# PUTAH CREEK NATURE PARK MASTER PLAN

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Prepared for the City of Winters

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# DRAFT MASTER PLAN

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## 1. INTRODUCTION

Putah Creek Nature Park is a rare community asset— a relatively undeveloped mile stretch of creek that, for the most part, is publicly owned. It is a valuable resource for fostering environmental stewardship and love of the outdoors. In the 1990s, litigation over flows in Putah Creek culminated in formation of the Lower Putah Creek Coordinating Committee (LPCCC), hiring of a permanent Streamkeeper and establishment of a permanent fund to monitor fish and wildlife, manage vegetation and seek grant funds for further improvement of the creek channel. In 1995, the City of Winters adopted the first Master Plan for Winters Putah Creek Nature Park, emphasizing recreational access and invasive weed control. In 2002, the LPCCC obtained a grant to assess the physical and biological condition of Putah Creek. The LPCCC subsequently held a series of public meetings with creek-wide stakeholders to review the assessments and develop a Watershed Management Action Plan identifying priority actions supported by the community. Putah Creek stakeholders identified restoration of Winters Putah Creek Park as the highest priority. The Watershed Management Action Plan identified restoration of natural channel form and function as a fundamental step toward sustainable fish and wildlife habitat. In Winters Putah Creek Park, the natural form of the channel was altered for gravel extraction, floodwater conveyance and construction of aeration ponds. Invasive weeds flourished with these disturbances and further impacted channel form by trapping sediments and elevating the floodplains, increasing the distance to groundwater and diminishing the survival of native plant seedlings. A concrete percolation dam further altered the form and function of the channel. The current channel is overly wide and deep, with an excess of open water and lack of floodplains (beaches) that limit the continuity of public access and diminish the land area available for wildlife habitat. Water quality is diminished by warming due to the compound effect of excessive exposure to solar radiation (due to excessive width) and slow flows (due to excessive cross sectional area of open water). These fundamental issues require narrowing and realignment of the creek channel, removal of the percolation dam, construction of new floodplains and grading of existing floodplains. Since none of these measures were included in the original Winters Putah Creek Park Master Plan, the City of Winters commissioned this update to the original plan to incorporate greater opportunities for public access and sustainable fish and wildlife habitat by restoring natural channel form and function.

The 2008 Master Plan is a conceptual document that assumes the creek will be realigned, bank slopes are modified, upper and lower loop trails link both sides of the creek, the percolation dam is removed, invasive plant species are removed, and the creek is replanted with native riparian plants. At this time the Master Plan can only approximate the location of specific features and provide a description of how spaces might be used. Future phases of work will require detailed topographic surveys and grading analysis to determine specific locations for different features and trails. Even though the creek realignment is based on discussions with geomorphologists and data from other reaches of Putah Creek, the creek meander is a conceptual depiction. The exact layout will be designed by stream restorationists, taking into account soils, existing quality of bank habitat, the location of large native trees, and the removal of non-native plant species.

## 2. PROJECT HISTORY AND LOCATION

Putah Creek flows from its origin on Cobb Mountain in Lake County, through Lake Berryessa and Lake Solano, and after flowing through Winters, connects to the San Francisco Bay Delta through the Yolo Bypass. Prior to the completion of Monticello Dam in 1957, Putah Creek flows were uncontrolled and subject to seasonal flooding. Monticello Dam provides hydroelectric power and a regular supply of water to Solano and Yolo counties and regulates the water flow into Putah Creek. A portion of the flow is now diverted into the Putah South Canal above Lake Solano to serve Solano County irrigation needs. When full, the Solano Water Project stores 1.6 million acre feet of water.

Falling stream levels during the 1987-92 drought, the region's worst on record, triggered a dispute between the Solano Water Agency and the Putah Creek Council, who claimed that the reduced flow in the summers of 1989 and 1990 in particular had seriously threatened the health of the creek's native fish, violating the California Public Trust Doctrine and state protections for fish living downstream from dams.

In May of 2000 the Putah Creek Council, City of Davis, and U.C. Davis signed a permanent accord with the Solano County Water Agency, ending a 10-year dispute over Putah Creek water rights. The accord provides for about a 50 percent increase in flows during non-drought conditions, it sets forth detailed steps to minimize illegal pumping from the creek, and it specifies measures to be taken during any prolonged droughts to ensure that hardships caused by reduced water availability will be shared by all water beneficiaries. The increased flows benefit the creek's unique community of resident native fish like tule perch, Sacramento suckers and sculpin, and ocean-going steelhead and salmon. The settlement requires an annual flow of 31,000 acre-feet except during extended droughts, when flows may be reduced to about 25,000 acre feet.

The accord also created a management program to maximize the benefits to fish, wildlife and their habitats. It provided for funding of $160,000 per year for creek restoration and monitoring, including fish and wildlife studies, salary for a streamkeeper to monitor the creek, and grants for native vegetation enhancement and riparian land conservation. The accord provided for the establishment of the Lower Putah Creek Coordinating Committee, which is composed of Yolo and Solano representatives that oversee implementation of the settlement, monitor and study the creek, and promote restoration projects.

Putah Creek is an integral part of the City of Winters natural and cultural history. The centerline of the Creek is both the city limit line and the Yolo-Solano county line, although the city owns most of the south bank as well. The creek has been a recreational asset since Winters was founded in 1875, but the creek bank also served as a dumping ground and was used for wastewater disposal until the early 1960's. With the effort to preserve flows, community interest in creek and habitat restoration was aroused.

In the mid-1990s state funding for urban stream restoration became available. The City of Winters and several citizens saw this as an opportunity to improve the recreational and habitat value of Putah Creek. In order to apply for grant funds, the City commissioned a master plan to identify improvements and recreational opportunities, map exotic plant species to be removed, and list

native riparian plantings appropriate for the creek. The 1995 master plan described a public area, the "Putah Creek Nature Park", which extends from the car bridge at Railroad Avenue east to Interstate 505, and ranges in width from 250 feet to 600 feet across the creek span. The 1995 plan included improvements to the Community Center grounds, trails located along existing banks and terraces, and entry points for public access to the water. It also provided a blueprint for community volunteer beautification projects. The master plan received an Honorable Mention award from the San Francisco Bay Area Trail Project's Creative Designs for Conservation in 1996.

## 3. SITE ANALYSIS

There are four significant man-made structures within the park boundaries. The first is the railroad trestle bridge, which was built in 1907 and was abandoned when the tracks were removed. The 1995 Master Plan proposed that the bridge be refurbished as a bike and pedestrian crossing. This rehabilitation project was completed in 2005, and the finished bridge now links the north and south banks and provides views up and down the creek.

The car bridge that connects Railroad Avenue with Putah Creek Road, just west of the railroad bridge, dates from 1914. Caltrans has ruled that this bridge does not meet current width standards and it is scheduled for replacement when funding is available. The current bridge design has no provisions for pedestrian travel, though the renovated railroad bridge serves that purpose and is the only safe means of crossing the creek at present.

The third structure is the percolation dam, which was built in the 1930s. The water behind the dam became a popular swimming hole for the community. The dam failed in 1952, and since then large sections have cracked, shifted and subsided. It no longer functions as a dam; the concrete is breaking apart and is regarded as unsafe by the city. Fish and Game has determined that the structure inhibits the migration of salmonids, both adults and juveniles. (See Appendix A) The 1995 master plan design presumed the dam would remain, but a grant has since been obtained to facilitate its removal. Currently the water below the dam is used as a swimming hole.

The fourth structure is the site of the former aeration ponds for the wastewater plant (referred to as the Putah Creek Flats later in this document), which were constructed on the south bank of the creek and adjacent to the percolation dam. Aerial photos show the ponds functioning in 1962 and apparently still in use in 1970. The remnants of the ponds are located in the widest part of the creek. The 1995 master plan did not propose any restructuring of this area, or any other changes to the geomorphology (natural formation) of the creek bed.

In this one-mile reach of Putah Creek, the stream channel has been altered beyond the creek's ability to self-correct. In the past, this section of creek bed was excavated and widened, creating a channel that is now too wide and deep for the creek to create its own natural meandering pattern of pool-riffle-run and deposition of silt onto the lower terrace. Earth and gravel removal and widening of the streambed is most apparent at the percolation dam and former aeration pond sites. In addition, most of the south bank and part of the north bank is too steep to allow for access to the water's edge.

After the long history of stream alterations for flood conveyance, gravel extraction, and neglect, invasive non-native plants gained a stronghold in this stretch of the creek. Large stands of eucalyptus, arundo, and Himalayan blackberry occupy the eastern half of the park site. These plants

and other invasives offer limited or no habitat value for native animals, fish and insects. They are so dense that it is nearly impossible to reach the creek bank, and they harbor rats, which prey on birds. Probably due to the excessive width of open water and relative lack of native vegetation, as well as proximity to residential development and Putah Creek Road, the native bird population is lower than in other reaches. Some eucalyptus trees (<12" trunk diameter) have been removed and efforts to control blackberry have been made under the Prop. 50 grant.

In addition to crowding out native species, invasive plants have made it impossible to reach the water in many areas. There are only three places on the south side where the water's edge is accessible, but these spots are disconnected from each other by steep banks, lack of floodplains and dense stretches of impenetrable non-native vegetation. The only location where it is possible to cross the creek at water level without wading is the surface of the broken percolation dam. In order to lessen the scouring effects of storms, large boulders of riprap line the banks on both sides of the dam, making it necessary to scramble over the boulders to reach the water's edge and the dam. Slow water flows in the vicinity of the dam cause algae to develop on the surface of the water in the summer, though the dam serves to skim off the algae to some extent, improving conditions for swimming. The Winters City Council at the August 7, 2007 meeting unanimously approved the removal of the dam, pending successful completion of the CEQA process.
Downstream of the percolation dam is a newly installed rock weir (installed as part of Prop. 50 grant) that aerates the water as it flows over the rocks, and creates a small pool behind it.

Putah Creek Road borders the entire south bank of the creek within the Nature Park. This narrow country road predominantly serves local traffic and farm equipment, but is also a popular route for bicyclists. In many places the edge of pavement is approximately 10 feet from the top of the bank. The south bank is extremely steep, with little room to widen northward. Unless the banks are re-graded and soil is brought in it will not be possible to build a striped or separated bike trail along Putah Creek Road without realigning the road itself. Realignment will depend upon land acquisition, and is viewed as a long-range goal. Parking on the south bank is limited to three pull out areas for parallel parking on the shoulder. The pullouts have been used as opportunities to dispose of trash into the Creek. As the park develops, means must be provided for alleviating the increasing traffic conflicts and eliminating the dumping problem.

There is limited access to the creek from the bank tops. Most of the banks are very steep; some have less than a 1:1 slope. On the north bank there is a decomposed granite trail that extends from the railroad bridge to the existing wastewater pumping station that was built with volunteer efforts. The width of this trail does not meet the minimum 40" width required by ADA. A natural footpath created by foot and bicycle traffic extends from the pumping station all the way to the end of the public property at Wild Rose Lane. This path, which crosses privately owned land, is only a few feet wide and tends to be washed out by runoff from an apartment parking lot during heavy storms. Several small, casual footpaths lead from this upper bank trail to the water's edge.

The City's agreement with the developer of the Putah Creek Hamlet subdivision in the 1990's created a 100-foot wide city-owned easement between the new homes and the top of the bank. This area extends from the privately owned land west of Madrone Court east to Wild Rose Lane, and represents the largest expanse of easily accessed, restorable land within the city limits. Beginning in 2000, Winters volunteers planted native trees and shrubs within this upper terrace. These plants are filling in, providing a buffer between residential property and the creek. Acquisition of privately owned lands will be required to allow restoration work to be continued to the west towards the Community Center and east toward I-505.

## 4. PUBLIC PROCESS

The goal of this Master Plan is to capture the community's vision for the creek and guide the long range development of the park, to ensure that opportunities are identified and features well-planned. This Plan takes into account existing conditions, community concerns and desires, adjacent land uses, physical constraints, and agency requirements.

The current design concepts incorporate public comments received in two community workshops, meetings with the Winters Putah Creek Committee (WPCC), River Parkway grant requirements, and discussions with City staff. The public workshops were held in the spring of 2007 (see Appendix D for a list of the workshop comments). During the first workshop, background information on the River Parkway grant (its scope of work and requirements) and the mechanics of geomorphology were presented to the community. The process of natural creek formation, in which stream meanders create a series of regularly spaced riffles, runs and pools of deeper water were described. These presentations provided the public with background information on the creek's current condition, the pending percolation dam removal, vegetation management, creek realignment, and other master planning issues.

The key topics of discussion in the two public workshops were the removal of the percolation dam, eucalyptus tree removals, and the Creek's habitat value and water quality. Public comments from the first workshop, stream geomorphology concepts and a site analysis were distilled and overlaid onto a LIDAR (Light Detection and Ranging) topographic map to develop a conceptual plan for the park including new creek realignment, circulation patterns and access points. A draft plan was presented at the second public workshop and at a WPCC meeting, where additional comments and ideas were discussed. Key discussion points included:

- Improvements to the Park's recreational value
- Access improvements to the creek for swimming, fishing, and other recreation
- Improved safety
- Ecological sustainability
- The development of the Park as an educational resource
- The Park's contributions to the City's economic vitality

## 5. 2008 MASTER PLAN

The 2008 Master Plan is a long-range planning document to be used in managing the development of the one-mile stretch of creek between Railroad Avenue and I-505 and from 100 feet north of the top of the north bank, south to Putah Creek Road. The Master Plan goals are to integrate the park into the community fabric, support the City's economic vitality, provide access to a native riparian habitat and improve the ecological vitality of the creek. It includes circulation routes to and through the park, parking, conceptual creek realignments, accessible areas, recreational zones, and educational opportunities.

Goals for the park design and creek restoration are to create a creek environment that is self-sustaining and an ecologically sound environment that provides accessible and flexible recreational opportunities for the community. The Master Plan shows the conceptual creek layout and its relationship to other features and activities, proposed park uses and amenities, and connections to the Winters community.

## 5.1 Universal Access

Universal Design is a philosophy that is more than meeting the requirements of the law for accessibility. It is the creation of environments and amenities that are usable by all people, to the greatest extent possible, without the need for adaptation or specialization. Universal Design features should be incorporated into all of the park spaces and amenities so that people of all ages and abilities can experience the place - young and old, fit and out of shape, able-bodied and those needing assistance. For Putah Creek Nature Park, Universal Design means providing access to the entire creek experience, and not limiting access to only the upper bank. Park amenities include a range of seating heights; shaded, accessible paths; easily read signage and way finding; and gathering spaces.

## 5.2 Realigned Creek Channel

The conceptual layout of the realigned creek reflects the desired geomorphology for Putah Creek water flows. The proposed creek realignment narrows most of the creek to approximately 30 feet wide, with meanders and pools ranging from 130 to 240 feet apart. For the most part, the creek bed will be reduced in width and depth. Wide flood plains, or terraces, will fan out from the creek banks 30 feet to 100 feet on both sides of the creek. Where feasible, the creek banks will be extended, making the slopes less steep. These changes will return the creek to a dimension that reflects a more natural width and meander similar to the sections of the creek above and below this stretch, and set up conditions that can be naturally sustaining. The wide flood plain will allow the creek to move within its banks, make it possible to restore the native vegetation, and open the park to the community. The proposed realignment starts above the existing percolation dam and ends near the I-505 bridge.

By moving the narrowed creek channel to the center of the banks, there will be physical room for the creek to develop its own meander, especially in the widest section, where the old aeration ponds were located. This proposed flood plain area is approximately 300 feet wide. Based on the potential for future water flows and revegetation it is expected that the creek will be able to change its own course. This section of creek provides a laboratory for stream geomorphologic and biologic studies by researchers from UC Davis and elsewhere.

## 5.3 Trails

A safe, well-defined circulation system is critical for a successful park. The new circulation plan is based on looped upper and lower trails connecting the north and south banks, with well defined trailheads and dispersed parking.

### 5.3.1 Upper Loop Trail

The upper trail is the major all season pedestrian/bike trail. The existing bike trestle bridge to the west and a proposed pedestrian bridge at the east end of the park connect the north and south banks. This upper trail is 10 feet wide (north side) and 12 feet wide (south side), paved, and has several connection points into the community. The north bank trail will be used mostly by the Winters community, linking downtown with the residential

neighborhoods. At 12 feet wide, the south bank trail could accommodate touring bikes as well as pedestrian traffic. The upper trails are striped to ease bike and pedestrian circulation conflicts. The 10 foot width is large enough for emergency and city service vehicle access. The suggested pavement treatment is either stabilized earth (using a resinous binding material) or a combination of stabilized earth and decomposed granite. This is a durable, drivable surface that takes on the color of the native soil. Asphalt is not recommended. Asphalt installation and maintenance costs are higher than stabilized earth. The aesthetics of the earthen path are more in line with that of a nature park.

A portion of the existing north bank trail is constrained by the City's wastewater facility, a privately owned apartment complex, and the steep bank edge. In this stretch there is limited room to expand the trail to the proposed 10 foot width. An option to garner more space for the paved trail is to shift the fence lines of the City's wastewater facility and the apartment complex northward approximately 10 feet. This change would not interfere with the operations of the wastewater facility. The south edge of the wastewater facility is minimally landscaped and does not appear to have any permanent, restrictive features that would prohibit the installation of a trail in this space. However, expanding the trail adjacent to the apartments would require that part of the apartment building parking lot be acquired, or that a retaining wall and fill be provided to widen the trail toward the creek. Two parcels in this area are privately owned. Property on the east end of the park west of Interstate 505 is also under private ownership. To fulfill the Master Plan it will be necessary for the City to negotiate an easement or purchase of the land with these property owners.

### 5.3.2 Putah Creek Road

The possibility of making any changes to Putah Creek Road in order to construct an upper trail on the south side of the creek is dependent on negotiations with the City, Solano County and the affected property owners. Any changes to the layout and expansion of Putah Creek Road are constrained by the bank on the north side of the road and farming operations on the south. (See Statement on Property Ownership, Appendix B).

The Master Plan shows an off-road, 12 foot wide bike/ pedestrian trail adjacent to Putah Creek Road. Importing soil and regrading the steep slopes is one option included in the proposed improvements and can be accomplished during realignment of the creek. Contingent on this improvement, either a striped bike lane or an off-road paved trail for bikes and pedestrians could be built on the north side of Putah Creek Road.

Three options for providing a safer bike/pedestrian trail are listed below. Only Option 1 is shown in the Master Plan drawing.

<u>Option 1</u>

Construct a separated path on the north side of the existing Putah Creek Road (in its current location). This option will require soil import and regrading of the slopes to provide space to cut a path. This option is not feasible until the creek realignment is completed, and the south bank slope is widened. This option, however, requires no land acquisition.

<u>Option 2</u>

Relocate Putah Creek Road south of its current location and use the existing road base for the new path and parking areas. This would require the acquisition of land, and may be cost prohibitive. This option is not dependent on completion of creek realignment.

Option 3

Extend the top of bank setback up to approximately 100 feet south (consistent with the north side of the creek) and relocate Putah Creek Road within the outer edge of the setback (approximately 70 feet south of its current location). This expanded setback provides more options for the creek bank slopes; creates an upper terrace with a wide separation between multi-use path and Putah Creek Road and; provides better parking opportunities and public access. This option requires the more land acquisition than Option 2 and is the most costly. This option is not dependent on completion of creek realignment.

### 5.3.3 Lower Loop Trail

The lower loop trail on both the north and south banks will be fully accessible, with the exception of some switch-back short cuts. Since the trail is located within the flood plain, its exact location may shift depending on the amount of seasonal flooding, where the creek meanders, and how the natural revegetation process evolves. For these reasons the lower trail will not be paved. Each spring after the rains have stopped the City can blade the paths, leveling the trail and making a smooth, hard surface, approximately four to five feet wide, with grades not to exceed 5%. Trail segments with limited access will be identified with signage.

The plans for construction of a new car bridge, which is scheduled for completion in 2009, include pedestrian walks and creek overlooks. With construction of the new bridge there is the potential to extend the lower creek trail west under the new bridge structure, and depending on discussions with the property owner, extend the trail to the top of the north bank connecting it with Wolfskill Ave.

### 5.3.4 Creek Crossings

The Master Plan includes three bridges connecting the upper trail at the east and west ends, providing a two-mile loop through the park and views up and down the creek. The existing car bridge and the restored trestle bridge at the Community Center are the western connection. The proposed eastern bridge will be a 12 foot wide structure, suitable for pedestrians and bikes. The preferred location is adjacent to or attached to the I-505 structure, dependent on approval by Caltrans.

## 5.4 Parking

The Master Plan has three south side trailheads, located on Putah Creek Road. The first is at the trestle bridge. When the new car bridge is built, a portion of Putah Creek Road will be realigned, and it appears that with this realignment it maybe possible to provide limited vehicle parking (five vehicles) near this bike trail. The second location, and the most problematic, is the main trailhead entry into the Putah Creek Flats section located at the bottom of the access ramp. Currently, there is a widened area that could accommodate up to 11 parallel parking spaces along the road edge. This would also be the area where school buses for field trips would unload, but not park. Since this will be a main entry into the creek, it is critical that the Putah Creek Road width be resolved before this access route is developed. The third location for parking is at the east end of the park, adjacent to I-505. There is a long, wide area that could accommodate up to eight vehicles. This is also a possible location for the future pedestrian bridge. To focus parking in the designated areas and to discourage dumping along the south bank edge, a post and cable fence and native

hedge plantings are proposed. If additional land is acquired as part of relocating Putah Creek Road, more options for parking may be developed.

On the north side of the park, parking is available at the Community Center parking lot and on adjacent streets. In addition, a limited amount of parking is proposed at the south end of East Street, as part of proposed modifications to the City's waste water treatment facility.

## 5.5 Site Amenities

Site amenities will include gateways, seating, overlooks, displays and signage, maps, fishing access, bike racks and trash containers. The style should be simple, classic, sturdy, architecture that blends with the natural surroundings and that reflect the rustic quality of the park. Building materials will include rocks and boulders, wood, stained concrete and metal. The design and materials need to be easily obtained and low-maintenance; and plans for the elements will have to meet the current codes and be approved by the City. It may be appropriate for some of these amenities to be community service construction projects by city volunteer groups.

### 5.5.1 Gateways

Gateways will mark the major trailheads into the park. They can physically span the trail, or mark the entry with a large, vertical structure or post (e.g. a totem). Gateways include the park name, a map of the park, trail signage and other educational displays. The gateways are located at the Community Center, the two Creekside Way open space sites, and the south trail leading to Putah Creek Flats. The trestle bridge and the future pedestrian bridge will serve as their own gateways. To encourage use of the trails by town visitors, the gateway nearest Railroad Avenue should be prominent.

### 5.5.2 Overlooks

Overlooks will be located off the main paved trails in areas with views up and down the creek. They will likely consist of shaded wood platforms with appropriate railings, and include a bench and a bike rack. Educational displays will describe particular features observable at that location and historical information.

### 5.5.3 Seating

Depending on the setting, benches, both refined and rustic, will be located throughout the park in shady areas with views onto the creek. Some will be along the trails and others will be set off the trail in quiet locations. Rustic seating can take the form of boulders and large wood logs (secured to the ground) arranged in clusters. The more refined areas will use the city's standard bench.

### 5.5.4 Signage and Displays

Park signage will include trail routes, educational displays with topics on the history of the town and the creek; riparian plants, animals and insects; the geomorphology of the creek; and information about salmon and steelhead migration. The park map will include trail locations and their accessibility factor (paved, unpaved, slope %).

