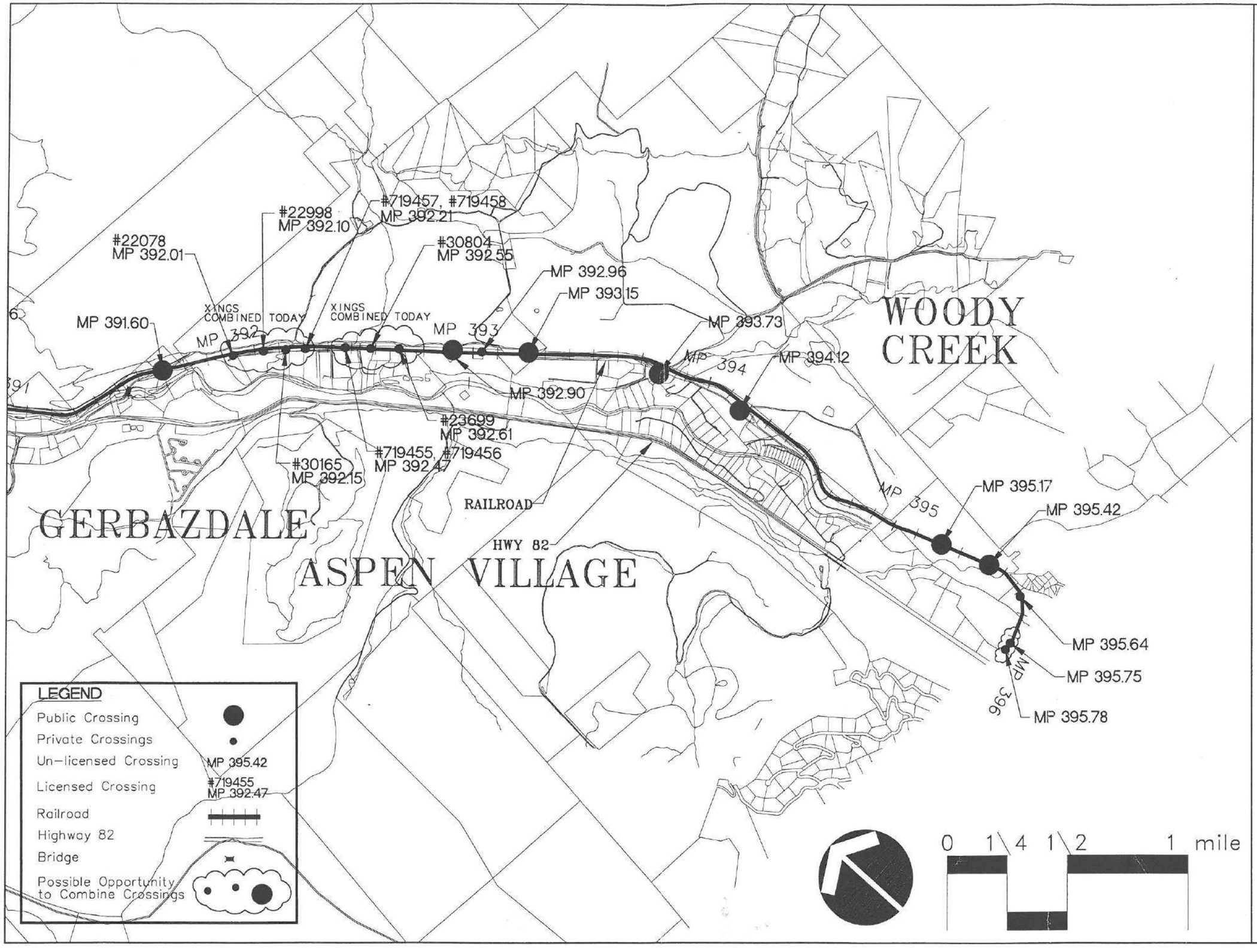
Part 3 – State Highway 82 Access Control Plan Maps



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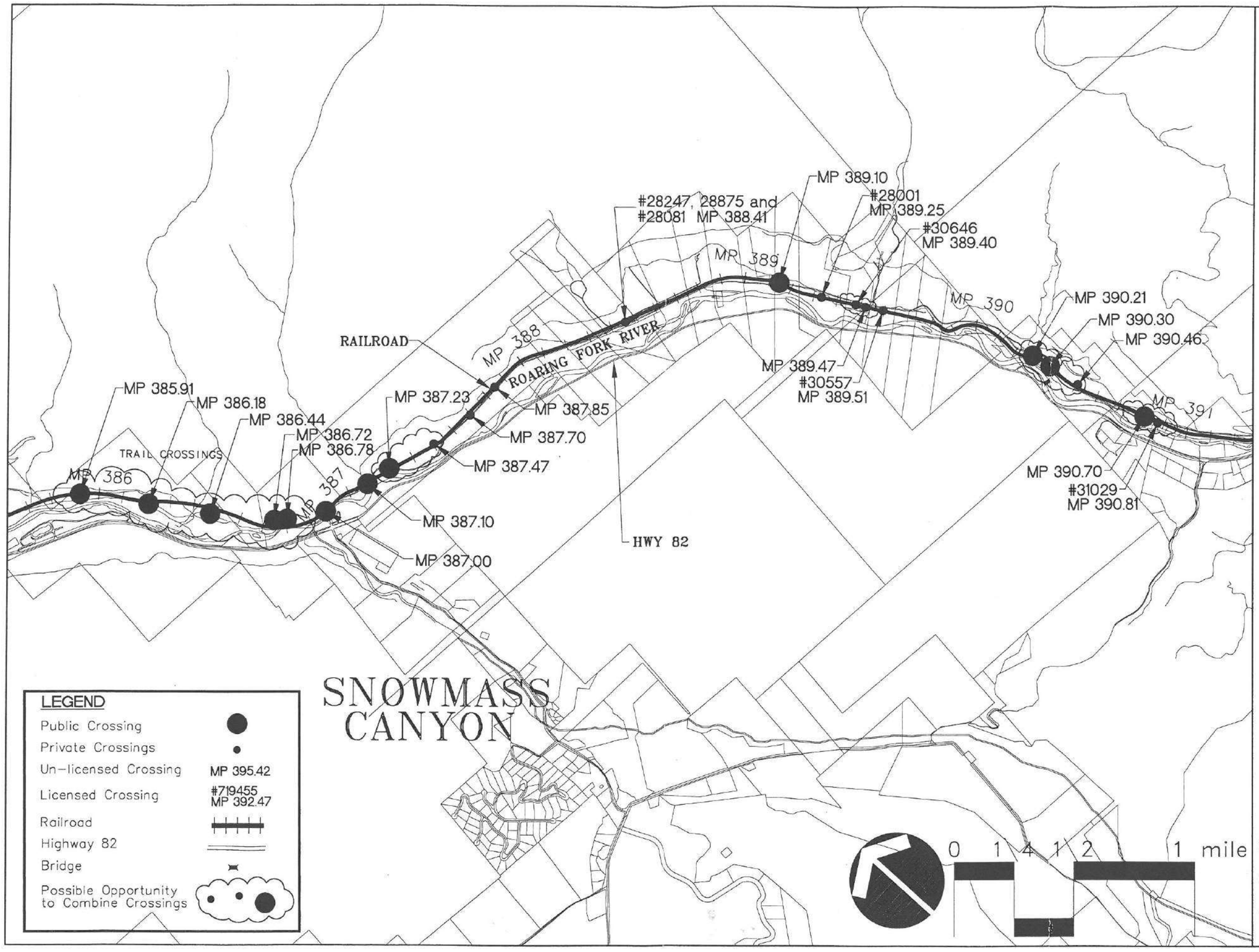

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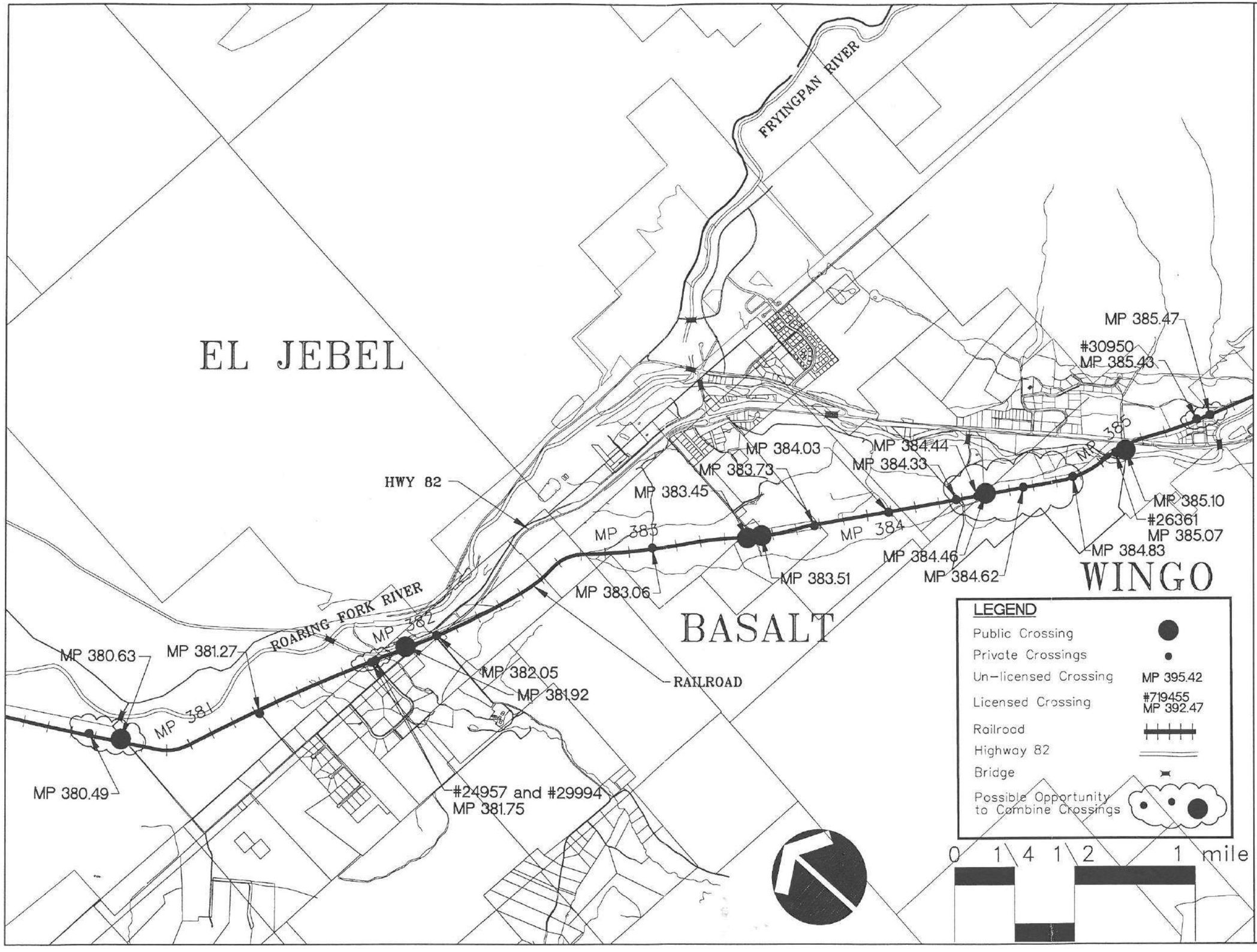

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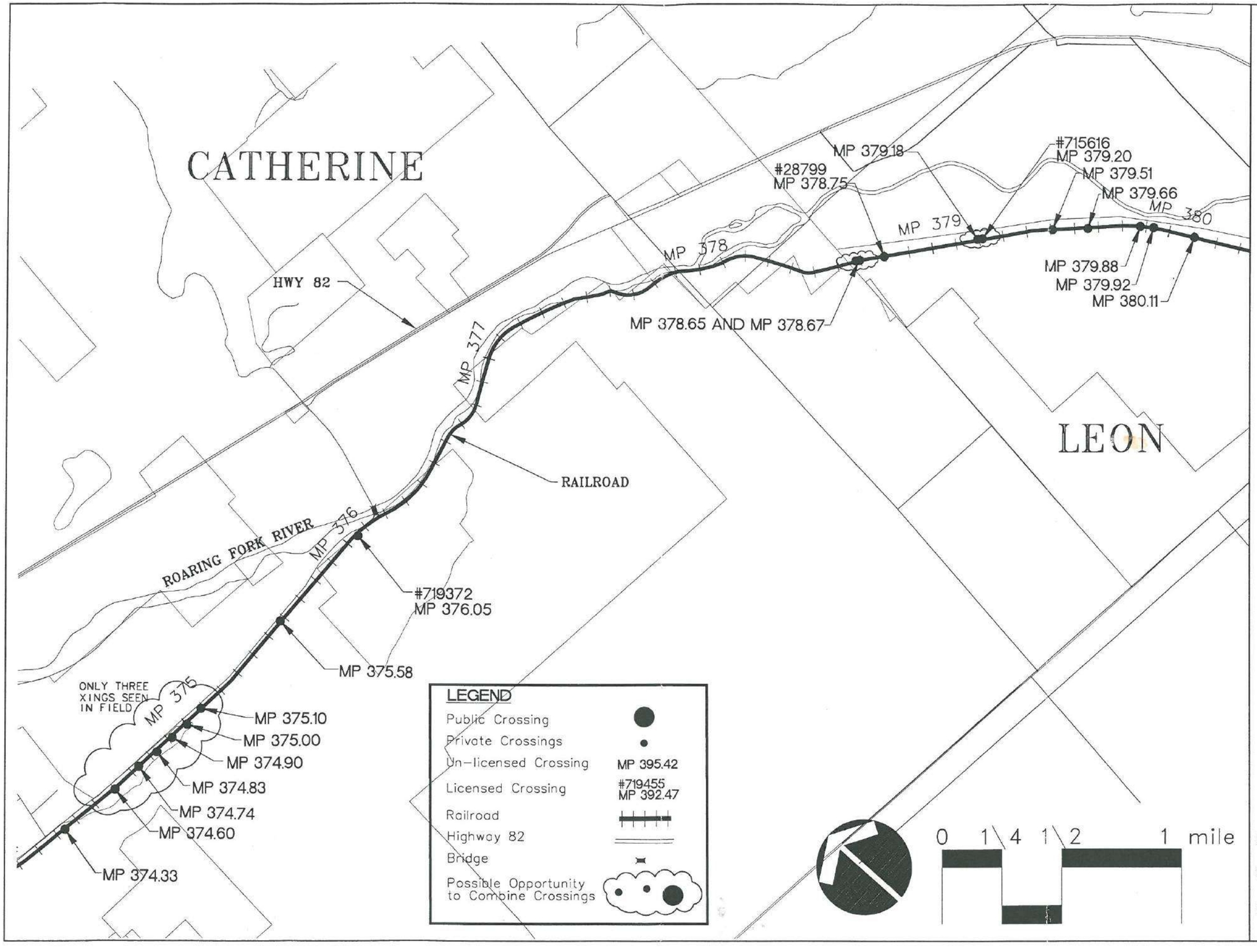

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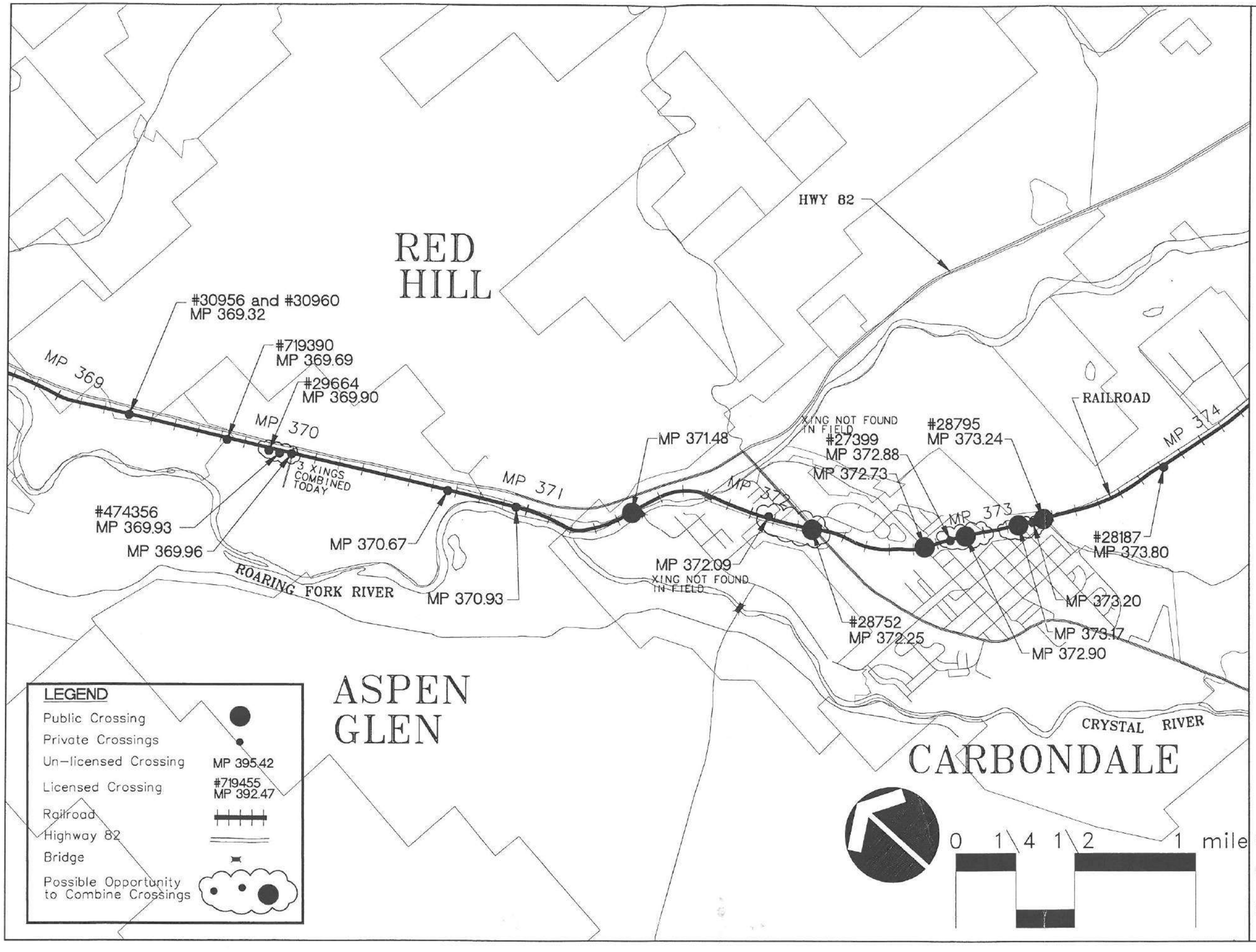

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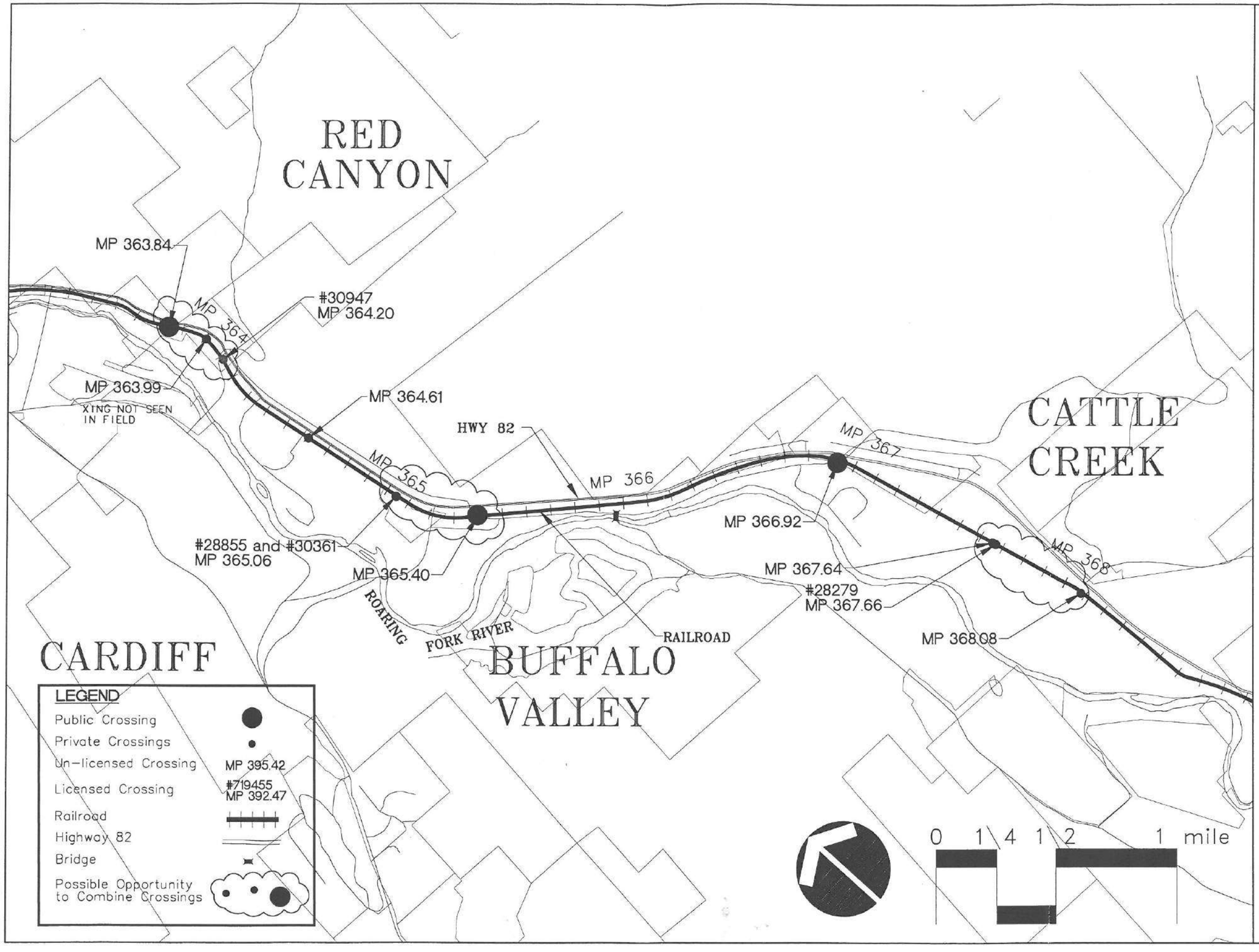

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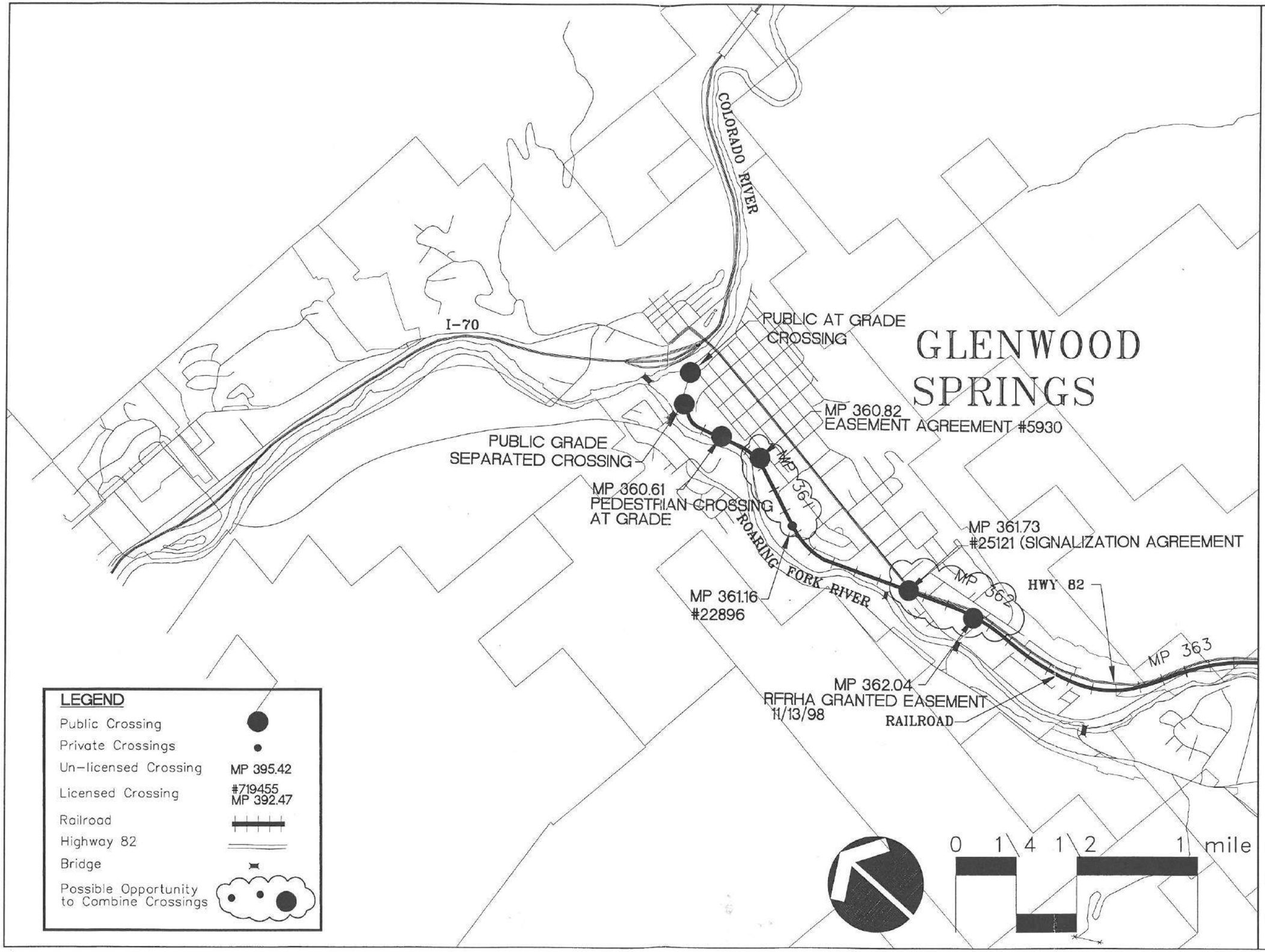

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Appendix

Appendix A
Design Standards and Specifications

For the applicable design standards and specifications referenced by the Access Control Policy, please refer to the Railway Engineering Association (AREA) Manual and Manual of Uniform Traffic Control Devices (MUTCD}, Part X- Traffic Controls for Light Rail-Highway Grade Crossings. The AREA and MUTCD are hereby incorporated by reference.

Appendix B

Opportunities for Consolidating Railroad Crossings Memorandum

Memorandum

otak

P.O. Box 1676
Basalt, CO 81621"
Phone (970)927-1241
Fax (970)927-1240

To: Tom Newland, RFRHA

From: Roger Millar and John Sleavin

Copies: Craig Gaskill, MK Centennial
George Roussos, RFRHA
Joe Tempel, CDOT
Jack Baier, PUC

Date: June 18, 1999

Subject: *Roaring Fork Railroad — Opportunities for Consolidating Existing Railroad Crossings*

Introduction

As part of the Glenwood Springs to Aspen DEIS/CIS/CP, Otak is preparing a Railroad Access Control Plan for the Roaring Fork Railroad. The Access Control Plan will identify all known and permitted railroad crossings along RFRHA right-of-way from Glenwood Springs to Woody Creek. The plan will also identify areas where existing railroad crossings should be considered for possible consolidation to improve the safety and operation of the railroad (Build Alternative), and the safety and recreational values of the trail corridor.

This memorandum and the Map of Existing Known Crossings document Otak's preliminary findings regarding opportunities for crossing consolidation. The findings are based on Otak's review of base maps provided by MK Centennial, aerial photography, and field investigation (March 3-4, 1999). Otak staff met with Tom Newland of RFRHA to obtain additional information about the existing crossings.

Criteria for Railroad Crossing Consolidations

The Map of Existing Known Crossings preliminarily identifies areas where crossing consolidation should be considered. The following criteria were used in identifying locations for potential consolidation:

- Minor crossings within one-half mile of each other, in areas where topography does not appear to restrict consolidation, and where a frontage road exists or could reasonably be provided.
- Major street and driveway crossings within one mile of each other, in areas where topography does not appear to restrict consolidation, and where a frontage road exists or could reasonably be provided.
- Crossings which existing only on paper. Such crossing may no longer be in use,. may

never have been built, or may have already been consolidated due to safety concerns or development.

- Where new development may provide an opportunity to consolidate or eliminate permitted crossings.
- Location where a frontage road could be built to consolidate crossings and the out of direction travel would not put an undue burden on the property owner.
- Property which could be served using existing public roads instead of the existing permitted crossing.
- Locations where realignment of the railroad, public road, private road, or trail may provide opportunities to consolidate or eliminate crossings.
- Consolidation of access where one parcel or lot has multiple permitted access crossings.
- Those location where grade separations will be required due to volume of traffic or crossing public trails.

Criteria such as sight distance, entering distance, road and track grades, rail safety, rail operations, vehicle characteristics, and open space qualities were not considered as part of the criteria.

Potential Location for Consolidation, Grade Separation, or Closure of Existing Crossings (Listed by mile post, beginning in Glenwood Springs)

Based on Otak's mapping and preliminary research and field observations, we recommend the following crossings be evaluated for potential closure and consolidation (by mile post):

Glenwood Springs Area

- Consolidate the crossings at MP 361.0 and 361.2 to one crossing.
- Close the crossing at MP 361.73 (23rd Avenue) and reroute the traffic to the signal at MP 362.04 (27th Avenue).
- Consolidate the three crossings from MP 363.84 (public crossing) to MP 364.20 (Holy Cross Energy) into one public crossing. The crossing at MP 363.99 is not used today.
- Close the crossings at MP 365.06 and consolidate it with the public crossing at MP 365.40 (Buffalo Valley).
- Consolidate the three crossings from MP 367.64 to MP 368.08 into one crossing if the site is redeveloped (Saunders Ranch).
- The three crossings at MP 369.90 to MP 369.96 operate as one crossing today. Re-permit the crossings as one permitted crossing (Aspen Glen).

Carbondale Area

- The private crossing at MP 372 is not in use today. Since other options exist for crossing to the west side of the track close the crossing.
- Close the at-grade crossing at MP 372.25 (Highway 133) and install a grade

separated crossing.

- The crossing at MP 372.88 (by 8th Street in Carbondale} is not in use today. Close this crossing and use the existing crossings at 8th Street.
- Close the private crossing at MP 373.20 (2nd Street) and build a frontage road from 4th Street (a public crossing) to serve the properties to the east of the track. In addition permit a new crossing (for cattle only) between the east end of town and 2nd Street. This crossing would be either a grade separated or an at-grade crossing. An at-grade cattle crossing would likely require restricted hours and days of use with prior approval of RFRHA.
- The two permitted crossings at MP 373.26 and 373.24 (east end of Carbondale) operate as one crossing. Consolidate these two crossings into one permitted crossing.
- Consolidate the 7 crossings from MP 374.33 to MP 375.10 into one or two permitted crossings. The 7 crossings all appear to serve the same property.

Catherine-to-Basalt Area

If alignment "C" is chosen, the new track alignment would leave the existing RFRHA right-of-way at approximately MP 376.6 or MP 377.0 and would return to the existing alignment around MP 385.1 (where the tracks used to cross Highway 82 just up-valley from Basalt). The suggested closures from MP 376.5 to MP 385.1 may apply only if alignment "A" is chosen as the final or interim option. If alignment "C" is chosen, these closures would enhance a trail facility on the existing RFRHA right-of-way.

- If the property accessed by the existing crossing at MP 376.05 is redeveloped then coordinate with the owner to either explore a new access or improve the approach to the crossing.
- At MP 378.67 to MP 378.75 (Rock Bottom Ranch) consolidate the three crossings (two are permitted and one is not) into one crossing.
- Consolidate the two crossings at MP 379.18 and MP 379.20 into one crossing.
- Consolidate the two crossings at MP 379.88 and MP 370.92 into one crossing.
- If future development intensifies the use of the property from MP 379.51 to MP 380.11, investigate consolidation the existing single family driveways crossings into one crossing. This would require a frontage road or internal circulation.
- Close the private crossing at MP 380.49 by using the public crossing at MP 380.63.
- Close the two private crossing at MP 381.75 and use the public crossing at MP 381.9-Z or combine the two private crossings into one private crossing.
- Consolidate the public crossing at MP 383.45 and MP 383.51 into one public crossing.
- Close the four private crossing from MP 384.33 to MP 384.83 and use the public crossing at MP 384.46.

Wingo-to-Snowmass Canyon

- Close the private crossing at MP 385-.07, and obtain access off Highway 82.
- Close the existing at-grade crossing at MP 385.10 (Highway 82} and replace with a grade separated crossing. This should be required for either the track alignment or a trail only crossing.

Note: Alignments "A" and "C" converge onto the existing RFRHA right-of-way at MP 385.10, on the east side of Highway 82.

- Consolidate the two private crossing at MP 385.43 and 385.47 into one crossing or eliminate the crossings by use of a frontage road.
  Eliminate or consolidate and grade separate the six public crossings of the track from MP 385.91 to MP 387.00 (Snowmass Canyon Road) by realignment of the track and trail facility. The number of future grade separated crossings will depend on the final track and trail alignment. These crossing also serve private homes in the area which will continue to require access.
- MP 387.00 (from Snowmass Canyon Road along Lower River Road) to MP 391.00 explore options of realigning the track, trail, and Lower River Road to reduce the number of public and private crossings. The number of future crossings will depend on the final track, trail, and Lower River Road alignment as well as the required access to the private property and any future frontage roads.
- Close the private crossing at MP 387.47 and use the public crossing at MP 387.23.
- Close the private non-permitted crossings at MP 387.70 and MP 387.90. Use the public crossings to serve the properties.

Gerbazdale-to-Woody Creek Area

- Consolidate the three private crossing From MP 389.40 to MP 389.51. This would require a frontage road to be built to the crossing at MP 389.51. The first two driveways could be consolidated without a frontage road.
- Explore consolidation or eliminating the two public and one private crossing from MP 390.21 to MP 390.46 by realignment of Lower River Road, of the trail, and/or of the tracks.

Note: The current planning calls for the tracks to leave the existing RFRHA right-of-way around MP 390.5 and cross over to the west side of the Roaring Fork River and travel on the east side of Highway 82. Options to consolidate and eliminate crossings from MP 390.5 t<> Woody Creek would be for the improved safety and operation of the trail facility.

- Close the private crossing at MP 390.81 and use the public crossing at MP 390.70.
- Re-permit the crossings from MP 392.01 to MP 392.21 to be one permitted crossing to reflect the existing condition. The crossings have been consolidated by development, and the properties are being served by a frontage road on the west side of RFRHA right-of-way.
- Re-permit the crossings from MP 392.47 to MP 392.96 to be one permitted crossing

to reflect the existing condition. The crossings have been consolidated by development, and the properties are being served by a frontage road (Letty Lane) on the west side of RFRHA right:-of- ay.

Investigation into the consolidation, grade separation, and closure of crossings ended at MP 394 (Woody Creek).

Next Steps

Further investigation of each crossing is required if the planning phase moves into the design phase. The above opportunities for consolidation, grade separation, and closure of the crossings were based on field checks, meetings with RFRHA staff, and the above criteria. There may be other locations which will require consolidation, grade separation, or closure due to rail safety, auto safety, trail safety, rail operations, existing grades, sight distance, proposed development, and open space values. These items should be further evaluated when more is known about rail car characteristics, rail operations, and the final track alignment. In addition, meetings should be set up with the effected property owners (public and private} to evaluate the impacts of consolidation, grade separation, or closings of the crossings. A short list of next steps to be accomplished is:

- Meet with effected property owners (public and private) to assess the impacts and opportunities for consolidation, grade separation, and closure. This will need to occur with a rail-trail corridor, or trail only.
- Evaluate the suggested crossing modifications based on the selected alignment (Build Alterative only}, crossing policies, and Recreation Trail Plan.
- Choose a rail vehicle (Build Alternative only) and then reevaluate the suggested crossing modifications based on the vehicles characteristics.
- Determine the operations of the rail facility to evaluate the need to modify more or fewer crossings.
- Evaluate existing crossings based on crossing grades, stopping sight distance, entering site distance, volume of traffic, speed of traffic, hours of operation, frequency of rail traffic, and pedestrian traffic (as applicable to the selected alternative).
- Evaluate crossings where the future alignment may depart from the existing RFRHA right-of-way.
- Evaluate what impacts any new development may have on RFRHA right-of-way.
- Complete preliminary engineering design of the realigned tracks (as applicable), public roads, and trails to determine which crossings will be consolidated, grade separated, or closed.
- Determine where RFRHA may need to acquire new right-of-way and the crossings associated with the new right-of-way.

Appendix C

Railroad Crossings Policy Memorandum

Memorandum

otak

P.O. Box. 1-676
Basalt, CO 81621
Phone (970)927-1241
Fax (970) 927-1240

To: tom Newland, RFRHA

From: Roger Millar and Scot Siegel

Copies: Craig Gaskill, MK Centennial
George Roussos, RFRHA
Joe Tempel, CDOT
Jack Baier, PUC

Date: June 18, 1999

Subject: *Roaring Fork Railroad —Existing Policies and Regulations Affecting Railroad Crossings*

This memorandum summarizes the existing policies and regulations that affect railroad crossings in the Roaring Fork Valley. The summary provides baseline information which will become part of the Access Control Plan.

Railroad Crossings Inventory

Otak has prepared an inventory map of known railroad crossings between Woody Creek and Glenwood Springs. The inventory includes public and private drives and streets. (See Exhibit A.) The inventory is based on data provided by RFRHA (existing license agreements, pending contracts, and easements), additional analysis by MK Centennial (crossings identified from aerial photography), and field checks by Otak (March 1999). The map identifies public and private crossings by mile post, and indicates which crossings are "permitted" (i.e., with a license agreement, contract or easement), and which crossings lack legal documentation. It is important to note that some crossings lacking documentation may be permitted even though no information is on file with RFRHA.[1] For example, some public crossings may never have been subject to PUC review, and records of those crossings may have been lost by the previous railroad owner. It was beyond the scope of this review to reconcile the sale/purchase records with PUC permit records.

[1]Documentation on file with RFRHA may be incomplete due to record-keeping by previous owners of the railroad. Property owners who believe that they have a legal access that is not identified by the inventory should contact RFHRA.

Other Types of Railroad Crossings

In addition to the public and private road c:rossings shown in the inventory, there are two other types of crossings that will be addressed by the Roaring Fork Railroad Comprehensive Plan:

- utility crossings; and
- trail crossings

Existing Policies and Regulations Affecting Railroad Crossings

The following summarizes the existing local, state, and federal policies that apply to railroad crossings in the Roaring Fork Valley.

Local Policies

Otak staff met with agency officials from RFRHA, and Eagle, Garfield and Pitkin Counties on January 26th to review existing policies that affect the railroad. County staff indicated that the Public Utilities Commission is the permitting agency for all public crossings of the railroad. RFRHA's interim policies (i.e., as prescribed by the *Deed of Conservation Easement and Deed of Trail Easement)* also apply to all public and private crossings. In addition, RFRHA's agreement with Aspen Valley Land Trust for enforcement of the conservation easement applies.

Under the Easement, adjacent property owners are required to maintain existing crossing surfaces. New crossings are not allowed under the following interim policy:

> *"Except as permitted in this Easement, as set forth in Exhibit C*[2] *... or as permitted in the Comprehensive Plan with respect to road crossings and trails for non-- motorized uses, no portion of the Property shall be paved or otherwise covered with concrete, asphalt, or any other paving material, nor shall any road crossings or trails be constructed ...*" [Easement Section 6.gJ

The interim policy will be replaced by the Access Control Plan, which is one element of the Comprehensive Plan. The Easement provides the following "guiding principles" for development of the Comprehensive Plan:

> *i. The corridor shall be managed to protect the health and safety of those using the property for rail transportation and recreational purposes.*
> ii. *New road crossings over the corridor (crossings) shall be minimized.*
> iii. *Existing crossings shall be consolidated so long as the trail, rail, open space, recreational, parks, and wildlife uses and values will not be impaired by doing so.*

---

[2]Exhibit "C" provides an inventory of existing uses and crossings, and "approved" planned crossings, recognized by RFRHA. The inventory will be amended over time, after adoption of the Comprehensive Plan, as new crossings are approved and/or consolidated.

> *iv. Any development permitted in the corridor (including but not limited to rg.il facilities, trails, road crossings)" shall be located, designed, constructed and managed in a manner that avoids, minimizes or mitigates adverse impacts to the open space, recreation, scenic and wildlife values 0-f both corridor, and adjacent lands that add to the scenic value and enjoyment of the corridor."* [Section 5.d.i through 5.d.iv]

State Policy

The Public Utilities Commission (PUC) is the issuing agency for all public railroad crossing permits. Applications for railroad crossings (i.e., roads and utilities) are reviewed case-by-case by the PUC and its staff. Requests are coordinated with affected local governments, CDOT, the Federal Railroad Administration, and the railroad itself. Light rail facility crossings are also coordinated with the Federal Transit Administration.

Colorado Statutes give the PUC authority to review, approve, and condition railroad crossings, as follows:

> *"The [PUC} has the power to determine, order, and prescribe, in accordance with the plans and specifications to be approved by it, the just and reasonable manner including the particular point of crossing at which the tracks or other facilities of any public utility may be constructed across the tracks or other facilities of any other public utility at grade, or above or below grade, or at the same or different levels, or at which the tracks or other facilities of any railroad corporation may be constructed across the tracks or other facilities of any other railroad corporation or across any public highway at grade, or above or below grade, or at which any public highway may be constructed across the tracks or other facilities of any railroad corporation at grade, or above or below grade and to determine, order, and prescribe the terms and conditions of installation and operation, maintenance, and protection of all such crossings which may be constructed including the watchman thereat or the installation and regulation of lights, block, interlocking, or other system of signaling, safety appliance devices, or such other means or instrumentalities as may to the commission appear reasonable and necessary to the end, intent, and purpose that accidents may be prevented and the safety of the public promoted."* [CRS 40-4-106(2)(a)}

The PUC issues final orders with design requirements for all public railroad crossings. The PUC also determines how expenses are allocated when public crossings are to be installed, reconstructed, or improved. (CRS 40:..4-106 and 108; and 4 CCR 723-20)

Design Standards for Railroad Crossings

The PUC and Federal agencies generally rely upon the design standards contained in the Manual of Uniform Traffic Control Devices (MUTCD) for grade railroad crossings. The MUTCD includes standards for signs and pavement markings, illumination, signals, gates, pedestrian crossings, audible warning devices, and barriers. The American Railway Engineering Association's (AREA) Manual for Railway Engineering provides other-

applicable standards, including legal clearance requirements. For example, the AREA manual identifies a minimum vertical clearance of 23 feet from the top of rail to the underside of a highway structure, and 9-feet of horizontal clearance from the centerline of the track to a fixed obstruction. Other standards are available from Colorado :Department of Transportation, and the Colorado Public Utilities Commission.

Changes in Railroad Use

When a rail facility substantially changes in use, such as frequency of trains, speed of trains, or type of operation, the PUC may review existing public crossings in light of the new use of the rail facility. Automatic gates have not historically been required within the Roaring Fork Railroad corridor, where the principal use has been low volume freight movement. However, with increased train frequencies and speeds associated with transit use, gates almost certainly would be required for public crossings. Combining multiple existing crossings into a single crossing may also be required when it is practicable to do so (e.g., when a major road reconstruction or realignment is proposed). Therefore, it is important that the rail crossing policy is coordinated with access plans for State Highway 82.

Grade-Separated Crossings

Colorado Statutes provide the following criteria for requiring grade-separated crossings for Fixed Guideway Mass Transit Systems:

> *Fixed guideway mass transit systems ... shall not intersect any road or street with an average daily traffic count of twenty thousand at grade unless the municipality or county having jurisdiction over such road or street specifically requests an at grade crossing.* [Title 32-9--103]

Currently, the only roadways within the railroad corridor that exceed 20,000 ADT are Highway 133 and State Highway 82. In accordance with PUC standards (4 CCR 723-20), all collector streets, arterial streets, and highways (public streets) shall be grade separated when they exceed an exposure factor of 35,006 (number of trains daily times average daily traffic count) in rural areas. The exposure factor threshold increases to 75,000 for street crossings in urban areas (i.e., with slower train speeds).

Federal Policy

The Federal Railroad Administration (FRA) and Federal Transit Administration (FTA) both have oversight responsibility. for grade rail crossings. The FTA has specific oversight of transit systems, and is involved in reviewing proposed crossing designs. Their staff indicated that they rely upon the design standards contained in the MUTCD for grade railroad crossings, though final design requirements are dete:rn1ined by the PUC and local jurisdictions. (For information on the MUTCD, please refer the section on "State Policy".)

United States Code

Chapter 201of title 49 United States Code addresses Grade Crossing Safety, including federal requirements for audible warnings (i.e., locomotive horns), reflectorized crossbucks, median barriers, stop signs, flashing lights, bells, flashing lights with gates, rumble strips on pavement, and traffic signals. Key sections of title 49 include:

- Sec. 20134. Grade crossings and railroad rights of way
- Sec. 20153. Audible warnings at highway-rail grade crossings

Chapter 201 requires that a locomotive horn shall be sounded while each train is approaching and entering upon each public highway-rail grade crossing. FTA staff have indicated that an exemption to this rule could be granted if supplementary safety measures are provided. They have advised that locomotive-type horns mounted on rail cross-bucks would meet this requirement. The horns would be activated as trains approach each public crossing, thus minimizing the need for trains to sound their horns throughout city neighborhoods and other residential areas.

Conclusion

The existing local, state, and federal railroad crossing policies affecting the Roaring Fork Railroad can be summarized as follows:

1. The interim RFRHA policy prohibits new railroad crossings, except for those that have been previously approved and are listed in the Conservation Easement.

2. The interim policy expires upon adoption of the Comprehensive Plan.

3. The Comprehensive Plan must be consistent with the "guiding principles" set forth in the Conservation Easement. The guiding principles require, in part, that new :road crossings over the corridor shall be minimized, and existing crossings shall be consolidated to the extent practicable.-

4. The Public Utilities Commission (PUC) is the issuing agency for all public railroad crossing permits. The PUC also determines how expenses are allocated when public crossings are to be installed, reconstructed, or improved.

5-. The PUC and Federal agencies. generally rely upon the design standards contained in the Manual of Uniform Traffic Control Devices (MUTCD) for grade railroad crossings.

6. The American Railway Engineering Association's (AREA) Manual for Railway Engineering the Colorado Public Utilities Commission, and CDOT provide other applicable standards, including legal clearance requirements in the State of Colorado (e.g., horizontal and vertical clearance for tracks, signals, and other

equipment}.

7. When a rail facility substantially changes in use, such as frequency of trains, speed of trains, or type of operation, the PUC may review existing public crossings in light of the new use of the rail facility. With increased train frequencies and speeds associated with transit use, gates almost certainly would be required for public crossings.

8. The only existing railroad grade crossings within the corridor that is likely to require grade-separation is the crossing at Highway 133, Highway 82, and trail crossings.

9. Federal law requires that a locomotive horn shall be sounded while each train is approaching and entering upon each public highway-rail grade crossing. An exemption to this rule could be granted locomotive-type horns are mounted on rail cross-bucks. The horns would be activated as trains approach each public crossing, thus minimizing the need for trains to sound their horns throughout city neighborhoods and other residential areas.

Appendix

D State Highway 82 Access Policy

Memorandum

Memorandum

otak

P.O. Box 1676
Basalt, CO 81621
Phone (970)927-1241
Fax (970) 927-1240

To: Tom Newland, RFRHA

From: Roger Millar and Scot Siegel

Copies: Craig Gaskill, MK Centennial
George Roussos, RFRHA
Joe Tempel, CDOT

Date: June 18, 1999

Subject: *Roaring Fork Railroad-Existing Highway 82 Access Policies and Regulations*

This memorandum summarizes the existing highway access spacing policies and standards which apply to State Highway 82. The summary is based on Otak's review of State and local policies and standards, and interviews with staff from Eagle, Garfield and Pitkin Counties, and Colorado Department of Transportation (CDOT). The memorandum is Otak's project deliverable (final draft}for Task 1 of the Glenwood Springs to Aspen CISIDEIS/CP - Access Control Plan.

Types of Highway Access

Generally, there are four general types of access to Highway 82:

Signalized street intersections-These include the following major accesses:

- Glenwood Springs- 8th› 9th, 11th, 14th, 15-th, 20th, 23rd, 27th Streets;
- Glenwood Springs - Colorado Mountain College (mile post 2.2)
- Cattle Creek (mile post 6-.6);
- Highway 133 (mile post 11.6) and Catherine Store (mile post 15.5) at Carbondale;
- El Jebel (mile'post 19.0);
- Willits Lane (mile post 21.0)-;
- Basalt Avenue (mile post 23.0), and Two Rivers Road (mile post 23.5) in Basalt; and
- Snowmass Canyon area (mile post 26.5)
- Gerbazdale (mile post 31.2)
- Brush Creek near Snowmass Village (mile post 35.4).

In addition to existing traffic signals (above)., the following signals are planned per the *East of Basalt to Buttermilk Ski Area Record of Decision (ROD)* and *Entrance to Aspen ROD:* Buttermilk, Aspen Village, 7th Street, 5th Street, 3rd Street, and Garmisch Street.

Unsignalized street intersections- These include:

- -Major intersections serving large developments (e.g., Blue Lake and Aspen Glen);
- County highways (e.g., 110/113, and 114 near Cattle Creek); and
- Other street intersections.

As developments are planned, these intersections will be monitored by CDOT and the counties to determine whether they need to be signalized, consolidated, or upgraded.

Private driveway/street intersects Highway 82

There are many driveways and private streets that receive direct access to Highway 82. -Some accesses are "permitted" (they have an approved access permit), and some are "existing legal accesses" (i.e., those that were established legally prior to access permits being required). An access that does not have a permit, and is not an existing legal access, is illegal.

Field approaches — These are direct accesses to farm fields.

Access Permits Required

An access permit is required for all new accesses to Highway 82, and when a change in land use (i.e., which has a permitted or legal access) is expected to adversely affect traffic operations on State Highway 82. The access permit requirement applies to both public and private accesses. Eagle and Pitkin Counties are individually responsible for issuing access permits within its respective "unincorporated" boundaries. Within Garfield County, and the municipal boundaries of Glenwood Springs, Carbondale, Basalt, Aspen, Snowmass Village, CDOT is the issuing agency for all state highway access permits.

Access permits are reviewed based on compliance with the *State Highway Access Code* (Volume 2 Code of Colorado Regulations 601-1), and the applicable local government land use and transportation standards. Additionally, the counties coordinate with CDOT, affected utilities, and local emergency service providers during applications reviews.

CDOT's Access Policies and Standards

The *1998 State Highway Access Code* is a state regulation which provides CDOT's policies and standards for access permits, including design standards and specifications. Section 4 of the Code provides standards for sight distance, access spacing, width, radii, surfacing, speed change lanes, shoulders, tapering, and other design elements. The following summary pertains to access spacing requirements.

AU State roadways have been assigned "Access Categories" by the Transportation Commission of Colorado. These assignments are published under 2-CCR-601-0lA, the State

Highway Access Category Assignment Schedule. The categories provide access control standards for defined areas along arterials and highways, based on the functional characteristics of the roadway (i.e., traffic speeds, volumes, distances, etc.). Highway 82 is currently assigned the following access categories:

Within Glenwood Springs and Aspen: "Non-Rural Arterial (NR-B)" - This designation applies within the City of Glenwood Springs, between Interstate 70 (mile post 0.0) and the south end of the city (mile post 2.411); and within the City of Aspen (mile post 39-.823 to 42.182).

The NR-B designation is for highways that have moderate travel speeds and moderate to high traffic volumes, over medium and short distances, within cities and towns. This category provides through traffic, while allowing direct access. Access standards require:

- One access shall be granted to each parcel, except where safety or operational problems exist.
- Accesses shall provide for right turns at a minimum. Left turns are permitted only if they improve traffic operations at full-movement intersections.
- Full movement accesses shall be spaced at one-half mile.
- Traffic signals may be required based on signal warrants being met, and a lack of access or design alternatives to avoid the need for signals.
- Turn lanes, medians, access reconfiguration, and access closures/consolidations can be required when the NR-B standards cannot otherwise be met.

Glenwood Springs to Aspen City Limits: "Rural Regional Highway (R-A)" - This designation applies between the south end of Glenwood Springs (mile post 2.411) and Aspen city limits (mile post 39.823). *This is an interim designation, as CDOT has proposed changing the designation to Expressway (E-X)". The redesignation is expected to be reviewed by the Transportation Commission during Spring of 1999, and if adopted, effective August 1999.*

The R-A designation is for highways that have medium to high speeds and capacity for medium to high traffic volumes over medium and long distances. Direct access to abutting land is subordinate to through-traffic movement. Access standards require:

- One access is allowed per parcel if reasonable access cannot be provided from other streets.
- Full-movement intersections and intersections which are, or may become, signalized shall be spaced a minimum of *one-half mile,* with their location based upon section lines, where feasible.
- An exception to the one-half mile standard may be granted when there are no other reasonable alternatives and when based on a signal warrant study.
- An exception may also be granted where topography or other existing conditions make the one-half mile interval standard inappropriate or not feasible.
- Installation of auxiliary turning lanes may be required.

Glenwood Springs to Aspen City Limits: Proposed "Expressway'" (EX) Designation —The E-X designation is for highways that have high speeds and capacity for high. traffic volumes. Direct access to abutting land is subordinate to providing through traffic improvement. Access standards require:

- Intersection spacing (streets, roads and highways) shall be planned based on intervals of *one mile ,* and normally based upon section lines where appropriate.
- One-half mile spacing of public ways may be permitted only when no reasonable alternative access to the general street system exists.
- Private property access is not permitted unless reasonable access cannot be obtained from the general street system.
- When necessary to permit private access, it shall be limited to right turns only.
- An access permit may require future closure of the access at such a time when other access can reasonably be provided to a lower street category.
- Installation of auxiliary lanes may be required for turning movements.
- If the highway is reconstructed, an access location may be closed and alternative access may be required to a frontage road or by other means.
- No access rights shall accrue and no additional access shall be provided upon the splitting or dividing of existing parcels. All access to newly created properties shall be provided internally from the existing access, or a new access shall be determined by a permit application and subdivision procedures.
- Traffic signal locations and design shall be determined based on the classification, capacity, and traffic volumes of intersecting streets; and level of service calculations. *Note: CDOT does not have published (level of service" (LOS) standards, however, CDOT staff indicated that the standards adopted by Eagle County provide a reasonable basis for evaluating LOS on Highway 82. (See discussion below.)*

County Land Use and Transportation Standards

The following transportation standards are generally used in Eagle, Garfield, and Pitkin Counties-, as applicable:

- American Association of State and Highway Transportation Officials (AASHTO) recommendations
- Manual on Uniform Traffic Control Devices CMUTCD)
- Institute of Transportation Engineers (ITE) recommendations
- US Forest Service, Bureau of Land Management standards and guidelines
- Transportation Research Board (TRB) recommendations

Local Government Access Policies and Standards

Each county has adopted its own transportation standards, as follows:

Eagle County Site Development Standards (Land Use Regulations, Ch. 2, Article 4)
Eagle County's Site Development Standards include standards for all roadways Eagle County has designated Highway 8-2 a "Principal Arterial". The County has also adopted the following level of service standard:

> *Roadways in unincorporated Eagle County shall function at Level of Service "C" or better. Intersections, both signalized and un-signalized, in unincorporated Eagle County shall function at Level of Service "D" or better. Levels of Service shall be as defined in the latest edition of the Highway Capacity Manual published by the Transportation Research Board.*

Pitkin County Road Management and Maintenance Plan (Ordinance #C97-8)
Pitkin County's Road Management and Maintenance Plan provides general policies and regulation for road classification, maintenance, traffic control, road design, construction, and access permitting. No standards are provided for major access signal spacing, or level of service, except that "maintenance" level of service standards are provided.

Garfield County
We have requested information from Garfield County regarding any policies or standards that may differ from CDOT standards. None has been received as of March 3

Conclusion

Based on our review of existing county and state highway access standards, we draw the following conclusions:

Access Permits. Eagle and Pitkin Counties have retained authority for issuing access permits. CDOT is the issuing agency within Garfield County and municipal boundaries.

Intersection Spacing. The minimum street intersection spacing standard for non-rural segments of Highway 82 (within the cities of Glenwood Springs and Aspen) is one-half mile. The minimum street intersection spacing standard for the rural segment of Highway 82 (i.e., between Glenwood Springs and Aspen) is currently one-half mile, but is proposed to change to one-mile under a new "Expressway" designation.

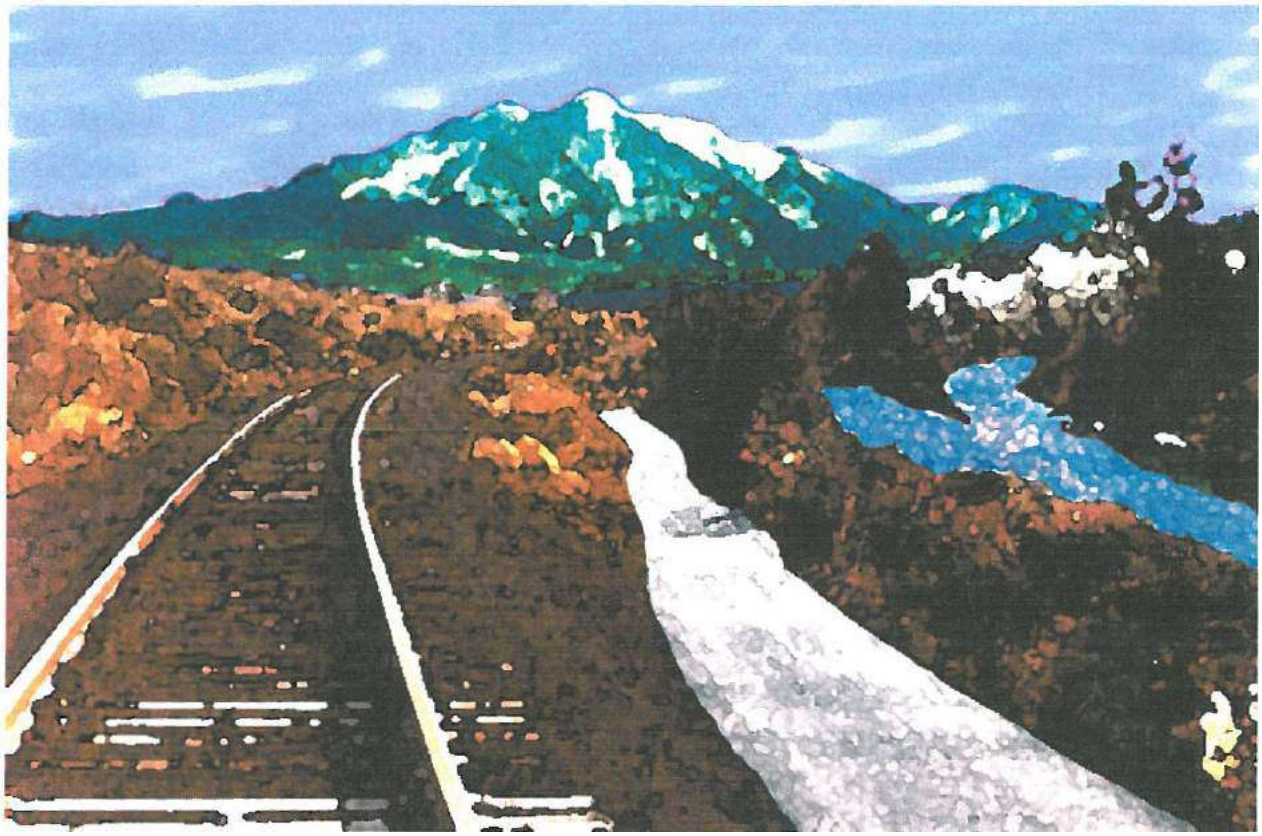
Private Accesses. Each parcel within the non-rural areas is allowed one private access. Under the proposed "Expressway" designation (between Glenwood Springs and Aspen city limits), direct property access to Highway 8-2 would not be permitted, unless reasonable access cannot be obtained from the general street system.

- *Access Consolidations, Closures, and Improvements.* COOT can require consolidation of public and private accesses when the highway is reconstructed, or development is proposed, to comply with the one-mile separation standard. The State also has the authority to close accesses that do not comply with the access code, and require improvements such as turning lanes, traffic signals, and acceleration and deceleration lanes, with new development.

Level of Service. Eagle County uses a Level of Service (LOS) standard of "C" for Highway 82, except that intersections, both signalized and un-signalized, are required to function at Level of Service "D" or better. CDOT has commented that this standard would be appropriate for the corridor as a whole.

ASPEN BRANCH

DENVER & RIO GRANDE WESTERN RAILROAD



RECREATIONAL TRAILS PLAN

GLENWOOD SPRINGS TO ASPEN CIS/DEIS/CP

DECEMBER 1999

Roaring Fork Railroad Holding Authority

THE LANDPLAN
DESIGN GROUP
2740 South Wadsworth Blvd.Unit D
Denver CO 80227
303-987-3933 Fax: 303-987-3948
E-Mail: LDGI@aol.com

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EXECUTIVE SUMMARY

The Roaring Fork Railroad Holding Authority (RFRHA) is a multi-jurisdictional body formed by agreement between the local and county governments within the Roaring Fork Valley. The mission of RFRHA is to purchase and plan for the use of the 32-mile Aspen Branch of the Denver & Rio Grande Railroad right-of-way running from Glenwood Springs to Woody Creek.

In response to rapid population growth, land development and transportation needs in the Valley a Comprehensive Plan (CP) for future uses of the right-of-way was developed by RFRHA, as required by the intergovernmental purchase agreement. This Trails Plan is the component of the CP designed to describe the trails, and satisfy the requirements of the trail easement placed on the corridor. A Corridor Investment Study (CIS) commissioned by the Colorado Department of Transportation is being developed to evaluate valley-wide transportation alternatives inclusive of potential use of the RFRHA right-of-way.

The physical character of the property is generally described as a linear corridor with a typical width of 100' and bisected by a rail bed complete with ballast, ties and tracks. A fiber optic line and easement runs parallel to one side of the rail bed. The property passes through a variety of land uses, ecosystems and landforms providing interesting and diverse scenery and recreational opportunities including access to adjacent federal and state lands. The corridor intermittently runs proximal to the Roaring Fork River providing numerous recreation and river access opportunities.

The trails plan was developed through a process that included archive research of previous studies, numerous corridor inspections and a series of public meetings. A program of trail elements was established to guide future implementation of the trail system including general goals & objectives, design details, usage guidelines, environmental, safety, interpretation and implementation recommendations. The main goal of the Trail plan is summarized as follows:

> *Plan for a continuous trail throughout the corridor that meets the expressed recreation and transportation needs of the community, minimizes the impacts to the resource and adjacent landowners, and provides a quality experience tor both residents and visiting users.*

The Plan describes the alignment, design and costs associated with three implementation stages for a trail within the corridor. The *Ultimate Trail* represents the system at full build-out including a 10'-wide, multi-use, concrete trail with 4'-wide jogging path, grade-separated highway and transit line intersections, trailheads and interpretive system. The *Initial Trail* is the preliminary phase of development designed to expedite public use of the property. This rustic, natural-surface path will be efficiently graded into the corridor on the alignment of the Ultimate trail to open the corridor for walking, running, mountain biking, wildlife viewing and potentially equestrian and x-country skiing activities.

The Conservation Trail easement granted on the property within Pitkin County provides for the implementation of an *Interim Trail* on the property if the Comp Plan is not completed within two years of acquisition. The Trail plan describes the alignment and design of this crusher-fines surfaced trail and its distinctions from the *Ultimate* design. The Pitkin County Open Space & Trails program is considering the implementation of most of the *Interim Trail* in 2000. The Plan also identifies a *Transitional Route* that describes an existing, paved bike route from Glenwood Springs to Woody Creek. This route was utilized in the process to evaluate safety issues and prioritize trail segments.

Phasing recommendations for *Ultimate Trail* implementation include prioritized sections surrounding high-use urban areas, high-risk safety problem areas and high student +/or commuter routes. Management, maintenance and operations functions of the trail system are outlined to describe the basic scope of services required to operate the trail.

Cost estimates are provided for the completed trails:

- Initial Trail - $4.63M
- Interim Trail - $3.8M
- Ultimate Trail - $29.55M

Funding for trail design, construction and operation is available from a variety of sources including grants, county funds, Open Space programs and recreation districts. An organized and unified approach to design, construction and management is a key to successful funding.

1. INTRODUCTION

The Roaring Fork Valley is experiencing growth and development unparalleled since European settlement during the silver boom of the late 19th century. The subdivision of agricultural land is gradually transforming the character of the valley floor from a predominantly rural, pastoral setting to a developed state inclusive of golf courses, housing and commercial centers. The linear property corridor of the Aspen Branch of the Denver & Rio Grande Railroad was purchased by the Roaring Fork Railroad Holding Authority (RFRHA) to maintain a continuous valley-wide right-of-way for recreation, conservation and mass transit implementation. The corridor affords an opportunity to develop recreational trails and manage public access on and across the previously restricted private property. The centralized ownership, design and management of the corridor will help to maintain open space and the diverse valley legacy, and enrich both adjacent communities and the visitor experience.

The study area stretches over thirty-three miles of railroad corridor through the scenic valley of the Roaring Fork River. Passing through three counties and several towns and communities, the property offers the opportunity to provide a continuous recreational link between Glenwood Springs, Carbondale, Basalt, Woody Creek and Aspen. The relative isolated nature of the right-of-way (ROW) as it traverses through private agricultural lands and along canyon walls presents a unique opportunity to provide a high quality outdoor experience including active recreation, habitat protection and interpretation.

The principal purpose in the formation of RFRHA was the preservation of the ROW, enabling multi-jurisdictional planning, funding, development and management of public recreational trail and mass transit systems throughout the length of the corridor. Additional goals of property acquisition include providing access to public lands and to the Roaring Fork River, and the preservation of open space and wildlife habitat. The Comprehensive Plan (CP) for the RFRHA property envisions integrated trail and transit development within the ROW as a regional asset inclusive of open space, recreation and transportation resources.

The purpose of this Trails Plan (the Plan) is to develop a conceptual plan, implementation phasing and design guidelines for a recreational trail within the RFRHA property. The plan is based on design requirements, recommendations and preferences evolving from public input and through the study of the corridor's physical and aesthetic qualities. The trail shall provide public use of the lineal property, and is envisioned to ultimately afford a wide-range of recreation opportunities including, but not limited to: a continuous non-- motorized trail link, river access, biking, hiking, equestrian uses, access to public lands, wildlife viewing, habitat conservation, educational and interpretive activities.

2. PROPERTY CHARACTER

The character of the Roaring Fork Valley (the valley) is a mosaic composition of native plant communities, agriculture, rural, suburban and urban land uses. The ROW shares the valley floor with the river and SH82, traversing through diverse land uses ranging from unspoiled natural areas to sand & gravel pits, including hay meadows, riparian forest, residential, commercial, and industrial districts along its course. The valley bottom is relatively narrow, averaging less than one mile in width and ranging from 1.5 miles near Carbondale to under 700' in the narrows of Snowmass Canyon. The ROW property exhibits numerous potential access points resulting from its proximity to SH82 in the lower and mid valley. and at public road crossings throughout the corridor.

The ROW extends a distance of approximately 33.3 miles in a narrow corridor from the wye junction with the D&RGW mainline in Glenwood Springs upvalley to the Woody Creek gulch. The property varies in width from 50' to *200'* with a predominant width of 100', encompassing approximately 460 acres. The rail bed, ballast, ties and tracks are continuous throughout the study area excepting a short section removed for State Highway 82 (SH82) improvements at Wingo Junction. Both the existing tracks and proposed transit line are located on the centerline of the ROW, effectively bisecting the useable width for trail implementation in the areas of ROW proposed for transit use. The length of this 'rail-with-trail' situation totals 21.5 or 22.5 miles, dependent on the location of the transit crossing to the highway corridor at Catherine Bridge. In 'rail-to-trail' sections (10.8 or 11.8 miles) the assumption is that the full width of the ROW is available for trail alignment. The property allocation per county totals 18.3 miles in Garfield, 3.1 in Eagle and 11.9 in Pitkin.

Generally the corridor provides pastoral surroundings and views as it runs across the alluvial terraces of the valley floor. The foreground scenery of agricultural lands is highlighted by a backdrop of largely undeveloped valley slopes and distant mountain peaks. The impressive twin peaks of Mt. Sopris command attention from the lower reaches of the ROW. In several areas the alignment lies directly adjacent to and above the river, offering scenic views of flowing water and associated riparian flora and fauna. The open, expansive views of the lower valley are an interesting contrast those provided farther upvalley. In Snowmass Canyon the landscape canopy and steep topography along the corridor often provide an enclosed, intimate experience, resembling a forested backcountry trail. This wide range of character helps enrich the experience for both passive and active recreation opportunities.

A large percentage of the upper valley walls are in the public domain as state, U.S. Bureau of Land Management (BLM) or U.S. Forest Service (USFS) property. The adjacency of the project corridor offers several potential access points to these extensive public parcels providing opportunities for extreme backcountry hiking, skiing, equestrian and mountain biking activity. This property attribute is very important to residents seeking access to nearby public lands. It also dramatically increases the range and level of difficulty of recreational opportunities available from the trail corridor including the potential to provide a high-quality wilderness experience.

Native vegetation types and composition transition as you move upvalley dependent on changing elevation, solar aspect and river adjacency. The complex composition of natural, riparian and agricultural vegetation patterns, coupled with the scenic landforms of a mountain valley provide a picturesque setting for outdoor recreation. This mixture of large open spaces, fence rows, dense cover, wetlands and the riparian river corridors also provide excellent wildlife habitat. Wildlife sightings commonly include elk, deer, fox, heron, eagle, falcon and waterfowl species that provide viewing opportunities and add interest to the trail experience.

The Roaring Fork River with its winding ribbon of bottomland forest forms the visual and recreational backbone of the valley. The relationship between the ROW and the river provides for a myriad of water-based recreation opportunities and forms an integral component of the property's character.

From the confluence with the Colorado River in Glenwood Springs upstream to Carbondale the river is designated *Gold Metal* water, characterized as some of the highest quality aquatic habitat in the state. An estimated 15,000 anglers utilize this valuable resource annually. River recreation opportunities include fishing, boating, swimming, waterfowl viewing, photography and numerous other activities. Throughout the corridor is an established network of river access and stream bank easements for fishing and recreation. The RFRHA trail enables public access to many of these areas. In addition the property encompasses additional riverbank areas which will become available for public river access. The Trail Plan identifies additional parking and staging spaces (trailheads) further enhancing public and commercial use of this valuable resource.

In addition to the wealth of positive attributes, recreational and open space opportunities characterizing the property, specific physical and legal planning constraints exist that are considered in the plan. These factors significantly affect the options for trail alignment, trail access and the location of support facilities. The main elements involve the narrow, linear shape of the property, the shared-use of the ROW with the proposed transit line, and the fiber optic easement restrictions. Potential conflicts between trail and transit functions will require safety, security and access control measures that impact design and costs. The fiber optic line is addressed in a subsequent section. In addition, several other planning constraints influence the trail plan and must be considered in final design.

In several areas of the corridor steep valley topography dramatically influences trail alignment, design and construction costs. In these areas the original rail bed was benched into the slope with cuts and embankments, thereby increasing the slope of the already steep corridor. Rail-with-trail implementation within the ROW through these areas requires relatively high construction costs due to earthwork, retaining walls and protective trail barriers. The plan recommends thorough evaluation of design alternatives for these areas during final design to determine the most cost-effective, acceptable solution.

Several other physical and behavioral characteristics were noted in the planning process which will affect final trail design and management decisions.

These factors include:

- irrigation ditches & flumes crossing, running adjacent to, and within the property;
- areas of seasonal and permanent wetland ecology, both designated and minor, adjacent to and within the property;
- the proximity and encroachment of SH82 on the property;
- endangered wildlife and sensitive species buffer zones may initiate Colorado state Division of Wildlife (DOW) recommendations for seasonal trail closures, use restrictions, temporary or permanent alignment alternatives, or other design mitigation's;
- private crossings and encroachments including driveways and utility easements.

QWEST EASEMENT

The RFRHA property contains a utility easement granted to *Southern Pacific Telecomm* and subsequently transferred to *Qwest* for the installation, maintenance and operation of an underground fiber optic communications cable. The 10' wide easement parallels the rail bed, predominantly on the north side, with an average offset between 6 and 8' from the nearest rail. The continuous easement begins at 23rd St. in Glenwood, running upvalley the length of the property to Woody Creek and beyond.

Easement restrictions preclude the use of this utility corridor for trail implementation to the fullest extent possible. Crossings of the easement shall be minimized and shall intersect perpendicular to the cable. Trail implementation within the easement can occur only at corridor 'choke' points. Within the easement all repairs to existing or proposed improvements including trail pavements, that result from fiber optic line work, are the responsibility of RFRHA. The location of this line was a primary consideration during the evaluation of trail alignments.

CONSERVATION & TRAIL EASEMENT

In October 1996 RFRHA received a grant from Great Outdoors Colorado (GOCO) for a portion of the funding for railroad property acquisition. The rationale behind the contribution is the preservation of the corridor's open space, wildlife, parks and recreational values (open space values). In its application to GOCO, RFRHA stressed the preservation of the corridor for these open space values, in addition to conserving the corridor for future mass transit opportunities. In order to preserve the open space values RFRHA granted conservation and trail easements on the property to preserve the character while the comprehensive plan is developed over a two-year period. The Aspen Valley Land Trust (AVLT) and the Board of County Commissioners of Pitkin County (BOCC) hold the easements.

Within the Pitkin County portion the BOCC owns a trail easement for the entire ROW width until a rail line is implemented, or the year 2020, whichever is sooner. At that time a 20' wide trail easement shall be legally described, replacing the property-wide easement. An identical provision is included for the corridor outside of Pitkin County with the easement granted to AVLT. The easement provides for a continuous trail throughout the length of the corridor.

Within the Pitkin County portion of the property trails shall be constructed in accordance with the County's Open Space and Trails (OST) Program *Trail Design and Management Handbook.* The easement prohibits any construction impacts to the property prior to the adoption of the CP excepting the implementation of an interim trail. The easement includes a provision for interim trail development by OST within the Pitkin County corridor if the CP is not completed within two years of the date of property acquisition. This plan identifies the alignment for the interim trail. AVLT holds all rights to the conservation easement granted over the entire length of the corridor.

3. TRAIL PLAN DEVELOPMENT

The Trail Plan is a single component of the Comprehensive Plan (CP) for the RFRHA property required by the intergovernmental purchase agreement. The study was programmed as a description of possible uses for the corridor including trails, public transportation and public land access. The other main components of the CP are an Access Control Plan for the ROW and a Corridor Investment Study (CIS) for the valley. The CIS, funded by COOT, is programmed to evaluate the costs, benefits and impacts of mass-transit alternatives for the valley. As required for federally funded projects the CIS will produce a Draft Environmental Impact Statement (DEIS), involving an inventory and assessment of physical, economic and social impacts of proposed transportation alternatives.

TASK FORCE WORKSHOPS

As a single facet of the overall study, the Trails Plan utilized the established public involvement process of the CIS. Between May of 1998 and March of 1999 five publicly advertised open Trails Workshops were held to formulate project goals and objectives, discuss alternatives, review progress and receive public comment. Through !his series of public workshops the plan incorporates community opinion, ideals and expectations for the trail corridor.

At the initial workshop attendees were introduced to the project and the study area through presentations and a hands-on work session utilizing aerial maps of the corridor. Participants helped identify key goals, issues, constraints and opportunities to be considered in the planning process. Interested trail supporters volunteered to serve on the Trails Task Force, involving attendance future meetings and gathering of information pertinent to the trail plan.

As a preferred transit alignment emerged from the CIS process, the trail plan progressively developed. At subsequent Task Force workshops members reviewed and discussed trail alignment alternatives, design standards and recreation opportunities. The involvement and direction of the Task Force participants was key in the decision-making process and has helped build consensus and support for the plan. Their knowledge of the valley, existing use patterns and goals of local open space groups has been instrumental in the planning effort. It was with this key involvement that the design principals, goals and the trail plan takes its final form.

PROJECT COORDINATION

As a result of the complexity inherent in a project ?f th1s scope, coordination for the planning study Involved several project parameters and local agencies. Thorough coordination with the CIS is required due to proposed transit alignments within the ROW, exacting transit design parameters and impacts of a transit line on the narrow corridor. Transit elements affecting trail planning include station locations, passing tracks, grade-separated road crossings and overall physical improvements proposed for transit implementation within the ROW.

Consistent with the CP goal of coordination with planning efforts of local agencies, trail planning has included county and local governments, trail, open-space and recreation groups in the public review process. Consultations with the following agencies and interest groups in a positive, cooperative approach has helped guide the plan toward meeting local objectives for parks, open space and trails.

- City of Glenwood Springs Planning Department
- Garfield County Planning Department
- Eagle County Planning Department
- Town of Carbondale Planning Department
- Town of Basalt Planning Department
- Mid-Valley Trails Committee
- Pitkin County Open Space & Trails Board
- Colorado Department of Transportation
- Glenwood Springs River Commission.

TRAIL PROGRAMMING & DESIGN PRINCIPALS

The development of a program for the trail plan began prior to the formation of RFRHA and has evolved throughout the CIS/DEIS/CP process. Pitkin County purchased the railroad R O W segment from Woody Creek to Aspen in 1969. Today this corridor serves upvalley residents as continuous trail corridor, providing recreation and off-road commuting opportunities. Since the opening of this amenity to public use, local trail supporters and agencies have been advocating the downvalley extension of the system, due in part to the embargoed status of the rail line. previous trail studies for the downvalley corridor include the *Roaring Fork Trail Conceptual Plan* (1992) and the Recreation *Access Feasibility Study* (1996). These plans, planning documents for local highway projects and transit studies, and the CIS provided a major portion of the site inventory and project programming information for this trail plan.

A projectprogram defines the individual components of the overall system. A program may be described in a variety of formats ranging from a simple list of components to a more generalized, broad set of guidelines, goals or pnnc1pals that are utilized in the decision-making processto shape and steer project Implementation. Design goals establish parameters for the physical design of the trail components. Programming for the RFRHA trail was developed and refined throughout the planning process. Program elements include information, ideas and input from both past and current corridor studies and include local regional and national sources and standards. Specific to

the valley, program goals, principals and design elements have been summarized from the RFRHA mission, legal requirements, meetings, public workshops, project research and coordination.

The main components of the plan involve recreation, preservation, interpretation and environmental education. Recreation objectives include the alignment and design of multiple-use, non-motorized trails and ancillary facilities for both hard- and soft-surface activities including biking, hiking, equestrian and other trail uses. The recreation component also includes access to the river and public lands. The preservation element seeks to maintain the natural resource to the fullest extent possible for wildlife, residents, visitors, and for the overall health and value of the natural system. Knowledgeable trail design and management of the corridor is key to resource protection. The interpretive/environmental education components will provide experiences designed to help give meaning to the landscape and to contribute to trail users' understanding of the cultural and natural elements of the Roaring Fork Valley environment.

The RFRHA trail will function at several levels. On the valley-wide level the trail provides a continuous connection from Glenwood Springs to Carbondale, Basalt and Aspen, including spur trails, trailheads and points of interest such as river access or scenic overlooks. Individual trail segments may serve as discrete elements connecting local destinations, and as a part of the larger trail system. Trail users can spend several hours or several days enjoying different parts and features of the corridor. The program elements categorized below include principals, goals, objectives and specific recommendations for trail planning, future design and implementation of the trail system.

General

1. Improve the quality of life for residents through the development of the corridor that meets expressed community transportation and recreation needs.
2. Plan for a continuous trail throughout the corridor.
3. Maximize trail opportunities for pleasant and easy interface between the trail and public transit services provided in the corridor.
4. The proposed trail alignments (paved and soft surfaced) shall be restricted to use of the linear RFRHA property to the fullest possible extent.
5. Maximize recreation, education and interpretation opportunities.
6. Develop a trail system that provides a quality experience for both local and visiting users, and results in economic benefits to the valley.
7. Minimize impact to adjacent landowners from existing and proposed activities (transit, river access, etc.)
8. Take advantage of existing corridor resources including access points, road grades, trail connections and river access.
9. Plan for the ultimate development of appropriate support facilities such as water stations, restrooms, picnic shelters, etc.
10. Consider implementation costs and plan for long-term phased implementation of improvements.

Design Detail

1. Plan shall accommodate specific design requirements and constraints of programmed uses.
2. Trail design shall ultimately provide barrier-free access.
3. Ultimate trail shall be a 10' wide hard surface, particularly in high volume areas.
4. Develop a soft-surfaced jogging trail, minimum 4' wide with improved crushed gravel surface.
5. Identify equestrian use of the corridor. If feasible, separate bridal path from paved trail for safety.
6. Maximize separation of trail and transit alignments. Use grades, vegetation and ditches where feasible for separation and to improve user experience.
7. Provide soft-surface trails to access natural areas, the river and public lands where appropriate.
8. Utilize common themes in the design of trail amenities and structures with sufficient flexibility to accommodate local character and preferences. Design and materials should complement the natural environment.
9. Incorporate natural, salvaged and recycled materials as available and appropriate in design of trail improvements.
10. Low maintenance and vandal resistance shall be design considerations.

Trail Use

1. Provide for expedient public access to, and use of, the corridor.
2. Design for multi-purpose use and provide interest and variety for user.
3. Provide for a wide variety of high-quality, non-motorized, passive and active recreational experiences and opportunities.
4. Provide trail suitable for non-motorized commuting.
5. Ultimate trail design shall accommodate hiking, running, biking, skating, equestrian and disabled users. Other uses identified include picnicking, wildlife viewing, cross-country skiing, photography, river, environmental education/interpretation and public land access. Local communities may decide independently with respect to skaters, equestrians and other uses within developed areas.
6. Camping and open fires prohibited.

Linkage

1. Provide for convenient, direct access and use by residents and visitors. Identify trail access points considering proximity to residential areas, educational and employment centers, and transit stops. The trail will provide off-street connections between communities, towns, and commercial and employment centers and to other resources throughout the valley.
2. Identify connections to existing and proposed trails, recreation areas, population and activity centers, roads, the river and public lands. Specifically, provide direct links to the Glenwood Springs River Trail, the Basalt-Old Snowmass Trail, the Rio Grande Trail and local trails in Carbondale and Basalt. These trails provide indirect access to the Glenwood Canyon Trail, the Christine State Wildlife Area, Pitkin County trails, BLM and USFS lands.
3. Trail system shall emphasize regional recreational concept and commuter functions.
4. Identify or develop off-street access to schools for student commuting and environmental education.

Environmental

1. Protect natural qualities including habitat values and the river corridor.
2. Minimize environmental impacts from trail construction.
3. Minimize user impacts to resource through design, management and education.
4. Identify sensitive natural areas and recommend design and management mitigation measures.
5. Evaluate alternative trail alignments that provide adequate buffer zones or completely avoid sensitive habitats.
6. Consider mandatory or voluntary seasonal trail closure ('management areas') during critical seasons (e.g. endangered species nesting); provide detour route during temporary closure.

Safety

1. Develop safe and secure trails for trail user and adjacent property owners.
2. Provide sufficient trail width to minimize user conflict.
3. Provide adequate shoulder width and sight distance to enhance trail user safety.
4. Locate trail access points and support functions considering safety, visibility and emergency access.
5. Provide barrier fencing at convergence areas to protect trail user from transit hazards.
6. Provide perimeter fencing where needed to protect property, privacy or livestock.
7. Utilize discrete or unobtrusive barriers to direct the trail user away from hazards and sensitive natural areas.
8. Recommend grade-separated trail crossings of rail and major roadways.
9. Consider solar-powered emergency call boxes in isolated areas and at trailheads.

Interpretation

1. Develop opportunities for environmental education and interpretation.
2. Directly and indirectly expose trail users to natural processes and cultural resources. Minimize impact to historic, cultural and archaeological resources. Use existing infrastructure for interpretation.
3. Coordinate educational interpretation with wildlife observation opportunities at *"Wildlife Watchpoints".*
4. Interpretive efforts should be focused on identified **'interpretive nodes'** along the corridor. Primary sites are envisioned at transit stops; therefore, those transit stops that intersect the trail will be critical interpretive nodes.
5. Interpretive nodes along the trail that are not at transit stops or trailheads should be more understated than at transit stops or trailheads, to avoid community concerns for "cluttering" the landscape.

6. All interpretive components should relate directly to identified themes as described in the companion document *Reading the Roaring Fork Landscape: An Ideabook for Interpretation and Environmental Education.*
7. Use seasonal closures and other management activities as environmental education opportunities.

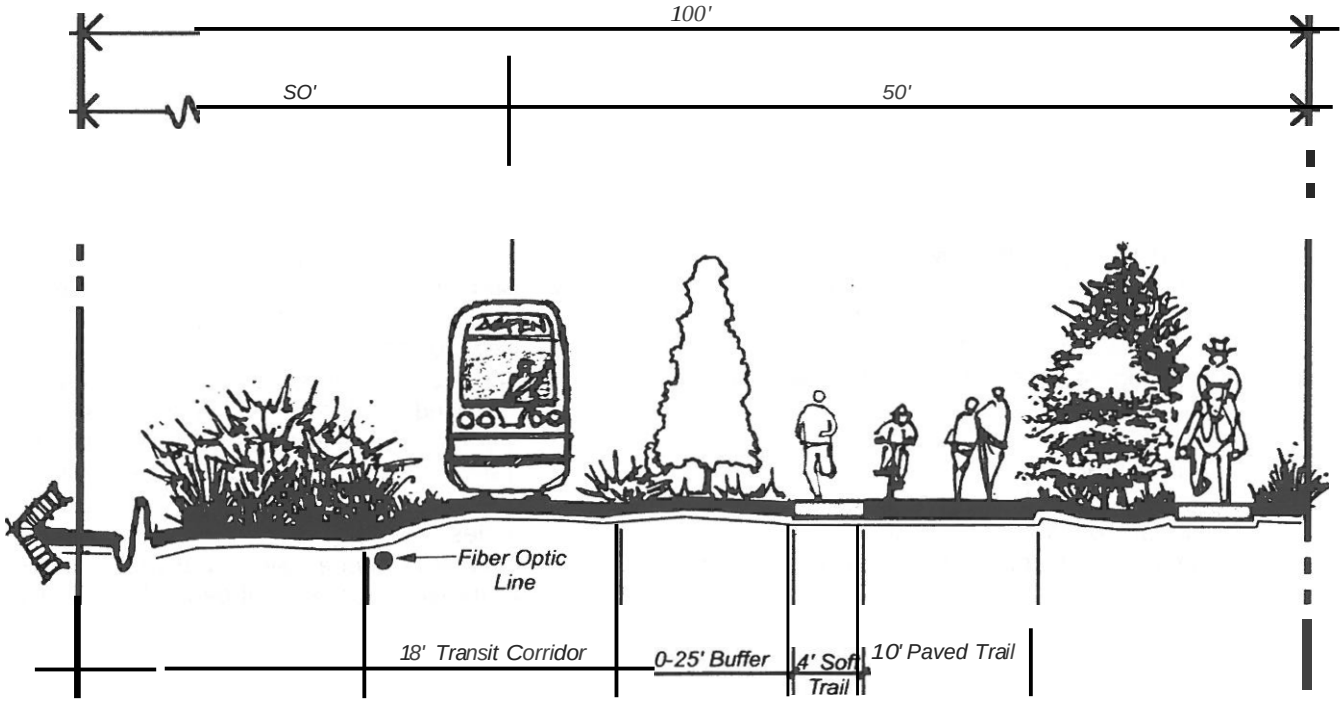
Implementation

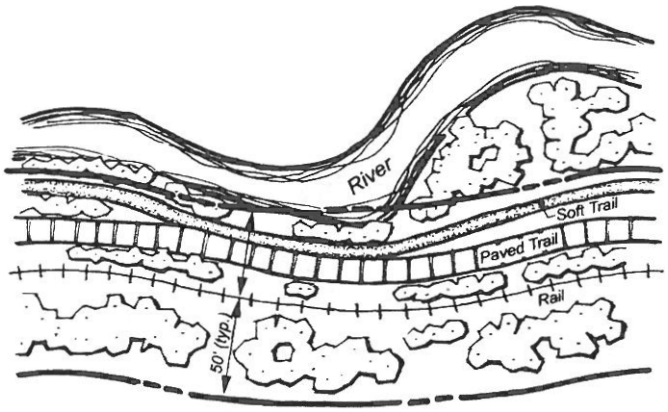
1. Coordinate with local governments, agencies, commercial and public interest groups during design development to insure compliance with community and county planning objectives, state and federal requirements.
2. Plan for an initial phase trail to expedite public use of the property.
3. Detailed designs for other proposed uses within and adjacent to the property should be prepared collaboratively, particular1y the transit alignment, stations, passing tracks and highway improvements.
4. Foster public support for region-wide recreation, environmental education and interpretation opportunities and the concept of regional land planning and stewardship.
5. Utilize the resource of local interest groups and trail advocates willing to provide volunteer services and disseminate information.

4. TRAIL SYSTEM ELEMENTS

A trail system is an organized assembly of several discrete components including pavements, trailheads, signage, site furniture and other related elements, organized to a meet the project's physical and aesthetic c goals. In addition to the apparent features of pavement type, width and alignment, support facilities are vital to the success of any trail system. These elements can maximize the recreational potential of the resource and enhance the user experience. For example, trailside rest areas, interpretive stations and signage help to guide and inform, protecting both the user and the resource. A trailhead can serve as a multi-purpose parking area for river access, a highway wayside or a park-n-ride in addition to its trail related functions.

Trail infrastructure elements will contribute to the overall character and landscape of the Valley. Prominent trail features such as bridges, road crossings and picnic shelters will become a visual reminder of this regional amenity. These elements should be designed and integrated into the fabric of the natural and built environment to support the regional character, complement interpretive themes, and enhance the quality of the trail system and the user experience.





Trail Characteristics

In rail-with-trail segments trail alignment is limited to fewer than one-half of the overall corridor width due to the proposed transit alignment on the ROW centerline. The fiber optic line on one side of the rail bed further restricts the available width. The preferred alignment locates the trail near the property boundary to maximize the offset and buffer distance from the transit line. A 10' minimum buffer from the nearest track is recommended for trail user safety and comfort. Trail alignment generally runs on the downhill or river side of the ROW to enhance river access and reduce roadway related impacts and conflicts.

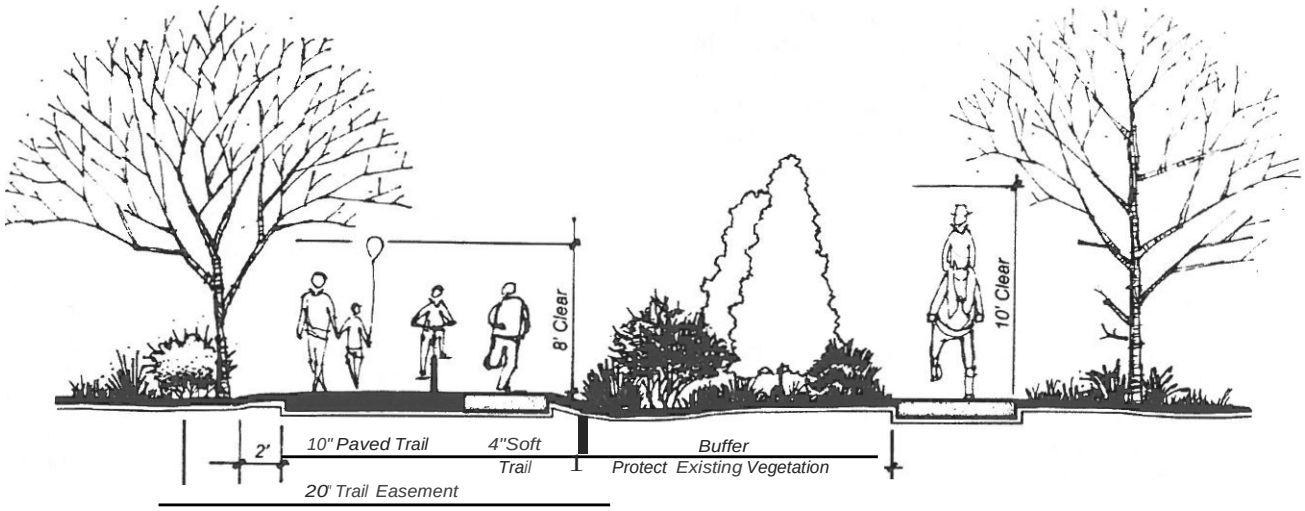
The plan also suggests a curving trail alignment where feasible to enhance design flexibility and landform integration. A winding trail can help improve user experience by directing views and avoiding monotonous long, straight sections. A sinuous alignment can also minimize environmental and habitat impacts by avoiding mature vegetation and reducing landform disturbance.

In rail-to-trail sections the trail alignment can utilize the full width of the property, avoiding the fiber optic easement. In these sections the alignment generally utilizes the existing rail bed to minimize environmental impacts and construction costs. The rail bed embankment often provides an elevated viewing position for the trail user.

Several pavement materials are commonly used for both hard- and soft-surfaced trails and selection will significantly affect construction cost, maintenance, aesthetics and trail use. Conventionally, hard-surfaced pavement options are limited to asphalt or concrete. Concrete is recommended for the ultimate RFRHA trail for durability, use and aesthetic considerations.

A natural surface 'Initial' trail is proposed for the first phase of trail implementation. The construction of this simple, rustic trail with a surfacing of native subsoil will accommodate public use of the corridor for hiking, mountain biking and potentially equestrian uses. Trail width for the initial trail will vary from a typical 6' width to a minimum of '3 in difficult and 'choke point' areas.

Task Force recommendations for the Ultimate trail design include a pavement width of 10', a 4' wide crusher-fines shoulder on one side (jogging path) and a maximum longitudinal slope of 5%. The pavement width may be variable dependent on projected user volumes, physical constraints and trail alignment. For example low-volume, straight trail sections affording ample sight distance may be narrowed to 8' wide improving the economy without impairing the utility of the trail.



Final design should include integral concrete coloration to reduce the visual impacts and glare. Proper surface finishing and sawcut control joints provide a smooth, uninterrupted pavement for comfortable use by wheeled apparatus including wheelchairs, strollers, skates, blades and bicycles.

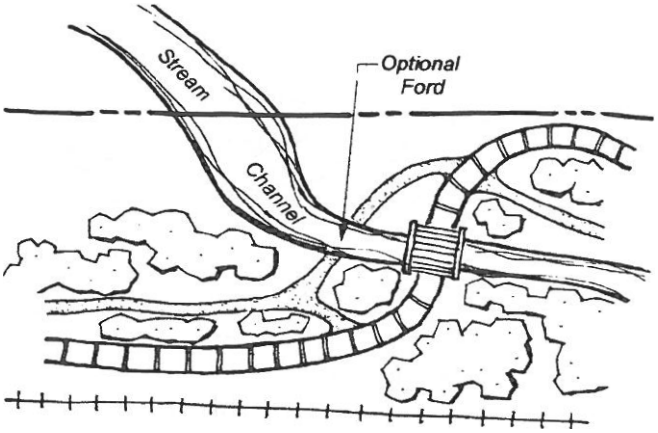
The structural design and width of the ultimate trail pavement and structures (walls, bridges) should be adequate to withstand loading by trail maintenance and emergency vehicles. A six-inch thickness of concrete is considered minimum for this application. In some isolated sections of the corridor the trail provides the only vehicular access to the proposed transit line. Final trail design coordination should include potential transit maintenance, inspection and access related functions. As noted previously, the trail easement requires that trails within Pitkin County be constructed to standards defined in the OST *Trail Design and Management Handbook.*

Funding realities or public sentiment may not permit hard-surface pavement installation during the early phases of trail implementation. Following implementation of the initial trail, the Plan recommends construction of the full-width platform for the ultimate trail to facilitate future paving operations, maintenance and emergency access.

Separate soft-surface trails are included in the ultimate trail program primarily for running and equestrian uses. The implementation of the soft-surfaced running path is best accomplished as a shoulder extension of the primary trail alignment. This arrangement meets program objectives, avoids unnecessary resource impacts, and provides the most economical design solution. A minimum four-foot wide, crusher-fines surface is recommended. This path can diverge from the main alignment if needed to avoid physical corridor constraints (e.g. large tree), reduce resource impact or provide access to a view or feature apart from the main trail. The jogging path alignment should fall within the future 20'-wide trail easement.

Bridal Path

Horses can startle easily, particularly from fast moving quiet objects such as bikes or bladers, and may kick out posing a serious safety hazard. A separate alignment for the bridal path is recommended that will maximize the distance between incompatible corridor uses. This objective requires bridal path alignment to fall outside the 20' trail easement. Bridal path



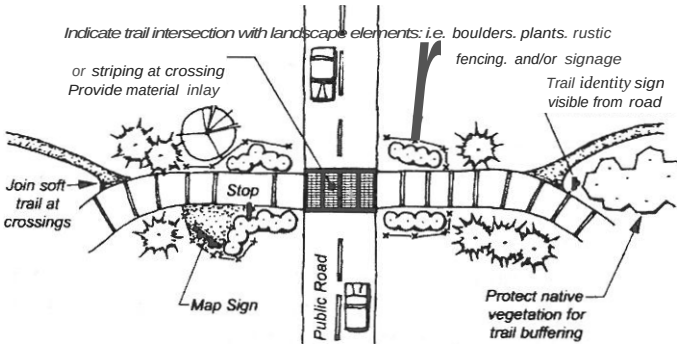
alignment on the opposite side of the tracks from the main trail may be an option dependent on RFRHA policy regarding dual alignments within the corridor. In highly developed areas the development of a separate bridal path may not meet local use, safety, or management objectives.

Horses are best adapted to the footing on soft surfaces. In most soil conditions native surfacing functions well for bridal paths. These trails have less strict design parameters for gradient, curve radii and drainage crossings. Trail implementation and maintenance should include shrub and boulder removal, mowing and tree trimming to provide 10' vertical and 8' horizontal clearances. Trail markers are recommended for path delineation. At corridor choke points, road crossings and other areas the bridal path may join the main trail for physical, safety or cost related issues. All trail users should be aware of these shared-use zones and proper trail-sharing etiquette. Shared equestrian use of trail bridges should be avoided. Align bridal paths to intersect watercourses at safe ford locations or provide alternate route at river crossings.

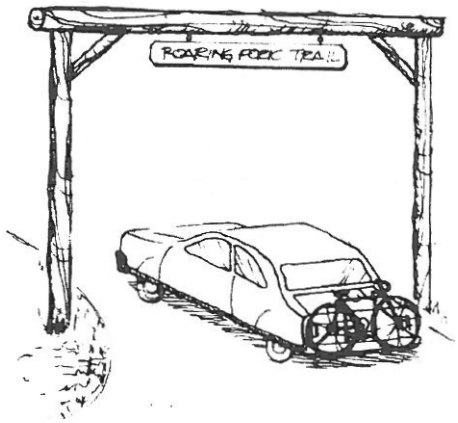
Road & Rail Crossings

Trail crossings of public roads and private drives are required throughout the corridor. Grade-separated trail crossings are highly recommended for highway crossings of SH133 at Carbondale and SH82 at Wingo. The proposed transit design includes a rail overpass at SH133 that accommodates a trail platform. *M.* Wingo Junction the trail plan recommends a bridge crossing of both SH82 and the proposed transit line. Existing SH82 underpasses adjacent to the corridor provide safe access under the highway near Aspen Glen, Carbondale and Emma. For at- grade street and drive crossings, trail design should emphasize safety. Basic safety elements include right angle intersections, adequate sight

distances, warning signs and pavement markings for both trail and roads per the Manual of Uniform Traffic Control Devices (MUTCD) standards. Crossing design should restrict trail access by unauthorized vehicles. The trail plan recommends special design treatment for public road crossings to further enhance trail safety, identity and recognition. Improvements may include distinctive crosswalk paving, landscaping, trail signage, rustic fencing and potentially lighting to enhance these trail entrances.

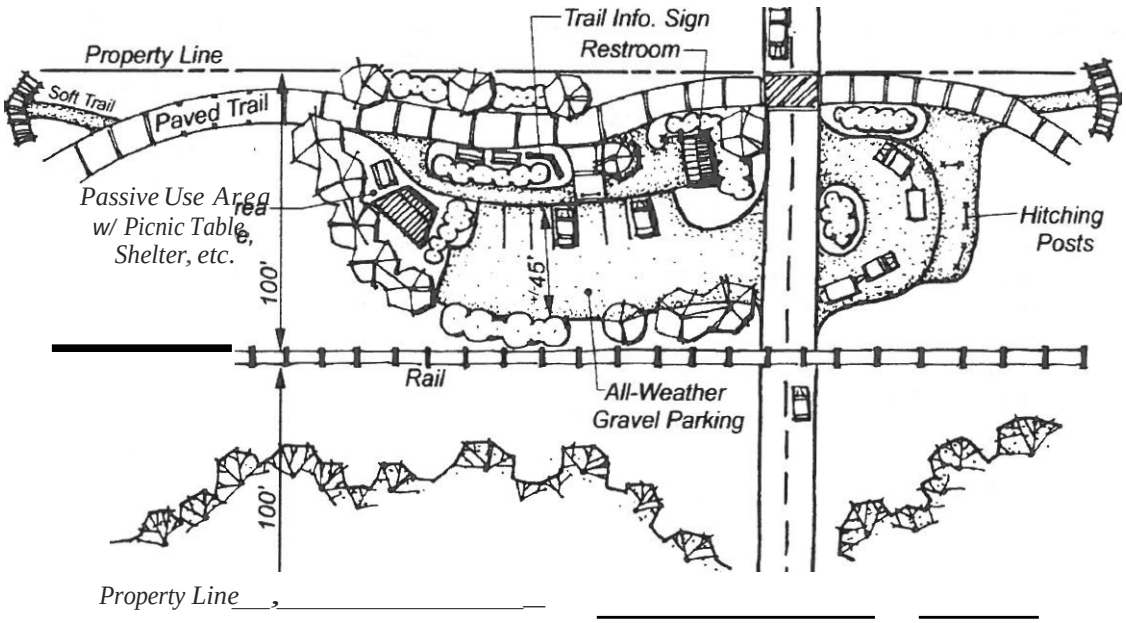


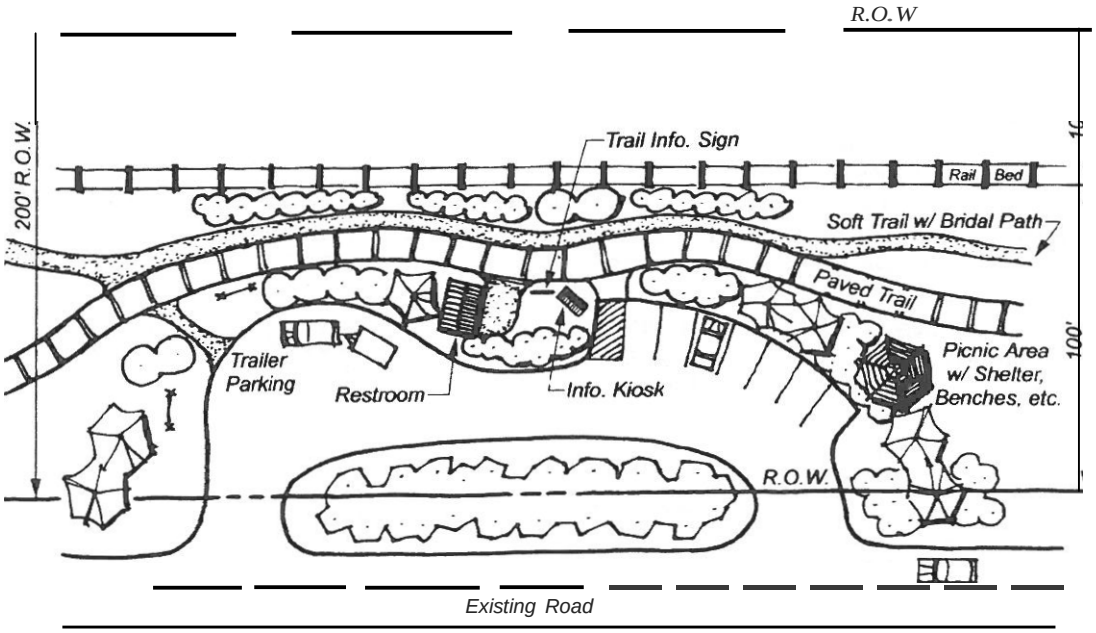
A main objective in the trail alignment design seeks to minimize rail crossings. Severe topography, river adjacency and other corridor constraints require the Ultimate Trail to cross the proposed transit Alignment C nine times along the corridor. It was strongly recommended by the Trails Task Force and RFRHA that the plan include grade-separated crossings for all trail-rail intersections. The plan includes seven rail underpasses to improve trail safety and reduce visual impacts. The other grade-separated crossings occur at the proposed Catherine rail-river bridge and at the proposed trail bridge at Wingo. At-grade crossings are suitable for 'initial' and 'interim' trails prior to transit line implementation.



Trailheads

In addition to neighborhood connections and street crossings, trail access is provided at eight proposed and existing trailheads along the corridor. Trailheads provide parking and access to the trail system for residents, valley visitors and transit users. Trailheads are places to meet, prepare equipment, obtain trail information, use restrooms, relax or picnic before or after recreating. The simplest trailhead facilities include parking for 5-10 vehicles, horse trailers and buses, and trail information signage. Basic services such as restrooms (composting or portable type),





potable water, p1cmc shelter with table, trash collection, interpretation, equestrian facilities, and telephone are recommended to enhance the utility and safety of the property, and protect private property and the resource. Gates or removable bollards can restrict trail access by unauthorized vehicles including ATVs and motorcycles. Depending on power supply, security objectives and local sentiment, trailhead areas may be lighted during evening hours.

Transit stations located adjacent to the ROW can incorporate trailhead facilities to provide a multi-modal transportation hub. Transit station planning should include safe bicycle parking facilities and other provisions for interfacing bicycle travel with public transit, such as racks on buses and allowing bicycles on transit system.

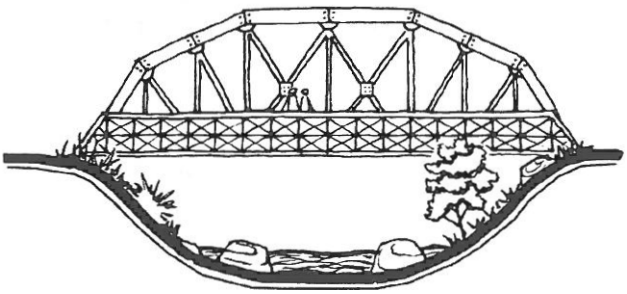
The Plan proposes trailheads at several locations in response to the following criteria:

- Located directly adjacent to the trail within the ROW property;
- Easily accessible from existing roads;
- Convenient interface with public transit services;
- Adequate size to support planned improvements. Proposed trailheads are located at 200' wide ROW sections to insure sufficient property area.
- Distribution throughout the corridor length.

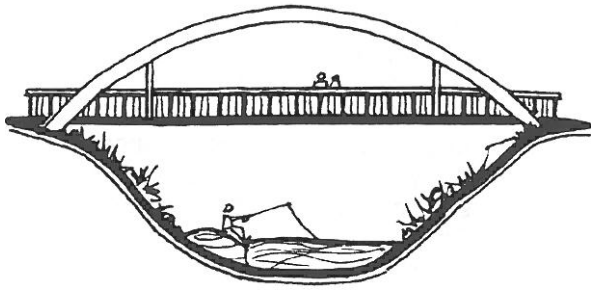
Bridges

The proposed trail alignment includes road and drainage crossings at several locations that require bridge structures for trail continuity. Major crossings on the corridor include Cattle Creek, the Roaring Fork at Satank, Sopris Creek, the Roaring Fork at Wingo, SH82 and the transit line at Wingo, Arbaney Gulch, and potentially at the end of the corridor at the Woody Creek gulch. For the Satank River crossing it may be feasible to utilize the structural support of the existing railroad bridge to accommodate a separated trail function. For Sopris Cr. and the Roaring Fork at Wingo the plan recommends deck and rail improvements to the existing railroad bridges for exclusive trail use.

The design of new bridges should identify with historic or other valley bridge precedents in the valley in materials, form and structure including supports, railings and decking. These highly visible trail elements should complement and enhance the landscape of the valley. Bridge engineering should accommodate vehicle loading and width of trail maintenance and security vehicles including pickups, trail sweepers, plows, cross-country track setters and emergency



vehicles (ambulance, fire). Crossing design should occur at right angles to the drainage to minimize impacts to the riparian ecology.

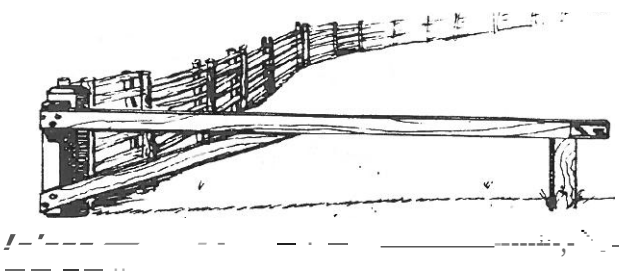


Rest Areas

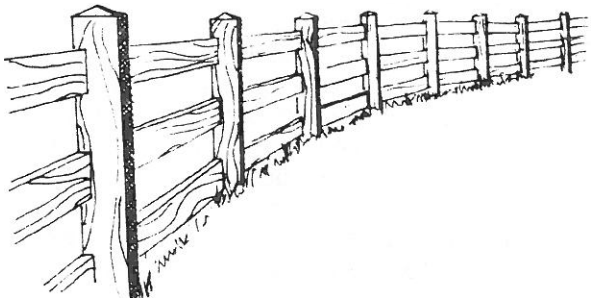
Located at regular intervals along the trail, rest areas provide opportunities to stop, rest and enjoy the outdoor experience and natural beauty of the valley. A thoughtfully placed bench or turnout on the trail provides reason for pause, reflection and observation. Coordinate rest area location and design to relate to interesting or unique natural features, processes or views. Integrate rest areas with other trail elements such as interpretative stations, trail junctions, scenic over1ooks or river access points.

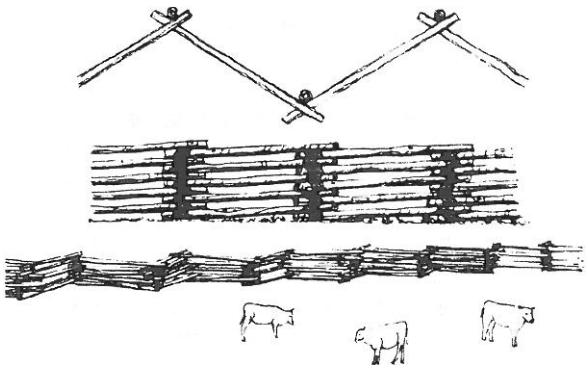
Support Elements

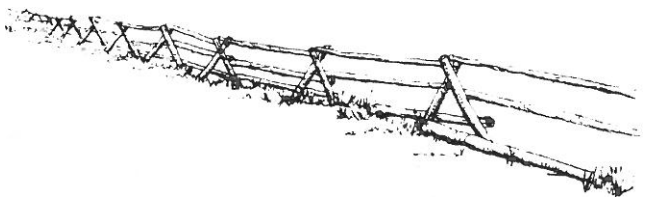
Miscellaneous structures, site furniture, amenities and other design features are integral components of the trail system and can make significant contributions to the user experience. The design of trail elements should utilize a common palette of materials, colors and forms to present a cohesive image. Encourage design flexibility to reflect individual community character and add interest and variety to the system. Construction materials and design form should reflect the cultural and natural history of the valley and typify structures and elements found along the corridor. A rustic, western-contemporary impression will reflect the overall landscape of the Valley. Railroads, ranching and mining are suitable local themes for design inspiration.

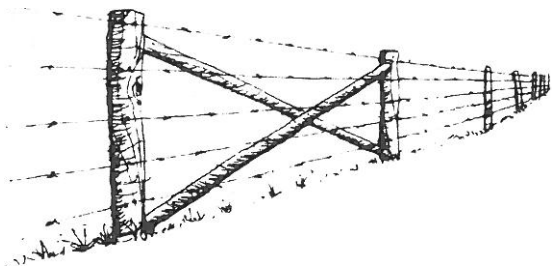


Materials should be sustainable, requiring minimal maintenance and have low susceptibility to vandalism. Encourage the use of recycled and salvaged materials. During trail clearing and grading, native materials can be salvaged and used for the design of trail infrastructure and amenities. Native boulders can be used for retaining walls, informal seating, vehicle barriers and culvert headwalls. Salvaged timbers and togs provide rustic benches, tables, fencing and structural elements. Other site elements include shelters, san-o-let enclosures, fencing and gates.









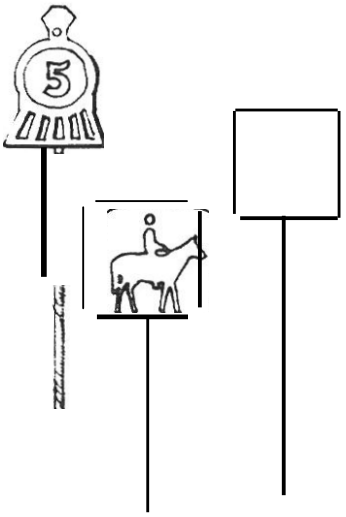
SIGNAGE AND INTERPRETIVE ELEMENTS

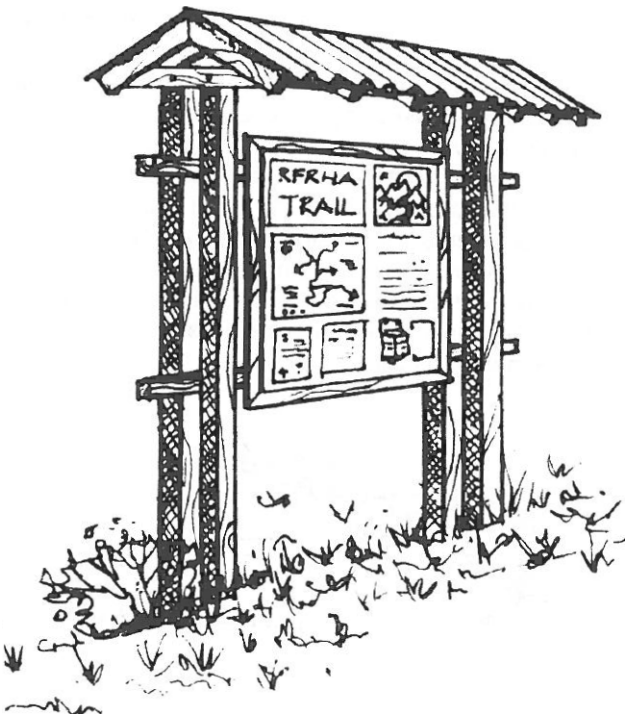
Providing accurate information is important for both use and management of the trail corridor. Signs are needed to convey information, directions & regulations but should be kept to a minimum to avoid clutter in the natural setting. For the RFRHA trail, significant subject matter will include user safety related to the contiguous transit line, resource protection of the riparian corridor and respect for private property.

Signage should exhibit a consistent design theme throughout the corridor. Designs may include a graphic logo, potentially with a railroad theme, to relate to past and present use and property origin. Signage system should complement other site elements in materials, color and pedestrian scale. The mounting system should minimize vandalism, maintenance and the intrusion of signs on the landscape. Salvaged railroad materials may potentially be utilized for signage elements including tracks, brackets, spikes and ties, for sign posts, mounting, anchoring, framing and other structural elements. Other trail amenities (benches, walls, fencing) can use similar materials for theme reinforcement.

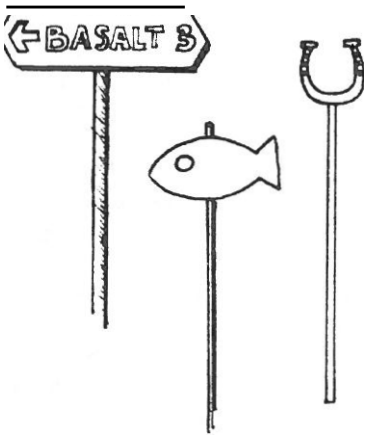
Signage planning should consider the general context and particular setting in which signs are to be placed. Placement of signs within scenic vistas and sight lines should be avoided. Lettering styles should draw inspiration from historic precedent in the Valley and avoid exotic or contemporary styles. Utilize universal symbols where appropriate. Several means of providing information via signage are recommended:

- Information Kiosk: Provide in prominent location at trailheads and major access points. Include system map, safety items, regulations, resource & wildlife protection, distances, phone numbers, etc. The kiosk can also provide interpretive information to describe natural and cultural themes and locate interpretive stations along the trail. To reduce trailhead clutter the information center may dispense pet clean-up bags and trail guides. Bulletin space is available for temporary or seasonal postings, warnings or restrictions.
- Interpretive Sites: Locate primary interpretive nodes at transit stations and at 1railheads. Along the trail interpretive messages can use existing elements or creative messages (E.G. text or animal tracks embedded into pavement or boulders) in lieu of typical signage to highlight a particular site, feature or natural process and educate the trail user. Interpretation should support an overall interpretive theme. -Encourage 1he use of symbols in lieu of text to convey information. Refer to the interpretive plan *Reading the Roaring Fork Landscape* for more information.

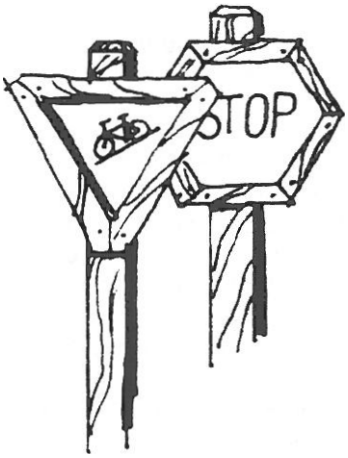




- Trailside Signs: Provide information to the trail user involving mileage, directions and distances at trail and road intersections and points of special interest. Mileage signs can be used in tourist areas to encourage visitation of services or attractions. A unified system of simple signs, posts, arrows or other symbols should be developed to indicate river and public land access points from the trail. On the riverbank, limits of public easements should be delineated to protect private property. A unified system of simple post markers or similar discrete elements may be used. Private property signs should be installed at points where trespass is likely.



- Identity Signs: To enhance trail recognition, use and security, develop a graphic logo or system of common elements that identify the trail from public road crossings, at trailheads, local accesses and along the length of the trail.



- Traffic Control: Regulatory signage and pavement markings are required for safety, code and liability concerns. Typical sign messages include 'stop', 'caution horse Xing', 'yield', etc. Utilize universal graphic symbols where applicable. Safety signs should conform to the MUTCD standards for size, mounting location, message, etc.

5. TRAILS PLAN DESCRIPTION

This section describes the proposed alignment, features, design elements and recreational opportunities for the *Ultimate Trail* on the RFRHA ROW at final completion. This trail provides a continuous trail connection throughout the corridor per the requirements of the trail easement. In reality trail system development will occur in phases providing increased recreational opportunities as improvements are implemented over time. Following sections provide descriptions of the first-phase *Initial Trail,* the Pitkin County *Interim Trail* and the *Transitional Route* alignments.

Ultimate Trail

The description for the Ultimate Trail begins at the current terminus of the Glenwood Springs River Trail at 23rd Street, ending thirty-two miles upvalley at the end of the Rio Grande Trail at Woody Creek. The trail plan does not extend to the end of the RFRHA property due to the existing River Trail constructed within the ROW by the Town of Glenwood Springs. This trail provides concrete and soft-surfaced connections to all points north of 23rd St. including crossings of both the Roaring Fork and Colorado rivers and linkage to the popular Glenwood Canyon Trail. Forming terminal connections with the Glenwood Canyon Trail and Pitkin County's Rio Grande Trail provides the framework for a truly regional trail system with unequaled scenic value and recreational opportunities.

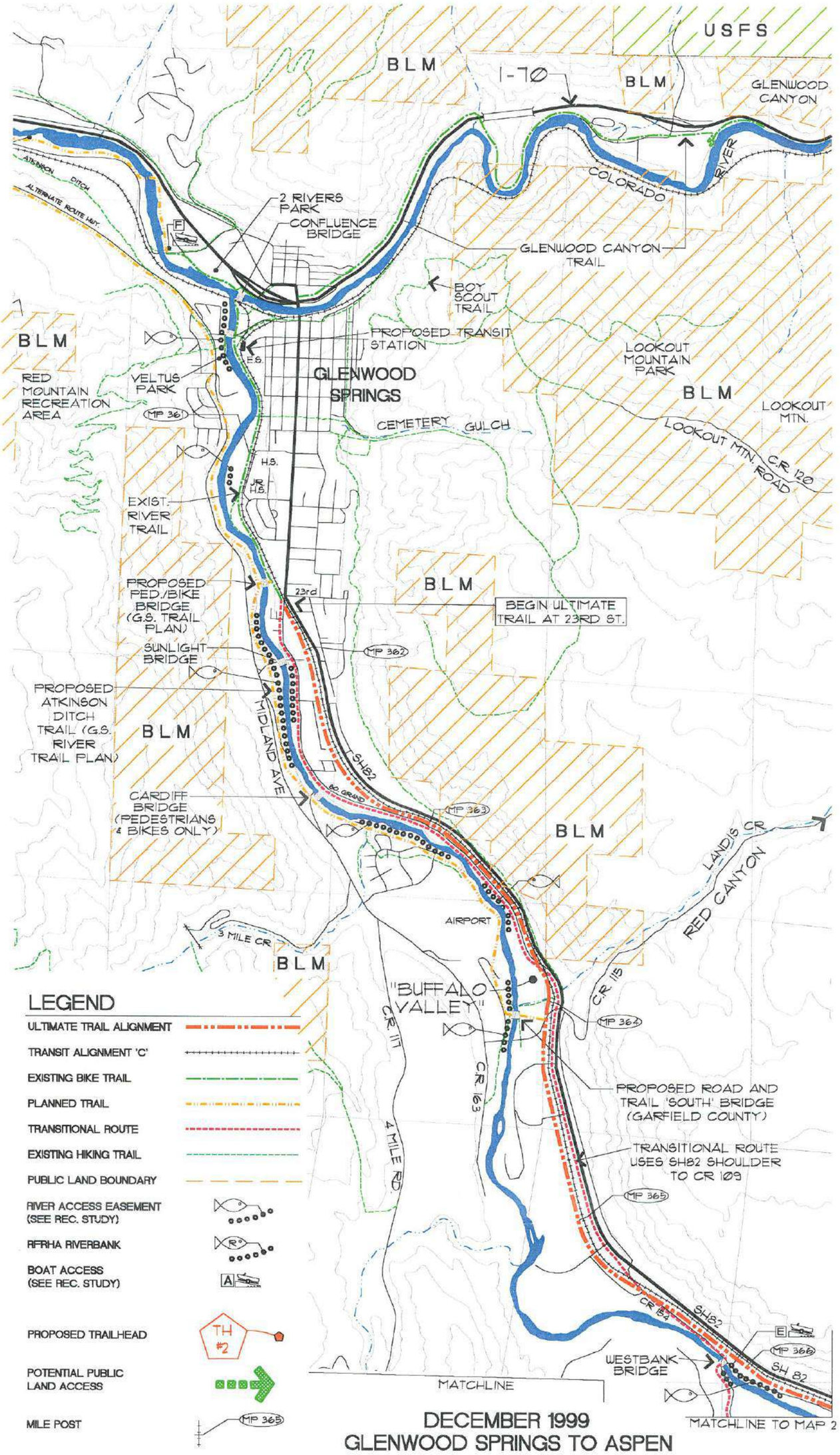
Map 1

From the end of the existing River Trail (MP 361.7) at the intersection of SH82 and Grand Ave. in Glenwood Springs, upvalley to Buffalo Valley (MP 364) the ROW exhibits several constrained sections, or 'choke points'. Examples of these areas include fifty-foot wide ROW directly adjacent to SH82 and very steep cross-slopes adjacent Grand Avenue. Across the river the town's 'River Trails Plan' identifies a future riverside trail on the Atkinson Ditch corridor, crossing the river via the proposed 'South' bridge near Buffalo Valley. When implemented, the RFRHA Trail and the Atkinson Ditch Trail will provide a scenic loop from downtown Glenwood in addition to good connections to existing and proposed residential neighborhoods, schools and parks on the west side of the river.

Connecting to the existing trail at 23rd Street, the Ultimate Trail alignment crosses Grand Ave. at a signalized intersection and proceeds southward in a 50' wide length of ROW on the west side of the rail bed. The west side alignment is proposed to avoid the fiber optic easement and an uncomfortable location between SH82 and the transit line. The narrow property width will require a safety barrier on the transit side and a privacy fence on the west (residential) side. At MP362.03 the ROW widens to the typical 100' as the trail passes through the mixed residential-commercial district of South Glenwood: Potential neighborhood access points occur at MP362.03, .24 and .52 connecting to residential streets. The Rosebud Cemetery at MP362.6 offers a point of interest and relatively easy trail implementation along its length. At MP362.82 the property widens to 200' width but steep slopes, SH82 and Grand Avenue encroachments within this width result in difficult trail implementation. From MP362.9 to 363.65 the proximity of the river results in both scenic river views and a requirement for intermittent retaining walls due to steep cross- slopes. Upvalley the river meanders away from the corridor resulting in gentler slopes within the ROW. At MP363.82 the property again narrows to a 50' width through the Buffalo Valley/Red Canyon activity area. A close association with the transit line and retaining walls are required to implement the trail through this narrow reach. Red Canyon on the east side of SH82 is a popular bike ride accessible at the signalized SH82 intersection.

Moving south from Buffalo Valley past the Holy Cross Electric facility the ROW again widens to 100' (MP364.1). The grade drops below SH82 providing a relatively quiet and pastoral setting as the trail runs adjacent to open hay meadow for 1.4 miles. A large portion of this agricultural land is protected by the Carter Jackson conservation easement. The trail alignment is maintained to the west of the rail bed to avoid fiber optic line conflict and to relate with the pasture.

At MP365.4 the river meanders back toward the corridor, increasing the cross-slope and requiring substantial grading for trail implementation. The presence of the Glenwood Ditch to the north of the rail bed maintains the trail alignment on the south side of the tracks. Boat and fishing access occurs at a DOW recreation site near the Westbank Bridge (MP365.9).



DECEMBER 1999

GLENWOOD SPRINGS TO ASPEN

CIS/DEIS/CP TRAILS PLAN

ROARING FORK RAILROAD HOLDING AUTHORITY

FIGURE

MAP 1

DECEMBER 1999

GLENWOOD SPRINGS TO ASPEN

CIS/DEIS/CP TRAILS PLAN

ROARING FORK RAILROAD HOLDING AUTHORITY

MATCHLINE TO MAP 1

BLM

ROSE RANCH

CR 109

ROARING FORK RIVER

PROPOSED ROSE RANCH BIKE TRAIL

TRANSITIONAL ROUTE ON CR 109

MP 367

TH #1

CR 114

SPRING VALLEY ROAD

COLORADO MOUNTAIN COLLEGE

CR 110

CATTLE CREEK

MP 368

TRAIL BRIDGE AT CATTLE CREEK

CR 113

SANDERS RANCH

CATTLE CREEK ROAD

CATTLE CREEK

4 MILE CR

DRY PARK ROAD

TELLER SPRINGS

SH 82

MP 369

CR 112

EXISTING D.O.W. RIVER ACCESS PARKING

PROPOSED ASPEN GLEN BIKE TRAIL

ASPEN GLEN

CR 125

TH #2

MP 370

DRY PARK

ASPEN GLEN

MATCHLINE TO MAP 3

MP 371

MATCHLINE

TO SUNLIGHT SKI AREA

LEGEND

- ULTIMATE TRAIL ALIGNMENT
- TRANSIT ALIGNMENT 'C'
- EXISTING BIKE TRAIL
- PLANNED TRAIL
- TRANSITIONAL ROUTE
- EXISTING HIKING TRAIL
- PUBLIC LAND BOUNDARY
- RIVER ACCESS EASEMENT (SEE REC. STUDY)
- RFRHA RIVERBANK
- BOAT ACCESS (SEE REC. STUDY)
- PROPOSED TRAILHEAD (TH #7)
- POTENTIAL PUBLIC LAND ACCESS
- MILE POST (MP 365)

FIGURE

MAP 2

NORTH

0 1000' 850' 850' 1800' 2800' 4800'

THE LANDPLAN DESIGN GROUP

DECEMBER 1999
GLENWOOD SPRINGS TO ASPEN
CIS/DEIS/CP TRAILS PLAN

ROARING FORK RAILROAD HOLDING AUTHORITY

NORTH

0 1000' 2000' 3000' 4000'

THE LANDPLAN BIGHORN GROUP

FIGURE
MAP 3

LEGEND

- ULTIMATE TRAIL ALIGNMENT
- TRANSIT ALIGNMENT 'C'
- EXISTING BIKE TRAIL
- PLANNED TRAIL
- TRANSITIONAL ROUTE
- EXISTING HIKING TRAIL
- PUBLIC LAND BOUNDARY
- MILE POST (MP 365)
- RIVER ACCESS EASEMENT (SEE REC. STUDY)
- RFRHA RIVERBANK
- BOAT ACCESS (SEE REC. STUDY)
- PROPOSED TRAILHEAD (TH #1)
- POTENTIAL PUBLIC LAND ACCESS

MATCHLINE TO MAP 2

BLM

RED HILL

MUSHROOM ROCK TRAIL

MATCHLINE

SATANK

SH 82

CR 103

CR 112

CRYSTAL SPRING CREEK

CRMS BRIDGE

MP 372

COLORADO ROCKY MOUNTAIN SCHOOL

CR 108

TH #3 AT SH133 TRANSIT STATION

MP 373

CARBONDALE PROPOSED TRANSIT STATION

MP 374

TRANSITIONAL ROUTE ON CR 100

MP 375

CR 100

CATHERINE STORE

MP 377

MP 376

TH #4

BEGIN 'RAIL-TO TRAIL,' END 'RAIL W/ TRAIL'

WHITE HILL

MID CONTINENT RESOURCES

CR 101

CRYSTAL

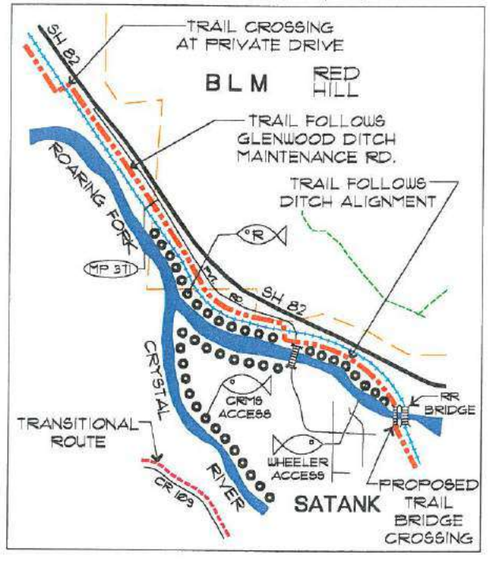
SH133

RIVER

PRINCE CR RD.

MATCHLINE TO MAP 4

SATANK ENLARGEMENT



DECEMBER 1999
GLENWOOD SPRINGS TO ASPEN
CIS/DEIS/CP TRAILS PLAN

ROARING FORK RAILROAD HOLDING AUTHORITY

NORTH

THE LANDPLAN DESIGN GROUP

LEGEND

- ULTIMATE TRAIL ALIGNMENT
- TRANSIT ALIGNMENT 'C'
- EXISTING BIKE TRAIL
- PLANNED TRAIL
- INTERIM TRAIL
- TRANSITIONAL ROUTE
- EXISTING HIKING TRAIL
- PUBLIC LAND BOUNDARY
- RIVER ACCESS EASEMENT (SEE REC. STUDY)
- RFRHA RIVERBANK
- BOAT ACCESS (SEE REC. STUDY)
- PROPOSED TRAILHEAD (TH #1)
- POTENTIAL PUBLIC LAND ACCESS
- MILE POST (MP 365)

TO MISSOURI HTS.

MATCHLINE TO MAP 3

BLUE CR

BLUE LAKE

SH 82

MP 378

ROCK BOTTOM RANCH

ROARING FORK RIVER

VALLEY RD.

TREE FARM

EL JEBEL

BLM

USFS

PROPOSED TRANSIT STATION

CHRISTINE S.W.A.

STATE

HOOKS SPUR RD.

MP 379

SOPRIS VILLAGE

WILLITS LANE

MP 380

HOOKS

MP 381

TWO RIVERS RD

PROPOSED TRANSIT STATION

SH 82

EMMA

MP 382

BLM

CROWN AREA TRAILS

GARFIELD CO.

EAGLE CO.

TRAIL

EAGLE CO.

PITKIN CO.

SOPRIS CREEK

LIGHT HILL TRAIL

MP 383

TH #5

MP 384

BASALT H.S.

ROARING FORK CLUB

FRYING PAN RIVER

BLM

BASALT

SH 82

MATCHLINE TO MAP 5

W. SOPRIS CR ROAD

BLM

EMMA ENLARGEMENT

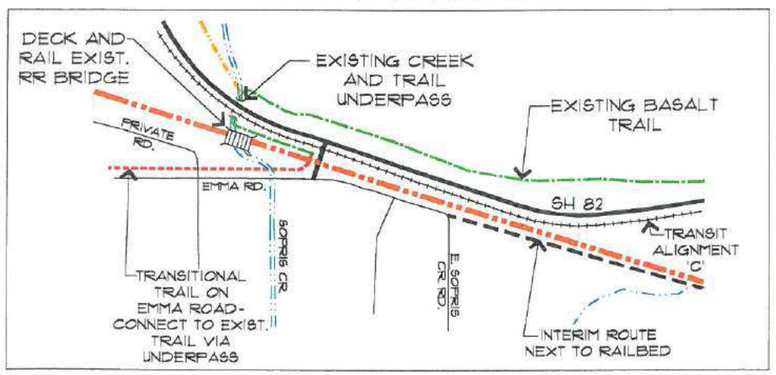


FIGURE
MAP 4

DECEMBER 1999

GLENWOOD SPRINGS TO ASPEN

CIS/DEIS/CP TRAILS PLAN

ROARING FORK RAILROAD HOLDING AUTHORITY

NORTH

0 120' 360' 600' 1200' 2400' 4800'

THE LANDPLAN DESIGN GROUP

MATCHLINE TO MAP 5

BLM

LIGHT HILL TRAIL

WILLIAMS HILL

STATE

PHILLIPS CURVES

MP 390

USFS

TRIANGLE PEAK

RED RIM RD.

TH #1

FOOTBRIDGE

STATE

MP 391

FS 534

BLM

SH 82

GERBAZDALE

RED CANYON

DRY WOODY CR

TO EMMA

CR 6 E. SOPRIS CREEK RD.

CAPITOL CR

SNOWMASS CR

CR 8

WATSON DIVIDE

LOWER WOODY CREEK BRIDGE

MP 392

ASPEN VILLAGE

PROPOSED TRANSIT STATION

RIVER RD

MP 393

BLM

TH #8

PITKIN IRON

LITTLE WOODY CR

USFS

GULCH

BESANCON

CONNECT TO RIO GRANDE TRAIL

WOODY CREEK

CR 17

WOODY CR

RIO GRANDE TRAIL

JAFFEE PARK

SH 82

TO ASPEN

PHILLIP'S CURVE ENLARGEMENT

BLM

TRAIL CROSSES RAIL W/ RIVER ROAD

(3) GULCH BRIDGES

ARBANEY GULCH

USFS

ULTIMATE 'TRAIL W/ RAIL'

TRANSIT ALIGNMENT 'C'

RIVER ROAD

TRANSITIONAL ROUTE ON RIVER RD.

INTERIM TRAIL FOLLOWS ULTIMATE ALIGNMENT - USE RAILBED IN CHOKE POINTS

STATE

MP 390

BEGIN 'RAIL TO TRAIL'

TH #7

GERBAZDALE RAIL CROSSING TO HIGHWAY

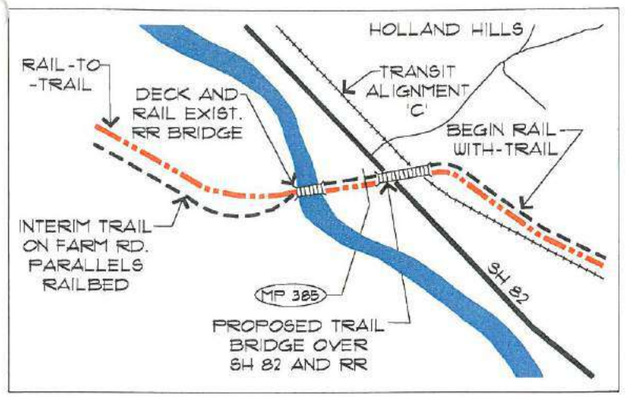
LEGEND

- ULTIMATE TRAIL ALIGNMENT
- TRANSIT ALIGNMENT 'C'
- EXISTING BIKE TRAIL
- PLANNED TRAIL
- INTERIM TRAIL
- TRANSITIONAL ROUTE
- EXISTING HIKING TRAIL
- PUBLIC LAND BOUNDARY

- RIVER ACCESS EASEMENT (SEE REC. STUDY)
- RFRHA RIVERBANK
- BOAT ACCESS (SEE REC. STUDY)
- PROPOSED TRAILHEAD (TH #7)
- POTENTIAL PUBLIC LAND ACCESS
- MILE POST (MP 365)

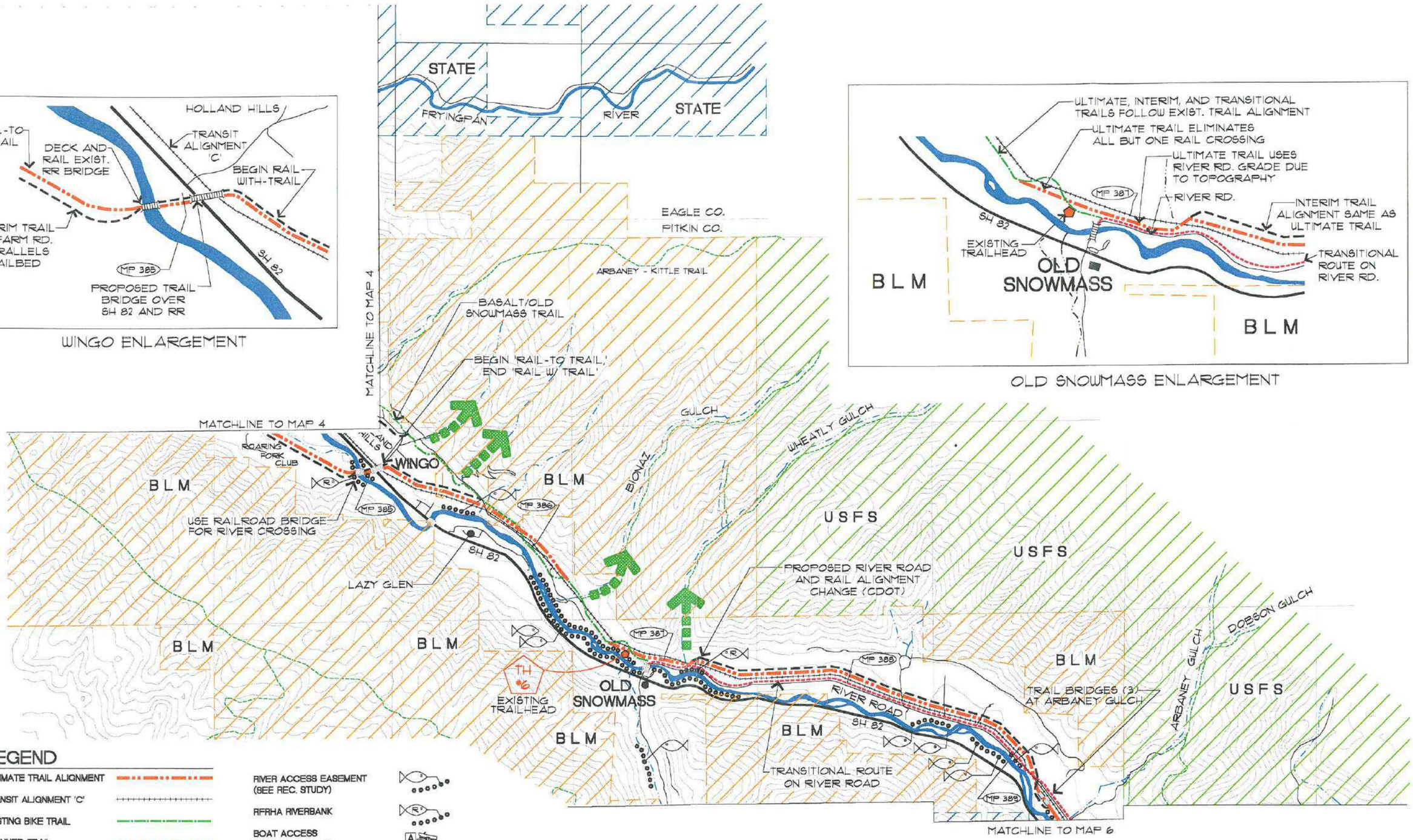
FIGURE

MAP 6



WINGO ENLARGEMENT

OLD SNOWMASS ENLARGEMENT



LEGEND

- ULTIMATE TRAIL ALIGNMENT
- TRANSIT ALIGNMENT 'C'
- EXISTING BIKE TRAIL
- PLANNED TRAIL
- INTERIM TRAIL
- TRANSITIONAL ROUTE
- EXISTING HIKING TRAIL
- PUBLIC LAND BOUNDARY

- RIVER ACCESS EASEMENT (SEE REC. STUDY)
- RFRHA RIVERBANK
- BOAT ACCESS (SEE REC. STUDY)
- PROPOSED TRAILHEAD (TH #6)
- POTENTIAL PUBLIC LAND ACCESS
- MILE POST (MP 365)

DECEMBER 1999
GLENWOOD SPRINGS TO ASPEN
CIS/DEIS/CP TRAILS PLAN

ROARING FORK RAILROAD HOLDING AUTHORITY

NORTH

0 1000' 2000' 3000' 4000' 5000'

THE LANDPLAN DESIGN GROUP

FIGURE
MAP 5

Map2

At the SH82/CR114 intersection the 200' ROW width, existing transit stop, Colorado Mountain College access and SH82 traffic signal support this location as a primary trailhead location (T.H.#1).

Continuing upvalley the ROW leaves the SH82 corridor and bisects an open agricultural parcel for approximately one-mile to Cattle Creek (MP368.1). This segment provides a quiet, rural setting with scenic views of the riparian river corridor and towering Mt. Sopris to the south. Trail location is maintained on the west side of the corridor thus avoiding the fiber optic line and unnecessary rail crossings. It is recommended that development approval of this 'Sanders Ranch' parcel include provisions for public river access from the ROW, potentially along the Cattle Creek drainage, and public access from the highway to the traiVra11 corridor. The noteworthy wooden railroad trestle and irrigation diversion structures at Cattle Creek provide interesting visual elements and interpretation opportunities. The trail crossing of Cattle Creek requires a bridge structure.

Heading upvalley from Cattle Creek the corridor rejoins and parallels SH82. At MP368.8 the ROW narrows to 65' width at a steep 'choke' point between the highway and a river oxbow. Ultimate trail construction within the ROW will require a retaining wall, irrigation flume relocation, and close proximity to the transit line. Existing ranch roads parallel to and below the ROW may be an economical alignment alternative if trail easements are negotiable with the landowners. This particular section of the trail exhibits several unique and interesting features including scenic river views, bald eagle roost sites, a DOW fisherman access, and extensive river easements on both banks of the river. The adjacent ranch is protected by the Ed Larsh conservation easement. To serve this trail segment a trailhead (T.H.#2) is proposed in a wide ROW section, offering existing road access (private), near DOW fisherman parking area (MP369.5).

Continuing upvalley toward Carbondale the ROW abuts both SH82 and the Aspen Glen subdivision. Fiber optic and property line locations necessitate trail alignment to remain on the west side of the corridor, potentially affecting the Aspen Glen landscaped berm. At the south end of Aspen Glen (MP370.7) an existing box culvert underpass of SH82 provides access to the BLM Red Hill area above town. Immediately south of Aspen Glen the ROW runs closely adjacent to the river and the Glenwood Ditch resulting in scenic views, steep slopes and limited space for trail development.

There are several 'choke' points in this ½-mile stretch of ROW near the Crystal River confluence between Aspen Glen and the Satank Bridge. The proposed trail alignment crosses to the east side of the rail bed at a private way crossing at MP370.7 and utilizes the Glenwood Ditch service road to MP371.3, near the Crystal/Roaring Fork confluence. This route requires a use agreement with the ditch company as a portion of the alignment lies outside the RFRHA property.

Map3

Upvalley from the Crystal confluence the ROW widens to 200' and the trail snakes its way upvalley avoiding slope, ditch and road constraints. The closed Satank Bridge offers a potential historic interpretation element. From the Satank Bridge to the Roaring Fork railroad bridge, trail alignment is dependent on the preferred location for the trail crossing of the river: east, west or attached to the railroad bridge. North side alignment through this section results in a trail above the rail bed adjacent to the RV Park access road. The recommended alignment is on the south side of the track. This route moderately impacts the driveway and irrigation ditch on the edge of a secluded private residential lot. Several river access easements exist in this area including: the north side of the river from the Satank Bridge to the railroad bridge, from the SH133 bridge downstream 1/8 mile, and across the river from the Satank Bridge downstream to the confluence and up the Crystal to the Colorado Rocky Mountain School Bridge.

After crossing the Roaring Fork the trail enters Carbondale in a 200' wide ROW section. Trail alignment on the southern property edge provides views of the valley from above the rail bed cut and connects to a trailhead (T.H.#3) at the proposed SH133 transit station. A transit overpass of SH133 is proposed that accommodates the trail crossing of this busy roadway. The SH133 crossing also provides linkages with existing and future local trails, enhancing the site's potential as a high-visitation information center.

After crossing SH133 the trail enters downtown Carbondale and is bordered by residential, commercial and industrial development. Historically the rail corridor was treated as a 'back alley' with homes and businesses sited to face

away from this noise generator. Trail implementation in this town-bisecting corridor has outstanding potential to provide a vibrant, off-street pedestrian axis to complement the Central Business District. This section of trail also provides direct foot/bike access to the proposed downtown Carbondale transit station between 3rd and 4th Streets. It is recommended that the Town Planning Dept. closely review the trail alignment through Town to determine preferred design section, location and potential impacts to land use and circulation patterns. The Plan indicates trail alignment on the south side of the rail to avoid the fiber optic line and connect directly to the transit station and downtown.

At the eastern edge of Carbondale at White Hill the character of the ROW quickly shifts from an enclosed residential corridor to an open, elevated position hugging the south edge of the valley floor. The intersection of Main Ave. /Snowmass Dr. and the ROW represents a 'choke' point resulting from a fiber optic crossing to the south side of the track and vertical cross slopes within the corridor. The next 2.8 miles of trail to Catherine Bridge offers superior views of the valley, its ranches and extensive riparian forest, and Basalt Mt. upvalley to the east.

The proposed trail alignment climbs up and follows the overhead utility line above the rail bed on the south edge of the ROW, avoiding a long wetland area near MP373.7. At MP373.8 an old asphalt road grade parallels the track on the south providing a suitable trail platform. Due to its proximity to the rails, a barrier fence is recommended for this section prior to transit initiation. The imposing *Mid-Continent Resources* coal load-out facility at MP374.6 provides a potential interpretation site related to resource extraction. Steep slopes, ditches and narrow width of ROW on the north side of the track maintain a south side trail alignment to Catherine Bridge. *Mid-Continent* track sidings on the south side of the mainline between MP374.1 and MP375.4 may serve as trail platforms following track & tie removal. At the east end of the siding, the south side of the ROW has been identified as wetland. Environmental review and mitigation is recommended prior to final trail design through this area.

At MP375.8 the ROW widens to 200', steep slopes encroach on the southern edge of the rail bed and the river draws closer to the corridor. A trail crossing of the track is proposed at MP375.7 to avoid the vertical topography and link the trail to trailhead #4. This trailhead is proposed in a 200' wide ROW section (MP375.9) west of Catherine Bridge to provide access to the scenic section of trail to the east. Wetlands have been identified within the ROW between MP375.8 and 376 as again environmental review is recommended prior to trail or trailhead design in this area.

The two miles of trail above Catherine Bridge provide the most extensive and scenic 'backcountry' experience of the property. The river rejoins the ROW presenting itself in dramatic views and providing easy river access, wildlife habitat and public land access through this roadless area. Extensive river access is provided via a public easement at the bridge and RFRHA ownership of the south riverbank.

Two transit alignment alternatives are under consideration for the crossing from the ROW to the SH82 corridor. This crossing is critical to both trail and transit design and costs in the section east of Catherine Bridge. The ROW exhibits a very steep cross-slope, and the rail bed runs on a bench cut into the valley wall immediately above the river. It is highly recommended from the Trails Plan perspective that the transit alignment leave the ROW at the bridge, allowing use of the existing rail bed for trail use. If the upper transit crossing is selected (Flying Fish Rd.), rail bed and trail platform improvements that avoid impacts to the riverbank add substantial expense to rail implementation. This option adds approximately $5 million to the trail/rail costs due to the extensive earthwork and retaining walls required. An additional option to consider utilizes the north riverbank. This alignment would require two additional river-trail bridges and negotiation of a perpetual trail easement from the landowner.

From Catherine Bridge upvalley to the west end of Hooks Spur Road a lack of access and development has protected the riparian corridor. The natural qualities of this trail section are diverse, relatively pristine and scenic due to views and sounds of the adjacent river. The riverbank is readily accessible and channel characteristics encourage fishing, wading and bank exploration. A relatively extensive riparian forest fills the floodplain on the opposite riverbank framing views of the flowing water. The Ultimate Trail runs either on or immediately below the rail bed, dependent on the transit alignment selection. Pending the acquisition of the *Rock Bottom Ranch* property for an environmental learning center, a potential

integration of interpretive programs with the trails plan may exist.

Through this sensitive habitat final corridor design should identify secondary trails for BLM and river access and revegetate excess social trails to discourage use and protect habitat. AtMP376.6 a hiking trail connects to BLM land providing access to the popular 'Crown' area trail system. Additional public land access points occur between here and MP378.2 due to the adjacency of BLM land to the south of the corridor.

Map4

The upper transit crossing option occurs at MP377.1 permitting unrestricted trail use of the corridor upvalley to Emma. It is the recommendation of the Plan to utilize the existing rail bed for cost-efficient trail construction and to avoid unnecessary resource impact. The dose adjacency of the river, spectacular riparian habitat and solar aspect provide for river access, wildlife viewing, winter sports, photographic and interpretive opportunities. The winding alignment of the corridor enhances the trail experience, providing ever-changing view sheds and inviting exploration at each tum.

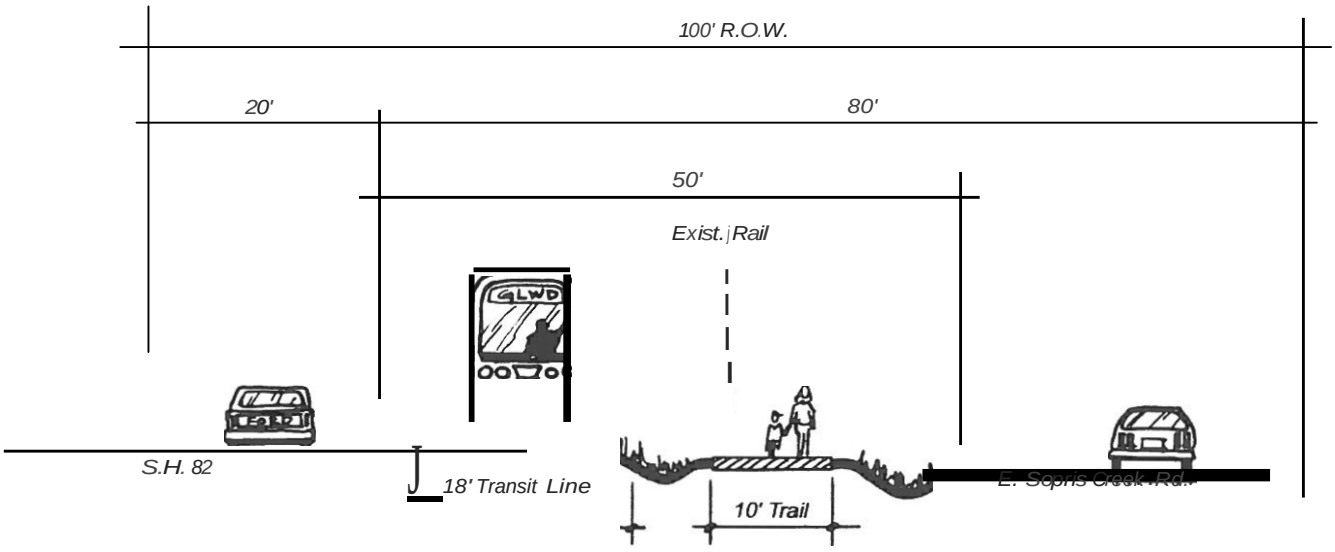
At MP378.3 views from the trail begin to expand as the river, valley wall, and ROW diverge. The trail leaves Garfield and enters Eagle County at the end of Hooks Spur Rd. near MP378.6. A large Great Blue Heron rookery in this area can provide interesting wildlife viewing. Continuing east the property parallels Hooks Spur Rd. offering scenic views of the ranchland of the valley floor. The proposed recreation and social services facility at the Mt. Sopris Tree Farm is located across private property and the river near MP379.6. An easement across the intermediate land parcel for a future trail connection to this complex and the El Jebel community is recommended.

The Hooks Bridge offers access across the river at MP380.6, providing linkage to a primitive boat launch area, a river access easement, the Willits Lane trail and the Willits/El Jebel population center on the north side of the river.

The next three miles of trail is an important student commuter route due to its linkages with future trails, mid-valley population centers and Basalt High School. From Hooks to Emma the corridor runs alone through small, scenic ranch parcels passing farm ponds and irrigation ditches.

At Emma, SH82, rail 'Alignment C' and the ROW converge for a ¼-mile length. A highway underpass at Sopris Creek links the trail to an existing Town of Basalt trail paralleling SH82 and providing access to extensive river access easements. The Trail Plan proposes deck and rail improvements to the existing railroad bridge over Sopris Cr. and a barrier adjacent to the transit line. The ROW enters Pitkin County near the Sopris Cr. Crossing. The historic buildings across the highway may provide an opportunity for historic interpretation. Trail design development should be coordinated with the Town of Basalt and the Mid-Valley Trails Committee to plan for trail linkages to existing and proposed trails.

East of Emma the proposed transit alignment diverges from the ROW following SH82 into Basalt. The trail again enters a quiet agricultural setting of open pasture, once again atop the



rail bed. Livestock fencing may be required through some of the parcels. Adjacent public land (BLM) south of the ROW affords access to the Light Hill trails network at MP382.7 and potentially behind Basalt High School at MP383.5. The High School is also identified as a trailhead location (#5) to take advantage of existing road access and trail connection into Basalt at an important community center. Continuing upvalley the trail proceeds through pastureland before entering a recently constructed golf course *(Roaring Fork Club)* at MP384.4. Special trail design considerations may be required for the section through the golf course for trail user safety and the prevention of unauthorized property access.

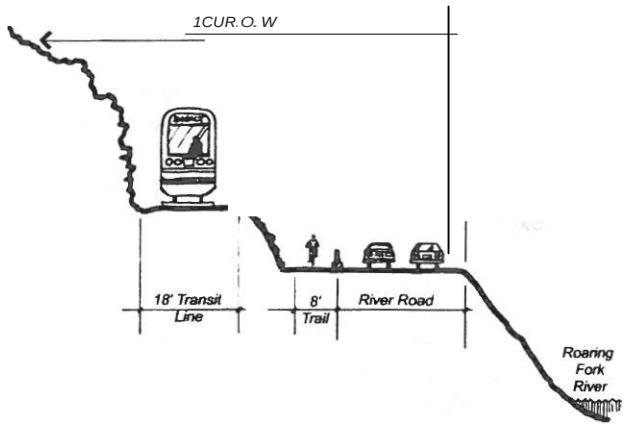
Map 5

Retrofitting of the existing railroad bridge at Wingo is proposed for the trail-river crossing. Bridge modifications include trail decking and handrails. Additional safety improvements are required if equestrian use is permitted. A river access easement exists at this bridge. A long trail bridge is proposed to span SH82 and the proposed transit alignment at Wingo Junction (MP385).

