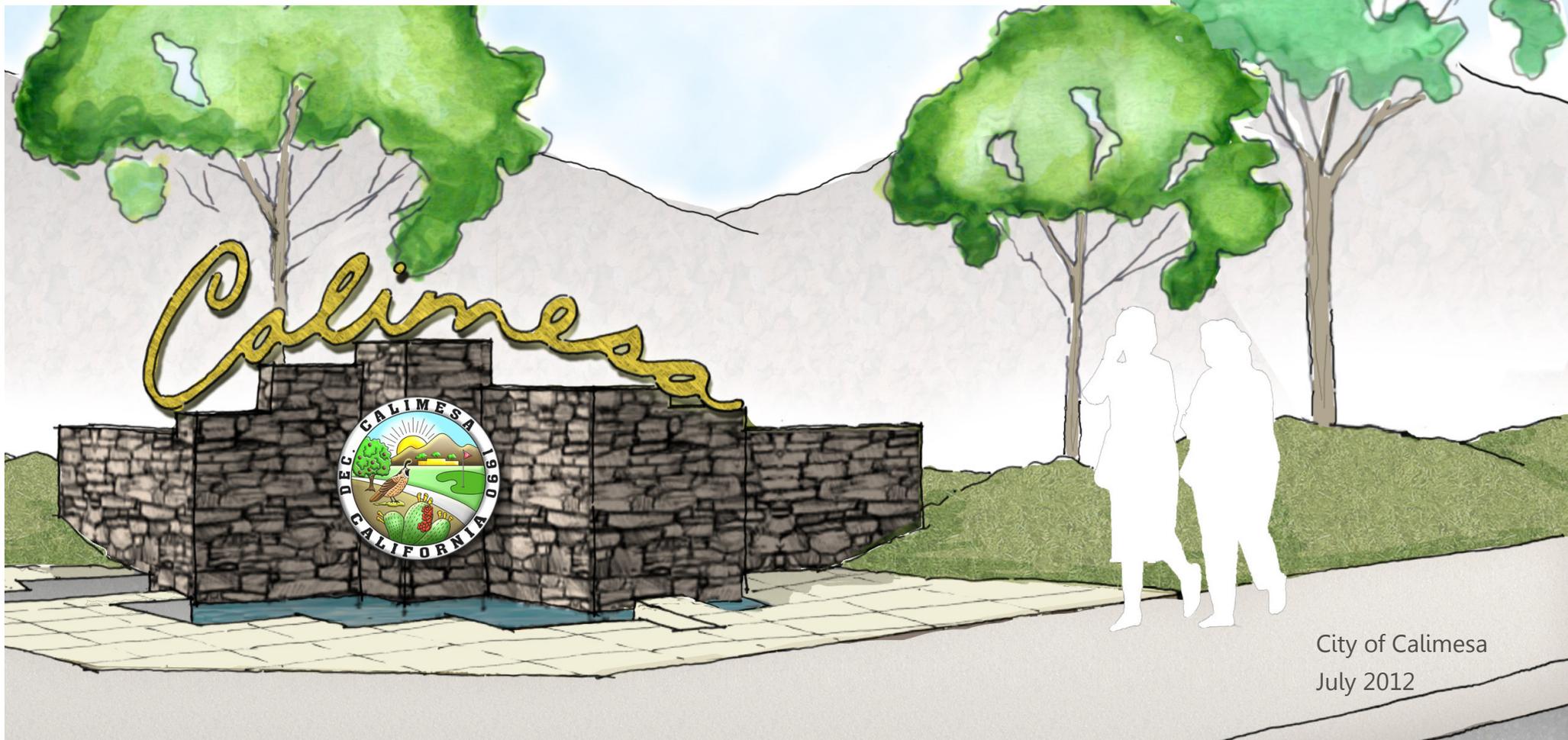




CALIMESA CREEK MASTER PLAN

Based on Downtown Business District Calimesa Creek Overlay Zone



City of Calimesa
July 2012



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We would like to especially thank the following members of the community for their guidance and passion for the project and the community of Calimesa.

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Calimesa Creek Ad Hoc Committee

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- » Mike Barron and Linda Clark-Molina, Planning Commission
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- » Adam Swanson and Maria Swanson, Business Community Representatives

COMPASS BLUEPRINT PROGRAM:

This is a project of the City of Calimesa with funding provided by the Southern California Association of Governments' (SCAG) Compass Blueprint Program. Compass Blueprint assists Southern California cities and other organizations in evaluating planning options and stimulating development consistent with the region's goals. Compass Blueprint tools support visioning efforts, infill analyses, economic and policy analyses, and marketing and communication programs. The preparation of this report was funded in part through grant(s) from the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) through the United States Department of Transportation (DOT) in accordance with the Metropolitan Planning Program as set forth in Section 104(f) of Title 23 of the U.S. Code. Additional funding was provided through a Blueprint Planning grant from the California Department of Transportation (Caltrans).

The contents of this report reflect the views of the author who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of SCAG, DOT or the State of California. This report does not constitute a standard, specification or regulation. SCAG shall not be responsible for the City's future use or adaptation of the report.

SOUTHERN CALIFORNIA



ASSOCIATION of GOVERNMENTS



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INTRODUCTION

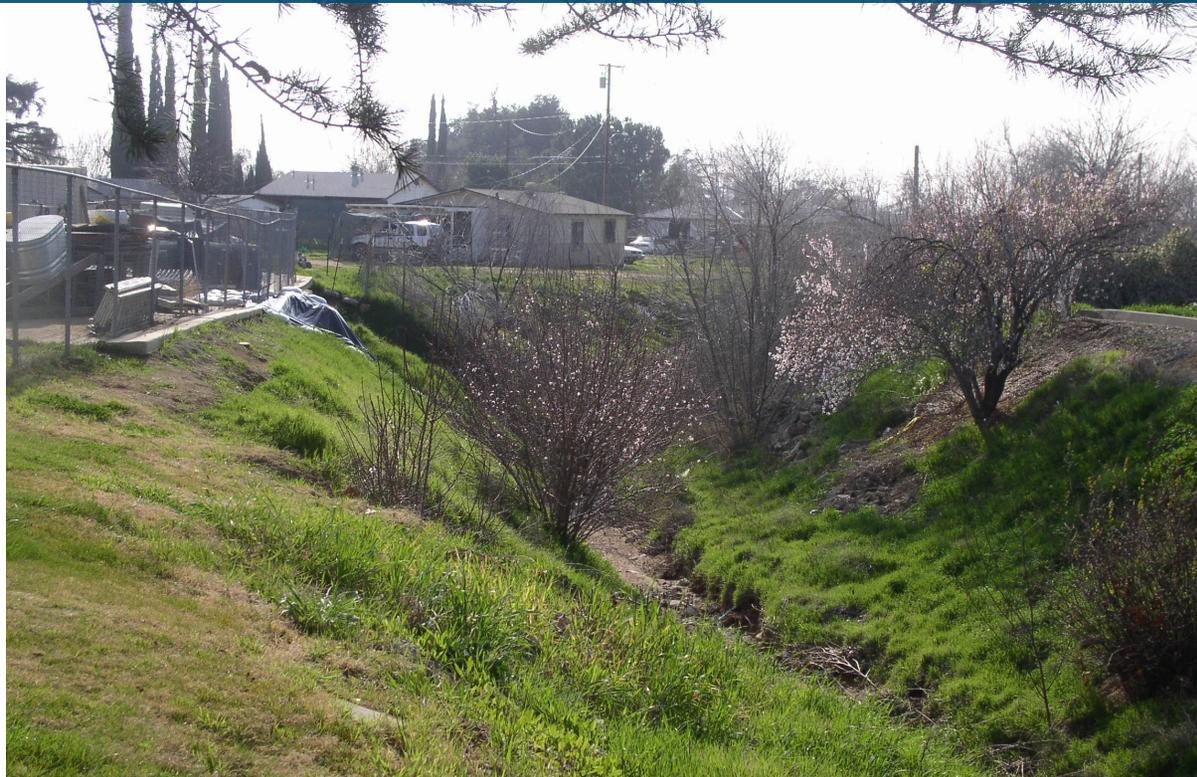
Background

In March of 2010, the City of Calimesa adopted its Downtown Business District (DBD) Code through the Southern California Association of Governments' (SCAG) Compass Blueprint Program. The Downtown Business District comprises approximately 142 acres, generally between County Line Road and Sandalwood Drive, east of Interstate 10 to Park Avenue north of Avenue L and to 5th Street south of Avenue L. The adopted code established new development regulations, design guidelines, and street improvement plans to set this area apart from other commercial areas within the City. The code also created the Calimesa Creek Overlay with specific guidelines for the successful redevelopment of the creek area. The intent of the Calimesa Creek Master Plan is to promote public access to and pedestrian use along Calimesa Creek, to protect and enhance the scenic character of the Downtown, and to improve development potential within the overlay zone.

Since the adoption of the DBD Code, the City has moved forward with a more detailed planning effort to prepare the Calimesa Creek Master Plan. This Master Plan is intended to provide a foundation and vision for future development of the area to turn the creek corridor into an asset for the City, supplemental and complementary to the DBD Code. The Master Plan provides conceptual analyses of the creek drainage system from which alternatives for creek design were developed. It explores measures for creek stabilization and flood control while preserving the natural look of the creek to function as a recreational amenity for the community. In conjunction with aesthetic and functional enhancements of the creek, shared parking strategies were developed to explore the potential for further development of the creek-adjacent properties. The Calimesa Creek area is envisioned to grow incrementally and organically over time into a "green" gateway to the Downtown Business District. As noted in the DBD Code, the overall success of the revitalization of the Calimesa Creek area will depend on the commitment of property owners, the City, Riverside County Flood Control District, and subsequent developers to plan and coordinate development.



The Creek as it currently exists today is a seasonal dry stream overgrown with vegetation that causes flooding and piling of debris.



Project Site Overview

The Calimesa Creek study area includes the general vicinity adjacent to the creek from Interstate 10 to Park Avenue, as shown on Figure 1., *Study Area*. It reflects the Calimesa Creek Overlay within the Downtown Business District. Existing land uses adjacent to the creek are mostly commercial and residential uses. These properties do not currently facilitate public access to the creek. The creek edge is lined with private parking for the commercial uses along County Line Road while fences separate the creek from private residences to the south. The City's civic center is also located within the study area adjacent to the creek.

As an integral part of a major watercourse, Calimesa Creek has a tributary watershed of approximately 890 acres at the project site. The watershed covers areas of both the City of Yucaipa within the County of San Bernardino and the City of Calimesa in the County of Riverside. The studied reach of the creek is approximately 2,100 feet and is composed of varied sections, including rectangular concrete boxes under streets and earthen channel in most open areas. The natural drainage of the channel flows from east to west at a slope of about 3.5 percent due to the elevation difference in the channel bottom

of approximately 75 feet from high point to low point across the study area. The depth of the creek varies from about 15 to 20 feet below adjacent grades while the bottom width ranges from 3 to 6 feet. The channel side slopes vary between 1:1 and 2:1, with a top width of approximately 40 to 60 feet.

Site analysis of the creek identified potential hazards associated with the instability of the creek banks. Several locations along the creek showed high erodibility, especially during periods of high rainfall, with the possibility of undermining the foundation of several built structures. A few culverts at critical junctions along the creek were identified as undersized, most critically at Park Avenue and at Calimesa Boulevard. Detailed information and analyses on the hydrology and existing drainage system of the creek can be found in Appendix A, Calimesa Channel Rehabilitation Conceptual Design Report. Preliminary analysis did not find habitat suitable for endangered species or protected plants within the study area. However, more detailed environmental and biological assessments will need to be conducted at a later phase prior to any physical improvements taking place.

The Calimesa Creek Project is consistent with and seeks to promote the following policies of the DBD Code.

- » Promote the idea of Calimesa Creek as an asset to Downtown Calimesa and integrate the creek with future development
- » Emphasize pedestrian access and connections between and within developments
- » Enhance the visual and aesthetic character of development, while providing areas for the public to gather
- » Allow for and encourage a denser pattern of development than exists today
- » Enhance property values and increase economic and financial benefits to the City and the community
- » Promote high standards for pedestrian safety, site planning, and landscape design.

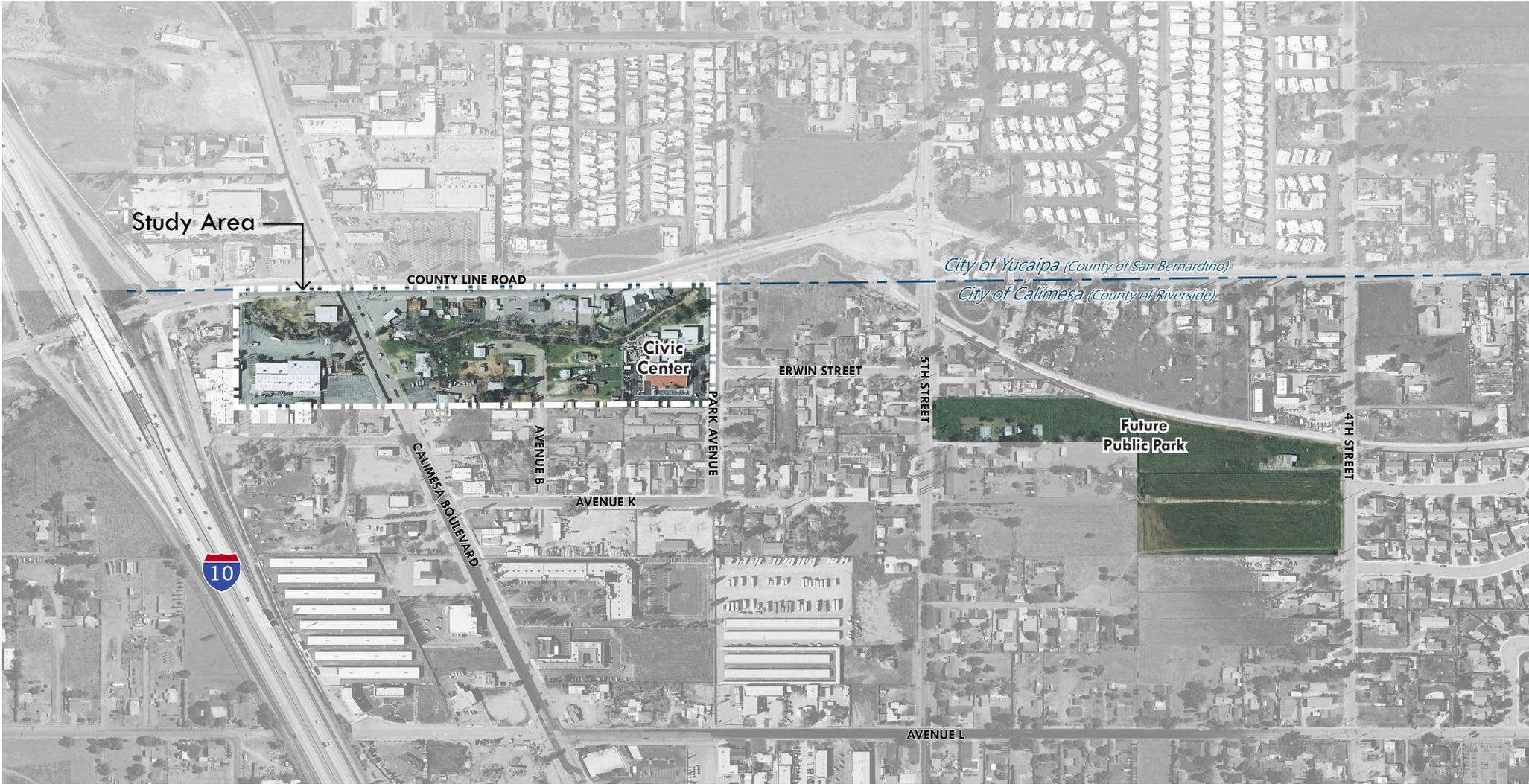


Figure 1. Study Area



Community Involvement

The active involvement of the community played a significant role in developing the Calimesa Creek Master Plan. An Ad Hoc Creek Committee was formed with members from the City Council, Planning Commission, Public Works and Safety Commission, Trails Commission, Community Services Commission, and the business community. During the course of the project, the Committee met five times to conduct a site visit, discuss pertinent issues, review design alternatives, and provide input on the final conceptual plans for Calimesa Creek.

A public community workshop was also held to gather input from the surrounding neighborhood and general public. The workshop was held in the evening on December 13, 2011, at Calimesa City Hall. Property owners within a 500-foot radius of the proposed project were notified by mail with a full-page notice. Notices were also posted and distributed through various media outlets, including the *NewsMirror*, public announcement boards, the City's website, and other social networking sites. The workshop was attended by residents, business owners, and other interested parties from neighboring areas and the City of Yucaipa. The workshop format consisted of a

brief presentation followed by an open forum for questions and answers. The presentation provided an overview of the Calimesa Creek project, including existing conditions, analyses of the drainage system, parking conditions, and proposed creek design alternatives. After the presentation, workshop attendees were invited to review exhibits and engage in discussions with the team.

In general, workshop attendees were excited about the potential improvements envisioned to prevent future flooding and improve the aesthetics of the channel. The input provided by the participants showed support for the enhancement of the creek as a natural flowing stream and the installation of a pedestrian bridge. However, most of the participants were not in favor of a vehicular bridge across Calimesa Creek within the study area. Participants also expressed a desire to have gateway monumentation at the intersection of County Line Road and Calimesa Boulevard to provide a distinctive identity for the City of Calimesa and entrance to the Downtown Business District. Many of the attendees also showed interest in continuing this theme along Calimesa Boulevard.