### 5.5.5 Fishing Access

Fishing is an historical use of the creek and a specifically identified recreation activity. The Master Plan provides for improved access to the water's edge and better fish habitat. A series of gabions may be installed as part of the percolation dam removal. The gabions and the

surrounding area will improve fishing access by providing a steep drop off and room to swing a pole. These and other fishing areas will be connected to accessible trails. At this time a permanent fishing dock is not proposed because high flows can damage or destroy these structures

### 5.5.6 Bike Racks

Bike racks will be located on the upper loop trail at the overlooks, main gathering areas, and at the main picnic area in the Putah Creek Flats. The racks will be set off the path to provide unobstructed travel along the main trail. The metal racks will support bikes without kick stands, and will be suitable for U-shaped locking systems.

### 5.5.7 Trash and Recycling

Trash and recycling containers will be based on the City's standard, and will be securely mounted to discourage vandalism. The containers will be located at key pedestrian intersections along the trail, at trailheads and overlooks, and accessible to maintenance crews.

## 5.6 Restroom

A public restroom is a critical component of the park. The Master Plan provides for one restroom facility, located on Putah Creek Road near the main entry into Putah Creek Flats. This facility could be either a portable unit surrounded by a masonry block enclosure, or a prefabricated composting toilet structure, similar to those used in national parks. The location of this restroom will be based on the maintenance access and will balance road traffic-parking and vandalism conflicts. The building materials would need to be fire proof (concrete walls and metal roof), and the style reminiscent of national parks. Two restroom facilities are available on the north side of the railroad bridge, the Community Center (when opened), and a new public restroom that was built in the Rotary Park in 2007.

## 5.7 Programmatic Opportunities

Putah Creek Nature Park offers a unique opportunity as an outdoor classroom, as a place for civic venues, as well as recreational uses. The Park will also play an active role in the vibrancy and growth of the downtown. The Park and the adjacent businesses can become destinations, each encouraging more activity for the other. The Master Plan includes facilities and spaces that support a series of program opportunities. As access to the park is improved, certain areas, each with a distinctive flavor and use, will be available to the public. Specific areas can be reserved, providing revenue for the City.

### 5.7.1 Putah Creek Flats

Located at creek level, Putah Creek Flats is the four-acre area at the location of the old aeration ponds, and is one of two places along the creek where there is an existing flood plain. The Master Plan intends for the Flats to serve as a recreation area for families and school events. The Flats will offer easy access to the creek, man-made and natural history, and large open areas with clear views across the creek. A large picnic area with tables will be located above the typical high water mark. When the creek bed is re-sculpted, gravel bars and pools will develop at the bends, creating shallows, riffles and deeper water. Where gabions are installed, the bank edge will be taller and straighter, providing good fishing spots. The foot trails will be bladed clear each spring. Where needed, an accessible fabric (mobi-mat) can be installed that will facilitate access to the water's edge or other built features.

### 5.7.2 Community Center

The Community Center connects Putah Creek Nature Park with downtown and is the urban gateway into the park. Entry into the park from Railroad Avenue or Main Street should be clearly defined. As part of the park improvements the Master Plan strengthens the pedestrian connection between the park trail and the downtown. The first phase improvement, as described in Section 7, will be to build a wide, hard-paved walk leading from Rotary Park and the parking lot to the upper trail head at the existing oak tree and stage area. A large arbor will act as both a park gateway and a frame for the stage. This structure can support lights and scenery backdrop for the stage. This gateway may also be the entry to the Winters Art Walk. A second phase connector will be a pedestrian and bike path extending from Elliot Street to the new upper trail.

The area around the Community Center provides an opportunity for future civic development and a compact community arts area, including a renovated Community Center, a refurbished Rotary Park, a new community theater, and wide, open entries into the Park and the upper loop trail.

Steps will lead down from the trestle bridge and connect to the new trail at the stage backdrop. These steps will provide direct access to Railroad Avenue without having to go through the Community Center grounds.

### 5.7.3 Art Walk

The trail near the Community Center can be used to display of outdoor art and can provide a creative destination experience for community members and visitors, as well as an opportunity for the art community to show their interpretation of the park. The art pieces can be rotating exhibits, permanent or ephemeral, using man-made and/or natural materials to reflect the creek and local history. The walk can be organized as a treasure hunt, with art pieces located in unexpected places that take visitors throughout the park. The art walks are an opportunity for community involvement that can involve school art classes as well as amateur and professional artists.

### 5.7.4 City Wastewater Treatment and Well Facility Area

The City owned land at the wastewater treatment facility can provide another access point into the park. The Master Plan drawing shows modifications to the current facility, including a service road entry and handicapped accessible parking. This service road provides pedestrian and bike access to the upper loop trails. A grassy area, with informal seating, such as log benches or boulders, and picnic tables, can be a place for picnics or staging field trips. A nearby overlook will provide views to the widest area of the creek. The signage at this location could include photos and history of the percolation dam, as well as information about Lake Berryessa and Monticello Dam, and the role of water and flooding in the area's development. The cell tower on the facility grounds will remain indefinitely although it is recommended that the tower be removed when the current lease expires. In the meantime, it can be camouflaged to blend better with the surrounding environment.

A Nature Center would be a logical extension of the civic redevelopment associated with the development of the park. The large grassy area overlooking the Putah Creek Flats on the south side of the creek is a logical location for this type of facility. The Nature Center would support the educational components of the park, with displays describing the natural and cultural history of the bioregion. Constraints include parking and a narrow access street.

### 5.8 Vegetation Management

The benefits to restoring the native riparian flora to the creek include more and better quality foraging habitat for animals, birds and insects; development of a self-sustaining flood plain; better fish habitat including shaded banks for spawning; and increased access to the creek along the entire mile reach of the park.

The new park plantings will only include native plantings and will use species found in nearby reaches. Some of the more common native plants include alder, arroyo willow, black willow, box elder, California buckeye, buttonbush, cottonwood, coyote bush, creeping wild rye, elderberry, Gooding's willow, miner's lettuce, mugwort, Santa Barbara sedge, California sycamore, torrent sedge, toyon, yellow willow, western redbud and wild rose. The plants will be in arrangements typical of those found in the wild, and zoned according to the elevation above the low flow channel, where they would naturally occur, based on aspect, and relationships with other plants.

The Winters Putah Creek Committee has prepared a Vegetation Management Plan for the Park. This Plan outlines the general procedures for managing vegetation, both exotic (non-native) and native, within the 40 acre park. It describes the revegetation efforts to date, and provides a plan of action for the remaining areas. It also lists the major and most disruptive exotic plant species to be removed, species to be replanted, and a preliminary schedule when the removals and replanting would occur. A copy of the WPCC Vegetation Management Plan is included in Appendix F.

In order to keep the non-native plants from re-establishing themselves, it is critical that they be completely removed from each section. The eradication process will involve the application of herbicides and the use of mechanical means, and the removal of non-native trees and plants. It will be important to keep the surrounding neighbors informed of the process, removal and replanting schedule, and coordinate volunteer replanting parties. The large scale removals of the exotics will take place in 2008 through 2012, with natives replanted as soon after the removals as possible.

A regular, long-term monitoring and maintenance program will help ensure the successful removal of exotic, invasive vegetation and the successful establishment of new plantings along Putah Creek.

## 6. SAFETY

Putah Creek Nature Park offers an opportunity to experience the challenges of nature. A balance must be struck between nature and safety. The Park will not include man-made structures or features that are inherently unsafe. Emergency vehicles will have access to the entire length of the park via the paved upper trails. The new flood plains and lower loop trails will provide significantly more access to the creek area. Pedestrian lighting will be limited to those areas near the Community Center in order not to interfere with the creek's natural environment.

There is a mutual aid agreement currently in place between the City of Winters Police Department, Winters Fire Department and Solano County Sheriffs Department and Vacaville and Dixon Fire

Protection Districts. Technically, all resources and improvements to the site will be protected by official patrol/law enforcement. Practically, it will take a strong commitment from the local community and neighbors to educate visitors of the park on proper use, report abuses and use the site in a proper manner themselves.

## 7. IMPLEMENTATION PLAN

### 7.1 Phasing

Putah Creek Nature Park has an uncertain implementation schedule that will be determined by the City's annual funding cycles and by grant awards. The following items (located on city-owned property) are not dependent on the completion of the creek realignment, and can be designed and built in the near future:

- Removal of the percolation dam
- Build steps from the trestle bridge to the trail
- Pave the trail from the trestle bridge/Community Center to the Waste Water Treatment facility
- Install a paved, accessible path from the Rotary Park parking lot to the north side trail
- Build overlooks and gateways on city-owned property
- Develop area west of wastewater treatment plant as described in 5.7.4

The upper and lower trail work is dependent on the completion of the creek realignment, securing easements and land acquisition, and obtaining grant funding. In addition, the pedestrian bridge will likely require a lengthy planning/permitting process.

The environmental review process is underway for many aspects of the planned park improvements. Additional environmental review may be needed as park plans are changed.

### 7.2 Volunteer Opportunities

To foster environmental stewardship and have the community adopt the role of park protector it is important to engage the entire community in projects that enhance the park. For several years the community has been an active participant in the development of Putah Creek Nature Park, and the revised Master Plan provides additional opportunities for public involvement in implementing many of the proposed improvements.

Future projects that may lend themselves to community participation include:

- Creek clean up
- Replanting native plants
- Construction and maintenance of foot trails
- Weeding newly planted areas including the native grasses.
- Making trail maps
- Building overlooks and gateways
- Installing trail markers
- Designing the Art Walk

### 7.3 Funding Sources

The Putah Creek Nature Park can also serve as a revenue source for the City. The Community Center and Park can be the setting for meetings or conferences on creek restoration, practical applications, bioregional conferences and events, professional society meetings (engineers, landscape architects, planners, and science and art teachers). Putah Creek Flats can be reserved for large group events, field trips, meetings, and conferences.

This Master Plan will be used to support grant applications for funding future construction projects; to develop City maintenance and construction budgets; and to identify volunteer construction projects. The following grants have been awarded:

1. Prop. 12 – 2000 Park Bond Act: $36,000 for trail improvements, benches, garbage/recycling cans, information kiosks, plant and wildlife signage.
2. Prop. 50 – California River Parkway I: $451,763 in grant money, and $185,120 from other sources for the removal of the percolation dam, floodplain restoration and revegetation.
3. Calfed Program: $539,490 for hedgerow plantings to deter illegal dumping, bank stabilization and enhanced wildlife migration at Putah Creek and Dry Creek.

The following are grants submitted (but not yet awarded), or possible future grants:

1. Farm and Ranch Cleanup CIWMB) - $50,000 for removal of solid waste (asphalt, concrete and trash primarily in Dry Creek/Hwy 128 and Dry Creek/Putah Creek confluence.
2. Off Highway Vehicle Restoration (submitted): $50,000 for post and cable barriers along the south bank (Putah Creek Road) and No Trespassing/No Vehicle Access signage.
3. Prop. 50 River Parkway III-submitted: $800,000 to realign the low flow channel of Putah Creek from the Winters Car Bridge to the Percolation Dam along the south bank. Create three new acres of functional floodplains (beaches).

   The California State Dept. of Parks (www.parks.ca.gov, 916-653-7423) is another source of grants and bonds specifically targeting the acquisition of outdoor recreation areas, trails, picnic and cultural areas.

Other potential funding sources include:

California Outdoor Recreation Planning Program (CORP)-
Phone: Planning Division at 916-653-9901 or
Email planning@parks.ca.gov

The federal Transportation Enhancements (TE) program funds
http://www.enhancements.org/index.asp

## 8. COST OPINION

To assist the City with implementation and phasing, developing budgets, fund raising and grant applications, a spread sheet identifying specific construction items (e.g. trails, overlooks, signage) and

an opinion of construction costs is included in Appendix E. This matrix uses 2007 construction and materials costs for major park components. It does not include costs for permits or land acquisition.

# APPENDIX

**A** Fish and Game Letter, dated April 6, 2007

**B** Property Ownership

**C** 2007 Master Plan Graphics

**D** Workshops

**E** 2007 Cost Opinion

**F** WPCC Vegetation Management Plan

**G** 2006 River Parkway Application

# Appendix A

## Department of Fish and Game
## Letter Dated April 06, 2007

State of California – The Resources Agency ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov
North Central Region
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670
(916) 358-2900

April 6, 2007

Mr. John Donlevy, City Manager
City of Winter
318 First Street
Winters, CA 95694

Dear Mr. Donlevy:

In May of 2006, The Department of Fish and Game (Department) was contacted by the Lower Putah Creek Coordinating Committee (LPCCC) to discuss the potential removal of various fish passage impediments occurring within Putah Creek, Yolo County. The Department conducted site visits in conjunction with the LPCCC to identify appropriate fish passage remedies.

As a follow-up to the initial site visit of May 2006, on March 16, 2007, Mr. Michael Healey and Mr. James J. Navicky of the Department conducted a site visit to the "percolation dam" to evaluate its status with respect to its potential as a migration barrier. The percolation dam is a collapsed and abandoned structure occurring in the active channel of Putah Creek near the city of Winters California. The Department has determined that the percolation dam inhibits the migration of salmonids, both adults and juveniles, within Putah Creek due to obscure flows through the collapsed dam and due to the accumulation of debris against the dam.

The Department, in general, supports the removal of non-natural in-stream structures when these structures may impede salmonid migration, especially if these structures serve no biological utility. Removal of the percolation dam, as proposed by LPCCC will compliment many of the restoration projects already completed by the LPCCC. If you have any questions or need further assistance, please contact Mr. James J. Navicky at (916) 358-2926.

Sincerely,

Kent Smith
Acting Assistant Regional Manager

*Conserving California's Wildlife Since 1870*

# Appendix B

## Property Ownership

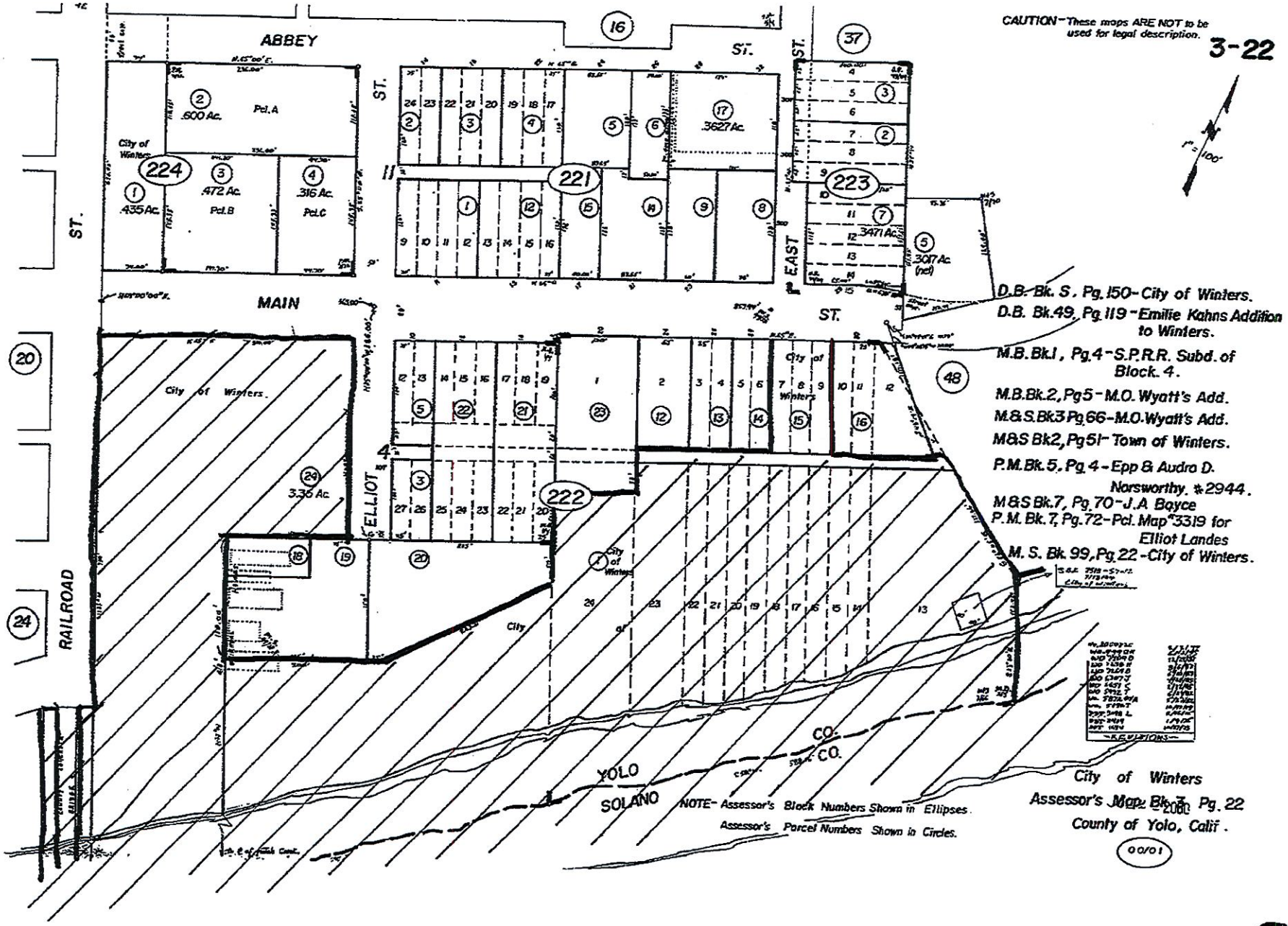
(includes statement and parcel maps)

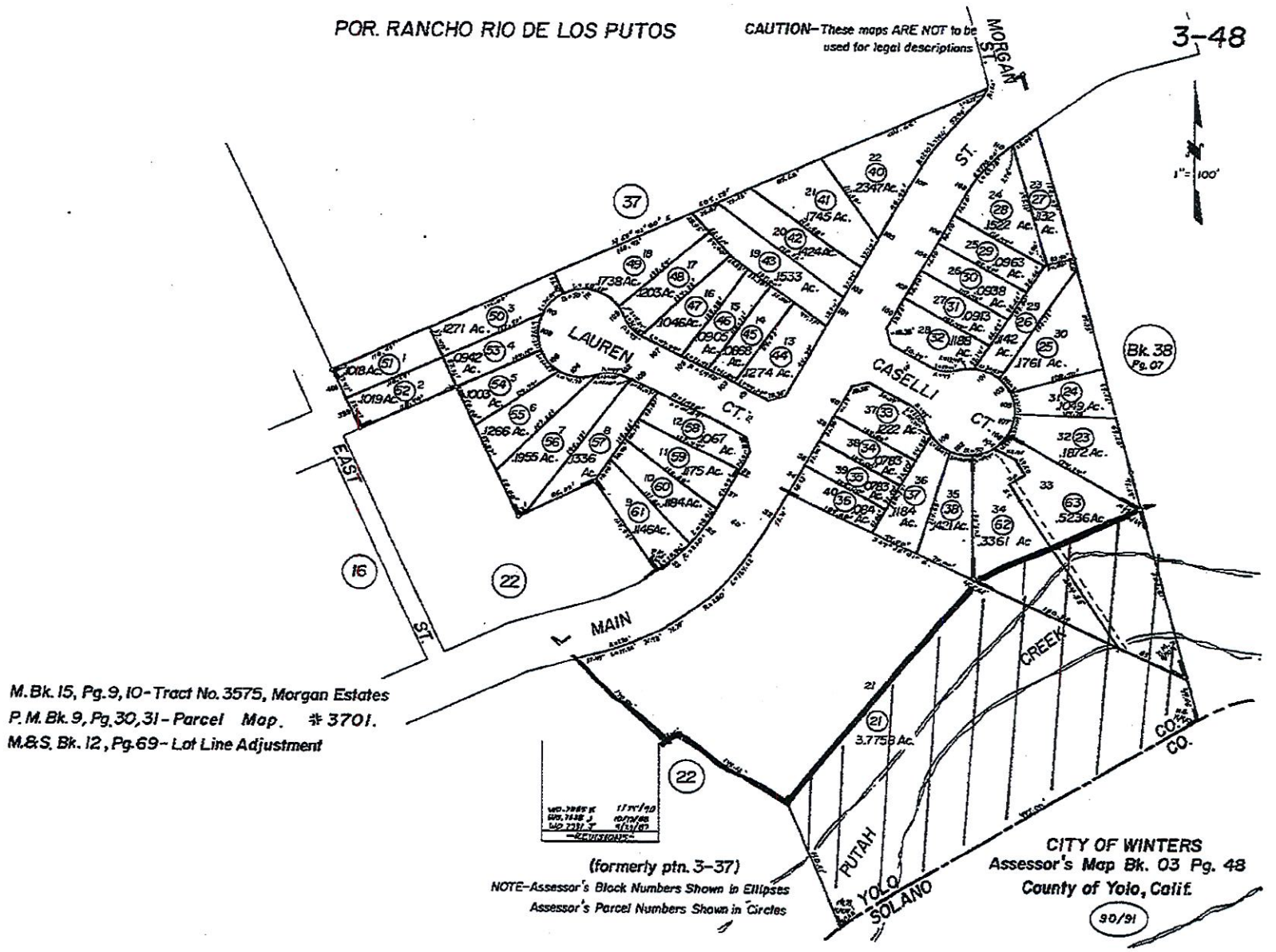
## Property Ownership

Private Ownership of the property within the banks of Putah Creek adds another layer of complexity to the ultimate park design. At the time of the 2007 Master Plan's adoption, approximate limits of the City's ownership of the creek were the top of the north bank- from the car bridge to the end of the Creekside subdivision line that ends atWild Rose Ln. (with the exception of three parcels- behind Creekside Apartments 32 E. Main St., 104 and 106 Caselli Ct). On the south bank- top of the south bank-from the car bridge to Johnson Road.

The remaining property to the east was owned by Solano County and private individuals. The land south of Putah Creek Road was also privately owned. In addition, the Yolo County and Solano County boundary is the centerline of the creek.

The 2007 Master Plan documents a wide range of improvements for Putah Creek based on a long-term community vision. The vision encompasses both City owned and privately owned property, but makes no assumptions with regard to the timing of improvements on privately owned property. The Master Plan was adopted with the clear understanding that the City will need to negotiate with the property owners before any improvements can be made. No work will be done in privately owned land without the land owner's consent. As adjacent properties come forward for development, development agreements will be negotiated that may include provisions that support the park's master plan concepts.

