



Arcade Creek Park Preserve Master Plan

 **FOOTHILL ASSOCIATES**
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

Prepared for
Sunrise Recreation and Park District
FINAL DRAFT August 12, 2008

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Introduction



Background

The Sunrise Recreation and Park District (SRPD) acquired the Arcade Creek Park Preserve site in March of 2004. In October of 2007, SRPD issued a Request for Qualifications to landscape architecture and planning firms to prepare a Master Plan (MP) for the site. Foothill Associates of Rocklin, California was selected in December of 2007.

SRPD outlined the following objectives for the MP:

1. Identify and design the recreation and park uses to meet the leisure needs of the community and more specifically the neighborhood served by the park site.
2. Identify locations for specific recreation facilities, i.e. passive and active recreation areas, interpretive areas, parking lots, walking trails, etc.
3. Assist the District in coordinating with the County Department of Environmental Review and Assessment (DERA) regarding environmental determination.
4. Develop a budget for park improvements and construction.

Location

The Arcade Creek Park Preserve site (Preserve) is a 9.1 acre site with street frontage on Sunrise Boulevard on its east side and Bonham Circle on its extreme southern edge. The Preserve is located within the City of Citrus Heights in northern Sacramento County. Arcade Creek meanders in and out of the parcel along the northern boundary. The Preserve is located on the north edge of the "Sunrise Marketplace" shopping district and north of the Sunrise Mall area at Sunrise Boulevard and Greenback Lane. The neighborhood immediately around the site is high density residential in nature. The parcel number is APN 243-0050-017-0000 and can be located with Thomas Guide coordinates 259-4J. See Figure 1.

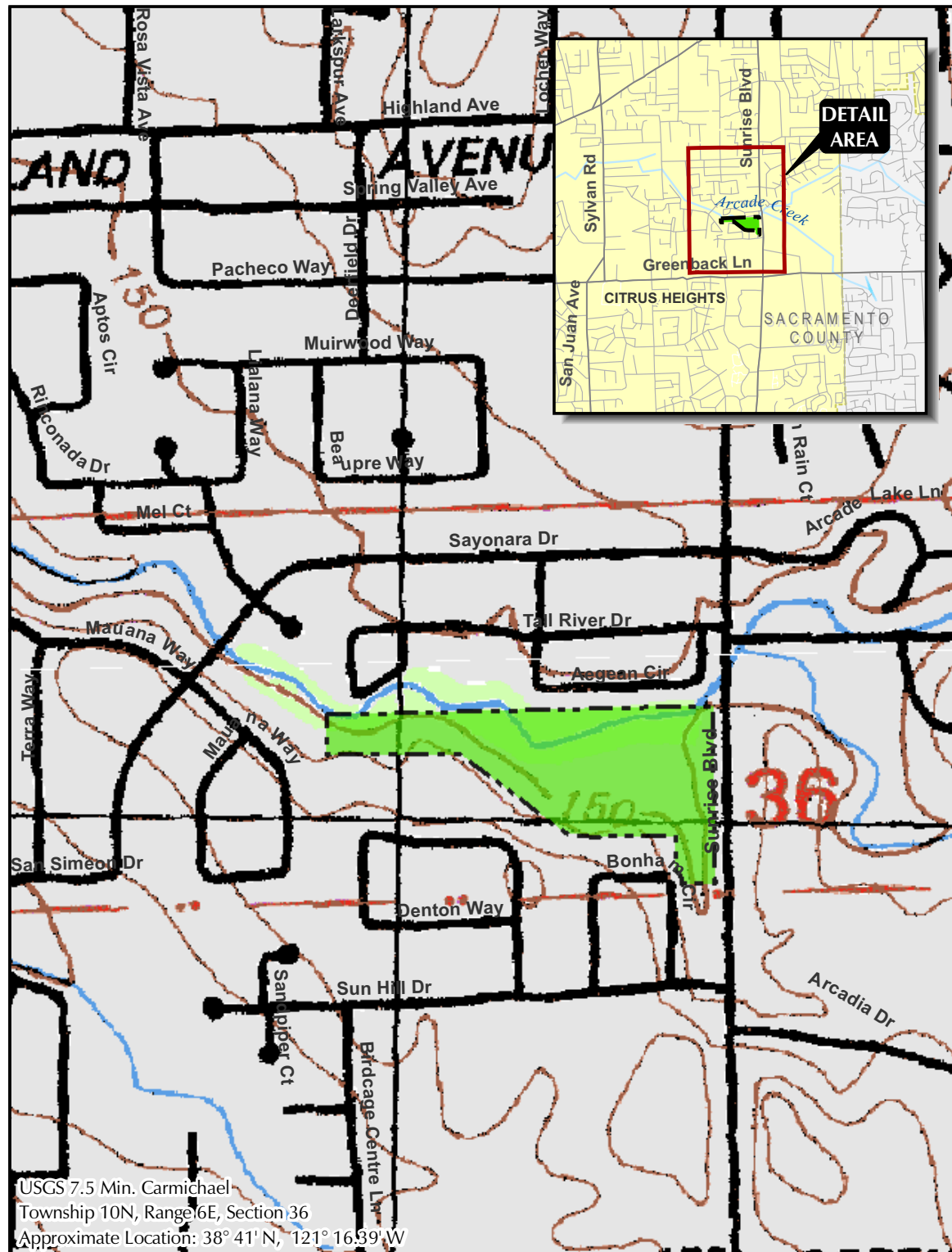
Site Resources

Arcade Creek is the dominant feature of the Preserve site. The Arcade Creek watershed drains 24,800 acres with elevations from 20 to 270 feet. The watershed is highly urbanized and drains portions of the communities of Orangevale, Fair Oaks, Citrus Heights, Roseville, Foothill Farms, Arcade, and Sacramento. The north and south forks of Arcade Creek join immediately east of the Preserve site on the east side of Sunrise Boulevard.

The topography within the Preserve ranges from approximately 143 feet at the western edge of the Preserve, where Arcade Creek flows off-site, to about 168 feet at the top of the hill at the access to Bonham Circle. The slope from the southern property line north to the base of the flood plain is 33%. The slope from the Bonham Circle access area to the toe of the slope is 13%. The majority of the site sits well below the elevation of the homes surrounding the Preserve and is in the 100-year flood plain.

The soils on the site consist of the Urban Land-Xerarents-Fiddyment complex (Natural Resources Conservation Service, United States Department of Agriculture, 2005). See Figure 2.





SITE AND VICINITY

USGS 7.5 Min. Carmichael
Township 10N, Range 6E, Section 36
Approximate Location: 38° 41' N, 121° 16.99' W

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Scale: 0 230 460
SCALE IN FEET

Drawn By: MJ
Date: 03/25/08

FIGURE 1



SOILS

229, URBAN LAND-XERARENTS-FIDDYMENT COMPLEX, 0 TO 8 PERCENT SLOPES

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Scale: 0 150 300
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Drawn By: MJ
Date: 03/26/08

FIGURE 2

ARCADE CREEK PARK PRESERVE MASTER PLAN

Due to the location of the Preserve site just downstream of the confluence of the north and south forks of Arcade Creek, and the flat topography of the site it is possible there could be historical or cultural resources present. Because these resources are protected under the California Environmental Quality Act (CEQA), an archaeological survey is required prior to modifications of property.

The project site lies within the Northern Sierra Nevada Foothills floristic province (Jepson, 1996). This portion of Sacramento County is distinct from the majority of the County based on soil types, elevation, and, therefore, plant material. Blue oak woodland historically dominated uplands and valley oaks dominated riparian zones in this part of the County. The area was farmed prior to heavy suburban development in the 1970's. Although most of the surrounding parcels are developed, remnants of the blue oak and valley oak woodland remain on the Preserve site. The Preserve contains one of the last intact stands of riparian habitat in the area. See Figure 3.

The habitat, geomorphology, and water quality of Arcade Creek have been dramatically changed over the past 50 years as a result of the rapid urbanization of the watershed. One result of the suburban development is the transformation of Arcade Creek from a historically dry creek in summer months to a perennial stream. Water from suburban yard irrigation and other domestic uses makes its way into the storm drain network and into the stream year-round.

Suburban development has also changed the overall permeability of the watershed. Historically, the watershed was grassland or agrarian in nature, and both of these land uses supported relatively high soil infiltration rate. As the land within the watershed developed, more and more of the land was covered with rooftops, streets, and parking lots. Large areas of the watershed are now impermeable, resulting in greater volume of storm water flows and shorter time frames to peak flows. The increase in the speed and flow of the water has resulted in incision of the creek, creating over-steepened, unstable banks. These banks are prone to erosion, leading to downstream sedimentation, and undermining of existing mature trees. They also present a potential safety hazard.

The increased population in the watershed has also resulted in elevated levels of pollutants in storm water due to the presence of petrochemicals on roadways, fertilizers, soaps, and herbicides. Water quality in the Arcade Creek corridor has suffered as a result. Arcade Creek has repeatedly tested high for pesticide contamination,

including diazinon and fecal coliform. Nitrogen, phosphorus, mercury, and metals have also been found in high levels in the creek (Sacramento River Watershed Program, 2004).



Several storm drains empty out onto the Preserve. The storm water from these systems may contain contaminants and pollutants from the areas they drain. The concentrated flow of water from these outfalls can create wet areas that over time can support wetland plant species. These areas, although a result of human activity, may potentially be classified by the Army Corps of Engineers (ACOE) as jurisdictional wetlands if the presence of wetland plants, soils, and hydrologic conditions can be demonstrated. Wetland classifications have been under increased scrutiny and interpretation due to the 2006 Supreme Court case of *Rapanos vs. the United States*. Wetland classifications should be verified and documented prior to

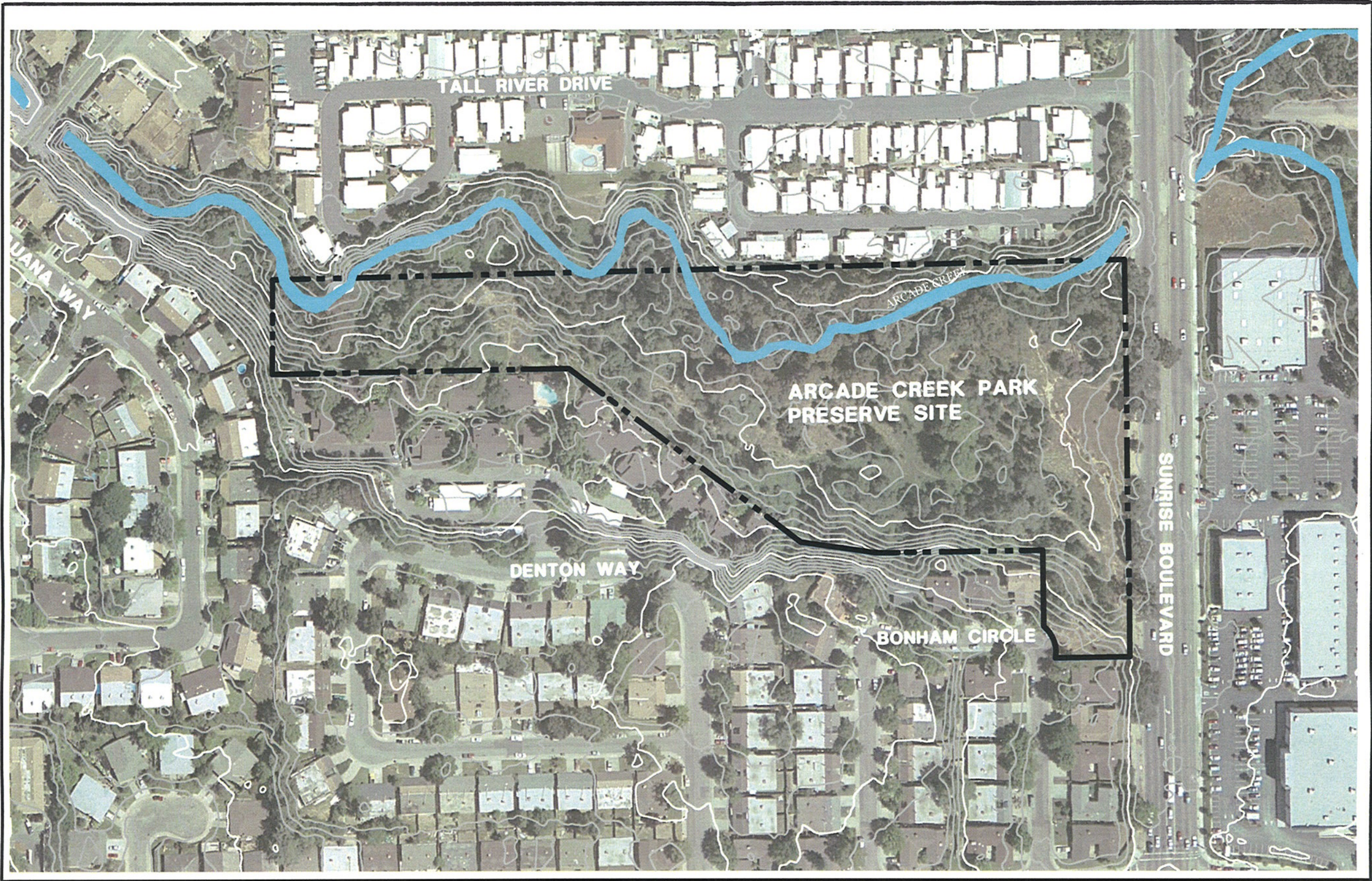
any construction or other activity which may impact them. Wetland features in the Preserve site that occur as a result of the outfalls, along with naturally occurring features such as Arcade Creek, were surveyed and mapped by qualified biologists in preparation for development of the MP. Wetland areas may be protected by the Clean Water Act and the Endangered Species Act, and if impacted by the proposed site improvements, permits and clearance from the ACOE, the U.S. Fish and Wildlife Service (FWS), and other public agencies may be required.

The Preserve site has also been impacted by social conditions. The site is commonly used by the homeless as a refuge and by transients as a corridor. The dense vegetation and isolation of portions of the parcel allow for such activities to go on out of view of the public. Site observations revealed several homeless camps that have been established within the Preserve. The site has also been used for illegal dumping, and in the summer of 2001 a dangerous fugitive took cover on the site to escape detection by authorities (New York Times, 2001).

The prevalence of ornamental landscaping on commercial and residential properties in the watershed has resulted in the introduction of non-native plant and animal species to the Preserve site. Some of these species are considered pests because they aggressively overtake the habitat of native species. Over a dozen exotic pest plants listed by the California Invasive Plant Council were observed in the Preserve site. Since the Arcade Creek watershed is connected to the American River, Sacramento River, and the Sacramento/San Joaquin Delta, exotic pest plants have spread throughout these different systems. Propagation usually occurs downstream when seeds or plant stems are carried by creek waters, but these plants can also spread upstream when seeds are carried in the digestive tracts of birds, human clothing, or dispersed by the wind. The non-native invasive trees, shrubs, and herbaceous plants growing in the watershed are displacing native vegetation in the creek corridor and impacting the habitat of native wildlife. Non-native animal species are also found in the Arcade Creek watershed.

Sunrise Recreation Park District Planning

The Preserve is located in SRPD Plan Area 10 (Area 10) as described in the District's 2000-2010 Master Plan (Foothill Associates, 2001). Area 10 includes central Citrus Heights and some of the most densely urbanized areas of the City. Area 10 has a



ARCADE CREEK PARK PRESERVE

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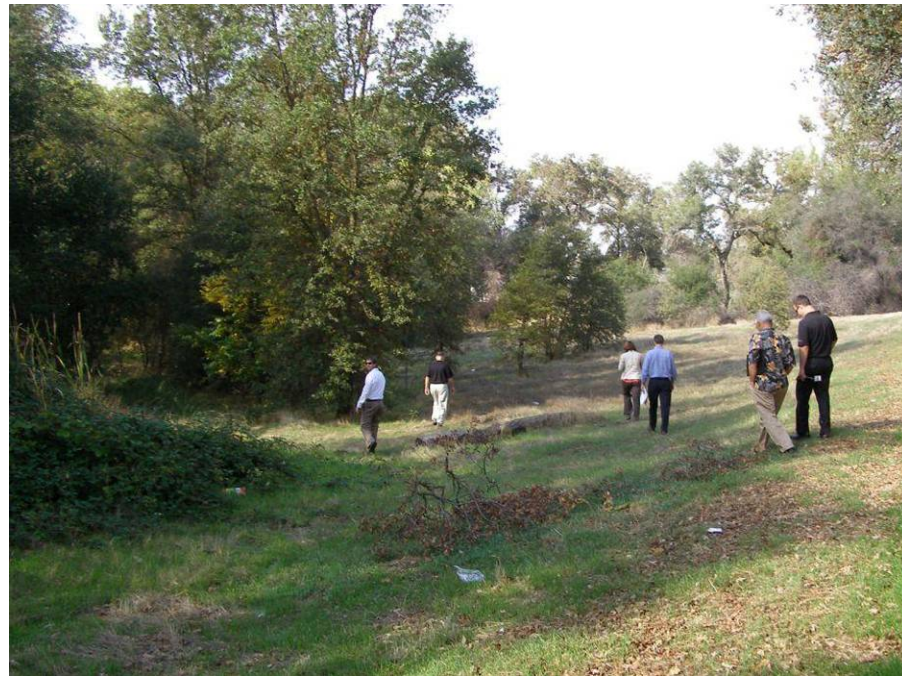
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Figure 3

ARCADE CREEK PARK PRESERVE MASTER PLAN

deficiency of park acreage and neighborhood park facilities, and thus SRPD has a need to include recreational amenities in the design of the Preserve. However, due to site constraints such as location within the flood plain, presence of wetlands, and mature tree canopy, development of the Preserve as a traditional neighborhood park is neither practical nor desirable. Therefore, the design of any improvements must respond to the unique opportunities provided by this site while still meeting the recreational needs of local residents.



There is interest from neighborhood stakeholders for the Preserve to accommodate some neighborhood park amenities, such as a small play area and picnic area. These features should be designed to be aesthetically harmonious with the natural setting. Bonham Circle provides the only vehicular ingress/egress point as the City will not allow access from Sunrise Boulevard due to safety constraints. It is important to minimize the disruptions to local residents with proper design of trail staging, site access, and parking areas.

Trail Connections

The City of Citrus Heights' General Plan includes a map of existing bike trails and bike lanes within the City (Citrus Heights, 2002). Map 7 in the General Plan shows an existing Class I bike lane through

Tempo Park extending west in the Sacramento Metropolitan Utility District (SMUD) corridor and terminating at Sunrise Boulevard, immediately across the street from the Preserve site. Although indicated as "existing" in the General Plan, the trail does not yet extend west of Tempo Park. The SMUD corridor is a high-voltage, overhead power line corridor that extends from Sunrise Boulevard to Folsom Lake. The City of Citrus Heights, SRPD, and the Orangevale Park District have an easement for a multi-use trail within the corridor. The continuation of this Class I trail and further connections through the Preserve to adjacent neighborhoods would be consistent with the General Plan goal of providing such connections between schools, parks, retail centers, and residential neighborhoods. A trail through the Preserve could also eventually be part of a link to the regional trail network (see Figure 4).

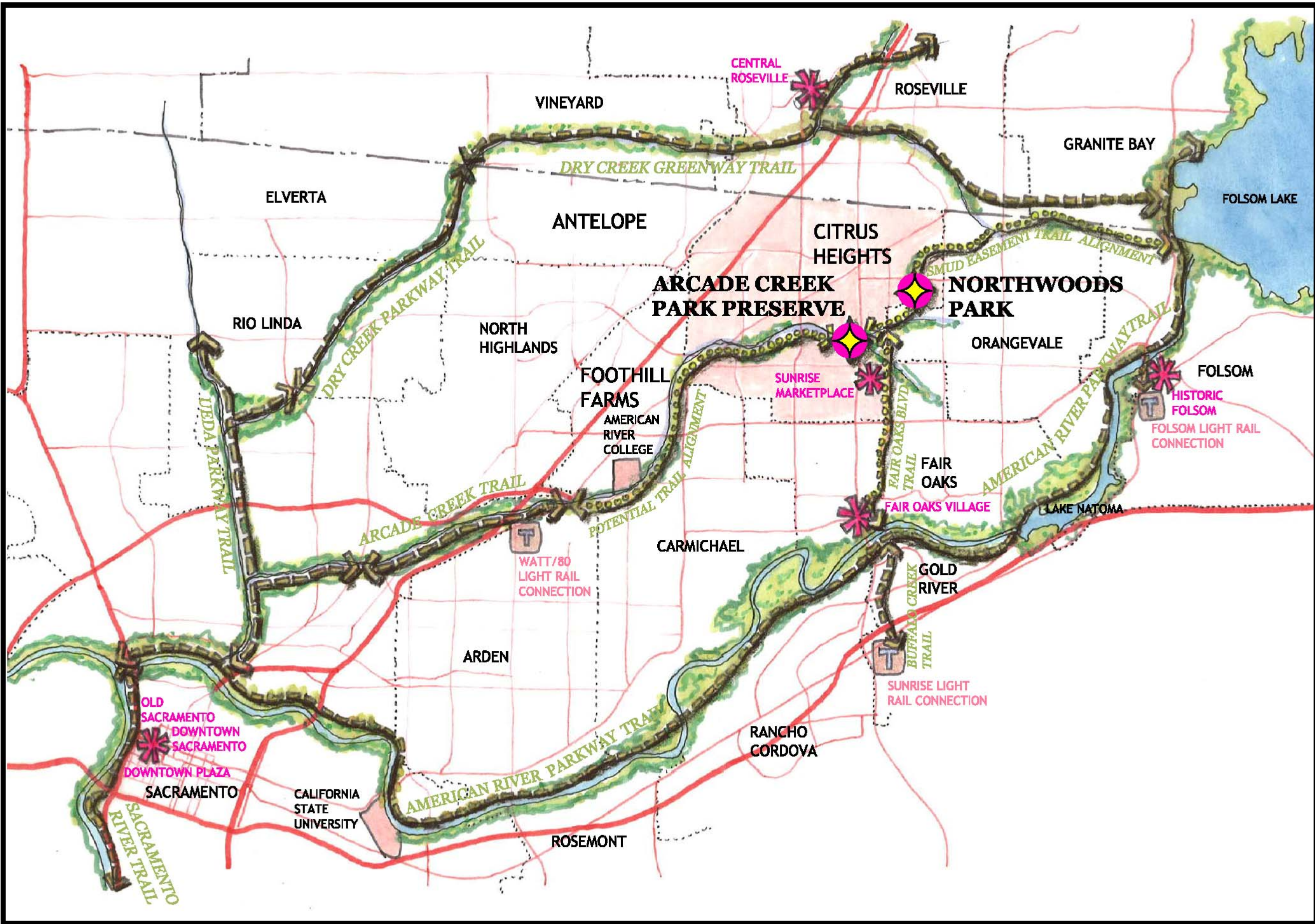


About 10 miles downstream of the Preserve, the proposed Arcade Creek branch of the Ueda Parkway connects to a larger regional network of off-street bike paths. Access to the American River Trail could be accomplished by linking upstream to the SMUD corridor trail through Tempo Park and then via Fair Oaks Boulevard or the SMUD corridor via Folsom State Recreation Area and downstream to the

Ueda Parkway. Linking the Preserve site to a regional network would provide an off-road alternative for commuters traveling to and from work, students getting to and from school, and shoppers going to and from the Sunrise Marketplace. It would also provide transit-oriented residents with a connection via Fair Oaks Boulevard and Village to the Sunrise Light Rail Station, all on a Class I and II trail.