Some of the issues expressed by workshop attendees included details of the enhanced creek system, such as the aesthetics of the stream becoming too artificial; the cost effectiveness of a flowing water system, both year round and seasonally; and future construction, operations, and maintenance costs and functions. There was also concern about maintaining the "small town" character of the community in potential future developments. These issues were duly noted and to the extent possible addressed in the proposed plans in this Master Report. Questions were also raised about plans to continue creek enhancements east of Park Avenue and potentially to the future public park. It was explained that the section of Calimesa Creek from Park Avenue to 5th Street is within the City of Yucaipa's jurisdiction, thus the need for collaboration between the two jurisdictions and respective county flood control agencies.



Example of revitalized creek
Photo courtesy of PACE Engineering

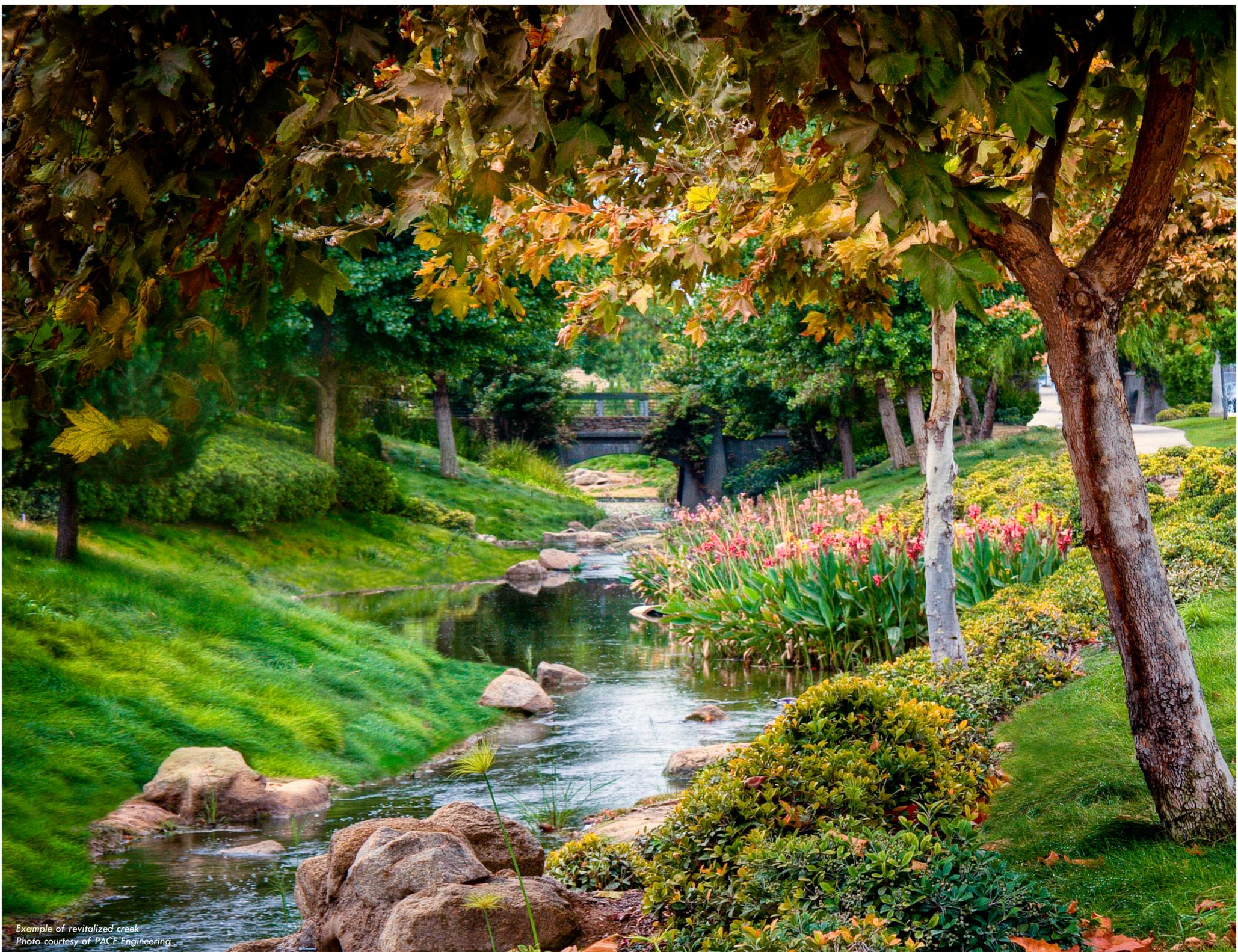
CREEK MASTER PLAN

Overview

Calimesa Creek presents a unique opportunity to improve channel drainage conditions for a multi-jurisdictional watershed while enhancing the creek area as a recreational amenity and increasing economic development potential for the community. As the Downtown Business District's north gateway, previous urban design analysis recommended the creation of a "green entry" with iconic gateway features to provide a unique and distinctive character to the City of Calimesa. The project is intended to be a catalyst for future development of creek-adjacent properties and the creation of walkable and bikable connections to other public amenities such as the downtown businesses and the future public park between 5th and 4th Streets. As stated previously, cooperation and collaboration with neighboring jurisdictions will be necessary to continue the connection from the Calimesa Creek project area to the public park, since the creek fluctuates between the City of Yucaipa and the City of Calimesa.

Creek Drainage System

Several alternative channel configurations were developed that would improve the drainage system and also re-create the creek into a public amenity. The steep slopes and channel bottom of the existing creek will be modified to accommodate the proposed improvements of each alternative. Respective standard hydraulic analyses were conducted to confirm that these alternatives would provide 100-year flood protection while meeting the freeboard requirements of Riverside County Flood Control and Water Conservation District (RCFCWCD) for the studied reach of Calimesa Creek. Details and results of the hydraulic analysis of each alternative are included in Appendix A, Calimesa Channel Rehabilitation Conceptual Design Report. Additional analyses were conducted to identify the most cost-effective and desirable configuration for future development of the project site.



Example of revitalized creek
Photo courtesy of PACE Engineering

Alternative 1: Seasonally Dry Stream

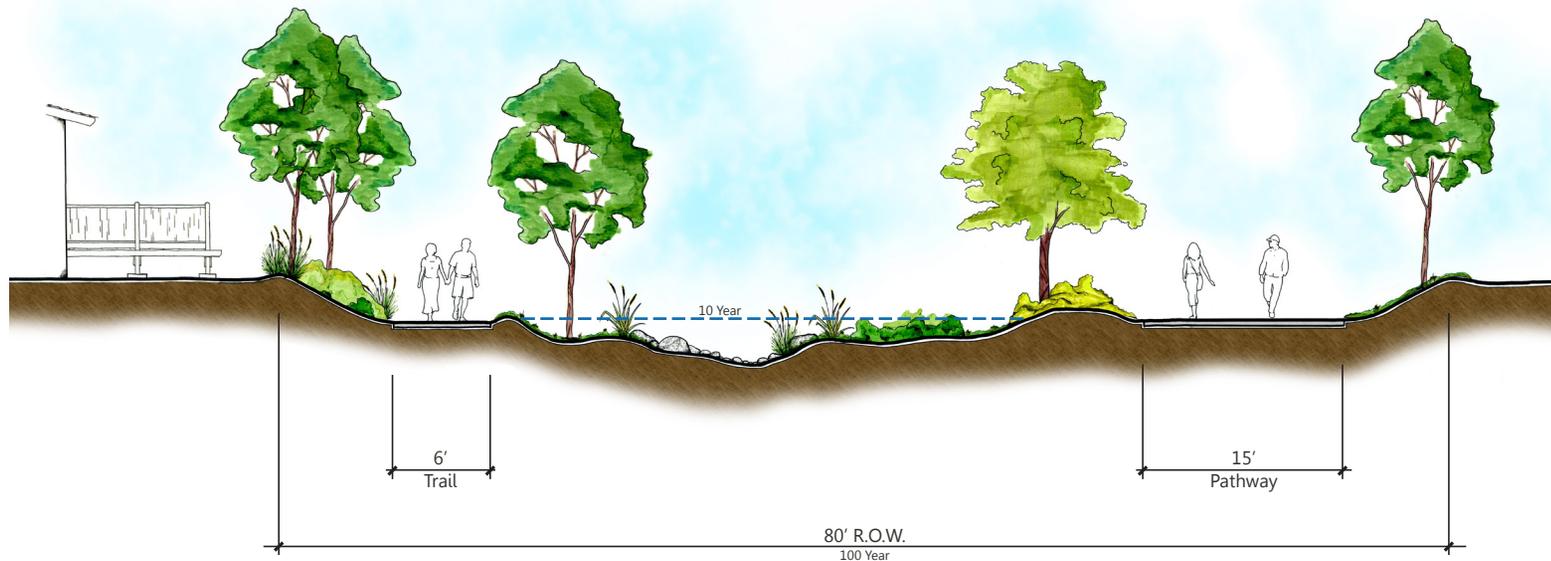
The seasonally dry stream alternative rehabilitates the creek bed as a rock-bottom channel. As shown below, this alternative is relatively simple in concept and will resemble a naturally vegetated dry stream with seasonal water flow. The existing creek bed will be raised sufficiently to allow a shallow water flow of less than 2 feet to maintain safety and accommodate 10-year storm water levels. A 15-foot-wide pathway is proposed on one side of the stream for pedestrians and bicyclists, as well as for maintenance and emergency

access for vehicles. A minimum 6-foot-wide trail is proposed on the other side of the creek for pedestrians only. In addition to providing access to and along the creek, both the pathway and trail are designed for peak flow conveyance in the case of 100-year storm water levels. Side slopes will be landscaped and are proposed to have a minimum 3:1 grade to prevent erosion of the banks. The approximate right-of-way required to accommodate these features is 80 feet.



Example of seasonally dry stream
Photo courtesy of PACE Engineering

Figure 2. Alternative 1: Seasonally Dry Stream



Alternative 2: Recirculated Stream

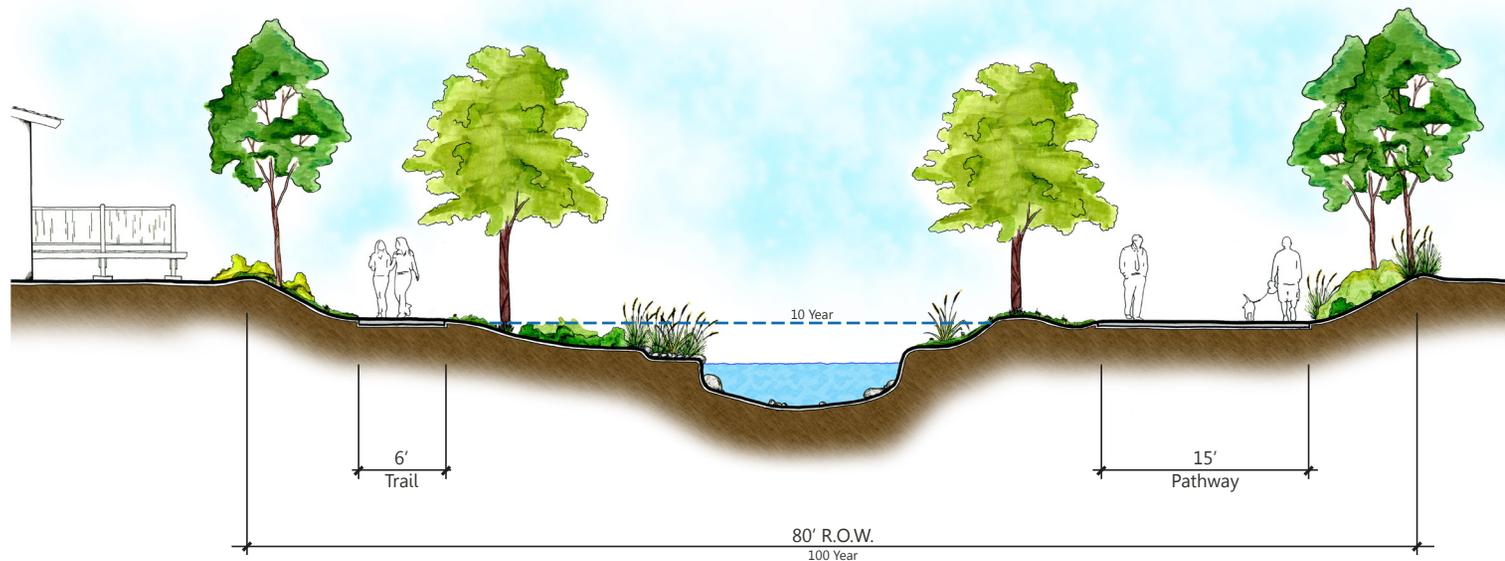
The recirculated stream alternative, as shown below, would provide a natural flowing stream throughout the year through the use of drop structures and pumps. This alternative has a minimum 10-foot-wide stream with side slopes to protect the creek bank from erosion. A series of small waterfalls may be used to slow water flow speed and provide visual interest. Similar to Alternative 1, a 15-foot-wide pathway is proposed on one side of the stream and a minimum 6-foot trail on the other. Both the pathway and trail are

designed for peak flow conveyance in the case of 100-year storm water levels, thus reducing the overall required right-of-way for the creek and trails to 80 feet. The City may choose to locate one or both trails outside of the 100-year flood plain, which would increase the ultimate right-of-way. Small storms are held within the banks of the recirculating stream, thereby reducing the frequency of maintenance of the trails and landscaping outside of this area.



Example of recirculated stream
Photo courtesy of PACE Engineering

Figure 3. Alternative 2: Recirculated Stream



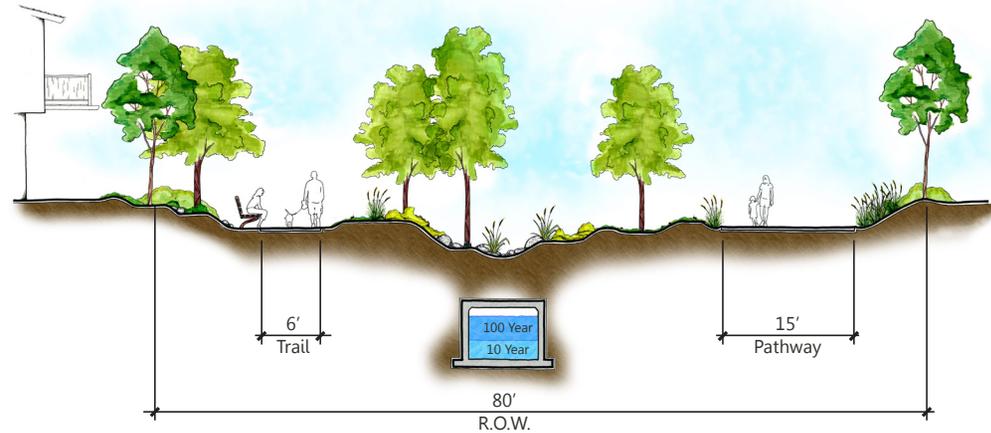
Alternative 3: Culvert Channel

Alternative 3 proposes a culvert underground and either a seasonally dry stream (Option A) or a recirculated water feature (Option B) on the surface, as shown in Figure 4. The culvert is proposed as an 8-foot-wide by 6-foot-high concrete box to convey the majority of large flood flows. This would reduce above-ground water flow, which would lead to a reduction or possible elimination of flooding of landscaped areas and paths. However, this alternative would incur additional costs associated with construction and maintenance of the culvert. Details on construction and maintenance costs are provided in Appendix A.

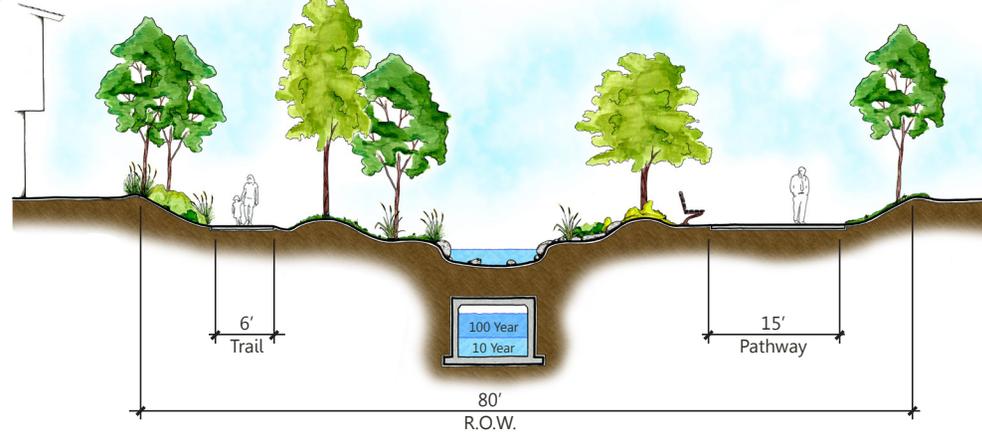
The configuration of the creek design would be similar to the other two alternatives with a 15-foot-wide pathway on one side and a minimum 6-foot-wide trail on the other. The actual location and alignment of the pathway and trail may differ from the conceptual illustrations in Figures 2 to 4 as deemed necessary and appropriate by the City. Though the integration of an underground culvert allows greater flexibility in the horizontal design of the creek, an approximate 80-foot right-of-way is recommended to preserve a natural environment and setting for comfort and enjoyment.

Figure 4. Alternative 3: Culvert Channel Options

» Option A: Seasonally Dry Stream



» Option B: Recirculated Stream



Preferred Creek Drainage System

To reach a decision on the preferred creek drainage system, the Calimesa Creek Ad Hoc Committee examined the following factors to evaluate the pros and cons of each alternative.