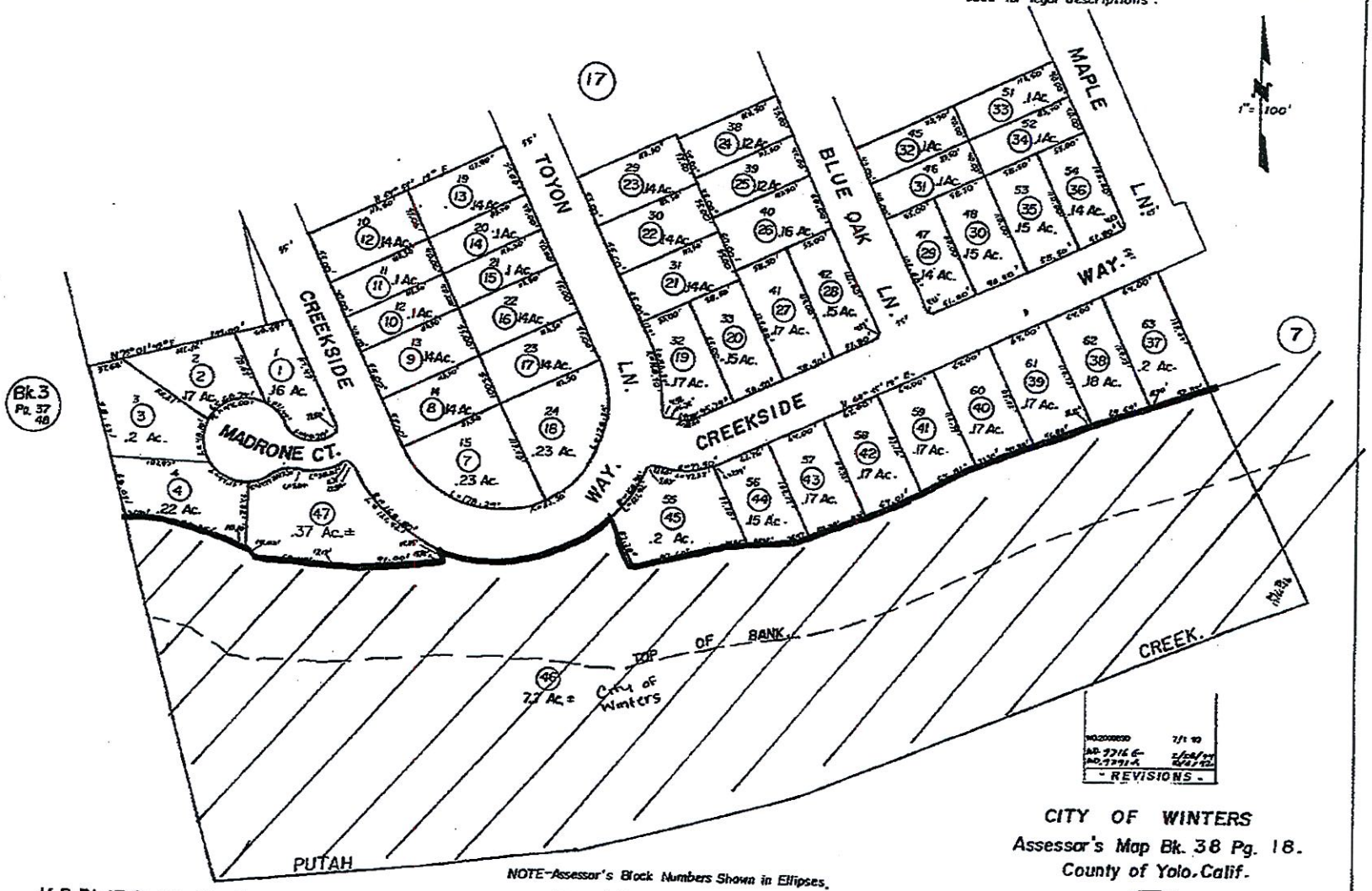

CAUTION - These maps ARE NOT to be used for legal description.
3-22
ABBEY
MAIN
ELLIOT
RAILROAD
ST.
EAST
City of Winters
Pcl. A
.600 Ac.
Pcl. B
.472 Ac.
Pcl. C
.316 Ac.
.435 Ac.
.3627 Ac.
.3471 Ac.
.307 Ac. (net)
3.36 Ac.
224
221
222
223
D.B. Bk. S, Pg. 150 - City of Winters.
D.B. Bk. 49, Pg. 119 - Emilie Kahns Addition to Winters.
M.B. Bk. 1, Pg. 4 - S.P.R.R. Subd. of Block. 4.
M.B. Bk. 2, Pg. 5 - M.O. Wyatt's Add.
M. & S. Bk. 3 Pg. 66 - M.O. Wyatt's Add.
M&S Bk. 2, Pg. 51 - Town of Winters.
P.M. Bk. 5, Pg. 4 - Epp & Audra D. Norsworthy. #2944.
M&S Bk. 7, Pg. 70 - J.A Boyce
P.M. Bk. 7, Pg. 72 - Pcl. Map #3319 for Elliot Landes
M. S. Bk. 99, Pg. 22 - City of Winters.
YOLO CO.
SOLANO CO.
NOTE - Assessor's Block Numbers Shown in Ellipses.
Assessor's Parcel Numbers Shown in Circles.
City of Winters
Assessor's Map Bk. 3, Pg. 22
County of Yolo, Calif.
2000
00/01


POR. RANCHO RIO DE LOS PUTOS
CAUTION–These maps ARE NOT to be used for legal descriptions
3-48
1"= 100'
MORGAN ST.
LAUREN CT.
CASELLI CT.
EAST ST.
MAIN ST.
CREEK
PUTAH
YOLO
SOLANO
CO.
CO.
Bk. 38 Pg. 07
M. Bk. 15, Pg. 9, 10 - Tract No. 3575, Morgan Estates
P. M. Bk. 9, Pg. 30, 31 - Parcel Map. # 3701.
M.&S. Bk. 12, Pg. 69 - Lot Line Adjustment
(formerly ptn. 3-37)
NOTE–Assessor's Block Numbers Shown in Ellipses
Assessor's Parcel Numbers Shown in Circles
CITY OF WINTERS
Assessor's Map Bk. 03 Pg. 48
County of Yolo, Calif.
90/91

POR. RANCHO RIO DE LOS PUTOS, T.8N., R.1W. M.D.B.&M.

CAUTION- These maps ARE NOT to be used for legal descriptions.

38-18




CITY OF WINTERS
Assessor's Map Bk. 38 Pg. 18.
County of Yolo, Calif.

00/01

JUL 26 2000

NOTE-Assessor's Block Numbers Shown in Ellipses.
Assessor's Parcel Numbers Shown in Circles.
(formerly por 38-07)

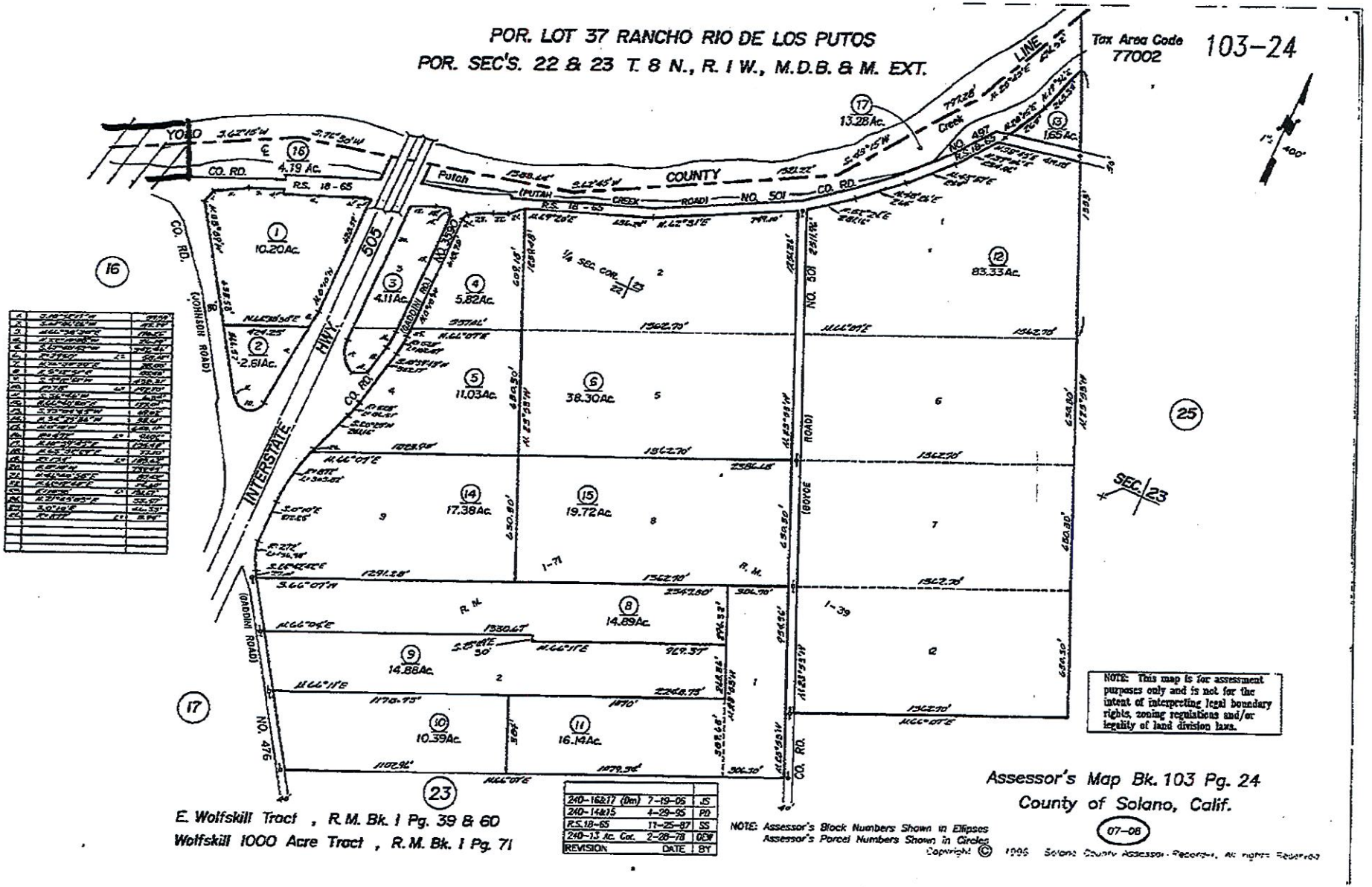
M.B.Bk.17, Pg.66-68 - Putah Creek Hamlet #1. #4069.

(3)

POR. LOT 37 RANCHO RIO DE LOS PUTOS
POR. SEC'S. 22 & 23 T. 8 N., R. 1 W., M.D.B. & M. EXT.

Tax Area Code 77002

103-24




NOTE: This map is for assessment purposes only and is not for the intent of interpreting legal boundary rights, zoning regulations and/or legality of land division laws.

| | | |
|---|---|---|
| 240-16&17 (Dm) | 7-19-06 | JS |
| 240-14&15 | 4-29-95 | PD |
| R.S. 18-65 | 11-25-87 | SS |
| 240-13 Ac. Cor. | 2-28-78 | DEW |
| REVISION | DATE | BY |

E. Wolfskill Tract , R.M. Bk. 1 Pg. 39 & 60
Wolfskill 1000 Acre Tract , R.M. Bk. 1 Pg. 71

NOTE: Assessor's Block Numbers Shown in Ellipses
Assessor's Parcel Numbers Shown in Circles

Assessor's Map Bk. 103 Pg. 24
County of Solano, Calif.

07-08

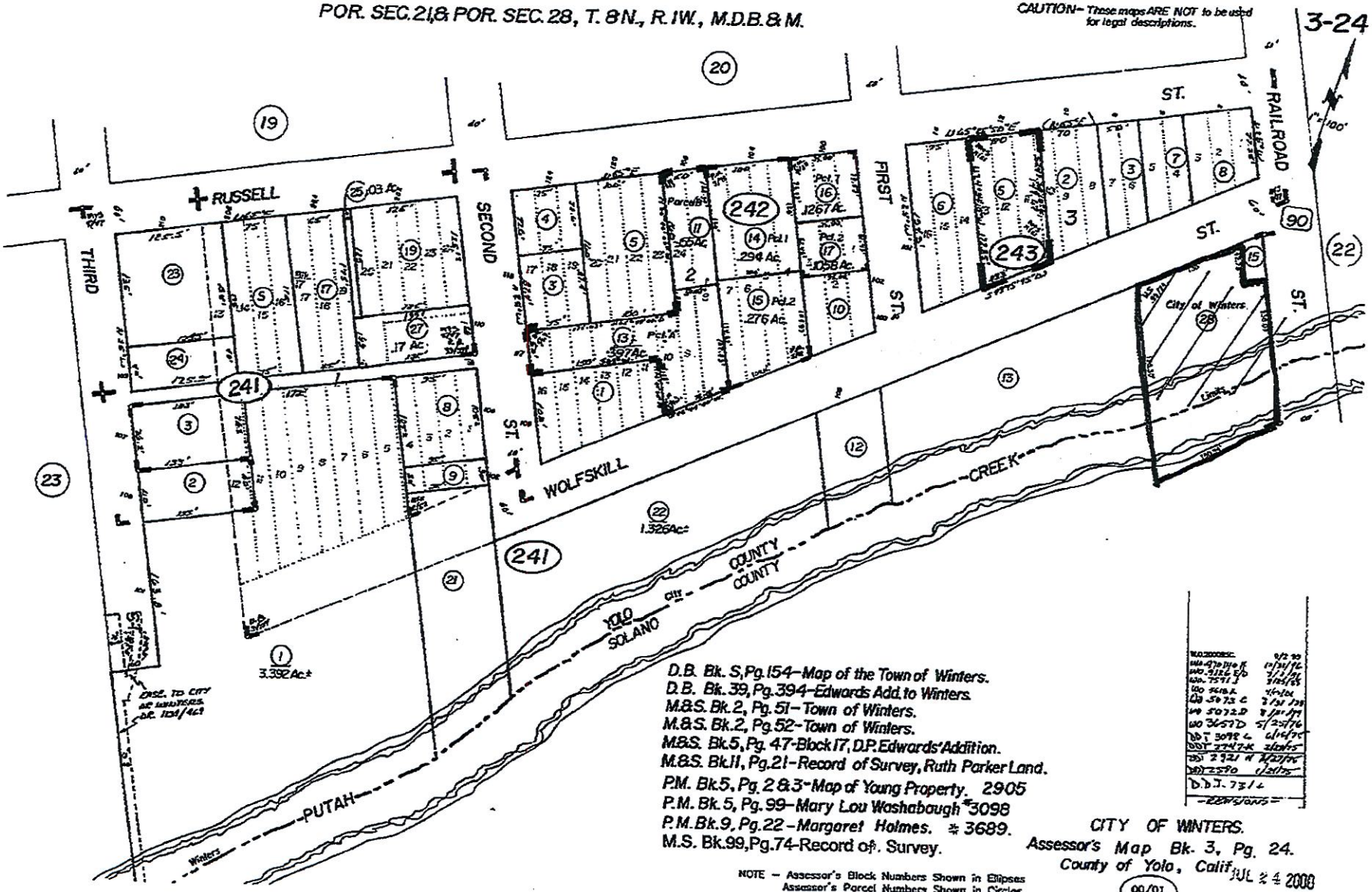


A

POR. SEC. 21,& POR. SEC. 28, T. 8N., R. IW., M.D.B.& M.

CAUTION– These maps ARE NOT to be used for legal descriptions.

3-24




D.B. Bk. S, Pg. 154–Map of the Town of Winters.
D.B. Bk. 39, Pg. 394–Edwards Add. to Winters.
M.&S. Bk. 2, Pg. 51–Town of Winters.
M.&S. Bk. 2, Pg. 52–Town of Winters.
M.&S. Bk. 5, Pg. 47–Block 17, D.P. Edwards' Addition.
M.&S. Bk. 11, Pg. 21–Record of Survey, Ruth Parker Land.
P.M. Bk. 5, Pg. 2 & 3–Map of Young Property. 2905
P.M. Bk. 5, Pg. 99–Mary Lou Washabaugh 3098
P.M. Bk. 9, Pg. 22–Margaret Holmes. 3689.
M.S. Bk. 99, Pg. 74–Record of Survey.

NOTE – Assessor's Block Numbers Shown in Ellipses
Assessor's Parcel Numbers Shown in Circles.

CITY OF WINTERS.
Assessor's Map Bk. 3, Pg. 24.
County of Yolo, Calif.

00/01

JUL 24 2008

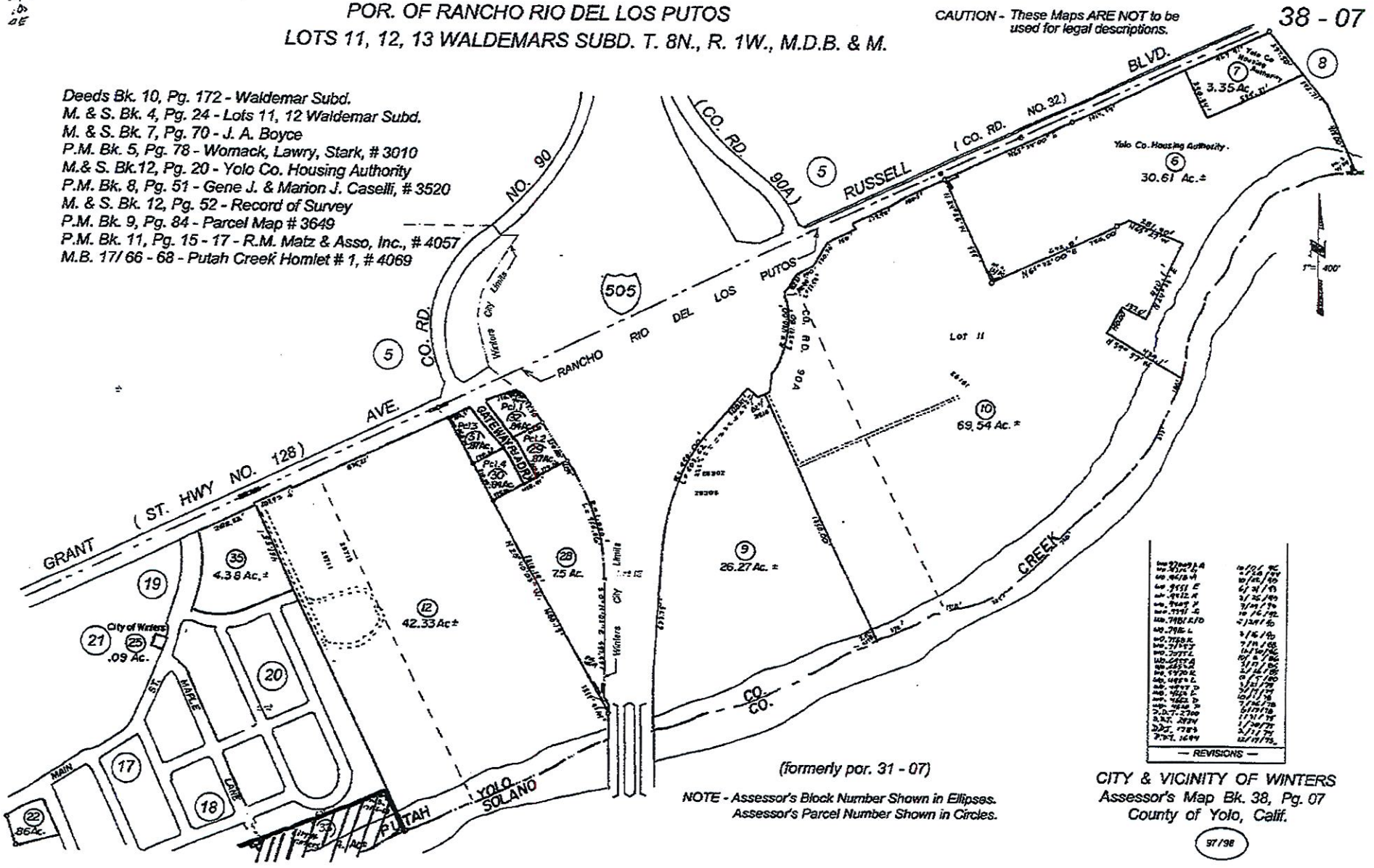
5

POR. OF RANCHO RIO DEL LOS PUTOS
LOTS 11, 12, 13 WALDEMARS SUBD. T. 8N., R. 1W., M.D.B. & M.

CAUTION - These Maps ARE NOT to be used for legal descriptions.

38 - 07

Deeds Bk. 10, Pg. 172 - Waldemar Subd.
M. & S. Bk. 4, Pg. 24 - Lots 11, 12 Waldemar Subd.
M. & S. Bk. 7, Pg. 70 - J. A. Boyce
P.M. Bk. 5, Pg. 78 - Womack, Lawry, Stark, # 3010
M.& S. Bk.12, Pg. 20 - Yolo Co. Housing Authority
P.M. Bk. 8, Pg. 51 - Gene J. & Marion J. Caselli, # 3520
M. & S. Bk. 12, Pg. 52 - Record of Survey
P.M. Bk. 9, Pg. 84 - Parcel Map # 3649
P.M. Bk. 11, Pg. 15 - 17 - R.M. Matz & Asso, Inc., # 4057
M.B. 17/ 66 - 68 - Putah Creek Homlet # 1, # 4069




(formerly por. 31 - 07)

NOTE - Assessor's Block Number Shown in Ellipses.
Assessor's Parcel Number Shown in Circles.

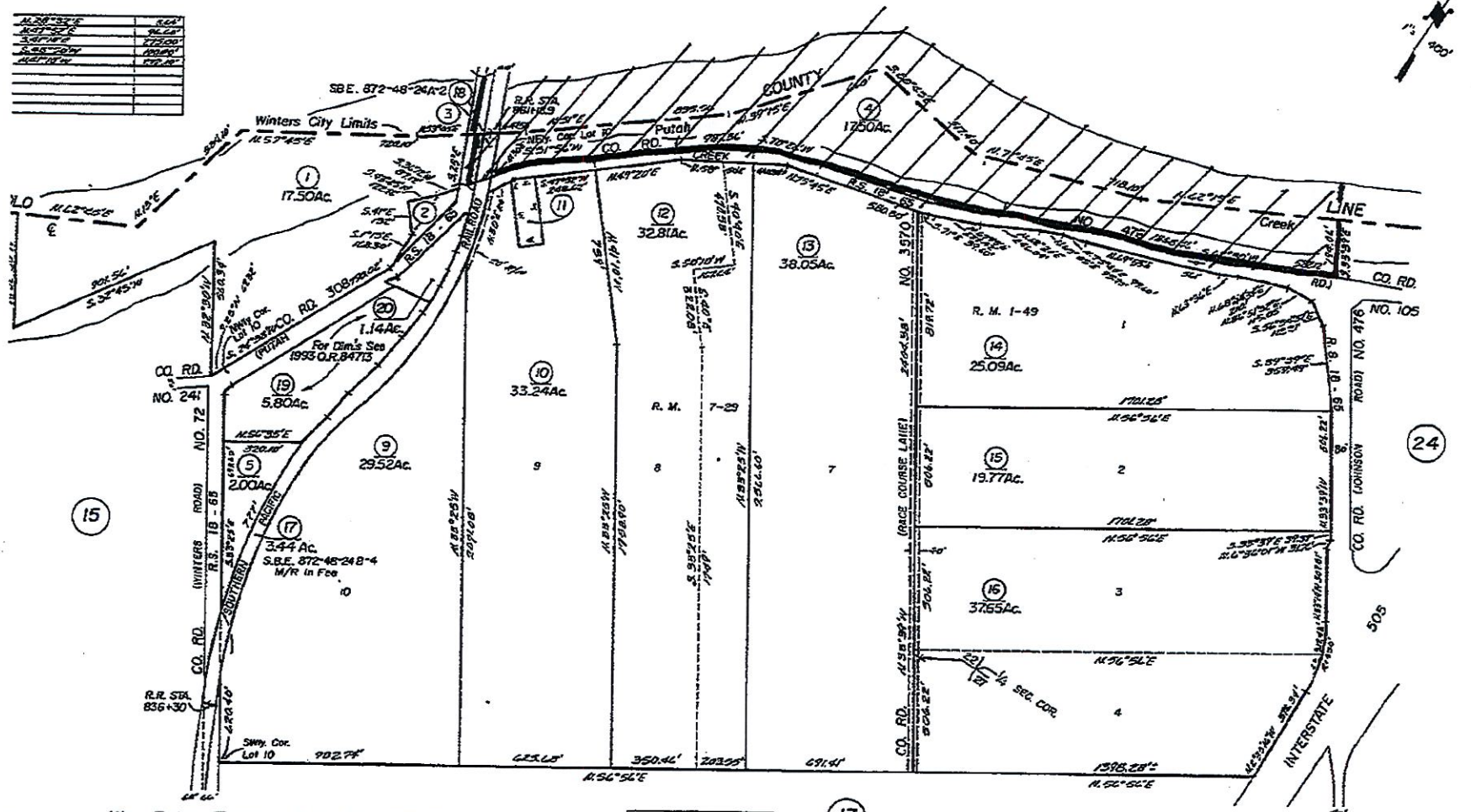
CITY & VICINITY OF WINTERS
Assessor's Map Bk. 38, Pg. 07
County of Yolo, Calif.

