

PAYEE DATA RECORD

STD. 204 (Rev. 6-2003) (REVERSE)

1	<p><u>Requirement to Complete Payee Data Record, STD. 204</u></p> <p>A completed Payee Data Record, STD. 204, is required for payments to all non-governmental entities and will be kept on file at each State agency. Since each State agency with which you do business must have a separate STD. 204 on file, it is possible for a payee to receive this form from various State agencies.</p> <p>Payees who do not wish to complete the STD. 204 may elect to not do business with the State. If the payee does not complete the STD. 204 and the required payee data is not otherwise provided, payment may be reduced for federal backup withholding and nonresident State income tax withholding. Amounts reported on Information Returns (1099) are in accordance with the Internal Revenue Code and the California Revenue and Taxation Code.</p>								
2	<p>Enter the payee's legal business name. Sole proprietorships must also include the owner's full name. An individual must list his/her full name. The mailing address should be the address at which the payee chooses to receive correspondence. Do not enter payment address or lock box information here.</p>								
3	<p>Check the box that corresponds to the payee business type. Check only one box. Corporations must check the box that identifies the type of corporation. The State of California requires that all parties entering into business transactions that may lead to payment(s) from the State provide their Taxpayer Identification Number (TIN). The TIN is required by the California Revenue and Taxation Code Section 18646 to facilitate tax compliance enforcement activities and the preparation of Form 1099 and other information returns as required by the Internal Revenue Code Section 6109(a).</p> <p>The TIN for individuals and sole proprietorships is the Social Security Number (SSN). Only partnerships, estates, trusts, and corporations will enter their Federal Employer Identification Number (FEIN).</p>								
4	<p><u>Are you a California resident or nonresident?</u></p> <p>A corporation will be defined as a "resident" if it has a permanent place of business in California or is qualified through the Secretary of State to do business in California.</p> <p>A partnership is considered a resident partnership if it has a permanent place of business in California. An estate is a resident if the decedent was a California resident at time of death. A trust is a resident if at least one trustee is a California resident.</p> <p>For individuals and sole proprietors, the term "resident" includes every individual who is in California for other than a temporary or transitory purpose and any individual domiciled in California who is absent for a temporary or transitory purpose. Generally, an individual who comes to California for a purpose that will extend over a long or indefinite period will be considered a resident. However, an individual who comes to perform a particular contract of short duration will be considered a nonresident.</p> <p>Payments to all nonresidents may be subject to withholding. Nonresident payees performing services in California or receiving rent, lease, or royalty payments from property (real or personal) located in California will have 7% of their total payments withheld for State income taxes. However, no withholding is required if total payments to the payee are \$1,500 or less for the calendar year.</p> <p>For information on Nonresident Withholding, contact the Franchise Tax Board at the numbers listed below:</p> <table> <tr> <td>Withholding Services and Compliance Section:</td> <td>1-888-792-4900</td> <td>E-mail address:</td> <td>wscs.gen@ftb.ca.gov</td> </tr> <tr> <td>For hearing impaired with TDD, call:</td> <td>1-800-822-6268</td> <td>Website:</td> <td>www.ftb.ca.gov</td> </tr> </table>	Withholding Services and Compliance Section:	1-888-792-4900	E-mail address:	wscs.gen@ftb.ca.gov	For hearing impaired with TDD, call:	1-800-822-6268	Website:	www.ftb.ca.gov
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For hearing impaired with TDD, call:	1-800-822-6268	Website:	www.ftb.ca.gov						
5	<p>Provide the name, title, signature, and telephone number of the individual completing this form. Provide the date the form was completed.</p>								
6	<p>This section must be completed by the State agency requesting the STD. 204.</p>								
	<p><u>Privacy Statement</u></p> <p>Section 7(b) of the Privacy Act of 1974 (Public Law 93-579) requires that any federal, State, or local governmental agency, which requests an individual to disclose their social security account number, shall inform that individual whether that disclosure is mandatory or voluntary, by which statutory or other authority such number is solicited, and what uses will be made of it.</p> <p>It is mandatory to furnish the information requested. Federal law requires that payment for which the requested information is not provided is subject to federal backup withholding and State law imposes noncompliance penalties of up to \$20,000.</p> <p>You have the right to access records containing your personal information, such as your SSN. To exercise that right, please contact the business services unit or the accounts payable unit of the State agency(ies) with which you transact that business.</p> <p>All questions should be referred to the requesting State agency listed on the bottom front of this form.</p>								

Feasibility Study for Restoration of the Los Angeles River in Sepulveda Basin Santa Monica Mountains Conservancy Proposition 1 Grant Application

NOTE: **Part I** of this document follows the grant application format outlined in **Section 4.1 of SMMC Proposition 1 Competitive Grant Program Guidelines** and follows its numbering system. **Part II** of this document conforms with the **Scoring Criteria Table**. The opening sentence is bulleted and in boldface type to designate separate items but the items are not numbered, in keeping with the format of the Scoring Table. The following questions from Part I did not readily fit Scoring Criteria questions but provide important context for consideration: 1, 2, 3, 10, 13, 14, 15.

Part I.

1) A detailed scope of work, including a list of specific tasks, a detailed budget, and a timeline for project implementation (including a completion date for each task);

The River Project proposes to investigate options for restoration and revitalization of the Los Angeles River within the Sepulveda Basin in the San Fernando Valley. The Sepulveda Basin is located in the middle of a highly developed urban area that contains disadvantaged communities. The 2,000-acre basin serves as a significant flood management area, detaining and infiltrating stormwater that would otherwise flood downstream communities.

The importance of the Sepulveda Basin as a drainage focal point and flood management area is highlighted by the number of urban tributaries, including storm drains, culverted streams, concrete channelized streams, and naturalized streams, draining into the basin. The mainstem Los Angeles River within the basin is a semi-natural stream, with three distinct segments, including a concrete channel, a natural channel bottom with concrete upper banks, and a natural channel bottom with rip rap banks. In the natural channel reaches, the channel exhibits limited geomorphic functionality with riparian habitat appropriate to that level of functionality. Within the concrete channel, there is no geomorphic functionality.

Existing compatible uses include active and passive recreation, wildlife areas, and wastewater facilities that provide persistent recreational flows in a semi-arid environment. Active recreation uses include sports fields, golf courses, non-motorized boating, and a velodrome. Passive recreation uses include walking and biking trails, picnic grounds, and fishing. These facilities are heavily utilized, drawing over 10,000 daily visitors on weekends and holidays. Moreover, the Sepulveda Basin is set to serve as a key site for the 2028 Olympics.

The overarching goal of this project is to study the feasibility of revitalizing the Los Angeles River within the Sepulveda Basin toward a healthier and more functional ecosystem by investigating the following objectives:

- Removing concrete and other modifications from the river and tributaries within the basin
- Increasing regenerative wetland and riparian habitat functions and values
- Using geomorphic and bioengineering design principles to restore geomorphic and ecosystem functionality to the river and riparian corridor within the Sepulveda Basin.
- Adding capacity for stormwater detention to reduce downstream flood hazards and increase potential for groundwater recharge
- Improving the recreational interface with the river and its tributaries, which will enhance the existing Los Angeles River Recreation Zone for fishing and boating, among other public benefits.

The study will include a charrette process with key stakeholders to integrate the perspectives of the following into the concept plan development: Sepulveda Basin Wildlife Areas Steering Committee; US Army Corps of Engineers; Mountains Recreation & Conservation Authority; City of Los Angeles Bureau of Sanitation; City of Los Angeles Department of Recreation and Parks; Los Angeles Mayor's Office of International Affairs. Technical

and design experts from Balance Hydrologics and GHD will be perform hydraulic, hydrologic, and environmental analyses and collaborate to deliver plan concepts and cost estimates for future phases of project work.

