



INFRASTRUCTURE RECOMMENDATIONS

# TOWN OF RED CLIFF, COLORADO MASTER PLAN

## Section 6 INFRASTRUCTURE RECOMMENDATIONS

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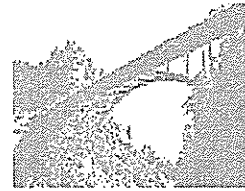
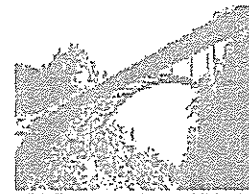


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## SECTION 6      INFRASTRUCTURE RECOMMENDATIONS

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### 6.1      INTRODUCTION

The intent of these planning and design recommendations is to provide possible solutions to problems and deficiencies identified in this section. Areas addressed are the street system, water and sewer system, snow removal, public transportation, trail systems and open space.

### 6.2      LAND USE SUPPLY

An inventory and analysis of existing land use provides insight into development patterns and trends. The historical grid pattern overlaying topographic constraints developed during Red Cliff's initial platting has determined the current land use within the Town.

#### 6.2.1      Residential

Residential areas within the town reflect a small lot, high density character. The pattern has tended toward single family homes with a few multifamily or mobile homes.

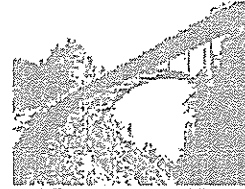
There are approximately 200 platted lots. The majority of the lots particularly closer to the downtown core are than then 3,500 square feet with 25 foot frontages.

#### 6.2.2      Commercial

Commercial development is located along Eagle Street; extending out past Monument Street. Water Street and Monument Street are predominately residential. Corner properties at these intersections have historically been commercial. Public recreation consists of two parks on Monument Street between Pine Street and Eagle Street. The undeveloped land uses equal approximately 50 percent of the area within the town.

#### 6.2.3      Zoning

There are six zoning districts in Red Cliff. The commercial zones are Mixed Use Town Center Commercial and Mixed Use Neighborhood Commercial



and include the downtown approximately eight blocks either side of Eagle Street. The R-1 residential zone includes the remaining area of the town with small parcels of Public Facilities, Cemetery Open Space and Parks Open Space.

## 6.2.4 Development Potential

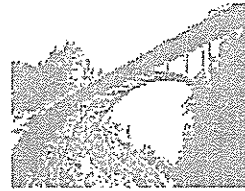
Using the existing Town Area: 6,527,442 sq feet; 149.8 acres per existing zone classification, the following zones were included in calculating total buildout of Red Cliff (MU/TC Area: 364,574 sq feet; 8.3 acres; MU/NC Area: 304,727 sq feet; 7.0 acres and R-1 Area: 4,768,346 sq feet; 109.5 acres) projections can be made to determine the approximate maximum development potential. Using a general design standard of 1.17 acres commercial/1,000 population, the existing buildable (minus 25% of total for public rights of way), commercially zoned property in Red Cliff has the potential to support a maximum population of 9,807. The net buildable per the residential zone (109.5 acres) which was multiplied by the maximum required building units per acre (15) which was multiplied by the average persons per household (2.6). The projected buildout population in the residential zone is (4,705.5). The projected buildout population in the commercial zones is (9,807). Commercial and Residential zoned property in Red Cliff has the potential to support a maximum population of (14,077).

The remaining acres are as follows and were not included in the calculations:

Public Facility/Office Complex (PF/OC) Area: 173,082 sq feet; 4.0 acres  
Park/Open Space (P/OS Area): 26,599 sq feet; 0.6 acres  
Cemetery/Open Space (C/OS Area): 890,114 sq feet; 20.4 acres

## 6.2.5 Recommendations

- Develop Comprehensive Design Guidelines
- Provide a Generalized Development Plan
- Update the Land Development Regulations
- Incorporate performance standards with zoning and land use plan including:
  - Land Use Design
  - Streetscape standards
  - Transportation
  - Lighting
  - Utilities
  - Parking



Open Space  
Visual Resources  
Drainageways

- Propose a Downtown Design Plan to emphasize the center of convenience activities, commercial potential, and a strong community environment.

### 6.3 STREET SYSTEM

The existing street system exhibits a variety of problems as a result of inadequate planning during the early history of the town's physical development. Street patterns are organized in a manner which does not respond appropriately to traffic flow but to topographic constraints. Right of way widths in many cases are inadequate. A partial survey of Block M done in 2001 indicated encroachments and lot line inaccuracies due to survey monument movement. A complete survey of the town has not been completed.

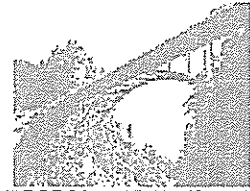
The street system within the town is characterized by improper drainage patterns, narrow roads, road surface deterioration, and poor circulation. Vehicular circulation and capacity problems are a direct result of narrow roadways and right of way widths. One solution to this problem is to widen the streets to approved street standards. However, such a project would be financially infeasible and controversial since many residential structures have encroached and are located close to the right of way.