97/98

POR. LOT 37 RANCHO RIO DE LOS PUTOS
POR. SEC'S. 22, 27 & 28, T. 8 N., R. 1 W., M.D.B. & M. EXT.

Tax Area Code 77002

103-16




Wm. Baker Tract , R.M. Bk. 1 Pg. 49
County Road No. 476 , R.M. Bk. 2 Pg. 71
Heirs of M. J. Baker , R.M. Bk. 7 Pg. 29

| REVISION | DATE | BY |
|---|---|---|

NOTE – Assessor's Block Numbers Shown in Ellipses
Assessor's Parcel Numbers Shown in Circles

Assessor's Map Bk. 103 Pg. 16
County of Solano, Calif.

9495

1

## Appendix C

## 2008 Master Plan

(includes 2008 Site Plan and Cross Sections, photos of site amenities)

# PUTAH CREEK NATURE PARK - MASTER PLAN

**CITY OF WINTERS** — **OCTOBER 2007**

• PUTAH CREEK FLATS •

### COMMUNITY CENTER - PARK ENTRY
- IMPROVED PEDESTRIAN ACCESS TO CREEK TRAIL
- BACKDROP FOR STAGE PRODUCTIONS
- STEPS FROM TRAIL TO TRESTLE BRIDGE
- STRENGTHEN PEDESTRIAN + BIKE CONNECTIONS
- PARK ENTRY PAVE
- EAST PARKING
- BENCHES
- GATEWAY TO PARK
- SIGNAGE AND MAP
- BEAN ART WALL
- COMMUNITY THEATER
- NATURE CENTER
- CREEK ACCESS BELOW CAR BRIDGE
- ACCESS TO LOWER TERRACE + WATER

### CITY WATER FACILITY
- IMPROVED ACCESS TO PARK + TRAIL
- NC PARKING
- GRASSY AREA WITH PICNIC TABLES, BENCHES
- GATEWAY AND OVERLOOK
- CAMOUFLAGED CELL TOWER

### TRAILS
UPPER TRAIL
- CONNECTS TO CITY STREETS AND OPEN SPACES
- PAVED MULTI-USE TRAIL - MINIMUM 10' WIDE - BIKERS, PEDESTRIANS, SERVICE VEHICLES
- RESPECTS RESIDENTIAL PRIVACY
- LOOPED TRAIL - CONNECTS NORTH AND SOUTH BANKS
- ACCESSIBLE - LESS THAN 5% SLOPE
- OVERLOOKS WITH BENCHES
- TWO PEDESTRIAN BRIDGES
- FUTURE EXTENSION EASTERLY UNDERNEATH I-505
- NATURE CENTER
- DOGGIE STATIONS

LOWER TRAIL
- UNPAVED PATHS - CITY TO RELOCATE PATHS EACH SPRING
- ACCESSIBLE - LESS THAN 5% SLOPE
- PATHS LEAD TO PATERS EDGE
- ACCESSIBLE UPPER & LOWER TRAIL CONNECTIONS

### COMMUNITY GATEWAYS
- GATEWAY AT TRAILHEAD
- BENCH
- TRASH CANS
- SIGNAGE AND MAP
- EDUCATIONAL DISPLAYS

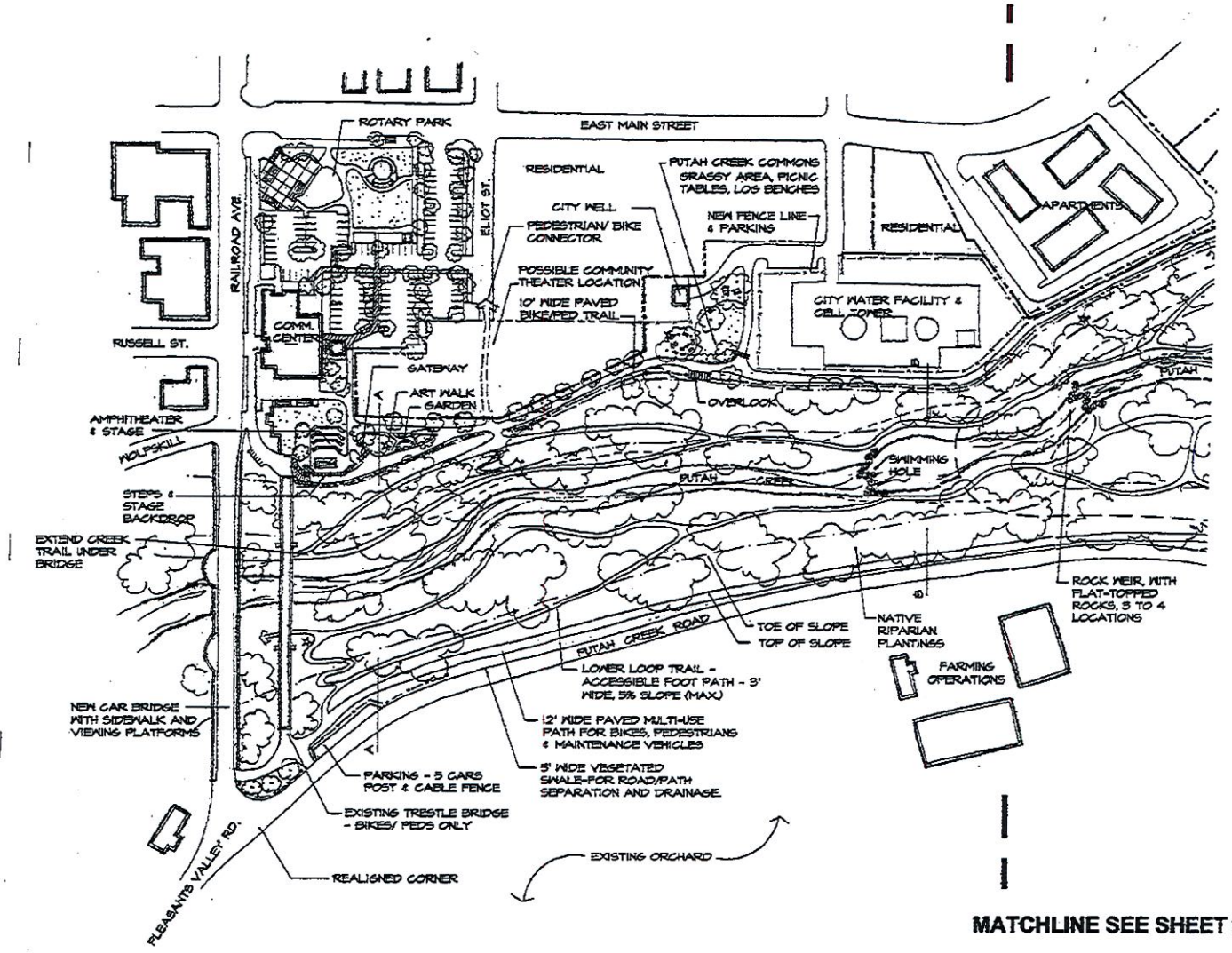
### FAMILY RECREATION AREA
- RIDE, LOWER TERRACE
- PICNIC TABLES
- ACCESSIBLE TRAILS
- FISHING SPOTS
- ROCK CROSSINGS
- SHADY AREAS
- OPEN VIEWS + ACCESS TO THE WATER
- NC PARKING SPACES
- SIGNAGE AND MAP
- DRINKING STATIONS
- TRASH CANS
- TOILET OR PORTA-POTTY
- LIMITED PARKING ALONG PUTAH CREEK ROAD

### OUTDOOR CLASSROOM
- RESERVABLE GATHERING AREA FOR OUTDOOR STUDIES
- EDUCATION AREAS ARE ACCESSIBLE
- PICNIC TABLES
- RANGER STYLE SEATING AREA
- TRAILS
- SIGNAGE

### RIPARIAN STUDIES
- CREEK ARCHAEOLOGY
- REVEGETATION EXHIBITS AND OPPORTUNITIES
- FISH HABITAT
- CRITTERS + INSECTS
- PLANTS
- SOIL
- WATER

### HISTORY AND LITERATURE
- CREEK HISTORY
- PATERS HISTORY
- NATIVE AMERICAN
- EXPLORATION
- SETTLEMENT
- AGRICULTURE
- POETRY

### ART
- NATURE MOTIFS
- LOCAL MATERIALS FROM THE CREEK
- COLORS AND DYES
- PATTERNS




## COMMUNITY CENTER & PARK ENTRY

- IMPROVED PEDESTRIAN ACCESS TO CREEK TRAIL
- BACKDROP FOR STAGE PRODUCTIONS
- STEPS FROM TRAIL TO TRESTLE BRIDGE
- STRENGTHEN PEDESTRIAN & BIKE CONNECTIONS
- PAVED ENTRY WALK
- BIKE PARKING
- BENCHES
- GATEWAY TO PARK
- SIGNAGE AND MAP
- BEGIN ART WALK
- COMMUNITY THEATER
- NATURE CENTER
- CREEK ACCESS BELOW CAR BRIDGE
- ACCESS TO LOWER TERRACE & WATER

## CITY WATER FACILITY

- IMPROVED ACCESS TO PARK & TRAIL
- HC PARKING
- GRASSY AREA WITH PICNIC TABLES, BENCHES
- GATEWAY AND OVERLOOK
- CAMOUFLAGED CELL TOWER

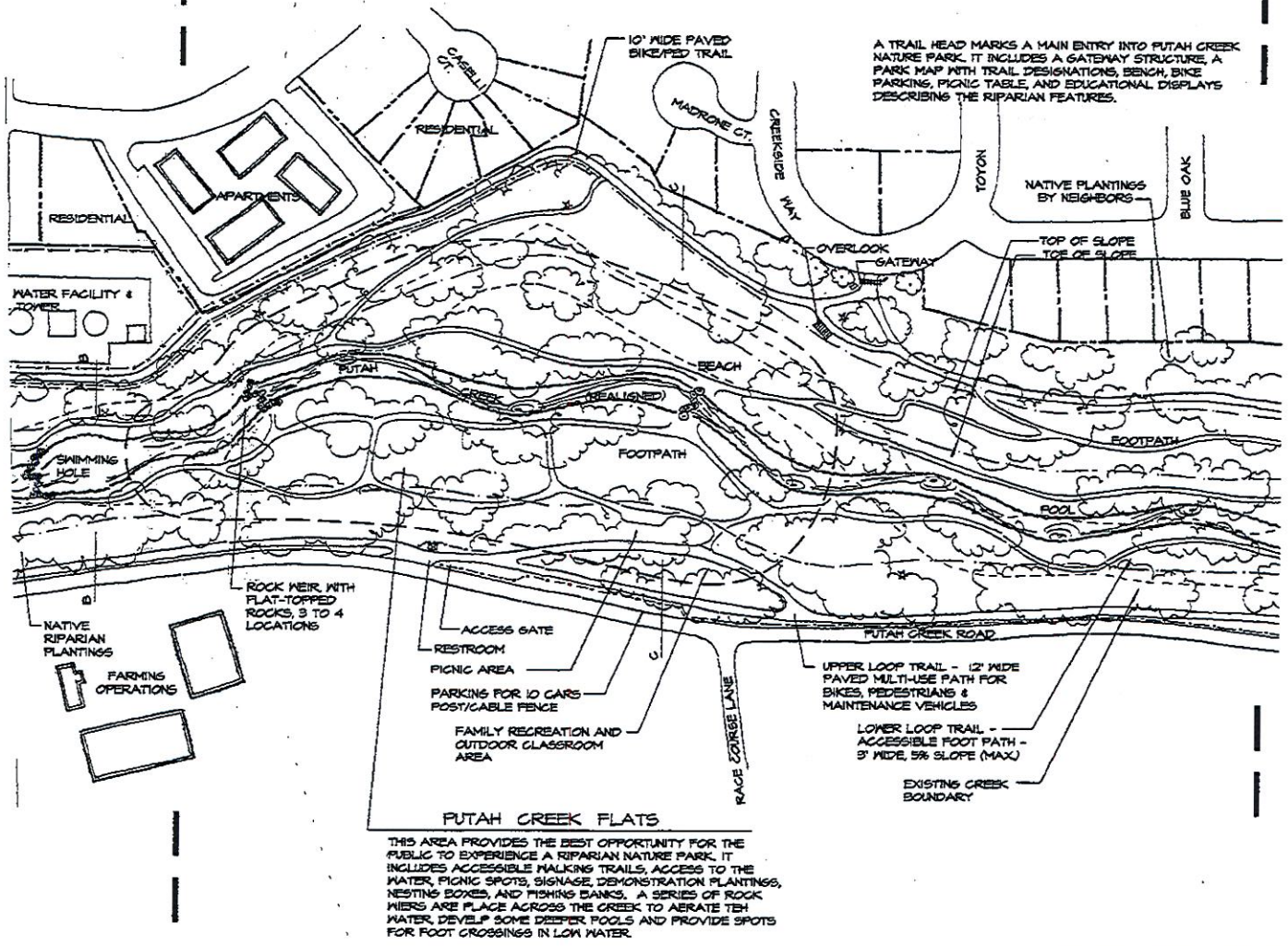
**MATCHLINE SEE SHEET 2**

0 30 60 120 180
SCALE IN FEET

# PUTAH CREEK NATURE PARK - DRAFT MASTER PLAN

**CITY OF WINTERS**

SHEET 1 OF 3
OCTOBER 2007




## PUTAH CREEK FLATS

THIS AREA PROVIDES THE BEST OPPORTUNITY FOR THE PUBLIC TO EXPERIENCE A RIPARIAN NATURE PARK. IT INCLUDES ACCESSIBLE WALKING TRAILS, ACCESS TO THE WATER, PICNIC SPOTS, SIGNAGE, DEMONSTRATION PLANTINGS, NESTING BOXES, AND FISHING BANKS. A SERIES OF ROCK WIERS ARE PLACE ACROSS THE CREEK TO AERATE TEH WATER, DEVELP SOME DEEPER POOLS AND PROVIDE SPOTS FOR FOOT CROSSINGS IN LOW WATER.

## PUTAH CREEK "FLATS"

THIS IS THE MIDEST PORTION OF THE CREEK BED. BY EXPANDING ON THE EXISITNG CONDITIONS THIS 4 ACRE AREA IS LARGE ENOUGH FOR RECREATIONAL AND EDUCATIONAL. THOSE WHO WANT TO EXPERIENCE THE CREEK - FAMILIES, COMMUNITY EVENTS, SCHOOL TRIPS THE

## FAMILY RECREATION AREA

- WIDE, LOWER TERRACE
- PICNIC TABLES
- ACCESSIBLE TRAILS
- FISHING SPOTS
- ROCK CROSSINGS
- SHADY AREAS
- OPEN VIEWS & ACCESS TO THE WATER
- HC PARKING SPACES
- SIGNAGE AND MAP
- DOG POOP STATIONS
- TRASH CANS
- TOILET OR PORTA-POTTY
- LIMITED PARKING ALONG PUTAH CREEK ROAD

## OUTDOOR CLASSROOM

- RESERVABLE GATHERING AREA FOR OUTDOOR STUDIES
- ALL EDUCATION AREAS ARE ACCESSIBLE
- PICNIC TABLES
- 'RANGER STYLE' SEATING AREA
- TRAILS
- SIGNAGE

## HISTORY AND LITERATURE

- CREEK HISTORY
- WINTERS' HISTORY
- NATIVE AMERICAN
- EMIGRATION
- EARTHQUAKES
- AGRICULTURE
- POETRY

## SCIENCE

- RIPARIAN HABITAT
- CREEK GEOMORPHOLOGY
- PLANT REVEGETATION
- FISH HABITAT
- CRITTERS
- SOIL

## ART

- NATURE MOTIFS
- LOCAL MATERIALS FROM THE CREEK
- COLORS AND DYES
- LANDSCAPES
- PATTERNS

**MATCHLINE - SEE SHEET 1**

**MATCHLINE - SEE SHEET 3**

0 30 60 120 180
SCALE IN FEET

# PUTAH CREEK NATURE PARK - DRAFT MASTER PLAN

**CITY OF WINTERS**

SHEET 2 OF 3
OCTOBER 2007

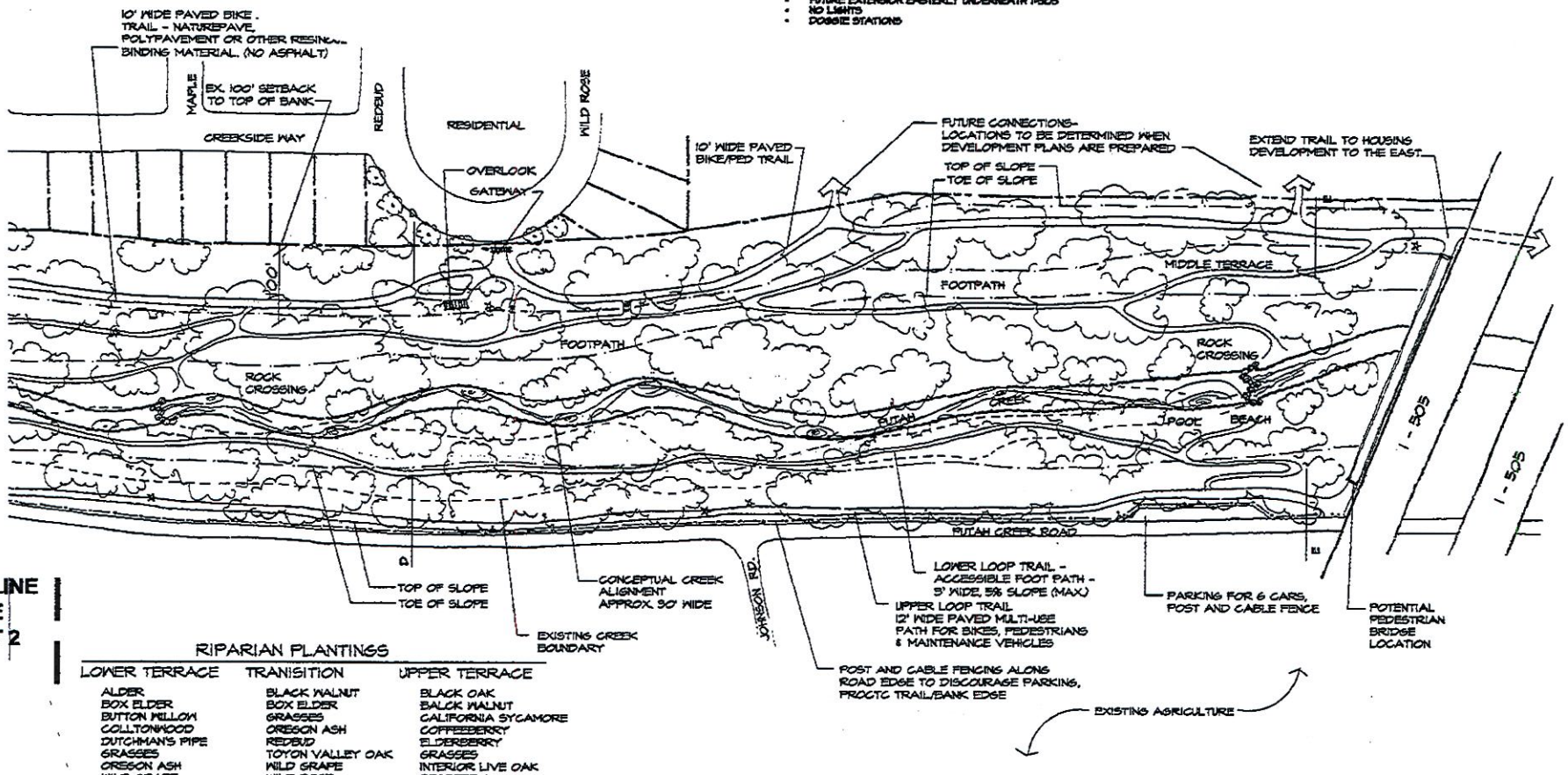
## COMMUNITY GATEWAYS

- GATEWAY AT TRAILHEAD
- BENCH
- TRASH CANS
- SIGNAGE AND MAP
- EDUCATIONAL DISPLAYS

## TRAILS

UPPER TRAIL
- CONNECTS TO CITY STREETS AND OPEN SPACES
- PAVED MULTI-USE TRAIL - MINIMUM 10' WIDE - BIKES, PEDESTRIANS, SERVICE VEHICLES
- RESPECTS RESIDENTIAL PRIVACY
- LOOPED TRAIL - CONNECTS NORTH AND SOUTH BANKS
- ACCESSIBLE - LESS THAN 5% SLOPE
- OVERLOOKS WITH BENCHES
- TWO PEDESTRIAN BRIDGES
- FUTURE EXTENSION EASTERLY UNDERNEATH I-505
- NO LIGHTS
- DOGGIE STATIONS

LOWER TRAIL
- UNPAVED PATHS - CITY TO RESLAZE PATHS EACH SPRING
- ACCESSIBLE - LESS THAN 5% SLOPE
- PATHS LEAD TO WATER'S EDGE
- ACCESSIBLE UPPER & LOWER TRAIL CONNECTIONS




**MATCHLINE - SEE SHEET 2**

## RIPARIAN PLANTINGS

| LOWER TERRACE | TRANISITION | UPPER TERRACE |
|---|---|---|
| ALDER | BLACK WALNUT | BLACK OAK |
| BOX ELDER | BOX ELDER | BALCK WALNUT |
| BUTTON WILLOW | GRASSES | CALIFORNIA SYCAMORE |
| COLLTONWOOD | OREGON ASH | COFFEEBERRY |
| DUTCHMAN'S PIPE | REDBUD | ELDERBERRY |
| GRASSES | TOYON VALLEY OAK | GRASSES |
| OREGON ASH | WILD GRAPE | INTERIOR LIVE OAK |
| WILD GRAPE | WILD ROSE | REDBERRY |
| WILLOW | | TOYON VALLEY OAK |
| CATTAILS | | WILD ROASE |
| TULES | | |