Tasks:	Completion Timeline:	Budget:
Existing Conditions Analysis	May, 2020	\$30,000
Design Charrette	June, 2020	\$30,000
Conceptual Plan Development	October, 2020	\$55,000
Feasibility Report & Documentation	January, 2021	\$30,000
15% Administrative Expense		\$21,750
	TOTAL:	\$161,750

2) Any preliminary project plans as required;

N/A

3) A detailed description of the need and urgency for the grant;

According to the latest IPCC report, we have 10 years to reduce greenhouse gas emissions by 50% and begin in earnest to sequester existing emissions. The latest IPBES report makes clear that protecting biodiversity is key to limiting climate impacts. At least 30% of the planet’s surface in important areas for biodiversity need to be protected, and an additional 20% need to be designated as terrestrial carbon sinks for climate stabilization if we want to remain below a 1.5°C warming scenario¹. Functional wetlands, floodplains and river corridors are recognized as the most effective land use for absorbing carbon² and cleansing water—and at the same time providing water supplies, cooling, and supporting flood risk management—yet less than 5% of this key land type are estimated to remain in LA County³.

Regional plans recognize that every available square foot is significant for water and carbon management in our region—and this can be realized by advancing cost-effective, nature-based solutions that protect and restore critical biodiversity and ecosystems. Naturalization of the river within this environment will help Los Angeles cope with ongoing threats of climate vulnerability in a dynamic region that include drought, flood, heat, fire, air quality, and vanishing habitats.

According to the US Army Corps of Engineers’ National Levee Database, segments of the Los Angeles River system do not currently provide protection for even a 15-year storm event. Sepulveda Dam, located at the downstream end of Sepulveda Basin, was built to provide flood protection for a 100-yr storm event, but climate change scenarios now indicate a greater likelihood and risk of increased flood frequency and intensity delivered via atmospheric rivers in the 21st Century⁴. These same scenarios indicate extended periods of drought between wet years that will necessitate a changed approach to managing our water resources, including investments in increased stormwater capture and recharge for local supply. Creating additional storage capacity behind the dam would help relieve flood risk for adjacent and downstream communities while providing for increased groundwater recharge to build local water supplies.

¹ E. Dinerstein, C. Vynne, E. Sala, A. R. Joshi, S. Fernando, T. E. Lovejoy, J. Mayorga, D. Olson, G. P. Asner, J. E. M. Baillie, N. D. Burgess, K. Burkart, R. F. Noss, Y. P. Zhang, A. Baccini, T. Birch, N. Hahn, L. N. Joppa, E. Wikramanayake, A Global Deal For Nature: Guiding principles, milestones, and targets. *Sci. Adv.* 5, eaaw2869 (2019)

² Nahlik, A., and M. Fennessy. 2016. Carbon Storage in US Wetlands. *Nature Communications*, 2016 (7). National Center for Biotechnology Information, US National Library of Medicine: Bethesda, MD. Accessed from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5159918/#b2>

³ Faber, P.M., E. Keller, A. Sands, and B.M. Massey. 1989. *The ecology of riparian habitats of the southern California coastal region: A community profile*. US Department of the Interior, Fish and Wildlife Service, Biological Report 85(7.27). Accessed from: <https://www.nwrc.usgs.gov/techrpt/85-7-27.pdf>

⁴ Swain, D.L., Langenbrunner, B., Neelin, J.D. *et al.* Increasing precipitation volatility in twenty-first-century California. *Nature Climate Change* 8, 427–433 (2018) doi:10.1038/s41558-018-0140-y

Lastly, acting now to initiate this feasibility study makes it possible to accomplish project implementation and establishment ahead of the 2028 Olympics, providing a unique opportunity to showcase Los Angeles' commitment to both river restoration and climate adaptation.

The River Project is well positioned to manage this feasibility study as a nonprofit that has been working for nearly two decades in the field on similar projects with a mission of *working toward living rivers, nourished by healthy watersheds*. The organization has been involved in many related initiatives, including serving for 15 years on the Sepulveda Basin Wildlife Area Steering Committee; participating in drafting the guiding document *Common Ground*; producing the *Hydrodynamic Study for Restoration Feasibility of the Tujunga Wash*; securing the first \$83.5 million in state funding for key projects on the LA River; organizing the Coalition for a State Park at Taylor Yard; leading the community-based design for the Valleyheart Greenway; and development of the *Tujunga-Pacoima Watershed Plan* which continues to be a success, with 24 of 37 preferred projects already implemented or in development as of January 2020. The breadth of this portfolio gives the organization perspective and capacity to recognize significant points of action that will advance work consistent with *Common Ground* and imperatives to realize climate resilience through watershed planning.

4) A detailed description of how the project will provide multi-benefit ecosystem, water quality, water supply, and watershed protection and public benefits;

This urban stream restoration project will ultimately yield multiple ecosystem, water quality, water supply, watershed protection and public benefits. The feasibility study will include a foundational two-day charrette process to generate concepts, followed by stakeholder engagement and concept development. In these processes, nature-based solutions will be utilized that can both realize and demonstrate in this high-profile location the potential for substantial gains in ecosystem restoration in urbanized settings such as the San Fernando Valley in the City of Los Angeles. Our assessment will consider geomorphic and ecological feasibility as well as corollary practicable feasibility during this early conceptual development stage.

The project will seek to improve the geomorphic functionality of the river, its tributaries and its floodplain. The project team will work to identify design opportunities and constraints focused on stream rehabilitation to facilitate development of achievable design goals that reduce risk, while at the same time restoring the reaches to more natural states to the extent practicable, are feasible to construct, and provide for longitudinal and bank stability given project constraints and existing channel conditions.

Successful concrete removal within the Los Angeles River will be a first-of-its-kind demonstration project in the City of Los Angeles that could serve as a template for future similar projects throughout the watershed and the larger region. This project would thus become a prototype for urban river naturalization using geomorphic analyses and bioengineering techniques to drive restoration design.

The ultimate goal of the design will be to establish a stable geomorphic stream long-profile and planform that functions as a natural stream under the existing hydrologic conditions, and within the constraints of the site. The concepts will incorporate various bioengineering techniques to provide protection for adjacent infrastructure and stability of the channel. For instance, a concept solution for one vulnerability type may primarily use buried boulders whereas a concept solution for a different vulnerability type may use a mixed streamwood-boulder approach or a grading and planting approach. Field studies, existing geologic and soils maps, historic aerial imagery, prior and current hydrologic modeling studies, and topographic information will help to establish appropriate approaches. Potential technical solutions may include the following: channel bank layback or terracing to stabilize the banks at natural breaks for a more gentle slope; buried boulder placement or a combination of buried streamwood and boulders to replace grade control structures; boulders, log crib walls or other treatments to protect cross-section toe-of-slope in specific areas; reconnection of the channel to the floodplain; wetland creation; reconfiguration of outfalls using bioengineered outfall techniques; and/or other potential solutions that may come to light once studies are underway. Bank stabilization would be accomplished by reinforcing unarmored banks using native vegetation, bioengineering techniques using wood and rock where needed and reestablishing floodplain connectivity further upstream where possible. The channel bed would be

similarly reinforced where needed with buried boulders and boulder steps serving as naturalized grade structures. Conceptual design alternatives will be conveyed in rendered plan diagrams of the project site. Project components or other bioengineering concepts would be illustrated by simple line diagram illustrations in AutoCAD or similar software.

Habitat planting design will be developed in tandem with geomorphic design and proposed structures and bioengineering strategies. Given the range of conditions expected to be established, habitats will likely span riparian woodland, riparian scrub, freshwater marsh, valley grassland and valley oak plant communities, with riparian and wetland species within these communities prioritized. The relationship between these plant species and both known wildlife species present and potential wildlife species that may be reestablished will also be considered for maximum benefit of habitat abundance and diversity.

Improvements in water supply and water quality can be accomplished by reconnecting the floodplain further upstream within the basin so that flood waters are able to spread out and infiltrate into the aquifer through the ground surface rather than ponding up at the dam face. Improved floodplain connectivity would provide space for fine-grained sediment deposition that would add mineral and organic nutrients to floodplain soils. In addition to water supply and water quality improvements, a modest increase in flood flow storage capacity could be accomplished by allowing floodwaters to reconnect to the floodplain to a greater degree than under existing conditions.

The Sepulveda Basin is a significant recreational destination for residents and visitors to Los Angeles. In addition to the numerous sports fields and the recreation lake, the Los Angeles River through the Basin is one of two River Recreation Zones managed by the Mountains Recreation & Conservation Authority. Restoration concepts will propose improvements that maintain recreational accessibility, enhance aesthetic values with a uniquely Southern Californian sense of place, and introduce expanded riparian recreation opportunities to the Basin.