- » **Public Workshop Feedback.** Comments received at the public workshop, as summarized in Chapter 2 of this Master Report, were given high priority throughout the selection process.
- » **Public Acceptance.** The public's general perception, positive or negative, was considered for each alternative. Different factors such as the anticipation of construction conditions, preservation of view sheds, and creation of a unique community identity generally influenced the level of public acceptability.
- » **Adjacent Property Impacts.** Possible impacts of each alternative to property values and economic development were considered. Neighborhood property will benefit from the flood control improvements under all three alternatives. In addition, property owners are expected to benefit from enhanced views, proximity and accessibility to public amenities, and expanded development capacity.
- » **Financial Implications.** Future funding strategies and costs associated with

construction, operations, and maintenance were discussed in detail for each of the alternatives.

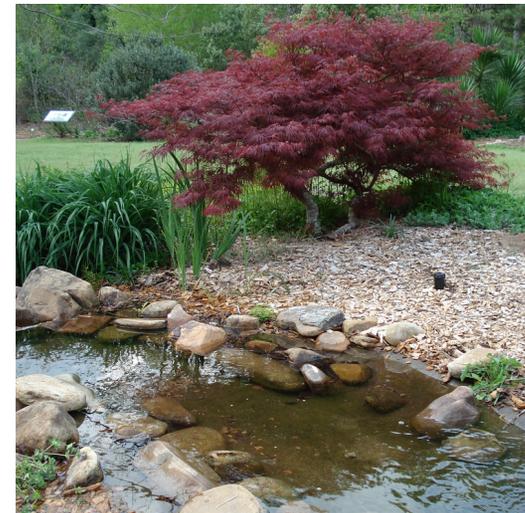
- » **Drainage Efficiency.** Each alternative was reviewed in terms of the ease and flexibility with which it could handle extreme water levels, especially when considering sediment balance and bank erosion prevention.

The greatest and most immediate concern was efficiency of the drainage system and its financial implications. With the possible threat of eroding

creek banks leading to safety hazards and other maintenance issues, the committee determined that the need for a culvert outweighed its financial costs, thus selecting Alternative 3 as the preferred creek drainage system. The committee continued discussions on the option of a dry stream or a recirculated stream above the culvert and ultimately decided that they wanted the option of transitioning from a dry stream to a recirculated stream if funding was available in the future.



Example of seasonally dry stream



Example of recirculated stream

Recommended Landscape Palette

The recommended landscape palette consists of a variety of native species that can be used to create an attractive and rich riparian corridor suitable as a public amenity. The native noninvasive palette is in concordance with the County of Riverside Friendly Plant List. This palette is intended to complement and supplement the existing plant species in the Calimesa Creek area and may be planted in both the 10-year and 100-year flood plain areas. It is beneficial to plant native species as it prevents proliferation of invasive non-native species and does not require frequent irrigation beyond the establishment period. It also decreases maintenance operations and costs and improves fuel modification.

The tree palette includes a variety of specimens with seasonal colors. These trees help create a comfortable and inviting environment year-round while providing efficient erosion control. Recommended vegetation along the creek bed includes native noninvasive grasses rather than fescue type grasses. Planting along the dry creek bed should especially incorporate low-stature native plants that are visually interesting and lush. If properly designed and regularly maintained, this landscaping can last indefinitely.



California sycamore (*Platanus racemosa*)
A majestic deciduous tree that typically has twisting branches and trunks, giving it a sculpted appearance.



Engelmann oak (*Quercus engelmannii*)
A medium-sized evergreen with a wide canopy that can provide shade year round.

TREES



Strawberry tree (*Arbutus unedo*)
A medium-sized tree with lantern-shaped flower clusters and edible fruit, known for its twisting trunk and branches.



Western redbud (*Cercis occidentalis*)
A small accent tree with showy clusters of bright, colorful flowers during spring.



Coyote Brush (*Baccharis pilularis*)
An evergreen common in the area, with dense attractive shrubs that attract butterflies and hummingbirds.



Fuchsia Flowered Gooseberry (*Ribes speciosum*)
A common shrub found within washes in hills, it blooms attractive red flowers that attract hummingbirds.



Black Sage (*Salvia mellifera*)
An easy-to-grow shrub with attractive flowers that attract hummingbirds.

SHRUBS



California Buckwheat (*Eriogonum fasciculatum*)
A low-flowering shrub that tolerates many conditions, it blooms almost year round with flowers that attract butterflies.



Chuparosa (*Justicia californica*)
A low-growing shrub with green stems and red flowers that bloom all winter.



Cleveland Sage (*Salvia clevelandii*)
An attractive shrub with great aroma, its silvery leaves and blue flowers attract hummingbirds when in bloom.

Creek Design and Development

Creek Design Scenarios

The Calimesa Downtown Business District Code provides a Creek Overlay Zone over the project area to facilitate enhancement of the creek and spur economic development. Based on review of available records, there appears to be no easement or other legal provision for ownership or maintenance of Calimesa Creek by either the City of Calimesa or the Riverside County Flood Control and Water Conservation District. Therefore, it is assumed that the creek channel is in private ownership. To improve creek conditions, the City will need to obtain a public easement over the creek right-of-way to help maintain any proposed improvements in the future.

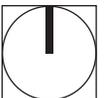
As identified in the hydraulics analysis, the recommended width of the creek easement is approximately 80 feet. Two scenarios are presented for the alignment of the easement. Scenario 1 proposes a typical offset of 40 feet to either side of the creek center line, as shown on Figure 5. This would create an 80-foot easement that roughly follows the existing creek course. Advantages of this scenario is that it would preserve the existing creek flowline. However, due to existing creek

conditions, this design would not include some of the existing bank slopes that have eroded over time and need to be stabilized. This scenario would also affect the development potential of some properties because it encroaches into some parcels outside the existing creek area.

To ensure that all existing bank slopes are included within the easement and that developable land on either side of the creek is maximized, Scenario 2 realigns the creek assuming a minimum width of 80 feet from the edge of currently developed properties along County Line Road, as shown on Figure 6. This Master Plan recommends Scenario 2, where the 80-foot easement is refined to preserve developable commercial property and include all portions of the creek bed in need of stabilization. Some areas of improvements, however, would impact portions of residential properties to a greater extent than current conditions. This alternative provides greater flexibility in creek design while lessening maintenance and hazardous conditions for private business and residence owners along the creek edge.

In either alignment of the creek, the actual design of the creek bed will be finalized upon development approval by the Planning Department. It is recommended that the creek design include undulation with a combination of narrow and wide creek beds. If the creek is designed to incorporate a recirculating water system, the use of a series of small waterfalls is recommended to naturally clean water, improve aesthetics, and easily compensate for the required slope of the creek for water velocity. Feedback from the public workshop and Ad Hoc Creek Committee meetings showed a favorable interest in the realignment of the creek as proposed in Scenario 2. A pedestrian bridge is proposed in both scenarios per comments from the public workshop. The final location of the bridge may be determined at a later phase.





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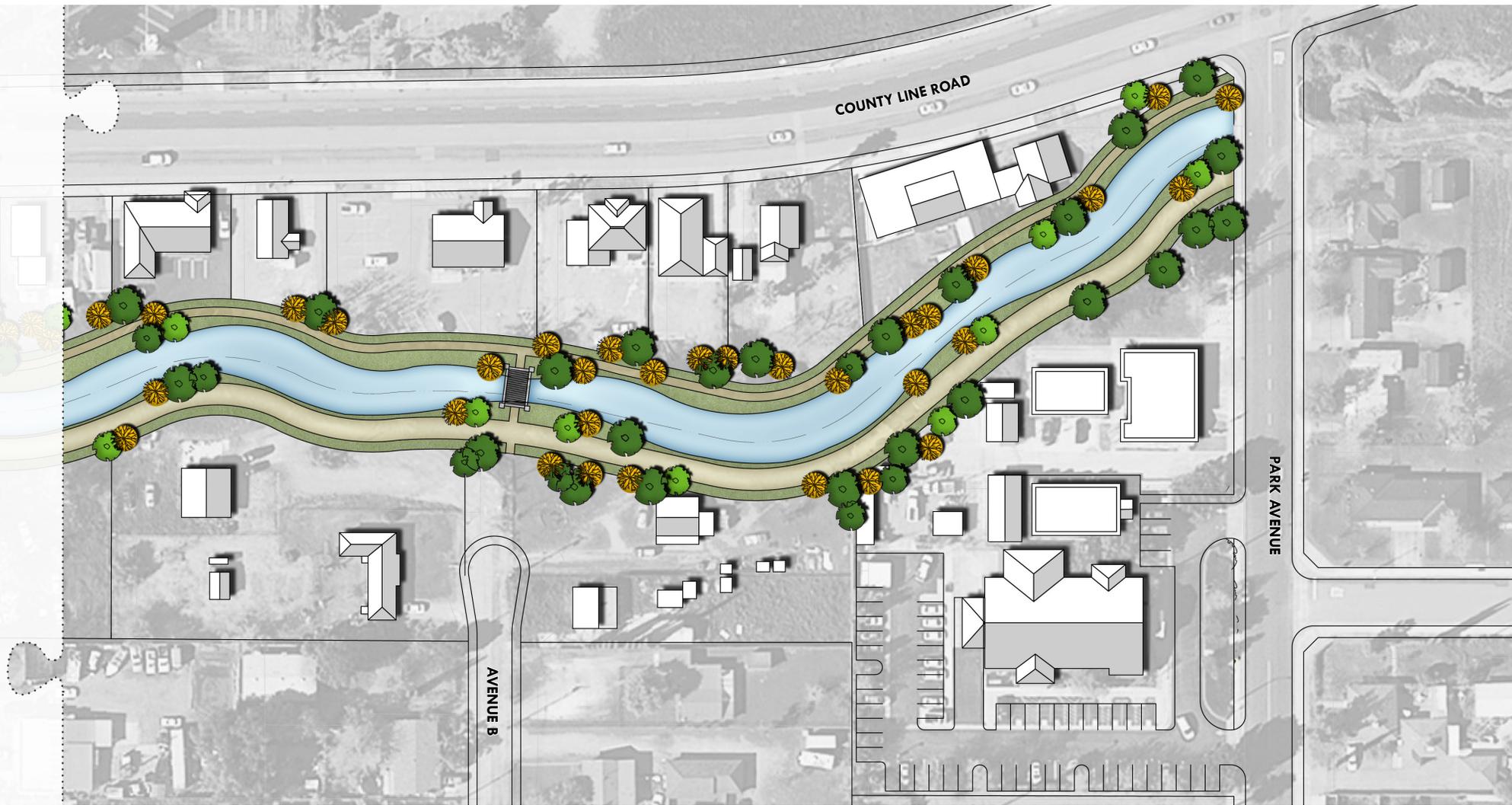
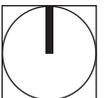
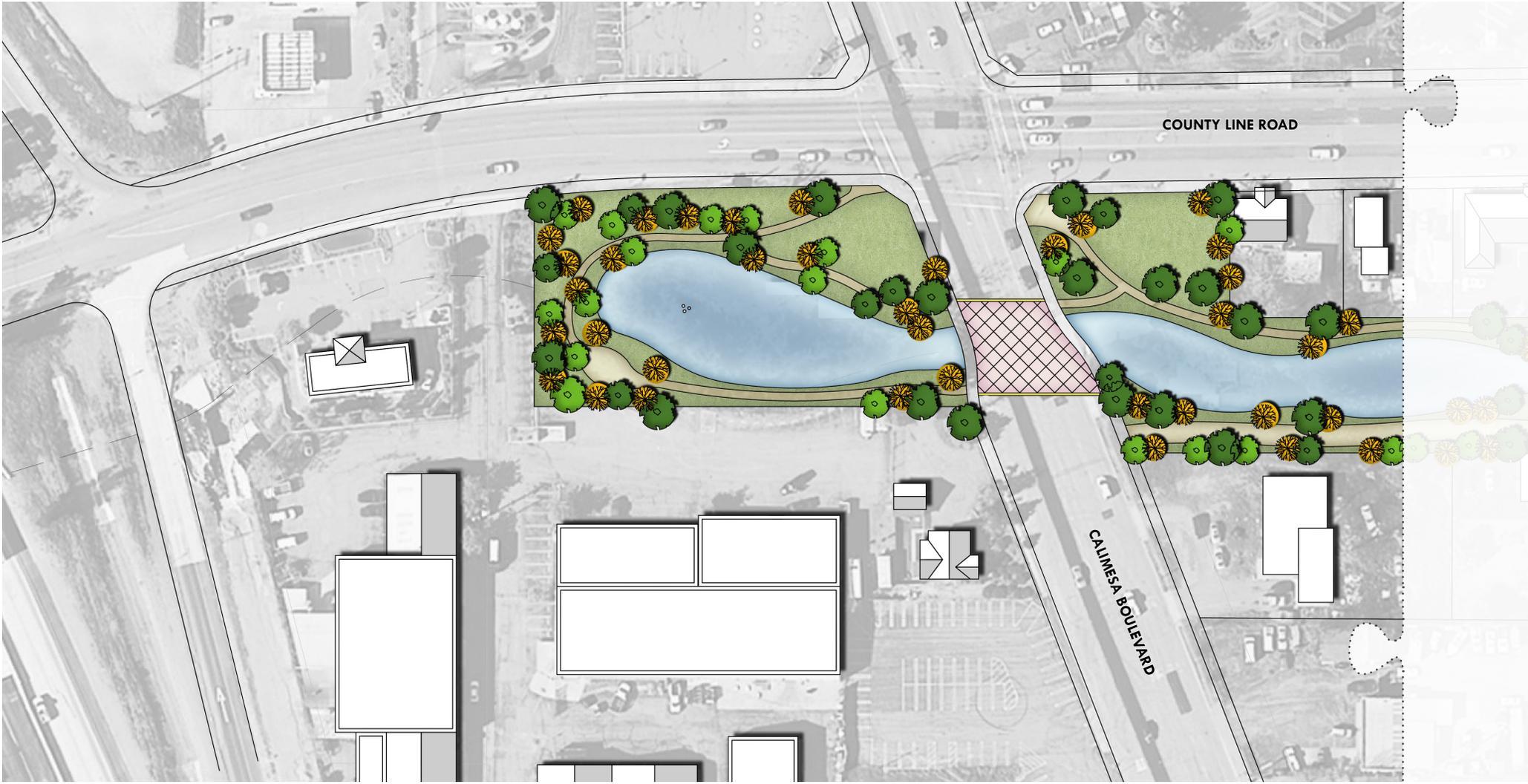


Figure 5. Creek Design Scenario 1



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Figure 6. Creek Design Scenario 2

Development Strategy

Future development within the Creek Overlay Zone will be in accordance with the City of Calimesa General Plan, the Downtown Business District Code, and other regulatory documents. It is the intent of the DBD Code and this Master Plan to maximize development potential along the creek to take advantage of proposed creek improvements. Therefore, as summarized below, future parking strategies and right-of-way improvements along key roadways were evaluated as part of this Master Plan.

OFF-STREET PARKING

The DBD Code and Calimesa Municipal Code currently identify requirements for off-street parking within the Downtown Village Commercial (DVC) Zone, which includes the Calimesa Creek Overlay Zone. The DVC Zone is intended to create a pedestrian-oriented living and working experience through the development of more traditional downtown mixtures of land uses, such as entertainment, retail, office, and cultural uses. Both ordinances provide parking requirements for individual land uses and for shared parking among multiple adjacent land uses. Currently, businesses fronting County Line Road provide individual parking accommodations for their

guests with no shared parking plan. To increase development potential within the Calimesa Creek Overlay Zone, the Calimesa Creek Master Plan strongly encourages shared parking and proposes a conceptual strategic plan for shared parking. This conceptual plan, shown in Figure 8., *Strategic Development Plan*, aims to provide sufficient parking for employment and commercial businesses while reducing the amount of extraneous parking. Consolidating parking will in turn provide additional land for new development. Actual development and parking configurations shall require approval from the City.

In general, shared parking may be approved for adjacent properties with compatible land uses that can accommodate a common parking area. Shared parking may be credited if peak parking demand of adjacent land uses occur at nonconflicting hours. Examples of combining noncompeting land uses are offices and retail stores, which have a daytime peak parking demand, with residences and theaters, which have a nighttime peak parking demand. By positioning complementary land uses to share a parking facility, peak parking demand of both

uses can be accommodated. The City may require a Shared Parking Analysis of the applicant to demonstrate that there is no substantial conflict in the principal operating hours of adjacent land uses. This will usually involve conducting parking counts at peak hours of the common parking area to verify that it can accommodate peak parking demand throughout the entire day.

To facilitate shared parking, all parties involved in the shared use of off-street parking facilities will need to execute an agreement with the City. The agreement will ensure that continued availability of shared parking spaces for the life of the proposed development or use is reserved. Shared parking facilities will abide by DBD Code and Calimesa Municipal Code regulations related to the design, maintenance, and operation of shared parking facilities.