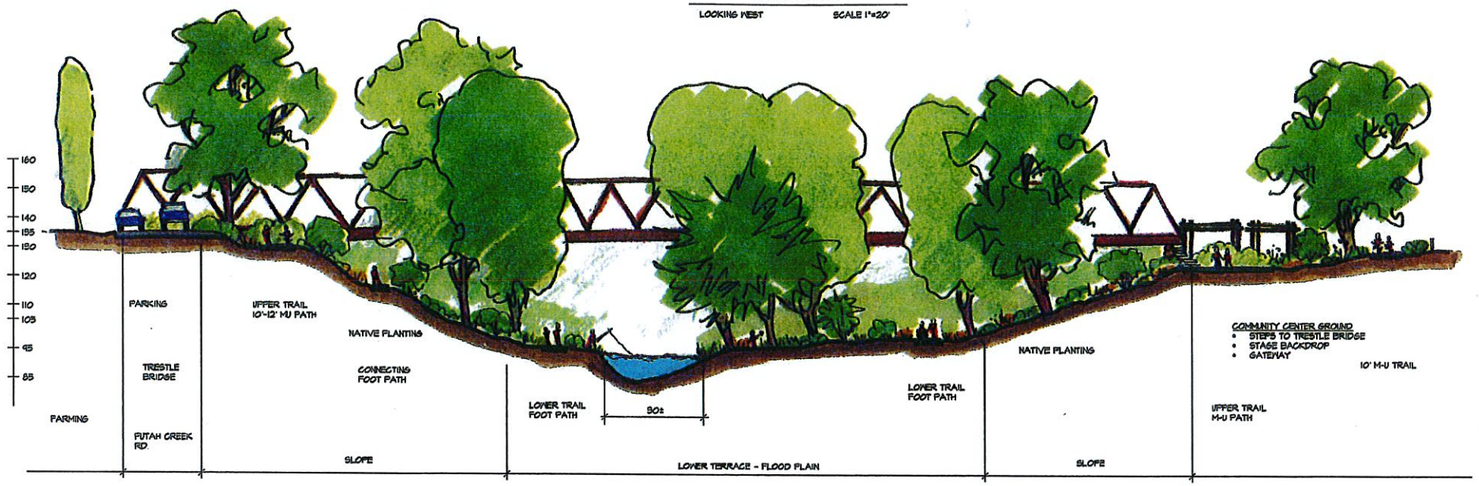
# PUTAH CREEK NATURE PARK - DRAFT MASTER PLAN

**CITY OF WINTERS**

SHEET 3 OF 3
OCTOBER 2007

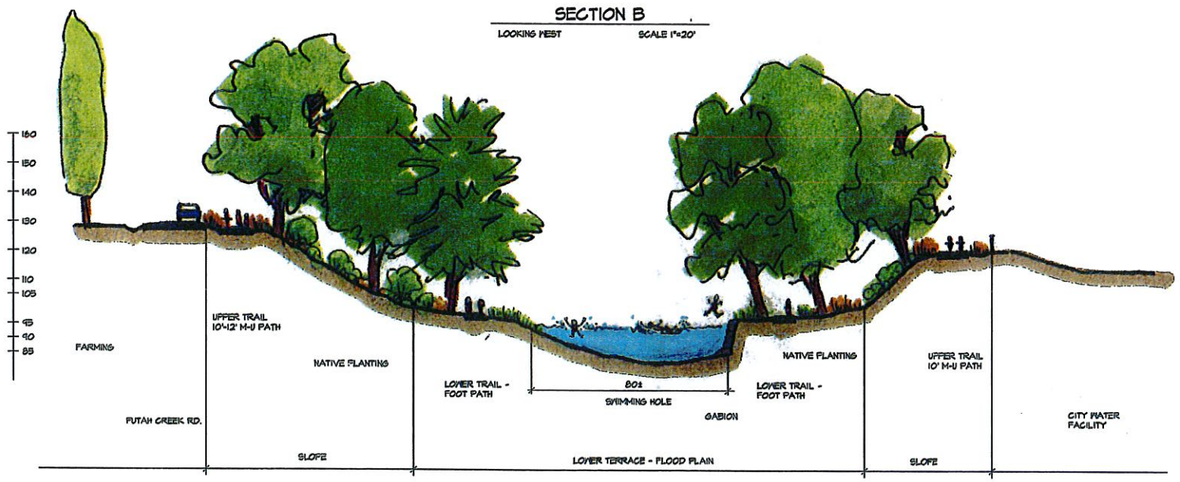
## SECTION A

LOOKING WEST SCALE 1"=20'




## SECTION B

LOOKING WEST SCALE 1"=20'





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# PUTAH CREEK NATURE PARK MASTER PLAN

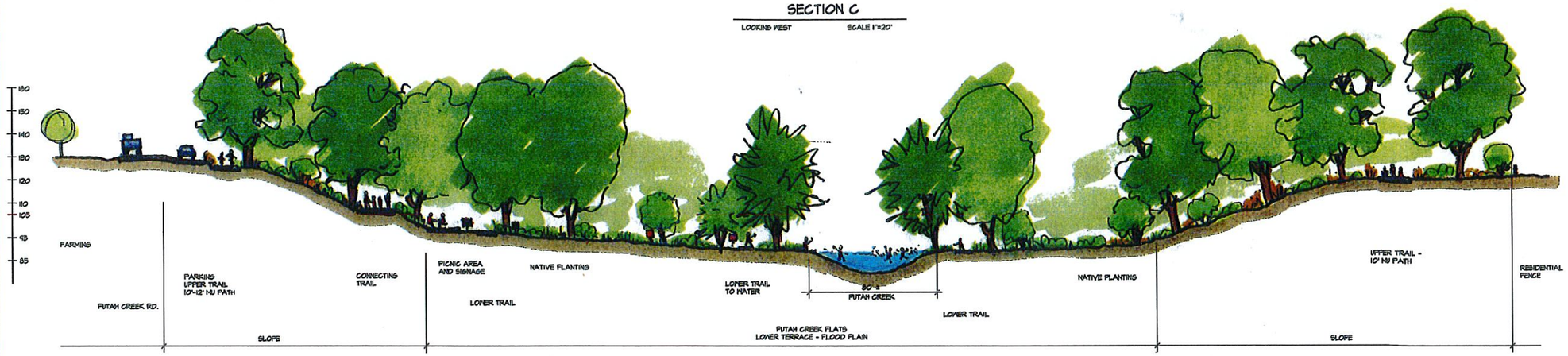
## CROSS SECTIONS 'A' & 'B'

OCTOBER 2007

CITY OF WINTERS

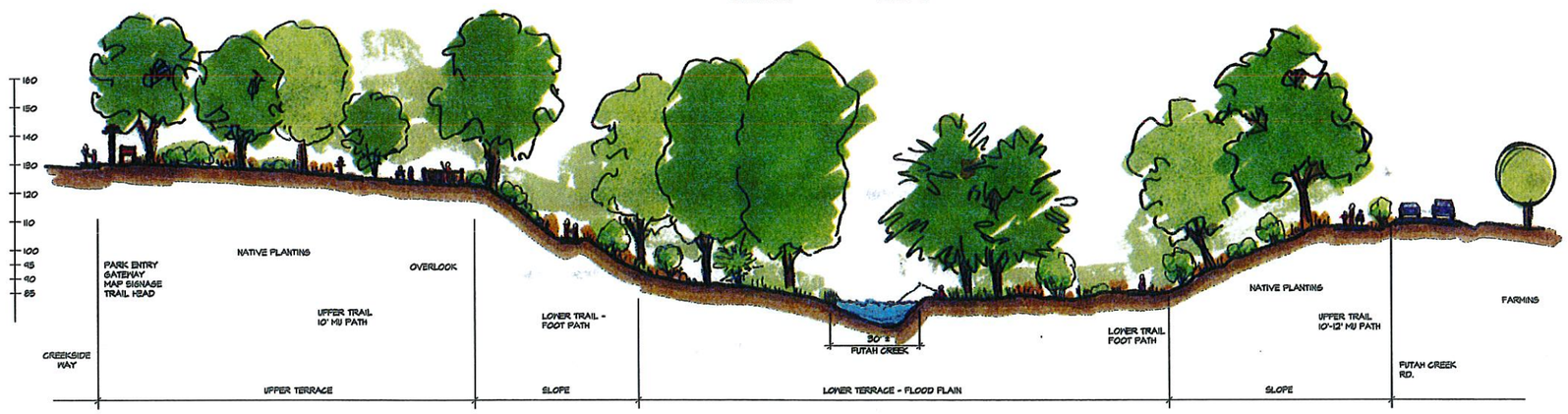
## SECTION C

LOOKING WEST  SCALE 1"=20'




## SECTION D

LOOKING EAST  SCALE 1"=20'





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# PUTAH CREEK NATURE PARK MASTER PLAN

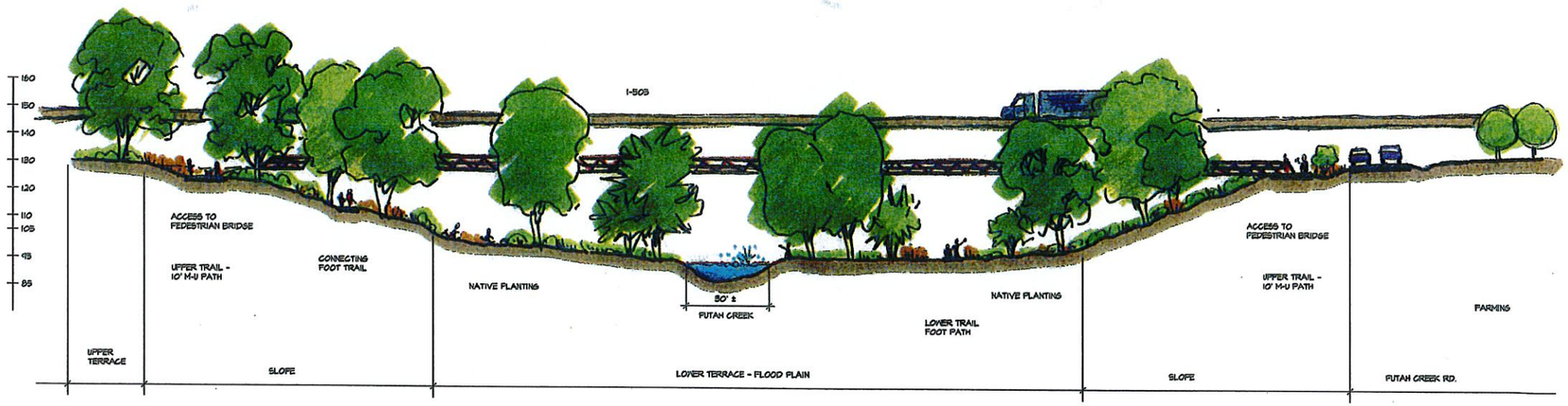
## CROSS SECTIONS 'C' & 'D'

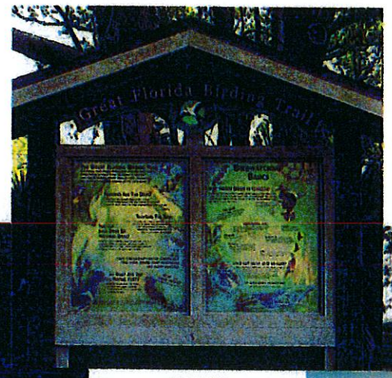
OCTOBER 2007

CITY OF WINTERS

## SECTION E

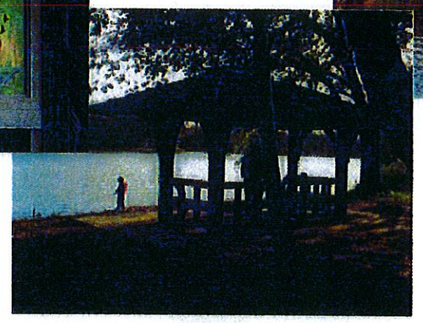
LOOKING EAST  SCALE 1"=20'



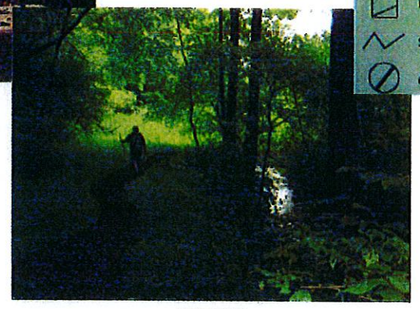

DISPLAY

SWIMMING HOLE

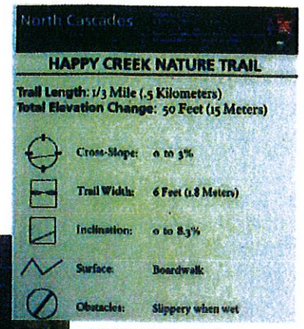


OVERLOOK

PEDESTRIAN BRIDGE



FOOTPATH




ACCESS TRAIL PATH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# PUTAH CREEK NATURE PARK MASTER PLAN

## CROSS SECTION 'E' & IMAGES

OCTOBER 2007

CITY OF WINTERS

# Appendix D

## Public Workshops

**Putah Creek Nature Park Master Plan**
**Workshop #1**
Saturday, March 10, 2007

This is a summary list of the comments recorded during the 1st Workshop.

**GOALS:**

- Improve recreational value
- Improve access to the creek
- Improve safety
- Ecological sustainability
- Educational resource
- Contribute to economic vitality

**OPPORTUNITIES:**

- Rope swing/recreational value/beach area
- Modify to improve safety and family friendliness
- Reduce erosion
- Riparian corridor
- Create/maintain public access
- Create natural bridge
- Better access and flat areas
- Maintain current depth
- Improve water quality
- Keep stream in natural state
- Future benefits
- Skim the scum
- Improve fish and fishing (trout and salmon)
- Creekside parking/vehicular access
- Improve walking trails/connectivity
- Art walk
- Interpretive signs
- Restore native vegetation
- Neighborhood input/public participation
- Community-based decisions
- Modifications to flow/plan
- Pulse flows in winter
- Lifeguard staff
- Control off-road vehicle access
- Modify natural channel width
- Removal of invasive weeds
- Make information available on city website
- Dogs/facilities
- Gateway to creek
- Increase diversity of habitat
- Trash and recycling
- Public school access/use

- Removal of obstructions to gravel
- Police presence
- Public awareness with monthly newsletter (water bill)
- Identify safety concerns/issues

**ISSUES/CONCERNS:**

- Cost
- Management plan
- Public access
- Water quality/spillage
- Beaver dams
- Rustic charm
- Impacts of privately owned sections
- Flooding
- Environmental impacts
- Sentimental value
- No vehicular access
- Police presence/patrolling
- Increase water flows
- Improve what we have
- Risk of unknown consequences
- Altering water flow
- Recreational value
- Restoration vs. recreation
- Focus on Winters
- Keep stream in natural state
- Keep dam and modify to improve safety and family friendliness
- Damage to existing vegetation/clear-cutting
- Tree removal
- Fishery analysis
- Spraying
- Canyon Creek Resort upstream effects
- Steep banks
- Adherence to CEQA process
- Liability concerns
- Hang-out place
- Scum
- Future impacts
- Swimming hole
- Percolation dam
- Inappropriate uses
- Coordinated efforts
- Lack of communication/understanding/ notification
- Maintenance plan
- Teenage input needs to be heard
- Native vs. non-native approach – look at specific plant

**Putah Creek Nature Park Master Plan**
**Workshop #2**
Saturday, May 24, 2007

The following is a summary of the park issue and elements the public recorded on large maps of the park. The comments have been organized under general topics.

**Creek Features**
Provide family picnic and beach areas for a balanced use
Weirs to crossable by foot
Use weir to create Lake Winters [again]
Paddle boats
Swimming in the creek
Why change the creek bed?
How is it being changed?
Locate beaches away from 505 & pollution spills
Add new percolation dam
Eastern beach [near I-505] too remote, invites wild parties

**Habitat**
Creek restoration to promote salmon and other fish habitat
New plan to support fish and wildlife resources
No further pollution in the creek [sewage spills]
Clean the existing sand
More native vegetation and screening [to replace lost vegetation]

**Safety**
Regular police patrol on bike and/or foot
Docents on busy days for eyes/safety
Solar powered lights on bike path
No light pollution
Non-invasive lights-out by 10 pm
No lights

**Circulation**
Put pathways as far from houses and apartments as possible
Have pathways less than 10 ft. wide
Unpaved paths are okay
Extend main path to county housing
Hard and soft paths
Safe bike route
Put a path on intermediate terrace
Use pervious surface for path [no asphalt]
Connected loop trails – upper and lower
Connect apartment complex to the trail

**Putah Creek Road**
Parking needed
Post & chain fence to prevent parking on private property and on-ramp to 505 Vacaville
Expand Putah Creek Rd. for bikes and parking

**Site Amenities**
Art Walk locations
Metal sculpture for Art Walk
Sculpture gardens (kids)
Play garden
Science Center
Picnic areas
Living fences instead of walls-prevent graffiti
Dog poop stations with biodegradable bags, replenished by the city

**City Facilities and Maintenance**
Structures design style to be classic, rustic, natural look and materials-to blend with Winters' small town character and ambiance
Phasing Plan needed
Phased construction possible with grants
Does City have money to keep parks clean and weeds mowed?
Prevent stormwater run-off from impervious surfaces into the creek
Remove cell tower
Relocate pumping plant and use area for restroom/community building, parking lot

# Appendix E

## Opinion of Estimated Costs

## PUTAH CREEK NATURE PARK, WINTERS

### LANDSCAPE ARCHITECT'S OPINION OF PROBABLE CONSTRUCTION COSTS

Purpose: Project Budgeting
Based on the Draft Master Plan dated October 2007
Last Revised: October 10, 2007

**DRAFT**

**The line items and associated unit costs are to be used for estimating costs for discrete portions for work. The unit cost may vary up or down, based on the project location and difficulty or restrictions in installation.**

| Item | Description | Qty | Units | Unit Cost | Total-Materials & Labor |
|---|---|---|---|---|---|
| | **Site Preparation and Grading - Unit costs unknown, too many variables** | | | | |
| 1 | Clearing and Grubbing | | | | $ - |
| 2 | Misc. Demolition and removals | | | | $ - |
| 3 | Clearing & Removals | | | | $ - |
| | **Site Mobilization & Demolition Sub-Total:** | | | | **$ -** |
| | **Grading & Drainage - Unit costs unknown, too many variables** | | | | |
| 4 | Rough Grading | | | | $ - |
| 5 | Finish Grading | | | | $ - |
| 6 | Imported Soil | | | | $ - |
| 7 | Erosion Control | | | | $ - |
| 8 | Drainage | | | | $ - |
| | **Grading & Drainage Sub-Total:** | | | | **$ -** |
| | **Creek Rechannelization: Costs dependent on grant application requirements - Unit cost unknown, too many variables** | | | | |
| 9 | Demoliton | | LF | | $ - |
| 10 | Excavation | | LS | | $ - |
| 11 | De-watering | | LF | | $ - |
| 12 | Grading | | LF | | $ - |
| 13 | Gabions | | LF | | $ - |
| 14 | Revetments | | LF | | $ - |
| 15 | Rock Weirs | | LS | | $ - |
| 16 | Revegetation | | LF | | $ - |
| | **Creek Rechannelization Sub-Total:** | | | | **$ -** |
| | **Site Utilities - Some unit costs unknown, too many variables** | | | | |
| 17 | Sewer | | LF | | $ - |
| 18 | Domestic Water Service w/ meter, backflow preventor at City Water well site | | EA | | $ - |
| 19 | Domestic water line- 1" | | LF | | $ - |
| 20 | Electrical connection | | LS | | $ - |
| 21 | Pedestrian path lights, 120' on center, Community Center area only | | EA | $ 3,000 | $ - |
| | **Site Utilities Sub-Total:** | | | | **$ -** |
| | **Paving** | | | | |
| 22 | AC paving - parking at City Wwater site | 4,800 | SF | $ 6 | $ 27,600 |
| 23 | AC paving - parking along Putah Creek Road | 11,200 | SF | $ 6 | $ 67,200 |
| 24 | Trails-Soil with resin binder -10' wide (upper loop trail north) | 62,500 | SF | $ 7 | $ 437,500 |
| 25 | Trails-Soil with resin binder - 12' wide (upper loop trail south) | 62,500 | SF | $ 7 | $ 437,500 |
| 26 | Concrete paving (at Community Center) | 1200 | SF | $ 7 | $ 8,400 |
| 27 | Concrete steps and handrails at Trestle Bridge connection | 1 | LS | $ 10,000 | $ 10,000 |
| 28 | Accessible Trail Mat (removable) | 1 | EA | $ 1,000 | $ 1,000 |
| 29 | Bladed trails (first spring) | 14000 | LF | $ 1 | $ 7,000 |
| | | | | **Paving Sub-Total:** | **$ 996,200** |
| Alt | Trails-Decomposed Granite (upper loop trail-north) | | SF | $ 2.50 | $ - |
| | **Site Amenities** | | | | |
| 30 | Seat Wall - at grassy area | 300 | SF | $ 20 | $ 6,000 |
| 31 | Accessible Drinking Fountain | 1 | EA | $ 4,000 | $ 4,000 |
| 32 | Picnic table | 6 | EA | $ 1,200 | $ 7,200 |
| 33 | Trash Receptacle | 10 | EA | $ 800 | $ 8,000 |
| 34 | Restroom Structure (Pre-fabricated) | 1 | EA | $ 80,000 | $ 80,000 |
| 35 | Restroom Enclosure for protable toilet | 1 | EA | $ 30,000 | $ 30,000 |
| 36 | Overlook | 3 | EA | $ 5,000 | $ 15,000 |
| 37 | Stage Arbor-Backdrop | 1 | LS | $ 5,000 | $ 5,000 |
| 38 | Kiosk / Informational Board | 6 | EA | $ 800 | $ 4,800 |
| 39 | Signage - map, wayfinding, educational | 10 | EA | $ 500 | $ 5,000 |
| 40 | Park Sign | 4 | EA | $ 1,000 | $ 4,000 |
| 41 | Boulders for seating (not part of rip-rap, weirs) | 10 | EA | $ 150 | $ 1,500 |
| 42 | Prefabricated bench | 6 | EA | $ 1,200 | $ 7,200 |
| 43 | Log bench | 10 | EA | $ 300 | $ 3,000 |
| 44 | Gateway | 4 | EA | $ 5,000 | $ 20,000 |
| 45 | Flagpole | 1 | EA | $ 1,000 | $ 1,000 |
| 46 | Fencing - post and cable | 4300 | LF | $ 10 | $ 43,000 |
| 47 | Retaining wall at City Wwater plant, Restroom | 900 | SF | $ 40 | $ 36,000 |
| 48 | New fencing at Apartments and City Wwater plant | 720 | LF | $ 20 | $ 14,400 |
| | | | | **Site Amenities Sub-Total:** | **$ 280,700** |

| | | Qty | Units | Unit Cost | Total |
|---|---|---|---|---|---|
| | **Pedestrian Bridge** | | | | |
| 49 | Prefab bridge - upper trail | 1 | EA | $ 450,000 | $ 450,000 |
| | | | | **Pedestrian Bridges Subtotal:** | **$ 450,000** |
| | **Planting** | | | | |
| 50 | Native trees, shrubs ground covers within creek zone | | SF | $ 2.00 | $ - |
| 51 | Ornamental plantings | | SF | $ 2.50 | $ - |
| 52 | Turf (sod) for park near water facility | | SF | $ 1.00 | $ - |
| | | | | **Planting Sub-Total:** | **$ -** |
| | **Irrigation** | | | | |
| 53 | Irrigation System | | SF | $ 2 | $ - |
| | | | | **Irrigation Sub-Total:** | **$ -** |
| | **Maintenance:** | | | | |
| 54 | 90-Day Maintenance Period | | SF | $ 0.10 | $ - |
| 55 | 6' Temporary Construction Fence, rented | | LF | $ 4 | $ - |
| | | | | **Maintenance Sub-Total:** | **$ -** |

**The following categories are to be included in calculating the budgets for each construction project. These percentages of the construction budget are approximations.**

| | | |
|---|---|---|
| | Site Mobilization / Demobilization | 3% |
| | Staking and Surveying | 2% |
| | Geotechnical Inspection and Testing | 2% |
| | Inspection and Permits | 8% |
| | Contingency | 20% |
| | Design Fees - Improvement Plans | 10% |
| | Construction Management | 5% |

**Notes:**

| | |
|---|---|
| 1 | In providing opinions of probable construction cost, the Client understands that the Landscape Architect has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinions of probable construction costs provided herein are to be made on the basis of the Landscape Architect's qualifications and experience. The Landscape Architect makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs. |
| 2 | This opinion of probable cost was based on the Preliminary Master Plan dated October 2007 for the Putah Creek Nature Park Master Plan, which has not yet been approved. Actual quantities may vary during the construction of this project. |
| 3 | This opinion of costs assumes that the improvements will occur in multiple phases; and additional costs may be incurred. Costs also assume competitive bidding. |
| 4 | This opinion of costs DOES NOT include costs for the following items: |
| | a. Engineering, construction management and soils testing, except as noted. |
| | b. Joint trench utility costs (PG & E, Pacific Bell and CATV). Undergrounding or relocation of existing overhead utility lines. |
| | c. Permits or other City, Agency fees. |
| | d. Any costs related to environmental assessment or the mitigation of any contamination, endangered species or archeological resources. |
| | e. Costs for land, financing, bonds and easements. |
| | f. Design and construction phase costs. Protection of trees. |
| | g. Demolition, except as noted in Opinion of Costs. |
| | h. Off-site improvements, except as noted. |
| 5 | Unit costs are July 2007 basis. Costs will be reviewed and updated annualy as part of the City's CIP process. |
| 6 | This opinion assumes payment of prevailing wages. |
| 7 | Not every line item will have a unit quantity or cost. The particular line item may have too much variability, making any figure irrelevant. These Line Items are included as a reminder of particular elements that will need to be quantified as specific projects are developed. |

# Appendix F

# WPCC Vegetation Management Plan

# VEGETATION MANAGEMENT PLAN

Prepared by:

**Winters Putah Creek Committee**

Adopted December 18, 2007

## Table of Contents

# 1 Purpose of this Document

This plan describes general procedures to be used for managing vegetation on public lands bordering Putah Creek between the Railroad Avenue Bridge and Interstate 505, as shown in Figure 1[1]. This land area, referred to as the Winters Putah Creek Nature Park, totals about 40 acres, about 20 percent of which is open water.

