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Truckee River Recreation Plan

April 17, 2001

Prepared For:

The Nevada Commission on Tourism

Prepared By:

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Recreation Engineering and Planning
Research and Consulting Services
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University of Nevada, Reno, Center for Recreation Development

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Prepared For:

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[May 7, 2008]

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EXECUTIVE SUMMARY

The Truckee River Recreation Plan illustrates the benefits of developing a recreation corridor on the Truckee River from Verdi, Nevada west of Reno to Vista Boulevard on the east side of Sparks, Nevada (Figure 1). A developed river recreation corridor including trails, whitewater parks and slalom course through the heart of Reno and Sparks would provide an attractive recreational opportunity for the 5.2 million annual visitors to the Reno/Sparks area. River activities would attract a new tourism sector to the area. This summary highlights the Plan's findings and conclusions about exciting recreation potential on the Truckee River.

The Vision

- * A vibrant river recreation showplace that includes a continuous riverwalk and bike trail for pedestrians and spectators along the river and under each bridge.
- * A continuous river run with whitewater parks and a slalom course that allows national caliber boating events such as slalom races, down river races, and whitewater rodeo contests.
- * Convenient and close access to shops, restaurants and concessions from the river's edge.
- * Easy riverbank access for fishing, boating, or public enjoyment of the river's aesthetic values.
- * Safe river passage over modified dams for rafts, inner tubes, kayaks, canoes and fish migration.
- * River improvements that accommodate year-round recreation and work in concert with flood control measures.
- * River enhancements designed for boating enthusiasts of all skill and activity levels.

River Park Anticipated Use

- * It is reasonable to expect 10,000 to 100,000 users and commercial rafters annually at a developed whitewater park and river recreation corridor on the Truckee River.
- * Reno and Sparks is an ideal setting as an outdoor recreation destination for family oriented activities such as river rafting, kayaking, canoeing, and tubing.
- * Whitewater parks provide a venue for professional and amateur competitive events. With such a facility, it is possible for the Reno/Sparks area to host championship series, Olympic team trials, or the U.S. National Championships.
- * Kayaking is a fast growing vigorous activity that attracts a wide age group of affluent spectators and participants.
- * The elevation of the Truckee Meadows and the clean water quality of the Truckee River are an ideal combination for competitive athletic training.
- * The Truckee River in the Truckee Meadows holds great potential to be developed into a compelling tourism attraction for Reno, Sparks, and Washoe County.
- * A whitewater park would separate the Truckee Meadows from other western destination cities. There are no other permanent slalom courses or whitewater park facilities in the Far West (Oregon, California, Washington, Nevada, Utah, and Idaho.)
- * A whitewater park and river recreation corridor could support interest from special event and convention groups.

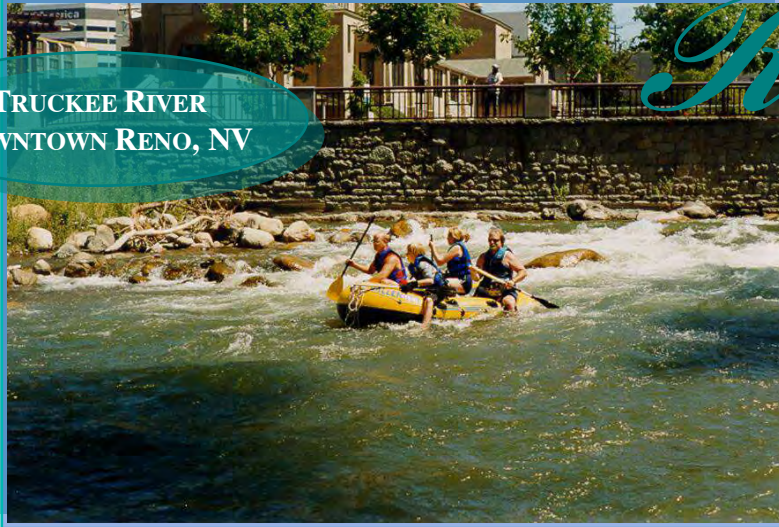
Economics, Return on Investment, and Funding

- * The estimated cost of the recommended river improvements is approximately \$2.8 million with low or no annual maintenance and operational expenditures.
- * The project has the potential to pay for itself in the first year of full operation. A very conservative estimated overall economic analysis predicts that river related uses would generate an economic impact of 1.9 million and \$4.1 million annually. A maximum, realistic potential could more than triple this amount.
- * Potential funding solutions include general funds, capital development funds, redevelopment funds, bonds, TEA-21 funds, concessionaire fees, donations, and grants.

Relationship to Flood Control Projects

- * All improvements would be designed to improve floodwater conveyance or at a minimum have no impact.
- * This plan is in concert with the goals of the Truckee Meadows Regional Flood Control Project.
- * The Flood Control Project, in conjunction with other funds and grants, is an excellent funding opportunity for the communities to implement concurrent recreational improvements to the Truckee River.

**TRUCKEE RIVER
DOWNTOWN RENO, NV**



after enjoying a summer day on the Truckee River.

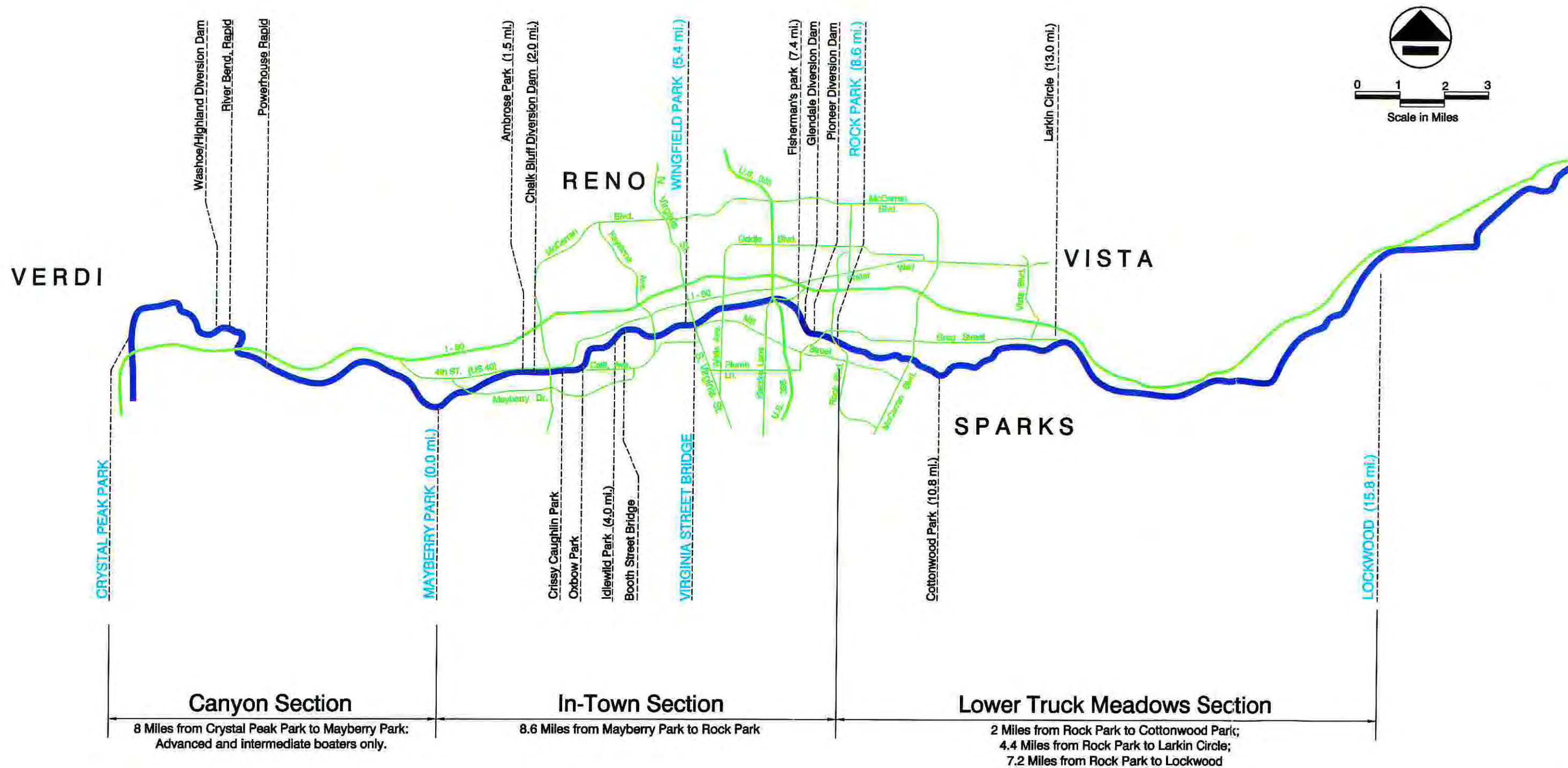


Figure 1. Map of the Truckee River from Verdi to Vista, Nevada

1.0 Introduction

This Truckee River Recreation Plan was developed under contract for the Nevada Commission on Tourism (NCOT). The purpose of this plan is to integrate existing recreation plan elements for the City of Sparks, the City of Reno, and Washoe County, to enhance recreational opportunities within the Truckee River corridor.

Nevada is diversifying its tourism product to include outdoor recreation and other attractions in addition to gaming and entertainment. The Truckee River in the Truckee Meadows is a natural source of outdoor recreation and aesthetic beauty, and holds great potential to be developed into a compelling tourism attraction for Reno, Sparks, and Washoe County. There is growing interest in whitewater boating in Reno and Sparks and the surrounding area, as evidenced by strong retail sales. Having recently been included as an Olympic event, the sport is currently the fastest growing of all outdoor recreation activities. Many people are coming to the sport using kayaks, canoes, inflatable boats, rafts, etc., to learn outdoor skills, exercise, learn about river safety, and have fun.

Types of competitive events include down river races, slalom races, and river rodeos. Down river and slalom races are timed events. Slalom races include gates through which the racer must maneuver. River rodeos are similar to ocean surfing competitions where the contestants perform a series of maneuvers on a wave. In other communities, whitewater parks are developed to host these types of competitive events, river festivals and for the general public and tourists to enjoy. The most successful parks are designed to accommodate all skill levels.

The Truckee River currently provides a limited recreational amenity to Reno and Sparks. It has not been fully integrated into the community due to numerous physical barriers. Past channelization of the riverbed in certain areas significantly altered some of the natural beauty, habitat, and physical structure of the river. Some river segments are unsafe. Diversion dams and drop structures create barriers to boating and floating through this area.

The opportunities to restore and integrate the Truckee River into the urban fabric of Reno and Sparks are tremendous. Numerous local studies and plans address the Truckee River. Implementation of these plans will increase the kayaking, rafting, canoeing, and inner tubing opportunities on the Truckee River. These plans generally have similar goals regarding recreation within the Truckee River corridor:

- 1) increase pedestrian and bicycle access to the river from the surrounding areas;
- 2) increase access along the river via a pedestrian/bike path; and
- 3) increase controlled access to the water's edge for fishing and docking.

Several of the plans address increasing public facilities along the river as well as river beautification. A partial list of plans is provided in Table 1-1.

Table 1-1. Selected Existing Plans Pertinent To Recreation On The Truckee River

1997	City of Sparks Comprehensive Park And Recreation Plan
1974	City of Reno Open Space Program
1983	City of Reno Truckee River Corridor Development Plan
1996	City of Reno River Corridor Action Plan
1990	City of Reno Downtown Redevelopment Plan
2000	City of Reno Master Plan
1983	Washoe County Truckee River Parkway—West
1992	Washoe County Comprehensive Regional Plan
2000	NCOT Whitewater Slalom Course Feasibility Study
1985	ACOE Feasibility Report and EIS
1991	ACOE Draft General Design Memorandum, Truckee Meadows, NV
2000	ACOE Truckee Meadows Recreation Plan and NED Benefit Analysis Preliminary Rough Draft

This plan builds on the goals of Reno, Sparks, and Washoe County parks and recreation departments, and presents new in-stream recreation components. The plan also includes an economic analysis for the proposed river corridor improvements.



Music plays at the Wingfield Amphitheater while a racer negotiates the rapids.

2.0 TRUCKEE RIVER RECREATION HISTORY & BACKGROUND

The Truckee River has historically been a resource for irrigation water, municipal water, logging, generating electricity, and for fishing. The cities and the county did not fully embrace the river as an amenity to the community until the 1970s and 80s when a recreational river corridor was conceived. Since that time, improvements have been made to the river corridor. The completion of the river path and park system from Sparks to Reno in the 1990s increased recreational use along the river. However, a recreation survey conducted by Sparks revealed less use than what would be expected for the Truckee River Greenway when compared to river greenways in other cities. Several reasons were noted, but the primary one was a concern for personal safety due to the remote nature of the river and the people who tend to live temporarily along the corridor (Sparks, 1997). Other cities, such as Denver, Colorado, have found that improvements to the river trail system increased public use, which tends to dislocate the transient populations.

The 24-mile stretch of River between Verdi and Vista is characterized by numerous dams and diversion structures.

In-stream river recreation on the Truckee River is limited because:

- 1) River-wide water diversion dams obstruct boat passage; and,
- 2) There is no defined low-flow channel.

These limitations are discussed further below and are the largest inhibitors to commercial and private recreational use of the river.

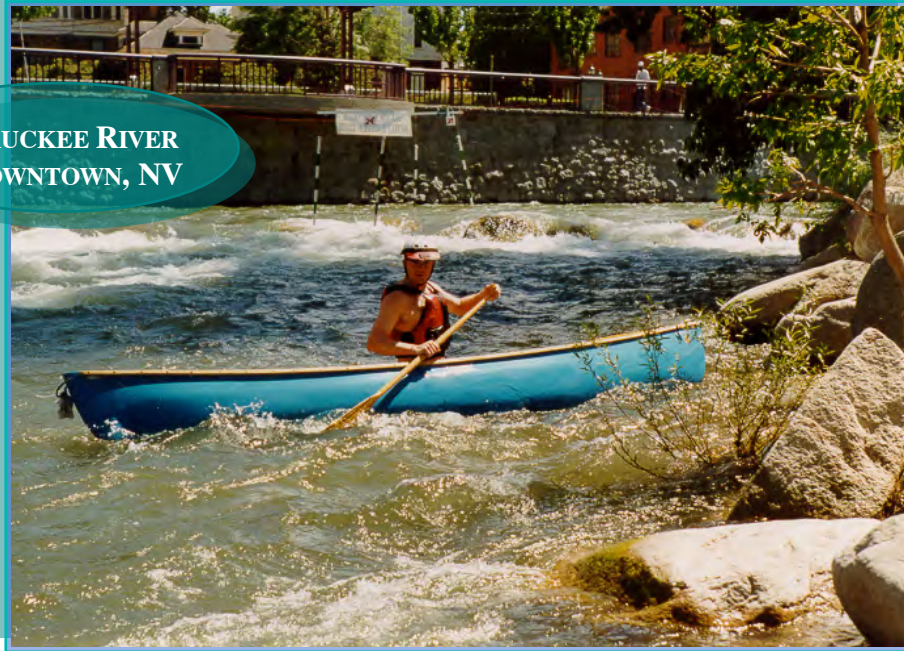
The various dams on the Truckee River create several types of hazards:

- 1) Boulders and debris can create foot entrapment hazards;
- 2) Localized hydraulic conditions can create drowning holes; and
- 3) Passage over a dam can damage recreational equipment.

The Chalk Bluff dam west of Reno is hazardous at both low and high flows. At low flows, there is no low-flow passage over the dam and the rough surface on the face of the dam can damage recreational river equipment. At high flows, typically greater than 2,500 cubic feet per second (cfs), a deadly river-wide reversal wave typical of low-head dams is created at the toe of the dam. In the late 1990s the dam was modified in order to reduce the drowning hazard, however, at high flows a deadly river-wide hydraulic still develops at the base of the dam. Other dams on the river, such as the old dam at Ambrose Park, the dams at Wingfield Park, Glendale, and the Pioneer Ditch dam, are also hazardous due to large boulders, concrete slabs, rebar, and debris. The boulders and debris create an entrapment hazard and can damage recreational equipment.

The lack of navigable low-flow channels also limits recreational opportunities on the river. In many sections of the river the water spreads across the entire channel bottom during low flow. Typical sections include Mayberry Street Bridge to Ambrose Park, the section across from Idlewild Park, Booth Street to Wingfield Park, Center Street to Lake Street, and Highway 395 to Fisherman's Park. Where the channel bottom is very wide, the rocky nature of the channel bottom negates safe boat passage during the warm summer months when recreational use could be the highest.

**TRUCKEE RIVER
DOWNTOWN, NV**



Canoeist enjoying the
Truckee River, NV.

3.0 Current Ownership

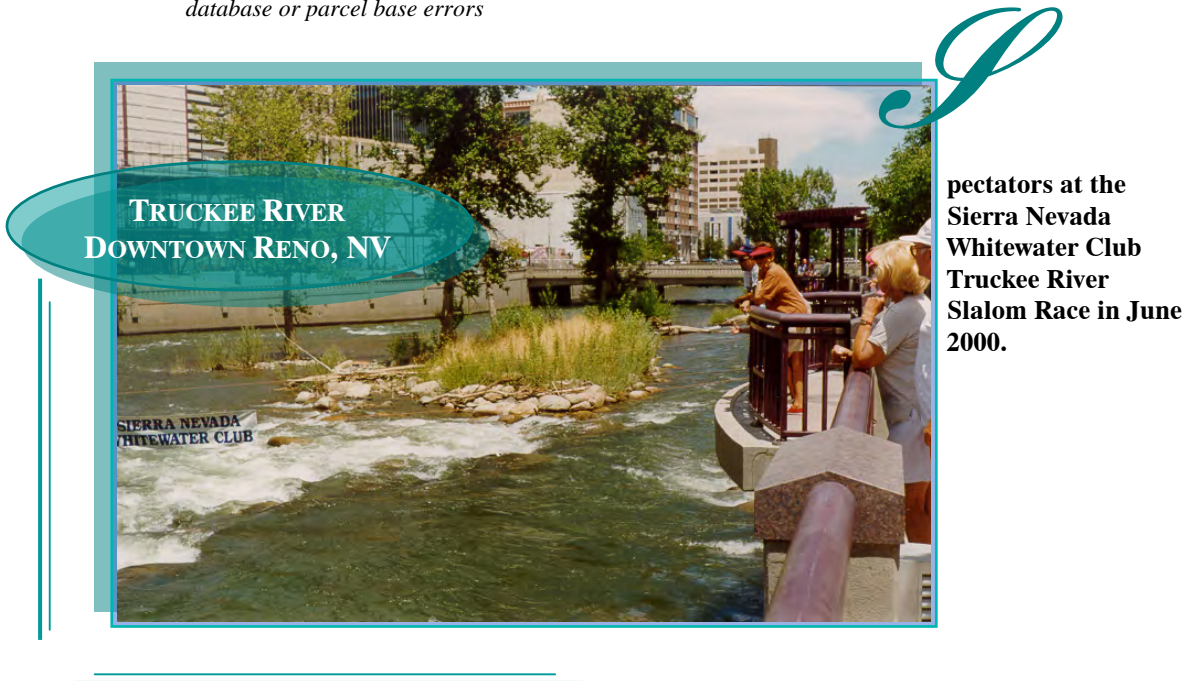
The land use status of parcels within a 1000-foot corridor centered along the Truckee River from Mogul to Steamboat Creek is depicted by the figures in Appendix A. Table 3-1 is a general parcel summary. The bed and bank of the Truckee River extending to the ordinary high water level are owned and managed by the State of Nevada Division of State Lands.