REGIONAL BIKE TRAILS CONNECTIVITY MAP



CONNECTIVITY MAP



11/26/2007

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Project Work

Site Reconnaissance and Data Collection

Foothill Associates began working with SRPD on the Arcade Creek Park Preserve site in late 2007. An initial site visit was conducted in October of 2007 and a kick-off meeting was held on the site in December of 2007. SRPD and an official from DERA were present at this meeting. It was agreed at this meeting to conduct focused hydrology and arborist surveys later in the construction document phase, once the actual extent of disturbance was identified. DERA staff identified the main concerns associated with any proposed project within the Preserve area were impacts to wetlands, cultural resources, and existing mature trees. SRPD staff also emphasized that design direction should come primarily from local residents, and the project team should not enter the Community Outreach portion of the master planning process with any preconceived notion of the direction the plan should take.

Foothill Associates next reviewed existing documentation on Arcade Creek, the watershed, Sunrise Recreation and Park District, the City of Citrus Heights, and Sacramento County. Foothill Associates Geographic Information Systems (GIS) and mapping specialists gathered available topographic and parcel data from the County for the site. The City of Citrus Heights provided storm water outfall location data. Aerial photography of the Preserve site was obtained from SACOG.

Based on the background information gathered, Foothill Associates developed a base map for use during resource assessment field work and for the initial community outreach and design efforts. See Figure 5.

Wetland Assessment

In April 2008 Foothill Associates biologists conducted field visits and performed a complete wetland assessment of the Preserve site. Using Global Positioning System (GPS) units, wetlands on the site were delineated and point and boundary data were gathered. This information was transferred to the base mapping data to create a Draft Wetland Delineation of the Preserve site. See Figure 6.



Four transects across Arcade Creek were mapped and data were collected for each. Bank width, depth, and wetted width along with vegetation classification, in-stream habitat complexity, and riparian canopy cover data were collected. Invasive species within the immediate channel of the creek were also mapped. Vegetation observed ranged from mature native riparian species including Fremont cottonwood, valley oak, blue oak, interior live oak, and California black walnut to a variety of invasive non-native species such as eucalyptus, silk trees, mulberry trees, London plane trees, and silver maples. See Figure 7. For the full report of the biologist's findings, see Appendix A.

Delineated wetlands were included in the master base plan for the project. The locations of the wetlands were used by landscape architects during the design phase of the project to help direct where trails and paths should be aligned to minimize impacts. The wetland delineation also guided public input during the community outreach phases of the design process. Flora and fauna lists also provided a benchmark for assessing future biological health.

Cultural Resource Assessment

In April 2008, Sean Jensen, an archaeologist with Genesis Society, conducted a field visit and an intensive archaeological inventory survey of the entire Preserve site. Based on the site inventory and archaeological records search, Genesis Society prepared an archaeological survey for the Preserve site (see Appendix B). The cultural resource survey did not reveal the presence of prehistoric or historic sites in or adjacent to the Preserve site. Therefore, cultural resources were not mapped on the master plan for the project.

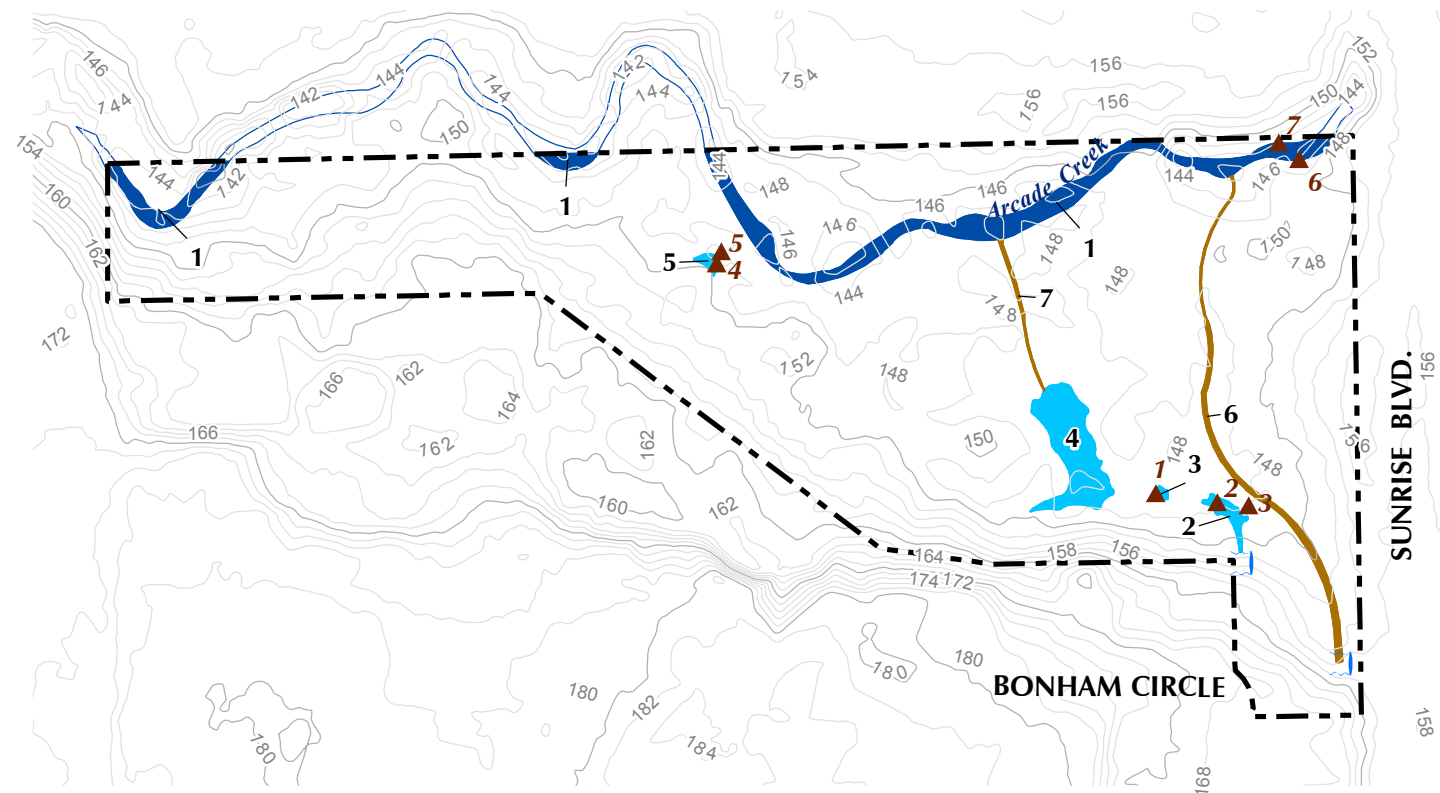
It should be noted that even though cultural resources were not found, any mitigation measures listed in the environmental documentation for this project should be implemented to ensure preservation of any underground cultural resources that may be uncovered during construction.

Community Outreach

A flyer was developed for the two community workshops to announce dates, times, and location for the community outreach. The flyer was mailed to all property owners within 1,000 feet of the Preserve. Notices for the community workshops were posted on both the SRPD website and the City of Citrus Heights website. The City staff also sent electronic notifications to their contacts list.







**INDIVIDUAL WOUS
FEATURE ACREAGE**

DSW	
LABEL	ACRES
2	0.018
3	0.004
4	0.131
5	0.007
SUBTOTAL	0.160

PD	
LABEL	ACRES
1	0.317

DITCH	
LABEL	ACRES
6	0.061
7	0.011
SUBTOTAL	0.072

TOTAL**	0.55
----------------	-------------

**Based on sum of subtotals at 2 significant figures.



**WATERS OF THE U.S.
CLASSIFICATION ACREAGE**

DEPRESSIONAL WETLANDS

Seasonal Wetland, DSW 0.16

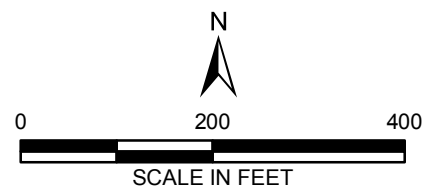
OTHER WATERS

Perennial Drainage 0.32

Ditch 0.07

TOTAL **0.55**

- OTHER FEATURES**
- Data Points
 - Culvert
 - Project Boundary



DRAFT

FIGURE 6

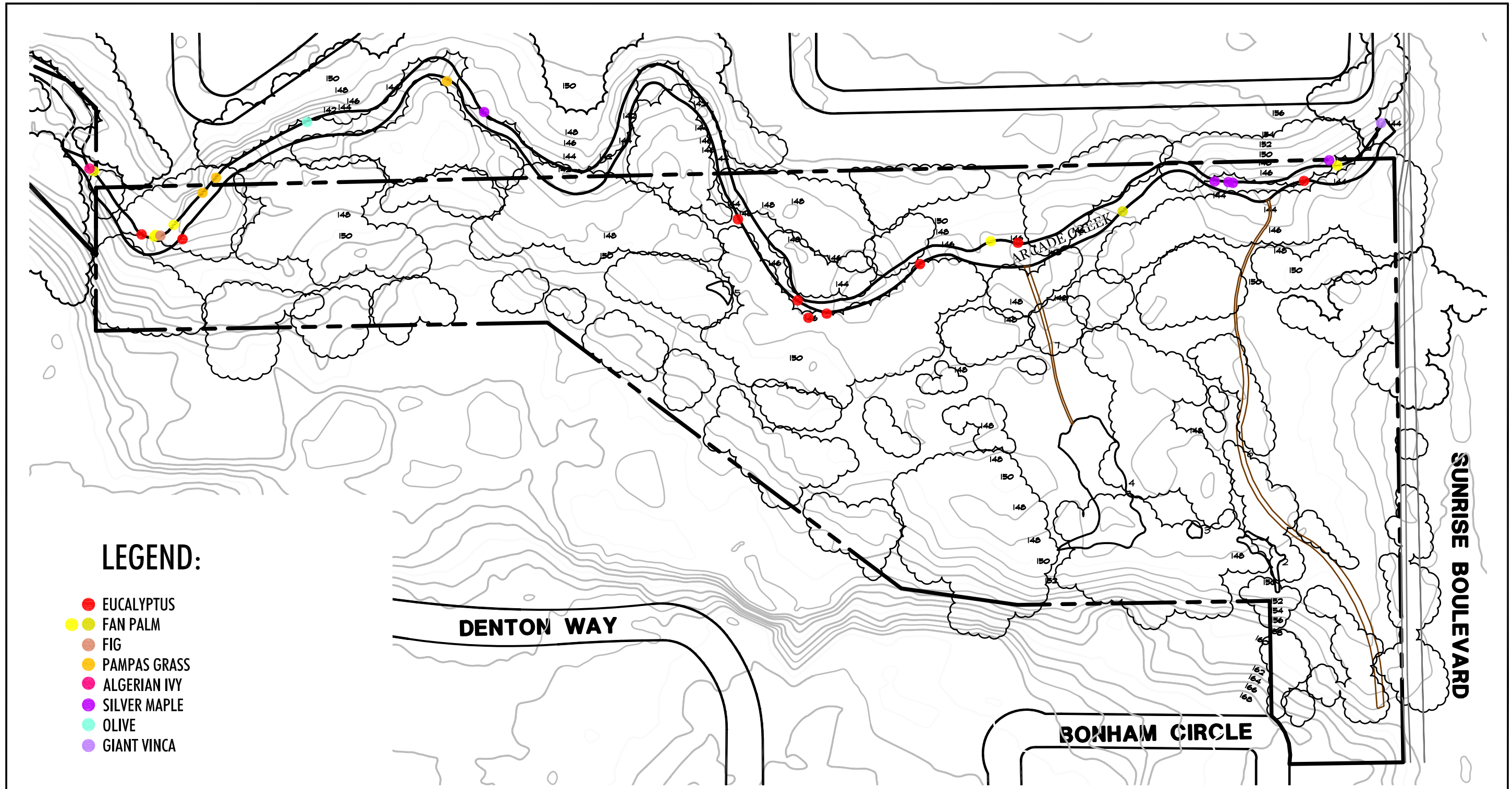
- NOTES**
- Waters of the U.S. are subject to U.S. Army Corps of Engineers verification.
 - Contours provided by Sacramento County, DWR, 2004 LIDAR. Contour interval is 2 foot.
 - The Hydrologic Unit Code for this site is 18020111.
 - This delineation utilizes the Corps' 1987 three-parameter methodology to delineate jurisdictional waters of the U.S.
 - Waters of the U.S. were mapped using a Trimble Global Positioning System (GPS).

ARCADE CREEK PARK PRESERVE

DELINEATED WATERS OF THE U.S.



DATE: 03/28/08 FILE NAME: Wetland Delineation.mxd
 DELINEATED BY: DB
 DRAWN BY: MJ



LEGEND:

- EUCALYPTUS
- FAN PALM
- FIG
- PAMPAS GRASS
- ALGERIAN IVY
- SILVER MAPLE
- OLIVE
- GIANT VINCA

ARCADE CREEK PARK PRESERVE -- INVASIVE PLANT LOCATIONS IN CREEK



ARCADE CREEK PARK PRESERVE MASTER PLAN

Community Workshop #1

The first community workshop was held in May 2008. The project team gave a presentation about the project site, opportunities and constraints of the site, and how the Preserve fits into SRPD's Master Plan. Participants were involved in three activities during the evening. Two activities were targeted at individuals, and one activity involved groups.



The first individual activity involved participants in making decisions about the general design direction of the Preserve site. This activity was called determining "Park Flavor." Participants were given 12 game pieces and asked to cast them on the category(ies) of their choosing to guide the general approach to the Preserve design. Categories included general design themes such as: "natural" open space, outdoor classroom/living lab, and civic space. For results of the "Park Flavor" exercise, see Figure 8.



The second individual activity involved participants making decisions about what specific amenities they would like to see installed or developed on the Preserve site. A listing of 43 park amenities, such as fishing pier, restroom, picnic shelter, and parking lot, was posted for participants to consider. Participants were given 12 stickers to place next to their preferred amenities. The top results of the "Design Priorities" exercise are presented in Figure 9.

In the third exercise, participants sat in groups and designed the Park Preserve of their dreams using provided base maps, aerial photographs, templates, pens, markers, and other tools. This quick intensive design process, or charrette, gave all participants a chance to discuss concerns, ideas, and visions with each other and through a consensus process arrive at a plan the group liked. Each group then presented their design to all of the evening's participants. Descriptions of the outcomes of the charrette and other commentary from the meeting participants and those who commented, but were unable to attend, are included in Appendix C.



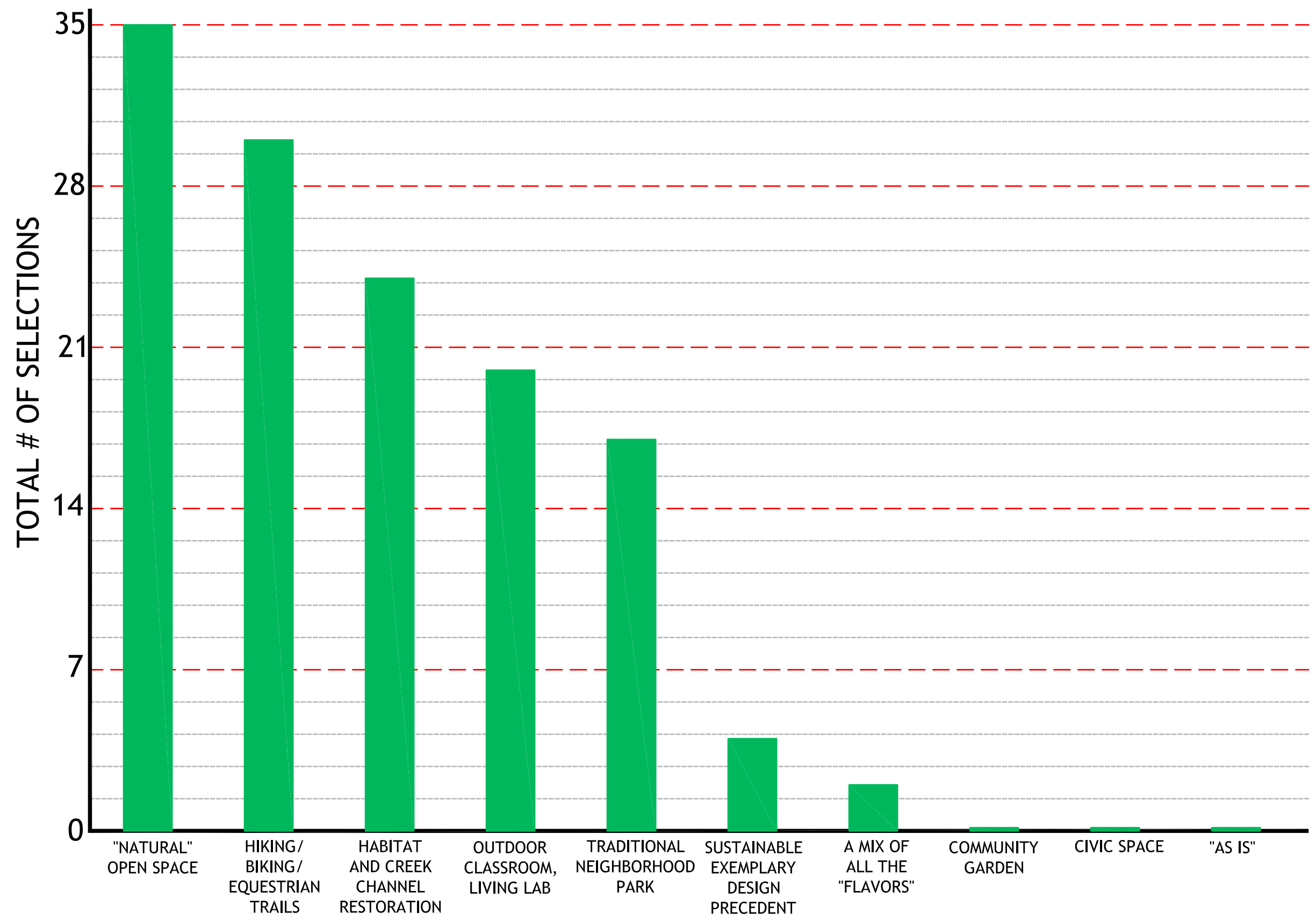
Design Alternatives

The minutes from Community Workshop #1, the design charrette drawings, the results of the two individual activities, and the data from the technical studies guided Foothill Associates during the design process of the Preserve site. Foothill Associates developed three schematic designs based on the community's needs, concerns, and desires, and the opportunities and constraints inherent to the site.

These three schematic designs were provided to SRPD for review and comment. Based on SRPD input and direction, the three designs were further refined into two preliminary plan options, Alternative A and Alternative B.

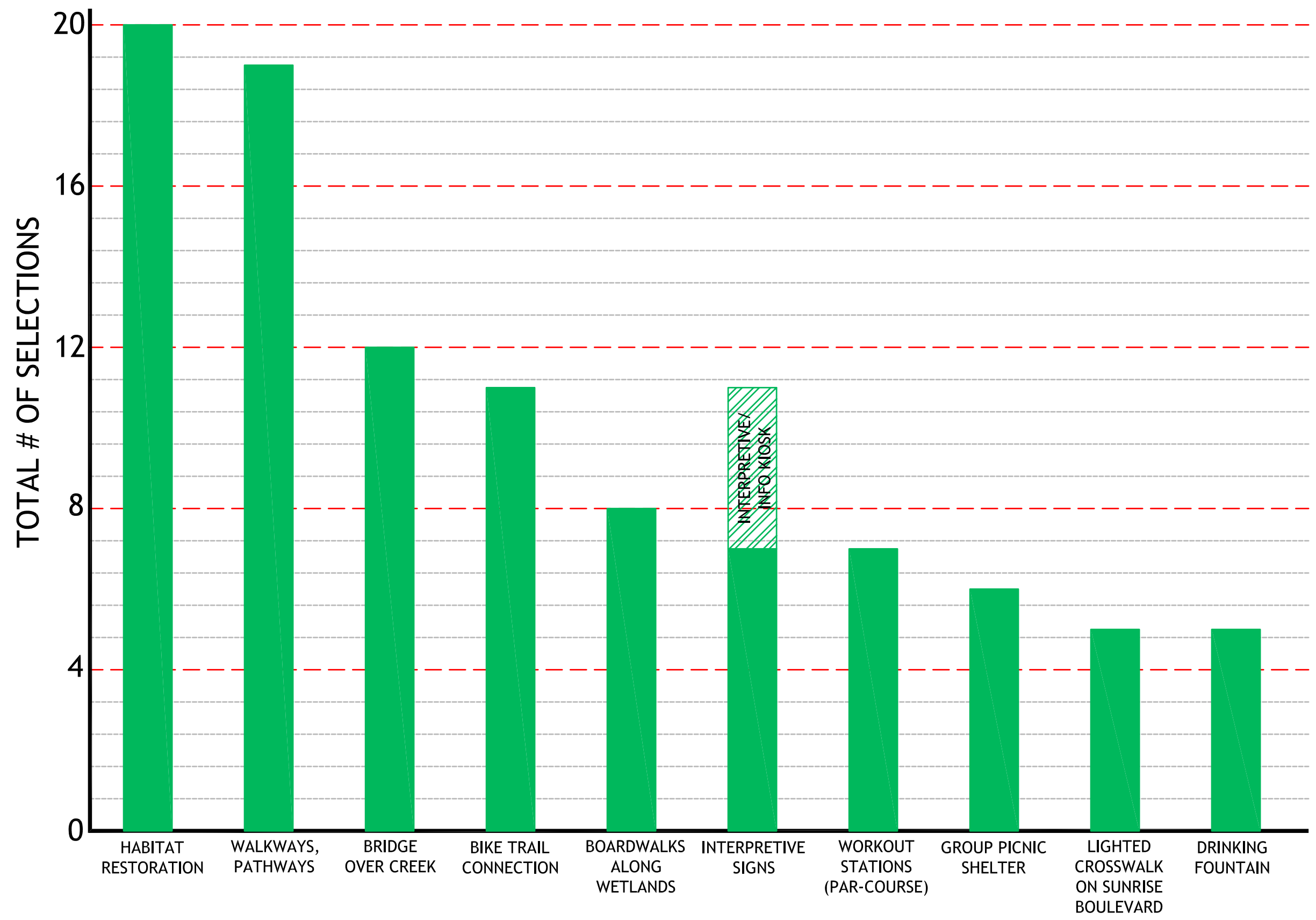
Integrated Design Concepts

The design alternatives for the Preserve were prepared to appeal to and incorporate as many of the community's ideas and concepts as possible given the site opportunities and constraints. Design alternatives were also prepared cognizant of the permitting issues, protecting the wetland features mapped on the site; existing habitat and ecology of the site; long term maintenance costs for SRPD;



COMMUNITY WORKSHOP #1 -- MAY DAY BASKET FLAVOR RESULTS





- Walkways, Pathways
- Bike Trail Connection
- Lighted Crosswalks on Sunrise
- Boardwalk Along Wetlands
- Fishing Pier
- Access to Creek
- Bridge Over Creek
- Interpretive Signs
- Interpretive/Informational Kiosk
- Trellis/Arbor/Archway
- Gazebo
- Group Picnic Shelter
- Community Meeting Room
- Restroom Building
- Bandshell/Stage Area
- Statue/Art Plaza

COMMUNITY WORKSHOP #1 -- AMENITY LIST TOP SELECTIONS



ARCADE CREEK PARK PRESERVE MASTER PLAN

existing trees; ADA accessibility; current challenges with the homeless and socially deviant population; construction costs; and health, safety, and welfare of the public. The layout of the features within the site also considered the existing neighborhood, visibility from Sunrise Boulevard, noise, and site topography.