Roadway surface should remain as long as volumes are low. However, rustic this appears, improvements should be part of an overall streetscape program that would include sidewalks and landscaping.

The Water Street and Eagle Street and Monument Street and Eagle Street intersections designated by the Planning Questionnaire and Walking Tour Visual Preference Survey are poorly defined due to road alignment, signage and surface material. Improved intersection definition may involve reconstruction so that the intersections can be seen as contributors to major traffic circulation. An unobstructed line of sight should be provided at all intersections so approaching vehicles will be able to stop before arriving at the intersection.

#### Recommendations:

- Systematic surveying of the road network should be undertaken.



#### INFRASTRUCTURE RECOMMENDATIONS

- Many areas along Water, Monument and Eagle Streets are dangerously narrow without shoulders. As a result, construction and snow removal equipment cannot negotiate the quick turns and narrow lanes.
- All street signs should be evaluated for replacement including snow removal route, no parking, stop signs and no access.
- Roadway , improvements should be part of an overall Capital Improvement Plan streetscape program that would include sidewalks and landscaping.

### 6.4 DRAINAGE

Another infrastructure concern in Red Cliff is drainage, specifically, the design of roadside storm sewer drainage, swales and culverts. The combination of steep grades, inadequate drainage swales, and shortage of proper drainage structures and detention devices causes excessive erosion alongside roads and on road surfaces. As a result, the velocity, volume, and direction of stormwater are essentially uncontrolled, resulting in street pooling, siltation and flooding.

Recommendations:

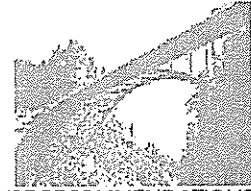
- Adopt a drainage plan that addresses allowable areas for development, slope, cut and fill requirements.
- Identify and prioritize the critical areas on a road by road basis and appropriate steps to correct the deficiencies.

### 6.5 SNOW REMOVAL

Snow removal is a problem in some areas of town, particularly where steep grades and narrow rights of way contribute to excess snow accumulation.

Recommendations:

- Establish a Standard Operating Procedure manual.
- Designate certain areas in the town for snow dumps and locations for transporting snow from the snow dumps to winter storage.
- Map the areas in town for snow storage and removal.



## 6.6 PUBLIC TRANSPORTATION

As was previously discussed, Red Cliff does not have a public transportation plan. However, the town should encourage the development of a Transportation Development Plan for area.

Recommendation:

- Technical assistance for preparing the Transportation Development Plan may be obtained from the Northwest Colorado Council of Governments.
- The town may also consider agreements with other local agencies such as the ECO transportation system.
- Initiate a shuttle cost share program with local businesses to transport residents.

## 6.7 BICYCLE/PEDESTRIAN TRAILS

At present, there is no connecting bicycle/pedestrian trail to Leadville and the Eagle and Vail Valleys trail system. A strong local interest for the development of a bicycle system has seen the completion of The ECO Trails program funds, which constructs, and promotes a scenic trail system of urban, paved, multi-use, non-motorized trails through the Eagle and Vail Valleys. The program is funded by a designated sales tax collected in the eastern portion of Eagle County.

Recommendation:

- The ECO Trails program has proposed a trail system using the railroad right of way connecting Red Cliff with the Eagle and Vail Valleys trail system. However, procuring access agreements has delayed such a trail system.
- Because vehicular traffic volumes pose a hazardous situation along U.S. 24 a dangerous situation exists with bicycles and vehicles sharing the road. A designated bicycle lane could be utilized if there is sufficient roadway width.
- As new development is planned adjacent to proposed trails, the town would require construction or contribute to a trail system as a condition of approval. This may supplement public financing of a trail system within the corporate limits of the town.

## 6.8 OPEN SPACE

Preservation of open space should include the following:

Recommendation:

- Identify potential public open space areas and possible bicycle/pedestrian path systems based on environmental constraints data including high visual quality, natural wildlife habitats or historical/archeological significance.
- Investigate various methods for obtaining public open space area. For example, Colorado Open Lands and the town's zoning ordinance that would require a subdivider to dedicated five percent of the total area of a development or cash in lieu of public purposes including open space.

## 6.9 WASTEWATER

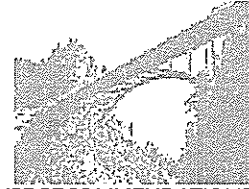
The existing wastewater treatment plan is incapable of meeting discharge limitations. The facility is currently not functioning as it was originally designed. The re-circulation pipes are not connected, the aeration and mix do not function, and the influent pipe backs up into the first manhole. Presently, only the manually raked bar screen and chlorine contact chamber are in working order. One of the factors contributing to poor treatment and organic degradation is the extreme winter conditions and cold influent wastewater temperatures.

The collection pipe system is in poor condition resulting from numerous offset pipes, cracked pipes, cracked joints, deteriorating lining, and various other deficiencies.

Recommendations:

- Additional plant capacity must be provided for the unsewered in town population.
- A collection system service must be expanded in the south and west area of the town.





