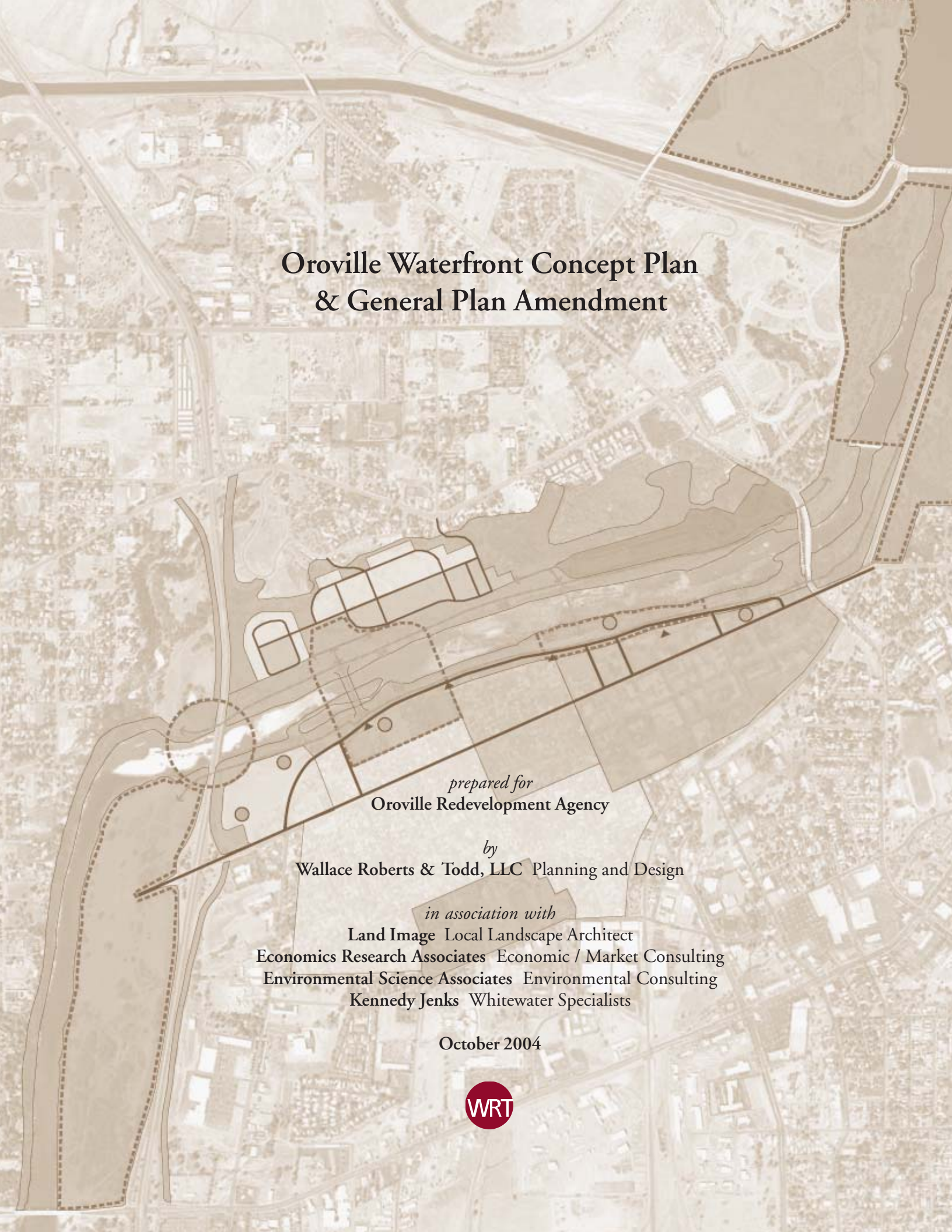
Oroville Waterfront Concept Plan & General Plan Amendment



prepared for
Oroville Redevelopment Agency

by
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WRT

Contents

1. Introduction

A. Purpose

The Oroville Waterfront Concept Plan aspires to maximize the many opportunities offered by the Feather River and capitalize on the recreational potential of the region to the benefit of downtown Oroville and the greater Oroville community. The river—especially as it flows through the downtown area—is a unique natural resource and a high quality amenity around which recreational, commercial and residential types of redevelopment can occur. Existing and proposed regional recreational resources further enhance the potential for Oroville's economic development. Thus, this Concept Plan proposes how the City can take advantage of these multiple resources by recommending public space improvements along with recreational and redevelopment opportunities.

B. Guiding Principles

The Concept Plan revolves around four major principles:

- Establish Oroville's position as the primary gateway to the region's recreational offerings.
- Establish a strong public space framework along the riverfront that reaches back into adjacent neighborhoods.
- Take advantage of a strong public space network along the river to stimulate high quality commercial and residential redevelopment projects.
- Enhance opportunities along the River for a variety of recreational activities.
- Re-establish Downtown Oroville as a cultural, recreational, employment and residential center for the region by incorporating Feather River with adjacent land uses in a harmonious manner.

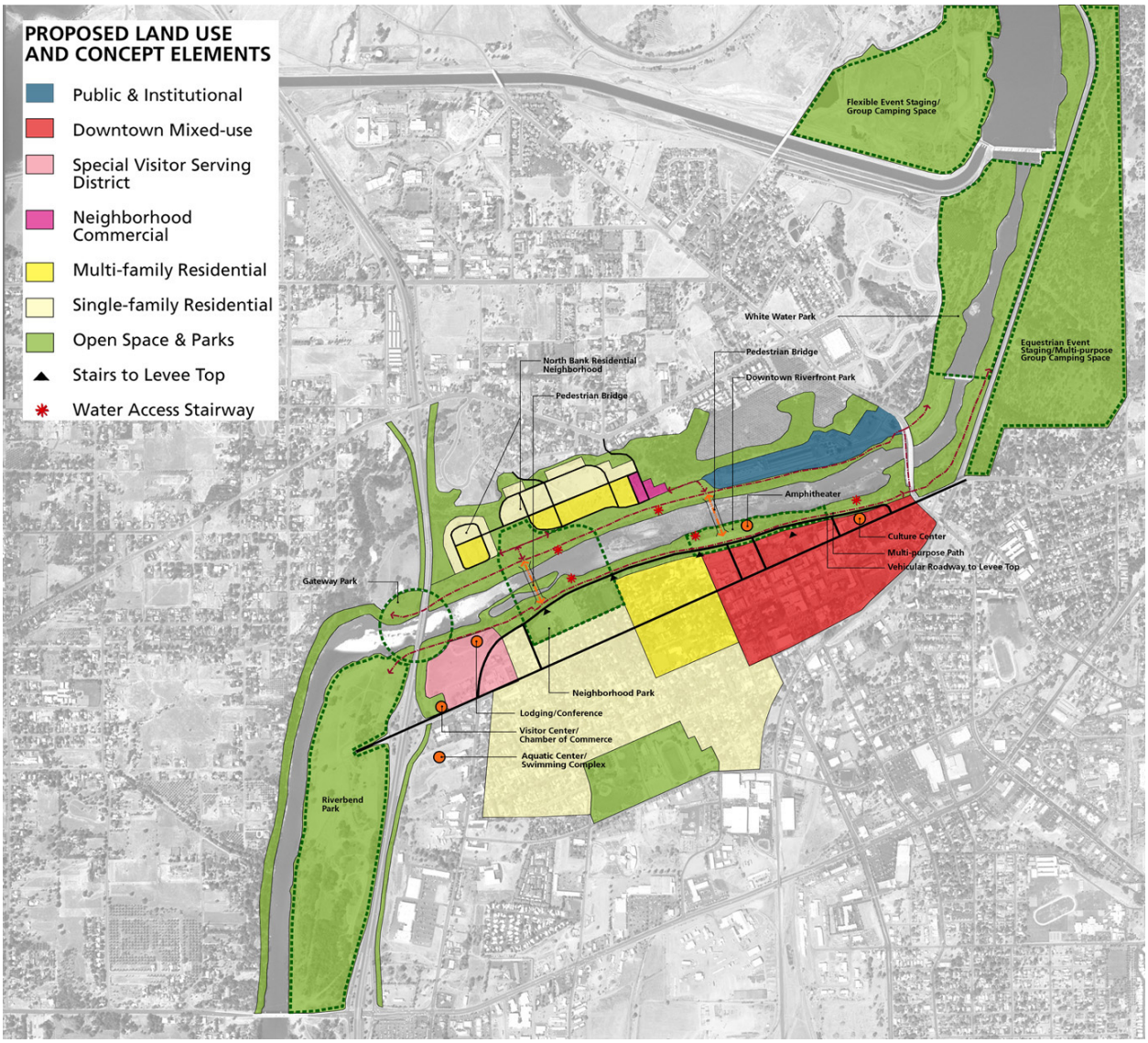
C. Process

This document consolidates two previous efforts—the original Waterfront Redevelopment Concept Plan and the Oroville Recreational Charrette Summary Report—into a single plan to amend the city of Oroville's General Plan. Please refer to *Appendix A: Recommended Text Amendments to the Oroville General Plan* for specific language.