Both alternatives treat the Preserve site as an urban jewel – a unique, natural place preserved from prior development due to the constraints associated with developing the site and some degree of random, happy luck. Every opportunity was taken to minimize grading and impacts to wetlands, Arcade Creek, existing trees, and neighbors. The alternatives also actively explore ways to enhance and improve existing habitat through removal of invasive species, improvements to storm water conveyance, stabilization of the banks of Arcade Creek, and replanting of native species where possible.

The Preserve MP alternatives utilize Low Impact Development principles to reduce the impact of the development on the creek and riparian ecosystem. As defined by the Low Impact Development Center, a non-profit organization established to promote LID:

“Low Impact Development is a new, comprehensive land planning and engineering design approach with a goal of maintaining and enhancing the pre-development hydrologic regime of urban and developing watersheds.”

LID strategies used in the design alternatives include porous paving for sidewalks, and treatment swales to capture parking lot storm water runoff.

On-site educational opportunities are a critical piece of the alternatives. A boardwalk is included in both alternatives to bring visitors close to the wetland features on the site. Interpretive signs are located on the boardwalk, on an orienting informational kiosk, and along the pathways in both alternatives. These interpretive signs are intended to interpret topics such as local native flora and fauna, Low Impact Development (LID) design solutions, local ecology, urban forestry facts, Arcade Creek, local history, wetlands and riparian areas and their role in the environment, the hydrologic cycle, water quality issues, and flooding and its causes. The intent of the Preserve design is to welcome and encourage use of the Preserve by local schools and educational institutions to learn more about urban creeks, ecology, and how the fabric of the urban system inter-relates and functions. Signage should be relevant, visible, resistant to vandalism, low-maintenance, and incorporate ADA guidelines. Signs should be 18” by 24” or larger and incorporate images and text.



Accessibility and connectivity drive the overall site design in the alternatives. Both alternatives have designs for an east-west multi-use trail, which could become part of a larger bicycle network in the future. A regional bike trail connectivity map was developed early in the project and included in this document as Figure 4.

This map has helped increase awareness of connectivity and the importance of the Preserve site during the community outreach and subsequent presentations. The potential of the site to link to other corridors and easements through multiple jurisdictions generated much excitement among residents.

Both alternatives feature some of the same design elements and features. The multi-use trail will be used by maintenance vehicles to access all areas of the Preserve in both alternatives. Bridges over wetland features, culverts to allow water to flow from existing storm drain outflows into the preserve space and overland to the creek are included in the design. Both alternatives avoided a bridge structure over Arcade Creek. Existing trees are preserved in the design to the greatest extent possible.

Alternative A

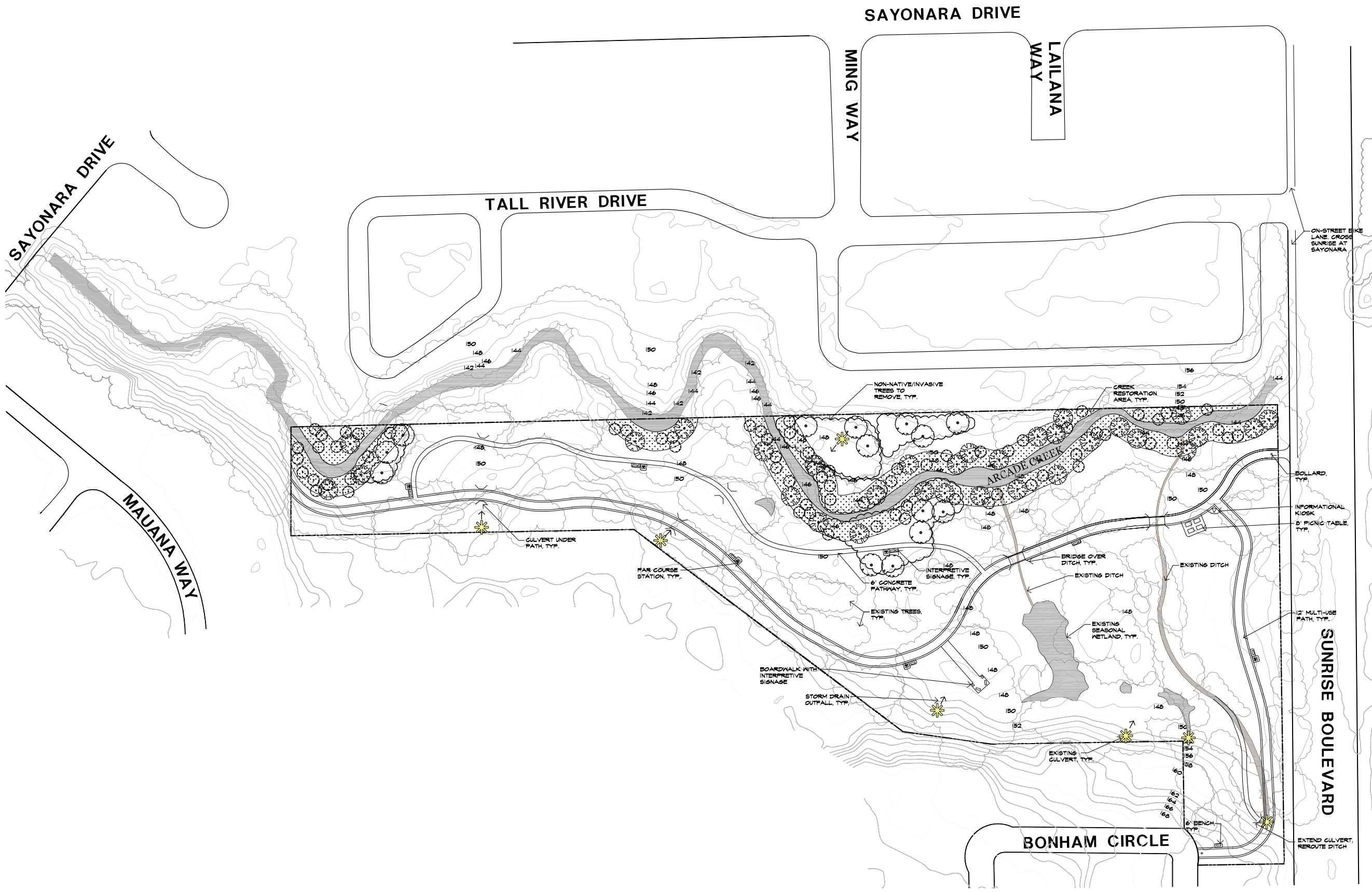
Alternative A includes fewer built elements and amenities than Alternative B. Alternative A does not include off-street parking. In this alternative it is expected users will arrive at the park primarily on foot or by bicycle. Those driving will need to use the limited on-street parking on Bonham Circle. Buses will likely not be able to access the site in this alternative.

Alternative A does include an uncovered group picnic area, a multi-use trail that meanders from east to west with a southern spur to Bonham Circle, a boardwalk with interpretive signs, an informational kiosk, and walkways with a workout station parcours. Alternative A specifies complete restoration of the stream banks including terracing and laying back of banks within the Preserve site, revegetation with native plant materials, and removal of non-native exotics. See Figure 10.

Alternative B

Alternative B contains more built elements than Alternative A, but less restoration work. Alternative B includes a low-impact parking lot accessed via Bonham Circle to address concerns expressed by stakeholders about limited parking in the neighborhood and the small street frontage of the parcel to Bonham Circle. The LID nature of this parking lot is intended to off-set the potential impact of the parking lot on the creek and riparian zone, such as impervious surfacing contributing to more storm water run-off and flooding, heat islands, and other negative factors. LID features for this parking lot include planting of large shade trees to shade the surface, use of permeable paving to allow water to infiltrate the surface, and a bioswale in the center of the parking area to allow for on site treatment of storm water leaving the parking area before entering existing wetlands in the Preserve that flow into Arcade Creek. The parking area will also allow for school buses from local schools to park at the site for outdoor learning opportunities, science classes, and land stewardship.

Alternative B also includes a covered group picnic area, two play areas for children, a multi-use trail from east to west with a southern spur to Bonham Circle, a boardwalk with interpretive signs, an informational kiosk, a drinking fountain, and walkways with parcours. The plan includes restoration of the stream bank and ground revegetation only at locations of where there are large mature invasive trees. See Figure 11.

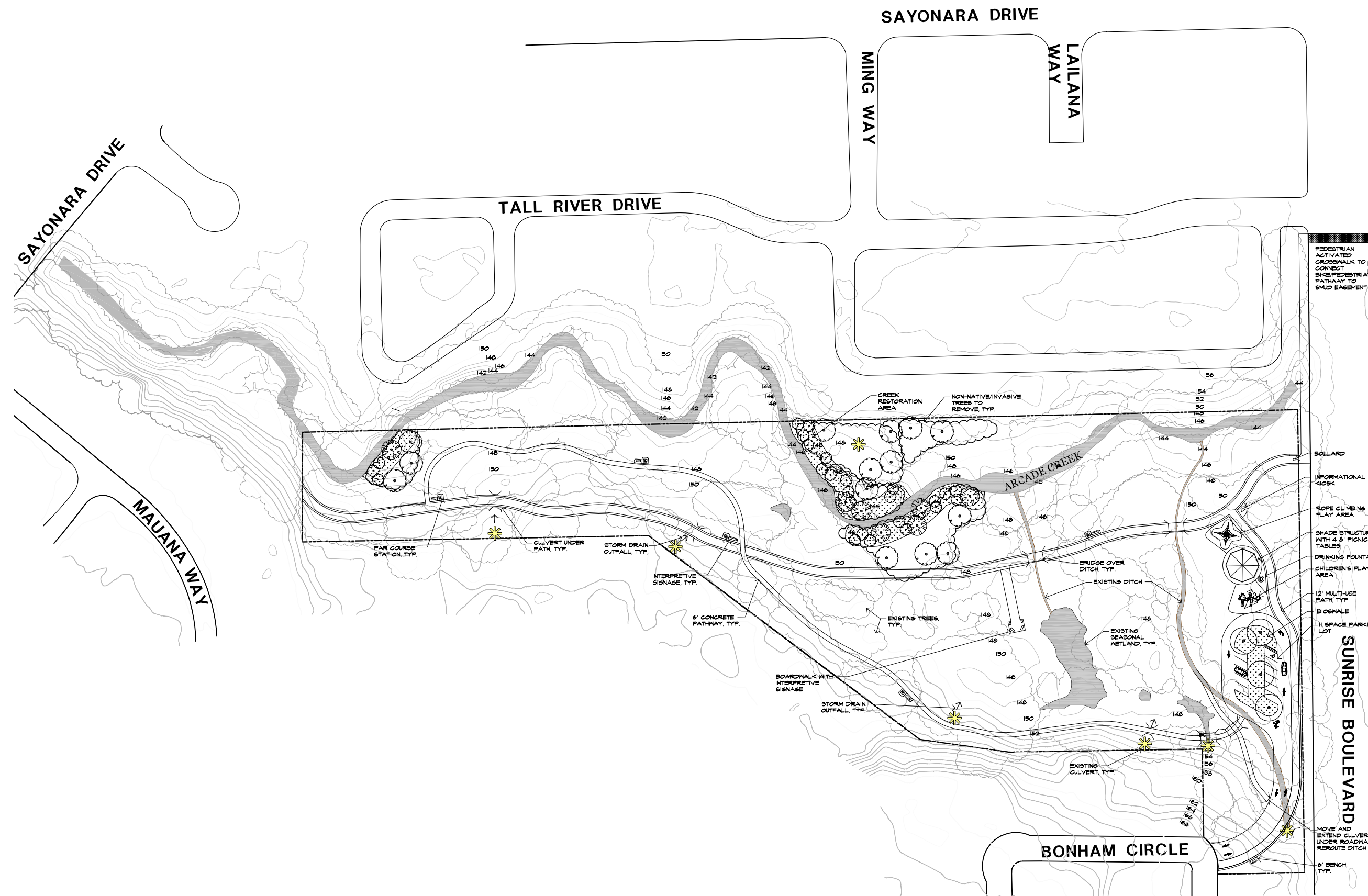


ARCADIE CREEK PARK PRESERVE - ALTERNATIVE A

SUNRISE RECREATION AND PARK DISTRICT

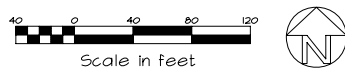


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ARCADE CREEK PARK PRESERVE - ALTERNATIVE B

SUNRISE RECREATION AND
PARK DISTRICT



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2008



Community Workshop #2

The second community workshop was held on June 5th, 2008. A presentation was given on the results and activities from the first community workshop, a review of the opportunities and constraints of the site, and how the Preserve site fits into SRPD's Master Plan. Alternatives A and B were presented to the participants. One group activity followed the presentation.



In the group activity, called "Red Light, Green Light," participants critiqued printed copies of design alternatives A and B in small groups. Each group was given red and green markers and stickers with which to mark the plans and make comments on the designs. Problematic areas or comments of concern were marked with red, and successful or positive design features were marked with green. Each group then presented their comments to all of the evening's

participants. Descriptions of the outcomes of "Red Light, Green Light" and other commentary from the meeting participants and those who commented, but were unable to attend, are included in Appendix D.

Final Master Plan

Foothill Associates applied the information gathered from Community Workshop #2 and the feedback from participants to the design of the final Master Plan (MP) for the Preserve site. The design team developed the final MP based on the community's needs, concerns, desires and opportunities and constraints inherent to the site.

The final MP includes all of the built features from Alternative B, but includes the more comprehensive approach to ecological restoration included in Alternative A. The final MP includes several other refinements based on input from the community and guidance from SRPD staff. These refinements include extra permanently irrigated planting buffers on the north side of the fence between the site and the Creekside Estates community in the southwestern corner of the project; a hammerhead on the west end of the multi-use trail for maintenance vehicle turn around; realignment of the multi-use trail slightly to the north in the vicinity of the Creekside Estates Community; combining the two children's play areas into one on the north side of the group picnic area; and shifting the play area, picnic area, and park area slightly west, away from Sunrise Boulevard. The permanently irrigated planting buffers will feature a mixture of evergreen, thorny, and fire retardant plant material to deter park visitors from climbing the adjacent residential fence and provide some fire protection. Minimal SMUD lighting will illuminate the multi-use trail and parking area in the evening to provide basic security and visibility for law enforcement. For the paved areas, a one foot-candle minimum is the accepted lighting level for public spaces. Based on this final MP, a cost estimate was developed for the construction of the project.

The final MP was submitted to SRPD staff and presented to two SRPD Board sub-committee meetings and the SRPD Board in July 2008. See Figure 12. See Appendix J for a large format version.

Habitat Enhancement

One of the intended outcomes of the MP is enhancement of the existing wetland, riparian woodland, and oak woodland habitat in the Preserve. Areas disturbed during the removal of exotic species, development of a bioswale, realignment of the ditch wetland,

installation of community education features, and construction of recreation facilities will be replanted with an emphasis on native plant species. Native plant species are consistent with preservation of the native plant communities, and also require less water, fewer chemical treatments, and lower maintenance over time.

Figure 13 shows various zones within the Preserve site. The type of plant material and maintenance of each of these zones will vary. For a list of suggested plant materials for use in revegetation, restoration, bioremediation, shade plantings, and for ornamental use see Appendix E.

Removal of Exotic Species

Removal of invasive species such as giant vinca, Algerian ivy, Himalayan blackberry, yellow star thistle, white mulberry, silver maple, silk tree, and eucalyptus should be conducted as widely as possible in the early stages of MP implementation and over as much of the site as possible. Removal of these species early in the process reduces future seed sources. During stream bank restoration, all exotic and invasive species should be removed. Appendix F is a representative list of invasive exotic plant species observed in the Preserve and commonly found in Sacramento County.



Stream banks should be replanted with riparian vegetation native to the Sierra Foothills and existing Arcade Creek basin. Part of on-going maintenance of the Preserve will be continued control of these non-native invasive species. Due to proliferation of invasive, exotic species as ornamentals plantings in the surrounding neighborhoods, it is unreasonable to believe the site could ever be kept entirely free



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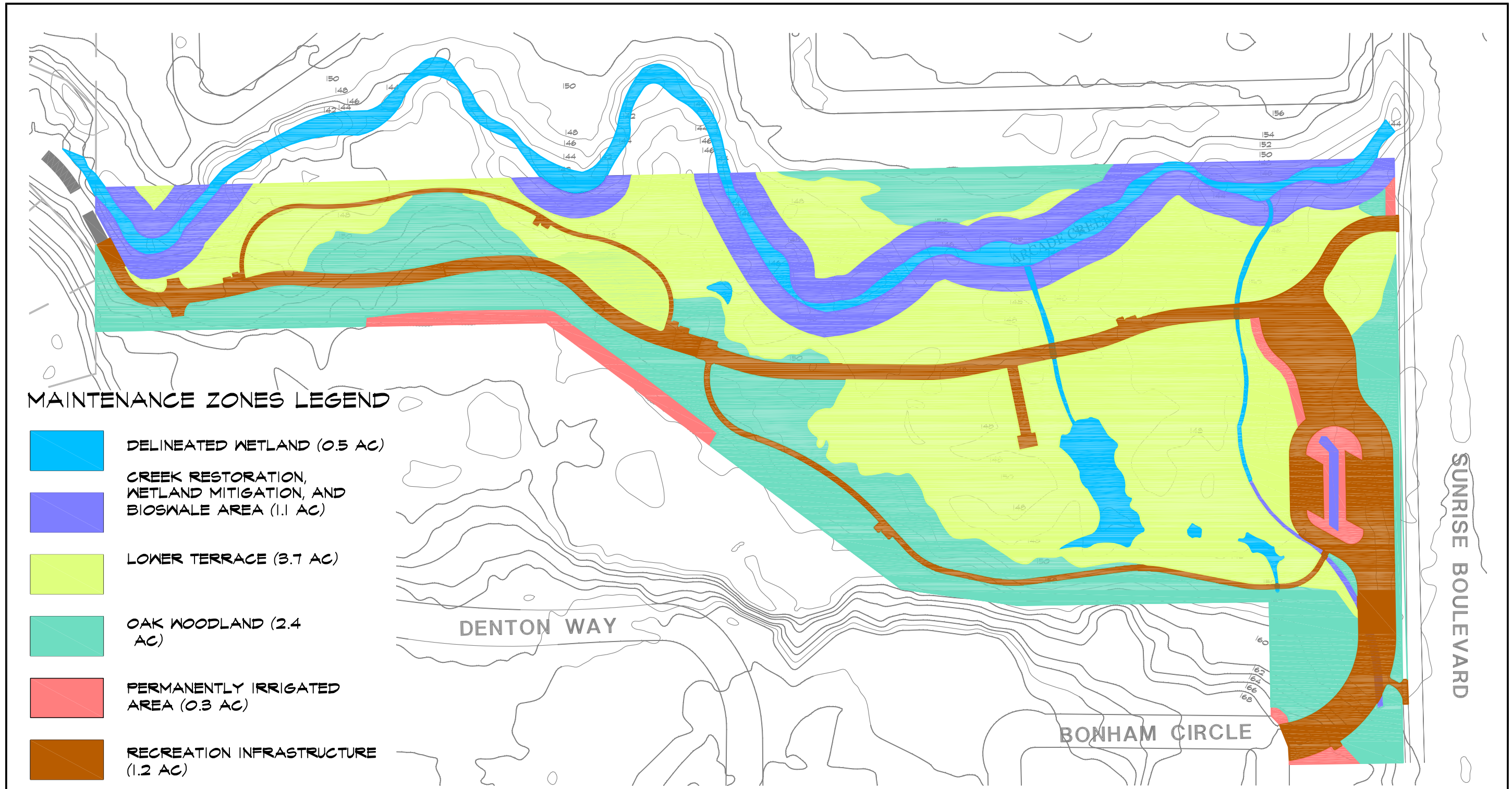
SUNRISE RECREATION AND PARK DISTRICT



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590 WINDY DRIVE, SUITE 1
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ARCADE CREEK PARK PRESERVE -- ZONES

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FIGURE 13

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of invasive exotic plant species. However, periodic removal and management of these species lead to greater chance that native species will become reestablished.

Wildlife



The Preserve is part of a larger corridor and has suitable conditions for supporting wildlife species typically found in riparian, wetland, woodland, and grassland habitats. The corridor is interrupted by sizeable urban roadways, so bird species are more prevalent than terrestrial species. As noted in Appendix A, wildlife observed in the Preserve included belted kingfisher, California quail, red-shoulder hawk, and wild turkey. Other wildlife species could be drawn to the Preserve once the habitat enhancement and creek restoration is complete. Special-status wildlife species could occur within the Preserve. See Appendix G for additional information.

Flood Control and Storm Water Treatment

Due to the location of the project area with respect to Arcade Creek, development within the Preserve should utilize Low Impact Development principles to reduce the impact on the creek and riparian ecosystem. The final MP calls for the addition of paved areas to accommodate the bike trail and parking area. In order to limit the amount of run-off into Arcade Creek from the new improvements, the MP recommends the entire parking area and entry drive to be paved with pervious paving. This paving type contains fewer fine aggregates in the paving mix, allowing for a porous, yet strong structure. The porosity allows rainfall to seep in and flow through the paving into the ground below instead of running off into the storm drain system and contributing to peak flows.

The parking area has also been designed with flush curbs and is intended to drain into the central planting island. This island has been designed as a bioswale to collect storm water from the parking area during major storm events or in case of clogs in the porous paving. The bioswale will also collect storm water collected from the play area and group picnic shelter roof. The planter will allow for water to collect, slow down, and percolate into the ground. The plantings in the bioswale will help clean and take up possible pollutants in the water. Large shade trees in the swale will slow and dissipate rainfall and shade the pavement providing a cooler environment and extending paving life. The swale will drain into the nearby ditch via a pipe.