Table 3-1 Parcel Summary

LAND USE	NUMBER OF PARCELS	TOTAL ACRES
Agricultural-Open	15	39.4
Commercial	230	136.5
General Residential	365	462.9
Hotel	10	42.1
Industrial	225	457.3
M.D. Suburban	66	33.7
Multi Family	120	41.0
Planned Residential	185	32.3
Professional Office	16	8.6
Public	49	218.7
Specific Plan District	3	2.3
Truckee River Corridor	88	37.0
Unspecified*	103	544.1
Total		2055.8

Note: See maps in Appendix A

* unspecified parcels include streets, discrepancies within the parcel database or parcel base errors



4.0 Identification of Interests

Numerous agencies were contacted during the preparation of this plan. A complete list of the persons contacted and a summary of meeting notes is provided in Appendix B. Reno, Sparks, and Washoe County are the only public entity landowners along the river corridor. All three entities have a similar vision for the river corridor: improve access to and along the river.

The City of Sparks Parks and Recreation Department is currently prioritizing the North Valley areas where rapid residential growth is occurring. However, Sparks values the recreation possibilities along the Truckee River and welcomes recreational development. Current goals for the River include maintaining the trail and park system and enhancing access to the river. The Sparks Comprehensive Plan calls for two trails connecting the marina trail with the river trail. The river is currently not well connected with the city.

The City of Reno Parks Department has no specific plans for the Truckee River. Their goal is to enhance pedestrian access along the river. This includes bike lanes separate from the roadway, fishing access, beautification, and relocating industrial businesses that are inconsistent with river-oriented uses.

Washoe County recently passed an Open Space and Trail Bond. The county is actively acquiring lands along the river corridor to preserve the river system integrity, to protect the river habitat, and to provide public access to the river. The latter concept includes point access to parks and corridor access along the river. The overall plan for Washoe County is to contribute to a trail system that begins at Lake Tahoe and terminates at Pyramid Lake. Existing county river parks are composed of natural vegetation and limited facilities conducive to dispersed recreation.

The U.S. Army Corps of Engineers (ACOE) is coordinating with Federal and non-Federal agencies that have possible interest in recreation development associated with the Truckee Meadows Regional Flood Control Project. The ACOE is developing a recreation plan as a part of the Regional Flood Control Project. The recreation plan will provide access to the flood control features on project lands and link those features with the existing and planned trail system. The plan will complement other recreation plans for the area. It is currently anticipated that the flood control features will not extend upstream of Booth Street on the west side of downtown Reno.

A community coalition recently unveiled an alternative to the ACOE flood control plan. The community coalition plan is currently developing the recreational component to their flood control plan. Regardless of which flood control plan is implemented, this Truckee River Recreation Plan is in concert with the components to the Flood Control Project. The Flood Control Project is an excellent opportunity for the community to implement navigational and recreational improvements to the Truckee River.

The State of Nevada Division of State Lands supports recreation on the Truckee River. A permit from the state would be required for any changes to the bed or bank of the river.

The U.S. Fish and Wildlife Service (USFWS) is developing long and short-term goals for the Truckee River as they relate to the Lahontan Cutthroat Trout (LCT), a federally listed

threatened species. The Truckee River Recreation Plan addresses an area that is currently outside of the selected LCT recovery reaches on the Truckee River.

5.0 River Recreation Plan Elements & Improvements

Introduction

The river recreation plan *elements* presented in this section are concepts that may be applied to the entire Truckee River corridor. Recommendations for element applications are *specific recreation improvements*. A cost estimate for implementing these improvements follows as well as the economic analysis of those improvements. In order to understand the need for the recommended recreation improvements a brief description of the Truckee River sections is provided.

This plan identifies three separate segments on the Truckee River (Figure 1 – see Executive Summary). These sections are differentiated by the gradient of the river, public access, and the proximity to the city centers. The sections are:

- 1) The Canyon Section from Crystal Peak Park in Verdi to Mayberry Park west of Reno;
- 2) The In-Town Section from Mayberry Park to Rock Park in Sparks; and
- 3) The Lower Truckee Meadows Section from Rock Park through Sparks to Lockwood.

The Canyon Section from Crystal Peak Park in Verdi to Mayberry Park has the steepest gradient and the most difficult rapids of the three sections. This section to the west of Reno is reached via Interstate 80. The steep gradient and nature of the rapids requires advanced and intermediate boating skills. The river has very limited public access and is generally in a natural condition. The Washoe/Highland Diversion Dam three miles downstream of Crystal Peak Park is a hazard to river users. The USFWS is in the process of proposing modifications to the dam to allow for fish passage. Washoe County is currently focusing on this section of the river for land acquisition and trail expansion. The efforts of Washoe County and the USFWS compliment the vision of this Truckee River Recreation Plan.

The In-Town Section from Mayberry Park to Rock Park has a moderate gradient and rapids suitable for beginner and intermediate skill levels. This section begins in a natural riparian park, flows through the heart of downtown Reno, and ends at the largest riverside park in Sparks. The section has good access and public interaction areas at numerous mid-point locations. The proximity to the city centers allows for easy access for tourists and locals for a full day or half day boating and/or fishing on the river. Many of the most successful river parks in the U.S. are similar to this in-town section on the Truckee. This section is the primary focus of this plan because it is close to the city centers, is easily accessible, and does not require advanced boating skills.

The Lower Truckee Meadows Section from Rock Park to Lockwood east of Sparks has the lowest gradient. There are no rapids between Rock Park and Larkin Circle. There are several small rapids in the canyon between Larkin Circle and Lockwood. This section of the river has a river trail to Larkin Circle but is not well connected with the rest of the community. Access to the waters edge is limited due to steep banks and rock rip-

rap. There are no physical barriers within this section of river. It is currently used by canoeists, rafters, and as a training area for downriver racers. Improved river access near Cottonwood Park and Larkin Circle would facilitate increased use by fishermen and boaters. Several entities are currently proposing improvements in this area. The proposed ACOE and Community Coalition Flood Control Project will significantly impact this section of river. The proposed project includes improving existing parks and constructing new parks along the river corridor. The section from McCarran Boulevard downstream to Pyramid Lake is a USFWS high priority reach for recovery of the LCT.

The focus of this plan is the In-Town Section of the Truckee River. This section is close to the city centers, and has good public access, and good public interaction opportunities. Economic benefits gained due to improvements to the river corridor will be quickly realized. The Canyon and Lower Truckee Meadows sections are more remote from the city centers and have limited public access. Improvements to the Canyon Section are currently being pursued by Washoe County and the USFWS. Improvements to the Lower Truckee Meadows Section will be constrained by the final design for the Regional Flood Control Project and the USFWS. Specific cost estimates and economic benefits were only calculated for the In-Town Section of the Truckee River. However, the vision of a continuous safe in-stream corridor, a bike trail, and public access to the water's edge are applicable to all three sections of the Truckee River. The elements in this plan will allow for year-round boating, providing a safe and fun river experience for beginner and intermediate boaters, including inner tubers, rafters, canoeists, and kayakers.

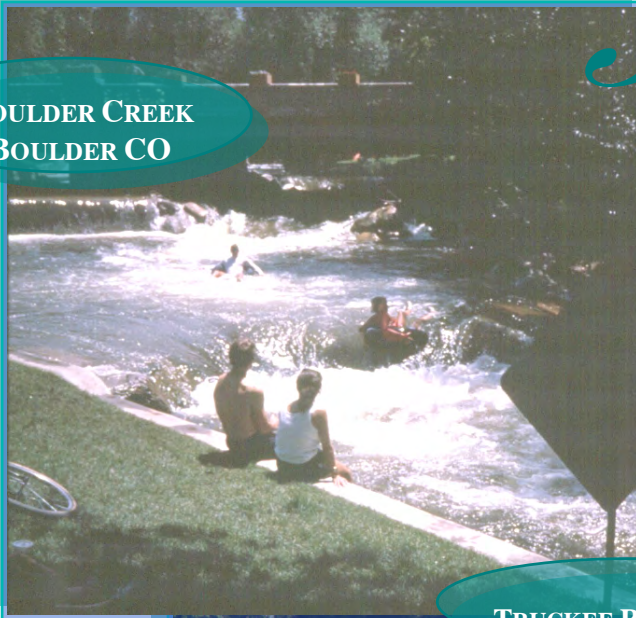


5.1 Recreation Plan Elements

IN-STREAM WHITEWATER IMPROVEMENTS

Improvements include drops, pools, low flow channel construction, and strategic boulder placements designed to withstand major floods, as well as to be functional during low-flow periods. These improvements will be constructed using natural stone and boulders that are anchored into place in a manner that will not hinder the flood-carrying capacity of the channel, and where feasible, may increase that capacity. In addition, the improvements will be located at key access points to enhance interaction with riverbank users.

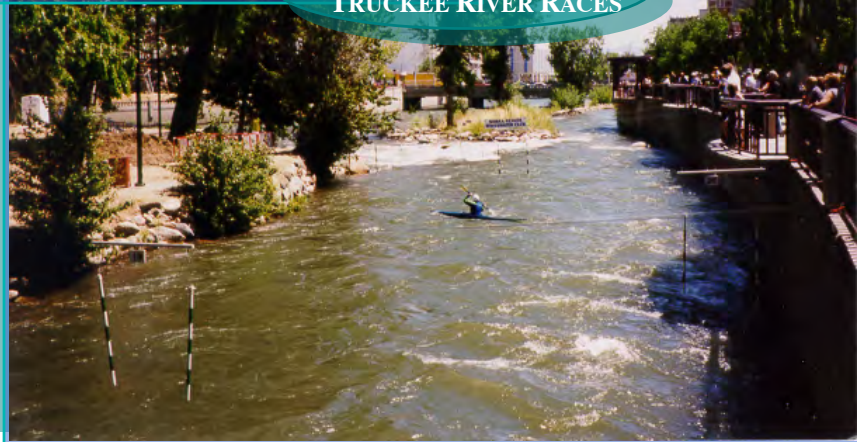
**BOULDER CREEK
BOULDER CO**



Instream improvements will expand opportunities on the Truckee River.

Tubers enjoy Boulder Creek.

TRUCKEE RIVER RACES



Kayaker during the Truckee River Races.

DAM MODIFICATION OR REMOVAL

Dam removal allows for continuous safe river passage for rafts, inner tubes, kayaks or canoes. In-active dams should be removed and active dams should be modified to maintain stream diversion function while allowing navigation.

WINGFIELD PARK
TRUCKEE RIVER, NV



This dam at Wingfield Park should be modified or removed.

BOISE RIVER
BOISE, ID

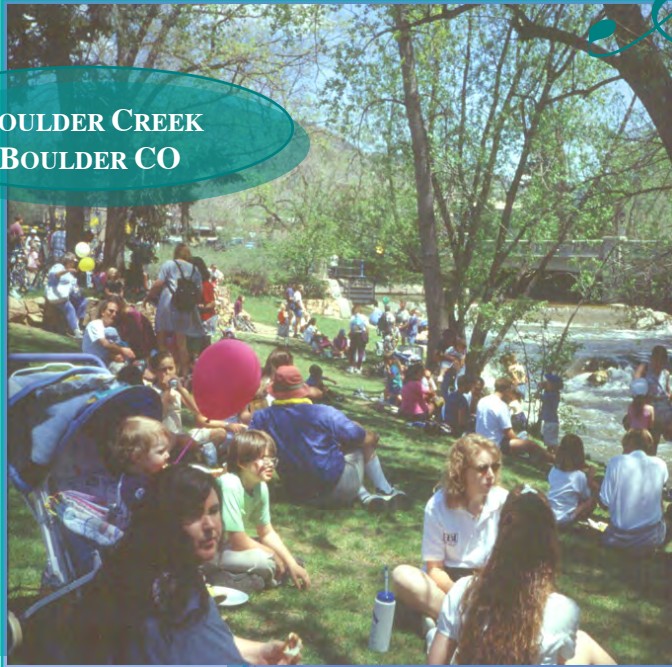


Kayakers and inner tubers enjoy a modified dam on the Boise River.

SELECTIVE BANK ACCESS IMPROVEMENTS

Improvements include put-in and take-out locations, river trail, and access points as well as bank regrading/restoration. Where possible, the existing floodwalls and dikes should be reconfigured in a terraced design down to the river's edge to better integrate the river into the surrounding areas. Appropriate riparian vegetation for flood-prone areas should be planted within the new terraces. Overlook opportunities should be included at logical locations and bridges. Top of bank elevations are critical and should conform to the adopted flood control plans.

**BOULDER CREEK
BOULDER CO**



**summer weekend on
the banks of Boulder
Creek.**

**TRUCKEE RIVER
DOWNTOWN RENO**



RIVERSIDE TRAILS, PLAZAS AND ESPLANADES

Improvements should mesh with instream enhancements and be designed to relate with adjacent properties and their redevelopment plans. The river trail should be continuous along the river, and under each bridge. As much open space as possible should be preserved along the river for the trails, plazas and esplanades, as well as for buffers to adjacent residential, commercial, and industrial areas.

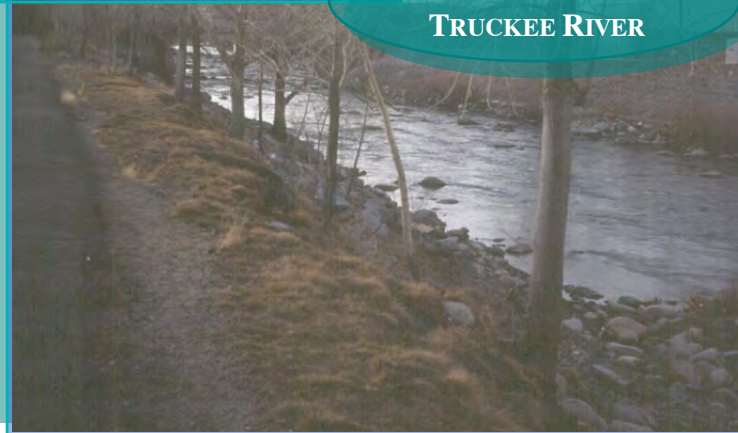
**BOULDER CREEK
BOULDER, CO**



**Continuous bike trail under
the roadway**

**CHAMPION PARK
TRUCKEE RIVER**

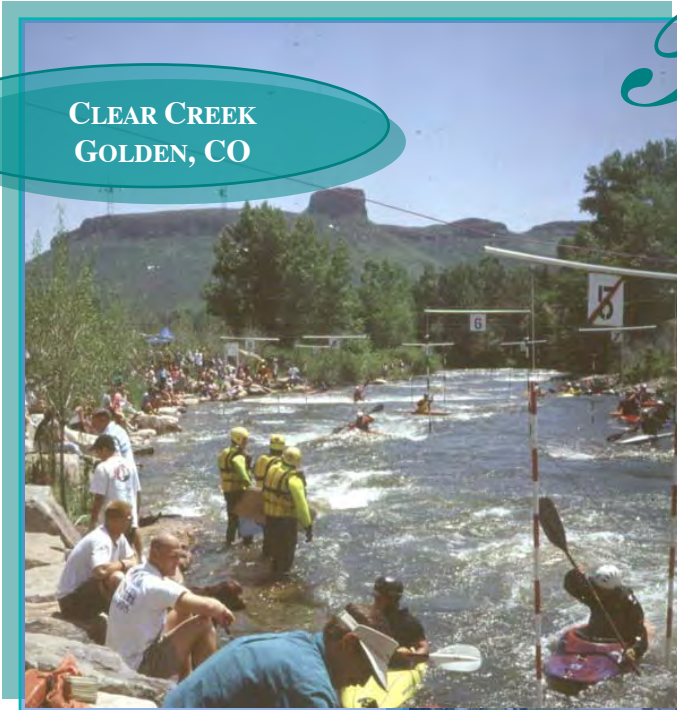
**Bike trail near
Champion Park on
the Truckee River.**



A SLALOM COURSE AT WINGFIELD PARK

The slalom course in the South Channel will consist of gates suspended seasonally above the water through which the boater maneuvers. Each gate consists of an anchor in the bank or river wall and a horizontal support from which the gates are hung. The horizontal supports will be set above the 100-year flood elevation, well above the area that pedestrians and fishermen would use. The gates are moveable so the course can be changed periodically. Due to the existing and proposed trails in this area and existing parking, conflicts with other users are not anticipated.

CLEAR CREEK GOLDEN, CO



iver festival on Clear
Creek in Golden, CO.

TRUCKEE RIVER RACES RENO, NV

Currently this course is
erected annually between
May and July.



5.2 Specific Recreation Improvements

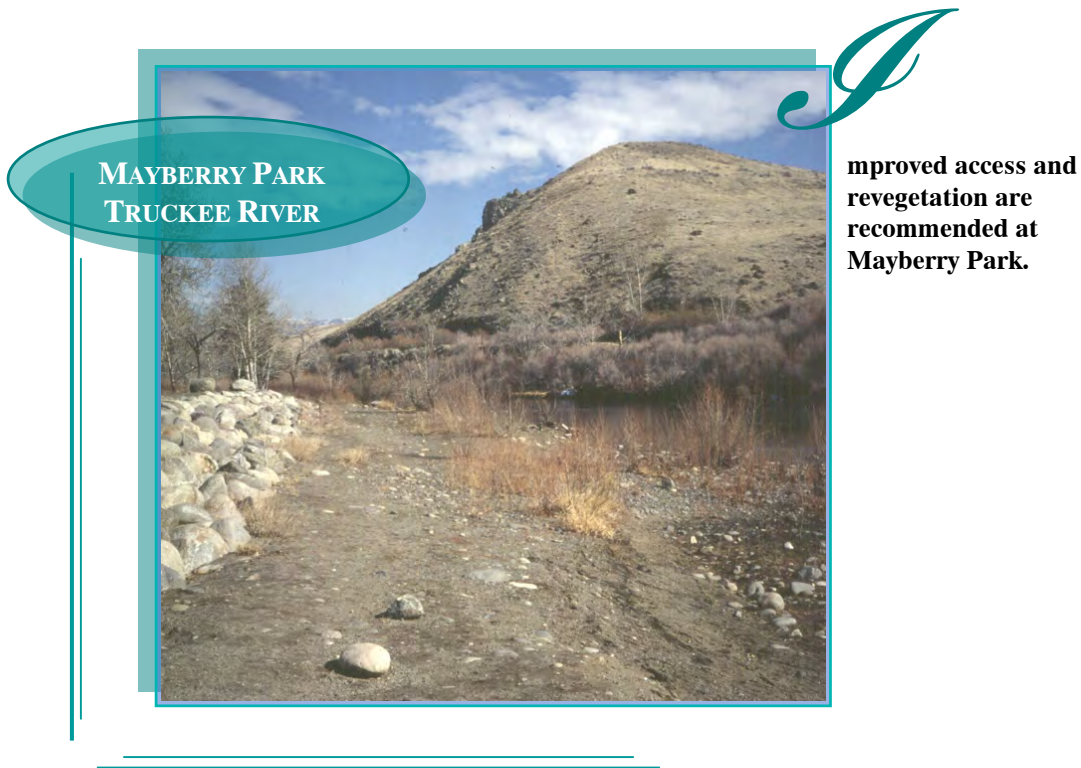
These improvements are envisioned to be attractive, functional, permanent, and designed to blend in with, and improve, the natural environment. The whitewater park and related improvements would help create welcoming and attractive focal points for the cities of Reno and Sparks.

The following are specific improvements recommended for the Truckee River in order from upstream (west) to downstream (east).