The initial Waterfront Redevelopment Concept Plan process was carried out during the spring and early summer of 2003. A series of public workshops and stakeholder meetings were conducted to provide a better understanding of the potential opportunities and constraints to waterfront recreational planning and redevelopment. From these workshops, the planning team developed and refined a series of proposed projects, discussed in more detail in *Section 2-A.1 Parks and Recreation Facilities and Enhancements: Within the Downtown Area* and *Section 2-B Development/Redevelopment Opportunities.* The Oroville Recreational Charrette, prompted by the City of Oroville in the fall of 2003 as an extension of the Waterfront Concept Plan, explored in more detail the opportunities various sites held for recreational development. An in-depth discussion of the Charrette is included in *Section 2-A.2 Parks and Recreation Facilities and Enhancements: Outside the Downtown Area.*

2. Plan Recommendations

The following proposed projects seek to accomplish the Riverfront vision described above. This section is organized into two parts: *A - Parks and Recreation Facilities and Enhancements* and *B - Development/Redevelopment Opportunities*. The former part is further sub-divided into *A.1 - Within the Downtown Area* and *A.2 - Outside the Downtown Area*. The *Outside the Downtown Area* projects are described in more detail for they were the focus of the Recreational Charrette. All of the recommended parks will include—but not limited to the following improvements: lighting, landscape (riparian habitat enhancement and exotics control) site furnishings, signage, trail development and river access.



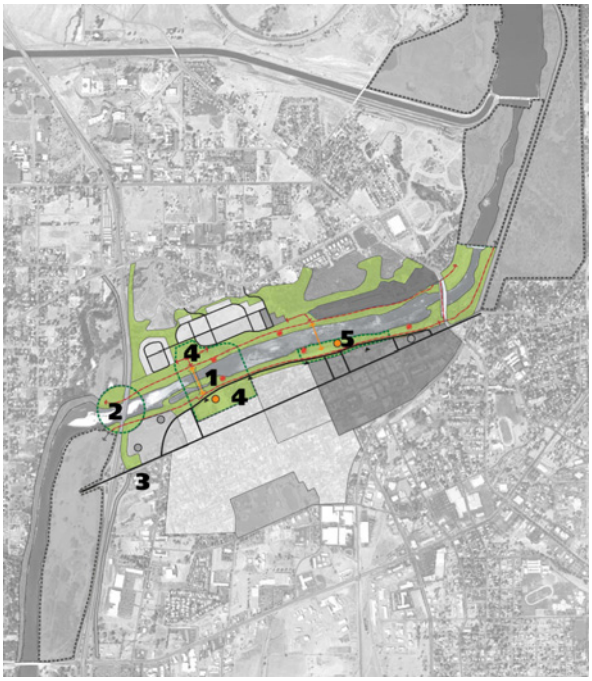
Waterfront Concept Plan

A. Parks and Recreation Facilities and Enhancements

A.1 Within the Downtown Area

Waterfront Linear Parks on Both Sides of Feather River

The most critical of the waterfront projects is the creation of a continuous public green space along the entire length of the downtown riverfront on both sides of the river. This will allow continuous public access along the river for various recreational activities, including walking, jogging, bicycling, fishing and other passive activities. The width of this riverfront green space can vary but widened zones should be provided wherever possible to provide expanded recreational opportunities and larger multipurpose events space.



Downtown Area Parks and Recreation Facilities and Enhancements: 1-Waterfront Linear Parks; 2-Gateway Park ; 3–Aquatic Center/Swimming Complex; 4–Neighborhood Parks; 5–Downtown Riverfront Park

Multi-purpose Paths on Both Sides of River

Paths would be provided on both sides of the river that accommodate both pedestrian and bicycle circulation. This can be provided either as separated paths or as wider combined mode paths.

Pedestrian Bridges: Two (2)

In order to make full use of the public open space on both sides of the river, allowing for circulation loops for pedestrians and bicycles, bridge connections are needed to connect the two sides together. Although one pedestrian bridge already exists, it provides only one point of crossing and does not facilitate circulation loops. The placement of bridges will also make a strong connection to new residential development on the north side of the river. This will enhance the success of this residential development and also increase the number of people supporting the downtown area.

- Pedestrian Bridge (Lincoln Street): Priority - The most critical of the two pedestrian bridges is the Lincoln Street bridge connecting directly from downtown to the north side of the river. This bridge would accomplish several goals including a direct connection between downtown and the new residential neighborhood on the north bank and the creation of a circulation loop with the existing pedestrian bridge (assuming that a riverfront public connection can be made in front of the fish hatchery).

- Pedestrian Bridge (4th Street) - A second bridge aligned with 4th Street would connect between the two side of the new proposed neighborhood park in this location. This bridge would provide stronger connection across the river to riverfront public space, additional circulation loop opportunities (in combination with the other two pedestrian bridges and stronger connection to the new north bank residential neighborhood.

Two-lane Vehicular Road on Levee Top
A levee-top road is proposed on the south bank leading to the downtown area. This road would allow vehicular access but it would be small in scale and pedestrian friendly with wide sidewalks on both sides accessing the riverfront. The road could also be closed off in times of special events and festivals. Providing this road would allow for the continued traditional access to the riverfront that current residents enjoy.

Stairs to Access River for Fishing, etc.
Fishing in the river is very popular among residents and visitors. Currently, access to the water is not well-developed and as a result, random access occurs causing erosion and trampling of vegetation. The riverfront concept calls for the provision of numerous access points all along the riverfront where paths and stairs channel circulation and protect riverfront vegetation.

Gateway Park
Gateway Park would serve as a symbolic regional gateway to a greater Oroville region recreational destination. As such it is a highly visible element located at the intersection of Highway 70 and the Feather River. The concept plan's intent is for Gateway Park to enhance the visibility and the identity of Oroville as the entrance to its regional recreation opportunities.

Visitor Center
Within the highly visible Gateway Park, a new small visitor's center is envisioned that will provide visitors with orientation and information about the recreational and cultural opportunities offered in the region. This visitor's center would be easily accessed off of Highway 70 and would have parking and other support services to accommodate visitors.

Chamber of Commerce
The Oroville Chamber of Commerce may also be located at the visitor center to take advantage of this highly visible location and to provide visitors with additional information about opportunities within Oroville.

Regional Gateway Park Features
Park features within the Gateway Park would have a bold appearance created by special landscape elements. The concept is to create a visually distinctive place that will become symbolically associated with Oroville and its region.

Aquatic Center/Swimming Complex

The Aquatic Center/Swimming Complex will provide warm water swimming opportunities lost from the pre-dam condition in the river itself, and serve the residents of Oroville and visitors alike. This facility—with its regulation-size 50-meter pool—could host small-to-medium scale regional swimming events. In the original Waterfront Concept Plan (2003), the Aquatic Center was situated within the new central Neighborhood Park. Since this parcel is no longer available, This consolidated Plan supports that recommendation and urges that—in order to maximize return on investment and spark other redevelopment opportunities—the Center shall be close to the River and within the downtown waterfront zone. Please see Section 2-A for a more in-depth discussion of the

Central Riverfront. Further study is required to determine the exact configuration and location of the Aquatic Center elements.

The preliminary program foreseen for the Center includes:
- 50 meter pool
- 25 meter pool
- wave machine pool
- splash pool
- water slide
- Future parking structure for Downtown and Aquatic Park

Neighborhood Park Spans Both Sides of Feather River
A new neighborhood park is proposed that would be positioned in the center of the existing downtown residential neighborhoods and the new north bank neighborhood. This park would be instrumental in joining the two residential districts together as well as the public space on either side of the river.

Downtown Riverfront Park
The keystone of the riverfront is envisioned as the public park directly adjoining the downtown. Here, an oversized levee allows more space for a riverfront park with direct views and functional relationships to the river. This space could provide a multipurpose events area as well as a space for informal recreation use.

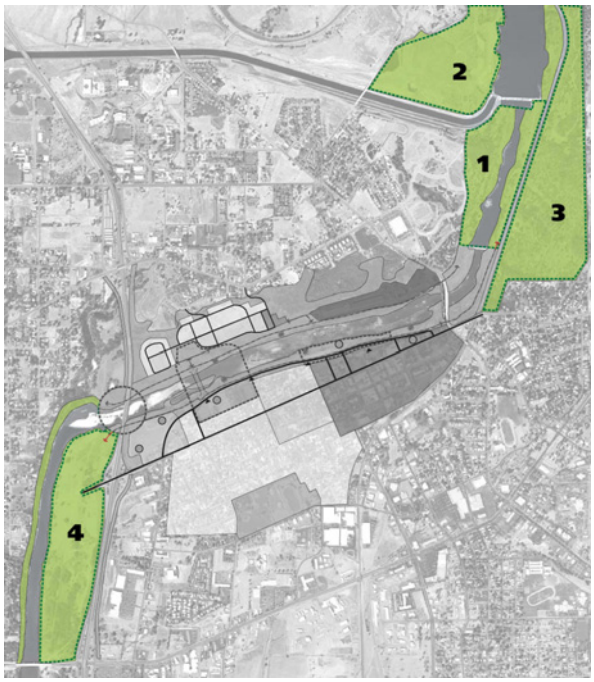
Cultural Center / Museum
At one end of the downtown riverfront park, the Cultural Museum is proposed. This facility would have a direct relationship to the riverfront and also be easily accessible from Montgomery Street. It would act as an anchor use on one end of the downtown riverfront.

Amphitheater
Located in a central location along the downtown riverfront, an amphitheater is proposed that would be oriented towards the river. Here, downtown concerts and other performances could be held attracting users to the downtown and to the riverfront.

A.2 Outside of the Downtown Area

As previously mentioned at the beginning of this section, three of the four recommendations outside of the downtown area were the focus of the Recreational Charrette and will be discussed in greater detail. The charrette resulted in the identification of programming needs at each location, the development of preliminary site planning concepts and the identification of environmental, regulatory and permitting issues associated with their implementation. Three areas of the Waterfront Redevelopment Concept Plan were targeted: Whitewater Park, Flexible Event Space and Equestrian Event Space. The fourth recommendation deals with Riverbend Park, south and west of the downtown area. This site was addressed as part of the initial Concept Plan process.