Minimal existing wetlands on the site will be impacted by the Master Plan. The delineated ditch wetland in the extreme southeastern portion of the project will be filled and realigned to accommodate the new parking lot and bike trail access to the Preserve's only allowed ingress/egress point on Bonham Circle. Mitigation for this fill will be done on-site through the realignment process. The realigned portion will be replanted with native wetland plants to minimize any habitat loss, and the realigned portion can be enlarged or otherwise enhanced as needed to mitigate for impacts from the access road and parking lot grading.

In all other locations where wetlands need to be crossed, free-spanning bridge structures are specified. By retaining all wetlands on site, the Preserve contributes to flood control and water quality

because wetland features retain/detain flow and sequester pollutants (2005, ScienceDaily).

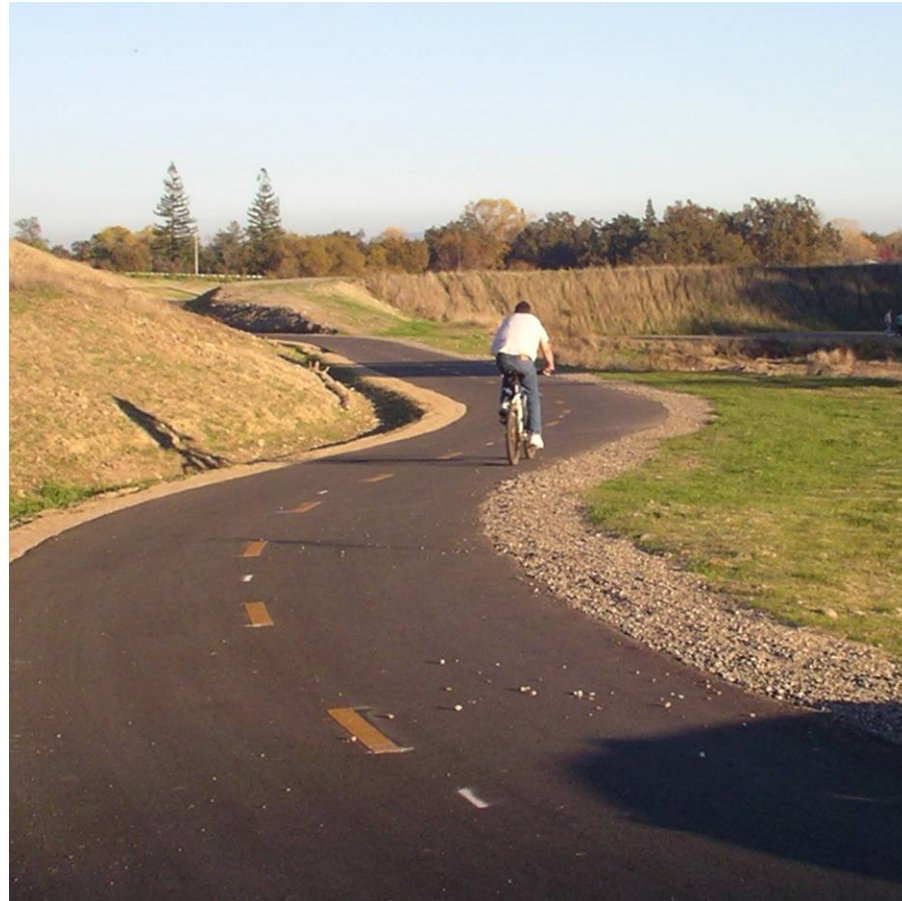
Community Education

By integrating habitat enhancement, flood control, and storm water treatment with the recreation objectives for the site, the Preserve will become a remarkable community resource for a broad spectrum of environmental educational topics. The MP intends for the Preserve to serve the community as an outdoor classroom where students and community members can be actively engaged with learning about many issues that are critical to sustainable urban living. Possible curricular opportunities in the Preserve include upland and aquatic biology and botany, wetland function, creek channel dynamics, water quality, Low Impact Development, and urban sociology and planning. The lessons the Preserve has to offer will be available to the local schools, community organizations, and to the casual visitors to the Preserve through a comprehensive interpretive program as described above. As indicated earlier, the parking area in the final MP was designed to accommodate buses.

Recreation Opportunities

The MP includes several recreation opportunities reflecting community input and the needs indicated by the SRPD Master Plan. The merits of a multi-use trail linking to other trail resources in the area generated a high level of excitement and interest from participants in the community workshops. As already presented, a multi-use trail is designed in the MP from east to west across the length of the site with a southern spur to Bonham Circle. The trail will cross two wetland features via free-spanning bridges. The design includes a link to the trail specified by the Citrus Heights General Plan on the opposite side of Sunrise Boulevard via a pedestrian activated traffic light crosswalk. The trail can be extended west to Sayonara Drive in the future by the City or by SRPD if they decide to acquire the two neighboring parcels owned by the City. Both Citrus Heights police and residents agree extending the trail west will encourage more legitimate behavior and deter unlawful behavior within the Preserve. Residents in the community workshops encouraged SRPD to explore acquiring more parcels along Arcade Creek. The trail will also be used by SRPD maintenance vehicles. The 12' wide paved trail will have 2' wide decomposed granite shoulders on each side. The trail can be used by runners, walkers,

ARCADE CREEK PARK PRESERVE MASTER PLAN



and bicyclists. Commuting by bicycle instead of by car is an increasingly important alternative for many people working and shopping during the current era of high gasoline prices and poor air quality, particularly if safe, off-street routes can be provided to work, shopping, and school locations.

A workout station par-course is included in the design of the Preserve along the sidewalks and multi-use trail. The stations allow for user groups of all ages to perform some simple exercises at designated stations geared for active walkers and joggers.

An adventure play area with a mixture of play opportunities for children 5 to 12 has been designed in the core of the Preserve. Climbing ropes and/or boulders with traditional play equipment will give youth in the neighborhood a designated place to play in addition to general fun to be had in exploration of the Preserve space. Residents have commented neighborhood children currently play in streets crowded with parked cars and this condition is a very unsafe.

The Preserve will provide a safer location for recreation and play for local children. The adventure play area should be perched as high as possible above the creek to avoid flooding as much as possible. A low fence should be installed on those sides of the play area next to the bike trail to avoid conflict with trail use.



A covered group picnic area is included between the play area and parking area in the MP. The group picnic area will provide a place for parents to watch children in the play area and for neighbors to have group picnics. A drinking fountain has been provided for use at such activities.

Built structures, including the group picnic structure, work out stations, play area, informational kiosk, bridges, and boardwalk should have materials that coordinate with each other. The structures can be either pre-fabricated or custom designed, but should match or harmonize with other structures included in the design. The design of the bridges should be coordinated with the design of the boardwalk,

shade structure, and kiosk. Materials selections for the built structures should be long-lasting, low-maintenance and appropriate for the natural setting. The materials should withstand flooding, and preferably provide points towards LEED (Leadership in Energy and Environmental Design) certification.

Implementation

Implementation of the Arcade Creek Park Preserve Master Plan has the potential to be embraced by a wide variety of local organizations, jurisdictions, and agencies. These include the San Juan Unified School District for the educational opportunities; Department of Water Resources, Sacramento County, City of Sacramento, SAFCA, and City of Citrus Heights for the potential flood control and storm water quality benefits; bicycle advocacy organizations for trail connections; and the various resource agencies (EPA, Department of Fish and Game, US Fish and Wildlife Service) for the habitat enhancement opportunities. Other important partners include the Arcade Creek Watershed Group, local residents, service organizations, and youth groups who want to be involved in creek stewardship activities.

The Preserve is a very important project because of its potential to redefine how forgotten urban open spaces can be used to awaken environmental awareness. The intent of the MP is to guide SRPD to realize a vision that matters deeply to local residents and generates a tremendous level of enthusiasm and energy among all the users of the space now and in the future.

Before the MP can be implemented, SRPD must find ways to cover funding shortfalls for construction and maintenance, and complete survey work, California Environmental Quality Act (CEQA) documentation, permitting, and regulatory clearances. Construction and bid documents must also be prepared, and the bidding process completed.

Funding Opportunities

Construction of the improvements recommended by this MP and the ongoing operations and maintenance of the Preserve will require considerable resources and the commitment of SRPD. While grants are often available for construction of trails and creek restoration projects, grant funding is usually not available for ongoing maintenance. Maintenance costs will be paid by SRPD and should be adequately addressed in annual budgeting. Individual elements of this plan, such as invasive species management, creek restoration/channel improvements or trails, should not be constructed until funding is secured for maintaining those elements.

Numerous grant opportunities are currently available that would align well with the multiple objectives of the Preserve. The chart below illustrates some of the funding opportunities that could be available to SRPD, depending on grant funding available.

Table 1 – Funding Opportunities

Funding Source	Project Objectives				
	Habitat Enhancement	Water Quality	Flood Control	Recreation/ Trails	Environmental Education
CALFED Watershed Program	■	■	■	■	■
Caltrans Bicycle Transportation Account				■	
Community Development Block Grants				■	
Congestion Mitigation & Air Quality Program				■	
Flood Protection Corridor Program (DWR)	■		■		
IRWMP Prop 1E	■	■	■		
IRWMP Prop 84 (TBD)	■	■	■		■
Prop 84 Urban Streams Restoration Program (TBD)	■	■	■		■
Sac County Storm Water Utility Fees	■	■	■		■
SACOG Bicycle & Pedestrian Funding Program				■	
Sacramento Tree Foundation "Nature Program"	■				
Safe Routes to School				■	
Nonpoint Source Implementation 319h Program	■	■	■		■



One of the grants available in the past for projects like the Preserve is the California Rivers Parkway Grant. This grant was a Proposition 50 funded program, which funds projects that meet five criteria:

1. Provide recreation opportunities such as trails along rivers and streams;
2. Protect, improve or restore riverine or riparian habitat;
3. Maintain or restore open space compatible with flooding;
4. Convert existing river uses to parkways; and
5. Support or interpret river or stream restoration activities.

The Arcade Creek Park Preserve MP meets goals 1, 2, 3 and 5. Funding for the River Parkways Grant program has already been fully allocated, however, future programs are anticipated with similar opportunities.

Additional grant funding that may be available is as follows:

Federal

1. Wetlands Grants

Granted by the EPA's Office of Water, funds are available to States, local government and not-for-profit organizations to develop the capacity to protect, manage and restore wetlands and riparian resources. Minimum match of 25 percent of total project cost is required.

2. Recreational Trails Program

Granted by the Department of Transportation's Federal Highway Administration, this grant is available to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. A State agency must be designated by the Governor to receive the funds.

3. Outdoor Recreation Acquisition, Development and Planning (Land and Water Conservation Fund Grants)

Grants provided by the National Park Service to acquire and develop outdoor recreation areas and facilities for the general public, to meet current and future needs. Not more than 50 percent of the project cost may be federally financed.

4. Environmental Protection Agency Targeted Watersheds Grants Program (TWG)

Promotes successful community-based approaches and management techniques to protect and restore the nation's waters. Implementation awards are announced annually. Total amount awarded in 2006/2007 was \$12.4M.

5. Safe Routes to School

Safe Routes to School (SRTS) programs aim to make walking and bicycling to school a safe and appealing form of transportation. Federal legislation and funding currently exist to support SRTS efforts

6. Environmental Education Grants (EEG)

For grants provided by the EPA's Office of Environmental Education, funds are available to support projects to design, demonstrate, or disseminate practices, methods, or techniques

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related to environmental education and training. Federal funds will not exceed 75 percent of the project cost.

State

1. Department of Transportation

Proposition 116 – The Clean Air and Transportation Improvement Act, provides \$2.0 billion in GO bonds from 1990 to 2010 for transportation projects, of which \$20M was allocated for bicycle trails that benefit commuters.



Bicycle Transportation Account (BTA) provides state funds for city and county projects that improve safety and convenience for bicycle commuters. For fiscal year 2008/09 the BTA will provide \$7.2 million to city and county agencies for projects that improve safety and convenience for bicycle commuters.

2. Resources Agency

State Environmental License Plate Funds – Grants are offered to state agencies, city or county agencies, or private non-profit organizations to support a variety of projects that help to preserve or protect environment. Eligible projects include acquisition, restoration or enhancement of resource lands and endangered species, and development of interpretive facilities. Projects are funded in one-year increments and each must be a separate, distinct project with a clearly defined benefit.

Environmental Enhancement and Mitigation Program (EEMP)- Grants offered to local, state or federal agencies or non-profit entities to provide enhancement or additional mitigation related to eligible transportation facilities. Eligible projects include highway landscaping and urban forestry, acquisition restoration or enhancement of resource lands, and acquisition and/or development of roadside recreation opportunities. The program, established in 1989 (Section 164.56 of the Streets and Highways Code) provides funding from fuel taxes and weight fees.

3. Department of Fish and Game

The Cigarette and Tobacco Tax Benefit Fund (Proposition 99) provides funds to restore fish habitat.

4. Wildlife Conservation Board (Generally administers the Federal Land and Water Conservation Fund)

Oak Woodland Preservation Program allocated for preservation of oak woodlands and offers landowners, conservation organizations, cities and counties, an opportunity to obtain funding for projects designed to conserve and restore California's oak woodlands

Proposition 19 (1984 Fish and Wildlife Enhancement Bond Act) provides funds to correct the more severe deficiencies in fish and wildlife habitat. Funds may be used only by public agencies to enhance, develop or restore flowing waterways for the management of fish outside the coastal zone. Proposition 70 funds are available for endangered species and for native trout habitat restoration.

5. Department of Water Resources

Proposition 84 – Urban Streams Restoration Program, is for projects that assist communities in reducing damages from stream bank and watershed instability and floods while restoring the environmental and aesthetic values of streams, and to encourage stewardship and maintenance of streams by the community. \$9.1 million fiscal year 2007-08.



Proposition 13 and 84 – Set aside \$70M and \$40M, respectively, for the Flood Protection Corridor Program, which can be used for flood control projects including acquisition, restoration, enhancement and protection of property for the purposes of flood control protection, agricultural land preservation and wildlife habitat protection.

Under Proposition 84 – Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006, Urban Streams Restoration Program is for projects that assist communities in reducing damages from stream bank and watershed instability and floods while restoring the environmental and aesthetic values of streams, and to encourage stewardship and maintenance of streams by the community.

Integrated Regional Water Management: Stormwater/Flood Management Program awards funds to local public agencies (Proposition 84), for projects and programs, consistent with an IRWM Plan, to improve water supply reliability and improve and protect water quality.

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6. Department of Forestry and Fire Protection

Urban Forestry: Education Grant (Grant Funds made available from Proposition 40 and Proposition 84). This grant will fund the development and implementation of an educational program based upon and showcasing the many positive benefits of Urban Forestry.



Tree-Planting Grant Program funding is available to assist nonprofit and community-based groups throughout California with tree-planting projects on public land and includes the planting and care of trees on public property, education and outreach projects, and volunteer development.

Urban Forestry Grant Program funding is available to assist nonprofit and community-based groups throughout California with urban forestry projects. The program is funded through a contract with the California Department of Forestry and Fire Protection (CAL FIRE).

Forest Stewardship Program – Funded by Federal dollars and administered by the State for private land owners only. Grants provided to protect, restore and improve wetlands and riparian areas to maintain water quality and enhance habitat. Eligibility is for private landowners as well as public jurisdictions. Small acreage from 20 to 299 acres of land.

7. State Water Resources Control Board

The Non-point Source Pollution Control Program – Non-point sources (NPS) are the major cause of water pollution in California. As the state agency charged with protecting water quality in the State of California, the State Water Resources Control Board (State Board) is committed to promoting implementation projects that reduce NPS pollution in water bodies of the State. The February 1987 amendments to the federal Clean Water Act (CWA) include Section 319, which establishes the framework for non-point sources (NPS) activities on the State level. The CWA provides funding for the states' NPS programs, including grants for NPS implementation projects. Implementation projects to reduce NPS loading from various sources are eligible for grant funding. NPS implementation activities include demonstration projects, technology transfer, training, public education technical assistance, ordinance development, and other similar activities associated with control of NPS pollution. The amount of funds available is dependent upon Congressional appropriations.

Water Quality Planning – The State Water Resources Control Board provides water quality management planning grants to state, local, and regional agencies to address a wide variety of surface and ground water quality problems. These funds are provided by the federal government under Sections 205 and 604(b) of the Clean Water Act. These grants require a 25 percent non-federal match. The funding emphasis is on projects that focus directly on corrective or preventive actions for water bodies identified as "impacted" in the State's Water Quality Assessment. However, projects that focus on other water quality problems will also be considered. Projects which are primarily research-oriented will not normally be funded.

8. Department of Parks and Recreation

Land and Water Conservation Fund – This program has funds available for the acquisition or development of neighborhood, community or regional parks or facilities supporting outdoor recreation activities. Eligible applicants include counties, cities,

recreation and park districts, special districts with public park and recreation areas. This is a 50/50 matching program. The applicant is expected to finance the entire project and will be reimbursed 50 percent of the costs, up to the amount of the grant. The amount of funds available varies from year to year.

Riparian and Riverine Habitat Grant Program – The goal of this program is to provide funds on a competitive basis to increase public recreational access, awareness, understanding, enjoyment, protection, and restoration of California's irreplaceable rivers and streams. Includes the acquisition, development, or improvement of recreation areas, open space, parks, and trails in close proximity to rivers and streams. All projects must include a Riparian or Riverine habitat enhancement element and also provide for public access. The minimum is \$20,000, and the maximum is \$400,000.

Habitat Conservation Fund – This program provides funds for a variety of habitat conservation projects. Eligible applicants include counties, cities, cities and counties, or districts as defined in Subdivision(b) of the Public Resources Code. Eligible projects include: deer and lion habitat, including oak woodlands; habitat for rare and endangered, threatened and fully protected species; wildlife corridors and urban trails; wetlands; aquatic habitat for spawning and rearing of anadromous salmonids and trout species; and riparian habitat. This is a 50/50 matching program. The match must come from a non-State source.

EPA's State Wetland Program Development

Under the Clean Water Act (CWA) Section 104 (b)(3), grants are given to various wetland projects include "multi-objective river corridor management" projects that address multiple use of rivers and adjacent areas, such as recreation habitat protection, water quality and open space. Funds are available to assist states, and local government in implementing new programs relating to wetlands preservation and enhancement. Range of financial assistance for these project grants is generally \$50,000 to \$300,000.

Sacramento Area Council of Governments

The Metropolitan Transportation Plan for 2025 adopted in 2002 set aside \$500 million in federal funds over a 23-year period for transportation projects that promote smart growth development and decrease auto travel.

Private

1. The Conservation Fund – American Greenways Grant Program
Provides grants in recognition of accomplishments in successful and creative approaches to developing California Greenways, particularly through overcoming obstacles and creative problem-solving. (\$500 - \$2,500)
2. National Fish and Wildlife Foundation's Grants
A private non-profit established by Congress in 1984, the foundation fosters cooperative partnerships to conserve fish, wildlife, plants, and the habitats on which they depend. The Foundation works with its grantees and conservation partners to stimulate private, state, and local funding for conservation through challenge grants. Through a challenge grant, each dollar awarded by the Foundation must be matched with one non-federal dollar. Projects that benefit multiple species, achieve a variety of resource management objectives, and/or lead to revised management practices that reduce the causes of habitat degradation. A special emphasis is placed on larger projects that demonstrate a landscape-level approach and produce lasting, broad-based results on the ground. Numerous grants would apply to the Arcade Creek Park Preserve including "Bring Back the Natives", "Native Plant Conservation Initiative", and habitat conservation plans focusing on migratory bird populations.

Low Cost Services/Materials

1. California Conservation Corps
Provides low cost services for brush clearance and trail building. Sponsor must provide materials, but Corps provides supervision and some tools, and crews often work alongside volunteers. Provides plant materials to any public agency at cost. Prefer 1 to 1-1/2 year lead time for preparation of plant materials. Planting projects do not have to have Corps workers.
2. National Parks Service
Rivers and Trails Conservation Assistance Program – Under the National Center for Recreation and Conservation. The program provides technical assistance for corridor conservation plans, statewide assessments, conservation workshops, consultation and information exchange. Rivers & Trails staff work on the

grassroots level with local citizens groups and state and local governments to revitalize nearby rivers, preserve valuable open space, and develop trail and greenway networks. All Rivers & Trails projects are locally led and managed, and begin with an invitation from local agencies and/or organizations to help.

3. California Department of Forestry
Sells low-cost native trees. Must be purchased in quantities of 10, habitat and erosion control, but not for landscaping. Can also provide discounts if jurisdiction provides own seed. Ordering requires advance planning for availability during proper season.
4. Sacramento Tree Foundation "Nature Program"
Sacramento Tree Foundation's "Nature Program" provides native trees and pays for maintenance of those trees for the first three years.

Volunteerism and Donations

Citizen volunteerism is an excellent method for constructing projects that do not require contractors. Implementing projects with volunteer help invests the community in the project and can lead to better long-term success through citizen monitoring and support. Opportunities for volunteerism in the Arcade Creek Park Preserve include manual removal of invasive plants; planting of riparian trees, shrubs and groundcover; periodic creek clean-ups and post-construction monitoring.

Local businesses or community organizations can also donate goods and services to help offset costs of regular maintenance. Significant donations could be acknowledged through recognition on interpretive signage or site amenities or through other means

Permitting Requirements

The approval and construction of the Arcade Creek Park Preserve will require the following permits and approval process.

California Environmental Quality Act

A (CEQA) Initial Study was prepared for the site in January 2004. That Initial Study found that the project could have a significant effect on the environment and that site specific studies were necessary to determine the effects to aesthetics, air quality, biological resources, and the hydrology and water quality of Arcade Creek. After completion of site specific studies, a subsequent Initial Study would be required. Upon completion a final determination of impact significance and necessary mitigation measures would be made. It is expected that this subsequent Initial Study would result in a Mitigated Negative Declaration.

Water Quality Certification

A Water Quality Certification (WQC) pursuant to Section 401 of the Clean Water Act would be required as a required general condition of the Nationwide 404 Permit program. The State of California Regional Water Quality Control Board uses WQC's to ensure NWP's protect State water quality standards. These are generally issued within 90 days of receipt of a complete package.

Streambed Alteration Agreement

A Section 1602 Streambed Alteration Agreement (SAA) will be required prior to the restoration activities taking place within Arcade Creek. An application would be submitted to the California Department of Fish and Game and a draft agreement would be received within 60 days after CDFG has a complete package.