Given the above overarching goals and multi-benefits, the feasibility study will seek to formulate the beginnings of two conceptual plans that focus on naturalizing the channel bed and banks throughout the basin, reconnecting the upper basin with its floodplain where potentially feasible, using bioengineering techniques to provide channel stability where needed, and increasing native riparian habitat, with a number of components common to each concept to permit flexibility in deciding which restoration components are practicable and cost effective in future phases. We expect that the two concepts will bracket the potential scale of the project in order to gain a sense for how much restoration and reconfiguration could be achieved within various budget ranges. Possible strategies are anticipated to include removing concrete and other in-channel structures, grading for increased retention on the floodplain, biotechnical bank stabilization, planting select native species, and circulation planning for recreational access. This project may thus become a prototype for urban river naturalization using geomorphic analysis to drive restoration design, including bioengineered bank stabilization analysis, design and construction methods to replace concreted channels using established methods that could be implemented with care under a range of conditions in the southern California region.

Technical and design experts from Balance Hydrologics and GHD will be contracted to be involved throughout the process, working directly with stakeholders in the charrette, in follow-up, and in delivering the final plan concepts for future phases of project work in this stretch of the LA River.

5) A detailed description of how the project achieves one or more of the purposes of Proposition 1 as stated in Water Code Section 79732(a);

1) Protect and increase the economic benefits arising from healthy watersheds, fishery resources, and instream flow.

The project is located in the Sepulveda Basin, which contains a 2.4-mile length of the Los Angeles River mainstem channel along with up to six tributaries that drain through the basin and into the river. The feasibility study will result in conceptual plans for strategies that both physically improve conditions, and also socially support continued and enhanced public benefits and responsible investments. Restoration of the river and its tributaries will create regenerative urban spaces that provide opportunities for enhanced

public spaces for human use, appreciation, recreation, tourism, and sales associated with river interpretation, water recreation, and a healthier watershed. Providing actionable proposals for increased riverine habitat can lead to the expansion of fish habitat and healthier watershed conditions.

2) Implement watershed adaptation projects in order to reduce the impacts of climate change on California’s communities and ecosystems.

Climate change in the Los Angeles region is expected to lead to increased events of extreme drought, flooding, and heat. The feasibility study will provide actionable solutions that, when implemented, facilitate climate change adaptation and resilience. Concrete removal, expansion of geomorphic and riparian features, and improved floodplain connectivity will reduce the impacts of climate change by reducing the heat island effect, enhancing carbon storage, and retaining floodwaters.

As described in Section 4 above, expanded functioning floodplains within the Basin will contribute to increased groundwater recharge, providing the region with greater resiliency during drought events. The project’s goal to increase flood retention will help to protect the region as extreme flooding becomes normalized. Expanded riparian areas, particularly tree canopies within the riparian corridor, create shaded microclimates that can provide respite from extreme heat, help to mitigate the urban heat island, and provide localized zones of cooler temperatures.

Furthermore, the expanded floodplain areas of the riparian corridor, managed by the geomorphic processes of sediment deposition and erosion, support carbon sequestration and storage in soils and vegetative matter.

3) Restore river parkways throughout the state, including, but not limited to, projects pursuant to the California River Parkway Act of 2004 (Chapter 3.8 (commencing with Section 5750) of Division 5 of the Public Resources Code), in the Urban streams Restoration Program established pursuant to Section 7048, and urban river greenways.

Subsection 7048 of the California Water Code provides that the following description of “urban creek protection, restoration, and enhancement include, but are not limited to, the maintenance of channel capacity, channel stabilization, vegetation management, the reduction of water quality impairments and nonpoint source water pollution, the establishment of parkways for public use that benefit flood control and water quality, and adaptive management to meet program objectives. Where appropriate, the protection, restoration, and enhancement shall utilize efficient, nonstructural low-maintenance flood protection techniques.”

This feasibility study will propose actionable restoration and naturalization approaches for degraded reaches of the Los Angeles River within the Sepulveda Basin that, when implemented, fulfill many objectives of the Urban Streams Restoration Program and the River Parkway Act, including:

- Maintenance of:
 - Channel capacity and channel stabilization. Natural river systems flux between erosional and depositional phases. “Equilibrium” in this context must account for these contrasting actions. Effective flood damage reduction strategies recognize the space needed for disturbance events such as floods and provide adequate space to accommodate them. Implementation projects proposed by this feasibility study will be situated within the existing Sepulveda Flood Basin, which provides a backstop for potential flood damages while demonstrating the capacity of a naturally functioning floodplain to manage equilibrium, reduce damaging erosion, and maintain vegetated, stable riparian banks.
 - Vegetation management. Restoration and naturalization will result in an increase in aquatic and riparian habitats, with attendant increases in both habitat abundance and diversity. Restoration of geomorphic processes reestablishes the natural environment as a self-regulating ecosystem, inherently preserved and responsive to natural disturbance events. Sizing of floodplains and detention capacity will account for the volume and

roughness coefficient of riparian vegetation to minimize the need for active of vegetation.

- Reduction of water quality impairments. By restoring ecosystem processes within the basin, water quality benefits accrue naturally. The sand, rock, and soil within the river cross-section provides a level of filtration that is often achieved through mechanical or standardized filtration systems. Riparian vegetation interacting with runoff and river flow also filters common pollutants, including excess nutrients, sediment, and metals. Sunlight facilitates the breakdown of oils and other pollutants. While a naturalized river system can be overwhelmed by pollutants, its ecosystem processes work to break down and reuse many pollutants as a means of maintaining systemic equilibrium. It is difficult to quantify the pollutant reductions, however water quality benefits of Low Impact Development BMPs based on natural processes are well documented.
- Establishment of parkways for public use. While the Sepulveda Basin is currently managed as a recreational area, the restored Los Angeles River reaches proposed by the feasibility study will create new opportunities for recreating within a geomorphically functioning river system within an urban area. A 2-mile segment of the river is currently managed as the Sepulveda Basin Los Angeles River Recreation Zone by the MRCA in cooperation with The City and County of Los Angeles and the US Army Corps of Engineers to provide safe public recreational access to the river and further river revitalization. Access to this Recreation Zone is just upstream of the river at the Burbank Blvd and Balboa Blvd bridges. This study will explore the potential for improving and expanding access to the Zone, including walking, fishing, and non-motorized boating.
- Adaptive management. By designing with nature through the reestablishment of geomorphic processes, projects implemented from the feasibility study can better embrace low-cost adaptive management techniques to address observed issues within restored areas.
- Efficient, nonstructural low-maintenance flood protection techniques. By working with natural flood processes within an existing flood basin, the project balances an existing flood management paradigm with a restoration approach emphasizing passive management through the increased detention and infiltration of floodwaters throughout the floodplain cross-section and buffers from upland areas.

4) Protect and restore aquatic, wetland, and migratory bird ecosystems, including fish and wildlife corridors and the acquisition of water rights for instream flow.

Concrete blanket removal in the mainstem and tributaries; enhanced riparian corridor and upland habitats; and reconnected floodplain, wetland, and tributary functionality will substantially improve the Sepulveda Basin ecosystem for fish, invertebrates, amphibians, birds, and other terrestrial wildlife.

Sepulveda Basin provides critical stopover habitat for numerous migratory bird species. Over 200 species of birds have been sighted in the Basin, including the Federally Endangered least Bell's vireo. According to the State Department of Fish and Game, bird species of special concern found along the River in Sepulveda Basin include: American White Pelican; California Gull; Coopers Hawk; Double Crested Cormorant; Loggerhead Shrike; Merlin; Northern Harrier; Osprey; Sharp-shinned Hawk; Tri-colored Blackbird; Vaux's Swift; Yellow Warbler; and Yellow-breasted Chat. More rarely-seen species include: Burrowing Owl; California Horned Lark; Golden Eagle; Least Bittern; Long-billed Curlew; Prairie Falcon; Summer Tanager Vermillion Flycatcher; White-faced Ibis. These species will benefit from the greater diversity of habitats sustained by restoration of the river.

While more substantial restoration of the Los Angeles River would be required for successful reestablishment of anadromous Southern Steelhead Trout and Pacific lamprey, the restored reach may again become suitable habitat for Arroyo chub, threespine stickleback, and Santa Ana dace as well as amphibians such as Pacific chorus frogs, Arroyo toad, California toad, California red-legged frog and Western spadefoot, and reptiles such as the southwester pond turtle.