On the north side of SH82 transit 'Alignment C' rejoins the ROW to once again run contiguous with the trail through Snowmass Canyon. This segment of the corridor is both scenic and confined as the valley tapers down to its narrowest point. Views from the trail are directed up- or down-valley or down to the river. Numerous public land and river access opportunities are available. Upvalley from Wingo the trail alignment is proposed on the north side of the rail bed to avoid conflict with nearby homes and steep slopes. Trail alignment follows the top of the cut for the rail bench to MP385.7.

This north side alignment expedites linkage to the existing Basalt-Old Snowmass Trail. This trail runs predominantly within the ROW, crossing the rail bed five times between MP385.7 and its terminus at a trailhead (#6) at Old Snowmass, MP386.8. The proposed alignment for the RFRHA trail connects to this trail at MP385.7 and utilizes existing trail segments on the north side of the track, crossing once at MP386.45, eliminating four track crossings. River access occurs opposite Lazy Glen and downstream for one mile from the Old Snowmass Bridge. The existing trail link to Basalt crosses through BLM land at three points providing foot and hoof access to public land.

The bridge at Old Snowmass marks the west end of River Road that intermittently shares the ROW with the trail and transit alignments on the north side of the canyon. At this location the almost vertical valley wall slopes down to the river to squeeze the road and rail bed onto narrow platforms through a serious 'choke" point. This area requires retaining walls to support the existing substandard width of River Rd. The most feasible option through this choke point is to widen the road platform on the uphill side and have the trail share the alignment of River Rd. for a short length (+/-900') through the choke point. An extensive, tall retaining wall and traffic barrier are required (see illustration). The COOT is planning River Road improvements at this bridge approach for construction in 2000. RFRHA should encourage trail platform implementation during this project.



At the mouth of Wheatly Gulch (MP387.1) the canyon widens facilitating integration of rail-with-trail. A foot & hoof trailhead has been established at this point (Dart property), near a historic pioneer cemetery. In this area transit planning proposes rail and River Rd. realignment to avoid two existing road-rail crossings. A similar road realignment is proposed upvalley near the point where the transit alignment leaves the ROW and crosses the river to join the highway corridor (Lower Gerbazdale Crossing - MP390.5).

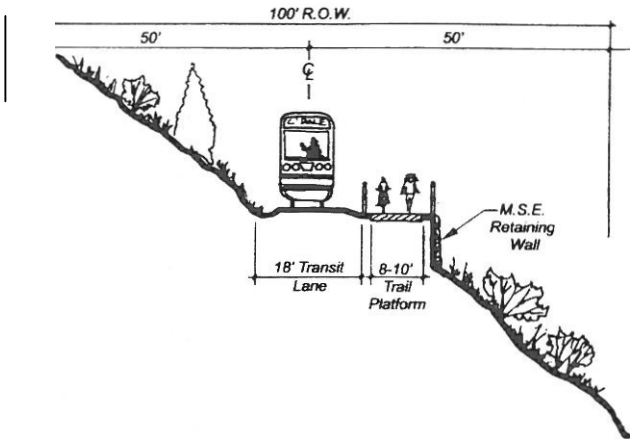
A trail crossing of the rail line is proposed in the vicinity of Wheatly Gulch to transition from the alignment with River Rd. over to the north side of the ROW. The proposed trail continues on the north side of the track, taking advantage of superior views and character of this edge of the property. Just upvalley the trail passes the 'Bates' siding and historic brick schoolhouse at MP387.5. Scenic views of the valley walls, pastoral ranches,

and elk & deer grazing on adjacent south facing pastures enhance the trail experience. A fishing easement occurs at MP388.6 as does a river recreation easement at MP389.1. At this point River Rd. crosses *over* to the north side of the rail and the plan proposes a trail crossing to the river (south) edge of the property. Three trail bridges or culvert extensions are required for crossing the separate channels of Arbaney Gulch between MP389.1 and 389.5.

Map 6

South of Arbaney Gulch the Valley begins to narrow and the river meanders close to the ROW, resulting in steep side slopes and trail implementation constraints. Additional fishing easements occur near MP389.4 and 389.6.

In the Phillip's Curve reach of the river is a quiet, intimate stretch of ROW, far above, and with scenic views of the river. TWO 'choke' points occur in this difficult stretch of rail-trail. The first occurs at a deep railroad cut near MP389.7 and the second, at 389.9, involves an extremely steep slope across the ROW and down to the river. Both areas will likely require substantial earthwork and retaining walls for trail implementation (see illustration). An irrigation ditch is benched into the steep slope well below the rail bed that may potentially be utilized for the soft surface trail alignment. A recreation easement exists between these two 'choke' points within the watercourse of the river.



Immediately upvalley from the second 'choke' point slopes to the riverbank soften, providing easy river access at MP390.1 to the ½ mile long "BLM Access" (access through private property). Upstream the trail alignment crosses the rail to avoid a 'choke' point and other ROW constraints adjacent to private property. The Lower Gerbazdale crossing at MP390.5 is the point that transit Alignment C leaves the ROW and crosses the river to run parallel with SH82. River Rd. realignment is proposed in this area to avoid conflict with a new curve in the rail line. A trailhead (#7) is proposed just upvalley from the crossing in this length of 200' wide ROW.

From MP390.5 up to Woody Creek the RFRHA corridor becomes a rail-to-trail property with the trail utilizing the rail bed. Upvalley from Lower Gerbazdale the rail bed is benched into a steep section of valley wall to MP391.85. Trail features in the area include existing access to BLM & USFS lands at the base of Triangle Peak (MP391.2), the river easement at the Lower Woody Creek Bridge on the north bank from MP390.7 to MP391.4, and fisherman access on the Koch property near MP391.1. From MP391.0 to 391.2 the trail alignment is proposed on the riverside of the railbed to provide some separation from River Rd. Interesting irrigation flume structures occur adjacent to the scenic and steeply benched rail bed between MP391.2 and 391.6. This narrow bench will require minor retaining structures for trail implementation and the trail platform may be narrowed to reduce resource impact and cost. At MP391.6 the trail crosses Gerbaz Way providing a link across the river to SH82 via the Lower Woody Creek Bridge. This connection affords access to the Aspen Village residential area and public lands (BLM & State) on the west side of the Valley. For the next 1.5 miles the trail transects the quiet of the lower floodplain terrace, removed from both River Rd. and the river, passing through intermittent stands of dense trees. The corridor is relatively enclosed and intimate as it runs adjacent to residential "ranchettes" of the lower Woody Creek area. Trail construction through this area may encounter wet soil conditions requiring embankment and/or drainage features. A short length of fishing easement occurs near MP392.45 via private land access to the river. At MP393.0 the trail encounters a multiple rail siding at the County's Pitkin Iron property. Proposed development of this site includes open space adjacent to the ROW with a public parking/trailhead (#8), river access and pedestrian crossing of the river providing a connecting to affordable housing and SH82 on the opposite side of the river. It was noted in the Trails Workshops that the Pitkin Iron site has historical value related to early settlement and mining that may be significant for interpretation.

Just past the Pitkin Iron site River Rd. crosses the trail for the final time and the rail bed is benched into an alluvial terrace above the road. From this elevated vantage point the trail offers scenic views of the Woody Creek basin with Shale Bluffs, Buttermilk and Aspen ski areas as the backdrop. The trail continues on this bench to the upper terminus of the RFRHA property at Woody Creek Rd. (MP393.2). At the Woody Cr. gulch the integrity of the rail platform has been breached for a length of +/- 450 feet due to road construction and removal of the Woody Creek railroad trestle. To provide a connection across the gulch to the Rio Grande Trail, the plan recommends an alignment that descends from the rail grade to River Rd. to eliminate the need for a long trail bridge. A retaining wall is required at the gulch to widen the River Rd. platform to provide for trail implementation. Softening of the steep grade at the end of the Rio Grande Trail is recommended to provide an. accessible slope back up to the rail bed. This existing trail provides a continuous trail upvalley to Aspen with numerous recreational adventures in between.

INITIAL TRAIL

A primary RFRHA goal for the corridor is to provide public access to the property in an expedient manner. To achieve this goal in a cost- effective manner the Plan identifies a simple and practical 'Initial' trail for the corridor as a first phase of implementation. It is envisioned that following the adoption of this Plan construction of this trail occur as a single project to provide a continuous recreation trail from Glenwood Springs to Aspen.

This trail will consist of a 'soft', natural surface with a typical width of six feet. At 'choke' points and other constrained areas the trail width may be reduced to a minimum of three feet. Trail width can vary to handle the expected volume and types of use. The construction of this simple, rustic trail will accommodate a moderate level of recreational use for walking, running, mountain biking, wildlife viewing and potentially equestrian and x-country skiing activities. Public land and river access points from the initial trail are identical to those described for the ultimate trail in the preceding section.

The main objective of the Initial Trail is to identify and implement a stable and economical trail. Although the proposed alignment follows the Ultimate trail, the Initial trail design offers great flexibility for alignment, grade and adaptability to site conditions. This flexibility minimizes the need for extensive earthwork, walls, major drainage structures and other infrastructure improvements. The trait can more easily be fitted into the landscape through curves, dips, width variations and surface drainage crossings as required by corridor constraints. In some of the more constrained 'choke' points the Initial trail may utilize the rail bed above Mid-Continent, MP375, to avoid costly earthwork, wetlands and retaining structures. In Pitkin County the Initial trail follows the alignment of the Interim trail as indicated on the maps and described below. At-grade crossings of rail bed, roads and drives are anticipated for the Initial trail intersections. Near Basalt the Initial trail utilizes the existing Basalt- Old Snowmass trail from MP385.7 to 386.6.

The Plan recommends a native surface of existing subsoil for the Initial Trail to minimize costs of the 'temporary' improvements. Vegetation and organic topsoil should be removed within the path of the alignment to avoid muddy trail conditions and improve drainage. The native subsoil should be cross-sloped or crowned to provide sufficient trail surface drainage. Minor drainage improvements are required to prevent trail erosion and wash-outs. In some areas import fill may be required to create the trail through wet or low-lying sections. Adequate height and width clearances are required for user safety and sight distance.

INTERIM TRAIL

As defined in the Trail Easement, the Pitkin County OS&T Board has been deeded the right to construct a trail within the Pitkin County reach of the property if the Comprehensive Plan is not completed within two years of the date of acquisition of the property. Anticipating the potential for this occurrence, the plan identifies an Interim trail alignment in Pitkin County that accommodates for public use of the property while protecting the integrity of both existing and proposed rail alignments. Trail design standards for the interim trail have not been determined by OST. In this plan the trail design assumes an 8' wide trail platform with crusher-fines surfacing and basic signage, safety and drainage improvements. Physical constraints of the corridor and cost-effective design may result in trail detours out of the ROW or onto the 'Alignment C' rail bed to avoid expensive 'temporary' capital expenditures for the interim trail. Public land and river access points from the interim trail are identical to those described for the ultimate trail in a preceding section.

Running upvalley, the RFRHA property enters Pitkin County at MP381.7, near the crossing of Sopris Cr. and where rail 'Alignment C' rejoins the ROW for a short length near Emma. In this length of shared-use the Plan recommends an Interim alignment synonymous with the Ultimate trail due to ROW constraints. The proposed Interim trail terminates at E. Sopris Creek Rd. (MP362.05) connecting to an existing Town of Basalt trail on the opposite side of SH82 via the Sopris Creek underpass.

East of Emma at MP362.1 the transit line leaves the ROW and the Interim trail runs on the south side of the rail bed. Relatively simple trail implementation within the property can occur from this area up to Wingo through gentle pasture land. Two 'choke' points occur due to slope, irrigation ditch and wetland conflicts at MP382.1 and between MP362.3 and 362.9. Here it is recommended that the trail utilize the rail bed to avoid excess grading and drainage improvements. In the section from Basalt HS to the golf course an existing ranch road within the ROW may serve interim trail functions. East of the golf course, bridge improvements to the railroad bridge over the Roaring Fork will be required to connect the river to the SH82 corridor.

The crossing of SH62 and the proposed transit line at Wingo presents a substantial expense for both any grade-separated trail linkage. An at grade crossing of the highway presents serious safety concerns. Two potential route alternatives exist for the Interim trail highway crossing. One option is to utilize the existing trail system through Basalt on the north side of SH62. From the underpass at Sopris Creek (MP361.65) a continuous, almost exclusively off-street bike trail connects Emma to Basalt and Old Snowmass. In this scenario the trail east of Basalt High school would terminate at the river or highway. The second option is an at-grade crossing of SH62 at the signalized E. Cottonwood Dr. intersection near the new High School. An existing path/sidewalk provides paved access from the ROW to this crossing. From the Basalt side of SH62 existing roads and trails lead back to the ROW at Sopris Cr. or connect to the Basalt-Old Snowmass bike trail.

At the north side of SH82 at Wingo Junction the transit line rejoins the corridor and the Interim trail again corresponds to the Ultimate alignment. Trail layout on the north side of the track expedites connection to the existing Basalt-Old Snowmass Trail at MP365.7. Use of this existing trail to its trailhead at MP386.6 provides the Interim trail to Old Snowmass. At this point slope constraints require use of the rail bed bench for a short section to MP387 where the property again flattens, providing a suitable trail platform. From here to MP389.1 the Interim trail follows the Ultimate route on the north side of the track to avoid conflict with River Rd. At this point River Rd. again crosses the ROW and meanders away from the corridor, providing a logical crossing of the trail to the south side of the rail bed. Several 'choke' points occur in the next section of trail due to topography (MP389.1-.95, 90.1-.4). The recommendation is to utilize the rail bed on an interim basis to bypass these points near the 'Phillips Curves" reach of the river.

Upvalley from the Phillips property the transit alignment leaves the ROW at MP390.55 and the Ultimate trail alignment utilizes the rail bed up to Woody Creek. Numerous long and steeply benched sections of the property require interim use of the rail bed to bypass 'choke' points. In the narrow canyon between MP390.55 and 391.82 the interim trail is generally confined to the rail bed excepting two short sections. At the south end of the Woody Creek basin the ROW flattens allowing an Interim trail alignment parallel to the rail bed beginning at MP391.82. From this point up to the final River Rd. crossing (MP393.15) the interim trail crosses the rail bed twice following the path of least resistance avoiding slopes, trees and private drive conflicts. Some areas within this section may require embankments due to wet ground conditions. The final length of the Interim trail (MP393.35 to 393.72) runs on the rail bed due to the steep cross-slope and narrow rail bench of the ROW. The Interim trail connects with the Rio Grande Trail at Woody Creek.

TRANSITIONAL ROUTE DESCRIPTION

The trail study includes the identification of a 'Transitional' trail route connecting Glenwood Springs to Woody Creek via the Mid-Valley communities. The objective is to designate a continuous, paved alignment to serve as a temporary substitute bicycle route for the Ultimate trail. Related to the environmental impact statement this route equates to a "no-action• alternative. This analysis helps identify critical sections of the Ultimate trail for priority implementation by highlighting safety issues related to the Transitional route. The investigation also aided in the identification of existing trail segments and underpasses throughout the valley.

The Transitional route begins at the end of the existing River Trail at 23m St. in Glenwood Springs and continues south on Grand Ave. to Buffalo Valley. At this point the route uses the shoulder of SH82 for 1.6 miles, the only option for a paved connection. At Westbank the route crosses the river on CR109, continuing on this road to Carbondale. (Garfield County plans to pave the remaining length of gravel surface of CR109 in 1999). Crossing the Crystal River at the CRMS Bridge, the route follows CR106 into town and connects to Main Street, a designated bike route in the Carbondale Comprehensive plan.

Passing through downtown on Main, the route connects to CR100 on the east edge of town and continues to the river crossing at Catherine Bridge. From the bridge the route follows CR100 to Catherine Store, connecting to the SH82 Frontage Road then east to Valley Road. Following Valley Rd. to the east edge of the Tree Farm property, the transitional route utilizes a short section of existing trail behind City Market to connect to Willits Lane. From the south end of Willits Ln. at Hooks, the route has two optional connections into Basalt. One option continues east from Hooks, connects to a short existing bike path underpass of SH82, and continues into Basalt on Two Rivers Rd. The other alignment crosses Hooks Bridge, follows Emma Rd. to the SH82 underpass at Sopris Creek, and connects to a bike path on the north side of SH82 into Basalt. At the Frying Pan Bridge in Basalt the routes rejoin following old SH82 to and existing bike path into Holland Hills. A short series of residential streets connects to the west end of the Basalt/Old Snowmass Trail. The Transitional route follows this trail to its terminus at Old Snowmass where it connects to River Road for the remainder of the Transitional route alignment to Woody Creek.

6. PHASING RECOMMENDATIONS

Development and management of the trail system is both a local and regional endeavor. The implementation of the Ultimate trail will require a multi-year funding and phasing plan that identifies both valley-wide and local priorities. An effective operating relationship between local participants is essential for funding, final design and implementation of trail improvements in a reasonable timeframe. The following strategy is recommended to initially establish the continuous trail corridor, followed by subsequent improvements and amenities to further expand trail use and enrich the user experience.

1. Implement the Initial Trail throughout the length of the ROW to provide a multi-use, continuous, off-street path from Glenwood Springs to Aspen. Pitkin County and RFHA should jointly pursue the installation of the Interim Trail considering the foreseeable SH82 construction traffic impacts to River Road. Early trail development shall include basic facilities (E.G. fencing, signage, trash receptacles) to inform and direct the user, and protect both the resource and private property. Bridges should be considered high priority items, absent a nearby, safe and accessible crossing alternative.

2. Implementation of the Ultimate Trail will likely happen in discrete segments as demand warrants and funding becomes available. Construction of the hard-surfaced trail will occur first in and around the more urban areas of the valley (Carbondale, Glenwood Springs, Basalt). The following list recommends phasing for development of the Ultimate trail:

'A' Segments (high priority)

1. Buffalo Valley to Westbank Road (So. Grand Ave. to Garfield County Rd. #109)
2. Emma to Basalt High School
3. Snowmass Bridge to Gerbazdale

'8' Segments (medium priority)

1. 23ra Street to Buffalo Valley (South Glenwood Springs)
2. Garfield County Road #109 to Carbondale
3. Through Carbondale
4. Basalt High School to Snowmass/Basalt Trail

'C' Segments (low priority)

1. Carbondale to Emma Road
2. Gerbazdale to Woody Creek

Trail surfacing may be phased, initially as a multi-use, stabilized crusher fines trail to limit initial costs. In this scenario the full-width trail platform and drainage improvements should be constructed to facilitate maintenance, emergency access and future surfacing improvements. If applicable, the equestrian trail implementation concurrent with main trail construction can economize on the equipment mobilized for earthwork operations.

3. Establish trailheads to encourage non-resident recreational use. Provide limited parking, rest areas, restrooms and information for resident and visitor trail users.

4. Install interpretive system sites and/or signage to educate and enrich the trail experience.

5. Provide site amenities such as furniture, shelters, landscaping, special signage, etc. to enhance recreational appeal, user comfort and range of opportunities.

7. MANAGEMENT, MAINTENANCE & OPERATIONS

For successful operation and continuity of the RFRHA trail an integrated, comprehensive maintenance and management program is essential. The trail plan should adopt minimum maintenance standards to insure trail quality and safety. A comprehensive program will help ensure that required maintenance is performed and help minimize conflict between user groups. Trail O&M responsibilities may be unified under a single entity or delegated to local jurisdictions. For the RFRHA trail multi-jurisdictional management is recommended. The development of the program should include representation of all involved parties inclusive of RFRHA, the counties, towns and agencies having jurisdiction along the corridor and adjacent public lands.

Similar to other open space and park facilities, trail management and maintenance operations utilize both full-time employees and seasonal staff. Staff levels depend on desired level of presence of enforcement and patrol, information/educational programs and in-house vs. contracted maintenance services. Volunteer and "adopt-a- trail" and "trail host" programs are encouraged to reduce O&M costs and enhance the sense of local ownership. The following basic scope of responsibilities highlights many of the services generally required for trail maintenance and management operations.

Maintenance:

- Trash Collection, litter control
- Tree, Shrub & groundcover maintenance (pruning, mowing, selective thinning, etc.)
- Infrastructure inspection, maintenance & repair (bridges, fencing, culverts, lighting, etc.)
- Repair of site amenities (benches, signs, and tables), seasonal openings and closures
- Cleaning & maintaining of water and sanitary facilities
- Safety System: signs, pavement markings
- Trail surface inspection, maintenance & repair (sweeping, snow removal, sanding, etc.)
- Noxious Weed Control (weed species will travel along corridor)
- Cosmetic repairs (graffiti removal, repainting)
- Riverbank Clean-up Programs
- Erosion Control & Repairs.

Management /Operations:

- Emergency assistance including medical, rescue
- Security Patrol/Enforcement of trail use regulations (vandalism prevention, trespass)
- Educate and Manage potential user conflicts (bike/jog, blade/hike, individual/commercial, etc.)
- Prevention of unauthorized motorized vehicle use
- Address and resolve liability issues
- Ecological Management: native plant restoration, beaver management
- Trail Host/Guide Programs

MANAGEMENT PRINCIPLES & ACTIONS

In addition to specific tasks required for maintenance and operation of the trail system, a comprehensive management plan includes activities outside of the trail corridor. The following principals, actions and design elements can help secure funding for trail construction and operations, and facilitate the unified management of the system.

- On-going collaboration with local and county governments, agencies, interest groups and RFRHA should be initiated to coordinate trail funding, implementation and management efforts and avoid duplication of services. Working together the counties and communities in the Valley can promote good design, continuity of resource quality and economies of scale. A united front among the communities will help market the project, enhancing funding probabilities.
- The RFRHA trail is both a local and regional endeavor with local segments forming the most heavily-utilized, vital links in the regional system. An effective operating relationship among the participants is essential for funding and implementation of trail improvements within a reasonable time frame.
- Publicize the benefits and opportunities of the trail to improve visibility, local involvement and pride. Locally funded, strategic pilot projects can help generate public interest and demonstrate dedication to the completion of the comprehensive project.
- Vital involvement of key stakeholders is critical for project coordination and eventual development.
- On-going review of adjacent proposed development activities to ensure compatibility with RFRHA conservation, access and recreational goals for the property.

Organize a management entity with overall responsibility for trail funding, implementation and perpetual management:

Extend and maintain the intergovernmental agreement authorizing RFRHA as the basis for cooperative implementation and management of regional trail system and open space. Maintain a multi-jurisdictional trails 'steering committee' to provide trails development and management cooperation, or:

Form a non-profit corporation with tax-exempt status and a Board of Directors but no jurisdictional authority. All projects based on cooperative partnerships with public and private entities. Must include all participating communities with consensus on organizational structure, programming and representation. This corporation can apply for, accept and hold grant funding.

Management Elements

- Animal control and leash regulations should be posted and the public well-informed. Education and potential fines can be effective deterrents, reducing management cost of animal control enforcement.
- Improve the utility and aesthetics of the corridor by elimination of illegal activities such as dumping. Again, education and the potential for serious fines *may* be effective management tools. Develop a weed control program that improves habitat through restoration of native plant species in disturbed areas of the corridor.
- Area lighting and emergency phones at trailheads help decrease vandalism, and improve safety and emergency response.

8. CONSTRUCTION COST ESTIMATE

The costs associated with constructing a trail in the relatively remote corridor with often difficult or remote access conditions, river adjacency and narrow construction limits elevate the construction costs relative to average site improvement projects for the region. Costs have been generated from local and regional trail, road and bridge construction projects.

For the development of cost estimates for the Trail Plan several design parameters were assumed:

- Transit Alignment C with the Lower Catherine Bridge and Lower Gerbazdale Crossings.
- Trail implementation independent of transit.
- No additional property acquisition (ROW) required.
- Ultimate Trail utilizes the existing Glenwood River Trail (within the ROW) from 23rd St. to the Colorado River confluence.

The total estimated development cost for the 32-miles of the Ultimate Trail on the RFRHA corridor is $29,683,071. including a 20% contingency and 15% design and testing fees. Add $4.1M to the cost if the Upper Catherine Bridge crossing (Flying Fish) is utilized.

The estimated cost for development of the 32-mile of Initial Trail is $4,766,685. inclusive of the 35% mark-up for fees and contingency. Construction costs are estimated at $3.53M.

The estimated cost for implementation of the 11.22-mile Interim Trail in Pitkin County is $3,934,425.or $2.91M for construction alone.

Cost estimate spread-sheets are included in Appendix A. Several of the line items are lump sum costs inclusive of several related design or construction elements.

- Site Preparation: clear & grub, erosion control, topsoil remove & replace, cut & fill, subgrade preparation, minor drainage (rip-rap, culverts, revegetation, surveying, T&M allowance 5%.
- Major Trailhead: site prep., picnic shelter, bench, trash receptacle, port-o-let enclosure, trailhead information panel, misc. signage, gravel parking, concrete & asphalt pavements, lighting, gates & fencing, landscaping, interpretive panel.
- Minor Trailhead: site prep., bench, trash receptacle, trailhead information panel, misc. signage, gravel parking, landscaping, interpretive panel.

Start-up Costs

The initial start-up costs for capital equipment noted below relate to the scenario of a newly formed trail management entity requiring the purchase of all new equipment. Actual start-up costs may vary greatly dependent on final management strategy and entity(ies) selected for operation of the system. The use of existing staff, tools and machinery would substantially reduce the estimate below.

Vehicles & Machinery	$150,000.
Equipment	$ 15,000.
Tools	$ 15,000.
Communications	$ 10,000.
Office/Shop Space & Equipment	$245.000.
Total	$435,000.

Operation & Maintenance Costs

An annual budget is required to insure the ability to operate and perform regular maintenance and operation tasks. Regular inspections, maintenance and patrol are required to maintain system safety and limit operation liability. Maintenance needs vary depending on surfacing type, level of use, weather, management policy (plow, no-plow) and special circumstances (rockfall, special events, etc.). Generally, well- constructed concrete pavements significantly reduce surface maintenance and repair requirements.

The preliminary estimated cost for annual O&M expenditures for the RFRHA trail ranges from $90,000. – $100,000. per year for full-time and seasonal staffs, maintenance and operation materials and services. Actual costs are dependent on adopted management policy, operating entity(ies) and design implementation.

9. FUNDING

The RFRHA trail will be implemented through the efforts of public and private groups working in cooperation. Funding to support trail improvements, management and maintenance will come through creative use of public and private sources of assistance. The trail can be implemented through funding sources of grants, special appropriations programs, Open Space programs, county general funds, recreation districts, private fundraising, gifts and donations. The design of the program for trail funding should attempt to:

- Organize and energize trail supporters with the goal of securing local sponsorship;
- Organize local fund raising activities (volunteer activities and fund raising), and solicit funding from corporations, foundations, local non-profit agencies, civic groups and other private sources;
- Work with local businesses to support the interpretive program, particularly those themes that examine the importance of human activities in the landscape;
- Pursue non-local funding sources;
- Build productive relationships with federal, state and local agencies and stakeholders. Federal and state agencies offer grants and technical assistance.

The following funding sources should be explored as system management responsibilities and implementation phasing are further defined. This listing is not intended to be complete, but rather an attempt to identify some of the most likely sources of assistance.

Trail Construction

Local community and county funds
Colorado State Parks Funds
State Trails Program Grants
GOCO (Great Outdoors Colorado) Grants
Private Sector. Corporate, Individual, Non-Profit
COOT TEA-21 Enhancements funding
Colorado Historic Society
Colorado Department of Local Affairs Energy Impact Grants
Salvage of railroad infrastructure
Volunteer Organizations including Volunteers for Outdoor Colorado (VOC)
Local school & college programs
USDA Natural Resources Conservation Service – Resource Conserv. and Dvlpmt. Program

Operations & Maintenance Costs

Local community and county funds (local management within city limits)
Easement and right-of-way license fees
Concession contracts and special use permits
Volunteer programs
Trail User Fees
Transit user Fees

APPENDIX

COST ESTIMATE SPREADSHEETS

SEGMENT: #1 - GLENWOOD SPRINGS (23rd St.) TO BUFFALO VALLEY
MILE POST AND LENGTH: MP361.75 to 364.1, 2.35 MILES

ITEM DESCRIPTION	QTY.	UNIT	COST	TOTAL	NOTES
MOBILIZATION (8.5%)	1	LS	$ 205,500	$ 205,500	
SITE PREPARATION:					
EASY	0	LF	$ 25	$ -	
MODERATE	6636	LF	$ 38	$ 252,168	
DIFFICULT	740	LF	$ 55	$ 40,700	
SEVERE	5333	LF	$ 75	$ 399,975	steep, 50 'ROW, road conflict
CONCRETE RETAINING WALL	0	SF	$ 20	$ -	
M.S.E. RETAINING WALL	24000	SF	$ 25	$ 600,000	steep, 50 'ROW, road conflict
DRY-STAK BOULDER RET. WALL	5700	SF	$ 20	$ 114,000	
SHORING RR EMBNKMT 3' HT	0	LF	$ 130	$ -	
SHORING RR EMBNKMT 3-5' HT	0	LF	$ 175	$ -	
SHORING RR EMBNKMT 5-8' HT	0	LF	$ 220	$ -	
IRRIGATION FLUME, 30" CMP	0	LF	$ 65	$ -	
IRRIGATION FLUME, 48" CMP	0	LF	$ 110	$ -	
RAIL UNDERPASS 8' X 10'	0	EA	$ 175,000	$ -	
6" CONCRETE TRAIL (10' WIDE)	12,408	LF	$ 40	$ 496,320	
CRUSHER FINES W/ FABRIC (4' WIDE)	12,408	LF	$ 7	$ 86,856	
NEW TRAIL BRIDGE	0	EA	$ -	$ -	
DECK AND RAIL RAILROAD BRIDGE	0	LF	$ 265	$ -	
PUBLIC ROAD X'ING	2	EA	$ 7,000	$ 14,000	Grand Ave. x 2
PRIVATE ROAD X'ING	1	EA	$ 2,500	$ 2,500	Holy Cross Elect.
TYPE 4 BARRIER	0	LF	$ 75	$ -	
SAFETY RAILING	3100	LF	$ 70	$ 217,000	req'd at walls
SAFETY FENCE, 6' CLF OR WOOD	6250	LF	$ 30	$ 187,500	transit barrier & privacy fence
PASTURE FENCE, 4-STRAND B'D WIRE	0	LF	$ 7	$ -	
SIGNS	9	EA	$ 200	$ 1,800	directional, warning, identity
TRAIL MARKERS	5	EA	$ 125	$ 625	river & trail access, private land
INTERPRETIVE PANELS	2	EA	$ 2,000	$ 4,000	trail map signs
MAJOR TRAILHEAD	0	EA	$ 48,000	$ -	
MINOR TRAILHEAD	0	EA	$ 23,000	$ -	

Subtotal	$ 2,622,944
20% Contingency	$ 524,589
Survey and Fees (15%)	$ 393,442
TOTAL	$ 3,540,974

SEGMENT: #2- BUFFALO VALLEY TO CATTLE CREEK
MILE POST AND LENGTH: MP 364.1 TO 368.1, 4.0 MILES

ITEM DESCRIPTION	QTY.	UNIT	COST	TOTAL	NOTES
MOBILIZATION (8.5%)		LS	$ 181,000	$ 181,000	
SITE PREPARATION:					
EASY	13200	LF	$ 25	$ 330,000	
MODERATE	2904	LF	$ 38	$ 110,352	
DIFFICULT	5016	LF	$ 55	$ 275,880	
SEVERE	0	LF	$ 75	$	
CONCRETE RETAINING WALL	0	SF	$ 20	$	
M.S.E. RETAINING WALL	0	SF	$ 25	$	
DRY-STAK BOULDER RET. WALL	6000	SF	$ 20	$ 120,000	MP364.1, 365.8
SHORING RR EMBNKMT 3' HT	100	LF	$ 130	$ 13,000	
SHORING RR EMBNKMT 3-5' HT	0	LF	$ 175	$	
SHORING RR EMBNKMT 5-8' HT	0	LF	$ 220	$	
IRRIGATION FLUME, 30" CMP		LF	$ 65	$	
IRRIGATION FLUME, 48" CMP		LF	$ 110	$	
RAIL UNDERPASS 8' X 10'	0	EA	$ 175,000	$	
6" CONCRETE TRAIL (10' WIDE)	21120	LF	$ 40	$ 844,800	
CRUSHER FINES W/ FABRIC (4' WIDE)	21120	LF	$ 7	$ 147,840	
NEW TRAIL BRIDGE	0	EA	$	$	
DECK AND RAIL RAILROAD BRIDGE	0	LF	$ 265	$	
PUBLIC ROAD X'ING	2	EA	$ 7,000	$ 14,000	CR154x2
PRIVATE ROAD X'ING	4	EA	$ 2,500	$ 10,000	
TYPE 4 BARRIER	0	LF	$ 75	$	
SAFETY RAILING	1200	LF	$ 70	$ 84,000	
SAFETY FENCE, 6' CLF OR WOOD	2000	LF	$ 30	$ 60,000	
PASTURE FENCE, 4-STRAND B'D WIRE	9550	LF	$ 7	$ 66,850	
SIGNS	6	EA	$ 200	$ 1,200	directional, warning, identity
TRAIL MARKERS	12	EA	$ 125	$ 1,500	river & trail access, private land
INTERPRETIVE PANELS		EA	$ 2,000	$ 2,000	Westbank Bridge
MAJOR TRAILHEAD		EA	$ 48,000	$ 48,000	T.H. #1- CMC
MINOR TRAILHEAD	0	EA	$ 23,000	$	
Subtotal				$ 2,310,422	
20% Contingency				$ 462,084	
Survey and Design Fees (15%)				$ 346,563	
TOTAL				$ 3,119,070	

SEGMENT: #3- **CATTLE CREEK TO SH133**
MILE POST AND LENGTH: MP368.1 TO 372.25, 4.15 MILES

ITEM DESCRIPTION	QTY.	UNIT	COST	TOTAL	NOTES
MOBILIZATION (8.5%}		LS	$ 260,500	$ 260,500	
SITE PREPARATION:					
EASY	6072	LF	$ 25	$ 151,800	
MODERATE	11352	LF	S 38	S 431,376	
DIFFICULT	2900	LF	S 55	$ 159,500	
SEVERE	1584	LF	S 75	$ 118,800	
CONCRETE RETAINING WALL	0	SF	$ 20	$	
M.S.E. RETAINING WALL	2450	SF	$ 25	$ 61,250	
DRY-STAK BOULDER RET. WALL	3900	SF	$ 20	$ 78,000	MP364.1, 365.8
SHORING RR EMBNKMT 3' HT	0	LF	$ 130	S	
SHORING RR EMBNKMT 3-5' HT	0	LF	S 175	$	
SHORING RR EMBNKMT 5-8' HT	0	LF	$ 220	$	
IRRIGATION FLUME, 30" CMP	0	LF	$ 65	S	
IRRIGATION FLUME, 48" CMP	1056	LF	S 110	S 116,160	
RAIL UNDERPASS 8' X 10'	2	EA	S 175,000	$ 350,000	
6" CONCRETE TRAIL (10' WIDE)	21912	LF	$ 40	$ 876,480	
CRUSHER FINES W/ FABRIC (4' WIDE)	21912	LF	$ 7	$ 153,384	
NEW TRAIL BRIDGE					
Cattle Creek		LS	S 110,000	$ 110,000	100'
Roaring Fork		LS	$ 215,000	S 215,000	175'
DECK AND RAIL RAILROAD BRIDGE	0	LF	$ 265	$	
PUBLIC ROAD X'ING	2	EA	$ 7,000	S 14,000	CR154x2
PRIVATE ROAD X'ING	6	EA	$ 2,500	S 15,000	
TYPE 4 BARRIER	0	LF	S 75	S	
SAFETY RAILING	1200	LF	$ 70	S 84,000	
SAFETY FENCE, 6' CLF OR WOOD	700	LF	$ 30	S 21,000	
PASTURE FENCE, 4-STRAND B'D WIRE	4450	LF	S 7	S 31,150	
SIGNS	5	EA	S 200	S 1,000	directional, warning, identity
TRAIL MARKERS	14	EA	S 125	$ 1,750	river & trailaccess, private land
INTERPRETIVE PANELS	2	EA	S 2,000	$ 4,000	Cattle Cr., CrystaVSatank
MAJOR TRAILHEAD		EA	S 48,000	S 48,000	T.H.#2, Aspen Glen
MINOR TRAILHEAD		EA	S 23,000	S 23,000	T. H.#3, SH133 Station
Subtotal				S 3,325,150	
20% Contingency				S 665,030	
Survey and Design Fees (15%)				S 498,773	
TOTAL				S 4,488,953	

SEGMENT: #4- SH133 to CATHERINE BRIDGE
MILE POST AND LENGTH: MP 372.25 to 376.0, 3.75 MILES

ITEM DESCRIPTION	QTY.	UNIT	COST	TOTAL	NOTES
MOBILIZATION (8.5%)		LS	$ 191.300	$ 191,300	
SITE PREPARATION:					
EASY	13200	LF	$ 25	$ 330,000	
MODERATE	1056	LF	S 38	$ 40,128	
DIFFICULT	3432	LF	$ 55	$ 188,760	
SEVERE	2112	LF	$ 75	$ 158,400	wet area
CONCRETE RETAINING WALL	0	SF	$ 20	$	
M.S.E. RETAINING WALL	0	SF	$ 25	$	
DRY-STAK BOULDER RET. WALL	1600	SF	$ 20	$ 32,000	
SHORING RR EMBNKMT 3' HT	0	LF	$ 130	$	
SHORING RR EMBNKMT 3-5' HT	0	LF	$ 175	$	
SHORING RR EMBNKMT 5-8' HT	0	LF	$ 220	$	
IRRIGATION FLUME,30" CMP	0	LF	$ 65	$	
IRRIGATION FLUME, 48" CMP	0	LF	$ 110	$	
RAIL UNDERPASS 8' X 10'	1	EA	$ 175,000	$ 175,000	MP375.7
6" CONCRETE TRAIL (10' WIDE)	19,800	LF	$ 40	$ 792,000	
CRUSHER FINES W/ FABRIC (4' WIDE)	19,800	LF	$ 7	$ 138,600	
NEW TRAIL BRIDGE	0	EA	$	$	
DECK AND RAIL RAILROAD BRIDGE	0	LF	$ 265	$	
PUBLIC ROAD X'ING	3	EA	$ 7,000	$ 21,000	
PRIVATE ROAD X'ING	6	EA	$ 2,500	$ 15,000	
TYPE 4 BARRIER	400	LF	$ 75	$ 30,000	
SAFETY RAILING	1200	LF	$ 70	$ 84,000	
SAFETY FENCE, 6' CLF OR WOOD	4250	LF	$ 30	$ 127,500	
PASTURE FENCE,4-STRAND B'D WIRE	9550	LF	$ 7	$ 66,850	
SIGNS	4	EA	$ 200	$ 800	directional, warning, identity
TRAIL MARKERS	4	EA	$ 125	$ 500	river & trail access, private land
INTERPRETIVE PANELS		EA	$ 2,000	$ 2,000	Mid Continent
MAJOR TRAILHEAD	1	EA	$ 48,000	$ 48,000	T.H.#4- Cath. Br.
MINOR TRAILHEAD	0	EA	$ 23,000	$	

Subtotal	$ 2,441,838
20% Contingency	$ 488,368
Survey and Design Fees (15%)	$ 366,276
TOTAL	$ 3,296,481

SEGMENT: #5 - CATHERINE BRIDGE to EMMA*
MILE POST AND LENGTH: MP 376.0 to 381.8, 5.8 MILES

ITEM DESCRIPTION	QTY.	UNIT	COST	TOTAL	NOTES
MOBILIZATION (8.5%)		LS	$ 207,000	$ 207,000	
SITE PREPARATION:					
EASY	30224	LF	$ 25	$ 755,600	Rail-to-Trail
MODERATE	0	LF	$ 38	$	
DIFFICULT	0	LF	$ 55	$	
SEVERE	400	LF	$ 75	$ 30,000	Catherine Bridge
CONCRETE RETAINING WALL	0	SF	$ 20	$	
M.S.E. RETAINING WALL	1500	SF	$ 25	$ 37,500	Catherine Br. underpass
DRY-STAK BOULDER RET. WALL	0	SF	$ 20	$	
SHORING RR EMBNKMT 3' HT	0	LF	$ 130	$	
SHORING RR EMBNKMT 3-5' HT	0	LF	$ 175	$	
SHORING RR EMBNKMT 5-8' HT	0	LF	$ 220	$	
IRRIGATION FLUME, 30" CMP	0	LF	$ 65	$	
IRRIGATION FLUME, 48" CMP	0	LF	$ 110	$	
RAIL UNDERPASS 8' X 10'	0	EA	$ 175,000	$	
6" CONCRETE TRAIL (10' WIDE)	30,624	LF	$ 40	$ 1,224,960	
CRUSHER FINES W/ FABRIC (4' WIDE)	30,624	LF	$ 7	$ 214,368	
NEW TRAIL BRIDGE	0	EA	$	$	
DECK AND RAIL RAILROAD BRIDGE	0	LF	$ 265	$	
PUBLIC ROAD X'ING		EA	$ 7,000	$ 7,000	Hooks Ln.
PRIVATE ROAD X'ING	10	EA	$ 2,500	$ 25,000	
TYPE 4 BARRIER	300	LF	$ 75	$ 22,500	exist.rd., vert. rock
SAFETY RAILING	150	LF	$ 70	$ 10,500	Cath. Br. RR underpass
SAFETY FENCE, 6' CLF OR WOOD	2500	LF	$ 30	$ 75,000	
PASTURE FENCE, 4-STRAND B'D WIRE	3650	LF	$ 7	$ 25,550	
SIGNS	4	EA	$ 200	$ 800	directional, warning, identity
TRAIL MARKERS	25	EA	$ 125	$ 3,125	river & trail access, private land
INTERPRETIVE PANELS	1	EA	$ 2,000	$ 2,000	river process
MAJOR TRAILHEAD	0	EA	$ 48,000	$	
MINOR TRAILHEAD	0	EA	$ 23,000	$	

Subtotal	$ 2,640,903
20% Contingency	$ 528,181
Survey and Design Fees (15%)	$ 396,135
TOTAL	$ 3,565,219

*Assumes Lower Catherine Bridge RR Xing.
Add $4,917,000. To cost for Upper Catherine Bridge (Flying Fish) Xing.

SEGMENT: #6 - EMMA to WINGO JUNCTION
MILE POST AND LENGTH: MP 381.8 to 385.1, 3.3 MILES

ITEM DESCRIPTION	QTY.	UNIT	COST	TOTAL	NOTES
MOBILIZATION (8.5%)	1	LS	$ 178,000	$ 178,000	
SITE PREPARATION:					
EASY	15312	LF	$ 25	$ 382,800	Rail-to-Trail
MODERATE	1848	LF	$ 38	$ 70,224	
DIFFICULT	0	LF	$ 55	$ -	
SEVERE	0	LF	$ 75	$ -	
CONCRETE RETAINING WALL	0	SF	$ 20	$ -	
M.S.E. RETAINING WALL	5500	SF	$ 25	$ 137,500	Wingo Jct.
DRY-STAK BOULDER RET. WALL	0	SF	$ 20	$ -	
SHORING RR EMBNKMT 3' HT	0	LF	$ 130	$ -	
SHORING RR EMBNKMT 3-5' HT	0	LF	$ 175	$ -	
SHORING RR EMBNKMT 5-8' HT	0	LF	$ 220	$ -	
IRRIGATION FLUME, 30" CMP	0	LF	$ 65	$ -	
IRRIGATION FLUME, 48" CMP	0	LF	$ 110	$ -	
RAIL UNDERPASS 8' X 10'	0	EA	$ 175,000	$ -	
6" CONCRETE TRAIL (10' WIDE)	17,160	LF	$ 40	$ 686,400	
CRUSHER FINES W/ FABRIC (4' WIDE)	16,320	LF	$ 7	$ 114,240	
NEW TRAIL BRIDGE	1	EA	$ 280,000	$ 280,000	220' over SH82 & RR
DECK AND RAIL RAILROAD BRIDGE	320	LF	$ 265	$ 84,800	Sopris Cr. Rd., Wingo RR
PUBLIC ROAD X'ING	2	EA	$ 7,000	$ 14,000	
PRIVATE ROAD X'ING	3	EA	$ 2,500	$ 7,500	
TYPE 4 BARRIER	300	LF	$ 75	$ 22,500	Sopris Cr. Rd.
SAFETY RAILING	550	LF	$ 70	$ 38,500	Wingo Jct. Walls
SAFETY FENCE, 6' CLF OR WOOD	1800	LF	$ 30	$ 54,000	rail-w-trail @ Emma
PASTURE FENCE, 4-STRAND B'D WIRE	24950	LF	$ 7	$ 174,650	
SIGNS	3	EA	$ 200	$ 600	directional, warning, identity
TRAIL MARKERS	15	EA	$ 125	$ 1,875	river & trail access, private land
INTERPRETIVE PANELS	1	EA	$ 2,000	$ 2,000	Emma
MAJOR TRAILHEAD	0	EA	$ 48,000	$ -	
MINOR TRAILHEAD	1	EA	$ 23,000	$ 23,000	Basalt HS, TH #5

Subtotal	$ 2,272,589
20% Contingency	$ 454,518
Survey and Fees (15%)	$ 340,888
TOTAL	$ 3,067,995

SEGMENT: #7 • WINGO JUNCTION to OLD SNOWMASS
MILE POST AND LENGTH: MP385.1 to 386.9, 1.8 MILES

ITEM DESCRIPTION	QTY.	UNIT		COST		TOTAL	NOTES
MOBILIZATION (8.5%)		LS	$	104,200	S	104,200	
SITE PREPARATION:							
EASY	4276	LF	S	25	S	106,900	Exist. Trail Bed
MODERATE	4593	LF	S	38	S	174,534	
DIFFICULT	0	LF	S	55	$		
SEVERE	633	LF	$	75	$	47,475	
CONCRETE RETAINING WALL	4800	SF	$	20	S	96,000	MP386.75
M.S.E. RETAINING WALL	0	SF	S	25	S		
DRY-STAK BOULDER RET. WALL	0	SF	$	20	S		
SHORING RR EMBNKMT 3' HT	0	LF	S	130	$		
SHORING RR EMBNKMT 3-5' HT	0	LF	$	175	S		
SHORING RR EMBNKMT 5-8' HT	400	LF	S	220	S	88,000	
IRRIGATION FLUME, 30" CMP	0	LF	S	65	$		
IRRIGATION FLUME, 48" CMP	0	LF	S	110	$		
RAIL UNDERPASS 8' X 10'	1	EA	S	175,000	$	175,000	
6" CONCRETE TRAIL (10' WIDE)	9,500	LF	$	40	$	380,000	
CRUSHER FINES W/ FABRIC (4' WIDE)	9,500	LF	$	7	$	66,500	
NEW TRAIL BRIDGE	0	EA	$		$		
DECK AND RAIL RAILROAD BRIDGE	0	LF	$	265	S		
PUBLIC ROAD X'ING	0	EA	S	7,000	S		.45 miles shared drive (exist.)
PRIVATE ROAD X'ING	0	EA	S	2,500	$		
TYPE 4 BARRIER	0	LF	$	75	$		
SAFETY RAILING	0	LF	S	70	S		
SAFETY FENCE, 6' CLF OR WOOD	1430	LF	$	30	$	42,900	
PASTURE FENCE, 4-STRAND B'D WIRE	3000	LF	S	7	$	21,000	
SIGNS	4	EA	$	200	S	800	directional warning, identity
TRAIL MARKERS	10	EA	$	125	$	1,250	river & trail access, private land
INTERPRETIVE PANELS	1	EA	S	2,000	S	2,000	Wingo Bridge
MAJOR TRAILHEAD	0	EA	S	48,000	$		
MINOR TRAILHEAD		EA	$	23,000	$	23,000	improve exist., TH #6

Subtotal	$	1,329,559
20% Contingency	$	265,912
Survey and Design Fees (15%)	$	199,434
TOTAL	$	1,794,905

SEGMENT: #8 - OLD SNOWMASS to GERBAZ CROSSING
MILE POST AND LENGTH: MP386.9 to 390.55, 3.65 MILES

ITEM DESCRIPTION	QTY.	UNIT	COST	TOTAL	NOTES
MOBILIZATION (8.5%)	1	LS	$ 254,000	$ 254,000	
SITE PREPARATION:					
EASY	0	LF	$ 25	$ -	
MODERATE	14256	LF	$ 38	$ 541,728	
DIFFICULT	1161	LF	$ 55	$ 63,855	
SEVERE	3854	LF	$ 75	$ 289,050	
CONCRETE RETAINING WALL	8750	SF	$ 20	$ 175,000	MP387.0
M.S.E. RETAINING WALL	7500	SF	$ 25	$ 187,500	MP389.7, 390.15
DRY-STAK BOULDER RET. WALL	0	SF	$ 20	$ -	
SHORING RR EMBNKMT 3' HT	0	LF	$ 130	$ -	
SHORING RR EMBNKMT 3-5' HT	0	LF	$ 175	$ -	
SHORING RR EMBNKMT 5-8' HT	0	LF	$ 220	$ -	
IRRIGATION FLUME, 30" CMP	0	LF	$ 65	$ -	
IRRIGATION FLUME, 48" CMP	0	LF	$ 110	$ -	
RAIL UNDERPASS 8' X 10'	3	EA	$ 175,000	$ 525,000	
6" CONCRETE TRAIL (10' WIDE)	19,271	LF	$ 40	$ 770,840	
CRUSHER FINES W/ FABRIC (4' WIDE)	15,417	LF	$ 7	$ 107,919	no path @ choke pts.
NEW TRAIL BRIDGE	3	EA	$ 50,000	$ 150,000	50' Arbaney Gulch drainages
DECK AND RAIL RAILROAD BRIDGE	0	LF	$ 265	$ -	
PUBLIC ROAD X'ING	1	EA	$ 7,000	$ 7,000	River Rd.
PRIVATE ROAD X'ING	5	EA	$ 2,500	$ 12,500	
TYPE 4 BARRIER	500	LF	$ 75	$ 37,500	MP387.0
SAFETY RAILING	1000	LF	$ 70	$ 70,000	MP389.7, .9, 390.15
SAFETY FENCE, 6' CLF OR WOOD	0	LF	$ 30	$ -	
PASTURE FENCE, 4-STRAND B'D WIRE	13400	LF	$ 7	$ 93,800	
SIGNS	6	EA	$ 200	$ 1,200	directional, warning, identity
TRAIL MARKERS	32	EA	$ 125	$ 4,000	river & trail access, private land
INTERPRETIVE PANELS	1	EA	$ 2,000	$ 2,000	Bates
MAJOR TRAILHEAD	1	EA	$ 48,000	$ 48,000	
MINOR TRAILHEAD	0	EA	$ 23,000	$ -	TH #7, Gerbaz xing

Subtotal	$ 3,340,892
20% Contingency	$ 668,178
Survey and Design Fees (15%)	$ 501,134
TOTAL	$ 4,510,204

SEGMENT: #9 - GERBAZ CROSSING to WOODY CREEK
MILE POST AND LENGTH: MP390.55 to 393.72, 3.17 MILES

ITEM DESCRIPTION	QTY.	UNIT	COST	TOTAL	NOTES
MOBILIZATION (8.5%)	1	LS	$ 133,400	$ 133,400	
SITE PREPARATION:					
EASY	10400	LF	$ 25	$ 260,000	rail-to-trail
MODERATE	4752	LF	$ 38	$ 180,576	off-railbed alignmt.
DIFFICULT	1584	LF	$ 55	$ 87,120	narrow railbed
SEVERE	0	LF	$ 75	$ -	
CONCRETE RETAINING WALL	0	SF	$ 20	$ -	
M.S.E. RETAINING WALL	0	SF	$ 25	$ -	
DRY-STAK BOULDER RET. WALL	2700	SF	$ 20	$ 54,000	MP391.3, .4, .75
SHORING RR EMBNKMT 3' HT	0	LF	$ 130	$ -	
SHORING RR EMBNKMT 3-5' HT	0	LF	$ 175	$ -	
SHORING RR EMBNKMT 5-8' HT	0	LF	$ 220	$ -	
IRRIGATION FLUME, 30" CMP	0	LF	$ 65	$ -	
IRRIGATION FLUME, 48" CMP	0	LF	$ 110	$ -	
RAIL UNDERPASS 8' X 10'	0	EA	$ 175,000	$ -	
6" CONCRETE TRAIL (10' WIDE)	16,736	LF	$ 40	$ 669,440	
CRUSHER FINES W/ FABRIC (4' WIDE)	16,736	LF	$ 7	$ 117,152	
NEW TRAIL BRIDGE	0	EA	$ -	$ -	Woody Cr. Bridge not incl.
DECK AND RAIL RAILROAD BRIDGE	0	LF	$ 265	$ -	
PUBLIC ROAD X'ING	4	EA	$ 7,000	$ 28,000	
PRIVATE ROAD X'ING	4	EA	$ 2,500	$ 10,000	
TYPE 4 BARRIER	0	LF	$ 75	$ -	
SAFETY RAILING	1000	LF	$ 70	$ 70,000	MP391.3, .4, .75
SAFETY FENCE, 6' CLF OR WOOD	600	LF	$ 30	$ 18,000	
PASTURE FENCE, 4-STRAND B'D WIRE	3275	LF	$ 7	$ 22,925	
SIGNS	4	EA	$ 200	$ 800	directional, warning, identity
TRAIL MARKERS	14	EA	$ 125	$ 1,750	river & trail access, private land
INTERPRETIVE PANELS	1	EA	$ 2,000	$ 2,000	Pitkin Iron
MAJOR TRAILHEAD	1	EA	$ 48,000	$ 48,000	
MINOR TRAILHEAD	0	EA	$ 23,000	$ -	TH #8, Pitkin Iron

Subtotal	$ 1,703,163
20% Contingency	$ 340,633
Survey and Design Fees (15%)	$ 255,474
TOTAL	$ 2,299,270

SEGMENT: PITKIN COUNTY INTERIM TRAIL: EMMA to WOODY CREEK
MILE POST AND LENGTH: MP382.05 to 393.72, 11.67 MILES (1.1 miles existing trail)

ITEM DESCRIPTION	QTY.	UNIT	COST	TOTAL	NOTES
MOBILIZATION (8.5%)		LS	$ 220,500	$ 220,500	
SITE PREPARATION:					
EASY	14255	LF	$ 18	$ 256,590	
MODERATE	24130	LF	$ 28	$ 675,640	
DIFFICULT	2900	LF	$ 40	$ 116,000	
RAILBED	19375	LF	$ 12	$ 232,500	
CONCRETE RETAINING WALL	0	SF	$ 20	$	
M.S.E. RETAINING WALL	5500	SF	$ 25	$ 137,500	Wingo Jet. Bridge
DRY-STAK BOULDER RET. WALL	0	SF	$ 20	$	
SHORING RR EMBNKMT 3' HT	0	LF	$ 130	$	
SHORING RR EMBNKMT 3-5' HT	0	LF	$ 175	$	
SHORING RR EMBNKMT 5-8' HT	0	LF	$ 220	$	
IRRIGATION FLUME, 30" CMP	0	LF	$ 65	$	
IRRIGATION FLUME, 48" CMP	0	LF	$ 110	$	
RAIL UNDERPASS 8' X 10'	0	EA	$ 175,000	$	
6" CONCRETE TRAIL (10' WIDE)	0	LF	$ 40	$	
CRUSHER FINES W/ FABRIC (8' WIDE)	55,387	LF	$ 7	$ 387,709	
NEW TRAIL BRIDGE:					
WINGOJCT.		EA	$ 280,000	$ 280,000	220'
ARBANEY GULCH	3	EA	$ 50,000	$ 150,000	50'x3
DECK AND RAIL RAILROAD BRIDGE	245	LF	$ 265	$ 64,925	Wingo RR Bridge
PUBLIC ROAD X'ING	7	EA	$ 1,000	$ 7,000	
PRIVATE ROAD X'ING	12	EA	$ 500	$ 6,000	
TYPE 4 BARRIER	0	LF	$ 75	$	
SAFETY RAILING	550	LF	$ 70	$ 38,500	Wingo Jet. Bridge walls
SAFETY FENCE, 6' CLF OR WOOD	0	LF	$ 30	$	
PASTURE FENCE, 4-STRAND B'D WIRE	44,625	LF	$ 7	$ 312,375	
SIGNS	17	EA	$ 200	$ 3,400	directional, warning, identity
TRAIL MARKERS	22	EA	$ 125	$ 2,750	river & trail access, private land
INTERPRETIVE PANELS	0	EA	$ 2,000	$	
MAJOR TRAILHEAD	0	EA	$ 48,000	$	
MINOR TRAILHEAD		EA	$ 23,000	$ 23,000	Pitkin Iron

Subtotal	$ 2,914,389
20% Contingency	$ 582,878
Survey and Fees (15%)	$ 437,158
TOTAL	$ 3,934,425

SEGMENT: INITIAL TRAIL- 23rd St. GLENWOOD SPRINGS to WOODY CREK
MILE POST AND LENGTH: MP361.75 TO 393.72, 31.97 MILES (incl. 1.1 miles of exist. trail)

ITEM DESCRIPTION	QTY.	UNIT		COST		TOTAL	NOTES
MOBILIZATION (8.5%)		*l.S*	S	269,000	S	269,000	
SITE PREPARATION:							
EASY	74203	LF	S	9	S	667,827	min. cross slope, 100' ROW, rail bed
MODERATE	45028	LF	S	13	S	*585,364*	avg. x-slope, minor constraints
DIFFICULT	15995	LF	S	18	S	287,910	steep x-slopes, cut/fill, drainage imp's
SEVERE	*27766*	LF	S	22	S	610,852	v. steep x-slopes, drainage imp's
EMBANKMENT FILLS	5800	LF	S	10	S	58,000	seasonally wet areas
NEW TRAIL BRIDGE							
Cattle Creek		*l.S*	S	110,000	S	110,000	100'
Roaring Fork @ Satank		*l.S*	S	215,000	S	215,000	175'
SH82@Wingo	1	*l.S*	S	280,000	S	280,000	220'
Arbaney Gulch	3	LS	S	50,000	S	150,000	50'x3
DECK AND RAIL RAILROAD BRIDGES	320	LF	S	265	S	84,800	Sopris Cr & Roar. Fork @ Wingo
PUBLIC ROAD X'ING	17	EA	S	800	S	13,600	Signage,Makrings
PASTURE FENCE, 4-STRAND B'D WIRE	27,200	LF	S	7	S	190,400	
TRAIL MARKERS	65	EA	S	125	S	8,125	river & trail access, private land
Subtotal					S	3,530,878	
20% Contingency					S	706,176	
Survey and Design Fees (15%)					S	529,632	
TOTAL					S	4,766,685	

Costs do not include track & tie removal required for use of upvalley rail bed alignment (see Interim Trail Alignment description.) Costs do not include safety improvements required If rail line activated.

SOURCES

Glenwood Springs River Trail System – Glenwood Springs Planning
Recreation Access Feasibility Study - RFRHA
Eagle County Trails Plan 1993
Sand Creek Regional Greenway Master Plan Report – Wenk Associates
Heart of the Rockies Historic Corridor Trail Feasibility Study - Colorado State Parks
Pitkin County OST Program: Trails Design & Management Handbook - Cimarron Design
Frying Pan and Roaring Fork Rivers Fishing Map and Guide – C. Carpenter
RFRHA Property CIS/DEIS/CP Digital Mapping - MK Centennial 1998
SP Telecom Fiber Optic Cable Route, US West Project #3225A23
Pitkin County Open Space and Trails Map – Pitkin County OST Program 1992
Town of Carbondale Comprehensive Plan Update 1998 - Trails Master Plan
Glenwood Springs River Trail System Map - 1994
Glenwood Springs Roaring Fork River Trail Project 1998 — Civil Design Consultants, Inc.
Town of Basalt/Mid-Valley Draft Trails Plan
Reading the Roaring Fork Landscape: An Ideabook for Interpretation and Environmental Education

EXHIBIT B1:

LISTING OF ALL UTILITY EASEMENTS

EXHIBIT B1: LISTING OF ALL UTILITY EASEMENTS

CONTRACT #:	LICENSEE NAME:	PURPOSE:	MILE POST:	USE DESCRIPTION:
718106	Qwest	Utility Easement	360-390	EASEMENT: 10-foot fiber optics utility easement
717233	Holy Cross Energy	Underground Pipeline	362.05	4" underground water pipeline, no map available
717232	Holy Cross Energy	Underground Pipeline	362.05	4" underground sewer pipeline, no map available
30433	AT&T Cablevision	Underground Cable Crossing	365.2	3" cable, 40' long under track & 7600' adj. To track
30433	AT&T Cablevision	Underground Cable Crossing	365.37	3" cable crossing underground for 40'
717459	Holy Cross Energy	Underground Powerline	369.59	TBD
717458	Holy Cross Energy	Underground Pipeline	369.72	underground conduit crossing beneath rail
474358	Aspen Glen Golf Company	Permanent Utility Easment	370.35	EASEMENT: 50' wide utility easement in perpetuity
719589	Town of Carbondale	Underground Pipeline	372.08	16" sewer pipeline under rail
26480	Carbondale Sanitation Dist.	Sewer Pipeline Crossing	372.25	15" pipeline under track
27309	Redstone Corp.	Pipeline Crossing	372.73	16" pipeline, 130' long under track
27664	TCI Cablevision/ AT&T	Wire Crossing	372.74	60v overhead cable TV line crossing track
28599	Public service Co.	Water Line Crossing	378.03	115v overhead pwrline crossing over track
716496	Holy Cross Energy	Overhead Powerline	379.16	overhead powerline crossing ROW
717676	Roaring Fork School Dist.	Pipeline & Public Access Road	383.46	below grade pipeline
717675	Roaring Fork School Dist.	Pipeline & Public Access Road	384.46	below grade pipeline
30286	Joe Fiou	Water Line Crossing	383.8	2" pvc water pipe in 50' of 4" steele pipe under track
718044	KN Energy	Natural Gas Pipeline	386.42	2' underground gas pipe crossing under rail
718045	KN Energy	Natural Gas Pipeline	386.42	2' underground gas pipe crossing under rail
715932	KN Energy	Blanket Agreement	388.13	2' underground gas pipe crossing under rail
29237	Frank Hallowell	Water Pipeline Crossing	388.73	1" diameter water pipeline beneath rail
718043	KN Energy	Natural Gas Pipeline	388.77	2' underground gas pipe crossing under rail
718042	KN Energy	Natural Gas Pipeline	388.77	2' underground gas pipe crossing under rail
23959	Holy Cross Energy	Power Line Crossing	391.84	overhead powerline crossing ROW
28429	Federal Aviation Admin.	Wire Line Encroachment	392.01	wire line encroachment with overhead poles
27666	AT&T Cablevision	Wire Line Crossing	373.13	wire line encroachment
98-006	P. Mark & Kathy Weida	Sewer Line Crossing	386.61	6" sewer pipe under tracks
99-007	P. Mark & Kathy Weida	Telephone Cable Crosssing	388.27	buried communications cable under tracks
1997-384.44	Roaring Fork Club	Utiltiy Crossing	384.62 & 384.83	underground utility crossing
1999-370.67	RF Water & Sanitation Dist	Utility Easement	370.67	underground utility

CITY OF GLENWOOD SPRINGS (Existing Crossings):

20135	Water Pipeline Crossing	360.29	
27507	Raw Water Pipeline Crossing	360.3	
29909	Overhead Electric Crossing	360.37	
27947	Wire Line Crossing	360.81	
29560	Water Line Crossing	360.94	water line crossing @ Riverside Drive
29560	Water Pipeline Crossing	361.19	
30902	Sewer Line Crossing	361.25	18" sewer line with 10' easement
27192	Wire Line Crossing	361.44	

23002	Sewer Line Crossing	361.47	12" sewer line crossing
29127	Water Line Crossing	361.74	water line crossing @ South Grand Ave.
27947	Wire Line Crossing	361.86	
26150	Water Line Crossing	362.04	water line crossing @ 27th St.
23027	Pipe Line Crossing	362.21	
23525	Water Line Crossing	362.26	water line crossing @ 29th St.
21458	Water Line Crossing	362.6	2" diameter water line crossing
30093	Water Line Crossing	362.72	8" diameter water line encased in 24" steel pipe
5930	Water & Pub. Rdwy Crossing	360.82	
27850	Sewer Line Crossing	?	24" diameter iron sewer pipeline
29682	Drainage Ditch	362.05	4' wide open drainage ditch
19433	General Wire Line Crossing	*various*	
16064	Steel Water Line Crossing	?	
16405	Water Line Crossing	?	
21787	Water Pipeline Crossing	?	
21877	Water Pipeline Crossing	?	
25604	Water Pipeline Crossing	?	
25786	Power Line Crossing	?	
27503	Water Pipeline Crossing	?	
29505	Water Pipeline Crossing	360.83	50' long x 16" pipe under track
27851	Sewer Line Crossing	360.91	18" diam. Pipe under track
30916	Power Line Crossing	361.75	13.2 Kv pwrline under track
98-004	Sewer Line Crossing	361.34-361.50	800' undrgrnd sewer line adj to ROW

EXHIBIT B2:

NOTICE OF INTENTION TO UNDERTAKE RAIL CORRIDOR ACTIVITIES

NOTICE NUMBER_____

LOCATION (MILEPOST)_____

NOTICE OF INTENTION TO UNDERTAKE RAIL CORRIDOR ACTIVITIES

TO: Aspen Valley Land Trust

FROM: Roaring Fork Railroad Holding Authority

DATE:

RE:

In accordance with Paragraph 8 of the Deed of Conservation Easement and Deed of Trail Easement dated June 30, 1997, between the Roaring Fork Railroad Holding Authority, the Aspen Valley Land Trust, and the Pitkin County Board of Commissioners, the following information is provided:

1. Nature of Project:

2. Scope of Project:

3. Design of Project:

4. Location of Project:

5. Timetable of Project:

6. General Remarks:

If you have any questions or require supplemental information, please contact Tom Newland, Executive Director, Roaring Fork Railroad Holding Authority, at 970-704-9282.

ROARING FORK RAILROAD HOLDING AUTHORITY

_____

Tom Newland, Executive Director

xc: Pitkin County Open Space Board
(Pitkin County Notices Only)

- ☐ Applicable
- ☐ Not Applicable

Jurisdictional Entity

- ☐ Pitkin County
- ☐ Eagle County
- ☐ Garfield County
- ☐ Basalt
- ☐ Carbondale
- ☐ Glenwood Springs

EXHIBIT C:

SUMMARY OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

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SUMMARY

DOCUMENT DEFINITION

The West Glenwood Springs to Aspen Corridor Investment Study/Draft Environmental Impact Statement (CIS/DEIS) represents the culmination of several years of planning for potential transportation improvements in the Roaring Fork Valley. The Roaring Fork Valley encompasses portions of Pitkin, Eagle, and Garfield Counties in western Colorado. The project area is depicted in Figure S-1, the project location map.

This study was conducted for the Roaring Fork Railroad Holding Authority (RFRHA), owner of the railroad right-of-way which extends from Woody Creek in Pitkin County to Glenwood Springs in Garfield County. The study was conducted with input and guidance from the Federal Transit Administration (FTA), the Federal Highway Administration (FHWA), and the Colorado Department of Transportation (CDOT). FTA and FHWA are the lead federal agencies for development of the DEIS and CDOT is the lead state agency.

The project area evaluated in this CIS/DEIS originally included the area from West Glenwood Springs to the Pitkin County (Aspen) Airport. As work on the project progressed, it became clear that there was a need to extend the project limits from the original terminus at the Pitkin County (Aspen) Airport. The demand for a seamless connection to downtown Aspen from downvalley communities warranted the extension of the project from the Pitkin County (Aspen) Airport to a location in downtown Aspen. A light-rail transit (LRT) system between the Pitkin County (Aspen) Airport and Rubey Park in Aspen received environmental clearance in the Entrance to Aspen Record of Decision in 1998. Since LRT is compatible with the technology proposed for the West Glenwood Springs to Aspen project, the extension could utilize the same tracks. The Entrance to Aspen LRT tracks would be used between the Pitkin County (Aspen) Airport and Monarch Street in downtown Aspen. From the intersection of Monarch Street and Main Street, new tracks would be constructed independent of the Entrance to Aspen LRT tracks for approximately three blocks to the Hunter Street and Main Street intersection. The West Glenwood Springs to Aspen project terminates at this point with an at-grade station platform.

This CIS/DEIS document presents the methodology, analyses and results of the multi-tiered screening process that resulted in a Locally Preferred Alternative (LPA). Documentation of this screening process provided in satisfaction of the CIS portion of this project. Documentation and detailed evaluation of the three alternatives studied during the final screening process are provided in satisfaction of the DEIS portion of this project. In addition, a separate Comprehensive Plan (CP) has been developed for this project.

Corridor Investment Study

The Corridor Investment Study was conducted using the informational requirements and guidelines for federally sponsored Major Investment Studies. A public involvement effort was used in order to develop the project objectives and to aid in the identification of all available alternatives for technology, propulsion, alignment, and station locations.

Figure S-1
West Glenwood Springs to Aspen CIS/DEIS/CP
Project Corridor

Several layers of screening that began with a reality check analysis and a fatal flaw analysis were used in order to eliminate some options from further consideration. Comparative criteria and measures of effectiveness were subsequently developed based on the project objectives. The resultant matrix was used to provide enough detail to screen out multiple technology and alignment options.

Final recommendations on technology and alignment to be examined in the DEIS were made by citizen task forces (CTFs) to the RFRHA Policy Committee and RFRHA Board. The comparative analysis resulted in selection by the RFRHA Board of one Rail/Build Alternative, an Improved Bus/Transportation Systems Management (TSM) Alternative, and the Committed Projects No-Build Alternative for consideration in the DEIS process.

Draft Environmental Impact Statement

The Draft Environmental Impact Statement was prepared based on the United States Department of Transportation (USDOT) guidelines for preparing environmental documents. Additional public involvement was conducted to further evaluate the three alternatives which remained following the Corridor Investment Study process. The three alternatives, which were evaluated in more detail as part of this DEIS, are:

- Committed Projects/No-Build
- Improved Bus/Transportation Systems Management (TSM)
- Rail/Build

Comparative criteria and measures of effectiveness were again used in order to present detailed information on the merits of each of the alternatives. The comparative criteria were similar to those developed as part of the Corridor Investment Study, however, they were refined based on citizen input and direction from the RFRHA Policy Committee.

The DEIS process resulted in the identification of a Locally Preferred Alternative (LPA). The Rail/Build Alternative was unanimously selected as the LPA by both the RFRHA Policy Committee on October 9, 1999 and the RFRHA Board on October 22, 1999. The Rail/Build Alternative will hereafter be referred to as the LPA. The LPA is discussed in the following section. An FEIS will be prepared following agency and public review and a public hearing on the DEIS.

Comprehensive Plan

The Comprehensive Plan prepared as part of the West Glenwood Springs to Aspen planning process focuses on the development of a continuous trail from 23cd Street in Glenwood Springs to the beginning of the Rio Grande Trail in Pitkin County. The Comprehensive Plan supplements the DEIS by identifying the location and proposed design features of the trail, which will be located within the RFRHA right-of-way as much as feasibly possible. The comprehensive plan also includes an access control plan for the railroad right-of-way, access control guidelines for the State Highway 82 corridor, transit elements of the DEIS, and other elements of the Valley-wide transportation system.

ALTERNATIVES CONSIDERED

Corridor Investment Study

Technology Alternatives

In developing a comprehensive transportation plan for the Roaring Fork Valley, 46 possible technology options were considered. Only the rail and busway technologies survived the Phase 1 reality check and fatal flaw screening processes. Both the busway and rail technologies were further evaluated as part of the Phase 2 comparative evaluation process. Each technology was evaluated in conjunction with one of five separate alignment options. These alignment options are described below.

As a result of the Phase 2 comparative analysis, the busway technology was eliminated from further consideration. The rail technology was chosen as the build alternative technology to be evaluated in the DEIS process.

Alignment Options

Five potential alignment options (A through E) were developed through the public agencies, scoping meetings, the CTFs and RFRHA Policy Committee meetings. These alignment options were combined with the rail/build and bus/TSM technology options to create a total of ten alignment/technology alternatives.

Alignment options that did not serve Brush Creek Road were not considered because of the importance of serving the town of Snowmass Village and the necessity of connection with the proposed LRT tracks between the Pitkin County (Aspen) Airport and Aspen. The LRT tracks are proposed between the Pitkin County (Aspen) Airport and Rubey Park in the Entrance to Aspen FEIS and RUD. Since release of these documents, the upper valley governments (Pitkin County, City of Aspen, and Town of Snowmass Village) have passed a resolution to extend the LRT tracks from the Pitkin County (Aspen) Airport to the Brush Creek Road/State Highway 82 intersection. The alignments for both the railroad and bus technologies were the same except in Carbondale. In Carbondale, Alignment E was different for each technology option as described below.

As part of the DEIS scoping and CIS screening processes, the project corridor was extended from downtown Glenwood Springs to West Glenwood Springs. This extension improved service to Colorado River Valley communities west of Glenwood Springs. All alignment options included a separate transit envelope along the existing Union Pacific Railroad (UPRR) track to connect West Glenwood Springs to the existing RFRHA rail corridor in downtown Glenwood Springs. At Brush Creek Road, all alignment options connect with the proposed LRT tracks into Aspen. The LRT system follows the State Highway 82 corridor and turns south from Main Street at Monarch Street in Aspen. New tracks would be constructed along Main Street from Monarch Street to Hunter Street as part of the West Glenwood Springs to Aspen project evaluated in this document.

The Five alignment options are depicted on Figures S-2 through S-6.

Alignment A: Rail Corridor Brush Creek Road Crossing

This alignment option begins in West Glenwood Springs just southeast of the West Glenwood/1-70 interchange. It then parallels the Union Pacific Railroad corridor along the south side to the existing RFRHA rail corridor in downtown Glenwood Springs. This alignment option the follows the existing rail corridor from Glenwood Springs to a location north of Brush Creek Road where it crosses the Roaring Fork River to State Highway 82 near the Brush Creek Road intersection. At Brush Creek Road, the alignment connects with the LRT alignment to Monarch Street in Aspen and continues on new track along Main Street (State Highway 82) to Hunter Street. Alignment A is depicted on Figure S-2.

Alignment B: Rail Corridor Gerbazdale Crossing

This alignment option begins in West Glenwood Springs just southeast of the West Glenwood/1-70 interchange. It then parallels the Union Pacific Railroad corridor along the south side to the existing RFRHA rail corridor in downtown Glenwood Springs. This alignment option then follows the existing rail corridor from Glenwood Springs to a location north of Gerbazdale (S'tutsman-Gerbaz, Inc.) where it crosses the roaring Fork River to State Highway 82. Two crossing options were considered, both of which were evaluated in the Glenwood-**Aspen Rail Corridor Feasibility Study.** During the CIS screening process, the northern most of these two options was chosen by the RFRHA Policy Committee for further evaluation and study. The alignment then connects to the LRT alignment and continues into Aspen as described for Alignment A. Alignment B is depicted on Figure S-3.

Figure S-2

FigureS-3

Alignment C: Rail Corridor to Catherine Store Area Highway Corridor to Wingo Junction

This alignment option follows the existing rail corridor from Glenwood Springs to an area near Catherine Store and then crosses to State Highway 82. Two alternatives for crossing the Roaring Fork River near Catherine Store were evaluated. One option (CSl) follows County Road 100 and the second option (CS2) crosses the river approximately ¾-mile south where the rail corridor and State Highway 82 are at their closest for this area. It then follows State Highway 82 to the Wingo Junction area where it returns to the rail corridor. From the Wingo Junction area this alignment option would use either Alignment A or B to cross State Highway 82 to connect with the LRT alignment at the Airport. The remainder of the alignment into Aspen is as described for Alignment A. Alignment C is depicted on Figure S-4.

Figure S-4

Alignment D: Rail Corridor to Emma Highway Corridor to Wingo Junction

This alignment option begins in West Glenwood Springs just southeast of the West Glenwood/1-70 interchange. It then parallels the Union Pacific Railroad corridor along the south side to the existing RFRHA rail corridor in downtown Glenwood Springs. This option then follows the existing rail corridor from Glenwood Springs to Emma. At Emma, the option follows the State Highway 82 corridor to the Wingo Junction area where it returns to the existing rail corridor. This alignment option would use either Alignment A or B to continue into Aspen. Alignment Dis depicted on Figure S-5.

Figure S-5

Alignment E: Rail Corridor to Carbondale Highway Corridor to Wingo Junction

This alignment option begins in West Glenwood Springs just southeast of the West Glenwood/l-70 interchange. It then parallels the Union Pacific Railroad corridor along the south side to the existing RFRHA rail corridor in downtown Glenwood Springs. This option then follows the existing rail corridor from Glenwood Springs to the area near State Highway 133. From this, the alignment option follows the State Highway 82 corridor to the Wingo Junction area where it returns to the existing rail corridor. This alignment option would use either Alignment A or B to continue into Aspen. At State Highway 133, the rail technology option crosses from the rail corridor to the State Highway 82 corridor just north of the State Highway 82/State Highway 133 intersection on the east side of the Roaring Fork River. The bus technology option follows the existing rail corridor to its intersection with State Highway 133. It then follows the State Highway 133 corridor back to the State Highway 82 Corridor. Alignment E is depicted on Figure S-6.

All five alignment alternatives survived the Phase 1 reality check and fatal flaw screening processes. As a result of the Phase 2 comparative evaluation, Alignment C (with the CSI crossing option at Catherine's Store, the northern crossing option at Gerbazdale and the Alignment B option south of Wingo Junction) was chosen for the Rail/Build Alternative to be evaluated for the DEIS analysis.

Figure S-6

Propulsion Options

A total of 19 potential propulsion options were developed early in the study process. As part of the Phase 1 reality check and fatal flaw screenings, the total number of propulsion alternatives was reduced from 19 to eight. The potential propulsion options were not reduced as a result of the Phase 2 comparative evaluation; consequently, eight propulsion options are still viable for the DEIS analysis. The eight propulsion options are:

- Diesel
- Gasoline
- Hydrogen internal combustion
- Liquid propane (LP) gas
- Natural gas
- Electric (battery)
- Electric (overhead cantenary)
- Electric/gas (hybrid)

Station Location Options

Sixteen potential station locations between West Glenwood Springs and the Pitkin County (Aspen) Airport were developed during Phase 1 through public agency seeping meetings, the CTF's, and Policy Committee meetings. The sixteen potential station locations were:

- West Glenwood Springs
- Downtown Glenwood Springs
- South Glenwood Springs
- State Highway 133 (Carbondale)
- Downtown Carbondale
- Hooks Spur
- Basalt High School
- Old Snowmass
- Aspen Village/State Highway 82
- Woody Creek
- Brush Creek Road/State Highway 82
- Emma
- Willits Lane
- Midland Avenue (Basalt)/State Highway 82
- Pitkin County Airport
- Existing Bus Stops

All sixteen station locations survived the reality check and fatal flaw screening processes conducted during the Phase 1 analysis.

The Phase 2 comparative analysis did not overtly eliminate certain stations from further consideration. The choice of the rail technology on Alignment C for the Rail/Build Alternative to be analyzed in the DEIS eliminated some stations from further consideration due to their proximity to one of the other four alignment options. Other stations were identified during the scoping process as potential future stations. As a result, the remaining station locations for the Rail/Build Alternative under consideration in the DEIS are as follows:

- West Glenwood Springs
- Downtown Glenwood Springs
- State Highway 133 (Carbondale)
- Pitkin County Airport
- Downtown Carbondale
- El Jebel/Willits Lane
- Brush Creek Road

Subsequent to the Phase 2 comparative analysis, the decision was made to extend the project terminus from the Pitkin County (Aspen) Airport to downtown Aspen. This decision necessitated the inclusion of a new final station in downtown Aspen. The station would be an at-grade 'platform located at the project terminus at Hunter Street and Main Street.

Draft Environmental Impact Statement

Committed Project/No-Build Alternative

This alternative assumes that only "committed" or currently approved transportation projects are constructed in the corridor between now and the year 2020. Many of the projects that are included as part of the assumed No-Build condition are associated with the Final Environmental Impact Statements and Records of Decision for the East of Basalt to Buttermilk Ski Area and the Entrance to Aspen. A detailed list of all of the projects included in the No-Build Alternative is included in **Chapter II: Alternatives**.

The other two alternatives both assume the Committed Project/No-Build Alternative as a starting point. In other words, all of the Committed Project/No-Build Alternative improvements are constructed as well as the additional improvements described in the alternative. However, for the LPA, portions of the Committed Project/No-Build may not be necessary. For example, some park-and-ride lots may not be necessary or may be smaller than described in the No-Build Alternative.

Improved Bus/Transportation Systems Management (TSM) Alternative

This alternative includes improvements above and beyond the Committed Projects/No-Build Alternative that enhance the utility of existing and committed transportation improvements. The Improved Bus/TSM Alternative includes the development of an optimal bus alternative on the existing State Highway 82 alignment. The optimal bus alternative incorporates the same headways (time between transit vehicles) as those envisioned for the LPA.

The Improved Bus/TSM Alternative also includes such measures as the development of an Access control Plan, implementation of a Valley-wide Transportation Management program, and construction of queue bypass lanes for buses at five signal locations. A detailed list of all of the items included in this alternative is provided in **Chapter II: Alternatives.**

Locally Preferred Alternative (LPA)

This alternative optimizes the use of rail technology in the study corridor. The study corridor follows the alignment between West Glenwood Springs and Aspen using varying portions of the existing rail right-of-way, the State Highway 82 right-of-way, and new connecting rights-of-way.

The LPA also includes the development of seven stations in the Valley and direct service to downtown Aspen. Many of the TSM applications identified for the Improved Bus/TSM Alternative are also included in the LPA A detailed description of all of the items included in the LPA is provided in **Chapter II: Alternatives.**

Comprehensive Plan

The Comprehensive Plan includes transit elements from the DEIS as well as elements from the trail plan and access control plan as summarized below.

Trail on Rail Corridor

Development of a trail within the RFRHA rail corridor is evaluated as part of the Comprehensive Plan prepared for this project. The ultimate trail is contemplated as a paved surface ten feet in width, with a four-foot soft surface adjacent. An unimproved equestrian trail would also be located in the corridor in areas of equestrian use and available right-of-way. Additional facilities potentially associated with the trail include:

- Access to and from appropriate areas of the Roaring Fork River
- Access to and from appropriate Bureau of Land Management Lands and other park/open space lands in the corridor
- Trail head areas with ancillary facilities including some parking spaces
- Environmental/Wildlife signage identifying areas of particular value or interest
- Archaeological/Historical signage identifying similar areas of potential interest

Access Control Plan

Part of the Comprehensive Plan includes provisions for the control of access to and from State Highway 82 and the potential railroad. Major items covered in the Access Control Plan include the following:

- Criteria for major access signal spacing
- Opportunities for consolidating existing railroad crossings
- Review of existing policies and regulations affecting railroad crossings
- Development of a policy for managing new railroad crossings

These elements combine to form a complete plan for managing access within the Roaring Fork Valley in conjunction with the development of the LPA

Other Comprehensive Plan Elements

In addition to the trail access control elements, and other elements, the comprehensive plan includes a description of the transit elements as described in this DEIS to be implemented along with the LPA, should it ultimately be constructed.

MAJOR ENVIRONMENTAL IMPACTS

The evaluation of environmental impacts for the LPA in the DEIS is based on FTA and FHWA guidelines. The major beneficial and adverse environmental impacts are listed below.

Beneficial Impacts

The beneficial impacts include the following:

- Reduced air pollution
- Increased transportation capacity for future person trips in the project corridor
- A safer transportation corridor resulting in reduced accident rates
- Improved quality of life
- The potential for future development to be more transit oriented and concentrated
- Increase in transportation choices
- A reduction is buses throughout the valley

Adverse Impacts

The adverse impacts include the following:

- Relocations of households and businesses
- Right-of-way encroachment of households and businesses
- Increased noise levels for some locations, even with mitigation
- Potential for bald eagle buffer zone disruption during construction
- New structures and retaining walls creating visual impacts

CONTROVERSIAL ISSUES

Project History

In September 1991, eight local governmental entities resolved to purchase the rail corridor right-of-way between Glenwood Springs and Woody Creek from the Southern Pacific railroad to preserve the corridor as a public asset. In December 1994, the eight local governments signed an Intergovernmental Agreement to purchase the property. The urgency of the purchase was realized when the merger of Southern Pacific and Union Pacific railroads was announced.

With the dissolution of Southern Pacific, the rail corridor could have been abandoned by Union Pacific and the land reverted to possible residential and commercial development. The result would have been the loss of the corridor and any opportunity to preserve it for recreational and transportation use.

In the summer of 1997, the corridor purchase was finalized. The purchase was made as a public/private partnership, with money coming from eight local governments (City of Aspen, Snowmass Village, Pitkin County, Basalt, Eagle County, Carbondale, Glenwood Springs, and Garfield County), Pitkin County Open Space Board, the Eagle County Regional Transit Authority (ECO), Great Outdoors Colorado (GOCO), and the Colorado Department of Transportation (CDOT). The purchase agreement required that a comprehensive plan be prepared for the corridor to satisfy the conservation easement along the corridor. This included the development of a transit and trail plan.

On July 26, 1997, an amended Intergovernmental Agreement was signed which addressed the management of the property and the financial responsibilities of each Roaring Fork Railroad Holding Authority (RFRHA) member governments. Although a participant in the purchase of the right-of-way, Garfield County did not wish to commit the financial obligations as set forth in the agreement for participating governments.

Consequently, financial responsibility for property rested with the seven remaining governmental entities based on the following agreed-upon percentages:

- City of Aspen: 27.7%
- Pitkin County: 24.1%
- Snowmass Village: 15.7%
- Glenwood Springs: 19.3%
- Eagle County: 7.2%
- Carbondale: 4.8%
- Basalt: 1.2%

Since their decision not to participate financially in the study and development of the railroad corridor, members of the Garfield County Commission have had numerous disagreements with the RFRHA Board. These disagreements have led to a certain amount of controversy reported by the local media. Some of the major areas of disagreement have resulted from RFRHA decisions regarding railbanking, the appropriate role and timing of freight movement in the corridor, and the potential for the development of a Rural Transportation Authority (RTA).

To date, the disagreements between RFRHA and Garfield County have not escalated to a point where they are unresolvable. Nevertheless, it seems unlikely that Garfield County will be a willing participant in further study and development planning in the corridor, which RFRHA has committed to complete.

Although Garfield County is not a voting member of the RFRHA board, they do have certain authority over the comprehensive planning effort being conducted as part of this study. Garfield County's portion of the Legacy grant provided nearly $500,000 towards the purchase of the corridor. As a result, Garfield County claims a veto power over the Comprehensive Plan, which must be prepared in order to satisfy the conditions of the Legacy Grant provided by Great Outdoors Colorado. Garfield County and the RFRHA Board are currently in the process of resolving this claimed veto power. A resolution is expected by April, 2000. Without approval of the Comprehensive Plan, no development can occur within the railroad corridor.

Valley-Wide Rail

The concept of a rail system for the Roaring Fork Valley has been, and will continue to be, fervently debated throughout the communities in the Valley. The issue has received the most attention in Pitkin County and Aspen. Two groups, each representing one side of the rail or no rail question, have been conducting campaigns to garner support for their position. One group, including the Common Sense Alliance, is anti-rail while the other group, including Citizens for Sensible Transportation, is pro-rail. Both groups have received a great deal of media attention in Pitkin County and have spent a good deal of money trying to get their message to the public.

In November of 1998, three separate questions were posed to the voters in Aspen and Pitkin County regarding the idea of valley-wide rail. The results of the November vote were mixed. Voters in Pitkin County defeated question 1-B, which asked if they supported the concept of rail for the Roaring Fork Valley. Voters in Aspen approved question 2-A, which asked the same question regarding support of the concept of rail for the Valley. Pitkin County voters also approved question 100, which called for an end to Pitkin County's efforts to study the rail issue, at least until the expansion of State Highway 82 is completed, if the financing for the Entrance to Aspen LRT system has not been approved by November 3, 1999.

The November 1998 vote followed numerous other transportation-related votes in the Aspen/Pitkin

County area: These votes have a history of being very controversial, with narrow margins of victory and similar issues being decided differently in subsequent votes.

It is clear from the most recent November vote, and the relatively narrow margins of victory for each of the questions, that the issue is a diverse one in Aspen and Pitkin County. The remainder of the communities in the valley have not yet weighed-in on the question in the form of a vote. It is anticipated
'1at the planning currently being conducted by the Roaring Fork Transit Agency (RFTA) for the development of a RTA will bring that issue to the fore in May 2000. A valley-wide vote will be necessary in order to approve an RTA; hence, the issue will receive more attention as time progresses.

OTHER FEDERAL ACTIONS REQUIRED

Construction of some of the transportation improvements will require issuance of a Section 404 dredge and fill permit by the Army Corps of Engineers (ACOE). The LPA will require an air quality conformity determination before final approval.

PUBLIC INVOLVEMENT

RFRHA has worked closely with the citizens and elected officials in the study corridor since the inception of the project. In order to insure adequate community input to the study, a process was developed at the outset, which allowed numerous opportunities for concerned citizens and affected stakeholders to affect the decision making. Specific groups involved in the process included a Resource Group, four Citizen Task Forces, a Regional Task force, an Access Task Force, and a Trails Task Force.

In addition to the efforts outlined above, the public involvement program also included the following techniques:

- Open house public meetings and workshops
- Focus group meetings with affected interests
- City Council and County Commission briefings
- Periodic newsletters
- Ongoing media coverage through numerous local papers, Grass Roots TV, and local radio stations.

Each of the community groups identified above were provided detailed project information by the Consultant Team and were asked to make recommendations to the Consultant Team and the Policy Committee throughout all phases of the project. Information of the general membership and function of each group is provided in the following paragraphs.

The Resource Group consists of professionals from each of the governmental entities in the Roaring Fork Valley. They have been an integral part of the process, providing local insight and information on all aspects of the study. The Resource Group also aided the Consultant Team by helping to correct errors, reviewing new information, and planning better methodological strategies.

Four Citizen Task Forces (CTF's) were created to provide representation throughout the Valley for the

project. The CTF's consisted of individuals in the downvalley (Glenwood Springs, Rifle, New Castle) area, the Carbondale area, the Mid Valley (El Jebel, Basalt) area, and the Upper Valley (Aspen Snowmass) area. Approximately once a month, the Consultant Team met with each of the CTF's to provide information and solicit input. At the conclusion of the comparative screening process, each of the CTF's was asked to make a recommendation on an alignment and a technology for their area which should be evaluated as the Build Alternative in the Draft Environmental Impact Statement (DEIS) during Phase 3 of the project. During the DEIS process, each of the CTF's was asked to make a recommendation on an LPA.

A Regional Citizens Task Force was also developed by selecting two representatives from each of the four CTF's. The Regional Task Force was developed in order to address areas of disagreement between the jurisdictions throughout the Valley and to attempt to unify recommendations being passed on to the RFRHA Policy committee. Representatives from the Regional Task Force made a presentation to the Policy Committee on the recommended build alignment and technology to be evaluated in the DEIS portion of the study and the recommended LPA.

An Access Task Force was developed in order to address Comprehensive Plan access issues throughout the Valley and to aid in the preparation of an Access Plan. The group met several times during the winter of 1999 to suggest and review information from the consultant team and to make recommendations for access consolidation.

A Trails Task Force was developed specifically to address the trail portion of the project and to consolidate trail advocates into a single voice. This task force met several times early in the study process and several more times during the winter of 1999 to help finalize the planning effort documented in the Comprehensive Plan portion of the study.

EXHIBIT D:

ADDITIONAL TECHNICAL INFORMATION AS REQUESTED BY THE LOCAL DECISION MAKING PROCESS:

EXHIBIT D-1:

PROJECT OBJECTIVE MATRIX AND EXPLANATORY MEMORANDUM

MK CENTENNIAL

CENTENNIAL ENGIN-EERIN-G, INC.

Memorandum

DATE: September 2, 1999

TO: CTF Members, Policy Committee, RFRHA Board, Interested Citizens

FROM: Craig Gaskill, John Bender, Project Team

SUBJECT: Project Objective Matrix/Line by Line explanation,-Glenwood Springs to Aspen CIS/DEIS/CP 1573.34

Attached is the decision-making matrix based upon the project objectives. These project objectives were developed by the five Citizen Task Forces, the Policy Committee, the RFRHA Board and citizens who attended one of five seeping meetings. For each objective, the Task Forces, the Policy Committee, and the Board with input from the technical team, formulated a set of criteria for those objectives that could be quantified in some way. These include updates to the criteria originally formulated for the decision matrix created in December, 1998. The matrix was developed to provide data for making a decision on a locally preferred alternative (LPA). The alternatives under consideration include the "Committed Projects" Alternative, the "Improved Bus/TSM" Alternative, or the "Rail" Alternative.

Each project objective sheet lists a description of the specific project objective and the measurable criteria. There are many aspects of some of the project objectives that are more qualita ive and did not lend themselves to specific measurable criteria. Please keep this in mind as you use the matrix to evaluate alternatives. A box after each list of criteria can be used to jot down comments on these more qualitative project objectives.

The following explanations, listed by objective, provide further information to help clarify or explain some of the information contained within the matrix.

The evaluation is for the valley transit system between West Glenwood Springs and downtown Aspen only. This includes all feeder/ local bus service downvalley from Brush Creek Road but does not include local service between Aspen and Snowmass, the Aspen LRT system from Aspen or other local bus service within Aspen or the surrounding upvalley area. Mainline "valley" transit between Brush Creek Road and downtown Aspen is included.

Project Objective: Affordability and Economic Viability

1. Capital Cost - This includes all construction costs, vehicles, transportation management measures (improves traffic and transit), stations, and parking facilities. This includes capital costs of the feeder/bus system. All costs are in 1998 dollars. Actual future year construction costs will be higher due to inflation. 202{) costs include all 2D03-costs. They are not in addition to the 2003 amounts.

2. Ridership - Total annual hoardings in millions including mainline transit and the feeder/local bus system. Each boarding represents one person getting on the transit system from origin to destination. A person who transfers between transit vehicles is only counted as one boarding.

3. Annualized Capital Cost per Rider- This is based on the annualized-capital cost divided by the annual boardings. Capital costs are annualized over a 24 year period using a 6% discount rate.

4. Annual Operating Cost- Includes all operating and maintenance costs for mainline transit, feeder bus service and ADA (American Disabilities Act) service. The ADA costs have been added since the early August Citizen Task Force meetings and Policy Committee meeting.

5. O&M Cost per Rider- Annual Operating Cost divided by annual hoardings. A value was also requested and calculated for average cost per transit passenger mile. For year 2020, the average cost per transit passenger mile for the Improved Bus Alternative is $0.08. For the Rail Alternative, the average cost per transit passenger mile is $0.10. This is for all transit riders under each alternative. The Rail Alternative has much higher feeder bus ridership and lower average miles traveled per transit rider.

6. Measure of Affordability Against Future Revenues- Measured as the additional amount of dollars needed for operation and maintenance costs (O&M) beyond existing (1998) downvalley bus system O&M costs.

7. Number of employees- Includes all operations and maintenance employees.

Project Objective: Community Based Planning

1. Compare how well each alternative fits with the specific goals, zoning, urban growth boundaries, and other community priorities, as laid out in community master plans. Compare how alternatives integrate with the existing built environment.- Each alternative alignment and station location was discussed with the Planning Commissions of each community. Additionally, Transit Oriented Community Design (TOCD) workshops were held in each community. The CTF's and Policy Committee were briefed on this discussion. A general sense of positive(+), negative(-), or neutral (0) response from -each community is presented.

2. Measure the impacts on and changes to local and regional growth projections and development patterns. - Each alternative alignment and station location was discussed with the Planning Commission of each community. The CTF's and Policy Committee were briefed on this discussion. A general sense of positive (+), negative (-), or neutral (0) response from each community is presented with some summary discussion.

Project Objective: Environmentally Sound

1. Wetlands- Wetland impacts have been identified for the Rail Alternative and vary depending upon the alignment at Catherine Store. Rail Alternative Alignment C1 follows County Road 100. Alignment C2 follows the rail corridor before crossing at Flying Fish Road. Impacts to wetlands along alignment Cl are minimal and any impacts would be fully mitigated. The majority (4.1 acres) of impact associated with the C2 alignment occurs at the large wetland complex between the Roaring Fork River and State Highway 82. The largest and most valuable wetland along the alignment is located in this section.

   There are two types of wetlands in the project area, palustrine and riverine. Palustrine wetlands are marshy areas such as meadows that occur along rivers and springs; riverine wetlands are linear wetlands that occur along the banks of rivers, such as the Roaring Fork River and its tributaries. Wetlands are assessed a rating of low, medium, or high based on their ability to perform the functions of groundwater discharge and recharge, fish and wildlife habitat, sediment trapping, nutrient retention and removal, downstream food chain support and flood storage.

   In accordance with Clean Water Act Section 404 (b)(1) Guidelines, wetland mitigation is identified as avoidance, minimization, and compensatory mitigation. The Section 404 Program stresses the avoidance of adverse impact to wetlands with the goal of no overall net loss of wetland functions and values. The most important type of wetland mitigation is avoidance. If avoidance is not possible across an entire alignment, mitigation may include minimizing or compensating unavoidable impacts. The estimated acres of mitigation required assume 2 acres of wetland would be required for each acre taken. Including right-of-way (R.O.W.), this could range from $100,000 to $350,000 per acre within the project area.

2. Parklands taken/ affected- No parklands are expected to be taken or affected. This assumes the potential station at El Jebel would not affect the El Jebel Tree Farm property.

3. Farmland Impacts -The alignment primarily follows the existing rail corridor or State Highway 82 R.O.W. No Prime and Unique Farmlands are located in the project area and no farmland impacts are expected under any alternatives. However, a final determination has not been made pending consultation with the Natural Resources Conservation Service.

4. Wildlife Conflicts- Four items are shown. The first row shows the total number of miles of wildlife crossing or migration areas along either the rail or highway alignment. The second row shows a wildlife collision index. This is defined as (the total miles of wildlife crossing, migration, resident population area, concentration area, or range) X (the total number of daily vehicles crossing these areas) divided by 1,000. Year 2020 average winter daily traffic volumes are used for this calculation. A higher index represents a higher potential for vehicle/wildlife collisions. The third row identifies that under the Rail Alternative, there is an additional partial barrier to wildlife movement caused by the tracks. The fourth row shows that construction funds would be available under the Rail Alternative to mitigate wildlife conflicts, likely in the form of wildlife underpasses.

   One migration corridor was identified that crossed the transit study corridor. This is an elk migration corridor is located approximately 1 mile w st of Basalt. The values listed can be used as a comparative guide between alternatives, recognizing that the potential for conflict is related to the number of vehicles in the corridor.

5. Number of Relocations - This criteria measures potential relocations and estimated acres of R.O.W. Rail Alternative Alignment C1 requires 1.8 more acres of R.O.W. than Alignment C2 as it uses less of the existing railroad R.O.W. Potential relocations are the same under both Rail Alternative alignments as shown in Table 1.

TABLE 1, RELOCATIONS

General Location	Number of Potential Business Relocations	Number of Potential Residential Relocations
Glenwood Springs	2	
South of Buffalo Valley		1
North of Satank bridge	1	
Carbondale		1
El Jebel		11
Snowmass Canyon		1

6. Numbers of River Crossings- There are two new river crossings with the Rail Alternative. One is located near Catherine's Store, and the second one is at Gerbazdale. New river crossings require SB 40 certification and mitigation.

7. Noise levels- The analysis of noise and vibration was conducted utilizing the General Noise and Vibration Assessment procedures outlined in the United State Department of Transportation, Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment* manual of 1995. A total of 979 individual receiver sites were analyzed within 750 feet of the proposed alignment.

   The matrix shows the reference noise levels of transit buses and DMU trains. Each bus, on average, produces approximately 8 more decibels (dBA) of noise than each train vehicle and there are more mainline buses in the Improved Bus Alternative than there are mainline train vehicles in the Rail Alternative. This indicates that there is

more total transit noise generated by the Improved Bus transit vehicles than the Rail vehicles, although the noise may be at different locations. Only the Rail Alternative considers noise mitigation due to the new construction. The Improved Bus Alternative does not include any mainline construction and therefore no mitigation of noise impacts.

The matrix also shows the average increase in noise along State Highway 82 between Catherine's Store and Wingo Junction (used to compare with the Improved Bus Alternative). For the Rail Alternative, the average increase is approximately 0.4 dBA. For the Improved Bus Alternative, the average increase is estimated at less than 1.0 (but more than the Rail Alternative). Bus only noise was not modeled as no major State Highway 82 improvements are proposed for the Improved Bus Alternative. The average person cannot detect a difference in noise less than 3.0 dBA.

Average noise increases along the rail corridor only (Carbondale to Catherine's Store) for the Rail Alternative are estimated at 3.4 dBA. This represents a perceptible increase in noise to most people and results in overall noise levels at nearby homes and businesses of approximately 53 dBA. This is similar to the noise of a typical office or is perceived as 'A as loud as a heavy traffic at 50 feet.

Rail noise impacts assumed a base case of no existing rail service. A total of 45 sites under the Rail Alternative are proposed for noise mitigation. Most of these are in Glenwood Springs and Carbondale along the existing rail corridor. Noise mitigation is typically in the form of sound insulation or sound walls, but can also include relocation or thick vegetation.

8. Vehicle Miles Traveled (VMT) and PM_{10} Emissions -The yearly regional VMT is given in millions of miles for the entire project area. It measures the total amount of vehicular travel and is an indication of traffic levels, congestion levels, energy usage, and pollution emissions. Transit VMT is for transit vehicles only, both bus and rail. If three rail vehicles are coupled into one train, this calculation counts each mile traveled as three VMT.

   The year 2020 VMT per capita has also be calculated. This is estimated at approximately 8,070 miles within the study area for the Committed Projects Alternative 7,360 miles for the Improved Bus Alternative and 7,340 miles for the Rail Alternative.

   PM_{10} emissions. PM_{10} is short for particulate matter having a diameter less then 10 microns. For health and safety reasons, the federal government (Environmental Protection Agency, EPA) has standards that determine acceptable levels of PM_{lO}. When an area violates such standards, it enters into nonattainment area status. Aspen has been declared a nonattainment area in the past for PM_{lO}. Aspen currently is in attainment but is still required to meet non-attainment standards. Tires, lifting dust into the air ause the majority of the transportation PM_{lO} emissions.

9. Flora and Fauna - This identifies the number of habitat or buffer zones intersected by alternative. For Bald Eagles (administered as threatened and endangered), one nest site has been identified in the valley and the buffer zone is intersected by all three alternatives. This is located between Carbondale and Cattle Creek. Three roost site buffer zones are intersected by the rail alignment. These are located near Cattle Creek, along County Road 100, and in Snowmass Canyon. For other species, several nests are known to exist in the corridor and may require the use of buffer zones and seasonal activity restrictions to minimize adverse effects.

10. Water quality- This indicates the number of new impervious surfaces due to stations, sidewalks, and parking lots. Construction of the Rail Alternative tracks may also increase the sediment load in streams, but this can be minimized by using Best management Practices (B11Ps). Two new stream crossings will occur for the Rail Alternative at Catherine's Store and Gerbazedale.

11. Fisheries- This uses the same measures as for the water quality criteria. Despite the sensitivity of the Roaring Fork drainage within the project area, proper design and management can minimize adverse impacts and maintain high environmental quality within the fishery.

12. 4(f) and 6(f) -This is the number of potentially impacted sites that are categorized as 4(f) properties. No 6(f) properties were identified. 4(f) properties include significant publicly owned parks, recreational areas, wildlife or waterfowl refuges, or significant historic sites. The following sites were identified:
    - Old D&RGW Railroad bed (potential direct effect)
    - Town of Basalt (indirect, potential historic district, boundaries undefined)
    - Town of Catherine (indirect, historic townsite, undetermined)
    - Town of Rathbone (indirect, historic townsite, undetermined)
    - Satank Bridge (indirect due to ground vibrations and construction activities)
    - Emma Historic District (indirect)
    - Glenwood Ditch (indirect)

13. Energy- This is the regional energy consumption, in BTUs, based upon VMT. This is shown for general (non-transit) traffic, bus transit, and rail transit. This is based upon standard prescribed FTA energy rates for diesel vehicles. The transit propulsion technology has not been determined and could be non-diesel if another technology proves to be more appropriate in the future. The average BTU rate per transit passenger and average BTU rate per vehicle seat mile (BTUs allocated to each seat on a transit vehicle travelling one mile, either occupied or not occupied) was also calculated.

14. Paleontological, archeological, cultural, and historical impacts- No paleontological or archeological impacts were identified for any alternatives. Seven cultural or historic sites were identified as potential impacts. These sites are the same seven sites identified under the 4(f) category described above.

15. Hazardous Waste- The potential hazar-dous waste sites identified are located aiong the railroad conidor and generally consist of small fuel spills. The largest site is only a few square meters in area.

16. Visual impacts - This is the measured by the number of structures that would be built having a potential visual impact on the surrounding area. Five new bridges for the Rail Alternative will be needed. Two are new river bridges located at Gerbazdale and Catherine's Store. The other three are new highway bridges crossing State Highway 82 and State Highway 133; crossing S.H. 133 in Carbondale, crossing S.H. 82 between Emma and Basalt; and just south of Brush Creek Road. There are also 31 new retaining walls identified for the Rail Alignment. The general location and scale of these walls is shown in Table 2.

TABLE 2, RETAINING WALLS , ·

Rail Alternative Segment	Ave Height (ft}	Ave Length {ft)	Total Number of Walls
1. W. Glenwood to S. Glenwood	10.0	920	2
2. S. Glenwood to C.R. 100 river crossing	17.0	550	
3. C.R. 100 river crossing to Wingo Junction (includes Option C1)	5.0	575	12 (C1)
3. C.R. 100 river crossing to Wingo Junction (includes Option C2)*	5.0	540	13 (C2)
4. Wingo Junction to Gerbazdale	6.0	255	7
5. Gerbazdale to Brush Creek Road	9.0	720	7
6. Brush Creek Road to Asoen	11.5	280	2

* The C2 alignment is for the rail alignment only. When the trail is included in the C.R. 100 river crossing to Wingo Junction segment, the average height is 8 feet, the average length is 780 feet, and the total number of walls is 12. For Option C2 only (C.R. 100 river crossing to S.H. 82), with the trail, there are two retaining walls with an average height of 22.5 feet and an average length of 2,185 feet.

Project Objective: Flexibility

1. Accessibility Measures- All public transit must be ADA accessible. Some forms of transit are more accessible than others. The existing buses accommodate bikes and skis outside the bus. Rail vehicles can accommodate bikes, skis, and luggage inside the vehicle. Rail vehicles can provide level boarding for wheelchairs. Mainline buses require wheelchair lifts.

2. Mode Changes/Travel time - This assumes a passenger does not use a feeder bus to connect with the mainline transit system at either end. If a feeder bus is used at one or both ends of the trip, add 1 or 2 additional mode changes. The Committed Projects Alternative travel time from Glenwood to Aspen is projected "express" time with State Highway 82 improvements. Actual time may vary with road conditions. Local service could add another 5 to 15 minutes. Although highway speeds may increase in the future with construction of the bus/HOV lanes, a transfer will be required at Buttermilk. For the Improved Bus/ TSM Alternative, the super-express is expected to take 67 minutes {commute hours only) and the express bus, 79 minutes. This includes the required transfer at Buttermilk for the year 2020.

3. System Breakdown - This criterion describes how buses and train systems respond to either vehicle breakdowns or way breakdowns. This does not identify how often these breakdowns occur (see the next criterion).

4. System Reliability - Gives the likelihood (based on other systems) of a vehicle having a service interruption during an average day. This could be a system breakdown or a significant delay in service. This does not account f{)r minor delays due to traffic congestion (affect buses, not trains). On average, buses are 3.5 times more likely than rail vehicles to have a service interruption.

Project Objective: Increased Transportation Choices

1. Adverse Weather Dependability - Rail technology will operate normally even during Adverse weather conditions except in rare circumstances. Slick roads and poor visibility affect buses and other highway vehicles (cars, trucks). Mixed traffic also affects dependability of vehicles due to potential conflicts and congestion. Bus routes are entirely in mixed traffic. The rail alignment is not in mixed traffic but does cross roadways at-grade.

2. Other Transportation Choices - For nearby destinations, choices include walking, biking, bus, or automobile. For distant destinations, choices include mainline transit or automobile (biking was considered a relatively small percentage)

Integrated Approach to Transportation Planning

1. Average Daily Traffic - Estimated volumes are for average winter day. Change in VMT is for the entire study area and includes all transit vehicles. Traffic projections are expected to be within 10%, plus or minus.

2. Mixed Uses Within Walking Distance - This is based on existing and proposed land use maps.

3. People Who LiveWithin Walking Distance - This is based on existing and proposed population densities from land use maps.

4. Environmental Justice - This is based upon the percentage of low income and/or minority people that live within a one-half mile radius of mainline stops. All numbers are for 2020. Relocations are estimates based upon likelihood of relocations being low income and/or minority.

5. Number of Transit Vehicles in Towns - This lists the number of mainline buses or trains that are expected through each town in year 2020 during an average winter day. This includes mainline buses, mainline trains or night owl service buses.

Project Objective: Livability

15. Hazardous Waste- The potential hazar-dous waste sites identified are located aiong

1. Walking verses Driving to Transit- Arrival modes are based on transportation model assignments. For the Committed Projects, this represents existing RFTA service from a survey conducted April!, 199'8.

Project Objective: Safety

1. Transitway Crossings- The first three criteria are a measure of potential conflicts along either the rail corridor or the mainline bus route with transit vehicles. The number of trail crossings measures how many times the valley trail crosses either State Highway 82 or the Rail Alternative alignment. The potential vehicle conflicts measure the number of times a bus or a train cross an intersection on either State Highway 82 or Alignment C. This is a daily number of potential conflicts and is a sum of the first three rows.

2. Proximity to Trails - The 20 foot criteria estimates how often the trail is "very close" to a high-speed transportation corridor. The vehicles per hour are the number of trains traversing Alignment C in either direction during the majority of the day. The number of access points is the number of designated trailheads shown in the Draft Trails Plan.

3. Accident Rate- Transit rates are for the most recently published information from 1994 to 1996. Train fatalities that occurred during 1999 are not shown in this data. General traffic rates (includes cars) are for the most recently published information from 1996 (State of Colorado). General traffic rates assume average vehicle occupancy of 1.5 people. Total accident rate is per million passenger miles. Fatal accident rate is for 100 million passenger miles.

4. Access Consolidation - This is based on the Draft Access Control Plan currently under review for the existing rail corridor and represents the areas along the existing corridor that have the potential for rail crossing access consolidation.

Trails and Recreational Resource

1. Consistency with Conservation Easement- This criteria checks whether each alternative is consistent with the Conservation Easement in place on the rail corridor?

2. Number of Access Points to Public Lands - Locations of these access points are shown in the Draft Trails Plan.

3. River Access Points- Locations of these access points are shown in the Draft Trails Plan.

4. Recreation Access- Access provided is shown in the Draft Trails Plan.\

Project Objective: Affordability and Economic Viability

NOTES

- ★ **provides an alternative that is financially realistic in terms of capital construction and operation and maintenance costs based on current and expected funding levels and programs**
- ★ **has a fair and economical user fare structure for local commuters**
- ★ **enhances and maintains the economic viability and competitiveness for communities and resorts.**
- ★ **cost of construction, operations and maintenance or either transit and trail system must be equitably shared by both users and communities**
- ★ **considers all potential funding sources, including private – public partnerships, user fees, gas taxes, dinner trains, and so forth**
- ★ **requires new developments to pay their own costs for new crossings and improvements to existing crossings**
- ★ **evaluates true and total life cycle costs and impacts of all options**
- ★ **eliminates need for future six-lane highway**
- ★ **represents long term, sustainable transportation solution**

Please see memorandum on matrix line-by-line explanation for more detail

Criteria	Measure	Alternative (Planned Growth)					
		Committed Projects		Improved Bus/TSM		Rail	
		2003	2020	2003	2020	2003	2020
1. Capital cost	Capital cost (construction, right-of-way, vehicles, maintenance facility)	N/A	N/A	$34.3	$134.9	$194.0	$362.1
2. Ridership	Annual ridership (millions)	1.6	N/A	2.2	8.1	3.0	10.4
3. Capital costs/rider	Annualized Capital cost/annual ridership	N/A	N/A	$1.25	$1.33	$5.17	$2.77
4. Operating cost*	Annual O&M cost	$5.66	N/A	$7.42	$16.55	$10.80	$20.85
5. O&M costs/rider	Annual operating cost/annual ridership	$3.54	N/A	$3.39	$2.04	$3.61	$2.00
6. Measure affordability against future projections of revenues.	Annual O&M cost vs. Existing	N/A	N/A	$1.90	$11.03	$5.28	$15.33
7. Compare number of employees needed.	Number of employees	117	117	126	341	88	265

* The Entrance to Aspen Supplemental Operations & Maintenance Analysis determined that an approximately $1 million per year transit operations and maintenance savings is achievable if valley buses are replaced with light rail between Brush Creek Road and Aspen. These savings have been identified as a major source of operations and maintenance funding for the Entrance to Aspen. The Entrance to Aspen Supplemental Operations & Maintenance Analysis assumes light rail service to Brush Creek Road and a transfer to buses serving valley communities.

The Glenwood Springs to Aspen CIS/DEIS/CP has explored options for valley service that carry passengers all the way into Aspen. This would be accomplished with express rail service directly to downtown Aspen or a combination of express bus service to Buttermilk and light rail from Buttermilk into downtown Aspen. These alternatives are very different from the valley system assumed in the Entrance to Aspen Supplemental Operations & Maintenance Analysis. Comparisons of today's bus service with rail and improved bus alternatives being produced for the CIS assume that the same $1 million identified as savings in the Entrance to Aspen analysis is available to fund valley service.

Integration of the proposed Entrance to Aspen and Valley systems into one valley-wide system will determine the actual level of net savings that exist and how these savings should be allocated to cover future operations and maintenance expenses. The precise level of additional revenue needed to fund either the ETA or the Valley system components, above the total amount already committed in the corridor, can more easily be determined when the ETA and Valley system operating plans have been integrated.

Operating Costs are higher than presented at previous meetings due to the inclusion of required ADA service. Year 2003 Committed Alternative costs assume the same percentage increase in downvalley service in next four years that occurred during the last four years.

? How well does each alternative meet the overall *affordability and economic vitality* project objectives?			

08/25/99

Project Objective: Community Based Planning

NOTES

* **responsive to local master plans**
* **preserves the integrity of each community**
* **avoids being a growth generator or generating sprawl**
* **directs development to existing approved population centers**
* **honors local and regional aesthetics and community character in technology and design of facilities**
* **encourages transit oriented development**

Criteria	Measure	Alternative		
		Committed Projects	Improved Bus/TSM	Rail
1. Compare how each alternative fits with the specific goals, zoning, urban growth boundaries, and other community priorities, as laid out in community master plans. Compare how alternatives integrate with the existing built environment.	Each alternative alignment and station location was discussed with the Planning Commissions of each community. Additionally, Transit Oriented Community Design (TOCD) workshops were held in each community. The CTF and Policy Committee were briefed on this discussion. A general sense of positive (+), negative(-), or neutral (o) response from each community is presented.	(-) Creates unacceptable traffic and parking impacts in each community. Glenwood Springs is very concerned about increased through traffic on Grand Avenue. Eagle County is concerned that the level of service on Highway 82 does not meet County standards. Each community is concerned about parking impacts of increased traffic.	(-)Glenwood Springs wants bus traffic off of Grand Avenue. The lack of a downtown express stop in Carbondale does not support the Town Plan. Bus stops in all communities will require amenities similar to those of a rail stop to help with the successful integration of transit and land use plan implementation.	(+)Meets community objectives as documented in existing community plans. The provision of high quality transit service and the location of stations in or near downtown areas is a significant transit investment in implementing local land use plans. The addition of a South Glenwood Station would better support Glenwood Springs and Garfield County planning.
2. Measure the impacts on and changes to local and regional growth projections and development patterns.	Each alternative alignment and station location was discussed with the Planning Commissions o each community. The CTF and Policy Committee were briefed on this discussion. A general sense of positive(+), negative(-), or neutral (o) response from each community is presented.	(-)More likely to promote "trend" development compared to other alternatives. Adopted community plans are transit oriented. The lack of an adequate transit system in the Committed Projects Alternative wili hamper the implementation of these plans.	(0) Bus traffic detracts from Glenwood Springs efforts to enhance downtown. The lack of a downtown Carbondale express station will detract from efforts to focus growth in the downtown. Investment in local and feeder buses will provide alternatives to the automobile and encourage develcpment in areas served by transit.	(+)Meets community objectives. Fixed guideway will give sense of permanence (relative to bus routing) and encourage investment in urban centers and the development of a compact urban form to each community. Investment in local and feeder buses will provide alternatives to the automobile and encourage development in areas served by transit.
? **How well does each alternative meet the overall *community based planning* project objectives?**				

Project Objective: Environmentally Sound

NOTES

- ★ **avoids, minimizes, and mitigates adverse environmental impacts on the corridor and adjacent properties**
- ★ **minimizes noise**
- ★ **minimizes conflicts between pedestrians, transit, wildlife, and sensitive lands**
- ★ **improves or maintains air quality in the region**
- ★ **avoids creating barriers to existing wildlife migration routes**
- ★ **respects private property rights and considers impacts on neighboring properties from transit and recreation use**
- ★ **takes into account the limited availability of oil**
- ★ **wildness of the river needs to be protected**

Please see memorandum on matrix line-by-line explanation for more detail

Criteria	Measure	Committed Projects	Improved Bus/TSM	Rail (C1/ C2)***
1. Wetland impacts	Total acres of wetlands filled	N/A	N/A	0.9/ 4.9
	Relative functional units impacted*	N/A	N/A	Low to Medium/ High
	Acres of mitigation required	N/A	N/A	2/ 10 (estimated mitigation)
2. Parklands taken/affected	Number of parklands impacted	N/A	N/A	0
	Acres of parkland taken	N/A	N/A	0
3. Farmlands taken/affected	Number of farms intersected	N/A	N/A	0**
	Total acres of active farmland taken	N/A	N/A	0**
	Acres of prime, unique, or state important farmland taken	N/A	N/A	0
4. Wildlife conflicts: count number of wildlife crossings, and how many will be mitigated for	Mile of wildlife crossings	12 (SH 82)	12 (SH 82)	13 (Align. C)
	Wildlife collision index	1,335	1,071	1,031
	Relative affect of transportation corridor as barrier	Exisiting partial barrier to wildlife movement	Same partial barrier to wildlife movement, 19% fewer vehicles than Committed Projects	Additional partial barrier to wildlife movement, 24% fewer vehicles than Committed Projects
	Funding opportunities to mitigate (yes/no)	No	No	Yes
5. Number of relocations	Additional right of way required in acres	N/A	N/A	44.9/ 46.1
	Number of homes potentially impacted	N/A	N/A	14/ 14
	Number of business potentially impacted	N/A	N/A	3/ 3
6. Number of river crossings	Number of live stream crossings	N/A	N/A	2 (new)
	SB 40 certification/mitigation required (yes/no)	No	No	Yes
7. Measure noise levels: # of dB (compare with total noise levels)****	Reference noise level for mainline transit vehicle	88 dBA (bus)	88 dBA (bus)	80 dBA (rail)
	Avg. noise increase along rail/82	<1 dBA & >0.4 dBA	<1 dBA & >0.4 dBA	0.4 dBA
	Avg. noise increase along rail only	N/A	N/A	3.4 dBA

* Wetlands are assessed for their "functionality" and the assessed value is multiplied by the number of impacted acres to calculate "functional units."

** Farmland determination and ownership required

***C1/C2: C1 is the Catherine Store alignment; C2 is the Flying Fish Road alignment.

****Noise is measured in decibels (dB) and uses a weighting of frequencies called the "A" weighting to best match how humans perceive noise. The "A" weighted frequency measurement is in "dBA". Specific bus only noise was not required to be modeled as no major roadway improvedments are included in the Improved Bus Alternative.

Project Objective: Environmentally Sound (Continued)

Criteria	Measure	Please see memorandum on matrix line-by-line explanation for more detail Committed Projects	Improved Bus/TSM	Rail (C1/C2)**	NOTES
8. Measure vehicle mile traveled increases replaced by transit and accompanying reductions in emissions.	Total VMT (in millions)	867	791 (8.7% less than Committed Projects)	789 (9.0% less than Committed Projects)	
	Transit VMT (in millions)	1.3	5.4	5.7	
	Total PM10 Emissions	9,060 (tons/yr)	8,280 (tons/yr) (8.6% less than Committed Projects)	8,220 (tons/yr) (9.3% less than Committed Projects)	
	Transit PM10 Emissions	13.0 (tons/yr)	56.1 (tons/yr)	24.0 (tons/yr)	
9. Flora and fauna-- Bald Eagle	Number of habitat/buffer zones intersected	1	1	4	
	Potential impact; mitigation/consultation possible	No	No	Yes (4)	
Flora and fauna-- Golden Eagle	Number of habitat/buffer zones intersected	3	3	3	
	Potential impact; mitigation/consultation possible	No	No	No	
Flora and fauna-- Prairie Falcon	Number of habitat/buffer zones intersected	1	1	1	
	Potential impact; mitigation/consultation possible	No	No	No	
Flora and fauna-- Red-tailed Hawk	Number of habitat/buffer zones intersected	1	1	2	
	Potential impact; mitigation/consultation possible	No	No	Yes- for one site	
Flora and fauna-- Great-horned Owl	Number of habitat/buffer zones intersected	1	1	1	
	Potential impact; mitigation/consultation possible	No	No	Yes- for one site	
Flora and fauna-- Great Blue Heron	Number of habitat/buffer zones intersected	0	0	2	
	Potential impact; mitigation/consultation possible	0	0	Yes- for one site	
10 Water Quality***	New Acres of impervious surface	N/A	5.1	9.1	
	Increase in sediment load in streams (yes/no)	No	No	Yes, due to construction - minimal if Best Management Practices used	
	Number of new live stream crossing structures	N/A	N/A	2 new	
11. Fisheries***	New Acres of impervious surface	N/A	5.1	9.1	
	Increase in sediment load in streams (yes/no)	No	No	Yes, due to construction - minimal if Best Management Practices used	
12. 4(f) and 6(f) lands	Potential Effect	0	0	1 (direct) 6 (indirect)	
	Acres	0	0	N/A*	
13. Energy	Energy per Transit Passenger	32,500 BTU, (2003)	27,800 BTU, (2020)	14,900 BTU, (2020)	
	Energy per Vehicle Seat Mile	640 BTU (bus)	640 BTU (bus)	130 BTU (rail)	
	Regional energy consumption General Vehicles (BTUs in billions)	6,270	5,770	5,760	
	Regional energy consumption Bus Transit (BTUs in billions)	52	225	95	
	Regional energy consumption Rail Transit (BTUs in billions)	0	0	60	
14. Paleontological, archeological, cultural, and historical impacts	Potential Effect (Historic Properties only)	0	0	1 (direct) 6 (indirect)	
15. Hazardous waste	Possible existing sites encountered	0	0	16 (minor sites)	
16. Visual impacts (retaining walls and bridges)	Number	N/A	N/A	31/32 (retaining walls) 5/5 (new bridges)	

*Pending final 4(f) report.
**C1/C2: C1 is the Catherine Store alignment; C2 is the Flying Fish Road alignment.
***New acres of impervious surface is due to station platforms, parking areas, sidewalks and other station amenities.

?	How well does each alternative meet the overall environmentally *sound* project objectives?			

Project Objective: Flexibility

NOTES

- ★ **provides an alternative which allows for future transit options, connections, and expansion into the I-70 rail corridor**
- ★ **meets the needs of a variety of travelers (commuters, families, visitors, recreationists, disabled, those without a private automobile, senior citizens, teens)**
- ★ **accommodates future technology and propulsion options**
- ★ **is capable of moving people as a primary goal and freight as a secondary goal**
- ★ **accommodates the differing needs of seasonal riders (bikes, skis, snowboards, concert chairs, luggage, etc.)**
- ★ **allows for interim use of corridor for rail and trail**
- ★ **allows for phased construction**
- ★ **allows for changes in ridership and travel demands to accommodate a variety of ridership scenarios**

Please see memorandum on matrix line-by-line explanation for more detail

Criteria	Measure	Alternative		
		Committed Projects	Improved Bus/TSM	Rail
1. Measure levels of accessibility for bikes, skis, strollers, wheel chairs, tools, etc. *	ADA Accessible?	(-) 1 to 8 minutes additional loading time per wheel chair bound	(-) 1 to 8 minutes additional loading time per wheel chair bound	(+) With platform, no additional loading time for wheel chair bound
	Level boarding?	No	No	Yes
	On board storage?	Yes (External)	Yes (External)	Yes (Internal)
2. Measure number of mode changes and total trip time between Glenwood Springs and Aspen	# of mode changes	1	1	0-1
	One way transit trip time from downtown Glenwood Springs to downtown Aspen in minutes	79 (future express with State Highway 82 improvements)	79 Express 67 Super Express (commute hours only)	67
3. Compare the ability of different systems to respond to system breakdown.	Vehicle breakdown	N/A	When mechanical failure occurs a replacement bus can be enroute within minutes. Bus can be towed later.	When mechanical failure occurs replacement vehicles can be enroute within minutes. Vehicle usually towed to nearest siding
	Way breakdown	N/A	Buses can utilize other existing roads in case of way-breakdown	Train limited to use of rail, no train options in case of way breakdown. Feeder buses could be used for mainline service
4 Compare system reliability on a yearly basis.	% vehicles interupted on avg. day	N/A	5.7%	1.6%

* Each alternative required to provide ADA service based on routes

?	How well does each alternative meet the overall *flexibility* project objectives?			

Project Objective: Increased Transportation Choices

NOTES

- ★ **provides multi-modal alternatives to meet the forecasted person trips on the corridor for the year 2020 and beyond, based on good demographic and travel pattern information**
- ★ **provides a user-friendly and enjoyable transit alternative that accommodates as many users groups (commuters, visitors, recreationists, children, disabled, senior citizens) as practical**
- ★ **minimizes total trip time including the time and inconvenience of mode changes**
- ★ **provides a multi-modal system that serves the bi-directional transportation needs of all communities throughout he entire study area**
- ★ **provides transportation that can compete with private auto: predictable, dependable, comfortable, convenient, accessible, attractive, convenient, competitive in terms of total trip time, and less expensive than the total costs of the private automobile**
- ★ **increases transportation choices for regional residents and visitors, not only between communities but within communities**

Please see memorandum on matrix line-by-line explanation for more detail

Measurable Criteria	Measure	Alternative		
		Committed Projects	Improved Bus/TSM	Rail
1. Compare dependability of alternatives in adverse weather conditions	technology	(-) Bus more likely to be affected by poor weather.	(-) Bus more likely to be affected by poor weather.	(+) Train not likely to be affected by poor weather.
	mixed traffic	Bus more likely to be affected by road traffic.	Bus more likely to be affected by road traffic.	Rail does not operate in mixed traffic
2. Other transportation choices	# choices to nearby destinations (next stop)	4	4	5
	# choices to distant destination (2 or more stops)	2	2	2

? How well does each alternative meet the overall *increased transportation choices* project objectives?			

Project Objective: Integrated Approach to Transportation Planning

NOTES

- ★ evaluates each mode for its impact on and linkages with the entire system
- ★ integrates linkages between community land use patterns and viability of transit alternatives
- ★ evaluates technologies for their impact on land use issues
- ★ solves long term transportation problems
- ★ results in a complete, integrated transportation system (auto, transit, feeder systems, vans, car pools, bike, walk, etc.)
- ★ has a meaningful curb on the rate of traffic growth on Highway 82
- ★ integrates transportation solutions with regional affordable housing and other regional planning issues
- ★ minimizes traffic impacts along local streets dues to transit facility location
- ★ creates the potential for an integrated multi-modal system for the entire travel shed, Parachute – Aspen – Eagle
- ★ avoids the need for massive park and ride lots
- ★ considers transportation demand management measures, including: incentives for transit and disincentives for single occupancy vehicles; an examination of current community plans and an evaluation of their impact on current and future travel demand; and makes recommendations to improve them.

Please see memorandum on matrix line-by-line explanation for more detail

Criteria	Measure	Alternative					
		Committed Projects		Improved Bus/TSM		Rail	
		2003	2020	2003	2020	2003	2020
1. Change in Average Daily Traffic-- Planned Growth	ADT for SH 82 at Grand Avenue Bridge	21,000	29,000	20,000	23,000	20,000	23,000
	ADT for SH 82 east of Highway 133	21,000	28,000	20,000	22,000	20,000	22,000
	ADT for SH 82 east of Basalt	24,000	34,000	24,000	28,000	22,000	25,000
2. Measure number of existing and future mixed uses that lie within walking distance of each mainline station/stop	Employment within walking distance of stations*	N/A	N/A	9,760	12,804	18,667	24,754
3. Measure the number of people who currently, and may in the future, live within 1/2 mile of each mainline station/stop	Population within walking distance of stations*	N/A	N/A	8,294	11,471	17,227	23,539
4. Environmental Justice	Low income/minority transit access**	0		10% - 13%		10% - 13%	
	Low income/ minority relocations	0		0		3	
5 Number of Vehicles in Towns (mainline)	Glenwood Springs	35	35	101	208	80	80
	Carbondale	61	61	109	218	80	80
	El Jebel	165	165	146	351	80	92
	Basalt	165	165	156	351	80	92
	Brush Creek Road area	165	165	156	351	80	92

* The Transit Coopertive Research Program (TCRP) of the Transportation Research Board of the Natinal Research Council has determined that, "In general, 0.25 miles or 5 minutes walk time is the limit of a bus route's typical "service area"; for a rail transit station, these figures can be doubled."

** Measured as percentage of low income households within 1/2 mile radius of mainline stops vs. percentage of low income households in study area.

?	How well does each alternative meet the overall *intergrated approach to transportation planning* project objectives?			

Project Objective: Livability

NOTES

- ★ **improves the quality of life for all communities in the region, including the preservation and enhancement of their environment**
- ★ **links the valley's towns and cities together through increased mobility**
- ★ **allows residents of population centers (Glenwood Springs, Snowmass Village, Basalt, El Jebel, Carbondale, and Aspen) to walk to transit stop for mainline or circulator/feeder system within 1/2 mile of downtown**
- ★ **encourages "home grown economic development" by keeping more money and resources in our communities and relying on local labor and natural resources**
- ★ **preserves and enhances the character and scale of our valley.**

Please see memorandum on matrix line-by-line explanation for more detail

Criteria	Measure	Alternative		
		Committed Projects	Improved Bus/TSM	Rail (C1/C2)
1. Measure how many people have to walk to a mainline stop vs. how many have to drive	% walk to stop	61%	43%	40%
	% drive to stop	37%	46%	47%
	% feeder bus to stop	2%	11%	13%

*C1/C2: C1 is the Catherine Store alignment; C2 is the Flying Fish Road alignment.

?	How well does each alternative meet the overall *livability* project objectives?			

Project Objective: Safety

NOTES

★ **maximizes safety for transportation and recreational activities in the corridor**
★ **minimizes and consolidates new and existing crossings**
★ **minimizes conflicts between trail users, wildlife, transit, autos, and school buses**
★ **provides a secondary route for emergency access in case of Highway 82 closure**

Please see memorandum on matrix line-by-line explanation for more detail

Criteria	Measure	Alternative		
		Committed Projects	Improved Bus/TSM	Rail (C1/C2)*
1. Transitway crossings	Number of State Highway crossings	1	1	0 (3 grade-separated)
	Number of County road/City street/Private street crossings	291	291	97/ 90
	Number of driveway crossings	42	42	18/ 14
	Number of trail crossings	1 (SH82 Crossing)	1 (SH82 Crossing)	9 (Rail Crossing, Alt. C)
	Number of potential vehicle conflicts (transit vs. auto)	333	333	115/ 104
2. Proximity to trails	% of Trail Closer than 20 ft to edge of transit or road.	N/A	1.50%	10.6%/13.8%
	Number of trailheads to trail system	N/A	8	8
	# vehicles per hour by trail	N/A	N/A	4
3. Compare the rate of accidents per miles traveled for each technology; include cars and HOV in comparison	USDOT accident rate per million passenger miles traveled by technology **	14.21 (buses) 3.09 (general traffic)	14.21 (buses) 3.09 (general traffic)	0.99 (trains) 3.09 (general traffic)
	USDOT fatality rate per 100 million passenger miles traveled by technology **	0.73 (buses) 1.59 (general traffic)	0.73 (buses) 1.59 (general traffic)	0 (trains) 1.59 (general traffic)
4. Access consolidation	Number of opportunities	42	42	42

*C1/C2: C1 is the Catherine Store alignment; C2 is the Flying Fish Road alignment.
** transit vehicle accident rates for 1994 to 1996, national (most recent published), general traffic rate for 1996, State of Colorado (most recently published)

?	How well does each alternative meet the overall *safety* project objectives?			

Project Objective: Affordability and Economic Viability

NOTES

- ★ **provides an alternative that is financially realistic in terms of capital construction and operation and maintenance costs based on current and expected funding levels and programs**
- ★ **has a fair and economical user fare structure for local commuters**
- ★ **enhances and maintains the economic viability and competitiveness for communities and resorts.**
- ★ **cost of construction, operations and maintenance or either transit and trail system must be equitably shared by both users and communities**
- ★ **considers all potential funding sources, including private – public partnerships, user fees, gas taxes, dinner trains, and so forth**
- ★ **requires new developments to pay their own costs for new crossings and improvements to existing crossings**
- ★ **evaluates true and total life cycle costs and impacts of all options**
- ★ **eliminates need for future six-lane highway**
- ★ **represents long term, sustainable transportation solution**

Please see memorandum on matrix line-by-line explanation for more detail

Criteria	Measure	Alternative (Planned Growth)					
		Committed Projects		Improved Bus/TSM		Rail	
		2003	2020	2003	2020	2003	2020
1. Capital cost	Capital cost (construction, right-of-way, vehicles, maintenance facility)	N/A	N/A	$34.3	$134.9	$194.0	$362.1
2. Ridership	Annual ridership (millions)	1.6	N/A	2.2	8.1	3.0	10.4
3. Capital costs/rider	Annualized Capital cost/annual ridership	N/A	N/A	$1.25	$1.33	$5.17	$2.77
4. Operating cost*	Annual O&M cost	$5.66	N/A	$7.42	$16.55	$10.80	$20.85
5. O&M costs/rider	Annual operating cost/annual ridership	$3.54	N/A	$3.39	$2.04	$3.61	$2.00
6. Measure affordability against future projections of revenues.	Annual O&M cost vs. Existing	N/A	N/A	$1.90	$11.03	$5.28	$15.33
7. Compare number of employees needed.	Number of employees	117	117	126	341	88	265

* The Entrance to Aspen Supplemental Operations & Maintenance Analysis determined that an approximately $1 million per year transit operations and maintenance savings is achievable if valley buses are replaced with light rail between Brush Creek Road and Aspen. These savings have been identified as a major source of operations and maintenance funding for the Entrance to Aspen. The Entrance to Aspen Supplemental Operations & Maintenance Analysis assumes light rail service to Brush Creek Road and a transfer to buses serving valley communities.

The Glenwood Springs to Aspen CIS/DEIS/CP has explored options for valley service that carry passengers all the way into Aspen. This would be accomplished with express rail service directly to downtown Aspen or a combination of express bus service to Buttermilk and light rail from Buttermilk into downtown Aspen. These alternatives are very different from the valley system assumed in the Entrance to Aspen Supplemental Operations & Maintenance Analysis. Comparisons of today's bus service with rail and improved bus alternatives being produced for the CIS assume that the same $1 million identified as savings in the Entrance to Aspen analysis is available to fund valley service.

Integration of the proposed Entrance to Aspen and Valley systems into one valley-wide system will determine the actual level of net savings that exist and how these savings should be allocated to cover future operations and maintenance expenses. The precise level of additional revenue needed to fund either the ETA or the Valley system components, above the total amount already committed in the corridor, can more easily be determined when the ETA and Valley system operating plans have been integrated.

Operating Costs are higher than presented at previous meetings due to the inclusion of required ADA service. Year 2003 Committed Alternative costs assume the same percentage increase in downvalley service in next four years that occurred during the last four years.

? How well does each alternative meet the overall *affordability and economic vitality* project objectives?			

EXHIBIT D-2:

ENVIRONMENTAL/BIOLOGIC INVENTORY

The resort industry generates important sales tax revenues for the local governments. Table III-29 summarizes the sales tax rates for the Project Corridor counties and communities. Retail sales per capita of permanent population is high in Eagle and Pitkin Counties due to the spending habits of the visitor population. Additional discussion can be found in previous sections of the Social Environment portion of this document.

Table III-29
Sales Tax Rates (as of May 2002)

City or County	Current Rates	City or County	Current Rates
Eagle County	1.5%	Carbondale	3.5% + .5% RFTA
Garfield County	1.0%	Basalt	2.0% + .2% RFTA
Pitkin County	3.5%*	Snowmass Village	1.0%

**Except Basalt, which is 2.5%*
Source Colorado Department of Local Affairs, Colorado County General Revenues, 2000..

C. PHYSICAL ENVIRONMENT

1. Air Quality

The City of Aspen and surrounding developed area (primarily west to the Aspen Airport Business Center) is designated as an air quality non-attainment area for PM_{10} (particulate matter less than 10 microns in diameter). The non-attainment designation is given and defined by the Environmental Protection Agency (EPA) when air pollution exceeds the National Ambient Air Quality Standards (NAAQS). The NAAQS for PM_{10} are 50 micrograms per cubic meter of air, averaged annually, and 150 micrograms per cubic meter of air during a 24-hour period (a metric standard). The Aspen area has not exceeded either the annual or the 24-hour PM_{10} standard since 1991. The remainder of the project area is in attainment for all NAAQS.

The 1990 Clean Air Act Amendments (CAAA) require that transportation projects within a non-attainment area conform to the State Implementation Plan (SIP). The SIP specifies the control measures which non-attainment areas must implement in order to attain and maintain NAAQS. The Aspen element of the Colorado State Implementation Plan was approved by EPA in 1995. The Colorado Air Pollution Control Division has prepared and submitted to the EPA a PM_{10} Redesignation Request and Maintenance Plan for the Aspen Area. Upon EPA approval of the Maintenance Plan, Aspen will be redesignated as an attainment/maintenance area. Control measures in the Maintenance Plan to reduce PM_{10} emissions include magnesium chloride for highway de-icing, street sweeping after snowstorms (when feasible), and paid parking in the Aspen commercial core area.

2. Water Quality

2.1 Water Resources

The Roaring Fork River watershed encompasses 3,758 square kilometers (1,451 square miles) and has a perimeter of 293 kilometers (182 miles). The headwaters of the Roaring Fork River and its major tributaries are located in high alpine terrain where elevations can exceed 4,267 meters (14,000 feet) above mean sea level. Streambeds in the upper elevations are typically steep with turbulent flows. These high elevation areas are generally comprised of barren rock and maintain a snowpack for much of the year. Downstream from the headwater areas, the gradients of the Roaring Fork River and its tributaries lessen as they flow through alpine ecosystems with increasing amounts of vegetation. The Project Corridor is located on the valley floor where river flow velocities decrease and water bodies become wider. Within the Project Corridor itself, the Roaring Fork River and its tributaries typically flow within incised beds comprised primarily of rock cobbles.

Flows within the Roaring Fork River watershed are typical of high elevation catchments. In the western United States, peak discharge levels coincide with snowmelt occurring from April through June. Summer precipitation in the form of rain or high-elevation snow can result in short-duration peak flow events. Winter base flows are maintained by groundwater discharge. River flows within the Project Corridor are largely unregulated. The only significant impoundment affecting water flow in the Roaring Fork River is the Ruedi Reservoir, located on the Fryingpan River, about 24 kilometers (15 miles) upstream from Basalt. The Ruedi Dam and Reservoir are a part of the Fryingpan-Arkansas Project. The South Side Collection System transports project water annually from the Fryingpan and Roaring Fork River Basins. The remainder of streams and creeks in the Project Corridor either discharge directly into the Roaring Fork River or serve to fill several small storage reservoirs constructed for municipal and agricultural use. Discharge volume of the Roaring Fork River near Aspen averages 2.8 cubic meters per second (m^3/s) [99 cubic feet per second (cfs)] *(Daily Mean Discharge Data,* USGS, 1999a). Average discharge rates increase to 37 m^3/s (1,316 cfs) at Glenwood Springs *(Daily Mean Discharge Data,* USGS, 1999b). Between the years 1899 and 1960, the maximum recorded discharge of the Roaring Fork River was 1,053 m^3/s (37,200 cfs) at Glenwood Springs (USGS, 1999b).

The main stem of the Roaring Fork River flows in a northwesterly direction for approximately 80.5 kilometers (50 miles) before joining the Colorado River at Glenwood Springs. U.S. Geological Survey quadrangle maps indicate ten perennial rivers or streams directly tributary to the Roaring Fork River in the Project Corridor: Red Canyon, Three Mile Creek, Four Mile Creek, Cattle Creek, Crystal River, Fryingpan River, Sopris Creek, Snowmass Creek, Woody Creek, and Brush Creek (USGS, 1983a-f). Wheatley Gulch and Bionaz Gulch are ephemeral streams, also tributary to the Roaring Fork River. Numerous irrigation ditches convey water throughout the valley. These ditches occur throughout the Project Corridor, both paralleling and crossing under existing transportation alignments, and are integral to the local agricultural economy.

Highway 82 and the RFTA right-of-way generally parallel the Roaring Fork River between Glenwood Springs and Aspen. The highway and the rail grade currently make a total of fourteen crossings of intermittent or perennial rivers/streams (including multiple crossings of the same river/stream). The following surface water bodies are currently crossed one or more times by the highway or the rail grade: Roaring Fork River, Red Canyon, Cattle Creek, Snowmass Creek, Sopris Creek, Brush Creek, Wheatley Gulch, and Bionaz Gulch (USGS, 1983a-f).

2.2 Stream Classification

The main stem of the Roaring Fork River; including all tributaries, lakes and reservoirs, from the source to the confluence with the Colorado River, is classified by the Colorado Department of Public Health and Environment (CDPHE) as Cold Water Aquatic Life - Class 1, Recreation - Class 1, Water Supply and Agriculture (*Classifications and Numeric Standards,* CDPHE, 1999). The Cold Water Aquatic Life - Class 1 designation is applied to waters capable of sustaining a wide variety of cold water life, including sensitive species. Additionally, the Roaring Fork River is designated a High Quality - Class 2 water body. This designation is enacted when waters are of a quality higher than necessary to protect specified uses and water diversions are present in the area. In these cases a Class 2 designation is applied because the High Quality - Class 1 anti-degradation standard would make maintenance of water diversion structures difficult. Recreation - Class 1 applies to streams where primary contact recreation (e.g., whitewater boating or swimming) exists, or where the fecal coliform standard (a metric standard) of less than 200 fecal coliforms/100 milliliters (ml) of water is attained. Surface water in the Roaring Fork River drainage is classified as being suitable for crop irrigation, livestock watering, and domestic water supply after receiving standard treatment.

2.3 Ambient Water Quality Standards

Table III-30 presents ambient water quality data for the Roaring Fork River at its mouth (station 53), and at Glenwood Springs (station 9085000). *(STORET Water Quality Data for the Roaring Fork Watershed,* EPA, 1999). Water quality standards are calculated in the metric system and therefore are not translated into the English system. Data from two stations is required to characterize Roaring Fork River water quality because a complete set of ambient water quality parameters is not available for the individual stations. However, these stations are within several miles of each other and water quality is not expected to vary significantly between the stations. The data presented show water quality to be generally very good at the point where the Roaring Fork River discharges to the Colorado River. Roaring Fork River water can be characterized as slightly alkaline (120.6 mg/l as $CaCO_3$) water of a calcium sulfate type with a medium hardness (215.7 mg/l as $CaCO_3$) and pH of 8.4. All average, median, and maximum parameter values meet established Colorado water quality standards (CDPHE, 1999). While tributaries may contain different concentrations of water quality parameters, water at the River's mouth is generally assumed to be representative of upstream reaches and tributaries. Water quality data from the Roaring Fork River south of Aspen (station 1065901) supports this assumption. Water composition in this upstream reach is similar, with slightly higher alkalinity (96.4 mg/l as $CaCO_3$), and less hardness (184.8 mg/l as $CaCO_3$) (EPA, 1999).

The EPA, through its Index of Watershed Indicators Program, assigned the Roaring Fork River an overall watershed score of one, on a one to seven continuum, with one being best ("*Surfing Your Watershed. Roaring Fork,"* EPA, 1998). Rivers receiving a rating of one have high quality water and low vulnerability to stressors such as pollutant loadings (EPA, 1998). EPA's watershed indicators suggest that current land use practices do not have a significant adverse affect on water quality in the Roaring Fork Valley. EPA, however, ranked wetland loss, population increase, and hydrologic modification from dams as serious threats to Roaring Fork River water quality and watershed integrity (EPA, 1998).

Table III-30
Ambient Water Quality Data for the Roaring Fork River
January 1980 – June 1998

Parameter	Roaring Fork River					State Water Quality Standard
	Mean	Median	Max	Min	n	
Flow (cfs)	1,473.4	849.0	9,610.0	355.0	96	
Turbidity (Hach FTU)	39.3	28.5	87.0	3.7	6	nns
Dissolved oxygen (mg/l)[1]	11.2	11.2	14.2	8.0	208	>6
PH (s.u.)[1]	8.4	8.4	9.3	7.3	203	6.5-9.0
Total alkalinity as $CaCO_3$ (mg/l)[1]	120.6	124.0	172.0	60.0	195	nns
Total hardness as $CaCO_3$ (mg/l)[1]	215.7	230.0	320.0	87.0	176	nns
CO_3 (mg/l)[2]	4.0	0.0	31.0	0.0	37	nns
HC_3 (mg/l)[2]	131.9	135.0	195.0	77.0	37	nns
Magnesium (mg/l)[1]	11.6	12.7	17.6	4.0	247	nns
Calcium as CaCO (mg/l)[1]	144.6	150.0	220.0	72.0	7	nns
Total Sodium as Na (mg/l)[1]	13.5	12.0	22.0	6.0	6	nns
Total Chloride (mg/l)[2]	23.9	25.0	64.0	2.0	247	<250
Total sulfate as SO_4 (mg/l)[2]	109.3	121.0	180.0	27.0	247	<250

Source: EPA 1999, CDPHE 1999

[1] Roaring Fork River at Mouth, Station 53.

[2] Roaring Fork River at Glenwood Springs, station 9085000.
nns – no numerical standard.

3. Floodplains

While not required, this CIS was completed using NEPA guidelines. Executive Order 11988, Floodplain Management, requires federal agencies to avoid direct or indirect support of floodplain development whenever a practicable alternative exists. The base flood (100-year flood) is the regulatory standard used by federal agencies and most states to administer floodplain management programs. As described in 23 CFR 650 Subpart A, floodplains provide natural and beneficial values including fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural flood moderation, water quality maintenance, and groundwater recharge.

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), prepared in 1986 and 1987, delineate the boundaries of 100-year floodplains for the Roaring Fork Valley Transportation Study Corridor segments that are within Garfield and Pitkin Counties. A set of topographic maps, completed for a 1976 Eagle County floodplain study of the Roaring Fork and Frying Pan Rivers, delineates the 100-year floodplain within the portion of the Project Corridor situated within Eagle County. In the Project Corridor, 100-year floodplains encompass the Roaring Fork River and its major tributaries including Cattle Creek, Crystal River, Fryingpan River, Sopris Creek, Snowmass Creek, Woody Creek, and Brush Creek. Any 100-year floodplain boundaries that have been modified by development since the aforementioned regulatory mapping was completed will be addressed during the preliminary and final design process.

4. Geology and Soils

4.1 Geology

The assessment of potential impacts related to geology and soils may differ from those of other disciplinary areas because project alternatives typically will not cause effects on the geology or soils within the project area. Rather, effects are normally "associated with" geology and soils. It is therefore necessary to thoroughly identify and describe existing geology to enable environmental hazard evaluation.

The Project Corridor is located in a riparian corridor between two large mountain ranges formed by arching layers of rock, or anticlines. To the northeast of the Roaring Fork River looms the Sawatch Range, a high granite belt consisting of steeply inclined beds bordered by numerous reverse faults *(Major Geologic Features of Colorado,* Curtis, 1960). To the southwest rise the volcanic and metamorphic Elk Mountains, a range carved from the rocks involved in the large subsidiary fold that developed west of the trough of layered rock known as the Roaring Fork Valley Syncline. Both ranges are faulted anticlines raised during the Laramide Orogeny (a large mountain-building period 200 million years ago), and experienced severe glaciation 10,000 years ago during the Pleistocene era (Curtis, 1960). These intense glaciers deposited large accumulations of earth and stone, known as terminal and lateral moraines, at the head of the Roaring Fork Valley, and large thick outwash terraces throughout the project area.

The valley floor consists of thick deposits of river gravel, the majority of which were derived from Pleistocene glacial outwash. Each glacier that proceeded down the valley formed broad horizontal terraces above the river. These terraces represent a period of gradient stability with constant deposits of sediment known as alluvium, and are widespread throughout the Roaring Fork Valley (Curtis 1960). As one travels from Glenwood Springs toward Snowmass Village and Aspen, three separate terrace levels are visible. These deposits are older by a few million years, and thus provide alluvium of various sizes ranging from boulders to clay.

Six principal geologic units have been identified in the Roaring Fork Valley by the *Pre-Acquisition Environmental Site Assessment* conducted by Steffen, Robertson and Kirsten, Inc. (SRK, 1996) for Pitkin County. These units were confirmed from youngest to oldest as being:

1. **Pleistocene alluvium,** consisting of recent sediments (gravels, sands, silts, and clay) associated with, and generally following, the present riverbed.

2. **Colluvium**, occurring as debris flows and mixed material, derived from higher elevations and deposited along steep slopes and embankments throughout the valley.

3. **Pleistocene lava flows** comprising the northern upper reaches of the valley from Glenwood Springs to Basalt.

4. **Cretaceous and Jurassic shales.** The slide-prone Cretaceous (Mancos shale) and Jurassic (Morrison formation) shales occur widely in the southern sections of the Project Corridor. The Mancos shale outcrops contain olive-grey shale interbedded with calcium-laden shale, clayey limestone, and a highly erodable yellowish sandstone. In contrast, the pale green to red shale of the Morrison Formation is visible only in four small, localized areas (SRK, 1996).

5. **The Triassic State Bridge Formation**, the faulted and tilted Triassic-Pennsylvanian "redbeds" found on both sides of Highway 82 near Basalt, is more or less continuous with the older Permian-Pennsylvanian Maroon Formation which forms outcrops throughout the central Project Corridor as cliffs and steep embankments. Both of these formations are made up of interbedded siltstones, sandstones, and shale with lens-shaped beds of sandy limestone and pebble conglomerate (SRK, 1996).

6. **Pennsylvanian Eagle Valley Evaporite** is the oldest geology identified in the Project Corridor. This unstable rock is made up of interbedded gypsum and dark shale with yellowish-gray weathered surfaces and chaotic internal structure (SRK, 1996).

4.2 Soils

The Roaring Fork Valley is characterized by the nearly level to gently sloping Roaring Fork River, steep mountain slopes, and steep to very steep terrace faces. Elevations range from more than 2,350 meters (8,000 feet) near Aspen to 1,800 meters (5,900 feet) at Glenwood Springs.

Livestock production is the principal agricultural activity within the Roaring Fork Valley, with all irrigated land being used primarily for pasture and hay. The soils found along the project area have been determined to be of limited agricultural use due to the elevation, short growing season, and moderately high erosion hazard (*Soil Survey of Aspen-Gypsum Area, Colorado,* SCS, 1992). Typical soil characteristics would be sandy to gravelly sandy loam soils formed from sandstone and shale alluvium to cobbly sandy loam derived from basalt.

The dominant soil group in the northern project area from just south of Glenwood Springs to Basalt is the Antencio-Redrob-Azeltine association located on gently sloping to strongly sloping alluvial valley floors, floodplains, fans, and terraces. These soils are deep and somewhat poorly drained to well drained. Elevation ranges from 1,798 to 1,981 meters (5,900 to 6,500 feet), with annual precipitation of 38 to 46 centimeters (15-18 inches). Stones, cobbles, and extremely gravelly sand are found at depths of 152 centimeters (60 inches). Major land-use activities in the area include livestock grazing, irrigated hay and pasture, wildlife habitat, and homesite/industrial development. Soils of this unit are sandy clay loam to gravelly sandy loam (SCS, 1992).

The soil types existing in the central Roaring Fork Valley near Woody Creek consist of the Brownsto-Showalter-Tridell association, and are located on strongly sloping to very steep fans, terraces, and mountainsides. These soils are deep and well drained to somewhat excessively drained. The elevation of this association is 1,950 to 2,590 meters (6,400 to 8,500 feet), with an annual precipitation of 31 to 41 centimeters (12 to 16 inches). Soil characteristics are gravelly sandy loam to gravelly loam with cobbly clay and clay loam. Major activities include rangeland, hayland, crops, and homesite development (SCS, 1992).

The Jerry-Uracca-Mergel soil association dominates the middle slope areas from Woody Creek to Aspen, and is located on gently sloping to very steep alluvial fans, terraces, valley sides, and hills. These soils are deep and well drained. Elevation is from 2,377 to 2,895 meters (7,800 to 9,500 feet), with an annual precipitation of 41 to 51 centimeters (16 to 20 inches). Soil characteristics include clay loam to cobbly sandy loam and cobbles. Major existing land use is mostly pasture and hay farming (SCS, 1992).

5. Upland and Floodplain Vegetation

5.1 Roaring Fork Valley Land Cover Types

Several approaches to describing land cover types (i.e. vegetation communities) are available, each with benefits and shortcomings. The Colorado Natural Heritage Program (CNHP) uses species composition to describe plant communities within a particular area. This approach produces descriptions applicable to relatively small areas. Maps of CNHP plant communities are typically generated on a localized basis and are not available for the immediate vicinity of the Project Corridor. The Colorado Gap Analysis Program (COGAP) has undertaken a project to map all land cover categories within the state. The map used for this project was developed from aerial photography taken in 1984, 1989, and 1993 and is at a relatively small (coarse) scale, with a minimum mapping unit of approximately 101 hectares (250 acres) (COGAP, 1993). While the mapping resolution is relatively coarse, it provides a consistent description of vegetation communities on a state-wide basis. The COGAP map was selected as the base map to describe land cover categories in this analysis due to its availability and its state-wide consistency. The discussion incorporates the CNHP communities into the COGAP land cover classes, to the extent possible, to reconcile the vegetation/wildlife descriptions with a description/assessment of vegetation.