Following the charrette, the team further developed each of the concepts for the three opportunity sites with supporting text and graphics. The Whitewater Park concept was explored in greater detail because—of the various sites studied—it presents the greatest opportunity for recreational and economic development within Oroville.



Three of the four opportunity sites are located in the northeastern portion of the waterfront: 1-Whitewater Park, 2-Flexible Event Space, 3-Equestrian Event Area. The fourth, Riverbend Park, is located south and west of the downtown.

Riverbend Park – South (to flashdam area)
This concept plan endorses the continued development of the Riverbend Park area for recreational uses in keeping with the non-motorized boating uses, fishing and other low key recreation that now exists. In addition, Bedrock Park should be incorporated into the new improvement plans for continuity.

Whitewater Park

Background
Whitewater sports are among the fastest growing recreational activities in America. The recent trend among some cities to create whitewater parks has brought this sport from its traditional remote locations to a more urban environment at the heart of these communities. Whitewater parks, connected to hiking and biking trails, swimming holes, fishing areas, picnic areas and interpretive centers, have surpassed their original objective of attracting paddle sports enthusiasts and have become focal points for their communities. These parks attract visitors as well as locals and often host major events centered around slalom or freestyle kayaking competitions. Whitewater parks have been developed in a number of cities in the Rocky Mountain States and most recently along the Truckee River in downtown Reno, Nevada. There are, however, no urban whitewater parks in the

State of California, an epicenter of growth in kayaking and other adventure sports. With abundant year-round water and access to a range of compatible recreational activities, Oroville is ideally situated to serve as a destination for whitewater paddlers and adventure sport enthusiasts.

The Proposed Oroville Venue
A preliminary analysis of alternative whitewater park locations (see Appendix A: Alternatives has identified the Diversion Dam to Fish Barrier Dam (Alternative No. 1) location as offering the best multi-purpose whitewater venue with the added potential for economic benefit for Oroville coupled with minimal environmental impacts (see Appendix B).

The proposed site, on the Feather River near downtown Oroville, provides a unique opportunity to create what could become one the country's premier whitewater parks. This site is currently outside of the official City boundaries as well as their Sphere of Planning Influence. The proposed design approach would balance multiple objectives to develop a community resource that would be utilized by many different user groups. The primary objective is to reconnect Oroville with the river that flows through the heart of the City and, in doing so create a recreational experience that would draw and retain visitors. The conceptual design features trails and bridges that bring the community of Oroville together in a stunning natural setting on the banks of the whitewater channel. These pathways would link the downtown area with beaches, swimming holes, shaded walkways and numerous seating, viewing and picnic areas. It would also provide linkage to the Flexible Events Center to be developed on the north bank of the Diversion Pool.

The whitewater venue would be designed as a world-class whitewater facility. The unique looping design takes advantage of the natural topography to provide boaters with over 4,000 feet of whitewater that terminates only a few hundred feet from where it begins. This design would allow boaters to easily cycle from bottom to top and would provide spectators with an almost infinite number of vantage points to view the action. The site's abundant drop and ideal flow rates provide the opportunity to create a variety of user experiences. Designers envision sections of the river that vary from tranquil and slow to dynamic and crashing with towering waves and spinning eddies. This variety of whitewater would invite a range of users from novice and youth programs to world-class experts.

Project Description
The conceptual layout for the proposed channel was developed through a series of field visits, discussions with local boaters, evaluation of available USGS topographic information and review of facility drawings provided by California Department of Water Resources (DWR). The general approach is to create a series of pools and drops to optimize recreational enjoyment and user safety. The proposed whitewater channel would be constructed between the Thermalito Diversion Dam and the Fish Barrier Dam on the northwest side of the Feather River. Due to the elevation drop and the linear aspect of the DWR property along the river, a looping or "switchback" channel is proposed. This divides the run into two distinct segments, the Upper Reach and the Lower Reach.

Water would be diverted through a control structure from the Power Canal into a 350-foot tunnel to the Upper Pool that serves as a forebay for the Upper Reach. The Upper Reach would follow the contour along the natural slope to the southwest terminating in the Middle Pool (the corner in the "switchback"). Flow out of the Middle Pool would enter the Lower Reach and discharge into the existing fish barrier pool approximately 300 feet downstream of the Diversion Dam. A second, smaller channel would carry flow from the Upper Pool into a series of smaller pools and vertical

waterfalls to the northeast. This run, the "Lower Feather Falls", would terminate near the discharge of the Lower Reach.

The Upper Reach and Lower Reach would be designed to operate with recreational flows between 400 and 600 cubic feet per second (cfs) with the Lower Feather Falls with 50 to 100 cfs. The channel would be excavated into native materials and lined with concrete when necessary, with the banks of the channel constructed of grouted and reinforced native rocks to provide a natural looking stream. The Whitewater Park would be designed to provide challenging hydraulic features through selective placement of native and imported boulders. Several reaches would include modular, moveable features that can be adjusted to provide challenging hydraulics for competitive events.

Initially, flows for the Whitewater Park would be in lieu of flows going through the Diversion Dam Power Plant. The "Agreement Concerning the Operation of the Oroville Division of the State Water Project for Management of Fish and Wildlife" reached by DWR and the California Department of Fish & Game in 1983 set the minimum flow in the "low flow channel" at 600 cfs. This is the total volume of flows from the Diversion Dam outlet, Diversion Dam Power Plant and the Feather River Fish Hatchery pipeline. The flow from the Diversion Dam outlet is negligible except during peak flow events and the flow to the fish hatchery is seasonally as high as 200 cfs. If studies conducted during the Relicensing process determine that higher minimum in-stream flows are required through the low flow channel, this additional water could be directed through the Whitewater Park.

The preliminary dimensions of the proposed features of the Oroville Whitewater Park are summarized in Table 1. The following dimensions are approximate and will require refinement in subsequent analyses.

Table 1:Proposed features of Whitewater Park

Feature	Flow Rate (cfs)	Size (feet)	Depth (feet)	Slope (feet per mile)	Number of Drops (count)	Size of Drops (feet)
Upper Pool	400-600	150 long x 125 wide	8 – 9	NA	NA	NA
Upper Reach	400-600	1,800 long x 25-45 wide	4 – 6	80	15-20	1.5 to 3.0 feet
Middle Pool	400-600	180 long x 100 wide	8 – 9	NA	NA	NA
Lower Reach	400-600	2,300 long x 30-50 wide	4 – 6	50	15-20	1.0 to 2.0 feet
Waterfall Pools	50-100	60 long x 40 wide	8 - 9	NA	NA	NA
"Lower Feather Falls"	50-100	400 long x 10-15 wide	1.5 – 4	Vertical drops	4-5	10 – 15

This combination of venues and levels of challenge would enhance the City's ability to draw special events that need to offer a diversity of experience for a range of participants and spectators.

Estimated Cost of Construction
Based on the current level of concept development, construction of the facilities described above is estimated to cost $14,700,000. Planning, environmental review, permitting, engineering design and construction management are estimated at $3,700,000. No allowance has been made for property acquisition. A summary of the cost elements is provided in Table 2.

Opportunities and Challenges
The proposed Oroville Whitewater Park presents a number of opportunities and challenges that will need to be addressed in the permitting and design phases. Table 3 summarizes some of the key issues anticipated with the development of this venue. This list, while not exhaustive, has been created by experience of the consultant team and results of public participation in a workshop held in Oroville on 7 November 2003 and subsequent presentation to City Council on 2 December 2003.

Summary
The Feather River, literally within a stone's throw of downtown Oroville, is an unutilized community resource. While many recreational resource actions have been proposed for the Oroville Dam FERC Re-licensing, a whitewater park is the one unique venue with the potential to draw visitors from throughout the western US. The proposed concept can provide the catalyst for economic development and diversification within the City of Oroville and Butte County.