* MAYBERRY PARK

General site description: Improvements have recently been completed at this park. The park site is generally in a natural and attractive condition providing good public access from the north bank. It has a high steep bank on the south bank, and good, moderate gradient near the Patagonia outlet store. There is a slow pool near the park. Large, natural-stone boulders are available along the bank and immediate area. Unsightly levees exist.

Recommended improvements: Designate and improve an upstream put-in area at Mayberry Park, improve the river access point, and install a current deflector and associated downstream eddy. Existing parking, restrooms, and park amenities should be utilized in siting these proposed amenities.

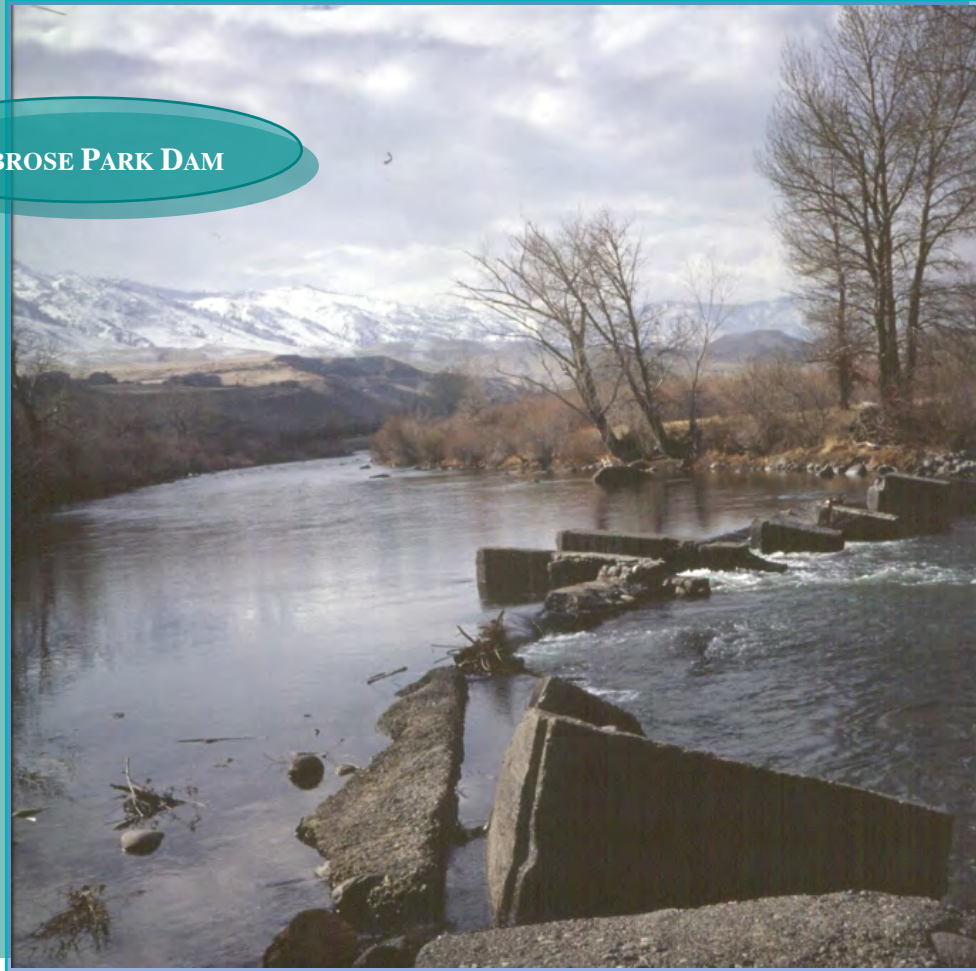


*** AMBROSE PARK DAM**

General site description: There are several concrete blocks across the entire river. These are the remnants of a dam that is no longer in use. The blocks obstruct safe river passage.

Recommended improvements: Remove the concrete blocks and improve pedestrian bank access. This undeveloped park should be left in a natural state.

AMBROSE PARK DAM



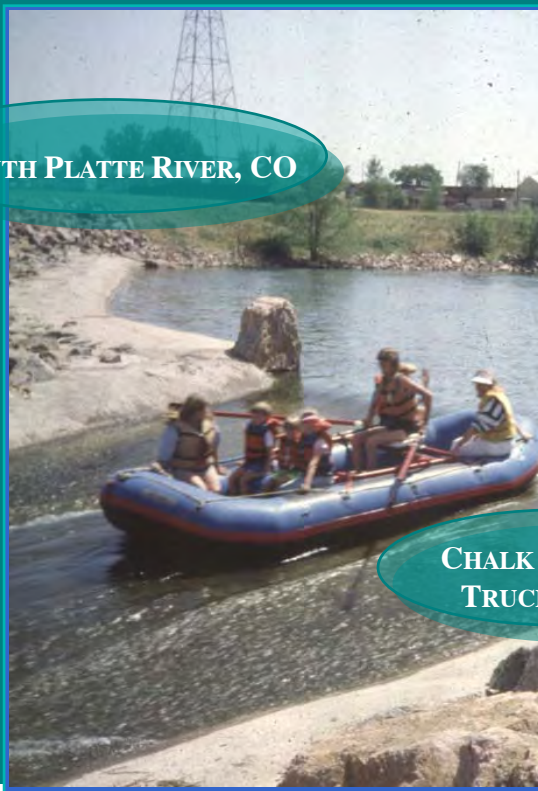
**Ambros Park Dam –
Recommend Removal**

* CHALK BLUFF DAM

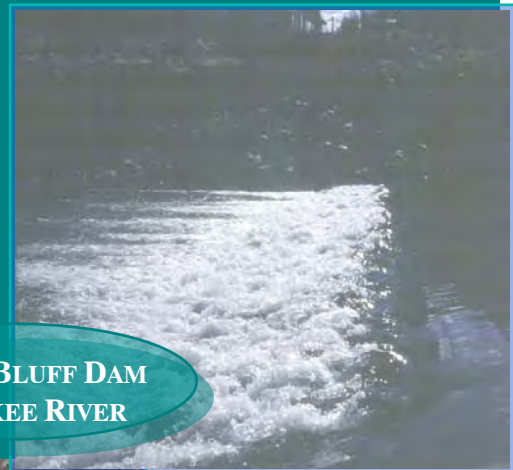
General site description: The Chalk Bluff Dam is hazardous at both low and high flows. At low flows, there is no low-flow passage over the dam and the rough surface on the face of the dam can damage recreational river equipment. At high flows, typically greater than 2,500 cubic feet per second (cfs), a deadly river-wide reversal wave typical of low-head dams is created at the toe of the dam. In the late 1990s the dam was modified in order to reduce the drowning hazard, however, at high flows a deadly river-wide hydraulic feature still develops at the base of the dam.

Recommended improvements: Modify the dam for safe passage during low and high water flows.

SOUTH PLATTE RIVER, CO



CHALK BLUFF DAM
TRUCKEE RIVER



Modify the dam for safe passage during low & high water flows.

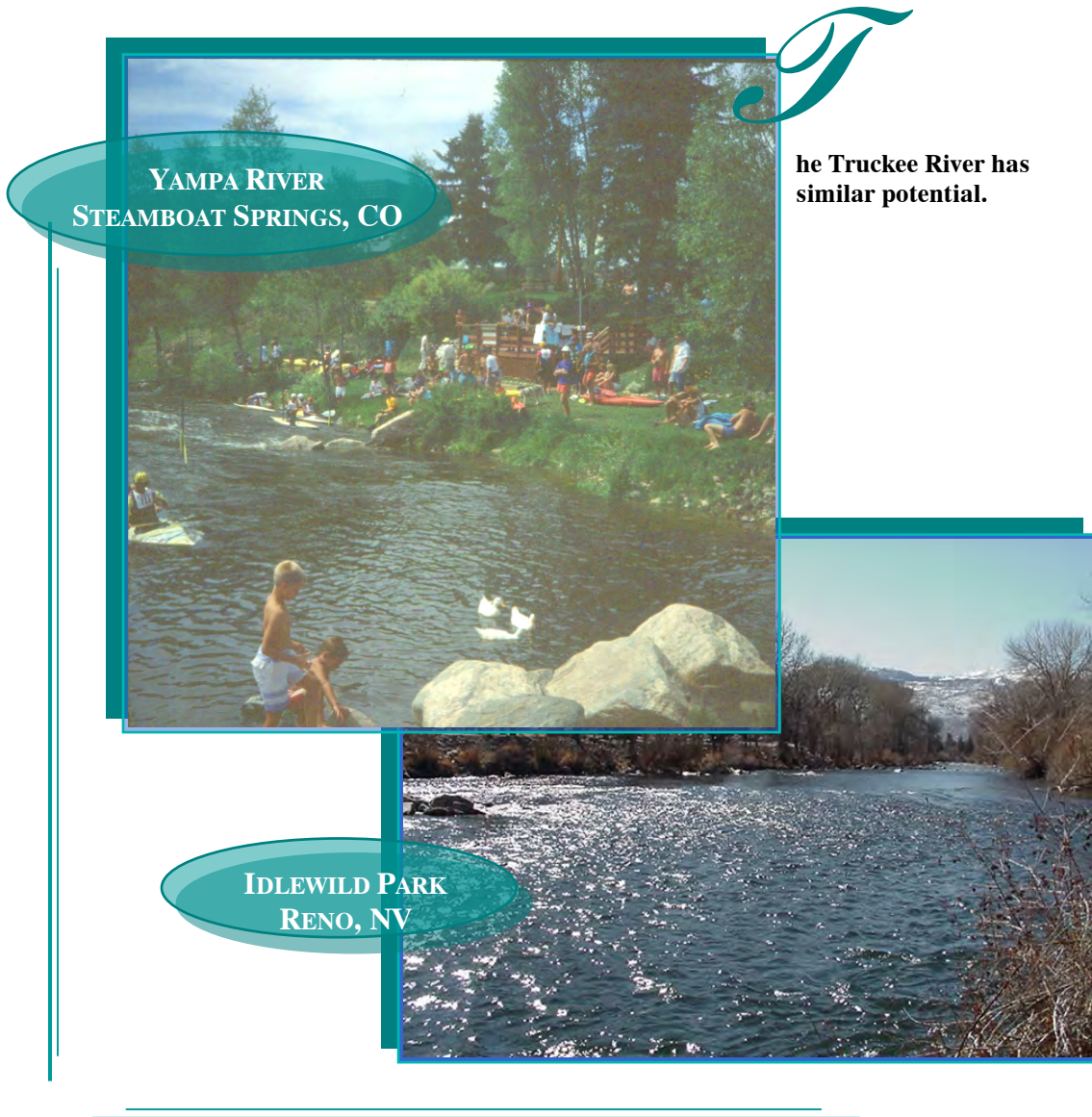
Hazardous at most flows

Safe passage over a modified dam

*** IDLEWILD PARK**

General site description: This is the biggest formal city park in Reno, and includes a pool, lake, playground, ballpark, and skateboard park. There is plenty of access and parking, as well as views of the river from the park trail. Unnatural grouted rock and rip-rap along the river bank prevents plant growth and diminishes biodiversity potential. Bank restoration would greatly improve stream functions and aesthetics to complement the bank. There is adequate gradient, but this river segment needs a low-flow (thalweg) channel, drops, and pools. The north side of the river is private land. There are no commercial enterprises or concessions at the park.

Recommended improvements: Implement bank and channel improvements including rip-rap removal, bank restoration, and access points at logical locations.



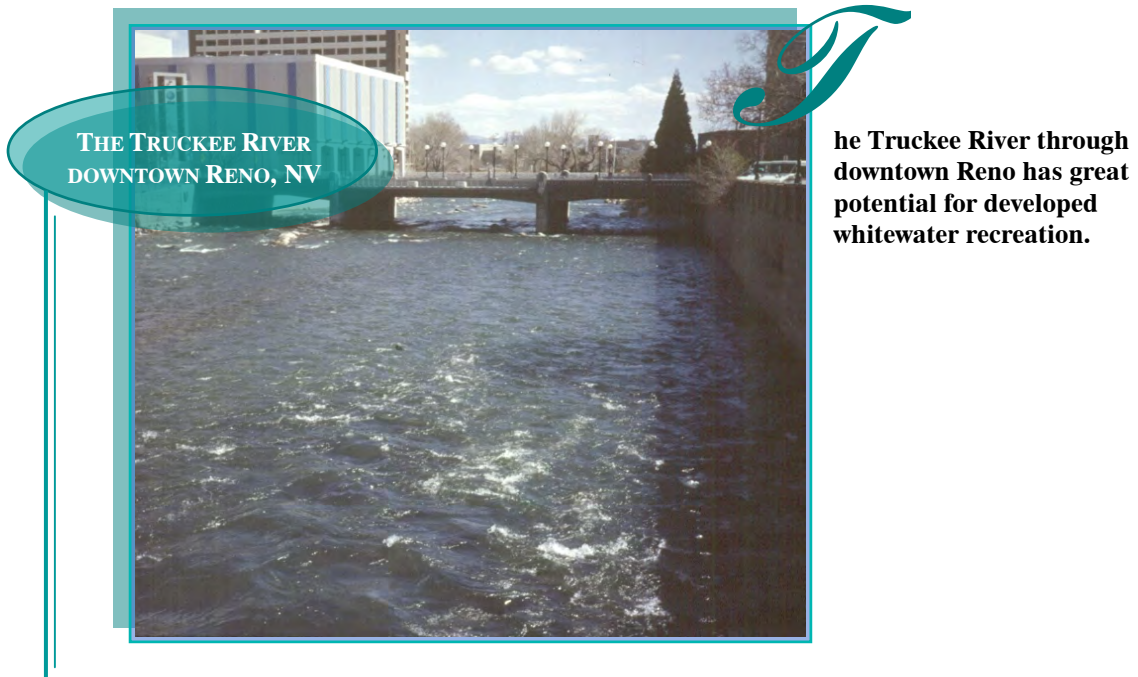
* DOWNTOWN RENO/WINGFIELD PARK

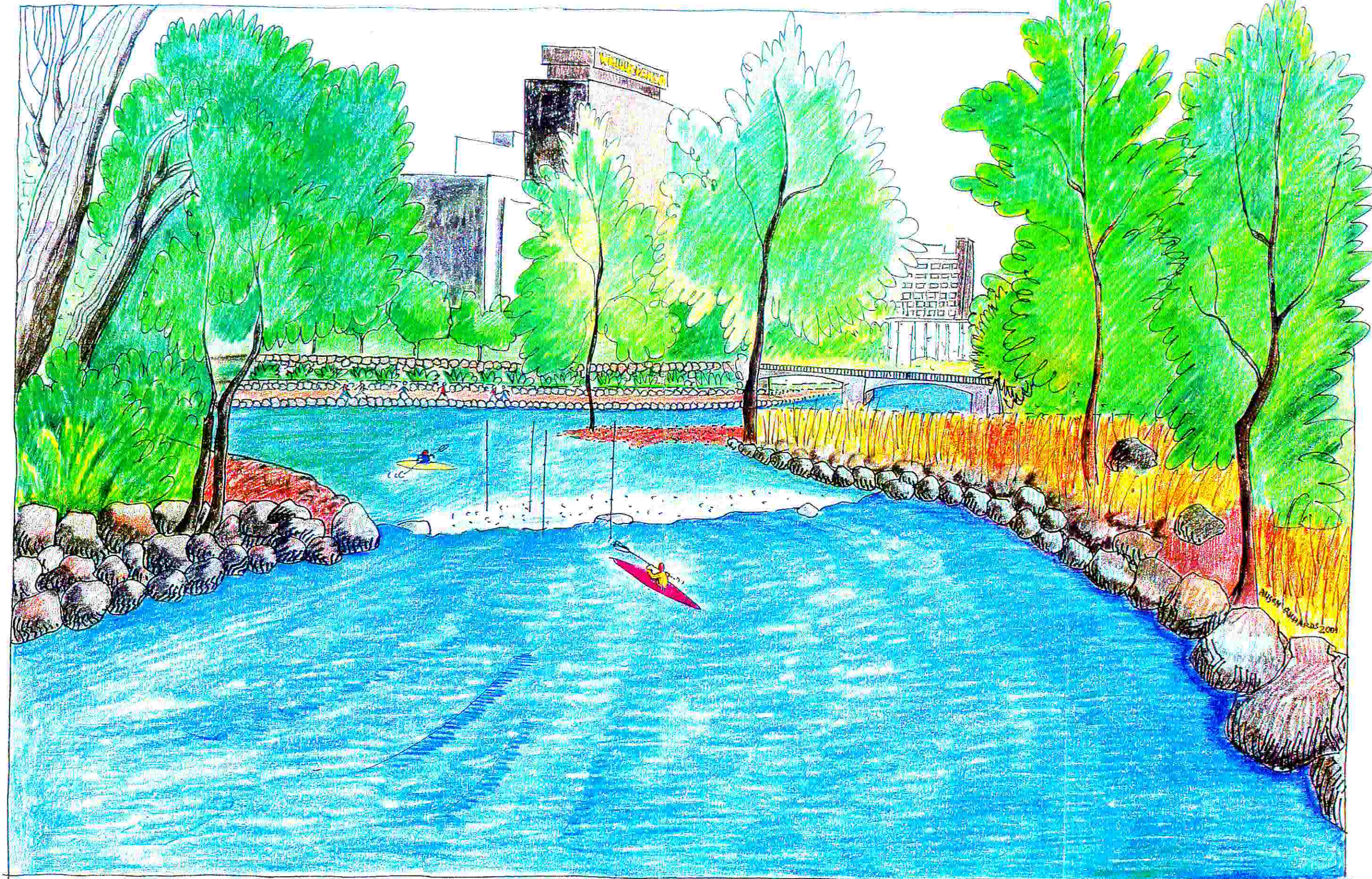
General site description: This reach of the river runs through the heart of downtown Reno.