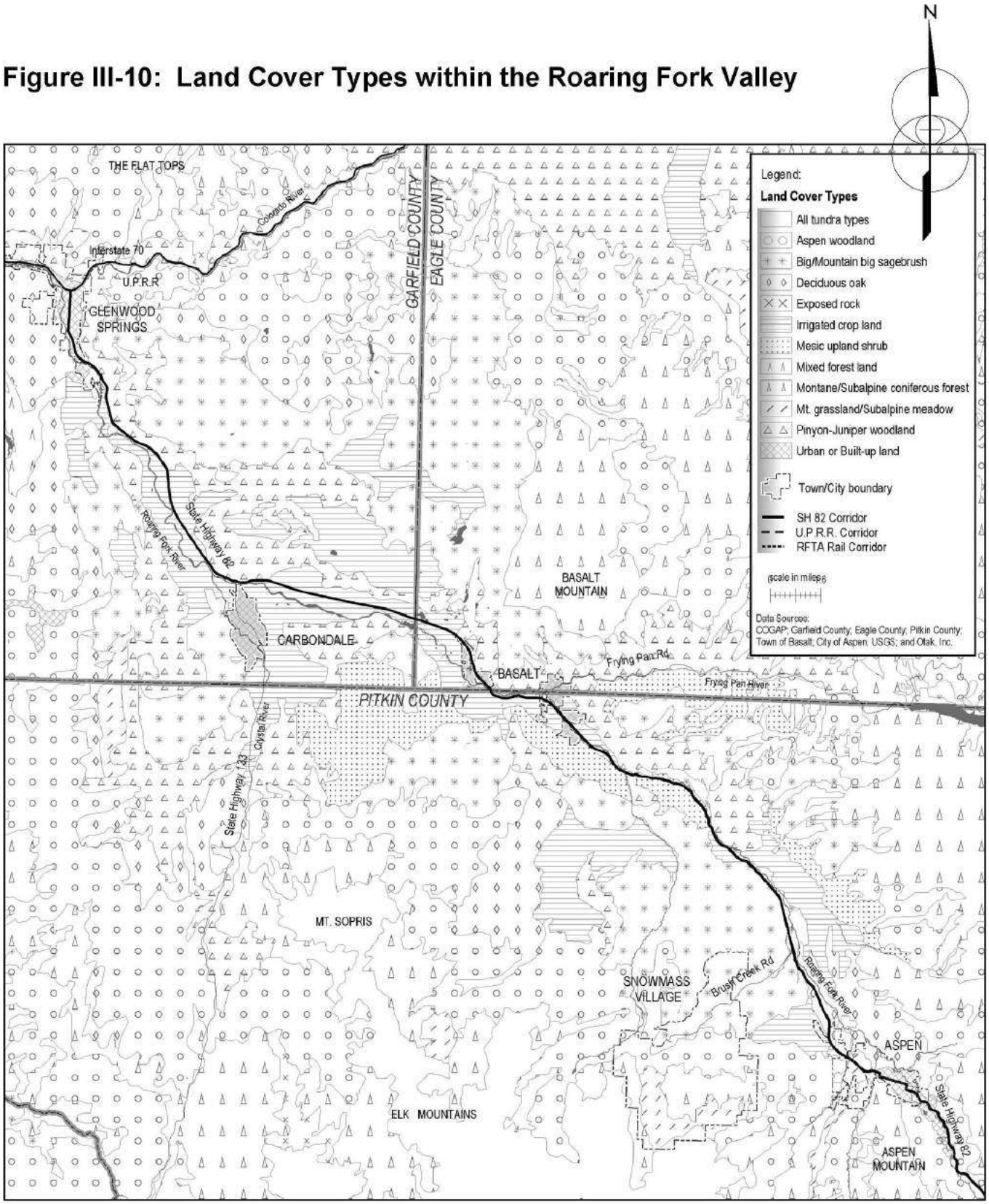
The rights-of-way (ROW) for the proposed project alternatives were overlaid on the land cover map provided by COGAP (COGAP, 1999). Figure III-10 presents the types of plant communities and acreages present within the Project Corridor and adjacent vicinity.

The urban land cover type refers to areas of development, including industrial, commercial, and residential settings. Irrigated cropland forms the dominant land cover class, particularly from Glenwood Springs to Basalt (COGAP, 1999). Irrigated cropland within the Roaring Fork Valley primarily applies to irrigated hayfields and pastures and the associated farms or ranches (COGAP, 1999). The mesic shrubland cover type applies to a range of shrub communities including Rocky Mountain maple (*Acer glabrum*), serviceberry (*Amelanchier sp.*), chokecherry (*Prunus virginiana*), and bitterbrush (*Purshia tridentata*) where shrubs occupy more than 25 percent of the vegetative cover (COGAP, 1999). This community type contains the mixed mountain shrubland as described by the CNHP and occurs adjacent to the Roaring Fork River southeast of Basalt and along the RFTA right-of-way west of El Jebel. Gambel oak (*Quercus gambelii*) and species of the mesic shrubland dominate the deciduous oak community. This community occurs primarily on the roadside slopes north of Aspen (COGAP 1999).

The big sagebrush (*Artemisia tridentata ssp. tridentata*) occurs on south-facing slopes northwest of Snowmass (COGAP 1999). This community type corresponds to the west slope sagebrush shrubland identified by the CNHP. The piñon/juniper *(Pinus edulis/Juniperus spp.*) land cover type exists on the north-facing slopes along the existing rail line southeast of Carbondale and east of the Roaring Fork River, south of Basalt (COGAP 1999). The montane riparian forest, narrowleaf cottonwood/chokecherry, and cottonwood riparian forest are identified by the CNHP occur along the Roaring Fork River, within the area mapped by COGAP as irrigated cropland. This is again due to the relatively coarse resolution of the COGAP mapping effort.

A community that is dominant within the Project Corridor but omitted from either CNHP or COGAP descriptions is the roadside and railroad vegetation type. Along Highway 82, this community consists of grasses and forbs planted following highway construction. This vegetation community serves to stabilize the cut-and-fill slopes that occur adjacent to the highway, and constitutes the

Figure III-10: Land Cover Types within the Roaring Fork Valley



unpaved portion of the highway right-of-way. Various weedy species are present along the historic railroad right-of-way, which has also been disturbed over time. The noxious weed discussion that follows addresses vegetation within the proposed project rights-of-way.

5.2 Noxious Weeds

Consideration of noxious weed species now occurs during all phases of CDOT and FHWA environmental processes. While not required, this document follows this guidance. Analysis criteria include identification of existing noxious weeds, potential for impacts from invasive species, and identification of preventative and control measures.

5.2.1 Noxious Weed Management Areas. 66.5 kilometers (41.3 miles) of Highway 82 fall within the Project Corridor. Responsibility for weed management for this portion of Highway 82 lies with CDOT Region 3, Grand Junction, Maintenance Section 2.

RFTA owns approximately 53.6 kilometers (33.3 miles) of railroad right-of-way, including 29.5 kilometers (18.3 miles) in Garfield County, 4.8 kilometers (three miles) in Eagle County, and 19.3 kilometers (12 miles) in Pitkin County. Responsibility for weed management of the property in Garfield and Eagle Counties lies with RFTA. Responsibility for weed management of the property in Pitkin County lies with Pitkin County. RFTA and Pitkin County Open Space are working out an IGA for this task. Proposed new stations and/or park-and-ride lot locations within the Highway 82 and railroad right-of-way corridors do not currently fall under either CDOT or RFTA weed management plans. Any project improvements in areas not listed above will be managed by RFTA or will fall within local and county jurisdictions.

5.2.2 Noxious Weed Identification. Sixty-eight plant species are currently included on the State of Colorado Noxious Weed "A" List. Ten have been prioritized by the State as being the most widespread and causing the greatest economic impact (the "B" List). Weeds that are not yet widespread, but that may be a threat to Colorado lands in the future are included on the "C" list. From the list designated by the State, each county has designated those weeds identified as the most problematic for their area. By law, these weeds must be controlled on properties within each county jurisdiction. The Highway 82 and RFTA right-of-way corridors pass through three counties: Pitkin County has listed 20 weeds, Garfield County has listed 21 weeds, and Eagle County has listed 15 weeds as the most problematic for their counties.

CDOT inventoried and mapped the Highway 82 right-of-way for noxious weeds in the fall of 2001 (Personal Communication, Knox, 2001). The thistle complex containing both Canada thistle (*Cirsium arvense*) and musk thistle (*Carduus nutans*) were the predominate species noted throughout the corridor. Russian knapweed (*Centaurea repens*) and/or Spotted knapweed (*Centaurea maculosa*) were also observed in the area between Catherine Store and Basalt. All of these species are identified on the top ten prioritized weed species of the State Noxious Weed list.

RFTA inventoried the railroad right-of-way for noxious weeds in 2000 and in the fall of 2002. A total of 28 noxious weeds from the State Noxious Weed List have been identified on the right-of-way, many in very small quantities. The predominant species are common tansy (*Tanaceturn vulgare*), plumeless thistle (*Carduus acanthoides*), canada thistle *(Cirsium arvense)*, scotch thistle *(Onopordum acanthium)*, russian thistle *(Salsola collina)*, houndstongue (*Cynoglossum officinale*), common mullien *(Verbascum thapsus)*, kochia *(Kochia scoparia)*, dalmation toadflax *(Linaria dalmatica)* and field bindweed *(Convovulus arvensis)*. In addition, both the canada thistle and field bindweed are considered to be in the top ten prioritized weed species for the State of Colorado.

Canada Thistle. The Canada thistle (*Cirsium arvense),* is a member of the Aster family, introduced from Europe. It is a creeping perennial that grows from .3 to 1.5 meters (one to five feet) tall. It reproduces by seeds and fleshy, horizontal roots. Because of its seeding habits, vigorous growth, and extensive underground root system, control and eradication are difficult.

Common Tansy. The common tansy (*Tanaceturn vulgare)*, is a member of the Aster family, originally imported from Europe as an ornamental. It is a perennial plant that grows from .46 to 1.8 meters (1.5 to 6 feet) tall with yellow button-like flowers and fern-like leaves. This aggressive plant reproduces by both seed and rootstock and can be difficult to control.

Musk Thistle. The musk thistle (*Carduus natans)* is a member of the Aster family and was introduced from Eurasia. It is a winter annual or biennial which reproduces by seed. The first year it produces a large, compact rosette from large taproot. The second year it produces a .6 to 1.8 meter (two to six foot) spiny stalk, with waxy dark green leaves and purple flowers. It prefers moist bottomland soil, but can also be found on drier uplands. The key to management is to prevent seed formation.

Plumeless Thistle. The plumeless thistle (*Carduus acanthoides*), also a member of the Aster family introduced from Eurasia, is a winter annual or biennial. It is distinguished from the musk thistle by its smaller flowers, 1.27 to 2.54 centimeters (one-half to one inch) in diameter. Plumeless thistles are extremely prolific seed producers found in pastures, river valleys and along roadsides. This species has a rapid re-growth response to mowing or cutting and will tend to branch and re-flower.

Houndstongue. Houndstongue (*Cynoglossum officinale)*, a biennial, is a member of the Borage family and was introduced from Europe. It appears as a leafy rosette in the first year. It produces reddish-purple flowers and grows .46 to .91 meters (1.5 to three feet) tall. A prolific seed producer, it is also known as "Velcro weed" because its small nutlets are rapidly spread by people and animals. It is also toxic to horses and cattle. Houndstongue grows on ranges, pastures, trails, and roadsides.

Russian Knapweed (*Centaurea repens*) is a member of the Aster family, native to Europe. It reproduces from seeds and creeping, horizontal roots. Flowers are thistle-like, 1.0 to 1.5 centimeters (one-third to one-half inch) in diameter and lavender to white. It is especially prevalent on the Western Slope of Colorado and is very poisonous to horses. Once established, it is difficult to control or eradicate.

Spotted Knapweed *(Centaurea. maculosa)* is a member of the Aster family, a native to Central Europe. It is a perennial that reproduces from seed and forms a new shoot each year from a taproot. It can have one or more shoots up to 1.2 meters (four feet) in height. Spotted knapweed tolerates dry conditions, but will survive in higher moisture areas as well.

Scotch Thistle *(Onopordum aanthium)* is a member of the Aster family that was introduced from Europe or eastern Asia and can reach a height of eight feet. The rosette forms the first year and can have leaves up to two feet long and one foot wide. The second year the plant produces flowers that are reddish-purple to violet. It is found primarily along roadsides and railroads, but can become an impassable obstacle to livestock on rangeland and pastures.

Russian Thistle *(Salsola iberica)* is a member of the Goosefoot family introduced from Russia and often called "tumbleweed." It is a rounded, bushy, many-branched annual, six inches to three feet tall, reproducing by seed. Seeds are spread when mature plants break off at ground level and scatter

as the plant tumbles in the wind. Stems are usually red or purple striped. Leaves are long, string-like and soft when young, becoming tipped with a prickly spine as they mature. Russian thistle has become one of the most common and troublesome weeds in the drier regions of North America.

Common Mullien *(Verbascum thapsus L.)* is a member of the Figwort family that was introduced from Europe, originally a native of Asia. A biennial, it produces a large, thick rosette of fuzzy leaves the first year and a single, stout, erect stem, two to six feet tall, the second year. Leaves are alternate, overlapping one another, light green, densely woolly. Flowers are sessile, borne in long terminal spikes, sulphur yellow, five-lobed and more than an inch in diameter. Because of the large number of seeds produced by each plant, it is difficult to control.

Kochia *(Kochia scoparia)* is a member of the Goosefoot family, native to Asia and introduced from Europe. An annual, it grows one to six feet tall, with stems much branched, round, slender, usually soft-hairy. Leaves are alternate, lance-shaped, with an upper surface that is usually smooth and a lower surface that is usually covered with soft hairs. Livestock will readily graze kochia, but it sometimes contains high nitrate levels and can be toxic. Flowering and prolific seed production may occur from July to October.

Dalmation Toadflax *(Linaria genistifoia)* is a member of the Figwort family originally imported from Europe as an ornamental. It is a creeping perennial with stems from two to four feet tall. The flowers are snapdragon-shaped, bright yellow, with orange centers; leaves are waxy and heart-shaped. Dalmation toadflax is especially adapted to arid sites and can spread rapidly once established. Because of its deep, extensive root system and heavy seed production, this plant is difficult to manage.

Field Bindweed *(Convolvulus arvensis)* is a member of the Morning-glory family introduced from Europe. It reproduces by seed and horizontal roots. The stems are one to four feet long and spread thickly over the ground or wind around erect plants or other objects. The flowers are bell- or trumpet-shaped, white or pink. Field bindweed is one of the most competitive perennial weeds and is a problem throughout Colorado. Its roots can extend ten feet deep and a two- or three-year food supply is stored. This makes it hard to kill by cultivation because roots will live as long as their food reserve lasts. Seeds can also remain viable in the soil for up to 40 years.

5.2.3 Noxious Weed Management Plans. CDOT rights-of-way are managed for noxious weeds under the *CDOT Integrated Noxious Weed Management Plan* (CDOT, 2000). The CDOT management plan includes detailed goals and objectives for Maintenance Section 2, including, identification and inventory of noxious weeds, use of integrated methods to control specific weeds, and education of appropriate personnel. The plan does not identify any specific goals for the Highway 82 right-of-way.

Due to the identification of a serious noxious weed problem within the railroad right-of-way, RFRHA implemented a weed management plan in 2000. The plan is being updated and improved. The new plan is called the *RFTA Integrated Weed Management Plan* (2002) and will follow a six-point integrated and adaptive management approach:

1. Establish and record land management goals and weed management objectives.

2. Identify and prioritize species/infestations that threaten goals and objectives.

3. Assess control techniques.

4. Develop and implement weed management plans/actions.

5. Monitor and assess results of management actions.

6. Modify and improve weed management objectives, priorities, and plans, thereby starting the cycle again each year.

This plan is based on desired plant species and communities, rather than on simply eliminating weeds. Preventive programs are being implemented to keep the management area free of species that are not yet established but are known to be pests elsewhere in the area. Priorities have been set to reduce or eradicate weeds that have already become established on the property, according to their actual and potential impacts to the land management goals for the property, and according to the ability to control them now versus later.

Building and preparation for building segments of the Rio Grande Trail within the RFTA corridor have resulted in aggressive noxious weed management in all three counties in 2000, 2001 and 2002. Weed management methods include, but are not limited to, manual, mechanical, biological, and chemical controls and are intended to be the least environmentally damaging, yet practical and reasonable in achieving the desired results.

Approximately one-third of the railroad right-of-way is in Pitkin County. Pitkin County weed management falls under the *ThePitkin County Noxious Weed Management Plan* (Ordinance #99-48 and #01-006, 1999, revised 2001). Pitkin County Open Space and Trails has sprayed most Pitkin County sections with positive results in 2000, 2001 and 2002. The Roaring Fork Club, which abuts just under 3.22 kilometers (two miles) of the corridor in Pitkin County, has successfully run a natural weed control program, using no herbicides, for four years.

Approximately 4.8 kilometers (three miles) of the right-of-way runs through Eagle County. A natural weed control program was implemented on about half of this section in 2000 and is ongoing. The program includes the introduction of mushrooms and weed-eating insects, increasing soil fertility, manual pulling, and mechanical cutting. Reseeding with native plants is planned for 2003. Thistle, houndstongue and mullien populations have been greatly reduced, native vegetation is looking healthier and the program appears to be a gradual success story. The common tansy may have to be sprayed. In 2003 aggressive treatment will begin on the other half of the Eagle County section, using natural weed control techniques.

In 2001 a natural weed control program was started on a few small sections in Garfield County, while most of the difficult sections were sprayed with herbicide. In 2002 the natural weed control program was expanded and the only section sprayed with herbicide was a three-mile section along County Road 100.

6. Wetlands

Wetlands within the Roaring Fork River Valley principally occur along the river, creeks and irrigation ditches. They may also occur as a result of subsurface irrigation by groundwater, and/or in

depressional areas that tend to collect and hold water for extended periods of time during the growing season.

Jurisdictional wetlands are those subject to regulatory authority of the Clean Water Act Section 404 and jointly administered by the U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency. These wetlands are created or supported in some way by waters of the U.S. Non-jurisdictional wetlands, those not regulated by the Corps, exhibit all three wetland criteria, but the sole water source may be a man-made irrigation ditch, for example.

Wetlands are delineated using three criteria: 1) Of the dominant species, occurrence of more than 50 percent hydrophytic vegetation; 2) Existence of hydric soils; and 3) Presence of wetland hydrology. A site is generally considered to exhibit wetland hydrology if soil saturation occurs continuously for a minimum of five percent of the growing season. The growing season within the Project Corridor ranges from 141 days near Glenwood Springs (SCS 1985) to only 105 days near Aspen (SCS 1992), making the number of consecutive days required to meet the wetland hydrology criteria seven days near Glenwood Springs and five days near Aspen.

Hydrophytic vegetation is defined as plant life growing in water, soil, or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content. *Hydric soils* are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic (without oxygen) conditions in the upper part of the soil profile. Generally, to be considered a hydric soil, there must be saturation at temperatures above freezing for at least seven days. Wetland hydrology is defined as permanent or periodic inundation, or soil saturation to the surface, at least seasonally.

Relatively narrow, fringe wetlands typically exist along the banks of irrigation ditches in the Roaring Fork Valley. These fringe wetlands vary from 0.6 to 3.0 meters (two to ten feet) in width and may occur on either, or both, sides of a given ditch. The Corps considers wetlands solely supported by agricultural irrigation systems non-jurisdictional. The important and obvious distinction is the sole artificial source for wetland hydrology. Despite the non-jurisdictional status, these wetland systems exhibit similar characteristics (i.e., prevalence of hydrophytic vegetation, wetland hydrology, and hydric soils) as jurisdictional wetlands. Non-jurisdictional wetlands created by the irrigation ditches have been included in Table III-30.

6.1 Wetland Community Types

Using the Cowardin classification system, palustrine and riverine wetlands were identified in the Project Corridor (Cowardin et al. 1979). Palustrine wetlands are marshy areas that may occur around seeps and springs as well as adjacent to streams and rivers. Within the Project Corridor, palustrine wetlands occur in the form of wet meadows, willow shrublands, and the cottonwood/alder/spruce forests that occur within the floodplains and outside the banks of the Roaring Fork River. Riverine wetlands refer to linear wetlands that occur within the banks of the Roaring Fork River, its tributaries, and irrigation channels.

A total of 100 wetlands (9.4 hectares/23.0 acres) were identified in the Project Corridor. Sixty-two of these wetlands (seven hectares/17.1 acres) are jurisdictional waters of the U.S. Sixty-four jurisdictional and nonjurisdictional wetlands were classified as Palustrine Persistent Emergent Seasonally Flooded in the Project Corridor. Thirty Palustrine Scrub-Shrub Broad-leaved Deciduous Seasonally Flooded wetlands and fringe wetlands were documented. Six Palustrine Forested

Seasonally Flooded wetlands were found. Table III-31 identifies specific wetlands in each category. Similarities within each wetland classification are discussed below.

6.2 Wetland Survey Methodology

A wetland survey of the project area was conducted in July 1999 (SAIC 1999b). In areas where a right-of-way had not been established, a 30-meter (100-foot) right-of-way on either side of the rail and trail alternative alignment of 61-meters (200-feet) total width was assumed. Hydrophytic vegetation was used as the first step in identifying potential wetland areas. When hydrophytic vegetation was found to occur within the right-of-way, the site was then evaluated for the presence of wetland hydrology. If both criteria were met, a determination of the presence, or absence, of hydric soils was made. When determined to be a wetland, each site was mapped in the field (Aero-Metric 1997). Wetland mapping conducted for this document is approximate. A land survey of wetland boundaries will be required prior to final design. All 100 wetland sites found within the Project Corridor are shown in *Wetland Assessment, West Glenwood Springs to Aspen, Colorado CIS/DEIS/CP*, December 20, 2000.

Palustrine Persistent Emergent Wetlands: A total of 5.4 hectares (13.2 acres) were determined to be Palustrine Persistent Emergent Wetlands. These sites were typically dominated by reed canary grass (*Phalaroides arundinacea)*, broad-leaf cattail *(Typha latifolia)*, wiregrass *(Juncus arcticus)*, Nebraska sedge *(Carex nebrascensis),* beaked sedge *(Carex utriculata)*, woolly sedge (*Carex lanuginosa)*, and creeping spike rush *(Eleocharis palustris)*. Emergent wetlands often occurred adjacent to the railroad tracks or Highway 82. When irrigation water was the primary source of water, either through seepage or overflow, the resultant emergent wetlands generally exhibited low species diversity. Conversely, naturally occurring emergent wetlands had much higher species diversity. The largest wetland delineated (polygon 377-5) was an emergent wetland dominated by reed canary grass.

Palustrine Scrub-Shrub Broad-Leaved Deciduous Wetlands: A total of 3.3 hectares (8.1 acres) were determined to be Palustrine Scrub-Shrub Wetlands. Scrub-shrub wetlands were typically dominated by coyote willow *(Salix exigua)*, shining willow *(Salix lutea)*, red-osier dogwood *(Cornus stolonifera)*, and speckled alder *(Alnus incana ssp. tenuifolia).* This wetland type typified the fringe wetlands located along the Roaring Fork River, its tributaries, and irrigation ditches of the valley. As expected, speckled alder is more common from Emma to Aspen than at lower elevations, and only occurs in relationship to rivers or naturally-occurring water sources. Coyote willow, on the other hand, is very common throughout the Project Corridor and frequently found in non-wetland areas, often associated with irrigation ditches and seeps.

Palustrine Forested Broad-Leaved Deciduous Wetlands: This wetland type occurs in only six locations within the proposed right-of-ways with a total size of 0.7 hectares (1.7 acres), primarily adjacent to the Roaring Fork River. River birch *(Betula fontinalis)*, and narrow-leaf cottonwood *(Populus angustifolia)* are the dominant overstory species present. Other associated species included speckled alder, coyote willow, woolly sedge, and red-osier dogwood.

Table III-31
Wetland Types in the Project Corridor
with Associated Wetland Polygon Number and Acreage

Wetland Type	Jurisdictional Wetland Polygons*	Area (ha/acres)	Nonjurisdictional Wetland Polygons	Area (ha/acres)	TOTAL AREA (ha/acres)
Palustrine Persistent Emergent Seasonally Flooded (PEM1C)	360-1,360-1,366-1,368-1,1c,368-2,371-3,371-6,375-4,376-2,376-7, 377-5, 377-7,378-1,378-2,378-3,378-4,378-5,378-6,378-7,379-1,379-2,379-3,379-5,379-6,379-7,379-8,380-1,380-2,381-1,381-2,381-3,382-1,382-3, 382-7a,382-7b,383-3,383-4,383-5, and 384-1	3.7/9.0	364-1, 365-1,365-2,367-1,368-1,370-1,370-3,370-4,372-2,374-1,375-7,376-8,377-6,377-8,378-8,378-9,379-10,379-11,380-3,380-4,381-4, 382-6,382-8, 383-2,383-6, 388-1,388-2,and 392-4	1.7/4.2	5.4/13.2
Palustrine Scrub-Shrub Broad-leaved Deciduous Seasonally Flooded (PSS1C)	360-2,370-2,371-2, 371-5,371-7,373-2,375-3,375-5,375-6,376-1,376-5,377-2,377-3,377-4,382-2,382-4,383-7,392-2,392-3,394-1,394-2, and Fringe areas	2.8/7.0	368-3,377-9,382-5,385-2,386-1,389-1,390-1,and 391-1	0.5/1.1	3.3/8.1
Palustrine Forested Broad-leaved Seasonally Flooded (PFO1C)	376-3,376-4,376-6,379-4	0.5/ 1.1	370-5 and 371-9	0.2/0.6	0.7/1.7

** Polygon number indicates railway milepost number (e.g. 379-) followed by the plot number.*
Source: SAIC,1999b .

6.3 Wetland Functions

Wetlands perform a variety of important functions within the environment. These functions include groundwater discharge and recharge, fish and wildlife habitat, sediment trapping, nutrient retention and removal, downstream food chain support, and flood storage/attenuation. Specific functions provided by a wetland, and the degree to which it performs those functions, depend on a number of factors including the type, size, diversity, and location of the wetland.

Typically, human-induced wetlands in the Project Corridor are associated with irrigation ditches, or are small, have low species diversity, and are in close proximity to Highway 82 or the RFTA right-of-way. Functionality for such wetlands is limited. The functions these non-jurisdictional wetlands perform, therefore, are limited to some ground water recharge, wildlife habitat, and to a limited extent, nutrient retention/removal. Wetlands positioned to intercept irrigation return flow waters can remove excess nutrients and other pollutants prior to water entering the Roaring Fork River or its tributaries. Naturally-occurring wetlands in the project area are typically larger, more diverse, exhibit a more natural hydrologic regime, and are slightly removed from Highway 82 or the RFTA right-of-way; such wetlands typically have a higher functionality than man-made wetlands associated with irrigation ditches.

7. Fisheries

This section describes the fisheries resource within the Project Corridor. The term fishery characterizes native and introduced fish resources and their habitat within the context of human use. It is a broader term than simply fish ecology and encompasses recreational and socioeconomic values.

Because they often comprise a major portion of the fish biomass and are therefore important at an ecosystem level, fish species with recreational or commercial value often define a fishery. Four fish species with recreational or commercial value inhabit the Roaring Fork River and its tributaries within the Project Corridor (*Personal Communication*, Wright, 1998). These are the brown trout (*Salmo trutta*), rainbow trout (*Oncorhynchus mykiss*), Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*), and the mountain whitefish (*Prosopium williamsoni*). Of these, only the Colorado River cutthroat trout is a native species; the rest are introduced species. Habitat for the Colorado River cutthroat trout appears to be limited to the headwaters and tributaries of the Roaring Fork River. As a special status species, Colorado River cutthroat trout will be discussed in more detail within **Chapter III.C.10: Threatened, Endangered, Candidate, and Other Special Concern Species**.

In addition to game fish species, the Roaring Fork River and tributaries support an assortment of non-game species such as the mottled sculpin (*Cottus spp*.) and mountain whitefish (*Prosopium williamsoni*) (*Personal Communication*, Sealing, 1995), and aquatic macroinvertebrate species from at least six insect Orders (*Ephemeroptera, Tricoptera, Plecoptera, Coleoptera, Diptera, Odonata*) (*Acquatic Ecosystem Inventory Macroinvertebrate Analysis*, Mangum 1993; Colorado Natural Heritage Program 1998a). Aquatic macroinvertebrates provide the prey base supporting the fishery. A rich aquatic macroinvertebrate community is an indicator of water quality and stream health.

The Roaring Fork River, from the Crystal River to its confluence with the Colorado River, and the Fryingpan River are designated Gold Medal fisheries by the Colorado Division of Wildlife. A Gold Medal fishery is an aquatic system with the highest quality habitat, reproducing populations of game fish species, and outstanding angling for large trout. Only 254 of more than 12,000 kilometers (158 of 7,456 miles) of trout habitat within the state receive this ranking. Portions of the Roaring Fork River near Aspen (from McFarlane Creek to upper Woody Creek Bridge) are designated as Wild Trout Waters, indicating that the waters support naturally reproducing trout populations.

8. Wildlife

This section describes wildlife resources within the Project Corridor. Wildlife resources include animal species, both native and naturalized, viewed within the context of their habitats. Although the existence and preservation of wildlife are intrinsically valuable, these resources also provide aesthetic, recreational, and economic values to the community. The analysis will focus on species that typify the habitats of the Project Corridor but are not necessarily endemic to the region, those that may be important to the function of the ecosystem, and those that are of special societal importance. Species that are specifically protected under federal or state law will be considered separately.

The wildlife evaluation includes all terrestrial vertebrate life (i.e., amphibians, reptiles, birds, and mammals) with the exception of those identified as threatened, endangered, candidate, or otherwise

considered special concern species. Typical wildlife species considered include elk, deer, carnivores, small mammals, bats, snakes, songbirds, and raptors.

The composition, diversity, and abundance patterns of wildlife species or communities are determined by the attributes and quality of available habitats. Each species has its own set of habitat requirements and inter-specific interactions, which drive its distribution and abundance. Community structure emerges as the net effect of the diverse resource and habitat requirements of each constituent species within a geographic setting. Consequently, this evaluation considers impacts to wildlife habitat as the primary indicator of potential impacts to the wildlife populations themselves.

Due to its length and diverse topography, the Project Corridor includes five distinct natural terrestrial communities or habitat types: montane riparian forest, narrowleaf cottonwood/chokecherry association, west slope sagebrush shrubland, cottonwood riparian forest and mixed mountain shrubland *(Element Occurrence Locations, CNHP 1998a and Table 2, CNHP, 1998b)*. The complex mosaic of interacting habitats tracing the river corridor and valley contributes to the area's rich biodiversity. In addition to these natural habitat types, urban landscape communities, disturbance communities, and agricultural monocultures occur along much of the right-of-way.

8.1 Mammals

The Project Corridor supports an abundance of big game species and is classified as overall elk (*Cervus elaphus*) range by the Colorado Division of Wildlife *(Wildlife Resource Information System, CDOW 1998)*. The area encompasses all known seasonal activity areas within the observed range of the population. An elk migration corridor passes through the Project Corridor 1.6 kilometers (one mile) west of Basalt. The RFTA right-of-way also crosses a section of elk winter range 6.44 kilometers (four miles) northwest of Basalt. Additionally, a resident elk population is located within the Project Corridor. No elk calving areas are located within 0.8 kilometers (one-half mile) of the Project Corridor. Mule deer (*Odocoileus hemionus*) habitat occurs throughout Project Corridor. Both resident population areas and migration corridors are represented.

An assortment of other mammalian species occurs in appropriate habitats. Riparian areas and streams support mink (*Mustela vison*), beaver (*Castor canadensis*), voles (*Microtus spp.*), shrews (*Sorex spp.*) and other small mammals. Uplands provide habitat for coyotes (*Canus latrans*), white-tailed jackrabbits (*Lepus townsendii*), least chipmunks (*Tamius minimus*), deer mice (*Peromyscus spp.*), skunks (*Mephitis mephitis*), and mountain cottontails (*Sylvilagus nuttali*). Raccoons (*Procyon lotor*) move from the cover of forests to a variety of habitats in search of food. Forests and meadows support black bears (*Ursus americanus*) and porcupines (*Erethizon dorsatum*). Bats serve a critical role in montane systems, transporting nutrients from rich riparian areas to nutrient-poor forests. Bat species such as little brown myotis (*Myotis lucifugus*), big brown bats (*Eptesicus fuscus*), silver-haired bats (*Lasionycteris noctivagans*), and hoary bats (*Lasiurus cinerius*) move from forest roosts each evening to forage on insects within the canopy and over riparian corridors.

8.2 Birds

The diversity of habitats and excellent stream quality in the Roaring Fork Valley supports a rich bird population. Shrub-dominated wetlands support a variety of passerine birds. Species detected during wildlife surveys include song and Lincoln's sparrows (*Melospiza melodia* and *Passerella iliaca*), yellow warblers (*Dendroica petechia*), and veerys (*Catharus fuscescens*). Swainson thrush (*Catharus ustulatus*) is likely a more common breeding riparian thrush within the project area, but was not detected during wildlife surveys. Canada geese (*Branta canadensis*), common mallards

(*Anas platyrhynchos*), northern shovelers (*Anas clypeata*), blue- and green-winged teal (*Anas discors* and *Anas crecca*), and common mergansers (*Mergus merganser*) are common in aquatic habitats in the project area. American dippers (*Cinclus mexicanus*), an indicator of high quality, fast-flowing streams, may be found nesting and foraging along the Roaring Fork River. Belted kingfishers (*Ceryle alcyon*) also forage within these areas and nest in adjacent steep banks.

Upland birds include the green-tailed towhee (*Arremonops rufivirgatus*), lazuli bunting (*Passerina cyanea*), orange-crowned warbler (*Vermivora celata*) and blue grouse (*Dendragapus obscurus*). The forest canopy surrounding the Roaring Fork River supports an assortment of raptors including red-tailed hawks (*Buteo jamaicensis*), Coopers hawks (*Accipiter cooperii*), and great horned owls (*Bubo virginianus*). American kestrels (*Falco sparverius*) benefit from the abundant nest cavities present in the cottonwood riparian forest and may be observed foraging over agricultural fields. Prairie falcons (*Falco mexicanus*) are known to nest within the Project Corridor on cliff faces rising above the river.

8.3 Reptiles and Amphibians

Due to its high elevation and harsh climatic conditions, the Project Corridor portion of the Roaring Fork River Valley supports a relatively low diversity and abundance of reptile species. Specific species occurrences are driven by habitat associations. Piscivorous, riparian associated species such as western terrestrial garter snakes (*Thamnophis elegans*) are likely to occur in the highest abundance. Other species possibly occurring within appropriate habitats include tiger salamanders (*Ambystoma tigrinum*), striped chorus frogs (*Pseudacris triseriata*), leopard frogs (*Rana pipiens*), sagebrush lizards (*Sceloporus graciosus*), smooth green snakes (*Opheodrys vernalis*), bull snakes (*Pituophis catenifer*), and western rattlesnakes (*Crotalis viridis)* (*Western Reptiles and Amphibians,* Stebbins, 1985*)*.

9. Wild and Scenic Rivers

Verbal communication, and the National Park Service's website confirmed that there are no designated Wild and Scenic Rivers in the Project Corridor from Glenwood Springs to Aspen (*Personal Communications,* Weiner, 1999 and *Wild and Scenic Rivers, State by State List*, NPS *2002*).

10. Threatened, Endangered, Candidate, and Other Special Concern Species

10.1 Specific Categories

This section describes threatened, endangered, candidate, sensitive and other species afforded special consideration by the U.S. Fish and Wildlife Service (USFWS), the U.S. Forest Service (USFS), the Colorado Natural Heritage Program (CNHP), and/or the Colorado Division of Wildlife (CDOW). Preservation of these sensitive biological resources is accomplished through many means, most notably the Endangered Species Act of 1973, which protects federally listed threatened and endangered plant and animal species. Federal candidate species are not protected by the full weight of the Endangered Species Act; however, these species could be proposed for listing, and therefore protected, at any time. Their consideration early in the planning process may avoid future conflicts that could otherwise develop.

Five rarity categories are included in this section on species with the potential to occur in the Project Corridor. These include: 1) Federal Threatened and Endangered Species, 2) Candidate Species, 3) Federal Sensitive Species, 4) State Threatened and Endangered Species, and 5) Colorado Natural Heritage Program rare or imperiled species or species otherwise of special concern. These categories are defined below.

Federally Listed Threatened and Endangered Species. The Endangered Species Act (ESA) provides protection to species listed under these categories. Endangered species are those species that are in risk of extinction in all or a large portion of their range. Threatened species are those that are likely to be listed as endangered in the near future. A federal action that may affect any species included in these categories require ESA section 7 consultation with the USFWS and preparation of a Biological Assessment in accordance with the Endangered Species Act.

Proposed Species. These are species for which the USFWS has received adequate petition information for listing as either threatened or endangered under the Endangered Species Act. Section 7 compliance may become necessary as soon as a species is proposed for listing or critical habitat is proposed for designation.

Candidate Species. These are species considered for possible addition to the List of Endangered and Threatened Species. These are species for which the USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposal to list, but issuance of a proposed rule is currently precluded by higher priority listing actions. The USFWS recommends that candidate species be treated as if they are listed since an emergency or standard listing could occur during the project.

Federally Sensitive Species. The USFS defines Federally Sensitive Species as those plant and animal species for which population viability is a concern, based on significant current or predicted downward trends in population numbers or density, or significant current or predicted downward trends in habitat capability. These trends would reduce a species' existing distribution. Regional Foresters identify sensitive species occurring within their region. This category does not provide federal protection under the Endangered Species Act.

State Listed Threatened and Endangered Species. A list of Colorado State Threatened and Endangered Species is maintained by CDOW, and these species are protected by state statute from harassment, taking, and possession. Definitions of threatened and endangered in the federal category apply to the state category. This category does not provide federal protection under the Endangered Species Act.

Colorado Natural Heritage Program Rare or Imperiled Species/Special Concern Species. This category identifies species that are listed by CNHP as global/state 1 (G/S1), global/state 2 (G/S2), or state 3 (S3). G/S1 species are critically imperiled because of rarity or some other factor of their biology making them especially vulnerable to extinction. G/S2 species are imperiled because of rarity or other factors making them vulnerable to extinction. S3 species are vulnerable throughout their range. At present, these species receive no legal protection under the Endangered Species Act. Species of Special Concern is a broad category describing species whose viability is of local or regional concern but may or may not be adopted as state or federally threatened or endangered.

Table III-32 identifies species falling under the above categories that have the potential to occur within the Roaring Fork Valley, and provides a summary of species, their scientific names, and their

current protection status. Species were identified by CDOW, USFWS, and the CNHP. No special status plant species were identified in the Project Corridor. Each species is discussed in the section that follows.

Table III-32
Status and Likelihood of Occurrence for Threatened and Endangered Species, Candidates for Federal Listing, and State of Colorado Threatened, Endangered, or Species of Concern

Species	Status	Occur in Project Corridor
Fauna		
Bald Eagle (*Haliaeetus leucocephalus*)	FT and ST	Yes
Mexican Spotted Owl (*Strix occidentalis*)	FT and ST	Not Likely
Eskimo Curlew (*Numenius borealis*)	FE	Not Likely
Southwestern Willow Flycatcher (*Empidonax trailii extimus)*	FE	Not Likely
Wolverine (*Gulo gulo)*	FS and SE	Not Likely
Canada Lynx *(Lynx canadensis*)	FT and SE	Not Likely
Black-Footed Ferret *(Mustela nigripes)*	FE and SE	Not Likely
Boreal Toad (*Bufo boreas boreas*)	FC	Not Likely
Uncompahgre Fritillary Butterfly (*Boloria acrocnema*)	FE	Not Likely
Colorado Pike Minnow (*Ptychocheilus lucius*)	FE and SE	Not Likely
Razorback Sucker (*Xyrauchen texanus*)	FE and SE	Not Likely
Humpback Chub (*Gila cypha*)	FE and SE	Not Likely
Bonytail Chub (*Gila elagans*)	FE and SE	Not Likely
Northern Goshawk (*Accipiter gentilis*)	FS	Not Likely
Great Blue Heron (*Ardea herodias*)	SOC	Yes
Boreal Owl (*Aegolius fenereus*)	FS	Not Likely
River Otter (*Lutra canadensis*)	SE	Yes
Preble's Shrew (*Sorex preblei*)	SOC	Not Likely
Colorado River Cutthroat Trout (*Oncorhyncus clarki pleuriticus*)	FS and S3	Not Likely
Flora		
Uinta Basin Hookless Cactus (*Sclerocactus glaucus*)	FT	Not Likely
Parachute Penstemon (*Penstemon debilis*)	FC	Not Likely
Debeque Phacelia (*Phacelia submutica*)	FC	Not Likely

FT – Federal Threatened
FE – Federal Endangered
FS – Federal Sensitive
FC – Federal Candidate for Listing
ST – State Threatened
S3 – Vulnerable Throughout State Range
SE – State Endangered
SOC – State Species of Concern (State, CNHP, or Other)

10.2 Species Discussion

Bald Eagle. Bald eagles utilize the Roaring Fork River and adjacent riparian woodlands for nesting, winter foraging, and roosting (Figure III-11). There is an historic bald eagle nest within the Aspen Glen subdivision north of Carbondale. Nesting pairs have centered activity around this site for many years, and unsuccessful yearly attempts at breeding have been monitored for the past five years by Aspen Glen personnel (*Personal Communications*, Williams 2002). Eagles return annually, maintain the nest, and use it as a day rest and roost. Coordination with USFWS has indicated that there has been no productivity (eggs laid or young eagles fledged) at this nest for eight years (Ireland, 2002). Communications with both the USFWS (Ireland, 2002) and CDOW (Wright, 2002) indicate that this nest does not function as an "active" eagle nest.

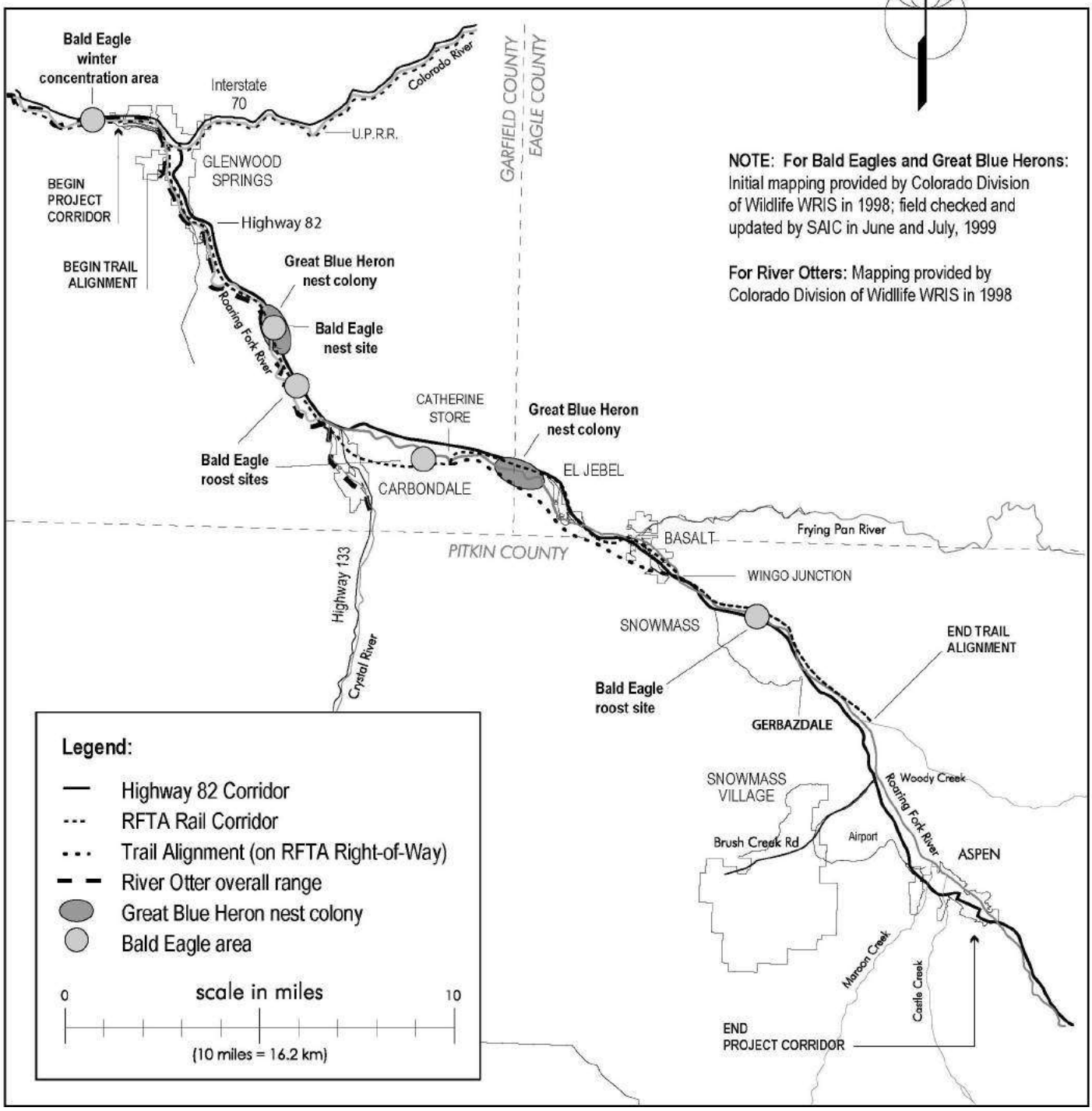
A bald eagle roost site is defined as "groups or individual trees that provide diurnal and/or nocturnal perches for less than 15 wintering bald eagles" (CDOW, 1998). Three bald eagle roost sites exist within the Project Corridor. One roost is near the confluence of Cattle Creek and the Roaring Fork River, the second is adjacent to the existing rail right-of-way south of Carbondale, and the third is along the Roaring Fork River south of Wheatley Gulch (CNHP, 1999; CDOW, 1998).

Mexican Spotted Owl. Mexican spotted owls occur in scattered areas from the Colorado Rockies and Utah, south to central Mexico (*Colorado Breeding Bird Atlas,* Kingery, 1998). In central Colorado, spotted owls occur in rocky canyons with tall conifers in the canyon bottom. In southwestern Colorado they occur in narrow slick rock canyons with piñon/juniper (*Pinus edulis/Juniperus osteosperma*) woodlands (Kingery, 1998). Currently, there are two confirmed nesting regions in Colorado – Mesa Verde National Park and the south central mountains, including the southern massif of Pikes Peak and the Wet Mountains (Kingery 1998). There is a 1903 record of a spotted owl in Snowmass, Colorado, but no occurrences have been documented since that time (*Birds of Colorado,* Bailey, 1965). Due to the absence of suitable habitat, no Mexican spotted owls are expected to occur within the Project Corridor.

Eskimo Curlew. There are currently no known populations of Eskimo curlew in Colorado (Letter, USFWS 2000). The last confirmed sighting of the Eskimo Curlew occurred in 1963 in Nebraska. The Project Corridor does not have suitable habitat for this species. No impacts are anticipated.

Southwestern Willow Flycatcher. The southwestern willow flycatcher is one of four valid subspecies of willow flycatcher (CNHP, 2000). This species nests in riparian willow shrub communities. According to (CNHP, 2000), the known range of this species in Colorado is within Baca, Dolores, Garfield, Gunnison, Hinsdale, and Yuma Counties. Although habitat for the species exists along the Roaring Fork River in the Project Corridor, no occurrences have been noted in the CNHP Natural Diversity Information Source internet data base (CNHP, 2002). The Project Corridor is considered outside the range of this endangered subspecies.

Figure III-11: Bald Eagle Nest and Roost Sites, Great Blue Heron Nest Colonies, and River Otter Range within the Project Corridor



Wolverine. In addition to its Federally Sensitive and State Endangered designations, the US Fish and Wildlife Service has recently been petitioned to list the wolverine as threatened or endangered. Wolverines have one of the lowest densities of any carnivore, and their occurrence in Colorado has never been very high (*Mammals of Colorado,* Fitzgerald et al, 1994). They have however, been documented as far south as southern Colorado (*The Scientific Basis for Conserving Forest Carnivores – American Martin, Fishes, Lynx and Wolverine in the Western United States,* RMFRES, 1994). Wolverines are generally restricted to sparsely populated wilderness areas in boreal forests, tundra, and similar habitats with year-round food supplies, in the western mountains (RMFRES, 1994). For these reasons, the probability of their occurrence within the Project Corridor is low.

Canada Lynx. The Canada lynx is listed as threatened under the Endangered Species Act, and as state-endangered in Colorado. Lynx occupy a northern range that includes most of Canada, portions of the northwest U.S., and the Rocky Mountain Range *(A Field Guide to the Mammals,* Burt and Grossenheider 1976*)*. Individual home ranges of lynx are highly dependent on its primary prey, the snowshoe hare (*Lepus americanus*). Lynx have large home ranges that typically encompass 15 to 21 square kilometers (six to eight square miles), but may be as large as 161 square kilometers (100 square miles). The preferred habitat of lynx is dense coniferous forests with intermittent shrub and sapling-dominated openings and coniferous swamps *(Furbearer Management Plan,* Leptich 1990*)*. This habitat preference coincides with the favored habitat of the snowshoe hare. In Colorado, lynx prefer dense spruce-fir forest that contains rock outcrops and large boulders *(*Fitzgerald et al., 1994*)*. Caves, rock crevices, overhanging banks or hollow logs are preferred sites for denning.

Lynx are generally found above 2,743 meters (9,000 feet) and are considered a wilderness species due to their requirements for extensive coniferous forest. Generally the lynx is not expected to occur in the Project Corridor due to the lack of suitable habitat for either the snowshoe hare or the lynx. The Project Corridor is located in close proximity to several Lynx Analysis Units as mapped by the U.S. Forest Service. Reintroduced individuals from 2000 with satellite collars have passed through the Project Corridor.

Black-footed Ferret. The black-footed ferret has co-evolved with black-tailed prairie dogs, and their ranges and habitats overlap closely in short and mid-grass prairie and semi-desert shrublands. Ferrets use black-tailed prairie dog colonies as a source of food and shelter. Presently, they are known to exist in remnant restored populations in Shirley Basin, Wyoming, and in captive breeding populations at various locations across the country. No prairie dogs were observed during wildlife investigations within the Project Corridor, and therefore presence of black-footed ferrets is unlikely. Since no impacts to black-tailed prairie dogs are anticipated, no surveys for black footed ferrets are required (USFWS, 2000).

Boreal Toad. The boreal toad is one of two subspecies of the western toad (*Bufo boreas*), and the southern Rocky Mountain population is geographically isolated from other boreal toad populations by inhospitable habitat to the north and west *(Amphibians and Reptiles of the Pacific Northwest,* Nussbaum et al*, 1983)*. Habitat preferences are not completely understood at this time and ongoing research is addressing this question. Currently, it is believed that boreal toads live near springs, streams, ponds, and lakes up to 3,615 meters (11,860 feet). Most populations occur between 2,438 meters to 3,353 meters (8,000 to 11,000 feet). Habitat types utilized include foothill woodlands, mountain meadows, moist subalpine forest, beaver ponds and marshes. Breeding occurs in large lakes, small puddles, slow moving portions of streams, and in marshy areas around beaver ponds.

Boreal toad populations have been declining in Colorado since the early 1980's and rapid declines have been documented since the mid-1980's [(Boreal Toad Recovery Team, 1998 (BTRT)]. The cause or causes of the decline are unclear. Alteration of habitat, flooding of small ponds from water impoundments, grazing, and recreation are not likely to benefit boreal toads, but are also not likely the causative agents for the decline (BTRT, 1998). Two current hypotheses for the decline of the boreal toad (and other amphibians) are stress-induced mortality caused by disease, and mortality related to a chytrid fungus (*Personal Communication,* Jones, 1999). Recently, a boreal toad occurrence was documented in the Northstar Preserve west of the Town of Aspen at an elevation of approximately 2,439 meters (8,005 feet) (*Personal Communication,* Lowsky, 1999). The Project Corridor lies within 1,737 meters (5,700 feet) and 2,347 meters (7,700 feet), generally below the altitudinal range of the boreal toad in Colorado.

Uncompahgre Fritillary Butterfly. This butterfly species is a Colorado endemic with a narrow range restricted to isolated alpine habitats in the San Juan Mountains of Southwestern Colorado. Unverified reports in the Sawatch Range could slightly expand the range (CNHP, 2000). Habitat of the Uncompahgre fritillary butterfly is above tree line in moist, rocky alpine tundra meadows (CNHP, 2000). No Uncompahgre fritillary butterfly habitat occurs within the Project Corridor.

Colorado Pikeminnow. The Colorado pikeminnow is an inhabitant of the Colorado River. Any projects that divert or utilize water from the Colorado River watershed could potentially affect this species. Since no water will be diverted from the Roaring Fork River or its tributaries related to this project, this species should not be affected.

Razorback Sucker. The razorback sucker is an inhabitant of the Colorado River. Any projects that divert or utilize water from the Colorado River watershed could potentially affect this species. Since no water will be diverted from the Roaring Fork River or its tributaries related to this project, this species should not be affected.

Humpback Chub. The humpback chub is an inhabitant of the Colorado River. Any projects that divert or utilize water from the Colorado River watershed could potentially affect this species. Since no water will be diverted from the Roaring Fork River or its tributaries related to this project, this species should not be impacted.

Bonytail Chub. The bonytail is an inhabitant of the Colorado River. Any projects that divert or utilize water from the Colorado River watershed could potentially affect this species. Since no water will be diverted from the Roaring Fork River or its tributaries related to this project, this species should not be affected.

Northern Goshawk. The federally sensitive (USFS) northern goshawk is a forest habitat generalist that preys on a variety of medium-sized forest animals. Despite its versatility, there are indications that populations are declining in some areas due to timber harvest *(Nevada Raptors, Herron et al., 1985)*. The home range of the northern goshawk contains three components: the nest stand, post-fledging family area (PFA), and the foraging area (*Management Recommendations for the Northern Goshawk,* Reynolds et al., 1992*)*. Nest stands in the Medicine Bow Mountains of Colorado are primarily within mature aspen stands greater than 8.09 hectares (20 acres) in extent and surrounded by coniferous forest *(Monitoring Aquatic Macroinvertebrates, Boreal Owls, Northern Goshawk,* Cavallaro, 1996*)*. The PFA surrounds the nest site and can be comprised of a variety of forest conditions. Recommendations for managing PFAs call for approximately 162 hectares (400 acres) of forest that exhibit a variety of vertical structural stages (Reynolds et al., 1992). The recommended

2,428 hectares (6,000 acre) foraging area (Reynolds et al., 1992) has similar conditions to that described for the PFA. However, foraging habitat is probably as much influenced by prey availability as forest structure *(Sustaining Forest Habitat for the Northern Goshawk,* Graham et al., 1994*)*. In the western U.S., goshawks are known to nest in a variety of forest types and structures (Graham et al. 1994), but rarely below 2,133 meters (7,000 feet) (Johansson, 1994).

The Project Corridor ranges in elevation from 1,737 meters (5,700 feet) to 2,347 meters (7,700 feet). Based on elevation constraints (*Large-Area Goshawk Modeling,* Johansson 1994*)*, potential goshawk habitat may lie within the narrow gallery forest that extends from Basalt [approximately 2,042 meters (6,700 feet)] to the Pitkin County Airport [approximately 2,347 meters (7,700 feet)]. An active goshawk nest was located in the Christine State Wildlife Area in 1997, but was occupied by a Cooper's hawk *(Accipiter cooperii)* in 1998 (Lowsky, 1999). In general, the naturally isolated nature of the gallery forest along the river, combined with past and ongoing fragmentation associated with development, make the possibility of sustained goshawk occupancy unlikely.

A survey to determine the presence of nesting goshawks was conducted in June 1999 by staff of SAIC *(Roaring Fork Valley Field Analysis of Sensitive Wildlife Areas*, SAIC, 1999c*)*. Surveyors broadcasted tapes of goshawk calls to elicit a response from nesting, roosting or foraging goshawks. Field protocol was an adaptation of the Kennedy and Stahlecker *(Journal of Wildlife Management*, 1993*)* method, which is widely used in the west. A 100 percent survey of the corridor between Basalt and the Pitkin County Airport did not elicit any goshawk responses.

Great Blue Heron. The great blue heron is listed as State 3 (S3) by the CNHP, which means that it is vulnerable throughout its range (CNHP 1999). In addition, great blue herons are a species of interest to local residents within the Roaring Fork Valley due to the presence of several nesting colonies (Figure III-11) (*Personal Communication,* Lofarro 1999).

Great blue herons occur across much of the United States but breeding occurs often only sporadically in much of their range. Herons consume mostly fish but are opportunistic, also feeding on amphibians and small mammals. Herons are solitary birds except during the breeding season. Breeding grounds include freshwater and brackish marshes, swamps, lakes, rivers, and mangroves. Group nesting colonies are composed of trees with the potential for the construction of nest platforms. Nests are typically found in the upper branches of dominant trees within riparian habitats and consist of interwoven sticks lined with twigs and leaves. If birds are undisturbed during nesting they will return to the same nest location year after year.

Great blue heron habitat exists within the Project Corridor along the Roaring Fork River. SAIC staff mapped two active nest colonies in June and July 1999 (SAIC 1999c). One site occurs near the confluence of Cattle Creek and the Roaring Fork River and contained four active nests in 1999.

The second site is on the Rock Bottom Ranch and had 22 active nests in 1999. This nest site has declined in the last few years; approximately six active nests remain in 2002. The original heronry was the result of local land owners' ditch work that created new river meanders and shallow waters for fisheries. As the water patterns have changed and the quality of the fisheries has been reduced, the number of nests has declined. (*Personal Communication*, Lofarro 2002).

Boreal Owl. In the southern Rockies, the federally sensitive (USFS) boreal owl occupies subalpine forest comprised of subalpine fir *(Abies lasiocarpa)* and Engelmann Spruce *(Picea engelmanni)* and transition forest within 100 meters (328 feet) of this elevation (*Habitat Selection, Movements and*

Activity of Boreal and Saw-Whet Owls, Palmer 1986). Boreal owls are secondary cavity nesters and nest in natural cavities or those excavated by woodpeckers (USFS, 1996). The red-backed voles *(Clethrionomys*) are an important prey genus in all boreal owl populations that have been studied (USFS, 1996). According to Palmer (1986) boreal owls in northern Colorado generally occur above 2623 meters (8,600 feet) and most occurrences were above 3050 meters (10,000 feet).

The Project Corridor within the Roaring Fork Valley ranges in elevation from 1,737 meters (5,700 feet) to 2,347 meters (7,700 feet). Due to the lack of suitable habitat within the project area, no boreal owls are expected to occur within the project area.

River Otter. The river otter *(Lutra canadensis)* is endangered in Colorado. No federal categories apply to this species. River otters occur throughout most of North America but are absent from large areas of the intermountain West due to the aridity of portions of Nevada and Utah. Otters inhabit aquatic and riparian habitats surrounding lakes, rivers, and streams. Home ranges often span 24 kilometers (15 miles) or more. Otters feed primarily in the water on fish, crayfish, frogs, and turtles (*Mammals of the Intermountain West, Zeveloff and Collett*, 1988). They travel on land frequently and may cover several kilometers between open water. River otter numbers have increased recently; however, variable river flows of many mountain rivers may prevent them from reaching high densities in this region. Within the Project Corridor, river otters are known to occupy the Roaring Fork River from the confluence with the Crystal River to the confluence with the Colorado River (Figure III-12) (CDOW, 1998).

Preble's Shrew. The Preble's shrew is listed by CNHP as S1-critically imperiled in the state because of extreme rarity. Only three locations are documented in Colorado (CNHP, 1999). A long-tailed shrew thought to be a Preble's shrew was trapped adjacent to but outside of the Project Corridor near Old Snowmass. Little is known about the natural history of the Preble's shrew except that it uses semi-arid shrublands, tundra, and sage openings within subalpine forest. The RFTA right-of-way near Old Snowmass does not pass through Preble's shrew shrubland habitat.

Colorado River Cutthroat Trout. The Colorado River cutthroat trout is listed as a species of special concern by the CDOW and is a federal sensitive species with the USFS, Rocky Mountain Region. This species was petitioned for listing as threatened or endangered under the ESA in 2000. The range of the Colorado River cutthroat trout encompasses all cool waters of the upper Colorado River drainage, including the Green, Yampa, Gunnison, Dolores, San Juan, Duchesne, (*Conservation Assessment for Inland Cutthroat Trout*, Duff, 1996). Cutthroat trout habitat includes small streams, beaver ponds, and lakes characterized by cold, clear running, well-oxygenated water. A cobble-gravel substrate is preferred with a good balance of pools and riffles along a somewhat steep stream gradient. Preferred pH values are between six and nine (*Personal Communication*, Sealing, 1995). Populations of this species have been drastically reduced, prompting its state listing. One of the greatest threats to Colorado River cutthroat trout is the introduction and subsequent spread of non-native trout species (Duff 1996). Brook trout often replace this species and hybridization with rainbow trout has created genetically impure populations.

Colorado River cutthroat trout inhabit the headwaters of the Roaring Fork River and its tributary waters. Many of the tributaries of the Roaring Fork contain cutthroat trout, but the stretch of river within the Project Corridor has typically not been considered as containing cutthroat trout.

Uinta Basin hookless cactus. This plant species inhabits rocky hills, mesas, and alluvial benches in desert shrub communities between elevations of 1,370 and 1,830 meters (4,500 and 6,000 feet). Its

current known distribution in Colorado is central Garfield County south into Mesa, Montrose and Delta Counties (*Colorado Rare Plant Field Guide*, Spackman et al, 1997). Its known range does not occur within the Project Corridor and is unlikely to be affected by any construction activities.

Parachute penstemon. This plant species grows on sparsely vegetated, steep, white shale talus of the Parachute Creek member of the Green River Formation (Spackman et al, 1997). Its current known distribution is in Central Garfield County between elevations of 2,440 and 2,740 meters (8,000 and 9,000 feet). Its known range does not occur within the Project Corridor and is unlikely to be affected by any actions therein.

Debeque phacelia. This plant species is an annual found within an extremely narrow range on the border of Garfield and Mesa Counties (Spackman et al, 1997). Its known range does not occur within the Project Corridor and is unlikely to be affected by any activities therein.

11. Cultural Resources

Cultural resources can be both prehistoric and/or historic, and they may also be archaeological in nature. Archaeological resources consist of prehistoric and historical artifacts and features on or below the ground surface. Analysis of archaeological resources can provide valuable information about the heritage of local populations. Archaeological resources are non-renewable resources, which are afforded protection by federal, state, and local laws, ordinances, and guidelines.

The Antiquities Act of 1906 and the following federal legislation, policies, regulations, and guidelines have been enacted to protect cultural resources and have been considered during review of the proposed project. Significant properties are protected under Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, Section 106 Compliance, 16 U.S.C. 470 et seq., and implementing regulations 36 CFR 800 and Section 4(f) of the U.S. Department of Transportation Act of 1966.

Prehistoric sites consist of the remains of artifacts and/or features representing a single or multiple events. Artifact materials can include bone, chipped stone and volcanic glass, metal, and perishable fiber and wood. Features are generally of stone, wood and earth. Historical resources are buildings, structures, features, objects, sites or districts that are older than 50 years.

11.1 Cultural Setting

11.1.1 Prehistoric Setting. Very little information is available about the prehistoric occupation of the Roaring Fork Valley and as a result, any framework of prehistoric activities in the area must be surmised from other archaeological investigations throughout western Colorado. Based on information from elsewhere it is known the human occupation of the Rocky Mountains extends back at least 12,000 years. These early inhabitants were big game hunters who tended to have a nomadic existence. This pattern continued until about 7,500 years ago and was known as the Paleo-Indian Stage. That stage was followed by the Archaic Stage which spans 7,500 to 1,800 years ago and has been divided into three periods: the Early, Middle and Late Archaic. Some archaeologists feel that during the Early Archaic Period (7,500 to 5,000 years ago) the Colorado Mountains served as a refuge for populations seeking to escape the prolonged dry conditions (Altithermal) that were sweeping across the lower elevations. Hunting and gathering continued as a way of life throughout the Archaic, however, by the Late Archaic Period new hunting technologies, primarily the bow and

arrow, and the use of ceramics were becoming more widespread. Following the Archaic Period a number of cultures developed in the higher elevations of Colorado, including the Fremont and to the southwest, the Anasazi. Eventually, these people gave way to Shoshone speaking bands, the Ute, who maintained control of the region until the late 19th century when they were displaced by largely Euro-American miners, farmers, and ranchers. This brief overview was based on information found in McDonald 1993 and Zier 1993, two of the most recent studies undertaken in the Roaring Fork Valley area.

11.1.2 Historic Setting. The Euro-American history of the Roaring Fork Valley represents something of a microcosm of the major themes in western United States history. The earliest Euro-American incursions to the areas can be dated reliably to the 1830s when trappers and/or traders worked their way along the Roaring Fork and its tributaries searching for the elusive beaver. The following is adapted from *A Class III Cultural Resources Survey of the Roaring Fork Railroad Authority Environmental Impact Statement, Glenwood Springs to Brush Creek Transportation Corridor - Eagle, Garfield, and Pitkin Counties*, (Chambellan and Mehls, 2000a).

More intensive exploration of the area came after the Colorado Gold Rush of 1859. In 1860, Richard Sopris led an expedition of 14 adventurers into the Roaring Fork Valley. These men were seeking gold and, finding little, they made their way to the future site of Glenwood Springs.

Other prospectors also ventured into the region during the 1860s and early 1870s. Among those individuals were William Grant and Benjamin Graham (leading different parties). The Graham group first went to the Roaring Fork Valley in 1870, and by 1874 they established a prospecting camp at Rock Creek.

At approximately the same time, the Federal government sent explorers into the region. In 1873 the well-known Hayden surveys of Colorado began. The 1873 expedition included exploration of the central Rockies and Colorado (Grand) River Valley and its tributaries. The expedition led to detailed mapping of the Roaring Fork Valley, the Crystal River (Rock Creek), and Elk Mountains, among other accomplishments. As a result, both privately and publicly-supported explorers developed an understanding of the settlement potential of the Roaring Fork Valley. The key event in settlement of the area was the discovery of silver in the hills around Aspen. In 1878, charcoal burners at work in Sellars Meadow, near Basalt, began to notice outcroppings of the same ore that was making Leadville boom. This news led prospectors including Philip Pratt, Smith Steele, and William Hopkins to search the Roaring Fork Valley. Steele and Pratt made discoveries at the base of Aspen Mountain and set in motion a chain of events that led to the settlement of Aspen as a mining community and the Roaring Fork Valley as an area of farms and ranches to support the miners. Other groups soon joined the initial party at Aspen Mountain. By late summer of 1879 the miners founded a community, Ute City, at the base of the mountain. By the next year promoters such as B.C. Wheeler were actively involved in the new mining camp. Wheeler and his associates founded the Aspen Town and Land Co., successfully getting the name changed from Ute City to Aspen. Eventually, the mines of Aspen produced millions of dollars in silver and attracted many of Colorado's leading capitalists to the Roaring Fork Valley. Discoveries of silver led to Aspen's early growth, as well as the permanent agricultural settlement of the Roaring Fork Valley and its subsidiaries. The Panic of 1893 led to the closure of Aspen's silver mines and Roaring Fork Valley agriculturists were forced to seek new markets and new crops by the early 1900s. The mining boom at Aspen and the settlement of the Roaring Fork Valley led to the development of the Valley's transportation infrastructure.

Initial transport in the Roaring Fork Valley depended on animal power in comparatively low construction technologies, primarily trails, and wagon roads. During this same period, the 1880s, Aspen's primary route to the outside world was over Independence Pass, linking the area to the upper Arkansas Valley and Leadville. This route was tortuous at best and could be impassable for weeks at a time during heavy snows or extreme mud conditions during the spring runoff. These conditions resulted in attempts to improve the quality of the road and for others to seek alternative routes. B.C. Wheeler, one of the original founders of the Aspen Town Company, was key to early development of roads into the Aspen-Glenwood Springs area as discussed above. In 1882, Wheeler laid out a road between Aspen and Glenwood Springs and this route became the precursor of the current Project Corridor. In addition to Wheeler's efforts, Charles H. Harris became a toll road builder in the Roaring Fork Valley during the 1880s, building toll roads and connector routes between Aspen, the Valley, and other mining camps.

Road building moved to another level in 1883 when Pitkin County built the trail from Aspen to Emma. In 1885, Jerome B. Wheeler built a tollway from Aspen to Carbondale to haul coal. Thus, by the mid 1880s, the entire valley was inter-laced with a system of roads and trails. The last major road construction of the 19th century took place in 1891 when a road was built from Carbondale south to Marble. However, by that time railroads dominated the transportation network in the Valley.

Prosperity in the late 1800s also led to the building of two railroads into Aspen and through the Roaring Fork Valley – the Denver and Rio Grande (later the Denver and Rio Grande Western, D&RGW) and the Colorado Midland. These railroads prospered as long as Aspen's mines remained profitable, but by 1900 both companies were feeling financial strains as the local and Colorado economies adjusted to the new century and the lack of large incomes from precious metal mining. By the second decade of the 1900s the Colorado Midland went out of business and the D&RGW was forced into stringent economic measures. The Aspen Branch of the D&RGW remained active from the 1920s through the 1960s, but with only occasional service and the line ending at Woody Creek rather than Aspen. The Aspen Branch between Woody Creek and Aspen was eventually purchased by Pitkin County and is the location of the existing Rio Grande Trail. The remainder of the line was purchased in 1997 by the Roaring Fork Transportation Authority (RFTA), formerly known as the Roaring Fork Railroad Holding Authority.

The general decline in rail service through the Roaring Fork Valley during the first half of the 20th century is indicative of the general decline in the area's economy during the same period. For example, farming and ranching continued, but with much greater dependence on the whims of national marketplaces, and thus with a smaller profit margin than had been enjoyed earlier. This pattern continued until World War II. Wartime needs led to higher market prices, and a general prosperity. After the war the Aspen area became a well-known destination ski resort and cultural center for music, humanities and the arts. By the 1950s and 1960s the ski industry was well entrenched in Aspen and tourism became the economic mainstay for the community.

Farming and ranching in the rest of the Roaring Fork Valley continued after the war with variable results. However, by the 1970s a trend began that has accelerated to the present. That trend is to take ranching farmland out of agricultural production and turn it into ranchettes, summer homes, and year-round homes for individuals who want to be part of resort communities. At the other end of the economic spectrum lands have been developed into mobile home parks, apartments, and other low-cost housing for the service workers that support the tourism industry.

11.2 Cultural Resources in the Roaring Fork Valley

11.2.1 Studies Conducted within the Project Corridor. In addition to the current CIS, four environmental impact statements (EISs) have been conducted in portions of the Project Corridor *Carbondale East: Draft Environmental Impact Statement* (FHWA 1981), *State Highway 82 East of Basalt to Aspen: Draft Environmental Impact Statement/4(f) Evaluation* (FHWA, 1989), *Basalt to Buttermilk FEIS* (FHWA, 1993), *Entrance to Aspen FEIS, Section 4(f) Evaluation* (FHWA, 1997). All four were related to Highway 82 and were instigated by the CDOH/CDOT. Numerous additional surveys have been conducted over the years by various private sector individuals and corporations.

The current Project Corridor was inventoried by Western Cultural Resources Management, Inc. (WCRM). A Class III Cultural Resources Survey of the Project Corridor (Chambellan and Mehls 2000a), was conducted in 1998 and published in 2000. A 66.5 kilometer (41.3 mile) Project Corridor was surveyed, extending from the West Glenwood Springs Interchange south along the D&RGW right-of-way to Brush Creek Road. The survey corridor was 24 - 30 meters (80-100 feet) wide. Twenty-two new historic resources were recorded during the course of the pedestrian survey.

Due to a proposal to extend this project past the Entrance to Aspen LRT terminus, a literature search was also conducted at the Office of Archaeology and Historic Preservation (OAHP) by Collette Chambellan on August 25, 1999. This was for an area within the town of Aspen along Main Street between Monarch and Hunter Streets. During the search, it was found that this area of Main Street falls within the Aspen Commercial Historic District (5PT113), a certified local historic district. This district became a National Park Service Certified District in 1984 and is considered eligible to the NRHP. A second Class III survey was also conducted, *A Historic Resources Survey of the Lower River Road in Pitkin County, Colorado* (Chambellan and Mehls 2000b). This included a survey of approximately 0.8 hectares (two acres), and the recording of secondary impacts to several historic standing structures for the Lower River Road temporary detour. This detour was in conjunction with the widening of Highway 82 under another project. Six previously recorded historic sites were re-evaluated, including the Wheatley School (5PT57), a segment of the D&RGW Railroad (5PT123.2), the A. B. Foster Ranch (5PT471), a segment of the Aspen-Basalt Stage Road (5PT504), the Phillips Residence (5PT864), and the Wheatley Homestead (5PT867).

Pitkin County contracted Front Range Research Associates, Inc. to complete an *Inventory Update: Historic Resources Survey Pitkin County, Colorado 1999-2000* (Simmons and Simmons, 2000). Due to the nature of this update and its funding, eligibility determinations were not officially reviewed by the OAHP. However, the updated survey data is pertinent to the current project.

As a result of coordination with the OAHP, the resource information for the Denver and Rio Grande Western Railroad was re-sorted by county and features are listed with each county's site number. Features designated as bridges or trestles have been given their own site numbers as contributing features to the railroad segment in which they are located. Site forms and re-evaluation forms were compiled by Western Cultural Resource Management in 2002.

11.2.2 Forty-four Project Corridor Sites. As the result of various surveys and studies performed for associated projects by CDOT, WCRM, Pitkin County and others, 44 sites have been identified in the general Project Corridor. These sites may or may not be in the Area of Potential Effect (APE). The following discussion presents a definition of the APE, the discernment of sites located within the APE, and the eligibility status of these sites.

11.3 Resources within Area of Potential Effect (APE)

11.3.1 APE Definition. An Area of Potential Effect is not based on the knowledge that any cultural resources exist within the area, but rather an area where the project may cause changes to land or structures, or to their uses, whether beneficial or adverse, direct or indirect. For the current project, the APE has been defined as generally 30 meters (100 feet) on either side of RFTA or Highway 82 right-of-way. The following barriers may modify this definition: Roaring Fork River, the railroad grade, Highway 82 roadway or associated roadways. The project will not result in any permanent disturbance beyond Highway 82 or RFTA right-of-way. Noise and vibrational impacts may affect some resources.

No known historic resources have been reported within conceptual new station locations. Potential resources in proximity to conceptual station locations are noted in a brief discussion at the end of this section.

11.3.2 Sixteen Sites Outside of APE. Of the 44 sites identified, 16 have been determined to be outside the APE based on the definition noted above. The sites noted in Table III-33 have been determined to be outside the APE. These sites will not undergo further discussion in this document.

Table III-33
Cultural Resource Sites Outside the Area of Potential Effect

Site Number	Site Name/Location	NRHP Status
5GF398	Log House	Not Evaluated
5GF469/5PT324	Jerome Park Branch/Colorado Midland Railroad	Officially Eligible
5GF1356	Old Town Jail (S. 2nd & Main - Moved to 8th and Highway 133, Carbondale)	Not Evaluated
5GF2363	Sumers Lodge (1200 Mountain Dr., Glenwood Springs)	Listed
5EA56	Prehistoric Lithic Scatter	Not Evaluated
5EA58	Prehistoric Lithic Scatter	Not Evaluated
5EA64	Wagon Road	Not Evaluated
5EA659	Hook's Crossing (Bridge)	Not Evaluated
5EA660	Basalt- Town of	Not Evaluated
5PT475	Roadhouse on Aspen-Basalt Stage Road	Officially Not Eligible
5PT503.1	Woody Creek Toll Road	Officially Not Eligible
5PT617.1	Walthen Ditch	Officially Eligible
5PT617.2	Walthen Ditch Lateral	Officially Not Eligible
5PT822	Swan's Snowmass Cottages/Emma Bradshaw Ranch (26801 Highway 82, Snowmass)	Not Evaluated
5PT823	Emma Bradshaw Property (26625 Highway 82, Snowmass)	Not Eligible
5PT500	Rathbone, Town of - exact location unknown, NE of Aspen Airport - no standing structures	Not Evaluated

11.3.3 Twenty-eight Sites within the APE. Of the 44 sites identified, 28 have been determined to be within the APE for this project. Table III-34 lists sites located within the APE as well as their eligibility status.

Table III-34
Cultural Resource Sites within the Project Area of Potential Effect

Site Number	Site Name/Location	NRHP Status
5EA198/5GF1661/ 5PT123	D&RGW Railroad	Officially Eligible
5GF1167	Hardwick Bridge	Officially Eligible
5GF1282	Satank Bridge	Listed
5GF1457	Glenwood Ditch	Officially Not Eligible
5GF2129	White River Natl. Forest Supervisor's Warehouse (1101 School Street, Glenwood Springs	Officially Not Eligible
5GF2698	Railroad Support Facilities Ruin	Officially Not Eligible
5GF2818	Sanders Ranch	Officially Not Eligible
5PT27	Emma School	Officially Eligible
5PT57	Wheatley School	Officially Eligible
5PT113	Aspen Commercial Historic District (Certified Local Historic District)	Listed
5PT323	Emma Historic District	Officially Eligible
5PT471	A.B. Foster Ranch	Officially Eligible
5PT472	Ten Mile Stage Station	Officially Not Eligible
5PT474	Woody Creek School	Officially Not Eligible
5PT476	Woody Creek RR Siding	Officially Not Eligible
5PT477	Watson's Siding; Farmer's Alliance Hall	Officially Not Eligible
5PT504	Aspen to Basalt Stage Road	Officially Not Eligible
5PT542	Colorado Midland Railroad	Officially Eligible
5PT594.1	Segment of Alexis-Arbany Ditch	Officially Not Eligible
5PT612	Three Stone Cairns/ Magazines	Officially Not Eligible
5PT630	Potato Cellar	Officially Not Eligible
5PT632.1	Grace An Shehi Ditch	Officially Not Eligible
5PT787	Philip/Ould/Gerbaz Ranch (1776 Emma Road, Basalt)	Officially Not Eligible
5PT792	Mather Residence (Emma Road, Basalt)	Officially Eligible
5PT851	Wingo Trestle; Bridge 384A (Hwy 82 and Hoaglund Ranch Road)	Officially Eligible
5PT864	Phillips Residence / Joseph Diemoz Homestead-3558 Lower River Rd, Snowmass	Officially Not Eligible
5PT875	Cozy Point Ranch / True Smith Homestead (34700 Highway 82, Snowmass)	Officially Not Eligible
5PT876	Aspen Valley Vet Hospital / Orest A. Gerbaz Residence (30875 Highway 82, Snowmass)	Officially Not Eligible

An abbreviated description of each resource located within the APE is as follows:

Denver and Rio Grande Western Railroad (5EA198/5GF1661/5PT123). The D&RGW railroad has been recorded in all three counties. The Eagle County segment was originally recorded by Fredric Athearn of the BLM in 1971 (Athearn, 1994). It was reevaluated by Metcalf Archaeological Consultants (*Holland Hills to Old Snowmass Trail T8S,R86W, Section 21, Pitkin County, Colorado Class III Cultural Resource Inventory,* Spath, 1993) and determined eligible in 1994. Kim Gambrill of the CDOH recorded the railroad in Garfield County. This segment was not evaluated with regard to the NRHP. The Pitkin County portion of the railroad was originally recorded by Sally Pearce of

the CDOH (1989) during the Basalt to Aspen Project. This segment was determined eligible in 1988. The D&RGW was re-evaluated by WCRM (Chambellan and Mehls, 2000a) and 226 features were recorded within the Project Corridor.

Table III-35
Contributing Sites to the D&RGW Railroad

D&RGW RR Segment	Features	Bridges and Trestles
Garfield County: 5GF1661	F-1 to F-137	5GF3005 (F-9) 5GF3006 (F-14) 5GF3011 (F-63) 5GF3012 (F-87)
Eagle County: 5EA198	F-138 to F-156	
Pitkin County: 5PT123	F-157 to F-226	5PT1084 (F-158)

As a result of coordination with the OAHP, re-evaluation site forms have been completed for each county's railroad segment within the Project Corridor. Features have been listed as associated with the appropriate segment. Individual site numbers have been given to bridges and trestles associated with the D&RGW Railroad as contributing elements. A total of five additional bridges or trestles have been evaluated, and their sites are summarized in Table III-35 and in text below. Concurrence on the eligibility status of these bridges was requested and received from the State Historic Preservation Officer (SHPO) in January, 2003. Irrigation ditches that parallel the corridor have been deleted from the list of features. Structures that carry irrigation ditches under the railroad have been retained as railroad features.

- **5GF3005, Bridge.** The bridge was recorded as Feature 9 of the D&RGW (5EA198/ 5GF5GF1661/5PT123) by WCRM (March 24, 2000). This is a four-span steel-beam railroad bridge over the Roaring Fork River near downtown Glenwood Springs. Its estimated date of construction is sometime after 1890, when the narrow-gauge railroad converted to standard gauge. The bridge was build as part of the D&RGW RR, Aspen Branch line. Although the bridge lacks the engineering qualities to be considered eligible to the NRHP, it is officially eligible under Criterion A for its association with the railroad.

- **5GF3006, Bridge.** The bridge was recorded as Feature 14 of the D&RGW (5EA198/ 5GF5GF1661/5PT123) by WCRM (March 24, 2000). This is a single-span steel-beam railroad bridge over West 7th Avenue in downtown Glenwood Springs. The bridge is officially eligible to the NRHP under Criterion A for its association with the railroad.

- **5GF3011,Trestle.** The trestle was recorded as Feature 63 of the D&RGW (5EA198/ 5GF5GF1661/5PT123) by WCRM (March 24, 2000). This is a framed, bent wooden railroad trestle over Cattle Creek, built sometime after 1890. The bridge is officially eligible to the NRHP under Criterion A for its association with the railroad.

- **5GF3012, Bridge.** The bridge was recorded as Feature 87 of the D&RGW (5EA198/ 5GF5GF1661/5PT123) by WCRM (March 24, 2000). This single-span Pratt Truss-deck bridge, with trestle approaches at both ends was built sometime after 1890, and is located just outside of Carbondale. The bridge is officially eligible to the NRHP under Criterion A for its association with the railroad.

- **5PT1084, Trestle.** The trestle was recorded as Feature 158 of the D&RGW (5EA198/ 5GF5GF1661/5PT123) by WCRM (March 24,2000). This structure, built sometime after 1890,

is a pile-bent wooden trestle of three bents that crosses over Sopris Creek. The bridge is officially eligible to the NRHP under Criterion A for its association with the railroad.

Hardwick Bridge (5GF1167). The bridge and one acre surrounding it were surveyed in 1983 by Rebecca Herbst of the Colorado Department of Highways. The original (no date given) structure was destroyed when an excessive number of cattle were driven over it. Subsequently, a new bridge was constructed by the Monarch Engineering Company in 1923 to serve as a vehicular bridge. It is one of the earliest constructed rigid Pratt through truss bridges; however, it was not evaluated as significant because this construction style was not unique. The bridge was determined not eligible on November 15, 1983. It has since been re-evaluated by Fraser Design in 2000 as part of the Colorado Bridge Survey and is officially eligible.

Satank Bridge (5GF1282). This bridge was recorded by Clayton Fraser and Susan Cason of Fraser Design during a survey of Colorado bridges conducted by the Colorado Department of Highways (1983). The timber/steel Pratt through truss bridge was constructed by the Pueblo Bridge Company in 1900. It is one of the older roadway trusses in Colorado and the only remaining timber Pratt through truss in public use in the state. It was listed on the NRHP on February 4, 1985 and represents a significant vehicular bridge of the late 19th and early 20th centuries.

Glenwood Ditch (5GF1457). The Glenwood Ditch was recorded by Bill Kight of the BLM in 1988 during a Class III survey of the four-hectare (one acre) Kinlaw Right-of-Way. It was avoided by the right-of-way, and a determination of eligibility was not made. The purpose of the ditch was to supply water to the town of Glenwood Springs. Construction on the ditch began on November 18, 1900, and the ditch was filed on March 7, 1901. It was 1.8 meters wide (six feet) wide at the bottom and 2.4 meters (eight feet) wide at the high water mark and had a depth of .six meters (two feet). Due to modern impacts, abandonment, and poor physical integrity, this resource was found officially not eligible in 2001.

White River Supervisor's Warehouse (5GF2129). This building is the White River National Forest's Supervisor's Warehouse. It is located at 1101 School Street in Glenwood Springs, Colorado. It is a one-story structure, rectangular in plan view with a hipped roof, dormer, and chimney. The original architect was the United States Army and dates of use are between 1948 and 1951. The building has been moved and is currently used for storage. It was recorded by the National Park Service in 1993 and officially not eligible.

Railroad Support Facilities Ruin (5GF2698). This site was recorded by WCRM (Chambellan and Mehls 2000a) during a survey for the current Rail Corridor CIS. The site contains building vestiges and other constructed features, pits, depressions, waste piles, an excavated feature, and a debris scatter. The feature and debris are distributed across the top of the stream terrace. Features include three masonry building vestiges, six constructed features, five depressions or pits, three waste byproduct dumps, the remains of a coal stockpile and a filled trench. Debris on the site include glass, metal, food cans, wood, and some leather items. It was found officially not eligible, lacking architectural and archaeological integrity.

Sanders Ranch (5GF2818). The main house is in poor condition overall and has undergone some apparent alterations. This ranch complex and the surrounding lands are significant for their association with the history of the settlement and development of farming and ranching within the Roaring Fork Valley. As a cultural landscape, the property is representative of, and associated with, the farming and ranching activities that have continued unabated in this area since the early 1880s.

The structures that comprise the Sanders Ranch, with the exception of the main house, are less than 50 years old. While the complex may be of local or state-wide significance, in its entirety, it lacks the necessary integrity of location, materials, and association that would make the property eligible for inclusion in the NRHP. This resource was officially determined not eligible in 2001.

Emma School (5PT27). This one-story rectangular frame school was originally noted in the OAHP files in 1977; no evaluation was made. It is estimated that the building was constructed sometime around 1900 and served as a focus of community events for local ranching families. It is associated with the history of education in the rural communities of Colorado and represents rural schools of the early 20th century. It has been re-evaluated in the 1999-2000 Pitkin County Historic Buildings Survey as eligible to the NRHP. The SHPO concurred with this finding and determined that the school was officially eligible in 2003.

Wheatley School (5PT57). Originally, the school was a one-room schoolhouse built of brick before 1920. Its dimensions are 7.3 meters by 4.8 meters (24 feet by 16 feet). It is currently used as a residence and has been substantially modified. The school was originally recorded by Dykeman (1974) and was subsequently reevaluated by Metcalf Archaeological Consultants (MAC) in 1996 during a survey for the Holy Cross Basalt to Aspen 115kV Rebuild Project and WCRM (Chambellan and Mehls 2000b) during the historic resources survey of the Lower River Road detour. Both MAC and WCRM concurred with the original official determination of not eligible in 1988. In 2000 the Wheatley School was reevaluated by a Pitkin County Historic Buildings Survey. Pitkin County recommended the school as potentially eligible for its association with a multiple property submission for rural schools, although alterations have compromised its integrity. This property was determined officially eligible to the NRHP in 2001.

Aspen Commercial Core Historic District (5PT113). The district was originally recorded in 1980 by the Pitkin County Planning and Zoning Office. It consists of a number of buildings located within the zone defined by Durant Avenue on the south, Hunter Street on the East, Main Street on the north, and Monarch Street on the west. At the time of the *Entrance to Aspen FEIS* and *ROD,* this district was inadvertently listed as a local district only. This district became a National Park Service Certified District in 1984 and is considered eligible to the NRHP. It is within the APE for this project.

Emma Historic District (5PT323). Emma was established as a railroad section stop and was reportedly named after Mrs. Emma Robinson Shehi, who cooked for railroad crews. Charles Mather was a postmaster at Emma who also operated a successful general store. The district was recorded by the Department of Highways in 1976 and officially determined eligible in 1977. It consists of the Mather Buildings, mercantile stores, a warehouse, residences, and outbuildings.

A. B. Foster Ranch (5PT471). Arthur Bertram Foster settled on the land that was to become his ranch in 1882. The house was built in 1887 when railroads were introduced into the Roaring Fork Valley. After living there for 12 years, he sold the ranch to Jeremie J. Gerbaz, an immigrant from Italy. Besides ranching activities, Gerbaz was politically active serving as a school board member, constable and Pitkin County Commissioner. He died in 1947 and his sons took over operation of the ranch until it was sold in 1955. The house is significant for its association with Arthur B. Foster and Jeremie J. Gerbaz, two pioneer ranchers and influential citizens of Pitkin County. It is also a well preserved example of the late Victorian architecture popular among successful ranchers in the Roaring Fork Valley. It was officially determined eligible in 1988. A subsequent reevaluation of the ranch was conducted by WCRM (Chambellan and Mehls 2000b) during the Lower River Road

detour study and again with the Pitkin County Historic Buildings Survey of 1999-2000. The recent evaluations concur with the existing eligibility determination.

Ten Mile State Station (5PT472). This station was reported by Ruth L. Mularz of Aspen; however, it was never officially recorded. It was built in the 1880s by A.B. Foster who also ran it, and it was torn down after 1887 with the arrival of the railroad line. The Colorado SHPO determined the station not eligible in July of 1988.

Woody Creek School (5PT474). The school was noted by Ruth L. Mularz of Aspen and like 5PT472, was never officially recorded. It was built in the 1880s and used until 1947. The Colorado SHPO determined the school not eligible in 1988. Re-evaluation of this site in 2002 by WCRM revealed that the schoolhouse no longer exists.

Woody Creek Railroad Siding (5PT476). The siding was originally reported by Ruth L. Mularz of Aspen, but was not officially recorded. It is likely the siding was utilized from 1887 to the mid-20th century during the operating period of the D&RGW. Re-evaluation by MAC (Spath et. al. 1996) found the integrity of the site to be poor. The water tank, the central focus of the site, had been removed and all that remained was scattered railroad debris. It was officially determined not eligible to the NRHP in 1988. WCRM re-evaluated this property in 2000 and the eligibility status has not changed.

Watson's Siding/Farmer's Alliance Hall (5PT477). This site was recorded by MAC (Spath et. al. 1996:13) and was the original location of the Farmers' Alliance Hall at the Colorado Midland Railroad Siding of Watson. The hall was built in 1891; however, the exact location of the original building is unknown. It likely existed from 1891 to 1960, the date of the original site inventory form. No evidence of a structure could be found by MAC. Materials found on the surface consisted of historically late railroad-related debris. The hall was officially determined not eligible in 1988.

Aspen to Basalt Stage Road (5PT504). The stage road was reported by Ruth L. Mularz of Aspen; however, it was never recorded. It was used from 1880/1881 to 1887 when the railroad arrived. The site was determined not eligible in 1988. This property was reevaluated in 2000 by WCRM and continues to be considered ineligible for the NRHP.

Colorado Midland Railroad (5PT542). The Colorado Midland Railroad was recorded by the Colorado Department of Highways (1989) for an EIS. Proposed construction involved the widening of the highway to four lanes for a 27.3 kilometer (17 mile) segment between Basalt and Aspen. The grade occupies the current route of Highway 82 and was built in 1883. It was determined eligible in 1988; it was the first standard gauge railroad to penetrate the Rockies, it was associated with Jerome Wheeler, and it was associated with early railroad history in Colorado. The Highway 82 Entrance to Aspen Preferred Alternative will take 0.23 hectares (0.57 acres). The SHPO determined No Adverse Effect for the site for the previous Highway 82 Entrance to Aspen LRT project.

Segment of the Alexis-Arbaney Ditch (5PT594.1). The ditch was recorded by MAC on the north side of the Roaring Fork River (Spath et al. 1996) and was officially determined not eligible in 1993. It has been used from 1897 to the present and varies from .6 to 1.5 meters (two to five feet) in width. This ditch does not cross under the D&RGW RR (RFTA right-of-way). Re-evaluation by WCRM in 2002 was not possible due to lack of access onto private property. The original finding of ineligibility continues to apply to this site.

Three Stone Cairns/Magazines (5PT612). The cairns were recorded in 1996 by MAC during a Class III inventory for the Holy Cross Basalt to Aspen 115kV Rebuild Project. They are located along the base of a south-facing hill slope on a flat terrace above the Roaring Fork River. They are circular and approximately two meters high. Materials include course rounded lichen covered boulders of granite and red sandstone. The cultural affiliation and age of the cairns could not be determined. The site was officially determined not eligible by the Colorado SHPO in 1997.

Potato Cellar (5PT630). The cellar was recorded by MAC (Spath, 1996) measuring 7.6 by 4.6 meters (25 by 15 feet). The pole and timber portion of the building had collapsed, leaving the concrete façade in place. It is a common type of structure built in the 1940s and 1950s. It was officially determined not eligible on December 19, 1996.

Segment of the Grace An Shehi Ditch (5PT632.1). This segment of the ditch was recorded by MAC (Spath, 1996) during a Class III inventory of the Roaring Fork Club South Planned Development. The channel is about 2.5 meters wide and one meter deep (8.2 feet wide and 3.2 feet deep). The first appropriation for the ditch was filed in April of 1886, and it subsequently played an important role in the development of this portion of the Roaring Fork Valley. However, this segment was officially determined not eligible in 1996.

Philip/Ould/Gerbaz Ranch (5PT787). This resource consists of a main house and associated agricultural buildings including a garage, sheds, a metal shop, a chicken coop, a blacksmith shop and a grave. Some modifications have occurred over time. A barn, school and potato cellar have been torn down and a Tuff Shed was added in 1987. Research by the current owners found that at the time of the 1910 Census the family of W. D. Philip lived on the property. The original house was located by the creek and possibly used in the past as a chicken coop. A subsequent owner, Ould, also lived at the site before 1920. After 1920, the son of Ernest Gerbaz, Orest E. Gerbaz, lived in the house and farmed the land. He sold the house to the current owners, John and Elizabeth Gredig. The ranch was recorded and evaluated during a survey of historic buildings by Pitkin County in 1999. Although the ranch is associated with the history of agriculture in Pitkin County, it has been altered by the removal of some historic outbuildings and structural modifications. Pitkin County recommended the ranch field not eligible for inclusion in the NRHP. The SHPO concurred with this finding in 2003.

Mather Residence (5PT792). The Mather house is a two-story painted brick building constructed in 1898 by Charles H. Mather. Mather was the second man to become the Emma postmaster. He also operated a general store and was a businessman associated with the history of Emma and the settlement of Pitkin County. The house is one of the more architecturally sophisticated 19th century buildings in the area. It was recorded and evaluated by the Historic Buildings Survey sponsored by Pitkin County from 1999-2000. The Mather Residence was determined officially eligible in 2003. Note: the Mather Residence is included in the Emma Historic District (5PT323).

Wingo Trestle (Bridge 384A - 5PT851). The Wingo Trestle is a deck truss 77 meter (222-foot) railroad bridge carrying one standard gauge track across the Roaring Fork River. The D&RGW constructed the Aspen Branch in 1887, and the current bridge was installed in 1917. The bridge was fabricated from parts of structures originally located on other parts of the D&RGW system. The bridge was recorded as Feature 178 of the D&RGW (5EA198/5GF5GF1661/5PT123) by WCRM (Chambellan and Mehls 2000a) for the current CIS. It was subsequently recorded and evaluated as a site by the Historic Buildings Survey sponsored by Pitkin County in 2000. As part of the D&RGW system, which was determined eligible in 1988, the trestle is a contributing element. Pitkin County

recommended that the bridge is eligible for inclusion in the NRHP. The SHPO concurred in this finding in May 2002.

Phillips Residence / Joseph Diemoz Homestead (5PT864). This historic structure is a large log house, which has been built in several phases and has associated outbuildings. Its estimated construction date is the 1930s. The original house was one story and an addition to the rear is two stories. A series of bottles has been incorporated into the wall mortar that separates the first and second stories of this addition. Outbuildings include three large and two small sheds. This property was homesteaded by Joseph Diemoz, who filed his application in 1914. The homestead was subsequently purchased by Ellamae and Concer Phillips, who added on to the cabin several times. It was Ms. Phillips' idea to use bottles in the wall in place of glass blocks. The house is representative of the log construction popular in Colorado during this time period. It is neither unique nor associated with significant individuals in history. The homestead was recorded as a part of the 1999-2000 Pitkin County Historic Buildings Survey and was re-evaluated by WCRM as a part of a historic resources survey for the Lower River Road detour in 2000 (Chambellan and Mehls 2000b). Both Pitkin County and WCRM recommended the site as not eligible. The SHPO concurred with these findings in 2003.

Cozy Point Ranch/True Smith Homestead (5PT875). This complex includes two historic frame houses and a historic barn and a modern arena with stalls, sheds, and outbuildings. The houses have been extensively altered, while the barn has only been slightly modified. The land was homesteaded by True A. Smith who settled it in 1885. One house is estimated to have been built around 1900, while the other was most likely constructed in the 1930s. Because the railroad stop at Shale Bluffs nearby was called "Cozy Point," the ranch was also known as the Cozy Point Ranch. The homestead was recorded and evaluated by the Historic Buildings Survey sponsored by Pitkin County from 1999 to 2000. The barn is the only historic structure on the homestead/ranch with any historic integrity. As a result, this cultural resource was recommended not eligible for inclusion in the NRHP. The SHPO concurred with these findings and determined that the site was officially not eligible in 2003.

Aspen Valley Vet Hospital/Orest A. Gerbaz Residence (5PT876). This resource consists of a one and one-half story rectangular frame structure built in 1932 by Orest A. Gerbaz. The property was homesteaded by Harvey W. Boyce in 1885 and subsequently purchased by Gerbaz. Although the Pioneer Farmers' Sub Alliance Hall/Watson Hall/Gerbazdale Hall had been originally located on the property, the building was split into two sections and moved in 1965. The homestead was recorded and evaluated by the Historic Buildings Survey sponsored by Pitkin County from 1999 to 2000. The house is a bungalow style commonly used at the time of its construction. The resource is not unique and is not associated with significant events and individuals. Pitkin County recommended this site as not eligible to the NRHP in its 1999-2000 survey. The SHPO concurred with this finding and determined that the site was officially not eligible in 2003.

Miscellaneous Archaeological Resources. During October of 1998, WCRM conducted an intensive pedestrian inventory of approximately 19.4 hectares (48 acres). The project area was defined by a corridor of 24 to 30 meters (80 to 100 feet) wide and 66.5 kilometers (41.3 miles) in length along either side of the existing D&RGW railroad tracks and extending west of Glenwood Springs to approximately 4.8 kilometers (three miles) northwest of Aspen. No prehistoric cultural resources were recorded. This inventory recorded three historic period archaeological sites (5EA1560, 5GF2698, 5PT710); however, none were deemed to be significant or eligible for inclusion in the NRHP. Fifteen isolated historical artifacts were recorded during the survey and are considered

archaeological in nature (Chambellan and Mehls, 2000a). Isolated finds, by definition, are not considered eligible to the NRHP.

11.3.4 Historic Resources Located in Close Proximity to the Proposed Station Locations. No known historic resources have been reported within the proposed station locations. Class 1 file searches have been completed and updated for the station locations. These searches revealed that historic resources have not been previously recorded at the proposed station locations. Since no resources are located within the station footprints, no further work is necessary. A Class III pedestrian survey of the station locations will need to be completed prior to completion of design plans for stations.

11.3.5 Native American Consultation. As mandated by Section 106 of the National Historic Preservation Act (as amended) and the revised Advisory Council on Historic Preservation regulations (36 CFR 800), in October 2002 four federally recognized Native American tribes with an established interest in Eagle, Garfield, and/or Pitkin Counties were notified of the project and invited to participate in cultural resources consultation. The tribes contacted included the Ute Mountain Ute Tribe, Southern Ute Indian Tribe, Ute Tribe of the Uintah and Ouray Agency (often known as the Northern Ute Tribe), and the White Mesa Ute Tribe.

Consultation with Native American tribes recognizes the government-to-government relationship between the federal government and tribal groups, and federal agencies must be sensitive to the fact that historic properties of religious and cultural significance to one or more tribes may be located on ancestral, aboriginal, or ceded lands beyond modern reservation boundaries.

The Southern Ute and Northern Ute Tribes indicated via U.S. Mail their desire to be considered consulting parties for the project under the terms and conditions set forth in Section 106 of the NHPA. See Appendix A for more information.

12. Paleontological Resources

A review of the paleontological resource potential in the Project Corridor was conducted as part of this document preparation. The potential for paleontological resources is subjectively determined by

1. the presence of fossil material recorded in the literature for this area,
2. the presence of fossils elsewhere within a stratigraphic unit mapped or recorded as present within the project area, and
3. the favorability of a stratigraphic unit to contain fossil material based on its assumed depositional environment.

The geologic maps of the Project Corridor show the route primarily runs through various Quaternary alluvial deposits. It also crosses sedimentary rocks of the Paleozoic, Eagle Valley Evaporite, Eagle Valley and Maroon Formations, late Paleozoic and early Mesozoic State Bridge Formation, and additionally the Mesozoic Chinle Formation, Morrison Formation, Burro Canyon Formation, Dakota Sandstone, Mancos Shale, and some exposures of questionable unnamed Miocene sedimentary deposits.

The significance of an area or resource is subjectively judged on the following criteria:

1. the kind of fossil material (all vertebrate fossils are said to have significance),
2. the uniqueness of the resource (the type area of a particular species), and
3. an assemblage of fossils which have particular value due to their joint presence.

These several factors, taken separately or in concert, determine if any area will be "sensitive" to planned disturbance, and if so, what can be done to mitigate that sensitivity.

In addition to a literature search at the Colorado School of Mines Library and a search of the collections at the Denver Museum of Natural History, a pedestrian survey of the proposed routes was completed.

Only two fossil localities were identified within the Project Corridor. The first is a Pennsylvanian-aged paleobotanical resource on the U.S. Geological Survey Cattle Creek 7.5 foot quadrangle. It consists of a poorly-preserved plant stem impression of Calamites and its significance should be rated as low. The second paleontological resource was located on the U.S. Geological Survey Woody Creek 7.5 foot quadrangle. There were several poorly-preserved plant stem casts and impressions with carbonaceous residue in the Cretaceous aged Dakota Sandstone and its significance should be rated as low. The coarse-grained nature of the Dakota Sandstone in this area indicates low potential for significant terrestrial paleobotanical resources.

13. Section 4(f) and 6(f) Resources

Section 4(f) of the US Department of Transportation (DOT) Act (49 U.S.C. Section 303) permits the use of land for a transportation project from a significant publicly-owned park, recreational area, wildlife or waterfowl refuge, or any significant historic site only when it has been determined that:

1. There is no feasible and prudent alternative to using that land, and
2. The project includes all possible planning to minimize harm to the property resulting from the use.

Section 6(f) resources are lands purchased with funding from the Land and Water Conservation Fund Act of 1965. No such properties have been identified adjacent to the existing or within proposed project rights-of-way.

Table III-36 outlines Section 4(f) resources found in the Project Corridor. Resources include open space, trails, and cultural resources. Resources and impacts for the area covered in the *Entrance to Aspen ROD* that overlap with this project are summarized for informational purposes only. No additional impacts are expected from the current project.

Table III-36
Section 4(f) Resources

Resource Type	Resource Location
Parks, Recreation Areas, Wildlife or Waterfowl Refuges	
Mt. Sopris Tree Farm Community Center and Recreation Area	W. Glenwood to Pitkin Co Airport
Zoline Open Space	Entrance to Aspen Project
Aspen Golf Course	Entrance to Aspen Project
Moore Open Space	Entrance to Aspen Project
Marolt-Thomas Open Space	Entrance to Aspen Project
Trail Crossings	
Miscellaneous Crossings - 16 trails	W. Glenwood to Pitkin Co Airport
Aspen Trail System	Entrance to Aspen Project
Cultural Resources (only those eligible for or on NRHP)	
D&RGW RR (5EA198/5GF1661/5PT123)	W. Glenwood to Pitkin Co Airport
Hardwick Bridge (5GF1167)	W. Glenwood to Pitkin Co Airport
Satank Bridge (5GF1282)	W. Glenwood to Pitkin Co Airport
Emma School (5PT27)	W. Glenwood to Pitkin Co Airport
Wheatley School (5PT57)	W. Glenwood to Pitkin Co Airport
Aspen Commercial Historic District (5PT113)	Both Projects
Emma Historic District (5PT323)	W. Glenwood to Pitkin Co Airport
A.B. Foster Ranch (5PT471)	W. Glenwood to Pitkin Co Airport
Colorado Midland Railroad (5PT542)	Entrance to Aspen Project
Mather Residence (5PT792)	W. Glenwood to Pitkin Co Airport
Wingo Trestle; Bridge 384A (5PT851)	W. Glenwood to Pitkin Co Airport
Maroon Creek Bridge	Entrance to Aspen Project
Holden Smelting & Milling Complex	Entrance to Aspen Project
Castle Creek Power Plant	Entrance to Aspen Project
920 West Hallam St.	Entrance to Aspen Project
Berger Cabin	Entrance to Aspen Project
Smith/Elisha House	Entrance to Aspen Project
Thomas Hynes House	Entrance to Aspen Project

14. Farmlands

U.S. Congressional Public Law 95-87 (Federal Register January 31, 1978: Part 657) requires the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) to identify and locate Prime and Unique Farmlands (*Important Farmland Inventory – Colorado* SCS, 1982). In addition to Prime and Unique Farmlands, the important farmland program encourages the identification of farmland of state-wide and local importance. Farmlands of state-wide importance, while not protected by law, should be given special consideration when planning and evaluating agricultural resources (SCS, 1982).

The *Important Farmland Inventory* concluded that "no soils" in Pitkin, Garfield, or Eagle County are classified as "Prime" because cold temperatures limit the growing season. Prime farmlands are considered to be of national importance, and have been defined as being land with the best combination of physical and chemical characteristics for producing feed, forage, fiber, and oilseed

crops, and is available for these uses. Colorado has imposed additional requirements to the National Criteria for prime farmlands (SCS, 1982).

The NRCS (SCS, 1982) identified only two areas in Colorado which satisfy the unique farmland criteria, neither of which is in the Roaring Fork Valley. Unique farmlands are defined as land other than prime farmland that is used for the production of specific high value crops.

Farmlands of state-wide importance in Colorado are defined by land use as:

- irrigated lands that produce specific crops of special significance to the local economy,
- irrigated land – water supply inadequate, and
- high potential dry cropland (SCS, 1982).

Within the Project Corridor, the majority of state-wide important farmland is irrigated hay meadows, found near Basalt. **Appendix A** includes coordination with the NRCS.

15. Noise and Ground-Borne Vibration

The noise analyses conducted for this project follow guidelines from the US Department of Transportation (USDOT), the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA) as follows. Construction related noise and vibration impacts follow USDOT guidelines. The rail related noise analysis follows guidelines published by the Federal Transit Administration in their document *FTA Manual for Transit Noise and Vibration Impact Assessment* (FTA,1995).

FHWA Highway Noise Criteria are applicable to Highway 82 for this analysis. Although BRT and bus routes presented will utilize Highway 82, no physical improvements are proposed for the roadway as part of this project. As a result of the lack of physical improvements to Highway 82, FHWA noise regulations will not apply in conjunction with the proposed BRT alternative discussed in this document. Furthermore, Highway 82 already operates at a level of service that represents the worst case for traffic noise, Level of Service (LOS) C; thus the impact of the roadway traffic noise is captured in the existing noise levels (both measured and calculated). The Rail Alternative will include some co-locations on Highway 82 right-of-way. These segments will follow FTA guidelines as noted above. Proposed transit stations fall under FTA guidance.

In accordance with the regulations: audible airborne noise and ground-borne vibration are considered and discussed in this study.

15.1 Background Information

15.1.1 Noise Characteristics. Noise levels are measured in units called decibels (dB). Since the human ear does not respond equally to all frequencies, measured sound levels are adjusted or weighted to correspond to the frequency response of human hearing and the human perception of loudness. The weighted sound level is expressed in single number units called A-weighted decibels (dBA) and is measured with a calibrated noise meter.

Traffic and other noises found in communities tend to fluctuate from moment to moment, depending on whether a noisy truck passes by, an airplane flies over, a horn blows, or children scream as they play in a nearby schoolyard. In order to measure this noise accurately it is common practice to

calculate an average noise produced by different activities over a period of time to obtain a single number. This single number is called the equivalent continuous noise level, or L_{eq}. Another noise measure, the day-night noise level (L_{dn}), takes into account the increased sensitivity of people to noise during sleeping hours. The L_{dn} is a 24-hour L_{eq}, but with a 10 dB penalty assessed to noise events occurring at night (10:00 p.m. to 7:00 a.m.).

Both L_{eq} and L_{dn} are used by the FTA in evaluating transit noise impacts. For transit operations, L_{eq} and L_{dn} are appropriate because these levels are sensitive to the frequency and duration of noise events.

15.1.2 Local Noise Ordinances. Local and county governments maintain ordinances regarding noise generated by construction activities which are relevant to the proposed project. Transportation operations noise, from roadway or rail, are not typically contained within local government ordinances.

Construction activities are restricted during night hours, either after 7 p.m. or after 10 p.m., typically until 7 a.m. the following morning, depending on location. Residential areas have more restrictions than commercial areas. Sundays and holidays have more stringent time restrictions.

Noise levels are also regulated by ordinance. For example, in Aspen and Pitkin County, it is a violation to operate any stationary source of sound in such a manner as to create a ninetieth-percentile sound pressure level (L90) of any measurement period (which shall be less than ten minutes unless otherwise provided in an ordinance) which exceeds the limits set forth for the following receiving land use districts when measured at the property boundary or at any point within the property affected by the noise. Table III-37 represents typical ordinance requirements based on Pitkin County and Aspen ordinances.

Table III-37
Example of Noise Level Ordinances By Land Use

Use District	Night (7 p.m. – 7 a.m.)	Day (7 a.m. – 7 p.m.)
Residential	50 dBA	55 dBA
Commercial	55 dBA	65 dBA
Industrial	55 dBA	65 dBA
Construction	70 dBA	80 dBA

15.2 Human Perception of Airborne Noise

The average individual's ability to perceive changes in noise levels is well documented. In general, changes in noise levels of less than 3 dBA will be barely perceived by most listeners. A 10 dBA change normally is perceived as a doubling of noise levels. Most noise acceptability criteria are based on the general principle that a change in noise level is likely to cause annoyance whenever it intrudes upon the existing ambient or background noise. Community noise levels in urban areas usually range between 45 dBA (the daytime level in a typical quiet living room) and 85 dBA (the approximate noise level near a sidewalk adjacent to heavy traffic). For reference and orientation to the decibel scale, representative environmental noises and their respective dBA levels are shown in Figure III-12.

15.3 Human Perception of Ground-Borne Vibration

Highway traffic does not generate ground-borne vibration levels that raise environmental concerns. With train systems, ground-borne vibration is created by the interaction of the steel wheels rolling on the steel rails. Although vibration is sometimes noticeable outdoors, it is almost exclusively an indoor problem. Although it is conceivable for ground-borne vibration from rail rapid transit trains to cause building damage, the vibration from trains is almost never of sufficient amplitude to cause even minor cosmetic damage to buildings. The primary concern is that the vibration from ground-borne noise can be intrusive and annoying to building occupants.

Velocity, a measure of the energy carried by vibration, is the preferred unit for assessing potential damage to buildings. Because of the general preference to use velocity as a measure of annoyance and building damage, vibration criteria and measured vibration data are presented in terms of vibration velocity levels. In order to compress the range of values required to describe vibration, vibration velocity levels are typically reported in decibels (VdB). VdB is the average vibration fluctuation over an hour. Train vibration velocity level is virtually always characterized in terms of the root-mean-square (RMS) amplitude. RMS is a widely used method of characterizing vibration, representing the average energy over a short time interval. Typically, a one-second interval is used to evaluate human response to vibration. RMS vibration velocity is considered the best available measure of potential human annoyance from ground-borne vibration. Common sources of vibration and their maximum velocity levels are shown in Figure III-13.

15.4 Basic Goals of Noise and Vibration Criteria

The basic goals of noise and vibration criteria for transit and highway projects are to minimize the adverse noise and vibration impacts on the community and to provide feasible and reasonable noise and vibration mitigation where necessary and appropriate. FHWA criteria are used to assess highway noise impacts. The FTA criteria used to assess the noise and vibration impacts from transit projects are based on land use category. Freight hauling in a typical situation is subject to Federal Railroad Administration (FRA) guidelines and not FHWA or FTA. The FRA does not have impact criteria, but rather considers noise and vibration levels at which equipment must operate.

15.5 Existing Noise Measurements

Existing ambient noise was monitored at 52 locations throughout the Project Corridor. Most of the monitoring locations were residential areas since that land use dominates the noise-sensitive receivers in the project area. The criteria for monitoring selection included land use, existing ambient noise, distance to a major road (Highway 82), number of sensitive receivers in the area, and the site's potential sensitivity to changes in the noise levels. Field measurements were conducted in accordance with the procedures described in *Sound Procedures for Measuring Highway Noise* (Report Number FHWA-DP-45-1R).

Concurrent with the noise measurements, notation was made of unusual noise events (sirens, barking dogs, aircraft, etc.). In addition all input parameters necessary to run the computer model were obtained. These parameters included distance from the center of the near travel lane to the receiver (where appropriate); width of the roadway; number of travel lanes; height of the receiver; barriers/buffers including trees, berms and structures; variations in terrain between the receiver and the source; and grade. Table III-38 provides information on the location of each measurement site and the recorded sound level.

Figure III-12
Common Noise Levels (all at 50 feet)

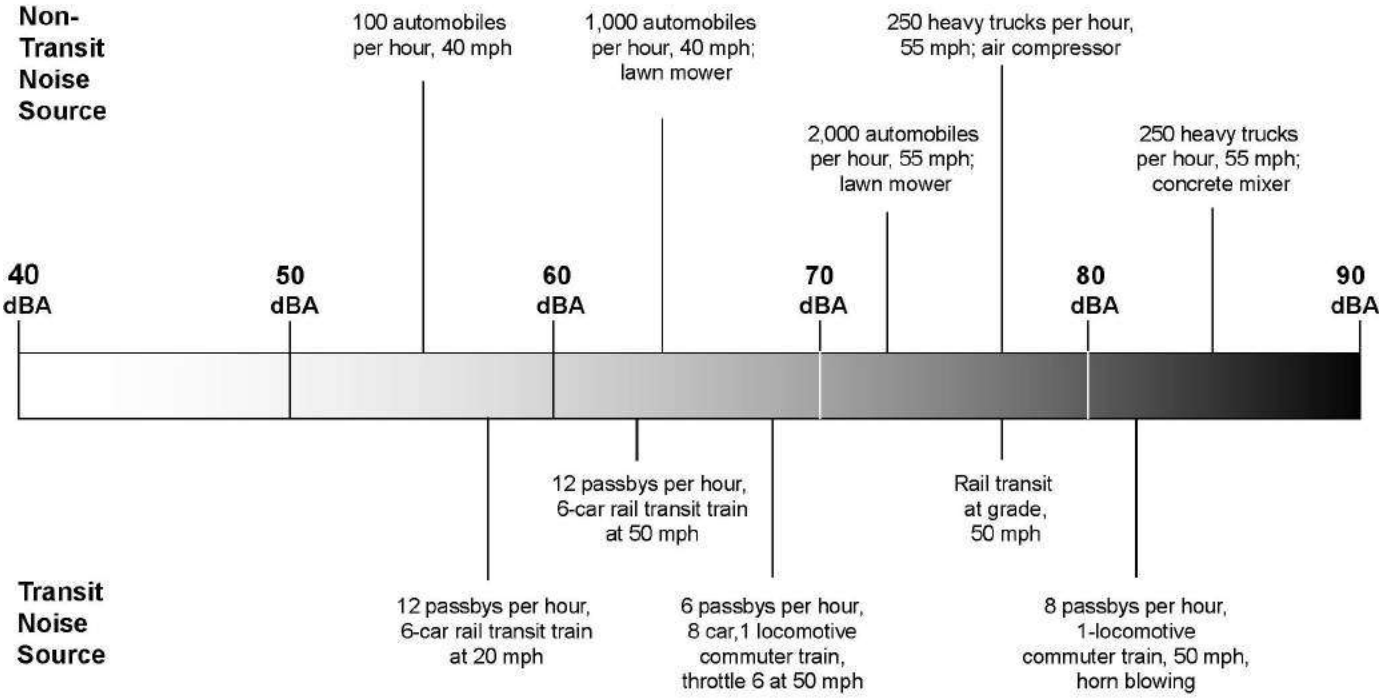
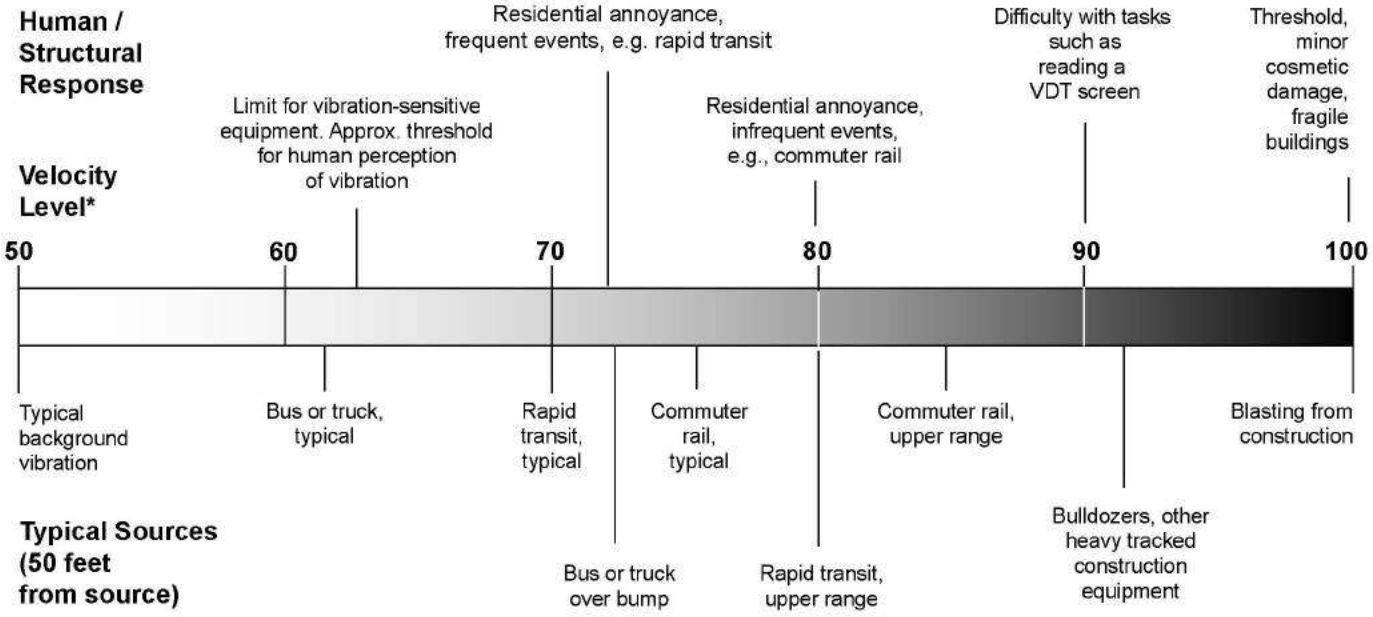


Figure III-13
Common Vibration Levels



** RMS vibration velocity level in VdB reltaive to 10 inches/second*

Table III-38
Summary of Noise Monitoring

Site	Description	Land Use	Date	Time	L_{eq}
1	Red Mountain Drive – Glenwood Springs	Residential	2/24/99	9:38 a.m.	46.8
2	Cowdin Ave. neighborhood adjacent to Roaring Fork River – Glenwood Springs	Residential	2/24/99	10:05 a.m.	49.5
3	Latson Court – Glenwood Springs	Residential	2/24/99	10:23 a.m.	46.5
4	Glenwood Springs Elementary School	Institutional	2/24/99	10:48 a.m.	52.4
5	Glenwood Springs High School	Institutional	2/24/99	11:11 a.m.	55.9
6	Park Drive neighborhood – Glenwood Springs	Residential	2/24/99	11:30 a.m .	48.8
7	Mobile Home Park adjacent to Highway 82 at Grand Ave. cutoff – Glenwood Springs	Residential	2/24/99	11:46 a.m.	66.9
8	Apartments on Blake Ave. – Glenwood Springs	Residential	2/24/99	12:04 p.m.	60.2
9	Neighborhood on Sopris Rd. – Glenwood Springs	Residential	2/24/99	12:25 p.m.	54.3
10	Midland Ave. near 27th St. Bridge – Glenwood Springs	Residential	2/24/99	12:45 p.m.	66.8
11	Riverside Cottages Motel – South Glenwood Springs	Motel	2/24/99	1:34 p.m.	48.2
12	Residential area adjacent to S.H. 82 – South Glenwood Springs	Residential	2/24/99	1:56 p.m.	60.7
13	Mobile Home Park (unnamed) 220 feet from Highway 82	Residential	2/24/99	2:14 p.m.	56.6
14	Residential Subdivision southwest of Roaring Fork River between Glenwood Springs and Carbondale	Residential	2/24/99	2:35 p.m.	54.9
15	Apartments on South Grand Avenue between Glenwood Springs and Carbondale	Residential/ Commercial	2/25/99	8:10 a.m.	52.9
16	Mobile Homes adjacent to RFTA ROW north of Carbondale	Residential	2/25/99	8:23 a.m.	45.3
17	Mountain Meadows Court Mobile Homes adjacent to S.H. 82 north of Carbondale	Residential	2/25/99	8:48 a.m.	67.6
18	Farmhouse adjacent to RFTA ROW and S.H. 82 north of Carbondale	Residential	2/25/99	9:12 a.m.	50.5
19	Aspen Glen – behind berm adjacent to Highway 82	Residential	2/25/99	9:35 a.m.	45.8
20	Residential area near old Satank Bridge in Carbondale	Residential	2/25/99	9:53 a.m.	52.6
21	Sopris RV Park between S.H. 82 and RFTA right-of-way – Carbondale	Residential	2/25/99	10:20 a.m.	51.0
22	Carbondale Mobile Home Park immediately adjacent to RFTA ROW – Carbondale	Residential	2/25/99	10:35 a.m.	46.6
23	Multi-family residential off Village Road in Carbondale immediately adjacent to RFTA ROW	Residential	2/25/99	10:57 a.m.	44.5
24	Downtown Carbondale proposed station location near town hall	Mixed Use	2/25/99	11:15 a.m.	41.7
25	Residential area adjacent to CR 100 south of Carbondale	Residential	2/25/99	11:34 a.m.	46.6
26	CR 100 between St. Finnbar Farm and Blue Creek Ranch near Catherine Store	Residential/ Mixed Use	2/25/99	11:52 a.m.	60.2

Table III-38
Summary of Noise Monitoring

Site	Description	Land Use	Date	Time	L_{eq}
27	Residential area adjacent to Highway 82 just south of Catherine Store	Residential	2/25/99	1:22 p.m.	61.9
28	Dakota duplex subdivision - El Jebel	Residential	2/25/99	1:45 p.m.	64.5
29	Blue Lake subdivision - El Jebel	Residential	2/25/99	2:07 p.m.	66.3
30	Apartment complex near Tree Farm, behind 8 foot berm - El Jebel	Residential	2/25/99	2:25 p.m.	59.4
31	Quadraplex complex south of Pine Ridge off Two Rivers Road	Residential	2/25/99	2:43 p.m.	66.3
32	Adjacent to S.H. 82 just north of Basalt station location	Residential	2/25/99	3:05 p.m.	62.0
33	Basalt Mobile Home Park just south of Basalt station	Residential	2/25/99	3:19 p.m.	56.8
34	Holland Hills subdivision in church parking lot	Residential/ Institutional	2/25/99	3:44 p.m.	58.0
35	Lazy Glen Mobile Home Park	Residential	2/25/99	4:02 p.m.	57.0
36	Residence on Lower River Rd. across road from RFTA ROW	Residential	2/25/99	4:17 p.m.	69.2
37	Mobile Home cluster on Lower River Rd. across road from RFTA ROW	Residential	2/25/99	4:36 p.m.	54.5
38	Aspen Village mobile home park	Residential	2/25/99	4:55 p.m.	59.1
39	Residential area 40 feet below Highway 82 north of Brush Creek Rd.	Residential	2/11/99	12:40 p.m.	62.8
40	House adjacent to Highway 82 near Brush Creek Rd.	Residential	2/11/99	12:58 p.m.	66.6
A1	Inn at Aspen on Highway 82	Hotel	9/13/00	7:50 a.m.	59
A2	Kingdom Hall of Jehovah's Witnesses	Institutional	9/13/00	8:34 a.m.	54
A3	Aspen Chapel	Institutional	9/13/00	9:06 a.m.	52
A4	835 West Main Street, Aspen	Residential	9/13/00	2:45 p.m.	56
A5	Rusty's Hickory House Restaurant, Aspen	Hotel	9/13/00	5:20 p.m.	64
A6	627 West Main Street, Aspen	Residential	9/13/00	4:22 p.m.	69
A7	L'Auberge Lodge, 435 West Main, Aspen	Hotel	9/14/00	7:28 a.m.	72
A8	Tyrolean Lodge, 200 West Main, Aspen	Hotel	9/13/00	5:52 p.m.	69
			9/14/00	8:00 a.m.	70
A9	Molly Gibson Lodge, 101 W. Main, Aspen	Hotel	9/13/00	4:18 p.m.	70
A10	216 West Main Street, Aspen	Residential	9/13/00	5:22 p.m.	67
			9/14/00	8:23 a.m.	68
A11	Limelite Lodge, 228 East Cooper, Aspen	Hotel	9/13/00	4:32 p.m.	56
A12	540 West Main Street, Aspen	Residential	9/14/00	7:58 a.m.	65

15.6 Existing Ambient Noise Levels

The principal source of noise throughout the project area is motor vehicles traveling on Highway 82 and local roads. Many of the receivers in close proximity to Highway 82 already experience elevated traffic noise levels. Near Aspen, aircraft arriving and departing from the Pitkin County Airport also contribute to the Project Corridor's ambient noise levels. Numerous receivers adjacent to the RFTA railroad right-of-way that do not currently experience elevated noise levels, particularly in areas that are not proximate to Highway 82.

16. Visual Character

The Roaring Fork Valley contains a diverse range of geographic features and landscapes, both natural and man-made. Beginning at the lowest part of the valley at Glenwood Springs, views are limited by development and old-growth vegetation. A mid-afternoon photo of downtown provides a contrast of heavy Highway 82 traffic against historic commercial development and adjacent mountain slopes (Figure III-14). Heading south, the panorama opens, providing for distant views of the mountains including Mt. Sopris. Both the rail and highway rights-of-way parallel the Roaring Fork River, passing by new residential housing and old river bridges until reaching Carbondale (Figure III-15). Irrigated cropland forms the dominant land cover type. Hillsides clearly show various soil shades from red to brown to tan in between the primarily shrub vegetation types.

At Carbondale, the rail right-of way crosses the river and separates from its position adjacent to Highway 82. Views become more limited again by area development. As the railroad grade passes through several land use types, including the commercial district, views are limited to urban development that slowly gives way to residential development and open vistas (Figure III-16). Upon leaving the residential areas, the railroad grade becomes sandwiched between the river and cliffs, providing a dramatic contrast. Old-growth vegetation provides a canopy, making this section one of the most unique in the valley.

The views approaching the Catherine Store cross over from the railroad again, and open to a wide expanse with the distant mountains containing the valley. Open space dominates the Catherine Store and County Road 100 area, as vegetation and development remain sparse. Irrigated cropland is prevalent. The highway corridor is relatively visible from the surrounding land uses, whereas the existing rail corridor is relatively hidden.

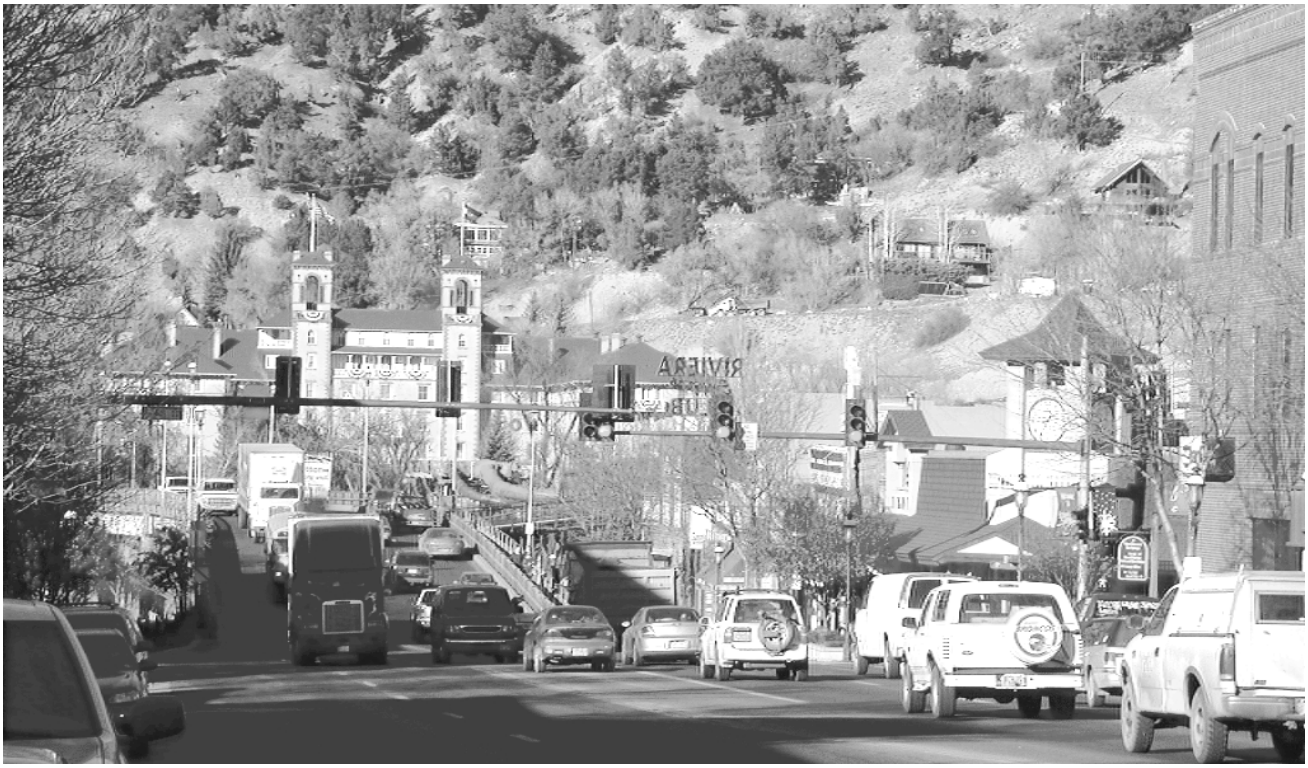
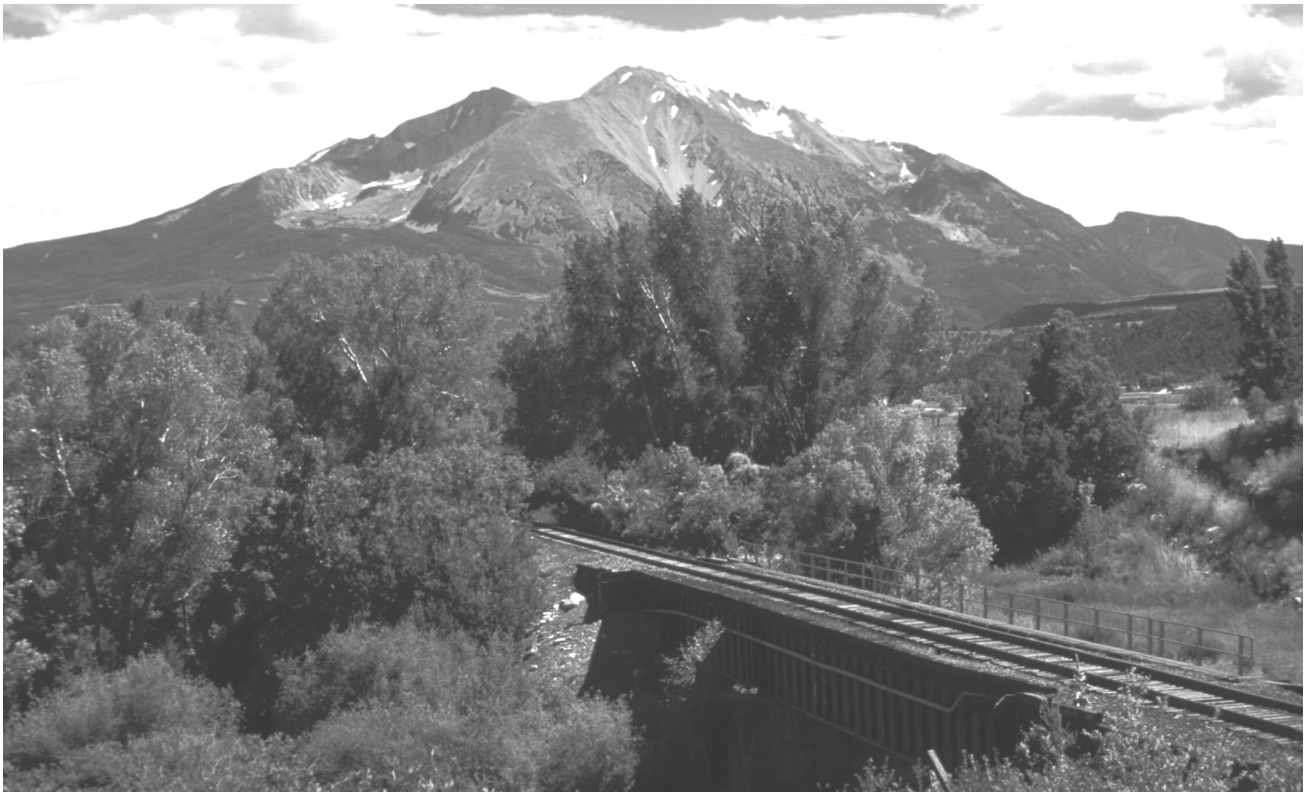


Figure III-14, above**: Downtown traffic in Glenwood Springs, looking north**

Figure III-15, below**: Rail trestle with Mt. Sopris behind – Downvalley from Carbondale**



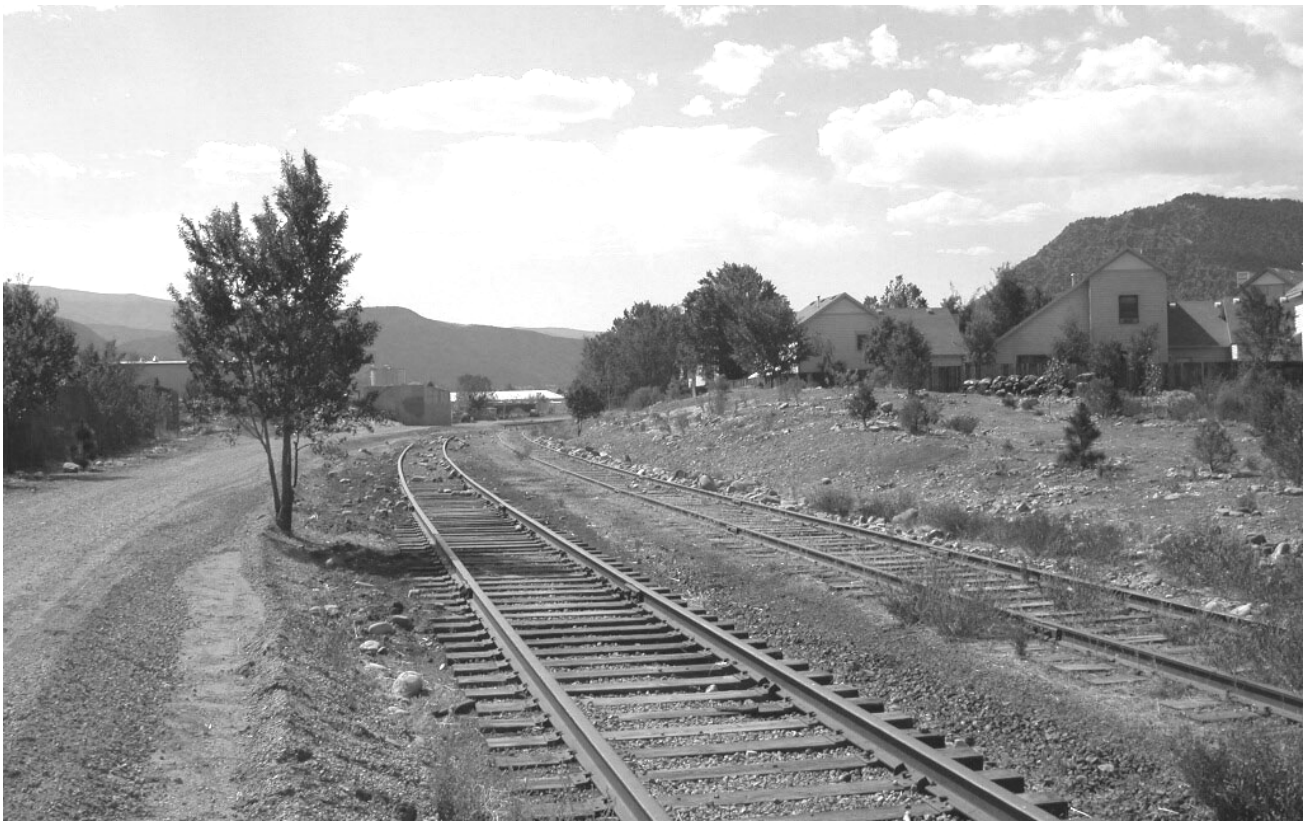


Figure III-16
Rail Right-of-Way at Carbondale - View Northwest from 8th Street Crossing

From El Jebel to Wingo, the river valley is visually dominated by a wide valley floor consisting of farm and ranchland, residential and commercial development, and a wide meandering riparian area. The highway and railroad rights-of-way are separated by the Roaring Fork River valley until they reach Emma. Just outside Emma, Highway 82 crosses the river to briefly join the railroad right-of-way. Scrub oak and other shrub vegetation cover the steep north- and east-facing slopes, while piñon and juniper cover the west- and south-facing slopes. Highway 82 runs close by the Town of Basalt, while the railroad right-of-way runs through a less-developed area with residential properties and a few businesses.

At Wingo Junction, the historic railroad crosses the Roaring Fork River and Highway 82 as it takes up location on the edges of steep slopes on the other side of Lazy Glen. From Wingo through the narrow Snowmass Canyon, the slopes support stands of spruce and fir. The riparian vegetation in the canyon is dense and varied, but allows views of the river from the rail right-of-way. The rail grade is moderately visible from the surrounding areas. Large-lot residential development occupies the pasture and brush areas of the valley floor north and east of the Roaring Fork River. A view from the park-and-ride lot at Highway 82 and Old Snowmass Road hints of the traffic patterns that run through the steep-walled canyon and along the river valley floor (Figure III-17).

The area between Gerbazdale and Brush Creek Road known as Woody Creek is characterized by an expansive valley floor and glacial terracing. The river in this section of the valley is far below both

Figure III-17:
Highway 82 and Old Snowmass Road: View North from Park-and-Ride Lot

the Highway 82 and railroad rights-of-way. It is only moderately visible from the mixture of variable-density residential and commercial/industrial areas that lie below the highway and just above the river. The railroad right-of-way remains on the east side of the Roaring Fork River all the way from the Wingo crossing to its connection with the pre-existing Rio Grande Trail at Woody Creek. Lower River Road provides access to residential properties adjacent to the railroad grade on the west side of the river.

Shale Bluffs provides a definite visual boundary between the Woody Creek section of the valley and the airport area. The Roaring Fork River gorge is deep: 46 to 60 meters (150 to 200 feet) through the bluffs. Residential development is spread along the benches east of the gorge and dominant views are focused on the terraces and ridges east of Highway 82.

South of Shale Bluffs, the valley widens. The Pitkin County Airport, AABC, RFTA Bus Facility, ski area base facilities and lower trail systems, and hillside residential developments define the visual character. The hillsides are dominated by scrub oak, native sage, and grasses, but stands of aspen and clusters of spruce and fir are also present. Homes are scattered throughout the landscape and are highly visible from Highway 82. The highway is highly visible from all developed areas. Views of distant landmark peaks, many of which are located in surrounding federally-designated wilderness areas, enhance the visual character of the valley by providing a scenic backdrop for the valley views and vistas.

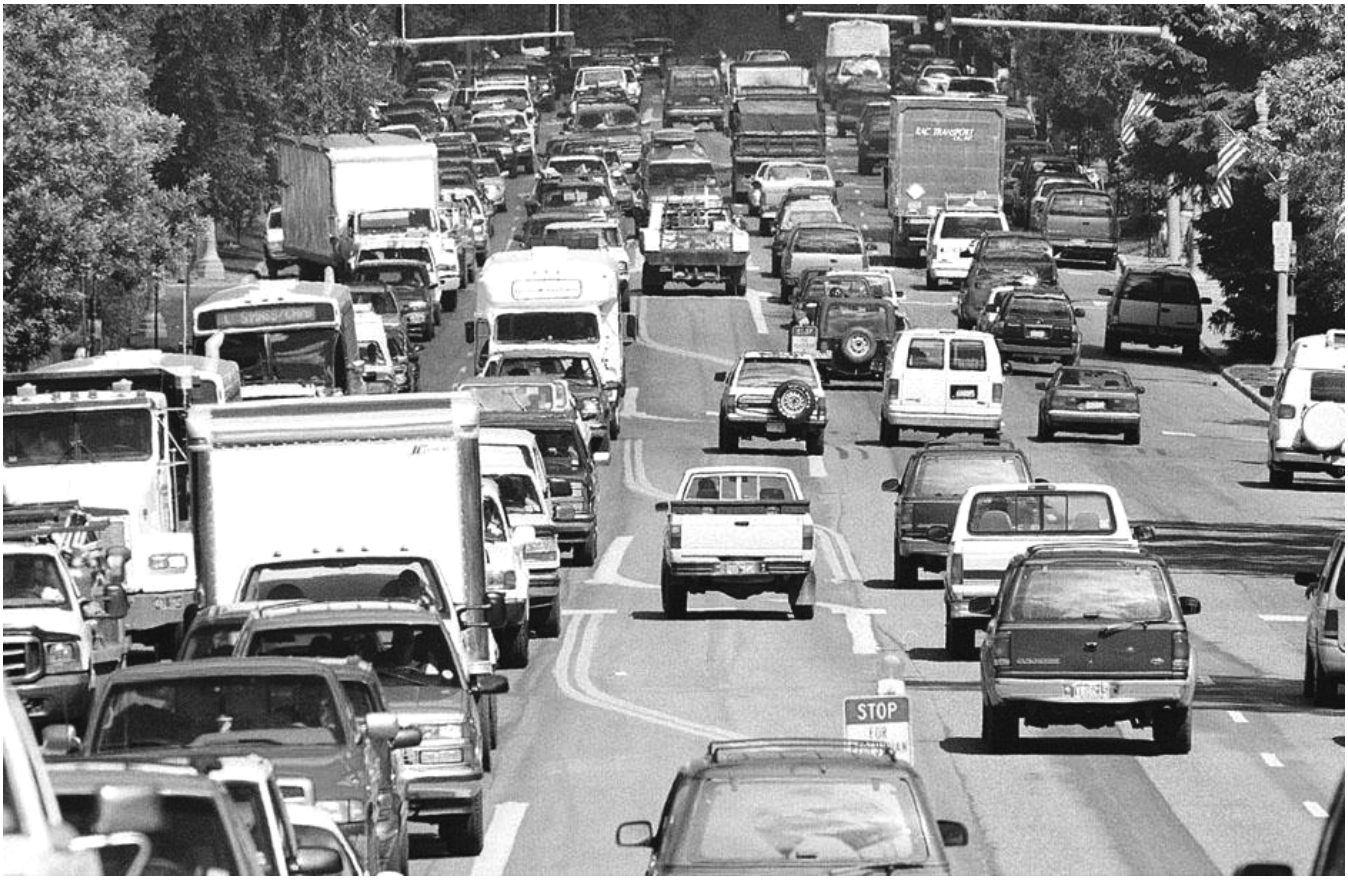


Figure III-18
Rush Hour on Main Street in Aspen

The viewshed for the highway and rail rights-of-way extends beyond the limit of the Project Corridor to distant hillsides, mountain peaks, and stream valleys. These views enhance the visual character of the valley by providing a scenic contrast to a short-grass pastureland and open space adjacent to the Project Corridor. In general, the valley is considered to be high in scenic quality.

Although the residents of the City of Aspen maintain that visual quality is important to their community, there is no clear consensus on what constitutes visual quality. The views within the Project Corridor are readily accessible from the highway and are enjoyed by travelers to and from Aspen. Some travelers come to the valley just to drive the highway and experience the views. The residents of the Aspen area also enjoy the high quality of views of the valley. The Victorian-style mountain cottages and other historic structures adjacent to the roadway define the visual character of Main Street in Aspen. Rush hour traffic congestion on Main Street detracts from the historic viewshed just described (Figure III-18). The western-most portion of Main Street consists of a viewshed defined by a tree canopy at the entrance to the city. Buildings and the vegetation on either side of Main Street limit these scenic views within the city; however, the scene is not restricted when viewed along the length of Main Street.

17. Potential Hazardous Waste Sites

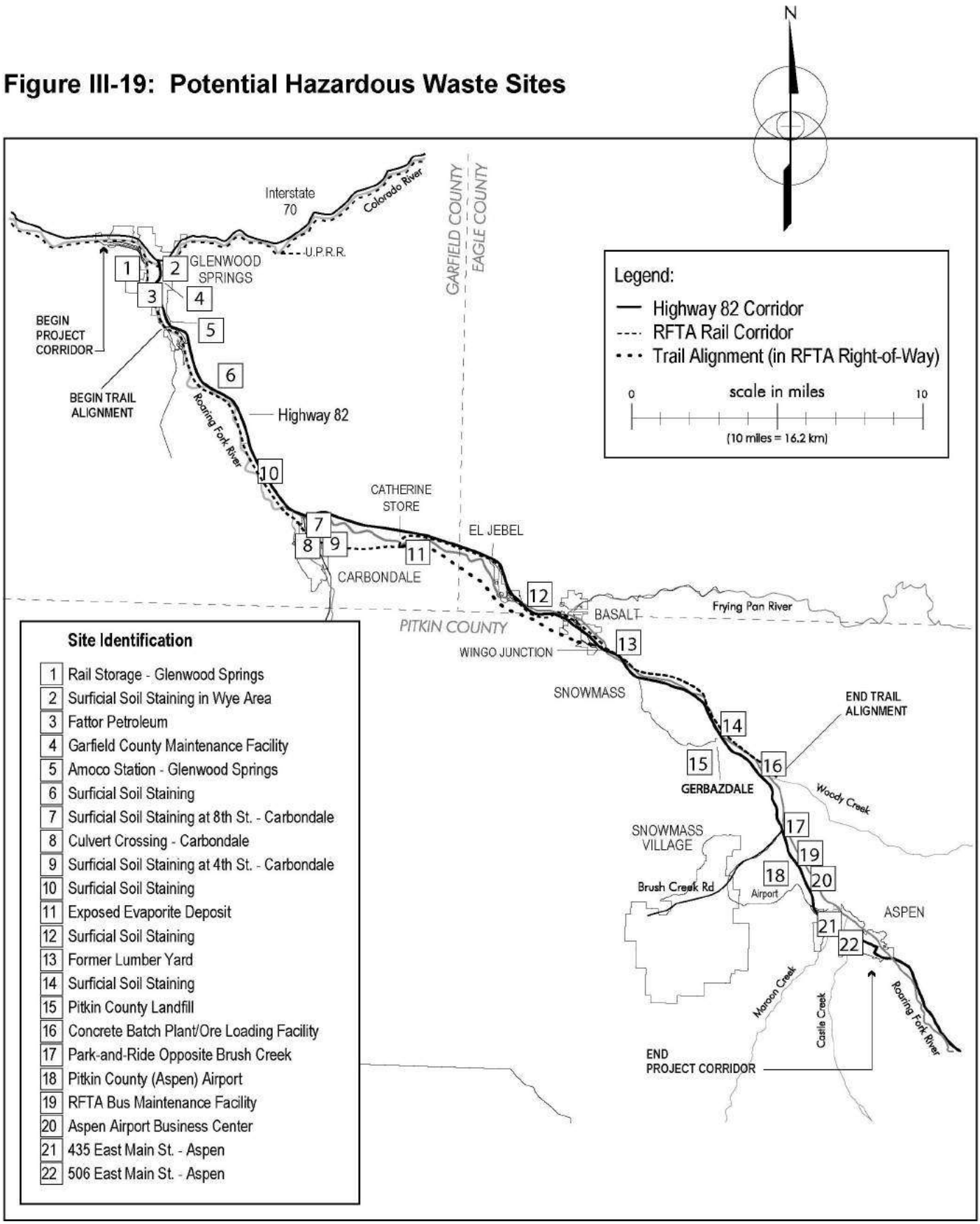
Numerous potential hazardous waste sites were identified during the study process. The investigation relied upon existing documents as well as new research. New research consisted of a limited site survey conducted in areas not covered by the previous studies. Additionally, after completing a comprehensive list of potential sites, an evaluation of sites was performed to address 1) those sites which may have been eliminated by additional sampling and no hazardous waste having been found, or 2) sites which had already been remediated.

In order to identify clearly the sources of the data, the Project Corridor was divided into ten segments. These segments correspond with previously prepared studies and data taken from each are cited. Following is a list of the ten segments and their data sources:

1. West Glenwood Springs (I-70 Exit 114) to the Railroad wye area, Glenwood Springs [*Environmental Data Resources (EDR) Area Corridor Study Phase I ESA for RFRHA*, Environmental Data Resources Inc., 1998]
2. Railroad wye area, Glenwood Springs, to South Glenwood Springs (*Pre-acquisition Environmental Site Assessment, Aspen Branch of the D&RGW RR*, SRK, 1996)
3. South Glenwood Springs to Buffalo Valley to North Carbondale (SRK, 1996)
4. North Carbondale to Mulford (SRK, 1996)
5. Mulford to East Basalt (Environmental Data Resources Inc., 1998)
6. East Basalt to Wingo Junction (*Basalt to Buttermilk FEIS*, (FHWA, 1993) and *Preliminary Site Investigation, Highway 82 Basalt to Aspen, CDOT Project No., FC 082-1(14).* (Walsh and Associates, Inc., 1992).
7. Wingo Junction to Woody Creek (SRK, 1996)
8. Woody Creek to Pitkin County Airport (CDOT, 1993)
9. Pitkin County Airport to Aspen: Monarch Street (*Entrance to Aspen FEIS*, FHWA, 1997)
10. Aspen: Monarch Street to Hunter Street (Environmental Data Resource, Inc., 1998)

Neither the No Action/Committed Projects nor the BRT Alternatives (except potential new station locations) will affect areas not previously cleared for hazardous materials. This analysis addresses the potential for affected environment along the Rail Alternative alignment only. A brief description of the Rail Alternative Corridor follows: Segment 1, West Glenwood Springs (I-70 Exit 114) to the Railroad wye area, the alignment follows the Union Pacific railroad corridor. Segments 2 through 4, Railroad wye area, Glenwood Springs to Mulford, the alignment follows the RFTA right-of-way formerly the Aspen Branch of the Denver and Rio Grande Western Railroad. Segments 5 and 6, from Mulford to Wingo Junction, the alignment follows County Road 100 and Highway 82. Segment 7, Wingo Junction to Woody Creek, the alignment follows the RFTA right-of-way and shifts back to Highway 82 at Gerbazdale. Segments 8 and 9, Woody Creek to Pitkin County Airport, the alignment follows Highway 82. Along Segment 10, the alignment follows Main Street to its terminus at the Hunter Street intersection. Figure III-20 illustrates the general location of the 22 potential hazardous materials sites identified within the Project Corridor.

Figure III-19: Potential Hazardous Waste Sites



17.1 West Glenwood Springs (I-70 Exit 114) to the Railroad Wye Area, Glenwood Springs

Specific features and areas of interest noted from West Glenwood Springs (I-70 Exit 114) to the Railroad wye area, Glenwood Springs are presented in this section. Observations of general features include:

Land Use. The Rail Alternative from West Glenwood Springs (I-70 Exit 114) to the Railroad wye area follows the existing Union Pacific Railroad right-of-way and tracks including several railroad sidings. This area is fenced and was not accessible for close inspection. Additional land uses along the rail corridor include industrial use along Devereux Road and residential closer to the wye area.

Industries include a Coca-Cola Bottling Plant with four active underground storage tanks (USTs), Rocky Mountain Natural Gas, with two out-of-service USTs and several above ground storage tanks (ASTs). These tanks, owned by the aforementioned businesses, were found by electronic database search (EDR, 1998). The records do not indicate any leaking USTs or reportable spills to date.

There appear to be grain elevators or tanks and other railroad storage areas, presumably owned by Union Pacific along the rail sidings. This area should be fully inspected and sampled, if indicated, prior to acquisition.

Transformers. Several transformers were found along the Union Pacific rail corridor from west Glenwood Springs to the Railroad wye area; however, it is stated clearly that they are non-PCB containing transformers. They appear to be relatively new, and if they replaced older transformers, PCBs could still be found in the area.

The roadway south of the Union Pacific rail corridor appears to have been recently graded and paved. The groundcover of homogenous grasses indicates relatively recent grading and seeding. Surface sampling would be unlikely to yield any contamination.

Assessment of this segment of the Rail Alternative Corridor indicates no evidence of recognized potential hazardous waste sites with exception of the following:

Railroad storage (1). Railroad storage, including the multiple railroad sidings and tanks along tracks is visible from outside the fenced property. This area should be fully inspected, and if indicated, sampled prior to acquisition. This is potential site #1.

17.2 Railroad Wye Area, Glenwood Springs, to South Glenwood Springs

Specific features and areas of interest noted from the Railroad wye area to South Glenwood Springs are presented in this section. (This area includes RFTA mile markers 360 to 363 and potential sites #2 through #5.) Observations of general features include:

Land Use. A mix of commercial retail properties, residential properties, schools, and light industrial businesses are located adjacent to the east side of the RFTA right-of-way in the Glenwood Springs area. The property adjacent the west side of the right-of-way is primarily undeveloped.

Electrical Transformer Storage. A transformer storage yard operated by the City of Glenwood Springs Electric (GSE) department is located in the south portion of the wye area. Transformer labels indicate that they are non-PCB. An interview was conducted with GSE regarding the storage area (SRK, 1996, Appendix D,).

City of Glenwood Springs Facilities. North of 7th Street within the wye area, facilities owned by the City of Glenwood Springs include office space, a maintenance shop, equipment storage areas, and facilities associated with the City wastewater treatment plant. (SRK, 1966, Appendix D).

Assessment of this segment of the Rail Alternative Corridor indicates no evidence of potential hazardous waste sites with exception of the following:

Surficial Soil Staining in Railroad Wye Area (2). Staining of the soil surface is identified in the railroad wye area near the confluence of the Colorado River and Roaring Fork River in Glenwood Springs. The staining pattern extends approximately 366 meters (1,200 linear feet) along the rail siding adjacent to the Southern Pacific Office. Interviews with Southern Pacific indicate that the staining is apparently associated with prior usage of petroleum products such as waste oil and rail lubricants. Additional staining of surficial soil/ballast material is present at in the vicinity of RFTA mile markers 361 and 362. This area represents potential hazardous waste site #2 along the RFTA right-of-way.

Fattor Petroleum (3). Above-ground storage of petroleum products is present adjacent to the east side of the RFTA right-of-way at Fattor Petroleum (bulk plant) near 13th Street. Stained surficial soil and petroleum hydrocarbon odors were observed near the fence line, which is located within approximately nine meters (30 feet) of the main trackage. This area may indicate a potential hazardous waste site in connection with the Rail Alternative and is identified as site #3.

Garfield County Facilities(4). A vehicle and equipment maintenance facility operated by Garfield County is located adjacent to the east side of the RFTA right-of-way near 1lth Street. The Records Review database summary reports a leaking underground storage tank (LUST) finding for this facility. Above-ground fuel storage is present. Surficial soil staining was observed on the facility. A drainage culvert from the facility protrudes into the RFTA right-of-way. This is site #4.

Amoco Station (5). The Amoco Station at 2205 Grand Avenue is located immediately adjacent to the east side of the RFTA right-of-way. The Records Review database summary reported that registered USTs were present at this location. Observations made from the RFTA right-of-way indicate that the USTs were likely located within 30 meters (100 feet) of the Rail Alternative alignment. During completion of supplemental sampling activities, it was observed that removal of the USTs was initiated at the property. The owner of the Amoco Station was contacted on May 10, 1996. A site assessment was being performed. The owner indicated that preliminary observations suggest some evidence of leakage. Removal of the USTs was completed by August 1996 according to the City of Glenwood Springs Fire Department (GSFD). Backfilling and soils testing were done in August of 1996. No further activities have occurred on that site to date (*Personal Communication*, Biggers, R., May 2002). This property, noted as site #5 adjacent to the Project Corridor, may indicate a material threat of a potential hazardous waste site in connection with the Project Corridor.