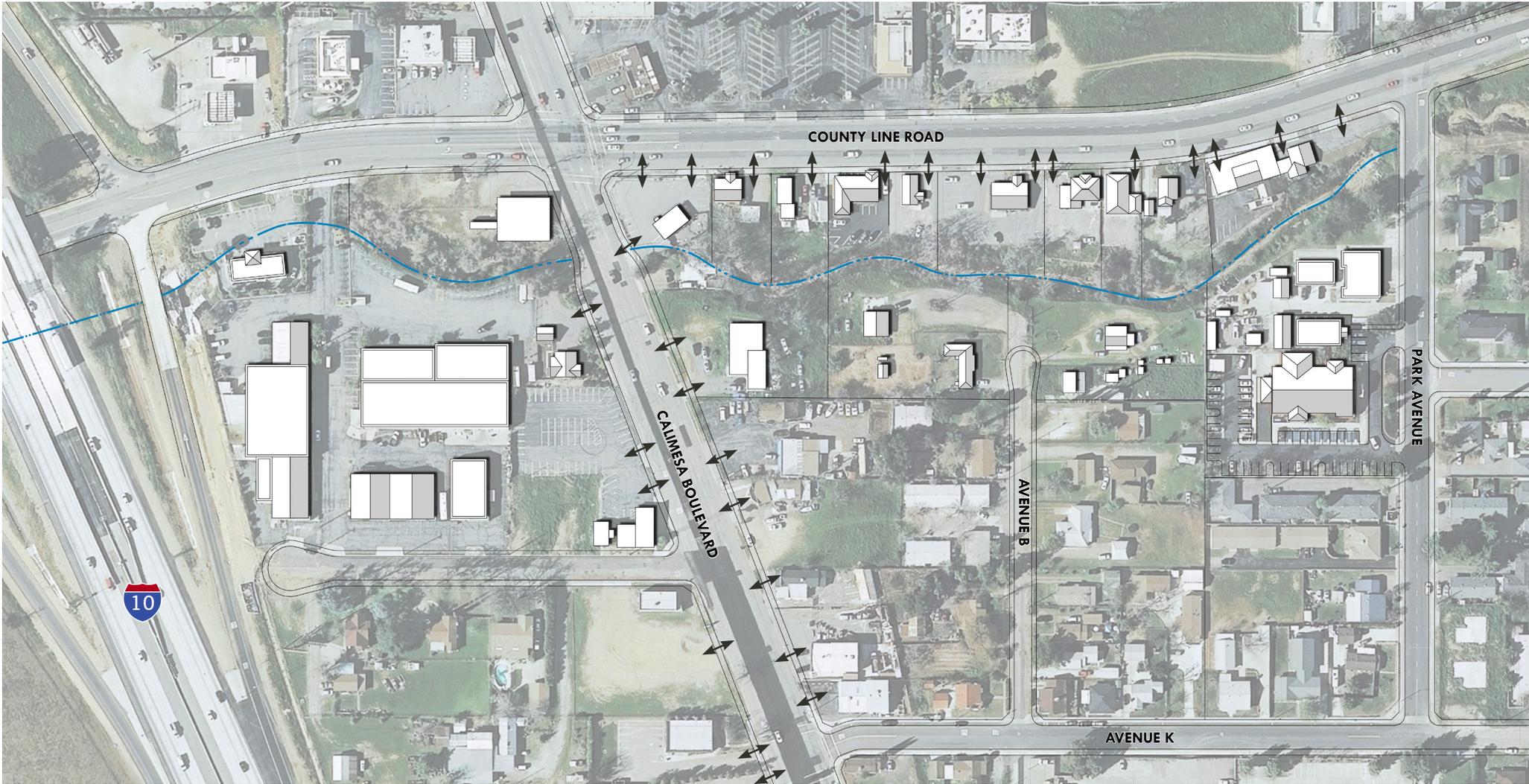
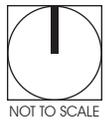


Figure 7. Existing Conditions

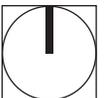


NOT TO SCALE



COUNTY LINE ROAD

CALIMESA BOULEVARD



0' 100'

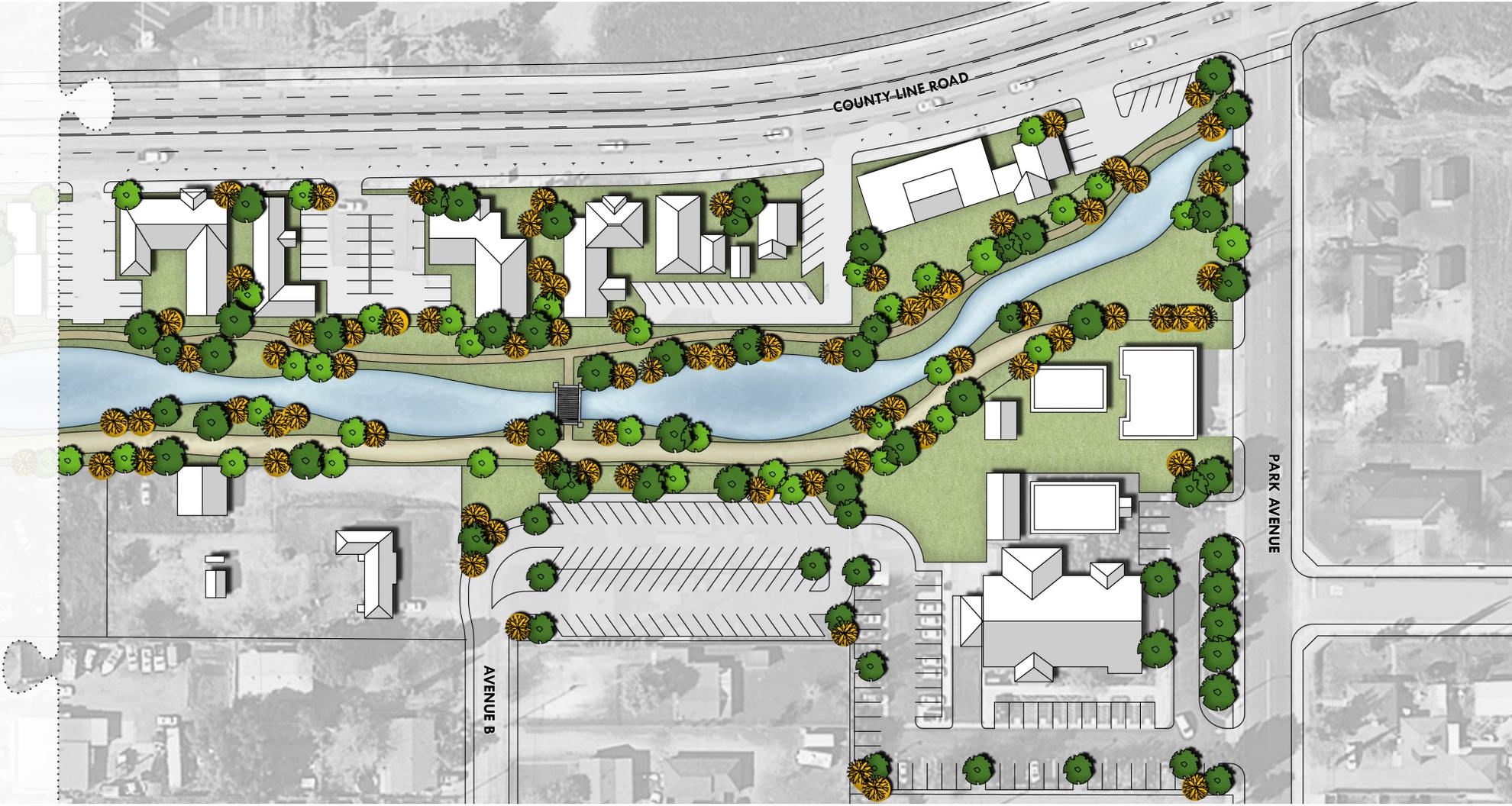


Figure 8. Strategic Development Plan

The following guidelines have been proposed, in addition to the current ordinance, to effectively implement shared parking facilities.

- » Shared parking facilities should provide direct, safe, and unobstructed access within 600 feet of any structure or use.
- » Adequate and legible signage should be provided to patrons and tenants indicating the availability of the facility.
- » Alternating single-stall parking spaces with tandem parking facilities for guests is discouraged.

To assist the City in drafting shared parking agreements, potential shared parking agreements are provided in Appendix B.

In addition to consolidating parking areas of individual land uses, the implementation of shared parking also decreases the number of driveways needed to supply a commercial center. Portions of the curb not used for access driveways can then be dedicated to provide additional on-street parking.

ON-STREET PARKING

On-street parking not only provides additional parking spaces for businesses but also creates a

buffer between vehicular and pedestrian traffic and, therefore, is often used as a traffic-calming technique. On-street parking on County Line Road and Calimesa Boulevard would enhance the walkability of the DVC Zone and better support the vision of the DBD Code and the Calimesa Creek Master Plan.

As shown in Figure 7., *Existing Conditions*, there are currently multiple access driveways on County Line Road within the Creek Overlay Zone based on the existing development pattern. Many of these existing driveways provide access to a single business. The number of driveways, on approximately 850 feet of curb, dramatically reduces the on-street parking capacity on County Line Road. Under existing conditions, County Line Road may potentially accommodate only 18 parallel-parking spaces. The consolidation of driveways will provide additional curb segments, increasing the on-street parking capacity along County Line Road. It is anticipated that approximately 35 parallel parking spaces could be provided from this driveway consolidation. Consolidated access to parking lots also allows for better traffic circulation because it reduces the number of potential points of conflict with traffic in the traveling lanes on County Line Road. With approval from the Community Development

Director and City Engineer, on-street parking spaces could potentially be dedicated for commercial use, thereby reducing the number of required off-street parking spaces in adjacent properties.

Calimesa Boulevard currently provides parallel off-street parking between County Line Road and Avenue K. To take advantage of the existing roadway design of Calimesa Boulevard, angled parking spaces are proposed to be striped along the corridor to increase the supply of on-street parking and slow down traffic – a method strategically applied to traditional retail neighborhoods to help drivers become more aware of stores and services. Conceptual on-street parking plans for County Line Road and Calimesa Boulevard are provided on Figures 9 and 10.



Intersection of Calimesa Boulevard and County Line Road

Streets and Public Frontages

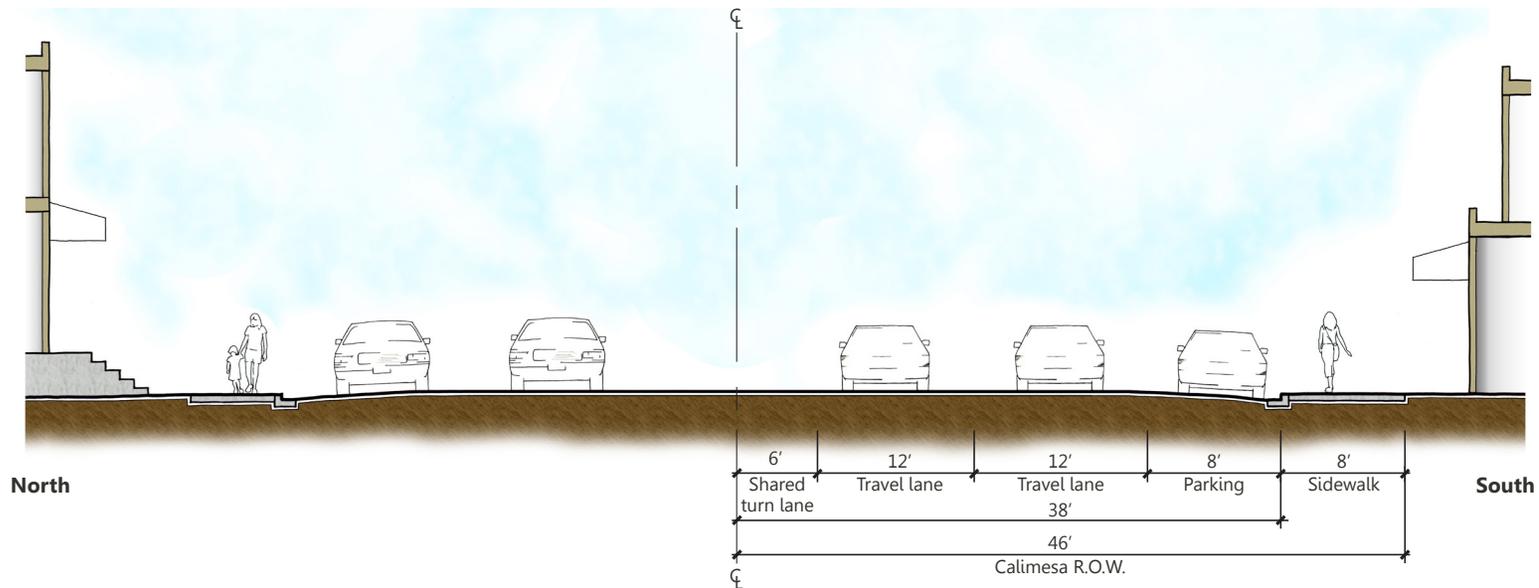
COUNTY LINE ROAD

Between Calimesa Boulevard and Park Avenue, County Line Road currently has one traveling lane in the eastbound direction and two traveling lanes in the westbound direction, separated by an open median. The City of Calimesa retains the portion of County Line Road south of its right-of-way centerline. Therefore, the Master Plan proposes to provide an additional travel lane and striped, on-street parallel parking in the eastbound direction.

The increased capacity will improve circulation along the corridor and create consistency between both directions of travel. The median will still provide ingress/egress access to businesses fronting County Line Road. Curb cut-outs at the intersection of County Line Road and Calimesa will also create shorter crosswalk distances for pedestrians.



Figure 9. County Line Road Cross-Section



CALIMESA BOULEVARD

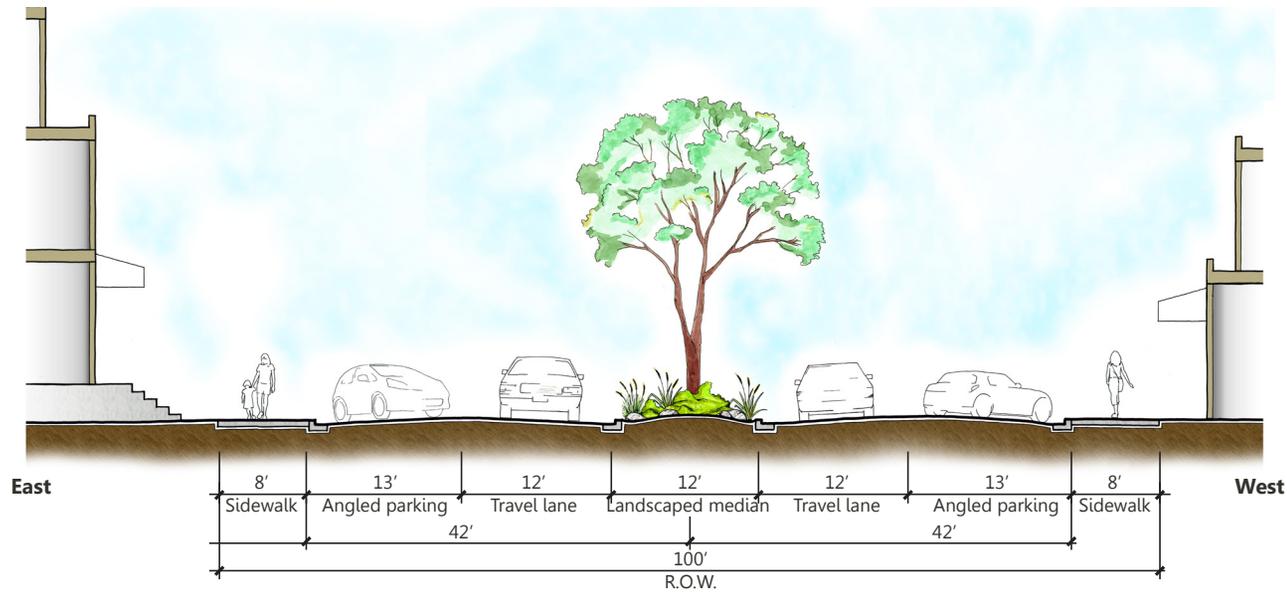
Calimesa Boulevard between County Line Road and Avenue K currently has two travel lanes in both directions, separated by an open median. The Master Plan proposes to provide two lanes of travel with striped, on-street angled parking in both directions of travel, separated by a landscaped median. The proposed configuration works to simultaneously decrease travel speeds and increase pedestrian safety, which will help

create an environment that will attract more businesses and tourism.

In addition, this Master Plan proposes a bridge treatment where Calimesa Boulevard intersects with Calimesa Creek and the installation of an entry monument. This will heighten the identity of the City of Calimesa and create a more inviting entrance to the Downtown Business District.



Figure 10. Calimesa Boulevard Cross-Section



Gateway Concepts

The purpose of the gateway monumentation is to reinforce the identity of the Downtown Business District and the City of Calimesa while introducing Calimesa Creek as a welcoming amenity to the public. The gateway concepts provided in this Master Plan present a range of designs fitting of an identifiable and lasting landmark.

The first gateway concept, shown in Figure 11, captures the form and spirit of the San Bernardino mountains in the background through the use of horizontal planes at varied levels. Vertical planes made of rough stone are placed at varying depths to create changing shadow patterns throughout the day. As an addition, a water feature may be integrated into the design. Trickling water along the rough stone surface and a shallow reflection pond generally provide visual interest and intrigue to on-lookers. The “Rise and Shine” branding of the Downtown Business District is captured in the script-font, brushed-bronze Calimesa sign. The prominence of this monument is enhanced after dusk with up-lit ambience lighting at the front of the structure.

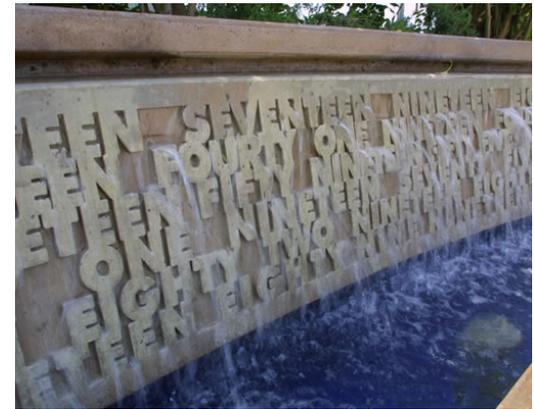
Figure 11. Gateway Concept 1



The second gateway concept is similar to the first but provides a simpler and more elegant design, more identifiable for passing vehicular traffic. As illustrated in Figure 12, this design features the “Rise and Shine” branding of the Downtown Business District more prominently against a backdrop of stacked stone and flowing water. The brushed bronze lettering would be off-set from the surface of the monument to allow for backlighting. In addition, lights may be installed in the shallow pool to enliven the monument while simultaneously creating a serene ambience for pedestrians.