- Continue seeking funding to complete the proposed wastewater treatment plant.
- Upgrading the treatment capability to meet effluent standards is currently being conducted.

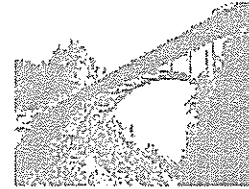
Four design alternatives suggested in The Town Red Cliff 2005 Wastewater Facilities Master Plan recommended the following alternatives:

- A Bio-Wheel package treatment plant is the most cost effective solution while providing high quality wastewater treatment.
- A Sequencing Batch Reactor (SBR) operates well under a wide variety of fluctuating flow and high peak flows. Equalization, aeration, and clarification all take place within a single reactor.
- A new wastewater treatment plan would install a complete mix activated sludge treatment system. This is a biological process in which naturally occurring, living organisms are maintained at a very high population level. The microorganisms consume the dissolved and suspended organic material.
- The construction of a new wastewater treatment plan which would construct a Membrane Bio-Reactor plant (MBR) is a continuous flow process combining activated sludge and membrane filtration into a single process which replaces a clarifier and multiple filtration steps into a conventional system.

## 6.10 WATER

Much of the Red Cliff water system installed at the turn of the century has been replaced and is relatively new. Sections of the line starting from Turkey Creek were installed in the 1970's. Older areas beginning at the water treatment plant are approximately 40 years or older.

Recommendations:



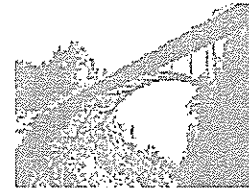
- Replacement and upgrading of the water system should be an ongoing priority.
- Evaluate the need for future water expansion and institute a program for financing the expansion.
- Require new development to provide for the necessary extension of water to serve the development.
- Develop guidelines for the extension of water service contracts to development in unincorporated or undeveloped areas and ensure that sufficient capacity is still available to serve infill development.
- Develop a phased construction schedule that will estimate future service needs along with replacement of old lines.

## 6.11 HOUSING

Due to the impact of limited job opportunities, inaccessibility to job markets, the railroad discontinuing service and freight to Colorado Springs plus the local mines closing, and prospects of increased development adjacent to the town becomes a possibility, available housing are in short supply. As pressure for rental housing increases, inflated real estate values from speculation push rates to unaffordable levels. Many single family detached homes are occupied and room and board and bed and breakfast establishments have been rented. A significant proportion of the housing available in Red Cliff is in need of rehabilitation.

As housing becomes scarce, construction of single family houses will become constrained. The labor market and service industry may not be able to afford new housing. This need will be met by existing units which could be converted, become vacant or rehabilitated from substandard units. The alternative to new single family detached housing, however, will be construction of affordable housing that will include multifamily rental units to meet the demand for that market area.

Recommendations:

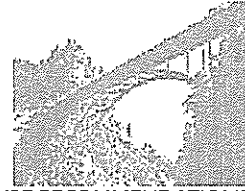


- Inventory existing supply of housing units by type, and location for potential additional units.
- Examine financing techniques which are available for housing projects, such as tax credits and project activity bonds.
- Discuss funding options and ways to finance projects (Municipal bonds, development fees, incentive and subsidies).
- Explore areas currently outside the town limits for planning future developments.
- Prepare an addendum to the zoning ordinance, to cover subdivision regulations, planned unit developments, and a sign code for multifamily housing areas, and apartments in the residential zone.
- Enforce International Building Code and health codes to prevent occupation of sub-standard, abandoned dwellings and abuse of standards established for acceptable housing.
- Evaluate service area coverage, extension policies and system capacities to accommodate new residential development.
- Coordinate work with potential developers, builders, lenders and realtors to create housing project opportunities.
- Examine adopting development and permitting fees, construction taxes, and water/sewer connection fees.

## 6.12 HISTORIC PRESERVATION

The architecture of the downtown core does not conform to any particular period style. Although some residents have expressed a desire for Victorian, the area exhibits its own “vernacular” style which is a generally pleasing conglomeration of varied architectural elements. The variety of styles from the 1900’s (recently built) to the 1920’s to the late 1960’s and up to 2000 is interesting, although they could potentially become distracting.

Because the character of the area is not of one period, and of a similar scale, there is not a cohesiveness and unity in the design and material used and due to its isolation and an unpredictable economy, Red Cliff has not been able to restore and maintain many buildings that are of historic value, consequently, many structures are vacant or underutilized, contributing to a feeling of abandonment to the community. Because of this, little alteration of structures has occurred and large number of streetfronts remain unaltered.



## INFRASTRUCTURE RECOMMENDATIONS

### Recommendations:

- Develop a loan fund program to support historic preservation in the community.
- Develop a preservation plan with incentives for rehabilitation and renovation of historic buildings to protect historic resources.
- Create design guidelines for public works projects.
- Identify the desirable infill locations and encourage redevelopment and new buildings which will fit with the context of the downtown core.
- Inventory historical buildings and develop a plan to protect the historic resources of the community.
- Incorporate the protection of historic resources into the regulations of development.