17.3 South Glenwood Springs to Buffalo Valley to North Carbondale

Specific features and areas of interest noted between South Glenwood Springs and North Carbondale are presented in this section. (Note: RFTA mile markers 363 to 371.5, potential site #6.) Observations of general features and adjacent properties from South Glenwood Springs to North Carbondale include:

Land Use. The current usage of properties varies throughout this segment. Primary usage is residential and undeveloped property from approximately mile marker 367 - 371.5. Agricultural

usage is identified (sheep, cattle grazing) in the Cattle Creek area (mile markers 370.5-371.5). Undeveloped land, scattered commercial and light industrial/office space, and residential properties were observed from mile markers 363-367. The region to the west includes undeveloped land, rural properties, gravel pits, and scattered light industrial activity between the RFTA right-of-way and the Roaring Fork River. Areas to the east of Highway 82 are densely vegetated and include drainage ditches that carry runoff from the highway and properties east of the highway.

The Aspen Glen residential development is located between Highway 82 mile markers 23 and 24 to the west of the RFTA right-of-way, just outside of Carbondale. Site grading operations feature the alluvial material (gravels and cobbles), which is the predominant geological characteristic of the area. Assessment of this segment indicates no evidence of potential hazardous waste sites with the exception of the following:

Surficial Soil Staining (6). Limited staining of surficial soil/ballast material is apparent in the vicinity of RFTA mile markers 366.0, 366.7, and 367.5. The horizontal extent of the surficial staining is primarily isolated between the rails and ranges from less than 0.46 square meters (five square feet) to seven square meters (75 square feet) in size. These areas represent potential hazardous waste sites for both the rail and trail alignments at site #6.

17.4 North Carbondale to Mulford

Specific features and areas of interest noted from north Carbondale to Mulford are presented in this section. (Note: RFTA mile markers 371.5 to 376.0, potential sites #7 - #10.) Observations of general features of the Project Corridor and adjacent properties from North Carbondale to Mulford include:

Land Use. Properties from Mulford to North Carbondale include vacant lands, residential areas, construction yards, and industrial areas.

Decommissioned Rail Loadout Facility. Mid-Continent Resources Coal Company, approximately mile markers 374.5 to 374.7, is a decommissioned rail load-out facility located east of Carbondale. The facility was used to store and load coal for rail transport. No mining activities occurred at this facility. No potential project related hazardous waste sites were identified in connection with this facility. An interview regarding this facility is found in SRK, 1996, Appendix D.

Bulk Fuel Storage Area. The Conoco-Mosbarger Bulk Plant is located at 120 4th Street in Carbondale. The plant features several large fuel storage tanks and fuel dispensers. Some abandoned tanks (apparently empty) are present at the rear of the facility and are within 4.6 to 7.6 meters (15 to 25 feet) of the RFTA right-of-way. No potential project related hazardous waste sites were observed in connection with this facility.

Miscellaneous Debris. Rockslide debris is present on the trackage just east of Carbondale between RFTA mile markers 373.5 and 374.2.

Assessment of this segment of North Carbondale to Mulford indicates no evidence of potential hazardous waste sites with the exception of the following:

Surficial Soil Staining at 8th Street (7). Soil staining was observed in Carbondale to the west of the 8th Street crossing within 7.6 meters (25 feet) of the south side of the trackage. The stained area exhibits a petroleum hydrocarbon odor and the horizontal extent is approximately 16 square meters

(175 square feet). This material is within the 15 meter (50 foot) RFTA right-of-way. This material at site #7 represents a potential hazardous waste site for both the rail and trail alignments.

Between 7th and 8th Streets in Carbondale (8). Two ditch culvert headwalls straddle the trackage. The standing water and sediment observed in these headwalls appeared to exhibit a hydrocarbon sheen during the site reconnaissance and constitute a potential hazardous waste site #8.

Surficial Soil Staining at 4th Street (9). Soil staining was observed in Carbondale to the south of the 4th Street crossing within 15 meters (50 feet) of the south side of the trackage at the location of the proposed walk-in station. The stained areas exhibit a petroleum hydrocarbon odor and the horizontal extent of the multiple stains is approximately 6 to 30 square meters (20 to 100 square feet). This material represents a potential hazardous waste site #9 that may affect both the rail and trail alignments.

Other Surficial Soil Staining (10). Limited surficial staining of soil/ballast material is apparent at approximately RFTA mile markers 373.8, and 373.9. The horizontal extent of the surficial staining is primarily isolated between the rails, and ranges from less than 0.46 square meters (five square feet) to 2.3 square meters (25 square feet) in size. These areas represent a potential hazardous waste site #10 for both the rail and trail alignments.

17.5 Mulford to East Basalt

Specific features and areas of interest noted from Mulford to East Basalt) are presented in this section. (Note approximate RFTA mile markers 376 to 381 or Highway 82 mileposts 15.5 to 23.5; potential site #11.) The proposed trail follows the RFTA right-of-way in this segment while the rail alignment follows County Road 100 and Highway 82. Observations of general features and adjacent properties from Mulford to East Basalt include:

Land Use. The properties adjacent to the proposed rail alignment (following County Road 100 and then Highway 82) from Mulford to East Basalt are comprised of agricultural and ranchlands, residential, and retail including retail gasoline stations. A few light industrial (i.e., construction equipment yard and county road maintenance yard) properties are located in the Emma area.

Dense overgrowth of vegetation is present on the trackage around RFTA mile marker 376.0. The burning of weeds is evident along both sides of trackage from mile marker 376.0 to 377.0. Abandoned railroad ties in these areas have been burned.

Irrigation Channels. Irrigation channels adjacent to the RFTA right-of-way and occasionally crossing under the trackage exhibited low flow of water during the site reconnaissance. The flowing channels were observed near RFTA mile markers 381.0 to 381.5. The average size of the channels in this area are 0.6 meters (2.0 feet) wide by 0.46 meters (1.5 feet) deep. No potential hazardous waste sites were observed in connection with the irrigation channels.

Construction Yard. Near Hooks Crossing (approximately RFTA mile marker 380), the Ellsworth Construction yard is located to the north side of the RFTA right-of-way. Above ground fuel storage tanks, heavy equipment, and gravel stockpiles are located in the construction yard. No potential hazardous waste sites were observed in the construction yard or in connection with the project right-of-way.

Equipment Storage Yard. An unidentified equipment storage yard is located at Hooks Crossing (RFTA mile marker 380). The fence line of the storage yard is located within six meters (20 feet) of the trackage, which indicates that a portion of this area is located within the 15 meter (50-foot) right-of-way. The yard is presently used for storage of corrugated metal pipe and a few unmarked 189-liter (50-gallon) drums. The drums are apparently empty. No evidence of potential hazardous waste sites was observed in connection with this property, or in connection with the right-of-way nearby this property.

Automotive Scrapyard. An unidentified automotive scrapyard is present at approximately Highway 82 mile marker 11.5 south of Emma. The scrapyard is located between Highway 82 and the RFTA right-of-way. The rear fence line of the scrapyard is within the 15 meter (50-foot) right-of-way. The scrapyard consists of several junked cars and equipment, scrap metal, and unidentified containers (i.e., drums). The scrapyard is apparently no longer in business. No personnel or activity were observed at the scrapyard on two separate occasions. On both occasions, the facility was closed. No business signs or markers were available to identify the property. Although the right-of-way behind the scrapyard exhibits isolated soil staining (described below), there is no apparent connection between the isolated soil staining and the scrapyard. No physical or visual evidence of potential hazardous waste sites was observed in connection with the scrapyard.

Automotive Scrap. Several junked cars, automotive debris and unidentified containers (i.e., drums) are present at approximately RFTA mile marker 382 across the south side of the trackage. The majority of the material is outside of the 15 meter (50-foot) right-of-way in this area. Some debris (e.g., domestic trash and scrap metal) is present in the ditch between this property and the trackage. Although the right-of-way behind this property exhibits soil staining (described above), there is no apparent connection between the isolated soil staining on the trackage and the adjacent property. No physical or visual evidence of potential hazardous waste sites was observed in connection with this property.

Construction Debris. At approximately RFTA mile marker 383.5, construction debris is identified near the RFTA right-of-way, which consists of scrap metal, electrical wire, and unidentified tanks. The tanks appear to be empty, out of service, and temporarily stored in this area. A business name for this storage area could not be identified. No persons responsible for the materials were present during the site reconnaissance. No evidence of potential hazardous waste sites was observed in this area adjacent to the RFTA right-of-way, or in connection with the RFTA right-of-way.

Rock Stockpiles. Piles of rounded cobbles are present within the 15 meter (50 foot) RFTA right-of-way at approximately mile markers 383.2 through 384.2. These piles of rock were apparently left near the trackage during excavation of the irrigation ditches along the RFTA right-of-way. No evidence of potential hazardous waste sites was observed.

Assessment of this segment indicates no potential hazardous waste sites, with the exception of the following. This concern is pertinent only to the trail which is proposed to follow the RFTA right-of-way in this area.

Exposed Evaporite Deposit (11). Discoloration of low flowing surface water is evident in the vicinity of RFTA mile marker 377 approximately 0.8 kilometers (0. 5 miles) east of the Mulford Bridge. The surface water is located directly below the trackage adjacent to the Roaring Fork River. The trackage is bounded on the north by the Roaring Fork River, and on the south by steep evaporate deposits. The materials above the trackage exhibit the effects of weathering and oxidation (e.g.,

portions of the hillside are weathered to a fine sandy material that exhibits iron oxide or rust-colored staining). The steep terrain adjacent to the south bank of the RFTA right-of-way exhibits rockslide areas onto the trackage. The rust colored staining may be indicative of acidic conditions in local surface water. This area indicates a potential for a hazardous waste site , #11.

17.6 East Basalt to Wingo Junction

Specific features and areas of interest noted from East Basalt to Wingo Junction are presented in this section. (Note: RFTA mile markers 381 to 385, potential sites #12 and #13.) The rail alignment does not return to the RFTA right-of-way until Wingo Junction. Observations of general features on the right-of-way and adjacent properties from East Basalt to Wingo Junction include:

Land Use. The properties adjacent to the proposed rail alignment (along Highway 82) from East Basalt to Wingo Junction are comprised of agricultural and ranchlands, residential, and retail including retail gasoline stations. A few light industrial (the former lumberyard) properties are located along the RFTA right-of-way.

Assessment of this segment from East Basalt to Wingo Junction indicates no evidence of potential hazardous waste sites, with exception of the following:

Surficial Soil Staining (12). Limited surficial staining of soil/ballast is present in the corridor at approximately RFTA mile markers 381.7, 382, 382.3 and 382.4. The horizontal extent of the surficial staining appears to be isolated between the rails, with a size of less than 0.46 square meters (5 square feet) to less than 0.92 square meters (10 square feet). These areas represent a potential hazardous waste site (#12) for the proposed trail only.

Former Lumberyard and Monitor Well (13). This site is a former lumberyard near RFTA mile marker 385. The property contained at least one underground storage tank (UST) during occupation by Boise Cascade and BMC Corporation. Colorado Department of Health (CDH) records indicate that all tanks were removed from the property on November 6, 1989.

A monitor well was observed on the former lumberyard property during the site visit. Telephone conversations with Shelton Drilling, Inc. of Basalt and Roger Moore of Storage Tank Technology, Inc., indicated that a site assessment was conducted for the former owner, BMC, Inc. of Boise, Idaho. The investigating firm (Walsh, 1992) was unable to obtain a copy of the site assessment from CDH or the former owner. The property was not investigated during the site survey because the current owner did not permit access. This property warrants further investigation, including the need to review existing data and possible drilling and sampling if it is to be acquired. This site represents a potential hazardous waste site #13 for the proposed trail only.

17.7 Wingo Junction to Woody Creek

Specific features and areas of interest noted from Wingo Junction to Woody Creek are presented in this section. (Note RFTA mile markers 385 to 393, potential sites #14-#16.) Observations of general features of the RFTA right-of-way, which will contain both the rail and trail alignments to Gerbazdale where the rail alignment crosses back to Highway 82, and adjacent properties from Wingo Junction to Woody Creek include:

Land Use. The properties adjacent to the RFTA right-of-way from Wingo Junction to Woody Creek include sparse farm units and residential dwellings. Meadows, grazing properties, and ranch lands are present. River Road is adjacent the RFTA right-of-way to the north. The Roaring Fork River

meanders adjacent to the south and southwest. Isolated surficial staining of soil/ballast is present in the corridor at approximately mile marker 390.5. Several areas along this portion of the RFTA right-of-way exhibit overgrowth of weeds and willows. In some areas, the trackage and ballast are densely covered with vegetation.

Electrical Transformers. Electrical transformers are present at approximately RFTA mile markers 390.0 and 388.8. Evidence of transformer leakage was not observed in these areas during site reconnaissance (SRK, 1996, Appendices D and F).

Abandoned Railroad Debris. Abandoned railroad ties and rail debris (spikes, tie plates, and rail) are present among several areas of RFTA right-of-way, specifically at RFTA mile markers 390.5, 389.9, 389.6, 387.7 and 386.9. Previous burning of railroad ties, apparently associated with weed burning, is evident at RFTA mile marker 389.4. No potential hazardous waste sites were observed.

Phillips Curves. The Phillips Curves area at approximately RFTA mile marker 390.0 features junked cars and unidentified drums which are not adjacent to the RFTA right-of-way. Septic systems and leach fields are present immediately adjacent to the right-of-way. No distinct changes in the vegetation, surficial soils or foul odors were detected in connection with these features. No recorded hazardous waste sites were noted.

Irrigation Channels. Irrigation channels run along both sides of the RFTA right-of-way and cross beneath the railroad grade in several areas, through box culverts and corrugated metal pipe culverts. The channels in this area are approximately 0.9 to 1.5 meters (3 to 5 feet) in depth and 0.9 meters (3 feet) wide. These channels were observed to be dry during the site reconnaissance.

Railroad Storage Shed. Structures within the RFTA right-of-way include an old railroad storage shed. The shed was inaccessible during the site reconnaissance. Observations from outside the shed indicate that it is currently used for storage of household items. Two rail cars are located directly north of the shed and have been refurbished as residences.

Miscellaneous Debris. Rockfall debris is present at approximately RFTA mile marker 387.2. The colluvial material appears to be derived from the Maroon Formation, which is featured on the adjacent hillside to the east. The trackage cannot be identified in this area as it is covered with the colluvium and overgrowth.

Assessment of this segment indicates no evidence of potential hazardous waste sites, with exception of the following:

Surficial Soil Staining (14). Limited surficial staining of soil/ballast material is present at approximately RFTA mile marker 390.5. The horizontal extent of the surficial staining is apparently isolated between the rails, and ranges from less than 0.46 to 1.4 square meters (five to 15 square feet) in area. These surficial staining areas may represent potential hazardous waste sites (#14) for both the rail and trail alignments.

The Pitkin County Landfill (15). The Pitkin County Landfill (#15) is beyond the RFTA right-of-way. It is upgradient of Highway 82 and across the Roaring Fork River from the RFTA right-of-way. The rail alignment is located adjacent to Highway 82 in this area. Both surface runoff and groundwater flow toward the roadway. A records check of Colorado Department of Health (CDH) inspections revealed mostly minor violations for blowing trash, odors, etc. However, colored

leachate from the landfill had crossed Highway 82 during heavy spring runoff in 1984. Analyses of the leachate show elevated levels of biological oxygen demand (BOD) (770 ppm). BOD is commonly used to estimate the overall organic pollution load for such pollutants as domestic sewage, but does not distinguish individual contaminants. Groundwater quality monitoring has been conducted since 1988 at the landfill and has not shown significant organic contamination to date. The discovery of the leachate release led to inclusion of the drainage crossing Highway 82 in the field investigation (*East of Basalt to Buttermilk FEIS,* FHWA, 1993).

The site was inaccessible to the drill rig due to narrow shoulders and steep roadside embankments, so the investigation was limited to shallow soil sampling at the intersection of the landfill drainage and the highway.

A hand-augured soil sample was collected from the landfill drainage ditch 9.4 meters (31 feet) west of Highway 82. The sample was composited from below ground at a low point in the drainage where contaminants from runoff would be anticipated to collect. Field screening did not yield visible signs of contamination or measured readings. Analysis of the soil sample did not show contamination in the form of semi-volatile organic compounds (SVOCS) or Resource Conservation Recovery Act (RCRA) metals. Results for these analyses were below laboratory detection limits. VOCs were not analyzed since field screening did not indicate their presence.

The Concrete Batch Plant/Ore Loading Facility (16). A visual inspection of this property did not reveal environmental concerns. No acquisition is planned, so further assessment was not conducted. This site (#16) is adjacent to the proposed trail alignment only.

17.8 Woody Creek to Pitkin County Airport

Specific features and areas of interest noted from Woody Creek to Pitkin County Airport are presented in this section. The proposed trail does not extend beyond Woody Creek and the rail alignment runs along Highway 82 in this segment. (Note potential sites #17 - #20.) Observations of general features of the right-of-way and adjacent properties from Woody Creek to Pitkin County Airport include:

Land Use. The properties adjacent to rail and trail alignments from Woody Creek to Pitkin County Airport include farm units, ranch lands, residential dwellings, and increasing light industry as the airport is approached. Construction of two additional lanes of Highway 82 is ongoing in the Snowmass Canyon section of the corridor.

Park-and-Ride opposite Brush Creek Road (17). Isolated surficial staining of soil was present in the construction lay down area at approximately Highway 82 milepost 35. Numerous areas of approximately 1.8 to 13.9 square meters (20 to 150 square feet) of staining were apparent. This park-and-ride (#17) has been constructed per the *Basalt to Buttermilk ROD.* No impacts to the rail alignment are anticipated.

The Pitkin County Airport (18). The airport (potential hazardous waste site #18) lies between mileposts 36.5 and 38.0, to the west of Highway 82. The site visits and records search identified two UST systems, including the Rental Car Fuel Depot and the Aviation Fuel Depot. In addition, a surface spill of aviation fuel was reported near the Aviation Fuel Depot sometime around 1984.

Lithology at the site consists of approximately 1.5 meters (five feet) of gravel fill over silty gravel that contains several different sizes of particles. Numerous gray to light red sandstone cobbles and boulders were encountered.

Two test holes (TH-4 and TH-5) were installed at the Rental Car Fuel Depot, approximately six meters (20 feet) east of the fuel dispensers. The Rental Car Fueling Depot is located in a fill area along the frontage road just east of the main entrance to the airport. This UST system was installed as recently as 1988, in full compliance with Federal standards. It is equipped with automatic leak detectors and is monitored monthly, making it unlikely that a significant release has gone undetected at this location. Drilling logs did not indicate unusual coloration, staining, or odors. However, due to the lithology, samples would be needed directly below the UST to confirm a release from this site. Contaminant migration would be primarily vertical in the highly permeable materials and may not be easily detected at a significant lateral distance. A maximum soil sample headspace reading of 6 ppm was recorded at three meters (ten feet) below ground and five ppm at 1.5 meters (five feet) below ground in TH-5. Soil samples do not contain detectable concentrations of BTEX compounds. Total volatile hydrocarbons (TVH) are estimated at less than one ppm (990 micrograms per kilogram (g/kg)) in the sample from TH-5. Total petroleum hydrocarbons (TPH) were below laboratory detection limits in all samples. No groundwater was encountered and the borings are plugged and abandoned.

The Aviation Fuel Depot is located west of the security fence along the frontage road to the west of the main entrance. This system has been in place for a number of years and may not comply with standards for tank upgrades or leak detection. The pavement in the tank fill area drains north to a ditch that crosses the frontage road and intersects Highway 82. Surface runoff from the fueling area south of the fence appears to drain to this same ditch, making it the likely receptor for any surface spills of fuels or solvents in the vicinity.

The airport fueling system is located in a security area and was not accessible to the field team. A third test hole (TH-6) is located in a berm area between the frontage road and Highway 82, on the north bank of the ditch that drains the aircraft fueling area. This is the reported site of the 1984 aviation fuel spill. Approximately 5,678 liters (1,500 gallons) was released to the surface at the UST site and drained into the ditch. The accident required a remediation effort involving the removal and disposal of over 382 cubic meters (500 cubic yards) of contaminated soil from the ditch. Pitkin County and EPA officials reviewed and approved cleanup efforts. Groundwater was not observed in the soils encountered. No staining or odors were observed in the soils encountered. A maximum soil headspace of four ppm was recorded at 1.4 to 1.8 meters (4.5 to 6.0 feet) below ground. The boring is plugged and abandoned.

Two additional shallow soil samples (SS-4 and SS-5) were collected from the bottom of the ditch between the frontage road and Highway 82, also in the drainage reportedly impacted by the 1984 aviation fuel release. Samples were collected at 41 and 61 cm (16 and 24 inches) below ground. Field observations did not detect petroleum contamination. Methyl tertiary butyl ether (MTBE) was detected in SS-5 at an insignificant concentration of 1 g/kg. Groundwater was not assessed at either UST location. Soils are highly permeable, and it is possible that a release could migrate vertically from a UST system to groundwater. Such a release might not be detected by soil drilling which did not advance to the water table.

RFTA Maintenance Facility (19). The maintenance facility site (#19) located at this property is a small quantity generator (SQG) of hazardous waste and a UST site with a reported petroleum release

and an identified groundwater contaminant plume. The site is several hundred feet downgradient of the RFTA right-of-way and not adjacent to Highway 82 right-of-way; consequently, no further assessment work was conducted. If revisions to the alignment result in future plans to acquire this property, additional investigation will be necessary.

AABC (20). This site includes the Boise Cascade and former CDOT Maintenance Facilities and is located between the Roaring Fork River and Highway 82. Site observations indicate that USTs are still in place from the former CDOT facility now occupied by Grizzly Landscaping at the south end of the business center. This data indicates a potential for soil or groundwater contamination at site #20.

17.9 Pitkin County Airport to Aspen: Monarch Street

This segment was fully evaluated and documented in the *Entrance to Aspen FEIS*. Three sites were considered as potential hazardous waste sites, the Pitkin County Airport (18), the RFTA Maintenance Facility (19), both discussed above, and the Holden Smelting and Milling Complex, discussed below.

Holden Smelting and Milling Complex (not mapped for the current project). The Holden Smelting and Milling Complex, also known as the Holden/Marolt Property, was a silver processing plant located on the west bank of Castle Creek (south of Highway 82 milepost 40.4). The plant was constructed in 1891 and reduced silver ore using lixiviation (leaching process). The ores were roasted with salt, producing silver chloride, which was then dissolved with sodium or calcium hyposulfate. An alkaline sulfide was added to precipitate silver (National Park Service, 1988). The plant operated for only three years before the silver crash of 1893 forced it to close. Scattered remains of the plant foundation are visible above the banks of the creek. The property was owned by the Marolt family and operated as a ranch before its conversion to its present use as a museum. A barn on the property has been restored for use as a mining and ranching museum, now operated at the site by the Aspen Historical Society.

Results of surface samples in the vicinity of the Holden Smelting and Milling Complex showed clear elevated total concentrations of arsenic (As), cadmium (Cd), and lead (Pb), which could expose the public to heavy metal laden dust and soil. The highest elevated concentrations found were: 44 milligrams per kilogram (mg/kg) for arsenic, 35 mg/kg for cadmium, and 3,300 mg/kg for lead. The water quality at the proposed bridge pier locations were within anticipated limits for a possible dewatering permit (CDOT, 1997).

17.10 Aspen: Monarch Street to Hunter Street

The last segment of the rail alignment includes three blocks, within the exiting Highway 82 right-of-way along the south side of Main Street in Aspen from Monarch Street to Hunter Street. Specific features and areas of interest are presented in this section. The environmental databases (EDR, 1998) were searched for sites that could potentially affect this segment. Properties for the three blocks along Main Street are generally commercial/business. Two properties contiguous to the subject area were identified that have reported leaking underground storage tanks (LUSTs) or underground storage tanks (USTs). These sites are located at 435 E. Main Street and 506 East Main Street in Aspen (See Figure III-20, potential sites #21 and #22.)

435 East Main Street (21). The current status of all tanks at 435 E. Main Street is "permanently out of use."

EXHIBIT D-3

TRANSIT FINANCING OPTIONS

CAPITAL FUNDING FOR THE RAIL ALTERNATIVE

Valley Rail Cost: $194.0 Million

Includes funding for additional right-of-way, construction, vehicles, and maintenance facility for Valley Rail from West Glenwood Springs to Aspen Airport, including feeder Bus service.

Potential Federal Funding: $138.5 Million

Assumes 50/50 cg.st sharing with Federal government for Valley Rail and -Entrance to Aspen projects and the following local/state revenues:

$ 63.0 Million (Entrance to Aspen Light Rail Transit)
$ 38.0 M (Entrance to Aspen 2-lane Parkway)
$ 29.0 M (Entrance to Aspen lntermodal Facilities)
$ 8.5 M (*Valley* Rail Right-of-way Purchase)

Existing Funding Ability: $138.5 Million
71% *Valley* Rail Cost

Assumes state and local funding approval for Entrance to Aspen Projects

Additional Funding Required: $ 55.5 Million
29% of Valley Rail Cost

Valley Rail Cost minus Existing Funding Ability

Local, State and/or Private Funding Required: $ 27.75 Million

Assumes 50/50 cost sharing with federal government of additional funding required.

Potential Funding Sources:

Certificates of Participation
Vendor Financing Issuance
of Bonds Private Equity
Financing Contracting
Motor fuel, Toll, Parking Taxes
Payroll or Income Tax
Property Tax
Leasing/Selling Development Rights
Local Improvement District
Tax Increment Financing
Impact Fees

Sale/leaseback Arrangements
Revenue Anticipation Notes
Cross Border Leasing
Private Operation
Sal.es Tax
Motor Vehicle Fees
Utility Tax
Lottery Revenues
Leasing/Selling Facilities
Special Benefit Assessment Direct
Capital Contributions Connector
Fees

Memorandum

P.O. Box 1676
Basalt, CO 81621
Phone (970) 948-3831
Fax (970) 963-1622

To: Tom Newland, RFRHA

From: Roger Millar and Todd Chase

Date: September 10, 1999

Subject: *Glenwood Springs to Aspen CIS / DEIS / CP - Transit Financing Options*

Introduction

The Glenwood Springs to Aspen transit corridor is listed as a "new start" fixed guideway transit project in the *Transportation Efficiency Act for the 21st Century (TEA 21)* and thus is well positioned to receive federal grants for transit improvements. Being on the select list of high-priority transit projects in the TEA 21 legislation makes the likelihood of federal funding for a substantial portion of the cost of construction even greater.

To be eligible for these TEA 21 funds RFRHA must complete a Corridor Investment Study and an Environmental Impact Statement that identify a preferred transit alternative and provide environmental clearance for the transit corridor. RFRHA must also match federal construction grants with state, local, and/or private revenues and show the ability to finance the operation of the preferred alternative over time.

There are many alternative funding sources and financing strategies available to the Roaring Fork Valley as RFRHA and others seek to meet long-term transit goals. This memorandum identifies a menu of potential funding sources for transit capital and operating costs. There are two main sections in this memorandum:

- Potential Transit Funding Strategies — an overview of funding strategies and mechanisms that have been successfully applied to other transit systems.
- Evaluating and Selecting Financing Mechanisms — a preliminary list of evaluation criteria and a proposed qualitative rating system for selecting preferred "bundles" of funding mechanisms.

Work Completed

In undertaking this analysis, Otak completed the following work tasks:

Reviewed existing periodicals and reports on the subject of transit finance, transit privatization, and joint development;

Documented potential revenue sources and case studies;

Conducted interviews with transit representatives in selected communities throughout the United States; and

Synthesized the results of the above tasks into this "working memorandum".

Potential Transit Funding Strategies

Covering capital and operating costs usually requires some form of financing. There are four general approaches used by transit providers to address their financing needs: pay-as-you-go; federal and state grants; issuance of debt or lease mechanisms; and privatization/ benefit sharing. The approach taken by each transit agency usually depends on the magnitude and timing of the financial needs, and some combination of these approaches is often employed.

Alternative financing approaches are discussed below and summarized in Table 1, *Selected Transit Financing Mechanisms - Comparison of Advantages and Disadvantages.* Table 2, *Recent National Examples of Application of Financing I Funding Strategies for Public Transit,* list applications of each financing technique by transit systems around the country.

Grants

Federal grants are available for the construction of fixed guideway transit systems and, to a lesser extent, the purchase of buses. In the 1970s and 1980s the federal government would pay up to 85 percent of the cost of new fixed guideway transit systems. This high percentage of federal participation, coupled with the legitimate need to reinvest in mass transit, resulted in a rapid expansion in fixed guideway transit in the United States. Like the Federal Aid Interstate Highway program, federal largess also lead to a tendency to promote marginal projects and to over-design legitimate projects because the local share of the construction cost was so small.

In recent years increased competition for available federal transit grants has raised the local share of fixed guideway transit construction financing to 50 percent or higher (The federal government still pays up to 90 per-cent of the cost of highway construction.). Fixed guideway transit projects are subject to increased scrutiny, which has improved the quality and cost-effectiveness of successful projects nationwide. Local agencies are required by the Federal Transit Administration to secure local matching revenues for construction and to identify local operating revenues prior to the approval of any transit system -constructed with federal grants.

Most federal grant revenues are for -capital improvements only. There are very limited federal revenues available for fleet replacement and transit operating costs.

Special Taxes & Debt Funding	Description	Advantages	Disadvantages
Revenue Bonds or Special Assessment Bonds	Debt typically issued by public entity for a term of five years or more, secured by revenues generated by projects being financed or special assessments. Such revenues may include income from local improvement district, urban renewal district or other special assessment districts (i.e., fuel/parking tax, payroll income tax, student tuition fee, health care surcharge, etc.).	- Provides method of amortizing capital costs in annual installments using operating revenues/user fees. - Usually avoids need for voter approval or statutory debt limitations. - Can be used by agencies that lack taxing authority.	- Generally has higher issuing costs and pays higher interest than general obligations bonds. - Lack of mandated debt ceiling may allow agency to overburden itself with debt.
General Obligation Bonds	Debt typically issued by public entity for a term of five years or more, secured by issuer's unlimited taxing power and "full faith and credit".	- Strong security pledge by public entity generally produces lower interest rates. - Generally simpler and has lower administrative costs than revenue bonds. Issuing agency avoids covenants that restrict future financing options.	- Not used as frequently for transit projects as revenue bonds. Public agency must have legal authority and power to levy taxes; or bonds must be issued by public entity on agency's behalf. Bonds must be approved by referendum.
Short-Term Debt (i.e., Tax, Revenue and Bond Anticipation Notes)	Debt typically issued by public entity for a term of three years or less.	- May cover either operating or capital expenses. - Can cover revenue shortfalls caused by emergencies or delay in receipt of funds. - Can facilitate initiation of projects in advance of long-term financing availability.	- Usually sold at higher interest rate than long-term debt. - Public agency must consider complex legal, political and financial issues.

(Continued)

Benefit Sharing Strategies	Description	Advantages	Disadvantages
Local Improvement District	The cost of constructing local public improvements (i.e., streets, sidewalks, etc.) is supported and funded (in whole or in part) by adjacent property owners through a cost allocation formula.	- Usually initiated and funded by private property owners that stand to benefit directly from the local improvement. - Good immediate source of funding. Applies to all properties in a district. - Implementation is fairly straight forward once local support is documented.	- Fairly narrow district area, requires approval by majority of property owners adjacent to the improvement. - There are limits to the costs the property owners are willing to bear.
Special Benefit Assessment District (similar to LID)	Assessment on property owners based on the total cost of an improvement that directly benefits a specific area.	- Generally funded by property owners that stand to benefit directly from associated improvements or services. - Stable and reliable funding source. Could be used as an operating subsidy. - Offers flexible assessment potential (i.e., linear feet, retail sales, fee per dwelling, parking spaces, etc.)	- May require property owner approval. - Tends to be less used less for capital than for operations and administration (i.e., marketing of downtown).

Benefit Sharing Strategies	Description	Advantages	Disadvantages
Urban Renewal District fax Increment Financing	Urban Renewal District is established and Urban Renewal Plan approved that provides for financing of Urban Renewal indebtedness through division of ad valorem taxes levied by a taxing district in an urban renewal area.	- Opportunity to "capture" future tax increments generated by urban renewal projects for funding specific improvements. - Tends to disburse financial burden among many property owners.	- High cost of implementation and strict annual financial reporting requirements. - Tax exempt properties are usually excluded. - Viability affected by pace of development.
Corporate and Individual Sponsorships	Private corporations or individuals contribute tax deductible funds towards capital facilities or vehicles. Most successful if organized into a program (i.e., sale of bricks or tiles, donated vehicles or pedestrian amenities).	- Up-front commitment of private equity. - Generally favorable public support. - Much favorable "adopt a station" or "adopt a highway" experience help limit operating costs.	- Requires coordination by non-- profit transit agency to avoid · classification as private activity.
·Impact Fees and System Development Charges	An assessment on property owners to help mitigate the impacts of new development on transit, or traffic patterns. Fees must correlate to the incremental cost of specific improvements required to support the development.	- Revenues can be used to cover capital or operating costs. Generally favorable public support.	- Stability of funding is generally poor. May dissuade station area development. Works best with private developer/property owner support and favorable market conditions. - High legal costs of implementation.

Benefit Sharing Strategies	'Descripti on	Advantages	Disadvantages
Developer Cost Sharing/Right of Way Contributions, Segment or Station Construction	Private developers willingly grant easements, contribute right-of-way and/or assist in transit station construction to achieve a better ·physical or functional link between their property and the transit system.	- Benefits both transit provider and developer. - Optimizes transit-oriented development and ridership. - Up-front commitment of private equity. Generally favorable public \ support.	- Relatively small source of capital. - Limited potential in built-out areas.
Developer Exactions and Conditions of Approval	In instances where private development impacts public facilities or infrastructure, developers could be required to contribute land for ROW or construct public transit facilities in exchange for conditional land use permits or planning approvals.	- This approach can benefit the property owner/developers, the transit agency and public-at-large by assuring that transit facilities are integrated into development projects. - Generally favorable public support. - Best used with incentive zoning strategies.	- Reluctance on part of land owners. Specific development plans and commitments may change over time, as land changes ownership and markets evolve. Requires significant Up-front planning and legal costs. - Burden of proof of ''rational nexus'' is on the City. - May be redundant with other fees or assessments.
Incentive Zoning - Special District Zoning - Bonus or Incentive Zoning - Conditional Zoning	These various "upzoning" methods are designed to induce development density at designated locations, and enhance ''value capture'' and "benefit sharing" potential.	- Optimizes land value and value capture potential. - Effective means to facilitate property assemblage. - Good method for surrounding community preservation.	- To induce development, zoning must be readily marketable and other development alternatives constrained. - Produces no immediate money for ttransit financing. - Most effective if preceded by downsizing.

Use of Property/Other Strategies	Description	Advantages	Disadvantages
Lease Arrangements, Certificates of Participation or Cross-Border Leasing	Private investors buy all or part of public facilities then lease facilities back to the public agency.	- Allows public agency to raise capital at favorable rates. - Does not require voter approval. - Can provide up to 100% financing for required capital items (i.e., vehicles, shop equipment). - Minimizes administrative and accounting costs. - May offer tax advantages to some investors (i.e., Pickle Leases).	- Subject to vagrancies of constantly changing IRS tax code. - Tax treatment must be clearly structured (i.e., tax-exempt financing may only be used with straight-line depreciation).
Lease or Sale of Property and/or Development Rights	Involves the lease or sale of transit-owned property adjacent to stations or ROW, station entrances, air or subsurface routes.	- Funds from transactions can be used for construction and/or operating expenses. - Can take many forms of public-private sector joint venture agreements	- Usually requires Up-front supplemental land acquisition by transit agency. - Involves complex economic. land use and legal issues.
Vendor/Contractor Financing	Method where contractor and/or equipment supplier provide extended financing plan for construction schedule or certain capital items (i.e., vehicles, shop equipment).	- Does not usually require voter approval. - May offer expeditious "all-in-one" approach to project construction (design build operate) and/or equipment procurement.	- More applicable to larger transit projects/orders. - Generally unfamiliar territory for public sectors involved.

Miscellaneous Revenue Sources - Concession Space Leases - Special Events, Tours, Charters Advertising Revenues - Sales of Sundry Items - Volunteer Work - Bulk ticket sales to employers, hotels, students, destinations.	Includes several means to enhance operating revenue and reduce operating costs.	- Miscellaneous revenue sources, when combined, can become a significant source of income for station operations.	- Requires ongoing management and administration.

Source: Otak, Inc.; and Jeffrey Parker & Associates, Inc.

Table 2
Recent National Examples of Application of
Financing/Funding Strategies for Public Transit

Strategy	Location	Application
Issuance of Debt and Leasing		
Certificates of Participation	Los Angeles	SCRTD sold $29 million in 10- year equipment trust certificates (at 8% interest) for purchases of 1000 buses.
Sale/Leaseback Arrangements	Houston	MTA used sale/leaseback with a bank to reduce initial outlay for buses.
Vender Financing	New York City	Bombardier, Ltd. arranged for financing for MTA procurement of 825 rail cars.
Revenue Anticipation Notes	Philadelphia	SEPTA has issued revenue anticipation notes on an annual basis between 1981 and 1990.
Issuance of Bonds	Boston	MBTA frequently issues general obligation bonds backed by the full faith and credit of the Commonwealth.
Cross Border Leasing	New Jersey	New Jersey Transit (NJT) sold 233 commuter rail vehicles to Asea Brown Boveri (ABB) and its Netherlands subsidiary, then leased them back for 12 years - realizing a net benefit of $18.4 million in reduced financing costs.
Privatization		
Private Equity Financing	Tampa, FL	Construction of Harbour Island People Mover was totally financed - and was operated/maintained by a private developer.

Table 2
Recent National Examples of Application of
Financing/Funding Strategies for Public Transit
(Continued)

Private Operation	Ft. Worth	Tandy People Mover is privately operated by major property owner.
Contracting	Johnson Co, KS	County contracts with a private operator for Service for all transit service (6 express, 4 local routs).
Taxes and User Charges		
Sales Tax	Atlanta	50% of MARTA's annual revenue comes from a 1% local option sales tax.
Motor Fuel, Toll or Parking Tax	Miami	20% of Dade County's annual revenue comes from a local option fuel .tax.
Motor Vehicle Fees	Seattle	20% of METRO's annual revenue comes from a 1% state motor v-vehicle excise tax.
Payroll or Income Tax	Portland, 0R	50% of Tri-Met's annual revenue comes from corporate payroll tax.
Utility Tax	New York City	Transit is subsidized in part through surplus water and electric charges.
Property Tai	Minneapolis/St. Paul	40% of MTC's annual revenue -comes from a 1.5-2 mil property tax.
Lottery	Arizona	The state legislature earmarked $190 million {over a 10-y.ear period) of lottery receipts for the local Transportation Assistance Fund.

Table 2
Recent National Examples of Application of
Financing/Funding Strategies for Public Transit
(Continued)

Use of Property and Property Rights		
Leasing/Selling Development Rights	Washington DC	WMATA receives about $3.6 million annually through leasing development rights, with the expectation that this revenue will increase to $12 million.
Leasing/Selling Facilities	Fargo, ND	City of Fargo leases part of Land or Facilities city-owned transit terminal to Greyhound for $32,000/yr. (15 years).
Benefit Sharing Strategies		
Local Improvement District	Portland, OR	In 1984, a Yamhill/Morrison "LID" was formed and 32 businesses raised $1.5 million to match $4.0 million in federal funds for LRT-related sidewalk and street improvements. The $33.7 million convention center MAX station included $5.1 million in private participation.
Special Benefit Assessment	Miami and Los Angeles	Assessments are expected to generate $20 million over 15 years to repay bonds issued for the people mover. This plus donated easements accounted for the 20% local share. Los Angeles is raising several hundred million in Special Benefit Assessment Bonds.
Tax Increment Financing	San Francisco	Financing for building Embarcadero Station came, in part, from sale of a TIF bond.

Table 2
Recent National Examples of Application of Financing/Fundingg Strategies for Public Transit
(Continued)

Direct Capital Contributions	Vancouver, B.C.	The Vancouver Skytrain transit system received three proposals involving two developers that committed $6 million each and two developers that committed $4.5 million total for stations that would serve each of their developments.
Impact Fees	San Francisco	City imposed $5/sq. ft. fee f r new downtown office space; fee is paid as a condition of obtaining certificate of occupancy.
Connector Fees	Washington DC	WMATA has successfully obtained million in connector fees from specific station area developments (i.e., Friendship Heights Station).
Fare-Subsidies	Seattle and Orlando	University-subsidized transit fare payments are made directly to transit operator.
Volunteer and "Adopt-a-Station" programs	St. Louis, New York, Denver, Dallas, et al.	Volunteers help maintain transit stations or drive streetcar vehicles to lower annual D&M requirements.

Sources: Otak and Jeffrey Parker & Associates case studies; and US Department of Transportation, Financial Planning Guide for Transit, April 1990.

Pay-As-You-Go

It is obviously beneficial for transit providers to cover expenses with revenues received during the current year. Farebox revenues, advertising revenues, fund raising and other miscellaneous revenue sources can help cover some operating expenses, but are usually not sufficient means to cover 100 percent of the annual operating costs or capital r-requirements.

The pay-as-you-go approach is generally appropriate for small, less capital intensive projects, such as the purchase of one or two historic streetcars for use on an existing rail track (i.e., Denver streetcar). For larger capital intensive projects, it works well when there is a stable and reliable source of annual revenue, such as income from a payroll tax (i.e., Portland Tri-Met). In most cases, the capital intensity of most new start projects requires one or more of the following strategies for matching revenues, in addition to pay-as-you go funding.

Debt Financing and Leasing

Secured debt or lease commitments help to infuse up front capital for meeting project construction schedules, and may lower annual operating cost requirements. The financing options discussed below include: issuing bonds or notes, leasing and vendor financing.

Bonds and Notes

Bonds are widely used long-term (five or more years) debt obligations that allow the issuing entity to raise large amounts of capital with repayment made over time. The two most popular forms of bonding are general obligation and revenue bonds. The advantages and disadvantages of these funding mechanisms are described in Table 1. Other types of hybrid bonds and special long-term securities may be created using aspects of short and long-term debt funding.

Short-term debt or notes are generally issued for three to five years, and may be used to cover capital or operating expenses. They are usually used to cover temporary or emergency funding needs. Major forms of short-term financing instruments include Ta."'{, Revenue, Grant, and Bond Anticipation Notes (TANs, RANs, GANs and BANs).

Leasing

Leasing has become an attractive means to obtain capital. It can cover 100 percent of the capital requirements, while improving annual cash flows and offering flexibility to meet the needs of the lessees. The Federal Transit Administration (FTA) now allows Section 9 grants to finance the leasing of facilities and equipment for project construction.

The two main leasing arrangements that have been applied to transit financing include: "certificates of participation" (COP), otherwise known as "equipment trust certificates and "sale-leaseback" arrangements. COPs are used to finance equipment purchases by dividing the cost among many investors who in-turn lease their share of the equipment back-to the transit entity. A trustee bank issues the debt, holds title to the equipment on behalf of the investors and leases the equipment to the transit agency.

Cr-edit supports and market value guarantees are often used to improve marketability of COPs to potential investors. In some instances the market value of the equipment (capital asset) is sufficient in attracting bond insurance when there is a provision that bonds will be redeemed in any year where the asset market value to principal ratio falls below a certain threshold (i.e., 125 percent). Another method to ensure marketability of COPs is to have the equipment supplier guarantee purchase ¢equipment at a designated price each year.

Sale/leaseback arrangements, such as Cross-Border leases and Pickle leases also offer the potential to raise private capital, at a lower cost of funds. Private investors purchase all or part of transit equipment or facilities then leases them back to the transit agency. IRS code affects the ability to attract private equity by controlling allowable depreciation methods and the tax exempt status of long-term debt financing.

Vendor Financing

Vendors may supply construction financing through negotiated progress payment schedules and may also arrange lease financing as part of their price proposals. The financing rate, terms and schedule are negotiated with the vendor, who provides either an extended payment schedule or acts as the conduit for financing.

Privatization and Public/Private Partnerships

Private-sector participation in transportation and transit has drawn increased attention in recent years. Rising transportation costs and limited federal, state and local funding have placed unprecedented pressure on local transportation agencies to identify creative means to plan and implement major transportation and transit improvements.

It is somewhat ironic that as we approach the 21st century we face many of the same transportation financing issues that were prevalent during the 19th and early 20th century. The early streetcar lines throughout the nation were constructed and operated in the spirit of public-private partnership. Municipalities, property owners, lenders/bankers, utilities, municipalities and system users once again must form partnerships to provide the means to build and operate fixed guideway systems.

Although privatization takes on many forms, it can be classified into three basic areas: financing and/or ownership; operations; and benefit-sharing investments or contributions.

Private Financing 0wnership

The financing/ownership category includes some combination of private-sector design, financing, construction, ownership and/or operation of a fixed-guideway system or related facilities. Because this approach represents a significant recent shift in public policy toward providing public transit, there are relatively few existing examples of "new start" transit projects under complete private ownership. However, there are a number of transit systems that have partial private-sector investment or are operated by nonprofit entities.

The limited recent instances where transit facilities were installed entirely with private

{non municipal or transit agency) investments include the Duke University Hospital people-mover in Durham; Tandy's Subway in Fort Worth; the Grand Cypress Resort trolley line near Orlando; and the Harbour Island people mover in Tampa. A private fixed-guideway people mover system is in service at Los Colinas (near Dallas) and other locations in the United States.

In these instances the property owners (a university, a department store, a hotel, and a mixed-use developer) own and operate the fixed-guideway systems as an adjunct to their facilities like escalators or elevators. Capital debt service and operating costs are covered by daily income derived from running their facilities (i.e., hospital surcharges, retail sales, lodging receipts, common area maintenance charges, condo fees; etc.). In all of these instances, there is the common recognition by the property owners/developers that transit is critical to the success of their development by providing access, overcoming site constraints, reducing parking needs and relieving traffic congestion. The provision of transit facilities may be established as part of a conditional land approval.

Turnkey Projects

Another alternative is for private-sector participation in "turnkey" design, financing, and construction of major transit projects. Under a turnkey arrangement, the successful contractor finances the entire project, builds it for a guaranteed price, completes it by a guaranteed due date, and gets the project operating. In "design-build-operate" instances, the contractor also operates the project for a set time period. A current example is the $550 million Hudson-Bergen LRT in Jersey City which is to be built turnkey with a 15-year operation and maintenance period. The turnkey approach is attributed to reducing phase 1 project cost from $795 million to $550 million.

We have identified several North American transit projects that have been built under turnkey contracts. Selected United States projects include: the Detroit People Mover; Miami Downtown People Mover (Phase 1); and the Fraser Shops of the Southeastern Pennsylvania Transportation Authority's electrified commuter rail network in Philadelphia. Other project examples include the Vancouver Skytrain, the Guadalajara light rail transit (LRT) line, and the Monterey LRT line.

In the U.S. examples, the ultimate financing included the typical50-80 percent Federal share with local match. In some cases, the local match was initially financed by the private sector.

Under a turnkey contract, in many instances, the contracting agency does not pay for work until it has been satisfactorily completed. Benefits of turnkey contracts include assuring project completion on budget and on time. The contractor guarantees project delivery and must acquire bonding and insurance. Because there is a single point of contact for the agency and given the fairly free reign of the vested contractor, considerable time savings can result. This savings in time can translate into lower capital requirements, because the incremental effects of inflation are avoided, overheads are reduced and there .is more

flexibility in meeting performance objectives.

Super turnkey arrangements for a transit project have not yet been used in the United States, but have been utilized in Europe, Asia and Australia. Under these arrangements, the contractor takes on some form of the financial risk, and depends in part on recovering costs through revenues produced directly (i.e., a share of the farebox revenue) or indirectly (i.e., revenue from related station area real estate development).

Private Operations
The intent of private operations and maintenance contracts is to reduce the transit agency's cost by taking advantage of typically lower operating costs of private operators; and by optimizing service efficiency. There are several potential forms of private service contracts, including:

- Contracts with private providers for operating the entire transit system, including provision of equipment;

- Contracts with private providers for the management and operation of the transit system (i.e., provide drivers and other personnel); and

- Contracts for the management of certain support services (i.e., vehicle maintenance, ticket sales, advertising).

Benefit Sharing and Alternative Strategies
There are numerous methods to establish partial private sector participation in financing transit capital and operational requirements. These strategies can be classified into three broad categories: taxes or user charges, use of property and property rights, and benefit sharing strategies. A description of these and other funding mechanisms is included on Table 1, and specific project applicability is shown on Table 2.

It is important to note that each strategy tends to have a unique focus on capital costs, equipment, operating costs or all of the above. While mechanisms such as cost sharing or right of way dedications may offset capital facilities' costs, other mechanisms, such as special assessments may secure bonds for construction. And other mechanisms, such as advertising and property leases, may offset annual operating costs.

Evaluating and Selecting Financing Mechanisms

The appropriate mix of funding sources will likely include a variety of those indicated above and summarized in Tables 1 and 2. When evaluating potential funding mechanisms, it is important to view them from the perspectives of the transit agency the affected local community, property owners/developers, contractors and suppliers, and potential investors.

A set of evaluation criteria should be established along with a qualitative rating system. Table 3, *Preliminary Evaluation of Selected Revenue Sources,* provides recommended criteria, including: relationship to project goals, private sector support, community impact, adequacy of funds, legal difficulties, and others should be considered for each prospective funding mechanism. A rating system is useful -to compare and contrast each source of funding.

It is important *to* establish realistic expectations about each funding mechanism, and to avoid "over taxing" the private sector. The benefits of fixed-guideway transit should be viewed from the prospective of the private property owner or developer to examine the perceived benefits of enhanced access. The most successful examples of public-private financing are the ones that equitably share the risks and benefits of the fixed-guideway connection.

Next Steps

This memorandum presents an overview of several potential revenue sources that have been successfully applied to the construction and operation of fixed-guideway transit projects in the United States. The information provided herein is intended to assist the RFRHA Board, Policy Committee, Citizen Task Forces, and the project team in evaluating and selecting appropriate local sources of capital and operating revenue for additional consideration.

After review of this information with the Citizens Task Forces and the RFRHA Policy Committee, we will investigate those revenue sources determined to be appropriate for the Glenwood Springs to Aspen project in further detail. The preliminary evaluation of revenue sources should help RFRHA to narrow the focus of more detailed investigation of likely sources of revenue.

The Roaring Fork Transit Agency (RFI'A) has spent the last several months investigating the creation of a Rural Transportation Authority within the RFRHA study area. As the RFRHA Board and Policy Committee move forward in their investigation of transit financing we strongly recommend a partnership with RFTA and close coordination of the efforts of the two agencies.

Table 3
Central City Streetcar Project
Preliminary Evaluation of Selected Revenue Sources

Revenue Source	Relationship to Project Goals	Private Sector Support	Community Impact	Adequacy of Funds	Sustainability/ Stability of Funds	Equity	Legal Difficulties	Political Support	Ease of Administration
Economic Improvement District									
Benefit Assessment/LID									
Tax Increment Financing									
Impact Fees									
Cost Sharing									
Density Bonus									
Air Rights Leasing									
Vendor/Contract Financing									

H = Highest Rating (most supportable of goals, most revenues, least negative impact, easiest to in1pien1ent, etc.) M = Middle Rating
L = Lowest Rating

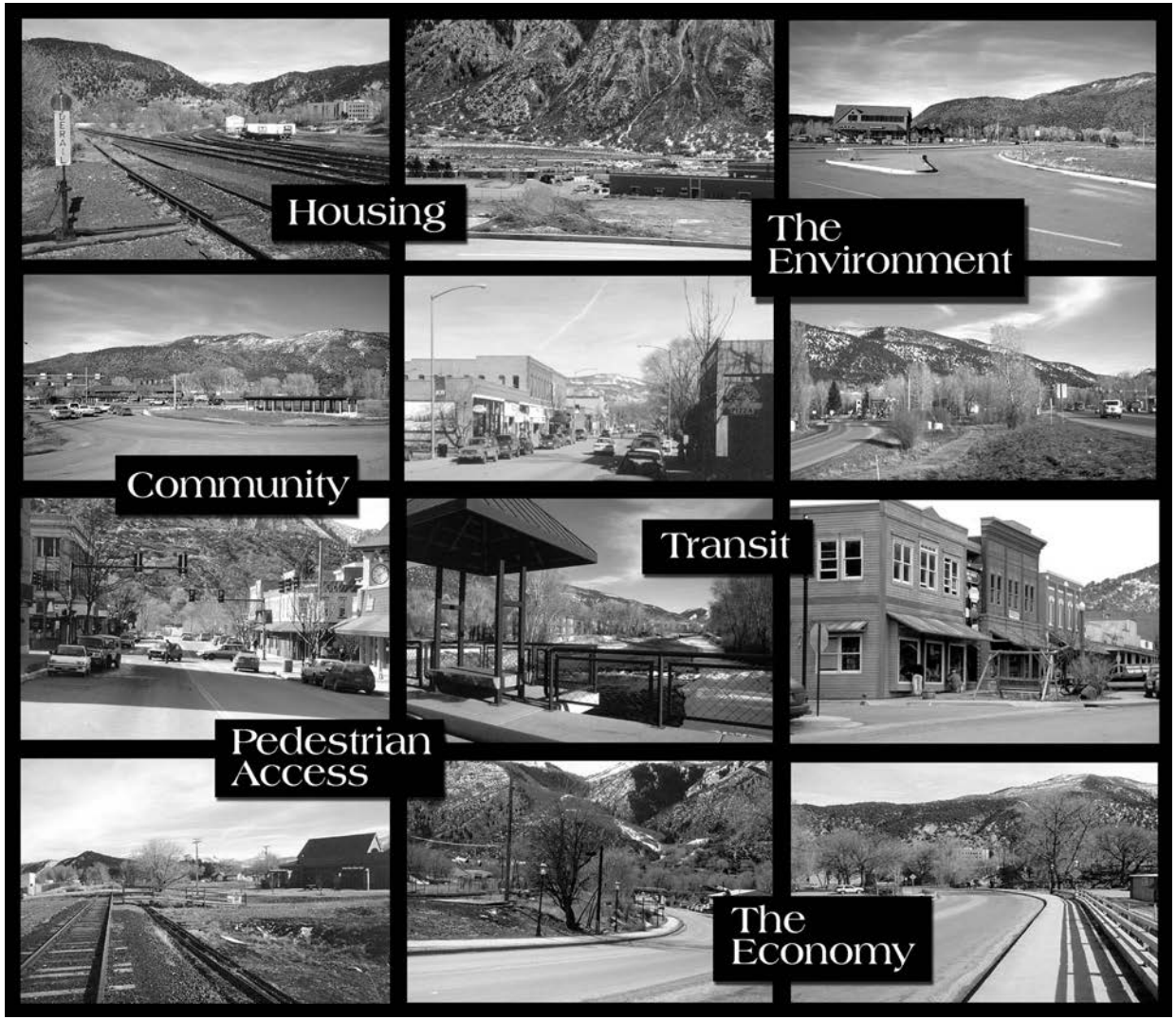
Source: Otak, Inc.

EXHIBIT D-4

Transit Oriented Design Options

Glenwood Springs to Aspen/Pitkin County Airport Corridor Investment Study

Transit Oriented Community Design Report



prepared by

otak

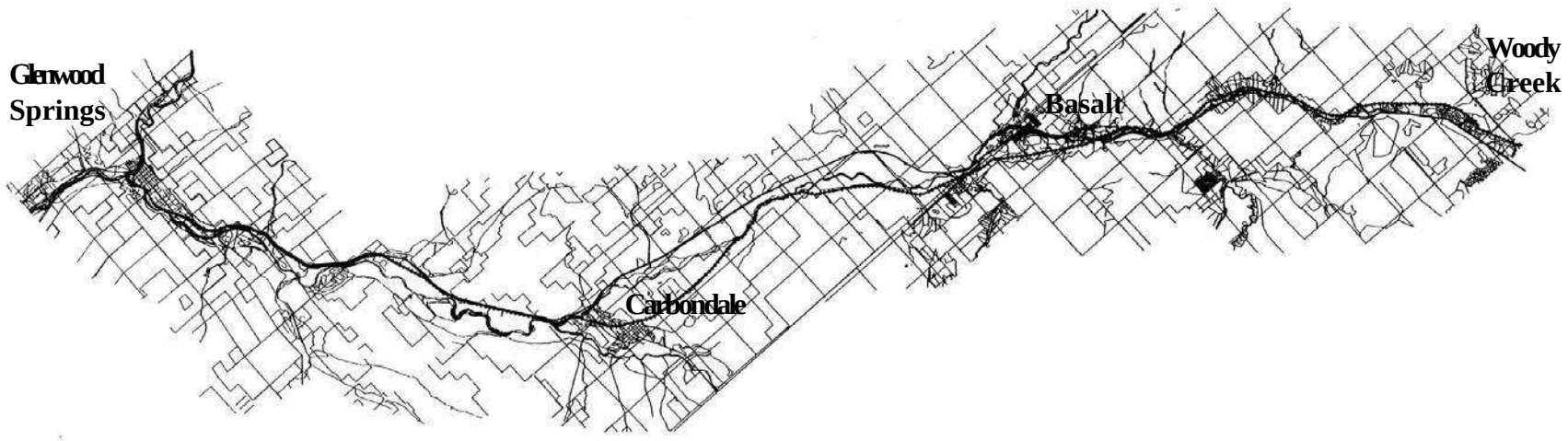
February 2000

Introduction

In the coming weeks and months, the people of the Roaring Fork Valley will make transportation investment decisions that will impact the long range character and economy of towns in the Valley. The decision-making process is being managed through the Glenwood Springs to Aspen Corridor Investment Study/Draft Environmental Impact Statement (CIS). The CIS is evaluating alternative transportation futures for the Valley, including doing nothing beyond currently committed projects, improving the existing bus system, and constructing a rail system connecting the communities of the Valley.

The citizen task forces and elected officials providing policy oversight for the CIS directed that the transportation alternatives be examined for their impact on and relationship to land use in Valley communities. They want the Valley's transportation system to be examined as one piece of a puzzle of interrelated issues including avoiding sprawl; creating compact, vibrant downtowns with a mix of land uses; and creating additional affordable housing.

A community exploration of the relationship between land use and mass transit at this stage in the planning process helps decision makers understand and refine transit service alternatives being considered. Station location, programming, aesthetics, amenities, and relationships with surrounding land uses are important considerations for world-class mass transit. The information developed in this *Transit Oriented Community Design Report* will be used to optimize transit to preserve and enhance the livability of the Roaring Fork Valley.



Traffic and Transit in the Roaring Fork Valley

Highway Congestion Threatens the Valley Economy, Environment, and Character

The Roaring Fork Valley is a narrow 40 mile-long valley located in western Colorado. A place of unparalleled beauty and recreational opportunity, the Valley attracts millions of visitors each year. The Valley includes five municipalities, three counties and numerous unincorporated villages.

These communities are served by a single transportation corridor, State Highway 82. Highway 82 is the state's most congested rural highway. Highway congestion threatens the economic vitality, environmental health, and character of the region.

The congested four-mile segment of State Highway 82 between Pitkin County Airport and 7th and Main Street in Aspen, known as the Entrance to Aspen, is a major traffic bottleneck. The Colorado Department of Transportation (CDOT) released a Record of Decision in August 1998 identifying a combined new two-lane parkway and light rail transit (LRT) system as the solution to congestion and safety problems for this segment of the highway. If approved by voters, the parkway and light rail would be funded totally with state and local funds.

At the other end of the Valley, Grand Avenue, as State Highway 82 is called through downtown Glenwood Springs, is also a major area of congestion. The citizens of Glenwood Springs are currently studying highway bypass and transportation demand management alternatives to remove through traffic from the downtown area.

Other communities along the Highway 82 corridor are also experiencing increased congestion, with even more traffic forecast for the future. Recent planning by Eagle County anticipates constructing as many as ten traffic lanes on State Highway 82 in some areas of the mid-valley to mitigate anticipated traffic congestion.

CDOT has invested over $400 million in reconstructing Highway 82 as a four-lane facility. Travel demand forecasting conducted for the CIS predicts that, without investment in an improved transit system, the new four-lane highway will approach gridlock at critical locations as early as the year 2009. CDOT has indicated that funding does not exist to widen the highway to six lanes, even if this were desirable.

One tool the Valley uses in its struggle with increasing congestion and traffic is the excellent transit service provided by the Roaring Fork Transit Agency (RFTA). RFTA is the second largest bus transit system in Colorado; only the Regional Transit District in Denver is larger. Currently, close to 4 million people ride RFTA each year. However, the CIS forecasts that if no additional investments are made in transit, transit demand will exceed the capacity of the existing transit system in the very near future.

Making Valley Connections

CDOT has conducted a major feasibility study regarding the future of the State Highway 82 transportation corridor. The study identifies rail as the long-term solution to the traffic congestion on Highway 82. CDOT has listed the Roaring Fork Valley as a top priority

Glenwood Springs – 8th Street Bridge Over Roaring Fork River

corridor for passenger rail service in the State. The project has been endorsed as part of the region's Transit Development Plan and the State Transportation Improvement Plan. Amtrak calls it "one of the top three new rail projects in America."

In the early 1990s local governments of the Roaring Fork Valley region started looking at the possibility of purchasing the "Aspen Branch Line," the former Denver and Rio Grande Railroad right-of-way between Glenwood Springs and the hamlet of Woody Creek west of Aspen. In 1991, members of the Roaring Fork Forum, an organization established to encourage greater cooperation among local governments in the region, identified the purchase of the rail corridor as a top priority. The Roaring Fork Railroad Holding Authority (RFRHA) was created by Valley governments to purchase and manage the corridor, and to plan for its use. The right-of-way was purchased from Southern Pacific Transportation Company in June of 1997 for $8.5 million.

In 1998 RFRHA embarked on a Corridor Investment Study/Draft Environmental Impact Statement (CIS), a public process to determine the feasibility and desirability of rail transit service in the Valley. Rail is being studied as a tool to solve the Valley's transportation problem while limiting sprawl, focusing growth in existing communities, and preserving the beauty of the Roaring Fork Valley. The range of alternatives being evaluated in the CIS includes reliance on previously committed projects, enhanced bus service, and a rail system.

The improved bus and rail alternatives in the CIS have been designed to improve transportation and safety within the Roaring Fork Valley. The corridor plan includes bus/rail and multi-modal stations, park and ride lots, HOV lanes, and recreational and bike trails. The CIS will recommend a balanced transportation system that will mitigate serious congestion and pollution problems while preserving the essential character and livability of the Valley communities.

Citizens and policy makers identified a list of project objectives for the CIS to use as yardsticks in evaluating each transportation alternative. Many of the adopted project objectives relate directly to transit oriented community design:

- Enhances and maintains the economic viability and competitiveness for communities and resorts.
- Considers all potential funding sources, including private-public partnerships.
- Responsive to local master plans.
- Preserves the integrity of each community.
- Avoids being a growth generator or generating sprawl.
- Directs development to existing approved population centers.
- Honors local and regional aesthetics and community character in technology and design of facilities.
- Encourages transit oriented development.
- Provides transportation that can compete with private auto: predictable, dependable, comfortable, convenient, accessible, attractive, competitive in terms of total trip time, and less expensive than the total costs of the private automobile.
- Increases transportation choices for regional residents and visitors, not only between communities but within communities.
- Integrates linkages between community land use patterns and viability of transit alternatives.
- Evaluates technologies for their impact on land use issues.
- Results in a complete, integrated transportation system (auto, transit,

GLENWOOD SPRINGS – 7TH STREET

feeder systems, vans, car pools, bike, walk, etc.).

- Integrates transportation solutions with regional affordable housing and other regional planning issues.
- Minimizes traffic impacts along local streets due to transit facility location.
- Improves the quality of life for all communities in the region, including the preservation and enhancement of their environment.
- Preserves and enhances the character and scale of our valley.

Transit Oriented Community Design

A mutually supportive relationship between land use in the Roaring Fork Valley and the transit alternative selected for construction is of paramount importance to the citizens of the Valley. RFRHA has developed transit alternatives that would provide fast and frequent transit service within and between the valley communities. RFRHA cannot maximize the attractiveness of transit without the cooperation of local governments and property owners in the location and design of transit station areas.

Walking Distance to Transit

Convenience is a key determinant in the selection of a transportation mode for any given trip. For transit to be competitive with other modes, the transit system should have stations near the origins and destinations of the greatest number of potential users.

Glenwood Springs – "The Wye"

Ideally transit service should be provided within a reasonable walking distance of as many homes and businesses as possible along the transit route without compromising transit trip times. The stations identified in this report were sited by the project team and confirmed by the Citizen Task Forces and Policy Committee with this objective in mind.

The Transit Cooperative Research Program (TCRP) of the Transportation Research Board of the National Research Council has determined that, "In general, 0.4 km (0.25 mi.) or 5 minutes walk time is the limit of a bus route's typical "service area"; for a rail transit station, these figures can be doubled." Table 1 compares station area population for each alternative with the projected population and employment of the Roaring Fork Valley. Table 2 presents corresponding employment data. Population and employment within each station area are presented later in this report.

Table 1
Comparison of Station Area Population

Alternative	2003 Population	2020 Population	2003 Pop. as a % of Valley Pop.	2020 Pop. as a % of Valley Pop.
Improved Bus	8,294	11,471	20%	18%
Rail	17,227	23,539	42%	37%
Roaring Fork Valley*	40,824	64,157	N/A	N/A

*Roaring Fork Valley permanent resident population, Planned Growth Scenario.

Table 2
Comparison of Station Area Employment

Alternative	2003 Employment	2020 Employment	2003 Emp. as a % of Valley Emp.	2020 Emp. as a % of Valley Emp.
Improved Bus	9,760	12,804	31%	25%
Rail	18,667	24,754	60%	48%
Roaring Fork Valley*	31,010	51,100	N/A	N/A

*Roaring Fork Valley winter employment, Planned Growth Scenario.

CARBONDALE – HIGHWAY 133 RAIL CROSSING

As can be seen from Tables 1 and 2, both the improved bus and rail alternatives provide transit service within walking distance of a significant fraction of the homes and jobs in the Roaring Fork Valley. Due to the enhanced service area found with rail, approximately twice the population and employment is within the service area of rail stations as compared to bus stations.

CARBONDALE – EXISTING RAIL ALIGNMENT

It can also be seen from Tables 1 and 2 that the fraction of population and employment within walking distance of transit declines over time under both alternatives. In 2003 42 percent of the Valley population will be within walking distance of a mainline rail station. This percentage drops to 37 percent by 2020. For bus stations the decline over time is from 20 percent to 18 percent.

Perhaps more dramatically, employment within walking distance of rail transit drops from 60 percent of the Valley total in 2003 to 48 percent by 2020. For bus stations the decline is from 31 percent to 25 percent between 2003 and 2020.

These findings may suggest that communities in the valley review their land use plans with a goal of intensifying use adjacent to station areas. Aspen, Basalt, Carbondale, and Glenwood Springs currently have community plan updates underway or have recently adopted updated plans that have been coordinated with the CIS effort.

Proximity to transit findings also suggest that the preferred transit alternative be refined in preliminary engineering to enhance transit coverage by identifying subtle changes in station location or by the provision of additional stations.

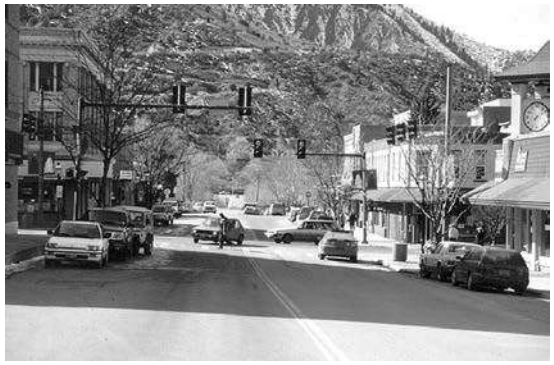
Quality Pedestrian Environment

The quality of the walk to (and from) transit is as important as the length of the walk when a person is making the decision to walk to transit. Thus a "pedestrian friendly" environment is a transit supportive environment. Pedestrian friendly environments include adequate sidewalks and crosswalks, direct routes between activities, street lighting, pedestrian-scale architecture,

and an interesting and active streetscape. The Americans with Disabilities Act (ADA) mandates that this pedestrian environment be accessible to all citizens.

The historic communities of the Roaring Fork Valley that prosper to this day were located to serve the resource-based economy of the Valley and were in turn served by the Denver & Rio Grande Railroad. The small block sizes, street grids, storefronts, and mix of housing and commercial activity in close proximity are all legacies of the Valley's railroad era. This original integration of land use and transportation left today's residents with the pedestrian friendly communities they cherish and hope to preserve and enhance.

Many of the station sites for the improved bus and rail alternatives were located in existing town centers. The function of these stations will be enhanced by the pedestrian friendly



GLENWOOD SPRINGS – 8TH STREET

CARBONDALE – MAIN STREET

nature of their locations. Station areas located outside of the traditional town sites will require more creativity and public and private investment to make them pedestrian friendly and thus transit supportive locations.

The Federal Transit Administration (FTA), the agency charged with reviewing the CIS and approving the use of federal funds for mass transit in the Valley, has placed increased emphasis on the ability of transit investments to promote livable communities. Transit mode choices, system alignments, station locations, and station uses are all reviewed by the FTA to determine the extent to which proposed systems encourage compact urban form, investment in existing urban areas, and joint development at station areas while discouraging sprawl and auto-dependent land uses.

The *Transit-Oriented Community Design Report* illustrates potential town planning and transit-oriented design solutions and considerations for the Roaring Fork Valley identified by Valley residents. Between February 8, and February 26, 1999, the CIS team conducted thorough design discussions with stakeholders. This dialogue resulted in a better understanding of the functional and aesthetic relationships between enhanced valley-wide transit service and valley communities. This report documents what the design team learned from Valley residents and stakeholders and is intended to serve as a vehicle for land use and urban design comment as a part of the CIS.

The designs, illustrations, and descriptions contained in this report are conceptual and schematic in nature. They are intended to illustrate what is achievable and to continue a design dialogue in each community. Actual development at station areas will be determined by the owners of property adjacent to station sites, the communities responsible for the regulation of land use, and the agencies responsible for managing the transportation system.

As the CIS is studying alternatives that include a transit center at Brush Creek Road and at Pitkin County Airport, the study team has included earlier transit oriented design information for these sites. These designs were developed in a similar design dialogue with the Upper Valley community during the spring and summer of 1998.

Issues Identified in the Transit-Oriented Community Design Workshops

Between February 8 and February 26, 1999 the CIS team met with elected officials, community leaders, local government staff and other citizens. Attendees included members of the following groups:

- Glenwood Springs City Council
- Glenwood Springs Downtown Plan Advisory Committee
- Glenwood Springs Transportation Commission
- Glenwood Springs General Improvement District Advisory Committee
- Glenwood Springs Chamber Resort Association
- Hotel Colorado management
- Hot Springs Pool and Lodge management
- Glenwood Springs property owners
- Carbondale Town Council
- Carbondale Comprehensive Plan Committee
- Carbondale Chamber of Commerce
- Carbondale property owners
- Basalt Trustees
- Basalt Planning and Zoning Commission
- Crawford Family
- Willits area development interests
- Basalt property owners
- Tree PAC - Mount Sopris Tree Farm Community Park Advisory Council
- Members of Glenwood Springs, Carbondale, and Mid-Valley Citizen Task Forces
- Interested citizens from Glenwood Springs, Carbondale, and the Mid-Valley
- Staff from Glenwood Springs, Carbondale, Basalt, Garfield County, and Eagle County

Participants were identified by local government staff and invited to participate in the TOCD workshops. In addition, public design sessions were held on February 9, 11, 22 and 25. Letters of invitation were sent out to extensive mailing lists, including local boards and commissions, members of the American Institute of Architects and the American Society of Landscape Architects, and other groups and individuals who have expressed interest in the CIS. All events were advertised in the local media. A list of individuals who signed in for each meeting is available from RFRHA.

The "design dialogue" served to educate the community and the CIS team as to the opportunities and constraints associated with enhancing transit service in the Roaring Fork Valley. A number of issues were identified and discussed at each session. The CIS team endeavored to represent the discussion visually with plan views, cross sections, and renderings of each of the station areas. These working drawings were presented and discussed at Citizen Task Force meetings on March 1 and March 3.

Many design issues were common themes in the focus group discussions and the subsequent staff and Citizen Task Force discussions. A summary of these issues follows:

EAGLE COUNTY – PEDESTRIAN UNDERCROSSING AT EL JEBEL

EAGLE COUNTY – HIGHWAY 82 AT EL JEBEL

Glenwood Springs

Community Development/ Enhancement Issues

- Glenwood Springs needs to understand the potential impacts to business of routing commuters on new corridors.
- The downtown transit center should be located to add to the vitality of the downtown core area.
- Station areas provide affordable housing opportunities that lessen the need for a family automobile or multiple automobiles and thus decrease family transportation costs.

Traffic Issues

- Any transit solution in Glenwood Springs should not preclude the option of constructing a future Highway 82 bypass.
- The undercrossing of the rail line should be moved from 7th Street to 8th Street and 8th Street should be a through street from Grand Avenue to points west of the river.
- There are two generators of traffic congestion in Glenwood Springs - through traffic and local traffic.
- The community needs more local traffic solutions.
- Glenwood Springs should reconsider allowing trucks and buses on Midland Avenue.
- Improvements are needed at the West Glenwood I-70 interchange.

Transit Issues

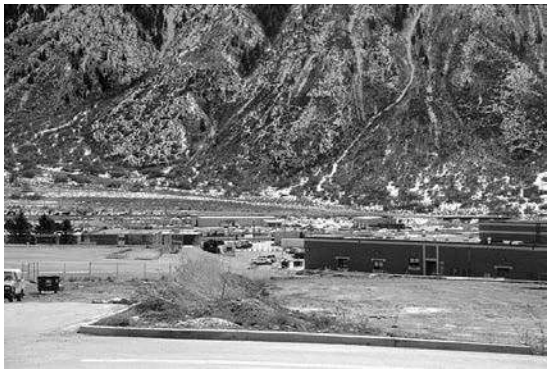
- The City bus system should be expanded to provide feeder service like the *Hop, Skip, Jump* service in Boulder.
- Glenwood Springs should consider a dial-a-ride system.
- Glenwood Springs should consider different buses for different parts of town. Buses should complement the character of different parts of town.
- Any transit solution should have a back up system like a free ride home for users.
- The transit systems should be linked to the movement of freight, commuters, and pedestrians.
- A rail solution should work for every community in the valley.
- Consider routing express buses up valley from West Glenwood Springs on Midland Avenue.
- Consider a feeder bus from Eagle County if there is demand.
- Provide a connection to Amtrak and possible Eagle Valley rail.

Parking Issues

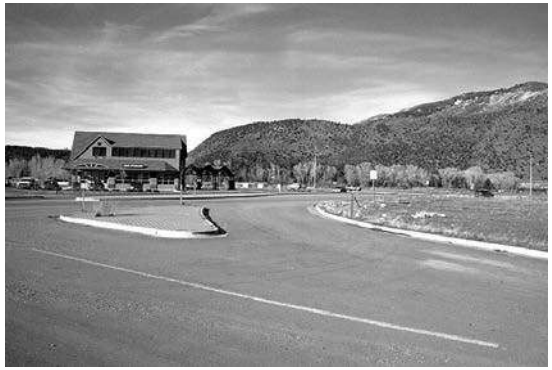
- The community needs both regional and local parking solutions.
- Consider a tiered/structured parking lot east or west of Wulfsohn ranch property.
- Consider locating a parking structure in town as part of the 8th Street crossing.
- Consider locating the parking structure at the Hot Springs Pool parking lot.
- The community will need to consider parking incentives /disincentives like paid parking and satellite parking for employees.
- Consider a South Glenwood Springs park-and-ride facility.
- Rather than building the extension to a park-and-ride facility in West Glenwood, explore enhanced bus service from parking in Silt, Rifle, Newcastle, etc. until rail is extended to west to these communities.

Pedestrian/Bicycle Issues

- Pedestrian connections along and across the rail corridor are important.
- There should be a grade separated crossing of Midland Avenue at the West Glenwood Springs station.



West Glenwood Springs



BASALT – WILLITS LANE

- Glenwood Springs River Trail should connect West Glenwood Springs and Glenwood Springs stations.

Land Use Issues

- Downtown plan calls for redevelopment and mixed use on 7th and 8th west of Grand Avenue.
- Explore the relationship between the West Glenwood Springs station and the proposed community center.
- Development at Wulfsohn Ranch should be considered in designing a West Glenwood Springs station.

Carbondale

Community Development/Enhancement Issues

- Use the transit system as a catalyst for the extension of downtown from Main Street to the north.
- Transit should support job creation in the downtown area.
- Carbondale desires a better balance of housing and jobs in the community.
- The community needs to consider the highest and best use of property roughly between 8th Street and 4th Street north of the rail corridor. Carbondale may want to preserve the site as industrial land for development like the Aspen Airport Business Center. The community may want to consider moving industrial designation to someplace with better access like the CRMS site.
- The 4th Street site could be developed as a mixed use commercial/ residential area.

Traffic Issues

- A traffic signal may be required at the Highway 133 park-and-ride.
- Grade separation of the Highway 133 crossing is important.
- Grade crossings may cause traffic delays.
- Highway 133 traffic safety and pedestrian crossings are serious concerns in the community.
- The 4th Street grade crossing is important for connectivity and implementing the town plan.
- Consider reconfiguring 4th Street to the west north of the rail corridor.
- Grade crossing operations will need to be worked out at each crossing in town.

Transit Issues

- Feeder buses should use 3rd Street, 5th Street, and Colorado Avenue to access the Carbondale station.
- RFRHA should procure the quietest train (almost) regardless of cost.

Parking Issues

- A park-and-ride facility on Highway 133 is a good idea.
- No parking should be provided at the Carbondale station.
- Consider structured parking with mixed use frontage at Highway 133 station.
- Consider parking on both sides of Highway 133.

Pedestrian/Bicycle Issues

- Separate pedestrians from automobiles.
- Carbondale is working on a pedestrian trail on the east side of Highway 133.
- Consider a trail from neighborhood to the Highway 133 station.
- The valley trail should go over or under Highway 133
- A station on the east side of Highway 133 provides a better connection to the residential area to the north and east.
- 4th Street should be developed as a pedestrian corridor.
- Explore a pedestrian connection from Main Street to a new park on the bluff at the end of 4th Street.

Land Use Issues

- The status of the private grade crossing at 2nd Street could impact development potential north of the rail corridor.
- Consider converting the trailer park on Colorado Avenue to mixed use with housing.
- Carbondale should consider a park or other way to enjoy the bluff at the end of 4th Street.

Mid-Valley

Community Development/ Enhancement Issues

- Use transit improvements as a catalyst to improve El Jebel and create a "there there."
- The river resource is a compelling opportunity. The community should plan for a park along the Roaring Fork River in Basalt.
- Transit should support downtown Basalt and plans for Frying Pan Market redevelopment, Midland corridor retail development, and mixed use development on Two Rivers Road.

Traffic Issues

- Improvements are needed at the El Jebel Road traffic signal.
- Station planning in El Jebel should consider the impact of Blue Creek Lane between El Jebel Road and Willits.

Basalt – Midland Avenue

- The Highway 82 frontage road between Basalt Avenue and Midland Avenue in Basalt should be pulled back from the highway to create a grid street pattern between the highway and the river.
- Consider moving the traffic signal from Basalt Avenue to Midland Avenue. Design Midland Avenue as the north-south connection and close the old connection.

Transit Issues

- Many property owners prefer rail to bus solutions.
- Transit improvements and the El Jebel station should be adjacent to the El Jebel traffic signal.
- Many perceive that more transit ridership will come from El Jebel than from Willits. Willits can be served by a bus feeder between El Jebel and Basalt stations.
- Explore reopening the Basalt Avenue bridge for bus traffic only.
- Consider putting the tracks through El Jebel up on a berm with a grade separated crossing of El Jebel Road. Use the berm to screen the Tree Farm from Highway 82 and give transit riders a better view.

Parking Issues

- Explore joint use park-and-ride opportunities in El Jebel and Basalt.
- There are conflicts between community vitality and parking
- Consider splitting the parking into facilities on both sides Highway 82.
- Consider use of the theater lot for commuter parking. Improve the lot in partnership with the theater.
- Parking should be internal to sites with an active street scape facing the community and the highway.
- Design parking for average daily needs rather than peak requirements.

Basalt – Midland Avenue Bridge

Pedestrian/Bicycle Issues

- Construct a pedestrian underpass of Highway 82 at Willits Lane.
- Consider a pedestrian overpass of Highway 82 at Midland Avenue.
- Place a trail connection behind City Market.
- Distance to commercial core of Basalt and to Southside important when siting Basalt station.

Land Use Issues

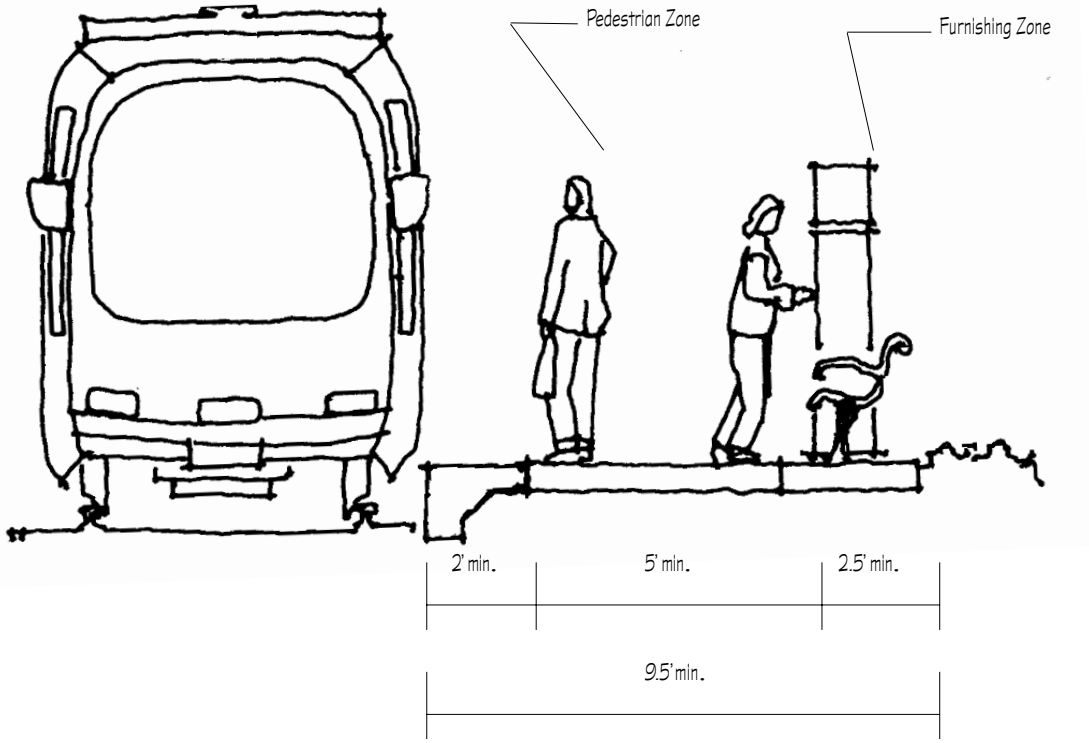
- Community plans should cluster development around stations.
- Transit should serve the proposed County office buildings in El Jebel.
- Transit should be sensitive of and responsive to Tree Farm plans.
- Put transit stops in urbanizing areas. "Don't let the tail of autos wag the dog of planning."
- Replace the Basalt trailer park with denser housing and commercial activity.
- There should be mixed use development at the stations.
- Dense housing near Basalt station leaves more room in flood plain for open space.

Transit Stop Design Details

The transit systems being studied in the CIS are very different to the system currently in place in the Roaring Fork Valley. Major stops in both the improved bus and rail alternatives include station investment designed to help make mass transit a convenient and comfortable alternative to the automobile. There are a number of basic design components to these transit stops. Some are systems which fit all stops, while others are custom designed to fit the following program areas:

Pedestrian Circulation and Access

It is anticipated that walking and bicycling will continue to be the major access mode for transit stops in the Roaring Fork Valley. The existing system of paved bicycle and pedestrian trails can effectively lead people di-



STATION CROSS SECTION

rectly to stops. These trails can be further enhanced with lighting and landscape planting schemes at the stops. In addition to pedestrian and bicycle access, shuttle buses and automobiles will serve as access modes to some stops. Drop-off, loading and unloading, as well as coordinated pedestrian and vehicular circulation will be necessary to provide access to platforms at stops.

ADA (Americans with Disability Act) compliant, barrier-free sidewalks must be provided for disabled access. Crosswalks should be provided at all street crossings near the transit stops. Bicycle storage will be located near stop platforms to accommodate cyclists. Automated ticket fare systems should be provided at stops for rider convenience.

Platforms

The proposed transit stops will use a 10-inch high curb at-grade platform. This means the loading platform will be 10 inches above the rail track or bus lane, which will enable all users, including the physically challenged, to easily board and debark the vehicles. This system also is very convenient for skiers wearing ski boots and carrying ski gear, as well as for cyclists loading bicycles. Pedestrian and bicycle trails will access platforms directly and at grade.

Platform length is a function of the vehicle length. For the improved bus system platforms will be provided for super express, express, and feeder/local buses. A four-bus platform, which may be typical for express stops, would be approximately 300 feet long. The rail vehicles being considered are approximately 100 feet long. Thus, for example, a three-car platform will need to be approximately 300 feet long.

Platform widths will vary with the stop location, but all side-loading platforms will need to be a minimum of 9.5 feet wide. This will accommodate a two-foot curbside "tactile" warning strip, a five-foot minimum clear sidewalk area, and a minimum 2.5-foot furnishing zone for benches, ticket vending machines, trash receptacles, telephones, newspaper machines, change machines, and information kiosks.

Canopy, Shelter, Structural System

The most visually prominent feature of a transit stop platform is the canopy system which typically receives the greatest architectural design emphasis. The canopy system must shed rain and snow, be well lit and durable, organize patron services, not impede circulation on the platform, and be aesthetically appealing. The design of this system should also be responsive to the different opportunities and constraints of variable site locations. A certain amount of standardization is necessary for ready identification of the transit system and to minimize the number of replacement parts that the transit agency will have to stockpile for future maintenance. Given these general parameters, ample latitude exists to tailor the shelters to the particular setting.

Signage

Signage and information systems are integral to transit stop platforms as well as transit streets and trails leading to and from a stop. Standards for signage should be consistent throughout the system by:

- providing similar system route information at all stops;
- providing public information/neighborhood sign space; and
- relating to other public signage systems, such as trail and open space signage.

Public Art

Public artists have been involved in most recent transit systems as part of the design team with architects, landscape architects, and engineers. They are on the team from the beginning to further help express, identify, and interpret the role of the transit system in the community. The artists have been extremely valuable in the design process, using standardized, utilitarian materials in interesting ways. They

provide valuable input for the design of shelters, traffic barriers, paving patterns, street furniture, transit stop identification, bridges, storm drainage systems, landscaping, and other transit system elements.

Landscaping

No major landscaping is anticipated for the platform areas due to their typically narrow widths. Landscaping will enhance the transit stop envelopes (those areas leading to each platform). Native plantings will aid in the transition of improvements to existing open space areas while also providing visual buffers where necessary. This will help to further integrate the station areas with their surroundings.

Parking

Many of the stops in the proposed system include park-and-ride facilities. While the CIS will provide environmental clearance for the largest number of vehicles forecast for each station in the year 2020, the actual amount of parking constructed initially will be much smaller. The eventual size of parking facilities can be minimized by investment in feeder bus service and by town plans that encourage jobs and housing within walking distance of the stations. Lots should be designed with personal and vehicle safety and security in mind.

Park and ride lot impacts can be mitigated by clustering smaller lots of around stations rather than developing one large lot and by screening parking with buildings oriented to the transit station and to the street. Landscaping should be included in the design of each lot to reduce the visual impact.

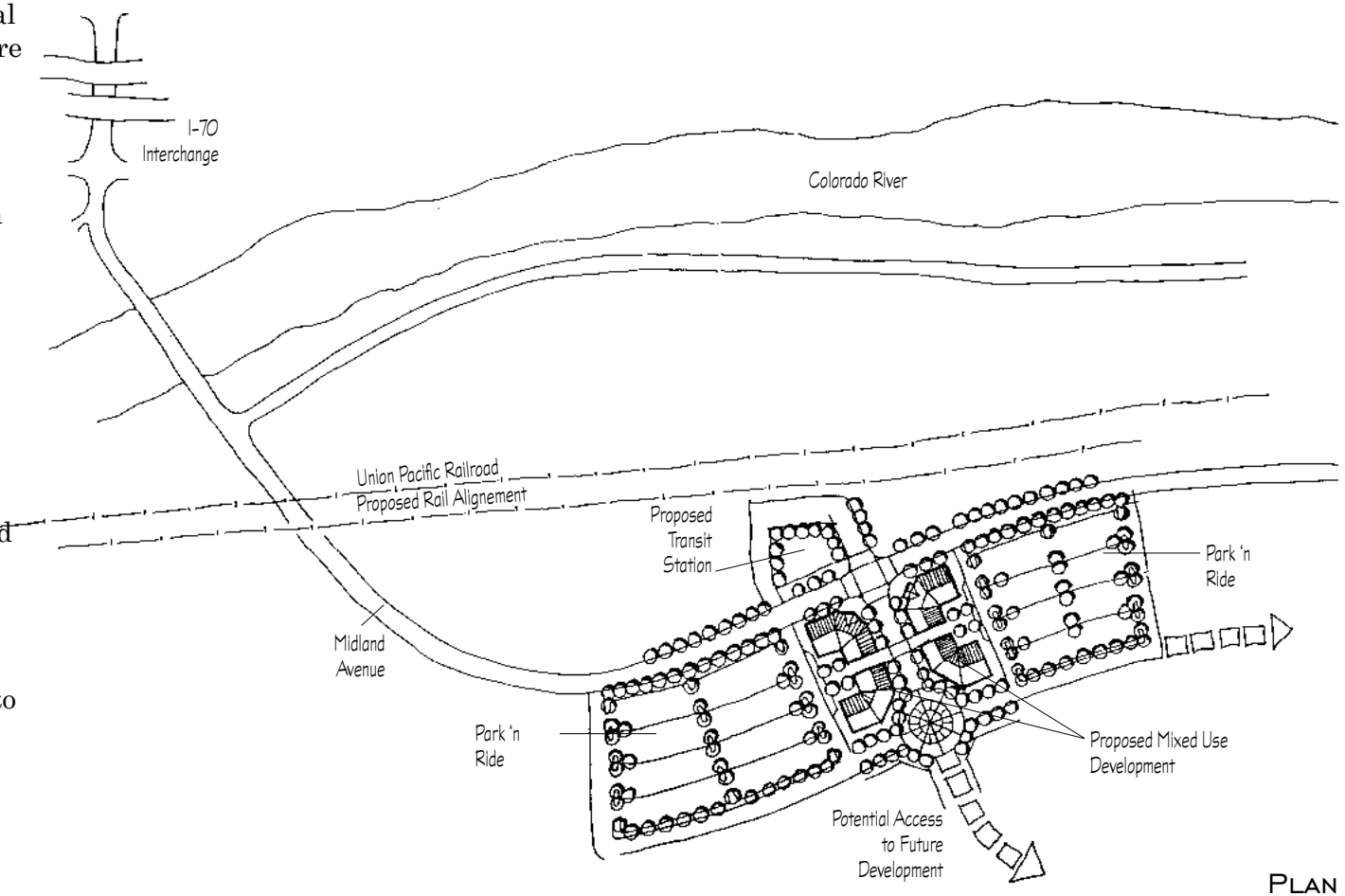
West Glenwood Springs Station

Proximity to Employment and Housing	
Employment within 1/2 Mile	
2003	***2020***
324	517
Population within 1/2 Mile	
2003	***2020***
509	1,274

The station location in this area is driven by two factors:

- The alignment of commuter rail adjacent to and on the south side of the existing Union Pacific mainline; and
- The proximity of the station to a potential access point to future development on the Wulfsohn Ranch property along Midland Avenue. The station location offers the potential to include a 500-car park and ride with limited commercial space across the intersection at Midland.

The station's location near the west Glenwood interchange with I-70 also offers an opportunity to capture cars coming from the west and shift these people to transit.



PLAN

Glenwood Springs Station

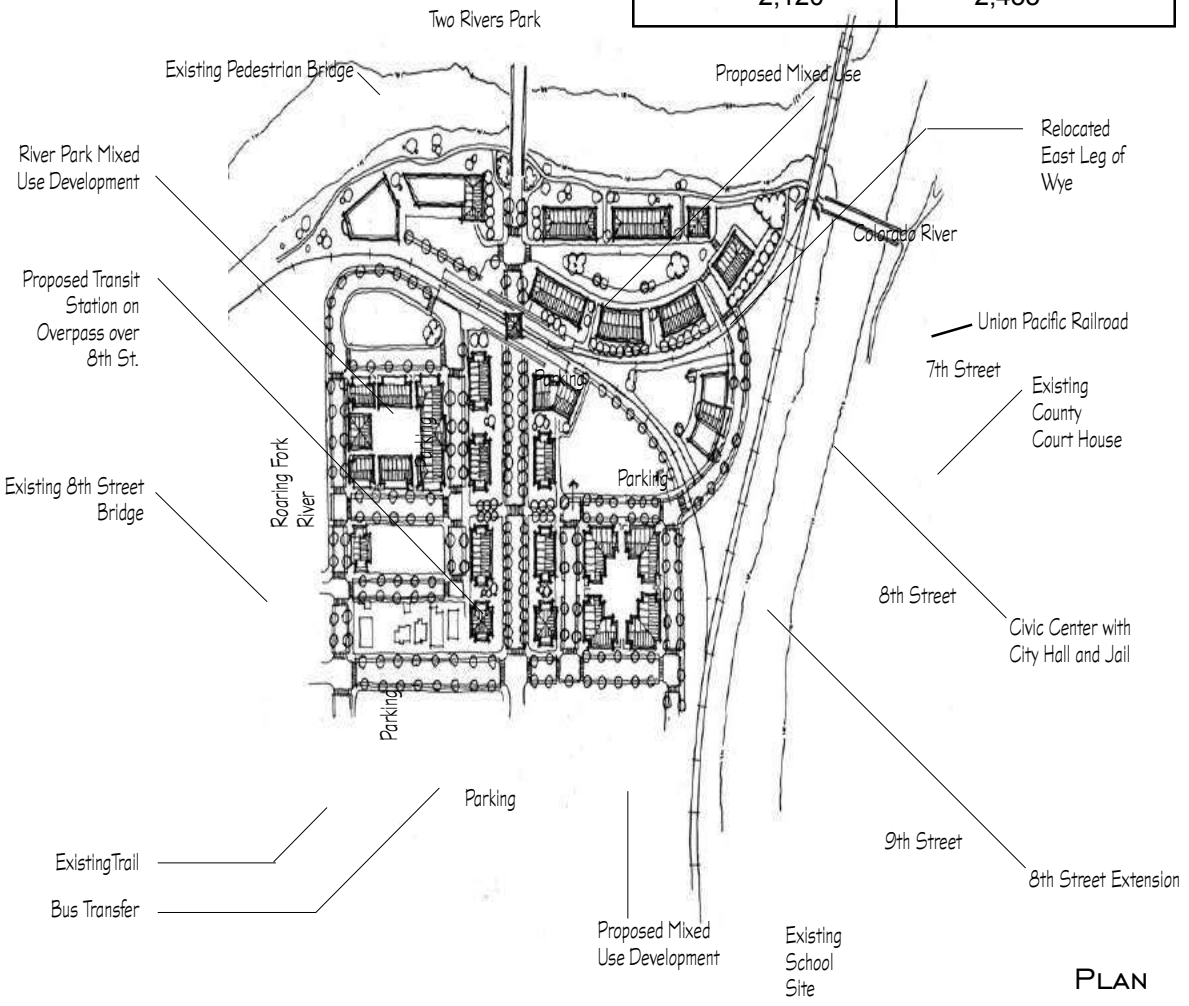
The main structuring element of this station area is the relocation of the existing rail undercrossing to an extension of 8th Street. This extension more directly connects Grand Avenue and the west side of the Roaring Fork River. The station location astride this undercrossing creates a visible focal point along this new axis.

The station is located at the south end of the wye that connects valley rail traffic to the Union Pacific mainline and points east and west of Glenwood Springs. This location anticipates the potential to connect to a broader rail transit system beyond the Roaring Fork Valley, including a possible Eagle Valley system.

A major component of this station area design is the potential for mixed-use, transit-oriented redevelopment in the area between the courthouse and the confluence of the Roaring Fork and Colorado River.

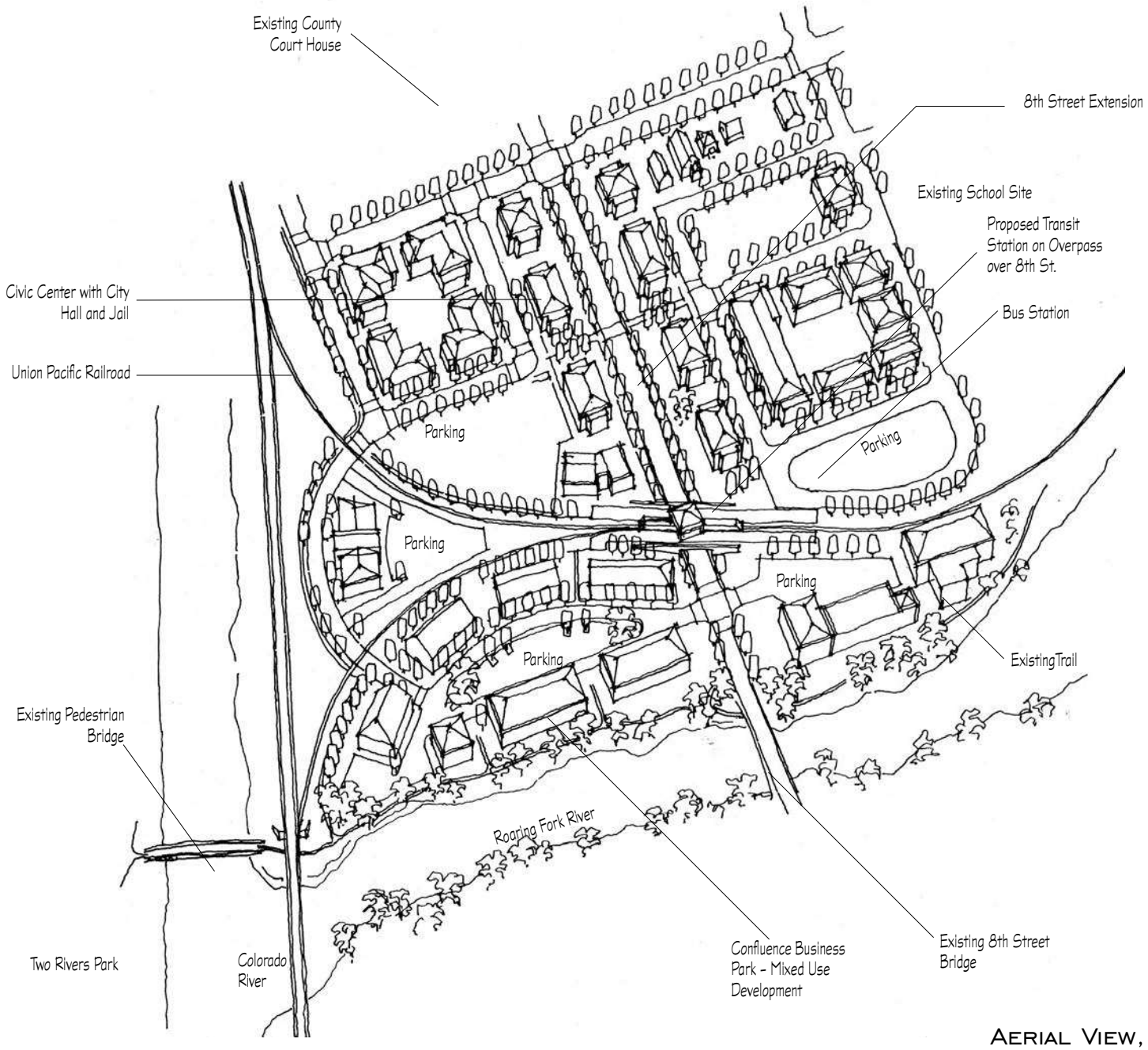
Redevelopment opportunities are based on proposals outlined in the Glenwood Springs Downtown Plan. These include the relocation of an expanded City Hall to a site on the Colorado River; mixed-use office residential development on the Roaring Fork River; and additional mixed use office along the extension of 8th Street.

Proximity to Employment and Housing	
Employment within 1/2 Mile	
2003	***2020***
2,771	4,401
Population within 1/2 Mile	
2003	***2020***
2,120	2,433



PLAN

Glenwood Springs Station



Aerial View, Looking East

Highway 133 Station

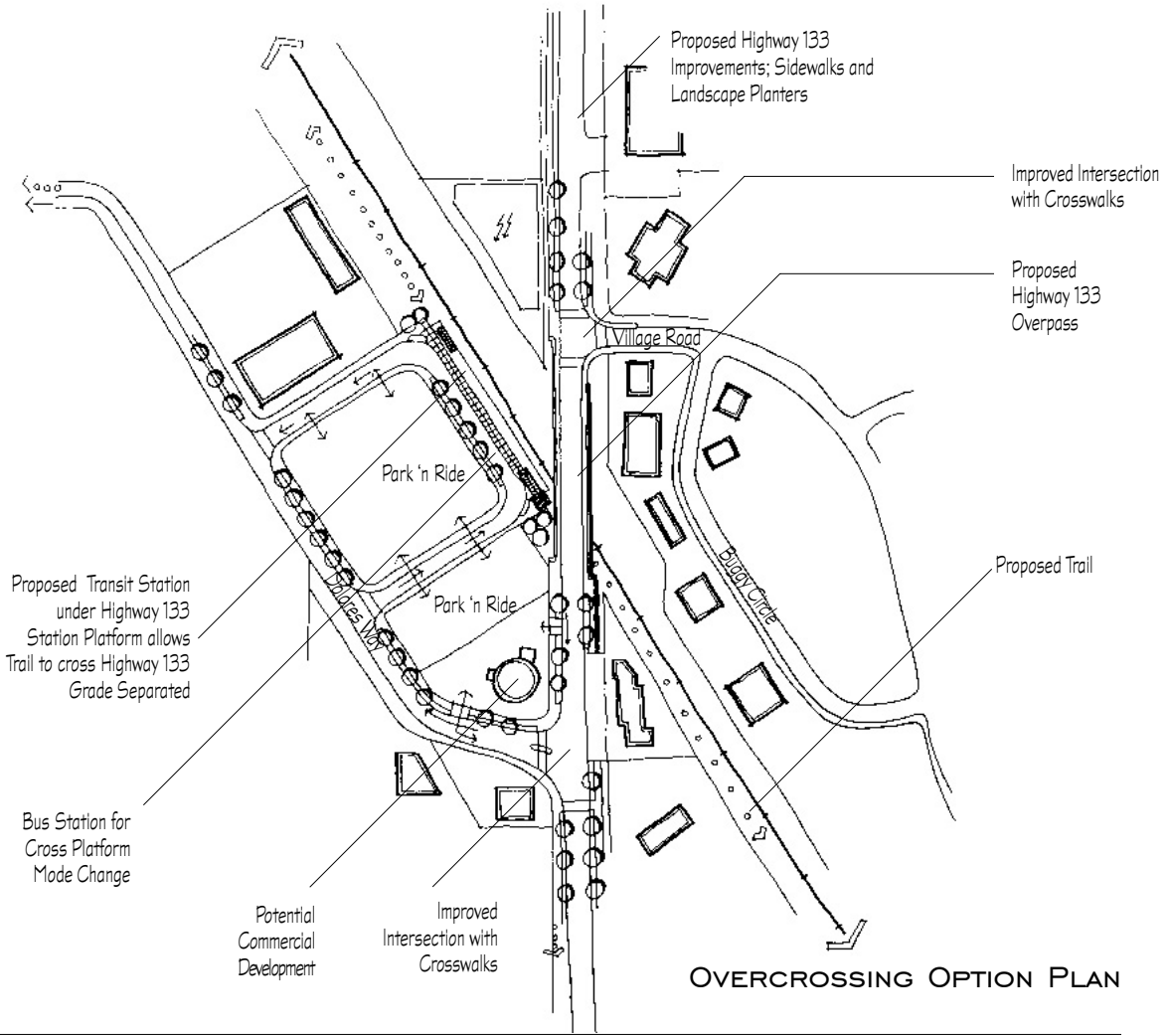
The station location on Highway 133 in Carbondale has three major components:

- A park and ride lot to intercept traffic coming from outlying areas;
- A grade-separated crossing of Highway 133 to eliminate rail and pedestrian conflicts with highway vehicular traffic; and
- Supporting mixed-use commercial space developed with the parking and station, and offering good highway visibility and access.

Two alternative design concepts have been prepared that illustrate these components:

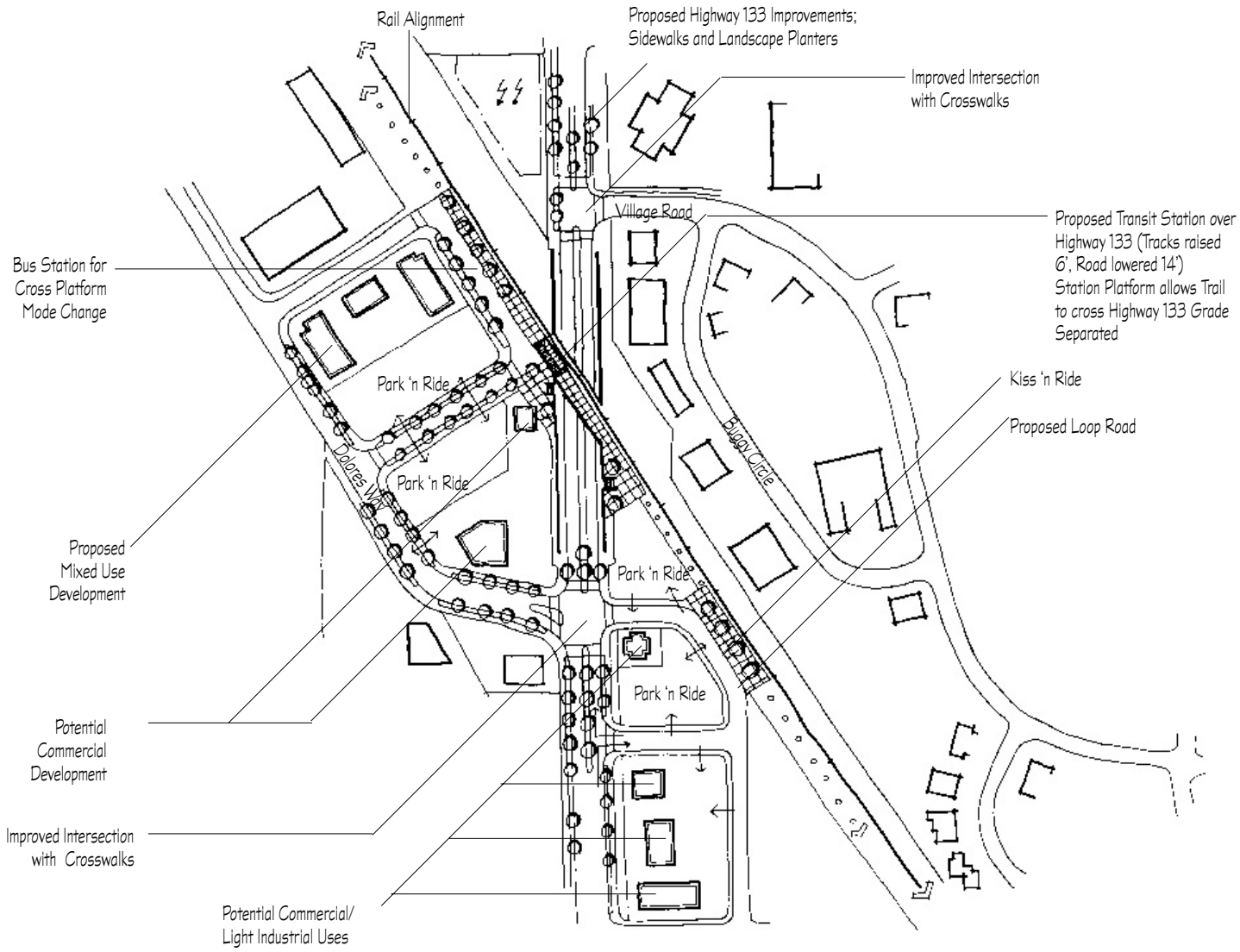
- The first concept features a rail alignment passing under Highway 133. The rail station and park and ride are located on the north side of the highway with mixed use/retail development along this side of the highway near the station.
- The second concept features a rail alignment passing over Highway 133 with the station located on this rail "bridge." Park and ride areas and additional development are located on both the north and south side of the highway. Station areas would be accessed from an intersection on Highway 133 at Dolores Way and from Dolores Way itself. In addition, as part of the proposed grade separation of rail and highway, a strong pedestrian and bicycle connection to the north and south parts of town is provided, as well as connections to bikeways on Highway 133.

Proximity to Employment and Housing	
Employment within 1/2 Mile	
2003	***2020***
733	1,170
Population within 1/2 Mile	
2003	***2020***
2,606	4,433



OVERCROSSING OPTION PLAN

Highway 133 Station



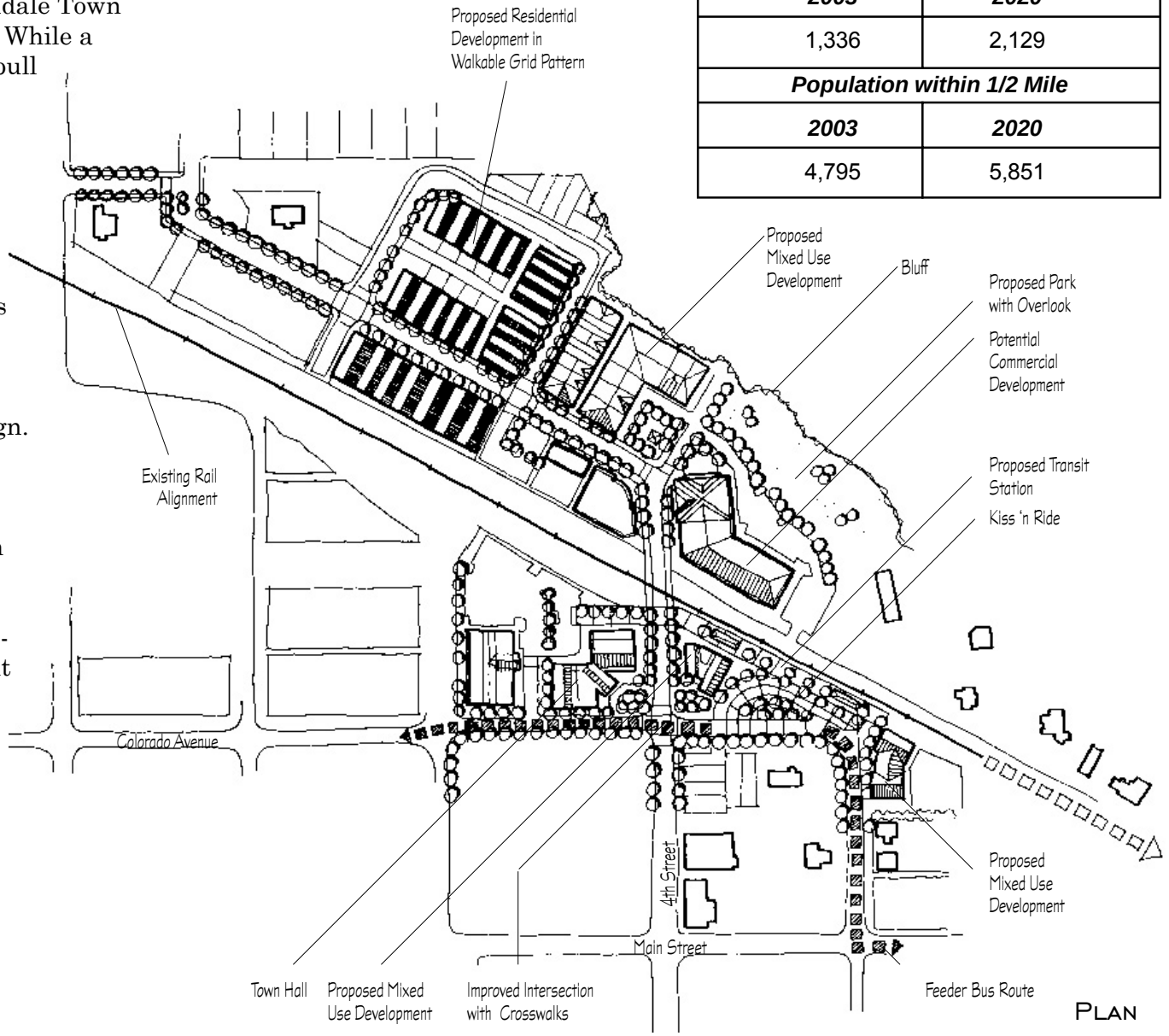
Undercrossing Option Plan

Carbondale Station

Proximity to Employment and Housing	
Employment within 1/2 Mile	
2003	***2020***
1,336	2,129
Population within 1/2 Mile	
2003	***2020***
4,795	5,851

The proposed station location is across 4th Street from the Carbondale Town Hall, on Colorado Avenue. While a "kiss-n-ride" auto drop off pull out is provided at this station, no park and ride facility will be provided. People walking, biking, or using the local bus will play a large part in the usage at this facility. Improved pedestrian access to downtown commercial and existing close-in residences is an important element of the station design.

The potential would also exist for future mixed-use redevelopment on a portion of the area north of the tracks. A walkable neighborhood containing residential, retail, and employment uses as well as strong open space links along the ridge would serve to reinforce connections to the downtown area and the station/town hall activity area.



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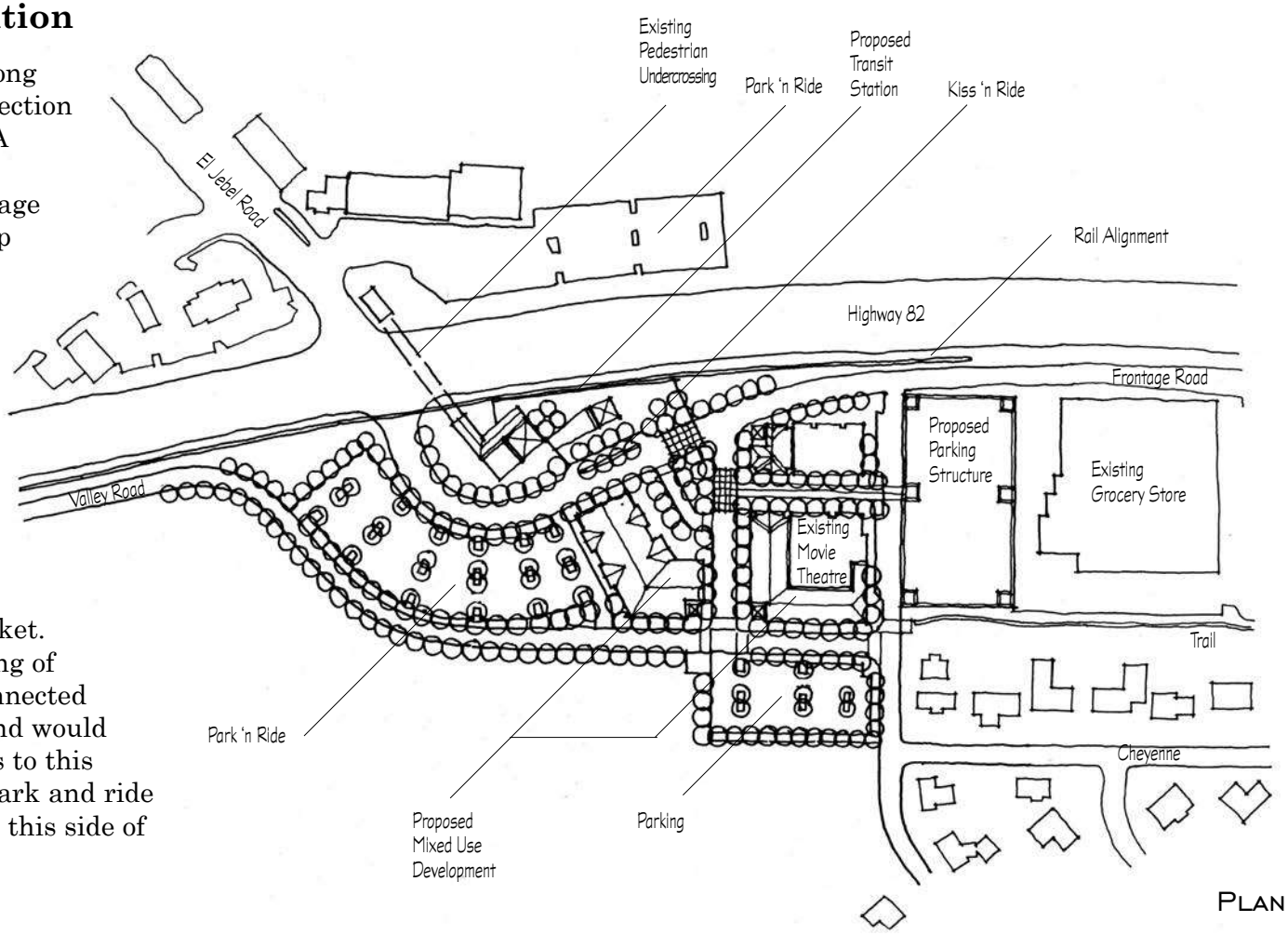
El Jebel Station

Residents of the Mid-Valley have not yet determined whether it would be better to serve the El Jebel area from a station at El Jebel Road near the Mt. Sopris Tree Farm or a station incorporated into the Willits development. The design team has illustrated both proposals.

Proximity to Employment and Housing	
Employment within 1/2 Mile	
2003	***2020***
277	487
Population within 1/2 Mile	
2003	***2020***
1,512	2,735

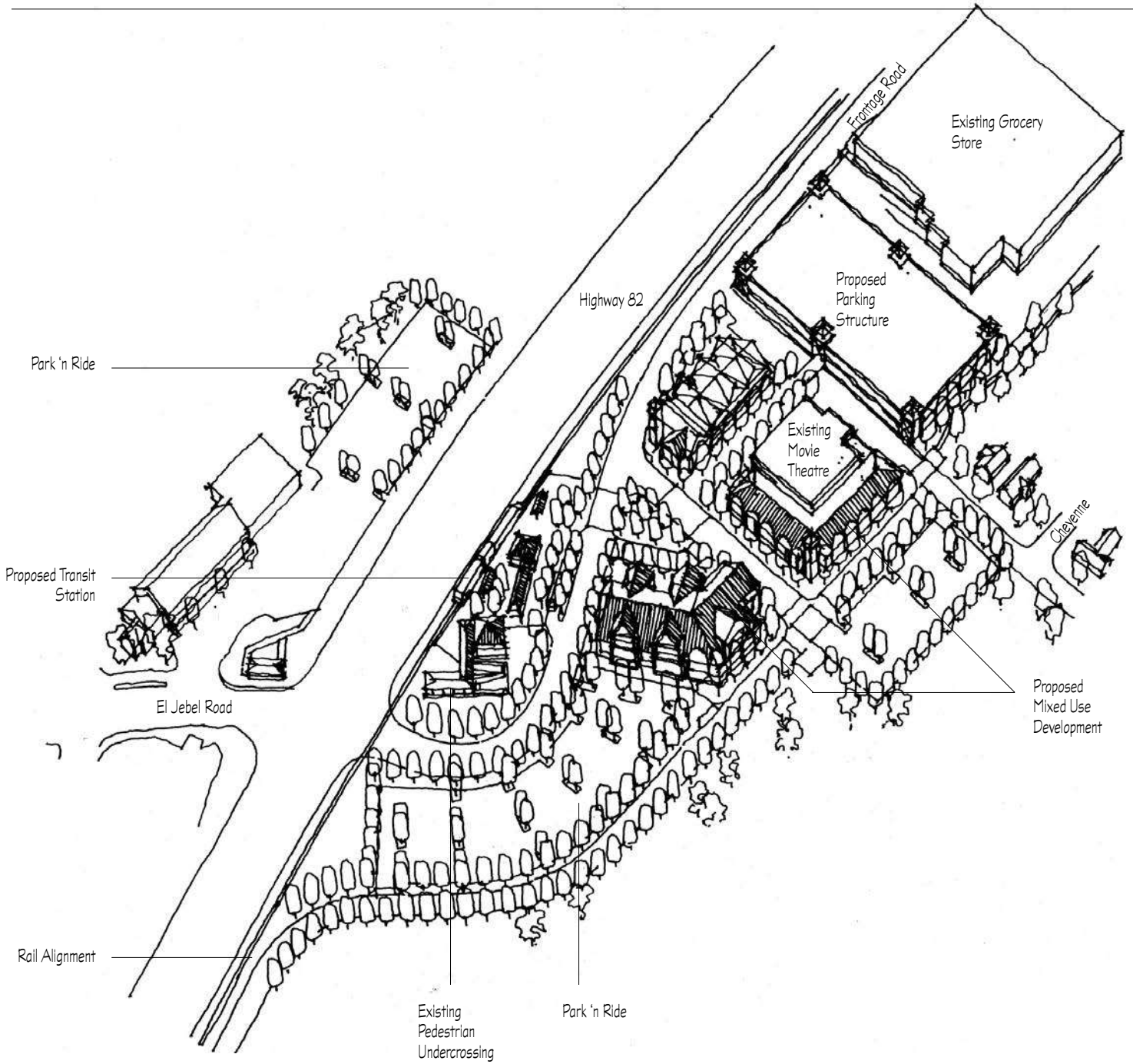
El Jebel Road Station

This station is located along Highway 82, at its intersection with the frontage road. A park and ride would be provided across the frontage road in an area opened up by the realignment of Valley Road. Additional mixed use development opportunities would be created around the existing retail/movie theater with the extension of Valley Road. A future parking structure could occur between the existing theater and market. The existing undercrossing of Highway 82 would be connected to the station platform and would provide pedestrian access to this station from additional park and ride area and development on this side of the highway.



PLAN

El Jebel Station



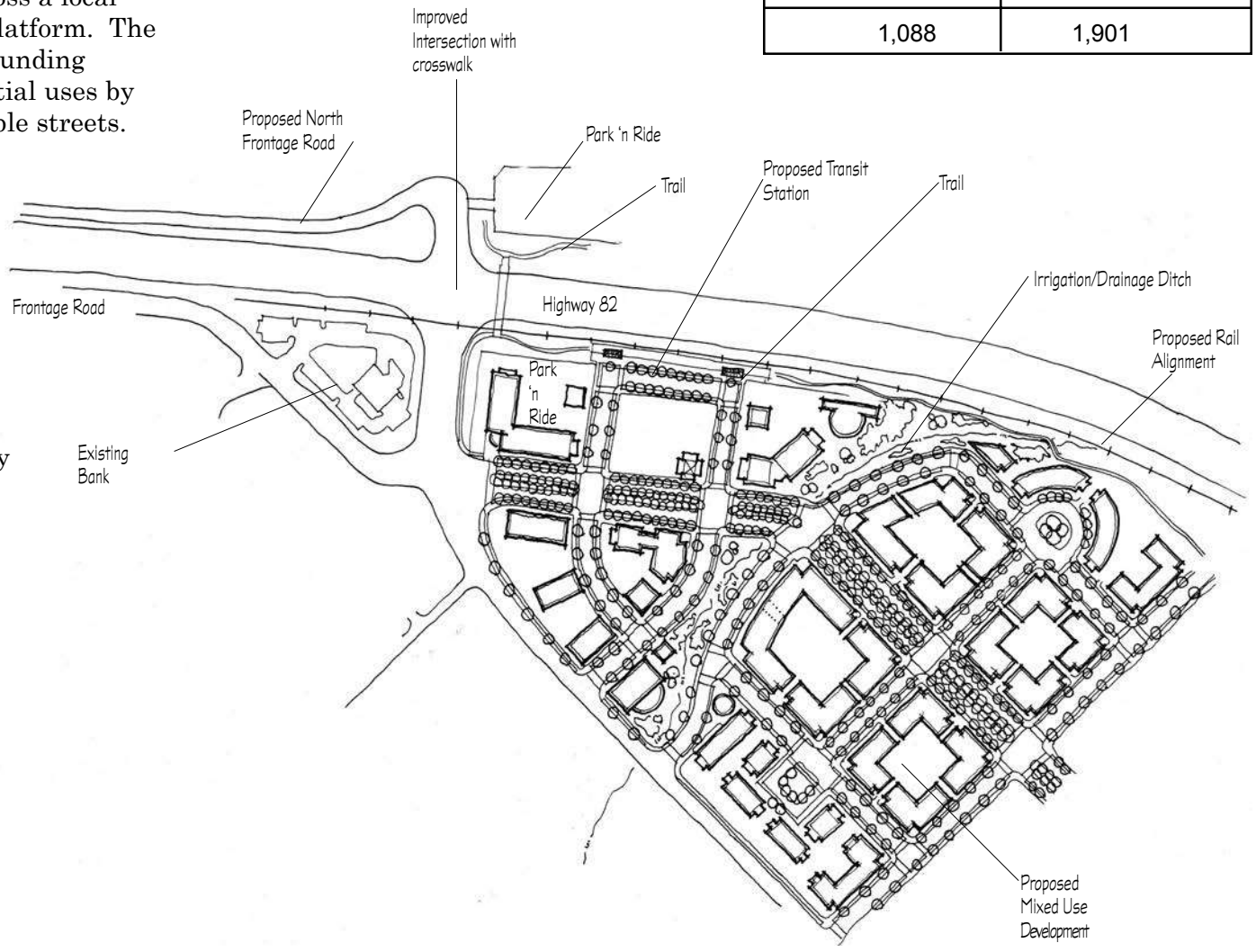
Aerial View

Willits Station

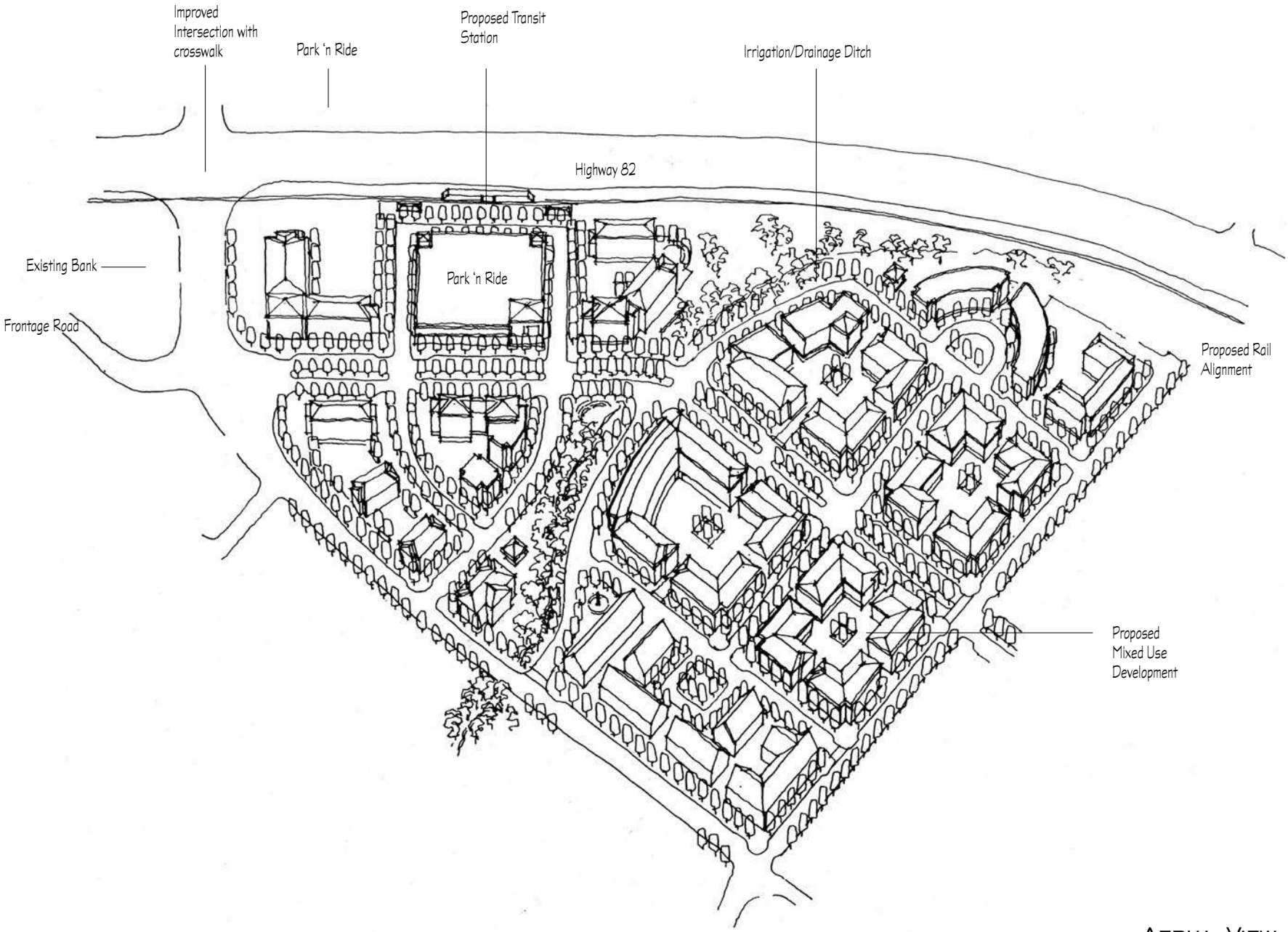
The Willits station location was considered because of the potential to serve the major development proposed along Willits Lane. The station is located along Highway 82, near the Willits Lane intersection. A park and ride structure is situated across a local street from the station platform. The station is linked to surrounding mixed office and residential uses by a grid network or walkable streets.

An improved Highway 82 intersection will provide pedestrian access to the station from a park and ride lot on the north side of the highway. A potential extension of the frontage road on the north side of the highway to this intersection will further improve station area access.

Proximity to Employment and Housing	
Employment within 1/2 Mile	
2003	***2020***
138	253
Population within 1/2 Mile	
2003	***2020***
1,088	1,901



Willits Station



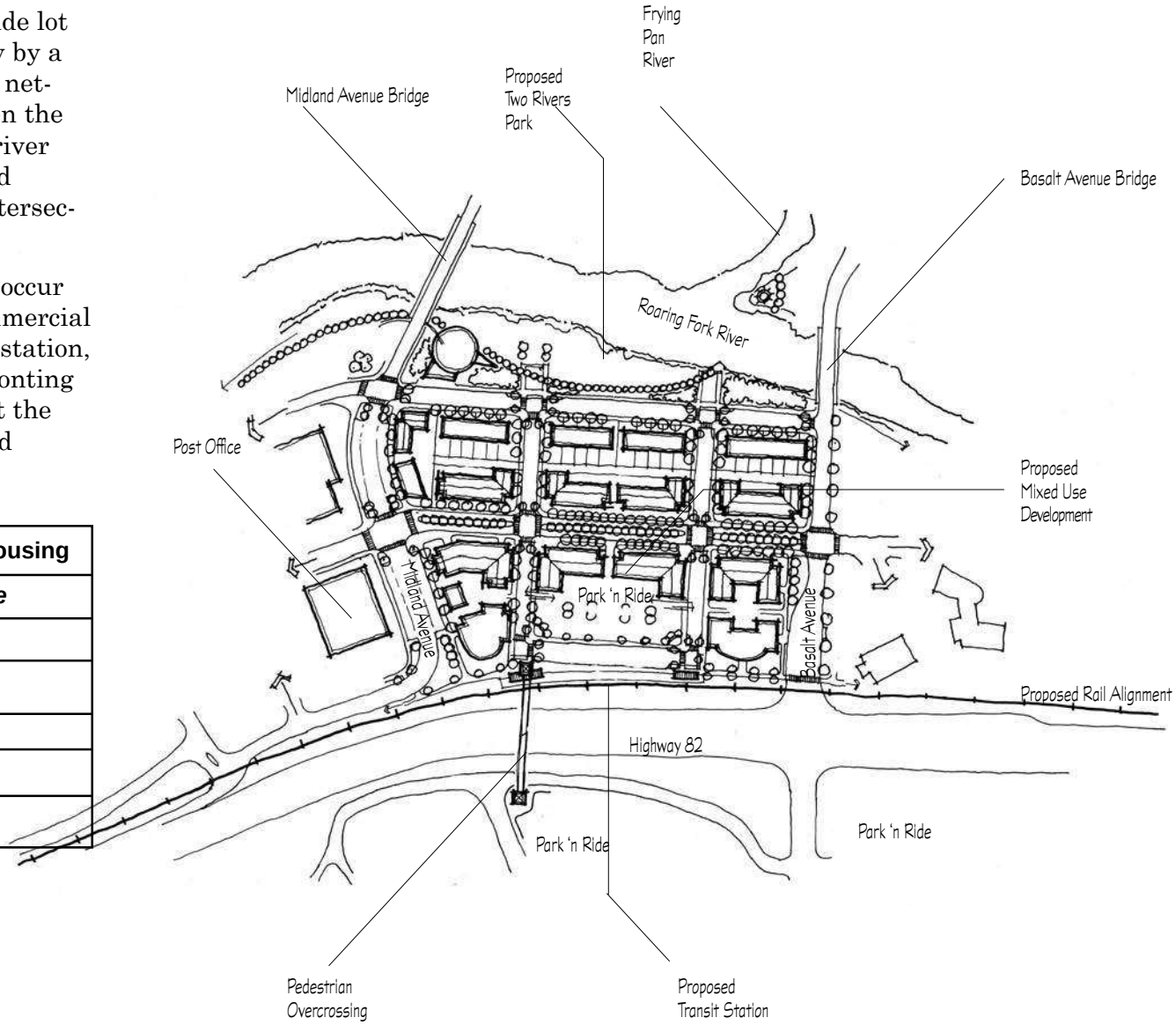
Aerial View

Basalt Station

The Basalt station would be located adjacent to Highway 82 between Basalt and Midland Avenues. It would be linked to a proposed park and ride lot on the south side of the highway by a pedestrian overcrossing. A grid network of walkable streets between the highway and the Roaring Fork river would carry traffic from Midland Avenue to the Basalt Avenue intersection with Highway 82.

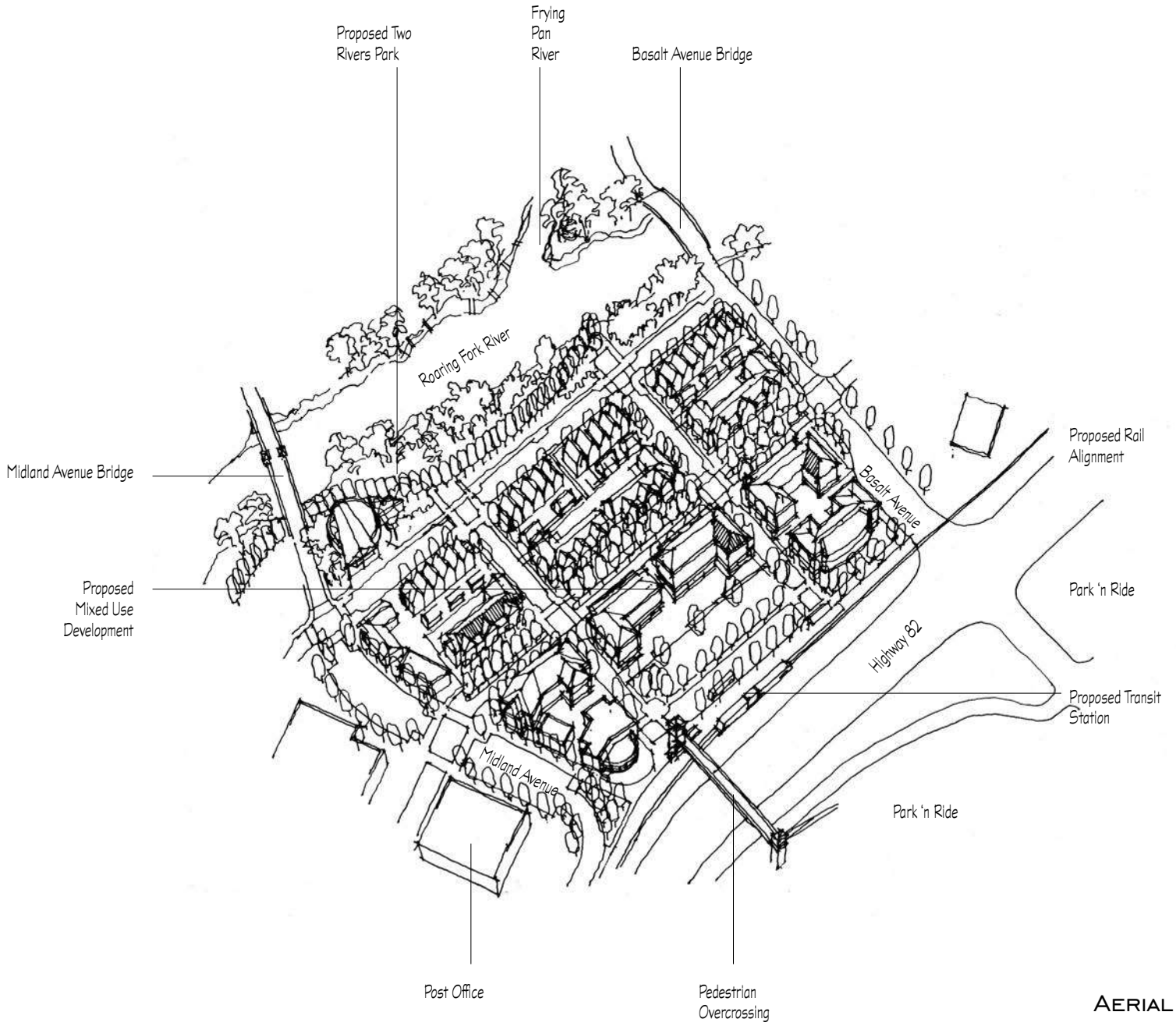
A mix of uses would potentially occur in this area, with office and commercial uses in the blocks closest to the station, and attached residential uses fronting a proposed "Two Rivers Park" at the confluence of the Frying Pan and Roaring Fork rivers.

Proximity to Employment and Housing	
Employment within 1/2 Mile	
2003	***2020***
278	387
Population within 1/2 Mile	
2003	***2020***
526	1,035



PLAN

Basalt Station



Aerial View

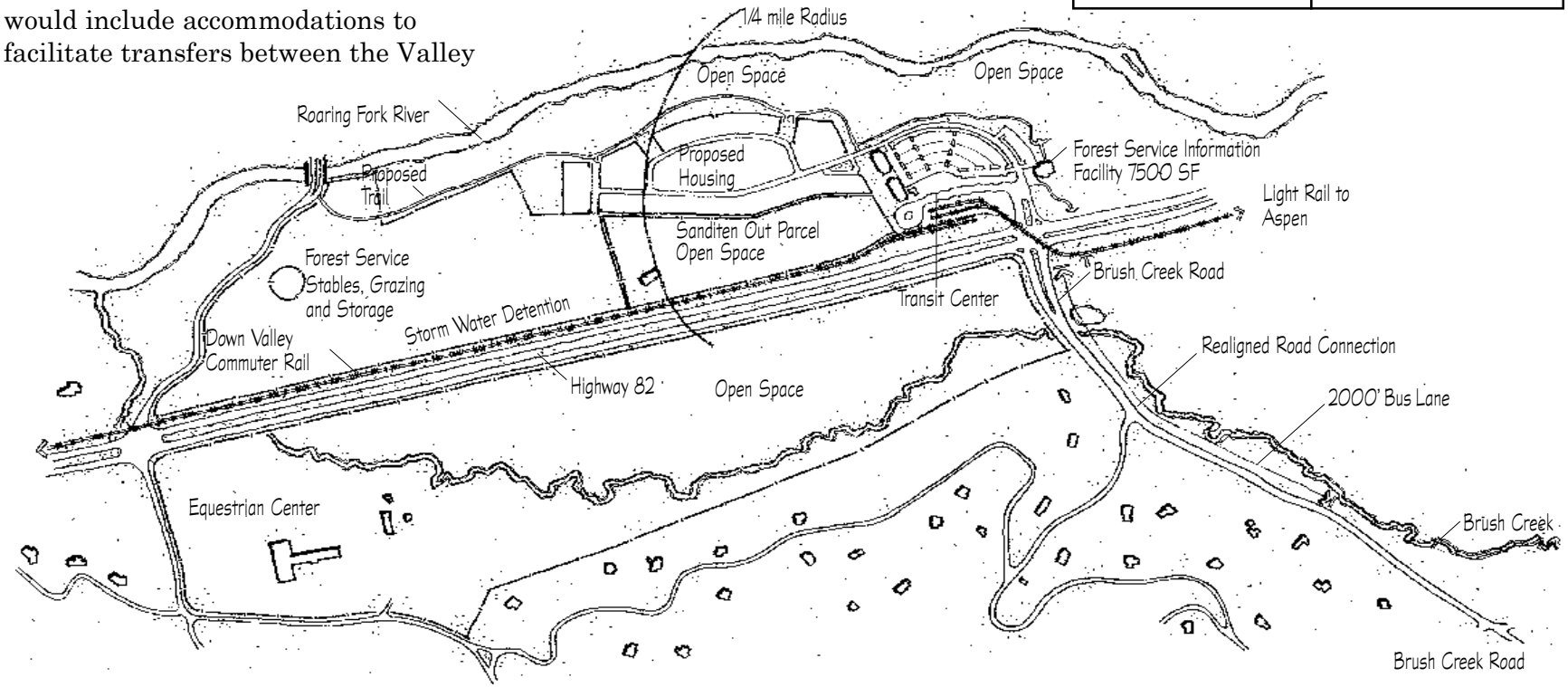
Brush Creek Transit Center

As the CIS is studying alternatives that include a transit center at Brush Creek Road, the study team has included earlier transit oriented design information for this site. These designs were developed in a similar design dialogue with the Upper Valley community during the spring and summer of 1998.

The Brush Creek Transit Center would be located on the north side of Highway 82 at the base of Brush Creek Road. It would include accommodations to facilitate transfers between the Valley rail or bus system, the Town of Snowmass Village bus system, and the Entrance to Aspen Light Rail System. The plan also envisions a 400-space park-and-ride facility. The Town of Snowmass Village is working on a recreational trail connection between the Rio Grande Trail and the town which would traverse the station site.

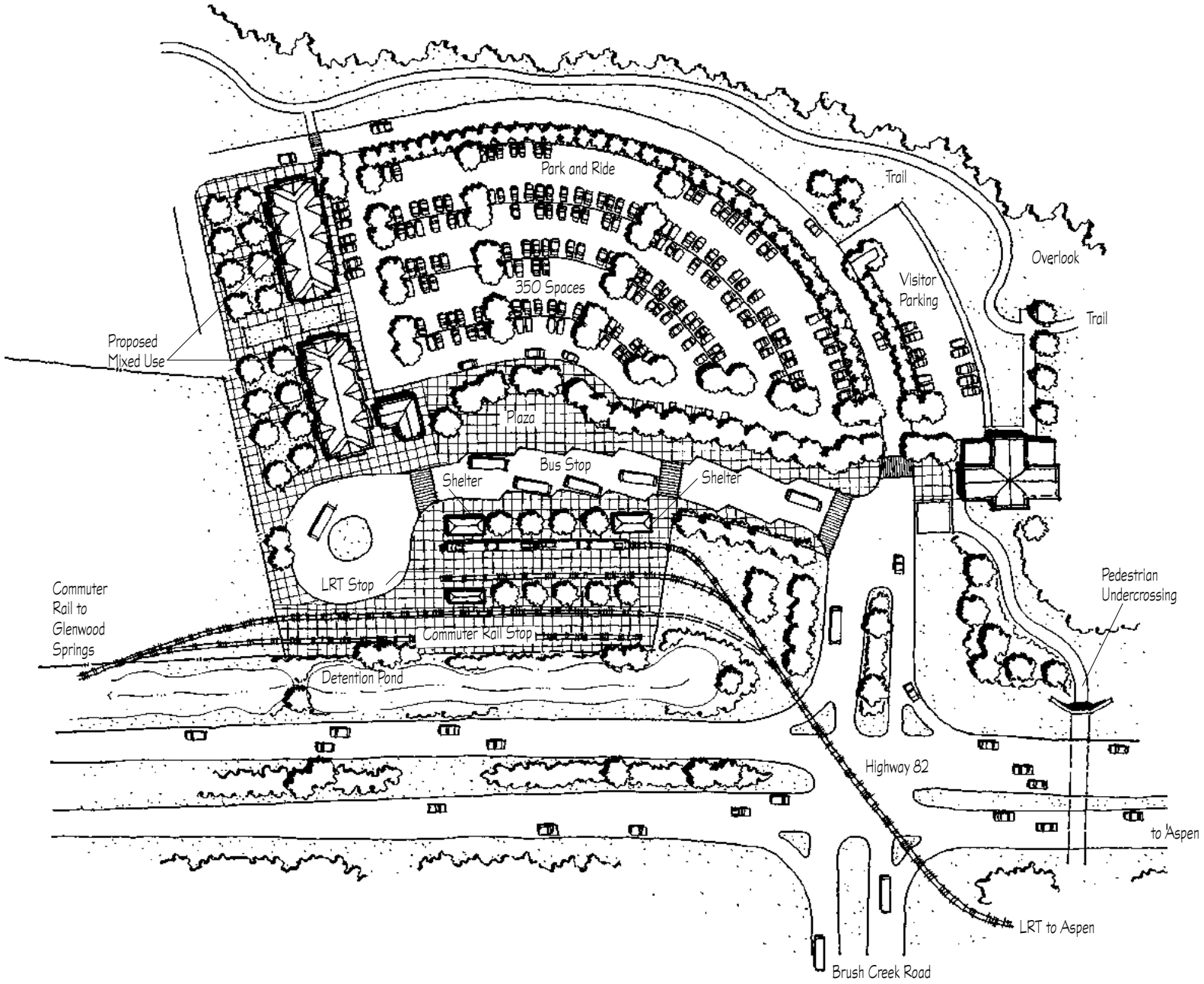
The Aspen/Pitkin County Housing Authority is working with CDOT and the US Forest Service to create a mixed-use village community at Brush Creek. The community would include the USFS Visitors Center, offices, storage, pasturage, and employee housing. The Housing Authority is also developing plans for 80 to 150 units of affordable housing along with neighborhood commercial activity to support the village.

Proximity to Employment and Housing	
Employment within 1/2 Mile	
2003	***2020***
17	22
Population within 1/2 Mile	
2003	***2020***
169	203



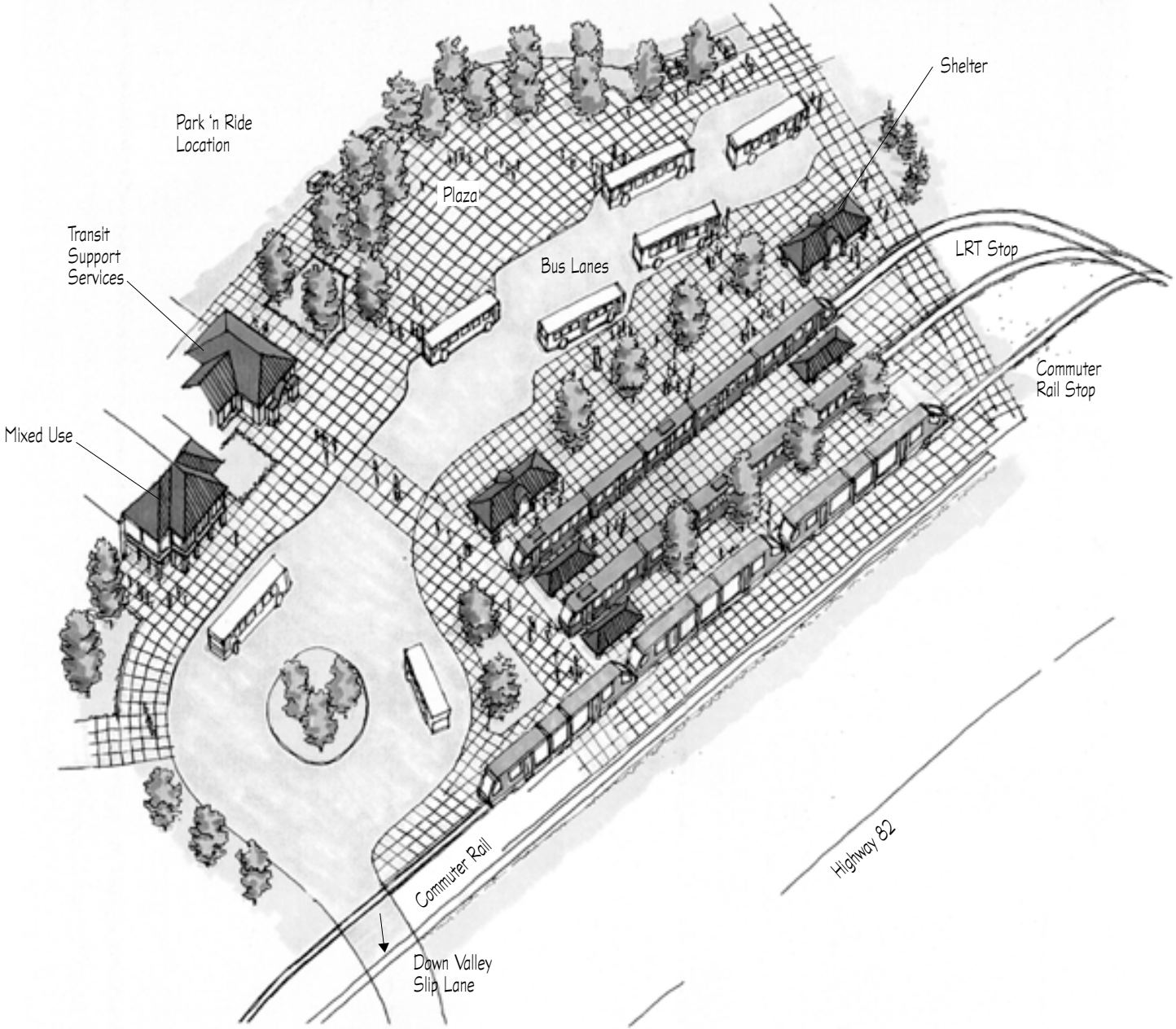
AREA PLAN

Brush Creek Transit Center



Plan

Brush Creek Transit Center



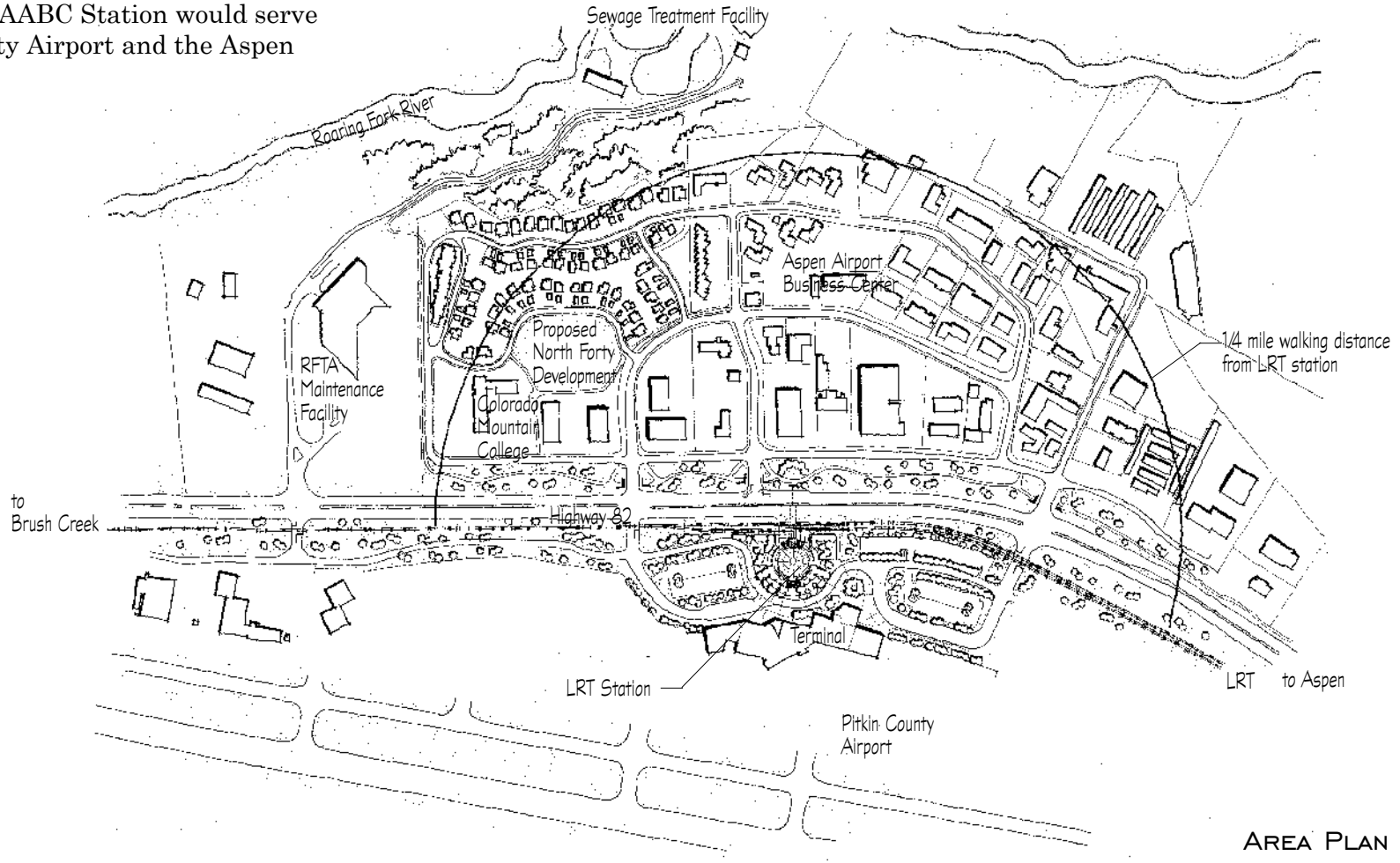
Aerial View

Airport/AABC Station

As the CIS is studying alternatives that include a transit center at Pitkin County Airport, the study team has included earlier transit oriented design information for this site. These designs were developed in a similar design dialogue with the Upper Valley community during the spring and summer of 1998.