The area around the monuments should be landscaped so as not to obstruct the view of the structure but enhance its visibility and aesthetic appeal. Materials used in the gateway monumentation should preferably be native and natural to the landscape it is integrated in. Water features should also be designed to utilize the improved channel system of the future Calimesa Creek, if possible.

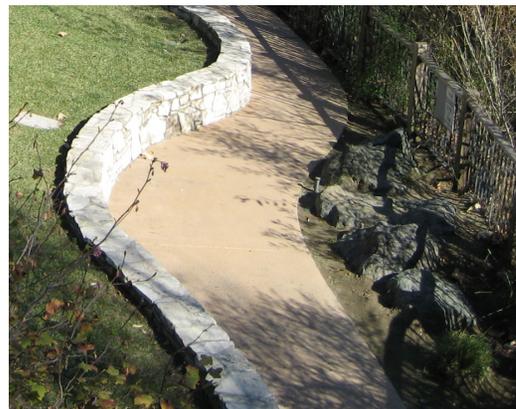
Figure 12. Gateway Concept 2



Illustrated in Figure 13, the third gateway concept is designed as an artistic sculptural representation of the local land form. The centerpiece represents the branding of "Rise and Shine" with the brushed metal lettering of the words "Calimesa" rising over the mountains and shining in comparison to the natural surface of the sculpture. The two "C's" serve as identifiers for both Calimesa Creek and the City of Calimesa in addition to the "Rise and Shine" symbol in the center of the monument. The curvilinear structure represents the physical form of Calimesa Creek as it intersects and passes through the City of Calimesa. Landscape mounds create a backdrop for the monument, silhouetting the San Bernardino mountains.

This design provides an experiential landscape for pedestrians while also functioning as an identifiable entry landform into the Downtown Business District for vehicles. Creative lighting techniques can be used to enhance the visualization of the sculpture at night.

Figure 13. Gateway Concept 3



Administration and Implementation

Future Considerations

The Calimesa Creek Master Plan provides a series of feasible alternative creek designs that will be the basis for additional study. The City has selected a preferred alternative, which will be the main focus of attention moving forward; however, it is important to note that there remain a number of key steps that will impact the final design of

the creek drainage system. For that reason, preliminary costs estimates for each of the alternatives have been prepared and incorporated in Appendix A. These cost estimates include the cost of construction, engineering and design, and construction administration. In addition, the tasks associated with preventative maintenance

and routine inspections have been identified for each alternative, along with annual operation and maintenance costs. These costs will continue to be refined through the detailed design process.

Figure 14. Planning Process



Recommended Next Steps for the City of Calimesa

1. TITLE SEARCH

The City needs to undertake a title search to confirm ownership of the creek and potential easements over the corridor. An initial review of property records indicates that the creek is in private ownership and there is no recording of an easement by the Riverside County Flood Control District. If that is the case, the City will need to develop easement agreements and contact landowners to secure easements for project construction, ongoing maintenance, and public access.

2. COORDINATION WITH COUNTY FLOOD CONTROL

With the completion of this Master Plan, it is time to begin coordinating with the County Flood Control District. The County maintains underground segments of Calimesa Creek upstream, but has left the regular maintenance of the open channel to the City. Coordination with the County is required to discuss ongoing maintenance of the channel and County requirements for the design.

3. DELINEATION OF JURISDICTIONAL WATERS AND HABITATS

The City needs to undertake a delineation of waters and habitats that may be subject to state or federal jurisdiction. This includes areas within the

creek that may be deemed "Waters of the United States" and therefore subject to the jurisdiction of the U.S. Army Corps of Engineers, or areas that may be deemed "Waters of the State" and therefore subject to the jurisdiction of the California Department of Fish and Game. This Master Plan contains the full-spectrum hydraulic analysis that will be needed to perform the delineation. In addition, a biological assessment of the creek also needs to be undertaken to determine the presence or absence of any threatened or endangered species. Preliminary discussions with the permitting agencies should then be undertaken to discuss mitigation requirements and ratio of impacted area to mitigation area. The mitigation requirements will vary based on alternative creek designs. Generally, the culvert channel option will require more mitigation than the dry stream option.

4. CREEK CORRIDOR PRELIMINARY DESIGN REPORT

The next stage of design is the preliminary design of the creek corridor hydraulic elements and overall grading and channel design. The Preliminary Design Report would result in approximately 60 percent complete detail Preliminary Design Plans. Following this task, final design calculations and construction documents can be prepared.

The Preliminary Design Report would include the following:

- » Evaluation of environmental impacts and mitigation requirements for conceptual designs
- » Opportunities for onsite mitigation of impacts
- » Reevaluation of costs for concept designs in light of environmental impact and mitigation requirements
- » Discussions with City to select a final Concept Design
- » Hydraulic modeling to evaluate conveyance capacity and erosion protection requirements
- » Selection of materials and design features:
 - Channel cross section
 - Grade control or drop structures
 - Transitions between open channel and culverts
 - Culverts and pipes to convey flow under roads
 - Buried pipes or conveyances as dictated by selected concept
 - Bank and bed materials
 - Typical construction details

5. WATER FEATURE/MAN-MADE STREAM PRELIMINARY DESIGN

The conceptual design preferred by the City includes a recirculating water feature in the bottom of the creek channel. This step is to undertake preliminary design for this feature and would result in 60 percent completion of construction plans. Water feature plans shall be separate from channel construction plans to facilitate construction of the water feature as a second phase of project construction. This task shall include:

- » Location and extent of water feature(s)
- » Sketches or illustrations of character and typical appearance of water feature(s)
- » Locations of pools, waterfalls, riffles, and other important aspects of water feature
- » Location, size, and design requirements for pumps and other equipment
- » Power supply locations and requirements
- » Water quality features
- » Pump sizing and flow requirements
- » Shoreline types and appearance
- » Typical details for shorelines, waterfalls, and other critical features

6. PRELIMINARY LANDSCAPE DESIGN

In conjunction with the Preliminary Design Report, a preliminary landscape design should also be undertaken for the creek corridor and public amenities. Community involvement is encouraged during this process to promote stewardship and utilize local knowledge and preference. The City of Calimesa has an established Garden Club and Community Garden Group which may lend expertise in local horticulture while also including the community at large in the landscaping of the creek area. Following completion of the Preliminary Design Report, final design and construction documents can be prepared. The Preliminary Landscape Design shall be coordinated with channel construction plans and shall include:

- » Paths and pedestrian access areas
- » Benches, lighting, and other hardscape elements
- » Plant palette and preliminary planting plans
- » Sketches or illustrations of the character and appearance of the design

7. FUNDING OPTIONS

The improvements to Calimesa Creek will improve public safety, remove flooding hazards to properties, improve water quality and native habitat, and add a significant public amenity to the downtown area. Property values are expected to increase for properties that are adjacent to and near the improved Calimesa Creek. To fund the next steps described above, there are several local funding tools that should be considered, as well as grant opportunities at both the state and federal level.

Some local funding tools are based on the idea of “value capture,” where the public agency captures some portion of the increased property values resulting from the provision of new infrastructure. With the demise of redevelopment, funding has become limited without the use of tax increment financing (TIF) to fund new projects in California. An alternative would be an infrastructure finance district (IFD), which diverts new local property tax revenues (the increment) to either pay for the construction of the infrastructure (the creek improvements) or issues bonds to finance the improvements. At this time, IFDs cannot be used in areas that were formerly redevelopment areas, although there is pending legislation to eliminate this requirement. Currently, the formation of an

IFD would require two-thirds vote of the registered voters in the district as well as the affected taxing entities. However, this requirement is also being reexamined at the state level.

Assessment districts are another option to consider. A landscape and lighting maintenance district (LLMD) can be formed to fund the construction of certain public improvements and the operation and maintenance of public improvements. Formation of the district requires a majority vote of the property owners within the district. The improvement planned for Calimesa Creek may qualify for a geologic hazard abatement districts (GHAD). This is a special type of assessment district that was created to finance the prevention, mitigation, abatement, or control of a geologic hazard. A geologic hazard is defined as an actual or threatened landslide, land subsidence, soil erosion, or any other natural or unnatural movement of land or earth. If approved by a majority of property owners, the district is formed and assessments will be levied to share the costs of hazard management across all affected properties. This type of district is also eligible for other federal or public funds.

In addition to funding mechanisms such as assessment districts, Calimesa should take

advantage of a range of grant funding options that could help bridge the funding gap for Calimesa Creek. A sample of current funding sources is described below. These will change over the years in response to shifting priorities from the granting agencies.

California Commerce and Trade Agency

The Rural Economic Development Infrastructure Program (REDIP) can provide financing for the construction, improvement, or expansion of public infrastructure with the intent of creating jobs in communities with an unemployment rate either equal to or above the state's average unemployment rate. The funds can be used for publicly owned infrastructure required for the construction or operation of a private development. Eligible infrastructure projects include the construction, rehabilitation, alteration, expansion, or improvement of, including but not limited to, sewer and water facilities, storm drains; utility connections, roads, street, highways, and related improvements (e.g., curbs, gutters, sidewalks), and other public facilities or other infrastructure improvements necessary for industrial or commercial activity.

California Infrastructure and Economic Development Bank

The California Infrastructure and Economic Development Bank offers low-cost financing to local governments and agencies for a variety of infrastructure projects through the Infrastructure State Revolving Fund (ISRF). These projects could include streets, storm drains, water and sewer, and parks. Applications are continuously accepted throughout the year.

Proposition 84

In 2006, California voters approved Proposition 84. In addition to a variety of water resource, park, and conservation measures, Proposition 84 provides \$580 million for sustainable communities and climate change reduction projects in five categories: urban forestry, urban greening, park development and community revitalization, sustainable communities planning grants, and modeling incentives.

The urban greening grant is suited to the Calimesa Creek project. Proposals will be accepted in 2013 for the third round of anticipated funding. The urban greening program can fund urban greening plans and projects that reduce energy consumption, conserve water, improve air and

water quality, and provide other community benefits. In particular, urban greening grants could be used for projects to improve the public realm in areas planned for intensified development.

US Economic Development Administration

The Economic Development Administration (EDA) funds a variety of grant and loan programs. The primary program applicable to the Calimesa Creek project is the Public Works and Development Facilities Program. This program can fund water and sewer infrastructure projects. EDA provides grants to help distressed communities attract new industry, encourage business expansion, diversify local economies, and generate long-term, private-sector jobs. Thus, to be eligible, communities need to relate the proposed project to commercial and industrial development and employment generation, and they need to qualify based on distress measured by unemployment. Nevertheless, for qualifying communities, this program is perhaps the single largest source of funding for infrastructure improvements.

US Department of Agriculture

USDA's Rural Housing Service (RHS) can make and guarantee loans to develop essential community

facilities in rural areas and municipalities of up to 50,000 in population. Loan funds may be used to construct, enlarge, or improve community facilities for health care, public safety, and public services. This can include costs to acquire land needed for a facility, pay necessary professional fees, and purchase equipment required for its operation. Examples of essential community facilities include: health care; telecommunications; public safety; and public services.

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CALIMESA CREEK MASTER PLAN

Based on Downtown Business District Calimesa Creek Overlay Zone



APPENDICES

City of Calimesa
June 2012



APPENDIX A

Calimesa Channel Rehabilitation Conceptual Design Report

Calimesa Boulevard Downtown Business District and River Walk Implementation Plan - Calimesa, CA

Calimesa Channel Rehabilitation Conceptual Design Report

April 2012
October, 2011 (Revised)

Prepared For:



City of Calimesa
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- Appendix A – Existing Conditions
- Appendix B – Proposed Conditions

1 Introduction

1.1 Project Description

Calimesa Channel is a major watercourse in the City of Calimesa, Riverside County with a tributary watershed of approximately 890 acres at the project site. In Calimesa, the channel is located east of I-10 Freeway and south of Riverside County and San Bernardino County boundary line. Calimesa Creek is a tributary to San Timoteo Creek, which in turn is a tributary of the Santa Ana River, which empties into the Pacific Ocean in Orange County, CA.

Calimesa Creek flows through the proposed Downtown Business District (DBD) in Calimesa, where the current condition of the creek is an eroded, steep-sided channel in a degraded condition. Part of the redevelopment plan for the DBD is to improve Calimesa Creek and make it an amenity for the city and DBD. PACE developed a range of conceptual design alternatives for turning the Calimesa Creek channel into a gateway and corridor amenity. Based on the selected conceptual design, the preliminary profile and geometry of the stream corridor and hydraulic profile of the water surface elevations are evaluated for the 100-year storm.

The purpose of this report is: work with the City of Calimesa to define possible alternatives for the creek channel; complete and present engineering analyses necessary to demonstrate that each alternative is feasible; present evaluations and cost estimates to help the City select the preferred alternative.

This report includes the following:

- 1) Presents the hydrology of the channel system.
- 2) Describes the existing facilities.
- 3) Describes the hydraulics analysis of the existing conditions.
- 4) Identifies the level of protection and deficiency reaches.
- 5) Investigate alternatives to alleviate flooding.
- 6) Operations and Maintenance Cost estimates for the alternatives are presented in a separate Tech Memo.

This report presents conceptual designs and analyses intended to guide decision makers in selecting a preferred alternative for further design. This report does not present final designs or complete detail necessary to define the preferred alternative. Additional design and refinement of concepts will be necessary to create the optimal design for the creek channel. Recommended next steps are presented in Section 6 of this report.

This study is focused on the portions of Calimesa Creek within the City of Calimesa, but the concepts shown herein are applicable to a reach of creek in Yucaipa. The study reach of Calimesa Creek shown in the watershed map below includes a small reach that resides within the City of Yucaipa. The cross sections, flow rates, and alternatives presented here can be applied to the Calimesa Creek channel within both cities, and any necessary variations in design or construction can be determined as the design process moves forward from this conceptual design.

Based on our review of available records there appears to be no easement or other legal provision for ownership or maintenance of Calimesa Creek by either the City of Calimesa or the Riverside County Flood Control and Water Conservation District. The creek channel is in private ownership although the City of Calimesa has occasionally performed maintenance on vegetation, debris, and other hazards. A mechanism for access such as an easement will be necessary before construction of improvements can proceed.

In addition to access, financing for the channel operations and maintenance is required. Several options exist for public funding including Community Services Districts, Geologic Hazard Abatement District (GHAD) and Landscape Maintenance Districts. Each has advantages and disadvantages which should be evaluated.

2 Hydrology

Hydrology data was obtained from Riverside County Flood Control and Water Conservation District. 100 year frequency discharges are computed by the unit hydrograph method at three locations: County Line Road, Fourth Street and the freeway. Discharges at each of the major street crossings are prorated for design purposes. The computed peak discharges and their relation to the computed 10 year frequency peak discharge at the same point is presented in the table below.

Table 2-1 Design Discharge (Q) of Calimesa Creek

Location	Unit Hydrograph Computed 100-Year Q (cfs)	Modified Rational Computed 10-Year Q (cfs)	Ratio Q10/Q100
County Line Rd.	*730	435	60%
Downstream of 2 nd St.	**810	495	61%
Downstream of 3 rd St.	**890	551	62%
Downstream of 4 th St.	*930	588	63%
Downstream of 5 th St.	**985	610	62%
Downstream of Calimesa Blvd. to freeway	*1065	661	62%

* Computed by Synthetic Unit Hydrograph

** Prorated from 10 year values

The limits of flooding resulting from a 10-year flow can be used to estimate the extent of Waters of the United States and Waters of the State of California, which correspond to US Army Corps of Engineers and California Department of Fish and Game jurisdiction over the creek. These limits can be seen conceptually in the creek cross sections presented below (Figures 2 thru 5).

Figure 1 – Watershed Map



3 Drainage System

3.1 Existing System

The studied reach of Calimesa Channel is about 2,100 feet long. The reach begins from 5th street and ends at the I-10 Freeway. This reach is comprised of varied sections, including rectangular concrete box and earthen channel. Table 2 gives the channel lengths and dimensions of the studied reach. Figure B in Appendix A shows the photos of the existing condition facility.

Table 3-1 Existing System Inventory

Station	Location	Channel Description		
		Type	Height (ft)	Width (ft)
3400-4100	5 th Street to Park Avenue	Irregular Earthen Channel		
3300-3400	Under Park Avenue	CMP	4.5	
2300-3300	Park Avenue to Calimesa Blvd.	Irregular Earthen Channel		
2100-2300	Under Calimesa Blvd	RCB	6	6
1800-2100	Downstream of Calimesa Blvd	Irregular Earthen Channel		
1600-1800	Upstream of I-10 Freeway	RCP	6.5	

3.1.1 *Drainage Deficiencies*

Hydraulic analysis of existing conditions was modeled using the Hydraulic Engineering Center's River Analysis System (HEC-RAS).

The channel hydraulic model was created from the following data sources:

- 1) As-built drawings.
- 2) Topographic map.
- 3) Field investigation on July 13, 2011.
- 4) Design flows obtained for Q100.
- 5) Riverside County Flood Control and Water Conservation District (RCFCWCD) Design Manual

A channel roughness factor of 0.015 (Mannings N-Value) was selected for the concrete channel and box. The natural earthen channel was modeled with a roughness factor of 0.06. The output file for the HEC-RAS hydraulic model output for the existing conditions is presented in Appendix A.