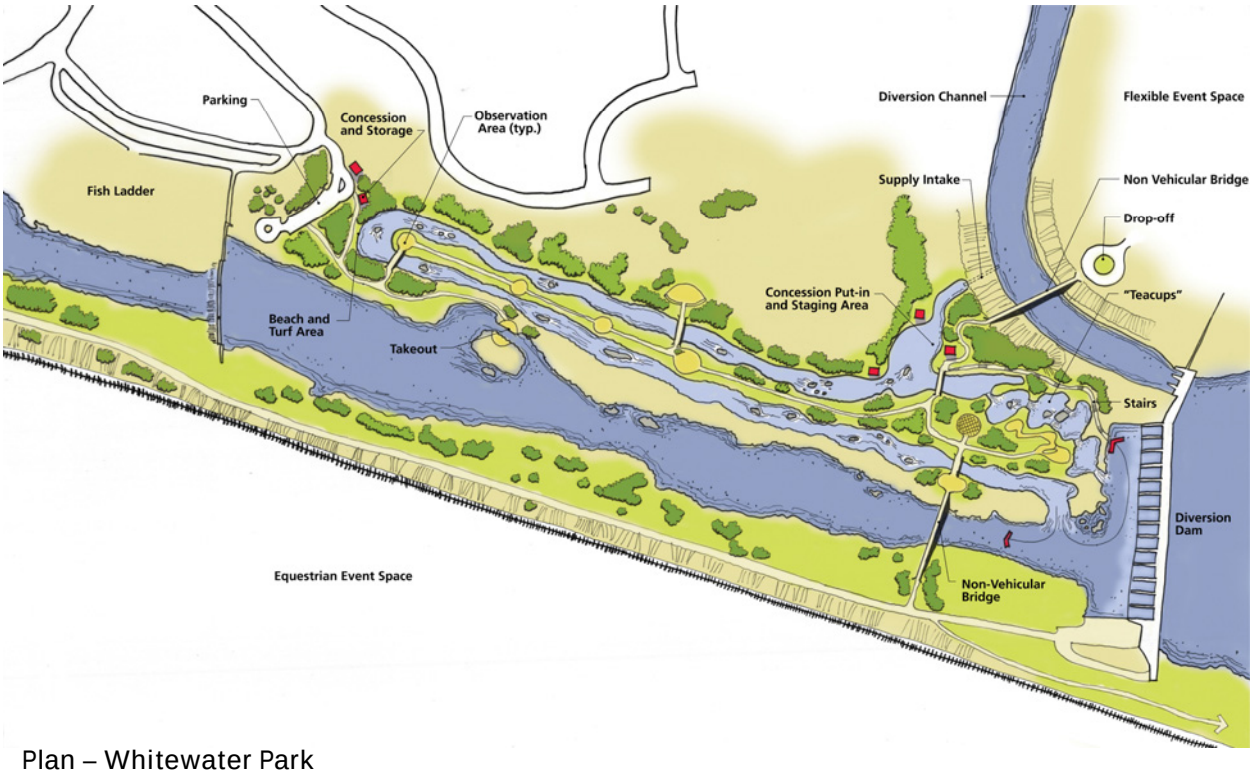
Table 2: Opinion of Probable Costs Whitewater Park

	Quantity	Unit Cost	Opinion of Probable Construction Cost	Contingency and Administrative Costs (30 percent of construction)	Planning, Design and Permitting (30 percent of construction)	Project Totals
Channel excavation						
-- assumes typical section area (245 sq-ft)	cubic yards	per yard				
-- assumes 4,000 lineal feet	40,000	$50	$2,000,000	$600,000	$600,000	$3,200,000
Top Pool excavation						
-- approx. area (45,000 sq-ft)	cubic yards	per yard				
-- approx. 8 feet deep	13,500	$70	$945,000	$283,500	$283,500	$1,512,000
Mid-Pool excavation						
-- approx. area (17,000 sq-ft)	cubic yards	per yard				
-- approx. 6 feet deep	3,800	$70	$266,000	$79,800	$79,800	$425,600
Waterfall pool excavation						
-- approx. area (14,000 sq-ft)	cubic yards	per yard				
-- approx. 8 feet deep	4,150	$70	$290,500	$87,150	$87,150	$464,800
Select Rock Imports						
-- approx. 50 count	tonnage	per ton				
-- assumes 150 tons each	7,500	$100	$750,000	$225,000	$225,000	$1,200,000
Concrete lining for channel						
-- assumes thickness of 8 inches	cubic yards	per yard				
-- assumes 3,800 lineal feet	4,330	$180	$779,400	$233,820	$233,820	$1,247,040
Concrete lining for pools						
-- assumes thickness of 8 inches	cubic yards	per yard				
-- both pools	1,750	$180	$315,000	$94,500	$94,500	$504,000
Movable hydraulic features	count	each				
-- assumes 15 count	15	$5,000	$75,000	$22,500	$22,500	$120,000
Trail	Feet	per foot				
-- 3,200 lineal feet, 10 feet wide	3,600	$100	$360,000	$108,000	$108,000	$576,000
Access Road and Parking						
-- assumes 20-30 space lot	Total	Lump Sum				
-- near Middle Pool	1	$120,000	$120,000	$36,000	$36,000	$192,000
Control Structure and Inlet Tunnel	Total	Lump Sum				
-- gravity fed from Power Canal	1	$1,800,000	$1,800,000	$540,000	$540,000	$2,880,000
Electrical	Total	Lump Sum				
-- lighting and event support	1	$150,000	$150,000	$45,000	$45,000	$240,000
Restroom	Total	Lump Sum				
-- assumes 1.5 each gender	3	$50,000	$150,000	$45,000	$45,000	$240,000
Concession	Square feet	per foot				
-- one building with support structures	12,000	$220	$2,640,000	$792,000	$792,000	$4,224,000
Drainage and landscaping	Total	Lump Sum				
-- all impacted areas	1	$500,000				
-- decorative and restoration	1	$200,000	$700,000	$210,000	$210,000	$1,120,000
Non-vehicular bridge over Feather River	Total	Lump Sum				
	1	$3,000,000	$3,000,000	$900,000	$900,000	$4,800,000
Public Utilities	Total	Lump Sum				
-- potable water and sewer	1	$200,000	$200,000	$60,000	$60,000	$320,000
Conveyor Belt	Total	Lump Sum				
-- to connect take-out with Upper Pool	1	$150,000	$150,000	$45,000	$45,000	$240,000
			$14,690,900	**$4,407,270**	**$4,407,270**	**$23,505,440**

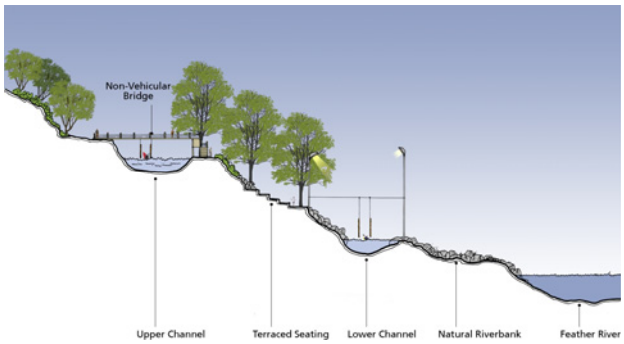
Table 3: Key Development Issues

Goal	Opportunity	Challenge
• Maintain 600 cfs flow rate in low flow channel	• Consistent with existing "low flow" operational criteria. • Looping design maintains flushing flows throughout the low flow reach • Would accommodate proposed increases to fish flows in the low flow section.	• None anticipated
• Preserve and enhance anadromous fish habitat	• No Impact due to location above the Fish Barrier Dam. • Supports proposed management scenarios for spring and fall runs.	• None Anticipated
• Minimize construction impacts	• Outside of active water course. • Considerable amount of rock onsite for use in proposed channel. • Land ownership is not complex. • Modular, movable hydraulic structures can be placed for specific hydraulic features.	• Limited access to construction area. • Need to minimize construction impacts to Power Canal. • Need to minimize construction impacts to existing residence. • Pipeline from power plant to fish hatchery must be maintained and protected. • Hard rock construction will require some blasting. • Noise during construction period • Erosion control and sediment management measures will be critical to protect downstream reaches during construction. • Construction within the flood boundary will require anchored structures.
• Minimize Impact to DWR Operations	• Provides additional flow control structure	• Need to minimize impact to DWR power generation capacity. Potential for small generation facility on diversion tunnel off of Power Canal.

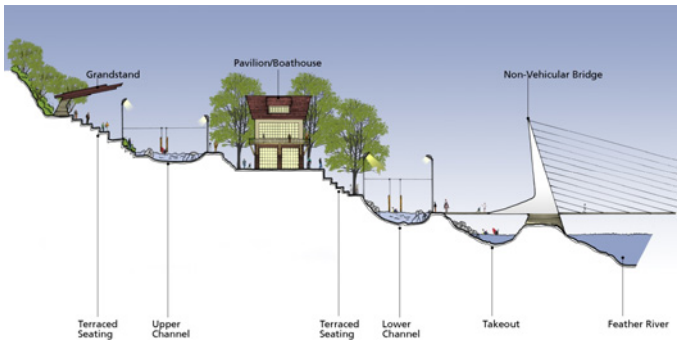
		• Pipeline from power plant to fish hatchery must be maintained and protected. • Security and safety perimeters around Diversion Dam and Fish Barrier Dam need to be maintained.
• Maximize community access	• Provide trails linking downtown to the Fish Hatchery, Nature Center, Whitewater Park and Flex-Events Center • ADA accessible parking and trail from Middle Pool to Upper Pool	• Parking
• Impact to • Community Infrastructure	• Incorporates shared facility use with other proposed venues (flexible events center). • Reasonably good vehicular access through Feather River Boulevard and underutilized parking lots at the Fish Hatchery. • Existing utility services (water, sewer, power and telephone) adjacent to property	• Lack of hotel room space for travelers from outside the area. • Spectators and participants during special events could impact transportation flow.
• Minimize Visual Impacts	• Channel will be designed and constructed to simulate a natural stream. • Native plant materials and rock will be used where possible. • Waterfall elements will enhance aesthetics	• Minimizing construction period visual impacts



Plan – Whitewater Park



Section-Typical Course



Section – Central Course

Flexible Event Space

A large flexible event space is proposed east of the diversion channel from the whitewater park with an accompanying waterfront park, eco-interpretive park, group camping facilities, and a potential event facility. This facility would be in keeping with the pristine natural beauty of the upper diversion pool and accommodate events that are low-intensity in nature. The site would be developed in a natural and informal character to blend in with the surrounding landscape. The proposed site is located outside of the official City boundaries but is within the Sphere of Planning Influence.