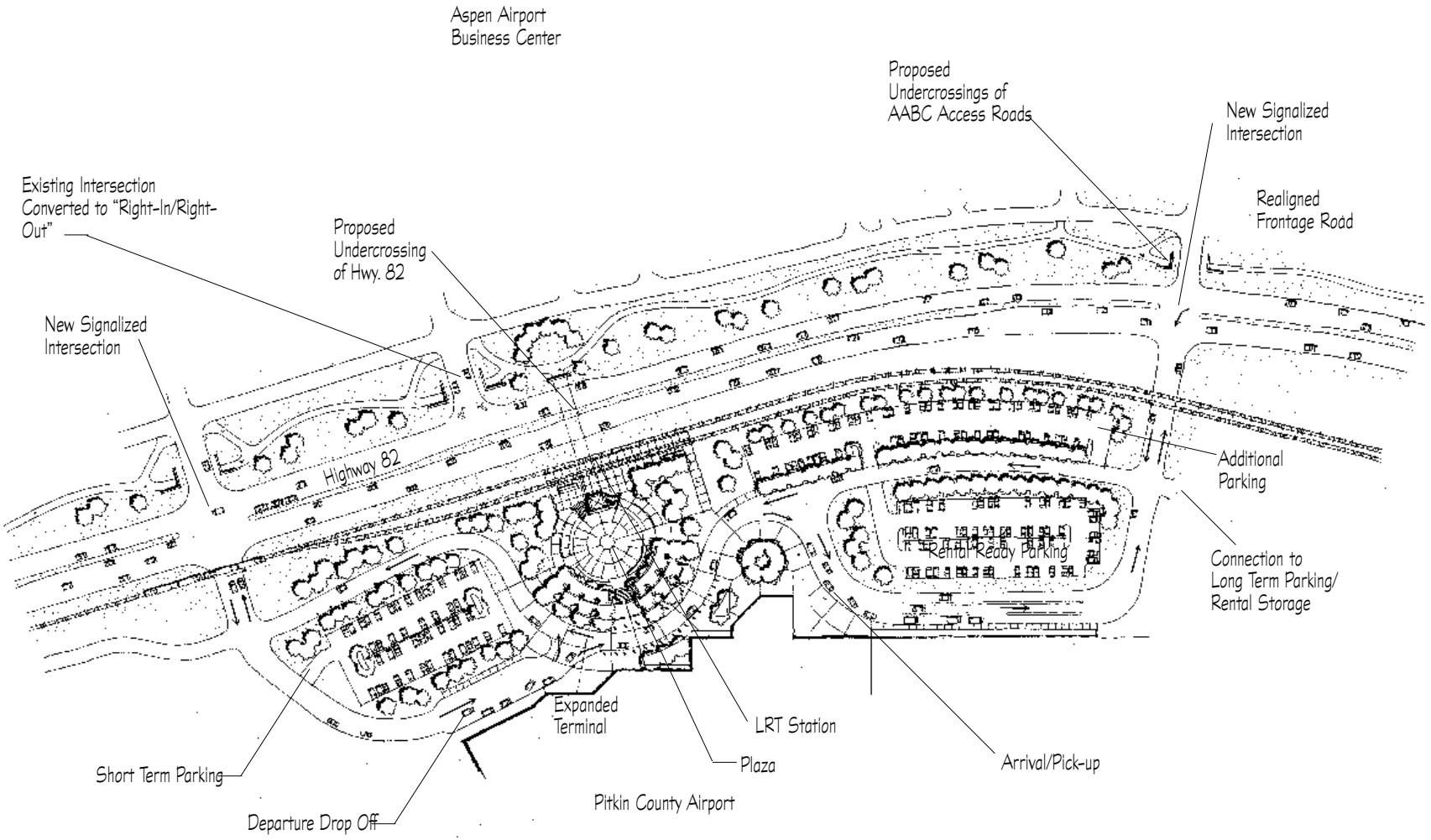
The Airport/AABC Station would serve Pitkin County Airport and the Aspen Airport Business Center. The North Forty residential community and new Colorado Mountain College campus are also within easy walking distance of the station. The station is located adjacent to Highway 82 with a pedestrian undercrossing to the AABC and a pedestrian plaza connection to the airport terminal building.

Proximity to Employment and Housing	
Employment within 1/2 Mile	
2003	***2020***
1,106	1,231
Population within 1/2 Mile	
2003	***2020***
385	1,037



AREA PLAN

Airport/AABC Station



Plan

Conclusions

In the coming weeks and months, the people of the Roaring Fork Valley will make transportation investment decisions that will impact the long range character and economy of towns in the Valley. The information developed in the *Transit Oriented Community Design Report* will be used to optimize the Valley's transit system to preserve and enhance economic vitality and livability of the Roaring Fork Valley.

The RFRHA Corridor Investment Study has been guided by the following project objective areas:

- Affordability and Economic Viability
- Community Based Planning
- Environmentally Sound Solution
- Flexibility
- Increased Transportation Choices
- Integrated Approach to Transportation Planning
- Livability
- Safety
- Trails and Recreational Resources

A community exploration of the relationship between land use and mass transit at this stage in the planning process helps decision makers understand and refine transit service alternatives being considered. Station location, programming, aesthetics, amenities, and relationships with surrounding land uses are important considerations for world-class mass transit. These issues should be considered when evaluating the advantages and disadvantages of the committed projects, improved bus, and rail alternatives being considered.

Community Character and Mass Transit

As can be seen in this report, the implementation of a rail system imparts a permanence in and commitment to the communities served, and can serve as a catalyst for successful town centers. While bus systems imply less of a commitment to a particular urban form, investment in bus stations can still complement town plans. Buses do provide the flexibility to adapt the transit system to a changing environment.

The historic communities of the Roaring Fork Valley that prosper to this day were located to serve the resource-based economy of the valley and were in turn served by the Denver & Rio Grande Railroad. The small block sizes, street grids, storefronts, and mix of housing and commercial activity in close proximity are all legacies of the valley's railroad era. This original integration of land use and transportation left today's residents with the communities they cherish and hope to preserve and enhance.

Station area concepts for the towns and cities of the Roaring Fork Valley have been crafted by residents and design professionals to preserve and enhance the special characteristics of scale in each community. Existing community plans have been respected. Opportunities for sensitive infill development have been created that can reinforce pedestrian connections within towns while providing additional activity areas.

The narrow, linear geography of the Roaring Fork Valley, the vitality of existing town centers, and the resistance of Valley residents to sprawl development indicate that little opportunity exists for new or relocated urban centers. Feeder service and local buses can serve those parts of the community that are not within walking distance of express stations. Geographical constraints and Valley land use plans constrain the extent to which the built environment can change. Thus the flexibility inherent in bus solutions does not provide an advantage. In fact, many residents see the flexibility of bus systems as a distinct land use and growth management disadvantage.

Regardless of the alternative selected, most Valley residents see mass transit as an investment in their communities rather than a cost to be borne by the community.

The Importance of Alternative Modes of Transportation

The Roaring Fork Valley depends on the automobile to meet a majority of its transportation needs. Until recently mass transit has been viewed as a service provided by society to individuals who were not able to drive or could not afford an automobile.

Increasingly, Valley residents are asking for alternatives to the automobile that approach the convenience and efficiency of the automobile while enabling them to meet personal and community environmental and character goals. The existence of alternative modes of transportation provides choices; choices to drive, to ride the bus or rail systems, or to use pedestrian and bicycle networks.

By providing for transit-oriented infill development, additional opportunities are created for a range of land use and lifestyle choices that can work to preserve the special character and values of the Valley while still providing access to employment, housing, shopping, and recreational activities.

Recreation and Transit

Transit can play an important role in providing access to recreational resources. It can reduce the need for roadway and parking infrastructure (and associated impacts) required to service these uses. Transit-oriented development can also strengthen pedestrian and bicycle connections between open space and recreation uses and existing activity areas in downtowns by providing walkable infill development adjacent to both uses.

Next Steps

The Corridor Investment Study and Draft Environmental Impact Statement should be completed in 2000. If the rail or improved bus alternatives are selected by the community, this process will lead to a Final Environmental Impact Statement and ultimately a Record of Decision (ROD) and Full Funding Grant Agreement (FFGA) with the Federal Highway Administration and Federal Transit Administration. The ROD and FFGA document the preferred alternative and mitigation commitments and provide the necessary clearance for RFRHA to fund design and construction activities related to the alternative selected.

Preliminary engineering (PE) would be the next step in the design process. Engineering and urban design analysis of the "ultimate" system described in the FEIS will help the community to identify an appropriate "start-up" system to serve the Valley's needs for the foreseeable future. PE includes the preparation of plans, technical specifications, and engineering cost estimates suitable for use in a design-build procurement process. Right-of-way negotiations and public approval of the project financing plan will conclude the PE phase of the project.

Valley residents would be involved directly in station area planning and the development and approval of financing proposals during PE. Residents would have the option of working directly with RFRHA; participating through involvement in their town or county review of RFRHA plans; or through direct communication with local, state, and federal agencies and elected officials involved in the project.

EXHIBIT D-5

Socio-Economic Forecasts
for the Study Area

III. AFFECTED ENVIRONMENT

The Project Corridor traverses the Roaring Fork Valley between Glenwood Springs in Garfield County and Aspen in Pitkin County. Figure I-3 in **Chapter I: Purpose and Need** provides a view of the linear project corridor. The corridor length is roughly 80 kilometers (50 miles). Highway 82 runs 66.5 kilometers (41.3 miles) from its beginning at I-70 in Glenwood Springs to downtown Aspen. The new Rio Grande Trail portion of the Aspen Branch of the D&RGW Railroad right-of-way meanders 53.6 kilometers (33.3 miles) from 23rd Street in Glenwood Springs to its terminus at Woody Creek. Table II-7 provides detailed notes on lengths of various segments of the Project Corridor. The Project Corridor passes through three counties: Garfield, Eagle, and Pitkin. The largest linear portion of the corridor is found in Garfield (55 percent) and Pitkin Counties (36 percent). Only 4.8 kilometers (three miles) pass through a corner of Eagle County (nine percent).

The width of the Project Corridor studied in the resources analyses in this chapter varies by resource. The potential area of direct project effect is generally a narrow band of less than 30 meters (100 feet) on either side of the linear transportation corridor. However, larger areas are described in order to establish a context for analysis. When the physical width of the area studied has relevance to a resource discussion, it is described in that section.

A. SOCIAL ENVIRONMENT

1. Population

1.1 Introduction

The region encompasses a large area bounded by the cities of Rifle, Eagle, and Aspen, that is accessed via Interstate 70 and Highway 82. A majority of the employment and recreational opportunities are in the Project Corridor along Highway 82 between Glenwood Springs and Aspen. As a result, the demographic analysis for the Project Corridor includes Eagle, Garfield, and Pitkin Counties. It focuses on the Highway 82 and RFTA rights-of-way between West Glenwood Springs and Aspen. The Project Corridor consists of the previous Aspen Branch of the Denver and Rio Grande Western Railroad right-of-way between Glenwood Springs and Woody Creek.

This analysis includes examination of county and community trends as well as trends identified within the Project Corridor. For the purposes of the demographic analysis and to remain consistent with the database used for transportation analyses, data was examined by traffic analysis zones (TAZs). This data was then divided into 12 sub-areas reflecting the names of nearby communities and neighborhoods. In subsequent social and economic analyses, some of these sub-areas have been combined.

Minor differences in population totals may occur for two reasons. First, the TAZ analyses do not include entire counties or communities and will vary somewhat from information provided by those local entities. Second, it is possible that population data will vary due to the source and manner in which it has been created. U.S. Census data, State of Colorado data, county data, and municipal data

do not all match exactly. The purpose of this section is to provide a general background on population trends in the project area. Order of magnitude is more important to consider than exact numbers, especially when any data forecasts are presented.

1.2 County and Community Populations

During the period from 1990 to 2000, Colorado was the third fastest growing state in the United States. Eagle and Garfield Counties were among the fastest growing counties in Colorado. Garfield, Eagle, and Pitkin Counties have sustained tremendous growth over the past 20 years. Eagle County's growth has been most dramatic with a 214 percent increase since 1980. Garfield and Pitkin Counties have grown less dramatically, by 96 percent and 45 percent, respectively. In terms of actual growth during this period, Eagle and Garfield County populations each increased by approximately 20,000 people, while Pitkin County grew by an additional 4,600 people. Table III-1 illustrates the growth patterns for each county and the state between 1980 and 2000.

Corridor communities have also grown during the same period. Growth data since 1990 show that Aspen's growth rate has slowed and is slightly below that of Pitkin County. Basalt, which is located in both Eagle and Pitkin counties, has grown significantly since 1990, faster than either county. Carbondale has grown at a rate higher than Garfield County as a whole, while Glenwood Springs' growth since 1990 has been notably less than the Garfield County trend. Table III-2 shows these community trends.

Table III-1
County and State Growth Trends, 1980 - 2000

County	1980	1990	Avg. Annual Change 1980-1990	1995	Avg. Annual Change 1990-1995	2000	Avg. Annual Change 1995-2000	Total Change (20 years)
Eagle	13,320	22,118	5.1%	30,883	6.9%	41,888	6.3%	214%
Garfield	22,514	30,151	2.9%	36,417	3.8%	44,032	3.9%	96%
Pitkin	10,338	12,691	2.0%	14,652	2.9%	14,954	0.4%	45%
Colorado	2,889,735	3,294,473	1.3%	3,811,074	2.6%	4,301,261	2.1%	49%

Source: Colorado Division of Local Government, Demography Section

Table III-2
Community Growth Trends, 1990 - 2000

Community	1990	% Annual Change	1995	% Annual Change	2000
Aspen	5,049	2.4%	5,665	.09%	5,914
Basalt	1,128	8.1%	1,588	13.8%	2,681
Carbondale	3,004	6.9%	4,034	5.8%	5,196
Glenwood Springs	6,561	3.0%	7,575	.42%	7,736

Source: Colorado Division of Local Government, Demography Section

Table III-3 illustrates 1998 and forecast 2025 population and household data by community and neighborhood in the Project Corridor. Comparing the number of households with the population in each household results in a density-per-household calculation. This indicator shows that fewer people

live in each household in and near Aspen than elsewhere in the Project Corridor. The larger households are between Glenwood Springs and the Wingo Junction area. A high number of persons per household or dwelling unit may indicate a shortage of housing in those areas. A high demand for affordable housing exists in all three counties. This higher number could also be an indicator of larger family sizes in these areas. No differentiation has been made between the households containing individuals who are related versus those containing unrelated individuals.

1.3 Population Growth Forecasts

The Colorado Division of Local Government's most recent forecasts of growth through 2025 for the three counties shows a slowing of growth rates for all three counties relative to the past. Eagle County's population is forecast to grow by 84 percent, to 77,223 by 2025, which is nearly double its current size. Garfield County population is also forecast to grow significantly by 85 percent to 81,483. Pitkin County population is forecast to grow by 62 percent to 24,242. Forecast data is shown in Table III-4. By 2025 average annual growth rates of 2.0, 2.2, and 1.5 percent are projected for Eagle, Garfield, and Pitkin Counties, respectively. Colorado's growth rate is expected to be 1.5 percent by 2025.

Table III-3
1998 and 2025 Population, Roaring Fork Valley Communities

	1998 Population	Number of Households	Persons per Household	2025 Population	Number of Households	Persons per Household
Garfield I-70 Corridor	14,899	5,639	2.6	30,204	11,500	2.6
Eagle I-70 Corridor	9,691	3,600	2.7	19,118	7,007	2.7
Glenwood Springs	8,713	3,634	2.4	13,418	5,496	2.4
Aspen Glen Area	4,026	1,433	2.8	6,100	2,173	2.8
Carbondale	5,331	1,993	2.7	11,418	4,315	2.6
Catherine Store Area	1,039	442	2.4	1,573	671	2.3
Basalt-El Jebel	4,780	1,624	2.9	11,325	3,833	3.0
Basalt	2,155	1,000	2.2	4,065	1,889	2.2
Basalt-Holland Hills	916	378	2.4	2,146	884	2.4
Snowmass/ Lower River Rd	761	376	2.0	1,142	526	2.2
Woody Creek/ Aspen Village	1,232	621	2.0	1,850	933	2.0
Snowmass Village	1,702	1,674	1.0	2,756	2,709	1.0
Brush Creek/Owl Creek	221	107	2.1	329	158	2.1
Aspen	6,222	3,983	1.6	9,259	5,795	1.6
East of Aspen	2,811	1,389	2.0	4,490	2,306	1.9
TOTAL	64,499	27,893	2.3	118,926	50,195	2.4

Source: Prepared by Joanna Morsicato and Associates with data provided by Claritas, October 1998; updated by Otak, 2002.

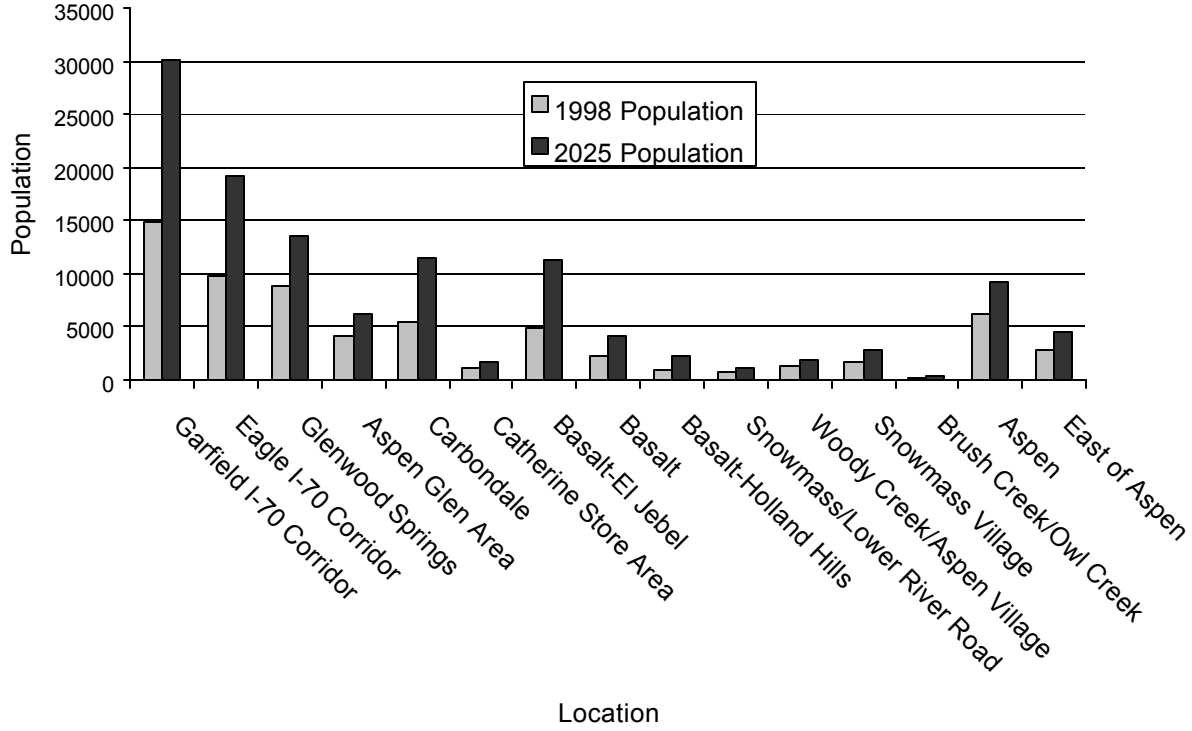
Table III-4
County and State - Population Forecasts

County	Population						% Change
	2000	2005	2010	2015	2020	2025	2000-2025
Eagle	41,888	49,477	56,518	63,299	70,207	77,223	84%
Garfield	44,032	50,580	57,978	65,535	73,457	81,483	85%
Pitkin	14,954	16,994	18,998	20,854	22,612	24,242	62%
Colorado	4,301,261	4,717,697	5,131,089	5,567,551	6,009,699	6,463,157	50%

Source: Colorado Division of Local Government, Demography Section, Table IC Preliminary Population Projections For Colorado Counties, 1990-2025.

Forecast growth is focused in the developing communities of Carbondale and Basalt-El Jebel, as well as neighborhoods along the Project Corridor. Figure III-1 shows 1998 and 2025 growth for communities and neighborhoods along the Project Corridor. Although the entire Project Corridor is forecast to grow 84 percent by 2025, the largest growth areas are forecast to be Carbondale and El Jebel-Basalt, with growth increase of 114 and 137 percent, respectively. In numbers, the Project Corridor population will expand by approximately 30,000. The combined growth of Glenwood Springs and Aspen represents approximately 8,000 of that total. From another perspective, Pitkin County is forecast to grow by a total of 11,000 in the same period. Eagle and Garfield Counties are forecast to grow by approximately 35,000 each.

Figure III-1
1998 and 2025 Population and Overall Growth Rates



Source: Prepared by Joanna Morsicato and Associates with data provided by Claritas, October 1998, updated by Otak, 2002.

1.4 Commuters

One of the effects of Aspen, Snowmass Village, and Pitkin County being an attractive resort destination - with resulting high prices for housing - is that many of the service and tourist-related jobs are filled by employees who cannot afford to live in Aspen or Snowmass Village. (This is discussed further in **Chapter III.B: Economic Environment**.) This Downvalley commuter population significantly increases the traffic on Highway 82. Conversely, relatively few Pitkin County residents work in a different county. Pitkin County's Downvalley neighbors in the Roaring Fork Valley are Eagle County and Garfield County. The 2000 U.S. Census reported that 7.5 percent of Pitkin County residents worked outside their county of residence compared with 14.1 percent of Eagle County residents and 25.9 percent of Garfield County residents.

The Downvalley commuter pattern has continued, as evidenced in a recent City of Aspen study. Employed persons living in Pitkin County have been decreasing while employment has been growing. As a result, the number of employees commuting from Downvalley locations has increased from 48.4 percent in 1995 to 52.8 percent in 2000. Of the 14,039 persons employed in Aspen, 48.9 percent, or 6,632 live locally (Economic & Planning Systems, Inc., 2002).

1.5 Visitor Populations

The visitor counts include only those visitors who use the available short-term lodging facilities. Combining the number of available rooms with the seasonal occupancy rates yields an average daily number of rooms occupied by season. Occupancy rates for summer ranged from 48 percent to 67 percent depending upon location. For forecasting purposes, winter rates were between 35 percent and 78 percent. The same rates were used for both 1998 and 2025.

The average number of occupied rooms was multiplied by the average number of persons per room (2.14 in the summer and 1.65 in the winter) based on data provided by the Glenwood Springs Chamber Resort Association. Winter occupancies for the ski resort areas were increased to 2.2 persons per room based on rates obtained from the Snowmass Village Resort Association.

Table III-5 shows estimated 1998 visitor populations by community. Current visitor populations in the corridor are highest in summer with a peak at just under 18,000. Winter totals are less at approximately 11,000. Summer weekends attract the highest visitor populations. Aspen and Snowmass Village attract the highest number of visitors both summer and winter due to the all-season resort nature of the developments. Glenwood Springs attracts a significant summer tourist population. The smaller towns in the valley attract few visitors.

Table III-6 illustrates forecast 2025 visitor populations. Trends are expected to stay the same with the summer peak just above 34,000 and the winter totals at 19,000. Aspen and Snowmass Village will continue to grow, although Aspen's winter population growth rate will slow. Aspen summer weekend numbers are projected to increase by as much as 9,000 by 2025. Glenwood Springs' summer weekend numbers will also go up noticeably. The Basalt area is forecast to increase summer weekend visitors by close to 1,900 per day, from 192 to 2,128. Winter visitor numbers are also projected to increase by 1,300. (2025 data presented in Table III-6 includes the same occupancy rates as shown for 1998 in Table III-5. For most communities an increase in lodging availability is expected. If a growth ceiling is reached, number of guests per room and facility occupancy rates may change.)

Table III-5
1998 Average Daily Visitor Populations by Community

	Summer Visitors			Winter Visitors		
Community	**Occupancy**	**Weekend**	**Weekday**	**Occupancy**	**Weekend**	**Weekday**
Glenwood Springs	63%	2,996	1,198	35%	1,283	513
Basalt	61%	192	77	55%	133	53
Carbondale	61%	183	73	55%	127	51
Snowmass Village	48%	3,697	1,479	78%	3,529	3,529
Aspen	67%	10,707	4,283	72%	6,159	6,159
TOTAL	---	17,775	7,110	---	11,231	10,305

Source: Prepared by Joanna Morsicato and Associates with data provided by Parsons Transportation Group, February 1999.

Table III-6
2025 Average Daily Visitor Populations By Community

	Summer Visitors			Winter Visitors		
Community	**Occupancy**	**Weekend**	**Weekday**	**Occupancy**	**Weekend**	**Weekday**
Glenwood Springs	63%	4,639	1,855	35%	1,996	799
Basalt	61%	2,128	852	55%	1,474	589
Carbondale	61%	1,730	693	55%	1,136	454
Snowmass Village	48%	5,986	2,394	78%	5,715	5,715
Aspen	67%	19,565	7,825	72%	8,957	8,709
TOTAL	NA	34,047	13,621	N/A	19,278	16,266

Source: Prepared by Joanna Morsicato and Associates with data provided by Parsons Transportation Group, February 1999, Updated by OTAK May 2002.

2. Demographic Characteristics

2.1 2000 Age Characteristics of County Populations

Table III-7 indicates population by select age groups for 2000 for the State of Colorado and the three counties in the Project Corridor. The distribution of population by age for Garfield County mirrors the State pattern closely. All three counties have a significant adult population in the 25 to 44-year-old age group. This may be related to the emphasis on the resort industry in those counties. The low population in the over-65 age group in Eagle County may shift as more residents choose to stay in retirement.

Table III-7
Selected Population Characteristics, 2000

	Eagle	Garfield	Pitkin	Colorado
25 to 44 years of age	42%	33%	38%	33%
45 to 64 years of age	20%	22%	30%	22%
65 years of age and older	3%	9%	7%	10%
Caucasian	85%	90%	94%	83%
Hispanic/Latino[1]	23%	17%	6%	17%

[1] *Hispanic/Latino is a subset of Caucasian.. Percentage shown is of total population.*

Source: U.S. Census 1990-2000 County and Place Comparisons

2.2 2000 Race Characteristics of County Populations

Table III-7 also indicates population by race for 2000 in Colorado and the three study area counties. Each of the study area counties represents one percent or less of the total state population. The minority populations within these counties are very small. Except for the Hispanic/Latino population, the other minority racial groups are present in numbers of one percent or less of each county's population. In real numbers, these totals for any given county and group are often not more than a few hundred people. In 2000, the Black/African American population in Eagle, Garfield, and Pitkin counties was 142, 196, and 79, respectively. In 2000, American Indian population totals were 296, 310, and 40; and Asian population totals were 372, 226, and 173.

The Hispanic/Latino population for each county is more significant. Eagle County's Hispanic/Latino population has actually grown at a faster rate than the Hispanic population in the State of Colorado as a whole, and now represents 23 percent of the 2000 population, while the State's total is 17 percent. Garfield and Pitkin Counties, on the other hand, have somewhat smaller portions of Hispanic/Latino populations at 17 percent and six percent for 2000, respectively. Note: while the Hispanic/Latino population in Colorado has increased 73.4 percent between 1990 and 2000, the increases in Eagle, Garfield, and Pitkin Counties have been 232 percent, 336 percent and 105 percent, respectively.

3. Environmental Justice

3.1 Introduction

On February 11, 1994, Federal Executive Order 12898 was issued requiring federal agencies to incorporate Environmental Justice considerations into the National Environmental Policy Act (NEPA) planning process. While not required, this CIS has been carried out in accordance with the guidance provided in these regulations. The purpose of this order is to ensure that minority and low-income populations and minority-owned businesses do not receive disproportionately high and adverse human health or environmental impacts as a result of federal actions. In April 1997, the United States Department of Transportation issued DOT Order 5610.2 to summarize and expand upon the requirements of EO12898. The order defines a process for incorporating environmental justice principles into all DOT programs, policies, and activities. In December 1998, the FHWA issued regulations (DOT Order 6640.23) to implement and expand upon the directives of EO12898 and DOT Order 5610.2 by incorporating environmental justice principles in all FHWA programs, policies, and activities. In October 1999, the FHWA and FTA issued a Memorandum to clarify Title VI requirements for State and Metropolitan Planning Agencies.

3.2 Minority Populations (descriptive)

Minority population in the Project Corridor has increased significantly over the last decade. The predominant minority population is Hispanic/Latino. Immigrants from Mexico and Central and South America and citizens of Hispanic/Latino descent have been attracted to the area by the availability of employment as well as the physical beauty and recreational opportunities. Construction, maintenance, visitor service, and landscaping positions have been popular with minority populations. In the 1990 census, about 5,078 individuals were counted as Hispanic/Latino in the three counties included in the Project Corridor. In 2000, about 17,945 individuals were counted as Hispanic/Latino.

High housing prices in the resort employment centers of Aspen and Snowmass Village have led to employees commuting 40 to 112.65 kilometers (25 to 70 miles) from the communities of Basalt, Carbondale, New Castle, Rifle, and Silt, as well as areas of the unincorporated counties. The resort communities have the lowest minority populations in the Project Corridor but rely on minority workers to fill resort hourly wage positions. Glenwood Springs is another employment center with a strong employment base and a shortage of affordable housing.

Carbondale, with about 32 percent of the population reported as Hispanic/Latino in the 2000 census, is an area with a concentrated minority population. A majority of residents commute to jobs outside of their community, primarily to Aspen and Glenwood Springs. Many of these commuters rely on transit service to access employment and retail services.

RFTA performs bi-annual regional passenger surveys that seek to identify transit-dependent populations. In 2001, only 18 percent of passengers who completed surveys in Spanish reported that they had a car available for the trip and 24 percent had a driver's license. By comparison, 61 percent of those who completed the survey in English reported that they had a car available for the trip and 81 percent reported having a driver's license.

Affordable housing is an issue for all workers in the Project Corridor and is of special concern for minority and low-income workers. Every local jurisdiction has adopted regulations in an effort to slow the loss of affordable housing and/or to increase construction of housing for people of all income levels. Some communities also provide public subsidies for building affordable housing. Deed-restricted units have been built which lease or are sold through local housing agencies based on guidelines that prescribe employment, asset limits, income levels, and appreciation limits.

For a variety of social, cultural, and economic reasons, minority workers usually compete in the shrinking pool of free-market rental housing rather than the programs developed by local governments. As the price of single-family homes and condominiums has risen, former rental units have been sold and removed from the rental pool. The shrinking rental pool has increased pressure on traditional apartment and multi-family housing and has led to increased rents. In addition, several mobile home parks, which have historically been a part of the pool of low-income housing, are threatened without new mobile home parks being approved. The 19-unit Bonanza Trailer Park in Carbondale is being redeveloped into commercial and residential uses. Both the Roaring Fork and Pan and Fork Mobile Home Parks in Basalt are located in a flood danger area and are planned for redevelopment. Two other mobile home parks in Carbondale are already zoned for non-residential uses and the Aspen-Basalt Mobile Home Park in Eagle County is zoned for other residential uses.

The Catholic Archdiocese has participated in the development of two housing projects for low-income and minority residents in the Project Corridor. The Villa de Santa Lucia in Carbondale is a public-private-religious partnership created to provide 61 units of affordable rental housing. A similar

project was constructed in Glenwood Springs. The Machebeuf Apartments provide 55 units of affordable rental housing.

Location, level of service, and accessibility of transit are critical to low-income and minority populations, but the population is also somewhat transient due to threats to housing stock and lack of affordable alternative housing. At this time, RFTA provides good bus service to the concentrated area of minority population in Carbondale and the remaining supply of free-market affordable rental housing. RFTA provides service every 30 minutes during peak hours to employment in Aspen and Snowmass Village, and has worked to increase service from communities such as Carbondale to employment and retail centers in Glenwood Springs, as well as adding service to the communities of New Castle, Silt, and Rifle to the west.

3.3 Minority Populations (demographic)

The discussion of minority populations below is based on information from 2000 Census data as well as data from local county and municipal sources. Additional demographic information is available in **Chapter III.A.1: Population** and **Chapter III.A.2: Demographics**. In the 2000 Census survey, national origin and race were two separate questions. The minority population figures can include both origin and race; therefore, percentages may exceed 100 percent. Respondents could select both national origin and a racial category (e.g. *Hispanic and African-American*, or *Hispanic and White*), or more than one race. Table III-8 represents data for White, Hispanic and one non-white racial minority category. Additional data on other minority populations is found in **Chapter III.A.2.2: 2000 Race Characteristics of County Populations**

In addition to the use of 2000 census data, local resources were contacted to obtain information on demographic trends and potential environmental justice concerns. Local resources interviewed include the Social Services Departments of Garfield, Eagle, and Pitkin counties and Asistencia Para Latinos, a local organization devoted to working with the Hispanic/Latino public in the Project Corridor.

For the three counties within the Project Corridor, the largest minority population is Hispanic/Latino. In Eagle County, the Hispanic/Latino population now makes up a greater percentage of the total than the state-wide average. Table III-8 displays the percentage of total population by race. The "Other Single Race" category includes Black, African-American, American Indian, Native Alaskan, Asian, and Pacific Islander populations.

Table III-8
Minority Population 1990-2000 in Project Corridor Counties

	Non- Hispanic White		Other Single Race		All Hispanic, Any Race	
County	**1990**	**2000**	**1990**	**2000**	**1990**	**2000**
Eagle	85.6%	74.2%	1.2%	1.9%	13.3%	23.2%
Garfield	93.1%	81.0%	1.4%	1.6%	5.6%	16.7%
Pitkin	94.4%	90.8%	1.8%	2.0%	3.8%	6.5%
State of Colorado	80.9%	74.6%	6.9%	7.4%	12.9%	17.1%

Source: U.S. Census 2000

Table III-9 displays minority populations by municipality. In Pitkin County, the percentage of minority residents matches the percentage within Aspen city limits. In Eagle County, the minority population is greater county-wide than within Basalt town limits. In Garfield County, the greatest concentration of minority population is in Carbondale, which has almost twice the percentage of minority population in the county.

Table III-9
Minority Population 1990-2000 in Project Corridor Municipalities

Municipality	Total 2000 Population	Non-Hispanic White	Other Single Race	All Hispanic Any Race
Aspen	5,914	91%	2%	6%
Basalt	2,681	85%	2%	12%
Carbondale	5,196	66%	2%	32%
Glenwood Springs	7,736	84%	2%	13%
Snowmass Village	1,822	95%	1%	3%

Source: U.S. Census 2000

3.4 Elderly Population

The percentage of the population aged 65 or older is consistently below the state-wide average in the Project Corridor. Table III-10 displays the median age and percentage of population aged 65 or older.

Table III-10
Elderly Population by Municipality

County/Municipality	Median Age	Aged 65+ (%)
Eagle	31	3%
Garfield	34	9%
Pitkin	38	7%
Aspen	37	7%
Basalt	34	3%
Carbondale	31	6%
Glenwood Springs	36	9%
Snowmass Village	37	6%
State of Colorado	34	10%

Source: U.S. Census 2000

3.5 Low-Income Population

The best available information about poverty within the Project Corridor is found in the *Regional Indicators Report* prepared by Healthy Mountain Communities. The information was derived from a model-based estimate using U.S. Census data and reflects estimates in 1997. Table III-11 displays the median income and percentages of total persons and children living below the poverty level by county. Additional income and poverty information is available in **Chapter III.B.4: Income**.

Table III-11
Median Income and Percentage of Persons Living Below Poverty Level in 1997

County	Median Income	Persons Below Poverty	Children Living Below Poverty
Eagle	$50,000	4%	6%
Garfield	$40,923	9%	13%
Pitkin	$52,744	5%	8%
State of Colorado	$40,853	10%	15%

Source: Healthy Mountain Communities, Regional Indicators Report

Another measure of low-income population is the percentage of students qualifying for the Free or Reduced Lunch Program established by the US Department of Agriculture. Children from families with incomes at or below 130 percent of the poverty level are eligible for free meals. Those with incomes between 130 percent and 185 percent of the poverty level are eligible for reduced-price meals, for which students can be charged no more than 40 cents. For the period July 1, 2001 through June 30, 2002, 130 percent of the poverty level is $22,945 for a family of four; 185 percent is $32,653. Table III-12 displays the percentage of public school students in the Project Corridor who qualified for the Free or Reduced Lunch Program in October 2001.

Table III-12
Percentage of Students Qualifying for Free or Reduced Cost Lunch Program in Project Corridor Elementary and Middle Schools July 2001 - June 2002

Municipality	Percentage
Aspen	<1%
Basalt	22%
Carbondale	43%
Glenwood Springs	26%

Source: Aspen School District and Roaring Fork RE-1 School District

The high cost of housing is an issue in the Project Corridor, and a prime reason for the extension of RFTA's service area to the communities of New Castle, Silt, and Rifle. All three counties and each municipality in the Corridor have enacted regulations concerning the creation of deed-restricted affordable housing in response to the shortage of rental and ownership housing which is affordable to households at or below the median income. There are additional households in the study area which do not fall below the federal poverty level but do face economic stress due to the higher-than-average percentage of their household income which goes towards housing. Access to an enhanced transit system can provide a benefit for such households if the need for a second automobile is avoided, if greater access to workplaces is achieved, or due to savings in transportation costs.

3.6 Public Involvement with Hispanic/Latino Population

A comprehensive effort was undertaken to understand the existing relationship between Hispanic/Latino populations and existing and proposed transit service in the Project Corridor. Public involvement activities included the following:

- Spanish interpreters were available at open houses.
- Two open houses for Spanish-speaking citizens were held on March 24, 1999 and May 8, 1999 to update the Hispanic/Latino community on the project and to scope issues. Spanish speakers presented study findings and facilitated a discussion of the Alternatives.
- Advertising for the open houses and additional scoping was provided by door-to-door canvassing in Hispanic/Latino neighborhoods.
- Study representatives participated in Hispanic/Latino radio programs.
- Members of the Study Team, in conjunction with Asistencia Para Latinos, spent two days riding on valley bus routes to answer questions and survey Hispanic/Latino community members who would be affected by the proposed transit improvements.

For more information on public involvement, see **Chapter IX: Public Involvement.**

4. Services

4.1 Schools

The Project Corridor includes a full range of public and private educational opportunities. The public schools are either in the Roaring Fork RE-1 or the Aspen 1 School District. Elementary and middle school enrollment in 2000 totaled 4,813. Total high school enrollment was 2,071. College level enrollments were 4,240. Types of schools and 2000 enrollments are summarized below by community.

Glenwood Springs. Glenwood Springs contains two public elementary schools (grades K-5), a middle school (grades 6-8), two high schools (grades 9-12), and a vocational school (grades 11-12). A private elementary-middle school (grades K-8) is also located in Glenwood Springs. Colorado Mountain College has two sites in Glenwood Springs. In 2000, elementary school enrollment totaled 889, middle school totaled 515, and high school totaled 778 students. The private school enrollment totaled 88. Colleges totaled 2,049 students.

Carbondale. Carbondale contains two elementary schools and a charter school with a total enrollment of 809. Carbondale Middle School had a 2000 enrollment of 274. The high school included 343 students. Private school enrollments totaled 288. The Carbondale Colorado Mountain College campus had an enrollment of 738.

Basalt. Basalt contains an elementary, middle, and high school with 2000 enrollments of 590, 413, and 387, respectively.

Aspen. There is one elementary school in Aspen District 1. 2000 enrollment was 448. The middle school (grades 5 - 8) included 395 students and the high school (grades 9-12), 393 students. A charter school in Woody Creek (grades K-8) included 114 students. A private school (grades K-9) had a 2000 enrollment of 160. Aspen Campus of Colorado Mountain College had an enrollment of 1,453 students.

4.2 Health Care

The Project Corridor includes two hospitals and numerous smaller clinics and medical practices. Full service health care facilities are available at each end of the corridor, in Glenwood Springs and Aspen.

Glenwood Springs. Valley View Hospital is a full-service, 80-bed hospital. Glenwood Springs has over 85 physicians and surgeons, chiropractors, optometrists, and podiatrists. Twenty-two dentists also have offices in this community.

Carbondale and Basalt-El Jebel. The Carbondale and Basalt-El Jebel area includes 40 physicians, surgeons and chiropractors. Sixteen dentists practice in this area.

Snowmass Village-Aspen. Aspen Valley Hospital is a 49-bed full-service facility. Eighty-one physicians, surgeons, chiropractors, optometrists, and podiatrists provide service for the Snowmass Village - Aspen area. Fifteen dentists practice in this area.

4.3 Law Enforcement

Law enforcement in the Project Corridor includes the State of Colorado, three counties, and five community agencies. The Colorado State Patrol has jurisdiction over Interstate 70 and Highways 82

and 133. Garfield, Eagle and Pitkin County Sheriff's Departments work together with Glenwood Springs, Carbondale, Basalt, Snowmass Village and Aspen community police departments. Each department is summarized briefly below.

Garfield County Sheriff's Department. Garfield County has a main office in Glenwood Springs. It also has two substations outside the Project Corridor. A new county jail has a total of 200 beds. Staff, including sworn officers, totals 90 people. The county has 31 patrol, transport, and administration cars. The total cases rose from 5,322 in 1998 to 6,783 in 2000.

Eagle County Sheriff's Department. The Eagle County Sheriff's Department is headquartered in the town of Eagle. Eagle County has 38 officers and a total law enforcement staff, including officers, of approximately 81 people. The county jail, also located in Eagle, has 52 beds with the possibility of double bunking when needed. The main office is in Eagle, with four substations located elsewhere in the county. The El Jebel substation is located in the Project Corridor. Total 1998 calls for service assigned case numbers were 6,302. Total calls for service in 2000 were 11,424.

Pitkin County Sheriff's Department. Pitkin County has its main office at the courthouse in Aspen. There is a substation at Aspen Village. The county jail in Aspen contains a 24-bed facility. Department staff includes 42 with 25 vehicles. Calls for service totaled 8,365 in 1998 and 8,849 in 2000.

Glenwood Springs Police Department. The Glenwood Springs Police Department has 36 staff members, including 27 sworn officers, and 18 vehicles. The Department has one office in Glenwood Springs. Calls for service (all types) totaled 16,243 in 1998, and 17,155 in 2000.

Carbondale Police Department. The Carbondale Police Department employs 18 people and has eight cars. Calls for service totaled 6,125 in 1998 and 7,196 in 2000.

Basalt Police Department. The Basalt Police Department includes ten sworn officers and seven cars. Calls are dispatched through Pitkin County and calls for service totaled 2,408 in 1998 and 2,624 in 2000.

Snowmass Village Police Department. This department has a total staff of 12 full-time and two part-time (traffic control), using six vehicles. Calls for the Snowmass Village Police Department are dispatched via the County in Aspen. Calls for service totaled 3,768 in 1998, and 3,752 in 2000.

Aspen Police Department. The Aspen Police Department is located at the courthouse in Aspen and has a small substation at the Rubey Park Transit Center. The Pitkin County Sheriff's Department dispatches calls for the Aspen Police Department. Aspen has 37 staff and 15 cars. Calls for service totaled 12,173 in 1998 and 13,702 in 2000.

4.4 Fire Protection and Emergency Services

The Roaring Fork Valley includes six different fire protection or ambulance districts and one private ambulance service. Each is described below.

Glenwood Springs Fire Department. Glenwood Springs has three fire stations. Station #1 in West Glenwood is staffed and maintains five apparatus and two ambulances. Station #2, which is downtown, is staffed and has one ambulance and three apparatus. Station #3 is under construction and will be staffed. Station #4, midway between Glenwood Springs and Sunlight, will be closed upon

completion of the construction of Station #3. This station is not staffed, but includes one truck. The Department has 18 paid staff and 12 volunteers. Combined fire and emergency calls totaled 1,104 in 1998 and 1,139 in 2000.

Carbondale Fire District. This large district covers 515 square kilometers (320 square miles), including the area along Highway 82 between Glenwood Springs and the Eagle County line. The district actually enters three counties. The district has eight paid staff and over 70 volunteers. Five stations are located as follows. Station #1 is located in Carbondale. It includes six apparatus and three ambulances. Station #2 is in Redstone, and #3 is in Marble. Station #4 is in Glenwood Springs on County Road 154. It includes three apparatus. Station #5 is located outside of Carbondale at Missouri Heights and houses one engine. Combined District calls totaled 777 in 1998 and 775 in 2000.

Basalt Fire District. The Basalt Fire District includes four stations: Basalt, Old Snowmass, El Jebel and Thomasville. Total staff includes six paid and 48 volunteers. The district has 12 apparatus and four ambulances. Combined calls totaled 560 in 1998 and 576 in 2000.

Snowmass Fire Protection District. The Snowmass Fire Protection District covers 30.58 square kilometers (19 square miles), including the ski area and luxury homes. They have 14 full-time paid staff, 18 part-time paid, and two volunteers. The district houses four engines and three ambulances. Calls totaled 760 in 1998 and 795 in 2000.

Aspen Fire District. The Aspen Fire District includes four paid staff and 40 volunteers. The 140-squre-kilometer (87-square-mile) district maintains a station in Aspen plus unmanned stations at Aspen Village, Starwood, Woody Creek, and the Airport. Total apparatus includes ten vehicles. Calls in 1998 were 1,021 and in 2000 were 1,205.

Aspen Ambulance District. A separate ambulance district is maintained on site at the Aspen Valley Hospital. The district itself is part of Pitkin County government. It includes seven full-time staff and 15 part-time. It maintains four ambulances, three at the hospital and one at Aspen Village. Calls for service totaled 843 in 1998 and 966 in 2000.

Aspen Emergency Service. This private service has three ambulances and is licensed only to handle routine, non-critical calls. It services the ski areas and operates only during the winter months. The service handles an estimated 700-800 non-critical calls per year.

5. Recreation

Recreation and its associated activities are the mainstay of the Roaring Fork Valley's economy and lifestyle. This is due to the abundance of public land that lines the valley and adjacent mountain areas. Although private holdings are generally found in close proximity to the Project Corridor, numerous opportunities for trail access to BLM land occur between Glenwood Springs and Carbondale and throughout the Project Corridor.

The Mt. Sopris Tree Farm Community Center and Recreation Area is located adjacent to the Project Corridor at Valley Road in El Jebel. This 53.4 hectare (132 acre) property was acquired by Eagle and Pitkin Counties through a land exchange with the White River National Forest in 1994. The property

has been redeveloped within the specifications of the land exchange to include the new Eagle County Community Center, developed recreation fields and an area of native vegetation.

The Christine State Wildlife Area is located northwest of Basalt. Between Basalt and Aspen, access to the US Forest Service-managed White River National Forest includes trails to the Maroon Bells-Snowmass and Holy Cross and Hunter/Frying Pan Wilderness areas. Most of the activities described in this section take place on some type of public land. County and community open space areas are also found throughout the corridor. Although the winter ski industry (downhill and cross-country) remains the primary attraction for both residents and visitors, summer and year-round opportunities include fishing, hunting, rafting, kayaking, bicycling, hiking, sightseeing, and golf.

5.1 Skiing

Pitkin County is internationally acclaimed for both downhill and cross country (Nordic) skiing. In an average year, the downhill ski season lasts from mid-November to early April. The cross-country season is about two weeks shorter, although backcountry skiing can last into June. There are five separate downhill ski areas in the Roaring Fork Valley: Aspen Highlands, Aspen Mountain, Buttermilk, Snowmass, and Sunlight. These are primarily destination resorts, although Sunlight is popular with local skiers. Because the Denver metropolitan area is approximately three to four hours away by vehicle, most winter visitors stay overnight or longer. Historic data for downhill skier visits are included in **Chapter III.B: Economic Environment.**

Downhill. Table III-13 contains data for each of the five ski areas, including the number of skier visits, acres of skiable terrain, number of trails and lifts, and the percent of skiable terrain allotted to each level of skiing proficiency. As the table illustrates, the areas vary in size and two of the areas are focused on opposite ends of skier levels of ability.

Cross-Country. An extensive network of cross-country trails and systems connects various points internal and external to the Roaring Fork Valley. Hut systems for overnight camping are located along the longer trails. Eleven huts lie within a day's ski trip from the valley, with others accessible for longer treks.

Table III-13
Roaring Fork Valley Ski Resorts

Ski Area	2000/2001 Skier Visits	Skiable Hectares (Acres)	Trails	Lifts	Type of Terrain (%)		
					Beginner	Intermed.	Adv./Expert
Aspen Highlands	140,640	289 (714)	115	4	20%	33%	47%
Aspen Mountain	319,343	272 (673)	76	8	---	35%	65%
Buttermilk	148,826	170 (420)	42	7	35%	39%	26%
Snowmass	740,241	1,218 (3,010)	83	18	7%	55%	38%
Sunlight	84,104	190 (470)	67	4	20%	55%	25%

Sources: Aspen Skiing Company; Colorado Ski Country USA; May 2002

Two sets of groomed trails are also available. Both are open to the public. The Aspen-Snowmass Nordic Council maintains 60 kilometers (37.3 miles) of groomed trails. The longest trail is 15

kilometers (9.3 miles) in length and connects Snowmass Village and Aspen. There is no charge to use these trails. Several other organizations access these trails as well, including the Snowmass Club Touring Center and the Aspen Cross Country Center. Ashcroft Ski Touring maintains 35 kilometers (21.7 miles) of groomed trails and has a trail fee. The Mt. Sopris Nordic Council maintains 19 kilometers (11.8 miles) of trails near Carbondale, and there is no charge for use of these trails. A fee-based Nordic Ski system is located at Sunlight Mountain.

5.2 Fishing

The Colorado Division of Wildlife classifies the Roaring Fork River as a cold water fishery and it is considered the best winter fishery in the state for large trout and mountain whitefish. From north Aspen to Basalt the river is classified as Wild Trout Water, and from north Carbondale to Glenwood Springs the river is classified as Gold Medal Water. The Frying Pan River, from Ruedi Reservoir to its confluence with the Roaring Fork River in Basalt, is also classified as Gold Medal Water. Only 254 kilometers (158 miles) of the 12,875 kilometers (8,000 miles) of trout stream in Colorado are designated as Gold Medal waters. In 1982, the Eagle County section of the Roaring Fork River produced the record Colorado whitefish: 2.32 kilograms (five pounds, two ounces), and 48 centimeters (18.75 inches) in length. Rainbow trout, brown trout, brook trout, and Colorado River cutthroat trout are found in the Roaring Fork River.

5.3 Hunting

Hunting and trapping are permitted along the rural areas of the Project Corridor, according to the Colorado Division of Wildlife. Game species in the area include deer, elk, and bighorn sheep. The State of Colorado is geographically divided into Wildlife Management Units, and the area surrounding the project corridor is divided among three of these units. Unit 43 is south of the Colorado River and west of the Roaring Fork River. Unit 47 is north of Highway 82, east of the Roaring Fork River, and south of the Frying Pan River. Unit 444 is bounded \on the north by the Colorado River and on the east by the Roaring Fork River.

Hunting seasons for elk and deer begin in late August and continue through mid-November, and vary according to the type of weapon used. Archery is the opening season, followed by muzzle-loading rifles. Three successive regular/combined rifle seasons generally begin in mid-October. Tables III-14 and III-15 record the number of deer and elk harvested and the number of hunters in each unit for the 2000 season. It should be noted that each of the three units includes a wider area than the Project Corridor.

Table III-14
2000 Deer Harvest and Number of Hunters

Unit	Bucks	Does	Fawns	Total Harvest	Total Hunters	% Success
43	337	180	5	522	1,286	39
47	51	37	0	88	312	28
444	174	0	0	174	561	31

Source: Colorado Division of Wildlife

Table III-15
2000 Elk Harvest and Number of Hunters

Unit	Bulls	Cows	Calves	Total Harvest	Total Hunters	% Success
43	430	578	34	1,042	3,920	27
47	170	130	8	308	1,199	26
444	187	364	33	584	1,963	30

Source: Colorado Division of Wildlife

5.4 Rafting

According to the owners of three local rafting companies, the stretch of the Roaring Fork River along Highway 82 from Aspen to Basalt is known among rafters as a fast, moderate to difficult run. Rivers are classified for rafting from Class I (easiest) to Class V (most difficult); this particular section contains segments that have been designated as Classes II and IV. The rafting season for commercial rafting companies runs from approximately mid-May to mid-July, depending on the amount of snow runoff each year. Private rafters continue to run this section through the end of July.

Most commercial rafts hold six passengers and a guide. Professional rafters escort at least 3,000 passengers through this section each year, and some years the count may be as high as 8,000 people. The annual number of private-use rafters is estimated at 2,000 to 3,000 individuals. There are seven boat ramps along the corridor, located at the following areas:

- Just upstream of Roaring Fork Bridge by Lazy Glen
- Below the upper bypass bridge on Two Rivers Road
- Below Basalt off Two Rivers Road at the bottom end of the family pool
- Across from Basalt Industrial Park, just upstream of Hooks Bridge off Willits Lane
- At the Sopris RV Park, accessed off Highway 82 at Milepost 10.4
- Upstream of Westbank Bridge on the north side of the river; accessed off Highway 82 at Milepost 5
- At Two Rivers Park; accessed off Highway 6 and 24 just west of the main Glenwood Springs I-70 interchange

5.5 Kayaking

Kayak enthusiasts make up a smaller, but substantial, portion of the traffic on the Roaring Fork River along Highway 82. The river requires beginner to intermediate skill levels on the slower portion between Carbondale and Basalt. Serious whitewater rafting and kayaking opportunities are available between Basalt and Aspen. Advanced kayakers often enter the water at Slaughterhouse Bridge, using Wink Jaffee Park as a takeout. Approximately 800 to 1,500 kayakers run the river each year, and instruction is available year-round at the Aspen Kayak School.

5.6 Recreational Trails

Much of the Roaring Fork Valley's open space is accessed from area trails for picnicking, wildlife observation, and other activities. Horses are welcome on some trails and some ranchers rent horses to visitors. Although commuters bike along Highway 82 and some local roads, most mountain bikers prefer off-road trails. In recent years, inline skaters have also taken advantage of the trail system. As bus or rail transit is further developed in the Project Corridor, options will increase for the

interconnection of trails with transit stops and stations. Trails within and crossing the Project Corridor support a variety of popular recreation activities as well as commuting options. These trails are listed and shown in Figure III-2.

One of the purposes of the purchase of the RFTA right-of-way was to include a continuous trail connection between Glenwood Springs and Aspen. An early document supporting the trail aspect of this project was *Reading the Roaring Fork Landscape: An Ideabook for Interpretation and Environmental Education* (SAIC, 1999a). This study provided a framework for the creation of an educational and interpretive component for the corridor trail system.

The project planning process that led to the current CIS has always included consideration for a trail. Trail planning has included county and local governments, and trail, open-space, and recreation groups. In addition to representation from CDOT and all three Project Corridor counties; trail planning efforts included participation by Glenwood Springs, Carbondale, and Basalt, the Mid-Valley Trails Committee, and the Glenwood Springs River Commission. The *Recreational Trails Plan, Glenwood Springs to Aspen CIS/DEIS/CP* (Land Plan, 1999) provides additional information on this planning effort.

5.7 Additional Activities

Glenwood Springs offers 17.6 hectares (43.5 acres) of programmed space and open space parkland within the city. These parks offer a range of activities from baseball fields and skateboarding ramps to the tranquil solitude of open space.

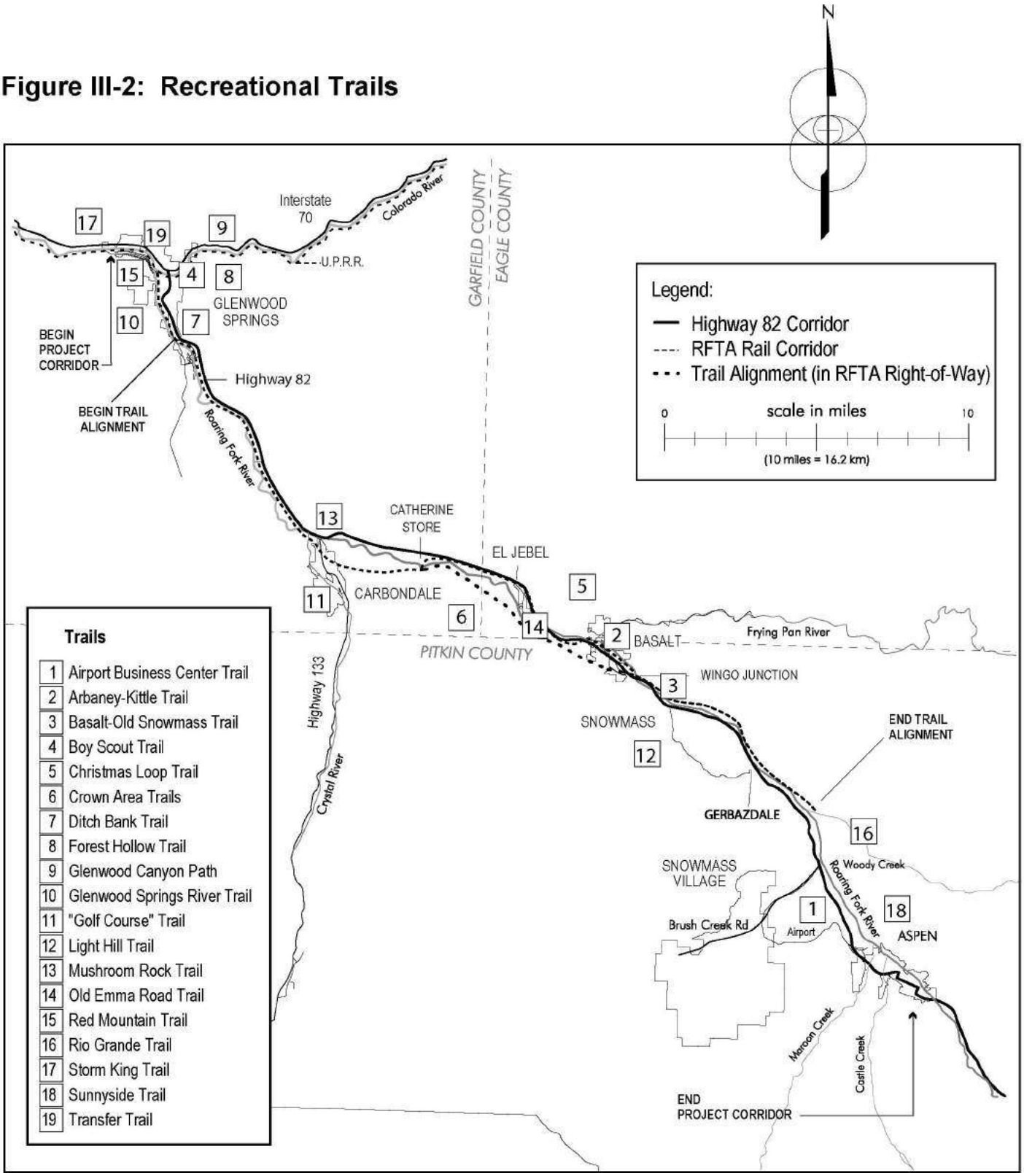
The Glenwood Hot Springs Lodge and Pool in Glenwood Springs offers full world-famous health and fitness facilities which are available to the general public and visitors. Glenwood Adventure Park, located just north of Glenwood Springs on Iron Mountain, incorporates the recently opened Glenwood Caverns, the historic Fairy Caves, and a restaurant and deck with a view of Glenwood Canyon. This major new attraction is accessible by dirt road, and by a new tramway from town that opened in late April of 2003.

There are ten golf courses within the Roaring Fork Valley. Five are located in the Glenwood Springs-Carbondale area and another five 18-hole golf courses are located in Pitkin County. The ten courses are Aspen Glen, Westbank, Glenwood Springs Golf Club, River Valley Ranch in Carbondale, The Ranch at Roaring Fork, Roaring Fork Club in Basalt, Aspen City Golf Course near the west end of Aspen, the public Maroon Creek Golf Course, the private Maroon Creek Club Course, and the private Snowmass Club in the Town of Snowmass Village. All but Maroon Creek Club Course are open to the public upon payment of fees.

The Snowmass Village Club also offers full health club facilities, with two outdoor and eleven indoor tennis courts, and a squash/racquetball court. Several other health and fitness facilities operate in the Aspen area. The City of Aspen operates a public swimming pool and recreational programs. A portion of the property southeast of Castle Creek Road is used for a hang-gliding/paragliding landing site. This location is approximately 0.4 kilometer (0.25 miles) south of Highway 82.

Many of the counties and towns in the valley also provide structured recreational activities for residents and nonresidents. Glenwood Springs, Carbondale, Eagle County, and Pitkin County each offer youth and adult sports programs. These programs vary by season and locality.

Figure III-2: Recreational Trails



6. Land Use

Most of the Project Corridor is federal land managed by the US Forest Service and Bureau of Land Management. Federal land comprises 80, 81, and 60 percent of Pitkin, Eagle, and Garfield Counties, respectively. Most private developed or developable land is located in a narrow corridor on the Valley floor adjacent to the Roaring Fork River.

The Project Corridor provides access to significant federal and state holdings, including the White River National Forest; the Maroon Bells/Snowmass, Hunter/Frying Pan, and Holy Cross Wilderness areas; numerous Bureau of Land Management parcels; the Christine State Wildlife Area; three Colorado Wildlife Management Units; and the Roaring Fork and Frying Pan Rivers (both Colorado Gold Medal fisheries).

Figures III-3 through III-9 show the current land use along the Project Corridor highlighting the BRT and Rail Alternatives and associated transit station locations. Although predominant land uses in close proximity to Highway 82 and the RFTA right-of-way are often residential or agricultural, with commercial and mixed uses associated with the developed communities, most of the land in the outlying areas is public land. The figures delineate land uses that are predominately residential and agricultural; however, commercial, industrial and mixed uses are prevalent surrounding transit station sites in Glenwood Springs, Carbondale, El Jebel, Basalt, the Pitkin County Airport, and in Aspen. Designated land uses immediately surrounding the proposed transit station locations and maintenance facilities are presented in Table III-16.

Table III-16
Land Uses Near Proposed New Transit Stations and Maintenance Facilities

Station Location	Zoning or Designation*
West Glenwood Springs	Industrial
West Glenwood Springs Maintenance Facility	Industrial
Downtown Glenwood Springs	Industrial
South Glenwood Springs	Commercial/Office
Colorado Mtn College at CR 54	Commercial/Office
Carbondale at Highway 133	Commercial/Office/Light Industrial
Downtown Carbondale	Commercial/Mixed Use
Downtown Carbondale Maintenance Facility	Industrial
El Jebel (El Jebel Road/Willits Lane)	Commercial/Open Space
Basalt at Midland Avenue	Industrial/Residential
Aspen Maintenance Facility	Commercial/Office
Aspen Main Street: Galena-Spring	Commercial/Office

**Ordered from most to least prevalent.*
Source: Washington Infrastructure Services, 1999.

The Project Corridor begins at West Glenwood Springs (Figure III-3), where it is surrounded by commercial and industrial uses. As the proposed rail alignment reaches the Glenwood wye at 8th Street, zoning changes to residential, with a brief industrial section at the confluence of the Colorado and Roaring Fork Rivers. Wye is a railroad term referring to 'Y'-shaped track used to reverse directions of trains or rail cars. The BRT (Highway 82) and the proposed rail alignment (RFTA

right-of-way) are adjacent to the river confluence south to Colorado Mountain College area where they split until the Cattle Creek crossing. Commercial and medium-density residential zoning follow the alternatives until they depart Glenwood Springs.

Between Glenwood Springs and Aspen Glen (just outside of Carbondale), land is agricultural. A small section located halfway between is zoned as limited commercial and residential. Aspen Glen is zoned Planned Unit Development (PUD; the land returns to agricultural designation traveling south to Carbondale. Both the BRT and proposed rail alignments are parallel until just before Highway 133 in Carbondale where they split on either side of the Roaring Fork River.

At Carbondale (Figure III-4), land uses vary. Medium-density residential and commercial/retail abut the RFTA right-of-way, followed quickly by commercial/industrial and general industrial. Before leaving Carbondale, the alignment passes through commercial/office zoning, and more medium-density residential. Highway 82 runs through residential development in Carbondale. Much of the area between the separated alignments is agricultural, especially on the south side of the Roaring Fork River. Continuing south, the RFTA right-of-way follows CR 100. When CR 100 veers to the north, the RFTA right-of-way continues westward and the proposed rail alignment follows CR 100 north to rejoin Highway 82 at Catherine Store.

The land from Catherine Store to the Eagle County line is zoned agricultural. Upon entering Eagle County, zoning changes to medium-density residential, which continues until the commercial and industrial zoning of El Jebel (Figure III-5). South of El Jebel and the proposed Willits Lane transit station site, residential and limited agricultural uses continue to the Pitkin County line. The BRT and Rail Alternatives run parallel along Highway 82 from Catherine Store to Wingo Junction.

Portions of the Town of Basalt are in both Eagle and Pitkin Counties. When the alternatives cross the Pitkin County line, land is zoned residential to the north and agricultural to the south until the proposed Midland Avenue transit station site. South of Midland Avenue, land is designated residential and commercial (Figure III-6). Before leaving Basalt, the alignments pass through a Planned Unit Development, commercial, residential, and finally, multi-family residential.

The RFTA right-of-way, which contains the new Rio Grande Trail, runs through predominantly agricultural and residential land south of Basalt to Wingo Junction. At Wingo, the Rail Alternative diverts from Highway 82 back to the RFTA right-of-way. The Highway 82 BRT alignment runs adjacent to the Lazy Glen residential development, while the Rail alignment follows the RFTA right-of-way to the north on the other side of the Roaring Fork River. The land surrounding the alignments remains residential until Snowmass Canyon. Here, there is some industrial designation, but it quickly reverts back to residential. Lower River Road and associated residential development meanders alongside the rail and trail alignment in the RFTA right-of-way to Gerbazdale. The river separates Highway 82 from the RFTA corridor until Gerbazdale where the Rail Alternative rejoins Highway 82 for the remainder of the way to Snowmass Village and Aspen.

The new Rio Grande Trail follows RFTA right-of-way on the other side of the river from Gerbazdale to Woody Creek, where it joins previously-built segment of trail of the same name. Land use adjacent to the BRT and Rail alignments remains residential until the proposed Brush Creek Transit Station (Figure III-7). A shift in land use occurs as the alignments approach the Pitkin County Airport, which is zoned for commercial and light industrial uses (Figure III-8). Commercial land uses predominate on either side of Highway 82 and the alternatives corridor to the project end at Main and Hunter Streets in the Aspen Commercial Historic District (Figure III-9).

Figure III-3: Land Use, Glenwood Springs / West Glenwood Springs

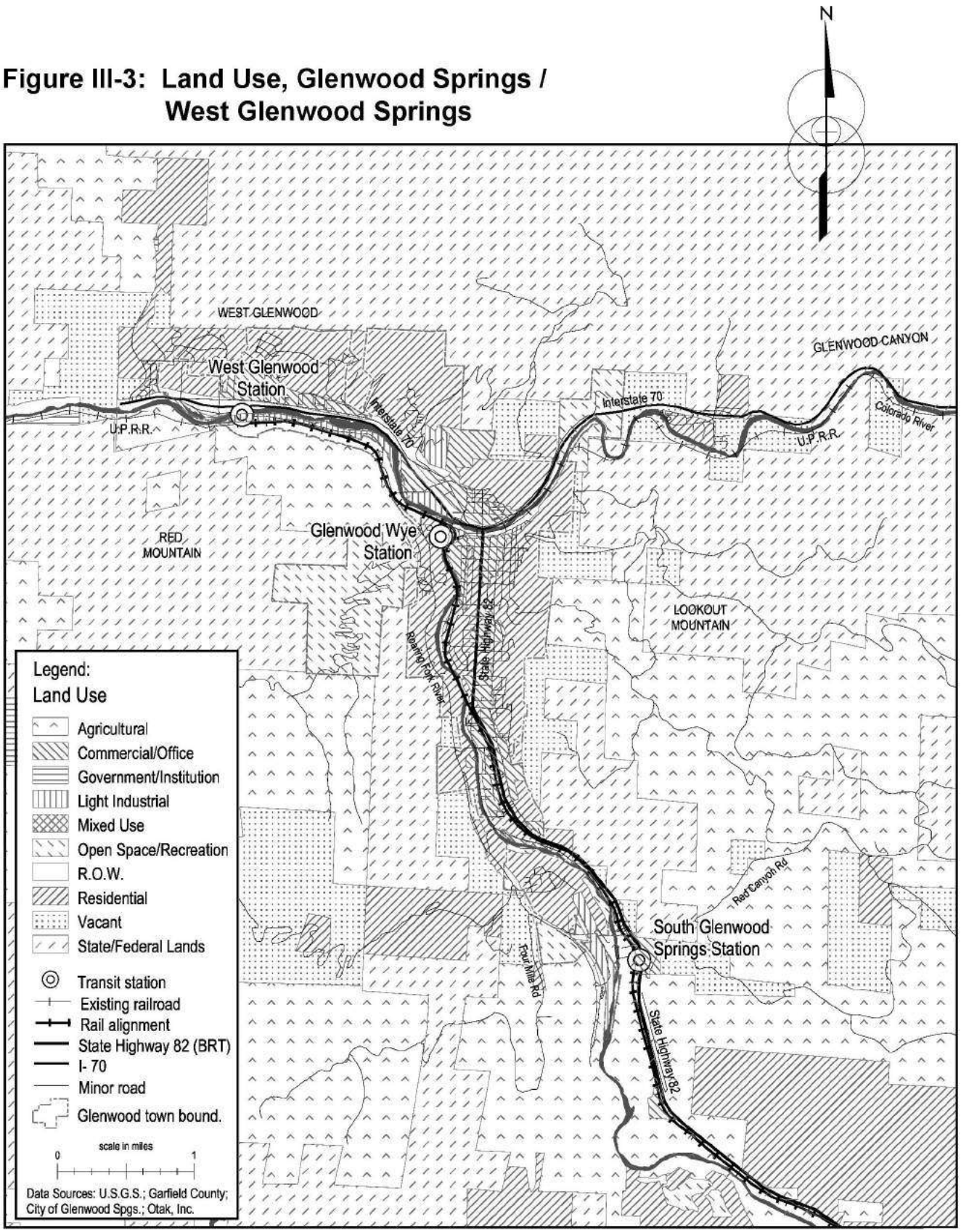


Figure III-4: Land Use, Carbondale / Highway 133

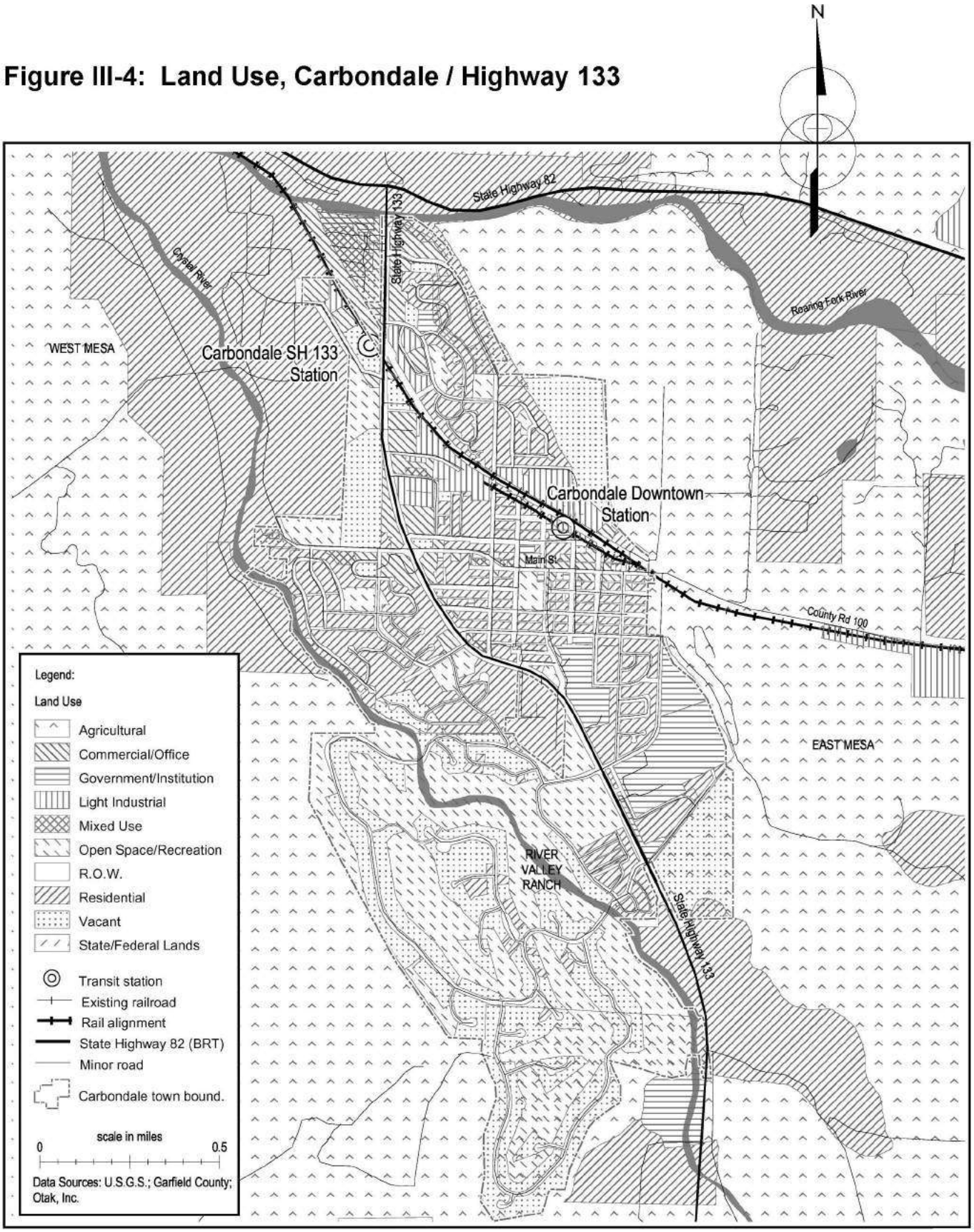


Figure III-5: Land Use, El Jebel / Willits Lane

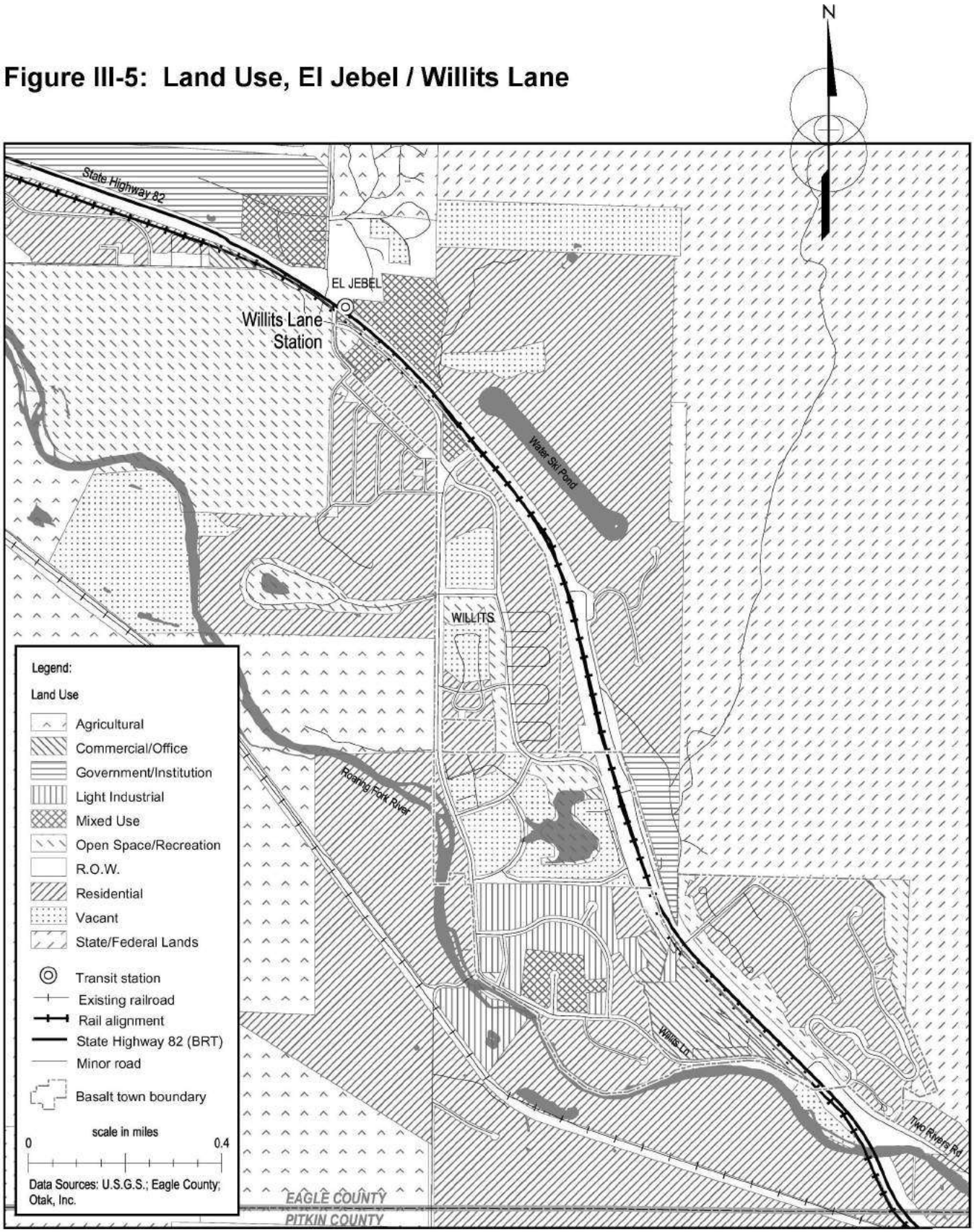


Figure III-6: Land Use, Basalt / Midland Avenue

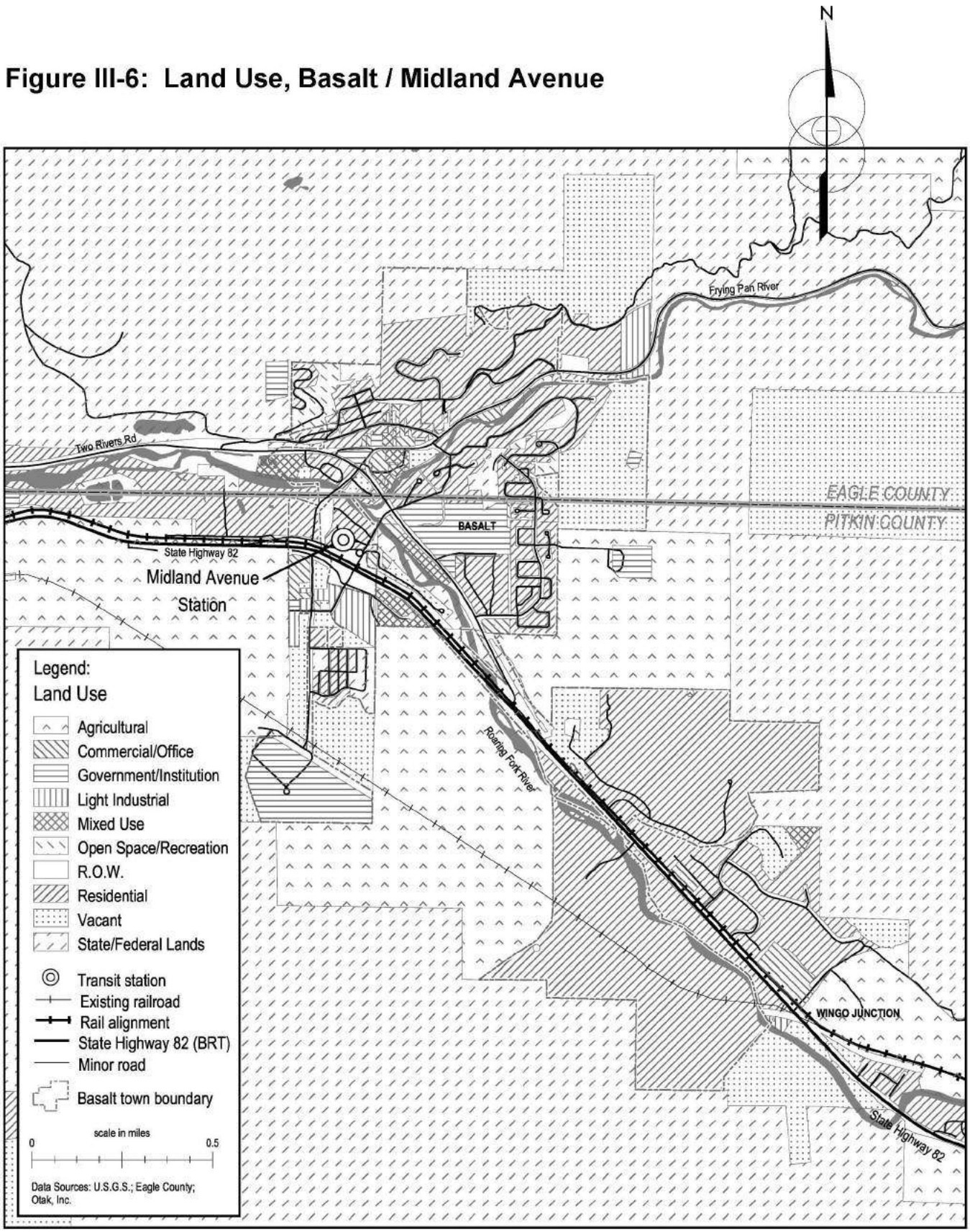


Figure III-7: Land Use, Pitkin County / Brush Creek

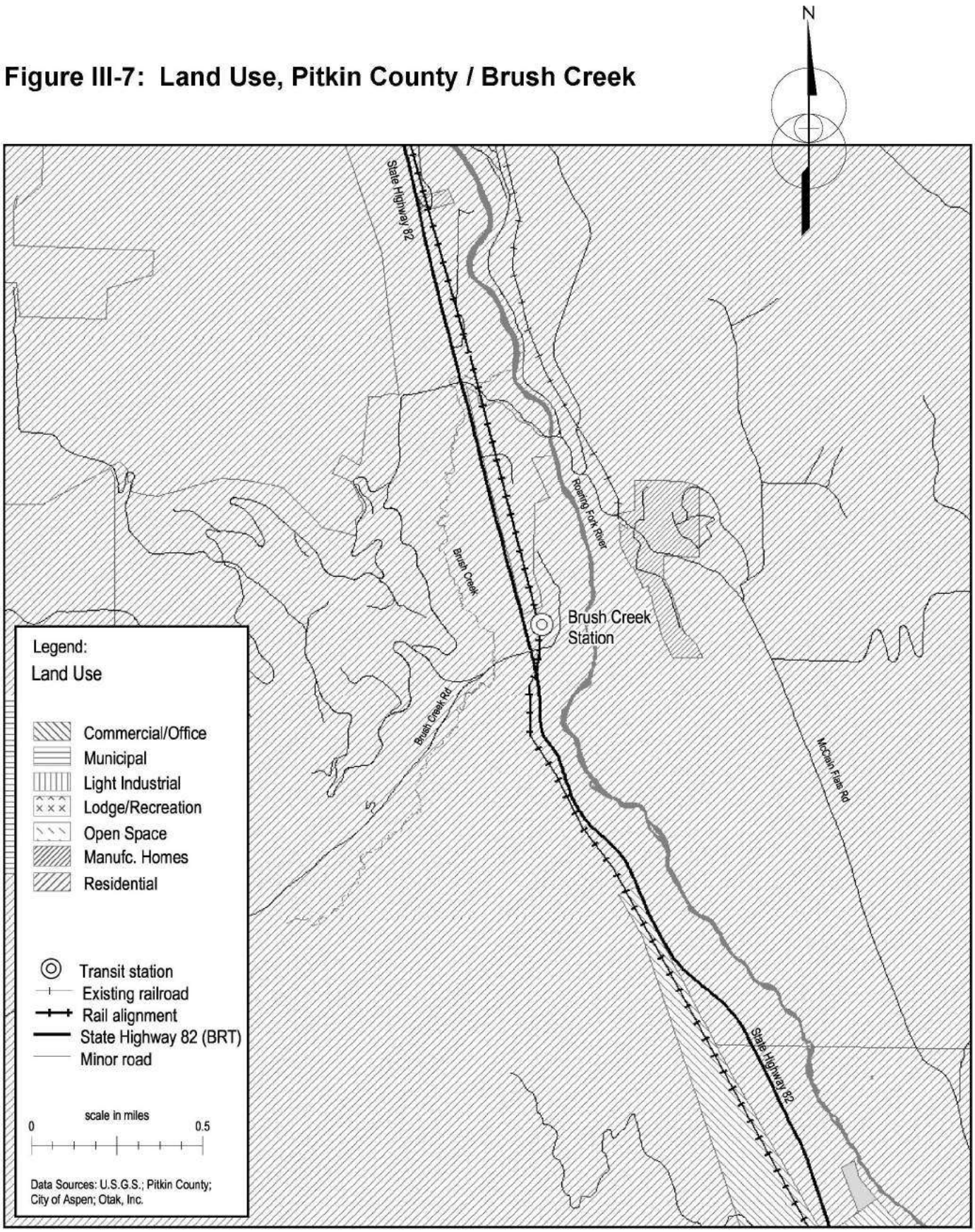


Figure III-8: Land Use, Pitkin County / Aspen

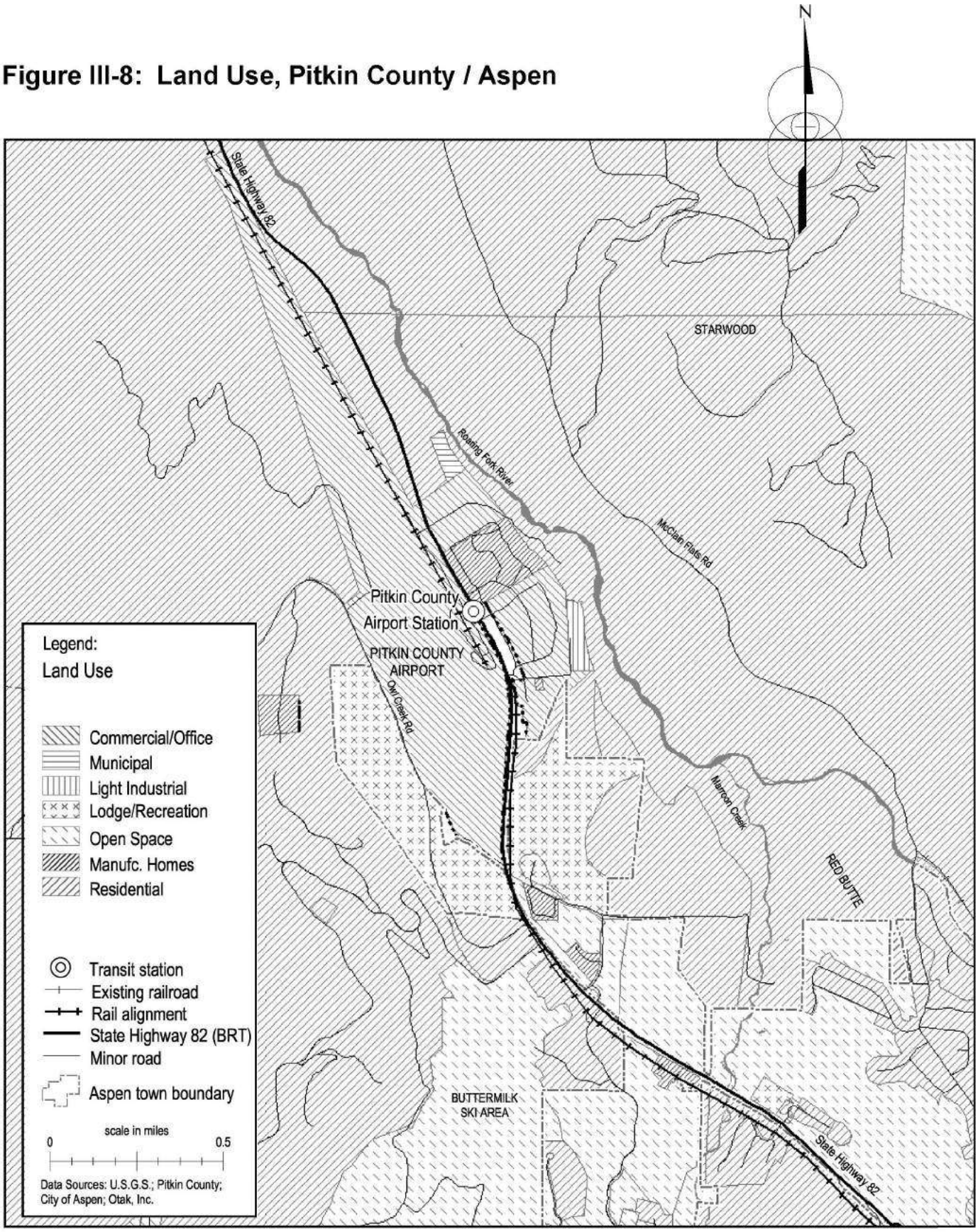
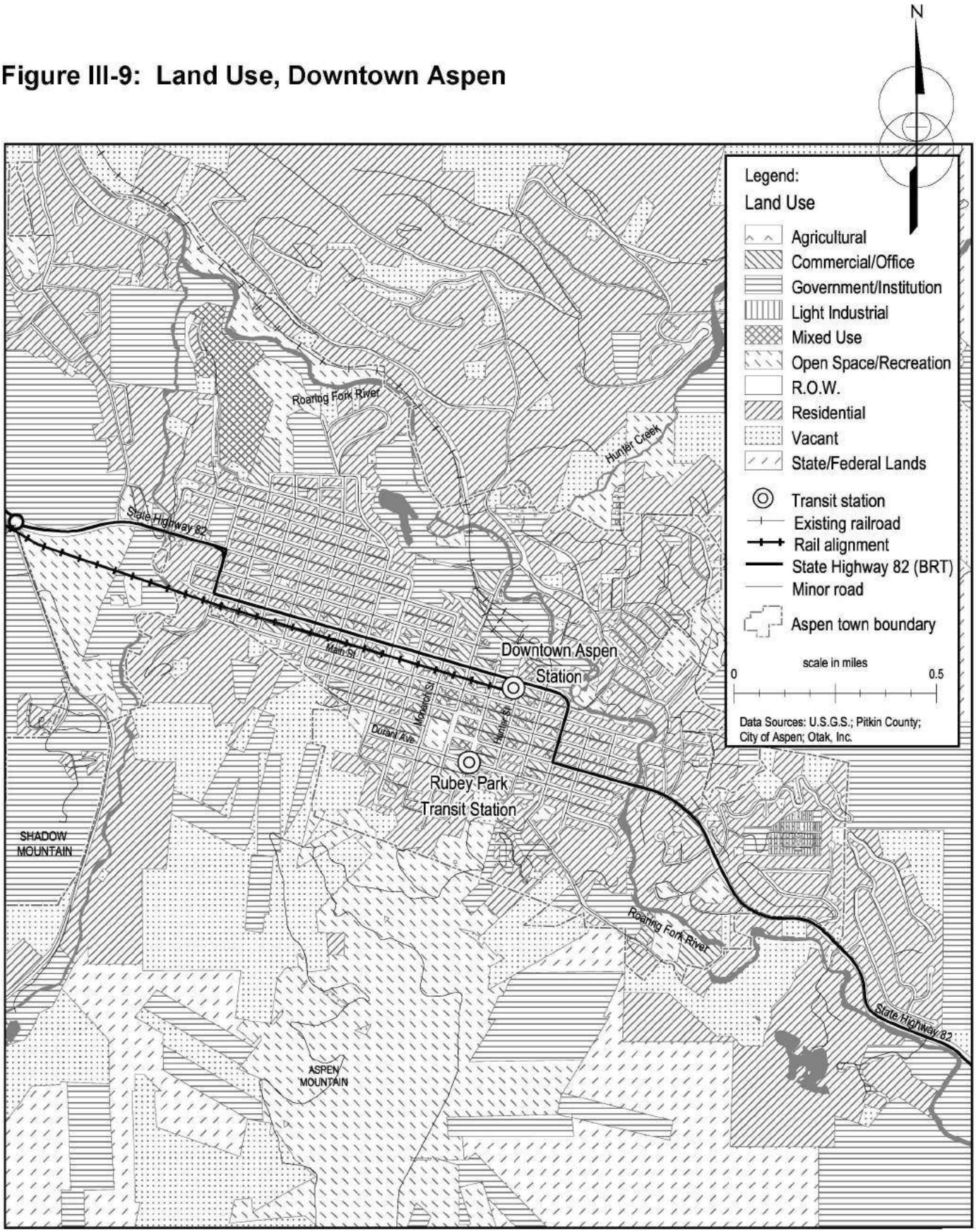


Figure III-9: Land Use, Downtown Aspen



B. ECONOMIC ENVIRONMENT

1. Economic Base

For all three counties and the Project Corridor itself, the resort and tourism industry plays a significant role. The ski industry and associated year-round resorts are a significant focus for these local economies. Table III-17 summarizes the skier visits over the past five years through 2001 within the Project Corridor. Visits have been down during the past three years. The lowest numbers came in 1999/2000 season. The Aspen Ski Company attributed this to a slow start in the season caused by Millennium travel concerns and light early season snow (Patrick O'Donnell, President and CEO Aspen Skiing Company, quoted in email from J. Hanle, May 13, 2002.) During 2000/2001, skier visits increased slightly. The Aspen Skiing Company owns and operates the four Pitkin County resorts: Aspen Highlands, Aspen Mountain, Buttermilk Mountain, and Snowmass. Sunlight is located in Garfield County just outside of Glenwood Springs. Highway 82 provides the transportation link for all of these resorts, for both tourist and employee access.

Impacts of national events and conditions, including the events of September 11, 2001 and stock market standings, as well as state and local fire and drought conditions, have had a significant effect on the economic base for Colorado and the Project Corridor region. Quantitative information on the level of effect is not available at this time. Long term impacts can only be speculated.

Table III-17
Annual Skier Visits to Project Corridor

	1996-97	1997-98	1998-99	1999-00	2000-01
Aspen Highlands	157,100	150,000	143,785	127,389	140,640
Aspen Mountain	334,500	345,400	333,215	331,121	319,343
Buttermilk	154,000	180,000	177,476	158,194	148,826
Snowmass	788,600	884,100	777,378	707,600	740,241
Sunlight	102,100	102,400	78,189	77,010	84,104
Total	1,536,300	1,661,800	1,510,043	1,401,314	1,433,154
Increase/(Decrease)	103,100	125,500	-151,757	-108,729	31,840
Percent Change	7	8	-9	-7	2

Sources: Aspen Skiing Company; Colorado Ski Country USA; May 2002

Most sectors of employment in the Project Corridor are connected directly or indirectly to the resort and tourist industry, such as retail trade, construction, transportation, communications, utilities, finance, insurance, real estate, and other service related activities including hotels and restaurants.

As vital as the tourist and ski industry is to the Roaring Fork Valley, the real estate and land development industry has surpassed tourism as an economic force. Also on the rise are the development of golf course communities and second home subdivisions, such as Aspen Glen and River Valley Ranch. While these types of developments are flourishing, the location of the inevitable commercial development that accompanies residential development has undergone much community debate.

2. Commercial Growth Trends

Table III-18 illustrates retail sales trends for each county over the past five years. Sales have continued to increase steadily for each county, in spite of the slowdown in skier visits several years ago. Growth in the resorts of Vail and Beaver Creek, which are located along I-70 approximately 60 miles east of the Project Corridor, explain the increase in retail sales for Eagle County. Table III-19 ties retail sales in Project Corridor communities to their respective counties. Basalt is a producer of retail sales in both Eagle and Pitkin Counties. Glenwood Springs produced 56 percent of Garfield County's retail sales in Fiscal Year 2000. Aspen produced 63 percent of total retail sales for Pitkin County.

Table III-20 summarizes retail sales per capita. Note that all three counties exceed the state average. This is created by the high portion of sales tied to the resort industry. The resort emphasis of both Eagle and Pitkin Counties is notable, especially in Pitkin county, where per-capita retail sales are more than two-and-a-half times the state average.

Table III-18
Calendar Years 1996 - 2000 Retail Sales (thousands of dollars)

	1996	1997	1998	1999	2000	% Growth 1996-2000
Eagle	$1,083,132	$1,238,083	$1,315,164	$1,324,264	$1,495,926	38%
Garfield	809,913	881,602	961,004	1,028,004	1,115,540	38%
Pitkin	724,877	764,854	819,123	808,730	850,387	17%

Source: Colorado Department of Revenue, 2001 Annual Report

Table III-19
FY 2001 Retail Sales by County and Community
(thousands of dollars)

	Sales	% of County
Eagle County	$1,553,945	---
Basalt	132,667	6% and 4%*
Garfield County	1,173,766	---
Carbondale	121,549	10%
Glenwood Springs	657,383	56%
Pitkin County	863,092	---
Aspen	547,797	63%
Snowmass Village	113,237	13%

Source: Colorado Department of Revenue, 2001 Annual Report
* *Basalt spans both Eagle and Pitkin Counties*

Table III-20
2001 Retail Sales Per Capita

Eagle County	$ 37,097
Garfield County	$ 26,657
Pitkin County	$ 57,716
Colorado Average	$ 23,949

Source: Colorado Department of Revenue, 2001 Annual Report

3. Employment

3.1 Labor Force

Table III-21 contrasts 1995 and 2000 labor force statistics for each of the counties in the Project Corridor with Colorado statistics. During that time period, the labor force grew most significantly for Eagle County, again associated with the resort industry outside the Project Corridor. For all counties in Colorado, unemployment rates dropped between 1995 and 2000.

Table III-21
Labor Force

	1995		2000	
	Total Labor	% Unemployed	Total Labor	% Unemployed
Colorado	2,087,518	4.2	2,275,545	2.7
Garfield	20,349	4.1	23,412	2.5
Eagle	17,452	3.3	20,684	2.1
Pitkin	8,927	4.8	8,764	2.6

Source: Colorado Dept. of Labor and Employment, Labor Market Information, May 2002

3.2 2000 Employment by Economic Sector

A useful indicator of the focus of employment in each county and in the communities along the Project Corridor is the breakdown of employment by sector. Table III-22 illustrates this breakdown in detail by county and for the major communities. Retail trade and services sectors are the highest. Garfield County has significant government employment. The construction industry is strong for all locations, reflecting the growth economy. Of minor significance in this part of the state are agricultural, mining, and manufacturing activities.

Table III-22 also reflects trends in Glenwood Springs and the City of Aspen. Glenwood Springs houses a significant number of government offices, together with retail and service-oriented employment. Glenwood Springs employment represents 57 percent of Garfield County employment. Aspen represents 68 percent of Pitkin County employment and mirrors Pitkin County trends.

Table III-22
2000 County and Project Corridor Employment by Economic Sector

	Basic Industry[1]	Retail Trade	Services[2]	Total[3]
Eagle Co. (total)	5,636	6,658	12,228	28,206
Garfield Co. (total)	4,646	4,492	5,695	19,329
Glenwood Springs	1,442	2,787	5,724	11,015
Pitkin Co. (total)	1,804	3,957	7,629	15,924
Aspen	745	3,473	5,961	10,898
Corridor Total	4,385	8,977	12,822	30,843

Source: Colorado Department of Labor & Employment, Labor Market Information

[1] *Basic Industry includes Agricultural, Mining, Construction and Manufacturing.*

[2] *Services include Financial, Insurance, Real Estate and Services. (Hotels, Auto Repair, Health, Legal, Educational, Social, Misc.)*

[3] *Total includes all industries.*

3.3 2025 Employment by Economic Sector

Table III-23 summarizes employment forecasts for the counties, communities, and Project Corridor. Only aggregated data was forecast. The employment patterns remain similar for both the counties and the Project Corridor.

Table III-23
Project Corridor Counties and Communities
2025 Employment By Economic Sector

	Basic Industry	Retail	Service	Total
Eagle County*	4,274	3,021	5,851	13,146
Garfield County*	7,976	8,553	17,281	33,809
Pitkin County*	2,762	7,237	17,178	27,177
Glenwood Springs	3,345	5,569	11,301	20,214
Carbondale	1,179	948	1,227	3,354
El Jebel - Basalt	1,008	1,274	1,322	3,604
Snowmass Village	374	952	2,387	3,713
Aspen	1,558	5,213	11,690	18,462
Corridor Total*	15,012	18,811	40,309	74,133
Percent Total	20%	25%	54%	N/A

Source: Prepared by Joanna Morsicato & Associates
**Portions of these Counties within the Project Corridor. City employment figures are contained within the County totals.*

4. Income

4.1 Average Household Income by Community 2000 and 2025

Tables III-24 and III-25 illustrate income ranges by household for the community areas within the Project Corridor for 2000 and 2025. Discussion focuses on 2000 data, since the 2025 forecast data reflects similar patterns.

Glenwood Springs' income profile illustrates a similar portion of households in the middle-income ranges. The group containing the largest portion of households is the $50,000 to $75,000 income range. Smaller portions of the population, under 16 percent, earn less than $15,000 or over $75,000. By 2025, a larger portion of households are projected to generate income in the medium to high range.

The population of Carbondale is similar to the Glenwood Springs pattern. Sixty percent of the household incomes fall within the $25,000 to $75,000 income range in 2000, but by 2025, the numbers rise to 72 percent in this same range.

The Basalt area shows close to 70 percent of households have average household incomes in the $50,000 or higher range. Twenty-two percent of households in this area are in the over-$100,000 range. A large proportion of these households with incomes over $100,000 is found in El Jebel. This pattern is forecast to hold in 2025.

The Aspen and Snowmass Village profiles reveal the largest portion of the population in the highest income ranges, with 23 percent in the over-$100,000 category. Less than 16 percent of the population

in these areas earns under $25,000 per year. A significant portion falls within the medium to high income ranges for these two communities. This general pattern remains in 2025, with a slight increase at the top end and a decrease at the lower end.

Table III-24
2000 Household Income, Project Corridor and Communities

	<$10,000	$10,000 - $14999	$15,000 - $24,999	$25,000 - $34,999	$35,000 - $49,999	$50,000 - $74,999	$75,000 - $99,999	>$100,000
Glenwood Springs	9%	7%	15%	14%	18%	23%	7%	8%
Carbondale	5%	6%	11%	10%	25%	25%	9%	8%
Basalt	2%	2%	6%	8%	14%	29%	18%	22%
Snowmass Village	3%	2%	11%	12%	17%	18%	13%	23%
Aspen	4%	2%	9%	12%	15%	21%	14%	23%
Corridor Total	5%	4%	11%	11%	17%	23%	12%	16%

Source: Prepared by Joanna Morsicato and Associates with data provided by Claritas, October 1998.
2000 percentages shown are the same as those generated for 1998.

Table III-25
2025 Household Income, Project Corridor and Communities

	<$10,000	$10,000 - $14999	$15,000 - $24,999	$25,000 - $34,999	$35,000 - $49,999	$50,000 - $74,999	$75,000 - $99,999	<$100,000
Glenwood Springs	4%	4%	8%	19%	18%	29%	8%	10%
Carbondale	3%	4%	6%	25%	20%	27%	10%	9%
Basalt	1%	1%	4%	14%	13%	28%	18%	22%
Snowmass Village	3%	2%	6%	17%	16%	19%	14%	24%
Aspen	3%	1%	5%	14%	14%	22%	15%	25%
Corridor Total	3%	3%	6%	17%	16%	25%	13%	17%

Source: Prepared by Joanna Morsicato and Associates with data provided by Claritas, October 1998, updated for 2025 by Otak.

4.2 Per-Capita Income by County for 2000

Table III-26 shows the 2000 per-capita income for each county and the State of Colorado. Per-capita income serves as an indicator illustrating the relationship between total income and total population for an area. Garfield County's per-capita income is below the state average. On the other hand, Pitkin County's per-capita income is more than twice the state average. The large proportion of medium to high-income households in Aspen and Snowmass Village weight the per-capita income for Pitkin County. The populations in these two

Table III-26
2000 Per Capita Income

Eagle	$ 34,997
Garfield	$ 25,748
Pitkin	$ 68,761
Colorado	$ 32,434

Source: U.S Dept of Commerce, Bureau of Economic Analysis Regional Accounts Data

communities represent close to half the county population. El Jebel and Basalt are located in Eagle and Pitkin Counties, both with high per-capita income levels.

4.3 2000 Poverty Level Definitions

The definition of poverty in the United States is complex. The threshold income level excludes non-cash benefits such as food stamps, health benefits, or rent-free housing. The threshold is adjusted annually to accommodate the change in the annual average Consumer Price Index. Threshold incomes are based on household size as well as number of children under 18 years of age. In addition, households containing two people over 65 years of age have a threshold of $10,419, while a two-person household under age 65 has a threshold of $11,590. For example, in 2000, the threshold income for a family of four was $17,603 for a family of three, $13,738.

The average household size in the Project Corridor is less than three persons. Table III-3 includes this data, which ranges from 1.92 persons per household in Aspen to 2.96 persons in the Aspen Glen and El Jebel areas. Data for household incomes shows an average of five percent of the corridor households at less than $10,000 in 2000. Another four percent had incomes under $15,000. It is reasonable to categorize most of these households as approaching or passing the threshold for the poverty level. However, based on the data collected, it was not possible to discern actual numbers of persons per household in each income range, or the age of these residents. The poverty threshold is a national statistic.

5. Housing

The issue of availability of affordable housing continues to attract significant attention in all three Project Corridor counties. The term "affordable housing" has various definitions. As defined by the U.S. Department of Housing and Urban Development, monthly payments for affordable housing do not exceed 30 percent of the income of the occupants. The major cause for the problem in the Project Corridor is that housing prices have been escalating at a faster rate than income. According to the results of the 1998 surveys by Healthy Mountain Communities and the Aspen Valley Improvement Association, approximately 32 percent of households in the Glenwood-Basalt area pay in excess of 30 percent of their income for housing.

Housing cost projections by the Colorado Division of Housing for January 2001 are shown by Project Corridor county in Table III-27.

Table III-27
Project Corridor Housing Cost Projections
Single Family Homes
January 10, 2001

County	Median Price	Projected Value		
		396 square meters (1,300 square feet)	457 square meters (1,500 square feet)	610 square meters (2,000 square feet)
Eagle	$ 245,290	$ 318,877	$ 367,935	$ 409,580
Garfield	$ 139,130	$ 180,869	$ 208,695	$ 278,260
Pitkin	$ 548,802	$ 713,433	$ 823,204	$ 1,097,605

Source: Colorado Division of Housing, 2002.

Affordable housing is an issue in all three Project Corridor Counties. See the discussion in **Section A.I.3: Environmental Justice** for additional discussion of affordable housing. Pitkin County prices are the highest, particularly in Aspen, where the most profitable use of available land and housing stock is for expensive homes and visitor lodging. Many working people who choose to reside in Aspen live in overcrowded conditions because of the lack of affordable housing.

6. Local Government Finance

Local government revenues and income sources vary among the three counties. Table III-28 summarizes 2000 county and city revenues within the Project Corridor. The availability of per-capita county revenues gives a strong indication of the wealth of each county. Garfield County has the highest population and the lowest budget. Funds available per capita are approximately $667. Pitkin County has the lowest population compared with budget, resulting in more than $2,291 per capita. The City of Aspen's revenues average $6,344 per capita, while Glenwood Springs funds are $2,299 per capita. Eagle County has approximately $1,113 per capita, with the highest revenues of the three counties.

When comparing revenues to population, it is important to note that visitor population in the resort counties and communities can exceed the permanent population. Table III-3 compared with Table III-5, for example, indicates that Aspen's permanent population in 1998 was 6,222 and its summer weekend visitor population was 10,707. Glenwood Springs, on the other hand, has a lower ratio of visitors, experiencing 2,996 on summer weekends compared with a permanent population of 8,713 for 1998.

Although Eagle and Pitkin Counties appear to have high revenues related to permanent residents, the presence of large visitor populations creates sales tax revenues. These revenues can be estimated by comparing the retail sales generated in Table III-19 with the various tax rates. For example, the State of Colorado rate of 2.9 percent yielded approximately $45 million in sales tax from Eagle County in 2001, $34 million from Garfield County and $25 million from Pitkin County.

Table III-28
2000 City and County Revenues

	Total Taxes	Licenses & Permits	Intergovt. Revenue	Charges for Services	Miscellaneous	Total Revenues
Garfield County	$ 12,908,807	$ 120,305	$ 10,015,566	$ 3,195,686	$ 3,114,127	$ 29,354,491
Glenwood Springs	$ 11,121,889	$ 357,524	$ 985,500	$ 2,788,705	$ 2,528,706	$ 17,782,324
Carbondale	$ 3,522,770	$ 560,632	$ 533,778	$ 235,127	$ 732,729	$ 5,585,036
Eagle County	$ 25,249,310	$ 2,038,384	$ 4,657,593	$ 9,475,962	$ 5,208,199	$ 46,629,448
Basalt	$ 2,318,828	$ 606,148	$ 334,901	$ 180,336	$ 412,254	$ 3,852,467
Pitkin County	$ 22,223,611	$ 794,421	$ 3,241,763	$ 5,718,318	$ 2,285,383	$ 34,263,496
Aspen	$ 22,972,599	$ 143,543	$ 1,450,043	$ 5,309,475	$ 7,583,381	$ 37,459,041

Source: Colorado Department of Local Affairs, Colorado County General Revenues, 2000.

The resort industry generates important sales tax revenues for the local governments. Table III-29 summarizes the sales tax rates for the Project Corridor counties and communities. Retail sales per capita of permanent population is high in Eagle and Pitkin Counties due to the spending habits of the visitor population. Additional discussion can be found in previous sections of the Social Environment portion of this document.

Table III-29
Sales Tax Rates (as of May 2002)

City or County	Current Rates	City or County	Current Rates
Eagle County	1.5%	Carbondale	3.5% + .5% RFTA
Garfield County	1.0%	Basalt	2.0% + .2% RFTA
Pitkin County	3.5%*	Snowmass Village	1.0%

**Except Basalt, which is 2.5%*
Source Colorado Department of Local Affairs, Colorado County General Revenues, 2000..

C. PHYSICAL ENVIRONMENT

1. Air Quality

The City of Aspen and surrounding developed area (primarily west to the Aspen Airport Business Center) is designated as an air quality non-attainment area for PM_{10} (particulate matter less than 10 microns in diameter). The non-attainment designation is given and defined by the Environmental Protection Agency (EPA) when air pollution exceeds the National Ambient Air Quality Standards (NAAQS). The NAAQS for PM_{10} are 50 micrograms per cubic meter of air, averaged annually, and 150 micrograms per cubic meter of air during a 24-hour period (a metric standard). The Aspen area has not exceeded either the annual or the 24-hour PM_{10} standard since 1991. The remainder of the project area is in attainment for all NAAQS.

The 1990 Clean Air Act Amendments (CAAA) require that transportation projects within a non-attainment area conform to the State Implementation Plan (SIP). The SIP specifies the control measures which non-attainment areas must implement in order to attain and maintain NAAQS. The Aspen element of the Colorado State Implementation Plan was approved by EPA in 1995. The Colorado Air Pollution Control Division has prepared and submitted to the EPA a PM_{10} Redesignation Request and Maintenance Plan for the Aspen Area. Upon EPA approval of the Maintenance Plan, Aspen will be redesignated as an attainment/maintenance area. Control measures in the Maintenance Plan to reduce PM_{10} emissions include magnesium chloride for highway de-icing, street sweeping after snowstorms (when feasible), and paid parking in the Aspen commercial core area.

EXHIBIT D-6:

PERFORMANCE CHARACTERISTICS OF PROPOSED RAIL VEHICLES

COMPARISON OF TRANSIT OPTIONS – GLENWOOD TO ASPEN CORRIDOR

	SIEMENS – REGIOSPRINTER	SIEMENS – VT 642	ADTRANZ – GTW	BOMBARDIER - TALENT
GE[illegible]AL COMMENTS FROM MANUFACTURER	- "lightweight, self-propelled, passenger-friendly diesel rail car" - "spacious and bright interior"	"Its concept permits the attractive and profitable operation of nonelectrified secondary lines with low to medium traffic densities."	"No other light-weight multiple unit can give its passengers so much pleasure and yet be economically at top."	"Bon voyage with all-around view, comfort and safety built in."
CONSTRUCTION/ BODY	Aluminum	Aluminum	Aluminum	
MAXIMUM PERMISSIBLE SPEED	60-75 mph	75 mph	- 60 mph - May be designed for 75 mph max. speed	See "Variations in Models," p. 4
WEIGHT – EMPTY	31.9 tons	Approx. 64 tons	62 tons	55 tons
MAXIMUM WEIGHT	Approx. 50 tons	Approx. 86 tons	75 tons	73 tons
HEIGHT	11.3 ft.	13.5 ft.	12.75 ft.	13.2 ft.
FLOOR HEIGHT	- Low-floor area – 21 in. - High-floor area -	- Low-floor area – 22.5 in. - High-floor area – 50 in.	22 in.	See "Variations in Models," p. 4
LOW-FLOOR AREA	75% of vehicle	60% of vehicle	70% of vehicle	- 2-car – approx. 50% - 3-car – all of middle car; 50% of other 2 cars
WI[illegible]	9.7 ft. (without mirrors)	9.2 ft.	9.8 ft.	9.6 ft.
LENGTH		136.8 ft.	See "Variations in Models," p. 4	See "Variations in Models," p. 5
WINDOWS	"Extra large"	"Large, tinted, panorama windows"	- Large, double-glazed windows - Tinted, laminated, safety glass compliant with ANSI 26.1 standards - 2 double-glazed folding tops made of laminated safety glass with heat insulation	- "Panoramic, double-glazed windows – bright and quiet." - 56.3 X 45.6 in. – for BR643 (can vary with model)
DOORWAY	- >4 ft. wide - swing plug doors	- >4 ft. wide - Centrally driven electric twin-leaf swing plug doors - Acoustic warning of closing operation	- 4.4 ft. wide - 2 swing-sliding plug doors with stay bars, large double-glazed panes, and side-selective control	- >4 ft. wide
OF SEATS	74-80	- 1st class – 12 - 2nd class – 98 - folding seats - 13	See "Variations in Models," p. 4	See "Variations in Models," p. 5
OF STANDEES	84-100	90	See "Variations in Models," p. 4	See "Variations in Models," p. 5

DRAFT

HANDICAPPED ACCESS	Push button operated, retractable ramps	- Toilet - Retractable ramp upon request	- 2 ADA-compliant wheel chair location – 10 ft.^{2} min. area - Low platform entrances	- Toilet - Platform-level boarding - Wide aisles
STORAGE	- Multi-purpose storage areas - Bicycles	- Heavy luggage - Bicycles - Baby carriages	- Prams - Wheel chairs - Bicycles	- Luggage - Prams - Wheel chairs - Bicycles
NOISE LEVEL		Low due to sound-proofing of interior and exterior	- Inside passenger compartment – 75 dB(A) - Inside driver's cab – 68 dB(A) - At distance of 25 ft. from center of rail line – 81 dB(A) - Rubber couplings acoustically insulate the drive unit from passenger coaches	Inside passenger compartment - 65-70 dB(A)
ENGINE	5-cylinder turbocharged and intercooled diesel	2 6-cylinder diesel engines	Diesel engine type series MTU 12 V 183 TD13 with charge air intercooler	Auxiliary-frame-mounted engine
EMISSIONS	Conforms to Euro II emissions standards	Conforms to Euro II emissions standards	Meets exhaust emission requirements per: EPA standard for Non Road engines per 40 CFR parts 9 & 89	Conforms to Euro II emissions standards
TRANSMISSION	5-speed automatic with integral torque converter and retarder	5-speed automatic with integrated starting transformer and retarder		Power transmission
BRAKE SYSTEM	- Automatic hydrodynamic retarder - Electrically operated air brake system - Electromagnetic track brake on non-driven running gear	- 2 hydrodynamic retarders backed up by disc brakes - In emergency: electromagnetic track brakes	Electric and pneumatic	- Electro-pneumatic - Rail brake available
MAXIMUM STARTING ACCELERATION	- 1.1 m/s^2 - 20 seconds and 745 feet to reach 50 mph	- 1.1 m/s^2 - 20 seconds and 745 feet to reach 50 mph	0.6 m/s/s	- 1.1m/s^2 - 20 seconds and 745 feet to reach 50 mph
OPERATING DECELERATION	22 seconds and 820 feet to go from 50 mph to a stop	28 seconds and 1,025 feet to go from 50 mph to a stop		22 seconds and 820 feet to go from 50 mph to a stop
MAXIMUM BRAKING RATE	- Service brake – 1.15 m/s^2 - Emergency brake – 2.73 m/s^2 - Almost double that of other rail systems	- Service brake – 0.8 m/s^2 - Emergency brake – 1.3 m/s^2	Service brake – 1 m/s^2	Service brake – 0.9 m/s^2

HEATING SYSTEM	- Water heaters with multi-speed fan - Diesel-fired secondary heaters	- Warm-water recirculating-air - Utilization of the heat absorbed by the diesel engine coolant	- Diesel engine waste heat recovery, ventilation, and air cooling - Supplemental heat provided by oil-fired heaters - Preheating and additional oil heating unit	Combination: - Utilization of the heat absorbed by the diesel engine coolant - System on floor level as well
COOLING SYSTEM	- Forced ventilation - Air-conditioning of cab	Air cooling systems in passenger compartments and the driver's cabs	- 2 roof mounted packaged Air-conditioning units per car - Full air-conditioning of passenger compartments is optional	Air-conditioning system according to VDV-specification
INFORMATION SYSTEM	Visual and acoustic passenger information system	Next-stop annunciators and loudspeakers in passenger compartments	Different kinds of visual and acoustic public information systems for announcements can be installed	- Visual and acoustic passenger information system - Emergency call system and intercom
TICKET FUNCTIONS	Vending machines	Prepared for the installation of a ticket machine and validator		Space available inside – up to discretion of operator
CRASHWORTHINESS		Complies with UIC standards	Complies with UIC standards	Complies with UIC standards
CAPABILITY FOR FRA COMPLIANCE	No	Maybe		Yes

SPECIAL FEATURES	Additional equipment for urban operation:
	- Warning bell and reflectors
	- Tail and brake lights
	- Indicator
	- Max. speed in city limited to 20 mph
	- Interlocking of outside mirrors
	- Transponders for traffic light preemption and switch control
		- Better suspension than RegioSprinter due to weight of vehicle and airspring bogies, i.e. a more comfortable ride
		- Provided with a strengthened fiberglass reinforced plastic nose section
		- Low-maintenance, service proven components form industrial mass production in order to:
		  - Reduce life cycle costs
		  - Assure availability
		  - Keep amount of assembly and commissioning work to a minimum
			- Drive unit is located between cars for easy accessibility and maintenance
			- 4 models available: 2/6, 2/8, 4/8, and 4/12 – each containing a different # of seats
			- Available for 5 different gauges, with 3 different lengths and variable width and with 5 different drives
			- Front design can be chosen by user: aluminum or composite material
			- Ride quality will be in "good" range as per the VDI standard when tested on FRA class 4 track or better
				- Multiple units available –
				- Available with ContRoll tilting technology

DRAWBACKS	- Doesn't meet FRA standards - Poor suspension due to proximity to ground (rails) - Rougher ride	Larger vehicle which may be intrusive in the town of Aspen	Larger vehicle which may be intrusive in the town of Aspen	Larger vehicle which may be intrusive in the town of Aspen

VARIATIONS IN MODELS (GTW)

	2/6	2/8	4/8	4/12
# OF SEATS	137	214	202	333
# OF STANDEES	93	141	134	221
# OF CARS	2	3	3	4
TOTAL LENGTH	122.5 ft.	170 ft.	178.5 ft.	266 ft.

DRAFT

VARIATIONS IN MODELS (TALENT)

	HIGH-FLOOR S-BAHN TWO-CAR TRAINSETS	TILTING-TRAIN FOR NORWAY	POWER-UNITS FOR INTEGRATED SCHEDULES	LOW-FLOOR MULTI-TALENT FOR REGIONAL SERVICES	DIESEL-ELECTRIC S-BAHN	TILTING-TRAIN IN LOW-FLOOR TECHNOLOGY	MEDIUM-FLOOR-LEVEL ALL-ROUNDER
FLOOR HEIGHT	38 in.	35 in.	23.2 in.	23.2 in.	31.5 ft.	34.6 in.	31.5 in.
MAXIMUM SPEED	62 mph	87 mph	87 mph	75 mph	75 mph	99 mph	75 mph
# OF SEATS	100	94	149	- 2-car – 89 - 3.car – 137	161	143	- 2-car – 89 - 3-car – 137
# OF STANDEES	100	116	150	- 2-car – 100 - 3-car – 150	150	150	- 2-car – 100 - 3-car – 150
# OF CARS	2	2	3	2-3	3	3	2-3
TOTAL LENGTH	113.5 ft.	125.4 ft.	167.5 ft	- 2-car – 114 ft. - 3-car – 159 ft.	171 ft.	168 ft.	- 2-car – 133.5 ft. - 3-car – 161.9 ft.

COMPARISON OF LIGHT RAIL SKODA-INEKON LTM 10.08

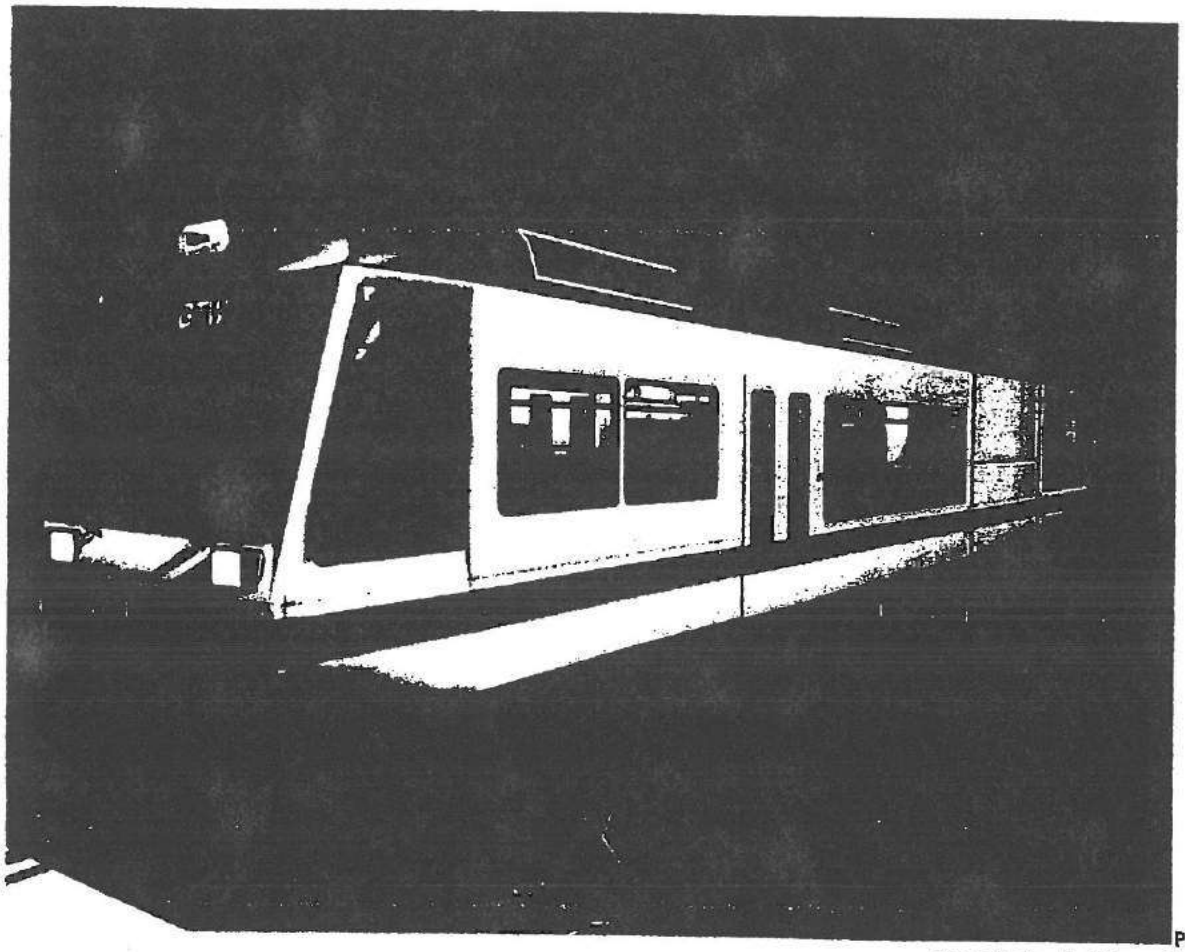
CONSTRUCTION/BODY	- Light steel frames - Increased resistance against corrosion
MAXIMUM PERMISSIBLE SPEED	45 mph
WEIGHT – EMPTY	26.6 tons
MAXIMUM WEIGHT	43.7 tons
HEIGHT	11.4 ft.
FLOOR HEIGHT	13.8 in.
LOW FLOOR AREA	50%
WIDTH	8.1 ft.
LENGTH	65.9 ft.
DOORWAY	- 2 double-leave doors in low-floor section; width – 4.3 ft. - 2 single-leave doors at car ends; width – 2.3 ft.

DRAFT

# OF SEATS	41
# OF STANDEES	180
HANDICAPPED ACCESS	- Folding platform - Wide aisles
NOISE LEVEL	"low noise level" – "environment friendly"
BRAKE SYSTEM	- Main brake – electromagnetic - Mechanical disc brake with electromagnetically operated spring - Rail brake fulfilling the task of the safety and emergency brake
STARTING OUTPUT	500 kW
BRAKE MAXIMUM OUTPUT	750 kW
HEATING SYSTEM	- Electric heating elements mounted in car side wall - Unit rated 6 kW
COOLING SYSTEM	- Ventilating sets on roof and by folding side windows - Air conditioning unit on roof
INFORMATION SYSTEM	Sound and visual information
SPECIAL FEATURES	- One-directional and bi-directional - Runs by overhead electric cable - Internal linings of side walls are made of plastic panels, all recyclable materials

GTW Technical Specifications

(For North American Applications)



Picture:
Hessische Landesbahnen; Germany

Note: English dimensions are for reference only. In case of discrepancy: metric dimensions will take precedence.

OPERATING DIMENSIONS

Gauge	4ft.8.5 in. (1'435 mm)
Minimum horizontal curve radius	131.2 ft.(40m)
Minimum vertical curve radius (sag)	1312 ft(400m)
Minimum vertical curve radius (crest)	1640 ft(500m)
Maximum gradient	6 %
Maximum super elevation	6in. (152mm)
Minimum clearance between truck frame and track	3.2 in.(80mm)

VEHICLE DIMENSIONS

Length over couplings	1230 in.(31,242 mm)
Length over body	1200in.(30,482 mm)
Body width	118in (3,000 mm)
Length of propulsion unit	153in (3,900 mm)
Width of propulsion unit	118 in (3,000 mm)
Vehicle height over top of rail (TOR)	153in.(3,900 mm)
Height of the entrance level over TOR	22in (570 mm)
Height of coupling center over TOR	41 in (1050 mm)

WEIGHTS

(Based upon Average passenger weight of 165 lbs (75 kg)-].

Tare weight	AW0 14660 lbs (52 tons)
Design weight (AW0+ seated passengers)	AW1 32300 lbs. (60 tons)
Design weight (AW1 plus standees @ 0.25 m^2 per passenger (4 P/ m^2)	AW2 47735 lbs. (67 tons)
Design weight (AW1 plus standees @ 0.17 m^2 per passenger (ca. 6 P/ m^2)	AW3 54350 lbs. (70 tons)
Design weight (AW1 plus standees @ 0.13 m^2 per passenger (ca. 8 P/ m^2)	AW4 65375 lbs. (75 tons)

AXLE LOADS

Driving wheel set, AW0	34178 lbs (15.5 t)
Driving wheel set, AW3	39690 lbs.(18 t)
Carrying wheel set, AW0	11025 lbs.(5 t)
Carrying wheel set, AW3	16538 lbs.(7.5 t)

PASSENGER CAPACITY

Seats	88
Folding seats	12
Seat capacity	100
ADA chairs	2
Total capacity	202

STRUCTURAL STRENGTH:

North American GTW has been designed with crash energy management features in order to allow the use of these vehicles on a time separated joint railway operations on shared right of way. In a 5 mph impact, collision energy is absorbed in the recoverable gas-hydraulic elements and non-recoverable plastic deformation elements. For impacts between 5 and 15 mph; collision energy is absorbed in the plastic deformation of the sacrificial elements in the structure. Car body structure is designed to withstand 1.5 AW0 longitudinal (Buff) loads along with a uniformly distributed AW4 vertical load.

Other GTW designs are available for buff strength up to 330,000. Lbs (150 Tons).

CLIMATIC CONDITIONS

Temperature range	-20°F(-29 °C) to +104.2°F (40 °C)
Humidity range	20% to 100%
Rainfall maximum	7.9in.(200 mm) in 24 hours
Snowfall maximum	15in (381 mm) in 24 hours
wind speed	40 mph (64 km/h) constant 80 mph.(128 km/h) gusting

DIESEL ENGINE

Diesel engine type series MTU 12 V 183 TD13 with charge air intercooler
Diesel engine meets exhaust emission requirements per: EPA standard for Non Road engines per 40 CFR parts 9 & 89.
Fuel Tank Capacity: 264 Gallons (1000Liters)

GENERATOR

The generator is a self-ventilated, brushless, three-phase synchronous generator

INVERTER

The traction inverter is mounted in the vehicle roof of the center section. The mechanical layout is designed for quick and easy maintenance. The cooling equipment, the drive control ECU and the IGBT modules are all

mounted in the same enclosure and are easily accessible from the side on an elevated platform. If the converter needs to be replaced, it can be easily lifted from the roof by a crane.

TRACTION MOTORS

Two parallel, controlled three-phase traction motors that are fully encapsulated and self-ventilated.

BOGIES

Wheel set arrangement	2' + Bo + 2'

Motor truck

Wheel diameter, new	33.9 in.(860 mm)
Wheel diameter, worn	31.5in. (800 mm)
Axle distance	78.7in (2000 mm)

Carrying truck

Wheel diameter, new	26.8 in.(680 mm)
Wheel diameter, worn	24.4 in.(620 mm)
Axle distance	78.7 in.(2000 mm)

BRAKING SYSTEM

1st service brakes:	Electrodynamic brake
2nd service brakes:	Spring-loaded disk brakes
Parking brakes	Spring-loaded disk brakes
2 track brakes per trailer bogie	
electronic slip-slide protection.	

Driver can overrule emergency brake initiation in the passenger compartment.

Friction Brake System

Axle disk-brake units carrying trucks	One spring brake unit per axle
Wheel disk brake units traction running gear	One spring brake unit per axle
Track brake	Two magnets per carrying truck

The total braking effort is provided by a combination of the dynamic brake on the power truck and the friction brakes on the trailing trucks. The friction brakes provide the additional braking power needed to achieve a constant deceleration rate throughout the speed range.

COUPLING

Central buffer coupling with pneumatic and electrical couplers and the possibility for automatic uncoupling from driver's cab.

NOISE LIMITS:

The following noise limits are met at a driving speed of 50 mph(80 kph:)

Inside the passenger compartment, multipurpose area	75 dB(A)
Inside the driver's cab	68 dB(A)
at a distance of 25 ft.(7,5m) from the center of the rail line	81 dB(A)

Stationary motor coach with idling engine at a distance of 25 ft.(7,5m) from the center of the rail line	62 dB(A)

TRAIN PERFORMANCE

Maximum speed (May be designed for 75 mph. maximum speed)	60 mph (96 kph)
Operating range with full tank (approximate)	531 miles (850 km)
Fuel Consumption	0.507 gal/mi (1.2 liter/Km)
Maximum Starting acceleration (Level Tangent, 22% adhesion)	1.34 mphps(0.6 m/s/s)
Maximum service brake rate at AW3 with Pneumatic brake support;	2.24mphps (1 m/s/s)

The vehicle design is for typical mass transit application, where maximum power is available for a limited time only, e.g. to accelerate from a stop to maximum speed., Towing performance on grades must be checked on an individual application basis.

DOORS

Two exterior swing-sliding plug doors per motor coach, with 53 in. (1330 mm) clear door openings, equipped with stay bars, large double-glazed panes, and side-selective control. ADA compliant door threshold gap.

WINDOWS

Large double-glazed windows made with tinted, laminated, safety glass compliant with ANSI 26.1 standards and two double-glazed folding tops made of laminated safety glass with heat insulation.

INTERIOR DECORATION

Modern interiors with wide-wall paneling area
Glass wind screens behind folding seats
Back wall of the driver's cab with tinted glass and translucent blinds
Modern single seats for regional transportation facing front to back and arranged in rows; folding seats in selected locations
Two ADA-compliant wheel chair locations, each 10 square feet minimum area.
Meets NFPA-130 and ASTM E-119 Fire safety standards.

HEATING/VENTILATION & AIR CONDITIONING

Combined system for heating by means of diesel engine waste heat recovery, ventilation, and air cooling.
Supplemental heat provided by oil-fired heaters.
Forced air ventilation with post heating.
Preheating and additional oil heating unit; timer controlled
Equipped with two roof mounted packaged Air conditioning units per car.

VEHICLE CONFIGURATION

GTW 2/6 has been designed as a self- propelled independent motor coach unit. Furthermore, a multiple traction configuration with up to four motor coach units is possible.
Because no particular preparations are necessary to separate or add cars, various train consist configurations may be put together quickly to respond to the changing traffic requirements. Also quick decoupling of a propulsion module allows quick change over and turn around time in the maintenance shop, should a car need major repairs.

RIDE QUALITY

Ride quality for the proposed vehicle will be in „good" range as per the VDI standard when tested on FRA class 4 track or better. GTW -DMU vehicles will also comply with ISO 2631 ride quality criterion

Figure 1 below shows the tractive effort-speed diagram for the vehicle. This diagram takes into account the maximum auxiliary load.

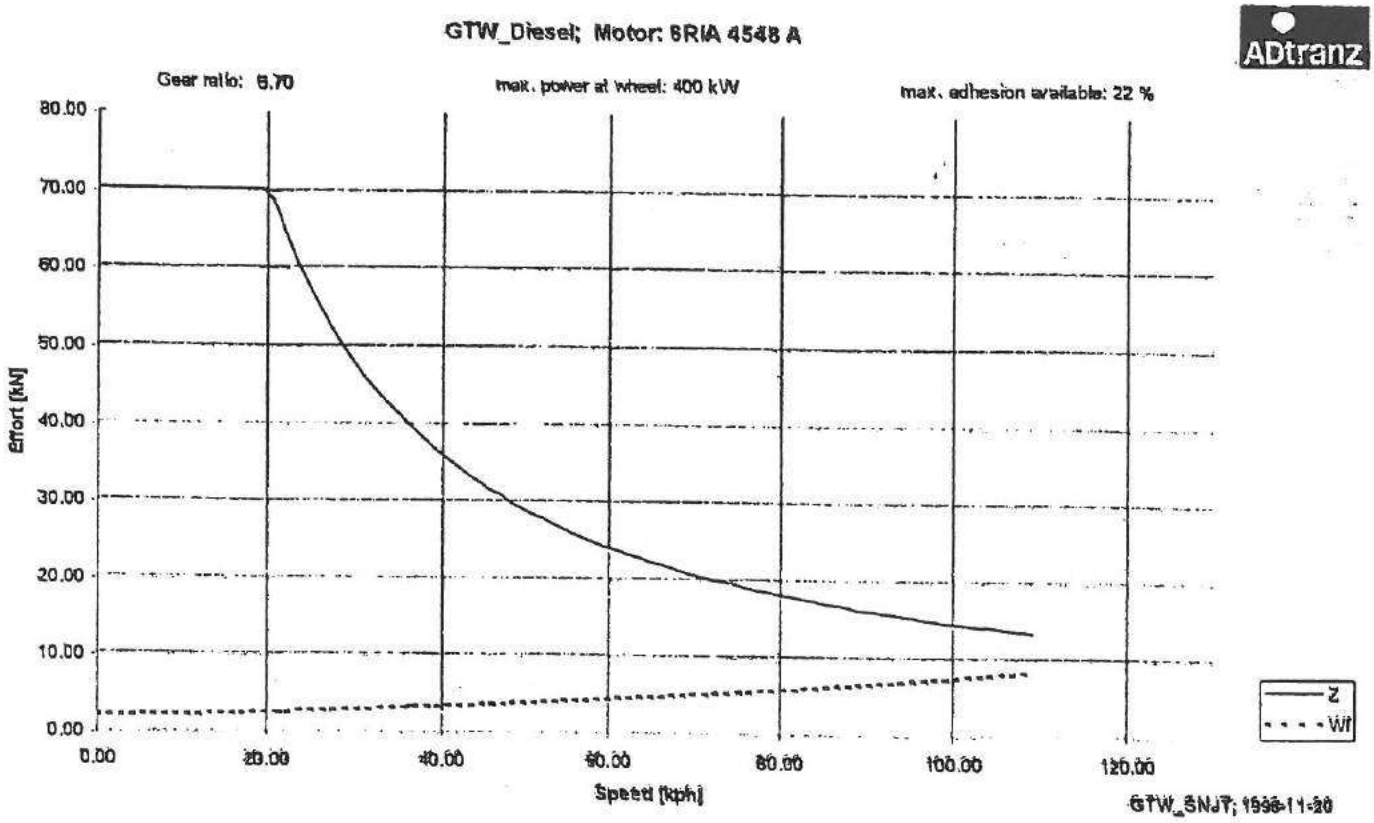


Figure 1

Figure 2 below shows the starting performance of a GTW loaded with 100 passengers on level tangent track.

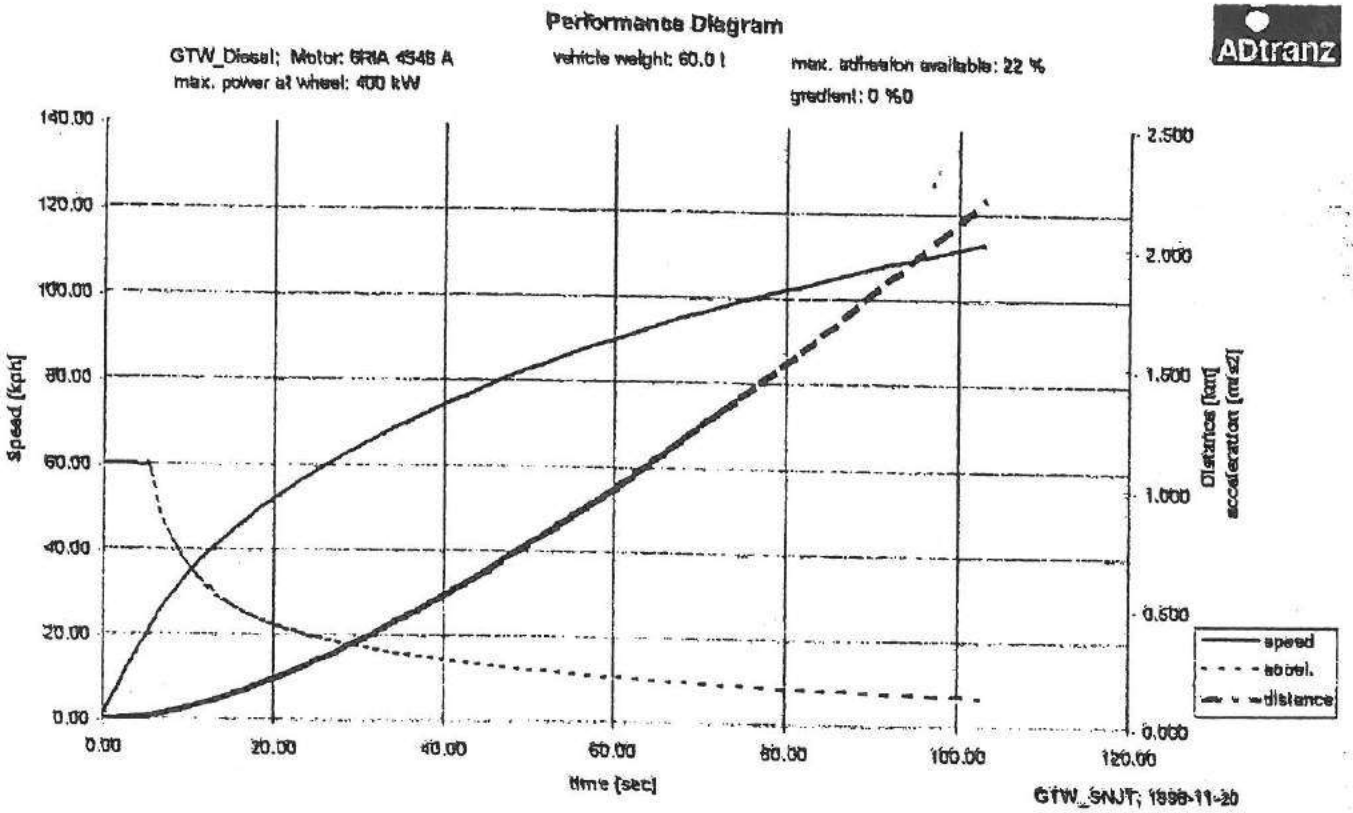


Figure 2

Speed, distance traveled and the vehicle acceleration is plotted as a function of time. To achieve this performance at AW1, an adhesion level of at least 22% must be available. If lower adhesion levels are encountered, the spin protection will lower the maximum tractive effort accordingly.

Axle loads on the power truck will increase with increasing passenger load. This improves the adhesion conditions as a function of the vehicle weight and allows optimum vehicle performance.

Figure 3 below shows the clearance envelope for the GTW vehicle as well as the platform interface clearance.

Computation of Noise Exposure at 50 feet for Fixed Guideway General Assessment Segment 1: West Glenwood to Glenwood Springs

Number of train passbys during the day (7am - 10pm) = 62
Number of train passbys during the night (10:01pm - 6:59am) = 8
Number of train passbys during Cat. 1 & 3 hours of operation (7am - 8pm) = 52
Number of vehicles per train = 2
Speed = 60 mph
SEL_{DMU} = 80

Hourly L_{eq} @ 50 ft. = $L_{eqL}(h) = SEL_{ref} + 10\log(N_{locos}) - 10\log(s/50) + 10\log(V) - 35.6$
$L_{eqL}(h) = 80 + 10\log(2) - 10\log(60/50) + 10\log(4) - 35.6$
$L_{eqL}(h)$ = 52.64

Daytime/Nighttime
Daytime L_{eq} @ 50 ft. = $L_{eq}(day) = L_{eq}(h)|V=V_d$
Nighttime L_{eq} @ 50 ft. = $L_{eq}(night) = L_{eq}(h)|V=V_n$

V_d = 62/15 = 4.13
V_n = 8/9 = 0.89

DMU Day = 52.78 L_{eq} at 50 feet
DMU Night = 46.11 L_{eq} at 50 feet

L_{dn} at 50 ft. = $10\log[(15)*10^{Leq(day)/10} + (9)*10^{Leq(night)+10/10}] - 13.8$
$L_{dn} = 10\log[(15*10^{(52.78/10)} + (9)*10^{(46.11+10/10)}] - 13.8$
L_{dn} = 54.34

N_{DMU} = average number of cars per train
S = train speed, in mph
V = average hourly volume of train traffic, in trains per hour
V_d = average hourly daytime volume of train traffic, in trains per hour
= number of trains 7am to 10pm/15
V_n = average hourly nighttime volumes of train traffic, in trains per hour
= number of trains 10pm to 7am/9

EXHIBIT D-7:

LOCATION AND SIZE OF
RETAINING WALLS

2.7 Retaining Walls

Retaining walls are used to reduce and eliminate potential construction or right-of-way impacts. These include areas where the proposed alignment would impact State Highway 82, residences, businesses, the Roaring Fork River, or other areas of environmental or recreational interest. Table ll-15 identifies all proposed retaining walls greater than 1.5 meters (5 feet) high.

Table 11-15
Retaining Walls Greater than 1.5 meters (5 feet) High

Location	Side (1)	Length (m/ft.)	Avg. Height (m/ft.)
Along UPRR mainline, west of Roaring Fork River	R	395 m (1',300 ft.)	4.6 m (15.0 ft.)
At Roaring Fork River Bridge, west of Basalt	R	80 m (270ft.)	1.7 m (5.5 ft.)
At State Highway 82 overpass, west of Basalt (before bridge}	L	40 m (130ft.)	3.4 m (11.0 ft.)
At State Highway 82 overpass, west of Basalt (after bridge)	R	175m (580ft.)	2.3 m (7.5 ft.)
At State Highway 82 overpass, west of Basalt (after bridge)	L	105m (340ft.)	2.1 m (7.0 ft.)
At Roaring Fork River Bridge, east of Basalt	L	100m (320ft.)	1.7 m (5.5 ft.)
150m (500ft.) east of Lower River Road/Roaring Fork River Bridge	L	160 m (530 ft.)	2.0 m (6.5 ft.)
At Roaring Fork River Bridge, at Gerbazdale (after bridge)	L	115m (370ft.)	2.6 m (8.5 ft.)
0.9- km (0.6 miles) southwest of Aspen Village	L	220 m (730 ft.)	2.3 m (7.5 ft.)
1.4 km (0.9 miles) southwest of Aspen Village	L	390m (1,280ft.)	2.4 m (8.0 ft.)
2.6 km (1.6 miles) southwest of Aspen Village	L	105m (340ft.)	2.0 m (6.5 ft.)
3.7 km (2.3 miles) southwest of Aspen Village	L	450 m (1,470ft.)	3.7 m (12.0 ft.)
4.4 km (2.7 miles) southwest of Aspen Village	L	245m (810ft.)	5.0 m (16.5 ft.)

Nous: (1) Going upvalley from Glenwood Springs; "R" is right side, "L" is left side.

If the ultimate trail is constructed along with the LPA CS2 alignment, two additional retaining walls greater than 1.5 meters (5 ft) will be required as shown in Table TI-16.

Table 11-16
Additional Retaining Walls Greater than 1.5 m (5 ft) High with both LPA and Ultimate Trail

Location	Side	Length	Avg. Height
0.2 miles SE of CR100 bridge	R	661 m (2,170ft)	6 m (20ft)
on existing rail alignment 0.6 miles SE of CR100 bridge	R	610 m (2,000 ft)	8 m (25ft)
on existing rail alignment			

EXHIBIT D-8:

INSTANTANEOUS NOISE LEVELS BY LOCATION AND TEMPORAL ATTRIBUTES

Memorandum

TO: CTF Members, RFRHA Policy Committee

FROM: CIS Project Team

DATE: September 27, 1999

SUBJECT: Responses to Task Force and Policy Committee Questions on Noise

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At the last set of Citizen Task Force meetings we presented noise results as a subset of the project matrix information (listed under the project objective: environmentally sound). The purpose of this memorandum is to follow up on that information and respond to questions raised by task force members and Policy Committee members.

Where are the noise impact locations along Alignment C? – The table below shows the locations of potentially impacted receivers by jurisdiction. A receiver is any residence, business, or formal location of public use such as parks that could be affected by noise.

Locations of Receivers Potentially Impacted by Noise	Receivers Studied (1)	Potential Noise Impacts
Glenwood Springs	195	16
South Glenwood Springs	74	0
North of Carbondale	83	0
Aspen Glen	6	0
Carbondale	99	41
South of Carbondale	12	1
County Road 100 (near Catherine's Store)	13	0
S.H. 82 South of Catherine's Store	22	0
El Jebel/ Blue Lake area	166	0
Willits Lane area	63	0
Emma area	39	0
Basalt	21	0
Holland Hills	64	5
Lazy Glen/Lower River Road	47	18
Gerbazdale/Aspen Village	29	0
North of Brush Creek Road	46	0
Total	979	65

Notes: (1) Receivers within 750 feet of Alignment C were studied.

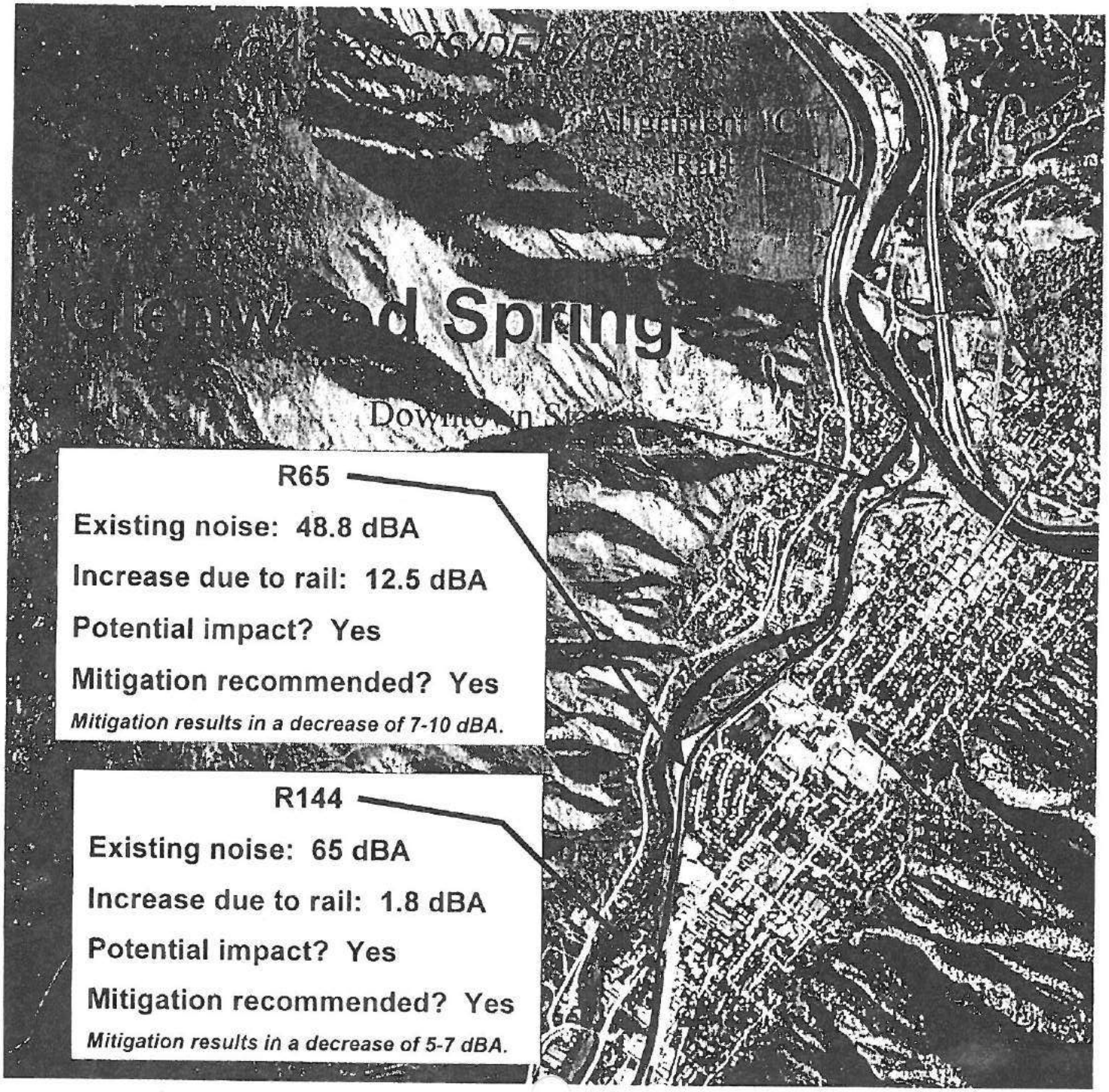
What type of mitigation is proposed? – Specific mitigation type is determined during the design process. The most common mitigation is sound walls, with less common occurrences of sound insulation or relocation. Another type of mitigation discussed for this project is the use of crossing whistles at crossings that would eliminate the need for on-board train whistles. This would reduce the whistle noise for surrounding receivers. At major crossings, fully protected crossing guards may be used which could eliminate the need for any whistle at all. Each potential noise impact is evaluated during design to determine the best form of mitigation. In some cases, mitigation may not be recommended due to aesthetic, cost, or other issues. The preliminary analysis of receivers where mitigation is likely to succeed indicates that 51 of the 65 potential impacted receivers could be mitigated effectively. The locations of these receivers where mitigation is likely to succeed include Glenwood (15 receivers), Carbondale (31 receivers), and Holland Hills (5 receivers).

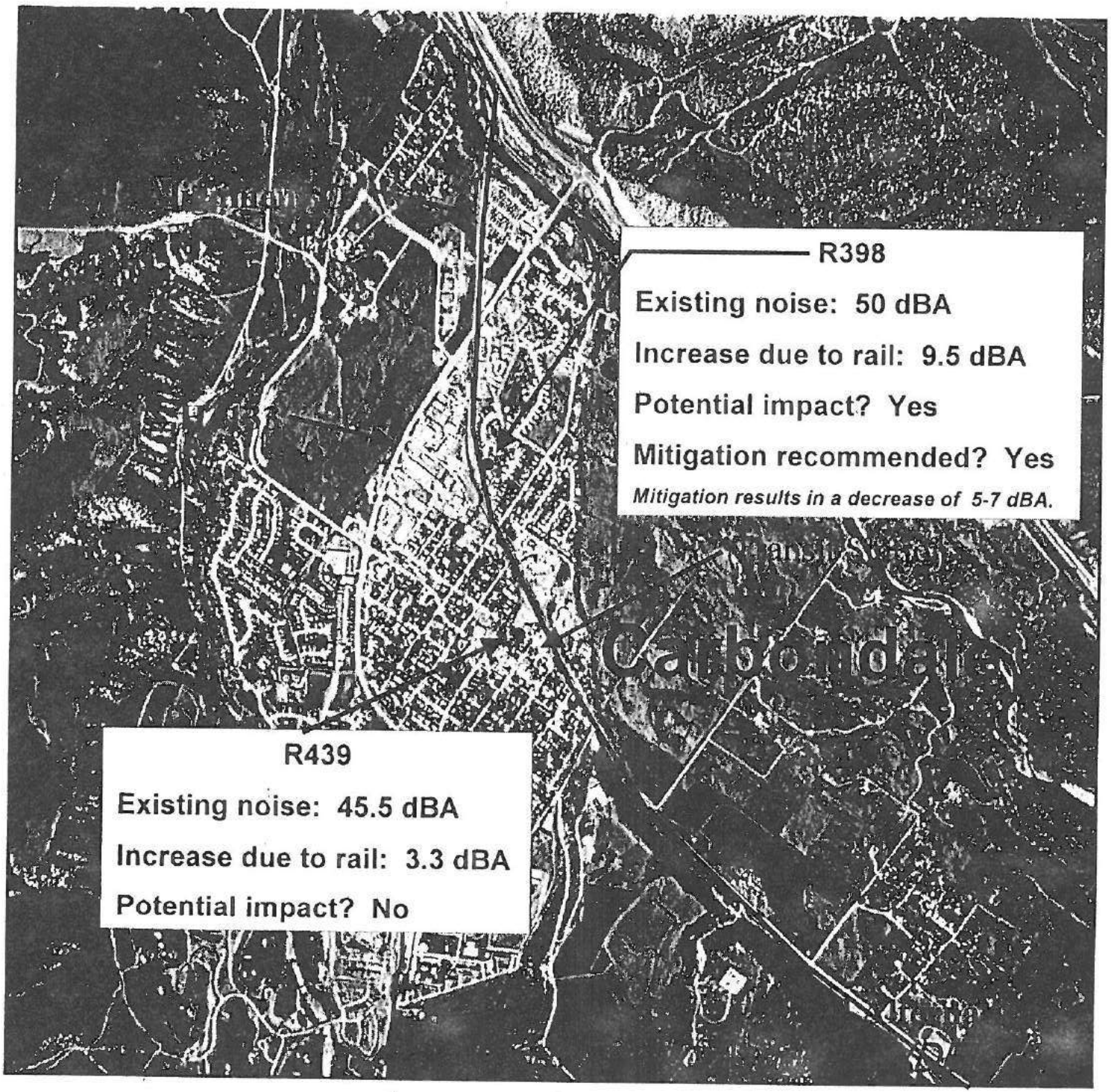
Why didn't we look beyond 750 feet for noise impacts? – Federal Transit Administration (FTA) guidelines set a criterion from 375 to 750 feet for evaluating receivers. We used the 750 feet in all cases to avoid missing any potential impacts. The furthest distance to a receiver where a potential noise impact was found to occur is 130 feet. This indicates that the 750 foot criterion is extremely likely to include all potential noise impacts.