The existing condition hydraulic model revealed that study reach of the channel does not have sufficient capacity to convey the 100-year storm peak flowrate.

In addition to the flow of water through the creek, the movement of sediment is a significant concern. The project reach shows evidence of severe erosion, and a major design goal will be to prevent future erosion and stabilize the creek bed. Significant erosion is evident within the project. This erosion can adversely impact the project reach if not accounted for in design.

The stability of a creek bed depends on a balance between the sediment conveyance capacity of the channel forming flows and the sediment supply. In a stable creek reach, the amount of sediment delivered to the upstream end of the reach, the amount conveyed through the reach, and the amount delivered downstream are all roughly balanced. Development and human impacts on creeks can alter this balance and result in either erosion or deposition or, typically, both at various locations in the creek channel. In addition to anthropogenic influences, the geology and climate of southern California both contribute to widespread instability of creeks. One of the ways this project could adversely impact the creek is by interrupting the movement of sediment through the reach and thus reduce the sediment

delivered downstream. An understanding of the sediment movement in the creek and the stability of the channels downstream of the project are necessary for final design of the project.

3.1.2 FEMA Floodplain

The Federal Emergency Management Agency (FEMA) flood hazard areas were obtained from the Flood Insurance Rate Map (FIRM) Panel 114 and 118 of 3805. They are combined and shown in Figure 5.

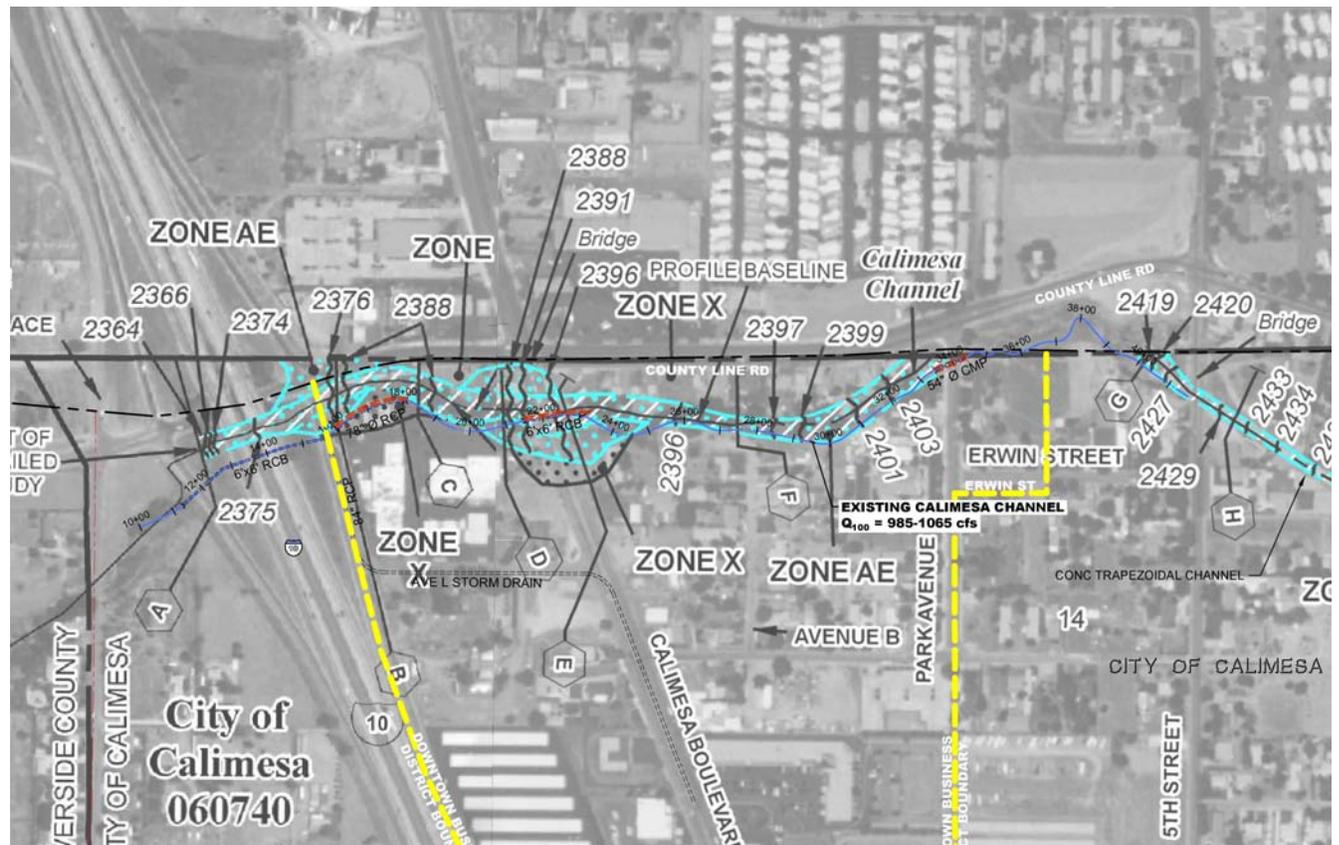


Figure 2 – FEMA Floodplain Map

The Flood hazard zones shown on the above FIRM indicate the predicted flood hazards for the area and trigger requirements for flood insurance. Properties within Zone AE are classified as high-risk of flooding areas subject to flooding during a 1% chance (100-year) flood. Homeowners in this zone are required to purchase flood insurance if a federally-backed mortgage is in effect for the property. Zone X (shaded) indicates areas between the limits of the 100-year and 500-year floods and considered low to moderate risk areas without mandatory flood insurance. Other areas shown on the panel above without a zone designation indicates areas outside of the flood limits of a 0.2% chance (500-year) flood hazard.

Alternative Drainage Systems

An analysis of several alternative channel re-configurations was conducted to identify the most cost effective and desirable channel system for the proposed site development. The goal of the alternative analysis was to determine channel configurations that will provide 100-year flood protection while meeting the freeboard requirements of RCFCWCD for the studied reach of Calimesa. Three different alternatives were analyzed, and are discussed below. The horizontal alignments are the same for the three alternatives. Only the cross sections are different. Alternative 1 and 2 are modeled using HEC-RAS. Alternative 3 is modeled using WSPG hydraulic analysis program. The results of the hydraulic analysis of each alternative are included in Technical Appendix B.

1) Alternative-1: Recirculated Stream

Alternative-1 is a landscaped earthen channel with a 10 foot wide re-circulating manmade stream at the bottom. The manmade stream flows at all times, and during storm runoff events the water level rises and is carried by the earthen channel surrounding the manmade stream. A pump will be used to keep water in the stream circulated. Outside the stream, a minimum 3:1 side slope is proposed to contain moderate storm events, while larger storm events may result in flow across the entire width of the channel including paths. A 15 foot wide trail is proposed on one side of the stream and a 6 foot path on the other. Approximate right-of-way requirement is approximately 80 feet. Cross section is designed to allow trails and side slopes to be used for peak flow conveyance, reducing the overall ROW width required for the creek and trails compared to separate, single-use facilities. As shown in Figure 3 the proposed water depth on the trails and adjacent areas is approximately 2 feet or less, maintaining safe conditions even during peak flows. In this design, frequent small storms, represented by the 2-year storm, are held within the banks of the recirculating stream, reducing the frequency of maintenance outside of this area to approximately once every two years. All facilities, materials, and plantings within the flood zone are designed to withstand flood flows, and typical maintenance following runoff events will include cleanup of debris and possible removal of sediment moved into the reach from upstream. This alternative provides an enhanced environment for walking, improved views, and soothing sounds of flowing water, but will add maintenance and construction cost compared to a seasonally dry stream.

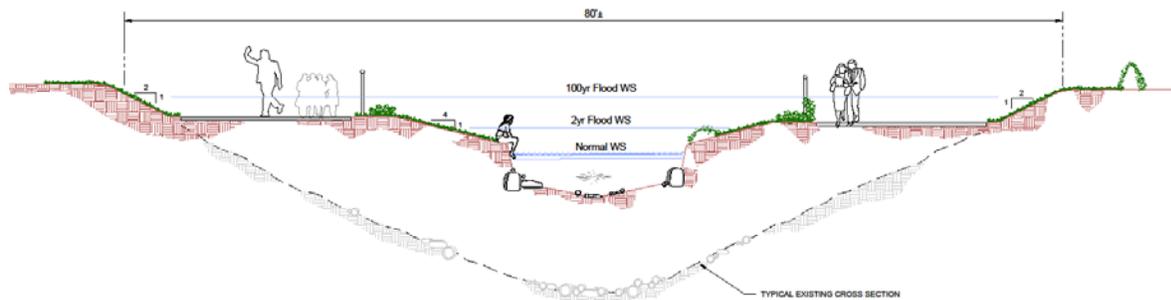


Figure 3 – Alternative 1 – Recirculated Stream

2) Alternative-2: Seasonally Dry Stream

Alternative-2 is a earthen/rock bottom channel following the existing grade. The bottom of the channel is constructed to resemble a natural stream, limit erosion, and support natural processes of flood conveyance and sediment transport. The minimum bottom width is 20 feet, with a 3:1 side slope proposed. A 15 foot wide trail is proposed on one side of the stream and a six foot trail on the other. Approximate right-of-way requirement is 80 feet. This alternative is relatively simple in concept, and will resemble a natural stream both in vegetation and in the seasonality of flow. As in alternative 1, the paths are proposed to be used for peak flow conveyance, and a similar shallow peak flow depth is proposed to maintain safety. See Figure 4 for cross section. The two-year flow is contained within the rocky creek bed while larger flows are permitted to flow onto the paths and landscaped areas. This alternative maintains a natural creek appearance and will not require energy or water as required in alternative 1.

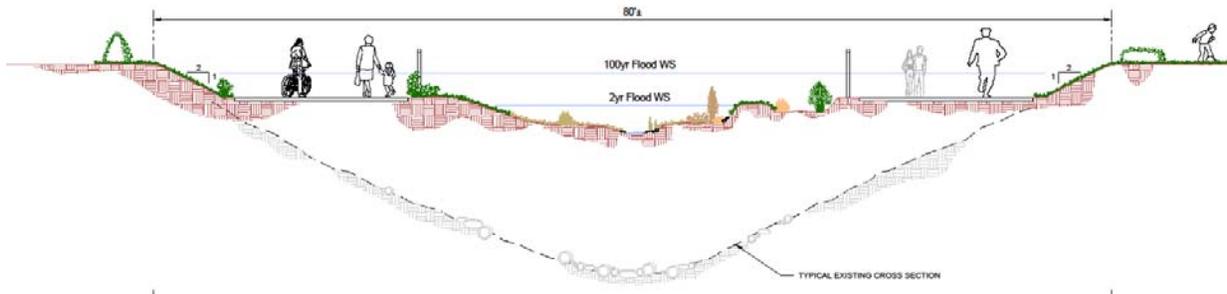


Figure 4 – Alternative 2 – Seasonally Dry Stream

3) Alternative-3 :Buried Culvert

In this alternative suggested by the City of Calimesa a buried culvert is used to convey a portion of any large flood flows, reducing the aboveground flow and reducing or eliminating flooding of landscaped areas and paths. The buried culvert can be combined with either Alternative 1 or Alternative 2. The preliminary culvert cross section for Alternative 3 is a concrete box culvert 8 feet wide by 6 feet high. The slope of the concrete box follows the existing grade. On top of the box, there is a recirculating creek (alternative 1) or a seasonally dry creek (alternative 2), which could be replaced with a grass swale, or other conveyance. A 15 foot wide trail is proposed on one side of the creek with a six foot path on the other. Approximate right-of-way requirement is 80 feet. See Figure 5 and Figure 6 for cross sections.

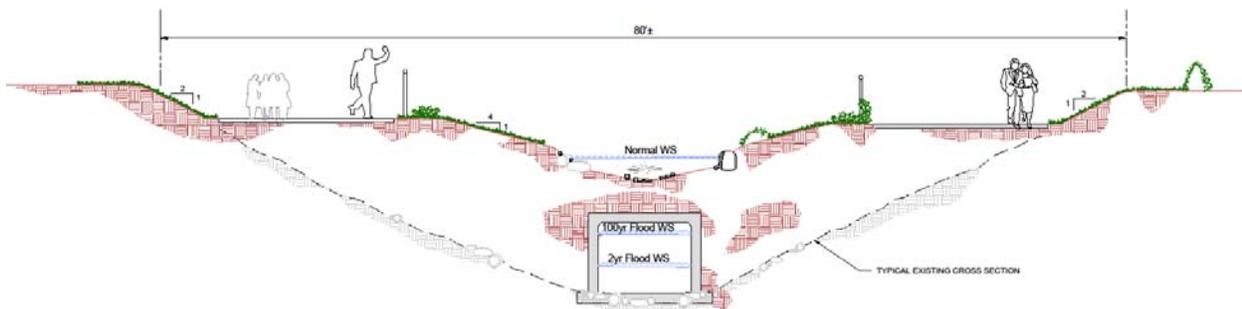


Figure 5 – Alternative 3 –Buried Culvert with Recirculated Stream

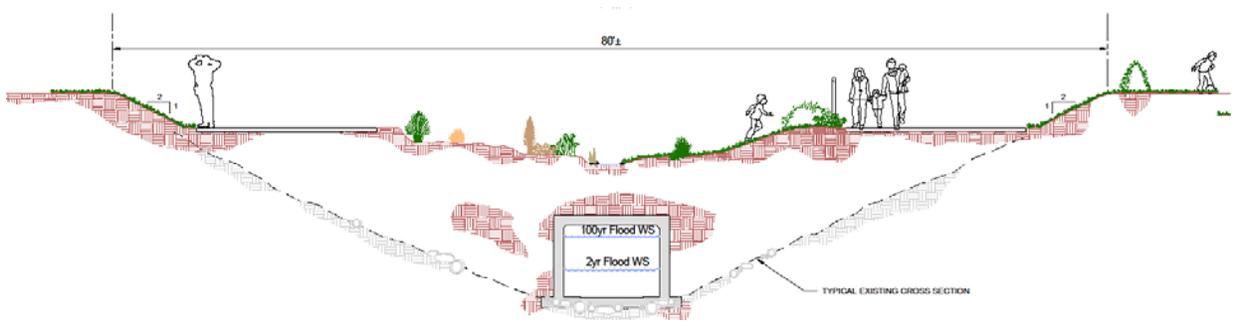


Figure 6 – Alternative 3 –Buried Culvert with Seasonally Dry Stream

4 Water Quality System

A water quality study will be performed for the proposed project site to determine the BMPs that should be employed and constructed in order to comply with Stormwater Quality Urban Impact Management Plan (SQUIMP) requirements for Riverside County and requirements of the NPDES Municipal Permit for Riverside County Order 09-0057 under Section 402 of the Clean Water Act, Section 6217 of the Coastal Zone Act Reauthorization Amendments, and the California Water Code. The Clean Water Act amendments of 1987 established a framework for regulating stormwater discharges from municipal, industrial, and construction activities under the NPDES program. The primary objective of the program requirements are:

- Effectively prohibit non-stormwater discharges, and
- Reduce the discharge of pollutants from stormwater conveyance systems to the Maximum Extent Practicable (MEP) statutory standard.

The SQUIMP was developed as part of the municipal stormwater program to address stormwater pollution from new development and redevelopment by the private sector. The SQUIMP contains a list of the minimum required BMPs that must be used for a designated project.

4.1 Water Quality System Description

Vegetated swales are open, shallow channels with vegetation covering the side slopes and bottom that collect and slowly convey runoff flow to downstream discharge points. They are designed to treat runoff through filtration by the vegetation in the channel, a subsoil matrix, and/or infiltration into the underlying soils. Swales can be natural or manmade. They trap particulate pollutants (suspended solids and trace metals), promote infiltration, and reduce the flow velocity of stormwater runoff. Vegetated swales can serve as part of a stormwater drainage system and can replace curbs, gutters and storm sewer systems. If properly designed, vegetated, and operated, swales can serve as an aesthetic, potentially inexpensive urban development or roadway drainage conveyance measure with significant collateral water quality benefits. Vegetated swales have been found to be most effective when a minimum contact time of 7 minutes is provided for runoff in the swale contacting vegetation growing in the swale. The proposed swales will be vegetated with native non-invasive grasses rather than fescue type grasses. Some of the benefits of planting native grass species include:

- non-proliferation of invasive non-native species,
- infrequent irrigation needed beyond the establishment period,
- decreased maintenance

4.2 Operation

The literature suggests that vegetated swales represent a practical and potentially effective technique for controlling urban runoff quality. While limited quantitative performance data exists for vegetated swales, check dams, slight slopes, permeable soils, dense grass cover, increased contact time, and small storm events all contribute to successful pollutant removal by the swale system. Factors decreasing the effectiveness of swales include compacted soils, short runoff contact time, large storm events, short grass heights, steep slopes, and high runoff velocities and discharge rates.

The vegetated swales have been incorporated into the landscape areas of each parcel where it was not possible to direct runoff from these areas to an extended detention basin due to site topography, site space limitations, and/or grading limitations. The suitability of a swale at a site depends on land use, size of the area serviced, soil type, slope, imperviousness of the contributing watershed, and dimensions and slope of the swale system (Schueler et al., 1992). In general, swales can be used to serve areas of less than 10 acres, with slopes no greater than 5 %.

4.3 Maintenance Requirement

The useful life of a vegetated swale system is directly proportional to its maintenance frequency. If properly designed and regularly maintained, vegetated swales can last indefinitely. The maintenance objectives for vegetated swale systems include keeping up the hydraulic and removal efficiency of the channel and maintaining a dense, healthy grass cover.