In 2006, the Lower Putah Creek Coordinating Committee held a series of public meetings in Winters to review data collected for the Watershed Management Action Plan and identify priority sites for restoration. The community gave the Nature Park top priority for watershed restoration. This Vegetation Management Plan is part of a comprehensive effort to replace invasive weeds with native vegetation throughout 30 miles of Lower Putah Creek and tributaries. The plan will become a part of the updated Putah Creek Master Plan that is scheduled for adoption in 2007, and will be updated periodically as needed. A historical background of the formation of Winters Putah Creek Park and restoration activities is provided in Appendix A.

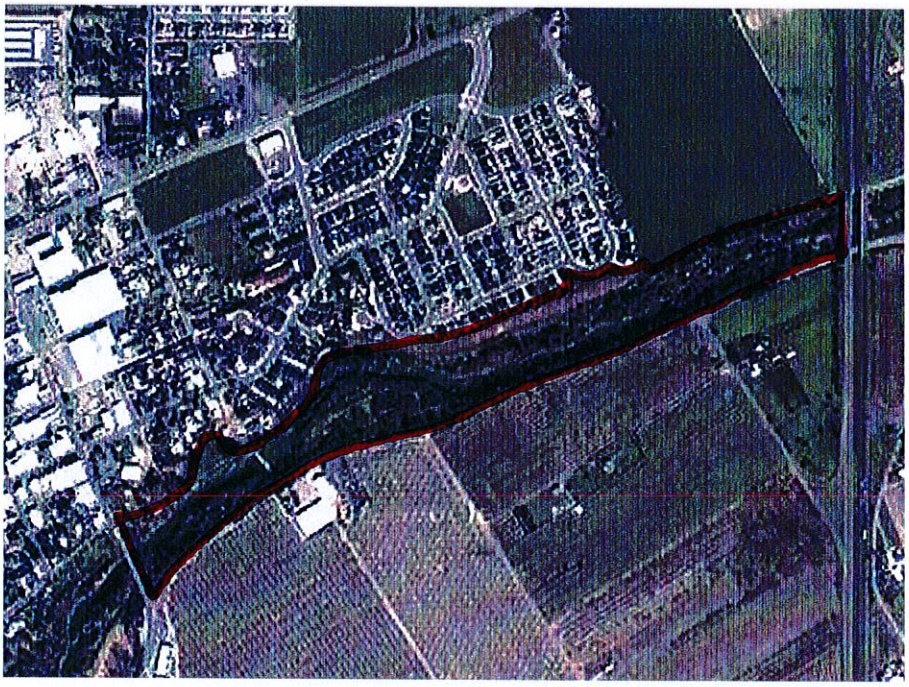

**Figure 1: Extent of Winters Putah Creek Nature Park**

With the removal of star thistle, the establishment of paths, and other improvements, the Putah Creek Nature Park has become a significant asset to the community that is enjoyed by many. This plan has the objective of facilitating continued improvements to enhance recreational uses and restore habitat, including replacement of invasive plants with native species and removal of plants that inhibit access to the creek. This plan also recognizes the importance of minimizing disruption of existing recreational uses during the restoration process, and the need to balance habitat restoration with recreational needs.

[1] Some of the inscribed land in Figure 1 is under private ownership.

# 2 Current Plant Species

## 2.1 Natives[2]

The upper north bank is populated by native trees including, valley oak (Quercus lobata), and buckeye (Aesculus californica). Sycamore (Platanus racemosa), white alder (Alnus rhombifolia), cottonwood (Populus fremontii), Oregon Ash (Fraxinus latifolia), and willow (Salix sp.) grow within the creek channel. Many of these trees have reached a considerable height and host woodpeckers, hawks, egrets, herons, and other desirable birds.

Of perennial native shrubs not planted by volunteer efforts within the past ten years, elderberry (Sambucus mexicana) and wild rose (Rosa californica) are the most prevalent. Poison oak (Rhus diversiloba) is also present on the lower terraces, and California grape (Vitus californica) is common along the steeper creek banks.

Except for some naturally occurring annuals such as miner's lettuce (Montia perifoliata) and sparsely occurring lupines (Lupinus sp.), the population of annuals is dominated by non-native annual grasses and dicotyledonous weeds.

## 2.2 Invasives

Of the 32 acres of land between the Railroad Avenue bridge to the west and Interstate 505 to the east, approximately twenty-five percent is covered by one or more of 12 priority invasive weeds: arundo, black locust, catalpa, domestic almond, English ivy, eucalyptus, fig, Himalayan blackberry, pepper tree, tamarisk, tree-of-heaven and Virginia creeper. Throughout the riparian corridor of Lower Putah Creek there are 1,800 occurrences of 20 primary invasive weeds occupying approximately 10 percent of the land area. Winters Putah Creek Park has about the same number of weeds per acre as the average reach of Putah Creek and has the highest population of eucalyptus upstream of the Interstate 505 overpass. A complete listing of invasive weeds found in the creek channel and their distribution is provided in Chapter 7 of the *Lower Putah Creek Watershed Management Action Plan.*

## 2.3 Walnut (Juglans Hindsii)

Walnut trees may or may not be native and will be treated on a case by case basis.

# 3 Protection of Existing Vegetation

## 3.1 General Approach to Projects

To ensure the success of plant removal and restoration projects, work plans will be carefully reviewed at the time funding opportunities are evaluated. The committee will work closely with funding proponents and grant administrators to craft grant concepts or applications that are protective of native vegetation and compliant with this Vegetation Management Plan and the wishes of the community. Grant administrators and/or City Staff will provide annual work plans for committee review and approval.

---

[2] Appendix D of the *Lower Putah Creek Watershed Management Action Plan* provides a complete inventory of native and non-native plants in the Lower Putah Creek watershed.

### 3.2 Protection of Native Trees

All native trees should be protected from damage during the removal of non-native vegetation, tree cutting, spraying, grading, or other restoration activities, though channel reshaping may require removal of some natives.

Existing native trees provide shade and greenery and help dissipate noise from Putah Creek Road. Some of these trees, particularly native walnut, are diseased and infected with mistletoe. Diseased native trees may be removed if deemed a physical hazard to humans, wildlife or park infrastructure or become an impediment to approved future park renovation projects. Following removal, replacement plantings should be done so that there is no net loss to effective tree canopy area when trees are at maturity. A watering system should be installed to assist their initial establishment. Trees that do not survive should be replaced within one year.

### 3.3 Elderberry Protection

Elderberry shrubs (Sambucus sp.), prevalent along Putah Creek in Winters, are the sole host plant for the federally threatened valley elderberry longhorn beetle (Desmocerus californicus dimorphus). The Conservation Guidelines for the Valley Elderberry Longhorn Beetle (revised 1999) were developed by the U.S. Fish and Wildlife Service to "…assist Federal agencies and non-federal project applicants needing incidental take authorization through a Section 7 consultation or a Section 10(a)(1)(B) permit in developing measures to avoid and minimize adverse effects on the valley elderberry longhorn beetle." In conducting restoration work, including trail cutting to access non-native plants, spraying or mechanical removal of invasives and creek grading, measures to protect elderberry plants shall follow these guidelines to the maximum extent possible, including replacement of plants that are removed during grading.

For specific projects that may involve removal of plants 1 inch or greater, the responsible agency will obtain a permit from the U.S. Fish and Wildlife Service, which provides project-specific directions and requirements for removal and replacement.

### 3.4 Protection of Vegetation While Spraying

During 2004 over-spray of herbicides targeting star thistle resulted in damage to ornamentals, fruit trees, and grapes planted on residential properties along Creekside Way. In the spring of 2007 spraying to control invasive weeds unintentionally damaged non-target plants including elderberry, miners lettuce, wild rose, oak, and almond. Dennis Chambers, Yolo County Deputy Agricultural Commissioner, completed an investigation of the 2007 incident and suggested measures to reduce the risk of damage to non-native species, including:

- Timing herbicide applications when desirable species are dormant
- Directing spraying away from and shielding desirable plants
- Use of hand held application equipment

Follow-up recommendations by Putah Creek Stream Keeper Rich Marovich, are provided in Appendix B. Marovich stated the "use of Milestone® Herbicide within 20 feet of elderberries is suspended pending further studies to determine if it can safely be used in proximity to elderberries in the dormant season." Appendix B also provides information on how to manage risks of damage to non-target vegetation resulting from application of Garlon 4 herbicide.

This plan adopts the following measures to protect plants from future spray damage:

1. No spraying shall be conducted while any native deciduous plants are emerging from dormancy.
2. To protect native annuals such as miner's lettuce and other sensitive plants as well as non-target ornamentals and fruit trees, spraying should be limited to hand-held equipment such as backpack or ATV-mounted tanks. Broadcast spraying will be reviewed in advance on a case-by-case basis by the WPCC.
3. No herbicides shall be used that may damage dormant native species.
4. Treatment of individual stumps with herbicide may be conducted at any time of year provided precautions are taken to protect nearby elderberry and other non-target species.

### 3.5 Mowing

Grasses and other vegetation can become fire hazards when dry, and city ordinances call for mowing to reduce this fire danger. Mowing can damage desirable plants such as small native shrubs, trees and deergrass that have been planted as part of the restoration effort. All such plants should be staked prior to mowing, and mower blades should be set high enough to avoid damage to creeping wild rye grass or irrigation systems. The WPCC will coordinate the placement of stakes with Winters Public Works.

## 4 Removal of Invasive Species

### 4.1 Goals and Justification

Invasive weeds by definition rapidly spread and colonize ever-larger portions of the landscape unless they are actively controlled. Uncontrolled populations degrade downstream areas by spreading seeds, roots and stems that start new infestations. At Winters Putah Creek Park, invasive weeds, especially blackberry and arundo prevent access to the water in many areas and severely limit recreational opportunities. They also provide concealment for encampments by homeless persons and impede the discovery and removal of solid waste.

Removal of invasive weeds with currently available resources is an essential first step toward restoration of habitat and recreational value. Weeds currently obstruct access for engineering surveys for future improvements. Weed control demonstrates readiness for future grant-funded improvement projects. The most competitive proposals for public funding to manage vegetation will combine geomorphic restoration with vegetation management because the results will be more permanent and sustainable.

### 4.2 Strategies

Efficient weed management entails selective treatment of weeds with herbicides preceded or followed by mechanical removal. Some weeds may be left to decompose in place where access for mechanical removal is limited. In addition, logs salvaged from vegetation removal activities may be recycled along the creek to help stabilize constructed flood terraces.

Equipment access is essential for economical weed spraying and removal. Many sites in Winters Putah Creek Park have limited visibility and access due to dense undergrowth especially by blackberry thickets. Pioneering trails through these thickets is an essential

first step to assess, treat and remove weeds. Measures to protect elderberry shrubs and nesting birds will be implemented before trails are constructed. Specific treatment methods for invasives are listed at the following web site: http://tncweeds.ucdavis.edu/esadocs.html.

### 4.3 Timing and Schedule

The timing of vegetation removal will depend upon the availability of resources, manpower, accessibility, equipment, and other factors. The season for weed control is largely limited to the winter months when native vegetation is dormant. This improves visibility and therefore worker safety and it also takes advantage of the selectivity of Roundup (glyphosate) herbicide against blackberry, arundo and eucalyptus because Roundup does not affect dormant vegetation. When weeds are intertwined with native vegetation (often the case with blackberry) then winter is the only season when blackberries can be treated without damage to native plants.

Many herbicides are also most effective in winter months when weeds are not actively growing. Treatment of weeds in spring and summer is often ineffective because the weeds are growing so fast that they dilute the herbicide with growth or the herbicide kills the top of the plant and leaves the roots alive to resprout (e.g. arundo). Roundup in particular works best in the fall and winter because it is slowly absorbed and translocated throughout the plant. Weeds treated with Roundup in the fall and winter take in the herbicide more thoroughly than at other times and control is much greater from any given application.

The season for effective weed control is often extremely limited. High rainfall and sustained high flows in Putah Creek have curtailed most weed control operations in 2002-2003, 2004-2005 and 2005-2006. Weed control with equipment is also limited by the bird nesting season (March through July) and by terms of grants that fund weed removal.

Control of herbaceous weeds such as milk thistle, yellow star thistle, mustards, and ripgut brome should be timed to coincide with native grass restoration when final grade is established. Native grasses in particular require aggressive herbaceous weed control in the first year but then provide weed resistant landscapes and diminishing requirements for weed control over time.

Figure 2 outlines a general schedule for phased removal of Eucalyptus trees and other non-natives. The east half of the Nature Park extends from the Interstate 505 bridge to the Creekside Way access point. The next quarter extends from the Creekside Way access point to the percolation dam. The fourth quarter extends from the percolation dam to the Railroad Avenue Bridge.

### 4.4 Species to be Removed

Invasive plant species targeted for removal are listed in Appendix C, and a map showing the location of invasives is provided in Appendix D. Woody and shrubby weeds such as eucalyptus, tamarisk, tree-of-heaven and Himalayan blackberry are the highest priority for control and removal because they compete most vigorously with native vegetation and impede surveys for other improvements.

### 4.5 Permissions

Some of the land inscribed in Figure 1 is under private ownership. This includes the McClish property adjacent to Interstate 505 and the apartments west of Caselli Court.

Ownership of these properties extends to the center of the creek, and the City must either obtain permission for work to be done or acquire this property.

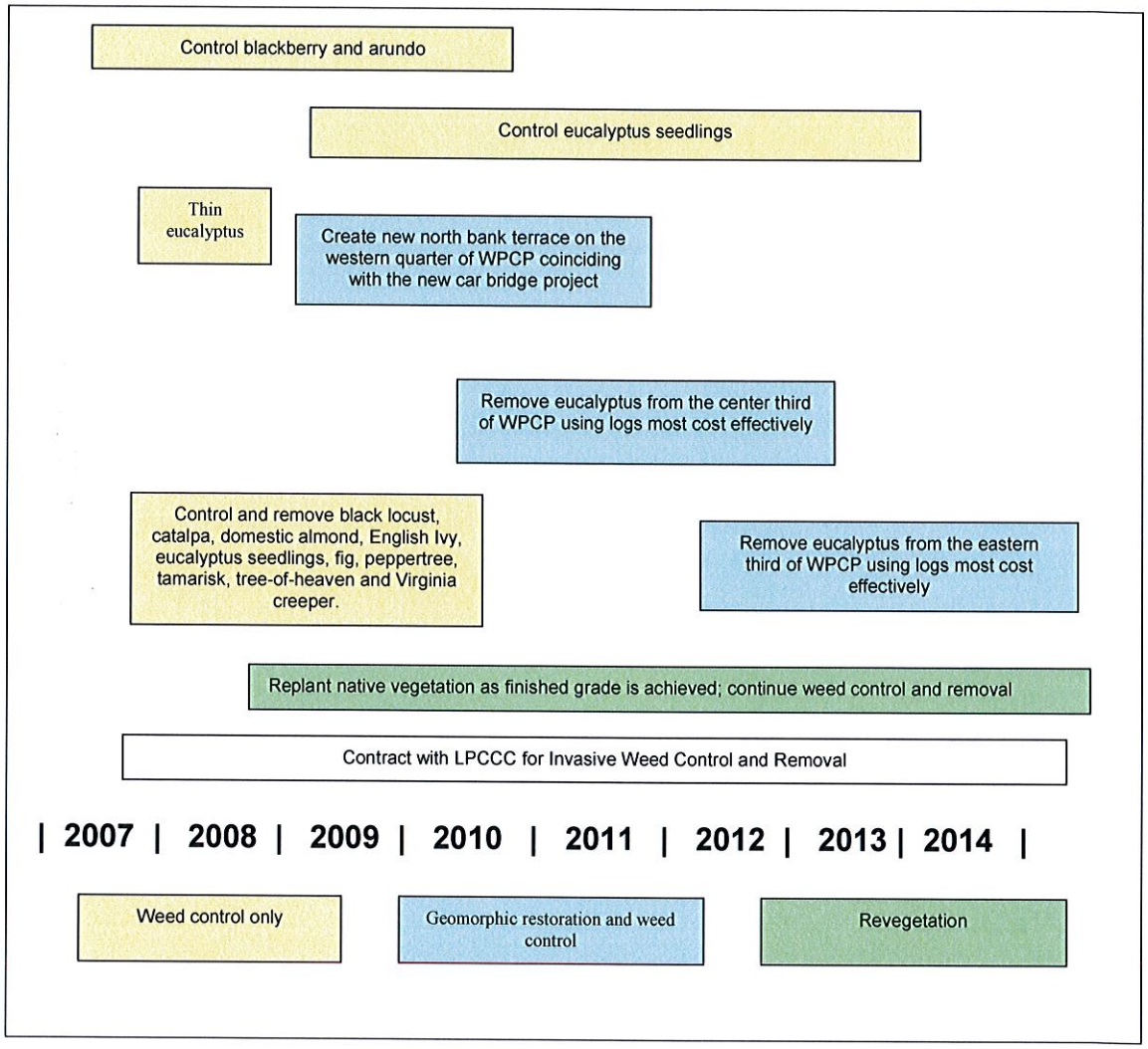


**Figure 2: Proposed Schedule & Tasks for Vegetation Removal**[3]

# 5 Re-Vegetation Plan

## 5.1 Goals

Re-planting with native plant species is needed to discourage the re-emergence of non-native plants and to create a sustainable natural environment that attracts wildlife populations and enhances enjoyment by Winters citizens and visitors. Re-vegetation should occur as soon as possible following removal of invasive species except for areas that may be disturbed by pending modifications to the creek channel.

[3] Pending approval for individual projects through all applicable state and federal regulations as described in Appendix E

At a neighborhood meeting of Winters citizens held on April 7, 2007, a commonly held concern was that removal of Eucalyptus trees and other vegetation would leave the area barren for many years. In some locations there are no native trees in the understory, and 20 years of growth or more will be required to establish trees that provide the amount of shade or habitat that Eucalyptus currently provide.

Vegetation removal proposals should include a schedule for replanting and a description of who will perform the work, how it will be maintained, and how it will be funded. A priority of the re-vegetation plan is to plant fast growing native trees immediately after removal of the Eucalyptus, and to nurture them with water and fertilizer to insure fast growth.

### 5.2 Strategy and Timing

Sites that periodically flood will often passively restore to native vegetation when weeds are removed, especially where channel form and function has been restored. However, to insure that re-vegetation of desired species can occur soon after removal of invasives and other species, future grant applications should request balanced funding to provide for re-vegetation (including irrigation systems as needed) soon after removal. In locations that are several feet above the flow channel, irrigation systems should be provided at the time of replanting.

In areas that are below the median winter flows, cleared areas may be left to scour naturally down to functional elevations before replanting. Vegetation such as cottonwoods and willows that require access to groundwater should not be planted more than two or three feet above low flow channel elevation where they naturally occur on the creek.

Water is the most essential requirement of new plantings. Through at least the first season it is a matter of survival. Plants that are close to the low flow channel in distance and elevation may not require supplemental water, but all other plantings will require irrigation by drip, micro sprinkler, sprinkler or hand watering. If drip systems are used, they must be inspected regularly and repaired as necessary. Ten gallons per tree every ten days is sufficient on loam soils for newly planted small trees. More frequent watering may be needed on sandy or gravelly soils. In any case, the soil should be allowed to dry out somewhat between watering to encourage deep rooting, but not get so dry that new growth is interrupted.

Fertilizer is essential for rapid growth and high survival rates in most settings. Some soils are relatively fertile as evidenced by robust growth of weeds, while other sites are poor in nutrients. Soils should be tested before planting and fertilizers added according to test results. Fertilizers will increase growth of weeds as well as plantings, so weed control measures such as straw mulch will be implemented. The Creekside Way site was very low in phosphorous (2 ppm) and sulfur (1 ppm).

Because proposed geomorphic restoration (cut and fill operations) would disturb plantings, re-vegetation of areas that will be graded will not be undertaken until channel restoration work is completed. Grant proposals for geomorphic restoration will include sufficient funds for re-vegetation.

### 5.3 Species to be Re-Planted

Species to be planted will be taken from lists gathered in nearby reference reaches. Some of the more common native plants include: alder, arroyo willow, black willow, boxelder,

California buckeye, buttonbush, cottonwood, coyote bush, creeping wild rye, elderberry, Goodings willow, miners lettuce, mugwort, mulefat, narrow-leaved milkweed, valley oak, Oregon ash, pipevine, sandbar willow, Santa Barbara sedge, showy milkweed, California sycamore, torrent sedge, toyon, yellow willow, western redbud and wild rose. Spacing depends on budget and size of the plant at maturity. Plants of the same species typically occur in clumps and plantings can mimic natural occurrences by placing plants in groupings of three or more of the same kind. Plants are grouped by zone according to elevation above the low flow channel where they naturally occur and according to natural associations and aspect. For example, Santa Barbara Sedge is almost always found on north facing slopes in the shade of oak trees. The area of each zone will be calculated and a percentage of each species will be estimated. Species composition may be adjusted based on availability.