Clean Water Act Section 404

The project will trigger the need for permits pursuant to Section 404 of the Clean Water Act (CWA). The nature of the proposed impacts will most likely require a combination of Nationwide 404 Permits (NWP) for work being done within the ordinary high water mark(s) of jurisdictional waters of the U.S. NWP's are for projects with minimal

impacts, and are more streamlined than Individual 404 Permits. Verifying compliance with NWP's is the responsibility of the U.S. Army Corps of Engineers (Corps). Pre-Construction Notifications (PCN's) are submitted to the Corps and they have 45 days to verify the project's compliance after receipt of a complete package. They may only request additional information once, within 30 days of receiving the PCN's.



The following Nationwide Permits are most likely applicable to the development of Arcade Creek Park. The final decision on the applicability of specific Nationwide Permits is at the discretion of the Corps.

- The realignment of the ditch for the grading of the driveway, parking, and pedestrian path along the eastern portion of the property will trigger a NWP 46. This does not authorize discharges of dredged or fill material into ditches constructed in streams or other waters of the United States, nor does it authorize discharges of dredged or fill material that increase the capacity of the ditch and drain those areas determined to be waters of the United States. The discharge must not cause the loss of greater than one acre of waters of the United States and a pre-construction notification must be submitted to the district engineer prior to commencing the activity.
- The restoration of Arcade Creek will most likely be authorized by NWP 27, which is specifically for aquatic habitat restoration, establishment, and enhancement activities and work performed below the ordinary high water mark. The activities authorized by this NWP include, but would not be limited to: the removal of accumulated sediments; the installation, removal, and maintenance of small water control structures, dikes, and berms; the installation of current deflectors; the enhancement, restoration, or establishment of riffle and pool stream structures; the placement of in-stream habitat structures; modifications of the stream bed and/or banks to restore or establish stream meanders; the backfilling of artificial channels and drainage ditches; the removal of existing drainage structures; the construction of open water areas; activities needed to reestablish vegetation, including plowing or discing for seed bed preparation and the planting of appropriate wetland species; mechanized land clearing to remove non-native invasive, exotic, or nuisance vegetation; and other related activities. Only native plant species should be planted at the site.

In addition to Nationwide Permits 46 and 27, the following NWP permits may or may not be required dependent upon the level of disturbance proposed to the project area during construction:

- The installation of lighting within the park may trigger a NWP 12 if construction activities occur within waters of the United States. The permit allows for activities required for the construction, maintenance, repair, and removal of utility lines and associated facilities, provided the activity does not result in the permanent

loss of greater than 1/2 acre of waters of the United States. It includes outfall and intake structures, and the associated excavation, backfill, or bedding for the utility lines, in all waters of the United States, provided there is no change in pre-construction contours. A pre-construction notification must be submitted to the district engineer prior to commencing the activity.

- A span bridge is proposed over the outfall structure located on the south portion of the park. If that is not feasible and construction or modification of the outfall is required to install a crossing, a NWP 14 or 07 would be necessary.



A NWP 14 would be triggered, but only if fill will be required to install the structures within the ordinary high water mark. The discharge for this type of project cannot cause the loss of greater than 1/2-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the

minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project. This NWP also authorizes temporary structures, fills, and work necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) the loss of waters of the United States exceeds 1/10 acre; or (2) there is a discharge in a special aquatic site, including wetlands.

Under a NWP 07, activities that would be allowed would be related to the construction or modification of outfall structures and associated intake structures, where the effluent from the outfall is authorized, conditionally authorized, specifically exempted by, or that are otherwise in compliance with regulations issued under the National Pollutant Discharge Elimination System Program (Section 402 of the Clean Water Act). The construction of intake structures is not authorized by this NWP, unless they are directly associated with an authorized outfall structure.

- Should piers or pilings be required as part of the installation of the bridges a NWP 25 would be required. This would include discharges of material such as concrete, sand, rock, etc., into tightly sealed forms or cells where the material will be used as a structural member for standard pile supported structures, such as bridges, transmission line footings, and walkways, or for general navigation, such as mooring cells, including the excavation of bottom material from within the form prior to the discharge of concrete, sand, rock, etc. are used to construct the bridges. The structure itself may require a section 10 permit if located in navigable waters of the United States.
- In addition, if temporary dewatering is necessary, a NWP 33 would be required for work within the waterway for temporary structures, work, and discharges, including cofferdams, necessary for construction activities or access fills or dewatering of construction sites.

All of these permits will be required prior to work in waters of the U.S. and it is recommended that they are submitted as early as possible to limit processing and/or construction delays.

Citrus Heights Tree Permit

In addition to state and federal permits the City of Citrus Heights protects certain trees and requires a Tree Permit for the removal of or any work on or around native oak trees (6 inches in diameter or greater) and other mature trees 19 inches or greater in diameter (as measured four and one-half (4 ½) feet above the ground) . The construction of the parking area and trail system will mostly likely require a Tree Permit application to be filed with the Citrus Heights Planning Division for work within the Arcade Creek Park/Preserve area.

The following tree types are exempt from any permit process: willow, fruit, eucalyptus, alder, cottonwood, pine, catalpa, fruitless mulberry, or palm. Native oak trees which are protected and require a tree permit include valley oak, interior live oak, blue oak, and oracle oak. A Tree Permit must be filed with the city prior to any construction or grading activities affecting protected trees along with a \$30.00 filing fee and a certified arborist's report and photos.

Hydrology and Hydraulic Analysis

The final design of the creek bank restoration will require a hydrology and hydraulic analysis of the creek and upstream watershed. Based on information gathered during background research, a qualified consultant will need to prepare an existing conditions steady state hydraulic model. The ACOE Hydraulic Engineering Center's River Analysis System (HEC-RAS) Model may need to be used. The model will be compared to existing topography. Depending upon the degree to which the model and the current topography match, another model may need to be developed. The model(s) will be used to develop a general understanding of the inundation frequency of the site. Topography of neighboring land will be evaluated to determine if additional protection measures are necessary to maintain the same level of flood protection currently established.

Arborist Survey

An survey performed by a certified arborist will need to be conducted of all portions of the site expected to be impacted by the improvements called for by the MP. The tree survey and arborist report needs to meet Sacramento County DERA standards. The survey will include numbering and tagging each qualifying tree (DBH 5 inches and greater), as well as recording required data (species, size, health, etc.). The tree survey and tagging should occur before



the civil engineering survey. The trees will be located with a GPS unit in the field to the extent that canopy does not interfere with satellite reception for use in later survey work. The survey and report will help guide the refinements to the later construction plans from the master plan based on tree location. Trees that are diseased or unsafe can also be removed in the implementation phase based on the report. Required mitigation measures for tree replacement will be based off of this report.

Civil Engineering Survey

A civil engineering survey conducted by a licensed land surveyor will need to be conducted for all portions of the site expected to be impacted by the improvements called for by the MP. The surveyor or civil engineer will research and obtain, if available, title report, easements information, record maps, horizontal and vertical control

data, and search ties and monuments of record. The surveyor will need to review the MP and visit the site with the landscape architect to ensure only the areas to be impacted are surveyed. All trees tagged by the arborist during the arborist survey will be located along with all utilities, power poles, and other natural and man-made features and grade breaks.

A topographic map will be prepared and will show location of any visible utilities, trees, furniture, sidewalks, curbs, parking lots, drains, fences, poles, etc.

Geotechnical Engineering Survey

A geotechnical engineering survey should be conducted by a licensed geotechnical or professional engineer for those areas of the Preserve where a structure greater than 3 feet in height is anticipated per the MP. The geotechnical engineer will prepare a geotechnical letter report and discuss earth materials and conditions, test results, and minor structure foundation and pavement design recommendations. The report will make recommendations for sub-grade preparation and anticipated earthwork/construction conditions. Laboratory testing is anticipated to include moisture-density, unconfined compressive strength, corrosivity, and Resistance-Value determinations. Borings may need to be conducted of the site and logged. The geotechnical report will reduce construction and footing costs for improvements such as the shade structure and parking lot and will be required by bridge designers and manufacturers.

Biological Resource Assessment

Biologists should review available materials regarding existing site conditions, biological resources, and wetlands for the proposed alignment of the Preserve site (e.g. USGS topographic maps, NRCS soils maps, and California Natural Diversity Database). They should then conduct a field survey to identify dominant plant communities on the site, characterize wildlife habitat, locate sensitive areas, and evaluate the potential for the property to support special status plant and wildlife species. A biological resource assessment should be prepared that identifies biological resources and potential biological constraints and provide recommendations for any further required studies or permitting. The report should be submitted to SPRD for review following completion of the field surveys.

Surveys focused on special-status species may need to be performed for the Preserve site based on findings in the biological

resource assessment. Additional biologist expertise may be required in developing recommendations or mitigation measures.

Wetland Delineation Report and Final Acceptance

A field wetland delineation needs to be conducted on the Preserve site according to the 1987 U.S. Army Corps of Engineers (Corps) Wetland Delineation Manual, the Arid West Supplement, recent guidelines compiled by the Corps resulting from the Rapanos Supreme Court Decision, and applicable wetlands regulations. The field delineation has already been completed in April of 2008. A preliminary map of wetlands and other waters of the U.S. on the site according to the requirements as specified in the minimum standards for conducting a wetland delineation by the Sacramento District of the Corps of Engineers (ACOE) has been prepared. The next step is to write a wetland delineation report and then submit the map and report to the SPRD for review. Upon SPRD approval, the wetland delineation map, report, and request for verification shall be submitted to the U.S. Army Corps of Engineers.

Only the ACOE can verify the extent of jurisdictional wetlands or waters of the U.S. on a site. It is recommended that non-recoverable funds not be committed based on the preliminary wetland delineation map until it has been finalized and verified by the Corps. A field verification meeting with an ACOE representative may be requested.

Cost Estimate

A cost estimate has been prepared for implementation of the MP based upon bids received from contractors in 2006 and 2007. If the cost of construction appreciates significantly between planning and implementation or if a period of more than one year lapses, this estimate should be revised and updated prior to securing grants or other funding sources for the project to ensure a sufficient amount is available for construction. See Appendix I.

Maintenance and Management

The ongoing maintenance and management plan of the Arcade Creek Park Preserve will follow the strategy of adaptive management. Adaptive management practices are expected to evolve and change over time as conditions within the Preserve change.

Adaptive management consists of three major elements: operations, maintenance, and monitoring. Operations include securing and closing the Preserve after hours, and other day-to-day operations. Maintenance refers to the various activities performed by SRPD staff to keep the Preserve recreation facilities safe for public users, maintaining the storm drain network and outfalls within the Preserve, and maintenance of habitat areas. Monitoring encompasses the activities required to evaluate how the space is functioning and when operation and/or maintenance activities need to be modified. Adaptive management is achieved when all three of these components are integrated and respond to each other.



The multifunctional nature of the Preserve may present some conflicts between recreation uses of the site, storm and flood water conveyance, and habitat and water quality improvements. Maintenance priorities will help guide decisions about maintenance activities and needs. Every effort will be made to manage the Preserve to support all uses, but the use of the Preserve as storm water and flood attenuation will supersede all other functions in urgent situations.

Changes in use patterns, surrounding neighborhoods, maturing vegetation, and aging of facilities will contribute to changes in how the Preserve functions. Therefore, the maintenance practices will need to change and adapt. Regular monitoring and assessment of the maintenance activities within the Preserve will reveal if the maintenance and management plan needs to be updated.

The Preserve has been designed to be an important part of the park and recreation facilities within the community. Policing and maintenance of the Preserve by neighbors should be encouraged so long as those involved are safe and have an understanding of when they need to call in a professional. Programs involving the community in stewardship activities such as litter patrols, Weed Warriors, or Neighborhood Watch will be fostered to help reduce maintenance, vandalism, and provide early detection of problems.

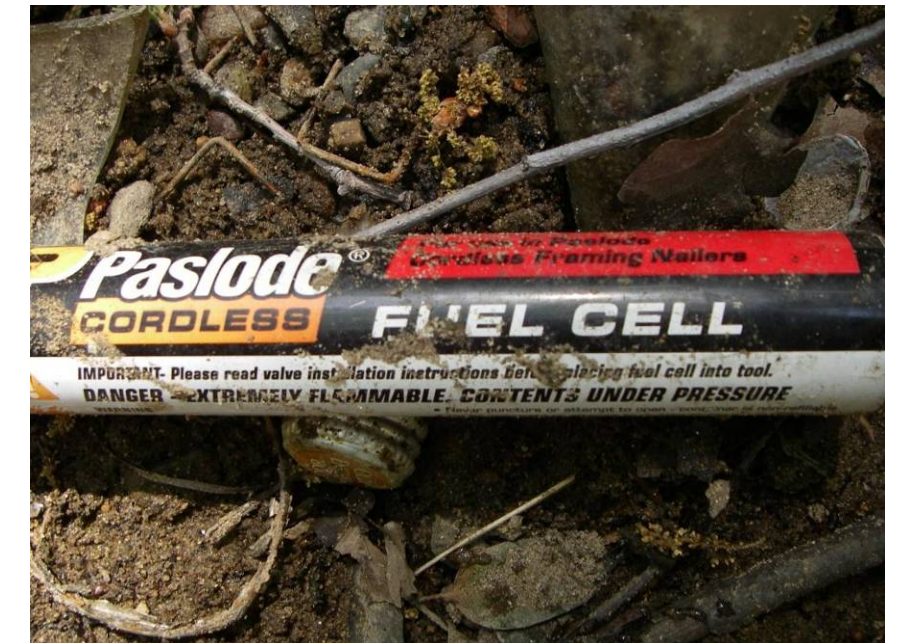
2008 costs indicate SRPD could anticipate maintenance and monitoring costs in the \$12K to \$18K range annually for the first three to five years after project implementation. Annual costs for these services would be lower once new plants are established and earthwork has stabilized.

Performance Criteria

The performance criteria for the Arcade Creek Park Preserve are described below. These criteria should be evaluated annually or as needed to ensure long-term functionality of the restoration design. Performance criteria should be revised as necessary to respond to changing goals and objectives for the project site.

Biological, Physical and Chemical Integrity

- Is the creek channel stable? Is there evidence of erosion, sedimentation, aggradation or degradation, excessive channel movement, etc.?
- Are non-native species being managed such that native plant communities are not compromised?
- Are the following habitat types represented on-site: aquatic/riverine, riparian, oak woodland/savannah, seasonal wetland?
- Are beaver being managed such that their activities do not compromise other project objectives or target habitats?
- Are other nuisance wildlife such as skunks, raccoons, feral cats and dogs being managed such that they do not cause conflicts with project objectives or users?



- Are trash and fine grained sediments being managed so as not to degrade water or habitat quality or stream function?

ARCADE CREEK PARK PRESERVE MASTER PLAN

- Is there visual evidence of water quality issues such as oil or grease on the water surface, foul odor, abnormal color, or excessive foam?
- Has the restoration design met flood management objectives?
- Is the bioswale functioning as designed?

Recreation Facilities

- Does the multi-use trail and sidewalk connections provide safe and accessible pedestrian passage between Sunrise Boulevard and Bonham Circle, between Bonham Circle and the Sayonara Drive bridge, and between Sayonara Drive and Sunrise Boulevard?
- Is the trail usable by SRPD to perform maintenance functions?



- Is the trail wide enough to allow safe passage of pedestrians, bicycles, and maintenance vehicles?
- Is there sufficient visual access so that trail users have a sense of safety and law enforcement can easily view the site from streets and parking areas?
- Are trails sufficiently setback from the creek to reduce the risk of accidents involving the creek?
- Has increased usage of project trails discouraged use of the site by transients?
- Is the trail maintained in an aesthetically pleasing manner?
- How does the trail surface appear after high water? Is there debris or soil on the trail?

Educational Opportunities

- Does the Preserve maximize opportunities for education such as interpretive signage?



- Are local school groups or watershed groups involved in projects on the site?
- Are interpretive signs in the Preserve relevant?
- Are the interpretive signs fun and interactive?

Long-term sustainability

- Has ongoing outreach been extended to involve appropriate stakeholders, particularly residents and potential site users, in the stewardship of the Preserve?
- Are volunteers active in project management functions such as bird counts, trash pick-up, revegetation activities, or vegetation management?
- Are project capital and maintenance costs within SRPD means and expectations?
- Are the restored creek and habitats sustainable?
- Has the project enhanced adjacent private property values?

Monitoring

Periodic monitoring is suggested to ensure long-term success of the Preserve. Restored creek banks, wetland mitigation areas, the bioswale, and stormwater infrastructure should be monitored to verify that they provide the functionality and values for which they were designed. The creek channel should be monitored to ensure that it is stable and not contributing excessive erosion to downstream spawning areas.

Monitoring should begin after the first growing season following construction. Monitoring should include aerial photographic documentation and site-specific vegetation observations. A Restoration Site Manager should be designated among SRPD or consultant staff. Additionally, a Monitoring Biologist should be employed to assess vegetation and habitat. The Site Manager should submit a summary report of monitoring results to SRPD by January 30th of the following year in which monitoring took place. The reports should compare the establishment of the created habitats to the performance standards to determine the level of success of the mitigation effort.

First-year monitoring data should be used as the baseline to judge yearly success of restored creek banks and mitigation wetlands during the monitoring period. The hydrologic and floristic data for the project site should be compared to its baseline data and previous year(s) data, if applicable. If the monitoring data does not demonstrate progress toward established performance criteria, SRPD may decide that remediation is warranted or other contingency measures are needed.

Monitoring Methodology

Hydrologic and vegetation monitoring should be conducted for five (5) years during the appropriate seasons and should be reviewed by SRPD in the form of annual monitoring reports. The goal of this monitoring is to proactively evaluate site conditions in order to assess items before they become a problem. As such the project biologist should perform qualitative horticultural monitoring, which will focus on soil conditions (e.g., moisture and fertility), plant health and growth, shrub and tree regeneration and growth rates, presence of native and nonnative plant species, any significant disease or pest problems, and any significant erosion problems. An important feature of this monitoring is to coordinate with SRPD maintenance personnel to exchange information, educate, provide feedback, and agree on priority maintenance items and potential remedial measures during different stages of the plant establishment.

Quantitative botanical monitoring should consist of plant survival counts. Cover development should be documented with visual assessments and photographs. Plant survival counts should be conducted annually in the late summer, so there is sufficient time to obtain replacements and install them in the ensuing fall/winter. As part of the survival counts, all plugs, tree cuttings and container plants should be inspected and a list of dead or diseased plants provided to SRPD and/or general contractor (if plants are still under the warranty period) along with an inventory of failed seeded or bare earth areas. Results will be incorporated in the Annual Report.

During each monitoring site visit a general inspection of the restoration area should be made to document the occurrence of potentially detrimental conditions such as:

- Erosion or sedimentation, especially in areas that threaten riparian or downstream salmonid habitat (Steelhead Creek).
- Evidence of unauthorized trespass, off-road vehicle damage, etc.
- Excessive trash or litter.

In the event that such conditions are encountered, the monitor should note the location and extent of the detrimental condition and notify the responsible party to initiate remediation measures.



Photo-Documentation

Photo-documentation should be an integral part of the monitoring efforts on this site. Four to five photo points should be established throughout the project area such that an appropriate overview of the restoration area can be obtained and tracked throughout the five-year monitoring period. Photo points should be permanently marked using permanent stakes, stainless steel tags, and Global Positioning System (GPS) locations, with the direction of the photographs noted using degrees from true north. Photo locations should be included in a table in the yearly monitoring report.

Monitoring Schedule

As a guideline, the project biologist should perform botanical monitoring monthly during the 90-day plant establishment period, once every 2 months during year 1, quarterly during year 2, and biannually during years 3, 4, and 5. The monitoring biologist and the site manager should conduct General Inspections twice annually in May and November to review overall site status, observe creek hydrology, note the presence or absence of trash and signs of damage from trespass. Additional inspections may be conducted as needed to respond to specific issues or concerns.

Site Management

Regular maintenance of the restoration area including intensive weeding and remedial plantings should be performed during the construction year and subsequent five-year monitoring period. Maintenance activities should include but are not limited to the following:

- Removal of aggressive non-native weeds should be implemented during the five-year monitoring periods for the restoration areas. All weeding should be done by hand in the wetlands and within the creek banks. If hand weeding proves ineffective against invasive exotic weeds, the Site Manager may choose to use biological controls, and if these are ineffective, herbicides may be employed. The Preserve Manager should consult with the local Weed Management Area (WMA) or California Exotic Pest Control Council (CalEPPC) to determine which substances or techniques should be applied and consult Appendix F. In riparian, upland and grassland communities, weeds should be controlled through use of approved herbicide, hand tools, or a line trimmer. The frequency and amount of weeding will depend on the rainfall patterns and other contributing factors. Until non-native invasive plants are under control, the site should be weeded at a minimum of twice annually: once following initial germination of non-native seedlings and again prior to non-native weeds setting seed as directed by the project biologist. Additional weeding should be conducted if success criteria are not met.
- The Monitoring Biologist should direct weeding crews to remove weeds that require control during the five-year monitoring period. The need for weeding is expected to decrease substantially by the end of the monitoring period provided successful habitat restoration has been achieved.
- Downed woody vegetation within the channel banks, such as willows and cottonwoods, can hinder the capacity of the channel to carry floodwater. In order to continue functioning as part of a storm water system and protect human health and safety from flooding, the City of Citrus Heights should conduct regular assessments of the flood carrying capacity of the channel and take remedial actions if large woody debris (LWD) becomes a hindrance to flood conveyance objectives.

The biological benefits of LWD to aquatic health and as an important element for storm water routing on small streams are well documented. With a properly functioning floodplain, downed

woody vegetation promotes a healthier riparian environment and has minor effects on flood carrying capacity. LWD management can be important at under-sized public works structures. Public works structures can be modified to catch LWD that is floating downstream before it contacts and potentially damages and/or possibly forms a dam at the crossing. Maintenance crews can get access to these structures to remove the accumulated LWD on a periodic basis. For many small streams in the proper setting LWD and standing trees roots provide the channel bed and bank stability. Often when these elements are removed, channels have major negative responses that are cumulative. It is important that minimum “debris” clearing in undertaken when such action is needed to maintain flood capacity.



If it becomes necessary to remove live standing trees that are growing within the channel or within the riparian area to preserve public health and safety, the Monitoring Biologist or certified arborist shall be consulted to determine which trees can be removed. It will be the biologist’s responsibility to maximize the benefits to habitat while still maintaining storm water capacity requirements of the creek and maintaining the public health and safety.

- The condition of trails and signs should be checked once every month and repaired as necessary.
- Trash in the restoration areas should be removed.
- Any persons found willfully damaging the habitat within the project site, including but not restricted to trash dumping, off-road-vehicle activity, plant removal, and vandalism should be prosecuted to the full extent of the law.
- Other site problems such as vehicle damage and erosion shall be reported to the City of Citrus Heights with recommendations for remedial measures.