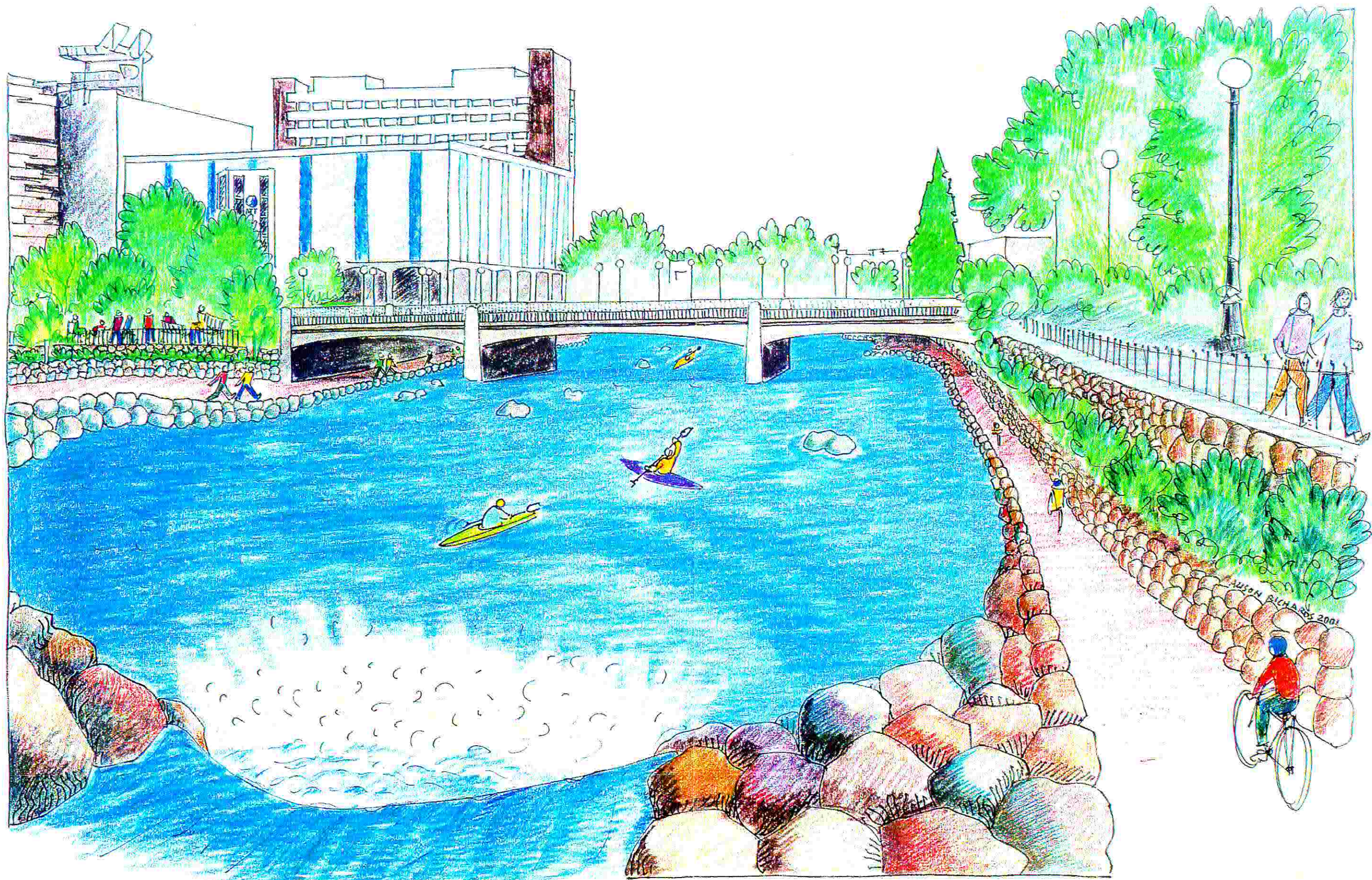
Upstream (west) of Wingfield Park, the river is broad with low gradient and shallow cobble bottom. A narrow, formal park and trail are located along the north bank with rock gabion walls and railing separating the park from the river in most of the area. The south bank is high and has a parking area at Barbara Bennett Park near Wingfield Park. From Arlington Avenue to Lake Street, the river is confined within concrete walls and has moderate gradient, a wide channel, and little or no features in the river bottom. With the exception of the parkland and trees at the Wingfield Park island, bank vegetation, in-stream boulders, drops and pools are noticeably missing. This area is within a short walking distance from the major casinos and is visible from both sides of the river and from numerous bridges. There is considerable pedestrian traffic in the area and tremendous potential for riverside businesses and river-oriented opportunities.

Wingfield Park is an island with pedestrian bridges connecting it from both banks of the river. It has an outdoor amphitheater and sodded park areas. There is a retired, concrete diversion structure across the north channel upstream of Arlington Avenue that has large boulders and debris at the base of the drop. The boulders and debris create an entrapment hazard and can damage recreational equipment. Pedestrian/bike trails are located on both sides of the river in most areas, but are isolated from the river by the vertical concrete walls and do not connect under the bridges.

Recommended improvements: Create a whitewater park with amenities recommended in the *WHITEWATER SLALOM COURSE FEASIBILITY STUDY* funded by NCOT. These amenities include whitewater boating improvements, in-stream fish habitat structures, a whitewater kayak slalom course at Wingfield Park in the south channel, modifications to the abandoned drop structure, and removal and modifications to existing floodwalls. The following figure and conceptual drawings illustrate some of the recommended improvements.



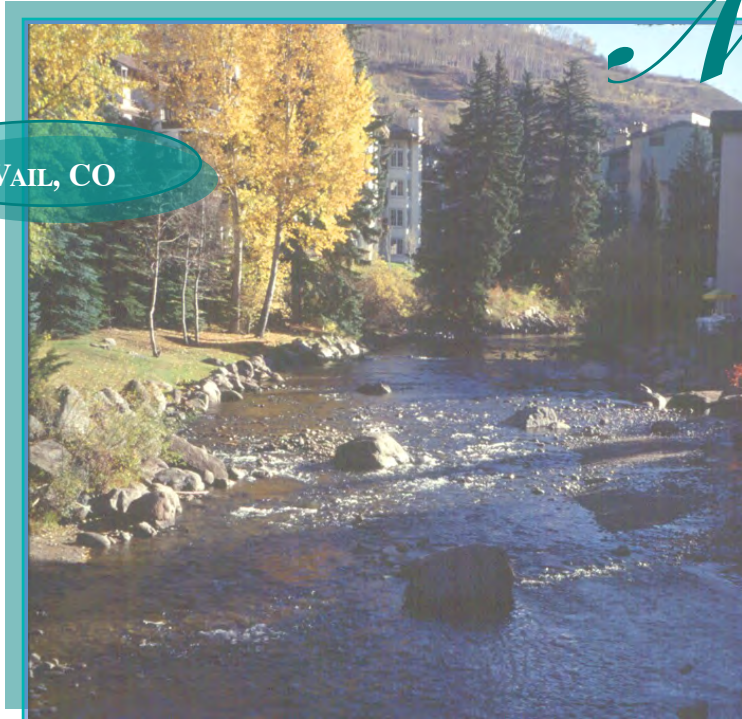




*** CHAMPION/FISHERMAN PARK AREA**

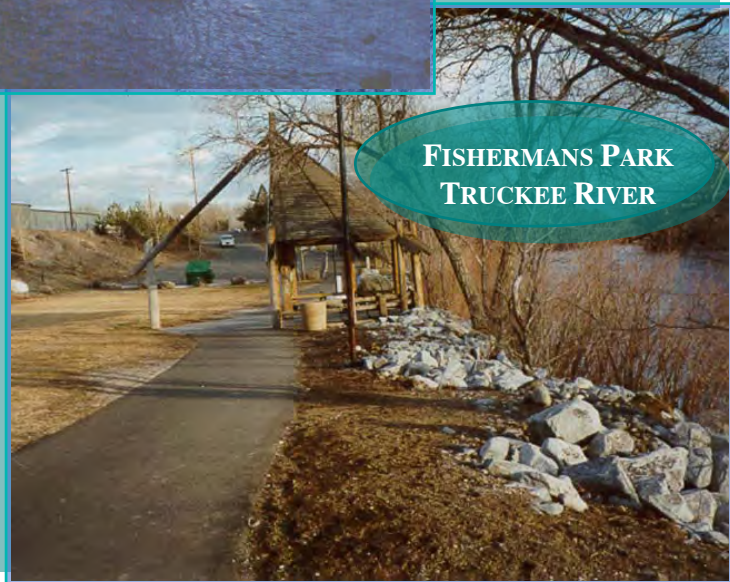
General site description: These are small, attractive, natural parks. The river characteristics are conducive to whitewater boating improvements.

Recommended improvements: Cleanup and remove the broken riprap and concrete along the river. Create natural-appearing bank access and riverside beach improvements. Restore disturbed areas with native vegetation.



VAIL, CO

natural bank access at Vail, CO.



FISHERMANS PARK TRUCKEE RIVER

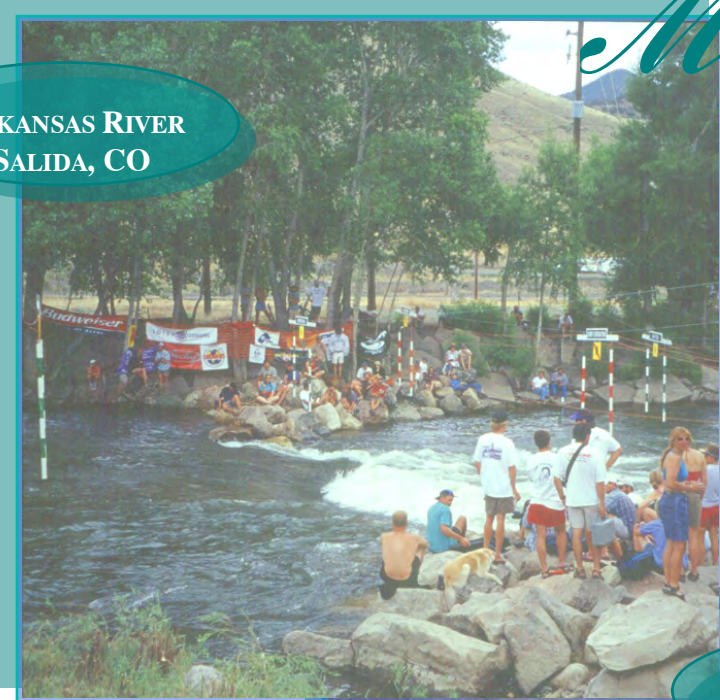
The rock rip-rap limits river access.

*** GLENDALE DIVERSION DAM**

General site description: This river-wide diversion is created by concrete debris. The diversion design is dangerous and unattractive.

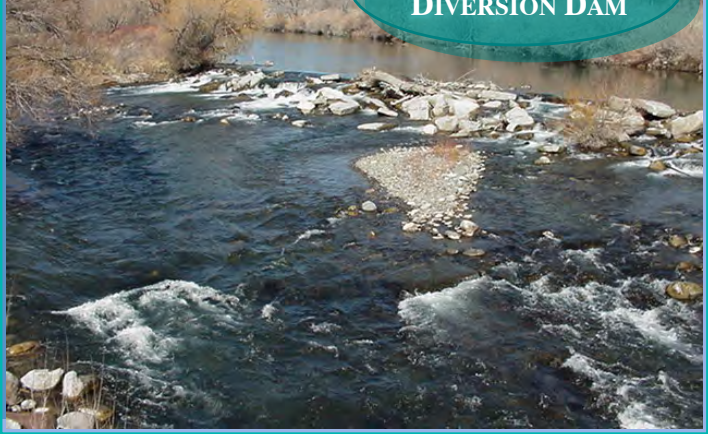
Recommended improvements: Modify the diversion structure. Provide for stable diversion capability, design proper boat passage and fish passage, improve beauty and stability of the structure by using large natural stone boulders anchored into place, improve flood-carrying capacity.

**ARKANSAS RIVER
SALIDA, CO**



**Modified diversions
may be fun places to
play.**

**GLENDALE
DIVERSION DAM**



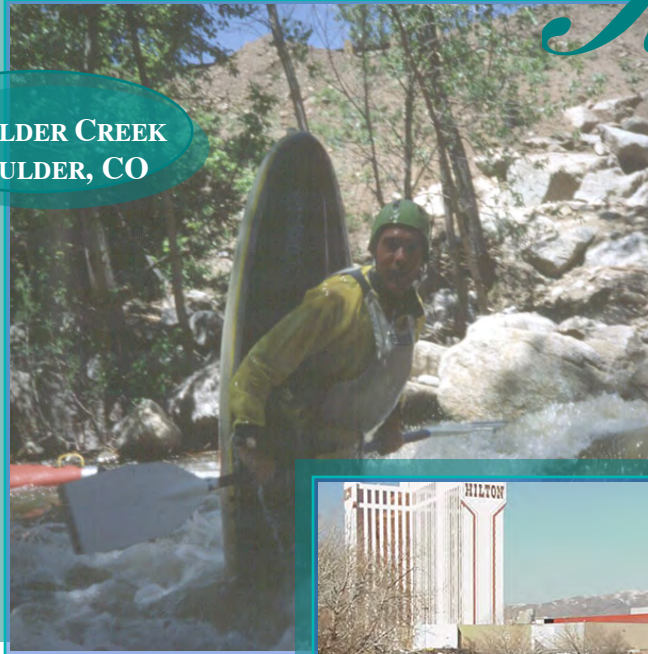
**The Glendale
Diversion Dam is
unattractive and
hazardous.**

* PIONEER DIVERSION DAM

General site description: This river-wide diversion is created by large boulders and concrete debris. The diversion design is dangerous to recreational use, prohibits natural fish passage and provides difficult operation and maintenance for the agricultural users.

Recommended improvements: Modify the diversion structure. Provide for stable diversion capability, create proper boat and fish passage, improve beauty and stability of the structure by using large natural stone boulders anchored into place, and improve flood-carrying capacity. The following perspective illustrates some of the recommended improvements.

**BOULDER CREEK
BOULDER, CO**

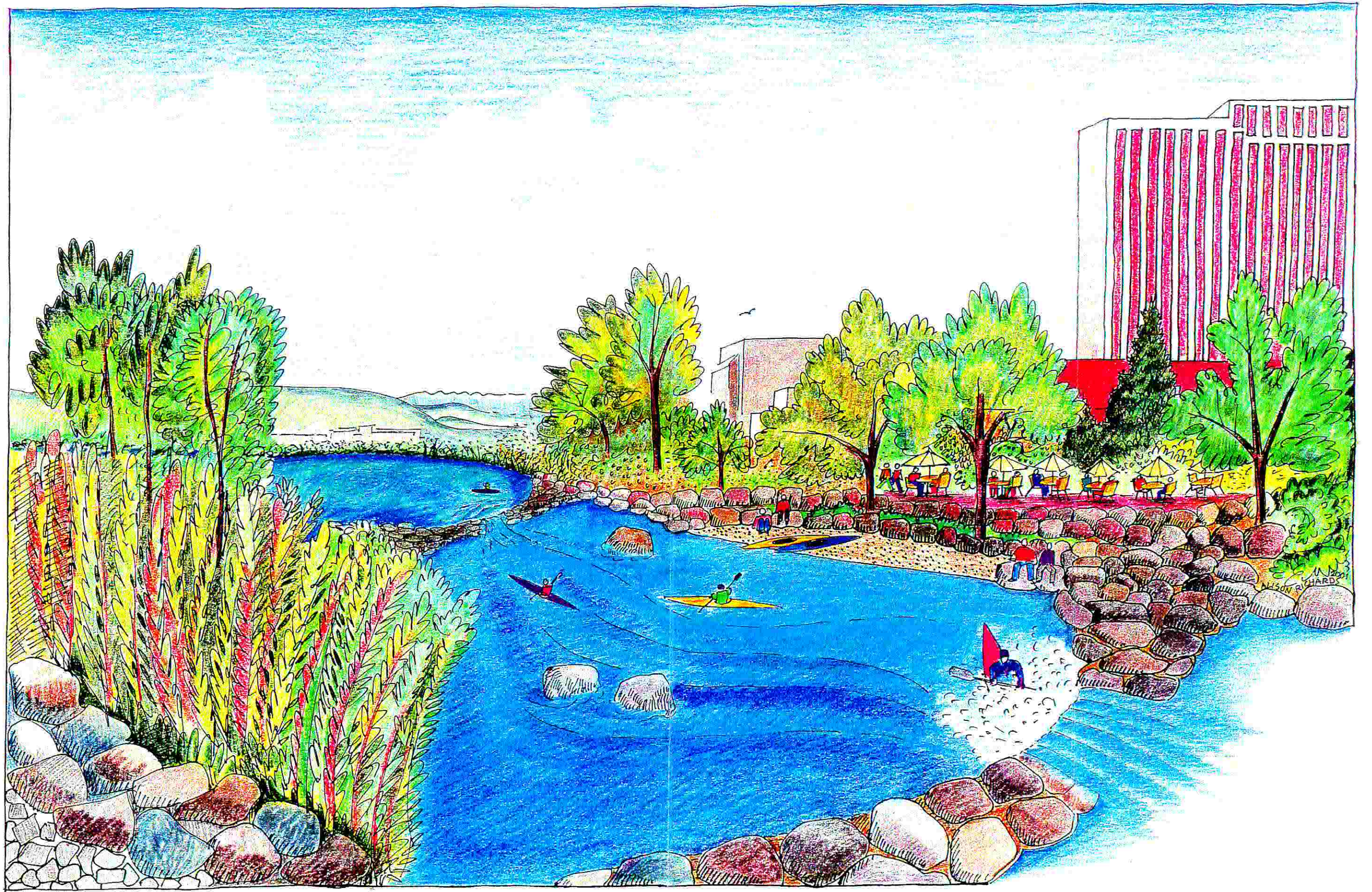


**ayaker plays on a
modified dam on
Boulder Creek, CO.**

**PIONEER
DIVERSION DAM**



**The poorly designed
Pioneer Diversion Dam is
just upstream of Rock
Park.**

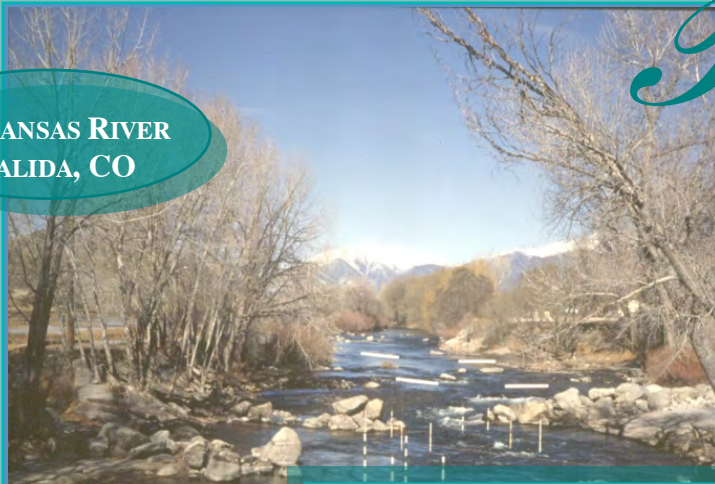


* ROCK PARK

General site description: This is a small, attractive, natural park. Amenities include picnic shelters, parking, and restrooms.

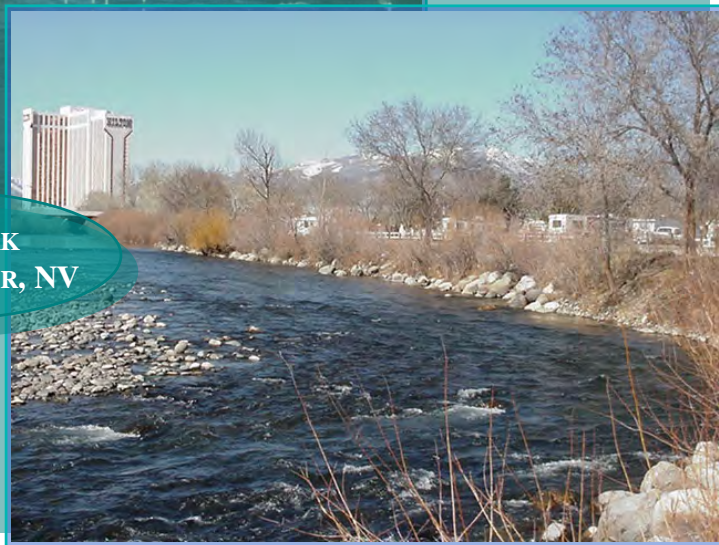
Recommended improvements: Clean up and remove broken riprap and concrete along the river and create natural-appearing bank access and riverside beach improvements. Restore disturbed areas with native vegetation. Create in-stream whitewater improvements including surf waves and other whitewater features, and a boat take-out area. The following perspective illustrates some of the recommended improvements.