The planned facilities of the flexible event space are located on three levels as one moves up slope away from the Feather River. At the water's edge is envisioned a waterfront park with a boat concession, restrooms, boat ramp, eco-interpretive park and two large open greens with picnic facilities and parking. On the second level, a group campground is envisioned halfway up the hillside, which could accommodate large groups or individual tent camping. Vehicle access and restrooms would also be provided. At the highest level, one would find the flexible event space, hilltop park and park administrative grounds. The flex space is envisioned as two large open greens. The area located closest to the river would serve as a music festival venue, RV camping space, and as overflow parking for large events, such as whitewater regattas, special events, concerts, fairs, or jamborees. The area to the rear may serve all of the above-mentioned functions in addition to potentially housing a future arena for miscellaneous events and trade shows.

The former watercourse that demarcated the northern edge of the site would be re-established. The intermittent flow is currently captured in a pipe at the top of the hill and discharged below the entry road. The proposed channel would more effectively manage potential erosion by reducing velocity as the water moves down the vegetated slope. Further, it would facilitate the restoration of riparian vegetation within the flex area.

A non-vehicular ADA accessible bridge would span the Thermalito Diversion Channel and connect the flex event space to the whitewater park. The bridge would be designed to accommodate emergency vehicles. During large events at the whitewater park, the bridge would help facilitate easy movement from the overflow parking to the whitewater park.

A trail network connecting the various recreational sites in Oroville and Butte County would extend through the flex event space and take advantage of its location along the Feather River.

Table 4: Opinion of Probable Costs – Flexible Event Space

	Quantity	Unit Cost	Opinion of Probable Construction Cost	Contingency and Administrative Costs (30 percent of construction)	Planning, Design and Permitting (30 percent of construction)	Project Totals
Demolition						
-- removal of DWR existing conditions	total	Lump Sum				
	1	$50,000	$50,000	$15,000	$15,000	$80,000
Site Grading						
	total	per yard				
	1,007,095	$0.50	$503,548	$151,064	$151,064	$805,676
Utilities						
-- water and sewer	total	Lump Sum				
	1	$250,000	$250,000	$75,000	$75,000	$400,000
Electrical						
-- lighting, RV hookups, distribution to facilities	total	Lump Sum				
	1	$250,000	$250,000	$75,000	$75,000	$400,000
Roads						
-- access and circulation	Square feet	per sf				
	313,770	$6	$1,882,620	$564,786	$564,786	$3,012,192
Parking Lots (assume 15,000 sf per lot average)						
-- whitewater drop-off, boat ramp, admin bldg	Square feet	per sf				
-- campground, park	90,000	$6	$540,000	$162,000	$162,000	$864,000
Vehicular Bridge						
-- over re-established creek	total	Lump Sum				
	1	$50,000	$50,000	$15,000	$15,000	$80,000
Non-Vehicular Bridge	total	Lump Sum				
-- to whitewater over power canal	1	$1,000,000	$1,000,000	$300,000	$300,000	$1,600,000
Creek Park	acres	per acre				
-- re-establish water course	0.66	$100,000	$65,900	$19,770	$19,770	$105,440
Hilltop Park						
-- playground, picnic, shade structure, BBQ	acres	per acre				
-- turf, irrigation, landscape	1	$175,000	$227,500	$68,250	$68,250	$364,000
Administration Building	Square feet	per sf				
-- assume 2,000 sf building	2,000	$100	$200,000	$60,000	$60,000	$320,000
Campground	acres	per acre				
-- restrooms, facilities, host building	3	$130,000	$377,000	$113,100	$113,100	$603,200
Waterfront Park	acres	per acre				
-- passive support, turf, irrigation	4	$175,000	$665,000	$199,500	$199,500	$1,064,000
Boat Ramp	total	Lump Sum				
	1	$100,000	$100,000	$30,000	$30,000	$160,000
Boat Concession	Square feet	per sf				
-- assume 1,000 sf building	1,000	$75	$75,000	$22,500	$22,500	$120,000
			$6,236,568	**$1,870,970**	**$1,870,970**	**$9,978,508**
Optional	total	Lump Sum				
-- future arena	1	$2,000,000	$2,000,000	$600,000	$600,000	$3,200,000

Plan – Flexible Event Space

Section

Equestrian Event Area

West of the river, fish hatchery diversion pool and railroad tracks, a large equestrian events area is proposed with group camping facilities, nature preserve, stable concession, paddocks and corral. A variety of informal and low-intensity events could be held within this park-like setting but the predominant theme would be equestrian-oriented. The new facilities would take advantage of the existing equestrian trailhead and staging area at the northern extent of the park. The proposed project site is located outside the official City boundaries but is within the Sphere of Planning Influence.

The planned facilities of the equestrian event area are located throughout the site, primarily buffered from the surrounding neighborhood by large areas of oak woodland savanna. Access to the equestrian event area would be primarily from the existing Long Bar Road. Secondary access could be provided from Montgomery Street to minimize traffic in the adjacent residential neighborhood if the necessary land parcels can be acquired.

A group camping facility would be situated at the southern end of the area. This campground would be similar to that found at the flexible event space but would provide a more secluded experience in its wooded setting. The campground would accommodate tents, RVs, and a limited number of horse trailers.

An equestrian stable concession would be central within the area between the group campground and the existing trailhead/staging area. A small building housing the concession would also serve as an administrative building for the campground. Also situated with the concession would be a horse paddock/holding pen for use prior to adventuring onto the trails. The existing staging area would accommodate both vehicular and horse trailer parking. A corral and horse pen would also be added.

The trail network within the equestrian area would include multi-use and separate equestrian trails. They would both connect to the whitewater park and flexible event space via the proposed non-vehicular bridges and the larger regional system beyond.

A woodland preserve would border the eastern extent of the area and along the length of the Union Pacific rail line. Reestablishing native species and habitats would be of high priority.

Table 5: Opinion of Probable Costs – Equestrian Event Area

	Quantity	Unit Cost	Opinion of Probable Construction Cost	Contingency and Administrative Costs (30 percent of construction)	Planning, Design and Permitting (30 percent of construction)	Project Totals
Demolition						
	total	Lump Sum				
	1	$25,000	$25,000	$7,500	$7,500	$40,000
Site Grading						
-- campground, stables area, staging area	Square feet	per sf				
	1,451,664	$0.50	$725,832	$217,750	$217,750	$1,161,331
Utilities						
-- water and sewer	total	Lump Sum				
	1	$150,000	$150,000	$45,000	$45,000	$240,000
Electrical						
-- lighting, distribution to facilities	total	Lump Sum				
	1	$150,000	$150,000	$45,000	$45,000	$240,000
Roads						
-- access and circulation	Square feet	per sf				
	132,090	$6	$792,540	$237,762	$237,762	$1,268,064
Parking Lots (assume 15,000 sf per lot average)						
-- staging area, campground, stables	Square feet	per sf				
	45,000	$6	$270,000	$81,000	$81,000	$432,000
Staging Area						
-- corral and pens	total	Lump Sum				
	1	$50,000	$50,000	$15,000	$15,000	$80,000
Group campground	acres	per acre				
-- restrooms, facilities, host building	11	$130,000	$1,482,000	$444,600	$444,600	$2,371,200
Stables and Paddock	total	Lump Sum				
	1.00	$1,000,000	$1,000,000	$300,000	$300,000	$1,600,000
Administration and Concession Building						
-- assumes 2,000 sf building	Square feet	per sf				
-- turf, irrigation, landscape	2,000	$100	$200,000	$60,000	$60,000	$320,000
Trail System	Linear Feet	per foot				
-- assume 10 feet wide	5,150	$50	$257,500	$77,250	$77,250	$412,000
			$5,102,872	**$1,530,862**	**$1,530,862**	**$8,164,595**