Pest Plant Species Control

The Monitoring Biologist and the Site Manager should refer to the species found on the CalEPPC List A, List B, and Red Alert List to assist them in determining if a plant is an exotic plant species of concern, and which species should be given priority for management. In addition to looking for non-native species during inspections, the Monitoring Biologist should assess the presence of any newly introduced exotic pest plant species and recommend removal as needed. Three methods of removing or controlling these species are outlined below:

1. Hand/Mechanical Removal

Hand removal or use of small hand powered or handheld equipment (such as a Weed Wrench or a chainsaw) should be the preferred method of removing exotic pest plant species from the project site. If hand removal methods are tried and found to be ineffective, or the problem is too widespread for hand removal to be practical, then mechanical methods (use of larger equipment with motors such as mowers) or biological controls as described below can be implemented.

2. Biological Controls

The County Agricultural Commissioner should be the point of contact for use of any biological controls within the Preserve. There are several natural enemies of yellow star thistle as discussed earlier in this plan. The local WMA should be consulted as to the effectiveness and acquisition of biological controls.

If biological control methods are tried and found to be ineffective or if biological control methods are not available for the target species, then herbicides may be used as outlined below.

3. Use of Herbicides for Non-Native/Exotic Pest Plant Management

Herbicides must be applied according to the label. This approval does not obviate the need for the Site Manager to obtain any other applicable approvals for the use of these chemicals. Herbicides may be needed to control exotic weed species, such as water hyacinth, Himalayan blackberry, arundo or red sesbania. The Site Manager will follow all applicable guidelines and directives from state and federal resource agencies with regard to application of herbicides near wetland habitats. The use of herbicides and their effectiveness should be described in the Annual Report.

In order to successfully out-compete non-native and invasive plants, SRPD will need to establish sufficient cover and density of native species during revegetation and restoration projects.

Wildlife

Wildlife has been and will be attracted to the various habitats in the immediate Preserve site and throughout the Arcade Creek riparian corridor. Appendix A includes a list of species that have already been observed in the Preserve. The potential also exists for certain special-status species to use the Preserve as habitat (Appendix G). While providing habitat opportunities for wildlife is an important objective of the Preserve Master Plan, the primary functions of the Preserve are passive recreation, outdoor education, flood control, and water quality enhancement.

To the extent that recreation, outdoor education, flood control, and water quality enhancement are not compromised, the vegetation within the Preserve will be maintained to maximize its value for native wildlife species. This will be accomplished through replacing plant mortalities discovered during monitoring activities with plant species characteristic of native wildlife habitat, and through control of invasive nonnative vegetation. As wildlife becomes established, it will be necessary to monitor the species and number to make sure that they are not interfering with function of the creek or storm water infrastructure or creating a public safety issue. If special-status species do become established in the Preserve, avoidance measures (Appendix G) will need to be observed to prevent impacts and/or additional permits will need to be filed (see Permitting Section). Seasonal and locational constraints on particular maintenance activities will be established to avoid and minimize impacts to sensitive and special-status wildlife species.



In order to minimize impacts to sensitive wildlife species such as migratory songbirds and raptors (including burrowing owl), giant garter snake, western pond turtle, and valley elderberry longhorn beetle during maintenance activities, include specific seasonal constraints for particular types of activities.

Beavers and Other Nuisance Wildlife

Beavers are a problem in many area urban creeks causing flooding, maintenance problems at structures, and destruction of new and mature trees. Currently beaver dams within the City of Citrus Heights are removed by the Sacramento Local Conservation Corps (SLCC).

Controls may need to be installed to prevent beaver harvesting of desirable trees. Effective controls usually employ wire screens to limit beaver access to trunks, though research is ongoing in effective beaver management techniques. Additional controls may include beaver pond leveler devices, which maintain beaver ponds at pre-

determined acceptable levels. The devices consist of a screened inlet inside the pond and piping to an outlet sufficiently below the pond so that the beaver cannot hear the running water, which triggers their dam-building instinct. The outlet is set at the acceptable height of the water behind the dam.

Some wildlife in addition to beavers, such as skunks and raccoons are considered a nuisance when encountered in an urban setting. These types of wildlife can be attracted by open space areas and become problems with adjacent residents. Such problems are usually best dealt with on a case-by-case basis by local animal control; however, if a significant number of similar problems arise, such as a substantial population of skunks, SRPD should be contacted to develop a plan for remediation of the problem through trapping and relocating, predation or other methods. As with beaver, it will be important to determine the carry capacity of the system for the species in question and to manage animal populations to those limits.

Feral cats and dogs can have a significant impact on wildlife in urban areas through predation of native species. Citrus Heights Community Services Division should be contacted if feral cats or dogs are noted during site inspections. Interpretive signage on-site could include warnings for site visitors to contact the City if feral species are seen. See Appendix H.

In order to minimize establishment of nuisance animal species such as raccoons, skunks, pigeons, starlings, and stray pets a variety of management measures may be used including: vegetation control, trash control, habitat modifications, leash laws, and wildlife relocation depending on the severity of the problem.

Erosion Control

Arcade Creek is subject to changes in the hydrology as more infill projects are developed and the watershed becomes more urban. Significant increases or decreases in impervious surfacing that are not mitigated at the site-scale could result in changes to the hydrogeomorphic regime of the creek, which could lead to erosion or deposition within the channel. The creek should be inspected yearly for erosion problems and issues should be corrected promptly. If the problems appear to be arising due to hydrogeomorphic changes, further study should be done to determine the new state of the watershed. Other erosion problems should be corrected promptly before they significantly impact downstream salmonid habitat. Bioremediation techniques should be favored over traditional

engineering in correcting problems. Acceptable techniques include use of willow cuttings, wattles and mats to stabilize slopes, V and W weirs to direct creek flows and root wads and LWD to protect banks. If hydrologic studies indicate harder engineering techniques such as gabions are needed to protect bed and bank, they should be designed with planting areas to soften their appearance and improve habitat and creek shading.

Recreation Amenities

Trail repair should occur as needed to maintain public safety. This includes weed removal on shoulders, asphalt repair and replacement, and bridge maintenance. Additionally, interpretive signage, picnic area furnishings, and play equipment should be inspected and maintained twice yearly or when damage is noted. Bi-yearly inspections should occur in springtime prior to heavy use and mid-summer. More frequent maintenance or inspections may be required if directed by SRPD.

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<http://www.sunriseparks.com/>

<http://www.ci.citrus-heights.ca.us/home/index.asp>

<http://www.sacog.org/>

<http://www.safca.org/>

<http://www.dera.saccounty.net/>

<http://www.sacriver.org/>

<http://www.sactree.com>

<http://www.sciencedaily.com>

<http://www.soils.usda.gov/survey/geography/ssurgo/>

<http://www.soildatamart.nrcs.usda.gov>

Appendix A – Arcade Creek Existing Conditions Summary

Setting

The Arcade Creek Preserve Park Site is composed of three separate sections of Arcade Creek, a small portion of active floodplain, its associated riparian corridor and upland habitat. The site is bounded on the east by Sunrise Boulevard, to the south and west by low density residential development, and to the north by a mobile home park. Arcade Creek supports a mature riparian corridor of mixed native and invasive plant species.

Hydrology & Geomorphology

This reach of Arcade Creek is heavily influenced by its urban setting and has over time been severely degraded by seasonal storm water runoff. The high frequency and moderate to heavy intensity of rain events during the wet season makes this system flashy and highly variable in flow regime. Over time, these factors have developed a deeply incised channel with significant scouring and degradation at higher storm pulse flows. Many of the banks within this reach have significant erosion, undermining and exposed larger tree roots and minimal vegetative establishment. There are two storm water discharge points on the southern boundary that supply water to .16 acres of seasonal wetland onsite, which ultimately spill into Arcade Creek during storm events. (See Figure 6).

Biological Communities

The Arcade Creek Preserve Park Site supports three biotic communities: mixed riparian woodland, valley oak woodland and depressional seasonal wetland.

Mixed Riparian Woodland

The habitat surrounding the Arcade Creek channel can best be characterized as a mixed riparian woodland community as many invasive species have been established along the channel interspersed with the native oaks. The observed mixed riparian community onsite is a transition from the valley foothill riparian habitat. Valley foothill riparian habitats occur in the Central Valley

and the lower foothills of the Cascade, Sierra Nevada, and Coast Ranges from sea level to 3,000 feet elevation.

Riparian habitats are typically comprised of three vegetation layers, trees, shrubs, and herbs. This community supports well-established riparian vegetation along the channel edge including but not limited to species such as narrow leaved willow (*Salix exigua*), black willow (*Salix gooddingii*), white alder (*Alnus rhombifolia*), live oak (*Quercus wislizenii*), valley oak (*Quercus lobata*), black walnut (*Juglans californica*), silver maple (*Acer saccharinum*), edible fig (*Ficus carica*), and Tasmanian blue gum (*Eucalyptus globulus*). The shrub layer consists of species including but not limited to poison oak (*Toxicodendron diversilobum*), periwinkle (*Vinca major*), Himalayan blackberry (*Rubus discolor*), Algerian ivy (*Hedera canariensis*), and pampas grass (*Cortaderia selloana*). Many herbaceous species also occur within this riparian corridor including but not limited to curly dock (*Rumex crispus*), rat-tail fescue (*Vulpia myuros*), common bedstraw (*Galium aparine*), tall flatsedge (*Cyperus eragrostis*) and prickly lettuce (*Lactuca serriola*). The dominant tree layer along the upland corridor is eucalyptus intermixed with interior live oak, valley oak, honey suckle (*Lonicera* sp.), and olive (*Olea europaea*).

Valley Oak Woodland

Valley Oak Woodland, as described by the Department of Fish & Game is typically found below 600 feet in elevation in well-drained soils. The canopy is dominated by valley oak with an understory primarily composed of grasses with occasional shrubs.

The valley oak woodland on the site is found south of the stream channel. Additionally, this woodland supports interior live oaks and many common non-native grasses such as rip-gut brome (*Bromus diandrus*), slender wild oat (*Avena barbata*), lolium (*Lolium perenne*); as well as upland herbaceous species such as geranium (*Geranium dissectum*), yellow star thistle (*Centaurea solstitialis*), black mustard (*Brassica nigra*), common bedstraw, and Himalayan blackberry.

Depressional Seasonal Wetlands

Seasonal wetland habitat occurs predominantly on the southeastern portion of the site. These depressional areas receive seasonal runoff from the residential area to the south as water is conveyed from two separate ditches into Arcade Creek (See Figure 6). These wetlands support vegetation including but not limited to smartweed (*Polygonum* sp.), iris-leaved juncus (*Juncus xiphioides*), curly dock, tall flatsedge, and Himalayan blackberry.

Wildlife and Habitat Value

Riparian habitats are unique and ecologically important habitats that support an exceptionally high diversity of plants and wildlife. This community provides an important source of food, water, and protection for wildlife, as well as, breeding and nesting habitat, for both resident and migratory bird species. Species observed within the riparian corridor include belted kingfisher (*Ceryle alcyon*), California quail (*Callipepla californica*), red-shoulder hawk (*Buteo lineatus*) and wild turkey (*Meleagris gallopavo*).

Most of the non-native, invasive vegetation found within this habitat will need to be removed and/or managed appropriately. The dominant invasive species found on this site have significantly displaced the native flora. This factor in conjunction with the variability in hydrologic flow regime has ultimately changed the bank stability in this reach. The major invasive species that have established along the active stream channel include a significant population of Tasmanian blue gum, Himalayan blackberry, Algerian ivy, pampas grass and periwinkle. These should either be removed or monitored regularly to prevent new seedling establishment and/or ground spreading.

Additionally, many bird species utilize riparian habitat, especially riparian areas that are connected and occur in association with one another. Migratory birds use riparian areas for breeding, foraging, and as migratory stop-over sites between winter and summer breeding grounds. These complex habitats consisting of multiple layers of trees, shrubs, vines, and groundcovers, which are of higher habitat value than single story habitats. Complex riparian habitats

provide niches for refuge, foraging and breeding, allowing a diversity of terrestrial and avian species to utilize the same areas. Removal and management of the noted invasive vegetation along the Arcade Creek channel while introducing new native vegetation layers into the existing riparian areas may benefit the endemic wildlife species in the area.

Raptors and Other Bird Species Protected by the MBTA

Several species of raptors may forage and nest on or immediately adjacent to the site. Active raptor nests are protected by the California Fish and Game code Section 3503.5 and the MBTA. Raptor species that may utilize the site include red-tailed hawk (*Buteo jamaicensis*), Cooper's hawk (*Accipiter cooperii*), American kestrel (*Falco sparverius*), western burrowing owl (*Athene cunicularia*), red-shouldered hawk, and sharp-shinned hawk (*Accipiter striatus*). Currently, the habitat found on the site provides suitable nesting habitat for a number of avian species protected solely by the MBTA, which prohibits the killing of migratory birds.

Improved riparian forest structure will provide food and cover for many avian species. An important aspect of improving the riparian forest is adding native understory shrubs, many of which bear fruit, which is an important food source. Additionally, flowering shrubs such as elderberry (*Sambucus mexicana*), gooseberry (*Ribes* sp.), and California Fuchsia (*Zauschneria californica*) are potential food sources for many native nectar-eating animals. A diverse assortment of native understory species will promote the utilization of the site by many endemic avian species, ultimately creating a higher biological richness for the riparian preserve.

Special Status Species

The site provides the potential for certain special status species to occur onsite. Special status species that are known to occur in the area with the potential to be found onsite include burrowing owl (*Athene cunicularia*), giant garter snake (*Thamnophis gigas*), Swainson's hawk (*Buteo swainsoni*), Valley elderberry longhorn beetle (*Democeros californicus dimorphus*), tri-colored blackbird (*Agelaius tricolor*), and the western pond turtle (*Clemmys marmorata*). None of these species were observed onsite. Avoidance measures have been established for these species in Appendix G in the rare instance that they are observed in the future.

Appendix B – Arcade Creek Cultural Resources Report



GENESIS SOCIETY

a Corporation Sole

7053 MOLOKAI DRIVE
PARADISE, CALIFORNIA 95969
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sean-jensen@sbcglobal.net

April 2, 2008

Foothill Associates

Attention: Paul Weller
590 Menlo Drive, Suite 1
Rocklin, California 95765

Subject: *Archaeological Survey, c. 9-acre Arcade Creek Park Preserve Project, City of Citrus Heights, Sacramento County, California.*

Dear Mr. Weller:

Per request, Genesis Society has undertaken a complete-coverage, intensive-level archaeological inventory survey of the above referenced property, which totals approximately 9 acres located along a segment of Arcade Creek, adjacent to the west side of Sunrise Boulevard, within the City of Citrus Heights, Sacramento County, California. Lands affected are located within a portion of the west half of Section 36 of Township 10 North, Range 6 East, as shown on the USGS Carmichael, California, 7.5' series quad (see attached *Project Location Map*).

According to public agency definitions, proposed further development and/or change in use of this property constitutes a "project" per CEQA that could adversely affect various types of resources located within the Area of Potential Effect (APE), which consists of the 9-acre land area itself. Evaluation of effects to such resources, including cultural resources, must be undertaken in conformity with City of Citrus Heights rules and regulations, and in compliance with requirements of the California Environmental Quality Act of 1970, Public Resources Code, Section 21000, et seq. (CEQA), and The California Environmental Quality Act Guidelines, California Administrative Code, Section 15000 et seq. (Guidelines, as amended October 1998).

As part of the CEQA requirements, an archaeological records search was conducted by the North Central Information Center at CSU-Sacramento (N.C.I.C. File No. SAC-03-120, dated December 11, 2003). These records document the following existing conditions for the 9-acre Arcade Creek Park Preserve property:

- None of the project area has been subjected to archaeological survey.
- No cultural resources have been identified within or adjacent to the project area. The information center indicated that the 1866 GLO depicts "P. Burke's house" as adjacent to the subject property. However, the structure does not appear on the 1967 or later USGS maps.

- In view of moderate to high archaeological sensitivity of at least portions of this area for cultural resources, pedestrian survey was recommended prior to approval of any ground disturbing activities and/or any primary changes in land use.

In addition to the official Sacramento County archaeological records maintained by the North Central Information Center, the following documents were also reviewed in an effort to recover additional relevant cultural data:

- The National Register of Historic Places (2003, and later supplements).
- OHP Historic Property Directory (2000).
- The California Inventory of Historical Resources (1976).
- The California Register of Historical Resources (2003).
- California Points of Historical Interest (1992).
- California Historical Landmarks (1996).
- Gold Districts of California (1970).
- California Gold Camps (1975).
- California Place Names (1969).
- Caltrans State and Local Bridge Surveys (2000).
- Historic Spots in California (1966 and 1990).
- Handbook of North American Indians, Volume 8, California (1978).
- GLO plat, 1866 of T10N, R6E.

With this information in hand, Sean Michael Jensen proceeded to the project site on April 1, 2008, and completed a pedestrian survey by walking non-systematic transects back and forth across the property, with transect spacing ranging from 10 and 15 meters apart depending on variation in archaeological and historical sensitivity. Property boundaries were easily determined on the basis of Arcade Creek in the north, Sunrise Boulevard to the east, topography and residential developments to the north, south and west.

Portions of the property have been subjected to ground disturbance. Most of this disturbance has resulted from periodic flooding of Arcade Creek with overflow evident throughout portions of the property. As well, excavated drain channels were observed throughout the property. Finally, widely scattered items of contemporary trash are present, while buried and overhead utilities were observed within and immediately adjacent to the subject property.

Specific findings from the pedestrian field survey are as follows:

Prehistoric Resources: No evidence of prehistoric activity or occupation was observed during the survey. These negative results may be at least partially explained by the extensive disturbance to which a substantial portion the project area has been subjected, and to more suitable prehistoric habitation locales situated a short distance east of the subject property.

Historic Resources: No evidence of historic-era occupation, homesteading or other ancillary use was observed within the subject property. The absence of such resource types may best be explained by disturbance throughout most of the property, as well as past wildfires that would have destroyed any wooden buildings that may once have been present.

Despite negative findings re. the presence of prehistoric or historic sites within or adjacent to the project area, the following general provision remains appropriate:

The present evaluation and recommendations are based on the findings of an inventory-level surface survey only. There is always the possibility that significant unidentified cultural material, including human remains/burials, could be encountered on or below the surface during the course of future development or construction activities. This is particularly relevant considering the constraints generally to archaeological field survey, especially in areas where extensive impacts have occurred to ground surface and subsurface components, as in the present case. In the event of an inadvertent discovery of previously unidentified cultural material, including human remains, archaeological consultation should be sought immediately and State law followed with regard to any burials exposed.

If you or review agencies have questions concerning our survey findings or recommendations regarding the absence of prehistoric or historic sites or features within or adjacent to the project area, please don't hesitate to contact me at your earliest convenience.

Sincerely Yours,

A handwritten signature in cursive script that reads "Sean Michael Jensen".

Sean Michael Jensen, M.A.

KEYWORDS *for Information Center Use:*

Inventory Survey, Sacramento County, c. 9-acres, Carmichael, Ca, 7.5' Quad, CEQA, No Significant Cultural Resources.

Appendix C – Meeting Minutes 2008-05-01



MEETING MINUTES
To: Virg Anderson
Company: Sunrise Recreation & Park District
From: Alyssa Lindman
Subject: Arcade Creek Meeting Minutes for Community Meeting #1

Date	Start	End	Next Meeting	Time	Prepared by
May 1, 2008	7:00pm	9:20pm	June 5, 2008	7:00pm	Alyssa Lindman
Purpose:			Location		
Attendees:			Abb.	Company:	Copies To:
See Attached PDF					

Item	Summary of Meeting	Responsibility	Due Date
1	Currently, not much is being done within the Arcade Creek Park site other than fire breaks being cut and eviction notices being posted at homeless camps.		
2	One of the attendees asked about the proposed high density development planned near the existing Sunrise Golf Course on the east side of Sunrise Blvd. She was concerned about this development and its potential impacts to the site.		
3.	During discussions about development on the east side of Sunrise, attendees were asking about development plans to include/continue a greenway/biketrail that would link Arcade Creek Park to Tempo Park. It is unclear at this time where/when this connection will happen. Many residents expressed an interest in being able to bike to Sylvan Corners or the Folsom area, using this greenway/biketrail system		
4.	Land acquisition for key areas currently not within the park boundary was discussed by attendees. Providing access to the parcels west of the land owned by SRPD (these westerly parcels are currently owned by the city), would encourage residents west of the park to use the park more often and easily. Blocking access or not having access at west end would also create a 'dead end' that could possibly encourage bad behavior and unwanted visitors in the park (ie. homeless camps and drugs).		

5.	<p>Group A - Concept Design This group listed the following requirements for their ideal park space:</p> <ul style="list-style-type: none"> - No parking lot - No Restrooms - Include Safety Lighting - Utility Vehicle Access (8-12' wide pathway) - Bridges (ADA Compliant) - Keep Natural/Open Space Feel - Jogging/Biking/Walking Trails - Interpretive Signs/Stations - Park Benches - No Drinking Fountain - Remove 'haggard' looking trees 		
6.	<p>Group B - Concept Design This group listed the following requirements for their ideal park space:</p> <ul style="list-style-type: none"> - Creek Restoration - Interpretive Signs - Remove Non-Native Species - Wetland Restoration - Benches - Looped Trail through the whole site with places to stop and rest along the way - Bridge over the creek w/ limited access for mobile home park residents (no through access). Residents of the mobile home park were very skeptical about putting in a bridge b/c they don't want people who live outside the mobile home park to pass through or cause problems (litter, vandalism, etc.) - Soundwall along Sunrise to preserve serene setting - Picnic Tables and Trash cans - Call Boxes along the trail for emergency use 		

Unless participants notify otherwise, this meeting summary will be considered correct and accurate.

In addition to those able to attend the meeting other interested parties who were not able to attend shared their opinions and advice in advance of the meeting. Their comments are below.

Jeff Mackanin of Citrus Heights Police Department offered the following advice and guidance for park design from a crime prevention through environmental design perspective (CPTED):

- The Police Department (PD) would like clear lines of sight from Sunrise Blvd, to the rear (looking west) of the park.
- A potential criminal is less likely to attempt a crime if he or she is at risk of being observed. At the same time, we are likely to feel safer when we can see and be seen.

- Plan & plant for clear lines of sight for the following: street-to-site, site-to-site, around the site. This is especially important for residential landscapes since most robberies occur when the residents are not home.
- If the park is not to be used as a sports complex, I don't see the need to have public restrooms. We have a problem at a nearby park regarding lewd acts in public (in restrooms).
- It is essential that lighting be uniform, even if the lighting is relatively low, the uniformity of the lighting will allow one to detect the movement of another person. Landscape lighting improves natural lines of sight. Metal halide allows us to see more of the blue-green spectrum at night and as a result, makes foliage look better.
- Maintenance: Parks should only build what they can maintain. Without maintenance, a public area is inviting criminal behavior.
- Parking lots. Not sure if they are planned for this park. If so want to make sure they are not designed "deep" into the park. Want to make sure gates can be secured at night.
- Paths. I believe all paths/trails should also have clear lines of sight from Sunrise Blvd. If at all possible, paths should not disappear into dense foliage around corners. Plant low level plants to accomplish some of these goals.
- Any playground equipment should be located closer to the roadway.
- The park should have a Starbucks kiosk!
- As I mentioned yesterday, it would be nice to have some sort of access to the park on the west side.