# 6 Roles and Responsibilities

## 6.1 City of Winters

The City of Winters has served a key role in creek restoration by co-sponsoring grants, providing funds for trail improvements, coordinating with agencies, contracting for work, and facilitating the development of the Putah Creek Master Plan. City staff person Carol Scianna has played a valuable role in assisting the WPCC by distributing agendas, preparing minutes, scheduling meetings, and communicating information amongst the agencies involved in the management of the creek. As landowner, the City will be responsible for preparing CEQA documents for any major improvements that require them, such as removal of the percolation dam and modifications to the creek channel. The City will also be responsible for insuring compliance with state and federal regulations affecting restoration work (see Appendix E).

As landowner and Lead Agency, the City of Winters should be responsible for timely advanced public noticing of "destructive" activities on or near the Putah Creek Park. These activities would include at a minimum, mature tree removal, construction of access roads, channel modifications and herbicide spraying. A plan for communicating activities to Winters residents is provided in Appendix F.

## 6.2 Winters Putah Creek Committee

The Winters Putah Creek Committee represents the voice of the Winters community on creek restoration and enhancement. The Committee is charged with developing this Vegetation Management Plan and will provide guidance and oversight for the implementation of the Plan. In addition, the committee is responsible for coordinating volunteer cleanups and plantings, assisting with public review of the Putah Creek Master Plan, and for advising the City Council on all other important matters pertaining to the management of the creek within Winters city limits, and the Nature Park.

As pointed out in the 1995 Putah Creek Master Plan, it is imperative that the community as a whole develop a strong sense of stewardship, and given limited resources and city manpower, volunteer participation will be necessary to insure the success and sustainability of restoration efforts. Diligent follow-up work is required to insure the survival of new plantings, and to prevent the return of undesirable plant species after their initial removal. The Committee will organize and coordinate volunteer groups to assist with plantings, installation and maintenance of irrigation systems, and weed control.

Committee volunteers can be trained and supervised in the use of herbicides to provide follow-through of restoration work by continuously controlling weeds.

### 6.3 Lower Putah Creek Coordinating Committee

The LPCCC has proven to be very effective at winning grant funding and is encouraged to continue to apply for funding to carry out the goals of the Putah Creek Master Plan. The LPCCC may also manage restoration work, coordinate with the City to obtain necessary permits for work to be performed, and coordinate with other agencies as needed.

### 6.4 Putah Creek Council

The Putah Creek Council can assist with fostering stewardship through educational and other programs such as Adopt-a-Flat, organizing community events such as cleanups and plantings, and providing input to the restoration process informed by their bio-monitoring activities, and coordinating with other groups such as the Putah Creek Discovery Corridor.

### 6.5 Public Participation

The WPCC encourages public participation in decisions related to vegetation management and restoration, and welcomes comments for creek restoration project phases that will be reviewed at WPCC meetings. Opportunities for public input include monthly meetings of the WPCC, participation in public meetings that may be required under CEQA, and Winters City Council meetings. The LPCCC and other grant managers are encouraged to present plans for their work at WPCC meetings and/or at other public forums.

## 7 Restoration Resources and Project Management

### 7.1 Status of Grants

Appendix G provides a listing of the status of current and pending grants and proposed grant applications.

### 7.2 Proposal Review and Management of Grant Project Activities

Grant proposals or proposal drafts shall be submitted to the Winters Putah Creek Committee for review prior to submission to the funding agencies, and the Committee will make recommendations to the City Council for approval (with or without modifications). The Committee will make every effort to avoid delay of proposal preparation so as to provide for timely submission. Grant project activities will be managed by the appropriate entity and monitored by the City of Winters with the assistance of the WPCC. A discussion of current and proposed grants is included in Appendix G.

## 8 Reference Documents

In addition to appendices, the following documents may be referenced for further information:

- 1995 Conceptual Master Plan of the Winters Putah Creek Corridor

- Lower Putah Creek Watershed Management Action Plan
- Conservation Guidelines for the Valley Elderberry Longhorn Beetle (U.S. Fish and Wildlife Service)
- Putah Creek Terrestrial Wildlife Monitoring Program 2004 and 2005 Reports
- Integrated Regional Water Management Plan for the Sacramento Valley
- Minutes of Winters Putah Creek Committee meetings and documents submitted to the committee by citizens

# Appendix A: Historical Background

Systematic planning for removal of invasive weeds along Putah Creek began with a 1993 study by the U.S. Fish and Wildlife Service entitled: "Report to Congress: Reconnaissance Planning Report Fish and Wildlife Resource Management Options for Lower Putah Creek, California." The report included maps of eucalyptus, arundo, tamarisk and tree-of-heaven as the primary invasive weeds to control. The report also identified continuity of native vegetation as a limiting factor for wildlife migration. The U.S. Fish and Wildlife Service held public meetings in Winters as part of the study.

In 1994, the Winters Putah Creek Committee was formed as a subcommittee of "Team Winters", a group of citizens that assembled to develop a vision for revitalizing the downtown business area. The committee developed a Conceptual Master Plan for the creek, and after a series of public meetings, in 1995 the City of Winters adopted a master plan for the "Winters Putah Creek Nature Park" that addressed the need for community stewardship, removal of invasive weeds, and other issues[4]. In 1996 the Committee began removing debris, planting, and watering and the first grant money was secured. In 1998 committee chair Jessica Kilkenny turned over leadership to Jeanne Wirka, who obtained additional grant funds and organized several volunteer plantings, cleanups, and path building work parties.

With the assistance of Rich Marovich, who was hired in 2000 by the Lower Putah Creek Coordinating Committee as Streamkeeper, much was accomplished on the 100 foot easement between lots on Creekside Way and the top bank of Putah Creek. This easement was acquired by the City through a development agreement. Yellow star thistle and other weeds were replaced by creeping wild rye, coyote brush, oak, toyon, elderberry, and other native species. Replacement was supported by the installation of a drip irrigation system.

In 2001 and 2002, Solano County Department of Environmental Management held a series of public meetings in Winters that identified invasive weed control as a main objective for management of Lower Putah Creek. In 2002, the Lower Putah Creek Coordinating Committee commissioned a study by EDAW to update and expand the scope of invasive weed maps for a creek-wide Watershed Management Action Plan. The EDAW study found 113 occurrences of 12 primary invasive weeds at Winters Putah Creek Park.

By 2004 public access to the north side of the Putah Creek Nature Park was facilitated by a wide path built by community volunteers that extends from the Community Center to the sewage pumping station, and CDC crews directed by the City built access trails to the creek at points near Madrone Court and Wild Rose Lane. As a result of non-sponsored volunteer efforts and daily use, narrow paths on upper and lower terraces now extend all the way from the pumping station to the Wild Rose Lane access point. Improvements proposed by the Putah Creek Master Plan would make this path handicapped accessible.

With the departure of Wirka in 2005, restoration and improvement work came to a halt, save some voluntary plantings and maintenance by residents and vegetation removal by CDC crews. The Winters Putah Creek Committee was re-instituted by City Council Resolution 2006-46 in October 2006 to carry on the mission of enhancing the recreational and environmental value of City-owned lands along Putah Creek and Dry Creek.

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[4] Prepared by Cheryl Sullivan, this plan is currently under revision.

To improve access to the creek and clear paths for spraying invasives (particularly Himalayan blackberry and arundo), the City used CDC crews and LPCCC subcontractors to clear vegetation and cut smaller Eucalyptus trees on the north bank lower terrace of the Nature Park. Most of this work was completed in February and March of 2007.

In 2007 the LPCCC and Solano County Water Agency obtained California River Parkways (Prop. 50) and CalFed Watershed Program grants to remove the percolation dam and to conduct cleanup and restoration work on the south bank. Streamkeeper Rich Marovich has plans to apply for additional River Parkways funding for narrowing of the creek channel to create improved conditions for riparian plants and to improve the fishery.

## APPENDIX B: Streamkeeper Recommendations for Herbicide Applications

In April 2007, weed control operations with Milestone Herbicide (aminopyralid) caused unexpected damage to newly sprouted elderberry plants that are host plants for the federally listed Valley Elderberry Longhorn Beetle. Milestone Herbicide is highly effective for control of thistles and other broadleaved weeds and useful for establishment of native grasses; an essential component of weed resistant landscapes. Although the affected elderberries are expected to fully recover, use of Milestone Herbicide within 20 feet of elderberries is suspended pending further studies to determine if it can safely be used in proximity to elderberries in the dormant season. Beyond 20 feet and within 100 feet of elderberries, use of Milestone Herbicide is limited to directed sprays applied with diligence to avoid drift onto elderberry plants.

Roundup Herbicide (glyophosate) has been used safely in close proximity to elderberries in the season when elderberries are fully dormant to release elderberry plants and other dormant native vegetation from competition with Himalayan blackberries and is the preferred treatment in these circumstances. Roundup Herbicide is an effective and highly selective treatment for eucalyptus as a cut stump treatment in any season using diligence to avoid exposure to elderberries.

Garlon 4 Herbicide (triclopyr) is an effective and highly selective herbicide when applied as a basal bark (band of treatment around the base of the trunk) or cut stump treatment for woody weeds. Basal bark and cut stump treatments may be applied with a paint brush or hand-held sprayer under low pressure using directed sprays and diligence to avoid exposure to non-target vegetation. Use of Garlon 4 as a basal bark or foliar treatment is limited to days when high temperatures are not expected to exceed 90 degrees. This is to avoid injury to non-target vegetation from ethylene gas, a naturally occurring plant growth regulator that is produced in response to exposure to Garlon 4 Herbicide.

Ethylene gas causes the observed symptoms of herbicide effect (hooking, wilting, defoliation and die-back). High temperatures cause high release rates of ethylene gas from treated vegetation that can (and has) damaged non-target vegetation. High release rates of ethylene gas does not occur at lower temperatures. The most effective season for basal bark treatments is in late summer, fall and winter when weeds are not actively pushing top growth. Cut stump treatments may be made in any season.

All herbicide applications will be made under the supervision of a licensed pest control operator. The person responsible for supervision shall be aware of the conditions at the site of application and be available to direct and control the manner in which applications are made (per Section 6406 of Title 3, California Code of Regulations).

## APPENDIX C: Summary of Target Weeds

**Arundo** (*Arundo donax*): Arundo, also known as false bamboo was first introduced into the watershed in the 1960s in an effort to control bank erosion on the Pleasants Creek tributary and in the upper Putah Creek watershed. It has since spread throughout Lower Putah Creek. In WPCP there were 18 occurrences totaling just under half an acre in 2002. Some of these clumps have been treated with perhaps half of the original population remaining. Arundo is best controlled with full coverage sprays of Roundup in fall and winter months.

**Black Locust** (*Robinia pseudoacacia*): Black locust was introduced into the watershed by early settlers as barrier vegetation for its rapid spiny growth to 50 feet. It is widespread on Lower Putah Creek in clonal stands that sprout from root suckers and that also spread by seed. There are five occurrences in WPCP. Control is by basal bark treatment with 20 percent Garlon 4 (triclopyr) for stems under six inches or by "hack and squirt" treatment (injecting herbicide into frills cut with a machete or hatchet) in wood over six inches in diameter. There are five occurrences scattered throughout the park on both banks.

**Catalpa** (*Catalpa speciosa*): Catalpa is a short-lived coarse growing tree to 90 feet that has escaped from cultivation and spreads by seed. It has large leaves and is tolerant of heat. The infestation on Putah Creek is incipient with relatively few small trees that are widely scattered. There is one occurrence on the lower terrace of WPCP opposite the mid-point of the Creekside Way development.

**Domestic Almond** (*Prunus dulcis*): Domestic almond has escaped from commercial nut orchards and colonized lower Putah Creek especially at the top of the bank where its tolerance of summer drought has allowed it to compete with native vegetation, especially oaks and elderberry. It spreads by seed, aided by squirrels that horde the seed in buried caches. The white blooms are conspicuous in February. There are 18 occurrence of domestic almond scattered throughout WPCP on the upper banks. It is controlled with Garlon by basal bark or frill treatment.

**English Ivy** (*Hedera helix*): English ivy is vine that has escaped from cultivation. It smothers the landscape with vines that climb up trees breaking down branches with the weight of the vines and eventually killing the host tree. It is a reservoir for the disease, bacterial leaf scorch (*Xylella fastidiosa*) that is harmful to oaks and other native vegetation. It is a notorious refuge for rats especially near creek channels. It is evergreen and can grow in deep shade. Birds eat and disperse the berries. There is one occurrence at WPCP below Madrone Court. Basal bark treatments with 20 percent Garlon Herbicide are effective. Repeat treatment is often required.

**Eucalyptus** (*Eucalyptus sp.*): Eucalyptus was introduced into California during the gold rush and probably arrived in Winters during that time. Eucalyptus was promoted for timber, fuel and windbreaks by early settlers. A 1911 postcard of WPCP has the unmistakable form of a mature eucalyptus tree in the background. The species that occurs most along Putah Creek is River Red Gum (*Eucalyptus camaldulensis*) and it is also the most widely distributed Eucalyptus in the United States and in its native Australia. Eucalyptus forms monoculture stands that are allelopathic (poisonous) to

other plants. At WPCP, beavers have attempted to use saplings even though they are not a preferred food source. This is a likely sign of starvation due to lack of other food sources. The Audubon Society considers Eucalyptus to be a sink for native birds, meaning that eucalyptus trees reduce native bird populations. In creek-wide surveys of birds by river mile, WPCP has the fewest species of birds of any reach from Putah Diversion Dam to Davis. Eucalyptus dominates the lower two-thirds of WPCP on the north bank and is the most upstream population of Eucalyptus on Lower Putah Creek, spreading seeds at high flows to all downstream sites. Eucalyptus grows very rapidly in creek channels where water is abundant and is known to grow up to 1.5 inches in diameter per year on Putah Creek. Due to its large size, it is the most costly weed to control on Putah Creek. Cost of removal is approximately $1,000 per acre per inch of average trunk diameter up to 36 inches. Trees greater than 36 inches in diameter cost thousands of dollars each to remove. Equipment access also affects removal costs. Removal of logs is half the cost of the job, but it is often possible to find beneficial uses of the logs on site as revetments or fill. Due to the high cost of removal, eucalyptus work is best done in stages, creating access routes for equipment and removing the smaller trees so that equipment access routes are established and so that the larger trees can be surveyed and removal contractors can know exactly what the job entails. Seedlings up to three inches can be mowed. Saplings and branches up to twelve inches can be chipped. Larger wood can be used for restoration projects ideally on site or by hauling to other locations. Cut stumps and resprouts can be effectively treated with Roundup Herbicide, full strength as a cut stump treatment or as 5% solution sprayed onto the foliage. The south bank eucalyptus at WPCP was completely removed several years ago but a few seedlings apparently re-established since then. There are 17 occurrence os eucalyptus totaling 3.5 acres on the north bank of WPCP occurring mostly in monoculture stands.

**Fig** (*Ficus carica*) : Edible fig has escaped from cultivation and is rapidly spreading in the riparian corridor of Putah Creek, aided by fruit eating birds. On the Merced River fig has established large clonal populations from root suckers and is the most significant weed in that watershed. There are four occurrences of fig at WPCP, three on the north bank under the pedestrian crossing, the fourth on the north bank terrace below Creekside Way. There are hundreds of stems of fig on the north bank just upstream of WPCP.

**Foxtail barley** (*Hordeum jubatum*) is a native perennial grass that becomes weedy in neglected areas. It produces sharp awns (seeds) that lodge in the noses, ears, and feet of pets, and in shoes and socks. It is readily displaced by planting native grasses.

**Himalayan blackberry** (*Rubus discolor*) : Himalayan blackberry is an extremely invasive shrub that can dominate entire creek channels. It grows four to six feet high and is evergreen at our latitude. It is native to Eurasia. It spreads by underground stems, canes that touch ground or water and root, and by seeds, especially when eaten by birds. Himalayan blackberry impedes flood flows and traps sediment, elevating floodplains especially along the edge of the channel. Almost all of WPCP is lined with Himalayan blackberry along the edge of the channel. While Himalayan blackberry provides some food and shelter for birds, it also harbors rats that prey heavily on bird nests. Control of Himalayan blackberry requires high volumes of dilute (3%) Roundup Herbicide applied in winter months. This requires making trails through berry patches with an enclosed cab tractor. Himalayan blackberry will resprout in the trails because where tops are removed the plant does not absorb the herbicide. Dormant riparian vegetation is unaffected by

Roundup, even when the berries are mixed with dormant stems. Years with early and prolonged rainfall may greatly reduce or eliminate the season in which Himalayan blackberry can be selectively controlled. There are more than three acres of Himalayan blackberry at WPCP.

**Milk Thistle** (*Silybum marianum.*) is a winter annual herb native to the Mediterranean that grows to eight feet with white marbeling along the veins of dark green leaves that are tipped with woody spines. Milk thistle is most prevalent along the top of banks in sunny areas. Heavy infestations limit the movement of people and wildlife and displace native vegetation. Dense stands produce up to 1.4 million viable seeds per acre. Milk thistle accumulates nitrate to levels that are toxic to grazing animals. Control is most effective in the seedling stage with herbicides that provide residual control of germinating seeds. Milestone (aminopyralid) is particularly effective. Thistle control should be coordinated with native grass restoration to establish weed resistant landscapes

**Pepper Tree** (*Schinus sp*): Pepper tree is an escaped ornamental that is extremely invasive in Florida and Hawaii and in local areas of California. It is so far uncommon on Putah Creek. There are eight occurrences in WPCP. It can be controlled in winter with basal bark or frill treatments with Garlon Herbicide.

**Ripgut brome** (*Bromus diandrus)*: is a winter annual grass native to Europe that has spread throughout California occupying waste places and fields at low elevation. It is commonly associated with black walnut and apparently tolerates the natural herbicide (juglone) that suppresses most other undergrowth. Ripgut brome is injurious to pets and produces awns (seeds) that lodge in shoes and socks and are difficult to remove. Control of ripgut brome is best accomplished by displacement with native grasses, especially creeping wild rye after final grade is established. Creeping wild rye can also be established under black walnut. Control is established by seeding the area to native grasses and treating with Roundup Herbicide as a broadcast spray after the brome has germinated but before the native grass emerges.

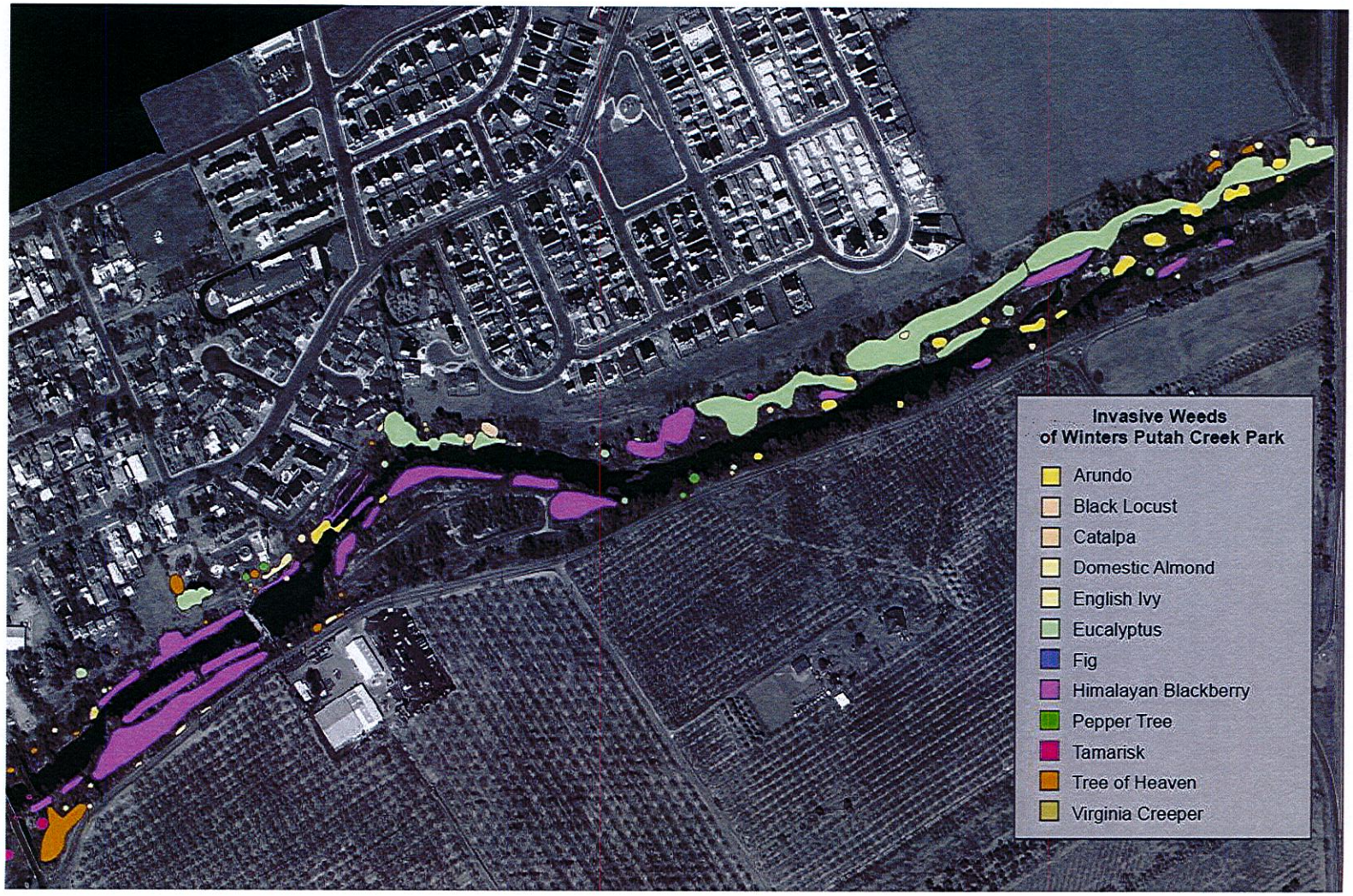
**Tamarisk** (*Tamarix sp.*): Tamarisk is a highly invasive coniferous shrub with magenta flowers in late March. Like arundo, it was introduced to control erosion but has taken over channels where it then induces erosion. It produces large quantities of small seeds and also spreads by root suckers. It extracts salts from the soil that inhibit other plants from growing in the vicinity. It can completely dominate creek channels. The infestation is noticeably increasing on Putah Creek. It also impedes flood flows, trapping sediment and forming mounds. There are six occurrences of Tamarisk in WPCP. It is controlled with basal bark or frill treatments with 20% Garlon 4 Herbicide or full coverage sprays of 2% Garlon 4 in fall and winter months. It can also be cut to the ground with an excavator-mounted mower and treated with 20% Garlon as a cut stump treatment.

**Tree-of-heaven** (*Ailanthus altissima*): Tree of Heaven was introduced by Chinese laborers at their camp sites. It is a tree to 40 feet that spreads by root suckers and seeds. It excludes all other vegetation and forms dense clumps. It grows mostly on the tops of banks and apparently does not tolerate flooding. There are 16 occurrences of Tree of Heaven totaling just under one-half acre in WPCP. Control is the same as for tamarisk.