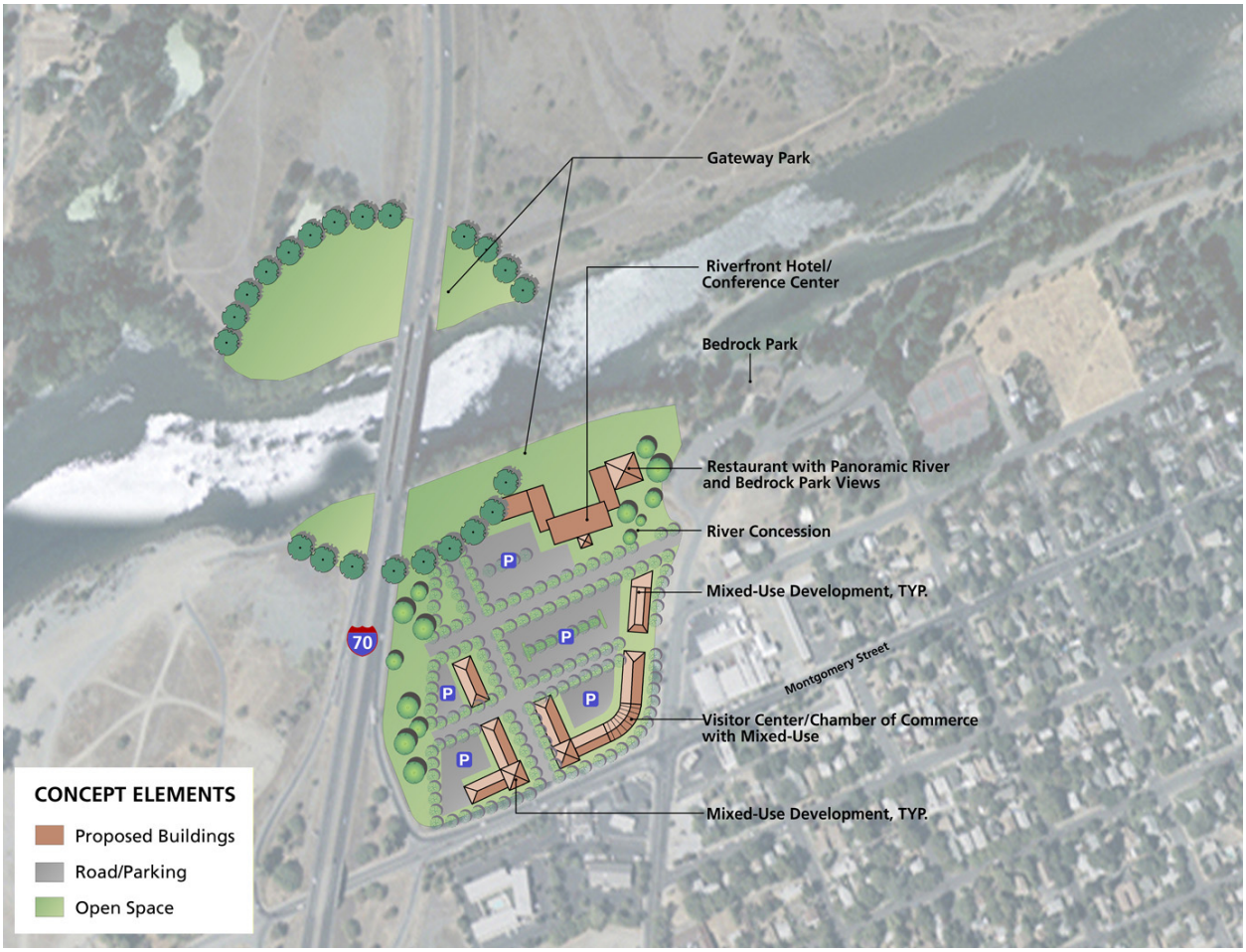
Plan – Equestrian Event Area

Section

B. Development/Redevelopment Opportunities

Within Gateway Park

In further support of the Gateway Park's function as a regional gateway and visitors center, a commercial complex is proposed to further accommodate visitors to the region. This complex should have a hotel with complementary and incidental uses.

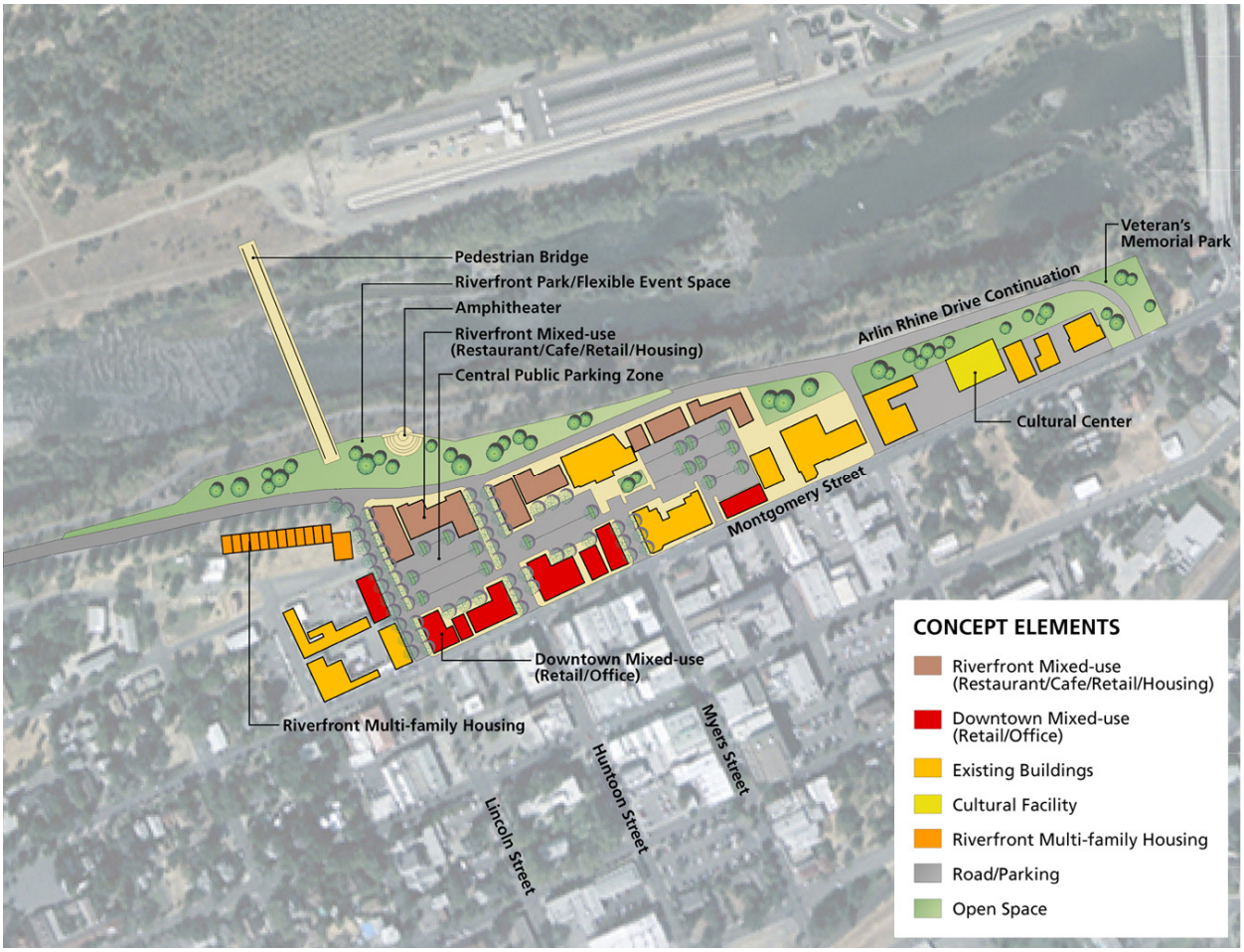


Lodging (Hotel/Motel) / Conference Center

A 70-room, upscale hotel of 2-3 stories with a restaurant and small conference facility should be located within the gateway development in such a manner as to maximize riverfront views. Its proximity to regional recreation and downtown Oroville would make it ideally suited for visitors and its adjacency to the river would provide a unique setting for business meetings within the region.

Downtown Area

Most of the redevelopment attention should focus on the downtown area itself. Here, first and foremost, the downtown edge should be developed all the way to the riverfront. The underutilized blocks that now occur between the downtown and the riverfront should be developed with various mixed use projects, including restaurants, bars or brew-pubs, cultural and other visitor uses, retail and eventually small hotels. Office and residential development should also be encouraged in the downtown area.



Downtown Mixed-use including residential

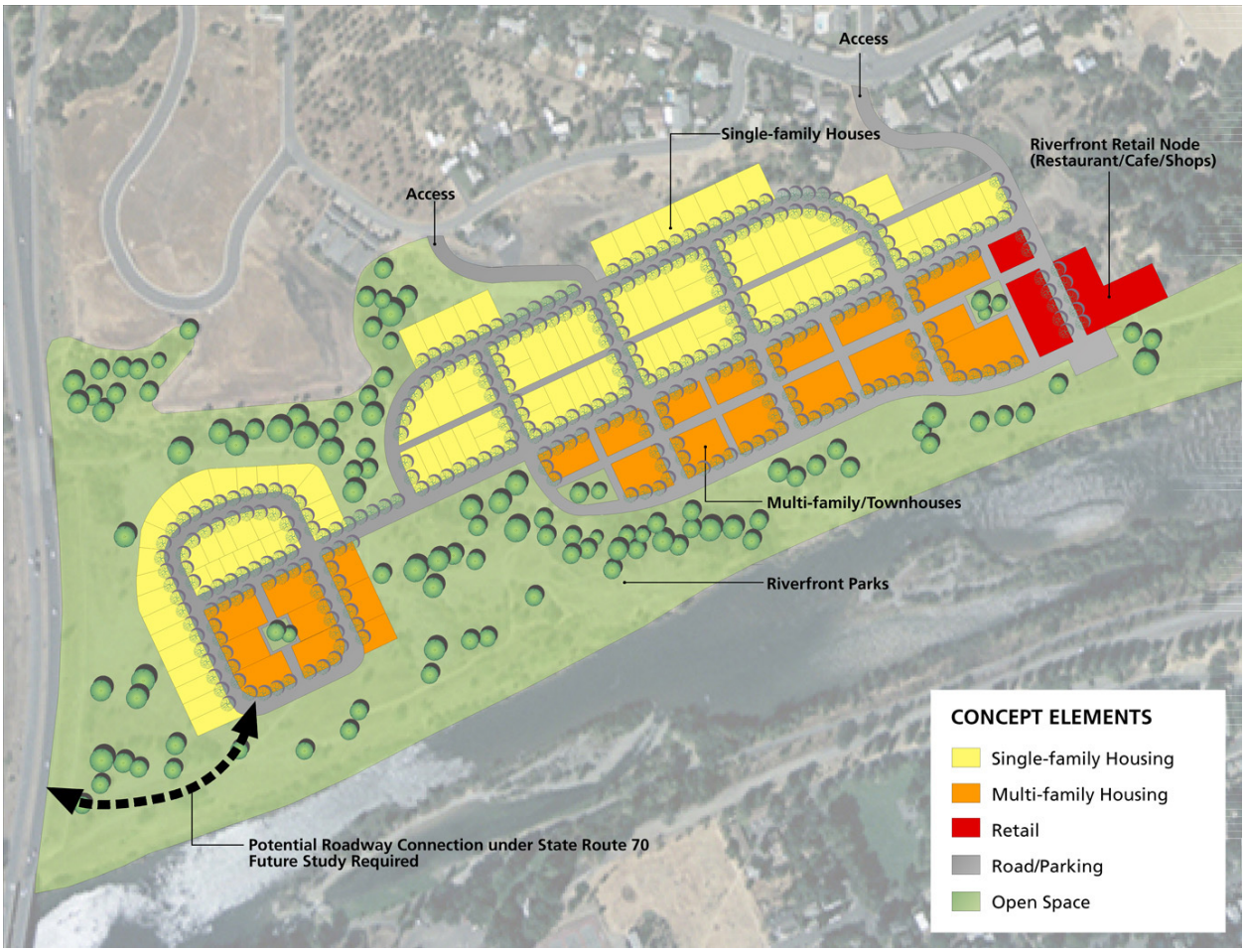
Many opportunities exist for infill development within the downtown area. Mixed use projects that include residential, office and retail should be encouraged and will help to add activity and economic development to the downtown.