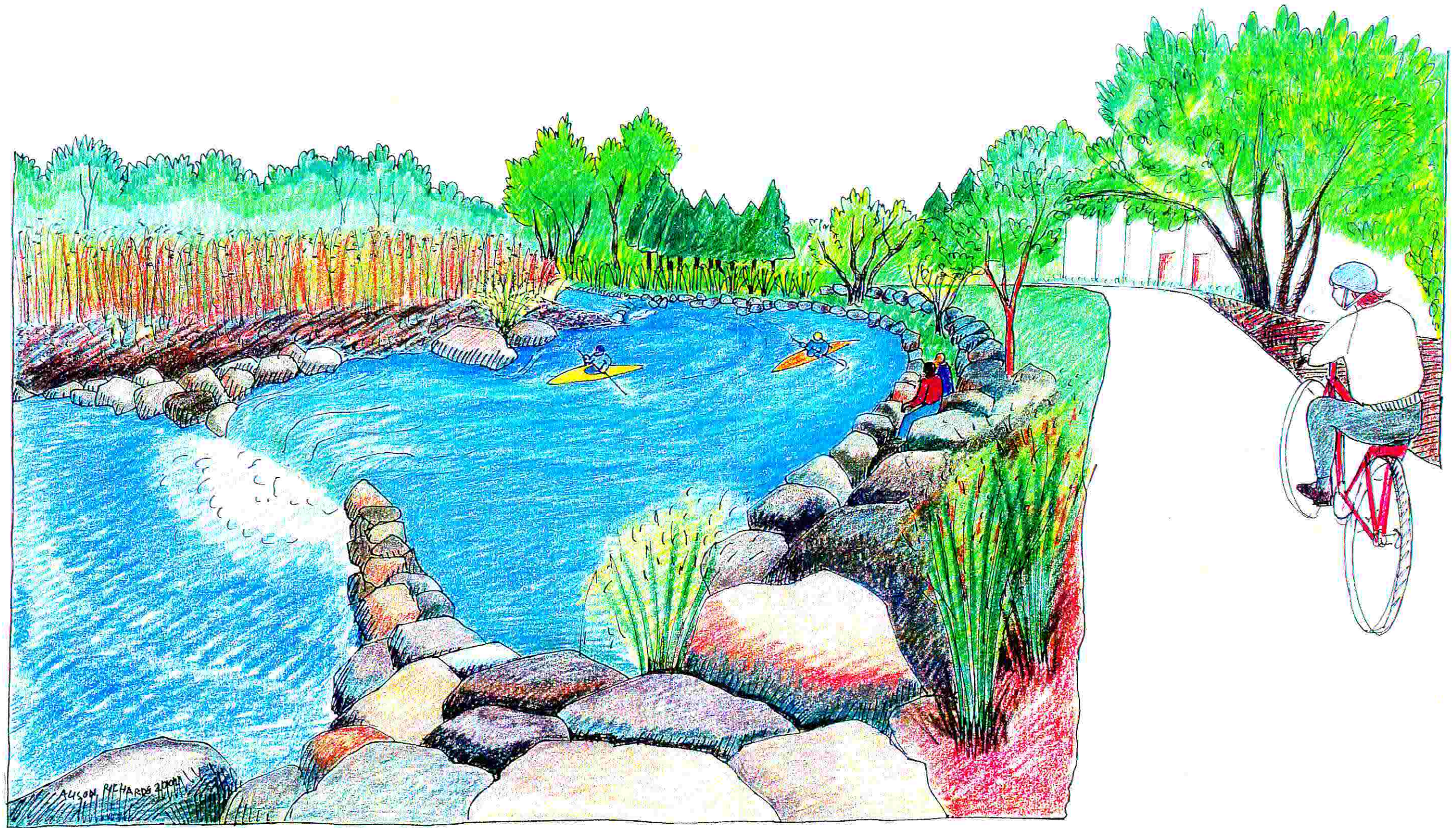
ARKANSAS RIVER
SALIDA, CO



The Arkansas River in Salida, CO used to look similar to the Truckee River through Sparks, NV.

ROCK PARK
TRUCKEE RIVER, NV





* THE RIVER TRAIL SYSTEM

General site description: The river trail system parallels the river from the east side of Sparks to Mayberry Park. The trail is generally asphalt or concrete and traverses numerous small, attractive, park areas. The trail is discontinuous at most intersections west of Sparks.

Recommended improvements: Build underpasses and connections at every street crossing to provide continuity and safety. These new underpasses in the downtown Reno area include Booth, Arlington, Sierra, Virginia, Center, and Lake Streets. Provide at-grade ramps on the sides of each underpass. Adopt new bike/pedestrian bridges at Wingfield Park and upstream of Booth Street. Adopt a new trail design standard to provide for a minimum 10-foot wide, six-inch thick concrete trail with adequate curve radii, grades, sight distance, etc. Create direct trail connections to and from area and regional destinations. These destinations should include major parks, schools, neighborhoods, commercial areas, and employment centers. Of special note is the opportunity to build a trail in Sparks connecting the Truckee River Trail along the North Truckee Drain to the People's Ditch in the Sparks Marina area.



FISHERMANS PARK
SPARKS, NV

TR
river trail at
Fishermans Park,
Sparks, NV

5.3 Additional Benefits and Details

5.3.1 Anticipated Use

All improvements will be free and open to the public. Whitewater improvements will be designed for a wide range of boating enthusiasts of all skill levels, with emphasis on the beginner level. Annual boating events such as slalom races, down river races, and whitewater rodeo contests can also be held. At past race events sponsored by the local kayak club, 60 percent of the race participants have traveled from southern and northern California, southern Oregon, and Idaho. “Local” participants have come from Reno, Carson City, and Truckee. Other communities that have constructed similar projects have found them to be extremely popular among participants and spectators alike.

5.3.2 Multiple Objectives

These proposed improvements will serve many users. The whitewater park design and pools will provide excellent fish habitat, and will improve the water quality of the river. Increased access will allow for greater educational opportunities along the river. Many fishermen could frequent the area both during boating season and during the off-season. Creative play areas with natural boulders and sandy riverside beach areas could be fun for children and their families. The areas will be popular for walkers, joggers, picnickers, and for just spending time next to the river to watch the boaters. Many disadvantaged citizens could use the area through city and school boating and adventure programs. Modification and removal of dams is consistent with the Flood Control Project.

5.3.3 Maintenance

In-stream improvements are virtually maintenance-free unless there is a failure due to a major flooding event. Maintenance of future park improvements will require typical park maintenance for park areas, restrooms, plazas, etc. The entity that takes ownership of the improvements would be responsible for maintaining or assigning maintenance.

5.3.4 Accessibility

Because it will significantly enhance the aesthetic character of the Truckee River, these projects will establish the river as the focus and pride of the Reno/Sparks area, and stimulate and enhance urban economic activity. It will provide open space hubs and path connections in the urban setting. These projects are easily accessible in the Reno/Sparks area, and are connected to the existing and proposed Truckee River Trail.



**TRUCKEE RIVER
SPARKS, NV**

**he Truckee River
through the
warehouse district in
Sparks, NV.**

5.3.5 Relationship to Federal Flood Control Project

Washoe County and the cities of Reno and Sparks in cooperation with the Army Corps of Engineers are currently working to develop a Truckee Meadows Regional Flood Control Project. The flood control project area encompasses the river corridor from Booth Street to the Lockwood area. The improvements recommended in this recreation plan are in concert with the Flood Control Project. Specifically, the recommended improvements effectuate the recommendations contained in the noted sections of the Community Coalition's Draft Concept Proposal (1/13/01): 1) construct a fish friendly, dam-free, Whitewater Park and Kayak Course in downtown Reno; 2) redesign the river channel downtown; 3) redesign ditch intakes and diversion structures; 4) create new river parkway; 5) provide safe public access for walking, cycling, fishing and other recreational activities; 6) remove unnecessary floodwalls and rip-rap; 7) restore riparian vegetation; and, 8) minimize floodwalls and levees.

5.3.6 Liability

A primary goal for the improvements recommended in this river recreation plan is to improve river safety and enhance recreation opportunities. While many boaters currently use the Truckee River and negotiate the in-stream hazards, removal of the in-stream hazards will allow more people to safely use the river. The City of Reno, Sparks, and the State of Nevada Division of State Lands were contacted for the preparation of this document. There were no insurmountable issues identified and details of liability, and insurance requirements will be addressed at the time that the improvements are permitted. Currently, the Sierra Nevada Whitewater Club acquires insurance for their annual races. The City of Reno and the State of Nevada are named as additionally insured on the club's insurance policy.

Other communities with river recreation projects have successfully addressed liability issues. Generally, special events require special insurance while the river parks are covered under umbrella policies.

5.3.7 Permitting Requirements

Modifications to the bed or banks of the Truckee River would require approval from several agencies. A list of the permitting agencies and permits may include:

U.S. ARMY CORPS OF ENGINEERS

Clean Water Act (CWA) section 404 permit

U.S. FISH AND WILDLIFE SERVICE

Informal consultation

STATE OF NEVADA

General Rolling Stock Permit

Temporary Discharge Permit

An easement for any slalom gates over the water

CWA section 401 certification or waiver



*K*ayakers playing on the Truckee near Floriston, CA

6.0 COSTS

Approximate costs for the specific recreation improvements described in section 5.2 are provided below.

ITEM		ESTIMATED COSTS \$
1.	MAYBERRY PARK River access, improvements deflectors, grading, in-stream improvements, and revegetation	\$135,000
2.	AMBROSE PARK Remove abandoned concrete piers and abutments, modify Chalk Bluff Dam, minimal in-stream improvements, fishing enhancements, pedestrian bank access, and revegetation	230,000
3.	IDLEWILD PARK In-stream improvements, fishing enhancements, rip-rap removal and re-terracing, two river access points, and revegetation	385,000
4.	DOWNTOWN RENO AND WINGFIELD PARK AREA Diversion dam modification, minor wall removal in park In-stream drops and pools, fishing improvements, selected bank regrading, and revegetation	136,000 634,000
5.	CHAMPION PARK AND FISHERMAN PARK AREAS Rip-rap removal, bank terracing and regrading, pedestrian access improvements, and revegetation	180,000
6.	GLENDALE DAM Modification of Glendale Dam for boating and fish passage	220,000
7.	PIONEER DIVERSION DAM Modification of Pioneer Diversion Dam for boating and fish passage	275,000
8.	ROCK PARK In-stream improvements, north bank access improvements, rip-rap removal, bank terracing, and revegetation	285,000
Subtotal		\$2,480,000
+ 15% Design & Contingencies		372,000
TOTAL		\$2,852,000

7.0 FUNDING

There are a myriad of funding solutions for implementation of recreational improvements. The majority of whitewater parks investigated for this report were funded through county or city departments. The funding mechanism is often a function of the city or county tax structure. This section describes some potential funding sources and mechanisms.

Concessionaire Fees: In order to pay back improvements made to the Yampa River, the county instituted a “per-head” tax on the river equipment concessionaires. The park paid for itself within the first year and subsequent funds allowed the county to increase the maintenance and development of other recreation facilities. A similar fee could be imposed on concessionaires for equipment rental or guided river trips.

Donations: In Farmington New Mexico, a significant percentage of the total city budget was devoted to construction of the whitewater park. The total park costs should have been \$300,000 but because of donated labor and materials it cost \$60,000. The Sierra Nevada Whitewater Club has received considerable material donations for their temporary slalom course on the Truckee River from local companies. All labor for installation of the course is volunteer. Sponsors receive recognition during the races. It is likely that donations and volunteer labor could be used in conjunction with other funds to install permanent improvements to the Truckee River.

Truckee Meadows Regional Flood Control Project: One of the goals of the Truckee Meadows Regional Flood Control Project includes providing recreation. The ACOE preliminary rough draft recreation plan provides for passive facilities such as access to the flood control features on the project lands and trails to link those features with the existing and planned river trail system. Currently, there is an undetermined amount of funding for recreation. However, the community coalition flood control plan includes bank restoration, dam modification, and rip-rap removal. These concepts are consistent with this river recreation plan.

There is a local match required for the federal funding. Discussions with the ACOE and Washoe County indicate that if the cities or county wanted to construct improvements now, before the Flood Control Project is ready for construction, credits may be applied to the local match. Of course the improvements would need pre-approval by the ACOE.

Nevada Division of Wildlife: The Nevada Division of Wildlife (NDOW) can work through their federal aid program to procure grants and funds. NDOW recently received funding to investigate the purchase of properties along the Truckee River to improve access. The funding available depends on the scope of the project. Habitat and access improvements would be eligible for funding.

General Funds, Capital Funds, and Redevelopment Funds: Cities such as Vail, Colorado, Farmington, New Mexico, and Boulder, Colorado paid for their river parks and improvements with capital funds. Reno or Sparks could potentially use city funds to partially pay for improvements.

Bonds: Revenue bonds, general obligation bonds, or special district bonds could be used to partially fund recreation improvements.

Short-Term Borrowing: Short-term borrowing could be used to fund the improvements.

*** GRANTS**

Recreation Trails Program: Nevada State Parks administers the Recreational Trails Program in Nevada by awarding grants to successful applicants each year, on a competitive basis. Nevada's total apportionment for Federal Fiscal Year 2001 is \$632,199; a minimum of \$556,337 will be available for trail projects. During the FY2001 grant cycle, applicants may apply for up to \$100,000; a minimum 20% match is required for each trail project. Funding may be used to construct new trails, enhance existing trails, build trailside facilities, as well as to modify and remove dams. Eligible applicants include individuals, private organizations, municipal, county, and State and Federal government entities.

Land and Water Conservation Fund (L&WCF) Program: The Land and Water Conservation Fund Act of 1965 was enacted

“...to assist in preserving, developing and assuring accessibility to all citizens of the United States of America of present and future generations... such quality and quantity of outdoor recreation resources as may be available and are necessary and desirable for individual active participation....”

This federal program provides matching grants to states and through the states to local governments for the acquisition and development of public outdoor recreation areas and facilities. The L&WCF assistance is provided on a 50/50 matching basis to individual projects. These projects are submitted through the state liaison officer to the National Park Service for approval. There have been 240 projects funded by L&WCF since 1965. Note: Congress is currently considering Legislation (HR 701) to revitalize this program that has laid dormant since 1995.

Washoe County Regional Parks, Open Space and Trails Bond: The voters of Washoe County approved a \$28.3 million Bond package at the November 2000 General Election. While the Bond issue listed “recommended park bond projects,” there may be an opportunity to receive some funding for bicycle and pedestrian trails along the proposed section of Truckee River. Listed in the Bond Projects were \$4 million for Truckee River Land/Bike Path and \$442,000 for Urban Trails-Reno.

*** TEA-21**

TEA-21 funds can be sought for bicycle trail and pedestrian facilities. On June 9, 1998, President Clinton signed into law a new federal transportation bill called TEA-21, The Transportation Equity Act for the 21st Century. It is in every sense a direct successor to the 1991 Intermodal Surface Transportation Efficiency Act – ISTEA. In spite of TEA-21’s complexity and the many disagreements it provoked during almost two years of debate, this new law both leaves the groundbreaking reforms of ISTEA intact and provides new opportunities for innovation. TEA-21 authorizes \$217 billion in funding over six years, 40 percent more than ISTEA. Estimated fiscal year apportionments pursuant to TEA-21 as amended by the TEA-21 Restoration Act after redistribution of minimum guarantee funds show \$600,000 per year in the State of Nevada for recreational trails out of approximately 200 million per year in total funds for Nevada.

* PRIVATE FOUNDATIONS

The Conservation Fund:

The Conservation Fund forges partnerships to protect America's legacy of land and water resources. Through land acquisition, community initiatives, and leadership training, the Fund and its partners demonstrate sustainable conservation solutions emphasizing the integration of economic and environmental goals. Access and trails, including river trails, are types of projects that would match well with the goals of the Fund.

American Conservation Association, Inc.

Grants from \$5,000 to \$40,000 in areas including the environment, conservation of natural resources and recreation.

The William T. Kemper Foundation

Grants from \$1,000 to \$50,000 in areas including community development, the environment and recreation.

The William Kenney Watershed Protection Foundation

Grants from \$5,000 to \$15,000 in areas including work to protect rivers in the western United States.

The Union Pacific Foundation

UP concentrates its support in communities where the company has significant operations (including Nevada) and provides grants in areas related to natural resources and the environment among other things.

David and Lucile Packard Foundation

Grants up to \$300,000 (based on previous grantees) to nonprofits in areas including conservation and the community.

Watershed Protection Foundation

Grants from \$7,500 to \$15,000 to 501 (c) 3 organizations that seek to protect river ecosystems in the west.

Power Bar Inc. Direct Impact on Rivers and Trails (DIRT) Grants

Grants from \$1,000 to \$5,000 for projects that create, maintain, improve or restore access to valued recreational areas.

REI Community Recreation Grants

Grants range from \$500 to \$5,000 (financial support or REI-crafted gear) to nonprofit organizations for support of recreation opportunities linked to muscle-powered recreational activities.

Reno-Sparks Chamber of Commerce Members

Support can be sought from local businesses and corporate community leaders (SPPC, NV Bell, Patagonia, downtown casinos, etc).

8.0 ECONOMIC ANALYSIS SUMMARY

A conservative economic analysis was prepared to analyze the economic benefits of increased river-related use. This summary highlights major findings. The entire analysis is provided in Appendix C.

The availability of whitewater rafting and whitewater parks on the Truckee River will draw overnight and out-of-town visitors to the area. With a fully developed whitewater park and rafting opportunities, the Truckee Meadows could see as many as 100,000 users annually, many of whom will be out-of-town visitors.

In addition to recreational use, whitewater parks provide a venue for professional and amateur competitive events. With such a facility, it is possible for the Reno/Sparks area to host sanctioned events such as a championship series, Olympic team trials, and the U.S. National Championships. The park and river improvements will also attract casual boaters, national caliber athletes, and Olympians for events and training opportunities. There are no permanent whitewater parks west of the Rocky Mountains. Whitewater parks in the Reno/Sparks area would be the first of their kind in the region.

It is important to note that other recreational pursuits that can occur along the river corridor such as fishing, riding bicycles, running, walking, and swimming rank among the top recreational pursuits enjoyed by Americans. According to the National Sporting Goods Association exercise walking and swimming were the top two sports in terms of total participation while fishing and bicycle riding ranked 5th and 6th in total participation in 1999.

The ability to attract visitors to the area could have significant economic benefits. Whitewater enthusiasts tend to be younger, averaging between the ages of 35-54. Seventy percent are married, 65 percent hold at least a four-year college degree, and have an average \$75,000 to \$125,000 in total household income.

A whitewater park on the Truckee River is ideally located. It is near major population centers (western Nevada, Central California, and the San Francisco Bay Area), and it is surrounded by other outdoor recreation opportunities. The location and access to major transportation facilities (I-80 and U.S. 395) are ideal for attracting rafters and kayakers who travel across the western United States during the summer months. The park and river improvements would likely receive immediate national exposure from visitors coming to the Reno/Sparks and Tahoe area each year.

A number of communities across the United States have organized whitewater festivals in conjunction with competitive river events. The Boulder Creek Festival in Boulder, Colorado draws approximately 300,000 local and non-local participants and spectators over the course of the event. With its tourism/visitor focus and experience with large special events, the Reno/Sparks area is well suited to host similar venues. Additionally, the area can draw upon 10 local and regional whitewater paddling clubs to support and promote competitive events. There are also several national level organizations that work with local communities to promote whitewater related events.