6) Remove barriers to fish passage.

Although the basin is isolated upstream and downstream, the river and its tributaries within basin provide a fairly extensive ecosystem that may be capable of sustaining a larger more diverse population of fish. Existing concrete blankets and weir grade controls likely prevent fish from utilizing the entire basin stream network, including tributary channels. Removal of concrete, expansion of tributary access, and use of boulder steps as grade controls will facilitate fish passage in the upstream and downstream directions and into the tributaries. Including tributaries, more easily accessible channel could be greater than 3 miles in length.

8) Implement fuel treatment projects to reduce wildfire risks, protect watersheds tributary to water storage facilities, and promote watershed health.

Stream corridors with riparian vegetation have combustible material. The moisture contained in plant tissue can help riparian trees resist combustion, but under hot enough fire conditions, they will ignite. The feasibility study will include consideration of the restoration alignment, riparian corridor width, and defensible buffer zones. If needed, discussion of vegetation management strategies can also be included in the feasibility study.

9) Protect and restore rural and urban watershed health to improve watershed storage capacity, forest health, protection of life and property, stormwater resource management, and greenhouse gas reduction.

Implementation of this feasibility study will ultimately lift habitat functions and values of the river, its tributaries, floodplain and upland areas. The project will return the channel to more naturalized conditions, increase flood storage capacity, enhance riparian and upland habitats, improve public access to nature, utilize stormwater as an aquifer recharge resource, and contribute to GHG reduction. Nature-based solutions leverage natural system functions including a host of healthy organisms in soil, plants, and associated wildlife to do significant GHG work that addresses regional climate change challenges by naturally cycling carbon, water, and volatile compounds; cooling the environment; and in the process of absorbing and infiltrating water, slowing and reducing peak flows that contribute to significant flood risks faced by urban citizens downstream of the project area.

10) Protect and restore coastal watersheds, including, but not limited to, bays, marine estuaries, and nearshore ecosystems.

While the extent of marine influence is arguably less noticeable in the San Fernando Valley, the Los Angeles River watershed is a coastal watershed with an estuary and marine outlet. This feasibility study, which will conclude with restoration options within the San Fernando Basin, may offer an approach to naturalization that can eventually translate to direct benefits in the nearshore, estuarine, and marine environments. In the short term, improving the ecological health of an upstream river reach reduces the water quality and flood impacts of those flows in the downstream coastal environment.

11) Reduce pollution or contamination of rivers, lakes, streams, or coastal waters, prevent and remediate mercury contamination from legacy mines, and protect or restore natural system functions that contribute to water supply, water quality, or flood management.

Restoration of natural system functions in the Sepulveda Basin, including concrete removal, improved geomorphic and ecological functions, and floodplain reconnection, will increase water quantity and quality via increased aquifer recharge and natural filtration, respectively. Flood management will improve via increased connectivity of the river to its natural floodplain.

12) Assist in the recovery of endangered, threatened, or migratory species by improving watershed health, instream flows, fish passage, coastal or inland wetland restoration, or other means, such as natural community conservation plan and habitat conservation plan implementation.

Geomorphic channel restoration, vegetation selections and habitat management strategies will be made with emphasis on greatest impact for native species that may benefit from restoration of natural processes. With wetlands and adjacent upland habitats facing particular threats in the region, improving watershed health and restoring aquatic and river corridor habitat are among the most significant possible actions in urban areas to lift natural functions.

6) A detailed description of how the project promotes and implements one or more of the objectives of the California Water Action Plan as stated in Section 1.3 of this guideline;

The project will address all three objectives outlined in the California Water Action Plan:

- Water supply reliability. Water capture and infiltration in the project area infiltrates directly to an unconfined groundwater aquifer actively sourced for local water supplies. Local groundwater is more reliable than imported supplies. As described elsewhere, the project proposes to leverage geomorphic processes to naturally maintain the infiltration processes that the greater Los Angeles River watershed sustained for centuries and, over geologic time, used to create the San Fernando aquifer.
- Restoration of important habitat species. Restoration of geomorphic processes throughout the river cross-section establishes and maintains self-regulating habitats that support a wide array of wildlife species. Concept development will consider species supported by this habitat, as well as seek to accommodate sensitive species that have adapted to manmade landscapes within the basin.
- Sustainable, resilient managed water resources. The funding source will support a feasibility/planning process focused on water management driven nature-based solutions appropriate for urban contexts—given the scale of our challenges, every square foot of public and private property must be creatively adapted to address climate-resilience and in our region that fundamentally necessitates wise water management, carbon sequestration, and leveraging natural systems to offset more cost and carbon-intensive human inputs.

7) A detailed description of how the project helps meet the State’s greenhouse gas emissions reductions targets, including a quantification of the metric tons of CO2 or CO2e removed or avoided, and an explanation of the methodology used to quantify this figure;

The feasibility study will advance potentially feasible conceptual designs that have not yet been developed—as such, total potential GHG reduction volumes are not available. However, reducing impermeable materials, revegetation of wetland and floodplain lands, and maximizing healthy soils are anticipated to be leading strategies. The world’s soils hold more than three times the carbon in the atmosphere,^{5,6} and together with layers of vegetation that have been demonstrated to remove up to 40% of greenhouse gasses such as nitrous oxide along urban streets⁷, significant progress can be made with ecosystem restoration projects such as within the Sepulveda Basin. Based on afforestation in the US, as much as 0.35 tons carbon per hectare per year can be captured in restored areas, including absorption into soils and deciduous trees;^{8,9} this number could be converted to an approximated .01-pound of carbon per square foot per year for urban restoration projects. Aquifer recharge promoted by this and similar projects may also offset water imports over time, and the associated carbon footprint of those imports.

8) A detailed description of how the project promotes and implements other relevant regional and state plans and policies;

The feasibility study will address State, regional, and local plans, including local and regional river parkway plans; water resource plans for quality, supply, and flood risk management; climate, air, and soil; and also, habitat and active transportation. Among these are the following:

US Bureau of Reclamation and County Flood Control District Los Angeles Basin Study

⁵ Rattan, L. 2007. Carbon Sequestration. *Philosophical Transactions of the Royal Society B Biological Sciences*. The Royal Society. Accessed from: <http://rstb.royalsocietypublishing.org/content/363/1492/815>

⁶ Batjes, N. 1996. Total Carbon and Nitrogen in the Soils of the World. *European Journal of Soil Science*, 1996 vol. 47 (2). British Society of Soil Science and the National Societies of Soil Science in Europe. Accessed from: <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2389.1996.tb01386.x>

⁷ Pugh, T., A. MacKenzie, J. Whyatt, and C. Hewitt. 2012. Effectiveness of Green Infrastructure for Improvement of Air Quality in Urban Street Canyons. *Environmental Science and Technology* 2012, 46 (14). Washington, DC: American Chemical Society. Accessed from: <https://pubs.acs.org/doi/abs/10.1021/es300826w>

⁸ Minasny et. al. 2017. Soil Carbon 4 per Mille. *Geoderma*, vol. 292. Elsevier. Accessed from: <https://www.sciencedirect.com/science/article/pii/S0016706117300095>

⁹ Morris, S., S. Bohm, S. Haile-Mariam, and E. Paul. 2017. Evaluation of Carbon Accrual in Afforested Agricultural Soils. *Global Change Biology*, vol. 13 (6). Accessed from: <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2486.2007.01359.x>

River restoration strategies are among the highest ranked actions that can be taken for impact effectiveness within the City of Los Angeles, as well as increased stormwater management, more reliable water supplies, and improved climate resilience. Creating additional detention capacity within Sepulveda Basin was a leading Regional strategy in the plan, with an estimated 4,263 AFY of groundwater recharge available for local water supplies under an increased recharge regime. This feasibility study advances these strategies.

Urban Waters Federal Partnership

This feasibility study is included in the Urban Waters Federal Partnership Work Plan. The goals of the Partnership include restoring ecosystem functions, balancing revitalization with flood avoidance to ensure public safety, maximizing multi-benefit watershed goals, reducing reliance on imported water supplies, fostering sustainable stewardship, and fostering diverse participation and equitable community benefits respectful of the power of place.