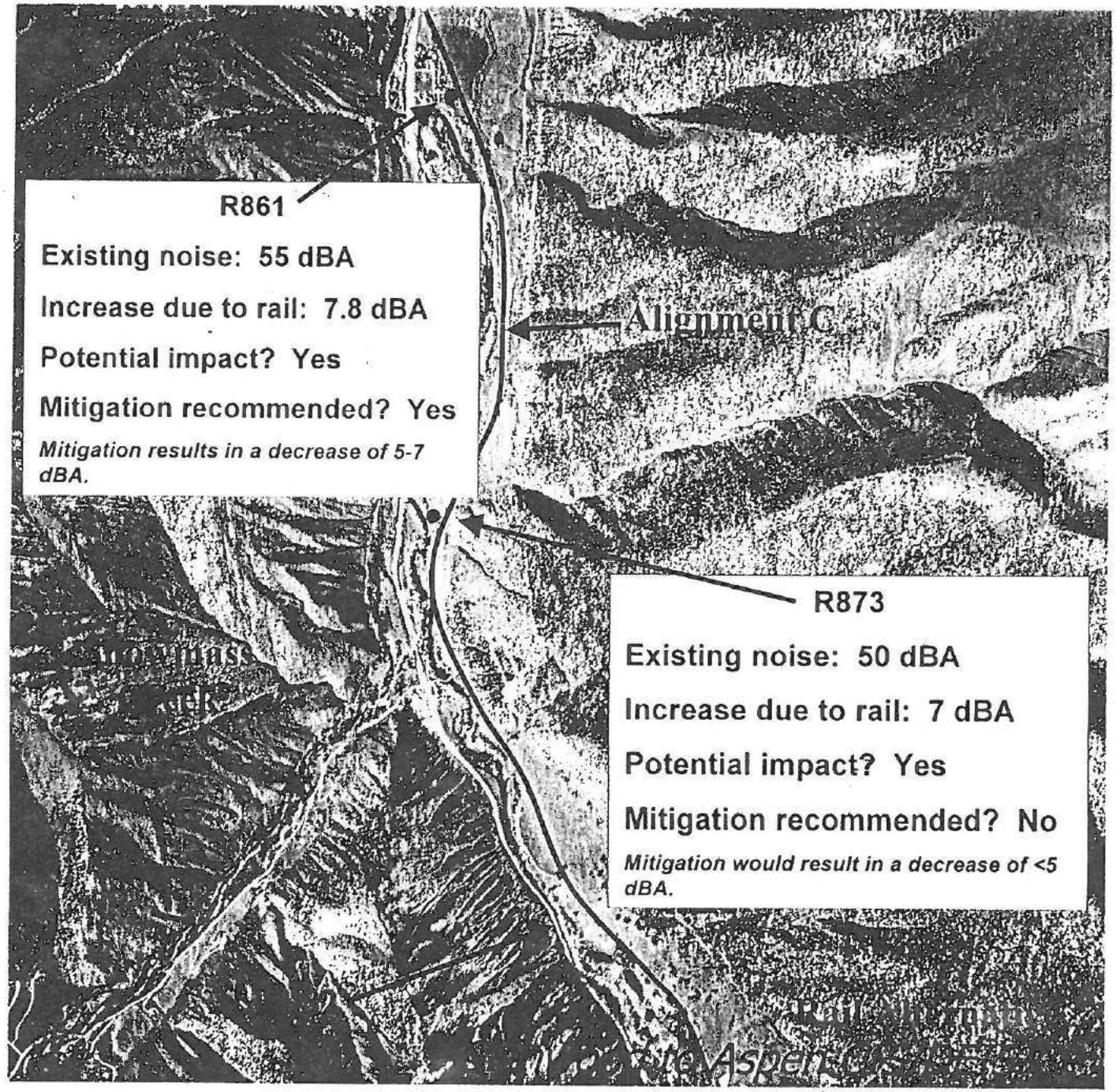
What about canyon wall and retaining wall affects on noise? – Terrain features can affect noise levels. This noise analysis did not specifically model the canyon walls or retaining walls but evaluated whether receivers were likely to have impacts. The methodology used for this analysis is intended to be somewhat conservative so specific terrain features are accommodated. During design, a more detailed model that incorporates specific terrain features can determine how much affect these have on noise.

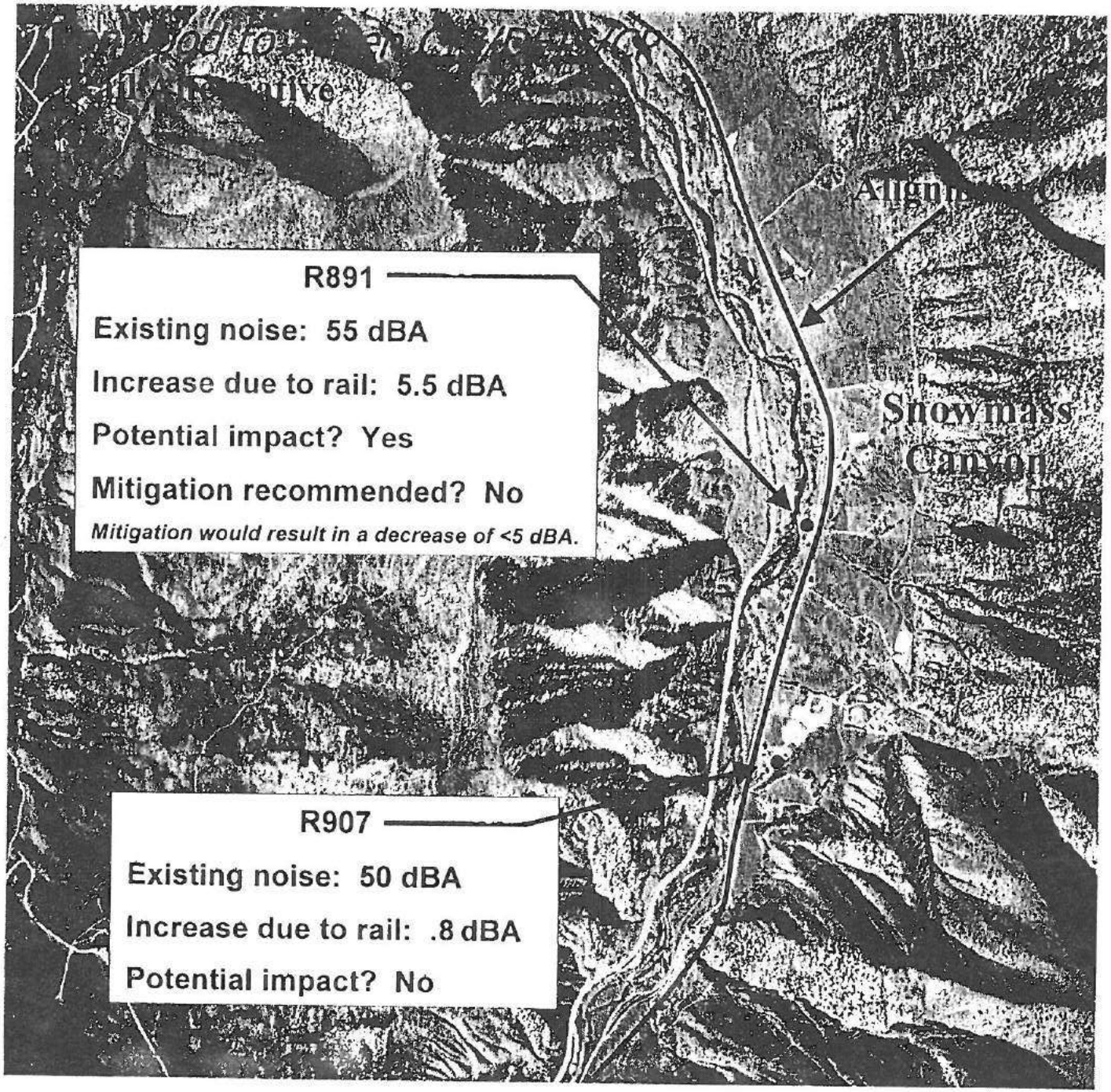
What is the noise level at some typical locations along the corridor? Attached are a series of maps that show some typical noise levels for receivers in Glenwood Springs, Carbondale, and Snowmass Canyon (the three locations where most of the potential noise impacts are likely to occur). Each location shows the model results for existing noise, increase in noise due to rail, whether or not this represents a potential impact, if mitigation is recommended, and what noise reduction mitigation would likely result in.

What are typical noise levels for everyday events? – Attached is a chart showing typical noise levels and human responses for everyday events and for traffic. For example, frequent noise complaints can be expected for average traffic at 100 feet. This is similar to the noise of a dishwasher, or a loud conversation and represents a noise level of approximately 65 dBA.


Rail
Spring
Downtown
R65
Existing noise: 48.8 dBA
Increase due to rail: 12.5 dBA
Potential impact? Yes
Mitigation recommended? Yes
Mitigation results in a decrease of 7-10 dBA.
R144
Existing noise: 65 dBA
Increase due to rail: 1.8 dBA
Potential impact? Yes
Mitigation recommended? Yes
Mitigation results in a decrease of 5-7 dBA.


R398
Existing noise: 50 dBA
Increase due to rail: 9.5 dBA
Potential impact? Yes
Mitigation recommended? Yes
Mitigation results in a decrease of 5-7 dBA.
R439
Existing noise: 45.5 dBA
Increase due to rail: 3.3 dBA
Potential impact? No


R861
Existing noise: 55 dBA
Increase due to rail: 7.8 dBA
Potential impact? Yes
Mitigation recommended? Yes
Mitigation results in a decrease of 5-7 dBA.
Alignment C
R873
Existing noise: 50 dBA
Increase due to rail: 7 dBA
Potential impact? Yes
Mitigation recommended? No
Mitigation would result in a decrease of <5 dBA.


R891
Existing noise: 55 dBA
Increase due to rail: 5.5 dBA
Potential impact? Yes
Mitigation recommended? No
Mitigation would result in a decrease of <5 dBA.
Snowmass
Canyon
R907
Existing noise: 50 dBA
Increase due to rail: .8 dBA
Potential impact? No

Threshold of pain		— 140 —	Aircraft carrier		
			Military operations Jet aircraft	32 times as loud	
		— 130 —			
			Large Siren at 100′		
			Jet takeoff 200′		
Discomfort Threshold	Rock Band	— 120 —	Oxygen torch Thunderstorm Elevated train	16 times as loud	
	discotheque				
Maximum Vocal Effort	Industrial plant				
		— 110 —			
			Riveting Machine Auto horn at 3′	8 times as loud	
	Circular/chain saw				
Very Loud			Back compacting trash truck		
	Shouting in ear	— 100 —			
Shouting in ear	(Printing room-Newspaper) Power mower Food blender Auto car wash			4 times as loud	Violent Vigorous Action-Suits
		— 90 —	Heavy truck at 25′		
			10 hp outboard at 50′ Motorcycle at 25′ Diesel train at 100′	2 times as loud	
Very annoying	Garbage disposal Alarm clock	— 80 —	Small trucks at 25′		Threats - widespread complaints
Shouting	Symphonic Music		Heavy traffic at 50′	Reference loudness to dB(A)	
		— 70 —			
Moderately loud	Vacuum cleaner Dishwasher				
Loud conversation	Electric typewriter		Average traffic at 100′	½ as loud	Frequent complaints
		— 60 —			
Normal conversation	Air conditioner at 20′				
	Typical office				
Quiet				1/4 as loud	
	Living room	— 50 —	Light traffic at 100′		Occasional complaints
	Bedroom		Lowest limit urban	1/8 as loud	
	Library		Birdsong		
Very quiet		— 40 —			Few complaints
	Broadcasting Studio				
		— 30 —			
Soft whisper					
			Rural area	Just audible	
		— 20 —			
			Rustling of leaves		
		— 10 —			
				Threshold of hearing	
		— 0 —			

EXHIBIT D-9:

RURAL/REGIONAL TRANSIT AGENCY INFORMATION

Proposed RTA Formation Action Plan

Overview of Proposed Action Plan

Elections:

-> RTA formation and $10 registration fee in May, 2000 (special election)

-> Sales taxes in November, 2000 (general election)

Transit Service Funding:

-> Beginning in June, 2000 – Fully fund current RFTA service levels to prevent service declines due to funding shortfalls

-> Beginning in January, 2001 – Fund service scenario 3A (Trunk services Aspen - Rifle) to provide relief to SR 82 corridor and provide service to West I-70 communities

-> In later years – Add elements of service scenario 3B (Comprehensive services including I-70 corridor to Rifle) and/or rail systems as funding permits

RTA Mission:

-> May, 2000 through November, 2000: RTA members agree on funding allocation and transit service levels, prepares sales tax ballot for general election (November, 2000)

-> After November, 2000: RTA serves as planning and funding entity for regional transit (bus and/or rail) services in the following corridors:

- Aspen - Snowmass Village - Glenwood Springs
- SR 133 Carbondale to Redstone
- West I-70 Rifle to Glenwood Springs
- (later phase) West I-70 Parachute to Glenwood Springs
- (later phase) East I-70 Eagle to Glenwood Springs
- other local/collector services as funding is available

RTA Governing Board:

-> May, 2000 - November, 2000: one voting member from each participating local government (elected official from the board) + one ex officio member representing CDOT

-> After November, 2000: board structure may be modified as part of general election ballot to reflect funding participation or other factors

RTA Funding:

-> April, 2000 - November, 2000: $10 per vehicle registration fee

-> After November, 2000: as set forth in general election ballot -- combination of sales tax [illegible] $10 vehicle registration fee [illegible]

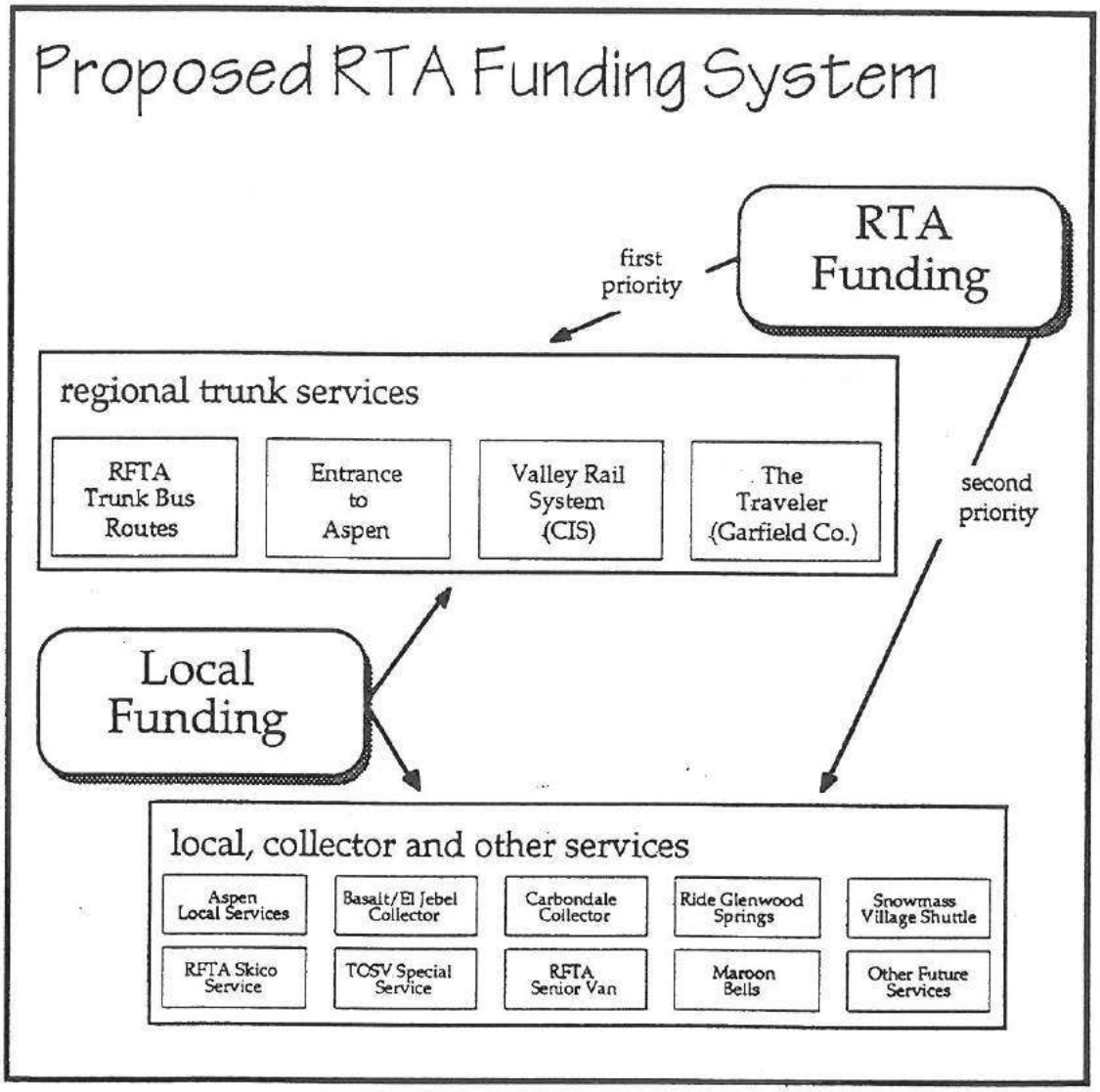
Proposed RTA Formation Action Plan

Intent of Proposed RTA Formation Action Plan

1] This action plan is designed to provide local governments a way to resolve transit funding allocation and service level issues in a formal decision-making setting.

2] By forming the RTA in May, participating local governments can work in a structured setting (the new RTA board) to prepare a sales tax proposal for the Fall, 2000 general election (or if necessary in a subsequent general election).

3] The plan is designed to provide a stable planning and funding platform for regional transit services (either bus, or bus and rail transit, depending on the outcome of other decision processes) and, potentially, for other regional transportation improvements.



Proposed RTA Formation Action Plan

Background: Underlying Logic of this Proposal

1] Current RFTA service levels cannot be sustained with current funding sources; if no resolution of this problem is reached, service cutbacks will be necessary.

2] However, the outcome of local decision processes concerning rail projects (Entrance to Aspen and Valley Rail) are unknown.

3] The RTA action planning process currently being led by RFTA is adequate to initiate the formation of the RTA, but is too informal and unofficial to allow resolution of the more difficult issues of taxing and spending.

4] Difficult issues would be associated with implementing an RTA that would serve as a transit operations agency replacing RFTA. These issues include the current RFTA employees' status as Pitkin County employees and ownership of existing RFTA physical plant and rolling stock.

5] Also, if Valley Rail and/or Entrance to Aspen become realities, decisions will have to be made about the operating agencies for those systems.

6] Resolving these issues also will require a neutral regional decision-making framework such as an RTA.

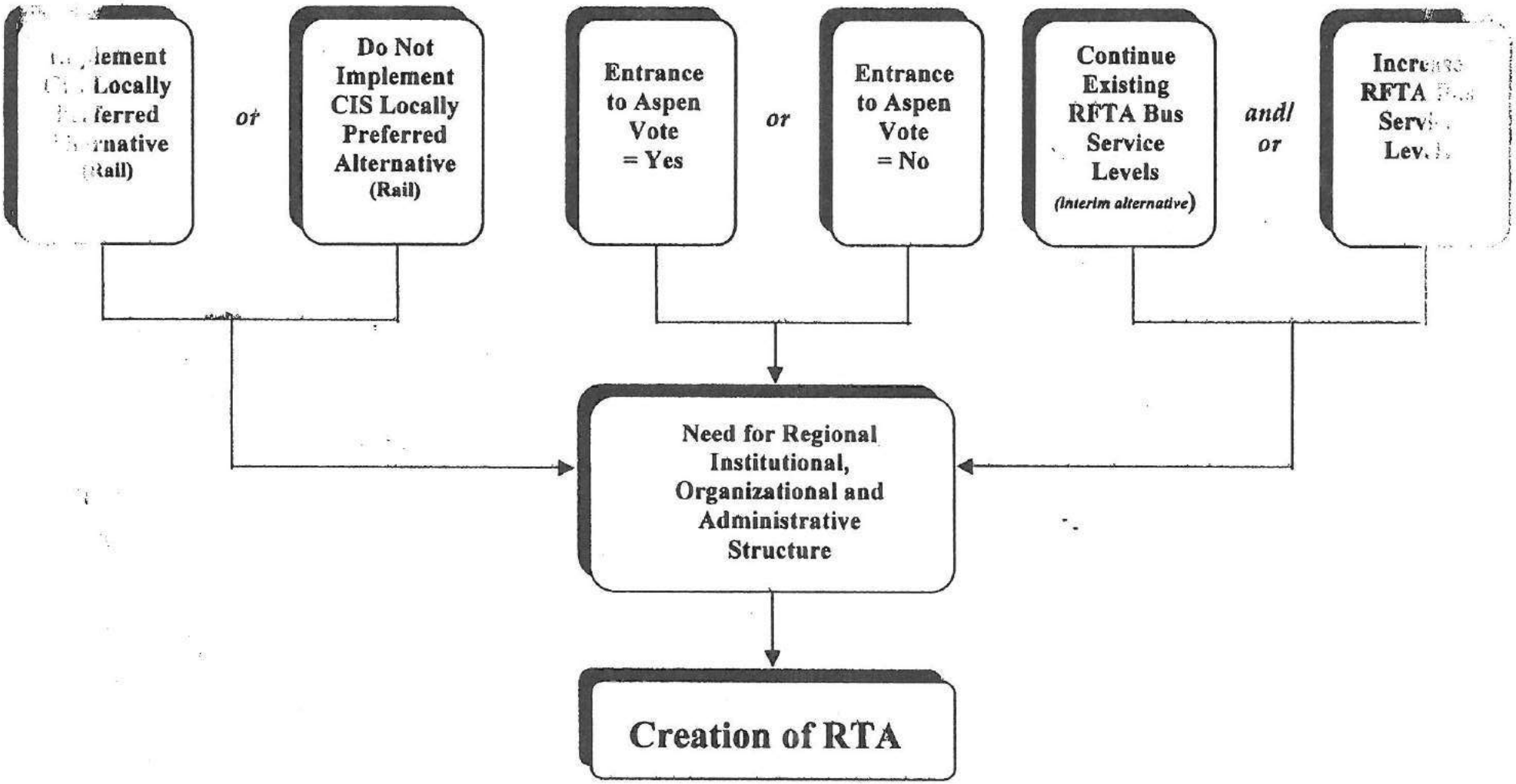
7] For now, the simplest and most logical model is to have the new RTA serve in a regional transit planning and funding capacity. Future changes in the structure of transit operations organizations (if any) can be undertaken once a stable funding platform for regional transit has been established.

8] Transit operations in the RTA area would include: RFTA and its various services, Town of Snowmass Village Shuttle, and the Traveler, as well as any new transit operations created in the future (e.g., rail systems or new local circulators, etc.)

9] The primary RTA revenue sources (4/10 ¢ sales tax and $10 registration fee) could provide funding adequate to maintain current RFTA services and to implement the 3A Trunk Scenario.

10] However, these RTA funding sources would not be adequate to implement more comprehensive transit service scenarios (bus or rail) -- at least not in the short term. It may be necessary to amend the RTA statute to allow for other funding sources to fully fund transit services that RTA members may decide are needed.

Relationship between Creation of a Rural Transportation Authority (RTA) and Other Local Initiatives



EXECUTION COPY

ROARING FORK TRANSPORTATION AUTHORITY
INTERGOVERNMENTAL AGREEMENT

by and among

CITY OF ASPEN, COLORADO

TOWN OF BASALT, COLORADO

TOWN OF CARBONDALE, COLORADO

EAGLE COUNTY, COLORADO

CITY OF GLENWOOD SPRINGS, COLORADO

PITKIN COUNTY, COLORADO

and

TOWN OF SNOWMASS VILLAGE, COLORADO

Dated as of September 12, 2000

providing for the creation of

the "Roaring Fork Transportation Authority" as a Rural Transportation Authority pursuant to the Colorado Rural Transportation Authority Law, Title 43, Article 4, Part 6, Colorado Revised Statutes, as amended.

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ROARING FORK TRANSPORTATION AUTHORITY
INTERGOVERNMENTAL AGREEMENT

THIS ROARING FORK TRANSPORTATION AUTHORITY INTERGOVERNMENTAL AGREEMENT (this "Agreement") is entered into as of September 12, 2000 by and among **CITY OF ASPEN, COLORADO; TOWN OF BASALT, COLORADO; TOWN OF CARBONDALE, COLORADO; EAGLE COUNTY, COLORADO; CITY OF GLENWOOD SPRINGS, COLORADO; PITKIN COUNTY, COLORADO**; and **TOWN OF SNOWMASS VILLAGE, COLORADO** (the "Initial Signatories").

RECITALS

WHEREAS, pursuant to title 43, article 4, part 6, Colorado Revised Statutes, as amended (the "Act"), Colorado counties and municipalities are authorized to establish, by contract, rural transportation authorities, which, upon the satisfaction of the conditions set forth in Section 2.01 hereof, are authorized to finance, Construct, operate and maintain rural transportation systems; and

WHEREAS, pursuant to title 29, article 1, part 2, Colorado Revised Statutes, as amended (the "Intergovernmental Relations Statute"), and article XIV, section 18 of the Colorado Constitution, governments may contract with one another to provide any function, service or facility lawfully authorized to each of the contracting units and any such contract may provide for the joint exercise of the function, service or facility, including the establishment of a separate legal entity to do so; and

WHEREAS, the Initial Signatories are counties and municipalities located in or near the Roaring Fork River Valley in west-central Colorado that desire to form a rural transportation authority pursuant to the Act and the Intergovernmental Relations Statute for the purpose of financing, constructing, operating and maintaining rural transportation systems consisting of the Authorized Transportation Projects described herein; and

WHEREAS, in 1976, Pitkin County began providing regional public transit services in the Roaring Fork Valley in west-central Colorado; and

WHEREAS, the Roaring Fork Transit Agency ("RFTA") was created in 1983 by an intergovernmental agreement between the City of Aspen and Pitkin County that merged their separate transit services in order to achieve greater operating efficiencies; and

WHEREAS, upon its creation, RFTA assumed responsibility for providing regional transit services in cooperation with local governments throughout the Roaring Fork Valley; and

WHEREAS, approximately half of RFTA's annual ridership, service miles and costs are associated with regional public transit services, and regional ridership increased by 134% from 1991 through 1998; and

WHEREAS, 20-year regional population projections indicate that improved and expanded regional transit services will be even more necessary in the future to reduce automobile congestion, maintain the quality of life and preserve the environment; and

WHEREAS, specialized transportation services promote independent living for the frail, elderly and the disabled by providing essential links to a variety of medical, social and other services, and the region recognizes the need to improve mobility options for this growing segment of the population; and

WHEREAS, current funding mechanisms are inadequate to maintain and improve regional transit services; and

WHEREAS, the Initial Signatories began working together on the goal of forming a regional transportation authority in the fall of 1996, which work included support for the enactment of the Act; and

WHEREAS, the Initial Signatories formed a policy committee (the "Policy Committee") in January 2000 which has met in at least eight meetings to consider the interests of the Initial Signatories, a public opinion survey and other technical information, and the recommendations of a specially formed citizen's committee; and

WHEREAS, following consideration of all relevant information, the Policy Committee specified the terms of this Agreement; and

WHEREAS, various drafts of this Agreement have been reviewed by and refined based on comments received from and extensive discussions with the Governing Bodies of each of the Initial Signatories and citizens who participated in a series of public hearings held throughout the Roaring Fork River Valley.

AGREEMENT

NOW, THEREFORE, for and in consideration of the mutual covenants set forth below, the Initial Signatories hereby agree as follows:

ARTICLE I

DEFINITIONS

Section 1.01. Definitions from the Act. The following terms shall, when capitalized, have the meanings assigned to them in section 602 of the Act: "Bond," "Construct," "Construction," "County," "Municipality," "Person," "Rural Transportation Activity Enterprise," "Rural Transportation System" and "State."

Section 1.02. Other Definitions. The following terms shall, when capitalized, have the following meanings:

"*Act*" is defined in the Recitals hereto.

"*Advisory Committee*" means two or more persons appointed by the Board pursuant to Article IV hereof for the purpose of providing advice to the Board and includes the Citizen Advisory Committee.

"*Agreement*" means this Roaring Fork Transportation Authority Intergovernmental Agreement, as amended from time to time in accordance with the terms hereof.

"*Alternate Director*" means any person appointed as an Alternate Director pursuant to Section 3.03 hereof.

"*Authority*" means the Roaring Fork Transportation Authority, a separate political subdivision of and body corporate of the State established pursuant to this Agreement as a rural transportation authority under the Act and as a separate legal entity under the Intergovernmental Relations Statute.

"*Authority Sales Tax*" means a sales and use tax levied by the Authority in all or any designated portion of the Members in accordance with section 6.05(1)(i) of the Act.

"*Authorized Transportation Projects*" means the Rural Transportation Systems described in Section 2.02 hereof, as such term may be amended from time-to-time in accordance with Article XII hereof.

"*Basalt Question*" is defined in Section 2.04(a) hereof.

"*Board*" means the Board of Directors of the Authority.

"*Boundaries*" means the boundaries of the Authority determined in accordance with Appendix A hereto, as such Appendix and term may be amended from time-to-time in accordance with Article XII hereof.

"*Carbondale Question*" is defined in Section 2.04(a) hereof.

"*Citizen Advisory Committee*" means the special Advisory Committee described as such in Article IV hereof.

"*Corridor Investment Study*" means the West Glenwood Springs to Aspen Corridor Investment Study/Environmental Impact Statement.

"*Denver Rio Grande Right-of-Way*" means the 34-mile transportation/recreation corridor that varies in width from 50 to 200 feet extending from downtown Glenwood Springs to Woody Creek, Colorado that is owned by RFRHA and/or the members of RFRHA and is the subject of the Corridor Investment Study.

"*Director*" means any person appointed as a Director pursuant to Section 3.02 hereof. Whenever the person appointed as a Member's Director pursuant to Section 3.02 hereof is absent from a Board meeting, the term "Director" shall mean the Alternate Director, if any, appointed by such Member pursuant to Section 3.03 hereof.

"*Division of Local Government*" means the Division of Local Government in the State Department of Local Affairs.

"*Eagle County 0.5% Transportation Sales Tax*" means the sales tax levied by Eagle County pursuant to Resolution No. 95-95 of the Board of County Commissions of Eagle County, as such resolution has been or may be amended from time to time.

"*Glenwood Springs Question*" is defined in Section 2.04(a) hereof.

"*Governing Body*" means, when used with respect to a Member, the city council, board of trustees, board of commissioners or other legislative body, as appropriate, of such Member.

"*Initial Authority Sales Tax*" means the Authority Sales Tax described in Section 7.01(a) hereof.

"*Initial Boundaries*" means the Boundaries of the Authority on the date the Authority is originally established pursuant to Article II hereof, as such Initial Boundaries are determined in accordance with Appendix A hereto.

"*Initial Members*" means the Initial Signatories who become Members on the date on which the Authority is originally established pursuant to Section 2.05 hereof.

"*Initial Signatories*" means the Municipalities and Counties that are signatories to this Agreement in its original form.

"*Intergovernmental Relations Statute*" is defined in the Recitals hereto.

"*Member*" means (a) the Initial Members and (b) the State or any Municipality or County that becomes a member of the Authority pursuant to Section 9.03 hereof.

"*Officer*" means the Chair, Vice Chair, Secretary, Treasurer or Executive Director of the Authority, and any subordinate officer or agent appointed and designated as an officer of the Authority by the Board.

"*Pitkin County Question*" is defined in Section 2.04(a) hereof.

"Pitkin County Transportation Sales Taxes" means (a) the sales tax levied by Pitkin County pursuant to Resolution No. 83-29, Series 1983, Resolution 85-45, Series 1985, and Resolution No. 85-46 of the Board of County Commissioners of Pitkin County, as such resolutions have been amended through the date hereof; and (b) the sales tax levied by Pitkin County pursuant to Resolution No. 93-149, as such resolution has been amended through the date hereof.

"*RFTA*" is defined in the Recitals hereto.

"*RFRHA*" means the Roaring Fork Railroad Holding Authority created by intergovernmental agreement among the Cities of Aspen and Glenwood Springs, the Towns of Basalt, Carbondale and Snowmass Village and Eagle and Pitkin Counties.

"*Regional Transit Services*" means the transit services described in Appendix C hereto, as such Appendix may be amended from time-to-time in accordance with Article XII hereof.

"*Unincorporated Eagle County Question*" is defined in Section 2.04(a) hereof.

"*Visitor Benefit Tax*" means a visitor benefit tax levied by the Authority in all or any designated portion of a Member in accordance with section 605(1)(i.5) of the Act and Section 7.03 hereof.

ARTICLE II

ESTABLISHMENT OF THE AUTHORITY AND INITIAL MEMBERS

Section 2.01. Establishment. The Roaring Fork Transportation Authority shall be established as a separate political subdivision and body corporate of the State pursuant to the Act and as a separate legal entity created by a contract among the Initial Members pursuant to the Intergovernmental Relations Statute, effective upon satisfaction of the following conditions:

(a) each Initial Member (i) has held at least two public hearings on the subject of this Agreement in accordance with section 603(3) of the Act and (ii) has executed this Agreement (which execution shall constitute a representation by such Initial Member to the other Initial Members that the executing Initial Member has held the public hearings required by section 603(3) of the Act and that the Governing Body of such Initial Member has duly authorized its execution, delivery and performance of this Agreement);

(b) this Agreement has been approved by a majority of the registered electors residing within the Initial Boundaries of the Authority at the time of the election who vote in a general election or special election called for such purpose in accordance with section 603(4) of the Act, which, for purposes of the November 7, 2000 election, shall be determined based on the votes cast on the ballot questions approved by the registered electors voting on the ballot questions that approve the participation in the Authority by the Initial Members (determined in accordance with Section 2.05 hereof); and

(c) the Director of the Division of Local Government has issued a certificate pursuant to section 603(1) of the Act stating that the Authority has been duly organized according to the laws of the State.

Section 2.02. Purpose. The purpose of the Authority is to finance, Construct, operate and maintain an efficient, sustainable and regional multi-modal transportation system at any location or locations within or without the Boundaries of the Authority, subject to compliance with the Act.

Section 2.03. Boundaries. The Initial Boundaries of the Authority shall be determined in accordance with Appendix A hereto. Any territory included in the Boundaries of the Authority because the territory is included in the boundaries of a Municipality shall automatically be amended to include any territory annexed to the Municipality. The Town of Basalt, by executing this Agreement, consents to the inclusion of territory within the Town of

Basalt that is within Pitkin County in the Initial Boundaries even if the Town of Basalt is not an Initial Member.

Section 2.04. Voter Approval.

(a) The Initial Signatories agree to submit ballot questions seeking voter approval of the establishment of the Authority, the baseline funding of the Authority in accordance with Article VII hereof and the "de-Brucing" of certain Authority revenues at an election held on November 7, 2000 that is conducted in accordance with the Act and other applicable law. Six separate questions, which are hereafter referred to by the names indicated below and drafts of which are attached hereto as Appendixes B-1 through B-5, shall be submitted to the registered electors residing within the following described areas within the boundaries of the Initial Signatories:

(i) the "Pitkin County Question," a draft of which is attached hereto as Appendix B-1, shall be submitted to the electors of Pitkin County;

(ii) the "Glenwood Springs Question," a draft of which is attached hereto as Appendix B-2, shall be submitted to the electors of the City of Glenwood Springs;

(iii) the "Carbondale Question," a draft of which is attached hereto as Appendix B-3, shall be submitted to the electors of the Town of Carbondale;

(iv) the "Basalt Question," a draft of which is attached hereto as Appendix B-4, shall be submitted to the electors of the Town of Basalt; and

(v) the "Unincorporated Eagle County Question," a draft of which is attached hereto as Appendix B-5, shall be submitted to the electors of the unincorporated area of Eagle County within election precincts 7, 8, 24 and 25.

(b) The Governing Body of each of the Initial Signatories named in the name of each ballot question shall take all actions necessary to submit such question to the appropriate electors at the November 7, 2000 election but may modify the ballot question submitted by it in any manner that is not inconsistent with the terms of this Agreement. The designated election official for the Pitkin County Question shall be the Pitkin County Clerk and Recorder. The designated election official for the Glenwood Springs Question and the Carbondale Question shall be the Garfield County Clerk and Recorder. The designated election official for the unincorporated Eagle County Question shall be the Eagle County Clerk and Recorder. The designated election official for the Basalt Question shall be the Clerk of the Town of Basalt.

(c) Each Initial Signatory shall pay the costs of conducting the November 7, 2000 election within its boundaries. For purposes of allocating such costs, costs allocable to electors who reside in a Municipality shall be allocated to the Municipality in which they reside and costs allocable to electors who reside in unincorporated areas shall be allocated to the County in which they reside.

Section 2.05. Initial Members. The Initial Signatories whose participation in the Authority is authorized by a majority of the registered electors voting on the ballot questions indicated below shall be the Initial Members of the Authority on the date the Authority is originally established pursuant to this Agreement:

(a) Pitkin County, the City of Aspen and the Town of Snowmass Village will be Initial Members if Pitkin County electors approve the Pitkin County Question;

(b) the City of Glenwood Springs will be an Initial Member if City of Glenwood Springs electors approve the Glenwood Springs Question;

(c) the Town of Carbondale will be an Initial Member if Town of Carbondale electors approve the Carbondale Question;

(d) the Town of Basalt will be an Initial Member if Town of Basalt electors approve the Basalt Question; and

(e) Eagle County will be an Initial Member if the electors in the unincorporated area of Eagle County within election precincts 7, 8, 24 and 25 approve the Unincorporated Eagle County Question.

Section 2.06. City of Aspen Visitor Benefits Tax Election. The City of Aspen shall also submit a ballot question to its electors at the November 7, 2000 election seeking voter approval of a 1% City of Aspen visitor benefits tax. At least 50% of the proceeds of such tax shall be used to enable the City of Aspen to partially meet its financial obligations as outlined in this Agreement.

ARTICLE III

BOARD OF DIRECTORS

Section 3.01. Establishment and Powers. The Authority shall be governed by a Board of Directors as described in this Article. The Board shall exercise and perform all powers, privileges and duties vested in or imposed on the Authority. Subject to the provisions of this Agreement, the Board may delegate any of its powers to any Director, Officer, employee or agent of the Authority.

Section 3.02. Directors. The Board shall be composed of one Director appointed by each Member.

Section 3.03. Alternate Directors. In addition to the Director appointed by it, each Member shall appoint an Alternate Director who shall be deemed to be such Member's Director for all purposes, including, but not limited to, voting on resolutions whenever the person appointed as such Member's Director is absent from a Board meeting.

Section 3.04. Appointment of Directors and Alternate Directors. As required by section 603(2)(b)(I) of the Act, the Director and the Alternate Director appointed by a Member

shall both be members of the Governing Body of such Member and shall be appointed as a Director or Alternate Director by the Governing Body of such Member.

Section 3.05. Terms of Office. The term of office of each Director and Alternate Director shall commence with the first meeting of the Board following his or her appointment and shall continue until (a) the date on which a successor is duly appointed or (b) the date on which he or she ceases to be a member of the Governing Body of the appointing Member.

Section 3.06. Resignation and Removal. Any Director or Alternate Director (a) may resign at any time, effective upon receipt by the Secretary or the Chair of written notice signed by the person who is resigning; and (b) may be removed at any time by the Governing Body of the Member that appointed him or her, effective upon receipt by the Secretary or the Chair of written notice signed by the Governing Body of the appointing Member.

Section 3.07. Vacancies. Vacancies in the office of any Director or Alternate Director shall be filled in the same manner in which the vacant office was originally filled pursuant to Section 3.04 hereof.

Section 3.08. Compensation. Directors and Alternate Directors shall serve without compensation, but may be reimbursed for expenses incurred in serving in such capacities upon such terms and pursuant to such procedures as may be established by the Board.

Section 3.09. Resolutions and Voting. All actions of the Board shall be by resolution, which may be written or oral. Except as otherwise provided in Section 3.10 hereof, resolutions of the Board shall be adopted upon the affirmative vote at a meeting open to the public of at least two-thirds of the Directors then in office who are eligible to vote thereon voting (which, if all Initial Signatories become Initial Members and no Director is ineligible to vote, will be five of the seven initial Directors). The Authority shall provide at least 48 hours' written notice of meetings to each Director and Alternate Director and to the Governing Body of each Member. Notwithstanding any other provision hereof, a Director shall disqualify himself or herself from voting on any issue with respect to which he or she has a conflict of interest, unless he or she has disclosed such conflict of interest in compliance with sections 18-8-308 and 24-18-101 et seq., Colorado Revised Statutes, as amended.

Section 3.10. Special Rules Regarding Adoption of the Authority's Annual Budget. Notwithstanding Section 3.09 hereof, if the Board fails to approve the Authority's annual budget by resolution adopted in accordance with Section 3.09 hereof by the end of the immediately preceding fiscal year of the Authority or any earlier date required by State law, until an annual budget is so adopted, the Authority's budget for such year shall be the prior year's budget, with adjustments approved by a majority of the Directors then in office who are eligible to vote thereon that, in the aggregate, do not exceed the sum of "inflation" and the Authority's "local growth" as determined in accordance with Article X, Section 20(2)(f) and (g) of the Colorado Constitution. The procedures set forth in this Section may be modified by bylaws or rules adopted in accordance with Section 3.12 hereof.

Section 3.11. Powers of the Board. The Board shall, subject to the limitations set forth herein, have (a) all powers that may be exercised by the board of directors of a rural

transportation authority pursuant to the Act, including, but not limited to, the powers conferred by section 604(3) of the Act, and (b) all powers that may be exercised by the governing board of a separate legal entity created by a contract among the Members pursuant to the Intergovernmental Relations Statute.

Section 3.12. Bylaws and Rules. The Board, acting by resolution adopted as provided in Section 3.09 hereof, may adopt bylaws or rules governing the activities of the Authority and the Board, including, but not limited to, bylaws or rules governing the conduct of Board meetings, voting procedures, the type of resolutions that must be in writing and procedures for the resolution of issues on which a two-thirds majority cannot be obtained in accordance with Section 3.09 hereof.

Section 3.13. Additional Directors. If at any time there are fewer than four Members, then, notwithstanding any other provision hereof, in order to comply with the provisions of section 603(2)(b)(I) of the Act requiring at least five Directors, each Member shall appoint an additional Director and an Alternate Director for such Director, all references herein to the Director and Alternate Director of a Member shall be deemed to refer to the initial and the additional Director and Alternate Director, as appropriate, appointed by such Member.

ARTICLE IV

ADVISORY COMMITTEES

The Board shall appoint and maintain a Citizen Advisory Committee to advise the Board with respect to policy and service matters. The Board may also appoint other Advisory Committees to advise the Board. The members of the Citizen Advisory Committee shall not be Directors, Alternate Directors or Officers of the Authority. The members of Advisory Committees other than the Citizen Advisory Committee may include Directors, Alternate Directors and Officers of the Authority. Advisory Committees shall not be authorized to exercise any power of the Board.

ARTICLE V

OFFICERS

Section 5.01. Generally. The Board shall appoint a Chair, a Vice Chair, a Secretary, a Treasurer and an Executive Director. The Board also may appoint one or more subordinate officers and agents, each of whom shall hold his or her office or agency for such term and shall have such authority, powers and duties as shall be determined from time to time by the Board. The Chair and the Vice Chair shall be Directors. Other Officers may, but need not, be Directors. Any two or more of such offices may be held by the same person, except that the offices of Chair and Secretary may not be held by the same person and the person serving as Executive Director may not hold any other of such offices. All Officers of the Authority shall be persons of the age of 18 years or older and shall meet the other qualifications, if any, stated for his or her office elsewhere in this Article.

Section 5.02. Chair. The Chair shall have the power to call meetings of the Board; the power to execute, deliver, acknowledge, file and record on behalf of the Authority such documents as may be required by this Agreement, the Act or other applicable law; and such other powers as may be prescribed from time to time by the Board. The Chair may execute and deliver contracts, deeds and other instruments and agreements on behalf of the Authority as are necessary or appropriate in the ordinary course of its activities or as are duly authorized or approved by the Board. The Chair shall have such additional authority, powers and duties as are appropriate and customary for the office of the chair of the board of directors of entities such as the Authority, and as the Board may otherwise prescribe.

Section 5.03. Vice Chair. The Vice Chair shall be the Officer next in seniority after the Chair and, upon the death, absence or disability of the Chair, shall have the authority, powers and duties of the Chair. The Vice Chair shall have such additional authority, powers and duties as are prescribed by the Board.

Section 5.04. Secretary. The Secretary shall give, or cause to be given, notice of all meetings (including special meetings) of the Board, keep written minutes of such meetings, have charge of the Authority's seal, be responsible for the maintenance of all records and files and the preparation and filing of reports to governmental agencies (other than tax returns), have authority to impress or affix the Authority's seal to any instrument requiring it (and, when so impressed or affixed, it may be attested by his or her signature), and have such other authority, powers and duties as are appropriate and customary for the office of Secretary of entities such as the Authority, and as the Board may otherwise prescribe. If a Treasurer has not been appointed, the Secretary shall also serve as Treasurer and may use the title of Treasurer in performing the functions of Treasurer.

Section 5.05. Treasurer. The Treasurer shall, subject to rules and procedures established by the Board, be responsible for the custody of the funds and all stocks, bonds and other securities owned by the Authority and shall be responsible for the preparation and filing of all tax returns, if any, required to be filed by the Authority. The Treasurer shall receive all moneys paid to the Authority and, subject to any limits imposed by the Board or the Chair, shall have authority to give receipts and vouchers, to sign and endorse checks and warrants in the Authority's name and on the Authority's behalf, and to give full discharge for the same. The Treasurer shall also have charge of disbursement of the funds of the Authority, shall keep full and accurate records of the receipts and disbursements, and shall deposit all moneys and other valuables in such depositories as shall be designated by the Board. The Treasurer shall deposit and invest all funds of the Authority in accordance with this Agreement and laws of the State applying to the deposit and investment of funds of rural transportation authorities formed under the Act. The Treasurer shall have such additional authority, powers and duties as are appropriate and customary for the office of Treasurer of entities such as the Authority, and as the Board may otherwise prescribe. If a Treasurer has not been appointed, the Secretary shall also serve as Treasurer and may use the title of Treasurer in performing the functions of Treasurer.

Section 5.06. Executive Director. The Executive Director shall be the chief executive officer of the Authority, shall supervise the activities of the Authority, shall see that all policies, directions and orders of the Board are carried out and shall, under the supervision of the Board, have such other authority, powers or duties as may be prescribed by the Board.

Section 5.07. Resignation and Removal. Any Officer may resign at any time effective upon receipt by the Secretary or the Chair of written notice signed by the person who is resigning, and may be removed at any time by the Board.

Section 5.08. Changes to Authority, Powers and Duties. Notwithstanding any other provision of this Article, the Board at any time may expand, limit or modify the authority, powers and duties of any Officer.

Section 5.09. Vacancies. Vacancies in the office of any Officer shall be filled in the same manner in which such office was originally filled.

Section 5.10. Compensation. The Authority may compensate Officers who are not Directors or Alternate Directors for services performed, and may reimburse them for expenses incurred, in serving in such capacities upon such terms and pursuant to such procedures as may be established by the Board.

ARTICLE VI

POWERS OF THE AUTHORITY

Section 6.01. General Grant of Powers. The Authority shall, subject to the limitations set forth herein, have (i) all powers granted by the Act to rural transportation authorities and (ii) all powers that may be exercised by a separate legal entity created by a contract among the Members pursuant to the Intergovernmental Relations Statute. Such powers shall include, but shall not be limited to:

(a) the specific powers described in section 605 of the Act;

(b) the power to establish Rural Transportation Activity Enterprises in accordance with section 606 of the Act;

(c) the power to establish local improvement districts in accordance with section 608 of the Act;

(d) the power to issue Bonds in accordance with section 609 of the Act;

(e) the power to cooperate with any Person as provided in section 610 of the Act;

(f) the power to invest or deposit funds as provided in section 616 of the Act; and

(g) the power to petition for a judicial examination and determination of any power, act, proceeding or contract of the Authority as provided in section 620 of the Act.

Section 6.02. Specific Responsibilities. In addition to the general powers described in Section 6.01 hereof, the Authority shall have the responsibilities described in this Section and shall have all powers necessary or convenient to carry out such responsibilities, subject to the

availability of funds and, to the extent required by law, annual appropriation of funds by the Board. The description of specific responsibilities and powers in this Section shall not, however, limit the general powers of the Authority described in Section 6.01 hereof.

(a) ***Regional Transit Services***. The Authority shall use its best efforts to provide the Regional Transit Services described in Appendix C hereto.

(b) ***Contract Transit Services***. The Authority may enter into contracts with any Member or other Person for the provision of transit services in the manner and subject to the terms of such contracts.

(c) ***Regional Transportation Planning***. The Authority shall provide regional transportation planning services needed to plan and direct the Authorized Transportation Projects, pursue federal funding and coordinate overall transportation policy within the area in which it provides Regional Transit Services. Regional transportation planning shall, as determined by the Board, include short range service planning as well as long range planning, corridor investment studies and related environmental impact analysis.

(d) ***Funding for Maintenance of the Denver Rio Grande Right-of-Way***. The Authority shall provide funding for the maintenance of the Denver Rio Grande Right-of-Way until it is transferred to the Authority.

(e) ***Funding for Construction and Maintenance of Regional Trails***. The Authority shall provide funding for the construction of regional trails in cooperation with Members, RFRHA or other Persons.

(f) ***Local Service***. The Authority may fund Authorized Transportation Projects that serve the residents and businesses of a Member (as distinguished from regional services) but, except as otherwise specifically provided herein, only pursuant to an agreement pursuant to which such Member pays the Authority for the services provided on the same fully allocated cost basis used to determine costs of Authority services throughout the Authority's service area.

Section 6.03. Limitations on Powers of the Authority. Notwithstanding Sections 6.01 and 6.02 hereof, the powers of the Authority shall be limited as follows:

(a) the Authority may only finance, Construct, operate and maintain Authorized Transportation Projects;

(b) the Authority shall not finance rail construction unless and until the electors of the Authority, or of the area of the Authority in which the funding is to be generated, specifically approve such financing;

(c) Advisory Committees may only be appointed and may only exercise the powers as provided in Article IV hereof;

(d) no action to establish or increase a tax or to create a multiple fiscal year debt or other financial obligation that is subject to section 20(4)(b) of article X of the

State Constitution shall take effect unless first submitted to a vote in accordance with section 612 of the Act;

(e) Visitor Benefit Taxes may be levied only in accordance with Section 7.03 hereof;

(f) the Board shall deliver notice of any proposal to establish, increase or decrease any tax to any County or Municipality where the proposed tax or fee would be imposed in accordance with section 613 of the Act; and

(g) a notice of the imposition of or any increase in any fee or tax or the issuance of Bonds shall be sent to the Division of Local Government and shall be filed with the State Auditor and the State Transportation Commission in accordance with section 614 of the Act.

ARTICLE VII

FUNDING THE AUTHORITY

Section 7.01. Baseline Funding. The baseline funding of the Authority shall be provided from the following sources:

(a) ***Initial Authority Sales Tax***. The Initial Authority Sales Tax shall, upon satisfaction of the conditions stated below, be imposed at the following rates in the following areas within the Boundaries of the Authority:

(i) 0.4% in the City of Glenwood Springs if City of Glenwood Springs electors approve the Glenwood Springs Question;

(ii) 0.5% in the Town of Carbondale if Town of Carbondale electors approve the Carbondale Question; and

(iii) 0.2% in the Town of Basalt if Town of Basalt electors approve the Basalt Question.

(b) ***Eagle County 0.5% Transportation Sales Tax.*** Eagle County shall pay to the Authority the proceeds of the Eagle County 0.5% Transportation Sales Tax accrued on and after January 1, 2001 that are collected in the portion of Eagle County within the Town of Basalt and the unincorporated area of Eagle County within election precincts 7, 8, 24 and 25 if the electors of unincorporated Eagle County within election precincts 7, 8, 24 and 25 approve the Unincorporated Eagle County Question. To the extent required by law, the obligation of Eagle County to make such payments may be subject to annual appropriation by the Board of County Commissioners of Eagle County.

(c) ***Pitkin County Transportation Sales Taxes***. Pitkin County shall pay to the Authority an amount equal to the proceeds of a tax rate of 0.7215% from the proceeds of the Pitkin County Transportation Sales Taxes accrued on and after January 1, 2001 if

the electors of Pitkin County approve the Pitkin County Question, subject to the following:

(i) The obligation of Pitkin County to make such payments shall be subordinate to any obligation Pitkin County has or may have for debt secured by the Pitkin County Transportation Sales Taxes. However, Pitkin County will only issue additional debt secured by the Pitkin County Transportation Sales Taxes if the maximum annual debt service on all of the debt to be secured by the Pitkin County Transportation Sales Taxes is less than the annual amount of Pitkin County Transportation Sales Taxes retained by Pitkin County after its payments to the Authority under this subsection during the immediately preceding year.

(ii) In consideration of the transfer to the Authority of the assets financed by such bonds pursuant to Section 8.02 hereof, the amounts required to pay the debt service on the Pitkin County bonds described in Appendix D hereto shall be netted from the payments to be made by Pitkin County to the Authority pursuant to this subsection.

(iii) If and to the extent the Authority and Pitkin County so agree, if Pitkin County issues additional bonds for the benefit of the Authority pursuant to Section 7.07 hereof, the debt service on those bonds also may be netted from the payments to be made by Pitkin County to the Authority pursuant to this subsection.

(iv) If Pitkin County and the City of Aspen (acting jointly) decide to provide the services described in Section 8.04(d) hereof directly, an amount equal to the proceeds of a tax rate of 0.0496% from the Pitkin County Transportation Sales Taxes will be netted from payments to be made by Pitkin County to the Authority pursuant to this subsection.

(d) ***Estimated Funding from Different Areas***. An estimate of the funding from different areas within the Initial Boundaries of the Authority, based on 1999 sales tax data, is set forth in Appendix H hereto. This estimate excludes the 0.1% Initial Authority Sales Tax within the Town of Carbondale.

(e) ***Rationale for Different Funding from Different Areas***. The rationale for the different funding levels from different areas within the Initial Boundaries of the Authority is set forth in Appendix E hereto.

Section 7.02. Additional Authority Sales Taxes.

(a) The Authority may levy Authority Sales Taxes in addition to the Initial Authority Sales Tax upon compliance with the provisions of the Act, including the approval by the electors residing throughout the area in which such taxes are to be levied as required by Section 6.03(d) hereof and section 612 of the Act. Any such additional Authority Sales Taxes may, as permitted by the Act, be levied in all or any designated portion of the Members and at the same or different rates in different designated portions of the Members.

(b) At the request of a Member and upon compliance with the provisions of the Act, including approval by the electors residing within the area in which such taxes are to be levied as required by Section 6.03(d) hereof and section 612 of the Act, and approval of the Board, the Authority shall levy an additional Authority Sales Tax at the rate (up to the limits of the Act) and in all or any designated portion of the Member specified by such Member for the purpose of funding Authorized Transportation Projects specified by such Member that serve the residents and businesses of such Member or the residents and businesses of such designated portion of such Member.

(c) One tenth of one percent (0.1%) of the Initial Authority Sales Tax within the Town of Carbondale is additional Authority Sales Tax within the meaning of this Section and the net proceeds of such tax shall be used to fund services within the Town of Carbondale in accordance with the Carbondale Ballot Question.

Section 7.03. Visitor Benefit Tax. A Visitor Benefit Tax may be levied only:

(a) at the request of the Member in whose territory such tax is to be levied;

(b) at the rate or rates and in all or the portion of the territory of such Member as specified by such Member;

(c) upon compliance with the provisions of this Agreement and the Act, including approval by the electors residing within the area in which such taxes are to be levied as required by Section 6.03(d) hereof and section 612 of the Act and the limitations on the use of the revenue derived from the Visitor Benefit Tax under section 605(1)(i.5) of the Act;

(d) upon approval of the Board; and

(e) for the purpose of funding Authorized Transportation Projects designated by such Member.

Section 7.04. Discretionary Member Contributions. A Member may, at its sole discretion, offer to make cash contributions to the Authority, provide in-kind services to the Authority or pay costs that otherwise would have been paid by the Authority (referred to as a "Discretionary Member Contribution"). If a Member offers to make a Discretionary Member Contribution, the Authority will, subject to Board approval on a case-by-case basis, make a good faith effort to provide additional transportation services within the boundaries of such Member with a value, or grant such Member a credit against other contributions or contract service payments to the Authority by or on behalf of such Member, in an amount equal to the Discretionary Member Contribution.

Section 7.05. Mitigation of Development Impacts. The Members acknowledge that development occurring within their jurisdictions will, in most cases, have an impact upon local and regional traffic congestion and that, moreover, transit service is one means for mitigating such impacts. Accordingly, Members shall evaluate and may choose to mitigate the traffic impacts of new development within their jurisdictions and/or specifically mitigate impacts upon regional transit services. Such mitigation for regional transit service shall be determined using a

consistent methodology established by the Authority based on the rational nexus between development impacts and transportation services. Members shall have sole discretion regarding how such mitigation is implemented through such means as ordinance-based transit impact fees, conditions of approval imposed upon individual development projects, or other mechanisms. Funds derived from such mitigation may be remitted to the Authority to offset capital costs and outlays associated with providing regional transit services to the Member.

Section 7.06. Pursuit of Grants. The Authority shall actively pursue federal, State and other grants to support its activities, including grants for offsetting operating and capital costs, long range planning and environmental review, and major capital improvements. The Authority shall also cooperate and assist Members in their pursuit of federal and State grants for transportation projects.

Section 7.07. Capital Projects and Bonds. The Authority may fund the initial capital program described in Appendix F hereto and additional capital projects by the issuance of Authority Bonds if voter approval is obtained for the issuance of such Bonds as required by Section 6.03(d) hereof and section 612 of the Act; through lease-purchase agreements or other arrangements permitted by, and subject to compliance with the applicable provisions of, State and federal law; or through one or more agreements with one or more Members, including, but not limited to, agreements with Pitkin County under which Pitkin County issues its bonds to fund capital projects for the benefit of the Authority and the amount paid to the Authority by Pitkin County pursuant to Section 7.01(c) hereof is reduced by the amount of the debt service on the Pitkin County bonds.

Section 7.08. Pitkin County Intergovernmental Agreement. The City of Aspen, Pitkin County and the Town of Snowmass Village shall enter into an intergovernmental agreement that distributes the portion of the Pitkin County Transportation Sales Taxes not committed to the Authority for funding local services in the City of Aspen and the Town of Snowmass Village.

Section 7.09. No Implied Limits on Powers. Except as otherwise specifically provided, no provision of this Article shall limit the Authority's powers under the Act.

ARTICLE VIII

REORGANIZATION OF RFTA AND RFRHA AND LEVEL OF SERVICE

Section 8.01. Reorganization Plan. If Pitkin County electors approve the Pitkin County Question, the Members will use their best efforts to reorganize RFTA and RFRHA in accordance with this Article. If Pitkin County electors do not approve the Pitkin County Question, this Article will be ineffective.

Section 8.02. Reorganization of RFTA. RFTA will be reorganized and merged into the Authority in accordance with this Section within an 18 month period of time commencing with the formation of the Authority (the "RFTA Transition Period"). During the RFTA Transition Period:

(a) The Authority will assume responsibility for the services provided by RFTA and the operating revenues of RFTA (as distinguished from the contributions to RFTA by its members) will become Authority revenues no later than January 1, 2001.

(b) For the purpose of continuity, Directors of the Authority appointed by each Initial Member will also serve as such Member's director on the Board of Directors of RFTA during the RFTA Transition Period.

(c) During the RFTA Transition Period the Authority, either directly or by contract with RFTA, Pitkin County, or others, will use its best efforts to (i) maintain the existing transit services as described in Section 8.04 (a), (c) and (d) hereof; and (ii) accommodate Member requests for additional or new local services on the same fully allocated cost basis used to determine costs of Authority services throughout the Authority's service area.

(d) At the end of the RFTA Transition Period RFTA's Board of Directors will dissolve and RFTA's administrative structure, employment contracts, and operations shall merge with the Authority to the extent they have not already done so.

(e) The Authority and RFTA shall, as a first priority, use their best efforts to agree on a Transition Plan that conforms to the terms set forth in this Section and that specifies how merger issues, including those related to human resources, employee benefits, insurance, transfer of RFTA assets, contractual relationships (e.g., with Pitkin County and the City of Aspen) and matters concerning the allocation of operating and capital costs and resources, will be resolved. Transition will be deemed complete when all issues set forth in the Transition Plan have been addressed to the satisfaction of the Board. The Transition Plan shall include the following terms:

(i) Title to the assets of RFTA, including, but not limited to, those described in Appendix G hereto (which does not include real property), will, subject to the terms of the Transition Plan, be transferred to the Authority at the conclusion of the RFTA Transition Period. The assets of RFTA that constitute real property will, subject to the terms of the Transition Plan, be made available to the Authority for its use through a long-term lease or other secure instrument, for transit and transportation purposes.

(ii) RFTA employees shall retain existing employee benefits (e.g., pension plan) or their equivalent. To preserve these existing employee benefits, it may be desirable for existing employees to remain employees of Pitkin County. As such, the Authority could choose to contract with Pitkin County for personnel required to staff and operate the Authority.

(iii) Liabilities of RFTA shall, to the extent permitted by laws, be assumed by and become the liabilities of the Authority no later than the end of the RFTA Transition Period, to the extent and in the manner provided in the Transition Plan.

(iv) The Authority will enter into contracts for transit services provided to the City of Aspen and the City of Glenwood Springs no later than the end of the RFTA Transition Period. Other service contracts, such as the Aspen Skiing Company skier shuttle service contract, will be assigned to the Authority by RFTA by the end of the RFTA Transition Period.

(v) Policy-making regarding transit service (e.g., adoption of a revised Transit Development Plan, service changes, and major capital expenditures) shall be the purview of the Authority and RFTA shall not have such policy-making authority as of the date the Authority is formed.

Section 8.03. Reorganization of RFRHA. RFRHA will be reorganized in accordance with this Section. During the period from the date the Authority is formed until the reorganization of RFRHA is complete (the "RFRHA Transition Period"):

(a) All regional transportation planning functions (excluding access issues), including management of the ongoing Corridor Investment Study, will be transferred to the Authority and the RFRHA Board of Directors will no longer have policy control of these planning functions.

(b) The Authority shall have approval rights over the RFRHA annual operating budget and shall remit Authority funds to RFRHA to meet the obligations in the approved budget.

(c) RFRHA will continue to provide access to, administration of and physical maintenance for the Denver Rio Grande Right-of-Way, maintenance of the conservation value of the right-of-way, pursue construction of regional trails through the right-of-way and protect public ownership of the right-of-way.

(d) Other financial obligations and assets of RFRHA related to acquisition of the Denver Rio Grande Right-of-Way shall remain with RFRHA unless and until the Denver Rio Grande Right-of Way may be transferred to the Authority.

(e) The Denver Rio Grande Right-of-Way shall, subject to compliance with contractual, legal and other requirements applicable thereto, transfer from RFRHA to the Authority, and the reorganization of RFRHA will be deemed to be complete, if and when the Authority notifies RFRHA that the Authority intends to use the right-of-way for an Authorized Transportation Project other than trails for which funding has been approved by the electors as required by Section 6.03(d) hereof and section 612 of the Act.

(f) Provisions concerning access contained in the Roaring Fork Railroad Holding Authority Intergovernmental Agreement shall be honored by the Authority.

Section 8.04. Maintenance of Effort. The Authority shall, regardless of the reorganization process, term of the RFTA Transition Period or RFRHA Transition Period or any other event, use its best efforts to assure continuity of existing regional and local transit service and ongoing transportation planning efforts, including, but not limited to, the following:

(a) Continuation of (i) the existing transit services provided by RFTA within the territory of the Initial Members as set forth in RFTA's 2000 budget without any significant change in routes, schedules or equipment during the RFTA Transition Period and (ii) additional or new services negotiated during the RFTA Transition Period pursuant to Section 8.02(c)(ii) hereof. For purposes of clause (i), a significant change in a route or schedule shall mean a 5% reduction in service hours for service provided between two locations.

(b) Local funding for regional transportation planning, specifically the completion of the Corridor Investment Study, shall be provided by the Authority in an amount needed to complete the same in an expeditious manner in concert with the federal and State sponsors of and participants in the effort.

(c) Funding of trunk service up the Brush Creek Road corridor pursuant to a contract between the Authority and the Town of Snowmass Village.

(d) Continuation of senior van service in Pitkin County and transit service to Woody Creek and the Maroon Bells, with service provided at the current levels unless Pitkin County agrees to a change in such service. Pitkin County and the City of Aspen (acting jointly) also may decide to provide such services directly. If they do so decide, the payments to be made by Pitkin County pursuant to Section 7.01(c) hereof shall be reduced as described in that subsection.

(e) Financial assistance for paratransit services in the area within the Boundaries of the Authority (such as the Traveler or equivalent service) in addition to the senior van service in Pitkin County at a level of at least $25,000 per year or a higher level determined by the Board from time-to-time based on available resources and implementation of the Authority's overall service plan.

(f) As required by the terms of the ballot question of November 7, 1995 approving the Eagle County 0.5% Transportation Sales Tax, a minimum of 10% of the proceeds of the Eagle County 0.5% Transportation Sales Tax paid to the Authority pursuant to Section 7.01(b) hereof shall be used for trails construction and maintenance within Eagle County election precincts 7, 8, 24 and 25.

Section 8.05. Aspen Local Service. If the City of Aspen ballot question described in Section 2.06 hereof is not approved at the November 7, 2000 election and no other local transportation tax is approved by City of Aspen electors by the end of the RFTA Transition Period (defined in Section 8.02 hereof), notwithstanding any other provision hereof:

(a) at the end of the RFTA Transition Period, one-third of RFTA's unreserved fund balance as of December 31, 2000 shall be transferred to the City of Aspen to fund transit capital replacement costs; and

(b) the Authority shall, for a seven-year period from the end of the RFTA Transition Period, provide a credit to the City of Aspen against payments otherwise due from the City of Aspen under a contract with the Authority for local transit service within

the City of Aspen on a monthly basis in an amount equal to the revenues generated by a sales tax rate of 0.085% applied to the taxable retail sales within the City of Aspen.

ARTICLE IX

MEMBERS

Section 9.01. Initial Members. The Initial Members shall be the Initial Signatories whose participation in the Authority is approved at the November 7, 2000 election as described in Section 2.05 hereof.

Section 9.02. Withdrawal of Initial Members.

(a) An Initial Member may withdraw from the Authority only if:

(i) the Pitkin County Question or the Glenwood Springs Question is not approved at the November 7, 2000 election; and

(ii) on or before November 28, 2000, the Governing Body of such Initial Member adopts a resolution or ordinance, and delivers written notice to all the other Initial Members, stating that such Initial Member has withdrawn from the Authority.

(b) If an Initial Member withdraws from the Authority pursuant to subsection (a) of this Section:

(i) the territory within the boundaries of such Initial Member will be excluded from the Boundaries of the Authority, except that territory within the Town of Basalt that is within Pitkin County shall remain within the Boundaries of the Authority if Pitkin County is an Initial Member and does not withdraw pursuant to subsection (a) of this Section;

(ii) the Initial Authority Sales Tax that otherwise would have been levied within the boundaries of such Initial Member shall not be levied; and

(iii) the obligations of such Initial Member set forth in this Agreement shall terminate.

(c) Members may only withdraw from the Authority in the manner, and subject to the conditions, set forth in this Section. In particular, but not by way of limitation, none of the Initial Signatories may withdraw from the Authority if all six ballot questions described in Section 2.04(a) hereof are approved by the registered electors.

Section 9.03. Additional Members. The State, acting through the State Transportation Commission, or any County or Municipality or portion thereof which is not an Initial Member of the Authority, may become a Member (for purposes of this Section, a "new Member") effective upon (a) the adoption of a resolution of the Board in accordance with Section 3.09 hereof, the

effectiveness of which may be conditioned upon compliance by such new Member with any conditions which the Board, in its sole discretion, sees fit to impose; (b) such new Member's (i) compliance with all conditions to its admission as a Member imposed by the Board, (ii) compliance with all conditions to its entering into this Agreement or admission as a Member imposed under the Act and the Intergovernmental Relations Statute and (iii) adoption and execution of this Agreement in accordance with applicable law; (c) unless the new Member is the State, approval of such new Member's participation in the Authority by the electors residing within the territory of the new Member that is to be included in the Boundaries of the Authority; and (d) compliance with any other conditions to the admission of such new Member as a Member or its execution of this Agreement imposed under the Act, the Intergovernmental Relations Statute or other applicable law.

ARTICLE X

TERM AND DISTRIBUTION OF ASSETS UPON TERMINATION

Section 10.01. Effective Date. The term of this Agreement shall begin when all the conditions to the establishment of the Authority set forth in Section 2.01 hereof have been satisfied.

Section 10.02. Termination. The term of this Agreement shall end when all the Members agree in writing to terminate this Agreement; provided, however, that this Agreement may not be terminated so long as the Authority has any Bonds outstanding.

Section 10.03. Distribution of Assets Upon Termination. Upon termination of this Agreement pursuant to Section 10.02 hereof, after payment of all Bonds and other obligations of the Authority, the net assets of the Authority shall be distributed to the parties who are Members at such time in proportion to the sum of (a) the amount of cash and the value of property and services contributed by them to the Authority pursuant to Article VII and VIII hereof minus the amount of cash and the value of property previously distributed to them by the Authority and (b) the amount of Authority taxes or other charges (other than fares) paid by their residents to the Authority pursuant to the Authority's exercise of the powers granted to it pursuant to the Act, with taxes or other charges paid by residents of areas of Counties which are also located within a Municipality allocated 100% to the Municipality for such purposes.

ARTICLE XI

DEFENSE OF DIRECTORS, OFFICERS, MEMBERS OF ADVISORY COMMITTEES AND EMPLOYEES

The Authority shall insure and defend each Director, Officer, member of an Advisory Committee and employee of the Authority in connection with any claim or actual or threatened suit, action or proceeding (civil, criminal or other, including appeals), in which he or she may be involved in his or her official capacity by reason of his or her being or having been a Director, Officer, member of a Committee or employee of the Authority, or by reason of any action or omission by him or her in such capacity. The Authority shall insure and defend each Director, Officer, member of a Committee and employee of the Authority against all liability, costs and

expenses arising from any such claim, suit or action, except any liability arising from criminal offenses or willful misconduct or gross negligence. The Authority's obligations pursuant to this Article shall be limited to funds of the Authority available for such purpose, including but not necessarily limited to insurance proceeds. The Board may establish specific rules and procedures for the implementation of this Article.

ARTICLE XII

AMENDMENTS

Section 12.01. Amendments Generally. Except as otherwise specifically provided in Sections 12.02, 12.03 and 12.04 hereof, this Agreement may be amended only by resolution of the Board.

Section 12.02. Amendments to Boundaries. Notwithstanding Section 12.01 hereof, Appendix A hereto and the definition of "Boundaries" may be amended by (a) a resolution of the Board and (b) the approval of the Governing Body of each Member, any portion of whose territory is either added to or removed from the Boundaries of the Authority. For purposes of this Section, territory of a Member that is a Municipality shall include territory within such Municipality's boundaries or within such Municipality's comprehensive planning area of influence as established as of the date first set forth above, but shall not include any territory which has previously been included within the incorporated boundaries of another Municipality.

Section 12.03. Modification of Appendices B-1 through B-6. Notwithstanding any other provision hereof, any ballot question attached hereto as Appendix B-1 through B-6 may be modified by the Governing Body of the Initial Signatory responsible for submitting such ballot question to the electors as provided in Section 2.04 hereof.

Section 12.04. Amendments to Pitkin County and Eagle County Funding Commitments. Notwithstanding Section 12.01 hereof, (a) the last sentence of Section 7.01(b) hereof or Section 8.04(f) hereof may not be amended without the approval of the Governing Body of Eagle County and (b) Section 7.01(c)(i) and (ii) hereof shall not be amended without the approval of the Governing Body of Pitkin County.

ARTICLE XIII

MISCELLANEOUS

Section 13.01. Adoption and Execution of Agreement in Accordance with Law. Each Initial Signatory hereby represents to each other Initial Signatory that it has adopted and executed this Agreement in accordance with applicable law.

Section 13.02. Parties in Interest. Nothing expressed or implied herein is intended or shall be construed to confer upon any Person other than the Initial Signatories and the Members any right, remedy or claim under or by reason of this Agreement, this Agreement being intended to be for the sole and exclusive benefit of the Initial Signatories and the Members.

Section 13.03. No Personal Liability. No covenant or agreement contained in this Agreement or any resolution or Bylaw issued by the Board shall be deemed to by the covenant or agreement of an elected or appointed official, officer, agent, servant or employee of any Member in his or her individual capacity.

Section 13.04. Notices. Except as otherwise provided in this Agreement, all notices, certificates, requests, requisitions or other communications by the Authority, any Member, any Director, any Alternate Director, any Officer or any member of a Committee to any other such person pursuant to this Agreement shall be in writing; shall be sufficiently given and shall be deemed given when actually received, in the case of the Authority and officers of the Authority, at the last address designated by the Authority for such purpose and, in the case of such other persons, at the last address specified by them in writing to the Secretary of the Authority; and, unless a certain number of days is specified, shall be given within a reasonable period of time.

Section 13.05. Assignment. None of the rights or benefits of any Member may be assigned, nor may any of the duties or obligations of any Member be delegated, without the express written consent of all the Members.

Section 13.06. Severability. If any clause, provision, subsection, Section or Article of this Agreement shall be held to be invalid, illegal or unenforceable for any reason, the invalidity, illegality or enforceability of such clause, provision, subsection, Section or Article shall not affect any of the remaining provisions of this Agreement.

Section 13.07. Interpretation. Subject only to the express limitations set forth herein, this Agreement shall be liberally construed (a) to permit the Authority and the Members to exercise all powers that may be exercised by a rural transportation authority pursuant to the Act and by a separate legal entity created by a contract among the Members pursuant to the Intergovernmental Relations Statute; (b) to permit the Members to exercise all powers that may be exercised by them with respect to the subject matter of this Agreement pursuant to the Act, the Intergovernmental Relations Statute and other applicable law; and (c) to permit the Board to exercise all powers that may be exercised by the board of directors of a rural transportation authority pursuant to the Act and by the governing body of a separate legal entity created by a contract among the Members pursuant to the Intergovernmental Relations Statute. In the event of any conflict between the Act, the Intergovernmental Relations Statute or any other law with respect to the exercise of any such power, the provision that permits the broadest exercise of the power consistent with the limitations set forth in this Agreement shall control.

Section 13.08. Governing Law. The laws of the State shall govern the construction and enforcement of this Agreement.

Section 13.09. Counterparts. This Agreement may be executed in any number of counterparts, each of which, when so executed and delivered, shall be an original; but such counterparts shall together constitute but one and the same Agreement.

SIGNATURE PAGE
to
ROARING FORK TRANSPORTATION AUTHORITY
INTERGOVERNMENTAL AGREEMENT
Dated as of September 12, 2000

ATTEST:

_____
Clerk

CITY OF ASPEN, COLORADO

By _____

Name _____

Title _____

SIGNATURE PAGE
to
ROARING FORK TRANSPORTATION AUTHORITY
INTERGOVERNMENTAL AGREEMENT
Dated as of September 12, 2000

ATTEST:

_____
Clerk

TOWN OF BASALT, COLORADO

By _____

Name _____

Title _____

SIGNATURE PAGE
to
ROARING FORK TRANSPORTATION AUTHORITY
INTERGOVERNMENTAL AGREEMENT
Dated as of September 12, 2000

ATTEST:

_____
Clerk

TOWN OF CARBONDALE, COLORADO

By _____

Name _____

Title _____

SIGNATURE PAGE
to
ROARING FORK TRANSPORTATION AUTHORITY
INTERGOVERNMENTAL AGREEMENT
Dated as of September 12, 2000

ATTEST:

_____
Clerk

EAGLE COUNTY, COLORADO

By _____

Name _____

Title _____

SIGNATURE PAGE
to
ROARING FORK TRANSPORTATION AUTHORITY
INTERGOVERNMENTAL AGREEMENT
Dated as of September 12, 2000

ATTEST:

CITY OF GLENWOOD SPRINGS, COLORADO

_____
Clerk

By _____

Name _____

Title _____

SIGNATURE PAGE
to
ROARING FORK TRANSPORTATION AUTHORITY
INTERGOVERNMENTAL AGREEMENT
Dated as of September 12, 2000

ATTEST:

_____
Clerk

PITKIN COUNTY, COLORADO

By _____

Name _____

Title _____

SIGNATURE PAGE
to
ROARING FORK TRANSPORTATION AUTHORITY
INTERGOVERNMENTAL AGREEMENT
Dated as of September 12, 2000

ATTEST:

TOWN OF SNOWMASS VILLAGE, COLORADO

_____
Clerk

By _____

Name _____

Title _____

AGREEMENT OF

ROARING FORK TRANSIT AGENCY

The Roaring Fork Transit Agency hereby agrees to the provisions of Sections 8.01, 8.02 and 8.04 of the Roaring Fork Transportation Authority Intergovernmental Agreement dated as of September 12, 2000.

ROARING FORK TRANSIT AGENCY

By _____

AGREEMENT OF

ROARING FORK RAILROAD HOLDING AUTHORITY

The Roaring Fork Railroad Holding Authority hereby agrees to the provisions of Sections 8.01, 8.03 and 8.04 of the Roaring Fork Transportation Authority Intergovernmental Agreement dated as of September 12, 2000.

ROARING FORK RAILROAD HOLDING AUTHORITY

By _____

APPENDIX A

DETERMINATION OF BOUNDARIES OF THE AUTHORITY

The Initial Boundaries of the Authority shall, subject to Section 9.02(b) hereof, consist of:

1. If the Authority is approved by a majority of the registered electors of Pitkin County voting thereon at the November 7, 2000 election, all territory within Pitkin County.

2. If the Authority is approved by a majority of the registered electors of the City of Glenwood Springs voting thereon at the November 7, 2000 election, all territory within the City of Glenwood Springs and all territory subsequently annexed to the City of Glenwood Springs.

3. If the Authority is approved by a majority of the registered electors of the Town of Carbondale voting thereon at the November 7, 2000 election, all territory within the Town of Carbondale and all territory subsequently annexed to the Town of Carbondale.

4. If the Authority is approved by a majority of the registered electors of the Town of Basalt voting on the Town of Basalt's participation as a Member of the Authority at the November 7, 2000 election, all territory within the Town of Basalt and all territory subsequently annexed to the Town of Basalt.

5. If the Authority is approved by a majority of the registered electors of unincorporated Eagle County within election precincts (as defined as of the date hereof) 7, 8, 24 and 25 voting thereon at the November 7, 2000 election, all territory within unincorporated Eagle County election precincts (as defined as of the date hereof) 7, 8, 24 and 25.

APPENDIX B-1

ROARING FORK TRANSPORATION AUTHORITY (RTA) BALLOT QUESTION (PITKIN COUNTY)

SHALL THE ROARING FORK TRANSPORTATION AUTHORITY ("RTA") BE ESTABLISHED FOR THE PURPOSE OF FUNDING AND PROVIDING THE BUS SERVICES CURRENTLY PROVIDED BY THE ROARING FORK TRANSIT AGENCY PLUS EXPANDED MASS TRANSIT AND OTHER TRANSPORTATION SERVICES IN ACCORDANCE WITH AN INTERGOVERNMENTAL AGREEMENT AMONG THE CITY OF ASPEN, THE TOWN OF SNOWMASS VILLAGE AND PITKIN COUNTY, THE OTHER MEMBERS OF WHICH ARE EXPECTED TO BE BASALT, GLENWOOD SPRINGS, CARBONDALE AND EAGLE COUNTY IF THE APPROPRIATE VOTERS APPROVE THE INTERGOVERNMENTAL AGREEMENT;

SHALL PITKIN COUNTY ENTER INTO A MULTIPLE FISCAL YEAR FINANCIAL OBLIGATION TO CONTRIBUTE TO THE RTA AN AMOUNT EQUAL TO THE PROCEEDS OF A TAX RATE OF 0.7215% FROM PITKIN COUNTY'S EXISTING 1.5% TRANSPORTATION SALES TAXES;

ADDITIONAL FUNDING FOR THE RTA IS EXPECTED TO BE PROVIDED FROM THE FOLLOWING SOURCES IF APPROVED BY THE VOTERS (OR, IN THE CASE OF THE EAGLE COUNTY TRANSPORTATION SALES TAX, THE COMMISSIONERS) OF SUCH JURISDICTION OR AREA:

0.4% RTA SALES AND USE TAX IN GLENWOOD SPRINGS,

0.5% RTA SALES AND USE TAX IN CARBONDALE,

0.2% RTA SALES AND USE TAX WITHIN BASALT,

0.5% EAGLE COUNTY TRANSPORTATION SALES TAX IN THE PORTION OF EAGLE COUNTY WITHIN BASALT AND THE UNINCORPORATED AREA OF EAGLE COUNTY WITHIN ELECTION PRECINCTS 7, 8, 24 AND 25; AND

SHALL ALL AMOUNTS RECEIVED BY THE RTA FROM SUCH TAXES AND CONTRIBUTIONS AND OTHERWISE PURSUANT TO THE INTERGOVERNMENTAL AGREEMENT AND EARNINGS THEREON CONSTITUTE A VOTER-APPROVED REVENUE CHANGE?

APPENDIX B-2

ROARING FORK TRANSPORATION AUTHORITY (RTA) BALLOT QUESTION (GLENWOOD SPRINGS)

SHALL ROARING FORK TRANSPORTATION AUTHORITY ("RTA") TAXES LEVIED IN THE CITY OF GLENWOOD SPRINGS BE INCREASED $_____ (FIRST FULL FISCAL YEAR DOLLAR INCREASE, NET OF ANY CONSTITUTIONALLY REQUIRED TAX CUTS) BY A 0.4% (FOUR CENTS ON EACH $10 PURCHASE) RTA SALES AND USE TAX LEVIED ON AND AFTER JANUARY 1, 2001 UPON EVERY TRANSACTION OR OTHER INCIDENT ON WHICH A SALES OR USE TAX IS LEVIED BY THE STATE (WHICH DOES NOT INCLUDE FOOD FOR HOME CONSUMPTION);

SHALL THE RTA BE ESTABLISHED FOR THE PURPOSE OF FUNDING AND PROVIDING THE BUS SERVICES CURRENTLY PROVIDED BY THE ROARING FORK TRANSIT AGENCY PLUS EXPANDED MASS TRANSIT AND OTHER TRANSPORTATION SERVICES IN ACCORDANCE WITH AN INTERGOVERNMENTAL AGREEMENT WITH GLENWOOD SPRINGS AS A MEMBER, THE OTHER MEMBERS OF WHICH ARE EXPECTED TO BE ASPEN, SNOWMASS VILLAGE, BASALT, CARBONDALE AND PITKIN AND EAGLE COUNTIES IF THE APPROPRIATE VOTERS APPROVE THE INTERGOVERNMENTAL AGREEMENT;

ADDITIONAL FUNDING FOR THE RTA IS EXPECTED TO BE PROVIDED FROM THE FOLLOWING SOURCES IF APPROVED BY THE VOTERS (OR, IN THE CASE OF THE EAGLE COUNTY TRANSPORTATION SALES TAX, THE COMMISSIONERS) OF SUCH JURISDICTION OR AREA:

> AN AMOUNT EQUAL TO THE PROCEEDS OF A TAX RATE OF 0.7215% FROM PITKIN COUNTY TRANSPORTATION SALES TAXES,
>
> 0.5% RTA SALES AND USE TAX IN CARBONDALE,
>
> 0.2% RTA SALES AND USE TAX WITHIN BASALT,
>
> 0.5% EAGLE COUNTY TRANSPORTATION SALES TAX IN THE PORTION OF EAGLE COUNTY WITHIN BASALT AND THE UNINCORPORATED AREA OF EAGLE COUNTY WITHIN ELECTION PRECINCTS 7, 8, 24 AND 25; AND

SHALL ALL AMOUNTS RECEIVED BY THE RTA FROM SUCH TAXES AND CONTRIBUTIONS AND OTHERWISE PURSUANT TO THE INTERGOVERNMENTAL AGREEMENT AND EARNINGS THEREON CONSTITUTE A VOTER-APPROVED REVENUE CHANGE?

APPENDIX B-3

ROARING FORK TRANSPORATION AUTHORITY (RTA) BALLOT QUESTION (CARBONDALE)

SHALL ROARING FORK TRANSPORTATION AUTHORITY ("RTA") TAXES LEVIED IN THE TOWN OF CARBONDALE BE INCREASED $_____ (FIRST FULL FISCAL YEAR DOLLAR INCREASE, NET OF ANY CONSTITUTIONALLY REQUIRED TAX CUTS) BY A 0.5% (FIVE CENTS ON EACH $10 PURCHASE) RTA SALES AND USE TAX LEVIED ON AND AFTER JANUARY 1, 2001 UPON EVERY TRANSACTION OR OTHER INCIDENT ON WHICH A SALES OR USE TAX IS LEVIED BY THE STATE (WHICH DOES NOT INCLUDE FOOD FOR HOME CONSUMPTION, WITH PROCEEDS FROM A TAX RATE OF 0.4% BEING DEDICATED TO FUNDING CARBONDALE'S FINANICAL CONTRIBUTION TO THE RTA AND PROCEEDS FROM A TAX RATE OF 0.1% BEING DEDICATED TO FUNDING COLORADO STATE HIGHWAY 133 IMPROVEMENTS AND OTHER LOCAL TRANSPORTAITON NEEDS AND SERVICES;

SHALL THE RTA BE ESTABLISHED FOR THE PURPOSE OF FUNDING AND PROVIDING THE BUS SERVICES CURRENTLY PROVIDED BY THE ROARING FORK TRANSIT AGENCY PLUS EXPANDED MASS TRANSIT AND OTHER TRANSPORTATION SERVICES IN ACCORDANCE WITH AN INTERGOVERNMENTAL AGREEMENT WITH CARBONDALE AS A MEMBER, THE OTHER MEMBERS OF WHICH ARE EXPECTED TO BE ASPEN, SNOWMASS VILLAGE, BASALT, GLENWOOD SPRINGS AND PITKIN AND EAGLE COUNTIES IF THE APPROPRIATE VOTERS APPROVE THE INTERGOVERNMENTAL AGREEMENT;

ADDITIONAL FUNDING FOR THE RTA IS EXPECTED TO BE PROVIDED FROM THE FOLLOWING SOURCES IF APPROVED BY THE VOTERS (OR, IN THE CASE OF THE EAGLE COUNTY TRANSPORTATION SALES TAX, THE COMMISSIONERS) OF SUCH JURISDICTION OR AREA:

> AN AMOUNT EQUAL TO THE PROCEEDS OF A TAX RATE OF 0.7215% FROM PITKIN COUNTY TRANSPORTATION SALES TAXES,
>
> 0.4% RTA SALES AND USE TAX IN GLENWOOD SPRINGS,
>
> 0.2% RTA SALES AND USE TAX WITHIN BASALT,
>
> 0.5% EAGLE COUNTY TRANSPORTATION SALES TAX IN THE PORTION OF EAGLE COUNTY WITHIN BASALT AND THE UNINCORPORATED AREA OF EAGLE COUNTY WITHIN ELECTION PRECINCTS 7, 8, 24 AND 25; AND

SHALL ALL AMOUNTS RECEIVED BY THE RTA FROM SUCH TAXES AND CONTRIBUTIONS AND OTHERWISE PURSUANT TO THE INTERGOVERNMENTAL AGREEMENT AND EARNINGS THEREON CONSTITUTE A VOTER-APPROVED REVENUE CHANGE?

APPENDIX B-4

ROARING FORK TRANSPORATION AUTHORITY (RTA) BALLOT QUESTION (BASALT)

SHALL ROARING FORK TRANSPORTATION AUTHORITY ("RTA") TAXES LEVIED IN THE TOWN OF BASALT BE INCREASED $_____ (FIRST FULL FISCAL YEAR DOLLAR INCREASE, NET OF ANY CONSTITUTIONALLY REQUIRED TAX CUTS) BY A 0.2% (TWO CENTS ON EACH $10 PURCHASE) RTA SALES AND USE TAX LEVIED ON AND AFTER JANUARY 1, 2001 UPON EVERY TRANSACTION OR OTHER INCIDENT ON WHICH A SALES OR USE TAX IS LEVIED BY THE STATE (WHICH DOES NOT INCLUDE FOOD FOR HOME CONSUMPTION);

SHALL THE RTA BE ESTABLISHED FOR THE PURPOSE OF FUNDING AND PROVIDING THE BUS SERVICES CURRENTLY PROVIDED BY THE ROARING FORK TRANSIT AGENCY PLUS EXPANDED MASS TRANSIT AND OTHER TRANSPORTATION SERVICES IN ACCORDANCE WITH AN INTERGOVERNMENTAL AGREEMENT WITH BASALT AS A MEMBER, THE OTHER MEMBERS OF WHICH ARE EXPECTED TO BE ASPEN, SNOWMASS VILLAGE, GLENWOOD SPRINGS, CARBONDALE AND PITKIN AND EAGLE COUNTIES IF THE APPROPRIATE VOTERS APPROVE THE INTERGOVERNMENTAL AGREEMENT;

ADDITIONAL FUNDING FOR THE RTA IS EXPECTED TO BE PROVIDED FROM THE FOLLOWING SOURCES IF APPROVED BY THE VOTERS (OR, IN THE CASE OF THE EAGLE COUNTY TRANSPORTATION SALES TAX, THE COMMISSIONERS) OF SUCH JURISDICTION OR AREA:

> AN AMOUNT EQUAL TO THE PROCEEDS OF A TAX RATE OF 0.7215% FROM PITKIN COUNTY TRANSPORTATION SALES TAXES,
>
> 0.4% RTA SALES AND USE TAX IN GLENWOOD SPRINGS,
>
> 0.5% RTA SALES AND USE TAX IN CARBONDALE,
>
> 0.5% EAGLE COUNTY TRANSPORTATION SALES TAX IN THE PORTION OF EAGLE COUNTY WITHIN BASALT AND THE UNINCORPORATED AREA OF EAGLE COUNTY WITHIN ELECTION PRECINCTS 7, 8, 24 AND 25; AND

SHALL ALL AMOUNTS RECEIVED BY THE RTA FROM SUCH TAXES AND CONTRIBUTIONS AND OTHERWISE PURSUANT TO THE INTERGOVERNMENTAL AGREEMENT AND EARNINGS THEREON CONSTITUTE A VOTER-APPROVED REVENUE CHANGE?

APPENDIX B-5

ROARING FORK TRANSPORATION AUTHORITY (RTA) BALLOT QUESTION (UNINCORPORATED EAGLE COUNTY)

SHALL THE ROARING FORK TRANSPORTATION AUTHORITY ("RTA") BE ESTABLISHED FOR THE PURPOSE OF FUNDING AND PROVIDING THE BUS SERVICES CURRENTLY PROVIDED BY THE ROARING FORK TRANSIT AGENCY PLUS EXPANDED MASS TRANSIT AND OTHER TRANSPORTATION SERVICES IN ACCORDANCE WITH AN INTERGOVERNMENTAL AGREEMENT WITH EAGLE COUNTY AS A MEMBER, THE OTHER MEMBERS OF WHICH ARE EXPECTED TO BE ASPEN, SNOWMASS VILLAGE, BASALT, GLENWOOD SPRINGS, CARBONDALE AND PITKIN COUNTY IF THE APPROPRIATE VOTERS APPROVE THE INTERGOVERNMENTAL AGREEMENT;

FUNDING FOR THE RTA IS EXPECTED TO BE PROVIDED FROM THE FOLLOWING SOURCES IF APPROVED BY THE VOTERS (OR, IN THE CASE OF THE EAGLE COUNTY TRANSPORTATION SALES TAX, THE COMMISSIONERS) OF SUCH JURISDICTION OR AREA:

AN AMOUNT EQUAL TO THE PROCEEDS OF A TAX RATE OF 0.7215% FROM PITKIN COUNTY TRANSPORTATION SALES TAXES,

0.4% RTA SALES AND USE TAX IN GLENWOOD SPRINGS,

0.5% RTA SALES AND USE TAX IN CARBONDALE,

0.2% RTA SALES AND USE TAX IN BASALT,

0.5% EAGLE COUNTY TRANSPORTATION SALES TAX IN THE PORTION OF EAGLE COUNTY WITHIN BASALT AND THE UNINCORPORATED AREA OF EAGLE COUNTY WITHIN ELECTION PRECINCTS 7, 8, 24 AND 25; AND

SHALL ALL AMOUNTS RECEIVED BY THE RTA FROM SUCH TAXES AND CONTRIBUTIONS AND OTHERWISE PURSUANT TO THE INTERGOVERNMENTAL AGREEMENT AND EARNINGS THEREON CONSTITUTE A VOTER-APPROVED REVENUE CHANGE?

APPENDIX C

REGIONAL TRANSIT SERVICE GOALS

The Authority shall use its best efforts to provide the following Regional Transit Services:

1. Transit service will be available at least every 30 minutes year-round in every community in the Roaring Fork Valley. Service will be provided every 15 minutes between El Jebel, Aspen, and Snowmass Village during winter peak hours.

2. Trunk service up the Brush Creek Road corridor.

3. Trunk service on Highway 133 at the current locations.

4. New service will be provided between Rifle and Glenwood Springs on weekdays every hour 5:30 a.m. until 8:30 p.m.; every two hours until midnight.

5. Service between Rifle and Glenwood Springs will be provided every two hours from 6:30 a.m. until 6:30 p.m. weekends.

6. Implementation of the new service plan will begin with an amended Transit Development Plan that will be adopted during 2001. Service improvements will be achieved on a phased basis, as necessary new equipment and staff (drivers) can be deployed. It is estimated that this process should take 12 to 18 months from date the Authority is formed. As such, the service improvements may begin prior to full transition of RFTA to the Authority.

APPENDIX D

CREDITS TO PITKIN COUNTY WITH RESPECT TO OUTSTANDING PITKIN COUNTY BONDS PAYABLE FROM PITKIN COUNTY TRANSPORTATION SALES TAXES

Year	Principal	Total Interest	Debt Service
2001	$490,000	$292,942.50	$782,942.50
2002	510,000	269,977.50	779,977.50
2003	540,000	245,465.00	785,465.00
2004	565,000	218,620.00	783,620.00
2005	595,000	189,762.50	784,762.50
2006	620,000	158,495.00	778,495.00
2007	655,000	125,360.00	780,360.00
2008	205,000	89,667.50	294,667.50
2009	220,000	79,225.00	299,225.00
2010	230,000	67,897.50	297,897.50
2011	240,000	55,897.50	295,897.50
2012	250,000	43,215.00	293,215.00
2013	265,000	29,840.00	294,840.00
2014	285,000	15,515.00	300,515.00
Totals	$5,670,000	$1,881,880.00	$7,551,880.00

APPENDIX E

RATIONALE FOR DIFFERENT FUNDING LEVELS FROM DIFFERENT AREAS

1. The differences in funding levels within the Initial Boundaries of the Authority are based on differential services and/or benefits derived from transportation services to be provided by the Authority.

2. The differential funding levels result in 65 percent of the revenues required to support regional transit services being derived from the upper valley jurisdictions. The rationale for the higher percentage of Authority revenue being derived from the upper valley communities includes the following considerations:

(a) A proportionately larger amount of travel demand is caused by employment concentrations in the upper valley.

(b) Due to higher service demands, transit service frequencies are presently higher in the upper valley.

(c) The upper valley jurisdictions experience traffic congestion during peak periods and have introduced travel demand management programs (e.g., paid parking) to help manage this congestion, resulting in higher transit demand. Transit service to be provided by the Authority preserves mobility that could be affected by these programs.

(d) The concentration of visitor-serving businesses in upper valley jurisdictions generates the largest portion of the regional sales tax base.

3. The funding levels in the Town of Basalt and unincorporated Eagle County (based on the Eagle County tax rates in unincorporated Eagle County and the combined Authority, Eagle County and Pitkin County tax rates in the Town of Basalt) are based on the cost of providing regional transit to unincorporated Eagle County and the Town of Basalt.

4. The rationale for the percentage of Authority revenue being derived from the mid- and lower-valley jurisdictions includes the following:

(a) Regional transit service provides access to jobs, schools, shopping and recreation in the region for those who do not own automobiles or choose not to drive.

(b) New services are being extended to the lower valley jurisdictions, including service down the I-70 corridor to provide transit service to the jobs and shopping centers located in the City of Glenwood Springs.

(c) Improvement to transit services is a cost-effective way to manage traffic congestion in the mid- and lower-valley jurisdictions.

(d) The predominant amount of regional growth is occurring in the mid- and lower valley jurisdictions; this residential and commercial growth is causing increases in travel demand within the lower valley and related congestion that can be mitigated, in part, through provision of transit services.

(e) Regional transit services provide access to economic and employment opportunities for many down-valley residents who spend their earnings in down-valley jurisdictions.

APPENDIX F

INITIAL CAPITAL PROGRAM

Section 1. **ROARING FORK TRANSIT AUTHORITY 2001 - 2010 CAPITAL BUDGET AND ESTIMATE OF NET BOND PROCEEDS REQUIRED**

ITEM	DESCRIPTION	QUANTITY	AMOUNT PER UNIT	TOTAL AMOUNT
40-FOOT TRANSIT COACHES	EXISTING RFTA REPLACEMENT	24	$ 300,000	$ 7,200,000
40-FOOT TRANSIT COACHES	NEW RTA SERVICE IMPROVEMENTS	17	$ 300,000	$ 5,100,000
DOWN VALLEY MAINTENANCE FACILITY	UPGRADE	1	$ 2,100,000	$ 2,100,000
UP VALLEY MAINTENANCE FACILITY	UPGRADE	1	$ 700,000	$ 700,000
PARK & RIDE FACILITY	HIGHWAY 82 OR 133	1	$ 500,000	$ 500,000
PARK & RIDE FACILITY	I-70	1	$ 500,000	$ 500,000
EMPLOYEE HOUSING	SUBSIDIZED UNITS	1	$ 3,000,000	$ 3,000,000
EQUIPMENT/VEHICLES	SNOWPLOWS/MAINTENANCE VEHICLES	N/A	$ 500,000	$ 500,000
BUS STOP IMPROVEMENTS	HIGHWAY 82 (EL JEBEL - GLENWOOD)	20	$ 25,000	$ 500,000
TRANSIT CENTER	GLENWOOD SPRINGS	1	$ 2,000,000	$ 2,000,000
TOTAL 10-YEAR CAPITAL BUDGET	**N/A**	**N/A**	**N/A**	$ 22,100,000
ASSUMED FTA CAPITAL GRANTS	ANNUAL FTA GRANT FUNDING	10	$(1,100,000)	$ (11,000,000)
Section 2. **ESTIMATED NET BOND PROCEEDS REQUIRED**	**N/A**	**N/A**	**N/A**	$ 11,100,000

APPENDIX G

INVENTORY OF RFTA ASSETS

SUMMARY	
CATEGORY	**COST**
OUTDOOR & RECREATION IMPROVEMENTS	$ 197,376
SPECIAL & TECHNICAL EQUIPMENT	$ 795,770
VEHICLES & MOBILE EQUIPMENT	$ 18,268,526
WORK AND SERVICE EQUIPMENT	$ 493,281
GRAND TOTAL	$ 19,754,953

INVENTORY

RFTA FIXED ASSET LIST										
TAG #	**DEPT NAME**	**FUND**	**DP**	**CT**	**F/A#**	**AC**	**F/A TITLE**	**CATEGORY**	**DESCRIPTION**	**COST**
421300	RFTA	800	72	24	002		BIKE RACKS	OUTDOOR & RECR IMPROV	(4) 5' BIKE RACK	623.92
421301	RFTA	800	72	24	002		BIKE RACKS	OUTDOOR & RECR IMPROV	(3) 5' BIKE RACK	(467.94)
713100	RFTA	800	72	24	002		BIKE RACKS	OUTDOOR & RECR IMPROV	(3) 5' BIKE RACKS	575.87
115201	RFTA	800	72	24	040		BUS STOP FACILITIES	OUTDOOR & RECR IMPROV	(8) BUS SHELTERS	35,869.04
180400	RFTA	800	72	24	040		BUS STOP FACILITIES	OUTDOOR & RECR IMPROV	(10) BUS SHELTERS	40,892.99
529600	RFTA	800	72	24	040		BUS STOP FACILITIES	OUTDOOR & RECR IMPROV	(10) BUS SHELTERS	33,750.00
545400	RFTA	800	72	24	040		BUS STOP FACILITIES	OUTDOOR & RECR IMPROV	6 BUS SHELTERS	25,110.00
767400	RFTA	800	72	24	040	25	BUS STOP FACILITIES	OUTDOOR & RECR IMPROV	PNR/BR CK & 82	9,175.00
767401	RFTA	800	72	24	040	25	BUS STOP FACILITIES	OUTDOOR & RECR IMPROV	PNR/EL JEBEL	18,483.44
767402	RFTA	800	72	24	040	25	BUS STOP FACILITIES	OUTDOOR & RECR IMPROV	CITY BUS STOP	6,940.00

767403	RFTA	800	72	24	040	25	BUS STOP FACILITIES	OUTDOOR & RECR IMPROV	PNR/COWAN CENTER	6,090.00
767404	RFTA	800	72	24	040	25	BUS STOP FACILITIES	OUTDOOR & RECR IMPROV	PNR/AIRPORT	2,950.00
115100	RFTA	800	72	24	800		OUTDOOR LIGHTING	OUTDOOR & RECR IMPROV	SECURITY LIGHT & POLE	965.00
115101	RFTA	800	72	24	800		OUTDOOR LIGHTING	OUTDOOR & RECR IMPROV	LIGHTING IMPROVEMENT	774.00
545500	RFTA	800	72	24	800		OUTDOOR LIGHTING	OUTDOOR & RECR IMPROV	SECURITY LIGHT & POLE/LAZY GLEN	1,200.00
545600	RFTA	800	72	24	800		OUTDOOR LIGHTING	OUTDOOR & RECR IMPROV	SECURITY LIGHTS / ASPEN JUNCTION	8,000.00
573800	RFTA	800	72	24	800		OUTDOOR LIGHTING	OUTDOOR & RECR IMPROV	SECURITY LIGHTS AABC	3,945.00
1031300	RFTA	800	72	24	800		OUTDOOR LIGHTING	OUTDOOR & RECR IMPROV	SECURITY LIGHTS & POLES	2,500.00
								OUTDOOR & RECR IMPROV Total		197,376.32
766900	RFTA	800	72	26	110		PHOTO TAKING EQUIP	SPECIAL & TECH EQUIP	CAMCORDER	799.98
1031000	RFTA	800	72	26	110		PHOTO TAKING EQUIP	SPECIAL & TECH EQUIP	DELUXE 4 SHOT CAMERA	908.94
124800	RFTA-PITCO	800	70	26	400		COMMUNIC & AUDIO EQUIP	SPECIAL & TECH EQUIP	PA SYSTEM	1,055.19
711050	RFTA	800	72	26	401		SECURITY ALARM SYSTEM	SPECIAL & TECH EQUIP	SECURITY SURVELLANCE	9,725.00
767500	RFTA	800	72	26	401		SECURITY ALARM SYSTEM	SPECIAL & TECH EQUIP	RUBEY PARK	4,314.89
465901	RFTA	800	72	26	410		RADIO COMMUNTC EQUIP	SPECIAL & TECH EQUIP	RADIO REPEATER	3,000.00
574500	RFTA	800	72	26	410		RADIO COMMUNTC EQUIP	SPECIAL & TECH EQUIP	12 YR TRUCK SYSTEM LEASE	139,535.00
334000	RFTA-PITCO	800	70	26	411		TRANSMITTERS	SPECIAL & TECH EQUIP	MAXAR BASE STATION	2,647.95
574300	RFTA	800	72	26	411		TRANSMITTERS	SPECIAL & TECH EQUIP	RADIO SYSTEM ACQUISTION	401,938.00
112400	RFTA	800	72	26	414		HAND UNITS	SPECIAL & TECH EQUIP	MT500 HAND PACK	0.00
112500	RFTA	800	72	26	414		HAND UNITS	SPECIAL & TECH EQUIP	MT500 HAND PACK	0.00
112600	RFTA	800	72	26	414		HAND UNITS	SPECIAL & TECH EQUIP	MT500 HAND PACK	0.00
127400	RFTA	800	72	26	414		HAND UNITS	SPECIAL & TECH EQUIP	HAND PACK RADIO - FOR POLICE	2,963.50
127500	RFTA	800	72	26	414		HAND UNITS	SPECIAL & TECH EQUIP	HAND PACK RADIO - FOR	

									POLICE	2,963.50
127600	RFTA	800	72	26	414		HAND UNITS	SPECIAL & TECH EQUIP	HAND PACK RADIO - FOR POLICE	2,963.50
712750	RFTA	800	72	26	414		HAND UNITS	SPECIAL & TECH EQUIP	HAND PACK RADIO	652.60
712800	RFTA	800	72	26	414		HAND UNITS	SPECIAL & TECH EQUIP	HAND PACK RADIO	652.60
712850	RFTA	800	72	26	414		HAND UNITS	SPECIAL & TECH EQUIP	HAND PACK RADIO	652.60
1030400	RFTA	800	72	26	414		HAND UNITS	SPECIAL & TECH EQUIP	HT1000 A3 UHF HAND PACK RADIO	789.63
1030500	RFTA	800	72	26	414		HAND UNITS	SPECIAL & TECH EQUIP	HT1000 A3 UHF HAND PACK RADIO	789.63
1030600	RFTA	800	72	26	414		HAND UNITS	SPECIAL & TECH EQUIP	HT1000 A3 UHF HAND PACK RADIO	789.64
124900	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	ASTRO SPECTRA MOBILE	2,932.09
125000	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	ASTRO SPECTRA MOBILE	2,932.09
125100	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	ASTRO SPECTRA MOBILE	2,932.09
125200	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	ASTRO SPECTRA MOBILE	2,932.09
125300	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	ASTRO SPECTRA MOBILE	2,932.09
125400	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	ASTRO SPECTRA MOBILE	2,932.09
125500	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	ASTRO SPECTRA MOBILE	2,932.09
125600	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	ASTRO SPECTRA MOBILE	2,932.09
125800	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	ASTRO SPECTRA MOBILE	2,932.09
125900	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	ASTRO SPECTRA MOBILE	2,932.09
126000	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	ASTRO SPECTRA MOBILE	2,932.09
126300	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	ASTRO SPECTRA MOBILE	2,932.09
126400	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	ASTRO SPECTRA MOBILE	2,932.09
126500	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	ASTRO SPECTRA MOBILE	2,932.09

126600	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	ASTRO SPECTRA MOBILE	2,932.09
126800	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	ASTRO SPECTRA MOBILE	2,932.09
126900	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	ASTRO SPECTRA MOBILE	2,932.09
127000	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	ASTRO SPECTRA 800 - C4 JEEP	3,156.45
127100	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	ASTRO SPECTRA MOBILE RADIO	2,714.48
127200	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	ASTRO SPECTRA MOBILE RADIO	2,714.48
127300	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	ASTRO SPECTRA MOBILE RADIO	2,714.48
292500	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	688.90
292600	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	688.90
292700	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	688.90
292800	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	688.90
292900	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	688.90
464800	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MOBILE RADIO	1,174.88
468400	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MOBILE RADIO	1,344.13
468500	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MOBILE RADIO	1,344.13
468600	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MOBILE RADIO	1,344.12
468700	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MOBILE RADIO	1,344.12
468800	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MOBILE RADIO	1,344.12
574400	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE RADIO	514.00
712350	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE RADIO	798.90
712400	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE RADIO	798.90
712450	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE RADIO	798.90
718800	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	568.80
718900	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	568.80
719000	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	568.80
719100	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	568.80
719200	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	568.80
719300	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	568.80
719400	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	568.80
719500	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	568.80
719600	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	568.80
719700	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	568.80

719800	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	568.80
719900	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	568.80
720000	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	568.80
720100	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	568.80
720200	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	568.80
720300	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	568.80
720400	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	568.80
767100	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	(3) MAX TRAC RADIOS	1,470.57
1030700	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE 300 UHF	783.73
1030800	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC MOBILE	504.00
1030900	RFTA	800	72	26	415		MOBILE UNITS	SPECIAL & TECH EQUIP	MAXTRAC 100 A5 UHF MOBILE CONV	442.01
930000	RFTA	800	72	26	426		TAPE RECORDER	SPECIAL & TECH EQUIP	MICROCASSETTE RECORDER	0.00
930001	RFTA	800	72	26	426		TAPE RECORDER	SPECIAL & TECH EQUIP	SONY DICTAPHONE	669.00
952000	RFTA-PITCO	800	70	26	427		DICTATING	SPECIAL & TECH EQUIP	DICTAPHONE	572.00
766800	RFTA	800	72	26	431		T.V	SPECIAL & TECH EQUIP	TV/VCR	549.97
768400	RFTA	800	72	26	442		PHONE SYSTEM	SPECIAL & TECH EQUIP	TOSHIBA PHONE SYSTEM	11,012.30
768401	RFTA	800	72	26	442		PHONE SYSTEM	SPECIAL & TECH EQUIP	PHONE SYSTEM - PAGING SYSTEM	1,385.10
768401	RFTA	800	72	26	442		PHONE SYSTEM	SPECIAL & TECH EQUIP	PHONE SYSTEM - RUBY PARK	1,890.89
768402	RFTA	800	72	26	442		PHONE SYSTEM	SPECIAL & TECH EQUIP	VOICE MAIL SYSTEM	2,759.00
768403	RFTA	800	72	26	442		PHONE SYSTEM	SPECIAL & TECH EQUIP	PHONE SYSTEM EXPANSION	2,818.00
573900	RFTA	800	72	26	601		COMPUTER-PERSONAL	SPECIAL & TECH EQUIP	TWINHEAD NOTEBOOK COMPUTER 166T2	5,506.00
574100	RFTA	800	72	26	601		COMPUTER-PERSONAL	SPECIAL & TECH EQUIP	PC-PENTIUM P5-166	2,324.00
574200	RFTA	800	72	26	601		COMPUTER-PERSONAL	SPECIAL & TECH EQUIP	PC-PENTIUM P5-166	2,324.00
1031800	RFTA	800	72	26	601		COMPUTER-PERSONAL	SPECIAL & TECH EQUIP	PENTIUM 120	2,184.00
154100	RFTA-PITCO	800	70	26	606		MGMT INFO SYSTEMS	SPECIAL & TECH EQUIP	MAINT MGMT INFORMATION	122.86
178500	RFTA-PITCO	800	70	26	606		MGMT INFO SYSTEMS	SPECIAL & TECH EQUIP	PC BASED MAINTENANCE	19,726.83
178501	RFTA-PITCO	800	70	26	606		MGMT INFO SYSTEMS	SPECIAL & TECH EQUIP	PC BASED MAINTENANCE	3,840.84

120400	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	PII 266 - SERVER	10,252.00
120700	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	P233-64 LAPTOP W/CASE	1,397.99
120800	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	PC- E3200 350 CD ROM	1,610.00
120900	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	PC-SOLO 9100 S5 PORTABLE	4,085.00
121000	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	PC-E4200 - 300 COMPUTER	1,581.00
121100	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	PC-66 233 COMPUTER	1,853.00
121200	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	PC-66 233 COMPUTER	1,853.00
121300	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	PC-66 233 COMPUTER	1,853.00
121400	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	PC-66 233 COMPUTER	1,853.00
121500	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	PC-66 233 COMPUTER	1,853.00
121600	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	PC-E4200 - 300 COMPUTER	1,761.00
121700	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	PC-E4200 - 300 COMPUTER	1,761.00
121800	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	PC-E4200 - 300 COMPUTER	1,761.00
121900	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	PC-E4200 - 300 COMPUTER	1,761.00
122000	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	PC-E4200 - 300 COMPUTER	1,761.00
122100	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	PC-E4200 - 300 COMPUTER	1,761.00
736302	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	PENTIUM 120 FILESERVER 32MB RAM	3,131.00
736600	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	MAINT NETWORK ENHANCEMENT	7,557.65
736601	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	NETWORK ENHANCEMENT	2,331.75
736602	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	NETWORK ENHANCEMENT	6,544.00

736603	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	LASER SCANNER	711.50
736605	RFTA	800	72	26	610		COMPUTER-EQUIPMENT	SPECIAL & TECH EQUIP	TMT BARCODE MODULE	1,898.00
120500	RFTA	800	72	26	614		COMPUTER-PRINTERS	SPECIAL & TECH EQUIP	4000TN LASERJET	1,487.00
120600	RFTA	800	72	26	614		COMPUTER-PRINTERS	SPECIAL & TECH EQUIP	COLOR 1520 INKJET	715.00
293400	RFTA	800	72	26	614		COMPUTER-PRINTERS	SPECIAL & TECH EQUIP	HP LASERJET	1,989.74
736604	RFTA	800	72	26	614		COMPUTER-PRINTERS	SPECIAL & TECH EQUIP	DMX 400 THERMAL PRINTER	1,895.75
768000	RFTA	800	72	26	614		COMPUTER-PRINTERS	SPECIAL & TECH EQUIP	HP 4 SIMX PRINTER	4,258.00
768001	RFTA	800	72	26	614		COMPUTER-PRINTERS	SPECIAL & TECH EQUIP	8MB RAM/4P 4PRINTER	450.00
768100	RFTA	800	72	26	614		COMPUTER-PRINTERS	SPECIAL & TECH EQUIP	CANON BUBBLE JET PRINTER	310.89
543100	RFTA	800	72	26	942		TRAFFIC CONTROL EQUIP	SPECIAL & TECH EQUIP	RADAR GUN & RECHGER-BATT	640.00
								SPECIAL & TECH EQUIP Total		795,770.24
935200	RFTA-PITCO	800	70	23	000		PASSENGER VEHICLES	VEHICLES & MOBILE EQUIP	BOND COST FOR BUS ACQ	25,781.25
544300	RFTA	800	72	23	000		PASSENGER VEHICLES	VEHICLES & MOBILE EQUIP	95 LEGACY WAGON	16,170.00
718400	RFTA	800	72	23	000		PASSENGER VEHICLES	VEHICLES & MOBILE EQUIP	94 SUPREME CUTAWAY VAN	37,612.50
718401	RFTA	800	72	23	000		PASSENGER VEHICLES	VEHICLES & MOBILE EQUIP	HEADSIGN	3,646.24
718500	RFTA	800	72	23	000		PASSENGER VEHICLES	VEHICLES & MOBILE EQUIP	94 SUPREME CUTAWAY VAN	37,612.50
718501	RFTA	800	72	23	000		PASSENGER VEHICLES	VEHICLES & MOBILE EQUIP	HEADSIGN	3,646.24
718502	RFTA	800	72	23	000		PASSENGER VEHICLES	VEHICLES & MOBILE EQUIP	ELECTRONIC HEADSIGN	4,461.66
767200	RFTA	800	72	23	000		PASSENGER VEHICLES	VEHICLES & MOBILE EQUIP	(46) ELECTRONIC HEADSIGNS	128,808.39
544000	RFTA	800	72	23	001		CHECKER	VEHICLES & MOBILE EQUIP	95 CANDIDATE DIAL A RIDE	43,995.00
573500	RFTA	800	72	23	001		CHECKER	VEHICLES & MOBILE EQUIP	98 SENATOR - DIAL A RIDE	59,743.00
573600	RFTA	800	72	23	001		CHECKER	VEHICLES & MOBILE EQUIP	98 SENATOR - DIAL A RIDE	59,743.00

115400	RFTA	800	72	23	020		TURTLETOP	VEHICLES & MOBILE EQUIP	85 TURTLETOP	36,506.48
896803	RFTA-PITCO	800	70	23	065		NEOPLAN BUS # 13632	VEHICLES & MOBILE EQUIP	BUS PAINTING	2,348.63
735000	RFTA	800	72	23	065		NEOPLAN BUS # 13632	VEHICLES & MOBILE EQUIP	TRANSIT BUS	8,723.06
735100	RFTA	800	72	23	065		NEOPLAN BUS # 13632	VEHICLES & MOBILE EQUIP	TRANSIT BUS	8,735.12
735200	RFTA	800	72	23	065		NEOPLAN BUS # 13632	VEHICLES & MOBILE EQUIP	TRANSIT BUS	8,735.11
735300	RFTA	800	72	23	065		NEOPLAN BUS # 13632	VEHICLES & MOBILE EQUIP	TRANSIT BUS	8,735.11
735400	RFTA	800	72	23	065		NEOPLAN BUS # 13632	VEHICLES & MOBILE EQUIP	TRANSIT BUS	8,735.11
735500	RFTA	800	72	23	065		NEOPLAN BUS # 13632	VEHICLES & MOBILE EQUIP	TRANSIT BUS	8,735.11
735600	RFTA	800	72	23	065		NEOPLAN BUS # 13632	VEHICLES & MOBILE EQUIP	TRANSIT BUS	8,735.11
735700	RFTA	800	72	23	065		NEOPLAN BUS # 13632	VEHICLES & MOBILE EQUIP	TRANSIT BUS	8,735.11
735800	RFTA	800	72	23	065		NEOPLAN BUS # 13632	VEHICLES & MOBILE EQUIP	TRANSIT BUS	8,735.11
735900	RFTA	800	72	23	065		NEOPLAN BUS # 13632	VEHICLES & MOBILE EQUIP	TRANSIT BUS	8,735.11
736000	RFTA	800	72	23	065		NEOPLAN BUS # 13632	VEHICLES & MOBILE EQUIP	TRANSIT BUS	8,735.11
896900	RFTA-PITCO	800	70	23	066		NEOPLAN BUS # 13633	VEHICLES & MOBILE EQUIP	TRANSLINER TRANSIT BUS	149,197.73
896903	RFTA-PITCO	800	70	23	066		NEOPLAN BUS # 13633	VEHICLES & MOBILE EQUIP	BUS PAINTING	2,348.64
897000	RFTA-PITCO	800	70	23	067		NEOPLAN BUS # 13634	VEHICLES & MOBILE EQUIP	TRANSLINER TRANSIT BUS	149,197.73
897003	RFTA-PITCO	800	70	23	067		NEOPLAN BUS # 13634	VEHICLES & MOBILE EQUIP	BUS PAINTING	2,348.64
897100	RFTA-PITCO	800	70	23	068		NEOPLAN BUS # 13635	VEHICLES & MOBILE EQUIP	TRANSLINER TRANSIT BUS	149,197.76
897103	RFTA-PITCO	800	70	23	068		NEOPLAN BUS # 13635	VEHICLES & MOBILE EQUIP	BUS PAINTING	2,348.64
897200	RFTA-PITCO	800	70	23	069		NEOPLAN BUS # 13636	VEHICLES & MOBILE EQUIP	TRANSLINER TRANSIT BUS	149,197.73
897203	RFTA-PITCO	800	70	23	069		NEOPLAN BUS #	VEHICLES & MOBILE EQUIP	BUS PAINTING	2,348.64

							13636			
512700	RFTA-CITY OF ASPEN	800	71	23	100		TRUCKS	VEHICLES & MOBILE EQUIP	84 DODGE PICKUP	0.00
128000	RFTA	800	72	23	100		TRUCKS	VEHICLES & MOBILE EQUIP	1998 CHEROKEE - C4	19,965.00
128200	RFTA	800	72	23	100		TRUCKS	VEHICLES & MOBILE EQUIP	1998 FORD RANGER PICKUP	15,700.00
544100	RFTA	800	72	23	100		TRUCKS	VEHICLES & MOBILE EQUIP	F350 TRUCK W/SNOWPLOW	18,200.00
544200	RFTA	800	72	23	100		TRUCKS	VEHICLES & MOBILE EQUIP	2AXLE TRAILER W/SGL BRAKE	1,400.00
573400	RFTA	800	72	23	100		TRUCKS	VEHICLES & MOBILE EQUIP	97 JEEP CHEROKEE - C3	19,870.00
616900	RFTA	800	72	23	100		TRUCKS	VEHICLES & MOBILE EQUIP	S-10 BLAZER	14,110.00
617000	RFTA	800	72	23	100		TRUCKS	VEHICLES & MOBILE EQUIP	S-10 BLAZER	14,400.00
711200	RFTA	800	72	23	100		TRUCKS	VEHICLES & MOBILE EQUIP	4X4 SUPER CAB W/TOOL BOX	12,470.00
711250	RFTA	800	72	23	100		TRUCKS	VEHICLES & MOBILE EQUIP	4X4 SUPER CAB W/TOOL BOX	12,470.00
154300	RFTA-PITCO	800	70	23	183		GMC	VEHICLES & MOBILE EQUIP	85 FLATBED WITH SPREADER	42,882.12
154500	RFTA-PITCO	800	70	23	184		POWER SWEEPER	VEHICLES & MOBILE EQUIP	POWER SWEEPER W/HIGH	15,829.21
466500	RFTA	800	72	23	187		DODGE VAN	VEHICLES & MOBILE EQUIP	90 B-350 WHITE VAN	18,002.50
466700	RFTA	800	72	23	187		DODGE VAN	VEHICLES & MOBILE EQUIP	90 B-350 WHITE VAN	18,002.50
127800	RFTA	800	72	23	292		FORK LIFT	VEHICLES & MOBILE EQUIP	1995 FORK LIFT	27,360.84
469400	RFTA	800	72	23	381		ENGINE	VEHICLES & MOBILE EQUIP	8.2 ENGINE MODULE	20,000.00
970000	RFTA-PITCO	800	70	23	385		TRANSMISSION	VEHICLES & MOBILE EQUIP	TRANSMISSION	8,953.00
962500	RFTA-PITCO	800	70	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	MAIN FARE BOX	549.78
962600	RFTA-PITCO	800	70	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	MAIN FARE BOX	549.78
962700	RFTA-PITCO	800	70	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	MAIN FARE BOX	549.78
962800	RFTA-PITCO	800	70	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	MAIN FARE BOX	549.77
962900	RFTA-PITCO	800	70	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	MAIN FARE BOX	549.77
963000	RFTA-PITCO	800	70	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	MAIN FARE BOX	549.77
963100	RFTA-PITCO	800	70	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	MAIN FARE BOX	549.77
963200	RFTA-PITCO	800	70	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	MAIN FARE BOX	549.77
963300	RFTA-PITCO	800	70	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	MAIN FARE BOX	549.77
963400	RFTA-PITCO	800	70	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	MAIN FARE BOX	549.77
965500	RFTA-PITCO	800	70	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	MAIN FARE BOX	549.93
965600	RFTA-PITCO	800	70	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	MAIN FARE BOX	549.93
965700	RFTA-PITCO	800	70	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	MAIN FARE BOX	549.92

965800	RFTA-PITCO	800	70	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	MAIN FARE BOX	549.92
965900	RFTA-PITCO	800	70	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	MAIN FARE BOX	549.92
124700	RFTA	800	72	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	(17) ELECTRONIC FAREBOXES	91,375.00
467800	RFTA	800	72	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	(11) FARE BOX W/SELF LOCK	11,205.50
544400	RFTA	800	72	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	(6) ELECTRONIC FAREBOXES	30,060.00
712300	RFTA	800	72	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	(3) FARE BOX W/SELF LOCK	1,849.57
717900	RFTA	800	72	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	(6) FARE BOXES	7,215.92
718600	RFTA	800	72	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	(6) FARE BOX	7,291.85
749100	RFTA	800	72	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	(3) FARE BOX & VAULT	4,882.50
769600	RFTA	800	72	23	391		FARE BOX	VEHICLES & MOBILE EQUIP	(31) ELECTRONIC FAREBOX	182,435.48
964500	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.62
964600	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.62
964700	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.62
964800	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.62
964900	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.62
965000	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.62
965100	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.62
965200	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.62
965300	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.62
965400	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.62
966600	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66
966700	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66
966800	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66
966900	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66
967000	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66
967100	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66
967200	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66
967300	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66
967400	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66
967500	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66
967600	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66
967700	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66
967800	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66
967900	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66
968000	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66
968100	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66

968200	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66
968300	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66
968400	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66
968500	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66
968600	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66
968700	RFTA-PITCO	800	70	23	392		VAULT	VEHICLES & MOBILE EQUIP	SELF LOCKING VAULT	132.66
128300	RFTA	800	72	23	392		VAULT	VEHICLES & MOBILE EQUIP	CASHBOX ASS4-RECEIVER	9,514.16
718000	RFTA	800	72	23	392		VAULT	VEHICLES & MOBILE EQUIP	(12) VAULT - SLATE GRAY	2,243.98
718700	RFTA	800	72	23	392		VAULT	VEHICLES & MOBILE EQUIP	(12) VAULTS - SLATE GRAY	2,267.95
115300	RFTA-PITCO	800	70	23	395		DESTINATION SIGN	VEHICLES & MOBILE EQUIP	(32) DESTINATION SIGN	5,277.32
157700	RFTA-PITCO	800	70	23	400		BUSES	VEHICLES & MOBILE EQUIP	1985 AUDIT COST	100.00
971101	RFTA-PITCO	800	70	23	400		BUSES	VEHICLES & MOBILE EQUIP	RELATED BUS ACQUISITION	9,713.85
122200	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	1999 ARTICULATED BUS	378,353.00
122300	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	1999 ARTICULATED BUS	378,353.00
122400	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	1998 NEOPLAN TRANSLINER	251,708.00
122900	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	1998 NEOPLAN TRANSLINER	251,708.00
123000	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	1998 NEOPLAN TRANSLINER	251,708.00
123100	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	1998 NEOPLAN TRANSLINER	251,708.00
123200	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	1998 NEOPLAN TRANSLINER	251,708.00
123300	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	1998 NEOPLAN TRANSLINER	251,708.00
123400	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	1998 NEOPLAN TRANSLINER	251,708.00
123500	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	1998 NEOPLAN TRANSLINER	251,708.00
123600	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	1998 NEOPLAN TRANSLINER	251,708.00
123700	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	SPARE POWER PLANT	54,287.00
123800	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	1998 NEOPLAN TRANSLINER	251,708.00

123900	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	1998 NEOPLAN TRANSLINER	251,708.00
124000	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	1998 NEOPLAN TRANSLINER	251,708.00
124100	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	1998 NEOPLAN TRANSLINER	251,708.00
124200	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	1998 NEOPLAN TRANSLINER	251,708.00
124300	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	1998 NEOPLAN TRANSLINER	251,708.00
124400	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	1998 NEOPLAN TRANSLINER	251,708.00
124500	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	1998 NEOPLAN TRANSLINER	251,708.00
124600	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	1998 NEOPLAN TRANSLINER	251,708.00
128100	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	1985 ARTICULATED BUS	55,000.00
292000	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	METROLINER COACH	125,386.02
292100	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	METROLINER COACH	125,386.02
292200	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	METROLINER COACH	125,386.03
292400	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	METROLINER COACH	125,386.03
466800	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	TRANSIT BUS	155,000.00
466900	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	TRANSIT BUS	155,000.00
467000	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	TRANSIT BUS	155,000.00
467100	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	TRANSIT BUS	155,000.00
467200	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	TRANSIT BUS	155,000.00
467300	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	TRANSIT BUS	155,000.00
467400	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	TRANSIT BUS	155,000.00
467500	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	TRANSIT BUS	155,000.00
467600	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	TRANSIT BUS	155,000.00
467700	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	TRANSIT BUS	155,000.00
468900	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	30' TRANSIT BUS	111,271.35
468901	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	DOWN PAYMENT ON VILLAGER	185,743.24
468902	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	BOND COSTS ON NEW	26,894.52
468903	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	CAPITALIZED INTEREST ON	5,276.79
469000	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	30' TRANSIT BUS	111,271.35
469100	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	30' TRANSIT BUS	111,271.35
469200	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	30' TRANSIT BUS	111,271.35

469300	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	30' TRANSIT BUS	111,271.35
529500	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	LEASE/PURCHSE METROLINERS	856.00
543500	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	84 TRANSLINER-CAMBRIA#320	34,576.04
543600	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	84 TRANSLINER-CAMBRIA#319	34,576.00
543700	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	84 TRANSLINER-CAMBRIA#318	34,576.00
543800	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	84 TRANSLINER-CAMBRIA#317	34,576.00
543900	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	84 TRANSLINER-CAMBRIA#321	34,576.00
573700	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	ELF-HUNTER CREEK	108,933.00
617100	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	POWER LIFT	7,500.00
712550	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	STARSHIP SHUTTLE	62,128.00
712600	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	STARSHIP SHUTTLE (CNG)	66,528.00
735001	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	NEOPLAN TRANSIT BUS	1,000.00
735101	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	NEOPLAN TRANSIT BUS	1,000.00
735201	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	NEOPLAN TRANSIT BUS	1,000.00
735301	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	NEOPLAN TRANSIT BUS	1,000.00
735401	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	NEOPLAN TRANSIT BUS	1,000.00
735501	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	NEOPLAN TRANSIT BUS	1,000.00
735601	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	NEOPLAN TRANSIT BUS	1,000.00
735701	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	NEOPLAN TRANSIT BUS	1,000.00
735801	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	NEOPLAN TRANSIT BUS	1,000.00
735901	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	NEOPLAN TRANSIT BUS	1,000.00
736001	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	NEOPLAN TRANSIT BUS	1,000.00
748900	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	GALENA ST SHUTTLE	47,227.45
749000	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	GALENA ST SHUTTLE	47,227.46
768500	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	95 CARBON FIBER W/FAREBOX	328,545.17
768600	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	95 CARBON FIBER W/FAREBOX	328,545.17
768700	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	95 CARBON FIBER W/FAREBOX	328,545.17
768701	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	CARBON FIBER SPARE POWER PLANT	40,000.00
768800	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	94 METROLINER W/HEADSIGN	278,559.17

768900	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	94 METROLINER W/HEADSIGN	278,559.17
769000	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	94 METROLINER W/HEADSIGN	278,559.17
769100	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	94 METROLINER W/HEADSIGN	278,559.17
769200	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	94 TRANSLINER W/HEADSIGN	236,174.17
769300	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	94 TRANSLINER W/HEADSIGN	236,174.17
769400	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	SPARE POWER PLANT	39,635.00
769500	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	SPARE POWER PLANT	58,040.00
769700	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	94 TRANSLINER W/FAREBOX	236,762.17
769800	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	94 TRANSLINER W/FAREBOX	236,762.17
769900	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	94 TRANSLINER W/FAREBOX	236,762.17
770000	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	94 TRANSLINER W/HEADSIGN	236,762.17
770100	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	94 TRANSLINER W/HEADSIGN	236,762.17
770200	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	94 TRANSLINER W/HEADSIGN	236,762.17
770300	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	94 TRANSLINER W/HEADSIGN	236,762.17
770400	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	94 TRANSLINER W/HEADSIGN	236,762.17
770500	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	94 TRANSLINER W/HEADSIGN	236,762.17
770600	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	94 TRANSLINER W/HEADSIGN	236,762.17
770700	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	94 TRANSLINER W/HEADSIGN	236,762.17
770800	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	94 TRANSLINER W/HEADSIGN	236,762.16
770900	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	94 TRANSLINER W/HEADSIGN	236,762.16
771000	RFTA	800	72	23	400		BUSES	VEHICLES & MOBILE EQUIP	94 TRANSLINER W/HEADSIGN	236,762.16
970100	RFTA-PITCO	800	70	23	501		NEOPLAN BUS # 13497	VEHICLES & MOBILE EQUIP	84 TRANSLINER TRANSIT BUS	146,675.60
970101	RFTA-PITCO	800	70	23	501		NEOPLAN BUS #	VEHICLES & MOBILE EQUIP	BUS PAINTING	2,348.64

							13497			
970200	RFTA-PITCO	800	70	23	502		NEOPLAN BUS # 13498	VEHICLES & MOBILE EQUIP	84 TRANSLINER TRANSIT BUS	146,675.60
970201	RFTA-PITCO	800	70	23	502		NEOPLAN BUS # 13498	VEHICLES & MOBILE EQUIP	BUS PAINTING	2,348.64
970202	RFTA	800	72	23	502		NEOPLAN BUS # 13498	VEHICLES & MOBILE EQUIP	WABASTO HEATERS	3,798.67
970300	RFTA-PITCO	800	70	23	503		NEOPLAN BUS # 13500	VEHICLES & MOBILE EQUIP	84 TRANSLINER TRANSIT BUS	146,675.60
970301	RFTA-PITCO	800	70	23	503		NEOPLAN BUS # 13500	VEHICLES & MOBILE EQUIP	BUS PAINTING	2,348.64
970302	RFTA	800	72	23	503		NEOPLAN BUS # 13500	VEHICLES & MOBILE EQUIP	WABASTO HEATER	3,798.67
970400	RFTA-PITCO	800	70	23	504		NEOPLAN BUS # 13501	VEHICLES & MOBILE EQUIP	84 TRANSLINER TRANSIT BUS	146,675.60
970401	RFTA-PITCO	800	70	23	504		NEOPLAN BUS # 13501	VEHICLES & MOBILE EQUIP	BUS PAINTING	2,348.64
970402	RFTA	800	72	23	504		NEOPLAN BUS # 13501	VEHICLES & MOBILE EQUIP	WABASTO HEATERS	3,798.67
970500	RFTA-PITCO	800	70	23	505		NEOPLAN BUS # 13505	VEHICLES & MOBILE EQUIP	84 TRANSLINER TRANSIT BUS	146,675.60
970501	RFTA-PITCO	800	70	23	505		NEOPLAN BUS # 13505	VEHICLES & MOBILE EQUIP	BUS PAINTING	2,348.64
970502	RFTA	800	72	23	505		NEOPLAN BUS # 13505	VEHICLES & MOBILE EQUIP	WABASTO HEATERS	3,798.67
970600	RFTA-PITCO	800	70	23	506		NEOPLAN BUS # 13502	VEHICLES & MOBILE EQUIP	84 TRANSLINER TRANSIT BUS	146,675.60
970601	RFTA-PITCO	800	70	23	506		NEOPLAN BUS # 13502	VEHICLES & MOBILE EQUIP	BUS PAINTING	2,348.64
970602	RFTA	800	72	23	506		NEOPLAN BUS # 13502	VEHICLES & MOBILE EQUIP	WABASTO HEATERS	3,798.67
970700	RFTA-PITCO	800	70	23	507		NEOPLAN BUS # 13499	VEHICLES & MOBILE EQUIP	84 TRANSLINER TRANSIT BUS	146,675.60
970701	RFTA-PITCO	800	70	23	507		NEOPLAN BUS # 13499	VEHICLES & MOBILE EQUIP	BUS PAINTING	2,348.64
970702	RFTA	800	72	23	507		NEOPLAN BUS # 13499	VEHICLES & MOBILE EQUIP	WABASTO HEATERS	3,798.67
970800	RFTA-PITCO	800	70	23	508		NEOPLAN BUS # 13495	VEHICLES & MOBILE EQUIP	84 TRANSLINER TRANSIT BUS	146,675.60
970801	RFTA-PITCO	800	70	23	508		NEOPLAN BUS #	VEHICLES & MOBILE EQUIP	BUS PAINTING	2,348.64

							13495			
970802	RFTA	800	72	23	508		NEOPLAN BUS # 13495	VEHICLES & MOBILE EQUIP	WABASTO HEATERS	3,798.67
970900	RFTA-PITCO	800	70	23	509		NEOPLAN BUS # 13504	VEHICLES & MOBILE EQUIP	84 TRANSLINER TRANSIT BUS	146,675.60
970901	RFTA-PITCO	800	70	23	509		NEOPLAN BUS # 13504	VEHICLES & MOBILE EQUIP	BUS PAINTING	2,348.64
970902	RFTA	800	72	23	509		NEOPLAN BUS # 13504	VEHICLES & MOBILE EQUIP	WABASTO HEATERS	3,798.67
971000	RFTA-PITCO	800	70	23	510		NEOPLAN BUS # 13503	VEHICLES & MOBILE EQUIP	84 TRANSLINER TRANSIT BUS	146,675.60
971001	RFTA-PITCO	800	70	23	510		NEOPLAN BUS # 13503	VEHICLES & MOBILE EQUIP	BUS PAINTING	2,348.64
971002	RFTA	800	72	23	510		NEOPLAN BUS # 13503	VEHICLES & MOBILE EQUIP	WABASTO HEATERS	3,798.67
971100	RFTA-PITCO	800	70	23	511		NEOPLAN BUS # 13496	VEHICLES & MOBILE EQUIP	84 TRANSLINER TRANSIT BUS	146,675.60
971102	RFTA-PITCO	800	70	23	511		NEOPLAN BUS # 13496	VEHICLES & MOBILE EQUIP	BUS PAINTING	2,348.64
971103	RFTA	800	72	23	511		NEOPLAN BUS # 13496	VEHICLES & MOBILE EQUIP	WABASTO HEATERS	3,798.67
								VEHICLES & MOBILE EQUIP Total		18,268,526.46
115000	RFTA-PITCO	800	70	22	004		PAINT SPRAYER	WORK & SVC EQUIP	FRESH AIR MASK	2,018.67
910400	RFTA-CITY OF ASPEN	800	71	22	004		PAINT SPRAYER	WORK & SVC EQUIP	PAINT SPRAYER	114.80
910500	RFTA-CITY OF ASPEN	800	71	22	004		PAINT SPRAYER	WORK & SVC EQUIP	PAINT SPRAYER	204.40
999300	RFTA-PITCO	800	70	22	013		LADDER	WORK & SVC EQUIP	12 STEP STEEL SAFTEY LADD	481.50
999400	RFTA-PITCO	800	70	22	013		LADDER	WORK & SVC EQUIP	12 STEP SAFLEY LADDER	481.50
999600	RFTA-PITCO	800	70	22	013		LADDER	WORK & SVC EQUIP	8' HEAVY DUTY STEP LADDER	181.45
999700	RFTA-PITCO	800	70	22	013		LADDER	WORK & SVC EQUIP	5 STEP W/HANDRAIL LADDER	184.00
999800	RFTA-PITCO	800	70	22	013		LADDER	WORK & SVC EQUIP	5 STEP W/HANDRAIL LADDER	184.00
541700	RFTA-CARBONDALE	800	69	22	014		IMPACT WRENCH	WORK & SVC EQUIP	IR AIR IMPACT WRENCH	525.00
573000	RFTA-	800	69	22	014		IMPACT WRENCH	WORK & SVC EQUIP	6017 TORQUE WRENCH	504.89

	CARBONDALE									
1030000	RFTA-CARBONDALE	800	69	22	014		IMPACT WRENCH	WORK & SVC EQUIP	AIR IMPACT WRENCH	599.00
154600	RFTA-PITCO	800	70	22	014		IMPACT WRENCH	WORK & SVC EQUIP	1" IMPACT WRENCH	339.08
911100	RFTA-CITY OF ASPEN	800	71	22	014		IMPACT WRENCH	WORK & SVC EQUIP	IMPACT SET	100.00
911200	RFTA-CITY OF ASPEN	800	71	22	014		IMPACT WRENCH	WORK & SVC EQUIP	IMPACT WRENCH SOCKETS	236.35
912700	RFTA-CITY OF ASPEN	800	71	22	022		JIGSAW	WORK & SVC EQUIP	SAWZALL KIT	148.95
542400	RFTA-CARBONDALE	800	69	22	100		GARAGE & MACHANIC EQUIP	WORK & SVC EQUIP	SET OF SEFAC LIFTS 44OV	23,051.00
1030200	RFTA-CARBONDALE	800	69	22	100		GARAGE & MACHANIC EQUIP	WORK & SVC EQUIP	BACK BUDDY	1,024.83
179300	RFTA-PITCO	800	70	22	100		GARAGE & MACHANIC EQUIP	WORK & SVC EQUIP	SECTION ADVANCED ALIGNER	4,740.74
179301	RFTA-PITCO	800	70	22	100		GARAGE & MACHANIC EQUIP	WORK & SVC EQUIP	TRUCK W/WHEEL MOUNT	3,145.44
588700	RFTA-PITCO	800	70	22	100		GARAGE & MACHANIC EQUIP	WORK & SVC EQUIP	3/4 IMPACT TOOL AT750	299.95
705800	RFTA-PITCO	800	70	22	100		GARAGE & MACHANIC EQUIP	WORK & SVC EQUIP	25 TON SHOP PRESS	737.86
705801	RFTA-PITCO	800	70	22	100		GARAGE & MACHANIC EQUIP	WORK & SVC EQUIP	25-TON SHOP JACK	218.13
705803	RFTA-PITCO	800	70	22	100		GARAGE & MACHANIC EQUIP	WORK & SVC EQUIP	BEARING SUPPORT	31.87
705804	RFTA-PITCO	800	70	22	100		GARAGE & MACHANIC EQUIP	WORK & SVC EQUIP	PRESS ADAPTOR	115.67
705805	RFTA-PITCO	800	70	22	100		GARAGE & MACHANIC EQUIP	WORK & SVC EQUIP	BEARING ADAPTOR	174.27
705806	RFTA-PITCO	800	70	22	100		GARAGE & MACHANIC EQUIP	WORK & SVC EQUIP	GAUGE ADAPTOR	135.33
972800	RFTA-PITCO	800	70	22	100		GARAGE & MACHANIC EQUIP	WORK & SVC EQUIP	HYDRALIC VEHICLE LIFTS	38,289.00
718100	RFTA	800	72	22	100		GARAGE & MACHANIC EQUIP	WORK & SVC EQUIP	PROLINK 9000	1,396.47
718200	RFTA	800	72	22	100		GARAGE & MACHANIC EQUIP	WORK & SVC EQUIP	OPACITY METER	2,218.23
1030100	RFTA	800	72	22	100		GARAGE & MACHANIC EQUIP	WORK & SVC EQUIP	BACK BUDDY	1,024.84

952200	RFTA-PITCO	800	70	22	107		BUS WASHER	WORK & SVC EQUIP	BUS WASHER	60,995.00
952203	RFTA-PITCO	800	70	22	107		BUS WASHER	WORK & SVC EQUIP	BUS WASHER	4,505.39
259301	RFTA-PITCO	800	70	22	110		AUTOMOTIVE TOOLS & EQUIP	WORK & SVC EQUIP	2-TON HYDRAULIC MOB.CRANE	343.50
260001	RFTA-PITCO	800	70	22	110		AUTOMOTIVE TOOLS & EQUIP	WORK & SVC EQUIP	INJECTOR FLOW-COMPARATOR	3,177.00
831441	RFTA-PITCO	800	70	22	110		AUTOMOTIVE TOOLS & EQUIP	WORK & SVC EQUIP	86 BUS MAINT FACILITY	6,392.02
831442	RFTA-PITCO	800	70	22	110		AUTOMOTIVE TOOLS & EQUIP	WORK & SVC EQUIP	87 BUS MAINT FACILITY	(6,392.02)
953800	RFTA-PITCO	800	70	22	110		AUTOMOTIVE TOOLS & EQUIP	WORK & SVC EQUIP	POWER SOURCE	1,295.84
954300	RFTA-PITCO	800	70	22	110		AUTOMOTIVE TOOLS & EQUIP	WORK & SVC EQUIP	BRAKE SHOE ARCER	3,757.11
985100	RFTA-PITCO	800	70	22	110		AUTOMOTIVE TOOLS & EQUIP	WORK & SVC EQUIP	MICROPROCESS CONTROL BOX	1,437.53
464300	RFTA	800	72	22	110		AUTOMOTIVE TOOLS & EQUIP	WORK & SVC EQUIP	NUTSERT TOOL	392.74
542500	RFTA-CARBONDALE	800	69	22	113		GREASE PUMP	WORK & SVC EQUIP	AIR GREASE GUN	649.00
542600	RFTA-CARBONDALE	800	69	22	113		GREASE PUMP	WORK & SVC EQUIP	90 WT. PUMP	719.64
912100	RFTA-CITY OF ASPEN	800	71	22	113		GREASE PUMP	WORK & SVC EQUIP	HIGH PRESSURE GREASE PUMP	300.00
912900	RFTA-CITY OF ASPEN	800	71	22	114		ENGINE ANALYZER	WORK & SVC EQUIP	FUEL PUMP ANALYZER	3,232.47
155000	RFTA-PITCO	800	70	22	115		SPEC AUTO TOOLS	WORK & SVC EQUIP	TRANSMISSION TEST BOX	818.00
155001	RFTA-PITCO	800	70	22	115		SPEC AUTO TOOLS	WORK & SVC EQUIP	TRANSMISSION TEST GAUGE	92.82
155002	RFTA-PITCO	800	70	22	115		SPEC AUTO TOOLS	WORK & SVC EQUIP	TRANSMISSION CONNECTION	215.35
155003	RFTA-PITCO	800	70	22	115		SPEC AUTO TOOLS	WORK & SVC EQUIP	TRANSMISSION LIFTING	258.51
155004	RFTA-PITCO	800	70	22	115		SPEC AUTO TOOLS	WORK & SVC EQUIP	TRANSMISSION TEST ADAPTER	154.28
155005	RFTA-PITCO	800	70	22	115		SPEC AUTO TOOLS	WORK & SVC EQUIP	TRANSMISSION TEST RELAY	84.10
155200	RFTA-PITCO	800	70	22	115		SPEC AUTO TOOLS	WORK & SVC EQUIP	TAPLEY BRAKE METER W/	810.32

542000	RFTA-CARBONDALE	800	69	22	117		DOLLIE	WORK & SVC EQUIP	WHEEL DOLLY	530.00
542100	RFTA-CARBONDALE	800	69	22	117		DOLLIE	WORK & SVC EQUIP	WHEEL DOLLY	530.00
573100	RFTA	800	72	22	117		DOLLIE	WORK & SVC EQUIP	HYDRAULIC LIFT DOLLY	775.71
1029700	RFTA-CARBONDALE	800	69	22	120		MECH SHOP TOOLS	WORK & SVC EQUIP	CODE READER - ENG/TRANSMISSIONS	1,377.26
952500	RFTA-PITCO	800	70	22	120		MECH SHOP TOOLS	WORK & SVC EQUIP	SHEET METAL SHEAR	3,725.07
952600	RFTA-PITCO	800	70	22	120		MECH SHOP TOOLS	WORK & SVC EQUIP	RESURFACER-STORM/VULCAN	15,207.00
953900	RFTA-PITCO	800	70	22	120		MECH SHOP TOOLS	WORK & SVC EQUIP	TIG-RIG UNIT	1,088.53
954100	RFTA-PITCO	800	70	22	120		MECH SHOP TOOLS	WORK & SVC EQUIP	TRUCK TIRE SPREADER	2,765.28
954500	RFTA-PITCO	800	70	22	120		MECH SHOP TOOLS	WORK & SVC EQUIP	ROTARY PUNCH	4,965.10
972700	RFTA-PITCO	800	70	22	120		MECH SHOP TOOLS	WORK & SVC EQUIP	RED HEAD HAMMER	960.62
122800	RFTA	800	72	22	120		MECH SHOP TOOLS	WORK & SVC EQUIP	(2) OIL GUNS	731.50
1031200	RFTA	800	72	22	120		MECH SHOP TOOLS	WORK & SVC EQUIP	TOOL READER FOR CARBON FIBER TRANSM	2,109.95
955400	RFTA-PITCO	800	70	22	121		DRILL PRESS	WORK & SVC EQUIP	(2) DRILL PRESS	955.12
952900	RFTA-PITCO	800	70	22	122		GRINDER	WORK & SVC EQUIP	14" PEDESTAL GRINDER WITH	2,218.91
953000	RFTA-PITCO	800	70	22	122		GRINDER	WORK & SVC EQUIP	12" PEDESTAL GRINDER WITH	1,728.25
953100	RFTA-PITCO	800	70	22	122		GRINDER	WORK & SVC EQUIP	8" PEDESTAL GRINDER WITH	817.74
951500	RFTA-PITCO	800	70	22	123		SHARPNER	WORK & SVC EQUIP	DRILL BIT SHARPENER	295.00
954900	RFTA-PITCO	800	70	22	124		VISE MACHANICS	WORK & SVC EQUIP	(2) 8" VISE,BENCH-MOUNTED	453.54
955000	RFTA-PITCO	800	70	22	124		VISE MACHANICS	WORK & SVC EQUIP	6" VISE,BENCH MOUNTED	228.47
955100	RFTA-PITCO	800	70	22	124		VISE MACHANICS	WORK & SVC EQUIP	(4) 6" MACHINIST BENCH	351.32
955200	RFTA-PITCO	800	70	22	124		VISE MACHANICS	WORK & SVC EQUIP	6" BENCH VISE, LOCKING	228.47
955300	RFTA-PITCO	800	70	22	124		VISE MACHANICS	WORK & SVC EQUIP	(3) 6" BENCH VISE,	547.50
913300	RFTA-CITY OF ASPEN	800	71	22	124		VISE MACHANICS	WORK & SVC EQUIP	HYDRAULIC PRESS	670.00
954600	RFTA-PITCO	800	70	22	125		BAND SAW	WORK & SVC EQUIP	HORIZONTAL BAND SAW	1,238.50

910700	RFTA-CITY OF ASPEN	800	71	22	125		BAND SAW	WORK & SVC EQUIP	BAND SAW W/ FLOOR STAND	383.47
814100	RFTA-PITCO	800	70	22	126		SOCKET SET	WORK & SVC EQUIP	WHEEL NUT SOCKET SET	189.60
981000	RFTA-PITCO	800	70	22	129		BRAKE LATHE	WORK & SVC EQUIP	BRAKE LATH & ACC	14,757.23
1031500	RFTA-CARBONDALE	800	69	22	130		GARAGE EQUIP	WORK & SVC EQUIP	FREON RECYCLER	1,295.00
1032200	RFTA-CARBONDALE	800	69	22	130		GARAGE EQUIP	WORK & SVC EQUIP	WASTE OIL PUMP	1,166.00
897600	RFTA-PITCO	800	70	22	130		GARAGE EQUIP	WORK & SVC EQUIP	DIAGNOSTIC TEST BOX	145.00
530300	RFTA	800	72	22	130		GARAGE EQUIP	WORK & SVC EQUIP	AIR COMPRESSOR, PORTABLE	773.89
530400	RFTA	800	72	22	130		GARAGE EQUIP	WORK & SVC EQUIP	RECYCLER	4,000.00
1032100	RFTA	800	72	22	130		GARAGE EQUIP	WORK & SVC EQUIP	MOBILE FUELTANK	559.69
541800	RFTA-CARBONDALE	800	69	22	131		JACK	WORK & SVC EQUIP	AIR/HYD JACK	2,402.34
541900	RFTA-CARBONDALE	800	69	22	131		JACK	WORK & SVC EQUIP	WHEEL JACK	780.25
542300	RFTA-CARBONDALE	800	69	22	131		JACK	WORK & SVC EQUIP	10 TON FLOOR JACK	1,330.10
153200	RFTA-PITCO	800	70	22	131		JACK	WORK & SVC EQUIP	5 TON SERVICE JACK	495.29
153300	RFTA-PITCO	800	70	22	131		JACK	WORK & SVC EQUIP	10 TON AIR-HYD JACK	1,523.50
913700	RFTA-CITY OF ASPEN	800	71	22	131		JACK	WORK & SVC EQUIP	FLOOR JACK	760.00
913900	RFTA-CITY OF ASPEN	800	71	22	131		JACK	WORK & SVC EQUIP	HYDRAULIC JACK	137.94
914000	RFTA-CITY OF ASPEN	800	71	22	131		JACK	WORK & SVC EQUIP	JACK & ADAPTOR	625.28
294600	RFTA	800	72	22	131		JACK	WORK & SVC EQUIP	7-TON JACK STAND	176.37
542200	RFTA-CARBONDALE	800	69	22	132		WELDER	WORK & SVC EQUIP	WELDER	1,303.37
954000	RFTA-PITCO	800	70	22	132		WELDER	WORK & SVC EQUIP	ACCESSORIES FOR WELDER	2,093.17
954002	RFTA-PITCO	800	70	22	132		WELDER	WORK & SVC EQUIP	(4) PORTABLE WELDING	439.25
954003	RFTA-PITCO	800	70	22	132		WELDER	WORK & SVC EQUIP	(2) PORTABLE WLDNG SCREEN	(219.63)
914200	RFTA-CITY OF ASPEN	800	71	22	132		WELDER	WORK & SVC EQUIP	#100 WELDING SET	185.00
466200	RFTA	800	72	22	132		WELDER	WORK & SVC EQUIP	WELDER	2,186.90
466201	RFTA	800	72	22	132		WELDER	WORK & SVC EQUIP	GUN NOZZLE FOR WELDER	296.70
953400	RFTA-PITCO	800	70	22	134		HOIST	WORK & SVC EQUIP	(2) TROLLEY HOIST	4,408.82

953500	RFTA-PITCO	800	70	22	136		WASHER	WORK & SVC EQUIP	LARGE PARTS WASHER	1,436.30
953600	RFTA-PITCO	800	70	22	136		WASHER	WORK & SVC EQUIP	LARGE PARTS WASHER	2,350.22
915700	RFTA-CITY OF ASPEN	800	71	22	139		AIR HAMMER	WORK & SVC EQUIP	AIR HAMMER PH-45A	107.00
294900	RFTA	800	72	22	141		MASTER PULLER KIT	WORK & SVC EQUIP	DIGITAL OPTICAL	377.46
295000	RFTA	800	72	22	141		MASTER PULLER KIT	WORK & SVC EQUIP	CRANK TIMING TOOL	347.11
913600	RFTA-CITY OF ASPEN	800	71	22	145		TAP & DIE SET	WORK & SVC EQUIP	TAP & DIE SET	284.00
952700	RFTA-PITCO	800	70	22	146		TIRE CHANGER	WORK & SVC EQUIP	TRUCK TIRE MOUNTER	5,192.83
955600	RFTA-PITCO	800	70	22	146		TIRE CHANGER	WORK & SVC EQUIP	LIGHT VEHICLE TIRE	1,458.25
914900	RFTA-CITY OF ASPEN	800	71	22	146		TIRE CHANGER	WORK & SVC EQUIP	TIRE CAGE	265.39
915000	RFTA-CITY OF ASPEN	800	71	22	147		CRANE	WORK & SVC EQUIP	CRANE	506.00
915100	RFTA-CITY OF ASPEN	800	71	22	148		PRESS	WORK & SVC EQUIP	17-TON PRESS	566.70
915300	RFTA-CITY OF ASPEN	800	71	22	149		MULTIPLIER	WORK & SVC EQUIP	TORQUE MULTIPLIER	156.95
154900	RFTA-PITCO	800	70	22	152		VOLTAGE TESTER	WORK & SVC EQUIP	MULTIMETER	126.49
953700	RFTA-PITCO	800	70	22	155		HYDRAULIC PRESS	WORK & SVC EQUIP	80 TON HYDRAULIC PRESS	4,353.30
953300	RFTA-PITCO	800	70	22	158		ABRASIVE BLAST CABINT	WORK & SVC EQUIP	ABRASIVE BLAST CABINET	2,263.75
294500	RFTA	800	72	22	170		RECYCLING EQUIP	WORK & SVC EQUIP	ANTIFREEZE RECYCLE SYSTEM	3,630.75
616600	RFTA	800	72	22	200	26	COPIER	WORK & SVC EQUIP	RICOH FAX 2800L	2,645.00
916200	RFTA-CITY OF ASPEN	800	71	22	201		TYPEWRITERS	WORK & SVC EQUIP	IBM CORRECTING SELECTRIC	841.50
530200	RFTA	800	72	22	201	26	TYPEWRITERS	WORK & SVC EQUIP	TYPEWRITER, IBM-WW15	507.00
127700	RFTA	800	72	22	202		COPIER	WORK & SVC EQUIP	RICOH COPIER	15,700.00
543000	RFTA	800	72	22	204	26	CASH REGISTERS	WORK & SVC EQUIP	CASH REGISTER	779.00
713050	RFTA	800	72	22	204	26	CASH REGISTERS	WORK & SVC EQUIP	CASH REGISTER	450.00
996800	RFTA-PITCO	800	70	22	206		TIME RECORDER	WORK & SVC EQUIP	TIME CLOCK W/2 RACKS	243.00
996900	RFTA-PITCO	800	70	22	209		MONEY COUNTER	WORK & SVC EQUIP	CURRENCY COUNTER	1,895.92
996902	RFTA-PITCO	800	70	22	209		MONEY COUNTER	WORK & SVC EQUIP	CUSTOM VERSION UNIT/FOR TOKENS	3,932.15
467900	RFTA	800	72	22	209		MONEY COUNTER	WORK & SVC EQUIP	COIN SORTER	4,844.63

467901	RFTA	800	72	22	209		MONEY COUNTER	WORK & SVC EQUIP	CURRENCY COUNTER	1,625.77
574000	RFTA	800	72	22	209		MONEY COUNTER	WORK & SVC EQUIP	CURRENCY DISCRIMINATOR	4,030.00
155500	RFTA-PITCO	800	70	22	300		BUILDING EQUIP	WORK & SVC EQUIP	18" FLOOR BUFFER	952.97
128400	RFTA	800	72	22	300			WORK & SVC EQUIP	FLOOR MAINTAINER	1,900.00
114000	RFTA-PITCO	800	70	22	408		SNOWBLOWER	WORK & SVC EQUIP	SNOW THROWER	831.16
955900	RFTA-PITCO	800	70	22	600		INDOOR FURN & FURNISHER	WORK & SVC EQUIP	MODULAR WORK STATION	3,480.83
956300	RFTA-PITCO	800	70	22	600		INDOOR FURN & FURNISHER	WORK & SVC EQUIP	MODULAR WORK STATION	3,480.83
956400	RFTA-PITCO	800	70	22	600		INDOOR FURN & FURNISHER	WORK & SVC EQUIP	MODULAR WORK STATION	3,480.83
955700	RFTA-PITCO	800	70	22	611		CHAIRS	WORK & SVC EQUIP	(34) STACKING CHAIR	1,838.04
955701	RFTA-PITCO	800	70	22	611		CHAIRS	WORK & SVC EQUIP	(19) STACKING CHAIR	(1,027.14)
956000	RFTA-PITCO	800	70	22	611		CHAIRS	WORK & SVC EQUIP	(6) SIDE CHAIR-TERRA,COTA	706.80
466000	RFTA	800	72	22	620		TABLES & DESKS	WORK & SVC EQUIP	(3) MODULAR WORKSPACE	8,875.35
766700	RFTA	800	72	22	620		TABLES & DESKS	WORK & SVC EQUIP	SUPES OFFICE DESK	686.00
767900	RFTA	800	72	22	620		TABLES & DESKS	WORK & SVC EQUIP	(7) WORKSTATIONS	9,276.00
113900	RFTA-PITCO	800	70	22	621		TABLE	WORK & SVC EQUIP	(2) PRINTER SUPPORT TABLE	404.60
956100	RFTA-PITCO	800	70	22	621		TABLE	WORK & SVC EQUIP	PEDESTAL END TABLE	112.48
958900	RFTA-PITCO	800	70	22	621		TABLE	WORK & SVC EQUIP	42" ROUND TABLE, NEUTRAL	126.92
959300	RFTA-PITCO	800	70	22	621		TABLE	WORK & SVC EQUIP	(1) 60W X 36D X 28 1/2H	364.80
959400	RFTA-PITCO	800	70	22	621		TABLE	WORK & SVC EQUIP	(3) 72W X 36D X 28 1/2H	1,132.02
959500	RFTA-PITCO	800	70	22	621		TABLE	WORK & SVC EQUIP	(1) 84W X 36D X 28 1/2H	407.36
959600	RFTA-PITCO	800	70	22	621		TABLE	WORK & SVC EQUIP	(2) 48" ROUND TABLE	367.84
960400	RFTA-PITCO	800	70	22	621		TABLE	WORK & SVC EQUIP	(1) OVAL CONFERENCE TABLE	455.62
573200	RFTA	800	72	22	621		TABLE	WORK & SVC EQUIP	OAK DESK - MAINTENANCE	500.00
155700	RFTA-PITCO	800	70	22	622		DESK	WORK & SVC EQUIP	36X66 OAK DESK	821.00
980200	RFTA-PITCO	800	70	22	622		DESK	WORK & SVC EQUIP	72 X 36 EXECUTIVE DESK	398.00
178800	RFTA-PITCO	800	70	22	630		STORAGE FURNH	WORK & SVC EQUIP	OAK STORAGE UNIT	624.00
178900	RFTA-PITCO	800	70	22	630		STORAGE FURNH	WORK & SVC EQUIP	OAK STORAGE UNIT	624.00
972900	RFTA-PITCO	800	70	22	630		STORAGE FURNH	WORK & SVC EQUIP	STORAGE EQUIPMENT &	45,474.47
421600	RFTA	800	72	22	630		STORAGE FURNH	WORK & SVC EQUIP	(50) SKI BOOK LOCKERS	23,660.00
530500	RFTA	800	72	22	630		STORAGE FURNH	WORK & SVC EQUIP	(5) LOCKERS, RUBEY PARK	1,045.29
178600	RFTA-PITCO	800	70	22	631		CABINET	WORK & SVC EQUIP	2 DR LEGAL FILE CABINET	152.00
178700	RFTA-PITCO	800	70	22	631		CABINET	WORK & SVC EQUIP	2 DR LEGAL FILE CABINET	152.00

865900	RFTA-PITCO	800	70	22	632		FILE	WORK & SVC EQUIP	2-DR LEGAL FILE CABINT	0.00
154200	RFTA-PITCO	800	70	22	633		SAFE	WORK & SVC EQUIP	FIRE SAFE	1,208.00
999200	RFTA-PITCO	800	70	22	634		SHELVING	WORK & SVC EQUIP	STEEL SHELVING	8,998.11
918600	RFTA-CITY OF ASPEN	800	71	22	634		SHELVING	WORK & SVC EQUIP	SHELVES FOR PARTS	2,313.19
179000	RFTA-PITCO	800	70	22	635		BOOK CASE	WORK & SVC EQUIP	OAK WALL BOOK CASE	300.00
179100	RFTA-PITCO	800	70	22	635		BOOK CASE	WORK & SVC EQUIP	OAK WALL BOOK CASE	300.00
114400	RFTA-PITCO	800	70	22	645		BLINDS	WORK & SVC EQUIP	(3) VEROSOL SKYSHADES	868.00
114500	RFTA-PITCO	800	70	22	645		BLINDS	WORK & SVC EQUIP	(1) VEROSOL SKYSHADE	273.00
114600	RFTA-PITCO	800	70	22	645		BLINDS	WORK & SVC EQUIP	(2) VEROSOL SKYSHADES	622.00
114700	RFTA-PITCO	800	70	22	645		BLINDS	WORK & SVC EQUIP	(2) VEROSOL SKYSHADES	595.00
114800	RFTA-PITCO	800	70	22	645		BLINDS	WORK & SVC EQUIP	(3) VEROSOL SKYSHADES	872.00
114900	RFTA-PITCO	800	70	22	645		BLINDS	WORK & SVC EQUIP	(2) VEROSOL SKYSHADES	652.00
767000	RFTA	800	72	22	900		OTHER SERVICE EQUIP	WORK & SVC EQUIP	TRASH COMPACTOR	5,000.00
127900	RFTA	800	72	23	000		PASSENGER VEHICLES	WORK & SVC EQUIP	1998 FORD MINI VAN	20,000.00
720600	RFTA	800	72	22	202	26	COPIER	WORK & SVC EQUIP	4727 COPIER W/SORTER/CABI	8,075.00
1031700	RFTA	800	72	22	202	26	COPIER	WORK & SVC EQUIP	6645 COPIER-ADMIN	18,145.00
								WORK & SVC EQUIP Total		493,281.03
								Grand Total		19,754,954.05

APPENDIX H

ESTIMATED FUNDING FROM DIFFERENT AREAS

Jurisdiction	Estimated Tax Base (1999)	Proposed Sales Tax Rate	Allocation of existing tax or new tax	Revenue Estimate	% of RTA Revenue
Aspen	$377,945,300	0.6%*	Existing	$2,268,000	35.8%
Pitkin County (unincorporated)	109,587,900	1.2%*	Existing	1,315,000	20.7%
Snowmass Village	105,435,300	0.6%*	Existing	633,000	10%
Basalt **	40,960,866 61,938,241	0.7%	0.5 existing & 0.2 new	329,000	5.2%
Eagle County RFV (unincorporated)	9,045,733	0.5%	0.5 existing	45,000	0.7%
Carbondale	61,425,172	0.4%***	new	246,000	3.9%
Glenwood Springs	376,465,034	0.4%	new	1,506,000	23.7%

* Pitkin County Jurisdictions as a whole will commit 0.7215 percent of existing 1.5 percent sales taxes to the RTA. The percentages in the chart reflect the allocation among jurisdictions pursuant to a separate intergovernmental agreement.