Many whitewater parks have improved fish habitat and ultimately resulted in the construction of walkways and pike paths to improve overall opportunities. These improvements in turn increase

housing values, promote community involvement, and attract and retain employees to local businesses. In some cases, businesses have opened near whitewater parks to support and promote the water sports venues (American Whitewater, 2000)

8.1 Whitewater Park Use

The expected levels of river use and participation at organized events on the Truckee River are based on a review of communities with similar facilities, organized events, and whitewater rafting opportunities. Table 8-1 shows estimated ranges of use for organized events and casual use at the proposed whitewater park. Such use is quantified in terms of total visitor nights. The economic analysis model used the low end of the range for expected visitor night use.

Table 8-1 White Water Park Use Estimated Visitor Nights

USER	EXPECTED VISITORS	DURATION OF STAY (Nights)	TOTAL VISITOR NIGHTS
Event Use:			
<i>Event Participant</i>	60-180	5-12 nights	300-2,160
<i>Spectators</i>	600-1,000	5-12 nights	3,000-12,000
Non-event Use:			
<i>Participant</i>	2,500-12,500	1.5 nights	3,750-18,750

8.2 Commercial Rafting Use

Total commercial whitewater rafting use on the Truckee River is expected to range from 10,000 to 50,000 user days annually based upon a review of several rivers throughout the United States. Whitewater rafting opportunities will generate substantial visitor use. In other areas of the country, visitors comprise as much as 50 to 75 percent of the river rafting use. The economic analysis model assumed approximately 20,000 users annually. An estimated 16,000 users are expected to utilize commercial outfitters for rafting trips down the Truckee River. Depending on the quality of experience, the Truckee River could generate destination overnight visitors for the Reno/Sparks area.

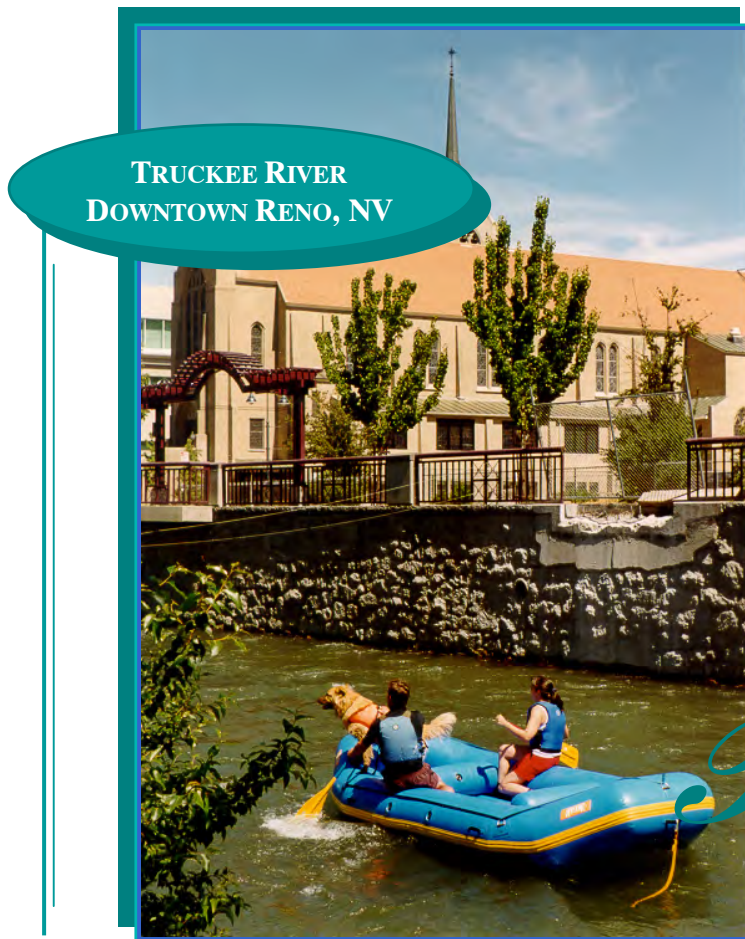
8.3 Economic Impact

The results of the economic analysis predict that river related uses would generate an economic impact of approximately \$1.9 to \$4.1 million, annually. This level of economic activity is projected to generate 33 to 67 jobs and generate tax revenues in the amount of \$123,000 to \$263,600, annually. It is important to note that the economic model assumptions are conservative in terms of total use and recreational expenditures when compared to the range of expected use in Table 8-1. The potential maximum level of use could result in a total annual economic impact to the Reno/Sparks area that is 3 to 5 times the amount estimated by the conservative model.

There is significant potential for maximizing whitewater rafting and increasing the number of overnight visitors and day trip visitors as well as the level of expenditures made in the local economy. The economic analysis conducted for this report assumes no overnight visitors for whitewater rafting and a level of daily expenditures that is significantly less than expenditures typically made at other whitewater rafting rivers. This analysis assumed that Truckee River whitewater rafting would generate \$59 per user per day whereas the actual economic impact could be as high as \$154 per user per day.

Increasing the level of use on the Truckee River will depend on a number of factors such as the willingness of the community to promote events and river use, and the overall quality of the experience as a result of the constructed facilities.

The cost to construct the improvements is estimated to be just over \$2.8 million with very limited operational expenditures. The return to the community in terms of total annual economic impact would exceed the original investment within one or two years.



R

**rafting on the Truckee
through Reno, NV.**

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- * U.S. Army Corps of Engineers 1997 Flight Survey
- * Vail Valley Tourism and Convention Bureau, Press Release VVT CB Announces Plans for World-Class Whitewater Event, February 2001.
- * Washoe County 1998 Assessors Parcel Base

10.0 PERSONS/AGENCY CONTACTED

- * IAN ANDERSON, *Communications Manager, Vail Valley Tourism and Convention Bureau. February 2001*
- * PAUL MCMINN, *City of South Bend Indiana Parks and Recreation Director, February 2001*
- * CHARLEY FAGAN, *City of Golden Colorado Parks and Recreational Director, February 2001*
- * NICK LIPKOWSKI, *American Whitewater Executive Director*
- * MARK TOMICH, *Nevada County California Planning Director*
- * STAN SHERER, *Sparks Parks Director*
- * NANCY MACCARTNEY, *Reno Parks Director*
- * ED SCHENK, *Reno Parks Supervisor*
- * GLEN DAILY, *Reno Public Works Engineer*
- * BRUCE AMBO, *Reno Redevelopment Staff*
- * LAURA TUTTLE, *Reno Community Development*
- * KAREN MULLEN, *Washoe Co. Parks Director*
- * ROSE MARIE ENTSMINGER, *Washoe Co. Parks Staff (grants)*
- * PAUL URBAN, *Washoe Co. Water Resources*
- * MARK WAREN, *NDOW*
- * KIM TISDELE, *NDOW*
- * DAVE WILSON, *NV State Lands*
- * KAREN MARINER, *State of Nevada, Risk Management*
- * JIM DELONEY, *NV State Parks, Trails Coordinator*
- * MIKE CAMPBELL, *ACOE Flood Control*
- * STEPHANIE BYERS, *USFWS*
- * DAVID BOBZIEN, *Trout Unlimited*
- * BOB RUSK, *Truckee River Lodge*
- * JIM FITZSIMONS, *UNR Kayak Club*
- * CHARLES ALBRIGHT, *Sierra Nevada Whitewater Club*
- * SCOTT KESLER, *River Adventures and More*
- * MIKE MILTNER, *Tahoe Whitewater Tours*
- * DAN BUCKLEY, *Tributary Whitewater Tours*
- * ELISA MASER, *Champions of the Truckee*
- * SUSAN LYNN, *Public Resource Associates*
- * MIKE FORD, *The Conservation Fund*
- * *Salida, Colorado Chamber of Commerce*
- * *Wausau Wisconsin Kayak/Canoe Corporation*
- * *North Lake Tahoe PUD*
- * *Big Fork, Montana Chamber of Commerce*
- * *Kernville, California Chamber of Commerce*
- * *El Dorado County Parks and Recreation Department*
- * *Sporting Goods Manufacturers Association*

11.0 LIST OF PREPARERS

* **LYNN ZONGE**

Resource Concepts, Inc., Carson City, Nevada

Lynn Zonge is a fluvial geomorphologist, surface water hydrologist and NEPA specialist with Resource Concepts. Ms Zonge assisted Gary Lacy in providing the Nevada Commission on Tourism with a feasibility study for a kayak slalom course on the Truckee River in the spring of 2000. Ms. Zonge is also the Secretary for the Sierra Nevada Whitewater Club and has been a primary organizer for the annual Truckee River Races. She has worked as a commercial river guide in the Grand Canyon, Mexico, and Guatemala.

* **JIM LITCHFIELD**

Kennedy Jenks Consultants, Reno, Nevada

Jim Litchfield has worked with Truckee River modeling and engineering projects for over 8 years as a project manager and hydrologist at Kennedy Jenks. He currently represents several agencies with jurisdiction over projects within the Truckee River. He administered several state and federal funds for channel reconstruction of the Truckee River following the 1997 Flood. Mr. Litchfield is also one of the primary organizers for the annual Truckee River Races and is an avid kayaker.

* **GARY LACY**

Recreation Engineering and Planning, Boulder, Colorado

Recreation Engineering and Planning is a company that works almost entirely with municipal governments to plan, design, manage, and coordinate major public projects and programs. Mr. Lacy guides these projects through a wide-array of public processes and approvals. Mr. Lacy has achieved numerous successes with developing whitewater parks and greenbelts through communities.

* **REX MASSEY**

Research and Consulting Services, Reno, Nevada

Mr. Massey provides economic, planning and management assistance for governments and government agencies principally in northern Nevada. The firm specializes in economic, fiscal, environmental and developmental impact analyses.

* **DR. TOM HARRIS**

University of Nevada, Reno, Center for Economic Development

Mr. Harris has conducted numerous Nevada county level economic analyses and projects and calibrated the Washoe County economic model used in this analysis.

APPENDIX A

Truckee River Land Use within the River Corridor

- * *Mogul to Dorostkar Park*
- * *Dorostkar Park to Oxbow Park*
- * *Oxbow Park to Reno Police Department*
- * *Reno Police Department to Rock Park*
- * *Rock Park to Spice Island Drive*
- * *Spice Island Drive to Steamboat Creek*

APPENDIX B

Interview Documentation

TRUCKEE RIVER RECREATION PLAN
Contact List

NAME	AGENCY/TITLE	NUMBER	CONTACT DATE
* SPARKS			
STAN SHERER	Sparks Parks Director	353-2275	01/10/01 meeting
* RENO			
NANCY MACCARTNEY	Reno Parks Director	334-6265	01/12/01 meeting
ED SCHENK	Reno Parks Supervisor	334-2262	01/12/01 meeting
GLEN DAILY	Reno Public Works Engineer	334-2206	01/12/01 meeting
BRUCE AMBO	Reno Redevelopment Staff	334-2077	01/11 & 22/01 meetings
LAURA TUTTLE	Reno Community Development	334-2036	12/20/00 phone
* WASHOE COUNTY			
KAREN MULLEN	Washoe Co. Parks Director (?)	828-6642	01/22/01 meeting
ROSE MARIE ENTSMINGER	Washoe Co. Parks Staff (grants)	828-6642	01/12/01 phone
PAUL URBAN	Washoe Co. Water Resources	954-4639	01/26/01 meeting
* STATE OF NEVADA			
MARK WAREN	NDOW	688-1500	01/19/01 phone
KIM TISDELE	NDOW	688-1500	03/06/01 phone
DAVE WILSON	NV State Lands	687-4363	01/18/01 phone
KAREN MARINER	State of Nevada, Risk Management	684-7058	03/01/01 phone
JIM DELONEY	NV State Parks, Trails Coordinator	687-1694	01/16/01 phone
* FEDERAL AGENCIES			
MIKE CAMPBELL	ACOE Flood Control	916-557-7956	01/13/01 meeting 01/18/01 phone
STEPHANIE BYERS	USFWS	861-6329	01/22/01 meeting
* ORGANIZATIONS			
DAVID BOBZIEN	Trout Unlimited	784-6500 x 323	01/13/01 meeting 01/18/01 phone
BOB RUSK	Truckee River Lodge	329-6411	01/13/01 meeting
JIM FITZSIMONS	UNR Kayak Club	784-4041 ext 246	01/16/01 phone
CHARLES ALBRIGHT	Sierra Nevada Whitewater Club	324-5102	Numerous
SCOTT KESLER	River Adventures and More	530-583-8963	01/16/01 phone
MIKE MILTNER	Tahoe Whitewater Tours	530-581-2441	02/26/01 phone
ELISA MASER	Champions of the Truckee	825-1877	12/16/00 meeting
SUSAN LYNN	Public Resource Associates	786-9955	02/20/01 phone
DAN BUCKLEY	Tributary Whitewater Tours	530-346-2528	03/15/01 phone

Meeting and Telephone Notes

*** SPARKS**

SPARKS PARKS AND RECREATION

Stan Sherer, Director

The Sparks Park and Recreation Comprehensive Plan does not have much planning regarding the Truckee River. The emphasis in Sparks Park & Rec. is to the north in the new development areas. They have 34 park sites identified. These are all development driven. While the developments pay for the creation of the parks, there is no additional funding for maintenance. Thus his crews are stretched very thin.

Current goals for the river area include maintaining the trail and park system and enhancing access to the river. The Comprehensive plan calls for two trails connecting the marina trail with the river trail. The river is currently not well connected with the rest of the city.

Stan would like to have a water park/slalom course in Sparks. Rock Park has the most potential for river recreation development. A copy of the comprehensive plan was obtained for review.

*** RENO**

RENO PARKS AND RECREATION AND RENO PUBLIC WORKS

Nancy MacCartney Reno Parks Director

Ed Schenk Reno Parks Supervisor

Glen Daily Reno Public Works Engineer

Reno Parks and Recreation has no concrete plans regarding the Truckee River. However, Reno Parks and Rec. has a vision to enhance pedestrian access. This includes bike lanes separate from the roadway, fishing access, beautification, and relocating businesses that do not belong along the river such as the industrial areas. The new Center Street Bridge has room for pedestrian trail access under the bridge. The replaced bridges may also have room for a trail.

The Wingfield Park area is a high traffic area. It has limited parking, access, and is heavily programmed. The area under the Keystone Bridge would be an excellent ingress and regress area for boaters. It has a big parking lot and a nice sandy area. The Wingfield area should be for special events only.

The idea of trail continuity via placing the trail under the traffic bridges is in line with their vision. Likewise adding pedestrian bridges to the island.

Ed Schenk recommended presenting the plan concept to the Mayor and the City Council.

RENO PUBLIC WORKS

Glen Daily, Engineer

Public Works generally avoids the river as much as possible. There are no in-house documents or requirements. Public Works uses the guidance of the Army Corps of Engineers, State Lands, and the USFWS.

RENO REDEVELOPMENT AGENCY

Bruce Ambo Staff

The Redevelopment Agency supports the whitewater park and the other concepts presented by the project team. Mr. Ambo was involved in the initial whitewater slalom park feasibility project. Redevelopment wants to maximize and optimize the potential of the river. Mr. Ambo cautioned that private property owners along the Truckee River are sensitive to new plans and proposals. Redevelopment has applied for funding to widen the sidewalk at the northwest corner of Arlington and First Street. Mr. Ambo recommended showing different alternatives for recreation concepts. A copy of the Redevelopment plan that includes the river area has been obtained for review.

RENO COMMUNITY DEVELOPMENT

Laura Tuttle Planning Manager

Community Development has a Master Plan for the Truckee River. The Redevelopment plan is also a guide as well as the City of Reno Zoning Code.

*** WASHOE COUNTY**

WASHOE COUNTY PARKS

Karen Mullen, Director

The County has a Truckee River Master Plan. This plan encompasses everything west of town. The county is concerned with circulation, access, view corridors, and trailhead parking. Historic structures are a priority. Eventually, the county would like to be a part of a trail from Lake Tahoe at Tahoe City to Pyramid Lake. The county is currently trying to acquire lands to complete their part of the trail and park system.

Mayberry Park is already a main boating access area. The county hopes to develop new parks at Mogul and Verdi along the river. The county prefers natural vegetation and minimal landscaping in their river parks.

Rose Marie Entsminger, Staff

Washoe County Parks has no single document dealing with recreation along Truckee River. Currently the emphasis along the river is land acquisition. The voters of Washoe County approved a \$28.3 million Bond package at the November 2000 General Election. Listed in the Bond Projects were \$4 million for Truckee River Land/Bike Path and \$442,000 for Urban Trails-Reno. Ideally, Washoe County would like to expand the trail system along the Truckee River.

WASHOE COUNTY WATER RESOURCES

Paul Urban, Flood Control Coordinator

The flood control plan will have a recreation component. The extent of the recreational component will depend on funding. It is important that we continue to have close contact with the flood control process in order to have the recreational components implemented correctly. However, many components to the community flood control plan fit hand in hand with the concepts of the Truckee River recreation plan.

* STATE OF NEVADA

NEVADA DIVISION OF WILDLIFE

Mark Waren

NDOW has several goals for the Truckee River. 1) improve access for fisherman; 2) improve access for the fish stocking trucks; and 3) improve fish habitat.

NEVADA STATE LANDS

Dave Wilson, Staff

The state completely supports recreation on the Truckee River. Any work in the river would require permits listed below. Mr. Wilson suggested that we meet with State Lands after a draft plan is completed. We can scope the draft at that point and get their input prior to submitting any final drawings. We discussed several of the dams on the river that are dangerous. Specifically, the Chalk Bluff Dam is dangerous in high flows. Mr. Wilson was unaware of this.

RECREATION TRAILS PROGRAM

Jim DeLoney, State Trails Coordinator

The National Recreation Trails Program is administered by the Federal Highway Administration and is designed to supplement and assist current federal, state, local and volunteer trail efforts. Through financial and technical assistance and improved communications among all parties interested in trails, the program is intended to expand the number and improve the quality of recreation trails in America. Each year, the Federal Highway Administration provides funding to states to administer the Recreational Trails Program.

Nevada State Parks administers the Recreational Trails Program in Nevada by awarding grants to successful applicants each year, on a competitive basis. Nevada's total apportionment for Federal Fiscal Year 2001 is \$632,199; a minimum of \$556,337 will be available for trail projects. During the FY2001 grant cycle, applicants may apply for up to \$100,000; a minimum 20% match is required for each trail project. Other sources of federal funds may be used as match, however, the total federal share cannot exceed 95% of the total project cost. Funding may be used to construct new trails, enhance existing trails, build trailside facilities, develop educational projects, and more. Eligible applicants include individuals, private organizations, municipal, county, State and Federal government entities.

Mr. DeLoney was very interested in the Truckee River Recreation Plan. **Ingress, regress, dam modification and removal would all be eligible for funding.** The funds are focused for **implementation** and not for planning. Application packets were obtained for review.

* FEDERAL AGENCIES

ARMY CORPS OF ENGINEERS

Mike Campbell, Project Manager, Truckee River Flood Control

The ACOE has a preliminary recreation analysis that he will provide to RCI. Usually they consider biking and pedestrian trails, picnic areas and the like but are interested in our plan. The Recreation Plan being funded by NCOT may help to generate the conversations that need to occur regarding recreation. The ACOE recreation person recently left and his position remains vacant. If projects were completed on the river prior to the flood control projects, then our project would become a pre-project condition for the flood control.

He suggested that I talk with Paul Urban with Washoe County to see how the recreation component of the plan may be refined.