California Healthy Soils Initiative

Stream restoration projects in urban semi-arid regions are important for carbon sequestration and habitat renewal. Removal of impermeable concrete blankets in the river and its tributaries will substantially increase the area of healthy, functional soils within the river corridor at a scale not easily found in highly urbanized setting such as the City of Los Angeles. Notably, urban biofiltration areas in semi-arid regions can be important for both carbon sequestration and habitat, with organic mulch increasing soil organic matter (carbon sequestration) and organisms in soil more than inorganic mulch.¹⁰ Floodplain and wetland creation will further increase the GHG storage capability of the Sepulveda Basin. Healthy soils are vital components necessary to address regional challenges related to healthy ecosystems, healthy citizens and watershed protection for aquatic and terrestrial species; and are a driving foundation for nature-based solutions

California Senate Bill 32 Greenhouse Gas emission reduction target for 2030 and 2018 Executive Order B-55-18 to achieve carbon neutrality

Projects that sequester carbon and apply low-impact, natural materials such as the bioengineering techniques that will be utilized for this feasibility study’s conceptual design development are key components identified as necessary to reduce emissions and reach carbon neutrality.

State Wildlife Action Plan

Vegetation species will be selected to maximize habitat priorities appropriate for the climate and locations, increasing benefits of site and surrounding landscape cover and wildlife benefits.

Upper LA River Enhanced Watershed Management Plan (EWMP)

The feasibility study aligns with the EWMP vision to utilize a multi-pollutant approach that maximizes the retention and use of urban runoff as a resource for groundwater recharge and irrigation, while also creating additional benefits for the communities in the ULAR watershed, including projects to promote greenways and increase access to the LA River and its tributaries, increase recreational opportunity, augment local water supply, improve habitat and climate change resiliency.

County LA River Master Plan

The feasibility study will advance the following goals of the current Master Plan update: reducing flood risk and improving resiliency; supporting healthy connected ecosystems; improving local water supply reliability; promoting healthy, safe, clean water; providing equitable, inclusive, and safe parks, open space, and trails; and enhancing opportunities for equitable access to the river corridor. Sepulveda Basin is included as the site for a regional project in the Plan draft.

¹⁰ Pavao-Zuckerman, MA and C. Sookhdeo. 2017. Nematode Community Response to Green Infrastructure Design in a Semiarid City. *Journal of Environmental Quality* 46(3). Accessed from: <https://www.ncbi.nlm.nih.gov/pubmed/28724103>

County Bike Master Plan

The feasibility study will include planning for trails and routes identified in the Master Plan.

9) Indicate whether the project will have matching funds from private, local, or federal sources, and if so, to what extent;

There is not a formal fund match for this project feasibility phase. Other potential contributions may include but are not limited to the time of local government, organizations, and stakeholders, as well as meeting space. It is likely that substantial support from local, state and federal sources will be made toward fully realizing project concepts in future phases.

10) Indicate whether the project will benefit a disadvantaged community;

Sepulveda Basin is surrounded on the north and east by multiple neighborhoods recognized as disadvantaged communities (DAC)s with rankings between 85% - 95% per CalEnviro Screen 3.0. In addition, over half of all downstream communities are recognized as DACs threatened by severe flood risk, poor water quality through TMDL exceedances, poor air quality, limited outdoor access, heat island effects, and other climate-related vulnerabilities. This study will examine the feasibility of a project within Sepulveda Basin to reduce downstream flood flows, improve water quality, clean air and sequester carbon, recharge local groundwater, and provide additional regional access points to public outdoor recreation which present opportunities to serve these communities.

11) Indicate whether the project will use the services of local or state conservation corps;

The feasibility study developed for this project is intended to inform and advance project implementation, which in future phases, beyond the scope of this project component, may include work relevant for local and state conservation corps.

12) A detailed description of any new or innovative technology or practices that will be applied to the project; and

The focus of the feasibility study will be on applying innovative methods (already in practice elsewhere) toward rehabilitation, restoration, and enhancement of an important urban “oasis” within the City of Los Angeles. Innovative technologies and practices will include first-time concrete removal within a flood control basin, the use of bioengineering bank stabilization techniques, the potential of building step pools as naturalized grade control structures and the use of drone imagery to document project evolution.

13) A detailed method for monitoring and reporting on the progress and effectiveness of the project during and after project implementation.

The feasibility study will identify the parameters, general engineering costs, and the constraints and benefits of a future project to be implemented in subsequent project phases. After study completion, success will be determined by the securing of funding, followed by additional concept development, and project completion including plan set development, basis of design report, issuance of required permits, and project construction. Once constructed, monitoring of restoration evolution will be required by the regulatory permittees. A monitoring plan that includes geomorphic and biological success criteria would be implemented, with the ability to implement adaptive management strategies if and where needed over the course of the monitoring period. Annual reports would be submitted to the permitting agencies that include geomorphic and biological monitoring results as well as adaptive management strategies when implemented.

14) (not numbered in Section 4.1) How scope of work will protect or enhance an urban creek as defined in Section 7048(e);

The feasibility study will explore opportunities to expand channel and floodplain capacity, stabilize channel banks, retain stormwater and infiltrate into the aquifer, and to improve native vegetation cover adjacent to the Los Angeles River and its tributaries within the Sepulveda Basin. These enhancement activities will improve water quality, reduce peak flows which is key in flood risk management, and improve the functionality and integrity of species habitat. These protection and enhancement activities may also inform restoration trajectories in other key

areas of the greater Los Angeles River watershed while advancing the practice, awareness, and potential innovative technologies and practices across Southern California.

15) (not numbered in Section 4.1) Description of how project is consistent with the Common Ground Plan.

This feasibility study is consistent with the Guiding Principles, Strategies, and Opportunities identified in *Common Ground*. The study directly aims to advance the vision to restore balance between natural and human systems in watersheds. Specific to improving and increasing connection to a key river parkway within the highly urbanized San Fernando Valley and City of Los Angeles, the study will identify land opportunities associated with open space and recreation improvements; water opportunities through restoration of river functionality including flood management via floodplain reconnection, water quality and supply through retention and infiltration; habitat opportunities through restoration of riparian corridor and upland habitat to enhance ecosystem function; and planning opportunities by addressing multiple local, regional, state and federal objectives and being comprehensive and inclusive of relevant government and local partners for greatest near- and long-term benefits.

Section II

• **The Project achieves twelve of thirteen purposes of Proposition 1 per Water Code Section 79732(a), as detailed below:**

1) *Protect and increase the economic benefits arising from healthy watersheds, fishery resources, and instream flow.*

The project is located in the Sepulveda Basin, which contains a 2.4-mile length of the Los Angeles River mainstem channel along with up to six tributaries that drain through the basin and into the river. The feasibility study will result in conceptual plans for strategies that both physically improve conditions, and also socially support continued and enhanced public benefits and responsible investments. Restoration of the river and its tributaries will create regenerative urban spaces that provide opportunities for enhanced public spaces for human use, appreciation, recreation, tourism, and sales associated with river interpretation, water recreation, and a healthier watershed. Providing actionable proposals for increased riverine habitat can lead to the expansion of fish habitat and healthier watershed conditions.

2) *Implement watershed adaptation projects in order to reduce the impacts of climate change on California’s communities and ecosystems.*

Climate change in the Los Angeles region is expected to lead to increased events of extreme drought, flooding, and heat. The feasibility study will provide actionable solutions that, when implemented, facilitate climate change adaptation and resilience. Concrete removal, expansion of geomorphic and riparian features, and improved floodplain connectivity will reduce the impacts of climate change by reducing the heat island effect, enhancing carbon storage, and retaining floodwaters.

As described in Section 4 above, expanded functioning floodplains within the Basin will contribute to increased groundwater recharge, providing the region with greater resiliency during drought events. The project’s goal to increase flood retention will help to protect the region as extreme flooding becomes normalized. Expanded riparian areas, particularly tree canopies within the riparian corridor, create shaded microclimates that can provide respite from extreme heat, help to mitigate the urban heat island, and provide localized zones of cooler temperatures.

Furthermore, the expanded floodplain areas of the riparian corridor, managed by the geomorphic processes of sediment deposition and erosion, support carbon sequestration and storage in soils and vegetative matter.