** Basalt will have two tax bases, local and RTA.

***Excludes 0.1% for local service.

EXHIBIT E:

READING THE ROARING FORK LANDSCAPE:
AN IDEABOOK FOR INTERPRETATION AND ENVIRONMENTAL EDUCATION

Reading the Roaring Fork Landscape: An Ideabook for Interpretation and Environmental Education

A Component of the Roaring Fork Railroad Holding Authority Comprehensive Plan

Prepared for:

Roaring Fork Railroad Holding Authority (RFRHA)
and
Colorado Department of Transportation

Revised Draft
July 15, 1999

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Executive Summary

The Roaring Fork Valley is an area of outstanding natural and cultural resources. Tremendous changes, however, are predicted for the valley, and the Roaring Fork Transportation Corridor Study is being conducted to respond to those potential changes. As part of the comprehensive plan for the corridor, current work includes planning for a trail and companion interpretive/education plan. Interpretation and education present opportunities to teach people about the landscape so they are better informed when changes are proposed.

This Ideabook presents results, conclusions, and recommendations from the first steps in the planning process for interpretive/environmental education efforts. It is based on discussions with residents, interested agency officials, and Trails Task Force members, as well as research both inside and outside the Roaring Fork Valley. Key principles of the proposed approach include:

- Interpretation and environmental education should be developed specifically for residents who are using the trail or transit.

- Interpretive/educational components should relate to the following overarching theme: *As people understand the dynamics and workings of nature--learn how to read the landscape --they will take better care of* **it** *because they will know something of* it. *When people have little understanding of the nature and culture of their landscapes they may tolerate changes* **that** *will have serious consequences for the future health of those landscapes.*

- The places for interpretation along the corridor can be thought of as a string of pearls, in which the pearls are interpretive nodes along the trail or rail corridor. Primary interpretive locations are proposed at the transit stops and trailheads, and secondary interpretive locations are proposed along the trail, on the train, and on the Internet.

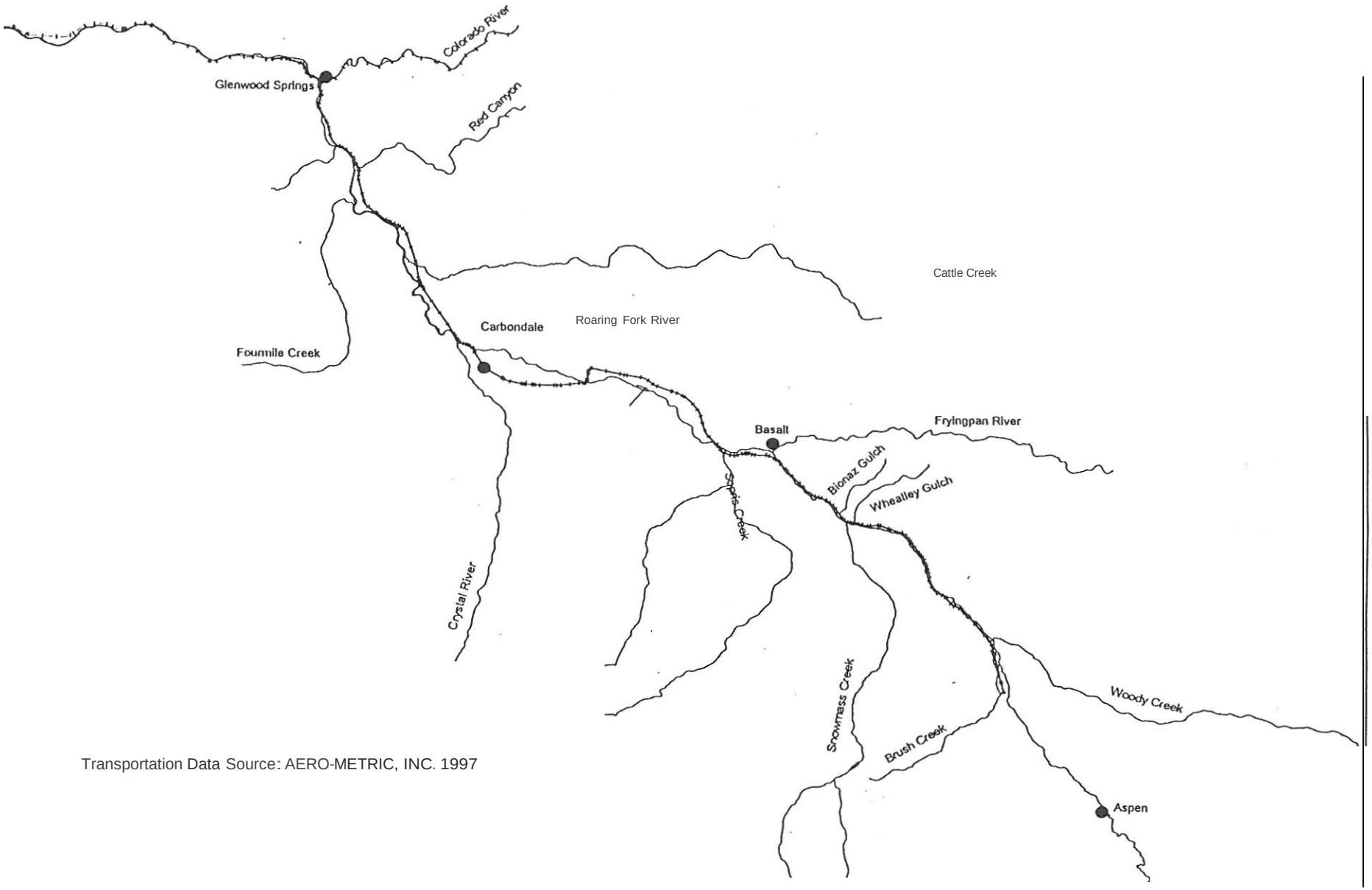
Future development of the ideas presented here will be based upon comments and ideas from residents and organizations responding to this draft approach.

Confluence of the Roaring Fork and Crystal River

This report includes the following:

1. The opportunity: Need for the interpretive program;
2. Reading the landscape: An interpretive approach;
3. What to interpret along the Roaring Fork Corridor;
4. Possible interpretive media for the Roaring Fork Valley;
5. A framework for interpretation and education: String of pearls;
6. Next steps-implementation; and
7. Contacts.

Figure 1 presents a map of the Roaring Fork Valley Transportation Corridor.



Transportation Data Source: AERO-METRIC, INC. 1997

The Opportunity

For many years, the Roaring Fork Valley, from Glenwood Springs to Aspen, was traversed by the Aspen Branch of the Denver & Rio Grande Railroad. Now this linear corridor through the valley, no longer used as a railroad, is owned and managed by the Roaring Fork Railroad Holding Authority (RFRHA), whose objective is to maintain the right-of-way for recreation, conservation, and mass transit.

Currently, a Corridor Investment Study and Comprehensive Plan are being developed for this property to evaluate the costs, benefits, and impacts of a proposed mass transit system in the valley. One component of these studies is a Recreational Trails Plan. Another is this plan (Ideabook) for interpretation and environmental education.

The Ideabook outlines a broad approach to presenting natural and historical themes to both trail and transit users, with a goal of educating people about the significance of the landscapes through which they are traveling. It is crucial to recognize that both trail and transit planning are in their early stages; therefore the appropriate role of this Ideabook is to provide a framework and foundation upon which further refinement can be based.

The Ideabook is organized as follows:

- The remainder of Section 1 describes the need for providing interpretive opportunities and outlines priorities expressed by residents which set the stage for the recommended approach.
- Section 2 discusses the general interpretive approach and key themes.
- Section 3 examines more specific interpretive opportunities and themes for the valley.
- Section 4 provides an overview of several appropriate interpretive tools or media that could be used in the project.
- Section 5 outlines a basic physical framework for developing the interpretive/environmental education program, using primary and secondary interpretive nodes.
- Section 6 suggests next steps m the process.
- Section 7 provides a list of contacts.

Pace of change in the valley

The landscape of the Roaring Fork Valley is undergoing a rapid transformation. Housing and commercial developments are replacing ranchland and natural areas. The population of the valley has grown significantly over the past two decades and likely will continue to grow.

The rise in population has caused dramatic increases in sprawl throughout the state and has resulted in many rural landscapes being developed at exurban, suburban, or urban densities. Figure 2 presents past and projected changes in the landscape of the Roaring Fork Valley, based oil U.S.

Valley ranch area giving way to development

Census data and using projections developed for the Colorado Division of Wildlife Commissioners.[1]

The design of a trail and mass transportation system at this time provides a special opportunity to educate people about the ways that the landscape changes in response to human actions. As human impacts upon the land intensify, this interpretive opportunity has the potential to be a tremendous educational resource for the entire valley.

Residents' priorities

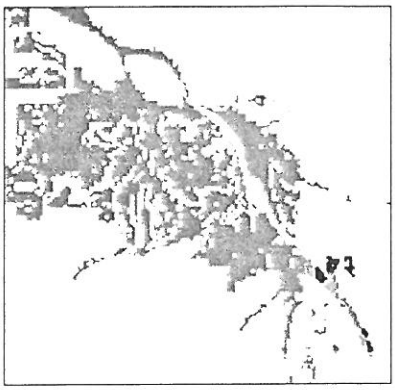
At a meeting of the Trails Task Force for the Roaring Fork Transportation Corridor, task force members and other community members discussed ideas and pnont1es for the interpretive program. Additionally, ideas and priorities were discussed with other interested community members (see "Contacts" at the end of this report). Box 1 summarizes the essential ideas expressed during these meetings.

Box 1

Priorities expressed by 'the Trails Task Force and other community members:

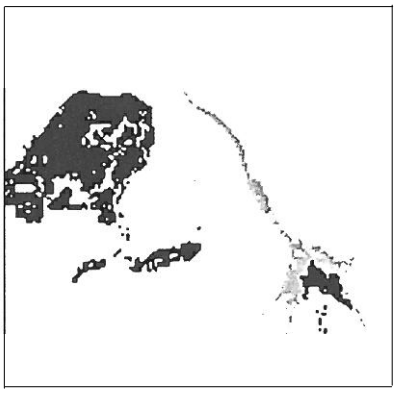
- Focus most interpretive efforts on built-up or high-use areas, with transit stops as *a* key multimodal opportunity.
- Explore ways *to* use *a* "wordless" presentation (environmental art is one *of* these ways). Signs should not limit the ability *of* trail users *'to* interpret nature for 'themselves.
- Consider *a* "necklace" approach, where there are special places (pearls) along the 'trail (string) that provide interpretive opportun*ities.*
- Continue to *encourage* the valley's communities *to* work 'together in refining 'this interpretive plan. Each community's interpretive effort should, however, reflect local interests.
- Look for opportunities *to* involve long-term residents, children and others (e.g., use storytelling, oral histories, have a competition for working artists *to* design artwork along the corridor).

[1] Hobbs, N.T. and D.M. Theobald, *Effects of Population Growth on Wildlife Habitat in Colorado,* Briefing Paper for the Colorado Division of Wildlife Commissioners, June 1998. http//nd.is.nrel.colostate.edulescop/briefing.html.



1960

1990



2020

1960 and 1990 data from U.S. Bureau of Census. Projections of development density in Colorado during 2020 taken from a model developed from historical data from U.S. Bureau of Census. From *Effects of Population Growth on Wildlife Habitat in Colorado: A Briefing Paper for the Colorado Division of Wildlife Commissioners,* N. Thompson Hobbs and David M.Theobald, June 1998.

Figure 2
Transformation of the Roaring Fork Valley

Information versus interpretation: the purpose of the interpretive plan

Sometimes people view environmental education/interpretation with skepticism: they think interpretive efforts may clutter the landscape, or that they might be used to advance a narrow political agenda. Properly done, interpretation should do neither.

The sheer quantity of information that is presented to us each day can be overwhelming. It has been estimated that more new information has been produced in the last 30 years than in the previous 5,000 years.[1] Few would want educational efforts along the Roaring Fork corridor to contribute to the sense of information overload so prevalent in modem society. It is therefore crucial to distinguish between interpretation and mere information.

Writer and conservationist Freeman Tilden notes, "Information, as such, is not interpretation. Interpretation is revelation based upon information. But they are entirely different things."[2]

Rather than simply providing facts, data, or information, the purpose of the interpretive story is to inspire and to provoke people to broaden their horizons.[3] Interpretation helps to give meaning to the landscape. It helps people to see, to evaluate what they see, and to come to their own conclusions.

In the case of the Roaring Fork Rail/Trail Corridor, a well-planned interpretive program can enhance the experience of nature for pedestrians, cyclists, and transit riders, and contribute to residents' understanding of the valley and their place in it. Many of the valley's residents have moved here from somewhere else, and most residents aren't exposed to the valley's many natural and cultural resources on a daily basis.

An interpretive program focused on learr1ing to read the landscape can provide a foundation for understanding the valley and the specific sense of place that makes the valley unique.

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[1] Wurman, R.S. 1989. *Information anxiety.* New York, NY: Doubleday.

[2] Tilden, F. 1977. *Interpreting our heritage.* (3rd. ed.) Chapel Hill: University of North Carolina Press.

[3] Beck, L. and T. Cable. 1998 *Interpretation for the 21st Century.* Champagne, IL: Sagamore Publishing.

-2-
Reading the landscape: An interpretive approach

Interpretation and environmental education should be developed specifically for residents as they use the trail or transit system. Residents are the ones who will have to deal with changes to the landscape the most directly. If they truly understand the landscape they will be better prepared to participate in community discussions about landscape change.

> Once you learn to read the land, I have no fear what you will do to it, or with it.
> - Aldo Leopold

Themes and means of presenting them will need to be substantial and detailed enough to withstand repeated viewing by residents. Overly simplistic messages or presentations can become boring very quickly.

Overarching theme

The overarching theme is the grand organizer, to which interpretative/ educational components must relate. This overarching theme is:

As people understand the dynamics and workings of nature learn how to read the landscape they will take better care of it because they will know something of it. When people have little understanding of the nature and culture of their landscapes they may tolerate changes that will have serious consequences for the future health of those landscapes.

Supporting broad themes

The following supporting themes will help make the overarching theme practicable. These help provide direction for the eventual development of specific interpretative/ educational programs.

1. **Reading the landscape.** Nature in the rail corridor and surrounding landscape is dynamic and complex (as well as inspiring), and the mosaic of ecosystems that make up the river corridor has repeating patterns that are readily discernable (as patches and corridors of differing vegetation, for example).
2. **Learning from history.** People have a long history of interaction with the corridor, for better and for worse. Knowing this history and its impacts on nature can be very instructive in guiding future community decisions. The pattern of future conservation and development will directly affect the future environment.
3. **Being stewards.** With our help, nature can heal, and there are many opportunities for conservation and restoration in the corridor.
4. **Water as lifeblood.** Water IS the grand integrator of the valley; it ties together landscapes and communities. Water flows downhill, and not only to the Roaring Fork, but further downstream to other regions and states. Its many uses make protecting its quality paramount.

-3-

What to interpret along the Roaring Fork Corridor

There are many worthy themes or stories to be presented in the river corridor. From discussions with residents, interpreters, and educators, some of the most important have been identified. When a full interpretation and environmental education plan is developed for the corridor, careful thought should be given to selecting themes and stories that are focused on the overarching themes and that give depth to those broader themes.

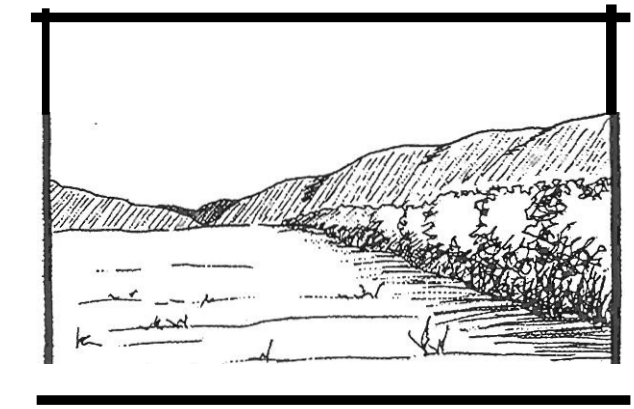
No matter how interesting, subthemes that don't support the main theme should not be introduced because they may dilute the strength of the main message.

Developing appropriate themes will be an opportunity for those in the valley with shared interests in cultural and natural history to work together, something that has been uncommon.

Fundamental changes are occurring in the valley. This interpretive approach will enable residents to deal with change in an informed fashion, by giving them tools to read and understand the land, rather than just providing information. (See Figure 3, "Reading changes in the landscape over time.") The concepts presented below are preliminary ideas, designed to give a sense of the approach.

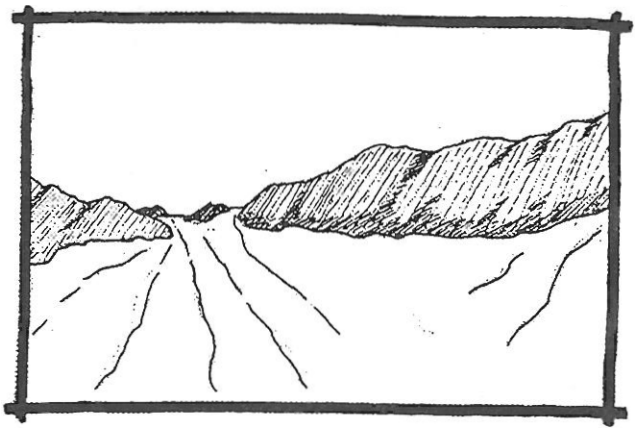
Reading the natural history of the landscape

- What makes this valley different from other valleys in Colorado? How do we see and understand specific factors, e.g., iron in the soil and other soil characteristics, width of valley, elevation and rate of elevation change, how much snow and rain the valley receives, that make this valley unique?
- How do we learn to read broad patterns in the landscape? What is an edge, a patch, a corridor, and the surrounding landscape matrix they all sit within? How can we distinguish between more pristine areas and degraded areas? Where do we see opportunities to restore degraded areas?
- How was the valley formed? Did the river carve the valley? Did geologic uplift create the mountains? Are these processes still at work? How can we tell by looking at the land?
- What does a healthy river look like? What does the color of the water tell us? Plant life in the river corridor? Presence or absence of fish? How has hydropower production changed the river?
- What plants do we see as we go up or down the valley? What do they tell us about changes in elevation, precipitation, and temperature as we move through the landscape? Which are plants are native, which are introduced? Are some beneficial and others nuisances to wildlife or people?
- What animals live in different parts of the valley? If we don't see the animals themselves, what can we look for to get clues about what might live here? Why are some animals less prevalent than they used to be?
- What is a microclimate? How do we learn to recognize different microclimates? Why are they important to agriculture and wildlife?



By learning *to* read the landscape, we can find clues that help us *to* envision what forces may have shaped our environment.

In this example, a current-day landscape, *top,* may provide clues about its distant past through its geology and vegetation.



In *an* earlier era, *middle,* glaciers smoothed the mountains and deposited silt in the valley. Existing topography indicates a history of glacial activity *to* the interested observer.

In a *still* earlier era, *bottom,* an uplift created these mountains, and processes *of* erosion immediately began *to* alter the landscape, ultimately creating the present-day environment shown at top.

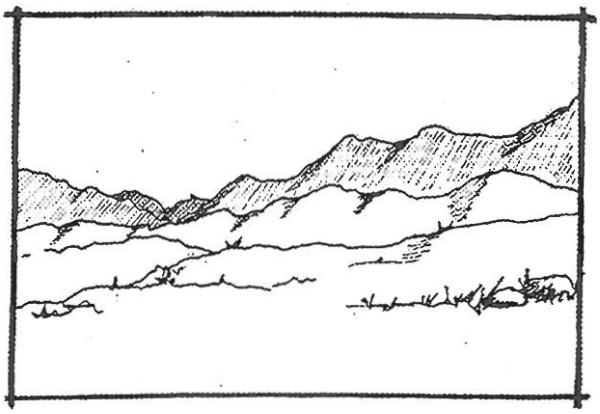


Figure 3
Reading changes in the landscape over time

Reading the cultural history of the landscape

- What evidence survives of the wide range of transportation types that have passed through the valley? What are the obvious forms of transportation from the present era? What remnants survive from other times? What forms of transportation can we surmise, even though we can't see any evidence? What has been the impact on the landscape here as well as where the transportation led? What opportunities would there be to view elk if they hadn't been reintroduced by train from Wyoming early in the century?

Historic remnants such as Basalt's coke ovens invite inquiry about the valley's cultural history

- Which patterns of vegetation have been shaped by people? Toward what end did people make these changes? How has nature responded to these changes?
- What are the patterns of land use along the trail or transit line? Why are some areas not developed? What are the characteristics of buildings in the valley? How have the patterns of development and the styles of buildings changed over time?
- Why is it important that wildlife have places of their own, where people don't go? Why there are places along the river that people should not access the water? Why are some portions of trails potentially closed during parts of the year?

These are, of course, just preliminary ideas for interpretive themes. Deciding on the ultimate themes to present is an important educational process for those involved.

Examples: selected interpretive opportunities in the Roaring Fork Valley

Following are selected examples of interpretive stops that would support the themes outlined in this section:

Example A

Wildlife observation and interpretive point:

Riparian Site Above Old Snowmass

Approximately one mile above Wheatly Gulch, a high quality wetland close to the trail could serve as an excellent wildlife observation point.

This site has provided habitat for beaver, with currently inactive dams, and presents an array of plant and animal species. Vegetation in this area includes narrowleaf cottonwood, twinberry honeysuckle, red osier dogwood, serviceberry, and various willow species. Bird species such as Lewis's woodpecker, yellow warbler, song sparrow, and fox sparrow may be observed.

Excellent habitat for cavity nesting species can be viewed at this site; at the same time, young live cottonwoods and other species are also present, generating a diversity of habitat that could be of great interest to trail users.

In order to preserve the natural, undeveloped character of this site, trailside interpretive information should be minimized or absent. This information should be presented instead at the nearest primary interpretive node (see Section 5) -- most likely at the nearest trailhead (Trailhead #7 in the Trails Plan) – and through other media such as brochures and the internet.

Interpretive information could usefully focus on issues such as: What animals, birds, and plants dominate this part of the valley? If we don't see the animals themselves, what can we look for to get clues about what might live here? Why are some animals less prevalent than they used to be?

Example 8
Carbondale transit stop and trail

Here the width of the valley and the rich ranching history provide interpretive opportunities about both natural and cultural history. Because the transit line and trail are in close proximity here, this type of location provides the ideal site for primary interpretive information (see Section 5).

The expansive views provided in this part of the valley provide opportunities to examine natural history questions such as: How do we learn to read broad patterns in the landscape, how was the valley formed, and how can we tell by looking at the land? They also lend themselves to exploration of cultural history issues such as: Which patterns of vegetation have been shaped by people? What is it about the land, vegetation, and climate in this part of the valley that supported the local ranching economy? How has irrigation changed this part of the valley?

Example (
Emma Townsite

The trail passes close to the old townsite of Emma, just west of Basalt. The Mathers Building in Emma, which served as an early railroad stop for the D&RGW, is eligible for National Historic Register listing.

Because an existing pedestrian underpass provides a safe highway crossing and facilitates connections with river easements and Basalt, people may use this site for trail access. Consequently, having some interpretive information here may be appropriate; alternatively, cultural and historic information about the Emma townsite could be available at Trailhead #5, located at the site of Basalt High School.

Interpretive efforts could focus on issues such as: What are the patterns of land use along the trail? What are the characteristics of historic buildings here? Why are some areas less developed than others?

-4-
Possible interpretive tools for the Roaring Fork Valley

The interpretive program can best be conducted through use of several media or modes for conveying the message. This way, different audiences can be addressed at the appropriate level, and the interests of different types of trail and transit users are more likely to be met. In this section, we present a range of media for interpretive programs; those that appear most appropriate for this project are discussed in Section 5.

Modes of conducting interpretation and environmental education can be personal (e.g., talks, demonstrations, living history, nature walks), and nonpersonal (e.g., signs, exhibits, video presentations, self- guided tours). Both have a place in the Roaring Fork plan.

Key to the quality of the individual's experience, however, is the degree to which *experiential learning* takes place. Rather than simply reading a sign or listening to a talk, the resident or visitor should have the opportunity to become personally involved in the learning experience. This personal involvement allows the theme of understanding nature's dynamics (reading the landscape) to be and applied, again and again. Box 2 provides summaries of media that may be especially appropriate for conveying interpretive messages in the Roaring Fork Valley.

Box2

Possible interpretive media for the Roaring Fork *Valley*

- Signage. Signs are most appropriate at transit stops or at key trail connecting points/trailheads. As shown in Figure 4, signage can be imaginative an attractive and can include a layering *of* messages to reach varied audiences.
- Brochures/written guides. These can be useful for both rail and trail users. Greater opportunities for experiential learning may occur when information in these brochures corresponds to actual sites that can be viewed from the trail or the train. (See Figure 5.)
- Visual/written information presented in pavement, stepping stones, or benches, *etc.*
- Demonstration sites. Could include a planting *area* or garden at transit stops featuring native species, and the possibility *of* moving historic buildings into the corridor.
- Environmental art. These pieces can be temporary or permanent. They usually *are* designed to help the viewer better perceive environmental *processes.* Potential exists for community involvement and community design competitions. *(See* Figure 6.)
- T*ools* for environmental observation. Sundials, precipitation monitors, an wind monitors *can increase* people's *awareness of* environmental processes.
- Video presentations. These can include interactive programs that allow people to enter information they have gathered. Computer-based presentations *can* allow people to *access* increasingly detailed information about topics *of* interest to them.
- Video monitors showing real-time *views of* sensitive wildlife *areas.*
- Internet connections and interpretive websites.
- Live presentations. *These* could be on the train or along the trail.
- *Involvement of* groups *(e.g.,* School to *Careers* Program) in longer-term projects that both teach and involve students as stewards *of* the corridor.

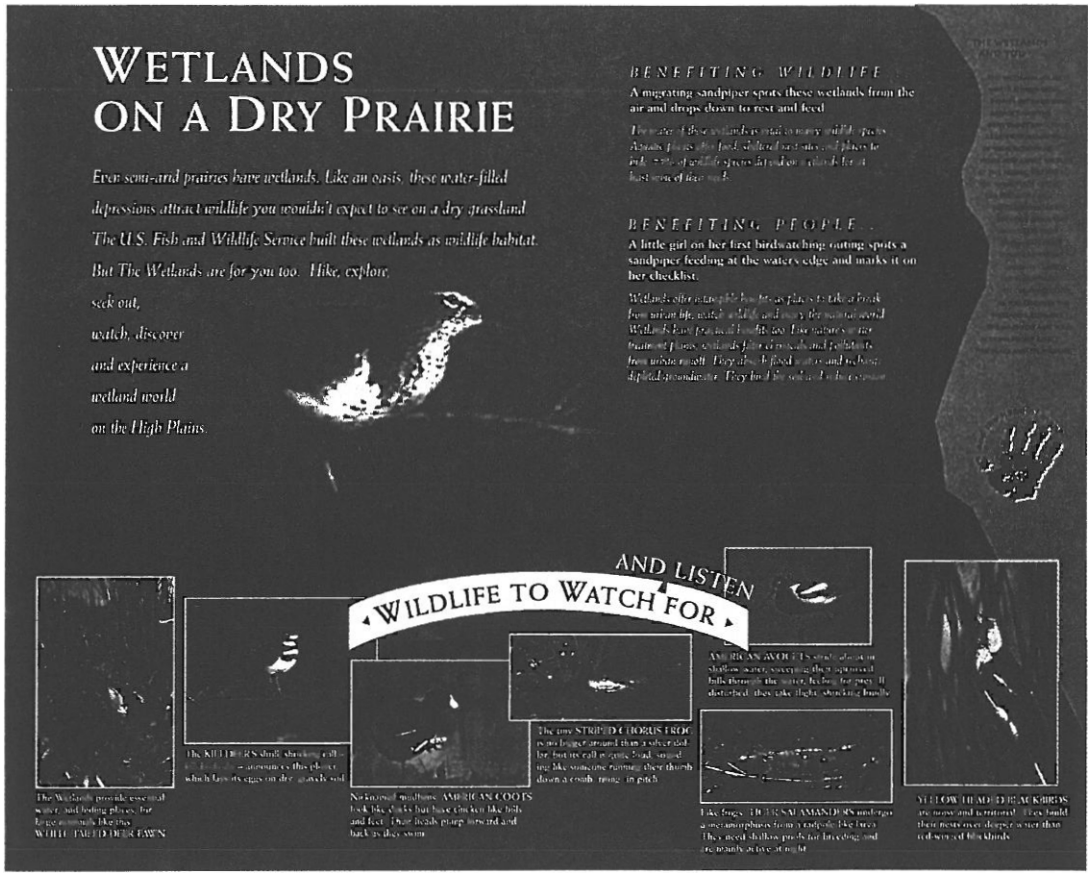
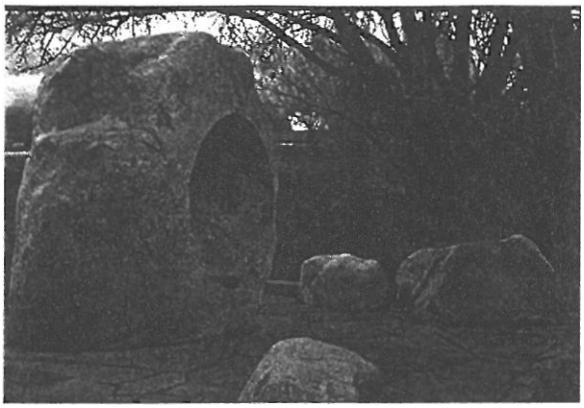


figure 4
Example of interpretive sign panel with multiple message layers to reach varied audiences and encourage stewardship.

figure 5
Reusable trail guide with neck strap.



ROBERTTULLY

"Listening Stones"
Bench carved in rock positioned beside a river to amplify its sounds.

"Scatter" Hydroglyph
Water cache-basin for desert wildlife.

LYNNE HULL

ROBERT TULLY

"Prairie Underground"
Stone carvings depicting prairie animals and plants.

figure *b*
Examples *of* environmental art.

-5-

A framework for interpretation and education: String of Pearls

Residents have expressed a concern for adding too many human-made items along the trail (even if they are for interpretation). Their comments have tended to support low-profile presentation away from developed areas, with more obvious interpretation in towns or other developed areas. This has led to the development of the following strategies for delivering the interpretative messages.

Collectively the places for interpretation can be thought of as a string of pearls-or two strings of pearls, one for the transit system and one for the trail. The pearls are the interpretive nodes along the way. Some of the pearls are larger than others. These are the primary interpretative nodes. The smaller pearls are secondary interpretive nodes. In Figure 7, a diagram illustrates the "string of pearls" framework

Primary interpretive locations would be located at transit stops and trailheads, and secondary interpretive locations would occur on the trail, on the train, and on the Internet. Each of these is described below. Box 3 below presents five "rules of thumb" that should guide interpretive efforts at all of these sites.

Primary interpretive locations: Transit stops and trailheads

The primary interpretive spots are where people will naturally congregate anyway: the stops along the transit system and major trailheads. Transit stops will have platforms, a covering, a kiosk for ticket sales, and in some cases a parking area, picnic tables, and toilets. Not only will people wait here for trains, but also others will likely drive cars here with their bicycles and use the stops as trailheads.

Trailheads will have most of these amenities as well and will provide a similar function as a gathering point for trail users. All of this makes the transit stops and trailheads ideal places for providing interpretation for people who will be experiencing the corridor, either on the trail or on the transit system.

Transit stops would be developed as interpretative nodes that interpret the corridor in either direction from that station to the next, as well as putting that location in the context of the entire corridor. Just as a legend on a map provides a key to the meaning of the map's symbols, these interpretive nodes present keys to the elements of the landscape to be seen around that community. In this way, the nodes present a kind of microcosm of that community's env1rons.

Although each transit stop would be a primary interpretive node, the trail does not go to each of the planned stops. The trail is planned to serve three transit stops: one at Glenwood Springs and two at Carbondale. In addition, the trail will be readily connected to the transit stop by a local trail system being planned in Basalt.

At El Jebel, however, the transit stop will be across the river and a distance from the trail, so the stop will not serve the trail. The Brush Creek transit stop will be a considerable distance from the trail, which will be across the valley. Particularly in these up-valley locations, then, trailheads would serve as primary interpretive nodes.

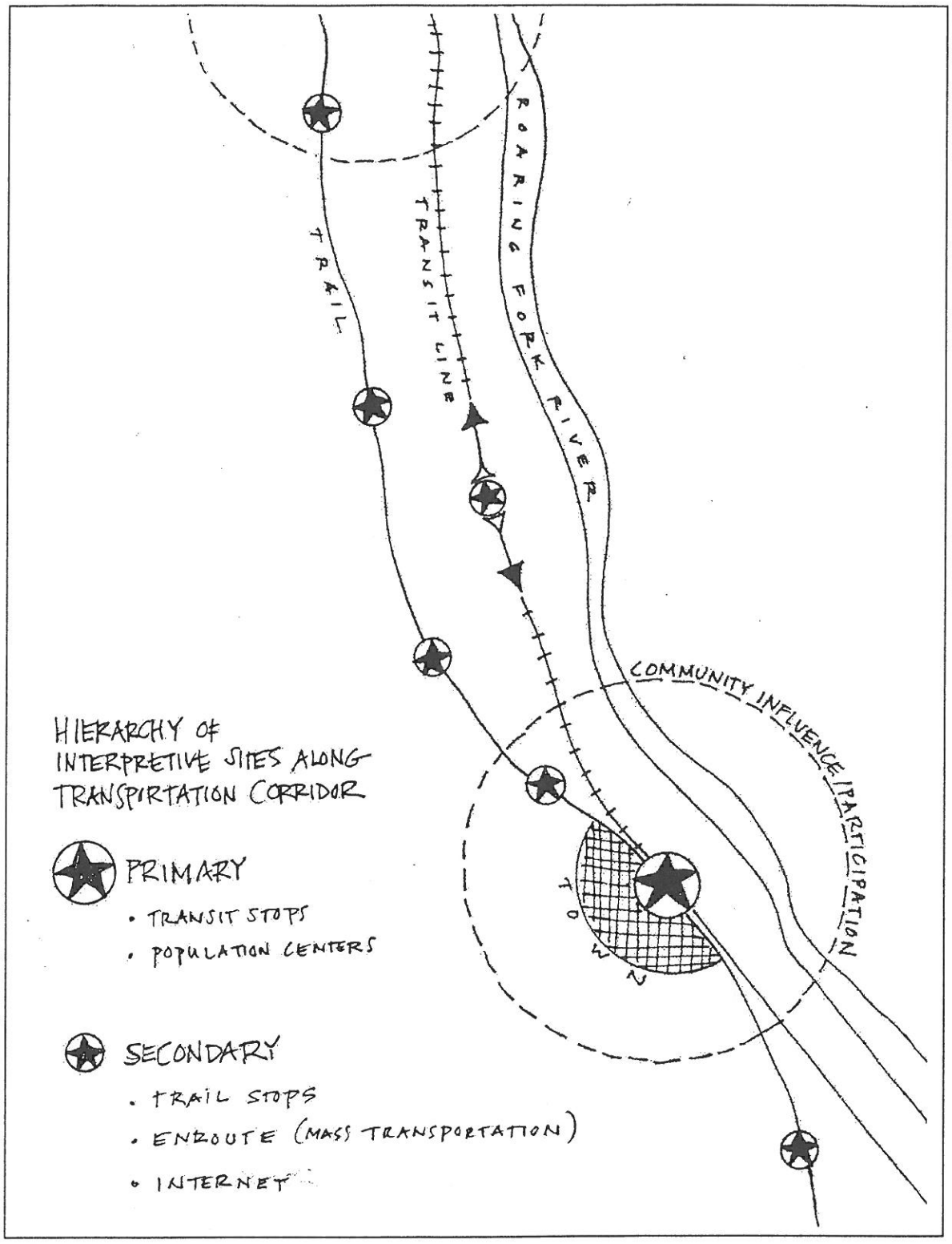


Figure 7
Concept Diagram: "String *of* Pearls'

Primary interpretive locations would be characterized by the following approach:

Given the audience (local residents who are repeat visitors), art and other interpretative pieces at transit stops need to be interesting enough to invite repeated viewing or should be changed often.

It may be possible to have a video monitor at the ticket kiosk that presents interactive interpretive messages. Such messages could be changed for the season of year or other important landscape happenings. It may further be possible for people to enter information themselves describing aspects of the landscape they have seen, similar to when birdwatchers write on a chalkboard species they have sighted at a park. In this corridor people might note sightings of elk or bald eagle, penstemon in flower or golden aspen. The interactive program might allow people to obtain up-to-date information about conditions along the trail or at other outdoor places in the valley.

The monitor might also offer real-time views of sensitive wildlife near the trail, areas that people should not approach. This technique is used, for example, at the Rocky Mountain Arsenal National Wildlife Refuge, where visitors can pan a video camera in the area used by large numbers of bald eagles. The cameras send detailed pictures to a nearby bird blind, from which otherwise one can only see the mass of trees.

The transit ticket kiosks might also sell interpretative maps and brochures and print current interpretative

Box 3

Rules of thumb for the Roaring Fork interpretive plan

These five Rules of Thumb provide guiding principles for specific interpretive *efforts* along the corridor, as well as guidance for the overall approach:

1. Relate the subject *to* the lives *of* residents in the Roaring Fork Valley.
2. Interpretation must go beyond simply providing information *to* reveal meaning and tools for understanding the valley and people's place in it.
3. The interpretive presentation should be designed as a story about the cultural and natural history of the valley that informs, entertains, and enlightens.
4. The plan should be flexible enough *to* respond *to* varying audiences: children, the general adult population, and that portion *of* the population that is avidly interested in the subject matter.
5. The quantity of information presented at transit stops, on the train, and, especially, along the trail, should be limited; however, ways *to* access more detailed information should be readily available.

These Rules *of* Thumb are *adapted* from the 15 Guiding Principles presented in Beck,L. and T. Cable,1998,*Interpretation for the 21•t Century,* Champagne, IL: Sagamore Publishing.

messages on tickets.

Native plants or tracks of wildlife might be included at these interpretive nodes so people can see up close what will be whisking by when they are on the train or so they can get detailed information about things they might see along the trail.

This is also a place to advise trail users of appropriate behavior along the trail, some of which may be specific to times of year. This helps reduce conflicts between trail users and the environment. This approach is somewhat like the interpretation that occurs at the Telluride transit ski lift station that is provided by the US Forest Service.

Secondary interpretive locations: along the trail

The secondary points of interpretation-the smaller pearls-will be along the trails, but will be much more understated than at the transit stops and trailheads, out of respect for community concerns for cluttering the landscape. In some cases the markers may simply be mile markers that locate an interpretive spot and tie it into a brochure or some other explanation. In other situations, the means of calling attention to a special place may be a stone bench (perhaps with a message etched into it) or text that is inscribed in stepping stones.

Secondary trail interpretive nodes will be characterized by the following approaches:

Interpretive messages will be on benches and boulders, rather than mounted as stand-alones.

These secondary points are mostly at rest stops along the trail.

There will be much more of a sense of discovery (and delight) in finding interpretative pieces. They will be thoughtful and understated, more inspirational than informational.

These will be quiet places for contemplation that offer elements of suspense.

Where appropriate, some interpretation will be at points to access the river.

Specific places along the trail with interpretive significance, such as Satank Bridge (on the National Register of Historic Structures) will be identified.

There should be careful treatment of nature resource areas that might be easily disturbed by trail users.

In several locations, the trail approaches sensitive habitat and species. Specific information on these areas is available in the Environmental Impact Statement for the Roaring Fork project. Where this occurs, fencing and signage (preferably at primary nodes or in brochures) can be used to keep people at appropriate distances from wildlife. Guidelines for wildlife buffers developed by the Colorado Division of Wildlife are summarized in the Appendix. In some locations it may be more appropriate not to call attention to sensitive wildlife areas at all.

Secondary interpretive locations: on the trains

Those on trains will be moving through the landscape at much faster speeds than those on the trail. The experience will be more like reading the headlines than detailed study of the landscape, but should invite exploration on the ground.

Secondary transit interpretive nodes will be characterized by the following approaches:

This kind of presentation prepares people to be better, more sensitive

users of the trail when they do venture out on foot or bicycle.

Occasionally, it may be possible to have a live interpretive program on the transit system. Transit riders might choose to ride in a certain car one day of the month to hear a presentation by an interpreter and to discuss what they are seeing out the window. This is similar to the live interpretation that happens in Alaska on ferryboats (that are part of the Alaska Maritime Highway) and on the Alaska Railroad. During less crowded times, school groups might ride the transit to see and discuss the landscape.

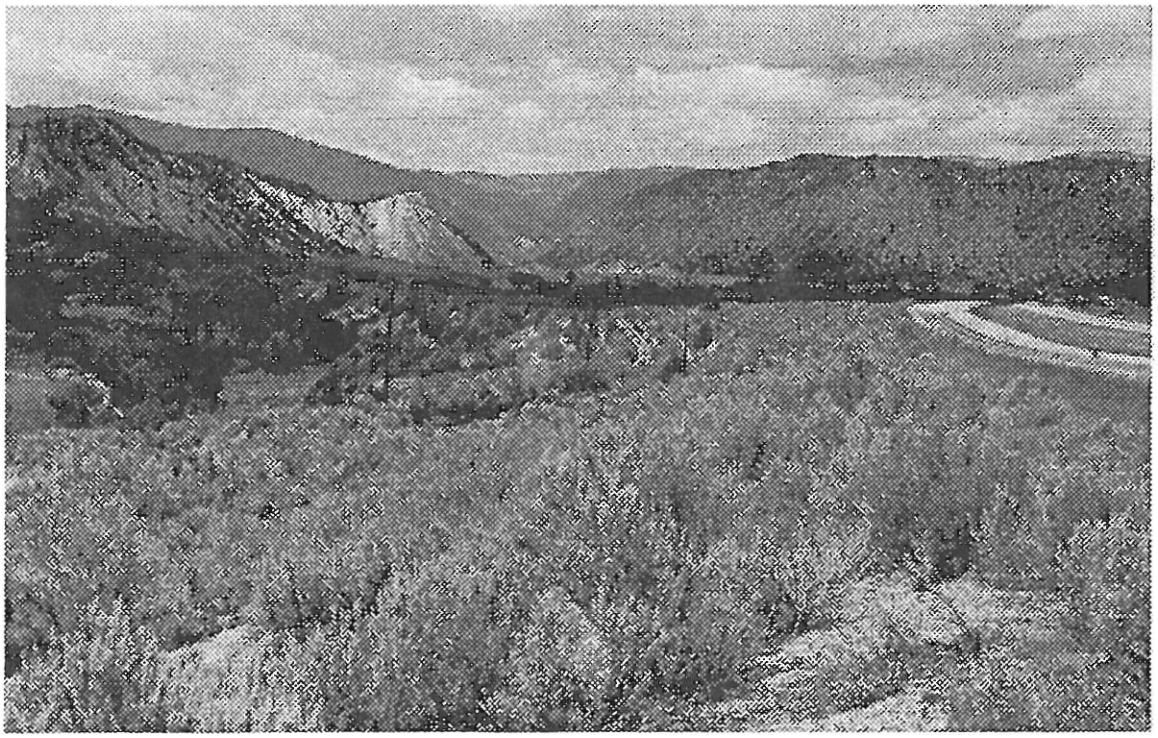
Secondary interpretive locations: on the Internet

A goal of interpretation in the valley should be to direct people who want it, to more detailed information. A cost- effective means of doing this is the Internet. A website could also report on current trail conditions and recent wildlife sightings.

Environmental Education Programs

Several schools in the area already study aspects of the Roaring Fork through programs such as RiverWatch and those provided by the Aspen Center for Environmental Studies and the Roaring Fork Conservancy. With the new interpretive effort many tie-ins could be explored for environmental education.

Even refining the interpretive approach presented in this document could be an educational opportunity for area students interested in developing the themes and carrying the process forward.



The Roaring Fork River and Highway 82 wind through the lower valley.

-6-
Next steps--implementation

This document is the beginning of an ongoing discussion of the nature and timing of interpretation and environmental education along the Roaring Fork River. Important next steps include:

1. Further discussions among interested parties to refine the messages and approach.
2. Opportunities to identify those who want to play key roles in developing or implementing the interpretation/education plan.
3. Wider discussions both within and among the local communities.
4. Developing a means of coordinating the various groups involved.
5. Determining the steps that need to be done collectively and collaboratively and those that can be done locally.
6. Determining if the design and expense of interpretation at the transit stops can be included in construction of the transit system or if funds must be raised separately.
7. Developing a strategy that includes many partners to pursue funding from Great Outdoors Colorado, the Colorado Division of Wildlife, and other sources.
8. Determining if there is a need for temporary interpretation if some the transit stops or other improvements are delayed for a considerable length of time.

-7-

Contacts

Anderson Ranch Arts Center	Susan Casebeer, 970-923-3181, x216
Aspen Center for Environmental Studies	Jim Kravitz, 970-925-5756
Aspen Historical Society	Lisa Hancock, 970-925-3721
Colorado Department of Transportation (Region 3- Grand Junction)	Joe Temple, 303-757-9771
Colorado Department of Transportation, Bicycle and Pedestrian Program	Gay Page, 303-757-9982
Colorado Department of Transportation, Historic Considerations	Sally Pearce, 303-757-9786
Colorado Division ofWildlife	Kevin Wright, 970-947-2920
Environmental Artists (who shared their work during the planning process)	Andy Dufford, 303-477-3780 Robert Tully, 303-665-7133 Lynne Hull, 970-416-1881
Four Rivers Coalition (Roaring Fork School District, Colorado Mountain College, Science Outreach Center, and the Aspen Center for Environmental Studies)	c/o Rob Dolan, 970-945-6558 x112
Great Outdoors Colorado	Debbie Pentz 303-863-7522
Pitkin County Open Space and Trails	Jen Pierce, 970-920-5232
Roaring Fork Conservancy	Jeanne Beaudry (Executive Director) Leigh Gillette (Education Director), 970-927-1290
Roaring Fork Railroad Holding Authority	Tom Newland Alice Hubbard, 970-704-9282
Roaring Fork School District	Rob Dolan, 970-945-6558 x112
Science Outreach Center (after-school programs in science)	Linda Singer Froning 970-963-2922
Southern Ute Nation (for Native American interpretation) 970-563-9583	Southern Ute Museum (Ignacio, Colorado)
Volunteers for Outdoor Colorado	303-715-1010
White River National Forest	Andrea Holland-Sears (Hydrologist) 970-945-3256 Bill Kite (Historian) 970-945-3241

> Learning is the process of remembering what you are interested in.
> - Richard Saul Wurman

Appendix

Recommended Buffer Distances from Raptors

The Colorado Division of Wildlife recommends that the following distances be maintained as buffers around nests of birds of prey (raptors). *This* information was provided by CDOW's Wildlife Resource Information System.

Species	Recommended Buffer
Owls	
Burrowing Owl	No human encroachment or disturbance for 1/16-mile radius from April 1 to July 31. Burrowing owls frequent prairie dog colonies, so buffer zones should be applied to colony perimeters.
Cavity Nesters (boreals, sawhet, screech, flarnrnulated)	*Y.* mile
Great Homed Owl	l/8 mile
Long-eared Owl	*Y.* mile
Falcons	
Peregrine Falcon	No surface occupancy within 1 *mile* of nest and associated alternate nests. No human encroachment with ½-mile of nest cliffs (or cliff complex) from March 15 to July 31.
Prairie Falcon	No surface occupancy w/in *mile* of nest site. No human encroachment w/in mile of nest from March 15 to July 31.
American Kestrel	Unknown.
Hawks and Eagles	
Bald Eagle	No surface occupancy within *Y.* mile of nest. No activity w/in Yz1/2-mile of nest from November 15 July 30.
Golden Eagle	No human encroachment w/in mile of nest and any alternate nests from February 1 to July 15. No surface occupancy w/in *Y.* mile of nest and alternate nests.
Osprey	No surface occupancy within *Y.* mile of nest. No human encroachment w/in *Y.* mile of nest from April 1 to August 31.
Ferruginous Hawk	No surface occupancy w/in 1/2 mile of nest and any alternate nests. No human encroachment w/in 1/2 mile of nest from February 1 to July 15.
Cooper's Hawk	¼-mile
Red-tailed Hawk	No surface occupancy w/in 1/3 mile of nest and any alternate nests. No human encroachment w/in 1/3 mile of nest from March 1 to July 15.
Northern Harrier	¼- mile
Swainson's Hawk	No surface occupancy w/in *Y.* mile of nest and any alternate nests. No human encroachment within *Y.* mile of nest from April 1 to July 15.
Goshawk	mile buffer around nest to protect integrity of

	nesting and post fledgling effort. Nest site occupancy occurs from early March through late September.
Other Species/Miscellaneous	
Common Raven	Unknown
Turkey Vulture	¼- mile
Accipiter species	¼- mile
Scrape	¼- mile
Stick Nest-large (> 3 feet)	½ - mile

EXHIBIT F:

CITY OF GLENWOOD SPRINGS
BYPASS

EXHIBIT F-1:

GLENWOOD BYPASS DATA BOOK

Glenwood Springs State Highway 82
Alternatives Analysis

Evaluation of Alternatives Data Book

Technical, Citizen and Business Advisory Teams

City Council Members City of Glenwood Springs

Glenwood Springs
BYPASS ALTERNATIVE ANALYSIS

BALLOFFETi1 & Associates, Inc.
Coley/Forrest Inc.
Lonco, Inc.

Thursday September, 16 1999

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Illustrative Cross Sections

Alternatives Considered

Travel Demand Management (TOM)

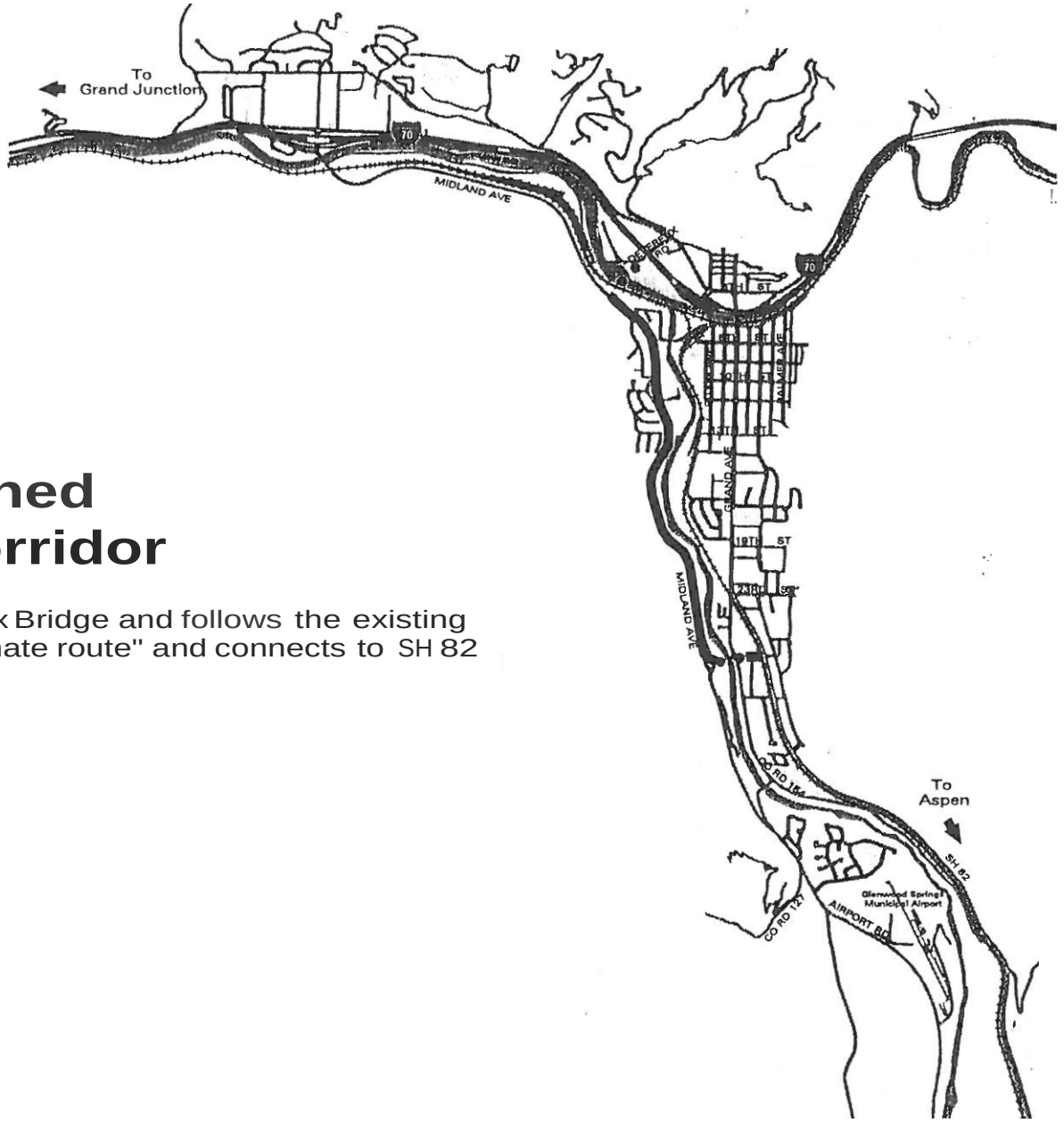
This alternative would implement travel demand management measures along Grand Avenue to relieve congestion in the corridor.

TOM Measures Could Include:

- Physical improvements to enhance pedestrian and bicycle facilities along Grand Avenue such as raised crosswalks, bulb outs at intersections, direct connections to transit stops, new bicycle lanes and secure bicycle parking facilities
- Expanded car pool and van pool services, especially targeted at regional commuters
- New policies to manage parking such as metering and hourly restrictions
- Increased support for and coordination with regional transit efforts
- Support a Transportation Management Organization (TMO) to improve public information and encourage use of alternative modes by:
  - Marketing ridesharing, transit, non-motorized modes
  - Establishing telecommute centers
  - Providing enhanced ride-matching services
  - Facilitating vanpools
  - Subsidizing transit passes or guaranteed *ride* home programs
  - Establishing preferential parking location policies
  - Implementing alternative work schedule programs
  - Establishing more rigorous parking cash-out policies

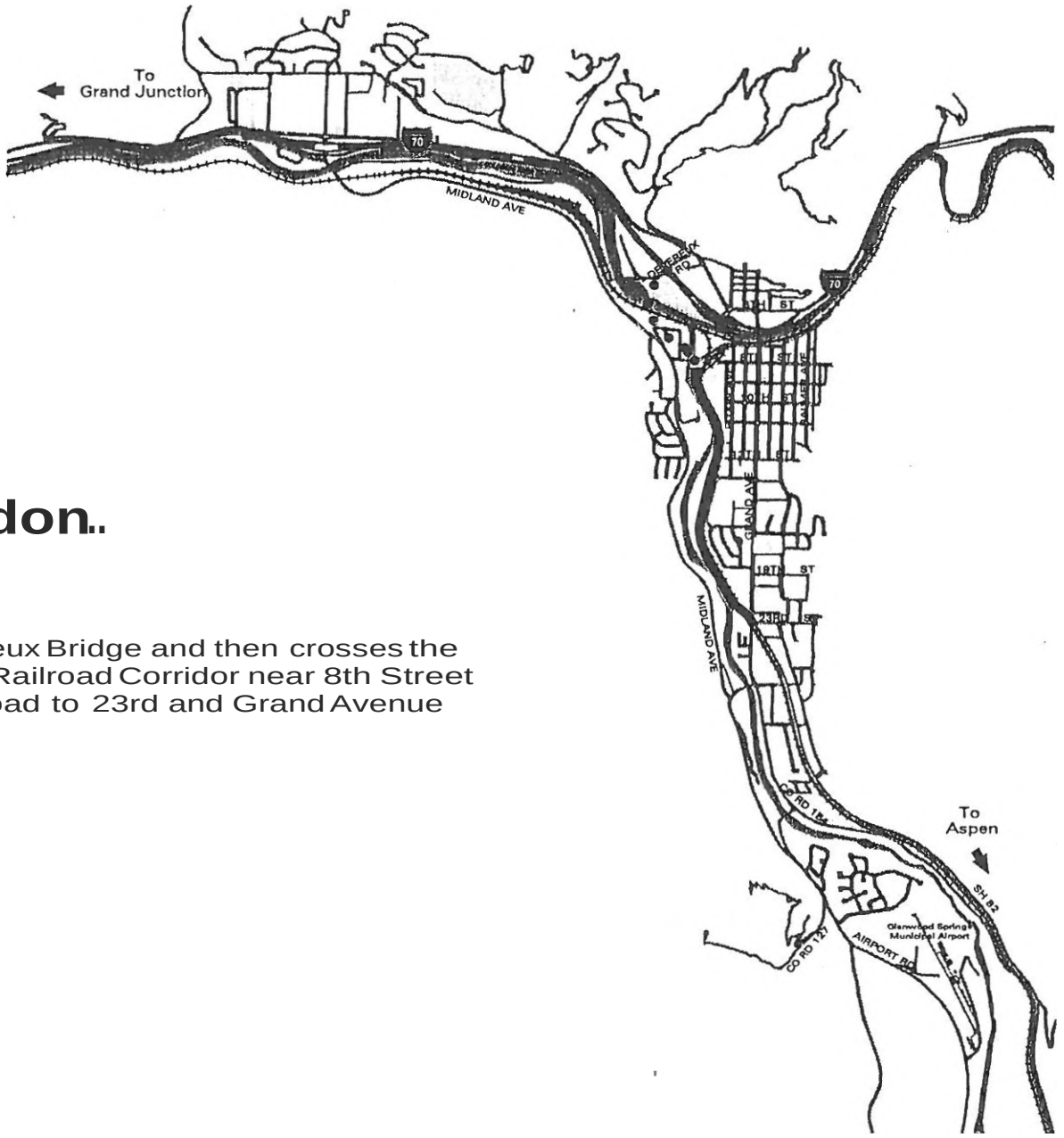
The Midland Avenue Corridor

Generally follows the existing Midland Avenue "alternate route" with a new bridge south of the airport



The Shortened Midland Corridor

Improves the Devereux Bridge and follows the existing Midland Avenue "alternate route" and connects to SH 82 at 27th Street

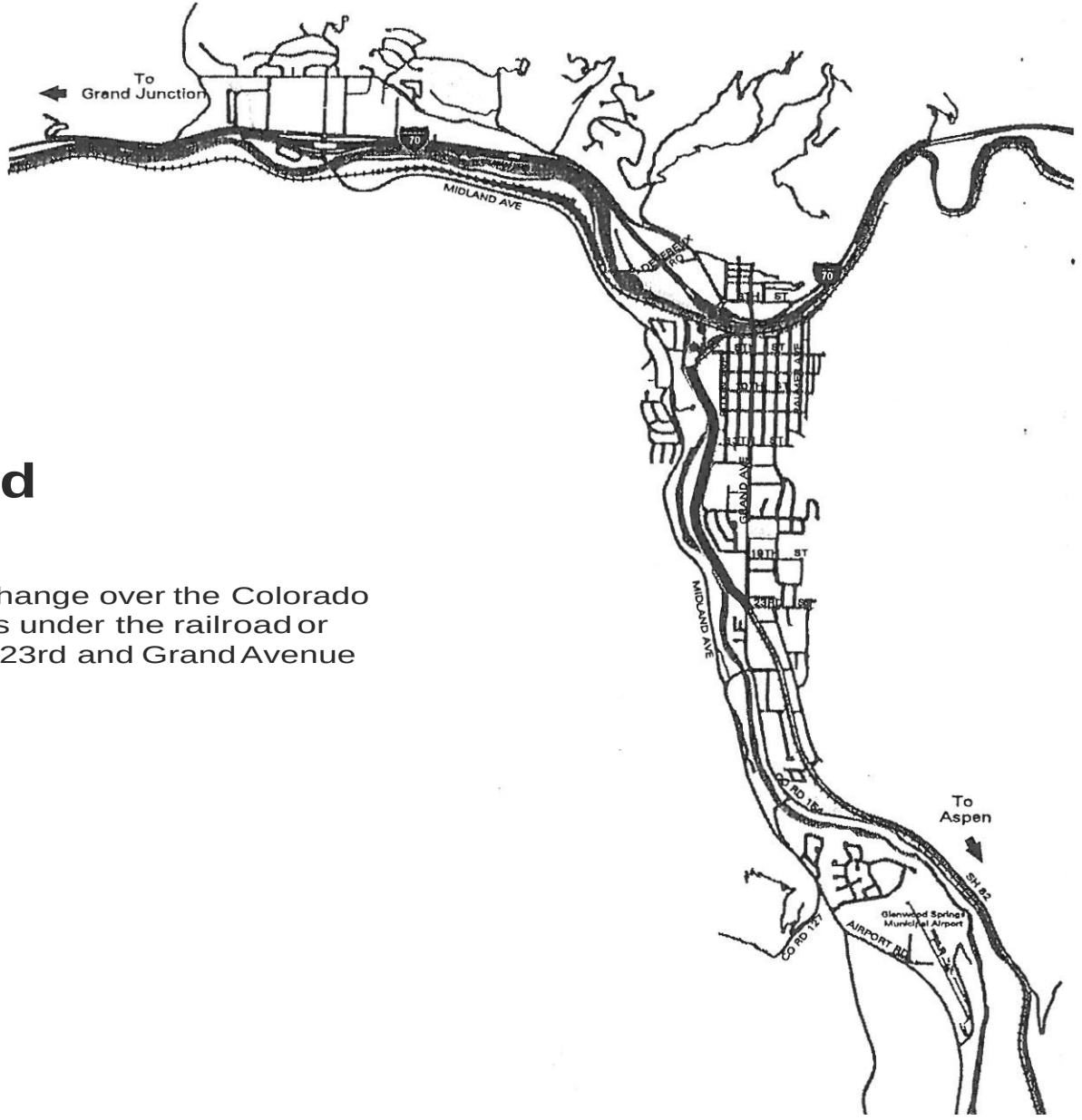


The "Bragdon.. Route

Improves the Devereux Bridge and then crosses the Roaring Fork to the Railroad Corridor near 8th Street and follows the railroad to 23rd and Grand Avenue

The Railroad Corridor

Extends the 1-70 interchange over the Colorado River and either tunnels under the railroad or follows alongside it to 23rd and Grand Avenue



Alternatives Evaluation

Prelhnlnary Results"

Evaluation Criteria

Description of Categories:

Performance

These criteria vvere used to determine each alternative's overall effectiveness in diverting trips from Grand Avenue, reducing through.traffic travel times and distances, and effects on the City-Wide Level of Service. They include:

- Congestion Relief/Number of Trips Diverted
- Through Traffic Travel Time
- Vehicle Miles Traveled
- City-Wide Level of Service

Cost

These criteria vvere used to determine the total cost of construction, means and possible source of external funds, and estimates of cost per trip diverted. They include:

- Total Cost of Construction
- Cost Per Trip Diverted
- Potential for External Funding

Social Impacts

These criteria are aimed at measuring the social impacts resulting from each alternative. They include:

- Homes Displaced
- Homes Impacted
- Neighborhoods Divided
- Businesses Displaced
- Business Impacts
- Community Goals
- Dovvntovvn Goals

Environmental Impacts

These criteria are aimed at measuring the environmental impacts resulting from each alternative. They include:

- Visual
- Noise
- Parks and Recreation Areas
- Air Quality
- Riparian Areas
- Water Quality

Advisory Team Weighting:

The evaluation criteria weighting sheets filled out by the Advisory Teams reflect the levels of importance for each category of evaluation criteria. The *average* rankings from the Technical Advisory Team (TAT), the Citizen and Business Advisory Team (CBAT) and the City Council are summarized in Table 1.

Table 1. Evaluation Category Weighting

Evaluation Category	Technical Advisory Team	Citizen and Business Advisory Team	City Council	Combined Average
Performance	26	36	26	29
Cost	24	14	12	16
Social	29	25	32	29
Environmental	21	26	31	26

The Citizen and Business Advisory Team has a much wider range of responses for each category than either the Technical Advisory Team or City Council. Individual responses are illustrated in Figures 1-3. The variability in the responses indicates the different levels of importance individuals place on each category and reflects the diversity of opinions on the Citizen and Business Advisory Team. The CBAT identified Performance as the most important category by a large margin. Cost was identified as the least important category.

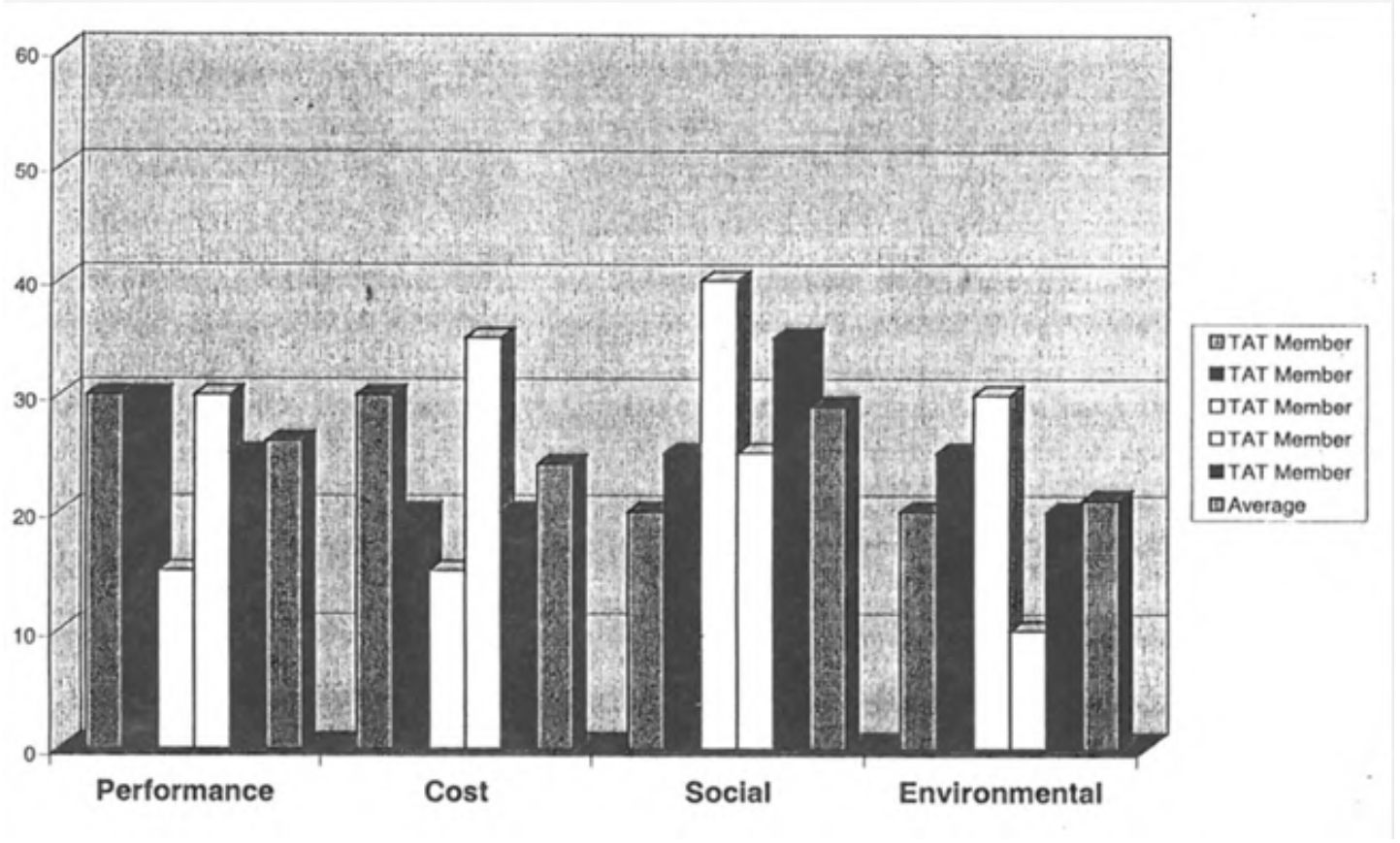
The Technical Advisory Team had the most equal ranking, reflecting relatively similar importance levels for each category. Social impacts were the most important, and environmental impacts the least important.

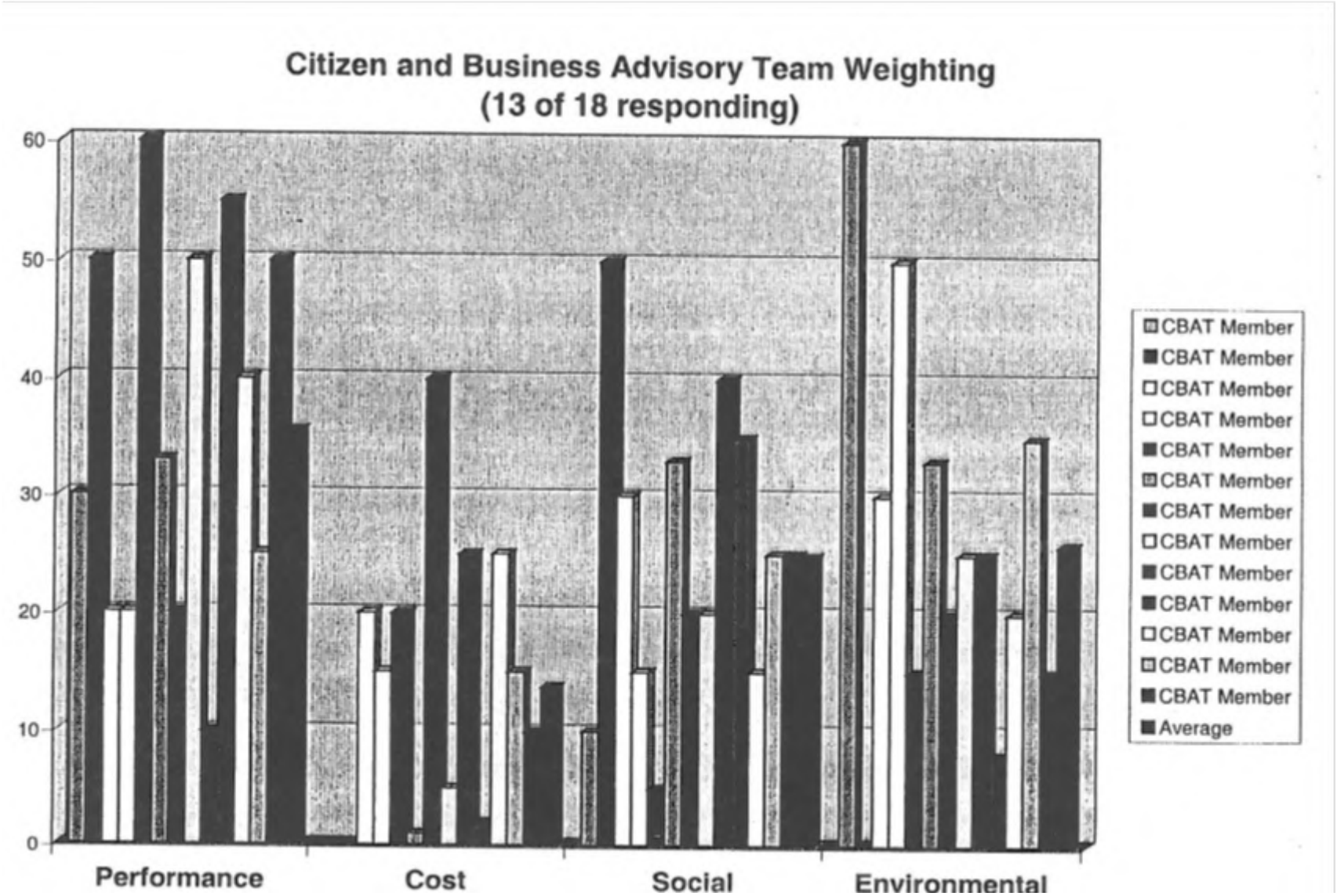
City Council has a wider range, with cost the least important category. Social and environmental impacts are the most important categories to the City Council. Responses from the Council varied more than the Technical Advisory Team, but less than the Citizen and Business Advisory Team.

By averaging the results of this process, our analysis can reflect the level of importance of each evaluation category to the community. The performance and social impacts rise to the top as the most important evaluation criteria categories. Environmental impacts are third in importance and cost is the least important category. These averages are applied in the evaluation matrix to give more emphasis or weight to the criteria that are, on average, most important to the community.

Figure 1.

Technical Advisory Team Weighting
(5 of 6 responding)




Citizen and Business Advisory Team Weighting
(13 of 18 responding)
60
50
40
30
20
10
0
Performance
Cost
Social
Environmental
CBAT Member
CBAT Member
CBAT Member
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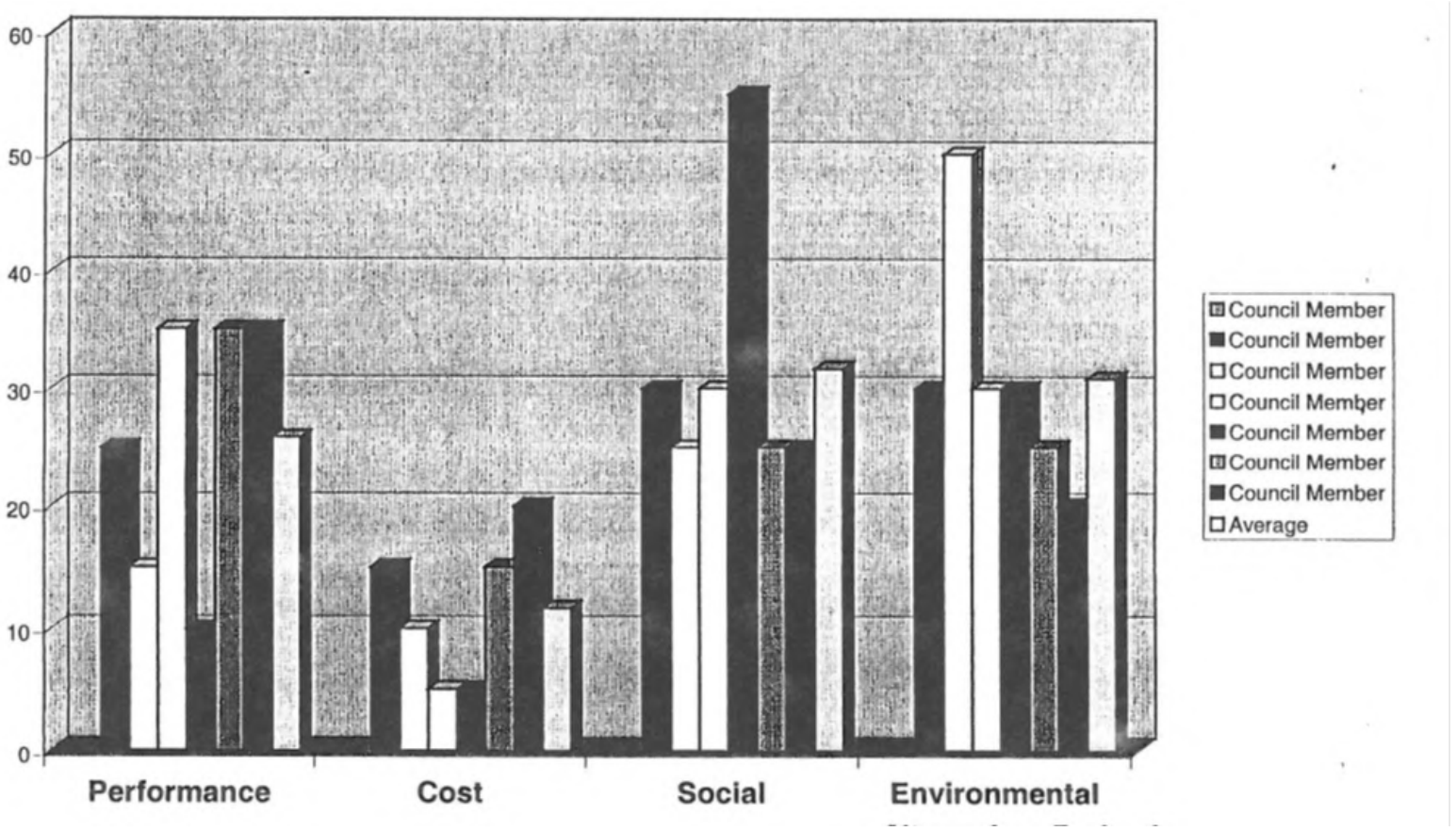
Average

Figure 3.

City Council Weighting
(6 of 7 responding)



Alternative Analysis

Evaluation Process:

The following criteria were developed (based on project goals and objectives) to compare possible Highway 82 Bypass Alternatives and determine the preferred alignment. For each criterion, a specific measurable factor was identified so that a detailed analysis to determine the magnitude of the impacts associated with each particular alternative and alignment could be accomplisted. In evaluating each alternative and alignment, the evaluation criteria are then weighted in a manner that portrays the perceived level of importance of each criterion.

Steps in the Evaluation Process:

1. **Four Evaluation Categories Developed vvith 20 Criteria**
2. **Each Criterion refined by Advisory Teams**
3. **Evaluation Categories Weighted**
4. **Each Criterion Analyzed**
5. **Each Alternative Assigned a Rating From 1-5**
   - **Similar to a --,-,0,+,++ System**
   - **1 Indicates Poor Performance, 5 Indicates Excellent Performance**

Performance Criterion A: Congestion Relief

Category 1: Performance — **Weight Factor = 29.1**

Criterion A: Congestion Relief/Number of Trips Diverted

Description	Qualitative or Quantitative?	Measurement(s)
Simple measure of the number of vehicle trips projected to be diverted from Grand Avenue (SH 82) by the aHemalive, based on the developed traffic model	Quantitative	Number of trips at the Grand Ave. Bridge, SH 82 south of town, along the railroad corridor, Midland Ave., and the change at the Grand Ave. Bridge

Alternative		Comments/Data Volumes in 2020										
		Grand Ave. Bridge	6th Ave. W/O Existing Interchange	SH 82 S/O 27th	Railroad Corridor S/O 7th	Rallroad Corridor N/O 7th	7th Street Connection to Downtown	Midland N/O 7th	Midland N/O 27th	Midland S/O 27th	SH 82 S/O Airport	Change in Volume on Grand Ave. Bridge
Existing		30,000	5,000	23,000			6,000	4,000	5,000	6,000	23,000	
No Build		40,000	12,000	30,000			6,000	9,000	6,000	13,000	26,000	
TDM		37,000	11,000	28,000			5,000	8,000	5,000	12,000	24,000	3,000
Midland Avenue-At Grade	2	34,000	10,000	23,000			7,000	15,000	15,000	15,000	26,000	6,000
Midland Avenue-Underground	2	34,000	10,000	23,000			7,000	15,000	15,000	15,000	26,000	6,000
Shortened Midland Avenue-At Grade	4	18,000	19,000	28,000			11,000	37,000	24,000	8,000	26,000	22,000
Shortened Midland Avenue-Underground	4	18,000	19,000	28,000			11,000	37,000	24,000	8,000	26,000	22,000
Railroad ROW-Elevated	5	18,000	11,000	27,000	20,000	28,000	13,000	6,000	10,000	12,000	26,000	22,000
Railroad ROW-At Grade	5	18,000	11,000	27,000	20,000	28,000	13,000	6,000	10,000	12,000	26,000	22,000
Railroad ROW-Underground	5	18,000	11,000	27,000	20,000	28,000	13,000	6,000	10,000	12,000	26,000	22,000
Bragdon Route-Elevated	4	22,000	26,000	27,000	22,000	20,000	13,000	7,000	10,000	12,000	26,000	18,000
Bragdon Route-At Grade	4	22,000	26,000	27,000	22,000	20,000	13,000	7,000	10,000	12,000	26,000	18,000
Bragdon Route-Underground	4	22,000	26,000	27,000	22,000	20,000	13,000	7,000	10,000	12,000	26,000	18,000

Data Source- The traffic model developed for Glenwood Springs is based on City and Regional 2020 development assumptions and transportation improvements including extensive use of transit including SH 82 Commuter Rail or Bus Rapid Transit. The model estimates average annual daily traffic.

Basis for Rating- The primary measurement is a comparison to the base no build alternative regarding number of trips diverted from Grand Avenue, which was defined as the critical link indicator for congestion along Grand Avenue. The alternative that resulted in the greatest diversion of 22,000 AADT as compared to the base of 40,000 was the Railroad Alternative. Although the Shortened Midland Alternative had the same diversion as Railroad Alternative, it was given a slightly lower rating of 4 because of significant increase in traffic along the two lane segment of 6th east of the new interchange and 37,000 AADT along Midland north of 7th, which is proposed as a four lane facility. Both these roadways would be over capacity and would therefore only result in relocating the congestion to another location as oppose to solving the congestion problem. Similarly, the Bragdon alternative was given a rating of 4 as its relieve to the bridge was slightly less, at 18,000 AADT and that these trips would travel on a congested two lane 6th east of a new interchange.

Performance Criterion B: Through Traffic Travel Time

Category 1: Performance				Weight Factor =	29.1
Criterion B: Through Traffic Travel Time					
Description	**Qualitative or Quantitative?**	**Measurement(s)**			
The travel time for through traffic, measured from a location south of town on SH 82 to the nearest I-70 exit.	Quantitative	Calculated routes travel time for each alternative, compared with the 2020 No Build alternative			
Alternative	**Rating**	**Comments/Data**			
		From the East	From the West	Average	Comparison to No Build
Existing		15.7 minutes	15.6 minutes	15.7 minutes	
No Build		16.6 minutes	16.6 minutes	16.6 minutes	
TDM		16.6 minutes	16.7 minutes	16.7 minutes	
Midland Avenue-At Grade	2	16.5 minutes	16.4 minutes	16.5 minutes	-0.1
Midland Avenue-Underground	2	16.5 minutes	16.4 minutes	16.5 minutes	-0.1
Shortened Midland Avenue-At Grade	1	18.4 minutes	16.3 minutes	17.4 minutes	+0.8
Shortened Midland Avenue-Underground	1	18.4 minutes	16.3 minutes	17.4 minutes	+0.8
Railroad ROW-Elevated	5	13.9 minutes	13.6 minutes	13.8 minutes	-2.8
Railroad ROW-At Grade	5	13.9 minutes	13.6 minutes	13.8 minutes	-2.8
Railroad ROW-Underground	5	13.9 minutes	13.6 minutes	13.8 minutes	-2.8
Bragdon Route-Elevated	4	15.7 minutes	14.5 minutes	15.1 minutes	-1.5
Bragdon Route-At Grade	4	15.7 minutes	14.5 minutes	15.1 minutes	-1.5
Bragdon Route-Underground	4	15.7 minutes	14.5 minutes	15.1 minutes	-1.5

Data Source - The Traffic Model calculates post assignment travel times which takes into account the affect of increased traffic along a roadway. The total travel time from the east via the 114 interchange to the south end of Glenwood Springs plus the total travel time from the west via the 116 interchange was added together and averaged as an indicator of Glenwood Springs through travel.

Basis for Rating -The base for the comparison was the No Build alternative with an average travel time of 16.7 minutes. The Railroad Alternative was rated a 5 as it reduces average travel time by 2.8 minutes or 17 percent. The Bragdon alternative was rated a 4 with a reduction of 1.5 minutes. The Midland alternative was rated a 2 as it resulted in virtually the same travel time as the No Build. The Shortened Midland was rated a one, as travel times would increase by 0.8 minutes due primarily the projected congestion along Midland near the junction of the new bridge and 7th.

Performance Criterion C: Vehicle Miles Traveled

Category 1: Performance		Weight Factor = 29.1	
Criterion C: Vehicle Miles Traveled			
Description	**Qualitative or Quantitative?**	**Measurement(s)**	
Projected impact on vehicle miles traveled (VMT) for the alternative.	Quantitative	From the arterial network, determine daily VMT for No Build conditions vs. VMT as a result of each alternative	
Alternative	**Rating**	**Comments/Data**	
		VMT along Routes	
		From the East	Alternative - No Build
Existing		81000	
No Build		104000	
TDM		97000	7000
Midland Avenue-At Grade	2	128000	-24000
Midland Avenue-Underground	2	128000	-24000
Shortened Midland Avenue-At Grade	2	128000	-24000
Shortened Midland Avenue-Underground	2	128000	-24000
Railroad ROW-Elevated	3	124000	-20000
Railroad ROW-At Grade	3	124000	-20000
Railroad ROW-Underground	3	124000	-20000
Bragdon Route-Elevated	1	141000	-37000
Bragdon Route-At Grade	1	141000	-37000
Bragdon Route-Underground	1	141000	-37000

Data Source – The traffic model records average annual daily traffic for each link and distance for each link. Vehicle Miles Traveled (VMT) is the product of AADT times length. The total vehicle miles traveled was the sum of the VMT's for each link along Grand, Midland, Railroad and the various connections.

Basis for Rating- The2020 No Build base was estimated to experience 104,000 Vehicle Miles of Travel. With increased capacity vehicle miles traveled will also increase. The Railroad Alternative resulted in the least increase and was rated a 3. The Midland and Shortened Midland Alternatives resulted in the second highest increase and was rated a 2. The Bragdon Route had the greatest increase and was rated a 1.

Cost Criterion B – Cost per Trip Diverted

Category 2: Cost		Weight Factor= 16.5		
Criterion B: Cost per Trip Diverted				
Description	**Qualitative or Quantitative?**	**Measurement(s)**		
The total capital cost in dollars for each vehicle trip diverted from Grand Avenue by the alternative (total cost of alternative/number of trips diverted).	Quantitative	Divide capital costs for each alternative by the number of trips diverted from Grand Ave.		
Alternative	**Rating**	**Comments/Data**		
		Cost (Midpoint)	**Trips Diverted**	**Cost per Trip Diverted**
No Build		None	None	None
TDM		$7,500,000	3000	$2,500
Midland Avenue-At Grade	2	$60,000,000	6000	$10,000
Midland Avenue-Underground	1	$112,500,000	6000	$18,750
Shortened Midland Avenue-At Grade	4	$60,000,000	22000	$2,727
Shortened Midland Avenue-Underground	4	$80,500,000	22000	$3,659
Railroad ROW-Elevated	4	$95,000,000	22000	$4,318
Railroad ROW-At Grade	4	$62,500,000	22000	$2,841
Railroad ROW-Underground	4	$70,000,000	22000	$3,182
Bragdon Route-Elevated	3	$100,000,000	18000	$5,556
Bragdon Route-At Grade	4	$75,000,000	18000	$4,167
Bragdon Route-Underground	3	$90,500,000	18000	$5,028

Data Source- This criterion is the division of the average estimated construction costs by the calculated number of trips diverted from Grand Avenue. This criterion is a measure of how much it costs to achieve the highest diversion.

Basis for Rating- The ratings were assigned by breaking the overall range into five equal parts and comparing them to the estimated cost per trip diverted. The best option is the Railroad ROW at grade and the worst option is the Midland Avenue underground.

Social Criterion A: Homes Displaced

Category 3: Socio-Economic		Weight Factor =)8.5	
Criterion A: Homes Displaced			
Description	**Qualitative or Quantitative?**	**Measurement(s)**	
The number of residences that must be removed to build the alternative.	Quantitative	Number of homes displaced by the alternative and Number of homes displaced in affordable neighborhoods	
Alternative	**Rating**	**Comments/Data**	
		Number of homes displaced	
		Total	**Affordable**
No Build	5	None	None
TDM	5	None	None
Midland Avenue-At Grade	1	50-55	10
Midland Avenue-Underground	1	50-55	10
Shortened Midland Avenue-At Grade	2	25-30	10
Shortened Midland Avenue-Underground	2	25-30	10
Railroad ROW-Elevated	3	12-15	10
Railroad ROW-At Grade	3	12-15	10
Railroad ROW-Underground	3	12-15	10
Bragdon Route-Elevated	2	30-35	18
Bragdon Route-At Grade	2	30-35	18
Bragdon Route-Underground	2	30-35	18

Data Source: Using 1997 aerial photography of the study area and preliminary alternative alignments, B&A counted the homes within 100 feet of the centerline of the proposed alignment. Where access to a property would be severely limited, the home was determined to be displaced. In addition, a windshield survey was used to help identify the number of more "affordable" housing that was taken by any alternative. Affordable housing was defined as homes of less than $150,000 in value.

Basis for Rating: The best alternative is the alternative that displaces the fewest number of homes. Generally, since the no build and TOM alternatives displaced the fewest number of homes (0), they were rated as the best alternatives. The worst alternatives were the Midland alternatives that would take more than 50 homes. Alternatives were ranked on a scale of 1-5 with a reduction of 10 homes displaced improving the ranking by one point.

Performance Criterion D: City-Wide Level of Service

Category 1: Performance						Weight Factor= 29.1		
Criterion D: City-Wide Level of Service								
Description	**Qualitative or Quantitative?**	**Measurement(s)**						
Projected level of service on existing roadways after the alternative is implemented.	Quantitative	Volume to Capacity Ratio and Level of Service on Grand Ave., SH 82 south of town, along the railroad corridor, Midland Ave., and Grand Ave.						
Alternative	**Rating**	**Comments/Data**						
		V/C Ratio and LOS in 2020						
		Grand Ave. Bridge	**6th Ave. W/O Existing Interchange**	**South on SH 82**	Railroad Corridor	**Midland N/O 7th**	**Midland N/O 27th**	**City-Wide**
No Build		1.11 / F	0.71 / C	0.83 / D		0.53 / A	0.35 / A	0.71 / C
TDM		1.03 / F	0.65 / B	0.78 / C		0.47 / A	0.29 / A	0.65 / B
Midland Avenue-At Grade	5	0.94 / E	0.59 / A	0.64 / B		0.42 / A	0.42 / A	0.60 / A
Midland Avenue-Underground	5	0.94 / E	0.59 / A	0.64 / B		0.42 / A	0.42 / A	0.60 / A
Shortened Midland Avenue-At Grade	3	0.50 / A	1.12 / F	0.78 / C		1.03 / F	0.67 / B	0.77 / C
Shortened Midland Avenue-Underground	3	0.50 / A	1.12 / F	0.78 / C		1.03 / F	0.67 / B	0.77 / C
Railroad ROW-Elevated	5	0.50 / A	0.65 / B	0.75 / C	0.56 / A	0.35 / A	0.59 / A	0.57 / A
Railroad ROW-At Grade	5	0.50 / A	0.65 / B	0.75 / C	0.56 / A	0.35 / A	0.59 / A	0.57 / A
Railroad ROW-Underground	5	0.50 / A	0.65 / B	0.75 / C	0.56 / A	0.35 / A	0.59 / A	0.57 / A
Bragdon Route-Elevated	3	0.61 / B	1.53 / F	0.75 / C	0.61 / B	0.41 / A	0.59 / A	0.75 / C
Bragdon Route-At Grade	3	0.61 / B	1.53 / F	0.75 / C	0.61 / B	0.41 / A	0.59 / A	0.75 / C
Bragdon Route-Underground	3	0.61 / B	1.53 / F	0.75 / C	0.61 / B	0.41 / A	0.59 / A	0.75 / C

Data Source- For each link in the traffic model, average daily traffic volumes are projected and compared to the links capacity via a volume to capacity ration. This ratio is used to determine link level of service. Six representative links were averaged to develop a system level of service indicator. These links included the Grand Avenue Bridge, 6^{1} ^{h} Avenue west of the existing 116 interchange, State Highway 82 at the south end of Glenwood Springs, the Railroaq Corridor and two locations along Midland; north of 7^{1}^{h} and north of 27^{1}^{h}.

Basis for Rating- All alternatives resulted in good levels of service. The rating of 5 vvas given to the Railroad Alternative and the Midland Alternative with an excellent projected level of service. A rating of 3 was given to the Shortened Midland Alternative and the Bragdon Alternative because of failing levels of service along 6^{1}h, west of the existing interchange.

Cost Criterion A – Construction Costs

Cost

Category 2: Cost	Weight Factor = 16.5	
Criterion A: Total Cost of Construction		
Description	**Qualitative or Quantitative?**	**Measurement(s)**
The total cost to construct the alternative.	Quantitative	Range of Total Construction Cost
Alternative	**Rating**	**Comments/Data**
		Range
No Build		0
TDM		5-10 Million
Midland Avenue-At Grade		55-65 Million
Midland Avenue-Underground		
Shortened Midland Avenue-At Grade		55-65 Million
Shortened Midland Avenue-Underground		75-86 Million
Railroad ROW-Elevated		90-100 Million
Railroad ROW-At Grade		55-70 Million
Railroad ROW-Underground	4	65-75 Million
Bragdon Route-Elevated	1	95-105 Million
Bragdon Route-At Grade	4	70-80 Million
Bragdon Route-Underground	3	85-96 Million

Data Source- The estimated costs were developed using available information and conceptual layouts. only major bid items were investigated and a 30% contingency was added for smaller items and unknown issues.

Basis for Rating – Estimated construction costs range between 55 and 120 million dollars (1999 values). The cheapest routes are the Midland Avenue, Shortened Midland and Railroad ROW at-grade options with costs ranging from 55 to 70 million dollars. The most expensive route is the Midland Avenue underground option at 105 to 120 million dollars due to the longer length of tunnel. The ratings were established by breaking the range into five equal parts and comparing them to the estimated ranges for each alternative.

Railroad ROW No. 2 - Structure Option

Assumptions:

- o New construction within RFRHA ROW and through some developed land due to railroad realignment.
- o Construct Four Lane Section (appox. 64' paved surface) at south end.
- o Construct Four Lane Viaduct Section (appox. 64' paved surface).
- o Re-construction of Existing Glenwood Interchange.
- o Construction of New intersection at South End.
- o Drainage Systems (costs inflated to deal with unknown issues).
- o Full right-of-way width purchase required of 100'.
- o Minimal street lighting.
- o Extensive noise abatement (walls or earthen berms).
- o Major construction traffic control effort.
- o Construction of new bridge over Colorado River.

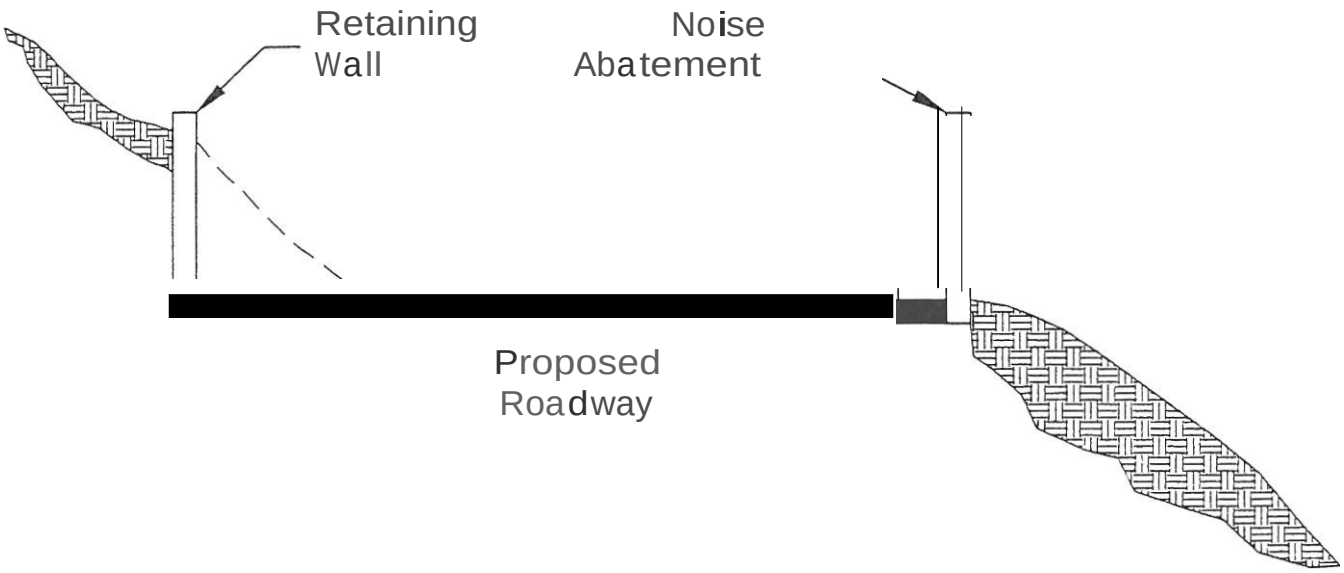
Item	Unit	#of Units	Unit Cost	Total
Roadway (at-grade)	LF	11125	$261	$293,625
Bridge Structures	SF	14,336	$150	$2,150,400
Viaduct Section	SF	413,952	$110	$45,534,720
ROW Acquisition	LF	7,817	$180	$1,407,060
Interchange Re-construction	LS	1	$15,000,000	$15,000,000
New Intersection at 23rd and Highway 82	LS	1	$2,000,000	$2,000,000
Retaining Walls	LF	2,000	$1,200	$2,400,000
Realignment of Railroad	EA	1	$2,000,000	$2,000,000
Displaced Homes/Businesses	EA	15	$300,000	$4,500,000
Subtotal				$75,285,805
Contingencies (30% of Construction Costs)				$20,813,624
Total				**$96,099,429**
Estimated Range of Construction Costs				**90 to 100 Million**

Railroad ROW No. 3 -Tunnel Option

Assumptions:

o New construction within RFRHA ROW and through some developed land due to railroad realignment. o Construct Four Lane Section (appox. 64' paved surface) above and below ground.
o Construct Four Lane Viaduct Section to tunnel (appox. 68' to 70' paved surface).
o Modification or re-construction of Existing Glenwood Interchange. o Construction of New intersection at South End.
o Drainage Systems (costs inflated to deal with unknown issues).
o Full right-of-way width purchase required of 100'.
o Tunnel lighting and ventilation.
o Minimal noise abatement (walls or earthen berms).
o Major construction traffic control effort.
o Construction of new bridge over Colorado River.
o Viaduct structure from bridge, over UP mainline and over water treatment plant area to tunnel entrance.

Item	Unit	#of Units	Unit Cost	Total
Roadway (at-grade)	LF	803	$350	$281,050
Bridge Structures	SF	14,336	$150	$2,150,400
Viaduct Section	SF	91.136	$110	$10,024,960
Cut and Cover Tunnel	LF	5,366	$3,730	$20,015,180
ROW Acquisition	LF	7,817	$180	$1,407,060
Interchange Re-construction	LS	1	$15,000,000	$15,000,000
New Intersection at 23rd and Highway 82	LS	1	$2,000,000	$2,000,000
Retaining Walls	LF	2,000	$1,200	$2,400,000
Realignment of Railroad	EA	1	$2,000,000	$2,000,000
Displaced Homes/Businesses	EA	12	$300,000	$3,600,000
Subtotal				$58,878,650
Contingencies (30% of Construction Costs)				$13,759,655
Total				$72,638,305
Estimated Range of Construction Costs				65 to 75 Million

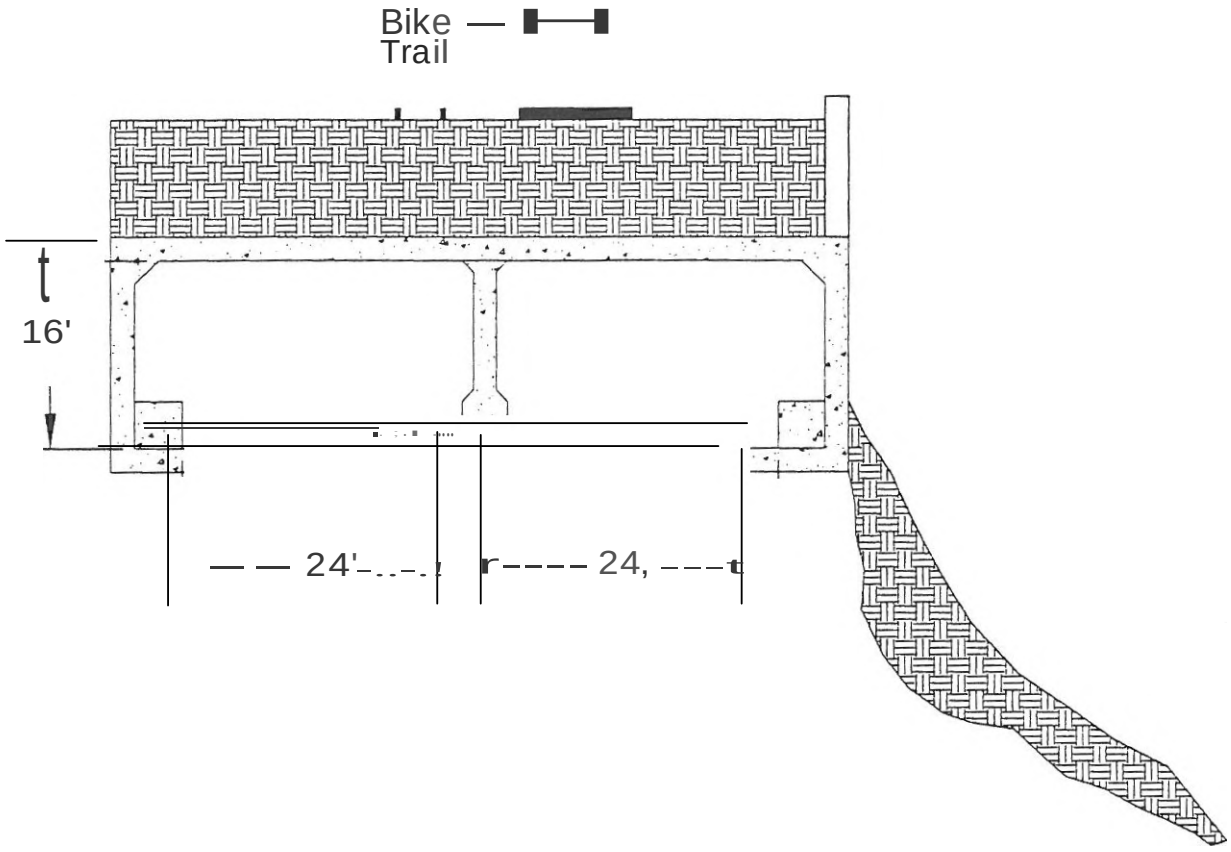


Midland Avenue
At Grade

100' 0 100' 200'

SCALE: 1.= 200'

Glenwood Springs
Highway 82 Bypass



Railroad
Cut & Cover

100' 0 100' 200'

SCALE: 1 = 200'

Glenwood Springs
Highway 82 Bypass

Shortened Midland No.1 - At-Grade Option

Assumptions:

- o New construction through highly developed land (high cost of ROW acquisition and homes/business taken)
- o Construct Four Lane Section (approx. 64' paved surface)
- o Construction of New Interchange (replacing existing 116).
- o Modifying intersection at 27th aAd Highway 82.
- o Drainage Systems (costs inflated to deal with unknown issues).
- o Full right-of-way width purchase required of 100'.
- o Minimal street lighting.
- o Extensive noise abatement (walls or earthen berms).
- o Major construction traffic control effort.
- o Includes new bridge at south end (replacing existing sunligt bridge).
- o Includes new bridge over Colorado River and UP mainline.

Item	Unit	#of Units	Unit Cost	Total
Roadway (at-grade}	LF	10,280	$360	$3,700,800
Bridge Spans (north and south)	SF	35,200	$150	$5,280,000
Viaduct Section	SF	81,600	$110	$8,976,000
ROW Acquisition	LF	12,105	$180	$2,178,900
Interchange Re-construction	LS	1	$15,000,000	$15,000,000
New Intersection at 27th and Highway 82	LS	1	$2,000,000	$2,000,000
Displaced Homes/Businesses	EA	30	$300,000	$9,000,000
Subtotal				$46,135,700
Contingencies (30% of Construction Costs)				$10,487,040
Total				$56,622,740
Estimated Range of Construction Costs				55 to 65 Million

Shortened Midland No. 2 - Tunnel Option

Assumptions:

o New construction through highly developed land (high cost of ROW acquisition and homes/business taken)
o Construct Four Lane Section (approx. 64' paved surface) underground. o
Construction of New Interchange (replacing existing 116).
o Modifying intersection at 27th aQd Highway 82.
o Drainage Systems (costs inflated to deal with unknown coordination issues).
o Full right-of-way width purchase required of 100'.
o Tunnel lighting and ventilation.
o Major noise abatement outside tunnel (walls or earthen berms). o
Major construction traffic control effort.
o Includes new bridge at south end (replacing existing sunligt bridge).
o Includes new bridge over Colorado River and UP mainline.

Item	Unit	#of Units	Unit Cost	Total
Roadway (at-grade)	LF	2,388	$340	$811,920
Cut and Cover Tunnel	LF	7,865	$3,730	$29,336,450
Bridge Spans (north and south)	SF	35,200	$150	$5,280,000
Viaduct Section	SF	81,600	$110	$8,976,000
ROW Acquisition	LF	12,105	$180	$2,178,900
Interchange Re-construction	LS	1	$15,000,000	$15,000,000
New Intersection at 27th and Highway 82	LS	1	$2,000,000	$2,000,000
Dis laced Homes/Businesses	EA	25	$300,000	$7,500,000
Subtotal				$71,083,270
Contingencies {30% of Construction Costs)				$14,900,937
Total				$85,984,207
Estimated Range of Construction Costs				75 to 86 Million

Traffic Forecasts:

The Glenwood Springs State Highway 82 Alternatives Bypass Traffic Forecast Analysis was based on the recently completed regional transportation model prepared for the Roaring Fork Holding Authority Corridor Assessment Study. In order to be sensitivity to the bypass alternatives within Glenwood Springs, traffic analysis zones and arterial links were disaggegated and refined within the City.

The model assumes that growth in regional housing and employment within the study area will increase between 70 and 100 percent by the year 2020. These development assumptions will significantly impact traffic traveling within Glenwood Springs, to/from Glenwood Springs and through Glenwood Springs.

It should be noted that the traffic forecasts are based on Annual Average Daily Traffic Volumes (AADT). Therefore, peak season traffic will exceed the daily forecasts presented. It should further be noted that the forecasts assume a significant transit capture with either commuter rail or regional bus service.

Through Traffic Assumptions

One of the travel demand forecast assumptions and outputs of the model is through traffic. The projected Glenwood Springs through traffic in the model is approximately 25 percent of total traffic along State Highway 82. This 25 percent through traffic is greater than the City of Glenwood Springs Through Traffic Study dated December 14, 1998. In that study, it was stated that the percentage of daily vehicular traffic that travels all the way through Glenwood Springs without making a local stop is as follows:

Northbound SR 82 south of 27th Street to 1-70 Westbound Ramp Exit 114: 5 percent
Northbound SR 82 south of 27th Street to 1-70 Westbound Ramp Exit 116: 7 percent
Northbound SR 82 south of 27th Street to 1-70 Eastbound Ramp Exit 116: 2 percent
- **Total Northbound SR 82 south of 27th Street to 1-70: 14 percent**

Although the traffic model has a slightly higher through percentage of 25 percent as compared to the "Through Traffic Study" of 14 percent, the regional traffic model assumptions for through traffic was selected for the study for the following reasons:

1. The Through Traffic Study for eastbound 1-70 appears low at two percent, given that twelve percent of total traffic is through traffic heading westbound on 1-70. Given that curret:lt traffic counts indicate that east and west splits at the interchange are relatively equal, then a 12 percent east plus a 12 percent west through traffic assumption might be more appropriate;

2. The Through Traffic Study was conducted during the shoulder season at the end of September, not during summer or winter peak conditions. It would be assumed that under peak summer and/or winter peak conditions, more through traffic would be anticipated.

3. Given that all up valley traffic must travel through Glenwood Springs to travel to and from their destination, the 14 percent through traffic intuitively appear low. Comparisons of other corridors, such as US 34 through Loveland with a 26 percent through traffic would appear more reasonable.

4. Based on discussions with the developers of the Corridor Investment Study, their estimates of 25% through traffic were based on both employer surveys conducted within the region and the calibration of the model to reflect actual ground counts. The employee trip is important for the planning of daily recurring events.

5. The overall objective of the State Highway 82 Bypass Study was to determine the recommendation of a preferred route. From a planning perspective, the higher 25 percent assumption reflects a more conservative worse case assumption.

Existing and Forecast Annual Average Daily Traffic Volumes

The resulting annual average daily traffic volumes for existing and future conditions for the no-build and alternatives are presented in the following exhibits. In addition, these charts present levels of service for the different alternatives.

Technical Appendices

Social Criterion C: Neighborhoods Divided

Category 3: Socio-Economic — **Weight Factor = 28.5**

Criterion C: Neighborhoods Divided

Description	Qualitative or Quantitative?	Measurement(s)
The number of existing neighborhoods that will be cut Into two pieces by the alternative.	Qualitative	New physical barriers in or through neighborhoods as a result of the construction of the alternative
Alternative	**Rating**	**Comments/Data**
No Build	5	No Impact
TDM	5	No Impact
Midland Avenue-At Grade	2	Further divides allneighborhoods alongMidland Ave However. tJe Midland route is already used as an aemalive route and neighborhood connecJivJy has suffered Increasedvolumes would furU1er degrade neighborhood connectivity.
Midland Avenue-Underground	2	
Shortened Midland Avenue-At Grade	3	Further divides neighborhoods along Midland Ave However. the Midland route is already used as an attemative route and neighborhood connectivity has suffered. Increased volumes would further degrade neighborhood connectivity,
Shortened Midland Avenue-Underground	3	
Ralroad ROW-Elevated	4	Divides neighborhood alongRiverside Dr.Neighborhoods west oiJhe railroad are generally disconnected from other neighborhoods by the railroad at present Limited addttionalimpact is expected as a result of a elevatedroad slnlcture. Grade separations should be provided to enhance pedestrian and bicycle connections from neighborhoods located west of railroad.
Railroad ROW-At Grade	3	Divides neighborhood along Riverside Dr. Neighborhoods west of the railroad are generally disconnected from other neighborhoods by the railroad at present. Limited additional impact is expected as a result of an at-grade road. Grade separations should be provided to enhance pedestrian and bicycle connections from neighborhoods located west of railroad. An at-grade road would increase the separation of neighborhoods located west of the railroad.
Railroad ROW-Underground	5	Divides neighborhood along Riverside Dr. Neighborhoods west of the railroad are generally disconnected from other neighborhoods by the railroad at present. Limited additional impact is expected as a result of the underground tunnel. Grade separations should be provided to enhance pedestrian and bicycle connections from neighborhoods located west of railroad.
Bragdon Route-Elevated	2	Impacts alongMtdland Ave. .Cowdin Or. endRiverside 0< Impacts similar to midland endrailroad alternatives.Grade separation crossings required I or Cowdin and Riverside neighborhoods. Neighborhood on Cowdin Drive severely impacted
Bragdon Route-At Grade	2	
Bragdon Route-Underground	4	

Data Source: Using 1998 aerial photography of the study area and preliminary alternative alignments, B&A identified development areas that appeared to be functioning as "neighborhoods". Where the alignment created a new barrier to the free movement of pedestrians and vehicles within a "neighborhood" or development area, the neighborhood was determined to be bisected.

Basis for Rating: The best alternative is the alternative that results in the least disruption to neighborhoods and pedestrian and vehicular movement within neighborhoods. Generally, since the no build and TDM alternatives only minimally increased disruption between existing neighborhoods, they were rated as the best alternatives. The worst alternatives were the Midland and Bragdon alternatives which would increase the disruption to the Midland Avenue corridor and two neighborhoods along the Bragdon route. Alternatives were ranked on a scale of 1-5 with a reduction of relative impacts improving the ranking by one point. Generally, underground alternatives faired better than at-grade or elevated alternatives since impacts would be limited to construction. Where homes were displaced, neighborhoods were also considered impacted.

Social Criterion B: Homes Impacted

category 3: Socio-Economic : Weight Factor =:28.5

Criterion B: Homes Impacted

Description	Qualitative or Quantitative?	Measurement(s)	
The number of homes within 150 - 500 feet of the centerline of the alternative route.	Quantitative	Number of additional homes within 150' and 500' of the route	
Alternative	**Rating**	**Comments/Data**	
		Within 150 feet	**Within 500 feet**
No Build	4	No additional	No additional
TDM	4	No additional	No additional
Midland Avenue-At Grade	1	170-190	450-500
Midland Avenue-Underground	2	170-190	450-500
Shortened Midland Avenue-At Grade	2	100-120	300-350
Shortened Midland Avenue-Underground	3	100-120	300-350
Railroad ROW-Elevated	3	20-30	90-100
Railroad ROW-At Grade	3	20-30	90-100
Railroad ROW-Underground	4	20-30	90-100
Bragdon Route-Elevated	3	35-45	140-150
Bragdon Route-At Grade	3	35-45	140-150
Bragdon Route-Underground	4	35-45	140-150

Data Source: Using 1997 aerial photography of the study area and preliminary alternative alignments, B&A counted the homes within 150 feet and 500 feet of the centerline of the proposed alignment. Only homes that were unimpacted previously were counted.

Basis for Rating: The best alternative is the alternative that impacts the fewest number of homes. Generally, the no build and TOM alternatives impacted the fewest number of homes (0}, they were rated as the best alternatives. However, neither the no build or TOM alternatives ranked perfectly since homes within 500 feet of the existing alignment would suffer additional impacts from increased traffic, noise, dust, etc. as traffic continues to increase on Grand Avenue. Cut-through traffic and congestion were also major considerations for existing neighborhoods. Underground alternatives scored better than at grade or elevated alternatives since impacts could be better confined. The worst alternatives were the Midland alternatives that would impact more than 450 homes. Alternatives were ranked on a scale of 1-5 with a reduction of 150 homes impacted improving the ranking by one point. Underground alternative rankings were also determined to be improved by one point.

Social Criterion D: Impacts to Businesses

Category 3: Soclo Economlc — Weight Factor = 28.5

Criterion D: Impacts to Businesses

Description	Qualitative or Quantitative?	Measurement(s)
The economic and other impacts to businesses.	Quantitative	Number of potentially impacted businesses that would experience less traffic minus businesses that would experience more traffic relative to the no build

Alternative	Rating	Comments/Data
		Criterion Score
No Build	5	None
TOM	5	None
Midland Avenue-At Grade		86
Midland Avenue-Underground	1	86
Shortened Midland Avenue-At Grade	3	53
Shortened Midland Avenue-Underground	3	53
Railroad ROW-Elevated	4	37
Railroad ROW-At Grade	4	37
Railroad ROW-Underground	4	37
Bragdon Route-Elevated	4	48
Bragdon Route-At Grade	4	48
Bragdon Route-Underground	4	48

Data Source: Using 1998 aerial photography of the study area and preliminary alternative alignments, B&A counted all storefront businesses adjacent to or within a block of the proposed alignment and Grand Avenue, Glenwood Avenue, and US6. Where access to a property would be severely limited, the business was determined to be impacted. Businesses were then divided into "potentially impacted business" and "nonimpacted business". A "potentially impacted business" was a business that was either "directly" impacted by drive-by traffic or impacted by a combination of drive-by traffic and local commerce.

Bragdon No. 1 - At-Grade Option

Assumptions:

o New construction within RFRHA ROW and through some developed land due to railroad realignment. o Construct Four Lane Section (appox. 64' paved surface)
o Construction of New Interchange near Devereux Road.
o Demolition of Existing Glenwood Interchange (116).
o Construction of New intersection at South End.
o Drainage Systems (costs inflated to deal with unknown issues).
o Full right-of-way width purchase required of 100'.
o Minimal street lighting.
o Extensive noise abatement (walls or earthen berms).
o Major construction traffic control effort.
o Construction of new bridge over Colorado and Roaring Fork Rivers.
o Viaduct structure from bridge, over UP mainline, to 7th Street Bridge and over to road.

Item	Unit	#of Units	Unit Cost	Total
Roadway (at-grade)	LF	7,145	$261	$1,864,845
Bridge Structures	SF	32,000	$150	$4,800,000
Viaduct Section	SF	123,200	$110	$13,552,000
ROW Acquisition	LF	9,570	$180	$1,722,600
Interchange Construction	LS	1	$15,000,000	.$15,000,000
Existing Interchange Demolition	LS	1	$8,000,000	$8,000,000
New Intersection at 23rd and Highway 82	LS	1	$3,000,000	$3,000,000
Retaining Walls	LF	2,000	$1,200	$2,400,000
Realignment of Railroad	EA	1	$3,500,000	$3,500,000
Displaced Homes/Businesses	EA	35	$300,000	$10,500,000
Subtotal				$64,339,445
Contingencies (30% of Construction Costs)				$13,235,054
Total				$77,574,499
Estimated Range of Construction Costs				70 to 80 MIIIIQn

Bragdon No.2 - Structure Option

Assumptions:

o New construction within RFRHA ROW and through some developed land due to railroad realignment. o Construct Four Lane Section (appox. 64' paved surface) at south end.
o Construction of New Interchange near Devereux Road.
o Demolition of Existing Glenwood Interchange (116).
o Construct Four Lane Viaduct Se_ction (appox. 64' paved surface).
o Construction of New intersection at South End.
o Drainage Systems (costs inflated to deal with unknown issues).
o Full right-of-way width purchase required of 100'.
o Minimal street lighting.
o Extensive noise abatement (walls or earthen berms). o Major construction traffic control effort.
o Construction of new bridge over Colorado and Roaring Fork Rivers.

Item	Unit	#of Units	Unit Cost	Total
Roadway (at-grade)	LF	650	$261	$169,650
Bridge Structures	SF	32,000	$150	$4,800,000
Viaduct Section	SF	538,880	$110	$59,276,800
ROW Acquisition	LF	9,570	$180	$1,722,600
Interchange Construction	LS	1	$15,000,000	$15,000,000
Demolition of Existing Interchange	LS	1	$8,000,000	$8,000,000
New Intersection at 23rd and Highway 82	LS	1	$2,000,000	$2,000,000
Retaining Walls	LF	2,000	$1,200	$2,400,000
Realignment of Railroad	EA	1	$3,500,000	$3,500,000
Displaced Homes/Businesses	EA	35	$300,000	$10,500,000
Subtotal				$107,369,050
Contingencies (30% of Construction Costs)				$24,098,175
Total				$104,425,425
Estimated Range of Construction Costs				95 to 105 Million

Environmental Criterion F: Water Quality Impacts

Criterion F: Water Quality Impacts		
Description	**Qualitative or Quantitative?**	**Measurement(s)**
The long term impacts from runoff and sedimentation associated with the alternative.	Qualitative and Quantitative	Total acreage of impervious surfaces to generate runoff
Alternative	**Rating**	**Comments/Data**
No Build		
TDM	5	none
Midland Avenue-At Grade	1	25.6 acres
Midland Avenue-Underground	2	25.6 acres, with underground segments
Shortened Midland Avenue-At Grade	3	10.5 acres
Shortened Midland Avenue-Underground		10.5 acres, with underground segments
Railroad ROW-Elevated	3	12.1 acres
Railroad ROW-At Grade	3	12.1 acres
Railroad ROW-Underground	4	12.1 acres, with underground segments
Bragdon Route-Elevated	3	14.0 acres
Bragdon Route-At Grade	3	14.0 acres
Bragdon Route-Underground	4	14.0 acres, with underground segments

Data Source – To evaluate this criterion we estimated the area (in acres) of new paved surfaces (road lanes and shoulders) that would result from each alternative, to reflect the effect of stormwater runoff from road surfaces into the Colorado and Roaring Fork drainage basins. Preliminary designs did not require bridge or road support structures to be placed in either river. Had such structures been required, the alternative would have been rated lower. The Midland routes reflect the net difference between the new 4-lane and existing 2-lane roads.

Basis for Rating -- Underground routes were rated slightly higher due to capability to more easily control runoff. The Midland At Grade route was rated lowest because it was the longest.

Environmental Criterion D: Air Quality Impacts

Category 4: Environmental — Weight Factor"' 25.9

Criterion O: Air Quality Impacts

Description	Qualitative or Quantitative?	Measurement(s)	
The projected impact on air quality for the alternatives, based on the mass of PM10 created from the vehicle miles traveled	Quantitative	Estimate the total potential mass of PM10 based on the Vehicle Miles Traveled	
Alternative	**Rating**	**Comments/Data**	
		Pounds of PM10 per Day	**Comparison with No Build Alternative**
No Build	2	2070	
	3	1930	-139
Midland Avenue-At Grade	2	2547	478
Midland Avenue-Underground	5	1762	-308
Shortened Midland Avenue-At Grade	2	2547	478
Shortened Midland Avenue-Underground	5	1742	-327
Railroad ROW-Elevated	2	2468	398
Railroad ROW-At Grade	2	2468	398
Railroad ROW-Underground	5	1702	-368
Bragdon Route-Elevated	1	2806	736
Bragdon Route-At Grade	1	2806	736
Bragdon Route-Underground	4	1824	-246

Data Source -This measure is based on the vehicle miles traveled explained previously, and the estimated pounds of PM10 that would be released to the atmosphere, based on the EIS for Highway 82 up-valley (data were provided by COOT's Air Quality Specialist). The table shows the "baseline" PM10 of the No Build Alternative, against which all alternatives are compared. (PM10 refers to to particulate matter less than 10 microns in diameter, and includes dust from sand/gravel on paved road surfaces, materials from degradation of vehicle tires and brakes during operation, and similar sources.) We originally used carbon monoxide generation, but modified the measure to comprise PM10 based on input from local COOT staff.

Basis for Rating -The ratings reflect the measure in the far right column. The underground routes impacted air quality the least. This is not surprising given that most PM10 \NOUid be generated by sand applied to roads in the \Ninter, and that no sand would be required in underground roads. The worst route \Nas Bragdon, which generated the most vehicle miles traveled.

Environmental Criterion E: Riparian Area Impacts

category 4: Environmental Weight Factor= 25.9

Criterion E: Riparian Areas Impacted

Description	Qualitative or Quantitative?	Measurement(s)
The impacts to areas in close proximity to the Roaring Fork and Colorado rivers	Quantitative	Estimate the number of linear feet of river within 500 feet of the roadway

Alternative	Rating	Comments/Data
		Acres
No Build	5	
TDM	5	
Midland Avenue-At Grade	1	16,150' riverbank impact, 1 new bridge
Midland Avenue-Underground	4	4,150' riverbank impact, 1 new bridge
Shortened Midland Avenue-At Grade	2	11,300' riverbank impact, 1 new bridge
Shortened Midland Avenue-Underground	4	1,000' riverbank impact, 1 new bridge
Railroad ROW-Elevated	3	7300' riverbank impact, 1 new bridge
Railroad ROW-At Grade	3	7300' riverbank impact, 1 new bridge
Railroad ROW-Underground	3	7300' riverbank impact, 1 new bridge
Bragdon Route-Elevated	2	7900' riverbank impact, 2 new bridges
Bragdon Route-At Grade	2	7900' riverbank impact, 2 new bridges
Bragdon Route-Underground	2	7900' riverbank impact, 2 new bridges

Data Source -We evaluated riparian areas as an indicator of impacts to wildlife habitat and a proxy for wetlands along the riverbanks. To estimate impacts we examined the aerial photograph of the corridor and estimated the length of riverbank (either side) within 500 feet of the bypass centerline, or disrupted by new bridges. The underground routes were treated differently for this criterion. Because "open profiles" are being considered for the Railroad and Bragdon Underground routes they were rated less favorably assuming the open profile would disrupt animal migration and riverbank conditions. Accordingly, the Midland and Shortened Midland Underground routes were rated slightly higher because they would be set back from the rivers far enough that they could not have an open profile.

Basis for Rating – The alternatives that have the greatest length within 500 feet of riverbank, with roads and bridges, were rated the lowest. The Bragdon route is similar in length, but requires an additional bridge, and therefore was rated lower than the Railroad route.

Environmental Criterion B: Noise Impacts

category 4: Environmental — Weight Factor = 25.9

criterion B: Noise Impacts

Description	Qualitative or Quantitative?	Measurement(s)
The projected noise impacts associated with the alternative, including short-term impacts during construction.	Quantitative	3 times the number of homes within 150' plus the number of homes within 500' of the alternative

Alternative	Rating	Comments/Data		
		Homes within 150'	Homes within 500'	Measure
No Build	4	No additional homes	No additional homes	No additional homes
TDM	5	No additional homes	No additional homes	No additional homes
Midland Avenue-At Grade	1	180	475	1015
Midland Avenue-Underground	5	Underground	Underground	Underground
Shortened Midland Avenue-At Grade	2	110	325	655
Shortened Midland Avenue-Underground	4	Underground	Underground	Underground
Railroad ROW-Elevated	3	25	95	170
Railroad ROW-At Grade	3	25	95	170
Railroad ROW-Underground	5	Underground	Underground	Underground
Bragdon Route-Elevated	3	40	145	265
Bragdon Route-At Grade	3	40	145	265
Bragdon Route-Underground	4	20-25	40-50	112

Data Source -B&A's recent noise modeling efforts have found that a four-lane road carrying 25,000 vehicle per day at 45-50 mph will exceed Federal Highways noise criteria of 67 decibels within approximately 125 feet, based on a "linear" noise source such as a highway. We examined the aerial photograph of the corridor and counted the number of homes within the ranges defined above.

Basis for Rating- The ratings reflect the weighted measure in the far right column. The best construction method is an underground route because it contains noise in the tunnel. The Railroad and Bragdon routes expose fewer homes to noise, and were rated more favorably. The Midland At Grade route is longer and exposes more homes to higher noise levels. The homes closer to the highway were weighted more heavily to reflect the likelihood of experiencing noise in excess of FHWA standards.

Environmental Criterion C: Parks and Recreation Areas

Category 4: Environmental	Weight Factor= 25.9	
Criterion C: Parks and Recreation Areas Impacted		
Description	**Qualitative or Quantitative?**	**Measurement(s)**
The impacts to existing parks and recreation facilities	Quantitative	Number of acres of parks or recreation areas directly affected and in proximity to the alternative
Alternative	**Rating**	**Comments/Data**
No Build	5	No change
TDM	5	No change
Midland Avenue-At Grade	4	Proximity impacts to Veltus Park
Midland Avenue-Underground	5	Underground
Shortened Midland Avenue-At Grade	2	0.70 acres lost at Two Rivers Park, proximity impacts to Veltus Park
Shortened Midland Avenue-Underground	3	0.70 acres lost at Two Rivers Park
Railroad ROW-Elevated	3	0.66 acres lost at O'Leary Park, proximity impacts to Vogelaar Park
Railroad ROW-At Grade	3	0.66 acres lost at O'Leary Park, proximity impacts to Vogelaar Park
Railroad ROW-Underground	5	No change
Bragdon Route-Elevated	1	0.66 acres lost at O'Leary and 0.70 at Two Rivers Park (1.36 acres total), proximity impacts to Vogelaar Park
Bragdon Route-At Grade	1	0.66 acres lost at O'Leary and 0.70 at Two Rivers Park (1.36 acres total), proximity impacts to Vogelaar Park
Bragdon Route-Underground		0.70 acres lost at Two Rivers Park

Data Source- The project could affect Two Rivers. Veltus, Vogelaar, and O'Leary Parks. Using the aerial photograph of the corridor and preliminary alignments, we estimated how much area in which parks vvould be affected. Parks could be affected directly (encroachment) or indirectly (noise or vievvshed impacts) by the project. Under all alternatives the bike trail would be replaced following construction, and thus was not a factor in evaluating the alignments. O'Leary Park could be replaced after an underground route was constructed.

Basis for Rating -The best construction method is an underground route because parks could be rebuilt after construction. The best route was Midland because it affects only Veltus Park, and that feature only indirectly if the road is located west away from the park. The Shortened Midland and Bragdon routes affect nearly 1.5 acres (combined) at Two Rivers, and O'Leary Park directly and Vogelaar Park indirectly. In the ratings, Two Rivers Park was considered the most "valuable" park resource given its amenities.

Social Criterion G: Dovvntovvn Goals

,category 3: Socio-Economic Weight Factor= 28.5

Criterion G: Downtown Goals

Description	Qualitative or Quantitative?	Measurement(s)
The contribution of the alternative to planning goals in the Glenwood Springs Downtown Plan.	Qualitative	Assessment of the contribution to the Downtown Plan Goals
Alternative	**Rating**	**Comments/Data**
No Build	2	Grand Avenue and 6th Avenue become grid-locked by 2020. Negative impac.t on downtown circulation
TDM	2	
Midland Avenue-At Grade	4	Grand Avenue and 6th Avenue businesses are relieved of excessive traffic. Physical and visual connections to Roaring Fork Rive are preserved. Some retail areas in West Glenwood and Wolfsohn Ranch that compete with Downtown receive more traffic.
Midland Avenue-Underground	4	
Shortened Midland Avenue-At Grade	3	
Shortened Midland Avenue-Underground	3	
Railroad ROW-Elevated	3	Grand Avenue and 6th Avenue businesses are relieved of excessive traffic. However, physical connection to Roaring Fork River is interrupted.
Railroad ROW-At Grade	3	
Railroad ROW-Underground	4	Grand Avenue and 6th Avenue businesses are relieved of excessive traffic. Physical and visual connecteions to Roarina Fork River are retained.
Bragdon Route-Elevated		Grand Avenue and 6th Avenue businesses are relieved of excessive traffic. New interchange enables North Glenwood portion of Downtown to be less impacted by traffic relative to Railroad alternative. However. visual connection to Roarina Fork River is
Bragdon Route-At Grade	3	
Bragdon Route-Underground	4	New interchange enables North Glenwood portion of Downtown to be less impacted by traffic relative to Railroad alternative. Physical and visual connections to Roaring Fork River are

Data Source: Glenwood Springs Downtown Plan.

Basis for Rating: The best alternative is the alternative that furthers the greatest number of plan goals and objectives. Generally, the plan focused on limiting traffic (particularly truck traffic) in the downtown, pursuing redevelopment of the City's riverfront, and promoting a pedestrian-friendly environment. The plan identifies promoting downtown as a retail hub as a major goal. The routes were evaluated to determine their impact on the proposed plans. Generally, the alternatives were determined to have relatively similar impacts. The no build and TDM scored low due to traffic impacts to downtown. The railroad alternatives score lower due to potential impacts to riverfront development options. The Midland alternatives scored the highest since they do not limit the development of the City's riverfront. While the Midland alternative fail to resolve the traffic congestion, they do improve the traffic situation in the downtown to some extent.

Environmental Criterion A: Visual Impacts

category 4: Environmental — Weight Factor = 25.9

Criterion A: Visual Impacts

Description	Qualitative or Quantitative?	Measurement(s)
The aesthetic impact of the alternative.	Qualitative	Perceived positive or negative aesthetic impacts associated with the alternative
Alternative	**Rating**	**Comments/Data**
No Build	5	No change
TDM	5	No change
Midland Avenue-At Grade	4	Follows existing route
Midland Avenue-Underground	5	Follows existing route, hidden near residential areas
Shortened Midland Avenue-At Grade		1/3 mile of additional new road
Shortened Midland Avenue-Underground	3	113 mile of additional new road, hidden segment
Railroad ROW-Elevated	2	Introduces vehicles to corridor
Railroad ROW-At Grade	2	Introduces vehicles to corridor
Railroad ROW-Underground	4	Introduces vehicles to corridor, hidden segment
Bragdon Route-Elevated		Half-mile of additional new road
Bragdon Route-At Grade		Half-mile of additional new road
Bragdon Route-Underground	3	Half-mile of additional new road, hidden segment

Data Source- The ratings were assigned after considering the effect on viewsheds from a "skyline" or community-wide perspective. Routes with new roadway, particularly more visible roadway, were rated lower.

Basis for Rating -The best construction method is the underground route because it hides traffic from view. The best route was Midland because it follows an existing alignment, though the road would be wider and more vehicles would be introduced along the route. The Underground Shortened Midland and Bragdon routes were rated slightly lower than the Railroad Underground because of the new road at the north end and the new 1-70 interchange.

Social Criterion E: Businesses Displaced

Category 3: Socio-Economic weight Factor =, 28.5

Criterion E: Businesses Displaced

Description	Qualitative or Quantitative?	Measurement(s)
The number of businesses that must be removed for construction of the alternative.	Quantitative	Number of non-residential buildings displaced

Alternative	Rating	Commehts/Data
No Build	5	None
TDM	5	None
Midland Avenue-At Grade	4	1-3 buildings
Midland Avenue-Underground	4	1-3 buildings
Shortened Midland Avenue-At Grade	1	7-9 buildings
Shortened Midland Avenue-Underground	1	7-9 buildings
Railroad ROW-Elevated	2	5-7 buildings
Railroad ROW-At Grade	2	5-7 buildings
Railroad ROW-Underground	2	5-7 buildings
Bragdon Route-Elevated	2	5-7 buildings
Bragdon Route-At Grade	2	5-7 buildings
Bragdon Route-Underground	2	5-7 buildings

Data Source: Using 1998 aerial photography of the study area and preliminary alternative alignments, B&A counted the number of businesses within 100 feet of the centerline of the proposed alignment. Where access to a property would be severely limited, the business was determined to be displaced.

Basis for Rating: The best alternative is the alternative that displaces the fewest number of businesses. Generally, since the no build and TOM alternatives displaced the fewest number of businesses (0), they vvere rated as the best alternatives. The vvorst alternatives vvere the shortened Midland alternative that vvould take more than 7 businesses. Alternatives vvere ranked on a scale of 1-5 with a reduction of 2-3 businesses displaced improving the ranking by one point.

Social Criterion F: Community Goals

:category 3: Socio-Economic ;Weight Factor =28.5

Criterion F: Community Goals		
Description	**Qualitative or Quantitative?**	**Measurement(s)**
The contribution of the alternative to land use planning goals in the Glenwood Springs Land Use Plan.	Qualitative	Assessment of the contribution to the Transportation Plan Goals, Land Use Plan Goals, and Comprehensive Plan Goals
Alternative	**Rating**	**Comments/Data**
No Build	1	Contributes to none of the goals
TDM	1	Contributes to population and regional goals. Has very limited contribution to overall transportation goals when considered alone.
Midland Avenue-At Grade	2	Contributes very moderately to all goals, poor traffic gains
Midland Avenue-Underground	2	
Shortened Midland Avenue-At Grade	3	Fair contribution to all goals, less significant traffic gains. Has some undesirable social impacts.
Shortened Midland Avenue-Underground	3	Fair contribution to all goals, less significant traffic gains
Railroad ROW-Elevated	4	Good contribution to all goals. Major contribution when combined with TDM alternative. Has some undesirable social impacts.
Railroad ROW-At Grade	4	Good contribution to all goals. Major contribution when combined with TDM alternative. Has some undesirable social impacts.
Railroad ROW-Underground	4	Good contribution to all goals. Major contribution when combined with TDM alternative.
Bragdon Route-Elevated	3	Fair contribution to all goals, less significant traffic gains. Has some undesirable social impacts.
Bragdon Route-At Grade	3	Fair contribution to all goals, less significant traffic gains. Has some undesirable social impacts.
Bragdon Route-Underground	3	Fair contribution to all goals, less significant traffic gains

Data Source: Long-Range Transportation Plan goals, Glenwood Springs Comprehensive Plan goals, Glenwood Springs Land Use Plan.

Basis for Rating: The best alternative is the alternative that furthers the greatest number of plan goals and objectives. Generally, the plans are focused on maintaining a compact urban form and the concurrency of public facilities to serve development. The transportation plan identifies a number of factors that should be used to evaluate transportation system needs including neighborhood impacts and reductions in transportation demand. The transportation also outlines the goals of identifying an alignment for the Highway 82 bypass. The routes were evaluated to determine their impact on proposed plans. Generally, the Railroad alignment scored better than other alignments since the alignment would promote a compact development pattern, address transportation needs, allow transit and rail to proceed, and have limited impacts to existing neighborhoods. Other alternatives scored lower based on a variety of impacts to plan objectives including environmental impacts, neighborhood impacts, and encouraging sprawl.

Cost Estimates:

Midland Avenue No. 1 -At-Grade Option

Assumptions:

o New construction through highly developed land (high ROW acquisition and homes/business displacement costs)
o Construct Four Lane Section (approx. 64' paved surface)
o Modifications to West Glenwood Interchange.
o Construction of new Interchange on south end ("T" intersection w/ signals). o Drainage Systems (costs inflated to deal with unknown issues).
o Full right-of-way width purchase required of 100'.
o Minimal street lighting.
o Extensive noise abatement (walls or earthen berms).
o Major construction traffic control effort.
o Excludes new bridge on south end.
o Excludes modifications to bridge over Colorado River and undercrossing of UP mainline.

Item	Unit	#of Units	Unit Cost	Total
Roadway (at-grade)	LF	33,280	$360	$11,980,800
ROW Acquisition	LF	33,280	$180	$5,990,400
Interchange Re-construction	LS	1	$15,000,000	$15,000,000
South Interchange/Intersection	LS	1	$3,000,000	$3,000,000
Displaced Homes/Businesses	EA	55	$300,000	$16,500,000
Subtotal				$52,471,200
Contingencies (30% of Construction Costs)				$8,994,240
Estimated Cost of Construction				$61,465,440
Estimate'd Range of Construction Costs				55 to 65 Million

Midland Avenue No. 2 - Tunnel Option

Assumptions:

o New construction through highly developed land (high ROW acquisition and homes/business displacement costs)
o Construct Four Lane Section (approx. 64' paved surface) underground. o
Modifications to West Glenwood Interchange.
o Construction of new Interchange on south end ("T" intersection w/ signals).
o Drainage Systems (costs inflate·d to deal with unknown coordination issues). o
Full right-of-way width purchase required of 100'.
o Tunnel lighting and ventilation.
o Major noise abatement outside tunnel (walls or earthen berms). o
Major construction traffic control effort.
o Excludes new bridge on south end.
o Excludes modifications to bridge over Colorado River and undercrossing of UP mainline.

Item	Unit	#of Units	Unit Cost	Total
Roadway (at-grade)	LF	18,239	$352	$6,420,128
Cut and Cover Tunnel	LF	15,041	$3,730	$56,102,930
ROW Acquisition	LF	33,280	$180	$5,990,400
Interchange Re-construction	LS	1	$15,000,000	$15,000,000
South Intherchange/Intersection	LS	1	$2,000,000	$2,000,000
Displaced Homes/Businesses	EA	50	$300,000	$15,000,000
Subtotal				$100,513,458
Contingencies (30% of Construction Costs)				$17,124,566
Total				$117,638,024
Estimated Range of Construction Costs				105 to 120 Million

Businesses directly impacted by drive-by traffic include lodging, gas stations, and fast food restaurants. This category is labeled "convenience and lodging". Businesses impacted by drive-by traffic and local commerce include many retailers like apparel shops, sit-down restaurants, book stores, etc. This category is labeled "retail-locals and visitors." Business not impacted by drive-by traffic are those that serve the local population including attorneys, hardware stores, banks, bingo parlors, etc. This category is labeled "local commerce." Visitor destination businesses are also included in the unimpacted category. The visitor destination businesses include the pool and vapor caves.

For each alternative, the number of businesses that may experience decreased traffic relative to a no build alter ative and the number of business that may experience an increase in traffic relative to a no build alternative were counted.

All business in the downtown meeting the criterion and located within the downtown were excluded. Impacts to these businesses were assessed based on the alternative's conformance to the Downtown Plan.

Basis for Rating: The best alternative is the alternative that results in the highest net traffic count for existing drive-by impacted businesses. Generally, since the no build and TOM alternatives displaced the lowest number of drive-by trips, they were rated as the best alternatives. The worst alternatives were the Midland alternatives that divert trips south of the airport and west of Glenwood Springs. Alternatives were ranked on a scale of 1-5 with a reduction in impacts to 20 businesses improving the ranking by one point.

Bragdon No. 3 - Tunnel Option

Assumptions:

o New construction within RFRHA ROW and through some developed land due to railroad realignment. o Construct Four Lane Section (appox. 64' paved surface) above and below ground.
o Construct Four Lane Viaduct Section to tunnel (appox. 64' paved surface). o Demolition of Existing Glenwood Interchange.
o Construction of New Interchange near Devereux Road. o Construction of New intersection at South End.
o Drainage Systems (costs inflatea to deal with unknown issues). o Full right-of-way width purchase required of 100'.
o Tunnel lighting and ventilation.
o Minimal noise abatement (walls or earthen berms).
o Major construction traffic control effort.
o Construction of new bridge over Colorado and Roaring Fork Rivers.
o Viaduct structure from bridge, over UP mainline, to 7th Street Bridge and over to road.

Item	Unit	#of Units	Unit Cost	Total
Roadway (at-grade)	LF	1,779	$350	$622,650
Bridge Structures	SF	32,000	$150	$4,800,000
Viaduct Section	SF	123,200	$110	$13,552,000
Cut and Cover Tunnel	LF	5,366	$3,730	$20,015,180
ROW Acquisition	LF	9,570	$180	$1,722,600
Interchange Construction	LS	1	$15,000,000	$15,000,000
Demolition of Existing Interchange	LS		$8,000,000	$8,000,000
New Intersection at 23rd and Highway 82	LS		$3,000,000	$3,000,000
Retaining Walls	LF	2,000	$1,200	$2,400,000
Realignment of Railroad	EA	1	$1,500,000	$1,500,000
Displaced Homes/Businesses	EA	30	$300,000	$9,000,000
Subtotal				$79,612,430
Contingencies (30% of Construction Costs)				$15,865,127
Total				$95,477,557

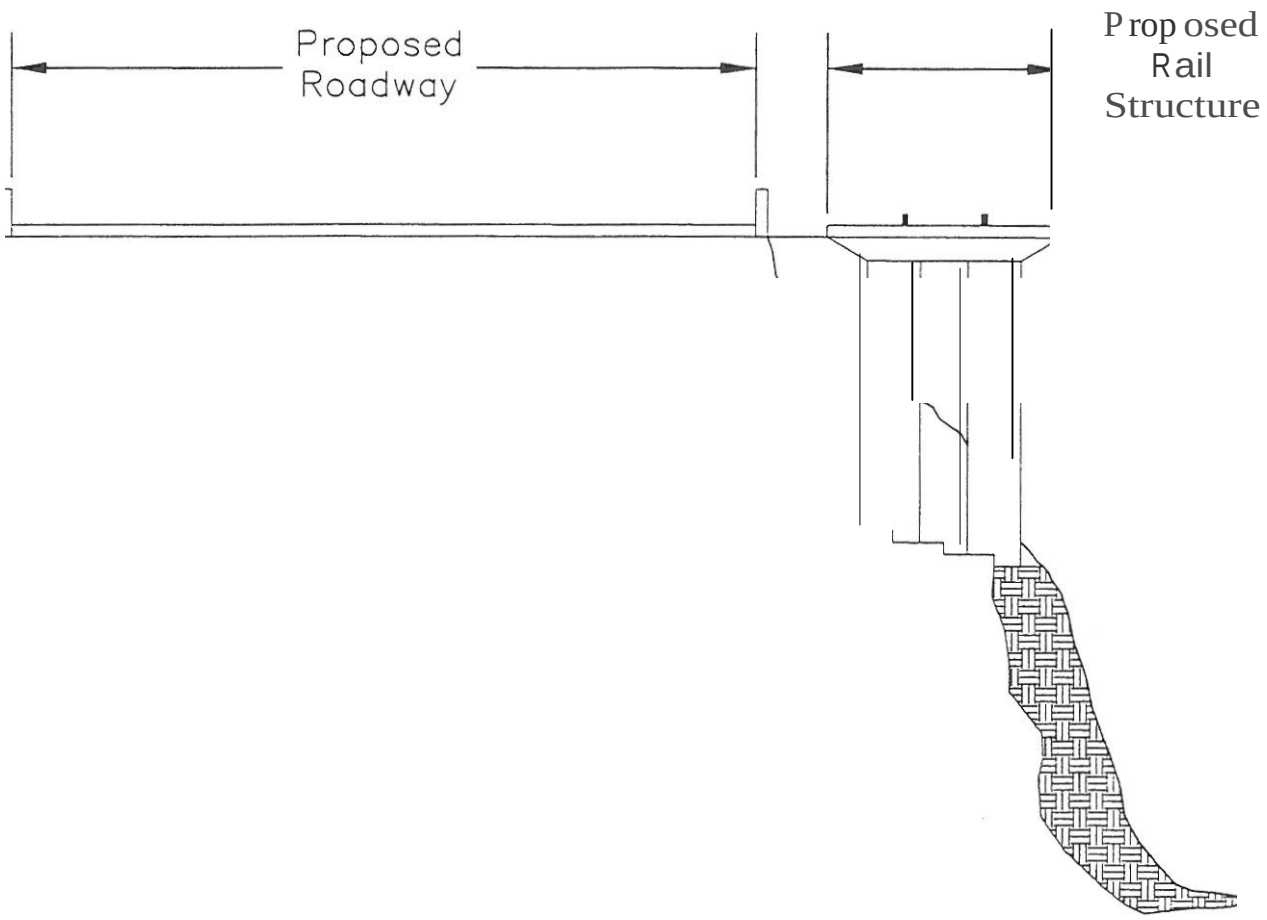
Estimated Range of Construction Costs

Railroad ROW No. 1 - At-Grade Option

Assumptions:

o New construction within RFRHA ROW and through some developed land due to railroad realignment. o Construct Four Lane Section (appox. 64' paved surface)
o Re-construction of Existing Glenwood Interchange. o Construction of New intersection at South End.
o Drainage Systems (costs inflated to deal with unknown issues).
o Full right-of-way width purchase required of 100'.
o Minimal street lighting.
o Extensive noise abatement (walls or earthen berms).
o Major construction traffic control effort.
o Construction of new bridge over Colorado River.
o Viaduct structure from bridge, over UP mainline and over water treatment plant area to road.

Item	Unit	#of Units	Unit Cost	Total
Roadway (at-grade)	LF Bridge	6,169	$261	$1,610,109
Structures	SF Viaduct Section	14,336	$150	$2,150,400
SF ROW Acquisition	LF	91'136	$110	$10,024,960
Interchange Re-construction	LS	7,817	$180	$1,407,060
New Intersection at 23rd and Highway 82	LS	1	$15,000,000	$15,000,000
Retaining Walls	LF Realignment of	1	$2,000,000	$2,000,000
Railroad	EA	2,000	$1,500	$3,000,000
Displaced Homes/Businesses	EA	1	$3,500,000	$3,500,000
		20	$300,000	$6,000,000
Subtotal				$44,692,529
Contingencies (30% of Construction Costs)				$11'185,641
Total				$55,878,170
Estimated Range of Construction Costs				55 to 70 Million

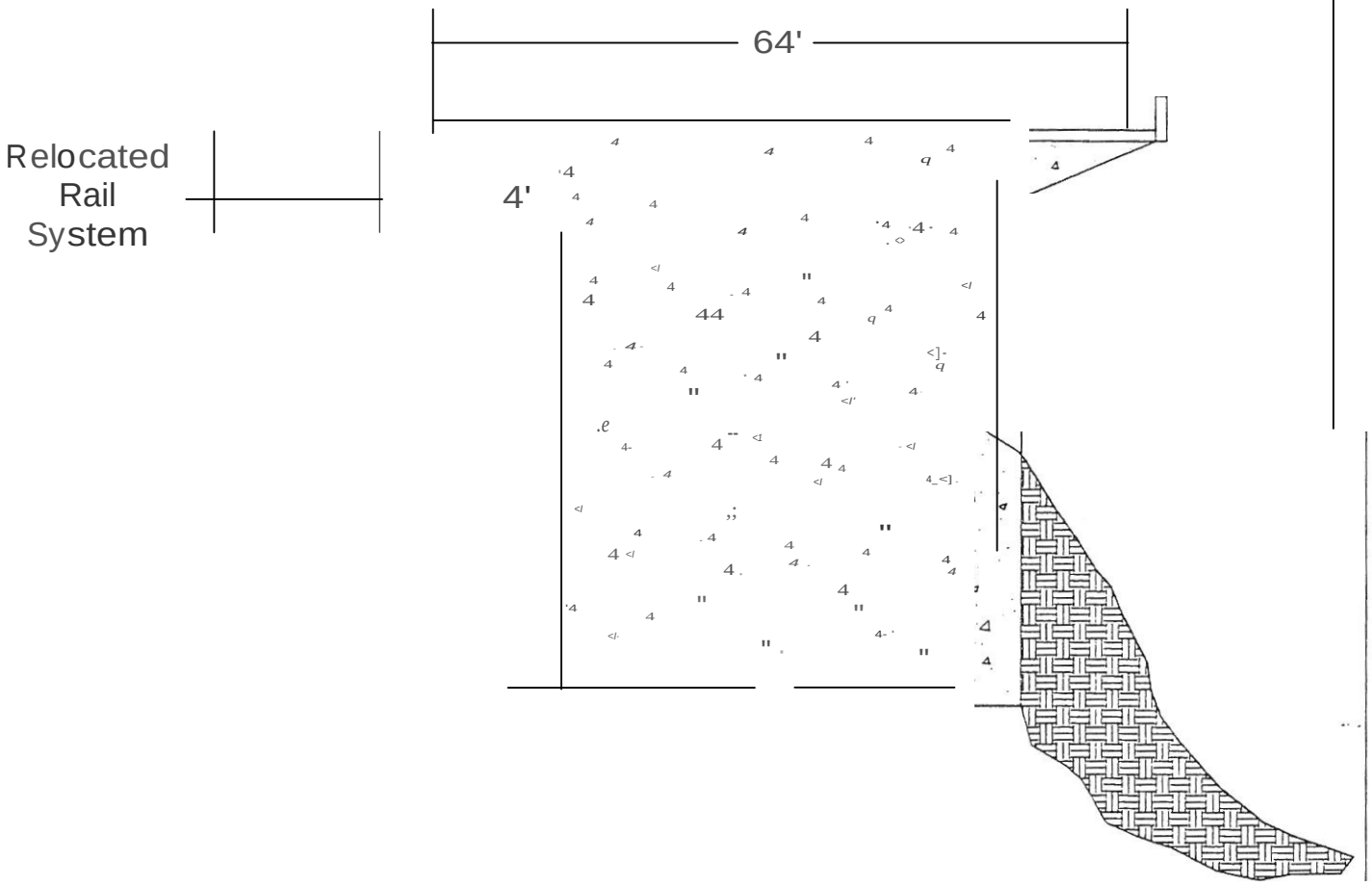


Railroad
At Grade

100' 0 • 100' 200'

SCALE: 1 - – 200·

Glenwood Springs
Highway 82 Bypass



Railroad
Structure (Elevated)

100' 0 100' 200'
SCALE: 1" = 200'

Glenwood Springs
Highway 82 Bypass

EXHIBIT F-2:

CITY OF GLENWOOD SPRINGS
RESOLUTION NO. 99-11

RESOLUTION NO. 99-11

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF GLENWOOD SPRINGS, COLORADO, DESIGNATING THE PREFERRED BYPASS ALTERNATIVE.