U.S. FISH AND WILDLIFE SERVICE

William Cowan and Stephanie Byers

The USFWS is developing long and short-term goals for the Truckee River as it relates to the Lahontan Cutthroat Trout (LCT). A high priority reach for recovery of the LCT is from east McCarran to Pyramid Lake. Ideally, the existing non-native fishery would be replaced by a native fishery. Initially, there would be segments of the river with LCT and eventually the entire river would be self-sustaining. Currently full recovery efforts are stymied by the lack of connectivity within the watershed. Several dams need to be modified for fish passage. Main barriers within our study area include the two Sierra Pacific dams near Verdi. The USFWS has toured these dams with Sierra Pacific and discussed ways to modify these dams for safe fish passage. This recovery plan is still being reviewed and developed. The USFWS would need to be notified of modifications to the river.

*** ORGANIZATIONS**

UNR KAYAK CLUB

Jim Fitzsimons, President

The university club holds both kayak and raft classes each semester. These classes are filled each semester to capacity at 50 students each. In the classes students learn water safety, equipment, hydrology, paddling skills and whitewater reading skills. Currently, they take the majority of their students to California sections of the Truckee River (Hershdale to just above Jaws in Floriston) because there are nice water features. At times, they take students from Crissy Caughlin Park to Wingfield but regress at Wingfield is difficult. Otherwise, there is a lack of large eddies or other water features on which to train. A whitewater park would be used by the club should one be built. The club would assist in this endeavor.

SIERRA NEVADA WHITEWATER CLUB

Charles Albright, President

The club has full confidence in and supports any design created by Mr. Gary Lacy. Charles Albright competes internationally and has boated on some of Mr. Lacy courses and is impressed with his designs. If the river were safe for boats there would be much more boating activity on the river through Reno and Sparks.

TROUT UNLIMITED

David Bobzein

There is great potential along the Truckee River. Improved habitat and improved access would greatly benefit any fishing opportunities along the Truckee River. A wild Lahontan Cutthroat Trout fishery would be a huge draw nationally for fishermen. It would be a benefit to fly fishermen if there were more opportunities for fly-fishing along the river similar to the six-mile stretch at the CA/NV border.

TRUCKEE RIVER LODGE

Bob Rusk

Many years ago, flashboards were placed across the north and south channels at Wingfield Park during periods of low flow in the summer. The flash boards allowed the water to pond and paddle boats were able to use the backwater section. This concept has been promoted by Mr. Rusk and others. Mr. Rusk supports the proposed Slalom Course and whitewater park and

supports recreational use of the river during the warm summer months. The improvements for river recreation and the paddleboats are not mutually exclusive.

PUBLIC RESOURCE ASSOCIATES

Susan Lynn

Susan Lynn is in support of the river improvement concepts and would like to review the plan when it takes a more defined form.

APPENDIX C

Economic Analysis

Appendix C - Economic Analysis

A conservative economic analysis was prepared to analyze the economic benefits of increased river related use. Two primary sources of economic input were considered: increased out-of-town visitations and recreational expenditures that would otherwise be made outside the Reno/Sparks area. The analysis contains two principal parts:

- 1) A description of use and benefits based on communities that have whitewater and river related events, and
- 2) An evaluation of potential economic impacts and financial return on the initial investment for whitewater and river related improvements along the Truckee River.

The principal focus of the analysis was centered on boating and the development of a whitewater park and other river enhancements for the Truckee River. Although secondary benefits from the project may result from an increase in activities such as fishing, day use, bicycle riding, and walking, it is debatable whether or not such uses would in themselves draw visitors to the Reno/Sparks area or result in a reduction in the leakage of recreational expenditures by area residents. Such activities may not yield a sizable net economic benefit for the area's economy but rather improve the overall quality of life for area residents.

This project focuses primarily on improving the waterways for boating related uses. Therefore, the analysis considers two general categories of boating activities, (1) event related uses, and (2) non-event uses.

Event Related Uses: Event related uses include competitive whitewater events such as downriver races, rodeos, slalom courses, and river related festivals. Organized whitewater events have the potential to create a visitor destination for the Reno/Sparks area. Based upon information collected from other communities, organized river events can and do draw overnight visitors.

Specific events included in this analysis are:

- Competitive whitewater events with a river festival, and
- Single competitive whitewater events.

Non-Event Use: There are two principal types of non-event use evaluated in this analysis:

- Commercial whitewater rafting by visitors and local residents, and
- Casual use of the whitewater park by overnight visitors.

Use by local residents is included because whitewater rafting is currently a recreational activity that does not exist in the Reno/Sparks area and local residents must travel to other destinations to participate in these types of activities. There is evidence that suggests that visitors are likely to come to the Reno/Sparks area on vacations or weekend trips for non-event use of the whitewater park.

*** TRUCKEE RIVER POTENTIAL**

A whitewater park on the Truckee River is ideally located. It is near major population centers (western Nevada, Central California, and the San Francisco Bay Area), and it is surrounded by other outdoor recreation opportunities. Additionally, its location and access to major transportation facilities (I-80 and U.S. 395) is ideal for attracting rafters and kayakers who are moving throughout the western United States during the summer months.

Estimated annual non-event use for whitewater parks varies tremendously based upon factors such as the length of season, flow rates, quality and design of course, and proximity to population. It is reasonable to expect 10,000 to 50,000 users annually at a developed whitewater park on the Truckee River.

Sixty percent of the participants in the annual Truckee River Races are from out-of-state. A study completed by the Minnesota Department of Natural Resources expected about 30 percent of users to be visitors from out-of-state. In a nearby location on the St. Louis River, which held the international slalom event circuit, out-of-state visitor participation ranged between 55 percent and 48 percent. Since the discontinuation of the event, annual out-of-state visitation has dropped to around 35 percent.

Recent Trends in Whitewater Park and River Use

Across the United States there are approximately 20 whitewater parks. The earliest (Wausau, WI) was constructed in 1974. Recent additions include a number of parks in Colorado. The 1996 Olympic Games at Atlanta, Georgia utilized a natural river enhanced park on the Ocoee River in Tennessee. This was the first time that whitewater boating was an officially sanctioned Olympic event.

According to the Outdoor Recreation Coalition of America (ORCA), there were 17.5 million people (age 16 or older) canoeing, 5 million people kayaking (flatwater/touring/whitewater), and 9 million rafting in 1999. Kayak and canoe sales totaled over \$99 million in 1996 (Outdoor Recreation Coalition of America, 1997). Participation in kayaking increased by 1.4 million people from 1995 to 1999.

Whitewater enthusiasts tend to be young, averaging between the ages of 35-54. Seventy percent of whitewater enthusiasts are also married, 65% hold at least a four-year college degree, and average \$75,000 to \$125,000 in total household income. This age group is of special interest to the outdoor-sales industry and is targeted as a major marketing group because they may be better established financially and thus better able to afford specialized equipment and services. For enthusiasts, those who fall within the top 15% of participation levels in the past twelve months, equipment purchases can include multiple boats, paddles and other equipment for diverse boating experiences (American Whitewater, 2000).

An increasing number of women are participating in all forms of outdoor recreation as well. As equipment becomes lighter in weight and improves in performance, more women are likely to participate in activities currently dominated by men. Men and women are rafting enthusiasts in almost equal numbers. According to ORCA, kayaking experienced a 39% increase and rafting a 7.7% increase in women participants in 1999.

It is important to note that other recreational pursuits that can occur along the river corridor such as fishing, riding bicycles, running, walking, and swimming rank among the top recreational pursuits enjoyed by Americans. According to the National Sporting Goods Association exercise walking and swimming were the top two sports in terms of total participation while fishing and bicycle riding ranked 5th and 6th in total participation in 1999.

The development of whitewater parks and river-enhanced features are often utilized for officially sanctioned events. With human-powered outdoor recreation on the increase, many areas have built whitewater courses that offer canoeing, kayaking, and rafting opportunities. These have served as a tremendous economic boost for the areas surrounding the parks.

Many whitewater parks have improved fish habitat and ultimately resulted in the construction of walkways and bike paths to improve overall opportunities. These improvements in turn increase housing values, promote community involvement, and attract and retain employees to local businesses. In some cases, businesses have opened near whitewater parks to support and promote the water sports venues (American Whitewater, 2000).

Estimation of Economic Effects

The economic effects of recreational spending on the local region are estimated by using the U.S. Forest Service IMPLAN model.¹ This analysis focuses on overnight visitors to the Reno/Sparks area. Expenditures by local residents were included in this analysis, particularly those related to commercial whitewater rafting. Local residents travel outside the area to raft rivers such as the American, Yuba, Truckee (Lake Tahoe to Truckee), and the Feather, exporting dollars. The availability of local river recreational opportunities will impede the amount of recreational dollars spent outside the local economy.

Event Related Uses

Whitewater Park Events

Whitewater events typically occur throughout much of the year. In general, the peak season of use is late March through July. However, whitewater parks and river enhanced areas can be designed to extend the seasonal use of rivers. It is not uncommon for parks to operate at flows as low as 100 cubic feet per second (cfs). There are generally fewer events towards the end of summer due to lower stream flows. There are two general categories of events held at whitewater parks. They include:

- River Festivals and Competitive Events (Combined Events), and
- Sanctioned and non-sanctioned whitewater events-professional and or amateur.

National organizations sanction whitewater events. Some of the more active groups include American Whitewater's National Organization of Whitewater Rodeos (NOWR), American Canoe Association (ACA), the United States Canoe and Kayak Team (USCKT). Officially sanctioned events are commonly held at constructed whitewater parks throughout the country. Examples of officially sanctioned whitewater events include:

EVENT	AFFILIATION
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¹ IMPLAN is an in-pur out-pur modeling system for conducting regional economic impact analysis.

U.S. Team Trials-Rodeo	NOWR
U.S. Team Trials-Slalom	NOWR
U.S. Junior Team Trials-Slalom	NOWR
U.S. National Championships-Slalom	NOWR
Open Canoe Slalom National-Slalom	ACA
Open Canoe Downriver Nationals	ACA
U.S. National Championships-Wildwater	USCKT
U.S. National Team Trials-Wildwater	ACA
World Cup Series	

There are 33 officially sanctioned events by American Whitewater this year. There are more than 70 slalom, 30 wildwater and 30 rodeo events held at the local and regional level each year. Annually, about 25 whitewater festivals or double headers host multiple kinds of events simultaneously including sanctioned events by national organizations. Depending upon volunteer support and the growth of the sport in the region, the proposed whitewater park could host as many as four regional or local major competitive events (i.e. championships) annually. Local associations provide critical support for winning and staging events. Paddling clubs, particularly those with national and international affiliations, are able to market their venues within the sport to draw competitions and recognition to their venue (Minnesota Department of Natural Resources, 1999).

Currently, there is one local paddling club in northern Nevada: Sierra Nevada Whitewater Club. The club has approximately 100 members and they host one two-day annual event on the Truckee River. There are ten American Whitewater affiliate paddling clubs in California. Eight are located in the northern California area including Grass Valley and Auburn areas.

Events and river festivals generally occur over a period of 2 to 4 days with a maximum of 7 days. Some of the larger organized events such as the Subaru Gorge Games, Oregon Cup, Kern River Festival, 53rd Annual FIB Ark Boat Race and Festival, Potomac Whitewater Festival, and Gauley River Festival occur over a period of 4 to 7 days. World Cup Events, U.S. National, and Olympic Team Trials typically occur over a period of three to five days. It is not uncommon for communities to have more than one river related event over the course of the boating season. Several communities hosted three and four events, annually. Smaller whitewater festivals, regional and local events typically do not exceed 2 days.

The level of use and participation at river festivals and community events varies widely. The Sierra Nevada Whitewater Club's annual event on the Truckee River draws 60 to 100 participants and 500 to 2,000 spectators. This event is not advertised. The Boulder Creek Festival in Boulder Colorado, on the other hand, attracts nearly 300,000 local and non-local participants and spectators each year. This is one of the larger river festivals in the country and is organized by a full-time coordinator. Most whitewater events and river festivals, however, typically draw between 100 to 200 participants and 2,000 and 5,000 spectators.

Vail, Colorado has scheduled its first organized whitewater event for Memorial Day weekend 2001. Event organizers have received commitments from 16 of the world's best paddlers to attend their Teva Whitewater Festival. According to Joe Blair, event manager for the VVTCB, "*The Teva Whitewater Festival at Vail will put us on the map as a paddling destination and establish us as a true whitewater mecca by highlighting our new, cutting edge whitewater park, as well as the big-water thrills of Dowd Chute*" (Vail Valley Tourism and Convention Bureau, 2001).

The type of whitewater event also influences the level of participation. Officially sanctioned events such as a championship series, Olympic team trials, the World Cup, and U.S. Nationals draw more participants. Also the availability of prize money and the size of a purse can help to attract international and national competition. One of the larger purses, \$32,500, was recently announced for the Subaru Gorge Games with a portion of the funds to be divided among three other events (Ocoee Whitewater Games, Animas River Days, and the Potomac Whitewater Festival).

Whitewater events draw participants from outside of the state. Participants for the Sierra Nevada Whitewater Club whitewater competition on the Truckee River come from western Nevada, Central California, and the Bay Area. Approximately 60 percent of the participants at the Truckee River event are from California with the majority (85 percent) coming from the Bay Area and Sacramento Valley. Two other participant lists were obtained, one in Montana and the other in Colorado, and both events draw participants from surrounding states. In Montana, the Big Fork Whitewater Festival drew participants from Idaho, Canada, Colorado, Utah, Oregon, and Wyoming. The Animas River Days in Colorado drew participants principally from Utah, Arizona, Montana, New Mexico, and Colorado. It is important to note that larger events with professional level competition can draw participants from around the United States and foreign countries. Table 1 provides estimates of attendance, participation, duration of the event and available purse for several of the larger events in the United States.

The current supply of white water paddling opportunities is not meeting the demands of local paddlers. Swift water rescuers and recreational paddlers currently travel from an hour to more than eight hours in order to train and gain experience on white water venues (Minnesota Department of Natural Resources, 2000).

Local Chambers of Commerce in communities with river events were contacted to obtain information of hotel/motel availability. All reported that early reservations are needed for local area hotels/motels and campgrounds due to the influx of event spectators and participants. Nearly all reported 100 percent occupancy over the time period events were held.

There are no permanent whitewater parks west of the Rocky Mountains. Whitewater parks in the Reno/Sparks area would be the first of their kind. As such, the Reno/Sparks river improvements would attract casual boaters as well as national caliber athletes and Olympians.

In the West, Oregon, Washington and Colorado have the greatest number of river related events. In California only two organized event locations were identified, Kern River and the Trinity River. There are no engineered or artificially developed whitewater parks in California, Nevada, Oregon, Washington, or Idaho. Colorado has several engineered or artificial parks.

Table 1 - Selected River Festivals With Whitewater Events 1999-2000

EVENT	LOCATION	ATTENDANCE	PARTICIPANTS	DURATION	PURSE
Gauley River Festival	NC	3,500	NA	3 days	\$15,000
Potomac River WW Festival	MD.	3,000	150	2 days	\$5,000
Animas River Days	CO	NA	200	3 days	\$5,000
Big Fork Whitewater Fest	MT	2,500	200	3 days	NA
Kern River Festival	CA	2,000	200+	3 days	\$2,000
Subaru Gorge Games	WA	NA	NA	5 days	\$17,000
Ocoee Whitewater Games	TN	NA	300+	4 days	\$5,000
FIB Ark Festival	CO	5,000+	200+	3 days	NA
Clear Creek WW Festival	CO	800	100	2 days	NA
Boulder Creek Festival	CO	300,000	NA	3 days	NA

Source American Whitewater and local event sponsors. NA = not available.

Non-Event Uses

Non-event use includes whitewater rafting and causal water park use by visitors and residents. The whitewater park and river rafting is likely to draw day-trip visitors from surrounding areas. A conservative approach to the economic impact analysis for commercial rafting is to assume that such use on the Truckee River does not generate overnight or destination visitors. It is possible given the quality of experience that future users will come to the area primarily for the whitewater experience and stay over night. Casual non-event whitewater park use is expected to generate overnight visitors in the Reno/Sparks area.

Table 2 includes some of the popular rivers in the United States, their level of use and total economic impact derived from commercial rafting use. An average of the economic impacts generated by commercial rafters is \$154 per user in total economic activity. This average listed in Table 7-2 includes a wide range of river trips such as multi-day or single day trips. Thus the average economic impact for a day trip would likely be less, perhaps around \$100 per user.

The total impact per user includes direct and induced spending in the local economy. A 1990 study on the economic effects of river recreation on local economies (Cordell, 1990) found that regional economic multiplier for total gross output was around 2.00. Thus, in order to generate \$154.60, a whitewater rafter would have to spend \$77.50 per day. Food, lodging, transportation, and rental fees are the primary expenditures for whitewater rafting.

The number of users on the Truckee River section below the Lake Tahoe Dam was recently estimated by Placer County. Raft counts revealed an average of 100 commercial trips and an additional 45 private rafting trips per day. Assuming average raft occupancy of 4 people yields 28,500 commercial rafting participants over a ten- week period, and 12,600 private boaters for a total of 41,000 users. Four outfitters provide services on the Truckee from Boca to Floriston, California. In 2000 there were approximately 1,172 commercial boat trips and 5,444 customers.

Table 2 - Use and Economic Impact Of Selected Rivers 1995-1999

RIVER	COMMERCIAL ANNUAL USERS	TOTAL ECONOMIC IMPACT DIRECT, INDIRECT, INDUCED	IMPACT PER USER
American River	156,000	\$19.3 million	\$124.00
Gauley River	65,400	\$20.9 million	\$319.00
Nantahala River	250,000	\$26.0 million	\$104.00
Ocoee River	300,000	\$40.0 million	\$133.00
Arkansas River	275,000	\$55.6 million	\$205.90
Total Use and Average Impact	1,046,400	\$161.8 million	\$154.60

Source: American Whitewater, 2000, Placer County Truckee River Monitoring Project, 2000, and Nevada County 2000 Summary Report.

The number of non-local visitors can vary dramatically and is dependent on several factors such as the distance of major urban populations to the river, and the quality of the experience. In a study of the economic effects of river recreation on the Delaware River, and the New River, approximately 75 percent were non-local residents (Cordell, 1990). The Truckee River could see relatively high non-local use due to the large number of visitors coming to the area to gamble, and to visit Lake Tahoe and surrounding areas. It is likely that permanent residents or visitors from surrounding areas would travel up to an hour or more to utilize the river.

A recently completed environmental impact report for the South Fork of the American River at Coloma, California suggests that 1 to 3 hours driving time from major population centers is reasonable for whitewater use (El Dorado County River Management Plan, 2000). It is also important to note that the same report identified the Truckee River from Boca Reservoir to Floriston, California as having, “characteristics common to the South Fork of the American River. The report goes on to state, “In future years, the Truckee, Mokelumne and Middle Fork of the American may be of increasing interest to boaters and river managers alike”.

This section describes operating conditions, and level of use at several artificially and naturally enhanced whitewater parks for non-event use.

*** OCOEE WHITEWATER CENTER, TN**

With the Southeast area containing the highest number of recreationalists in the country, corresponding to the highest level and growth in retail sales for the outdoor enthusiast, there was little hesitation to build the Ocoee Whitewater Course in the early 1980’s as an Olympic course. The course operates on weekends March through May and September through November, and weekdays June through August. The course saw over 100,000 paying customers annually in the first few years. By 1998 over 303,000 people canoed, kayaked, and rafted down the 5-mile run and another 700,000 visitors came to the area just to watch the boaters. During the Olympic Games, the Ocoee course hosted more than 42,000 people over three days (American Whitewater, 2000).