3) *Restore river parkways throughout the state, including, but not limited to, projects pursuant to the California River Parkways Act of 2004 (Chapter 3.8 (commencing with Section 5750) of Division 5 of the Public Resources Code), in the Urban streams Restoration Program established pursuant to Section 7048, and urban river greenways.*

Subsection 7048 of the California Water Code provides that the following description of “urban stream restoration, protection, restoration, and enhancement include, but are not limited to, the maintenance of channel capacity, channel stabilization, vegetation management, the reduction of water quality impairments and nonpoint source water pollution, the establishment of parkways for public use that benefit flood control and water quality, and adaptive management to meet program objectives. Where appropriate, the protection, restoration, and enhancement shall utilize efficient, nonstructural low-maintenance flood protection techniques.”

This feasibility study will propose actionable restoration and naturalization approaches for degraded reaches of the Los Angeles River within the Sepulveda Basin that, when implemented, fulfill many objectives of the Urban Streams Restoration Program and the River Parkway Act, including:

- Maintenance of:
 - Channel capacity and channel stabilization. Natural river systems flux between erosional and depositional phases. “Equilibrium” in this context must account for these contrasting actions. Effective flood damage reduction strategies recognize the space needed for disturbance events such as floods and provide adequate space to accommodate them. Implementation projects proposed by this feasibility study will be situated within the existing Sepulveda Flood Basin, which provides a backstop for potential flood damages while demonstrating the capacity of a naturally functioning floodplain to manage equilibrium, reduce damaging erosion, and maintain vegetated, stable riparian banks.
 - Vegetation management. Restoration and naturalization will result in an increase in aquatic and riparian habitats, with attendant increases in both habitat abundance and diversity. Restoration of geomorphic processes reestablishes the natural environment as a self-regulating ecosystem, inherently preserved and responsive to natural disturbance events. Sizing of floodplains and detention capacity will account for the volume and roughness coefficient of riparian vegetation to minimize the need for active management of vegetation.
- Reduction of water quality impairments. By restoring ecosystem processes within the basin, water quality benefits accrue naturally. The sand, rock, and soil within the river cross-section provides a level of filtration that is often achieved through mechanical or standardized filtration systems. Riparian vegetation interacting with runoff and river flow also filters common pollutants, including excess nutrients, sediment, and metals. Sunlight facilitates the breakdown of oils and other pollutants. While a naturalized river system can be overwhelmed by pollutants, its ecosystem processes work to break down and reuse many pollutants as a means of maintaining systemic equilibrium. It is difficult to quantify the pollutant reductions, however water quality benefits of Low Impact Development BMPs based on natural processes are well documented.
- Establishment of parkways for public use. While the Sepulveda Basin is currently managed as a recreational area, the restored Los Angeles River reaches proposed by the feasibility study will create new opportunities for recreating within a geomorphically functioning river system within an urban area. A 2-mile segment of the river is currently managed as the Sepulveda Basin Los Angeles River Recreation Zone by the MRCA in cooperation with The City and County of Los Angeles and the US Army Corps of Engineers to provide safe public recreational access to the river and further river revitalization. Access to this Recreation Zone is just upstream of the river at the Burbank Blvd and Balboa Blvd bridges. This study will explore the potential for improving and expanding access to the Zone, including walking, fishing, and non-motorized boating.
- Adaptive management. By designing with nature through the reestablishment of geomorphic processes, projects implemented from the feasibility study can better embrace low-cost adaptive management techniques to address observed issues within restored areas.
- Efficient, nonstructural low-maintenance flood protection techniques. By working with natural flood processes within an existing flood basin, the project balances an existing flood management paradigm with a restoration approach emphasizing passive management through the increased detention and infiltration of floodwaters throughout the floodplain cross-section and buffers from upland areas.

4) *Protect and restore aquatic, wetland, and migratory bird ecosystems, including fish and wildlife corridors and the acquisition of water rights for instream flow.*

Concrete blanket removal in the mainstem and tributaries; enhanced riparian corridor and upland habitats; and reconnected floodplain, wetland, and tributary functionality will substantially improve the Sepulveda Basin ecosystem for fish, invertebrates, amphibians, birds, and other terrestrial wildlife.

Sepulveda Basin provides critical stopover habitat for numerous migratory bird species. Over 200 species of birds have been sighted in the Basin, including the Federally Endangered least Bell's vireo. According to the State Department of Fish and Game, bird species of special concern found along the River in Sepulveda Basin include: American White Pelican; California Gull; Coopers Hawk; Double Crested Cormorant; Loggerhead Shrike; Merlin; Northern Harrier; Osprey; Sharp-shinned Hawk; Tri-colored Blackbird; Vaux's Swift; Yellow Warbler; and Yellow-breasted Chat. More rarely-seen species include: Burrowing Owl; California Horned Lark; Golden Eagle; Least Bittern; Long-billed Curlew; Prairie Falcon; Summer Tanager Vermillion Flycatcher; White-faced Ibis. These species will benefit from the greater diversity of habitats sustained by restoration of the river.

While more substantial restoration of the Los Angeles River would be required for successful reestablishment of anadromous Southern Steelhead Trout and Pacific lamprey, the restored reach may again become suitable habitat for Arroyo chub, threespine stickleback, and Santa Ana dace as well as amphibians such as Pacific chorus frogs, Arroyo toad, California toad, California red-legged frog and Western spadefoot, and reptiles such as the southwester pond turtle.

6) *Remove barriers to fish passage.*

Although the basin is isolated upstream and downstream, the river and its tributaries within basin itself provide a fairly extensive ecosystem that may be capable of sustaining a larger more diverse population of fish. Existing concrete blankets and weir grade controls likely prevent fish from utilizing the entire basin stream network, including tributary channels. Removal of concrete, expansion of tributary access, and use of boulder steps as grade controls will facilitate fish passage in the upstream and downstream directions and into the tributaries. Including tributaries, more easily accessible channel could be greater than 3 miles in length.

8) *Implement fuel treatment projects to reduce wildfire risks, protect watersheds tributary to water storage facilities, and promote watershed health.*

Stream corridors with riparian vegetation have combustible material. The moisture contained in plant tissue can help riparian trees resist combustion, but under hot enough fire conditions, they will ignite. The feasibility study will include consideration of the restoration alignment, riparian corridor width, and defensible buffer zones. If needed, discussion of vegetation management strategies can also be included in the feasibility study.

9) *Protect and restore rural and urban watershed health to improve watershed storage capacity, forest health, protection of life and property, stormwater resource management, and greenhouse gas reduction.*

Implementation of this feasibility study will ultimately lift habitat functions and values of the river, its tributaries, floodplain and upland areas. The project will return the channel to more naturalized conditions, increase flood storage capacity, enhance riparian and upland habitats, improve public access to nature, utilize stormwater as an aquifer recharge resource, and contribute to GHG reduction. Nature-based solutions leverage natural system functions including a host of healthy organisms in soil, plants, and associated wildlife to do significant GHG work that addresses regional climate change challenges by naturally cycling carbon, water, and volatile compounds; cooling the environment; and in the process of absorbing and infiltrating water, slowing and reducing peak flows that contribute to significant flood risks faced by urban citizens downstream of the project area.

10) *Protect and restore coastal watersheds, including, but not limited to, bays, marine estuaries, and nearshore ecosystems.*

While the extent of marine influence is arguably less noticeable in the San Fernando Valley, the Los Angeles River watershed is a coastal watershed with an estuary and marine outlet. This feasibility study, which will conclude with restoration options within the San Fernando Basin, may offer an approach to naturalization that can eventually translate to direct benefits in the nearshore, estuarine, and marine environments. In the short term, improving the ecological health of an upstream river reach reduces the water quality and flood impacts of those flows in the downstream coastal environment.

11) *Reduce pollution or contamination of rivers, lakes, streams, or coastal waters, prevent and remediate mercury contamination from legacy mines, and protect or restore natural system functions that contribute to water supply, water quality, or flood management.*

Restoration of natural system functions in the Sepulveda Basin, including concrete removal, improved geomorphic and ecological functions, and floodplain reconnection, will increase water quantity and quality via increased aquifer recharge and natural filtration, respectively. Flood management will improve via increased connectivity of the river to its natural floodplain.