Maintenance activities should include periodic mowing (with grass never cut shorter than the design flow depth), weed control, watering during drought conditions, reseeding of bare areas, and clearing of debris and blockages. Cuttings should be removed from the channel and disposed of in a local composting facility. Accumulated sediment should also be removed to avoid concentrated flows in the swale. The application of fertilizers and pesticides should be minimal.

Another aspect of a good maintenance plan is repairing damaged areas within a swale. For example, if the channel develops ruts or holes, it should be repaired utilizing a suitable soil that is properly tamped and seeded. The grass cover should be thick; if it is not, reseed as necessary. Any standing water removed during the maintenance operation must be disposed of to a sanitary sewer at an approved discharge location. Residuals (e.g., silt, grass cuttings) must be disposed of in accordance with local or State requirements. Typical maintenance of grass swales is summarized below:

1. Inspect swales at least twice annually for erosion, damage to vegetation, and sediment and debris accumulation preferably at the end of the wet season to schedule summer maintenance and before major fall runoff to be sure the swale is ready for winter. However, additional inspection after periods of heavy runoff is desirable. The swale should be checked for debris and litter, and areas of sediment accumulation.
2. Grass height and mowing frequency may not have a large impact on pollutant removal. Consequently, mowing may only be necessary once or twice a year for safety or aesthetics or to suppress weeds and woody vegetation.
3. Trash tends to accumulate in swale areas, particularly along highways. The need for litter removal is determined through periodic inspection, but litter should always be removed prior to mowing.
4. Sediment accumulating near culverts and in channels should be removed when it builds up to 3 inches at any spot, or covers vegetation.
5. Regularly inspect swales for pools of standing water. Swales can become a nuisance due to mosquito breeding in standing water if obstructions develop (e.g. debris accumulation, invasive vegetation) and/or if proper drainage slopes are not implemented and maintained.

A maintenance plan and maintenance agreement will be prepared for the City of Calimesa for all of the water quality treatment devices as a part of the final design process for storm drain system.

5 Engineer's Cost Estimate

An engineer's cost estimate was prepared for the alternative creek designs. Costs include construction, engineering and design, and construction administration. The following tables show the cost estimates.

Table 5-1 Cost Estimate for Alternative 1

City of Calimesa

908 Park Avenue, Calimesa, CA 92320

Project Name: Calimesa Channel Rehabilitation

Project Description: Alternative-1 Recirculating Stream

Bid Date:

	Item No. & Description	Unit	Quantity	ENGINEER'S ESTIMATE	
				Unit Bid	Total Bid
	GENERAL				
1	MOBILIZATION	LS	1	\$ 22,465	\$ 22,465
2	CONSTRUCTION WATER / DUST CONTROL	LS	1	\$ 7,528	\$ 7,528
3	CLEARING AND MISCELLANEOUS WORK	LS	1	\$ 3,000	\$ 3,000
4	STORM AND NON-STORMWATER POLLUTION CONTROL	LS	1	\$ 9,628	\$ 9,628
5	TRAFFIC CONTROL	LS	1	\$ 6,419	\$ 6,419
6	CHANNEL EXCAVATION	CY	17,000	\$ 5.00	\$ 85,000
7	STREAM LINING AND VENEER	SF	21,000	\$ 7.00	\$ 147,000
8	DROP STRUCTURE	CY	25	\$ 475.00	\$ 11,875
9	CONSTRUCT 6' X 6' RCB CHANNEL UPSTREAM OF FREEWAY	CY	190	\$ 475.00	\$ 90,250
10	CONSTRUCT 6' X 6' RCB CULVERT UNDER CALIMESA BLVD	CY	151	\$ 475.00	\$ 71,725
11	CONSTRUCT 15' X 6' RCB CULVERT UNDER PARK AVENUE	CY	160	\$ 600.00	\$ 96,000
12	TRAIL	CY	700	\$ 100.00	\$ 70,000
13	RECIRCULATION SYSTEM	LS	1.0	\$ 70,000.00	\$ 70,000
	SUBTOTAL				\$ 690,889
	30% CONTINGENCY				\$ 207,267
	TOTAL				\$ 898,156

Table 5-2 Cost Estimate for Alternative 2

City of Calimesa

908 Park Avenue, Calimesa, CA 92320

Project Name: Calimesa Channel Rehabilitation

Project Description: Alternative-2 Seasonally Dry Stream

Bid Date:

Item No. & Description	Unit	Quantity	ENGINEER'S ESTIMATE	
			Unit Bid	Total Bid
GENERAL				
1 MOBILIZATION	LS	1	\$ 14,279	\$ 14,279
2 CONSTRUCTION WATER / DUST CONTROL	LS	1	\$ 5,070	\$ 5,070
3 CLEARING AND MISCELLANEOUS WORK	LS	1	\$ 3,000	\$ 3,000
4 STORM AND NON-STORMWATER POLLUTION CONTROL	LS	1	\$ 6,120	\$ 6,120
5 TRAFFIC CONTROL	LS	1	\$ 4,080	\$ 4,080
6 CHANNEL EXCAVATION	CY	16,000	\$ 5.00	\$ 80,000
7 CONSTRUCT 6' X 6' RCB CHANNEL UPSTREAM OF FREEWAY	CY	190	\$ 475.00	\$ 90,250
8 CONSTRUCT 6' X 6' RCB CULVERT UNDER CALIMESA BLVD	CY	151	\$ 475.00	\$ 71,725
9 CONSTRUCT 15' X 6' RCB CULVERT UNDER PARK AVENUE	CY	160	\$ 600.00	\$ 96,000
10 TRAIL	CY	700	\$ 100.00	\$ 70,000
SUBTOTAL				\$ 440,523
30% CONTINGENCY				\$ 132,157
TOTAL				\$ 572,680

The tables above indicate approximate costs for each alternative. Based on discussions with the City of Calimesa initial construction may begin with a seasonally dry creek (Alternative 2), followed at a later time by the addition of a recirculating creek (Alternative 1). The estimates presented above for each alternative are based on construction starting with existing conditions. If Alternative 2 is constructed first, the subsequent additional cost for Alternative 1 will be significantly lowered. The expected cost of alternative 2 if alternative 1 is already completed include:

Estimated Cost of Alternative 1 if Alternative 2 is already Built:

Mobilization:	\$10,000
Construction water/dust control	\$ 3,000
Storm and Non-storm Water Pollution Control	\$ 3,000
Channel Excavation	\$10,000
Stream Lining	\$ 8,000
Rock and Materials	\$10,000
Recirculation System	\$10,000
Total	\$54,000

Table 5-3 Cost Estimate for Alternative3

City of Calimesa

908 Park Avenue, Calimesa, CA 92320

Project Name: Calimesa Channel Rehabilitation

Project Description: Alternative-3 Culvert Transfer

Bid Date:

Item No. & Description	Unit	Quantity	ENGINEER'S ESTIMATE	
			Unit Bid	Total Bid
GENERAL				
1 MOBILIZATION	LS	1	\$ 48,125	\$ 48,125
2 CONSTRUCTION WATER / DUST CONTROL	LS	1	\$ 19,575	\$ 19,575
3 CLEARING AND MISCELLANEOUS WORK	LS	1	\$ 3,000	\$ 3,000
4 STORM AND NON-STORMWATER POLLUTION CONTROL	LS	1	\$ 20,625	\$ 20,625
5 TRAFFIC CONTROL	LS	1	\$ 13,750	\$ 13,750
6 RCB EXCAVATION	CY	9,000	\$ 5.00	\$ 45,000
7 SWALE	SF	25,000	\$ 1.00	\$ 25,000
9 CONSTRUCT 8' X 6' RCB CHANNEL	CY	2,600	\$ 475.00	\$ 1,235,000
12 TRAIL	CY	700	\$ 100.00	\$ 70,000
SUBTOTAL				\$ 1,480,075
30% CONTINGENCY				\$ 444,023
TOTAL				\$ 1,924,098

Alternative 3 (Buried Culvert) can be combined with either of the other two alternatives as shown in Figures 5 and 6. Constructing the culvert will not greatly reduce the cost of the aboveground portion of the channel, although costs such as mobilization, pollution control, and other project costs will be shared if construction of the culvert and aboveground facilities are coordinated. An estimate for construction of Alternative 3 (Buried Culvert) combined with Alternative 1 (Recirculating Stream) is provided below.

Table 5-4 Cost Estimate for Alternative 3 combined with Alternative 1

City of Calimesa

908 Park Avenue, Calimesa, CA 92320

Project Name: Calimesa Channel Rehabilitation

Project Description: Alternative-1 and 3: Buried Culvert & Recirculating Stream

Bid Date:

Item No. & Description	Unit	Quantity	ENGINEER'S ESTIMATE	
			Unit Bid	Total Bid
GENERAL				
1 MOBILIZATION	LS	1	\$ 55,261	\$ 55,261
2 CONSTRUCTION WATER / DUST CONTROL	LS	1	\$ 21,583	\$ 21,583
3 CLEARING AND MISCELLANEOUS WORK	LS	1	\$ 3,000	\$ 3,000
4 STORM AND NON-STORMWATER POLLUTION CONTROL	LS	1	\$ 23,683	\$ 23,683
5 TRAFFIC CONTROL	LS	1	\$ 15,789	\$ 15,789
6 RCB EXCAVATION	CY	9,000	\$ 5.00	\$ 45,000
7 STREAM LINING AND VENEER	SF	21,000	\$ 7.00	\$ 147,000
8 DROP STRUCTURE	CY	25	\$ 475.00	\$ 11,875
9 CONSTRUCT 8' X 6' RCB CHANNEL	CY	2,600	\$ 475.00	\$ 1,235,000
10 TRAIL	CY	700	\$ 100.00	\$ 70,000
11 RECIRCULATION SYSTEM	LS	1.0	\$ 70,000.00	\$ 70,000
SUBTOTAL				\$ 1,698,191
30% CONTINGENCY				\$ 509,457
TOTAL				\$ 2,207,648

6 Operations and Maintenance

Introduction

The purpose of this section is to provide estimates of operations and maintenance costs for several alternative designs that are being considered for the reach of Calimesa Creek within the Calimesa Creek Overlay Zone, part of the Downtown Business District in Calimesa, California. The alternative preliminarily selected by the City (Alternative 3 combined with alternative 2) includes a naturalized dry wash/vegetated channel combined with a buried culvert. Typical flows will stay on the surface in the dry wash/vegetated channel, while the culvert will be used to convey a portion of large flood flows and thus increase the overall flow capacity of the creek. The City plans in a future phase of construction to add a recirculating water feature within the dry wash as a recreational and aesthetic amenity. This will change the selected alternatives to Alternative 3 (Buried Culvert) combined with Alternative 1 (Recirculating Stream) Alternative 1 includes a lake and water feature within the creek channel. During dry weather water will be circulated in the water feature and lake to create the appearance of a flowing creek. During storms, the channel above the lake and water feature will carry flood flows.

Operations and Maintenance Practices

The purpose of the Dry Wash / Vegetated Channel is to convey the local MS-4 runoff and aid in the removal of pollutants. Dry Wash / Vegetated Channels provide the following pollutant removal mechanisms: settling or sedimentation; infiltration; adsorption to sediments, vegetation, or detritus; filtration by plants; microbial uptake and/or transformations; and uptake by wetland plants or algae. The proposed subsurface culvert will provide flood conveyance for the larger less frequent storm events. The following table provides an example of the typical maintenance activities that should be expected for the proposed Phase-1 improvement of Calimesa Creek.

Phase-1 Alt. 2 and 3 Dry Wash / Vegetated Channel & Subsurface Culvert Preventive Maintenance and Routine Inspections			
Design Criteria, Routine Actions	Maintenance Indicator	Inspection Frequency	Maintenance Activity
Drain time	Less than 48 hours or more than 72 hours for full Channel Goal is to have a drain time of 48 hours	One storm per year which results in a full Channel	If time too long, open riser cap and discharge remaining volume, within 1 day. Remove and dispose of debris/trash from outlet/outlet screen
Slopes planted for erosion protection and planted invert	Average plant height greater than 18-inches	Weekly	Cut vegetation to an average height of 18-inches and remove trimmings. Vegetation along the side slopes can remain, and periodically thinned to allow access to the Channel invert and visual observation of the operation of the Channel inlets and outlets from the maintenance access points.
Inspect for adequate vegetative cover	Less than 70 percent coverage on invert and side slopes	October each year	Reseed/replant barren spots, scarify surface if needed. Reseed/replant preferably prior to the rainy season. If reseeding/replanting is not successful, install erosion blanket along barren spots
Inspect for possible vector harborage	Standing water for more than 72 hours	About monthly, 72 hours after a storm event	Immediately notify Vector Control Agency for vector abatement assessment
Inspection for trash and debris at inlet and outlet structures	Debris/trash present	Bi-weekly and before a storm. Before and after onset of wet season.	Remove and dispose of trash and debris
Inspect for burrowing rodent activity	Ground squirrel holes, vole or gopher mounds	As needed, for rodent activity with abatement immediately if the activity	Abate or control rodents as necessary

Phase-1 Alt. 2 and 3 Dry Wash / Vegetated Channel & Subsurface Culvert Preventive Maintenance and Routine Inspections			
Design Criteria, Routine Actions	Maintenance Indicator	Inspection Frequency	Maintenance Activity
		affects the performance of the BMP otherwise abate annually in September	
Inspect for standing water	Water accumulation in any structure or other location within the Channel	Annually in Spring	Where gravity draining is possible, drain the standing water
Inspection for sediment management and characterization of sediment for removal	Sediment depth averages 18-inches or 10 percent of Channel volume whichever is less	<i>Each Summer</i>	Remove and dispose of sediment when maintenance indicator has been exceeded. Regrade and revegetate if vegetation coverage drops below 70 percent.

Operation and Maintenance Cost

The following table summarizes average annual operation and maintenance cost which may be used as a order of magnitude basis for estimating total O&M cost for the Phase-1 of the Calimesa Creek improvements (Alt. 2 and 3: Dry Wash / Buried Culvert). These rates may vary depending upon the rates of the company contracted to perform the O&M. These values are sufficient for budgeting purposes. However, it should be noted that the estimated costs may vary depending upon the final size of the Dry Wash / Vegetated Channel, approved labor rates, changes in the upstream watershed characteristics and maintenance provisions included in the final design.

Phase-1 Alt. 2 and 3 Combined Operation & Maintenance			
Item	Unit Cost	Qty	Total Annual Cost
Dry Wash Sediment Removal	\$22/cy	50cy/yr*	\$1,000
Routine Landscape Maintenance	\$0.30/sqft /yr	168,000 sqft	\$50,000**
Channel Sweeping & Minor Non-Structural Repairs (Annual Labor)	\$500/yr (per 100 linear ft)	2,100 ft	\$11,000
Minor Non-Structural Repairs & Culvert Inlet & Outlet Maintenance (Annual Labor)	\$8,000/yr	2	\$16,000
Landscape Irrigation (reclaimed water)	\$350/ac-ft	152 ac-ft	\$53,000
Annualized Total Cost			\$131,000/yr

*Note the value shown for annual sediment removal can vary greatly due to changes in the upstream watershed and stream system due to a single event storm or long term degradation.

**Note the landscape maintenance cost and irrigation cost can vary greatly with the type of landscape vegetation, landscape design, and intensity of maintenance.

The purpose of the Recirculating Stream Feature is to provide aesthetic appeal and function at the same time. The water feature will convey the local MS-4 runoff and remove pollutants of concern. Water features can provide superior pollutant removal mechanisms: settling or sedimentation, filtration by wetland plants and media; beneficial bacteria nutrient removal and water scrubbing/polishing, microbial uptake and/or transformations; and uptake by wetland plants or algae. The proposed subsurface culvert will provide flood conveyance for the larger less frequent storm events. The following table provides an example of the typical maintenance activities that should be expected for the proposed Phase-2 improvement of Calimesa Creek.

Phase-2 Alt. 1 and 3 Lake & Water Feature Preventative Maintenance & Operational Tasks		
Item Description	Tasks	Frequency
Debris Removal	Remove trash and debris from containment area	Bi-weekly
Shoreline Maintenance	Power spray shoreline	Monthly
Check Flows	Inspect and verify appropriate flow rates	Bi-weekly
Intake Screen Maintenance	Clear debris from intake screens (backwash)	Bi-annually
Algae & Aquatic Weed Control	Inspect for algae and nuisance weeds; control excessive growth	Bi-weekly
Aquatic Plant Maintenance	Trim, thin, and replace potted and planted (filters) vegetation as necessary	Weekly
Water Quality Testing	Test and record specified parameters	Monthly
Motors and Level Controls	Checking running voltage, amps, grease motor bearing, lubricate motor, clean and clear pump housing of debris, inspect for excessive noise and vibration, check level control floats	Monthly
Electrical	Inspect electrical contacts and controllers, tighten electrical contacts, inspect electric panel, lubricate contacts, test GFIC units	Monthly
Valves	Inspect for proper operation, inspect for plumbing leaks, exercise valves, inspect auto lake fill valve for operation	Monthly
Aeration System	Inspect blower and compressor for proper operation, check clamps and hoses for cracks and leaks, inspect valves and adjust as needed, visually verify diffuser operation	Monthly
Biofilters	Backwash biofilters	Bi-annually
Storm Drain Outfalls	Remove debris	Bi-annually

The following table summarizes average annual operation and maintenance cost which may be used as a order of magnitude basis for estimating total O&M cost for the Phase-2 of the Calimesa Creek improvements (Alt. 1 and 3: Lake/Pond Water Feature and Subsurface Culvert). These rates may vary depending upon the rates of the company contracted to perform the O&M. These values are sufficient for

budgeting purposes. However, it should be noted that the estimated costs may vary depending upon the final size of the water feature, approved labor rates, changes in the upstream watershed characteristics and maintenance provisions included in the final design.