**Virginia creeper** (*Parthenocissus quinquefolia*): Virginia creeper is an escaped ornamental deciduous vine that appears to have originated with a planting on Dry Creek that is rapidly spreading along Putah Creek in the Winters area. Birds spread the seed. There were two occurrences in 2002 in WPCP. Basal bark treatment with Garlon 4 Herbicide in the fall or winter is effective.

**Yellow star thistle** (*Centaurea solstitialis)*: Native of Eurasia, yellow start thistle was introduced into California in the gold rush with the onset and spread of alfalfa production. It occurs in clearings with sunny exposures. Milestone Herbicide and Transline Herbicide (chlopyralid) provide excellent control but resistance has been documented from repeat applications of Transline. Native grasses resist invasion by yellow star thistle once established and are the best strategy for long term control of yellow star thistle.

## APPENDIX D: Map of Existing Weeds



# APPENDIX E: Federal and State Laws Affecting Restoration Work

## FEDERAL ENDANGERED SPECIES ACT

Pursuant to the federal ESA, the National Marine Fisheries Service (NMFS) has authority over projects that may result in take of federally listed anadromous fish species. Similarly, the USFWS has authority over projects that may result in take of federally listed wildlife and plant species. Under the ESA, the definition of "take" is to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." USFWS has also interpreted the definition of "harm" to include significant habitat modification that could result in take. If a project has a likelihood that it would result in take of a federally listed species, either an incidental take permit, under Section 10(a) of the ESA, or a federal interagency consultation, under Section 7 of the ESA, is required.

## CALIFORNIA ENDANGERED SPECIES ACT

Pursuant to the California Endangered Species Act (CESA) and Section 2081 of the Fish and Game Code, a permit from DFG is required for projects that could result in the take of a statelisted Threatened or Endangered species. Under CESA, "take" is defined as an activity that would directly or indirectly kill an individual of a species, but the definition does not include"harm" or "harass," as the federal act does. As a result, the threshold for a take under the CESA is higher than that under the ESA.

## FEDERAL INVASIVE SPECIES LAWS AND REGULATIONS

Executive Order 11312 – Invasive Species (February 3, 1999) directs all federal agencies to prevent and control introductions of invasive non-native species (i.e., pest plants, animals, or other organisms) in a cost-effective and environmentally sound manner to minimize their economic, ecological, and human health impacts. Executive Order 11312 established a national Invasive Species Council composed of federal agencies and departments and a supporting Invasive Species Advisory Committee made up of state, local, and private entities. The Invasive Species Council and Advisory Committee oversee and facilitate implementation of the Executive Order, including preparing a National Invasive Species Management Plan. A number of other federal laws pertain to noxious and invasive weeds, including the Non-indigenous Aquatic Nuisance Prevention and Control Act of 1990 as amended (16 U.S.C.
4701 et seq.); Lacey Act as amended (18 U.S.C. 42); Federal Plant Pest Act (7 U.S.C. 150aa et seq); Federal Noxious Weed Act of 1974 as amended by the Food, Agriculture, Conservation and Trade Act of 1990 (Section 1453 "Management of Undesirable Plants on Federal Lands;" U.S.C. 2801 et seq); and the Carlson-Fogey Act of 1968 (Public Law 90-583). The U.S.Department of Agriculture and other federal agencies maintain lists of pest plants of economic or ecological concern.

## STATE INVASIVE SPECIES LAWS AND REGULATIONS

A number of state laws and regulations pertain to preventing the spread of non-native invasive species (i.e., pest plants, animals, or other organisms). Section 403 of the California Food and Agricultural Code (FAC) directs the California Department of Agriculture (CDFA) to "prevent the introduction and spread of injurious insect or animal pests, plant diseases, and noxious weeds."

FAC Section 5004 defines a noxious weed as follows: "Noxious weed means any species of plant that is, or is liable to be, troublesome, aggressive, intrusive, detrimental, or destructive to agriculture, silviculture, or important native species, and difficult to control or eradicate, which the director, by regulation, designates to be a noxious weed. In determining whether or not a species shall be designated a noxious weed for the purposes of protecting silviculture or important native plant species, the director shall not make that designation if the designation will be detrimental to agriculture." The state-listed noxious weeds are indicated in Section 4500 of the CCR.

CDFA develops and enforces regulations created to protect California from the importation, cultivation, and spread of plant species that are deemed "noxious" by law. Plant species that have been designated as noxious weeds may be subject to various restrictions including the statutory provisions for weed-free areas, California Seed Law, and noxious weed management. Management or control activities taken against noxious weeds may both protect California's agricultural industry and important native species.

### CALIFORNIA PEST AND NOXIOUS WEED RATINGS

State-listed pests, including noxious weeds, are rated A, B, C, D, or Q based on CDFA's view of the statewide importance of the pest, the likelihood that eradication or control efforts would be successful, and the present distribution of the pest within the state. The ratings guide CDFA, county agricultural commissioners, and others regarding appropriate actions to take. "A" ranked pests are organisms of known economic importance and are subject to state enforced actions involving eradication, quarantine, containment, rejection, or other holding actions. "B" ranked pests are similar to "A" ranked pests, but actions taken to control them are at the discretion of the individual county agricultural commissioner. "B" ranked pests also includes organisms subject to state actions and eradication only when found in a nursery. "C" ranked
pests include organisms subject to no state enforced action outside of nurseries except to retard spread. "C" ranked pests are controlled at the discretion of the county agricultural commissioners. "Q" ranked pests are organisms or disorders requiring temporary "A" action pending determination of a permanent rating. The organism is suspected to be of economic importance but its status is uncertain because of incomplete identification or inadequate information. "D" ranked organisms include parasites, predators, and organisms of little or no economic importance that require no action.

Eleven invasive weed species were recently determined by CDFA to present a serious threat and are in the process of being added to the list of noxious weed species. They include the following species located within the lower Putah Creek watershed: *Ailanthus altissima* (tree of heaven); *Arundo donax* (giant reed); *Cortaderia jubata* (jubata grass); and *Tamarisk chinensis*, *T. gallica*, *T. parviflora*, and *T. ramosissima* (salt cedar). Additional invasive weeds within the watershed are already designated as state noxious weeds. The status of invasive weeds within the watershed is provided in the Invasive Weeds section in Chapter 7, "Invasive Weeds."

## CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (CEQA), encoded in Sections 21000 et seq of the Public Resources Code (PRC) with Guidelines for implementation codified in the California Code of Regulations (CCR), Title 14, Chapter 3, Sections 15000 et seq.,

requires state and local public agencies to identify the environmental impacts of proposed discretionary activities or projects, determine if the impacts will be significant, and identify alternatives and mitigation measures that will substantially reduce or eliminate significant impacts to the environment. State owned properties are subject to the provisions of Public Resources Code Section 5024 and 5024.5

Historical resources are considered part of the environment and a project that may cause a substantial adverse effect on the significance of a historical resource is a project that may have a significant effect on the environment. The definition of "historical resources" is contained in Section 15064.5 of the CEQA Guidelines.

This list is not meant to be a comprehensive and complete list of applicable environmental regulations.

# APPENDIX F: Communication Plan

## *Purpose of this Plan*

This plan is intended to:

- Keep Winters citizens appraised of restoration plans and progress
- Notify affected property owners of pending spraying, tree cutting, vegetation removal, and other large projects such as creek bed restructuring
- Notify citizens of planned cleanups, plantings, and other opportunities for volunteer activities

## *Responsibilities and Mechanisms*

To announce plans for restoration, proposed and successful grant applications, and other news of general interest:

- The LPCCC should update the City and the WPCC,
- The City and the WPCC should coordinate preparation of press releases

When there are major restoration efforts planned such as: tree or vegetation removal, and spraying:

- The City should coordinate schedules with LPCCC and notify both the WPCC and affected property owners.
- The City should provide press releases to the Express and City Newsletter (if possible) for activities that are scheduled more than four weeks in advance.

For shorter-schedule work such as spraying and minor vegetation removal the City will distribute handbills and use phone trees and email lists to inform affected property owners at least 48 hours in advance of work. Signs to be posted in affected areas along trails and at access points will be coordinated with applicator and public works staff.

For cleanups, plantings, and similar activities the WPCC will coordinate with the Putah Creek Council and issue press releases in the Express, City Newsletter, phone trees and to email lists one or more weeks in advance.

## *Development and Maintenance of Contact Information*

Contact information including emails will be solicited from all interested citizens attending WPCC meetings, cleanups and other sources. This contact information will include participant's preference for receiving information and notices and be used to distribute appropriate Putah Creek Nature Park project information to interested or affected parties. The WPCC will be responsible for maintaining the lists and conveying updates to the City. The LPCCC may be available to assist with these tasks.

# APPENDIX G: Grant Opportunities

## Current Grants

The City has grant funds remaining in the amount of $19,900 to build trails, install signage, and construct a kiosk.

A $1.2 million grant from the Wildlife Conservation Board that has been used for restoration work over the entire watershed expires in August 2007. Almost all of the weed removal on Putah Creek has been funded by this grant.

A California River Parkways grant in the amount of $452,000 has been received that will fund removal of the percolation dam.

The Department of Water Resources (DWR) Urban Streams Restoration Program funded a grant in the amount of $345,440 to restore the south bank of Putah Creek below the confluence with Dry Creek and other improvements on Dry Creek below Highway 128. An extension of this grant through May 2008 has been requested to allow installation of rock weirs and other bank-protection measures.

A proposal submitted under the Department of Water Resources CALFED Watershed program to follow-up on weed removal and other projects in the Dry Creek and Nature Park areas was approved in August 2007. The $536,490 grant will enhance the continuity of wildlife migration corridors, deter unauthorized vehicle access, stabilize eroding banks, reduce sediment loading, deter illegal dumping and beautify the most visible reaches of Putah Creek and contiguous portions of the Dry Creek tributary by installing a 15-foot wide native vegetation hedgerow (removing weeds and infilling existing native vegetation) along three miles of south bank of Lower Putah Creek on the southern boundary of the City of Winters; and extend bank re-vegetation of Dry Creek on the southwestern boundary of Winters. The project will feature rock vanes installed by a geomorphologist, native vegetation hedgerow and oak woodland plantings on both banks.

## Planned Grant Applications

One more round of funding will be available through the California River Parkways program under Proposition 50. The LPCCC intends to submit a proposal for geomorphic restoration (re-design of the creek channel) under this program. A total statewide appropriation of $20.5 million has been proposed for 2007-8.

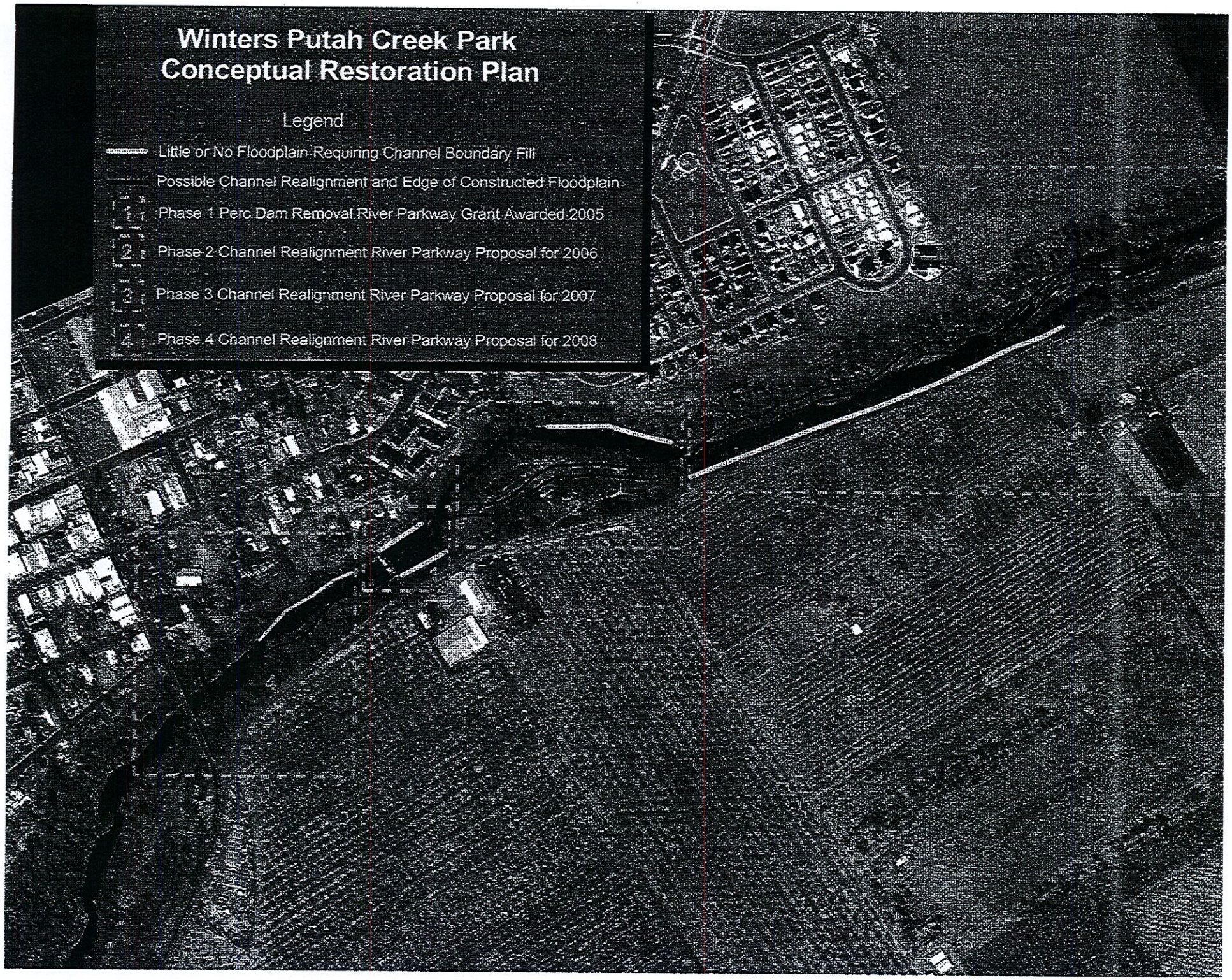
If the DWR Urban Streams grant is not extended, a follow up grant application could be submitted in the fall of 2007.

The California Parks Department Off-Highway Vehicle (OHV) Program funds projects to prevent damage by unauthorized use of OHVs including a past grant for vehicle barriers and restoration f areas damaged by OHVs beneath Highway 505. A new grant request for approximately $50,000 is proposed to extend existing vehicle barriers along Putah Creek Road and to provide for more robust vehicle barrier gates where needed.

The Cal/EPA Integrated Waste Management Board Farm and Ranch Cleanup Program has provided grants for removal of solid wastes from agricultural lands along Putah Creek. The City of Winters and LPCCC are proposing a new grant for cleanup of

agricultural lands on Dry Creek below Highway 128. IWMB is also interested in sponsoring spring creek cleanup grants much like the California Coastal Commission sponsors Coastal Cleanup Day each fall.

Solano County Water Agency has budgeted $2 million for capital improvement projects throughout Lower Putah Creek in accordance with the Lower Putah Creek Watershed Management Action Plan.


Winters Putah Creek Park
Conceptual Restoration Plan
Legend
Little or No Floodplain Requiring Channel Boundary Fill
Possible Channel Realignment and Edge of Constructed Floodplain
1
Phase 1 Perc Dam Removal River Parkway Grant Awarded 2005
2
Phase 2 Channel Realignment River Parkway Proposal for 2006
3
Phase 3 Channel Realignment River Parkway Proposal for 2007
4
Phase 4 Channel Realignment River Parkway Proposal for 2008

# PUTAH CREEK NATURE PARK - MASTER PLAN

**CITY OF WINTERS** **OCTOBER 2007**

• PUTAH CREEK FLATS •

### COMMUNITY CENTER / PARK ENTRY
- IMPROVED PEDESTRIAN ACCESS TO CREEK TRAIL
- BACKDROP FOR STAGE PRODUCTIONS
- STEPS FROM TRAIL TO TRESTLE BRIDGE
- STRENGTHEN PEDESTRIAN & BIKE CONNECTIONS
- PAVED ENTRY WALK
- BIKE PARKING
- BENCHES
- GATEWAY TO PARK
- SIGNAGE AND MAP
- BEGIN ART WALK
- COMMUNITY THEATER
- NATURE CENTER
- CREEK ACCESS BELOW CAR BRIDGE
- ACCESS TO LOWER TERRACE & WATER

### CITY WATER FACILITY
- IMPROVED ACCESS TO PARK & TRAIL
- HC PARKING
- GRASSY AREA WITH PICNIC TABLES, BENCHES
- GATEWAY AND OVERLOOK
- CAMOUFLAGED CELL TOWER

### TRAILS
UPPER TRAIL
- CONNECTS TO CITY STREETS AND OPEN SPACES
- PAVED MULTI-USE TRAIL - MINIMUM 10' WIDE - BIKES, PEDESTRIANS, SERVICE VEHICLES
- RESPECTS RESIDENTIAL PRIVACY
- LOOPED TRAIL - CONNECTS NORTH AND SOUTH BANKS
- ACCESSIBLE - LESS THAN 5% SLOPE
- OVERLOOKS WITH BENCHES
- TWO PEDESTRIAN BRIDGES
- FUTURE EXTENSION EASTERLY UNDERNEATH I-505
- NO LIGHTS
- DOGGIE STATIONS

LOWER TRAIL
- UNPAVED PATHS - CITY TO REBLADE PATHS EACH SPRING
- ACCESSIBLE - LESS THAN 8% SLOPE
- PATHS LEAD TO WATER'S EDGE
- ACCESSIBLE UPPER & LOWER TRAIL CONNECTIONS

### COMMUNITY GATEWAYS
- GATEWAY AT TRAILHEAD
- BENCH
- TRASH CANS
- SIGNAGE AND MAP
- EDUCATIONAL DISPLAYS

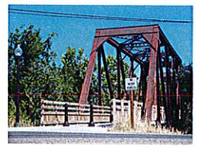
### FAMILY RECREATION AREA
- WIDE, LOWER TERRACE
- PICNIC TABLES
- ACCESSIBLE TRAILS
- FISHING SPOTS
- ROCK CROSSINGS
- SHADY AREAS
- OPEN VIEWS & ACCESS TO THE WATER
- HC PARKING SPACES
- SIGNAGE AND MAP
- DOG POOP STATIONS
- TRASH CANS
- TOILET OR PORTA-POTTY
- LIMITED PARKING ALONG PUTAH CREEK ROAD

### OUTDOOR CLASSROOM
- RESERVABLE GATHERING AREA FOR OUTDOOR STUDIES
- ALL EDUCATION AREAS ARE ACCESSIBLE
- PICNIC TABLES
- 'RANGER STYLE' SEATING AREA
- TRAILS
- SIGNAGE

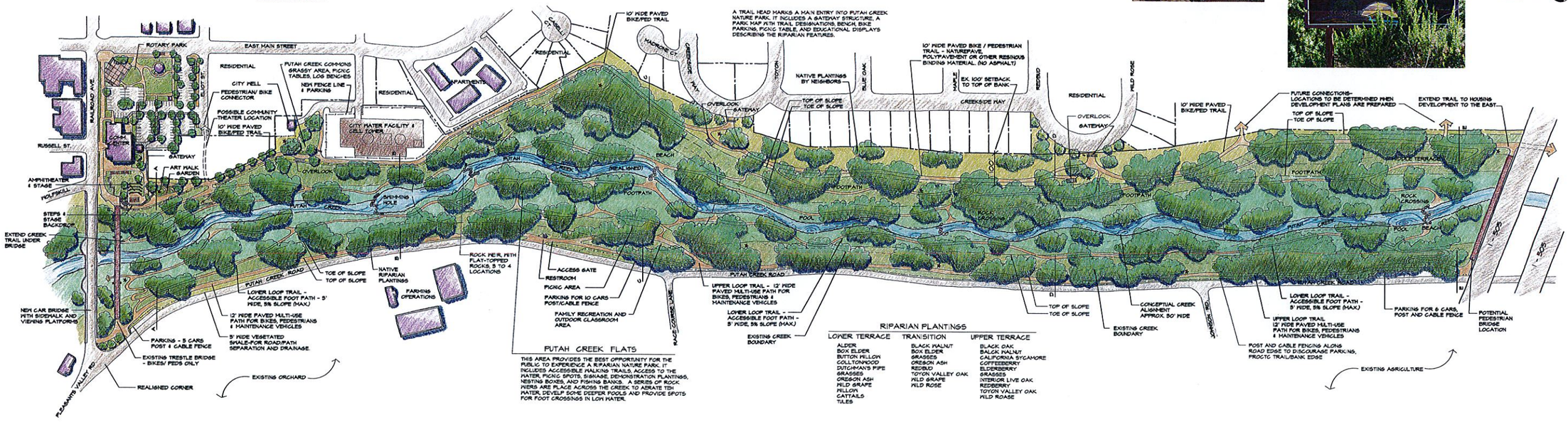
### RIPARIAN STUDIES
- CREEK GEOMORPHOLOGY
- REVEGETATION EXHIBITS AND OPPORTUNITIES
- FISH HABITAT
- CRITTERS & INSECTS
- PLANTS
- SOIL
- WATER

### HISTORY AND LITERATURE
- CREEK HISTORY
- WINTERS HISTORY
- NATIVE AMERICAN
- EMIGRATION
- EARTHQUAKES
- AGRICULTURE
- POETRY

### ART
- NATURE MOTIFS
- LOCAL MATERIALS FROM THE CREEK
- COLORS AND DYES
- PATTERNS




A TRAIL HEAD MARKS A MAIN ENTRY INTO PUTAH CREEK NATURE PARK. IT INCLUDES A GATEWAY STRUCTURE, A PARK MAP WITH TRAIL DESIGNATIONS, BENCH, BIKE PARKING, PICNIC TABLE AND EDUCATIONAL DISPLAYS DESCRIBING THE RIPARIAN FEATURES.




### PUTAH CREEK FLATS

THIS AREA PROVIDES THE BEST OPPORTUNITY FOR THE PUBLIC TO EXPERIENCE A RIPARIAN NATURE PARK. IT INCLUDES ACCESSIBLE WALKING TRAILS, ACCESS TO THE WATER, PICNIC SPOTS, SIGNAGE, DEMONSTRATION PLANTINGS, NESTING BOXES, AND FISHING BANKS. A SERIES OF ROCK WIERS ARE PLACE ACROSS THE CREEK TO AERATE TEH WATER, DEVELP SOME DEEPER POOLS AND PROVIDE SPOTS FOR FOOT CROSSINGS IN LOW WATER.

### RIPARIAN PLANTINGS

| LOWER TERRACE | TRANSITION | UPPER TERRACE |
|---|---|---|
| ALDER | BLACK WALNUT | BLACK OAK |
| BOX ELDER | BOX ELDER | BALCK WALNUT |
| BUTTON WILLOW | GRASSES | CALIFORNIA SYCAMORE |
| COLTONWOOD | OREGON ASH | COFFEEBERRY |
| DUTCHMAN'S PIPE | REDBUD | ELDERBERRY |
| GRASSES | TOYON VALLEY OAK | GRASSES |
| OREGON ASH | WILD GRAPE | INTERIOR LIVE OAK |
| WILD GRAPE | WILD ROSE | REDBERRY |
| WILLOW | | TOYON VALLEY OAK |
| CATTAILS | | WILD ROASE |
| TULES | | |