12) *Assist in the recovery of endangered, threatened, or migratory species by improving watershed health, instream flows, fish passage, coastal or inland wetland restoration, or other means, such as natural community conservation plan and habitat conservation plan implementation.*

Geomorphic channel restoration, vegetation selections and habitat management strategies will be made with emphasis on greatest impact for native species that may benefit from restoration of natural processes. With wetlands and adjacent upland habitats facing particular threats in the region, improving watershed health and restoring aquatic and river corridor habitat are among the most significant possible actions in urban areas to lift natural functions.

- **The project will provide multi-benefit ecosystem, water quality, water supply, and watershed protection and public benefits.**

This urban stream restoration project will ultimately yield multiple ecosystem, water quality, water supply, watershed protection and public benefits. The feasibility study will include a foundational two-day charrette process to generate concepts, followed by stakeholder engagement and concept development. In these processes, nature-based solutions will be utilized that can both realize and demonstrate in this high-profile location the potential for substantial gains in ecosystem restoration in urbanized settings such as the San Fernando Valley in the City of Los Angeles. Our assessment will consider geomorphic and ecological feasibility as well as corollary practicable feasibility during this early conceptual development stage.

The project will seek to improve the geomorphic functionality of the river, its tributaries and its floodplain. The project team will work to identify design opportunities and constraints focused on stream rehabilitation to facilitate development of achievable design goals that reduce risk, while at the same time restoring the reaches to more natural states to the extent practicable, are feasible to construct, and provide for longitudinal and bank stability given project constraints and existing channel conditions.

Successful concrete removal within the Los Angeles River will be a first-of-its-kind demonstration project in the City of Los Angeles that could serve as a template for future similar projects throughout the watershed and the larger region. This project would thus become a prototype for urban river naturalization using geomorphic analyses and bioengineering techniques to drive restoration design.

The ultimate goal of the design will be to establish a stable geomorphic stream long-profile and planform that functions as a natural stream under the existing hydrologic conditions, and within the constraints of the site. The concepts will incorporate various bioengineering techniques to provide protection for adjacent infrastructure and stability of the channel. For instance, a concept solution for one vulnerability type may primarily use buried boulders whereas a concept solution for a different vulnerability type may use a mixed streamwood-boulder approach or a grading and planting approach. Field studies, existing geologic and soils maps, historic aerial

imagery, prior and current hydrologic modeling studies, and topographic information will help to establish appropriate approaches. Potential technical solutions may include the following: channel bank layback or terracing to stabilize the banks at natural breaks for a more gentle slope; buried boulder placement or a combination of buried streamwood and boulders to replace grade control structures; boulders, log crib walls or other treatments to protect cross-section toe-of-slope in specific areas; reconnection of the channel to the floodplain; wetland creation; reconfiguration of outfalls using bioengineered outfall techniques; and/or other potential solutions that may come to light once studies are underway. Bank stabilization would be accomplished by reinforcing unarmored banks using native vegetation, bioengineering techniques using wood and rock where needed and reestablishing floodplain connectivity further upstream where possible. The channel bed would be similarly reinforced where needed with buried boulders and boulder steps serving as naturalized grade control structures. Conceptual design alternatives will be conveyed in rendered plan diagrams of the project site. Project components or other bioengineering concepts would be illustrated by simple line diagram illustrations in AutoCAD or similar software.

Habitat planting design will be developed in tandem with geomorphic design and proposed structures and bioengineering strategies. Given the range of conditions expected to be established, habitats will likely span riparian woodland, riparian scrub, freshwater marsh, valley grassland and valley oak plant communities, with riparian and wetland species within these communities prioritized. The relationship between these plant species and both known wildlife species present and potential wildlife species that may be reestablished will also be considered for maximum benefit of habitat abundance and diversity.

Improvements in water supply and water quality can be accomplished by reconnecting the floodplain further upstream within the basin so that flood waters are able to spread out and infiltrate into the aquifer through the ground surface rather than ponding up at the dam face. Improved floodplain connectivity would provide space for fine-grained sediment deposition that would add mineral and organic nutrients to floodplain soils. In addition to water supply and water quality improvements, a modest increase in flood flow storage capacity could be accomplished by allowing floodwaters to reconnect to the floodplain to a greater degree than under existing conditions.

The Sepulveda Basin is a significant recreational destination for residents and visitors to Los Angeles. In addition to the numerous sports fields and the recreation lake, the Los Angeles River through the Basin is one of two River Recreation Zones managed by the Mountains Recreation & Conservation Authority. Restoration concepts will propose improvements that maintain recreational accessibility, enhance aesthetic values with a uniquely Southern Californian sense of place, and introduce expanded riparian recreation opportunities to the Basin.

Given the above overarching goals and multi-benefits, the feasibility study will seek to formulate the beginnings of two conceptual plans that focus on naturalizing the channel bed and banks throughout the basin, reconnecting the upper basin with its floodplain where potentially feasible, using bioengineering techniques to provide channel stability where needed, and increasing native riparian habitat, with a number of components common to each concept to permit flexibility in deciding which restoration components are practicable and cost effective in future phases. We expect that the two concepts will bracket the potential scale of the project in order to gain a sense for how much restoration and reconfiguration could be achieved within various budget ranges. Possible strategies are anticipated to include removing concrete and other in-channel structures, grading for increased retention on the floodplain, biotechnical bank stabilization, planting select native species, and circulation planning for recreational access. This project may thus become a prototype for urban river naturalization using geomorphic analysis to drive restoration design, including bioengineered bank stabilization analysis, design and construction methods to replace concreted channels using established methods that could be implemented with care under a range of conditions in the southern California region.

Technical and design experts from Balance Hydrologics and GHD will be contracted to be involved throughout the process, working directly with stakeholders in the charrette, in follow-up, and in delivering the final plan concepts for future phases of project work in this stretch of the LA River.

- **The project results in more reliable water supplies, restoration or protection of important species and habitat, and more resilient and sustainably managed water infrastructure pursuant to the California Water Action Plan.**

The project will address all three objectives outlined in the California Water Action Plan:

Water supply reliability. Water capture and infiltration in the project area infiltrates directly to an unconfined groundwater aquifer actively sourced for local water supplies. This local groundwater is more reliable than imported supplies. Geomorphic processes, such as scour along the river bed and floodplain, maintains a pervious substrate for passively managed recharge. Additionally, root systems of floodplain plants create macropores to also direct runoff to infiltrate to groundwater. An expanded and better integrated floodplain system within the Basin should serve to improve water supply reliability.

Restoration of important habitat species. Restoration of geomorphic processes throughout the river cross-section establishes and maintains self-regulating habitats that support a wide array of wildlife species.

Sepulveda Basin provides critical stopover habitat for numerous migratory bird species. Over 200 species of birds have been sighted in the Basin, including the Federally Endangered least Bell's vireo. According to the State Department of Fish and Game, bird species of special concern found along the River in Sepulveda Basin include: American White Pelican; California Gull; Coopers Hawk; Double Crested Cormorant; Loggerhead Shrike; Merlin; Northern Harrier; Osprey; Sharp-shinned Hawk; Tri-colored Blackbird; Vaux's Swift; Yellow Warbler; and Yellow-breasted Chat. More rarely-seen species include: Burrowing Owl; California Horned Lark; Golden Eagle; Least Bittern; Long-billed Curlew; Prairie Falcon; Summer Tanager Vermillion Flycatcher; White-faced Ibis. These species will benefit from the greater diversity of habitats sustained by restoration of the river corridor.

Although the basin is isolated upstream and downstream, the river and its tributaries within basin itself provide a fairly extensive ecosystem that may be capable of sustaining a larger more diverse population of fish. Existing concrete blankets and weir grade controls likely prevent fish from utilizing the entire basin stream network, including tributary channels. Removal of concrete, expansion of tributary access, and use of boulder steps as grade controls will facilitate fish passage in the upstream and downstream directions and into the tributaries. Including tributaries, more easily accessible channel could be greater than 3 miles in length. The restored reach may again become suitable habitat for Arroyo chub, threespine stickleback, and Santa Ana dace as well as amphibians such as Pacific chorus frogs, Arroyo toad, California toad, California red-legged frog and Western spadefoot, and reptiles such as the southwester pond turtle.