Phase-2 Alt. 1 and 3 Operation & Maintenance Costs			
Item	Unit Cost	Qty	Total Annual Cost
Sediment Removal	\$50/cy	50cy/yr*	\$1,000
Routine Landscape Maintenance	\$0.30/sqft /yr	116,600 sqft	\$35,000
Routine Water Feature Maintenance	\$450/ac/month	1.18 ac	\$6,000
Channel Sweeping & Minor Non-Structural Repairs (Annual Labor)	\$500/ year (per 100 linear ft)	2,100 ft	\$11,000
Minor Non-Structural Repairs & Culvert Inlet & Outlet Maintenance (Annual Labor)	\$8,000/yr	2	\$16,000
Lake Make-up Water (potable water)	\$815/ac-ft	6 ac-ft	\$5,000
Landscape Irrigation (reclaimed water)	\$350/ac-ft	93 ac-ft	\$32,000**
Lake Electric Cost	\$0.07/kW-hr	149,000 kW-hr	\$10,000***
Lake Equipment Replacement Cost (Pumps, Compressors, Controls, Aeration Pods)	-	-	\$6,000
Annualized Total Cost			\$122,000/yr

*Note the value shown for annual sediment removal can vary greatly due to changes in the upstream watershed and stream system due to a single event storm or long term degradation.

**Note the landscape maintenance cost and irrigation cost can vary greatly with the type of landscape vegetation, landscape design, and intensity of maintenance.

***Note the lake electric cost includes pumps, blowers, compressors, and controls operating at the SCE municipal pumping rate \$0.07/kW-hr

Discussion

The tables above show that projected Operations and Maintenance Costs are lower for Alternative 1 and 3 – Lake/water feature in channel – than alternative 2 and 3 – dry wash/vegetated channel. This seems counter-intuitive until the items in the Operations and Maintenance budgets are examined closely. The estimated cost for sediment removal is the same for both options, and is based on the sediment delivered to the study reach from upstream. Costs for Routine Landscape Maintenance are lower for option 1B because the lake and water feature occupy a significant portion of the space in the wash, lowering the landscape maintenance cost. This savings is partially offset by the cost of lake and water feature maintenance, but the cost per square foot to maintain the lake and water feature are lower than typical landscape maintenance costs. Another cost saving is achieved through the water conservation properties of a lake. Although the lake appears to be water intensive, lake evaporation is typically lower than the evapotranspiration from lawns or irrigated landscapes, resulting in water savings. In addition, the lake will capture dry weather flows from storm drains, which can be considerable, and this will significantly offset

overall water needs. As a result of savings in landscape maintenance costs and water costs, Alternative 1 and 3 – Lake/water feature – is estimated to have a lower annual Operation and Maintenance Cost than Alternative 2 and 3 – Dry wash/vegetated channel.

Maintenance costs for sediment removal will vary greatly year-to-year due to large variations in the flood flows and resulting sediment loads. Sediment removal from buried culverts can be difficult and expensive, and this represents one of the largest disadvantages of the buried culvert.

7 Recommendations

Based on the alternatives presented above and discussions with the City of Calimesa, the preferred alternative design is to construct Alternative 2 in combination with Alternative 3 – Dry Creek with Buried Culvert, with plans to upgrade the aboveground facility to a recirculating water feature in the future, thus converting Alternative 2 to Alternative 1, while the Alternative 3 (Buried Culvert) portion of the project does not change during the construction of the Alternative 1 recirculating stream. This will be accomplished with a two-phase construction program.

The designs presented here are meant to be conceptual, providing a basis for comparison and evaluation of alternatives, and a tool for planning. Additional detailed design of all alternatives is recommended before a final selection of any alternative is made.



Existing Conditions



Proposed Conditions



APPENDIX B

**Calimesa Creek Shared Parking
Provisions and Samples**

18.45.1 00 Shared parking provisions.

The DBD encourages mixed use development and use of shared parking facilities in or near employment centers to reduce unnecessary amounts of parking. Shared parking may be approved; provided, that peak business times of operation for adjacent land uses are not conflicting. Approval of shared parking is subject to the following requirements.

1. Shared parking shall be for uses that are located on the same or contiguous parcels and located no further than 600 feet from any structure or use served. There shall be direct, safe, and unobstructed access from the parking facility to the main entrance.
2. Up to 50 percent of the parking facilities required by this chapter for a use considered to be primarily a daytime (on-peak) use may be provided by a use considered to be a nighttime or Sunday (off-peak) use; and vice versa; provided, that a reciprocal parking area shall be subject to such conditions as stipulated herein.
 - a. The following uses are considered to be daytime uses: banks, business and professional offices, retail stores, service shops and similar uses. The following uses are considered to be nighttime or Sunday uses: auditoriums, churches, fraternal organizations and theaters. The planning department shall determine the parking requirements of the uses proposed for shared parking.
3. Tandem parking spaces will only be allowed for employees and allocated per land use. Tandem parking is not allowed for guest parking.
4. Conditions Required for Shared Parking
 - a. Shared parking facilities shall be located off-street, and only on-street at the approval of the Director and City Engineer.
 - b. A Shared Parking Analysis study is required by the applicant to demonstrate that there is no substantial conflict in the principal operating hours for adjacent land uses. Shared parking is based upon the variations in the number of parking spaces needed (parking demand) over the course of the day for each of the proposed uses. The hour in which the highest number of parking spaces is needed (peak parking demand) for the proposed development determines the minimum number of required on and off-street parking spaces for the proposed development. The shared parking analysis shall be reviewed and approved by the Director and City Engineer before implementation.
 - c. Parties involved in the shared use of on and off-street parking facilities shall execute an agreement with the City for such use by a proper legal instrument approved by the City attorney as to form and content. [Ord. 95-7 § 2; Code 1990 § 12.8.10.]
 - d. Adequate signage shall be provided for tenants and/or residents which indicates the availability of the facility for patrons of the participating uses.
 - e. Modifications to the structure in which the uses are located or changes in tenant occupancy will require review by the Director and City Engineer.
 - f. A written agreement, covenant, deed restriction or other document as determined necessary by the hearing authority shall be executed by all parties to assure the continued availability of the shared parking spaces for the life of the proposed development or use.

Model - Shared Use Agreement for Parking Facilities

This Shared Use Agreement for Parking Facilities, entered into this ____ day of _____, _____, between _____, hereinafter called lessor and _____, hereinafter called lessee. In consideration of the covenants herein, lessor agrees to share with lessee certain parking facilities, as is situated in the City of _____, County of _____ and State of _____, hereinafter called the facilities, described as: [Include legal description of location and spaces to be shared here, and as shown on attachment 1.]

The facilities shall be shared commencing with the ____ day of _____, _____, and ending at 11:59 PM on the ____ day of _____, _____, for [insert negotiated compensation figures, as appropriate]. [The lessee agrees to pay at [insert payment address] to lessor by the ____ day of each month [or other payment arrangements].] Lessor hereby represents that it holds legal title to the facilities

The parties agree:

1. USE OF FACILITIES

This section should describe the nature of the shared use (exclusive, joint sections, time(s) and day(s) of week of usage.

-SAMPLE CLAUSE-*[Lessee shall have exclusive use of the facilities. The use shall only be between the hours of 5:30 PM Friday through 5:30 AM Monday and between the hours of 5:30 PM and 5:30 AM Monday through Thursday.]*

2. MAINTENANCE

This section should describe responsibility for aspects of maintenance of the facilities. This could include cleaning, striping, seal coating, asphalt repair and more.

-SAMPLE CLAUSE-*[Lessor shall provide, as reasonably necessary asphalt repair work. Lessee and Lessor agree to share striping, seal coating and lot sweeping at a 50%/50% split based upon mutually accepted maintenance contracts with outside vendors. Lessor shall maintain lot and landscaping at or above the current condition, at no additional cost to the lessee.]*

3. UTILITIES and TAXES

This section should describe responsibility for utilities and taxes. This could include electrical, water, sewage, and more.

-SAMPLE CLAUSE-*[Lessor shall pay all taxes and utilities associated with the facilities, including maintenance of existing facility lighting as directed by standard safety practices.]*

4. SIGNAGE

This section should describe signage allowances and restrictions.

-SAMPLE CLAUSE-*[Lessee may provide signage, meeting with the written approval of lessor, designating usage allowances.]*

5. ENFORCEMENT

This section should describe any facility usage enforcement methods.

-SAMPLE CLAUSE-*[Lessee may provide a surveillance officer(s) for parking safety and usage only for the period of its exclusive use. Lessee and lessor reserve the right to tow, at owners expense, vehicles improperly parked or abandoned. All towing shall be with the approval of the lessor.]*

6. COOPERATION

This section should describe communication relationship.

-SAMPLE CLAUSE-*[Lessor and lessee agree to cooperate to the best of their abilities to mutually use the facilities without disrupting the other party. The parties agree to meet on occasion to work out any problems that may arise to the shared use.]*

7. INSURANCE

This section should describe insurance requirements for the facilities.

-SAMPLE CLAUSE-*[At their own expense, lessor and lessee agree to maintain liability insurance for the facilities as is standard for their own business usage.]*

8. INDEMNIFICATION

This section should describe indemnification as applicable and negotiated. This is a very technical section and legal counsel should be consulted for appropriate language to each and every agreement.

-NO SAMPLE CLAUSE PROVIDED-

9. TERMINATION

This section should describe how to or if this agreement can be terminated and post termination responsibilities.

-SAMPLE CLAUSE-*[If lessor transfers ownership, or if part of all of the facilities are condemned, or access to the facilities is changed or limited, lessee may, in its sole discretion terminate this agreement without further liability by giving Lessor not less than 60 days prior written notice. Upon termination of this agreement, Lessee agrees to remove all signage and repair damage due to excessive use or abuse. Lessor agrees to give lessee the right of first refusal on subsequent renewal of this agreement.]*

10. SUPPLEMENTAL COVENANTS

This section should contain any additional covenants, rights, responsibilities and/or agreements.

-NO SAMPLE CLAUSE PROVIDED-

IN WITNESS WHEREOF, the parties have executed this Agreement as of the Effective Date Set forth at the outset hereof.

[Signature and notarization as appropriate to a legal document and as appropriate to recording process negotiated between parties.]



THE CITY OF SAN DIEGO

RECORDING REQUESTED BY:
THE CITY OF SAN DIEGO
AND WHEN RECORDED MAIL TO:

(THIS SPACE IS FOR RECORDER'S USE ONLY)

SHARED PARKING AGREEMENT

This SHARED PARKING AGREEMENT ("Agreement") is entered into and effective _____, 20____, by and between _____, _____ and the City of San Diego.

RECITALS

WHEREAS, pursuant to sections 142.0535 and 142.0545 of the Land Development Code, the City of San Diego specifies criteria which must be met in order to utilize off-site shared parking agreements to satisfy on-site parking requirements.

NOW, THEREFORE, in consideration of the recitals and mutual obligations of the parties as herein expressed, _____, _____ and the City of San Diego agree as follows:

1. _____ the owner of the property located at _____, agrees to provide _____ the owner of the property located at _____ with the right to the use of (____) parking spaces _____ from _____ as shown on Exhibit A to this Agreement on property located at _____.

1.1 Applicant: _____ Co-Applicant: _____
Assessor Parcel No: _____ Assessor Parcel No: _____
Legal Description: _____ Legal Description: _____

- 2. The parking spaces referred to in this Agreement have been determined to conform to current City of San Diego standards for parking spaces, and the parties agree to maintain the parking spaces to meet those standards.
- 3. The Parties understand and agree that if for any reason the off-site parking spaces are no longer available for use by _____, _____ will be in violation of the City of San Diego Land Development Code requirements. If the off-site parking spaces are no longer available, Applicant will be required to reduce or cease operation and use of the property at Applicant's address to an intensity approved by the City in order to bring the property into conformance with the Land Development Code requirements for required change for required parking. Applicant agrees to waive any right to contest enforcement of the City's Land Development Code in this manner should this circumstance arise.

Although the Applicant may have recourse against the Party supplying off-site parking spaces for breach of this Agreement, in no circumstance shall the City be obligated by this agreement to remedy such breach. The Parties acknowledge that the sole recourse for the City if this Agreement is breached is against the Applicant in a manner as specified in this paragraph, and the City may invoke any remedy provided for in the Land Development Code to enforce such violation against the Applicant.

Continued on Page 2

- 4. The provisions and conditions of this Agreement shall run with the land for those properties referenced in paragraph 1 of this document and be enforceable against successors in interest and assigns of the signing parties.
- 5. Title to and the right to use the lots upon which the parking is to be provided will be subservient to the title to the property where the primary use it serves is situated.
- 6. The property or portion thereof on which the parking spaces are located will not be made subject to any other covenant or contract for use which interferes with the parking use, without prior written consent of the City.
- 7. This Agreement is in perpetuity and can only be terminated if replacement parking has been approved by the City's Director of the Development Services Department and written notice of termination of this agreement has been provided to the other party at least sixty (60) days prior to the termination date.
- 8. This Agreement shall be kept on file in the Development Services Department of the City of San Diego in Project Tracking System (PTS) Project Number: _____ and shall be recorded on the titles of those properties referenced in paragraph 1 of this document.

In Witness whereof, the undersigned have executed this Agreement.

Applicant

Date: _____

Deputy Director

Business and Process Management, Development Services

Party/Parties Supplying Spaces

Date: _____

Date: _____

Shared Parking Agreement

'160.117(E)(4): A Shared parking. Formal agreements which share parking between intermittent uses with non-conflicting parking demands (eg. a church and a bank) are encouraged as a means to reduce the amount of parking required. Such agreements are subject to the approval of the Planning Commission. Individual spaces identified on a site plan for shared users shall not be shared by more than one user at a time.@

As owner(s) of the property located at _____, I (we) hereby agree to share _____ parking spaces (as shown on attached site plan) during the following times and days:

The following restrictions apply:

Required parking

My (our) property requires _____ parking spaces based upon the City's parking lot ordinance. The use of my (our) property is _____ and it contains _____ square feet.

The applicant's property requires _____ parking spaces based upon the City's parking lot ordinance. The use of the applicant's property is _____ and it contains _____ square feet.

Site Plan

Attach a diagram of the entire parking lot. Enumerate spaces to be shared per this agreement. Also indicate any spaces within this lot which are shared with other entities.

Owner Signature: _____ Date: _____

Owner Signature: _____ Date: _____

Applicant Signature: _____ Date: _____

PARKING AGREEMENT - SHARED PARKING

A Shared Parking Agreement may be revoked by the parties to the agreement only if off-street parking is provided pursuant to Section 7.2 Off-Street Parking Standards, or if an Alternative Parking Plan is approved by the Administrator.

THE STATE OF TEXAS
COUNTY OF BRAZOS

THIS PARKING AGREEMENT is made and entered into as of the _____,
(date)
by and between _____ and _____
(property I) (property II)

WHEREAS, _____ is the owner of _____
(property owner I) (legal description, Vol., Page)
located at _____ within the City of College Station, Brazos County,
(address)
Texas (herein after referred to as "_____");

WHEREAS, _____ is the owner of _____
(property owner II) (legal description, Vol., Page)
located at _____ within the City of College Station, Brazos County,
(address)
Texas (herein after referred to as "_____");

WHEREAS in order to be used as _____, _____
(proposed use) (property I)
requires additional off street parking to comply with the parking requirement set
forth by the City of College Station Unified Development Code;

NOW, THEREFORE, in consideration of the mutual covenant and agreements set forth
herein, the sufficiency of which is hereby acknowledged, the parties hereby agree as
follows:

1. Easement Purpose. (by applicant)
2. Grant of Easement.
 - a.
 - b.
 - c.
 - d. The easement is nonexclusive and irrevocable, but only for so long as the _____
_____ is used for the purposes of _____.
(property I) (use of property I)
 - e. This Easement shall remain in full force and effect for so long as the _____
(property I)

is used for the purposes of _____. At such time that the _____
(use of property I) (property I)
is no longer used for purposes of _____ the Easement shall become
(use of property I)
null and void by its own terms, and _____ shall not be required to file
(property II)
any release, termination or other document to evidence the termination of this
Easement.

MAINTENANCE & LIABILITY: by applicants
No Portion of the drives or parking areas on the _____ or the _____
(property I) (property II)
shall be used for any purpose other than authorized by this instrument and no fence,
barricade or improvement shall be constructed by either party that would prohibit
the use of the _____ or the _____ for the Easement
(property I) (property II)
purpose.

It is mutually agreed that the intention of the parties is that this Agreement is for the
private benefit of the parties and their respective successors and assigns and shall be
strictly limited to and for the purposes herein expressed.

The rights and obligations contained in this Agreement and the terms and condition
hereof shall be deemed to be covenants running with the land and binding upon the
parties and their respective successors and assigns.

(property owner)

(signature)

(printed name)

(title)

(property owner)

(signature)

(printed name)

(title)

STATE OF TEXAS
COUNTY OF BRAZOS

This instrument was acknowledged before me on _____ by _____
(date) (property owner)

Notary Public, State of Texas

STATE OF TEXAS
COUNTY OF BRAZOS

This instrument was acknowledged before me on _____ by _____
(date) (property owner)

Notary Public, State of Texas

REVOVATION: Failure to comply with the shared parking provisions of Section 7.2.K Alternative Parking Plans, shall constitute a violation of the Unified Development Ordinance and shall specifically be cause for revocation of a Certificate of Occupancy or Building Permit.

ATTACHMENTS: Shared Parking Study Form