Restaurants, Bars, and other Retail

Along downtown's riverfront edge, restaurants, bars and other types of retail will help to create an animated waterfront that attracts residents and visitors alike. These uses would be developed up at the levee level to take full advantage of river views.

North Bank

The undeveloped parcel of land on the north bank of the river opposite downtown represents an unprecedented opportunity to create a vibrant downtown residential neighborhood oriented to the river and to the downtown across the river. With the development of a strong riverfront public space network and pedestrian and bicycle connections across the river, this neighborhood would add dramatically to the activity and economic development of downtown.



Mixture of Multi-family Residential or Townhouses and Single-family

This new neighborhood is envisioned as a mixture of townhomes and small lots near the riverfront and transitioning to single-family residences further away from the river as the land rises in elevation. In this way, the maximum number of residences would have a riverfront orientation. Neighborhood streets would all terminate on the riverfront park for easy access to paths, trails and parkland.

Riverfront Retail Node (restaurant(s))

A small restaurant / retail node could be developed in the corner of the neighborhood nearest the downtown and across the proposed Lincoln Street pedestrian bridge. This would offer a small activity center in the new neighborhood, as well as creating a riverfront destination for those coming from downtown.

3. Phasing and Implementation Strategy

In order to maximize the effectiveness of the Downtown Oroville Waterfront Concept Plan and to build momentum for future public space improvements and public/private redevelopment activities, the following sequence of events is envisioned:

- (1-2 years) First, Gateway Park (additional study required) along with its associated visitor center and commercial development would be acquired and developed. At the same time, a central feature (e.g.: amphitheater and initial phase of riverfront park) of the downtown riverfront public space would be developed so that the downtown businesses and properties can benefit from the new projects and activities along the riverfront.

- (2-4 years) Second, additional elements of the riverfront public space would be developed, including the whitewater park, aquatic center/swimming complex, one of the group event areas (either multipurpose or equestrian), one of the pedestrian bridges and an initial phase of the north bank public space. This would allow further redevelopment in the downtown area as well as implementation of an initial phase of the north bank residential neighborhood.

- (4 + years) Third, the balance of the riverfront public space elements would be developed, including the remaining group event area. Based on market demand, the remainder of redevelopment could then proceed, including the downtown area and the remainder of the north bank residential neighborhood.

Appendix A: Oroville Waterfront Concept Plan
Potential General Plan Text Amendments

Element	Body Text	Objectives	Policies	Comments
Land Use (Sec. 3.30: Residential Areas)		3.30g: Encourage the integration of small-scale neighborhood shopping in residential areas, as appropriate, to meet the everyday shopping needs of nearby residents.	3.30m: Encourage development of a mixed single- and multi-family ~~and single-family attached~~ neighborhood along the north bank of the Feather River opposite Downtown. Include a small-scale neighborhood shopping area to serve both nearby residents and users of various riverfront park facilities. *This neighborhood should include a mix of housing types that transition from higher densities along the riverfront to lower-density single-family houses away from the riverfront. Neighborhood streets should terminate at the riverfront park and provide access to paths, trails, and parkland. Ideally, the small-scale neighborhood shopping area should be located on an extension of Fogg Avenue at the riverfront and include a mix of complementary uses that create vitality in the area, such as groceries, café, books, sporting goods, etc.*	• This change to the objective provides for the possible integration of small-scale retail in residential neighborhoods. • The change to Policy 3.30m incorporates the neighborhood concept for the north bank area, including a retail-node serving both local residents and visitors to various riverfront park facilities. The policy change also supports City Design objective 4f.
Land Use (Sec. 3.41: Downtown)		3.41a: Continue to preserve and enhance Downtown and its adjoining historic residential neighborhood and establish Downtown as the historic, cultural, and shopping center of the region.		• This change to the objective strengthens the purpose of Downtown by broadening its role as a regional center, including for cultural activity.
Land Use (Sec. 3.43: Visitor Services)		3.43a: Encourage the concentration of visitor accommodations on Feather River Boulevard from Bed Rock Park south and on sites overlooking and relating to the Feather River. Integrate and provide linkages between visitor accommodations and park facilities, as appropriate.	3.43f: Encourage private sector coordination with the FRRPD's efforts to develop visitor service facilities near the Bed Rock Park area. This could include a gateway park facility with visitor center and accommodations in the area of Highway 70 and the Feather River. 3.43h: Establish a Special Visitor Services District in the area bounded by the Feather River to the north, Montgomery Street to the south, Feather River Boulevard to the east, and Highway 70 to the west, for the purposes of creating a regional gateway for visitors to the Oroville region in a park-like setting. *This district is intended to provide visitors with orientation and information on the recreational and cultural opportunities offered in Oroville and the region. Visitor services and facilities within the district will be an integral part of a gateway park facility.* 3.43i: Prepare zoning regulations to implement the Special Visitor Services District that include land use regulations providing for a complementary mix and intensity of park and visitor service uses and development standards providing for a built form that reflects the park-like character of the district.	• This change to the objective provides for the possible integration of park and visitor facilities. • The change to Policy 3.43f incorporates the concept of a gateway park in the private sector coordination with FRRPD to develop visitor service facilities in the area. • Policy 3.43h establishes the Special Visitor Services District necessary to implement the Gateway Park concept. This policy, in conjunction with Policy 3.43i below, should negate the need to prepare a specific plan to regulate use regulations and development standards for the concept. • Policy 3.43i calls for new zoning to implement the Special Visitor Services District and the Gateway Park concept. The preparation of district-specific zoning regulations, and possibly supporting design guidelines, will ease implementation and ensure a development product that appropriately reflects the intent of the district.

Element	Body Text	Objectives	Policies	Comments
Land Use (Sec. 3.43: Visitor Services) Continued			Uses could include a visitor center, small hotel, conference facilities, and visitor-oriented retail. Built form for the district should be between 2 and 3 stories in height, pedestrian-scaled, and oriented toward views of the Feather River. *Design guidelines should also be prepared to supplement and inform the development standards for the district. Such guidelines should address building location and orientation, building design, open space integration, parking and landscaping, lighting, etc.*	
Public Facilities and Services (Sec. 7.10: Parks, Recreation, and Open Space)	Park Types, "Special Facilities", Page 7-5: "Special facilities" is a catch-all category that includes park sites of both local and regional interest comprised solely of buildings or artifacts of historic interest, specialized sports facilities (stadiums, aquatic centers, event areas, tennis courts, golf courses), gateway facilities and the municipal auditorium. ~~These facilities are of both local and regional interest.~~			• This change incorporates the concept of a gateway park and aquatic centers to the "Special" park type.
Public Facilities and Services (Sec. 7.10: Parks, Recreation, and Open Space)			7.10u: Explore the opportunity to develop an aquatic center/swimming complex in the area of Montgomery Street and Highway 70 to provide warm water swimming opportunities and encourage riverfront revitalization. 7.10v: Explore the opportunity to develop a whitewater park on the northwest side of the Feather River between the Thermalito Diversion Dam and the Fish Barrier Dam to provide a unique world-class recreation facility for both local enthusiasts, competition participants, and visitors from across the country. 7.10w: Explore the opportunity to develop flexible event space on the northwest side of the Feather River at its confluence with the Thermalito Diversion Channel that could include a waterfront park, group camping facilities, and improvements necessary to accommodate a range of outdoor and potentially indoor events.	• Policy 7.10u establishes the concept and general location of an aquatic center/swimming complex as proposed by the Concept Plan. • Policy 7.10v establishes the concept and general location of a whitewater park and facilities as proposed by the Concept Plan. • Policy 7.10w establishes the concept and general location of a flexible event area and facilities as proposed by the Concept Plan.
Public Facilities and Services (Sec. 7.11: Trails)		7.11c: Encourage the development of one or more trail bridges across the Feather River as a means of connecting recreational facilities on both sides of the river for pedestrians and bicycles.	7.11c: …Include provisions for the following in the Trails Element: • Identification of existing and future trails throughout the Planning Area including potential connections between recreational facilities on both sides of the Feather River by means of one or more pedestrian bridges, connections to trails outside the Planning Area, and, ultimately, trail connections to other communities, including Chico;	• This change to the objective provides for potential consideration of a trail bridge(s) across the Feather River for pedestrians and bicyclists. • The change to Policy 7.11c incorporates the concept of a trail bridge(s) across the Feather River in the Trails Element of the Parks, Recreation, Open Space, and Trails Master Plan.