Keith Friedman of the Sunrise Vista community wanted to contribute to the meeting, but was unable to attend.

- I wish to express our appreciation and support of your efforts to maintain and develop the Arcade Creek Park Preserve property. I believe a park is an asset to the community and your efforts will help beautify the area and enhance the quality of life for local residents and businesses.
- As we discussed, to the extent that driveways, sidewalks and pathways discourage transient activity and facilitate maintenance, I support those ideas. Clearing out of underbrush also seems to discourage transients and helps with fire concerns.
- As regards a foot bridge across the creek connecting our properties, I am concerned it could encourage transient traffic to Sunrise Vista.
- I would prefer that access to the Arcade Creek Park Preserve be solely through an entrance from Sunrise Blvd. Also, a bridge could become clogged with debris during an unusual storm, causing the creek to backup. For these reasons, I do not support the idea of a foot bridge.
- I'd like to emphasize the Arcade Creek Park Preserve parcel serves as a flood plain for Arcade Creek. It's critical to Sunrise Vista that ground elevations not be modified in a manner that would impede the flow of water.

Appendix D – Meeting Minutes 2008-06-05



MEETING MINUTES

To: Virg Anderson
Company: Sunrise Recreation & Park District
From: Paul Weller
Subject: Arcade Creek Meeting Minutes for Community Workshop #2

Date	Start	End	Next Meeting	Time	Prepared by
June 5, 2008	7:00pm	8:30pm	July 17, 2008	7:30pm	Paul Weller
Purpose:			Location		
Attendees:			Abb.	Company:	Copies To:
See Attached PDF					

Item	Summary of Meeting	Responsibility	Due Date
1	See On-Line Posting of Slide Presentation for designs from Community Meeting #1, results of individual exercises and voting outcomes. http://www.sunriseparks.com/2008-Arcade_Workshop_2_-_06_05_2008.pdf http://www.sunriseparks.com/2008-Arcade_Creek_Park_Preserve_Workshop_1_-_Priority_Results.pdf http://www.sunriseparks.com/2008-Arcade_Creek_Park_Preserve_Workshop_1_-_Choice_of_Amenity_Results.pdf		
2	See On-Line Posting of Slide Presentation for conceptual designs A & B, pros and cons to each design alternative, and responses to common community concerns and misunderstandings. http://www.sunriseparks.com/2008-Arcade_Workshop_2_-_06_05_2008.pdf		
3	Group A “Red-light, Green-light Exercise” This group listed the following comments as Red or negative about the two alternative designs: <ul style="list-style-type: none"> - Erosion control will be costly in the western end of the project - Extension of the trail west to Sayonara Drive will be expensive and require special funding, perhaps grant funding - Need hammerhead turn-around at west end of trail in mean time until trail is extended west to Sayonara This group listed the following comments as Green or		

	positive about the two alternative designs: <ul style="list-style-type: none"> - Bike and walking trail linkage to Sayonara to the west is crucial - SRPD should acquire these parcels - Like porous paving - Porous paving deters skateboarding and graffiti - Use of smaller, lower lighting along trail in vicinity of apartment community south of parcel - Like the play area - Like Plan B better than plan A in general - Like the green buffer zone between picnic/play area and Sunrise. Perhaps increase width or otherwise enlarge - Lighting in park with shields on light to respect neighbors, like these - SPRD should gain access to western parcels to Sayonara, gain City parcels to improve walkability to and from park - “Gate” at Bonham Circle entrance to driveway to parking lot - “Bollard” at parking lot and pathway needed and good - The looped trail system is great - Like the comprehensive creek approach shown in Alternative A - Like the “green” approach to the parking lot and paving types 		
4	Group B “Red-light, Green-light Exercise” This group listed the following comments as Red or negative about the two alternative designs: <ul style="list-style-type: none"> - Need hammerhead trail turn-around for vehicles at west end of property - Bike trail is very close to apartment building fence in Alternative plans - Fence area along apartment homes needs more planting of dense evergreen vines. Plants with thorns will help keep unwanted visitors away - Plant buffer between apartment homes and bike trail - Bike trail intersections need to have greater radius (24’) to allow for maintenance vehicle turns This group listed the following comments as Green or positive about the two alternative designs: <ul style="list-style-type: none"> - Like the comprehensive restoration shown in Alternative A. Flood concern is huge among 		

	<p>neighbors</p> <ul style="list-style-type: none"> - Like shrubs and blackberry bushes along south fence - Really like play areas and group picnic areas with shade shelter - Play areas in park will give neighborhood children a place to play out of the street. Kids play in street right now and have no where to play. - A lot of parents in neighborhood need a play area for children - The parking in Alternative B is great and needed. The streets are crowded now without adequate parking. The neighbors would not be happy if there is not a parking lot. 		
5	Develop one final master plan based on input from the community at the 2 nd Workshop	Foothill Associates	07/11/08

Unless participants notify otherwise, this meeting summary will be considered correct and accurate.

In addition to those able to attend the meeting other interested parties who were not able to attend shared their opinions and advice in advance of the meeting. Their comments are below.

Dr. Jayna Karpinski-Costa of Citrus Heights was unable to attend, but offered us the following comments and ideas based on her review of the plans on-line.

- From a neighborhood standpoint, I have no problems with providing “limited” parking so long as the park is locked after hours, including access to the parking lot.
- I am sure that installation of drinking fountains has some cons: they are very expensive (water hookups) for what they contribute to park ambiance.
- I am not in favor of a children’s play area – there is a native wildlife population there.
- I do not see the need for picnic table or a shade structure (trees should provide adequate shade for walkers).
- There should be a need for benches (graffiti proofed).

Don Laucella, owner of Creekside Estates was unable to attend, but offered us the following comments and ideas based on his review of the plans on-line.

- I have included the website which represents our recommendation for a screen wall between our property and the proposed park. (www.ARCH-CRETE.COM)
- Our years of issues with homeless encampments, and people cutting thru, (as in using wire cutters) on the fence, or simply unfastening the chain link from the post to pass thru have been a constant issue.
- We have much of the fence line dense with blackberry bushes that have very sharp thorns. This unfortunately has provided little deterrence. Our request as you pointed out does provide a fire break. We have in the past cut a 10ft wide path along the fence line to facilitate that effect.
- Additionally the grade of this area will be maintained or improved as all are aware of the flood control benefits provided by this section of land.

- Lastly, lighting is of concern with 16 of our 18 buildings having direct views into the proposed park. We look forward to understanding if this will impact our residents.) for what they contribute to park ambiance.

Appendix E – Recommended Plant List



Appendix E – Recommended Plant List

Creek Restoration, Wetland Mitigation, and Bioswale Area

Trees	Latin	Common	Mature Size (ft.)	Native	Features
	<i>Acer negundo</i>	Box Elder	40H x 40W	Sacramento County	Tolerates seasonal wet soils/drought
	<i>Fraxinus latifolia</i>	Oregon Ash	60H x 40W	Sacramento County	Tolerates seasonal wet soils/drought
	<i>Platanus racemosa</i>	California Sycamore	50H x 30W	Sacramento County	Tolerates sand, clay and seasonal flooding/drought tolerant in high water table area
	<i>Populus fremontii</i>	Fremont Cottonwood	50H x 30W	Sacramento County	Tolerates seasonal wet soils/drought
	<i>Salix gooddingii</i>	Black Willow	40H x 40W	Sacramento County	Tolerates seasonal wet soils/drought
	<i>Salix lasiolepis</i>	Arroyo Willow	20H x 20W	Sacramento County	Tolerates seasonal wet soils/drought
Shrubs	Latin	Common	Mature Size (ft.)	Native	Features
	<i>Cephalanthus occidentalis</i>	Buttonbush	12H x 12W	Sacramento County	Tolerant of wet soils, habitat value
	<i>Vitis californica</i>	California Wild Grape	Indefinite	Sacramento County	Tolerant of wet soils, habitat value
Emergent Plants	Latin	Common	Mature Size (ft.)	Native	Features
	<i>Carex barbarae</i>	Santa Barbara Sedge	2-3	Sacramento County	Tolerant of wet soils, habitat value
	<i>Carex praegracilis</i>	Slender Sedge	2-3	California	Tolerant of wet soils, habitat value
	<i>Equisetum hyemale</i>	Common Scouring Rush	2-7	Sacramento County	Tolerant of wet soils, habitat value
	<i>Juncus effusus 'Brunneus'</i>	Common Rush	2-4	California	Tolerant of wet soils, habitat value
	<i>Juncus xiphiodes</i>	Flat-Bladed Rush	1-3	Sacramento County	Tolerant of wet soils, habitat value
	<i>Sagittaria latifolia</i>	Duck Potato	2-3	California	Tolerant of wet soils, habitat value
	<i>Scirpus acutus 'Occidentale'</i>	Common Tule	5-13	Sacramento County	Tolerant of wet soils, habitat value

Lower Terrace

Trees	Latin	Common	Mature Size (ft.)	Native	Features
	<i>Acer negundo</i>	Box Elder	50H x 40W	Sacramento County	Drought tolerant
	<i>Alnus rhombifolia</i>	White Alder	50H x 40W	Sacramento County	Drought tolerant
	<i>Fraxinus latifolia</i>	Oregon Ash	60H x 40W	Sacramento County	Drought tolerant
	<i>Juglans californica hindsii</i>	California Black Walnut	30H x 30W	Sacramento County	Drought tolerant
	<i>Platanus racemosa</i>	California Sycamore	50H x 30W	Sacramento County	Tolerates sand, clay and seasonal flooding/drought tolerant in high water table area
	<i>Populus fremontii</i>	Fremont Cottonwood	50H x 30W	Sacramento County	Drought tolerant
Shrubs	Latin	Common	Mature Size (ft.)	Native	Features
	<i>Baccharis salicifolia</i>	Mulefat	10H x 6W	California	Drought tolerant, evergreen
	<i>Cephalanthus occidentalis</i>	Buttonbrush	12H x 12W	Sacramento County	Flowers
	<i>Rosa californica</i>	California Wild Rose	6H x 5W	Sacramento County	Flowers, drought tolerant
	<i>Rubus ursinus</i>	California Blackberry	Indefinite	Sacramento County	Wildlife value
	<i>Vitis californica</i>	California Wild Grape	Indefinite	Sacramento County	Wildlife value

Native Grasses and Emergents	Latin	Common	Mature Height (inches)	Native	Features
	<i>Carex praegracilis</i>	Deer Sedge	8-30	California	Tolerates seasonal wet soils
	<i>Deschampsia cespitosa</i>	Tufted Hairgrass	24-32	California	Tolerates seasonal wet soils
	<i>Deschampsia danthonioides</i>	Annual Hairgrass	10-30	California	Tolerates seasonal wet soils
	<i>Elymus glaucus</i>	Blue Wild Rye	20-60	Sacramento County	Tolerates seasonal wet soils
	<i>Elymus trachycaulus</i>	Native Slender Wheat-grass	20-40	California	Tolerates seasonal wet soils
	<i>Juncus effusus</i>	Pacific Rush	24-36	California	Tolerates wet soils
	<i>Koeleria macrantha</i>	Junegrass	3-5	California	Tolerates seasonal wet soils and dry conditions
	<i>Leymus triticoides</i>	Creeping Wild Rye	20-48	Sacramento County	Drought tolerant
Wild-flowers	Latin	Common	Mature Height (inches)	Native	Features
	<i>Aster chilensis</i>	Pacific Aster	12-36	California	Tolerates seasonal wet soils and dry conditions
	<i>Artemisia douglasiana</i>	Mugwort	18-60	Sacramento County	Tolerates seasonal wet soils and dry conditions
	<i>Hordeum brachyantherum</i>	Meadow Barley	8-20	California	Tolerates seasonal wet soils
	<i>Scrophularia californica</i>	California Bee Plant	24-48	California	Tolerates seasonal wet soils and dry conditions
	<i>Trifolium obtusiflorum</i>	Creek Clover	8-15	Sacramento County	Tolerates seasonal wet soils and dry conditions

Oak Woodland

Trees	Latin	Common	Mature Size (ft.)	Native	Features
	<i>Quercus douglasii</i>	Blue Oak	40H x 50W	Sacramento County	Form, colorful foliage, drought tolerant
	<i>Quercus lobata</i>	Valley Oak	70H x 70W	Sacramento County	Form, drought tolerant
	<i>Quercus wislizenii</i>	Interior Live Oak	50H x 60W	Sacramento County	Evergreen, drought tolerant
	<i>Umbellularia californica</i>	California Bay Laurel	25H x 20W	California	Fragrant, evergreen, drought tolerant
Shrubs	Latin	Common	Mature Size (ft.)	Native	Features
	<i>Baccharis pilularis</i>	Coyote Bush	8H x 8W	Sacramento County	Drought tolerant, evergreen
	<i>Ceanothus cuneatus</i>	Buck Brush	6H x 6W	Sacramento County	Drought tolerant, evergreen
	<i>Mimulus auranticus</i>	Sticky Monkey Flower	3H x 3W	Sacramento County	Flowers, drought tolerant, evergreen
	<i>Rosa californica</i>	California Wild Rose	6H x 5W	Sacramento County	Flowers, drought tolerant
Native Grass	Latin	Common	Mature Height (inches)	Native	Features
	<i>Elymus glaucus</i>	Blue Wild Rye	20-60	Sacramento County	Drought tolerant
	<i>Leymus triticoides</i>	Creeping Wild Rye	20-48	Sacramento County	Drought tolerant
	<i>Melica californica</i>	California Melic	20-40	Sacramento County	Drought tolerant
	<i>Muhlenbergia rigens</i>	Deer Grass	24-60	Sacramento County	Drought tolerant
	<i>Nassella cernua</i>	Nodding Stipa	15-35	Sacramento County	Drought tolerant
	<i>Nassella pulchra</i>	Purple Needlegrass	15-35	Sacramento County	Drought tolerant

Wild-flowers	Latin	Common	Mature Height (inches)	Native	Features
	<i>Achillea millefolium</i>	White Yarrow	8-40	California	Drought tolerant, white flowers
	<i>Clarkia elegans</i>	Elegant Clarkia	6-36	Sacramento County	Drought tolerant, pink flowers
	<i>Collinsia heterophylla</i>	Chinese Houses	12-24	Sacramento County	Drought tolerant, lavender flowers
	<i>Eschscholzia californica</i>	California Poppy	8-24	Sacramento County	Drought tolerant, orange flowers, long flowering season
	<i>Gilia capitata</i>	Globe Gilia	4-35	Sacramento County	Drought tolerant, yellow to white flowers
	<i>Lasthenia gabrata</i>	Goldfields	4-10	Sacramento County	Drought tolerant, golden yellow flowers
	<i>Layia platyglossa</i>	Tidytips	1-28	Sacramento County	Drought tolerant, yellow flowers with white tips
	<i>Linium lewisii</i>	Blue Flax	6-31	California	Drought tolerant, blue flowers
	<i>Lupinus microcarpus 'Ed Gedling'</i>	Golden Lupine	4-32	Sacramento County	Drought tolerant, white to dark yellow flowers
	<i>Lupinus succulentus</i>	Arroyo Lupine	8-39	Sacramento County	Drought tolerant, blue to purple flowers
	<i>Nemophila menziesii</i>	Baby Blue Eyes	4-12	Sacramento County	Drought tolerant, blue flowers
	<i>Phacelia campanularia</i>	California Blue Bells	8-30	California	Drought tolerant, dark blue flowers
	<i>Triphysaria versicolor</i>	Yellow Owl's Clover	4-16	California	Drought tolerant, yellow flowers




Permanently Irrigated Areas




Trees	Latin	Common	Mature Size (ft.)	Native	Features
	<i>Alnus rhombifolia</i>	White Alder	50H x 40W	Sacramento County	Drought tolerant
	<i>Cercis occidentalis</i>	Western Redbud	15H x 15W	Sacramento County	Flowers, drought tolerant
	<i>Fraxinus latifolia</i>	Oregon Ash	60H x 40W	Sacramento County	Drought tolerant
	<i>Juglans californica hindsii</i>	California Black Walnut	30H x 30W	Sacramento County	Drought tolerant
	<i>Quercus lobata</i>	Valley Oak	70H x 70W	Sacramento County	Form, Drought tolerant
	<i>Platanus racemosa</i>	California Sycamore	50H x 30W	Sacramento County	Drought tolerant
	<i>Umbellularia californica</i>	California Bay Laurel	25H x 20W	California	Fragrant, evergreen, drought tolerant
Shrubs	Latin	Common	Mature Size (ft.)	Native	Features
	<i>Baccharis pilularis</i>	Coyote Bush	8H x 8W	Sacramento County	Drought tolerant, evergreen
	<i>Baccharis salicifolia</i>	Mulefat	10H x 6W	California	Drought tolerant, evergreen
	<i>Calycanthus occidentalis</i>	California Spicebush	8H x 6W	Sacramento County	Flowers, fragrant
	<i>Carpenteria californica</i>	California Bush Anemone	5H x 4W	California	Flowers, evergreen, drought tolerant
	<i>Ceanothus 'concha'</i>	California Lilac	6H x 8W	California	Flowers, evergreen, drought tolerant
	<i>Ceanothus cuneatus</i>	Buck Brush	6H x 6W	Sacramento County	Drought tolerant, evergreen
	<i>Cephalanthus occidentalis</i>	Buttonbush	6H x 5W	Sacramento County	Flowers, tolerates wet soils
	<i>Fremontodendron 'Ken Taylor'</i>	Flannel Bush	6H x 10W	Sacramento County	Flowers, evergreen, drought tolerant
Shrubs	Latin	Common	Mature Size (ft.)	Native	Features
	<i>Mimulus aurantiacus</i>	Sticky Monkeyflower	3H x 3W	Sacramento County	Flowers, evergreen, drought tolerant
	<i>Muhlenbergia rigens</i>	Deer Grass	2H x 5W	Sacramento County	Drought tolerant
	<i>Rhamnus Californica 'Eve Case'</i>	California Coffeeberry	6H x 6W	Sacramento County	Evergreen, wildlife value, drought tolerant
	<i>Rosa Californica</i>	California Wild Rose	6H x 5W	Sacramento County	Flowers, drought tolerant



Vines	Latin	Common	Mature Size (ft.)	Native	Features
	<i>Lonicera hispidula vacillans</i>	Pink Wild Honeysuckle	Indefinite	California	Flowers, drought tolerant, evergreen
	<i>Vitis Californica</i>	California Wild Grape	Indefinite	Sacramento County	Tolerant of wet soils, habitat value
Groundcovers	Latin	Common	Mature Size (ft.)	Native	Features
	<i>Arctostaphylos 'Emerald Carpet'</i>	Creeping Manzanita	1H x 5W	California	Drought tolerant
	<i>Baccharis pilularis 'Twin Peaks'</i>	Creeping Coyote Bush	3H x 8W	California	Dense form, drought tolerant
	<i>Ceanothus 'Centennial'</i>	Creeping California Lilac	1H x 10W	California	Flowers, drought tolerant
	<i>Epiolobium canum</i>	California Fuchsia	2H x 4W	California	Flowers, drought tolerant
	<i>Erigeron karvinskianus</i>	Santa Barbara Daisy	1H x 3W	Mexico	Flowers, drought tolerant
	<i>Mahonia repens</i>	Creeping Oregon Grape	1H x 3W	California	Drought tolerant
	<i>Muhlenbergia rigens</i>	Deer Grass	24-60	Sacramento County	Drought tolerant




Appendix F – Invasive Plant Species



Appendix F – Invasive Plant Species




Common Name Latin Name	Management Approach Nuisance Issues
Silver Maple <i>Acer saccharinum</i> 	Mechanical removal, cutting root shoots repeatedly, herbicides <ul style="list-style-type: none"> • <i>Displaces native species</i> • <i>Seeds prolific, needs lots of water to survive in arid areas</i>
Silk Tree <i>Albizia julibrissin</i> 	Mechanical removal, cutting root shoots repeatedly, herbicides <ul style="list-style-type: none"> • <i>Displaces native species</i>
Giant Reed <i>Arundo donax</i> 	Manual removal and approved herbicide <ul style="list-style-type: none"> • <i>Displaces native plants and associated wildlife</i> • <i>Reduces habitat</i> • <i>Fuel load fire hazard</i> • <i>Reduces creek channel capacity</i>



Common Name Latin Name	Management Approach Nuisance Issues
Mosquito Fern <i>Azolla sp.</i> 	Appropriate herbicide <ul style="list-style-type: none"> • <i>Impedes water flow</i> • <i>Clogs pumps</i>
Black Mustard <i>Brassica nigra</i> 	Manual removal and appropriate herbicide <ul style="list-style-type: none"> • <i>Displaces native plants and associated wildlife</i> • <i>Reduces habitat</i> • <i>Fuel load fire hazard</i> • <i>Reduces creek capacity</i>
Yellow Star Thistle <i>Centaurea solstitialis</i> 	Mechanical removal with post-emergent herbicide. Important control times are late winter/early spring and mid-summer before seed sets <ul style="list-style-type: none"> • <i>Displaces native plants and animals</i> • <i>Poisonous to horses</i> • <i>Limits recreation use</i>




Common Name Latin Name	Management Approach Nuisance Issues
Bull Thistle <i>Cirsium vulgare</i> 	Mechanical removal with post-emergent herbicide. Important control times are late winter/early spring and mid-summer before seed sets <ul style="list-style-type: none"> • <i>Displaces native plants and animals</i> • <i>Limits recreation use</i>
Pampas Grass <i>Cortaderia selloana</i> 	Herbicide, manual removal and shading by other species <ul style="list-style-type: none"> • <i>Displaces native vegetation</i>




Common Name Latin Name	Management Approach Nuisance Issues
Bermuda Grass <i>Cynodon dactylon</i> 	Herbicide, manual removal and shading by other species <ul style="list-style-type: none"> Displaces native vegetation
Scotch Broom <i>Cytisus scoparius</i> 	Manual removal and appropriate foliar spray <ul style="list-style-type: none"> Displaces native vegetation Fuel load fire hazard
Water Hyacinth <i>Eichhornia crassipes</i> 	Mechanical removal and approved foliar spray <ul style="list-style-type: none"> Dominates waterways Degrades open water habitat Can clog pumps Breeding habitat for mosquitoes Displaces native species



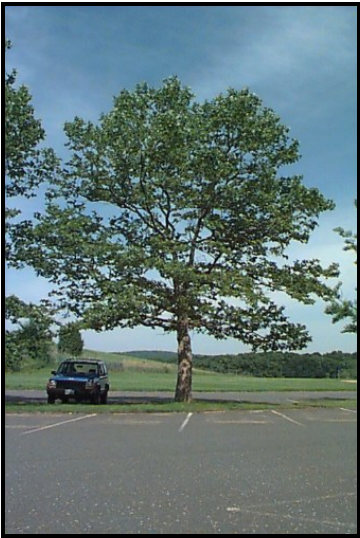
Common Name Latin Name	Management Approach Nuisance Issues
Broadleaf Filaree <i>Erodium botrys</i> 	Manual Removal and Appropriate herbicide <ul style="list-style-type: none"> Displaces native plants and associated wildlife Reduces habitat
Tasmanian Blue Gum <i>Eucalyptus globulus</i> 	Mechanical removal, cutting root shoots repeatedly, herbicides <ul style="list-style-type: none"> Displaces native species Allelopathic Messy, greedy, brittle