*** MISSISSIPPI WHITEWATER PARK, WI**

Many cities have now started to contemplate opening whitewater parks in their urban centers. Minneapolis is considering building a whitewater course on the east bank of the Mississippi River. The park is estimated to attract over 50,000 paying visitors per year and generate an economic impact of \$2 to \$2.5 million annually. The city of Minneapolis is also expecting this course to generate 30% of its income from out of state visitors. This course is expected to create a sense of stewardship, heightened awareness of wildlife and natural settings, and also could be a catalyst for economic revitalization to the St. Anthony's Fall area. Impact analysis of the course also shows that on going operations, programs and events could generate jobs and businesses year-round both directly and through increased spending and investment in the surrounding area (Minnesota Department of Natural Resources, 1999).

*** CLEAR CREEK WHITEWATER PARK, CO**

The Golden Whitewater Course for kayaking and canoeing is located at the Clear Creek Whitewater Park in the City of Golden. Construction of the course was completed in 1998. It provides valuable recreational opportunities. The course is currently ¼ mile long with trails and stair-step rock that provides seating for viewing. The park is capable of use year-round although most use occurs from April to October. Total non-event use was estimated at 13,170 in 2000. The park hosts approximately four events annually. Total event use by participants is estimated to be approximately 500 per year. In the summer of 2000 the park held the CSM Spring Ice Breaker, the Clear Creek Whitewater Festival, Eddie Bauer Championship, and U.S. Olympic Team Qualifying. The park attracts users from outside the Golden area. Estimates of visitor use are not available (Evaluation of Beneficial Value, Golden Colorado, 2000).

*** VAIL VALLEY WHITEWATER PARK, CO**

The Vail Valley Whitewater Park was completed in the summer of 2000. The course is a naturally enhanced river that is approximately 200 yards long and was completed for an estimated cost of \$165,000. The Town of Vail provided funding for the course. Its first event will be held on Memorial Day and is expected to draw 16 of the world's best athletes. The course is expected to provide increased utilization by visitors and local residents bringing additional business to Vail Village during the summer months. Indirectly, course construction has provided improved fisheries habitat and improved fishing opportunities. There are no management fees or costs associated with the course (Personal Communication with Ian Anderson).

*** SOUTH BEND EAST RACE, IN**

The East Race in South Bend, Indiana is an artificial whitewater course constructed in 1982. It diverts water from the St. Louis River and is approximately 1,900 feet long. The raceway routinely hosts national and world-class whitewater slalom races. It also provides training opportunities for search and rescue teams. The total user days is estimated to range from 12,000 to 15,000 annually not including event days. The course charges for admission and is generally open 4 days a week. The course requires minimal maintenance and has never had a liability claim in nearly 20 years of operation. The waterway was the cornerstone of downtown redevelopment project. It was originally constructed through an

older dilapidated section of the city. Since its construction more than \$50,000,000 of investment has occurred along the raceway (Personal Communication with Paul McMinn).

Economic Impact of Recreation Use Expenditures

One of the greatest economic contributions of the river enhancement project is the ability to create uses that either import dollars and or minimize the loss of local dollars to other communities for similar activities. Although the whitewater park and river enhancements will provide benefits in terms of improved quality of life, no attempt is made to value such benefits. Instead this analysis focuses on river recreation expenditures.

Based upon the information gathered from several whitewater parks and river communities throughout the country, a use scenario has been developed in order to evaluate the potential economic impact of the whitewater park use and river enhancements (See Tables 3 and 6).

Organized Events Use -Whitewater Park/River Events

Most communities hosting an organized river event hold one major festival per year. It is not uncommon for whitewater parks to host 2 to 4 organized events per year. The duration of events is in most cases 3 to 5 days (2 to 4 nights). Larger events can extend up to 7 days. The expected number of event participants can range from 75 to more than 200. Most of the participants (60-75 percent) are non-local residents. The number of spectators varies significantly. Combined whitewater events with a river festival can draw as few as 500 and as many as 300,000. Organized events alone typically draw between 250 to as many as 5,000 spectators. The scenario used to evaluate the economic impacts assumes that only 30 percent of spectators are out-of-town visitors traveling to the area for the primary purpose of attending the event. IMPLAN model inputs are included in Table 3. They represent a reasonable level of development and use that can be expected within the first two to three years of operation.

Table 3 - Economic Model Inputs for Whitewater Park/River Event Level of Use and Expenditures

MODEL INPUTS	FESTIVAL & ORGANIZED EVENT	ORGANIZED EVENT	TOTAL
Number of Annual Events	1	1	2
Event Participants	100	100	200
<i>Overnight Visitors (60%)</i>	60	60	120
Event Spectators	3,000	1,500	4,500
<i>Overnight Visitors (30%)</i>	900	450	1,350
Visitor Nights Per Event	2.5 nights	2.5 nights	2.5 nights
Avg. Daily Per Capita*			
<i>Expenditures-Gaming</i>	\$286	\$286	\$286
Avg. Daily Per Capita*			
<i>Expenditures-W/O Gaming</i>	\$104	\$104	\$104

**RSCVA Visitor Profile*

Average daily per capita expenditures for visitors was obtained from the Reno/Sparks Visitors and Convention Authority's 1999 Visitor Profile. Because it is assumed that overnight visitors are coming to the area primarily for river related events, the economic impact analysis is performed

with gaming expenditures and without gaming expenditures in the overnight visitor budgets. Definitions of some terms used for the economic impact analysis follow.

- **Direct effects** are the initial impacts to a given economic sector from the purchase of goods or services.
- **Indirect effects** are the impacts caused by the iteration of industries purchasing from other local industries as a result of the initial purchase.
- **Induced effects** on the local economy are caused by the expenditures of new local household income generated by the direct and indirect effects.
- Combined indirect and induced effects make-up what is commonly known as the **multiplier effect** of the initial (direct) expenditures in the local economy.
- Direct effects along with indirect and induced effects result in total **economic output** or **total economic impact** for the region.
- The analysis also shows the amount of employment and labor income generated by direct, indirect and induced economic activity.

Results for Whitewater Event Overnight Visitors

Using the model inputs contained in the Table 7-3 yields the following economic impacts in Table 7-4. Total overnight out-of-town participants and spectators for Whitewater Park events equaled 1,470. Table 4 shows the impacts of event visitors (participants and spectators) with gaming expenditures. A total economic output of \$1.5 million, 24 new jobs, and \$99,000 in taxes would be realized.

Table 4 - Annual Washoe County Economic, Employment, Labor Income and State and Local Government Tax Revenues of Overnight Event Visitors with Gaming Expenditures

CATEGORY	DIRECT	INDIRECT	INDUCED	TOTAL
Total Economic Output	\$925,416	\$263,347	\$309,361	\$1,498,124
Employment	16.4	3.6	4.1	24.2
Labor Income	\$368,539	\$107,223	\$120,264	\$596,026
State and Local Government Revenues				\$98,944

Table 5 shows the overnight event visitor impacts without gaming expenditures. A total economic output of \$400,000, 7 new jobs, and \$29,000 in taxes would be realized.

Table 5 - Annual Washoe County Economic, Employment, Labor Income and State and Local Government Tax Revenues of Overnight Event Visitors without Gaming Expenditures.

CATEGORY	DIRECT	INDIRECT	INDUCED	TOTAL
Total Economic Output	\$256,566	\$68,696	\$83,255	\$408,517
Employment	5.5	0.9	1.1	7.5
Labor Income	\$100,983	\$27,053	\$32,365	\$160,401
State and Local Government Revenues				\$29,356

The willingness of overnight visitors to gamble makes a significant difference in the overall economic impact of the project.

Non-Event Use

The ability to raft the Truckee River is a net economic benefit because it keeps recreational dollars in Reno and Sparks instead of going out of state. In addition to the economic impacts from organized events at the whitewater park, there are also economic impacts that result from non-event use. Those uses include:

- Commercial whitewater rafting
- Non-event whitewater park use

Table 6 summarizes the non-event use model inputs. The model inputs are conservative based upon information collected from other communities and river related uses. Commercial whitewater rafting expenditures by visitors and local residents are included in the analysis. Expenditures by local residents for whitewater rafting are considered in the impact analysis because residents must currently travel to out-of-town locations to enjoy whitewater rafting.

It is likely that commercially available rafting on the Truckee River will increase the number of day-trip visitors to the area from surrounding communities. People from surrounding communities and summertime vacationers staying at area campgrounds, motels, and other vacation facilities may choose to participate in a whitewater rafting experience on the Truckee River. Average daily per capita expenditures for commercial whitewater rafting was set at \$45.00 for the model input. This includes \$25/day for rafting fee, \$10 for food and \$5.00 for transportation.

Table 6 - Economic Model Inputs for Non-event use

ACTIVITY	ANNUAL LEVEL OF USE	AVERAGE DAILY EXPENDITURES PER CAPITA
Rafting	20,000	
Commercial Users	16,000	\$45.00
Private Users	4,000	\$15.00
Whitewater Park	10,000	
Local Use (85%)	7,500	\$15.00
Overnight Visitor Use (15%)	2,500	\$104-\$286
		Avg. stay 1.5 nights

Based upon information gathered from other communities concerning non-event whitewater park use, it is reasonable to expect that the availability of this type of facility may draw overnight visitors to the area. Non-event visitor use at the whitewater parks could be as high as 50 percent of total use. However, conservative estimates of non-event use from overnight/out-of-town visitors (15 percent), average daily expenditures (\$15 per person per day), and total non-event use at the proposed whitewater park was used for the model inputs. Total annual use could ultimately range from 10,000 to as many as 50,000 or more users. Expenditures by overnight visitors are the same as shown in the RSCVA visitor profile.

Results for Non-Event Overnight Visitors

Table 7 shows the impacts of 2,500 non-event whitewater park overnight visitors with gaming expenditures. The analysis assumes visitors will stay approximately 1.5 nights in the Reno/Sparks area.

Table 7 – Annual Washoe County Economic, Employment, Labor Income and State and Local Tax Revenues Impacts of Non-Event Overnight Visitors with Gaming Expenditures

CATEGORY	DIRECT	INDIRECT	INDUCED	TOTAL
Output	\$946,159	\$269,261	\$316,301	\$1,531,721
Employment	16.8	3.7	4.2	24.7
Labor Income	\$376,802	\$109,634	\$122,961	\$609,367
State and Local Government Revenues				\$101,156

Table 8 shows the impacts of 2,500 non-event whitewater park overnight visitors without gaming expenditures. As with Table 7, the analysis assumes visitors will stay approximately 1.5 nights in the Reno/Sparks area.

Table 8 - Annual Washoe County Economic, Employment, Labor Income and State and Local Tax Revenues Impacts of Non-Event Overnight Visitors without Gaming Expenditures

CATEGORY	DIRECT	INDIRECT	INDUCED	TOTAL
Output	\$263,523	\$70,597	\$85,535	\$419,655
Employment	5.7	0.8	1.2	7.7
Labor Income	\$103,731	\$27,810	\$33,252	\$164,793
State and Local Government Revenues				\$30,134

Table 9 shows the impacts of 7,500 local users of the whitewater park. There are no gaming expenditures or overnight stay.

Table 9 - Annual Washoe County Economic, Employment, Labor Income and State and Local Tax Revenues Impacts of Local Whitewater Park Users

CATEGORY	DIRECT	INDIRECT	INDUCED	TOTAL
Output	\$57,390	\$14,312	\$17,684	\$89,386
Employment	1.5	0.2	0.3	2.0
Labor Income	\$21,904	\$5,293	\$33,252	\$34,072
State and Local Government Revenues				\$6,713

Results of Commercial Rafting

As discussed earlier in this analysis, there is expected to be 16,000 users of commercial rafting annually along the Truckee River. Based on this assumption, commercial rafting related expenditures are shown in Table 10.

Table 10 - Annual Washoe County Economic, Employment, Labor Income and State and Local Tax Revenues Impacts of Local/Non-Local Users of Commercial Rafting

CATEGORY	DIRECT	INDIRECT	INDUCED	TOTAL
Output	\$602,480	\$146,451	\$193,210	\$942,141
Employment	11.4	1.7	2.6	15.7
Labor Income	\$239,863	\$57,271	\$75,110	\$372,245
State and Local Government Revenues				\$53,167

The total economic output for commercial rafting use is \$59 per user. As seen in Table 2, the total economic impact from other rivers in the United States was \$154 per user. As a result, economic impacts from Truckee River commercial rafting use could be much higher. Using the higher per capita economic impact, Truckee River total economic impact from commercial rafting could be as high as \$2,464,000 annually.

The economic impacts from approximately 4,000 private river rafting/kayaking are shown in Table 11.

Table 11 - Annual Washoe County Economic, Employment, Labor Income and State and Local Tax Revenues Impacts of Private Rafting/Kayaking Trips

CATEGORY	DIRECT	INDIRECT	INDUCED	TOTAL
Output	\$30,620	\$7,636	\$9,435	\$47,691
Employment	0.8	0.1	0.1	1.0
Labor Income	\$11,687	\$2,824	\$3,668	\$18,179
State and Local Government Revenues				\$3,582

Total Economic Impact from Event and Non-Event Use

Table 12 shows the total economic impact from all river related uses. Variations in economic impact are due to gaming and non-gaming expenditures levels used in the analysis.

Table 12 - Annual Washoe County Economic, Employment, Labor Income and State and Local Tax Revenues Impacts From all Uses

CATEGORY	DIRECT	INDIRECT	INDUCED	TOTAL
Annual Output	\$1,210,579 to \$2,562,065	\$307,693 to \$701,007	\$389,119 to \$845,991	\$1,907,392 to \$4,109,063
Employment	24.9 to 46.9	3.7 to 9.2	5.2 to 11.2	33.8 to 67.3
Annual Labor Income	\$478,167 to \$1,018,794	\$120,251 to \$282,244	\$151,270 to \$328,878	\$749,688 to \$1,629,916
State and Local Government Revenues				\$122,952 to \$263,562

The economic impact analysis focuses on river related recreation expenditures that result in an inflow of dollars to the community and or a reduction of expenditures made by local residents in other communities for similar activities. Two important factors not included in this analysis that could change the results are:

- Whether or not gambling related visitors will increase their overall travel/trip budgets due to the availability of improved river recreation. According to the RSCVA 1999 Visitor Profile Study, expenditures for recreation and sightseeing have declined substantially since 1990.
- Whether or not day trip visitors for river related activities to the Reno/Sparks area will choose to gamble and make other expenditures in the local economy. Additional spending by this segment of people could substantially increase the overall economic impact of the project.

Operating Expenditures and other Revenues for River Related Activities

Based on a survey of communities that have whitewater parks (artificial waterways or river enhanced features), annual maintenance costs are either nonexistent or minimal. Naturally enhanced rivers do not require liability insurance. As a result, the primary outlay would be for the initial capital costs.

Officially sanctioned or sponsored events do incur costs. Based upon information collected for various events from Golden and Vail Colorado and from Wausau, WI, major events particularly those held in conjunction with river festivals can range from \$40,000 to \$80,000. The cost to operate events can be offset by sponsorships, volunteer organizations, event fees, donations, fees on concessions, and charges on all whitewater commercial use. Fees for event participants generally range from \$10 to \$100 per event. One potential uncompensated cost is professional staff time for the planning and coordination of a combined competitive event and river festival that could require a third to half-time equivalent (approximately \$30,000 annually).

Return on Investment

Improvements to the Truckee River would pay for themselves quickly. There are two ways to view whether or not expenditures for Truckee River enhancements create a net economic benefit for the region. The first method compares total economic output over a specified number of years to the initial capital costs and any subsequent operational costs. The second method is of more importance to government agencies and is the ability of the investment to generate new tax revenues as a means to evaluate the benefits of the project.

Comparison with the Total Economic Output

The estimated cost of river improvements is approximately \$2.8 million. As shown in Table 13 the estimated overall economic impact has the potential to range from \$1.9 million to \$4.1 million in the first year. Holding this use scenario constant for 10 years yields \$18.2 million to \$39.3 million in total economic output. This amount is sufficient to **repay the project costs in one to two years of full operation** with two competitive whitewater park events, commercial river rafting, and non-event use by overnight visitors.

As shown in Table 13, the net present value of the total economic impact discounted at 6 percent over a period of 10 years is expected to yield between \$7.2 million and \$15.6 million in total economic output, roughly 3-5 times the initial investment of \$2.8 million. The net present value is the inflation adjusted annual economic impact over ten years discounted back at 6 percent to reach present value.

Table 13 - Total Economic Output And Estimated Payback in Years

	YEAR 1	YEARS 1-10	ESTIMATED PAYBACK
Total Economic Output	\$1,907,392 to \$4,109,063	\$18,250,613 to \$39,317,032	1-2 years full operation
Net Present Value @ 6%	\$1,907,392 to \$4,109,063	\$7,173,296 to \$15,595,650	

Comparison with State and Local Tax Revenues

River related events and use would generate state and local taxes. The total amount of taxes generated from river related use is expected to range from \$122,952 to \$263,562 annually (Table 14). The net present value of state and local taxes generated annually over a ten-year period and discounted at 6 percent is expected to yield between \$1.8 million and \$2.5 million. Total payback with state and local taxes only is expected to be 10 to 15 years with the level of use described in Tables 3 and 6.

Table 14 - State and Local Government Taxes Estimated Payback in Years

	YEAR 1	YEARS 1-10	ESTIMATED PAYBACK
Total Tax Revenues	\$122,952 to \$263,562	\$1,574,747 to \$3,375,658	10-15 years full operation
Discounted-NPV	\$122,952 to \$263,562	\$1,176,452 to \$2,521,866	

Future Development

The use scenario for the Truckee River developed in this analysis is conservative in terms of total use and recreational expenditures. There is a significant amount of upside development potential that could substantially increase the level of economic benefit to the Reno/Sparks area. It is possible, for example, to increase the number of organized events to 4 per year instead of 2. Increasing the number of events could potentially add another 800 to 1,000 overnight visitors. Several communities routinely host four events each year including national and international venues. It is also very possible that future water park use could be well in excess of 10,000 users annually. For example, twenty thousand annual whitewater park users may yield 5,000 to 6,000 overnight visitors. And finally, there is significant upside potential for whitewater rafting and increasing the number of overnight visitors and day trip visitors as well as the level of expenditures made in the local economy. Recall that the analysis assumes no overnight visitors for whitewater rafting and a level of daily expenditures that is significantly less than expenditures made at other whitewater rafting rivers.

Increasing the level of use beyond the initial scenario described in this section will depend upon a number of factors such as the willingness of the community to promote events and river use and the quality of the experience, particularly compared to other similar activities in the region. The potential upside increase in use may yield an overall economic impact that is three to five times the levels shown in Tables 12, 13 and 14.

Other factors that support increased use include:

- There are no other enhanced or artificially developed facilities in the Far West (Oregon, California, Washington, Nevada, Utah, and Idaho.). There are few organized whitewater events in California.
- Interest in whitewater sports, particularly kayaking, has increased substantially over the last decade.
- Reno and Sparks are located within reasonable driving distances from large population centers and are located within an area (Sierra Nevada Range) that already draws visitors for outdoor recreation.
- River recreation provides yet another opportunity to hold an off-season special event to draw visitors to the area. May and early June are well suited for a major river event in the Reno/Sparks area.
- A competitive event requires a relatively small purse to draw nationally and internationally known participants. Purse amounts tend to be less than \$20,000 per event.
- The whitewater park and rafting will have instant national exposure from visitors coming to the area, by those going to Lake Tahoe and surrounding communities, and by travelers on major highways.

The potential for economic benefits, improved quality of life for local residents, and the potential to improve the quality and length of stay for tourist to the area, should make a compelling argument for the river related improvements along the Truckee River.