Appendix B: Whitewater Park Alternatives

Kennedy Jenks Consultants

The abundance of water and topography in the Oroville area provides several potential locations for a whitewater venue. These alternatives vary in their suitability for development as whitewater courses as well as their potential for positive economic impact and minimal environmental impact. They include:

1. *Low flow channel between Thermalito Diversion Dam and Fish Barrier Dam*. The whitewater course would be constructed in a man-made channel on the northwesterly side of the river and divert flow out of the Thermalito Power Canal. This site offers ideal flows and exceptional gradient to provide for a range of recreational and competitive whitewater experiences. The location above the Fish Barrier Dam avoids anadromous fish impacts and the proximity to downtown offers direct and indirect economic benefit to the community. The primary disadvantage of this alternative is the loss of power generating capacity in the 3 MW Thermalito Diversion Dam Power Plant. This impact could be mitigated when proposed operational changes in the Low Flow Section are implemented.
2. *Low Flow Channel downstream of the Fish Barrier Dam near Bedrock Park.* This would be a "run of the river" whitewater park with channel modifications to enhance hydraulic features. This location offers sufficient flow but very low gradient for competitive events. The principal benefit of this location is the immediate access to the downtown area and the direct economic benefit that would be derived from participants and spectators. The primary disadvantage of this alternative is potential impacts to anadromous fish habitat in the channel. In the Environmental Working Group assembled as part of the FERC Relicensing process, resource agencies have suggested that a shallower and broader river profile is desired and this would not be compatible with development of a whitewater park.
3. *Thermalito Forebay Power Plant.* This power plant, located approximately 4 miles west of downtown Oroville, utilizes flows between the Thermalito Forebay and Thermalito Afterbay. This site offers broad open areas with the potential to develop ideal gradients and flows for a whitewater park. Situated off-stream of the Feather River, this location is not subject to concerns of anadromous fish populations. The primary disadvantages of this site are the lack of direct linkage to the City of Oroville and the lack of existing infrastructure to serve as a special event venue. Diversion of flow to a whitewater channel would reduce the generating capacity of the 114 MW power plant. In addition, the sparsely vegetated and wind-swept environment doesn't offer the appeal of the more natural riparian settings upstream.

4. *Thermalito Afterbay Discharge.* This site is located where the Thermalito Afterbay discharges into the Feather River approximately 5 miles southwest of downtown Oroville. It offers abundant flow and adequate gradient to serve as a whitewater venue. The Whitewater Park would be located outside of the anadromous fish migration or spawning areas but the take-out would be in the main stem of the river. No power generation capacity would be lost under this alternative. The primary disadvantages of this site are the lack of direct linkage to the City and the lack of existing infrastructure and parking areas to support special events.

Appendix C: Potential Environmental Impacts Related to Construction of a Whitewater Park

Environmental Science Associates

Introduction

The City of Oroville is proposing a Whitewater Park be developed on the Feather River as part of the city's Waterfront Redevelopment Concept Plan. The Whitewater Park would be located on the right bank of the River (looking downstream) between the existing Thermalito Diversion Dam and the existing Fish Barrier Dam, in the reach known as the Fish Barrier Pool. The Whitewater Park would extend approximately 4,000 feet with flows up to 600 cubic feet/second (cfs). The Low Flow Channel is located just downstream of the Fish Barrier Pool, and is known to support populations of fish species listed under the Federal Endangered Species Act (FESA). Currently, no listed species occupy or have access to the Fish Barrier Pool reach.

Certain Protection, Mitigation, and Enhancement measures (PM&E's, or Resource Actions), proposed as part of the California Department of Water Resources (DWR) Oroville Facilities Collaborative Relicensing Process (FERC Project 2100), would involve the reintroduction of certain FESA-listed species into the Fish Barrier Pool. The following is a discussion of these proposed PM&E's and how they might effect implementation of a Whitewater Park within the Fish Barrier Pool:

EWG-1, SP-F10 Task 1E

This study plan focuses primarily on identifying appropriate holding and spawning habitat and the spatial separation of spawning Spring-Run and Fall-Run Chinook Salmon (*Oncorhynchus tshawytscha)* in the Feather River. Naturally spawned Central Valley Spring-Run Chinook Salmon (ESU) were listed as threatened under the FESA by the National Marine Fisheries Service (NMFS 1999) on September 19, 1999.

Historically, prior to 1950, Spring-run chinook salmon populations of the Sacramento-San Joaquin River system comprised one of the largest set of runs (over 200,000) on the Pacific Coast; up to 8,000- 20,000 in the Feather River above the Oroville Dam alone. Currently, among Sacramento River tributaries, Deer, Butte and Mill creeks are the principal streams still supporting spawning and rearing habitat for Spring-run chinook.

For Spring-run chinook, historic population declines are attributed mainly to loss of upstream habitat and secondarily to harvest. A combination of several factors including hatchery practices, in-

bay release strategies (leading to "straying"), and spawners being drawn to the Low Flow Channel immediately below the Fish Barrier Dam has also resulted in spawning runs that exceed the available spawning area within the Feather River. Large numbers of spawners competing for the same area has resulted in redd superimposition of the fall and spring-runs which may be affecting the genetic integrity and production of natural spawners.

Aspects of SP-F10 Task 1E have proposed the separation of the spring-run from the fall-run via a fish ladder or weir and holding the spring-run in the Fish Barrier Pool until spawning (either in the Feather River Hatchery or within the Feather River) can take place. Preliminary limited conclusions have been drawn from SP-F10 Task 1E that indicate suitable habitat (i.e. temperature, water velocity, dissolved oxygen, substrate, etc.) for holding, spawning, and maturation exist on some dates within the study area, including the Fish Barrier Pool. However, it is specifically stated that "a larger data set is needed to determine the presence, location, and distribution of suitable holding habitat." It is expected that more complete conclusions will be drawn in regards to suitable spawning and holding habitat when data from present and future studies are presented after the 2003 sampling season. (These data are expected to be available in February 2004.)

Informal consultation with resource agency personnel with expertise and regulatory responsibilities for the area and species of concern was conducted at several of the Oroville Facilities Relicensing environmental workgroup meetings. After reviewing the conceptual plan for the whitewater park, Eric Theiss (NMFS) and Mike Meinz (CDFG) both agreed that, should spring-run salmon be held in the Fish Barrier Pool for a limited time (most likely September to October), proper design and possible limited operation during holding periods should allow for the construction and operation of a whitewater park within the Fish Barrier Pool.

Restricting the timing of project construction during holding periods would avoid potential water quality impacts to spawning and sensitive early life periods of fish species (e.g., siltation/ turbidity of redds, mortalities of yearlings). Design elements such as a raised "take-out" could further restrict access of Spring-Run Chinook Salmon to the whitewater park.

EWG-98/99, SP-F6

This study plan focuses primarily on spawning and rearing habitat enhancement (tributaries in the low flow channel and side channel habitat) for chinook and steelhead salmon (*Oncorhynchus mykiss).* In particular, an "unnamed tributary near the hatchery" has been identified as possible rearing habitat for steelhead which could impact development of potential "open space" areas and the "north bank residential" area as proposed by the City of Oroville's redevelopment plan. This tributary

currently has little to no flow and does not currently connect to the Feather River requiring "considerable" construction and restorations efforts to make it viable steelhead habitat. Regardless, the Environmental Work Group (EWG) has identified this as a priority 2 candidate (on a scale of 1-5, 1 being best) for further research and possible incorporation as mitigation for the Oroville Facilities Relicensing Process. The EWG group met on December 11, 2003, and the group was confident that should this tributary be restored as steelhead habitat, any recreational plan that the City of Oroville might have for this area should be compatible with the restored stream habitat. Perhaps even interruptive signs within the proposed developed recreation area could highlight the restored steelhead habitat. In general, EWG-98 and 99 would likely not pose a threat to the City of Oroville's proposed plans for this area.

General Potential Effects on Species and/or Habitat

In areas where construction of a whitewater park or other structures occur in the Feather River, potential impacts would include short-term disturbance to and displacement of habitat at the site during the construction period. Activities related to construction would likely include general disturbance to riparian habitat and limited areas of the river bed. All of these activities could accelerate erosion processes in the watershed and increase the potential for sediment to enter the low flow reach of the Feather River. Sediment deposited into the River would have the potential to adversely affect downstream aquatic habitat. Increased sediment input could bury sessile bottom-dwelling organisms or life stages and increase suspended sediments (turbidity) at, and downstream of, the site, resulting in an impact on other sensitive aquatic organisms or life stages.

Bottom-dwelling organisms and life stages that could be affected by sedimentation include fish eggs and larvae as well as bacteria, protozoans, mollusks, and arthropods, thereby affecting invertebrate distribution in the area. The extent of the area affected would depend on a variety of factors such as the volume of suspended sediment, water temperature, flow direction and strength, length of operations causing sedimentation, and precipitation influences.

Construction-related activities also have the potential to introduce oil, hydraulic fluid, sealant, concrete batching, and other chemicals or products into the watershed. Introduction of these contaminants could lead to acute or chronic toxicity in the aquatic environment. The introduction of such substances could result in the direct mortality of aquatic organisms, especially to sensitive forms, such as fish eggs and larvae.

Conclusion

Whitewater parks should be constructed with aquatic and fisheries conservation as primary concerns. The effects of a whitewater park on anadromous fisheries will depend on the characteristics of the site and ecological factors limiting anadromous populations. When factors other than physical habitat characteristics are limiting, such as predation or disease, increasing habitat quality or pool volume is unlikely to affect anadromous populations. If anadromous populations are limited by habitat, these species will likely use new, high-quality habitats created by instream whitewater structures to their benefit. Overall, whitewater parks tend to increase habitat complexity, thereby improving anadromous fisheries habitat.

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