WHEREAS, City Council adopted Resolution No. 98-1 on January 15, 1998, establishing transportation improvement commitments necessary for the future growth in and around the City; and

WHEREAS, those specified commitments included the protection of properties adjacent to the railroad corridor through the City, and the construction of a "pass through" from Interstate 70 to the south end of the City on the railroad right-of-way; and

WHEREAS, the Citizens Advisory Board has recommended that the railroad corridor from 8th Street to 23rd Street be designated as the preferred bypass alternative, and

WHEREAS, the Planning and Zoning Commission has recommended that the railroad corridor from Exit 116 on Interstate Highway 70 to the vicinity of 23'ct and 27th Streets be designated as the preferred bypass alternative; and

WHEREAS, after numerous studies, the most recent by Balloffet & Associates, and input from various citizen groups, City Council has determined that the preferred bypass alternative shall herewith be designated.

NOW, THEREFORE, IT IS RESOLVED BY THE CITY COUNCIL OF THE CITY OF GLENWOOD SPRINGS, COLORADO, THAT:

Section 1. The railroad corridor through town and ending in the vicinity of23'ct and 2Th Streets is hereby designated as the preferred bypass alternative for State Highway 82 through the City of Glenwood Springs and shall be communicated to the Colorado Department of Transportation as the City's final decision on the location of the bypass.

Section 2. As rail has been chosen by the Roaring Fork Railroad Holding Authority as the preferred alternative means of transportation for the Aspen to Glenwood Springs corridor and the City has agreed with such designation by the adoption of Resolution No. 99-12, the railroad would be the primary surface use of the railroad corridor, and the bypass will simultaneously occupy the railroad corridor with recommended four (4) lanes of automobile traffic in some fashion, including, but not limited to, a tunnel underneath the corridor.

Section 3. With the preferred bypass designation made herewith, a Traffic Demand Management Study and an Urban Growth Study specific to the railroad corridor and lands adjacent thereto should be undertaken as soon as is practicable.

INTRODUCED, READ AND PASSED THIS_ DAY OF _____,1999.

CITY OF GLENWOOD SPRJNGS, COLORADO

Sam Skramstad, Mayor

ATTEST:

RobinS. Clemons, City Clerk

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& Asso c l at e1, l n c.
Lonco, Inc.
Coley/Forresl, Inc.

Presentation Outline

I. Work Plan

II. Alternatives Evaluated

III. Problem Statement

IV. Alternatives Analysis

V. Preliminary Identification of Preferred Alternative

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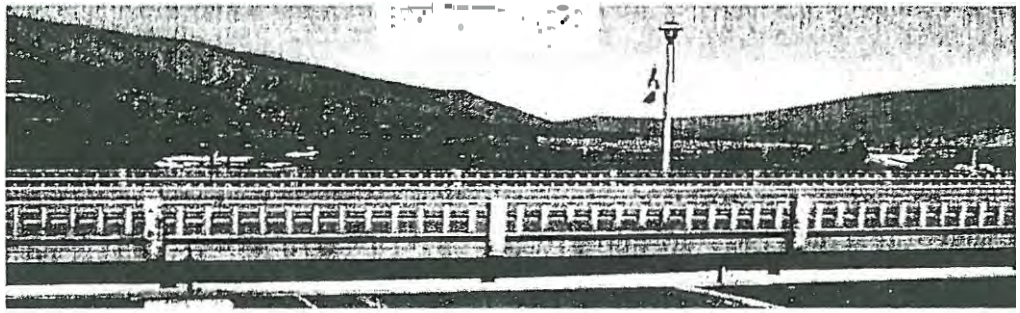
Highway 82 Bypass Alternative Evaluation

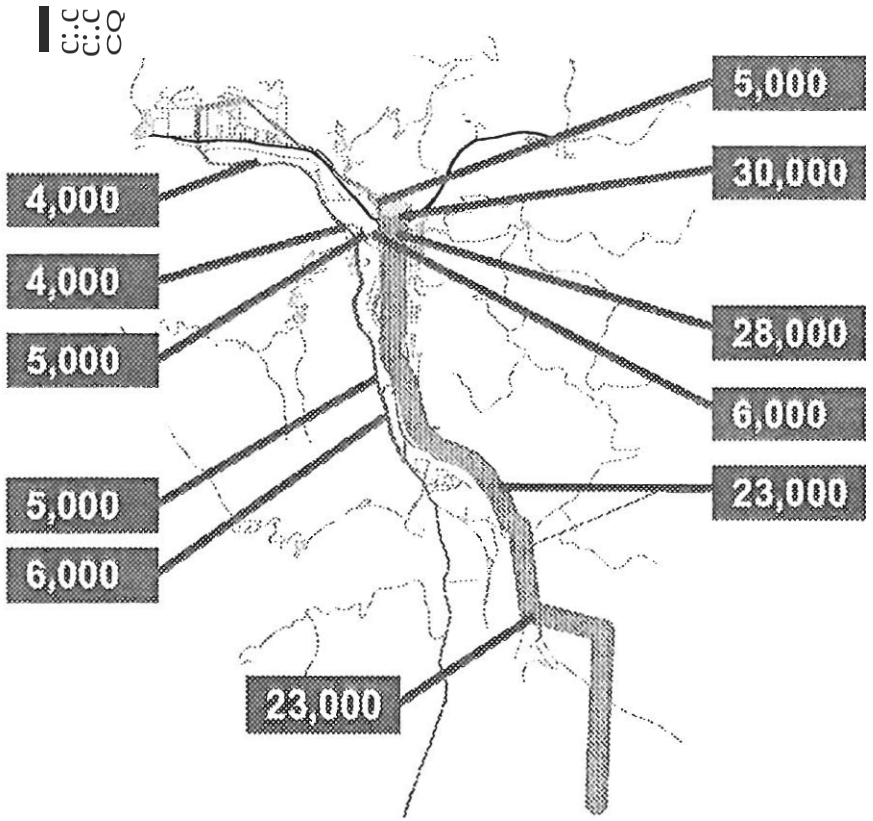


Glenwood Springs, CO

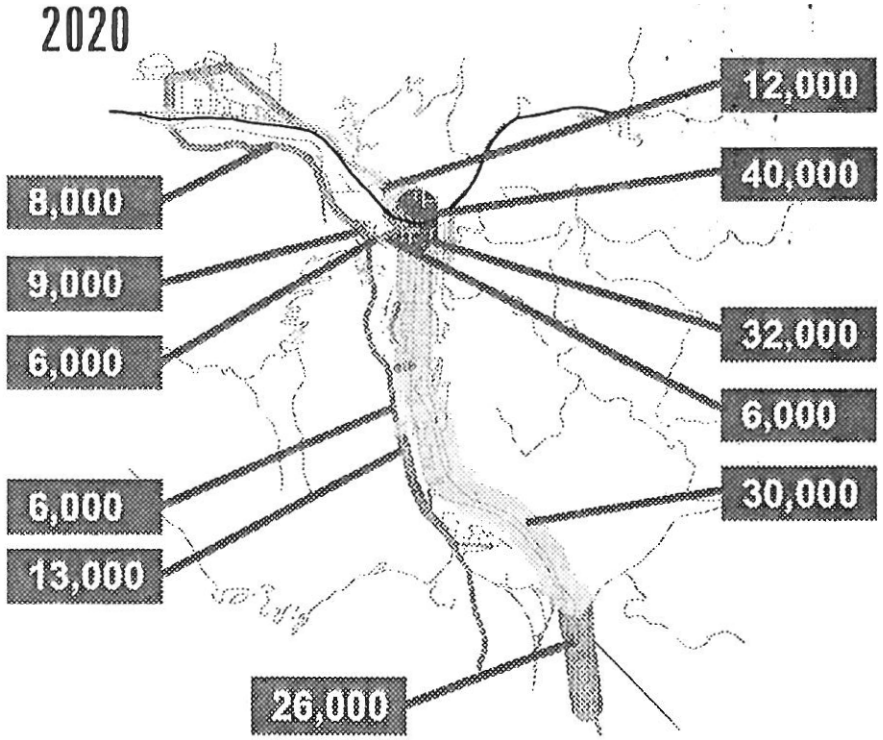
Glenwood Springs
BYPASS ALTERNATIVE ANALYSIS

Public Open House Slide Show

EXISTING AND FUTURE CONDITIONS WITH NO BYPASS



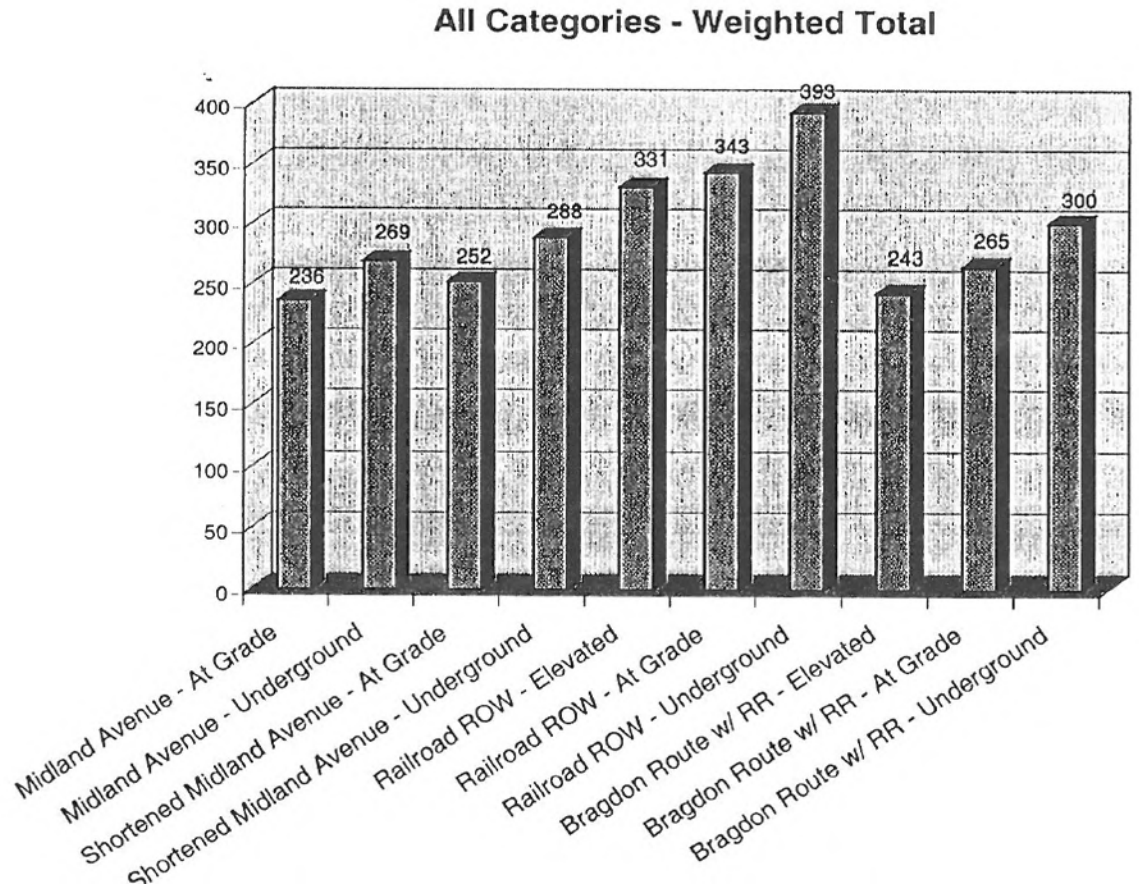
2020



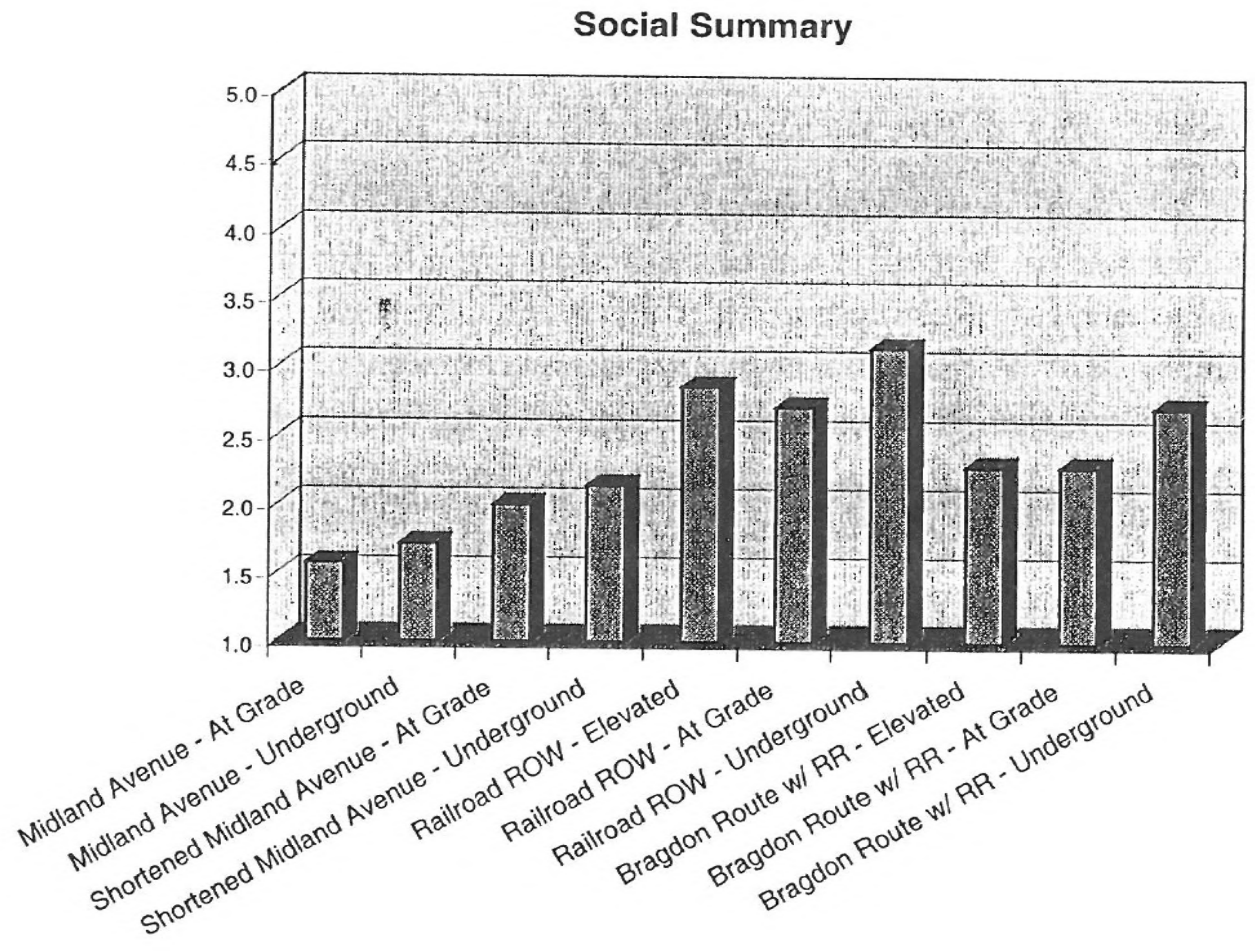
Total Daily Traffic Volumes
Levels of Service A - C
Levels of Service D - E
Level of Service F

Glenwood Springs

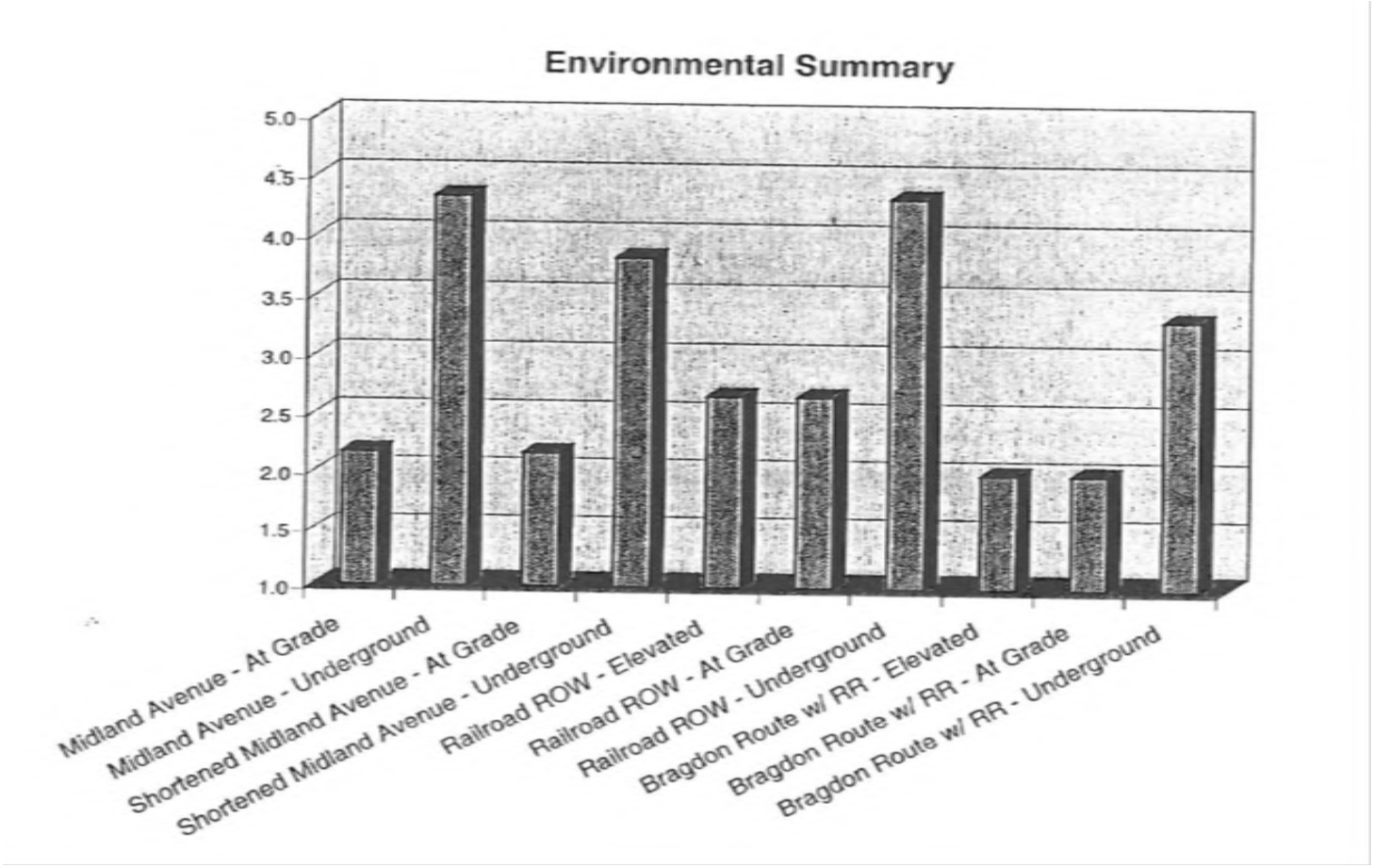
Summary of All Evaluation Categories:



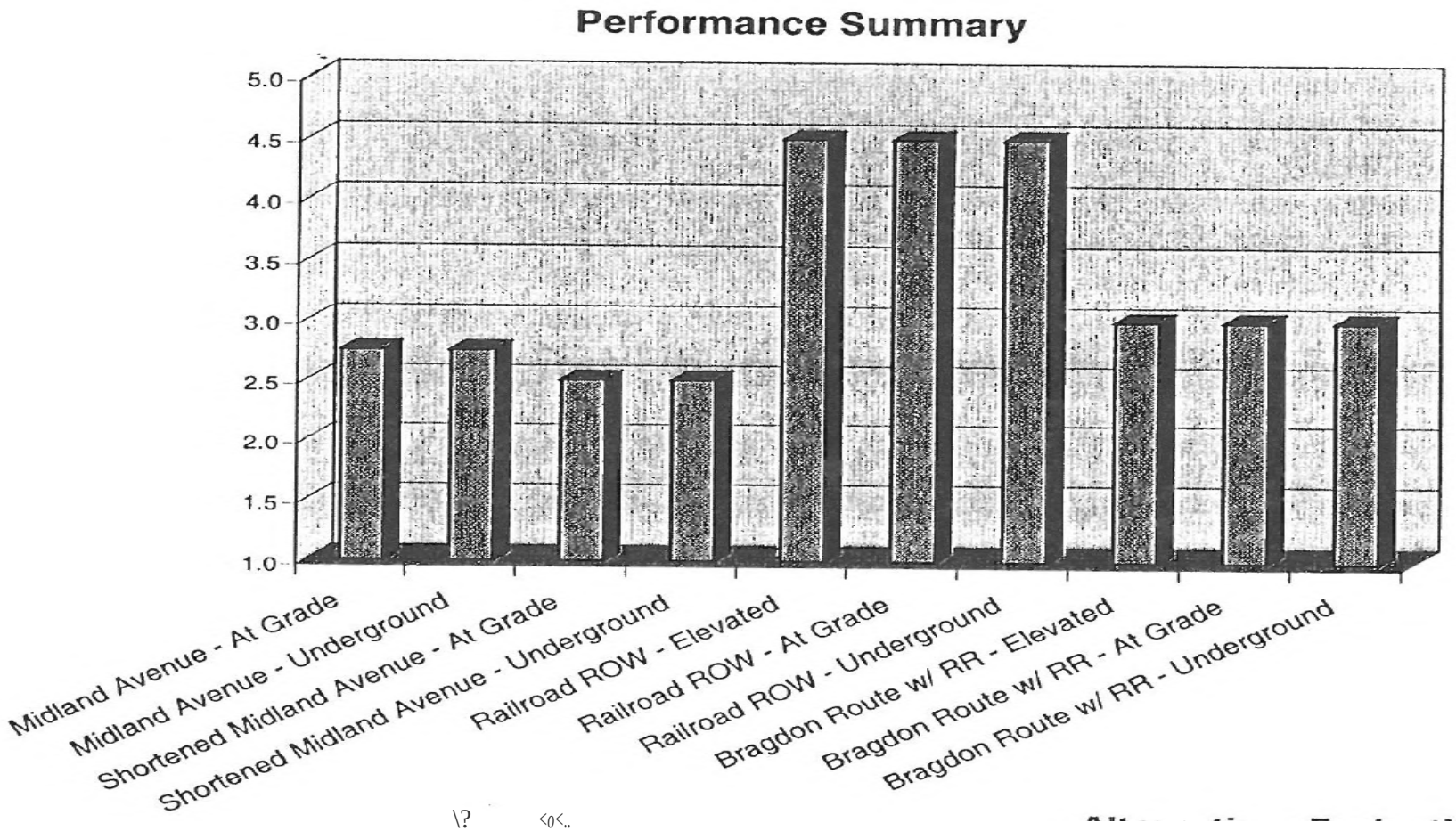
Social Impacts:

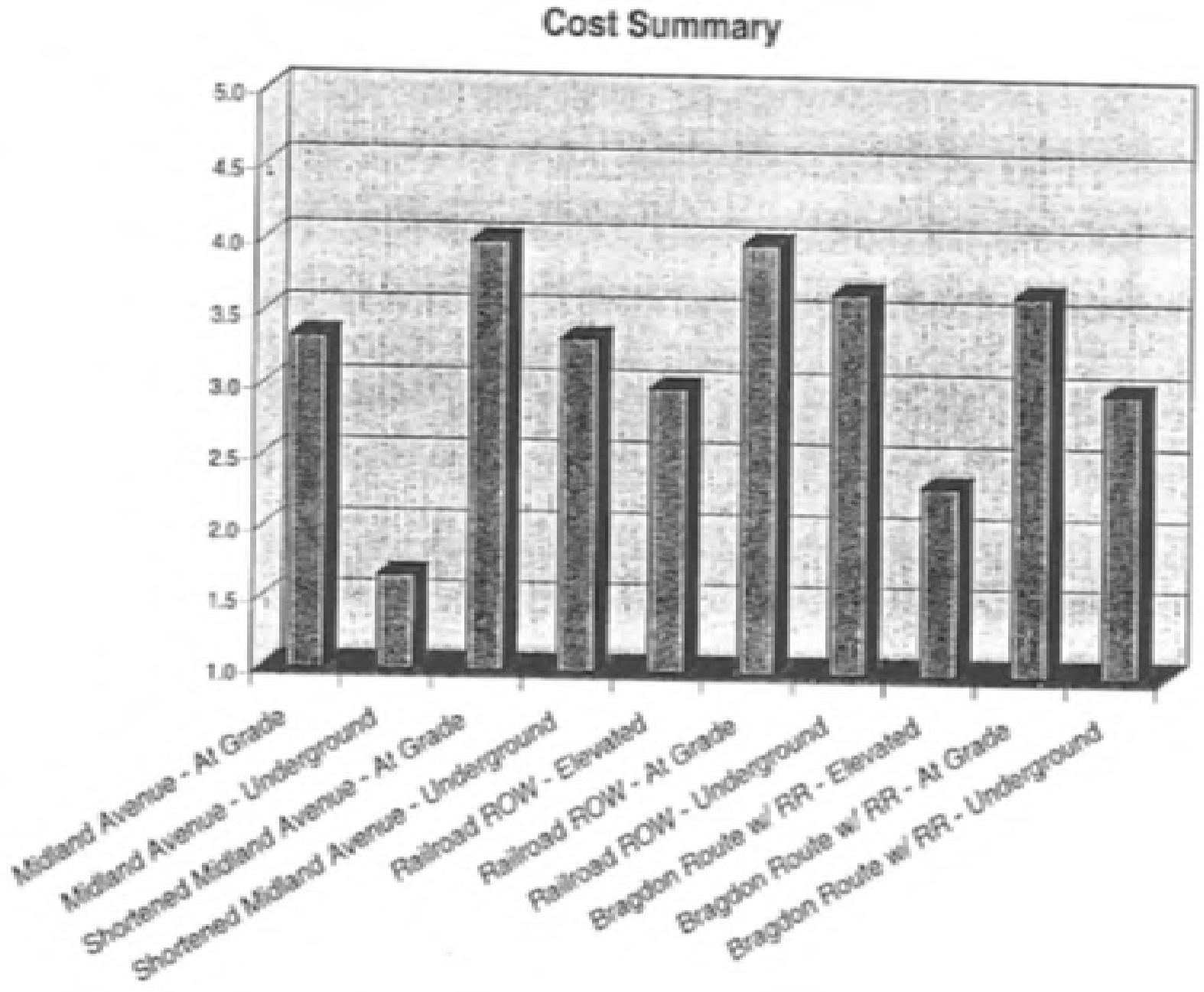


Environmental Impacts:



Summary of Preliminary Findings:




Cost Summary
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
Midland Avenue - At Grade
Midland Avenue - Underground
Shortened Midland Avenue - At Grade
Shortened Midland Avenue - Underground
Railroad ROW - Elevated
Railroad ROW - At Grade
Railroad ROW - Underground
Bragdon Route w/ RR - Elevated
Bragdon Route w/ RR - At Grade
Bragdon Route w/ RR - Underground

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Highway 82 Bypass

Preliminary Findings

City Council Weighting

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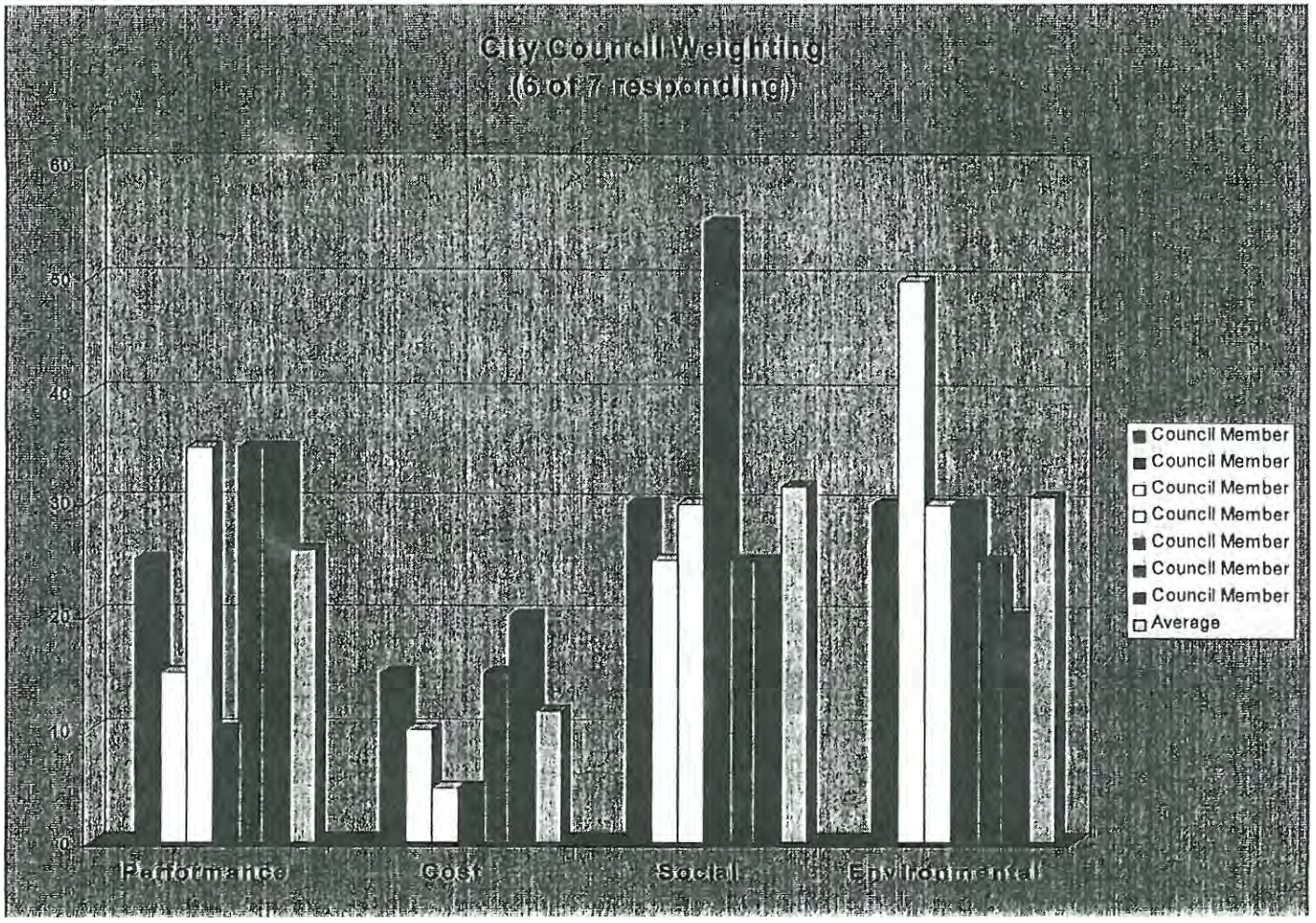
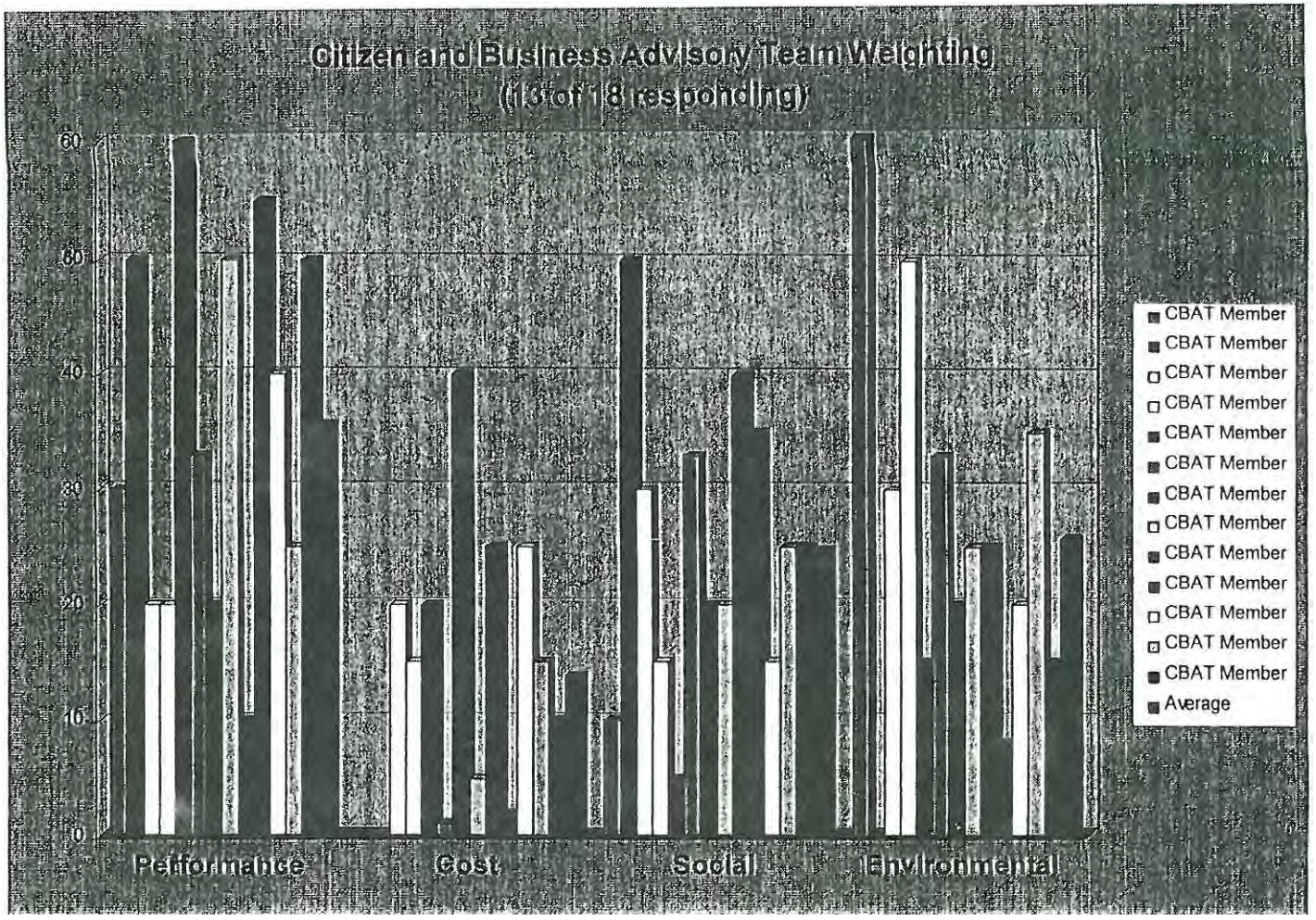
lonco, Inc.
Coley/Forresl, Inc.



Glenwood Springs BYPASS

Citizen and Business Team Weighting

& Associates, Inc.
lonco, Inc.
Coley/F rrest, Inc.



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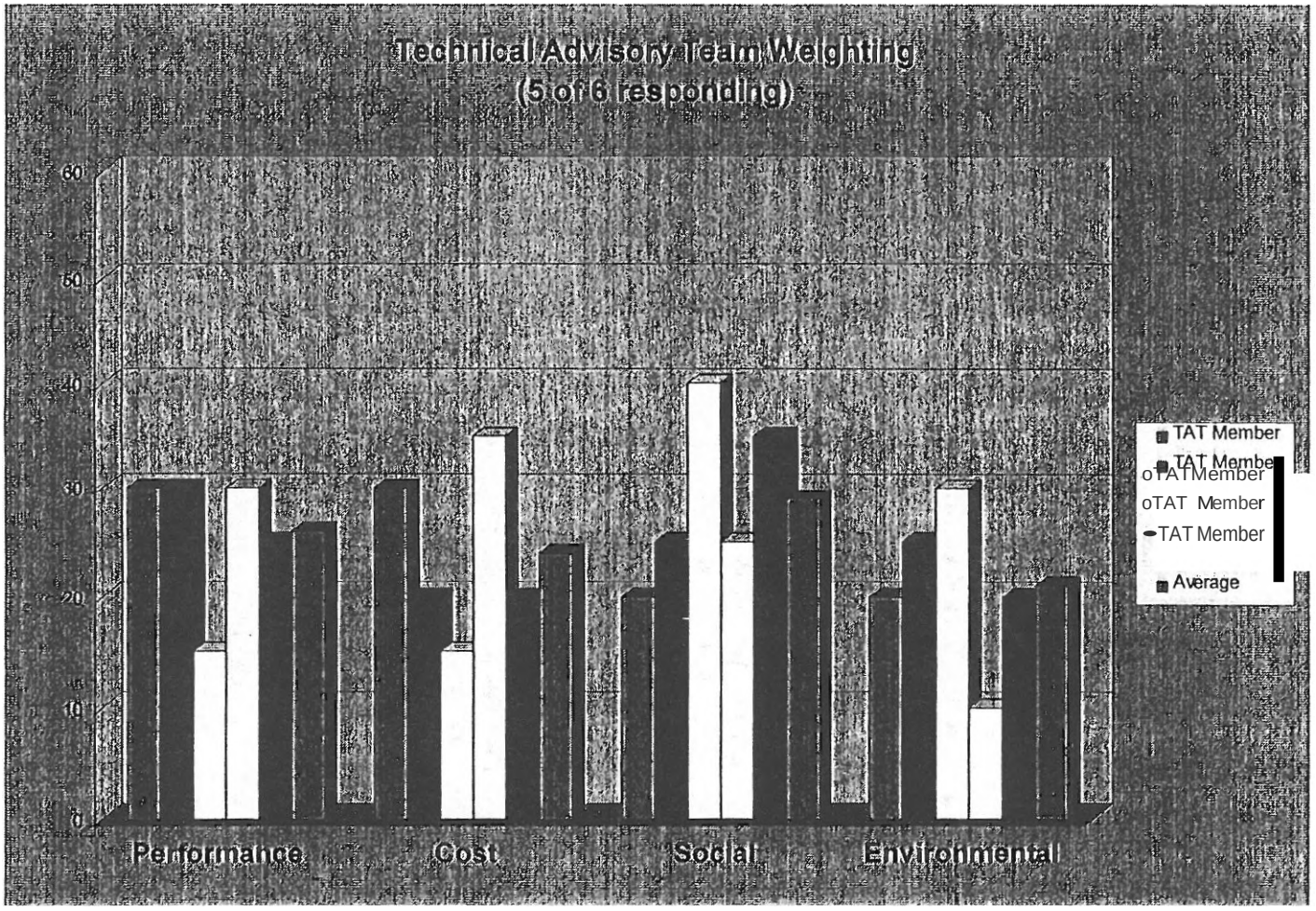
Coley/Forrcsl, Inc.

Technical Team Weighting



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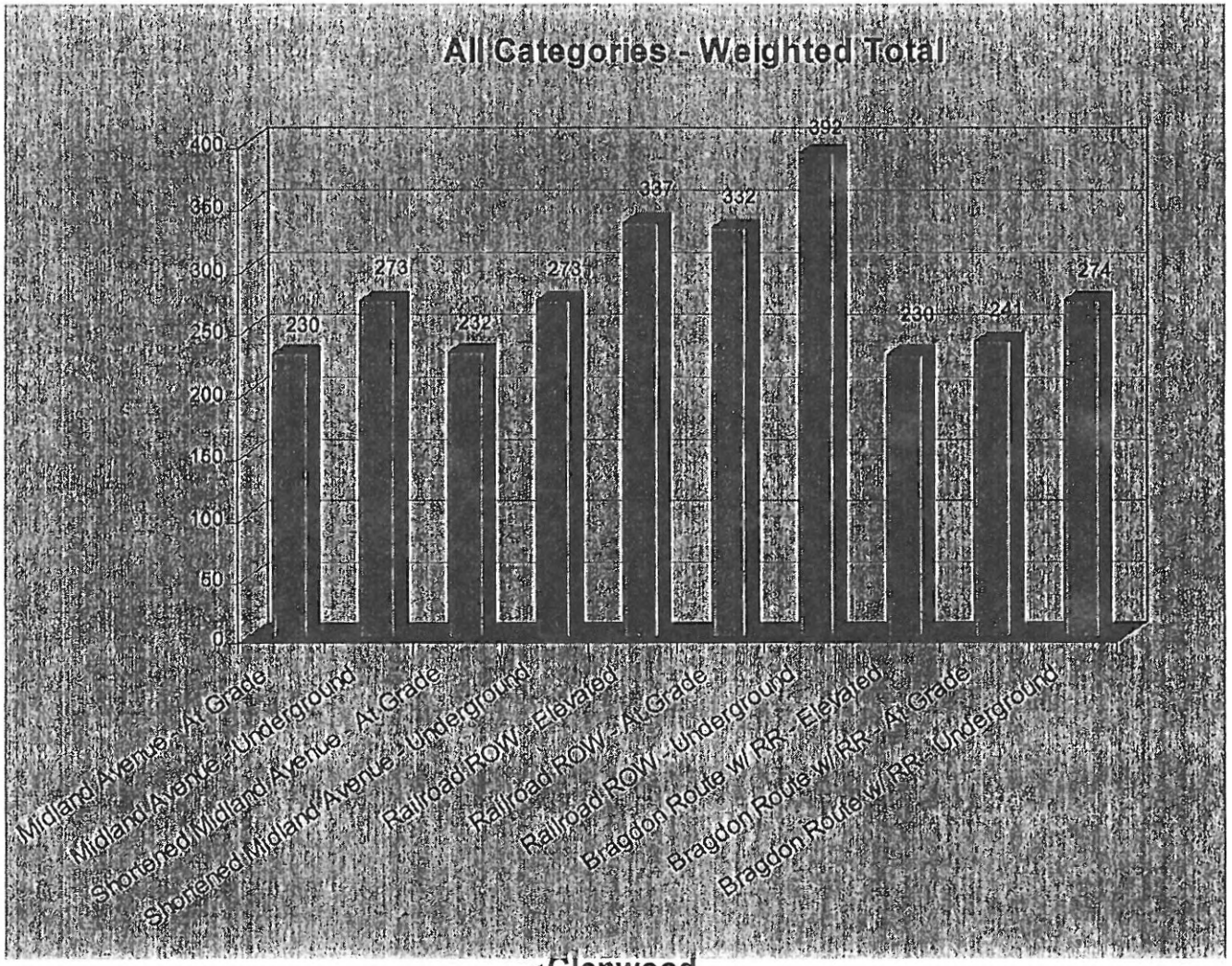
Lonco, Inc.
Coley/F?rrest, Inc.

Preliminary Preferred Alternative

The Railroad Right-of-Way Underground

- Best performing alternative for traffic problems
- Reasonable cost relative to other build options
- Fewest social impacts
- Fewest environmental impacts

Preliminary Preferred Alternative - Railroad ROW UndergrollildF ;s :::



Basis for Preliminary Identification of Preferred Alternative

- Advisory Team rankings
- Detailed performance analysis for each criterion
- Weighted category comparisons

Environmental Impact Analysis

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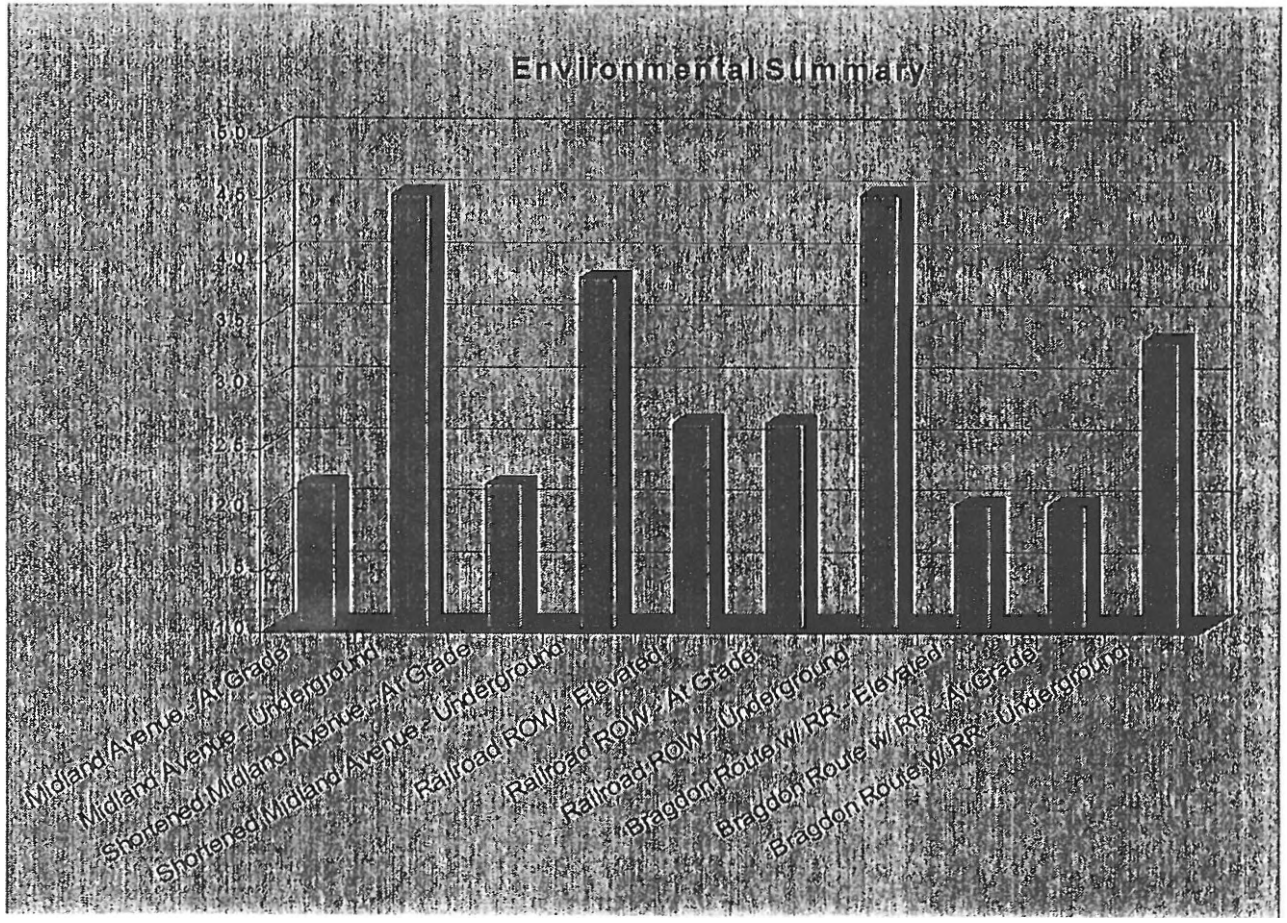
Lonco, Inc.
Colcy/For resl, Inc.

Category Summary



Glenwood

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BYPASS

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Preliminary Identification of Preferred Alternative

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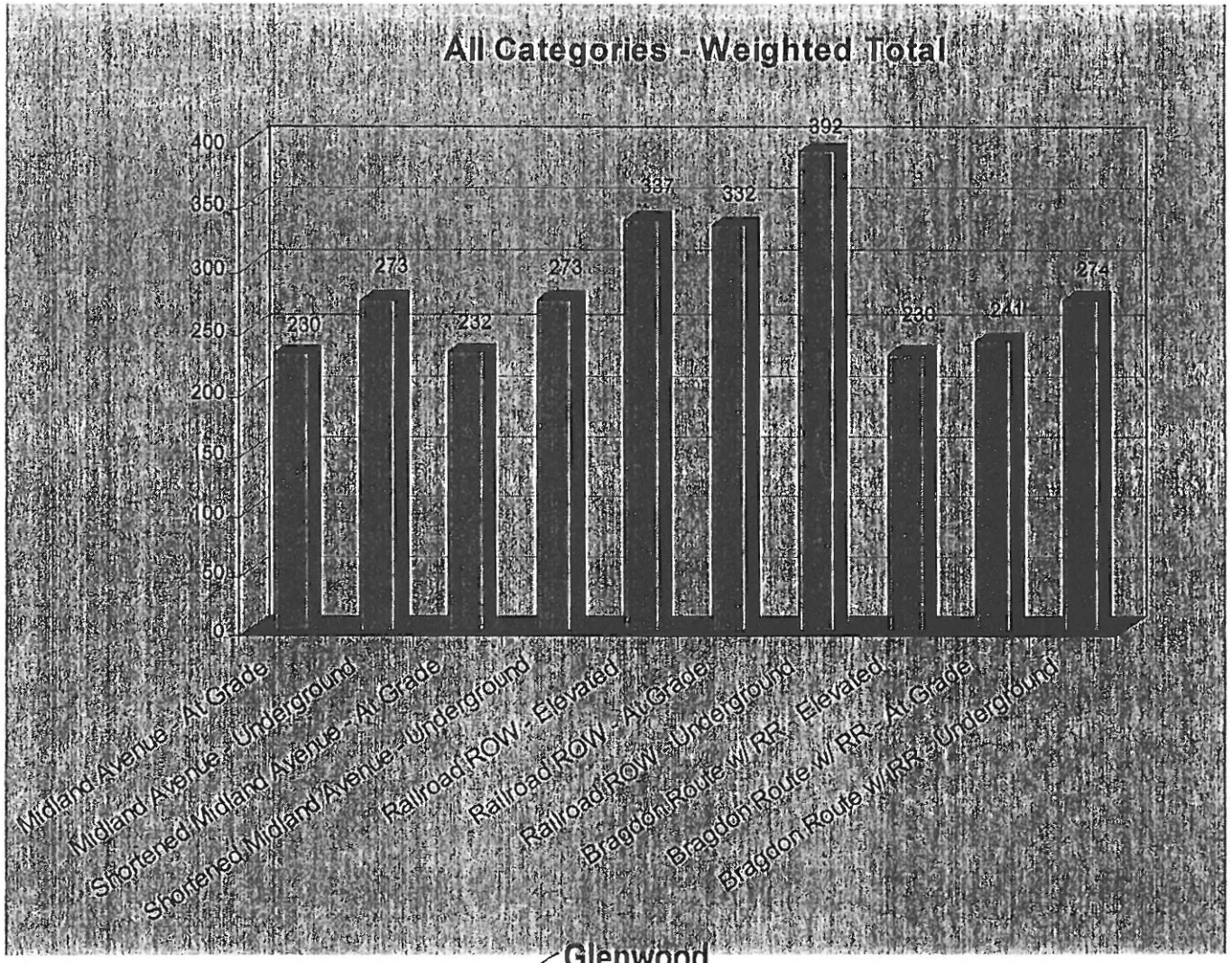
Coley/Forrest, '".c.



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& As so cl at 11, Inc.
Ionco, Inc.
Colcy/Forrcst, Inc.

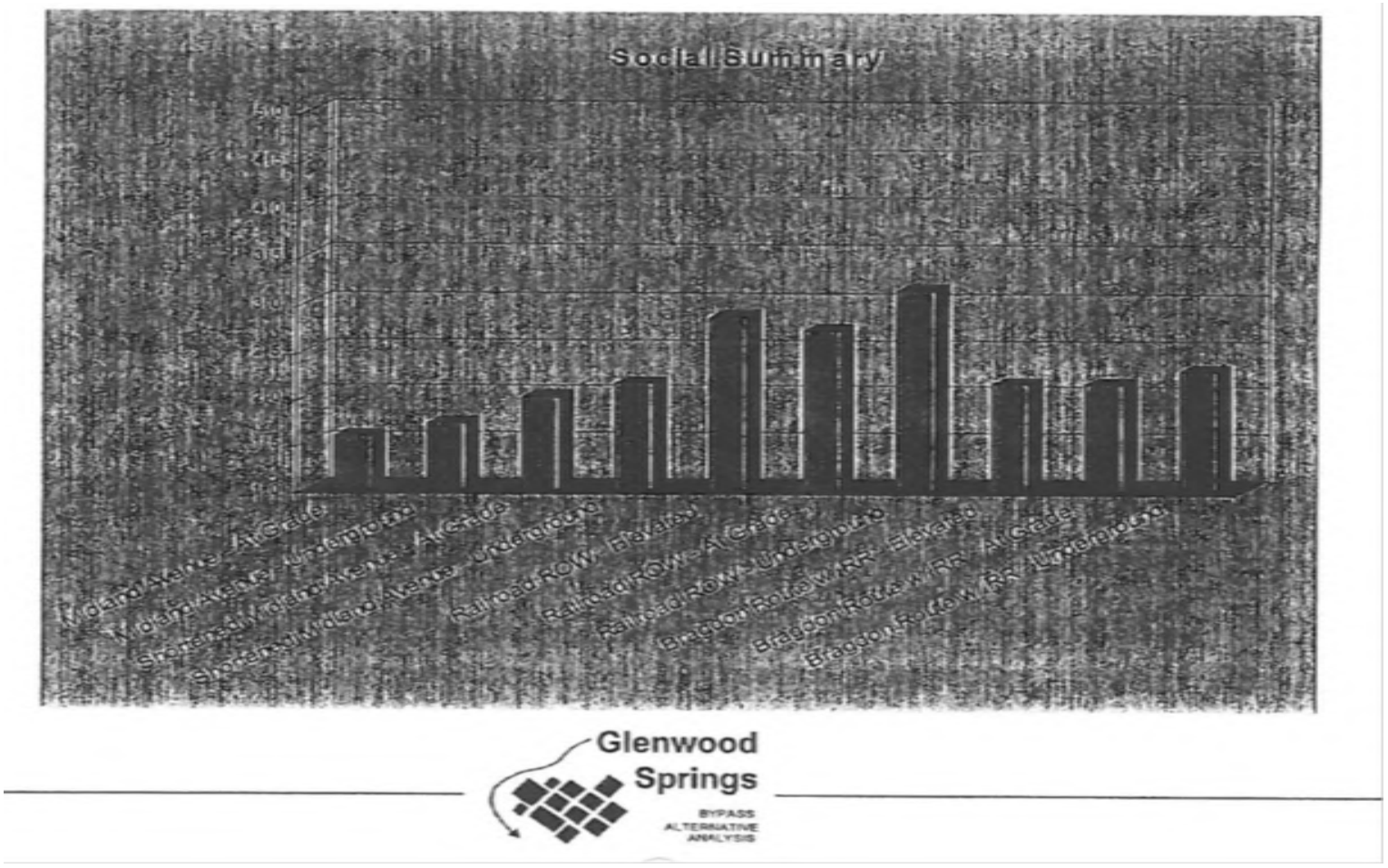
Environmental Impact Analysis

- Visuai/Viewshed Impacts
- Noise Impacts
- Recreation Resources
- Air Quality
- Riparian Areas Impacted
- Water Quality

BALlOFFETil
& Attl)cl•tet, Inc.
lonco, Inc.
Coley/Forresl, Inc.

Social Impact Analysis

Category Summary



Social Impact Analysis

- Homes Displaced
- Homes Impacted
- Neighborhoods Divided
- Community Goals
- Downtown Goals
- Business Impacts
- Businesses Displaced

Glenwood
·Springs

Glenwood Springs
BYPASS ALTERNATIVE ANALYSIS

Cost Analysis

Category Summary

BALLOFFET & Associates, Inc.
Lonco, Inc.
Coley/Forrest, Inc.

Cost Analysis

- Total Cost of Construction
- Cost per Trip Diverted
- Potential for External Funding

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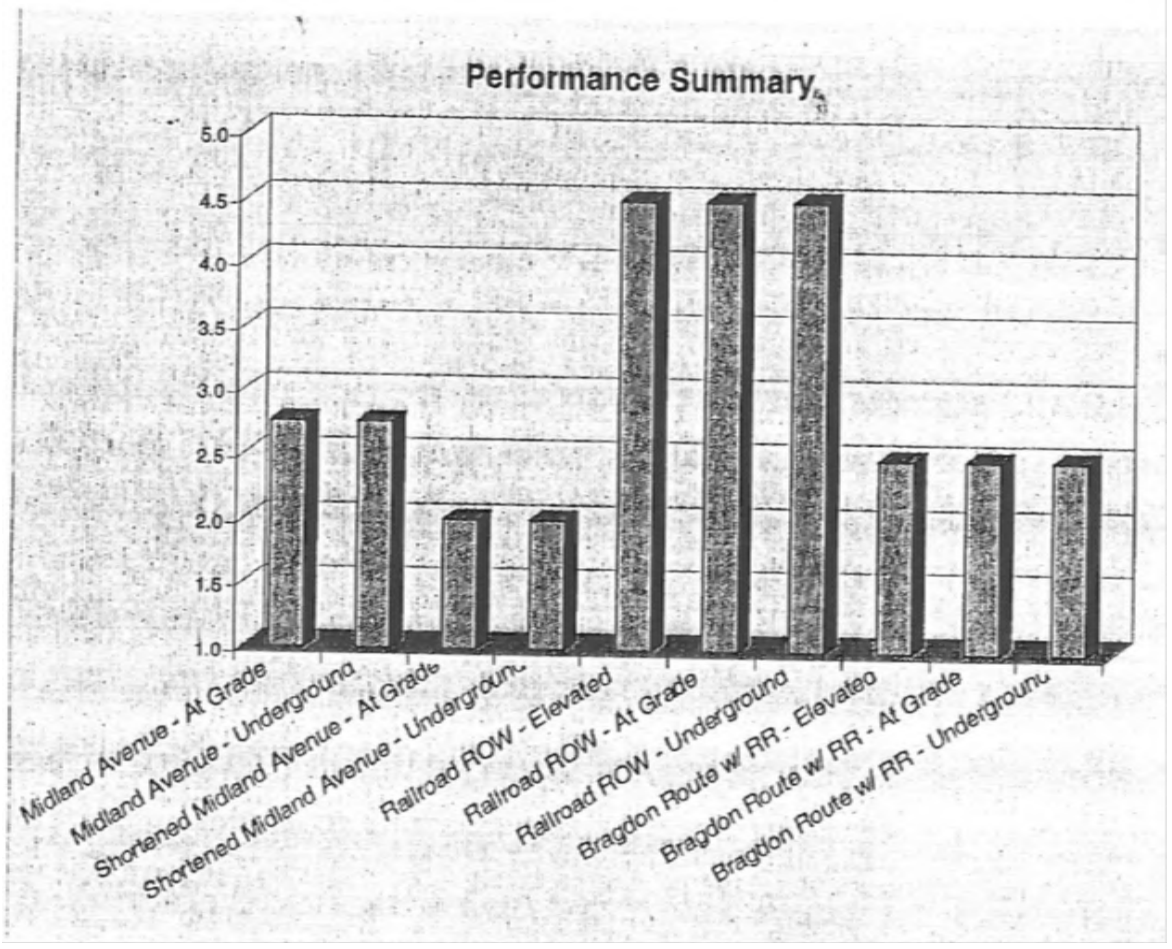
lonco,Inc.
Coley/Forresl,Inc.

Performance Analysis

Category Summary

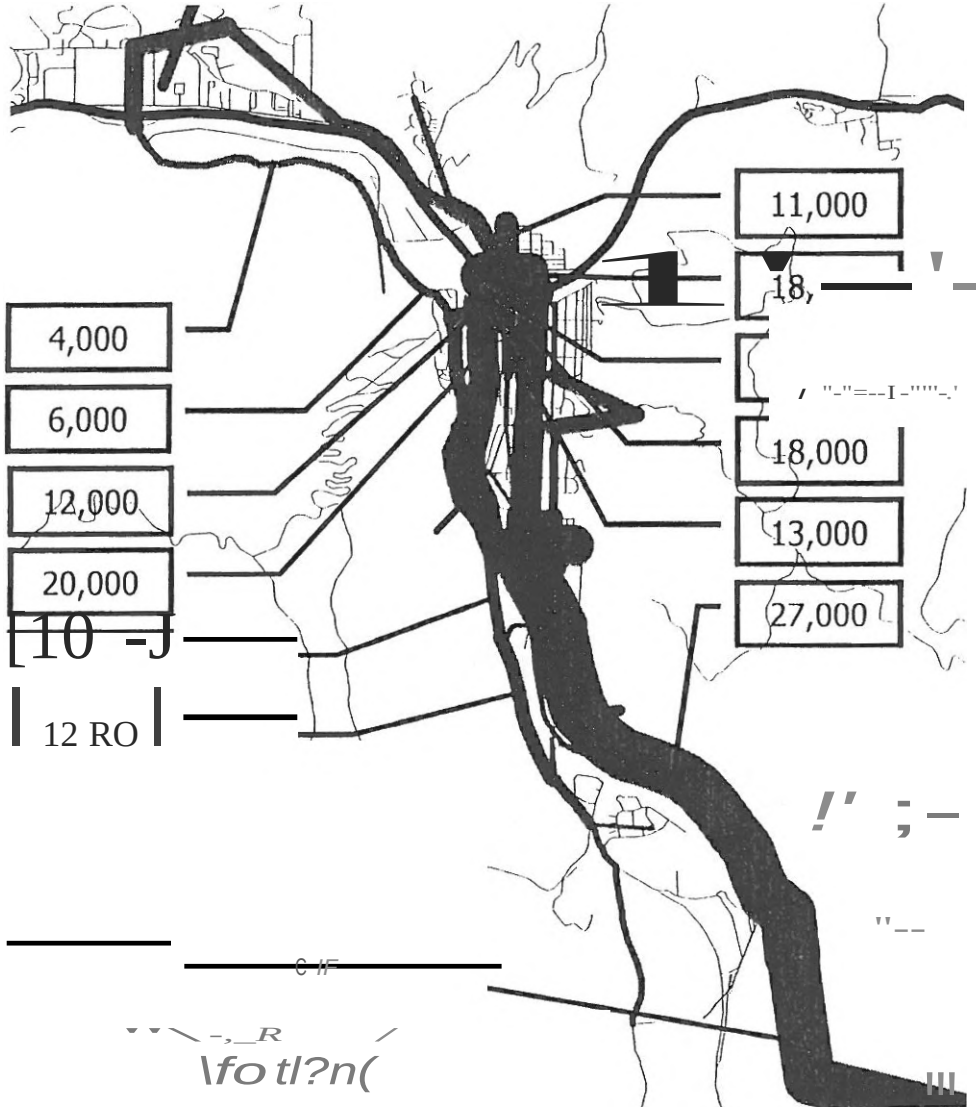


Glenwood Springs

BYPASS

& Associates, Inc.
Lonco, Inc.
Coley/Forresl, Inc.

2020 Railroad Traffic Volumes



22,000 drop on Grand Avenue Bridge

Total Daily Traffic Volumes

Levels of Service A - C

Levels of ServiceD- E

Level of Service F

Glenwood Springs

ANALYSIS

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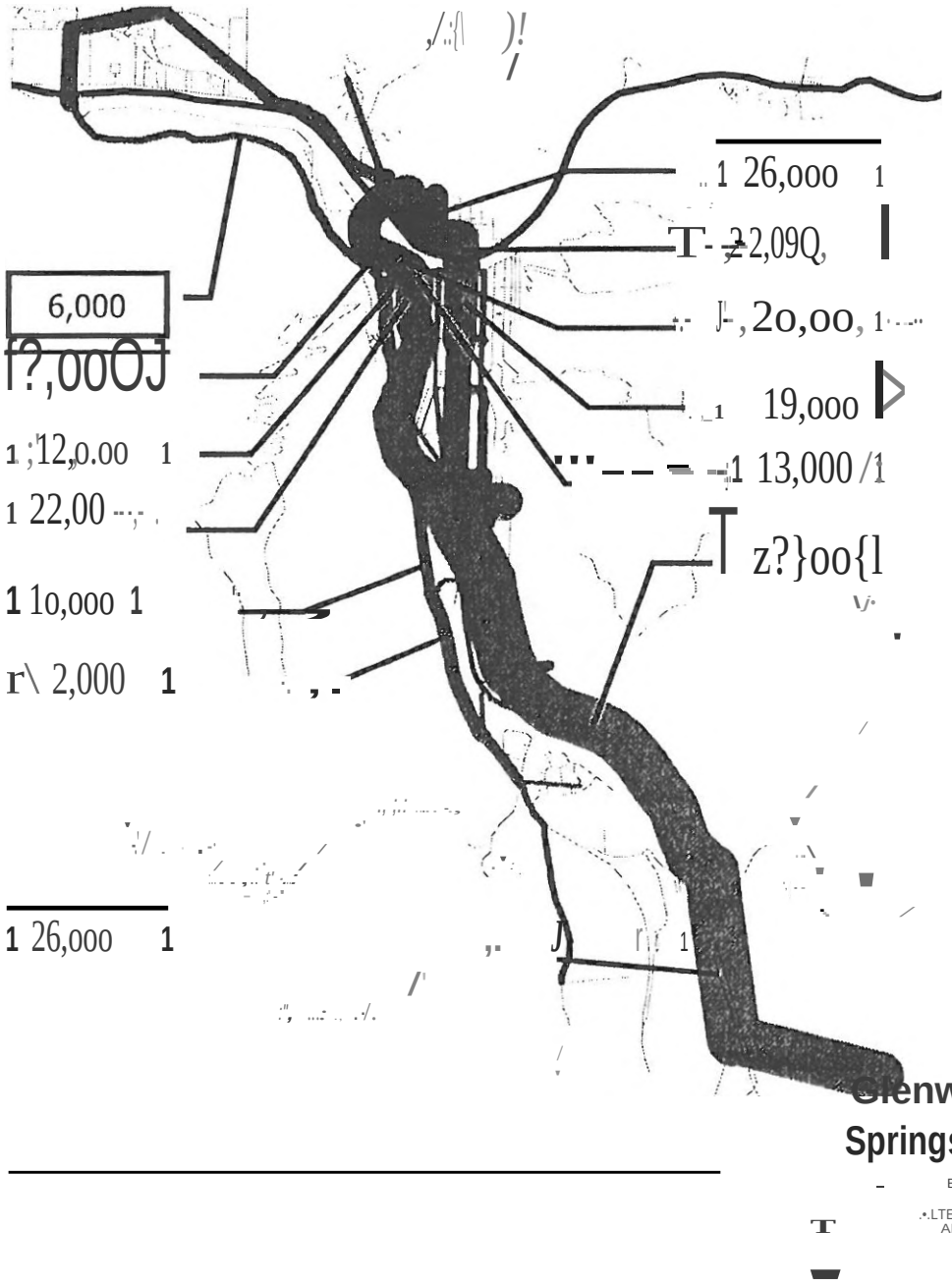
& Att oct tttfJs, Inc.
lonco, Inc.
Coley/Forresl, Inc.

2020 Bragdon Traffic Volumes



n 18,000 drop on Grand Avenue Bridge

XXXXX-HJ Total Daily Traffic Volumes

Levels of Service A - C

Levels of ServiceD- E

Level of Service F

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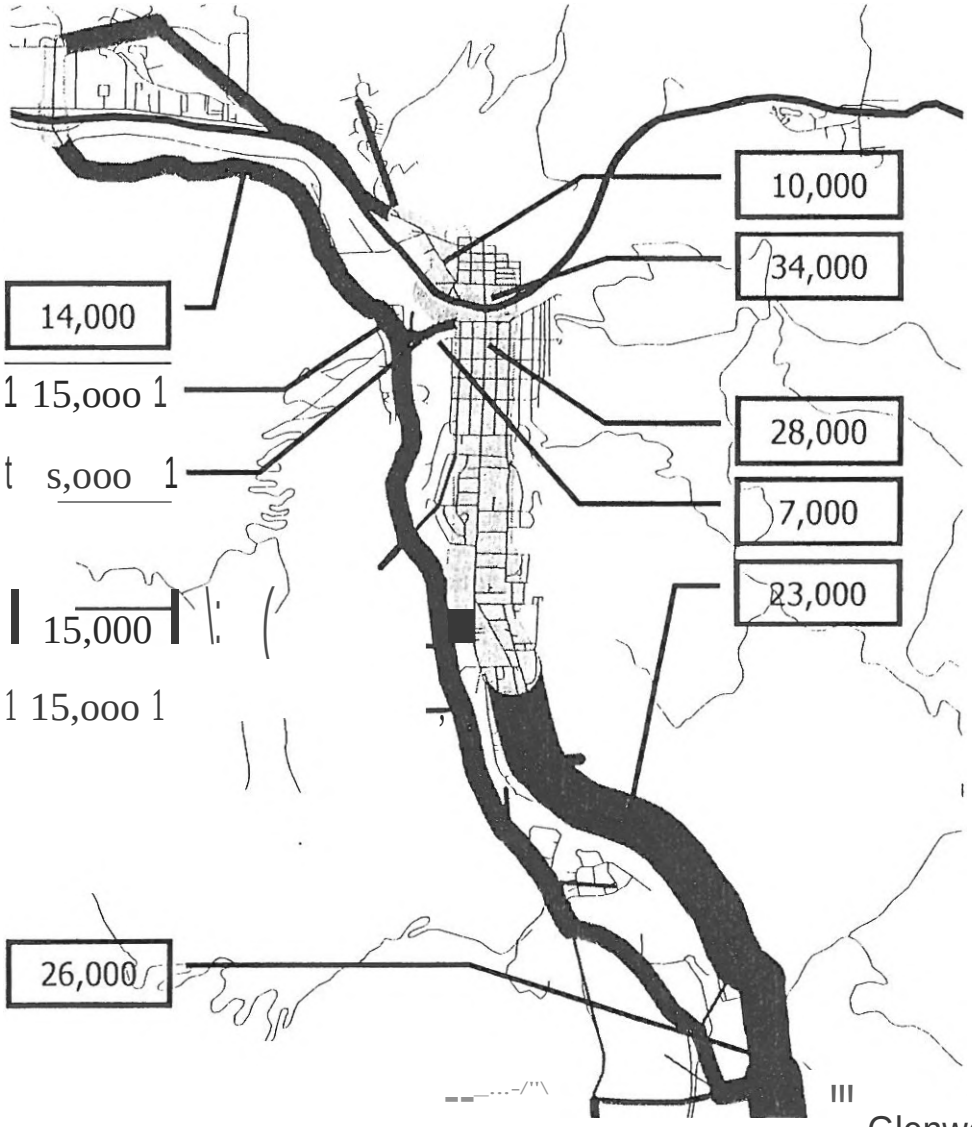
& Associates, Inc.
lonco, Inc.
Coley/Forrcst, Inc.

2020 Midland Traffic Volumes



D 6,000 drop on Grand Avenue Bridge

xx,xxx Total Daily Traffic Volumes

Levels of Service A - C

Levels of Service D - E

Levels of Service F

Glenwood Springs

BYPASS ALTERNATIVE ANALYSIS

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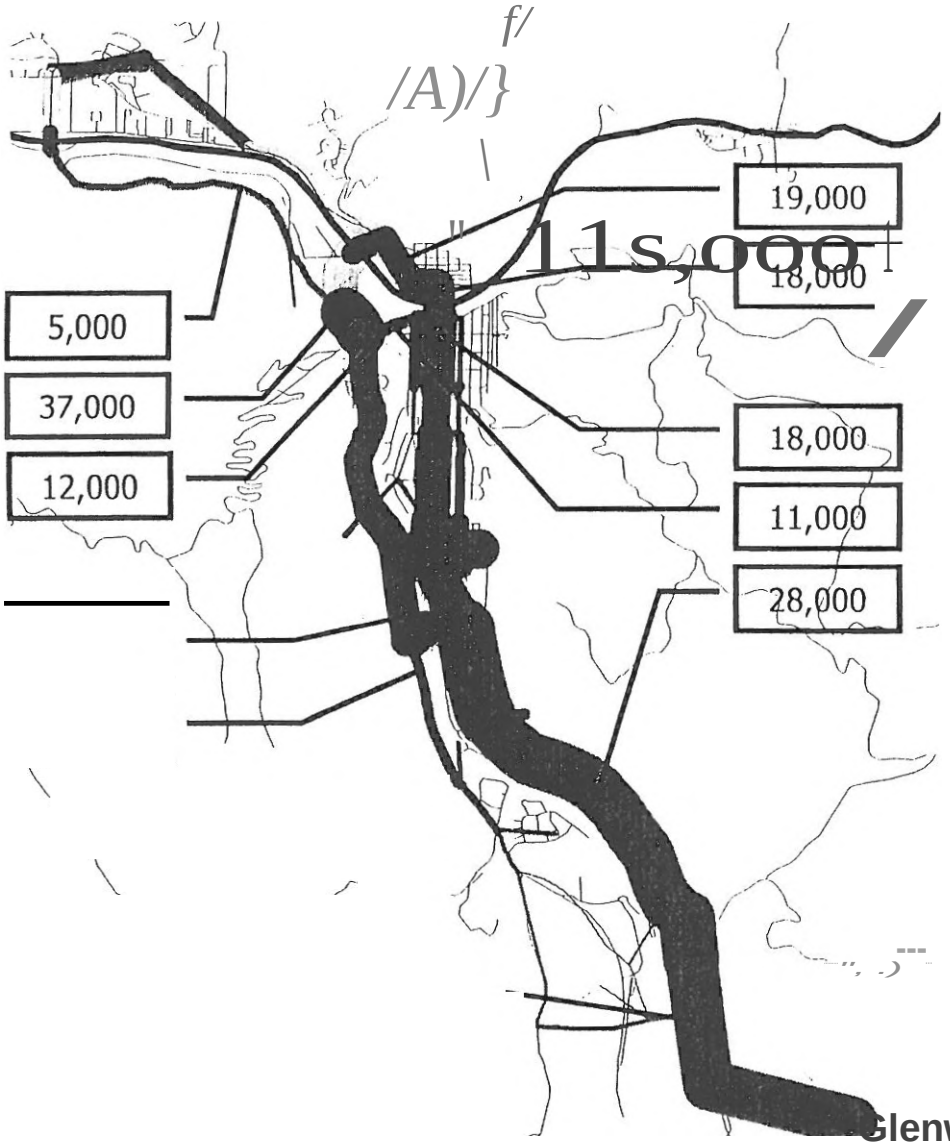
lonco, Inc.
Coley/Forrcsl, Inc.



2020 Shortened Midland Traffic Volumes

D 22,000 drop on Grand Avenue Bridge

XX,XXX Total Daily Traffic Volumes

Levels of Service A - C

Levels of Service O- E

Level of Service F

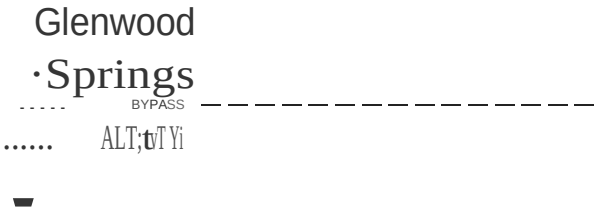
Glenwood Springs

BYPASS

ALTERNATIVE ANALYSIS

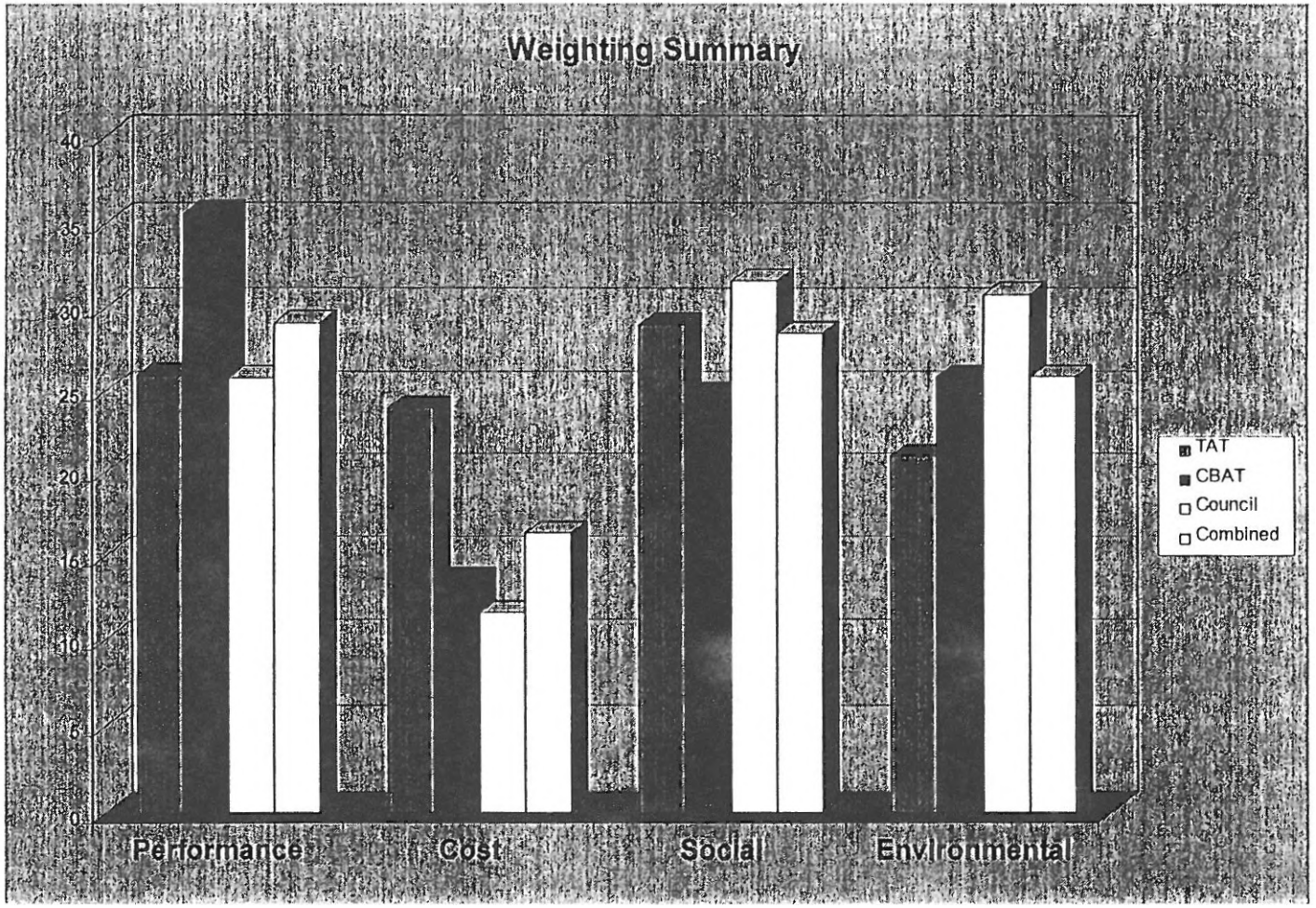
Performance Analysis

- Number of Trips Diverted
- Through Traffic Travel Time
- Vehicle Miles Traveled
- City-wide Level of Service



Weighting Summary

BALLOFFETil
& AIIOCIIts, Inc,
Lonco, Inc.'
Coley/Forrest, Inc.



Glenwood
Springs

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Evaluation Categories:

Performance

- Congestion Relief/Number of Trips Diverted
- Through Traffic Travel Time
- Vehicle Miles Traveled
- City-wide Level of Service

Cost

- Total Cost of Construction
- Cost Per Trip Diverted
- Potential for External Funding

Social Impacts

- Homes Displaced
- Homes within 150 feet
- Homes within 500 feet
- Neighborhoods Divided
- Community Goals
- Business Impacts

Environmental Impacts

- Visual
- Noise
- Parks and Recreation Areas
- Air Quality
- Riparian Areas
- Water Quality

Problem Statement

BALLOFFET i1
& Astoclatet,Inc.
lonco, Inc.
Coley/For est, Inc.

- The Do Nothing alternative will result in severe congestion along Grand Avenue prior to 2020
- Even with aggressive transit and transportation demand management severe congestion will remain on Grand Avenue
- Construction of a bypass will relieve Grand Avenue to acceptable levels of service

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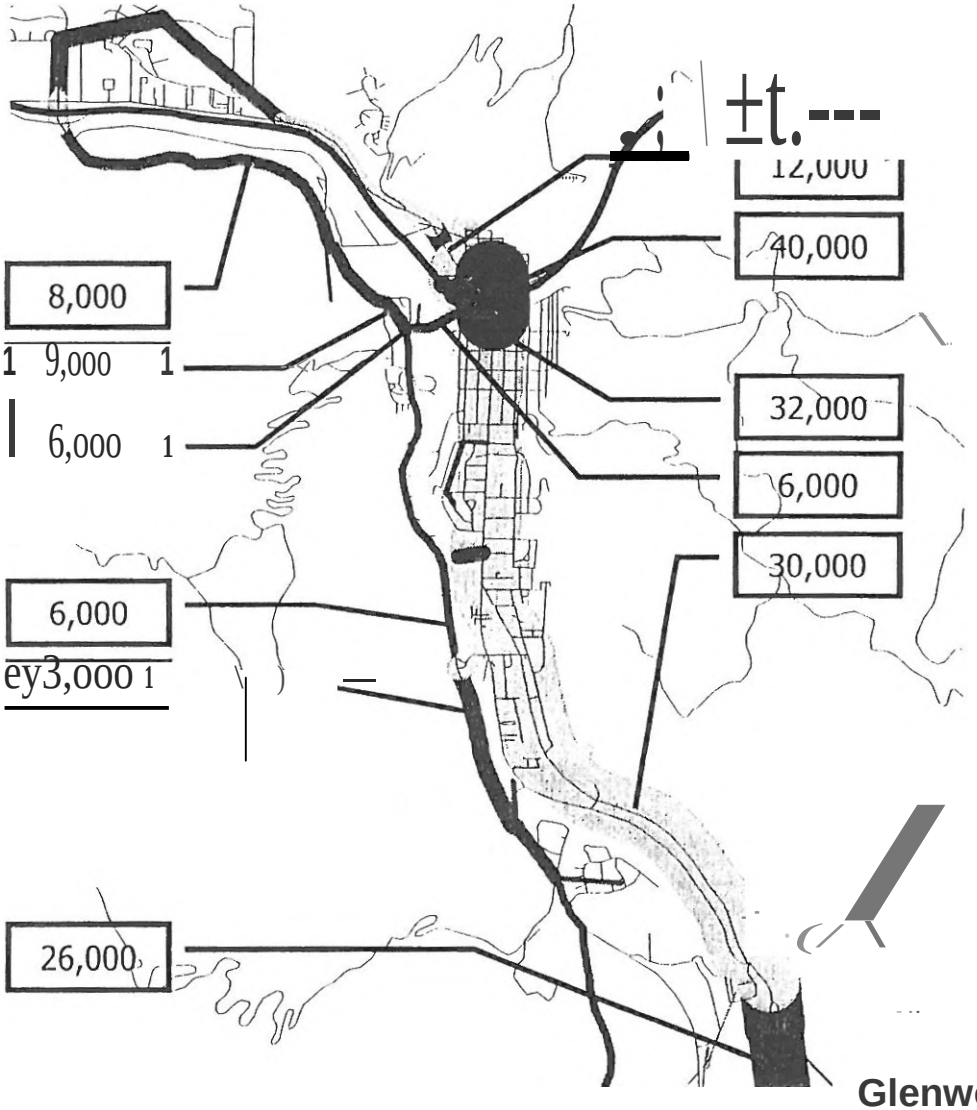
& Associates, Inc.
lonco, Inc.
Cofey/Forrest, Inc.

2020 Traffic Volumes



[XX,XXX] Total Daily Traffic Volumes

Levels of Service A - C

Levels of Service D - E

Level of Service F

Glenwood Springs

BYPASS ANALYSIS

ALTERNATIVE

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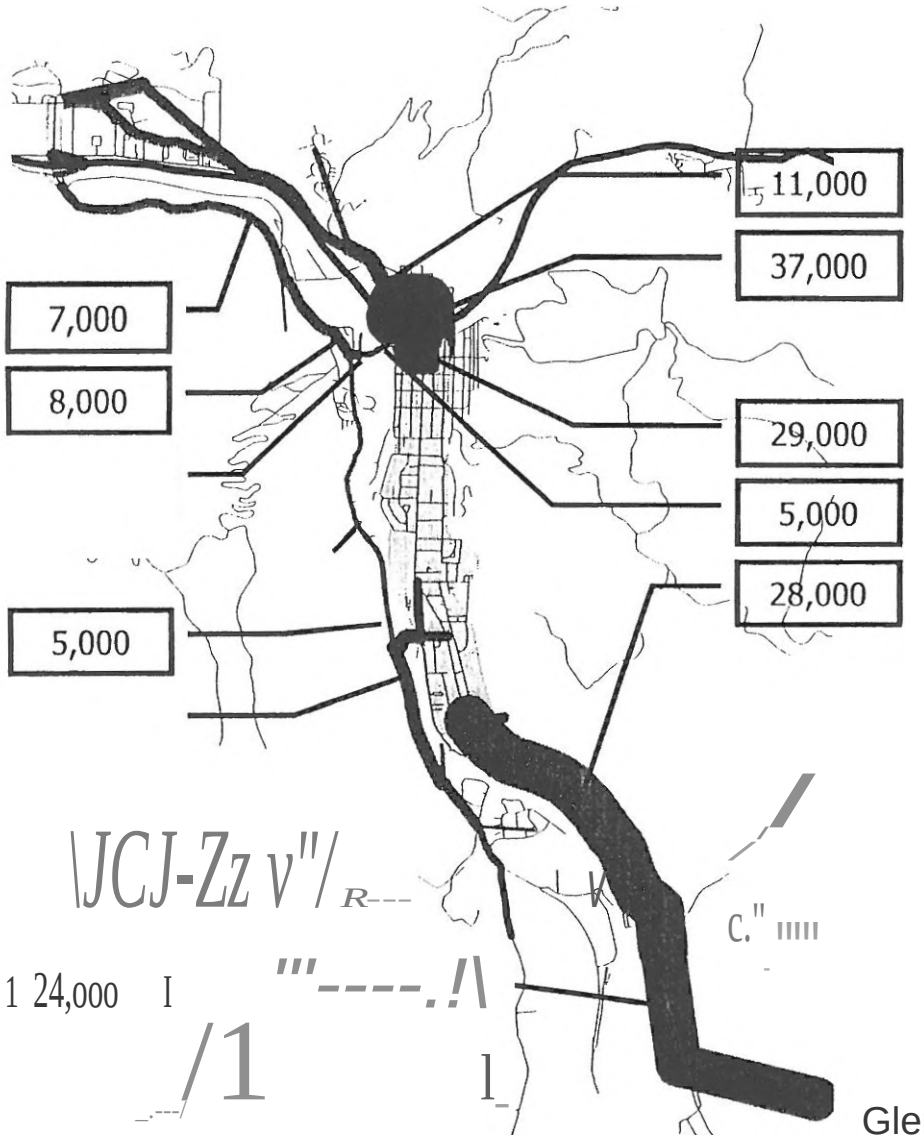
Lonco, Inc. ·
Colcy/Forresl, Inc.

2020 TDM Traffic Volumes



D 3,000 drop on Grand Avenue Bridge

xx,xxx Total Daily Traffic Volumes

Levels of Service A - C

Levels of Service D - E

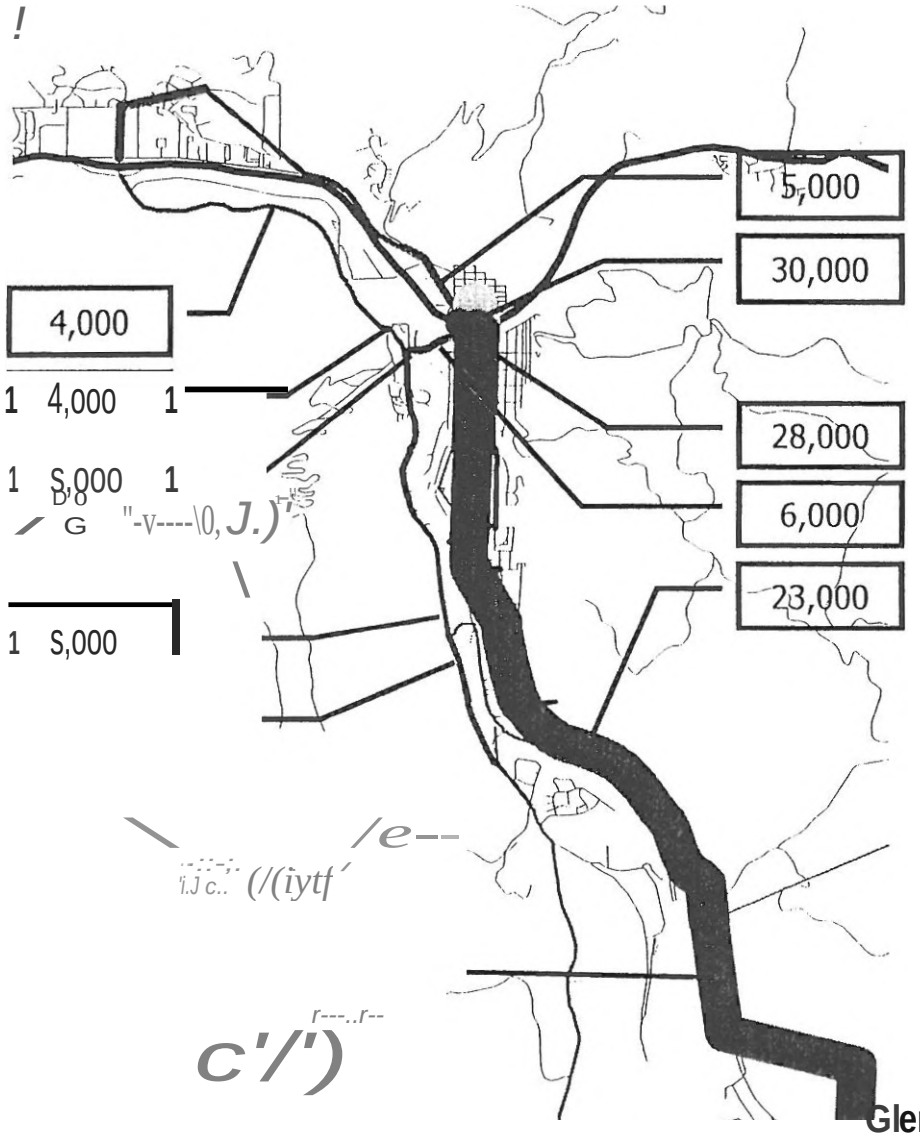
Level of Service F

Alternatives

Glenwood Springs
BYPASS ALTERNATIVE ANALYSIS

BALLOFFET & Associates, Inc.
Lonco, Inc.
Coley/Forrest, Inc.

1998 Traffic Volumes



Glenwood Springs

XX,XXX Total Daily Traffic Volumes

Levels of Service A - C

Levels of Service D - E

Level of Service F

BYPASS

ALTERNATIVE ANALYSIS

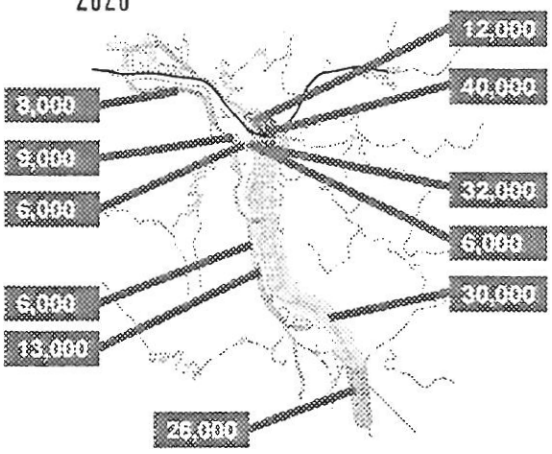
Work **Plan**

BALLOFFETil
& Assocf•let, Inc.
lonco, Inc.
Coley/Forrest, Inc.

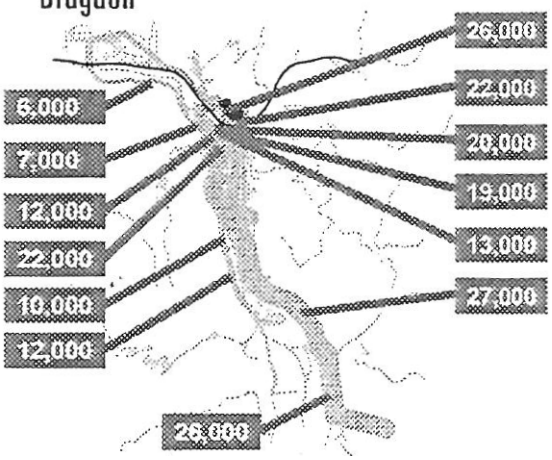
- Startup / Inventory
- Define and Analyze Alternatives
- Select and Refine Preferred Alternative

PROJECTED DAILY TRAFFIC VOLUMES BY BYPASS ALTERNATIVE

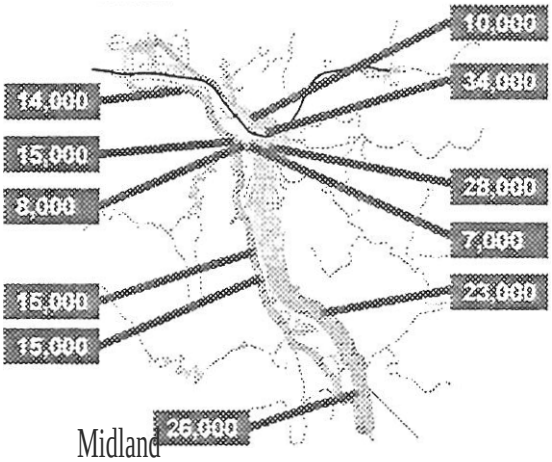
2020



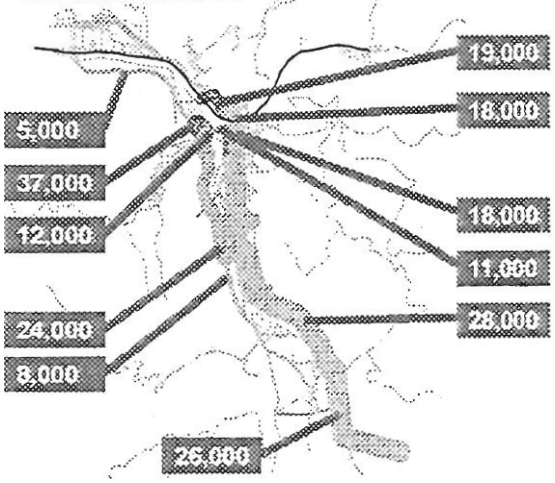
Bragdon



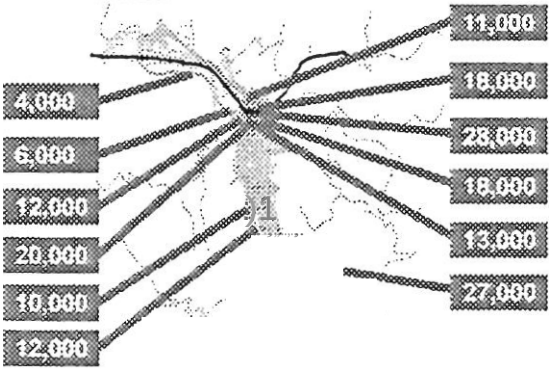
Midland



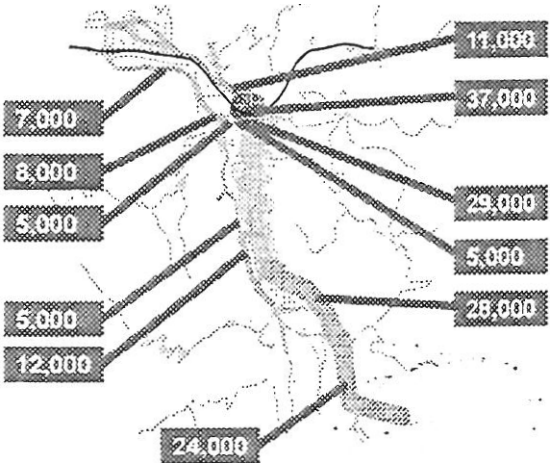
Shortened Midland



Railroad



TOM



1m Tour DollyTromcVolumes

Levels of Service: A - C

Levels of Service 0 - E

— Levelof Ser.lke F

Glenwood Cascade

PROJECT TEAM: BALLOFFET AND ASSOCIATES INC./LONCO INC., COLEY-FORREST INC.

EXHIBIT G:

Conservation Easement/ Restriction Boundaries

GEOGRAPHICAL DESCRIPTION
OF THE
CONSERVATION EASEMENT/RESTRICTION
ON THE
ASPEN BRANCH RAILROAD CORRIDOR

SUMMARY TABLE

Section	Location	Length (ft)	Width (ft)	Square Ft.	Acres
1	362.9	4,860	200	927,000	22.3
2	365.4	5,650	25 - 200	641,250	14.7
3	368.5	2,640	100	264,000	6.1
4	370.5	4,220	50 - 100	324,000	7.4
5	371.69	740	200	147,840	3.4
6	376.14	14,360	100 - 200	2,412,480	55.4
7	382.19	2,700	100	270,000	6.2
8	384.9	1,050	100	10,500	2.4
9	385.48	13,570	100 - 200	1,587,690	36.4
10	389.75	9,130	50 - 100	534,105	24.5
11	393.15	2,745	100	274,500	6.3
	TOTAL	**61,665**		**7,393,365**	**185.1**

SECTION 1: Milepost 362.9 to 363.82 (0.92 miles)

Running from the end of the A-1 Traffic Control property south to the intersection of Highway 82 and Grand Avenue (old Highway 82), this area is well vegetated by native, scrub oak dominated mountain-shrub vegetation that offer excellent habitat for birds and small animals. Outstanding views of Mount Sopris are also provided on this section of the railroad corridor. The generally steep but benched hillside also provides an excellent, natural buffer between Highway 82 and Grand Avenue. Direct river access is offered from the railroad corridor over Grand Avenue.

SECTION 2: Milepost 365.40 to 366.47 (1.07 miles)

This section begins at the crossing of County Road 107 (known as Coryell Ranch Road) to a location about ¼-mile below the CMC Road/Highway 82 intersection. This area is well vegetated by mature native, mountain-shrub and related plant species that offer excellent habitat for birds and small animals. The generally steep but benched hillside also provides an excellent, natural buffer between Highway 82 and County Road 107. Direct river access is offered from the railroad corridor over County Road 107. Dramatic views of Mount Sopris are also provided on this section of the railroad corridor.

SECTION 3: Milepost 368.5 to 369.0 (0.50 miles)

This section of the railroad corridor covers the broad bend in the Roaring Fork River between the Sanders Ranch property and the ranchette parcels near Aspen Glen. Sage shrubs are predominant in this section that are some of the most mature sage plants in the valley. The mountain shrub ecosystem on the corridor in this area provides excellent habitat for birds and small animals. The Roaring Fork River sweep towards and away from the railroad corridor, providing access opportunity and riparian habitat protection. Outstanding views of Mount Sopris are also provided on this section of the railroad corridor.

SECTION 4: Milepost 370.5 to 370.92 (0.42 miles)

This section goes from about a ¾-mile south (up valley) of the Aspen Glen entrance to a private crossing located just below the confluence of the Crystal River and the Roaring Fork River. This area is well vegetated by mature native, mountain-shrub and related plant species that offer excellent habitat for birds and small animals. Direct access to the Roaring Fork River is provided over the moderately sloping hillside that the railroad corridor crosses. Two significant irrigation ditches also follow within the railroad corridor, providing excellent wetlands and riparian habitat. Views of Mount Sopris and the confluence of the Crystal and the Roaring Fork rivers are also provided on this section of the railroad corridor.

SECTION 5: Milepost 371.69 to 371.83 (0.14 miles)

This section surrounds the Railroad Bridge at Sutank and offers excellent river recreation access opportunities and preserves wetland and riparian habitat. Excellent views of Mt. Sopris are provided on the bridge.

SECTION 6: Milepost 376.14 to 378.86 (2.72 miles)

This section begins near the Catherine Store Bridge (County Road 100) and continues southwest to Hooks Spur Road including the Rock Bottom Ranch property. The railroad corridor is nestled between a broad, riparian area of the Roaring Fork River and Bureau of Land Management property. A number of conservation values are provided within this section of the corridor including riparian and wetland habitat protection; access to river recreation opportunities; access to public lands; preservation of habitat critical to eagle, hawk and heron populations in the valley; and preservation of winter range migratory patterns for macro fauna (mule deer and elk).

SECTION 7: Milepost 382.19 to 382.70 (0.51 miles)

This section begins shortly east of the Emma Road/Highway 82 intersection and continues toward the Basalt High School between ranch properties and federal lands. The private property along the corridor will likely contain a conservation easement to preserve a known migratory route for mule deer and elk. This area is well vegetated by mature native, mountain-shrub and related plant species that offer excellent habitat for birds and small animals. Access is afforded to Bureau of Land management property on Light Hill.

SECTION 8: Milepost 384.9 to 385.1 (0.2 miles)

This section includes the Railroad Bridge at Wingo Junction and offers excellent river recreation access opportunities. This area also contains wetland and riparian habitat.

SECTION 9: Milepost 385.48 to 388.05 (2.57 miles)

This section starts at the up-valley side of the Wingo Subdivision and continues southeast to the end of the Dart Ranch on Lower River Road. Several conservation values are present on this section of the corridor, including habitat for birds and small animals along the interface between mountain shrub and grassland habitat; access to the Roaring Fork River for recreation; access to National Forest lands; and preservation of critical habitat for macro fauna (mule deer and elk). A significant portion of this section is surrounded by a conservation easement held by Pitkin County on the Dart Ranch. Riparian vegetation along the Roaring Fork is also present. The railroad corridor can access several fisherman easements along the Roaring Fork River.

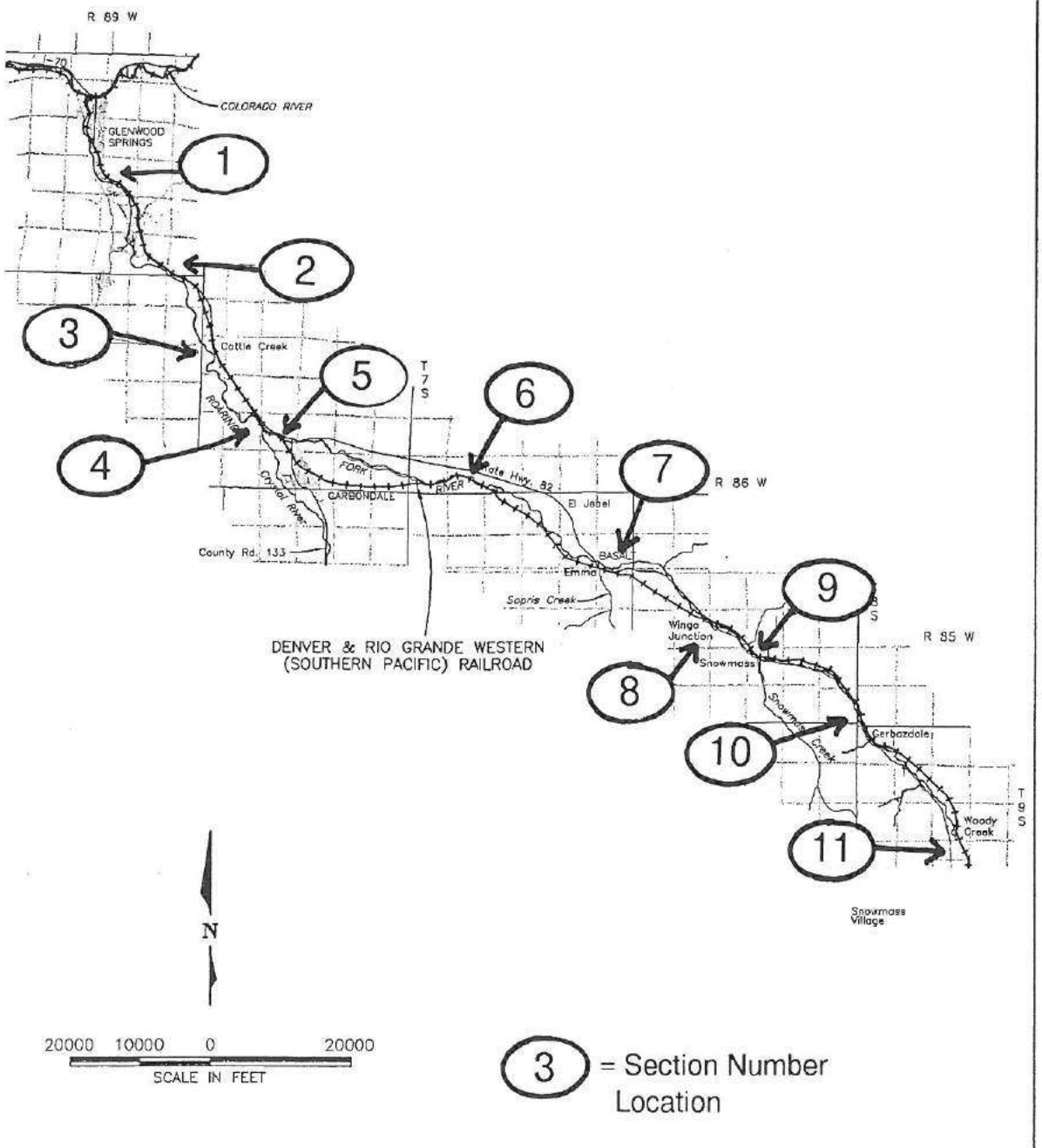
SECTION 10: Milepost 389.75 to 391.48 (1.73 miles)

This section begins near the crossing of Lower River Road and continues through the Triangle Peak area until the railcar leases near the crossing with Gerbaz Road. The river side of this section contains mountain shrub and riparian vegetation that offers excellent habitat for birds and small animals. The railroad corridor is situated on a steep slope that comes down from Triangle Mountain (National Forest lands) and ends at the Roaring Fork River. The railroad corridor affords to both the Roaring Fork River and national forest lands direct access. In addition, the railroad corridor can access several fisherman easements along the Roaring Fork River. The uphill side of the railroad corridor contains primarily steep shale hillside, includes or is adjacent to Lower River Road and is not encompassed by the easement/restriction.

SECTION 11: Milepost 393.15 to 393.67 (0.76 miles)

This section starts at the crossing with Upper River Road and continues through the end of the corridor at Woody Creek Road. The railroad corridor in this area consists of native, mountain shrub species that are ideal habitat for birds and small animals. The rail corridor is perched on a short but steep hillside that affords excellent views of the Elk Mountain range and associates ski resorts.

CONSERVATION RESTRICTION LOCATIONS



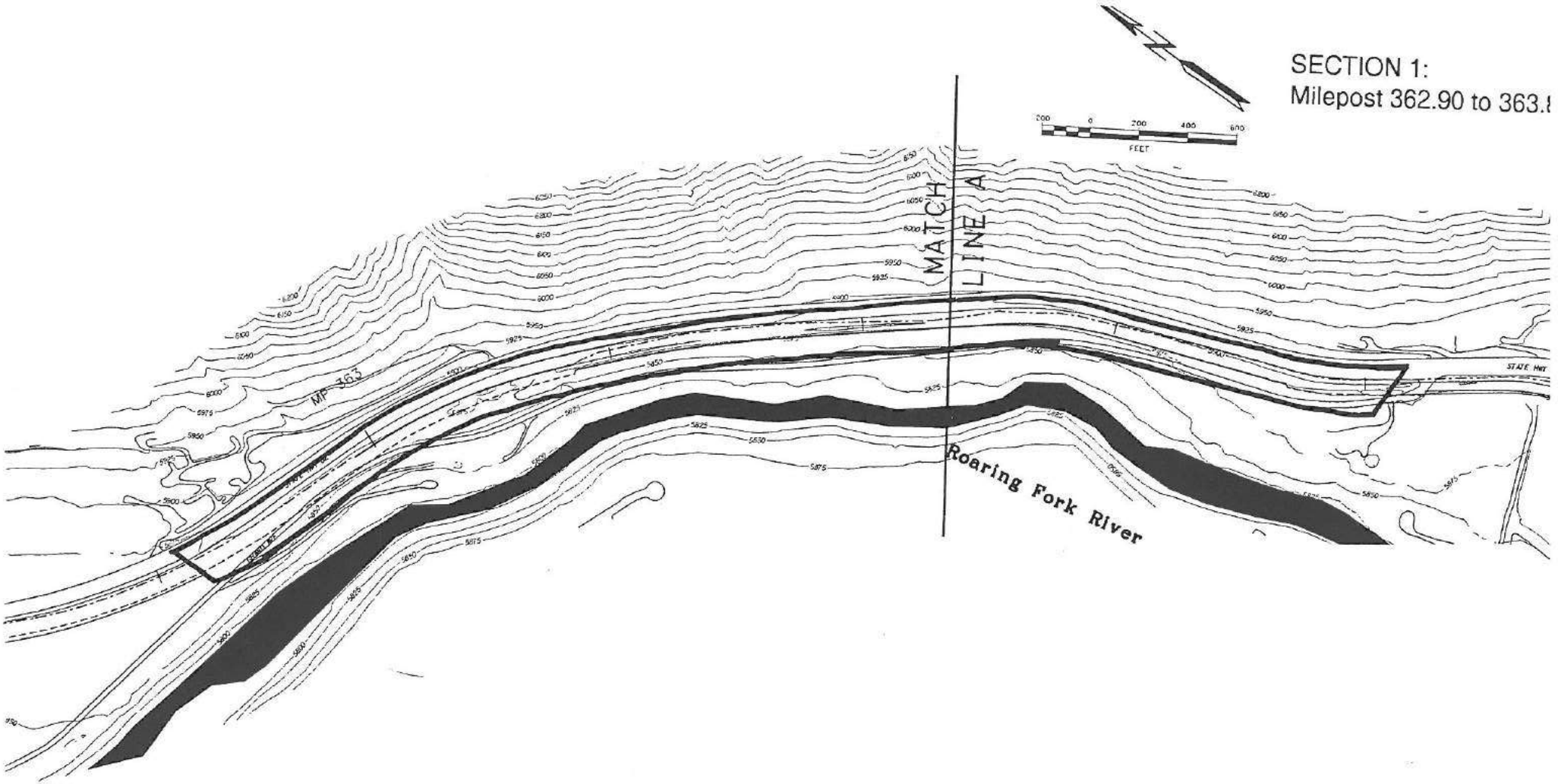
STEFFEN ROBERTSON & KIRSTEN (U.S.) Consulting Engineers & Scientists		
PROJECT NO. 81901	DATE 05/96	REVISION A

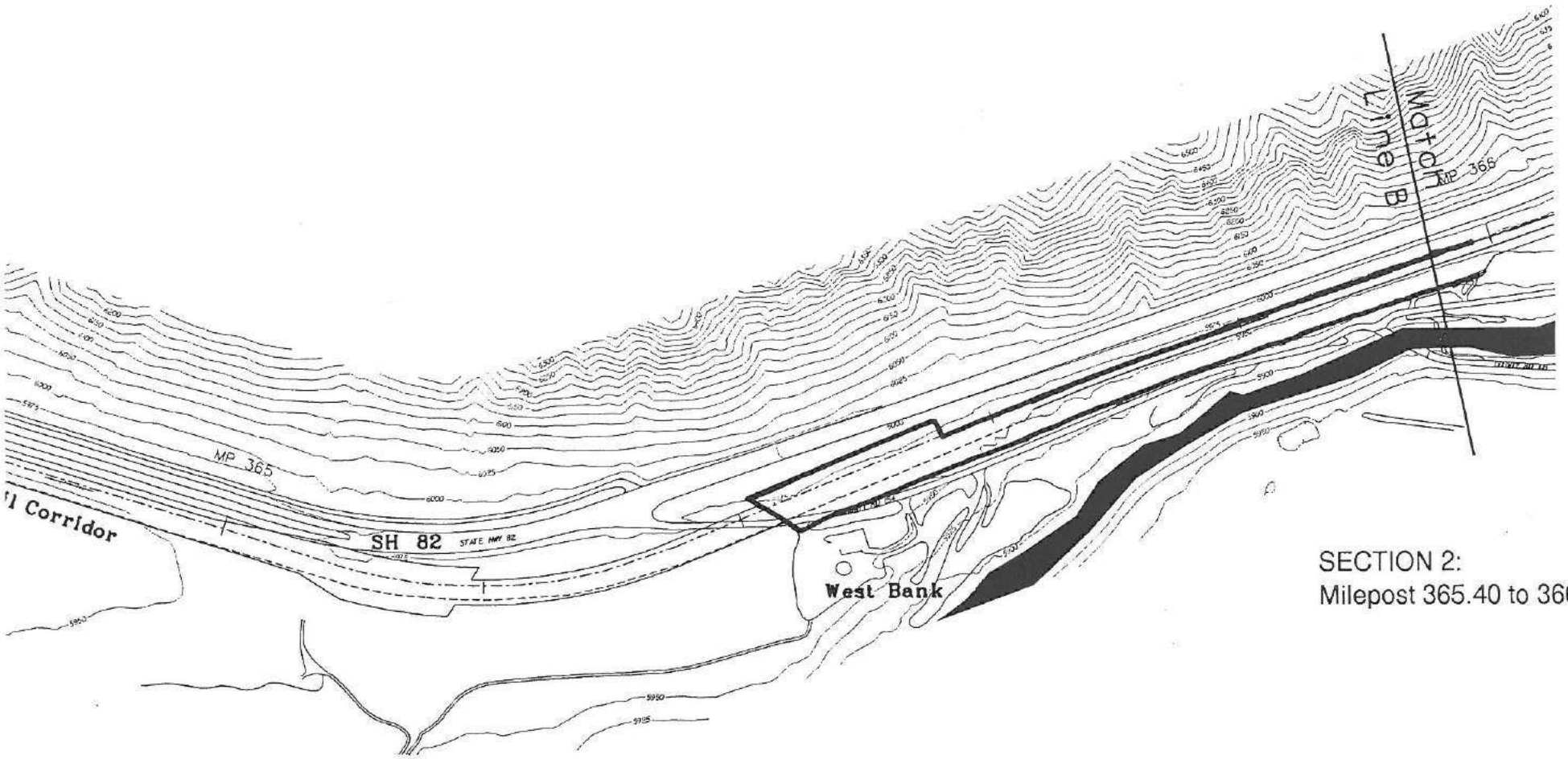
FIGURE 1

SITE SCHEMATIC
ASPEN BRANCH OF D&RGW RAILROAD

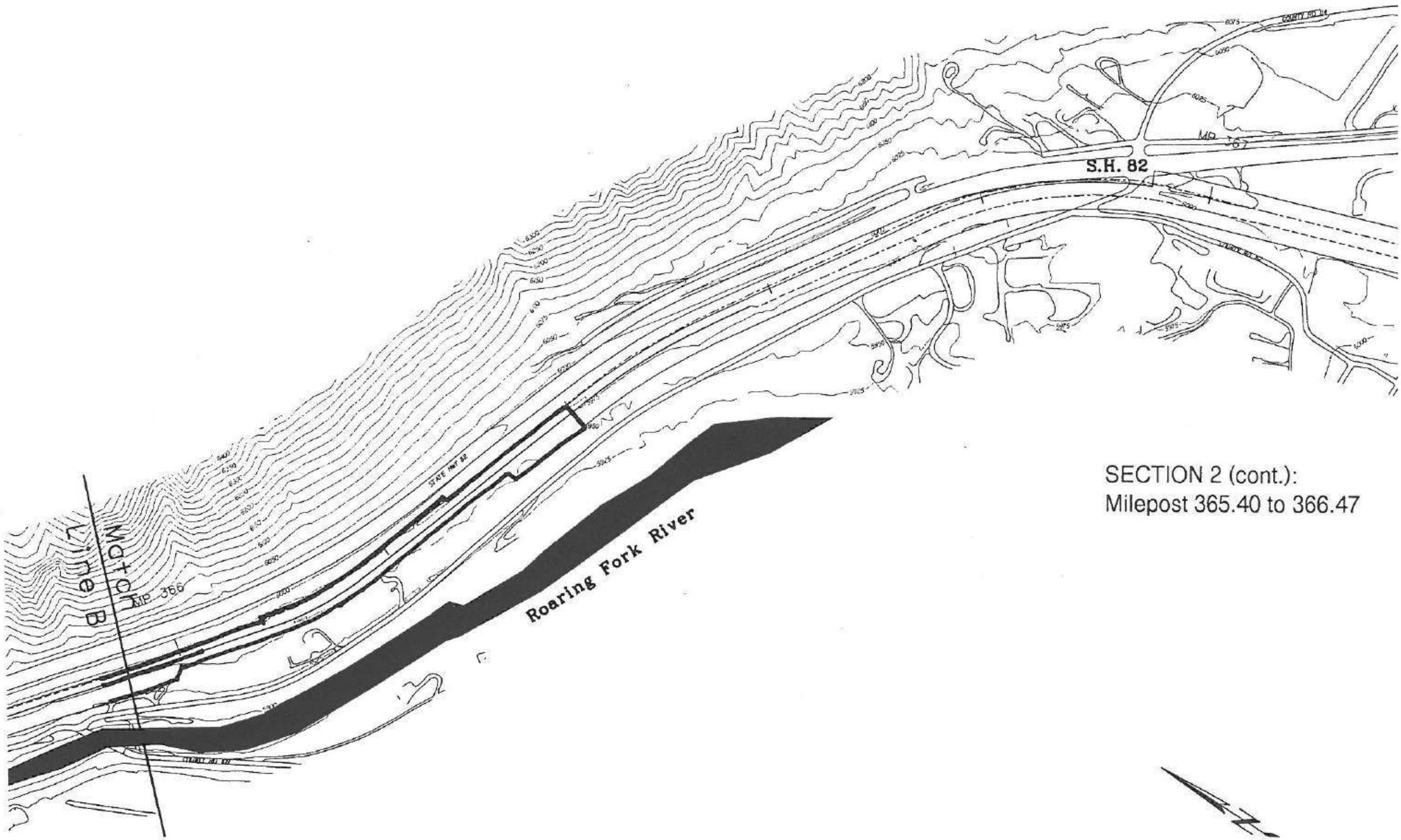
* STA.#1 * N:\PITKIN\81901\SITE\F1.DWG * MAY 15, 1996 * 4:09:27 PM *

SECTION 1:
Milepost 362.90 to 363.8

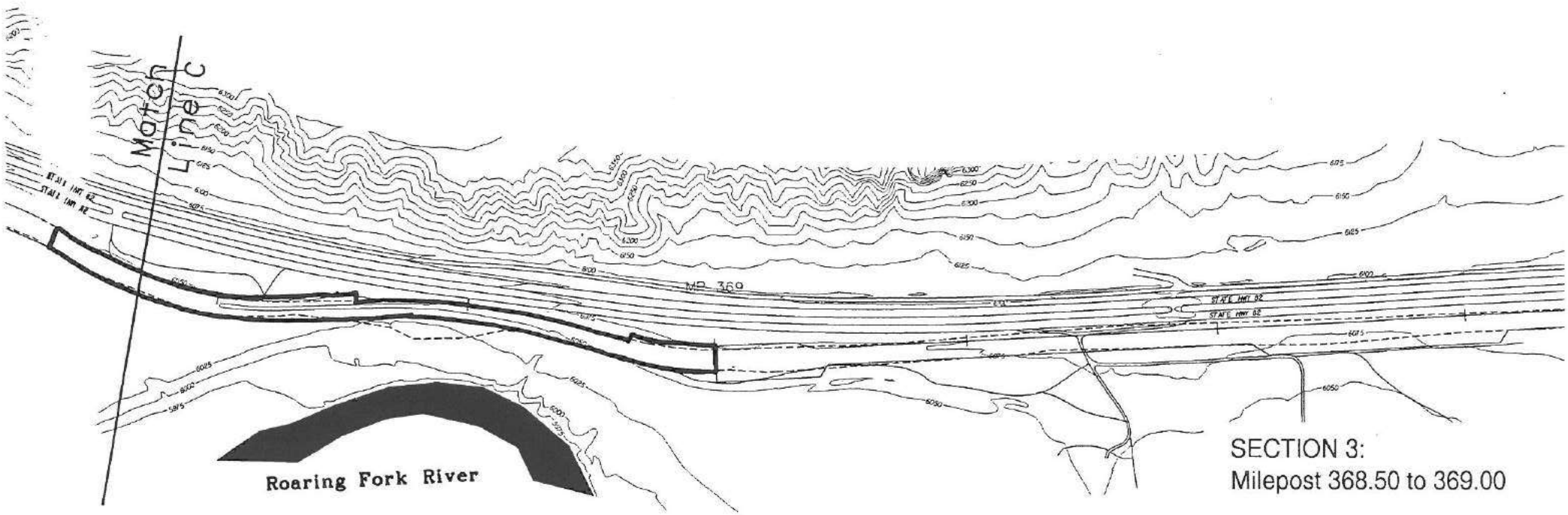




SECTION 2:
Milepost 365.40 to 366.47



SECTION 2 (cont.):
Milepost 365.40 to 366.47

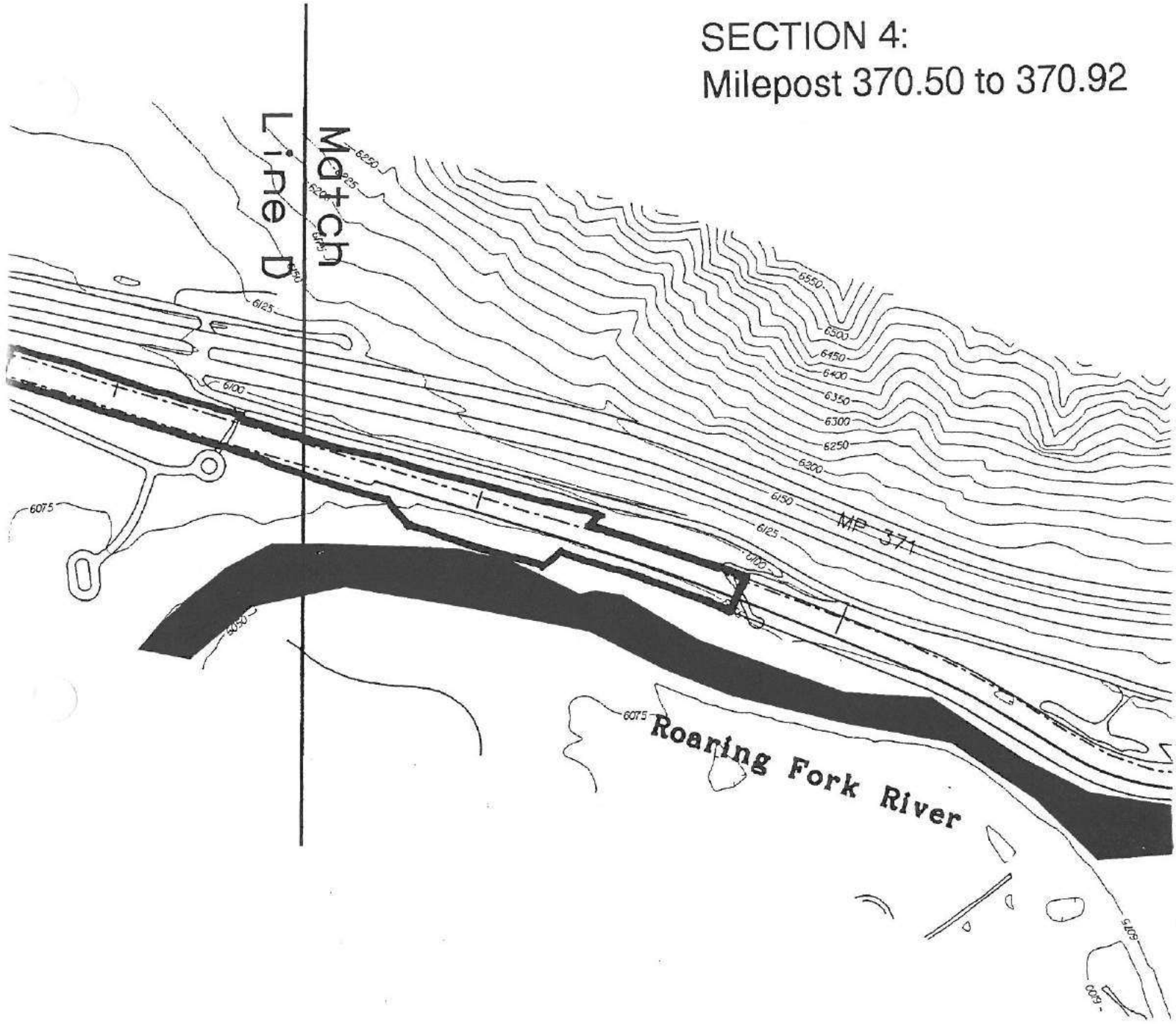


SECTION 3:
Milepost 368.50 to 369.00

W:\15731?\EXHIBIT\EXHIBIT.DGN

POTENTIAL
ROARING
BRIDGE
GRADE SE
BUSWAY
POTENTIAL
RIGHT OF

SECTION 4:
Milepost 370.50 to 370.92

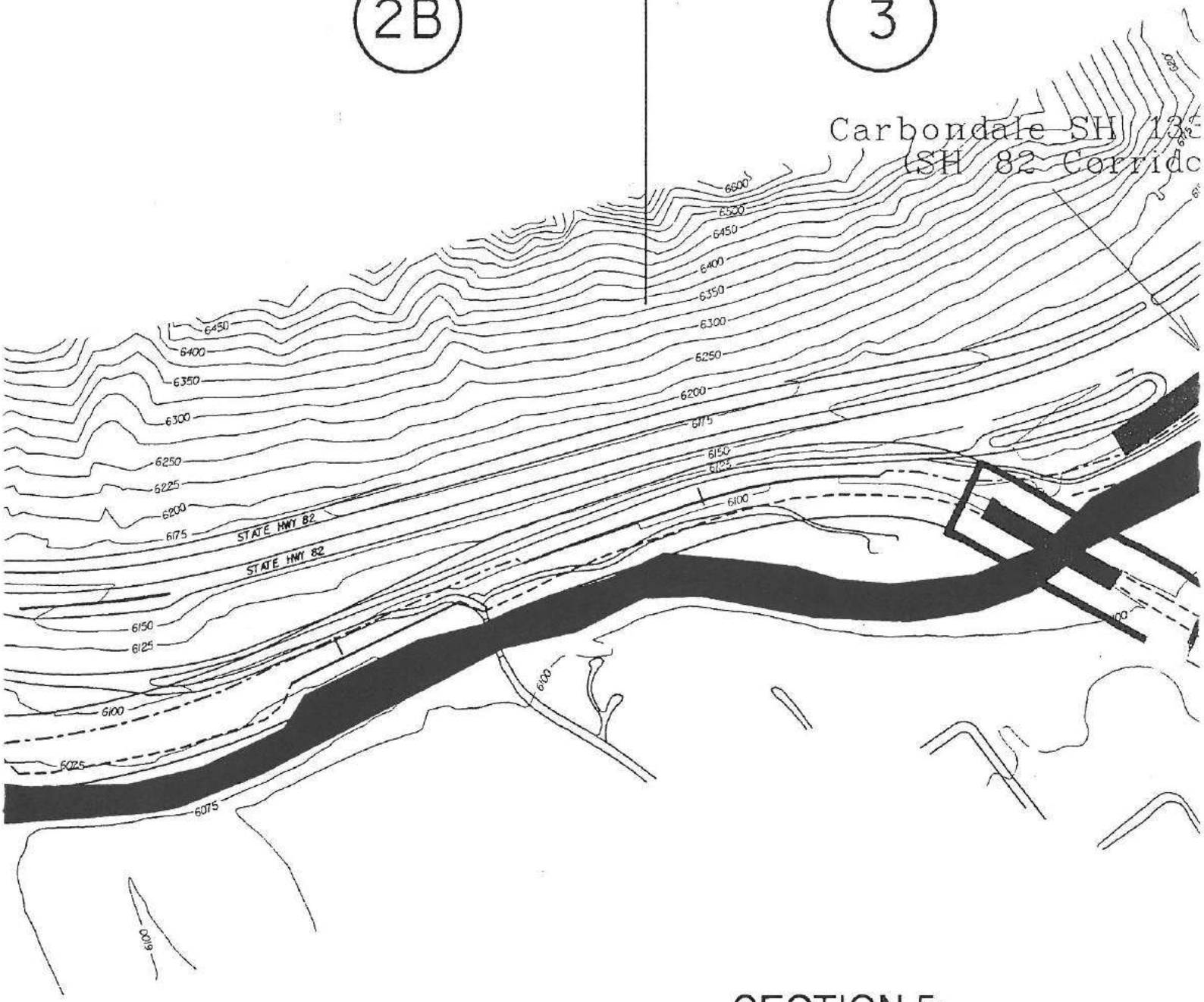


23rd Street to Carbondale

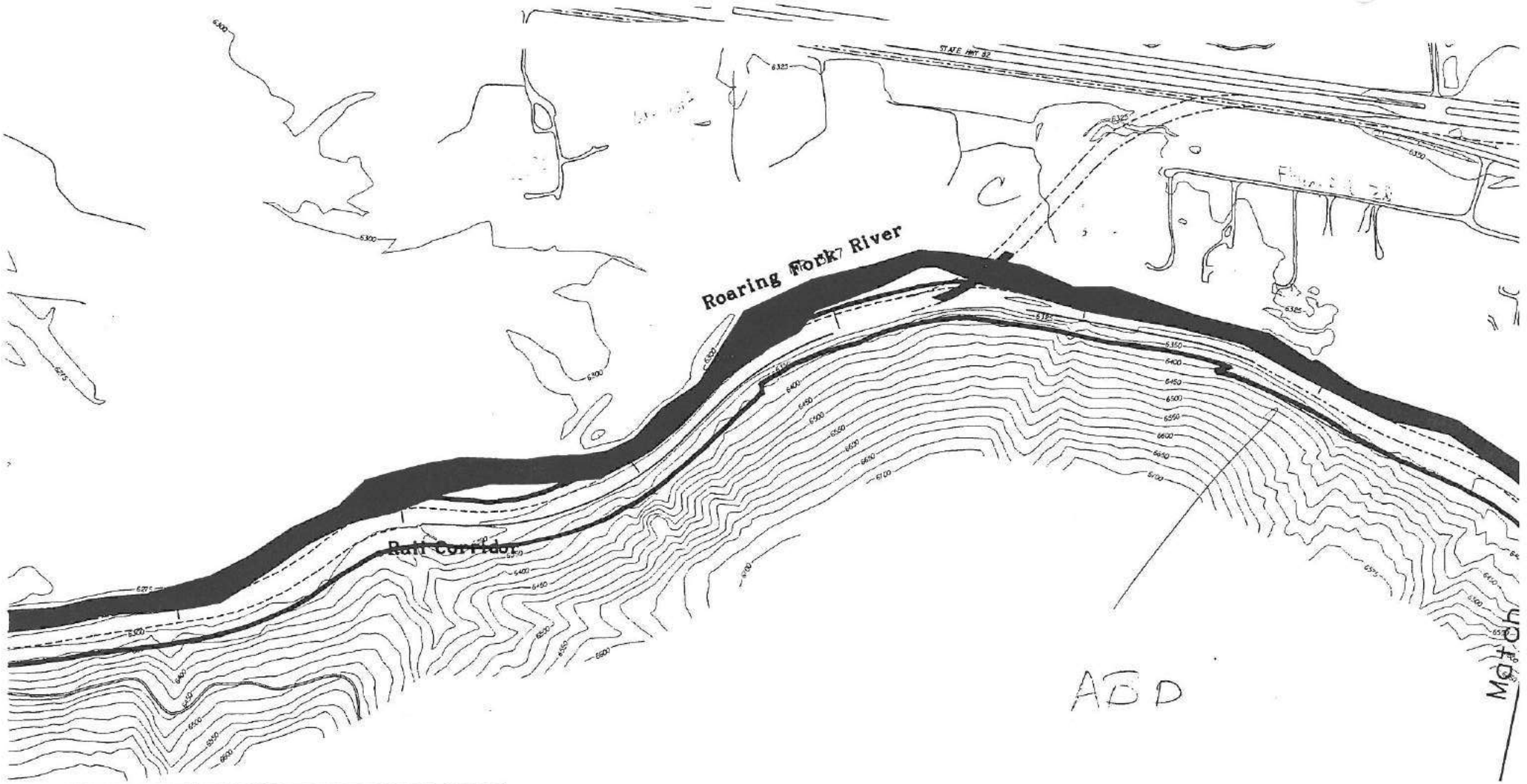
Carbondale to Catherine Store

2B

3



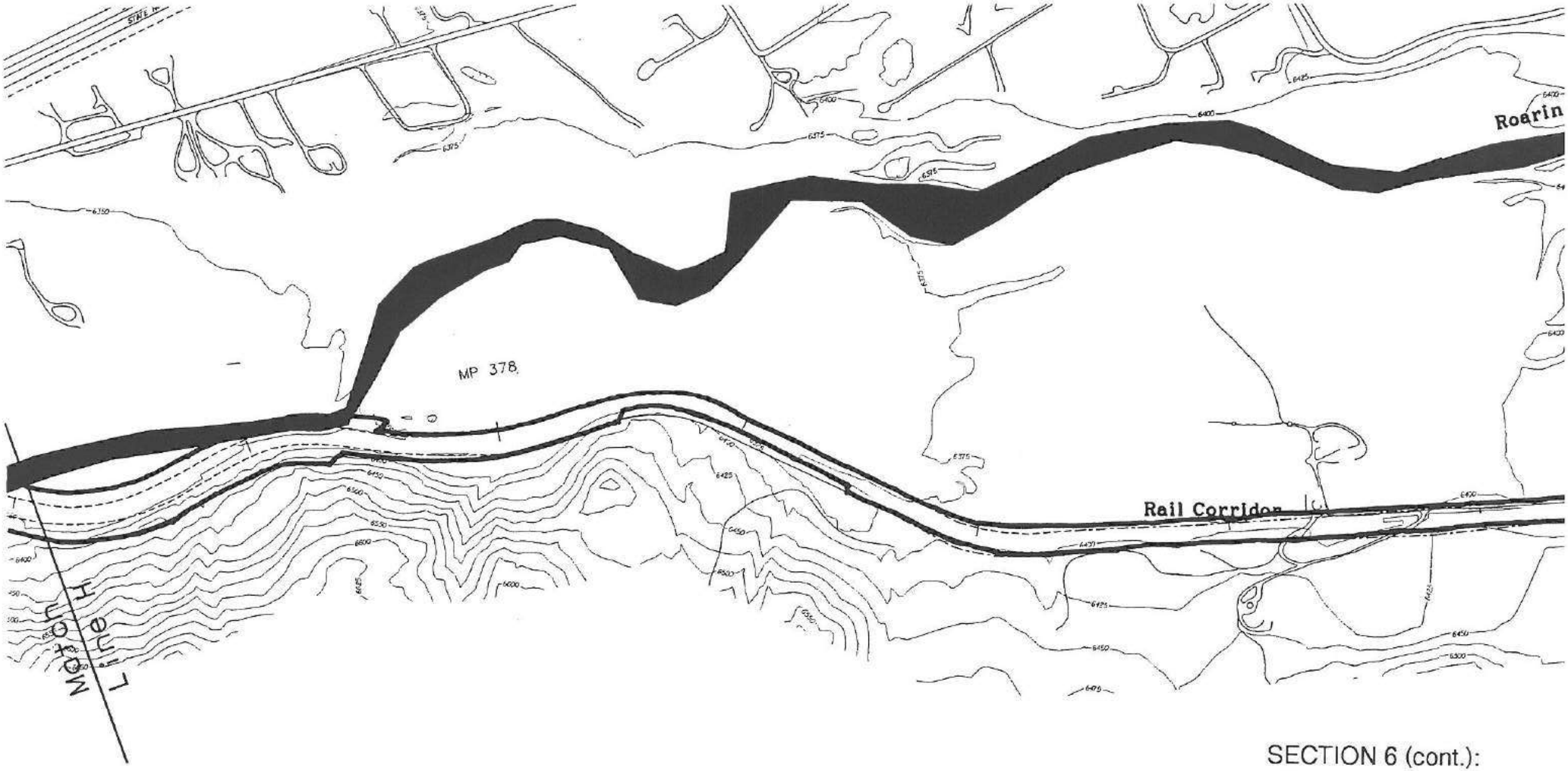
SECTION 5:
Milepost 371.69 to 371.83



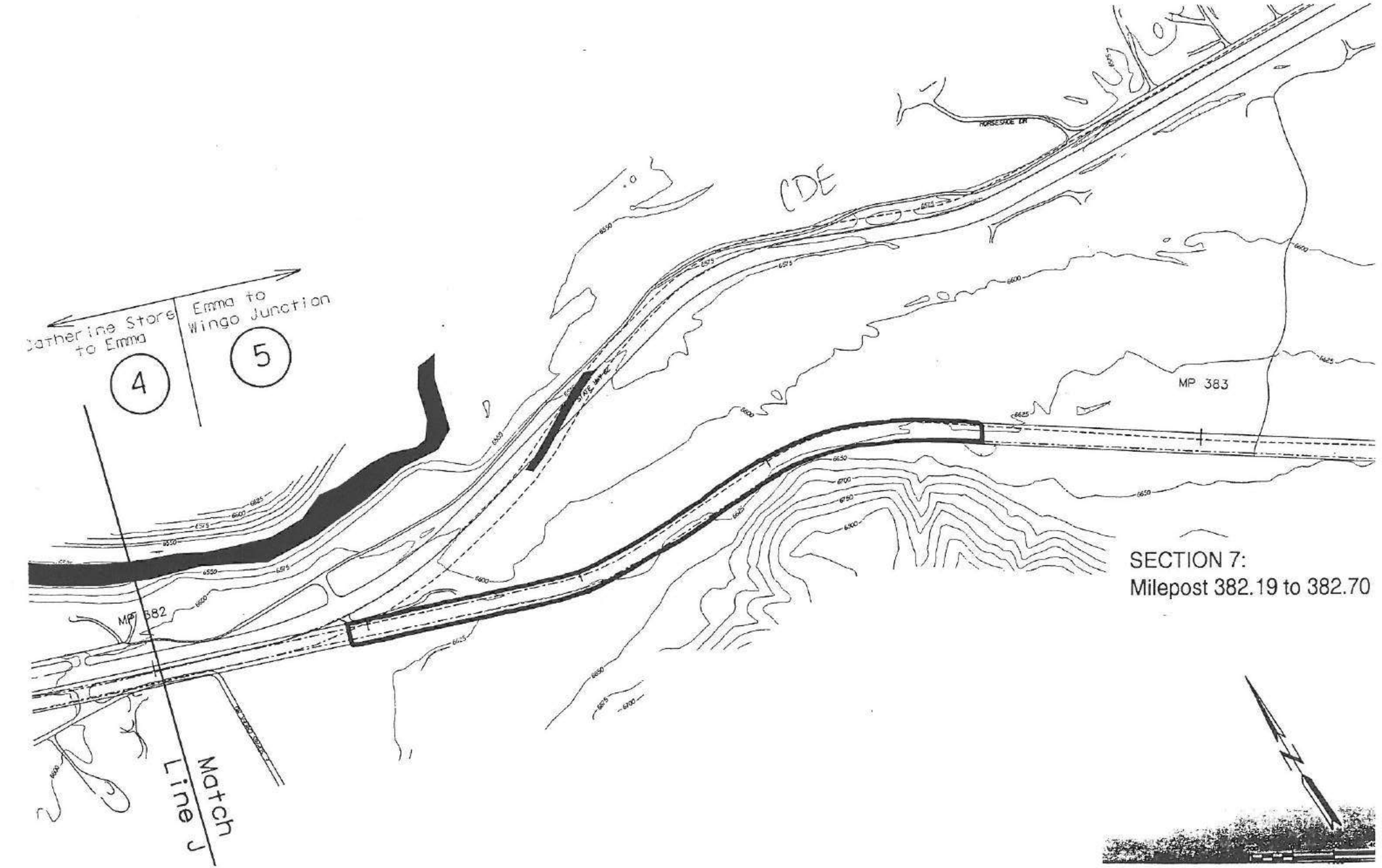
LEGEND

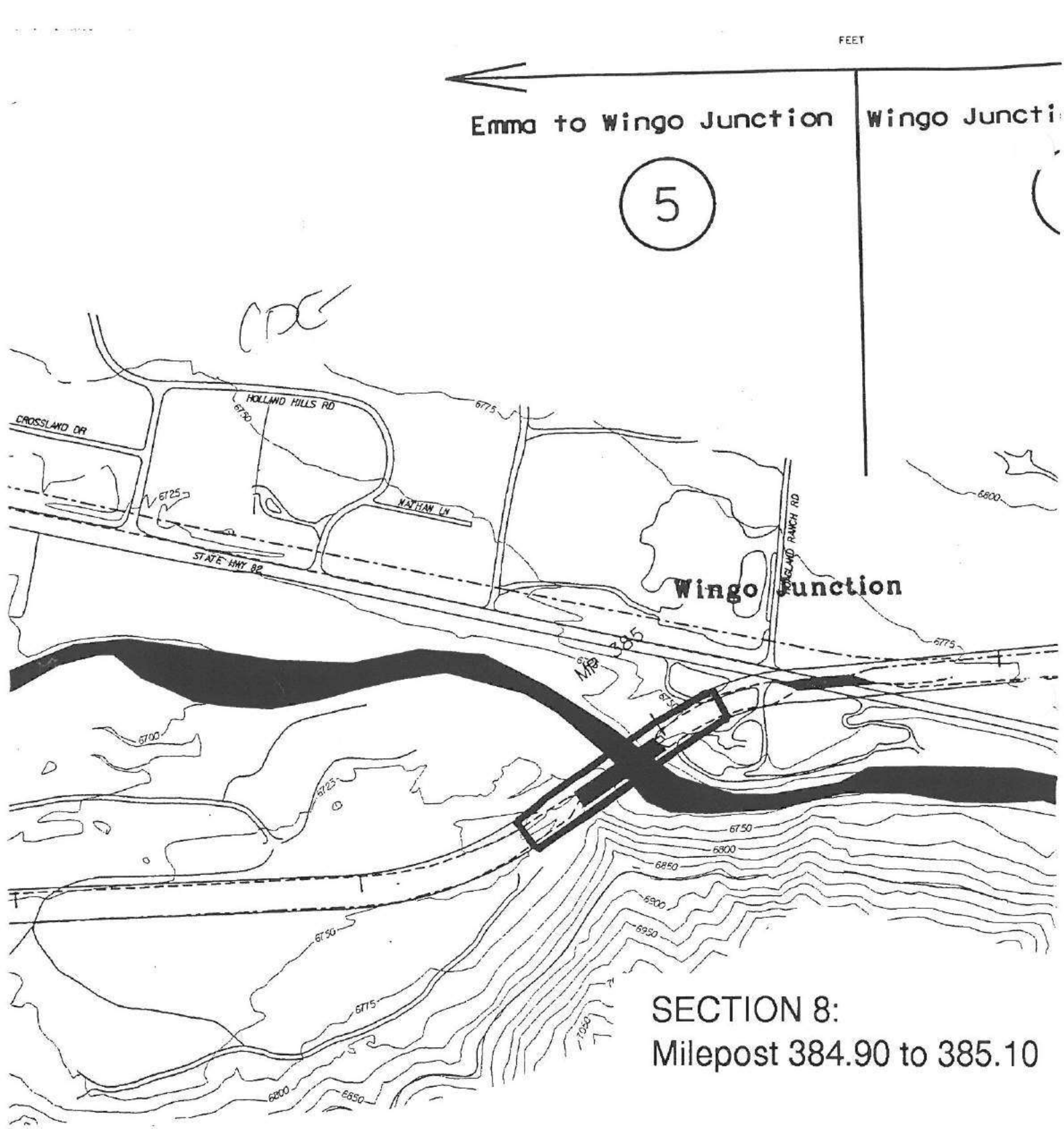
- POTENTIAL TRANSIT STATION LOCATION
- ROARING FORK RIVER
- BRIDGE
- GRADE SEPARATION
- BUSWAY TWO LANE LIMITS (WITH TRAIL)
- POTENTIAL WALL LOCATIONS (ALL MODES)
- RIGHT OF WAY

SECTION 6:
Milepost 376.14 to 378.86



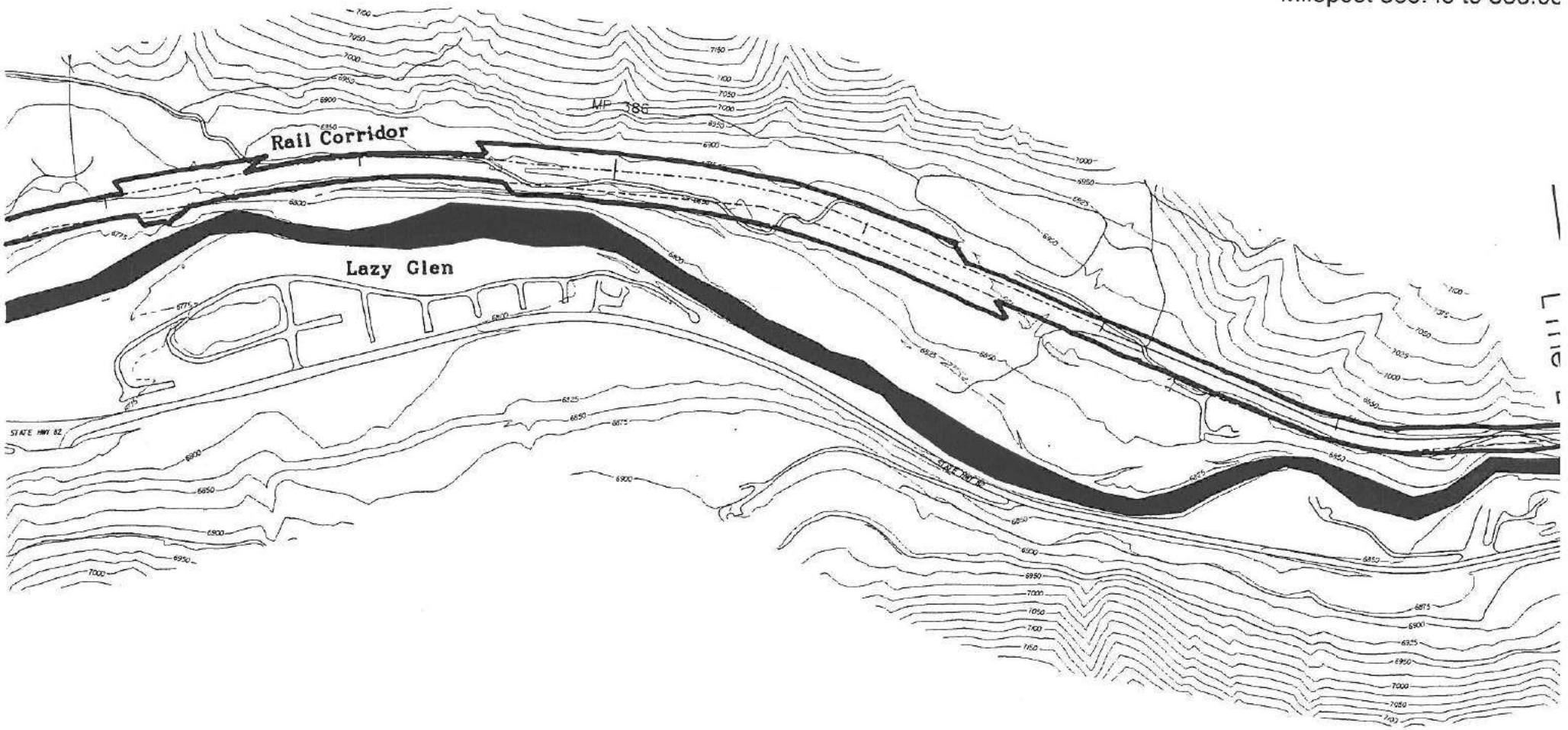
SECTION 6 (cont.):
Milepost 376.14 to 378.86

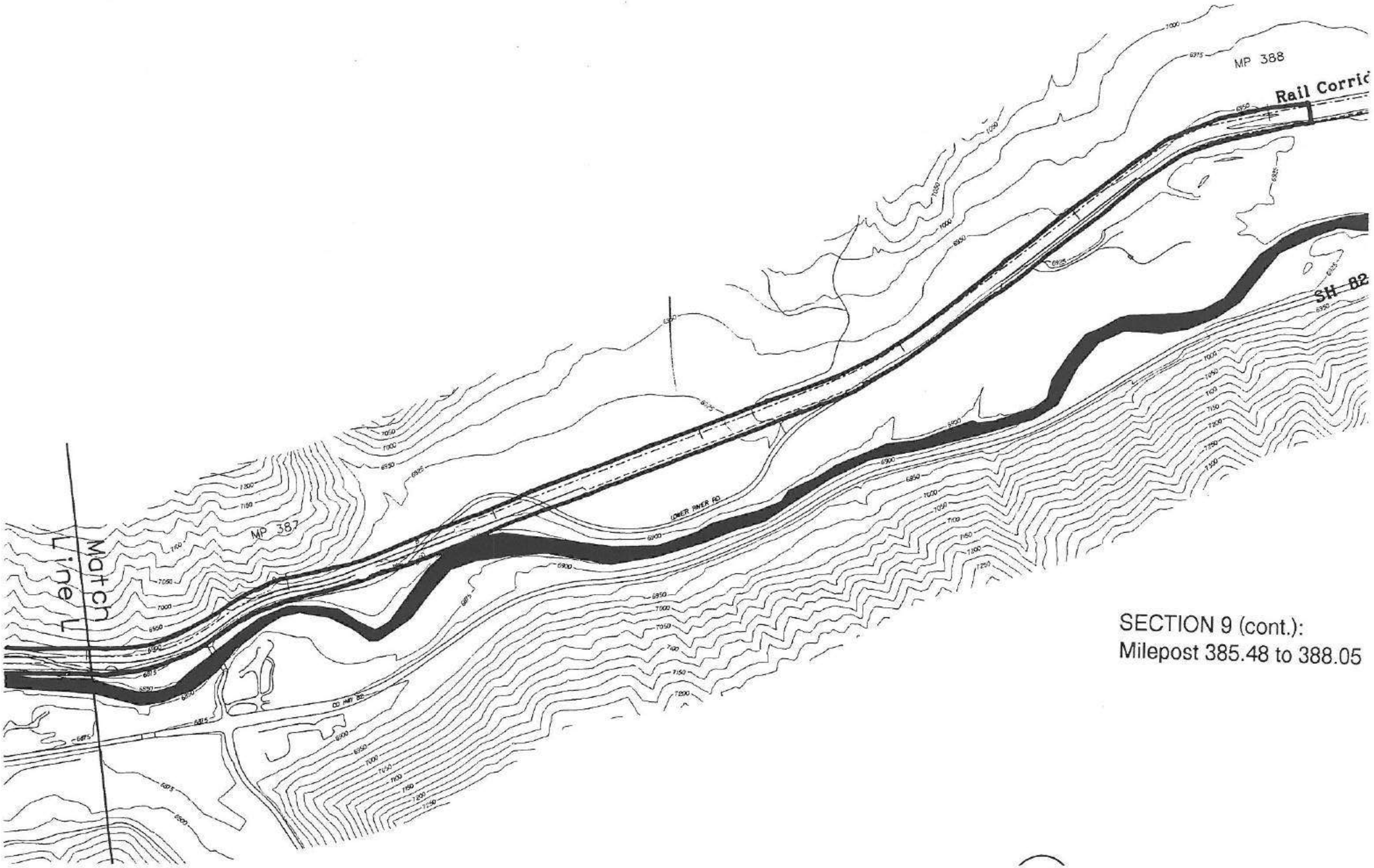

Catherine Store to Emma
4
Emma to Wingo Junction
5
MP 382
MP 383
Match Line J
SECTION 7:
Milepost 382.19 to 382.70



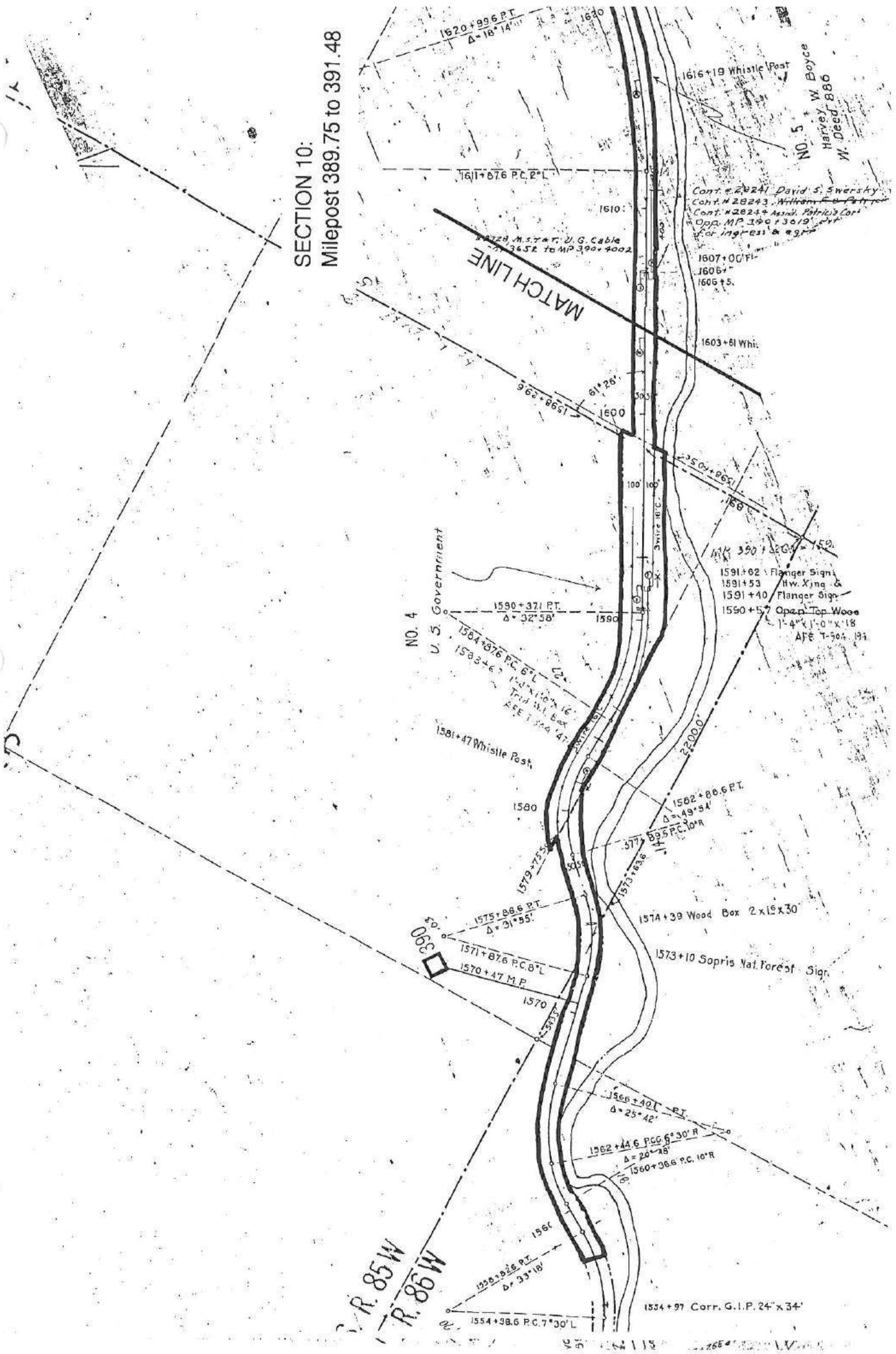
SECTION 8:
Milepost 384.90 to 385.10

SECTION 9:
Milepost 385.48 to 388.05





SECTION 9 (cont.):
Milepost 385.48 to 388.05


SECTION 10:
Milepost 389.75 to 391.48
MATCH LINE
NO. 4
U. S. Government
NO. 5
W. Boyce
Harvey 886
W. Deed
1620+99.6 P.T.
Δ=18°14'
1616+19 Whistle Post
1611+87.6 P.C. 2°L
1610
1607+00 Fl
1606+
1606+5.
1603+61 Whi
1600
1591+62 Flanger Sign
1591+53 Hw. Xing
1591+40 Flanger Sign
1590+57 Open Top Wood
1'-4" x 1'-0" x 18
1590+37.1 P.T.
Δ=32°58'
1590
1584+87.6 P.C. 6°L
1581+47 Whistle Post
1580
1579+73.5
1575+88.6 P.T.
Δ=31°55'
1573+63.6
1573+10 Sopris Nat. Forest Sign
1571+87.6 P.C. 8°L
1570+47 M.P.
1570
1566+40.1 P.T.
Δ=25°42'
1562+44.6 P.C. 6°30' R
Δ=20°18'
1560+36.6 P.C. 10°R
1562+86.6 P.T.
Δ=49°54'
1577+89.5 P.C. 10°R
1554+97 Corr. G.I.P. 24" x 34"
1554+38.6 P.C. 7°30' L
R. 85 W
R. 86 W
2200.0'
330'