Common Name Latin Name	Management Approach Nuisance Issues
Edible Fig <i>Ficus carica</i> 	Mechanical removal, cutting root shoots repeatedly, herbicides <ul style="list-style-type: none"> Displaces native species Readily spread by birds and other wildlife
Algerian Ivy <i>Hedera canariensis</i> 	Manual Removal and Appropriate herbicide <ul style="list-style-type: none"> Displaces native plants and associated wildlife Smooths surfaces and shades out undergrowth Inhibits germination of many species Reduces habitat
Foxtail Barley <i>Hordeum jubatum</i> 	Herbicide, manual removal and shading by other species <ul style="list-style-type: none"> Displaces native vegetation



Common Name Latin Name	Management Approach Nuisance Issues
Prickly Lettuce <i>Lactuca serriola</i> 	Manual removal, re-peated mowing before seed sets, and appropriate herbicide <ul style="list-style-type: none"> • <i>Displaces native species</i>
Perennial Pepperweed <i>Lepidium latifolium</i> 	Mechanical removal and approved foliar spray <ul style="list-style-type: none"> • <i>Dominates waterways</i> • <i>Degrades open water habitat</i> • <i>Can clog pumps</i> • <i>Degrades nesting habitat</i> • <i>Displaces native species</i>



Common Name Latin Name	Management Approach Nuisance Issues
Water Primrose <i>Ludwigia peploides</i> 	Mechanical removal and appropriate herbicide <ul style="list-style-type: none"> • <i>Displaces native species</i> • <i>Clogs waterways and structures</i>
White Mulberry <i>Morus alba</i> 	Mechanical removal, cutting root shoots repeatedly, herbicides <ul style="list-style-type: none"> • <i>Displaces native species</i>
Parrot's Feather <i>Myriophyllum aquaticum</i> 	Mechanical removal preferred <ul style="list-style-type: none"> • <i>Competes with native aquatic plants</i> • <i>Forms dense mats that can entirely cover open water</i> • <i>Can block structures and water intakes</i> • <i>Provides optimal habitat for mosquitoes</i>



Common Name Latin Name	Management Approach Nuisance Issues
Olive <i>Olea europaea</i> 	Mechanical removal, cutting root shoots repeatedly, herbicides <ul style="list-style-type: none"> • <i>Displaces native species</i>
Dallis grass <i>Paspalum dilitatum</i> 	Manual removal and mowing before seed sets <ul style="list-style-type: none"> • <i>Displaces native species</i>
Bristly Ox-tongue <i>Picris echinoids</i> 	Manual removal and repeated mowing before seed sets <ul style="list-style-type: none"> • <i>Displaces native species</i>



Common Name Latin Name	Management Approach Nuisance Issues
Chinese Pistache <i>Pistachia chinensis</i> 	Manual removal and appropriate foliar spray <ul style="list-style-type: none"> • <i>Displaces native species</i>
Water Lettuce <i>Pistia stratiotes</i> 	Manual removal or appropriate herbicide <ul style="list-style-type: none"> • <i>Displaces native species</i> • <i>Damages habitat value of open water</i>
London Plane Tree <i>Platanus X acerifolia</i> 	Mechanical removal, cutting root shoots repeatedly, herbicides <ul style="list-style-type: none"> • <i>Displaces native species</i> • <i>Easily confused with the native California Sycamore, Platanus racemosa</i>

Common Name Latin Name	Management Approach Nuisance Issues
Black Locust <i>Robinia pseudoacacia</i> 	Mechanical removal, cutting root shoots repeatedly, herbicides <ul style="list-style-type: none"> • <i>Displaces native species</i> • <i>Seeds, leaves and bark toxic to humans</i>
Himalayan Blackberry <i>Rubus discolor</i> 	Manual removal of canes and roots and appropriate herbicide <ul style="list-style-type: none"> • <i>Competes with native species</i> • <i>Can limit access to water for wildlife</i> • <i>Limits access for maintenance</i> • <i>Limits recreation uses</i>
Curley Dock <i>Rumex crispus</i> 	Manual removal and appropriate foliar spray <ul style="list-style-type: none"> • <i>Displaces native species</i>

Common Name Latin Name	Management Approach Nuisance Issues
Chinese Tallow Tree <i>Sapium sebiferum</i> 	Manual removal and appropriate foliar spray <ul style="list-style-type: none"> • <i>Displaces native species</i>
Red Sesbania <i>Sesbania punicea</i> 	Manual removal at any time, but especially before seed sets <ul style="list-style-type: none"> • <i>Rapidly displaces native species</i>

Common Name Latin Name	Management Approach Nuisance Issues
Blessed Milkthistle <i>Silybium marianum</i> 	Manual removal at any time, but especially before seed sets <ul style="list-style-type: none"> • <i>Rapidly displaces native species</i> • <i>Competes with native species</i> • <i>Inhibits germination of native species</i> • <i>Interferes with restoration</i>
Medusa Head Grass <i>Taeniatherum caput-medusae</i> 	Mowing before annual seed is set to prevent dispersal <ul style="list-style-type: none"> • <i>Competes with native species</i> • <i>Inhibits germination of native species</i> • <i>Fuel load fire danger</i>

Common Name Latin Name	Management Approach Nuisance Issues
Tamarisk, Salt Cedar <i>Tamarix species (several)</i> 	Mechanical removal and appropriate foliar spray <ul style="list-style-type: none"> • <i>Displaces native vegetation</i> • <i>Monopolized limited sources of moisture</i>
Cattails <i>Typha latifolia</i> 	Manual removal to limit spread and allow other natives to become established <ul style="list-style-type: none"> • <i>Competes with other natives</i> • <i>Decomposition of plants can reduce pond capacity</i>

Common Name Latin Name	Management Approach Nuisance Issues
Giant Vinca <i>Vinca major</i> 	Manual Removal and Appropriate herbicide <ul style="list-style-type: none"> • <i>Displaces native plants and associated wildlife</i> • <i>Smooths surfaces and shades out undergrowth</i> • <i>Pieces break and float downstream to colonize new areas</i> • <i>Reduces habitat</i>
Mexican Fan Palm <i>Washingtonia robusta</i> 	Mechanical removal <ul style="list-style-type: none"> • <i>Displaces native species</i> • <i>Blocks flow in creeks</i> • <i>Creates fire ladder</i> • <i>Easy to transplant, consider selling for revenue</i>

Appendix G – Special Status Species Protection Measures



Appendix G – Special-Status Species Protection Measures

If maintenance is planned and special-status species are present in or in the Preserve, the following protection measures must be adhered to in order to minimize risk of violating any state or federal regulations. A violation may involve a fine or other penalty.

Burrowing Owl (*Athene cunicularia*)

- Maintenance activities will avoid impacts to burrowing owls consistent with the Burrowing Owl Mitigation Guidelines adopted by California Department of Fish and Game (CDFG). Specifically, do not disturb occupied burrows during the nesting season (February 1 through August 31) unless a qualified biologist approved by CDFG verifies through non-invasive measures that either: 1) the birds have not begun egg-laying and incubation; or 2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.



Burrowing owl and burrow

Giant Garter Snake (*Thamnophis gigas*)

- Restrict desilting and/or resloping of channels after May 1 and before October 1 in any calendar year.
- Limit re-sloping of any channels to one side in any calendar year.
- If mowing vegetative cover on the top or inside of channel banks to the water line, or within 200 feet of open water, mow to not less than 6 inches in height measured from the ground.
- Limit activity involving habitat disturbance to the period between May 1 and September 30. This is the active period for giant garter snake and direct mortality is lessened, because snakes are expected to actively move and avoid danger.
- If aquatic habitat must be filled in or excavated between April 15 and September 30, the habitat should first be completely dewatered for at least 15 consecutive days prior to excavation or filling. Make sure dewatered habitat does not continue to support giant garter snake prey – if site cannot

be completely dewatered, netting and salvaging of prey items may be necessary. This dewatering measure is also adequate to avoid direct harm of northwestern pond turtle.

- If a giant garter snake is found in an area where it would be directly harmed by maintenance activities, cease such activity and allow the snake to leave on its own. Notify the Fish and Wildlife Service (FWS) or biological monitor if the snake remains in harm's way and activity must continue. A qualified biological monitor shall remain in the area to make sure the snake is not harmed. Escape routes for giant garter snakes should be determined in advance of undertaking the maintenance activity to allow the snake to leave on its own. If the snake does not leave on its own within one working day, consult further with the FWS or the biological monitor.



Giant Garter Snake



Swainson's Hawk

Swainson's Hawk (*Buteo swainsoni*)

- Preserve valley oaks and other large trees wherever possible.
- Do not remove any trees containing raptor nests without first consulting with a qualified biological monitor. If a tree must be removed, the biological monitor should determine whether the nest is used by a Swainson's hawk. Do not remove nest trees during Swainson's hawk breeding season (March 15 to September 15) unless absolutely necessary. If a Swainson's hawk nest tree is to be removed during the Swainson's hawk breeding season, the tree may not be removed until the biological monitor has determined that breeding is completed and no young are present, or, if young are present, until CDFG has determined that the young have fledged and are no longer dependent upon the nest tree.

Valley Elderberry Longhorn Beetle (*Democeros californicus dimorphus*)

- Avoid planting elderberry shrubs (*Sambucus spp.*) in the Preserve.
- Remove all shrubs with stems less than one inch in diameter at ground level.
- Avoid pruning or removing shrubs with stems at least one inch in diameter at ground level.



Elderberry shrub w/flowers and fruit and elderberry longhorn beetle

- Do not apply insecticides, herbicides, fertilizers, or other chemicals that might harm VELB or elderberry shrubs within 100 feet of any elderberry shrubs with stems at least one inch in diameter at ground level.
- Mowing within 100 feet of elderberry shrubs may occur during July through April. No mowing should occur within five (5) feet of elderberry stems. Mowing should be done in a way that avoids damaging plants (e.g., stripping away bark through careless use of equipment).

Tricolored Blackbird (*Agelaius tricolor*) and Migratory Bird Species

- Avoid removal or disturbance of emergent wetland vegetation or blackberry shrubs during tricolored blackbird breeding season (April through July).
- Avoid removal of any vegetation or structures with bird nests during avian breeding season (March 15 through July 31).



Tricolored blackbird



Western Pond Turtle

Western Pond Turtle (*Clemmys marmorata*)

- Avoid removal or disturbance of emergent wetland vegetation or blackberry shrubs during western pond turtle breeding season (April through August 1). Avoid regrading of banks during this time period or disturbing burrows.
- If pond turtles are found, it is recommended that CDFG be contacted and consulted with regarding either developing an avoidance plan or a plan to capture and relocate turtle(s) to suitable habitat within a nearby conservation area. Any plan to capture and relocate pond turtles should be conducted by a qualified biologist approved by CDFG.

Appendix H – Nuisance Wildlife Species



Appendix H – Nuisance Wildlife Species

Certain wildlife species have the potential to become a nuisance due either to their unchecked capacity for predation of other desirable species, or because their presence is incompatible with the operation and anticipated human uses of the P. Domestic species may also prey on other desirable wildlife species and their presence should be discouraged. Regular monitoring should be conducted to observe the presence of the following species and to control or eradicate their presence as needed.

Nuisance Wildlife Species	Management Approach Nuisance Issues
Skunk	Removal by Citrus Heights Community Services Division (City Animal Control) <ul style="list-style-type: none"> • <i>Presence incompatible with recreation and adjacent residential land use</i>
Raccoons	Removal by City Animal Control if nuisance develops <ul style="list-style-type: none"> • <i>May become dependent on residential food sources such as garbage cans, animal food, etc.</i> • <i>Animals may become aggressive towards recreational users walking through Preserve trails and maintenance workers during breeding season</i>
Beaver	Removal by City Animal Control if nuisance develops and demolition of dens/dams if creek flow impaired <ul style="list-style-type: none"> • <i>May kill trees and shrubs in Preserve to get materials to build dams</i> • <i>Structures may impede creek flows</i>
Starlings	Remove nests occupied by starlings <ul style="list-style-type: none"> • <i>Will occupy nests of native species and prevent native species from reproducing</i>
Canada Geese	Maintain emergent vegetation to prevent unimpeded access to water. Encourage diverse forbs interspersed with turf areas to reduce food supply <ul style="list-style-type: none"> • <i>May defoliate turf areas from excessive feeding</i> • <i>Droppings are incompatible with recreation uses</i> • <i>May become aggressive towards residents and maintenance workers.</i>
Voles, Rats and Other Rodents	Destroy burrows and removal by City Animal Control if nuisance develops. Provide protective cages on young seedlings <ul style="list-style-type: none"> • <i>May destroy irrigation components by gnawing</i> • <i>May feed on roots and stems of young seedlings</i>
Cats	Removal by City Animal Control <ul style="list-style-type: none"> • <i>May harass wildlife</i>
Dogs	Removal by City Animal Control <ul style="list-style-type: none"> • <i>May harass wildlife, recreational users or maintenance staff</i>
Mosquitoes	Control by Sacramento/Yolo Mosquito & Vector Control District if nuisance develops <ul style="list-style-type: none"> • <i>Vector for disease</i> • <i>Incompatible with recreation uses</i>

Appendix I – Cost Estimate



ARCADE CREEK PARK MASTER PLAN -- 9.2 ACRES

NO.	DESCRIPTION	UNIT	APPR QUANT	UNIT PRICE	AMOUNT
Park Improvements					
STAGING AND GRADING					
1	Layout, Earthwork, Const. Fencing	Ac	6.9	\$17,000.00	\$117,300.00
2	Clearing and Grubbing	Ac	6.9	\$2,000.00	\$13,800.00
3	Remove Existing Invasive Trees	EA	25	\$750.00	\$18,750.00
4	Rough Grading, Creek Restoration	CY	10856	\$12.00	\$130,272.00
5	Erosion Control	Ac	6.9	\$4,000.00	\$27,600.00
6	Reroute Ditch	CY	248	\$50.00	\$12,400.00
7	Fine Grading	Ac	2.8	\$4,600.00	\$12,880.00
INFRASTRUCTURE					
8	Trenching and Backfill for Pathway Lights, Conduits	LF	1800	\$70.00	\$126,000.00
9	Electric Service Pedestal	EA	1	\$22,000.00	\$22,000.00
10	Pull Box	EA	1	\$300.00	\$300.00
11	Light Fixture, SMUD Standard	EA	9	\$3,500.00	\$31,500.00
12	1" Water Meter	EA	1	\$1,400.00	\$1,400.00
13	Water Meter Fee	EA	1	\$35,000.00	\$35,000.00
14	Back Flow Preventer, (domestic)	EA	1	\$1,100.00	\$1,100.00
15	1" SCH 40 PVC Water Pipe (domestic)	LF	350	\$5.50	\$1,925.00
16	1" Gate Valve (domestic)	EA	1	\$540.00	\$540.00
17	Tie into Existing Water Pipe	EA	1	\$1,400.00	\$1,400.00
18	6" Cleanout Per UPC	EA	1	\$800.00	\$800.00
19	Sewer Manhole, 48"	EA	1	\$6,500.00	\$6,500.00
20	Sewer Pipe 4" VCP	LF	150	\$71.00	\$10,650.00
21	Connect to Existing Sewer	LS	1	\$2,000.00	\$2,000.00
22	Drinking Fountain	EA	1	\$3,810.00	\$3,810.00
PARKING LOT					
23	6" Wide Flush Concrete Curb	LF	738	\$18.00	\$13,284.00
24	Concrete Curb and Gutter	LF	54	\$40.00	\$2,160.00
25	Concrete Driveway Apron	LS	1	\$5,800.00	\$5,800.00
26	Parking Lot Porous Paving	SF	13970	\$10.50	\$146,685.00
27	Parking Lot Striping	LS	1	\$1,500.00	\$1,500.00
28	Parking Lot Signage	LS	1	\$3,000.00	\$3,000.00
29	Type 5 Curb	LF	824	\$30.00	\$24,720.00
30	Car Stops -- Recycled Rubber	EA	11	\$100.00	\$1,100.00
31	Park Entry Gate	EA	1	\$9,400.00	\$9,400.00
32	Culvert Extension	EA	1	\$7,000.00	\$7,000.00
MULTI-USE TRAIL					
33	12' Bike Path, Asphalt	SF	22152	\$5.00	\$110,760.00
34	Bike Path Striping	LS	1	\$3,144.00	\$3,144.00
35	Decomposed Granite Shoulder	SF	6466	\$3.00	\$19,398.00
36	ADA Ramp	EA	2	\$3,750.00	\$7,500.00
37	Bridge Sections	LF	87	\$2,000.00	\$174,000.00
38	Culverts	EA	5	\$4,000.00	\$20,000.00
OUTDOOR EDUCATION					
39	Boardwalk w/View Platform	SF	1108	\$125.00	\$138,500.00
40	Kiosk	LS	1	\$16,575.00	\$16,575.00
41	Kiosk -- Signage	EA	3	\$1,000.00	\$3,000.00
42	Interpretive Signage W/ Stand	EA	5	\$1,950.00	\$9,750.00
PLAY AREA					
43	Play Area Curb	LF	208	\$31.00	\$6,448.00
44	Play Area Concrete Ramp	EA	1	\$2,100.00	\$2,100.00
45	Play Area Fiber	CY	134	\$45.00	\$6,030.00
46	Children's Play Area	EA	1	\$80,000.00	\$80,000.00
47	Play Area Drain	EA	1	\$1,200.00	\$1,200.00
48	Play Area French Drain	LF	208	\$18.00	\$3,744.00
49	Storm Drain to Bio-Swale, 8"	LF	127	\$19.00	\$2,413.00
50	Play Area Iron Fence (3')	LF	105	\$45.00	\$4,725.00
GROUP PICNIC AREA					
51	Concrete Paving (5.5")	SF	1856	\$9.50	\$17,632.00
52	Shade Shelter	EA	1	\$70,000.00	\$70,000.00
53	Picnic Tables	EA	4	\$2,000.00	\$8,000.00
54	Trash Receptacles	EA	3	\$1,530.00	\$4,590.00
55	Recycle Receptacles	EA	3	\$1,685.00	\$5,055.00
56	Bike Rack (4 bikes)	EA	1	\$1,800.00	\$1,800.00
BASIC PARK AMENITIES					
57	6' Concrete Path, Porous Paving	LF	1510	\$10.50	\$15,855.00
58	Concrete Mowing Strip (12")	LF	53	\$22.00	\$1,166.00
59	Park Entry Monument	EA	2	\$8,000.00	\$16,000.00

ARCADE CREEK PARK MASTER PLAN -- 9.2 ACRES

NO.	DESCRIPTION	UNIT	APPR QUANT	UNIT PRICE	AMOUNT
60	Par Course	EA	5	\$9,000.00	\$45,000.00
61	Bollards -- Removable	EA	4	\$980.00	\$3,920.00
62	Park Bench	EA	8	\$1,900.00	\$15,200.00
GENERAL LANDSCAPE IMPROVEMENTS					
63	Backflow Preventer - Irrigation, 1 1/2"	EA	1	\$1,100.00	\$1,100.00
64	Irrigation Pop-up Spray System	EA	6222	\$1.00	\$6,222.00
65	Irrigation Root Water Bubbler System	EA	36	\$80.00	\$2,880.00
66	Irrigation Controller Assembly	LS	1	\$18,000.00	\$18,000.00
67	Soil Preparation and Amendments	SF	6222	\$0.25	\$1,555.50
68	Trees -- 15 Gallon	EA	18	\$120.00	\$2,160.00
69	Shrubs -- 5 Gallon	EA	100	\$25.00	\$2,500.00
70	Shrubs -- 1 Gallon	EA	205	\$10.00	\$2,050.00
71	Vines -- 5 Gallon	EA	24	\$25.00	\$600.00
72	Groundcovers -- 1 Gallon	EA	298	\$10.00	\$2,980.00
73	Bark w/ Weed Fabric	SF	6222	\$0.75	\$4,666.50
ARCADE CREEK RESTORATION					
74	Irrigation Root Water Bubbler System	EA	511	\$80.00	\$40,880.00
75	Trees -- 15 Gallon	EA	109	\$120.00	\$13,080.00
76	Shrubs -- 5 Gallon	EA	293	\$25.00	\$7,325.00
77	Emergent Plugs -- supercell	EA	7315	\$10.00	\$73,150.00
78	Drill Seeding	AC	1.3	\$3,500.00	\$4,550.00
79	Bark w/o Weed Fabric	SF	2681	\$0.30	\$804.30
80	Jute Netting	SF	73154	\$0.25	\$18,288.50
PARKING LOT BIO-SWALE					
81	Irrigation Pop-up Spray System	SF	3631	\$1.00	\$3,631.00
82	Irrigation Root Water Bubbler System	EA	12	\$80.00	\$960.00
83	Trees -- 15 Gallon	EA	6	\$120.00	\$720.00
84	Shrubs -- 5 Gallon	EA	160	\$25.00	\$4,000.00
85	Shrubs -- 1 Gallon	EA	148	\$10.00	\$1,480.00
86	Groundcovers -- 1 Gallon	EA	149	\$10.00	\$1,490.00
87	Emergent Plugs -- supercell	EA	52	\$10.00	\$520.00
88	Jute Netting	SF	3631	\$0.25	\$907.75
89	Parking Lot Swale Cobble	CY	25	\$30.00	\$750.00
ADDITIONAL PARK DEVELOPMENT COSTS					
90	Maintenance Period -- 90 Days	Ac	6.9	\$2,700.00	\$18,630.00
91	Permitting & CEQA Update	LS	1	\$21,000.00	\$21,000.00
92	Arborist Survey & Report	LS	1	\$5,000.00	\$5,000.00
93	Biological Resource Assessment	LS	1	\$3,500.00	\$3,500.00
94	Wetland Delineation Report and ACOE Verification	LS	1	\$4,000.00	\$4,000.00
95	Geotechnical Report	LS	1	\$10,000.00	\$10,000.00
96	Hydrology Study	LS	1	\$20,000.00	\$20,000.00
97	Civil Survey	LS	1	\$18,000.00	\$18,000.00
TOTAL					\$1,923,461.55
8% Design Services					\$153,876.92
20% Contingency					\$384,692.31
GRAND TOTAL					\$2,462,030.78

Appendix J – Final Master Plan





ARCADE CREEK PARK PRESERVE - MASTER PLAN

SUNRISE RECREATION AND PARK DISTRICT



FOOTHILL ASSOCIATES
 ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

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