While more substantial restoration of the Los Angeles River would be required for successful reestablishment of anadromous Southern Steelhead Trout and Pacific lamprey, the project may help to reprioritize the return of these species in conjunction with other efforts outside of the project area in the future.

Sustainable, resilient managed water resources. The funding source will support a feasibility/planning process focused on water management-driven nature-based solutions appropriate for urban contexts. Given the scale of our challenges, every square foot of public and private property must be creatively adapted to address climate-resilience and in our region that fundamentally necessitates wise water management, carbon sequestration, and leveraging natural systems to offset more cost and carbon-intensive human inputs.

Natural systems are inherently more resilient than manmade systems, as they have evolved over time to maintain dynamic equilibrium states while responding episodic events that essentially "reset" their geomorphic and ecological structures. This capability offers clues to water resource managers for relating integrated management to ecological functions. With this in mind, the feasibility study will demonstrate the role of riparian re-naturalization and restoration of geomorphic functions in maintaining supporting sustainable and resilient managed water resources. The stakeholder process will also need to include engagement of the public agencies with a role to play in the management of water resources within the Basin.

- **The project employs new or innovative technology or practices, including decision support to support the integration of multiple jurisdictions, including but not limited to, water supply, flood control, land use, and sanitation.**

As a feasibility study, the project is more focused on the use of technical design and engineering tools that address flood capacity, scour, and spatial extents of designed features. The project team has access to decision support tools such as rendered visual simulations, GIS and Social Pinpoint. Face-to-face communication via stakeholder meetings and a design charrette will be used to focus discussion and priorities. Typical design charrette formats include methodologies for evaluating stakeholder sentiments, and identifying areas of overlapping interests that can be used to support integration of multi-jurisdictional collaboration towards project implementation.

The feasibility study will apply innovative methods (already in practice elsewhere) toward rehabilitation, restoration, and enhancement of an important urban “oasis” within the City of Los Angeles. Innovative technologies and practices will include first-time concrete removal within a flood control basin, the use of bioengineering bank stabilization techniques, the potential of building step pools as naturalized grade control structures and the use of drone imagery to document project evolution.

- **The implementation of the project is feasible.**

The purpose of the project is to determine the feasibility of naturalization and restoration enhancements of the Los Angeles River while maintaining and enhancing flood capacity, improving recreational opportunities, and expanding habitat. Based on the River Project’s prior feasibility studies, as well as the expertise of this proposal’s consultant teams, TRP believes that these are feasible goals and that the proposed study will be a valuable road map towards implementation. Balance Hydrologics was established in 1988 providing hydrology, hydraulics and geomorphology services to developed and rural California communities. GHD’s California presence includes a growing urban and landscape design practice, with staff expertise in urban stream restoration feasibility and watershed planning, including in the Los Angeles region. The decades of expertise embodied by the project team (TRP, Balance, and GHD) bolsters the credibility of this feasibility proposal.

- **The River Project has the financial capacity to perform the project on a reimbursable basis.**

While all nonprofits benefit from up-front funding, The River Project has successfully completed projects on a reimbursable funding model for years. Its consultant partners are also familiar with grant-based funding projects, and are able to incorporate reimbursement funding models into their contracts.

- **The River Project or active project partner has successfully completed multiple projects of similar size and scope.**

The River Project is well positioned to manage this feasibility study as a nonprofit that has been working for nearly two decades in the field on similar projects with a mission of *working toward living rivers, nourished by healthy watersheds*. The organization has been involved in many related initiatives, including serving for 15 years on the Sepulveda Basin Wildlife Area Steering Committee; participating in drafting the guiding document *Common Ground*; producing the *Hydrodynamic Study for Restoration Feasibility of the Tujunga Wash*; securing the first \$83.5 million in state funding for key projects on the LA River; organizing the Coalition for a State Park at Taylor Yard; leading the community-based design for the Valleyheart Greenway; and development of the *Tujunga-Pacoima Watershed Plan* which continues to be a success, with 24 of 37 preferred projects already implemented or in development as of January 2020. The breadth of this portfolio gives the organization perspective and capacity to recognize significant points of action that will advance work consistent with *Common Ground* and imperatives to realize climate resilience through watershed planning.

- **The project is not a partnership between two or more organizations and each organization has committed to contributing toward project implementation.**

N/A

- **Completion of the project would assist a government agency in fulfilling a water resources plan watershed ecosystem restoration or multi-benefit river parkway plan. (*bold typeface emphasizes nexus with existing plans)**

The feasibility study will address targets and goals of multiple state, regional, and local plans, including local and regional river parkway plans; water resource plans for quality, supply, and flood risk management; climate, air, and soil; and also, habitat and active transportation. Among these are the following:

Common Ground Plan

This feasibility study is consistent with the Guiding Principles, Strategies, and Opportunities identified in *Common Ground*. The study directly aims to **advance the vision to restore balance between natural and human systems in watersheds**. Specific to improving and increasing connection to a key river parkway within the highly urbanized San Fernando Valley and City of Los Angeles, the study will identify land opportunities associated with open space and recreation improvements; **water opportunities through restoration of river functionality including flood management via floodplain reconnection, water quality and supply through retention and infiltration; habitat opportunities through restoration of riparian corridor and upland habitat to enhance ecosystem function**; and planning opportunities by addressing multiple local, regional, state and federal objectives and being comprehensive and inclusive of relevant government and local partners for greatest near- and long-term benefits.

US Bureau of Reclamation and County Flood Control District Los Angeles Basin Study

River restoration strategies are among the highest ranked actions that can be taken for impact cost-effectiveness within the City of Los Angeles, as well as **increased stormwater management, more reliable water supplies, and improved climate resilience**. Creating **additional detention capacity** within Sepulveda Basin was a leading Regional strategy in the plan, with an estimated 4,263 AFY of **groundwater recharge** available for local water supplies under an increased recharge regime. This feasibility study advances these strategies.

Urban Waters Federal Partnership

This feasibility study is included in the Urban Waters Federal Partnership Work Plan. The goals of the Partnership include **restoring ecosystem functions**, balancing revitalization with flood avoidance to ensure public safety, **maximizing multi-benefit watershed goals, reducing reliance on imported water supplies**, fostering sustainable stewardship, and **fostering diverse participation and equitable community benefits** respectful of the power of place.

California Healthy Soils Initiative

Stream restoration projects in urban semi-arid regions are important for carbon sequestration and habitat renewal. Removal of impermeable concrete blankets in the river and its tributaries will substantially increase the area of healthy, functional soils within the river corridor at a scale not easily found in highly urbanized setting such as the City of Los Angeles. Notably, urban biofiltration areas in semi-arid regions can be important for both carbon sequestration and habitat, with organic mulch increasing soil organic matter (carbon sequestration) and organisms in soil more than inorganic mulch.¹¹ Floodplain and wetland creation will further increase the GHG storage capability of the Sepulveda Basin. Healthy soils are vital components necessary **to address regional challenges related to healthy ecosystems, healthy citizens and watershed protection for aquatic and terrestrial species; and are a driving foundation for nature-based solutions**.

California Senate Bill 32 Greenhouse Gas emission reduction target for 2030 and 2018 Executive Order B-55-18 to achieve carbon neutrality

¹¹ Pavao-Zuckerman, MA and C. Sookhdeo. 2017. Nematode Community Response to Green Infrastructure Design in a Semiarid City. *Journal of Environmental Quality* 46(3). Accessed from: <https://www.ncbi.nlm.nih.gov/pubmed/28724103>

Projects that sequester carbon and apply low-impact, natural materials such as the bioengineered techniques that will be utilized for this feasibility study's conceptual design development are key **components identified as necessary to reduce emissions and reach carbon neutrality.**

State Wildlife Action Plan

Vegetation species will be selected to **maximize habitat priorities** appropriate for the climate and locations, increasing benefits of site and surrounding landscape cover and wildlife benefits.

Upper LA River Enhanced Watershed Management Plan (EWMP)

The feasibility study aligns with the EWMP vision to utilize a multi-pollutant approach that **maximizes the retention and use of urban runoff as a resource for groundwater recharge** and irrigation, while also creating additional benefits for the communities in the ULAR watershed, including projects to **promote greenways and increase access to the LA River** and its tributaries, **increase recreational opportunity, augment local water supply, improve habitat and climate change resiliency.**

County LA River Master Plan

The feasibility study will advance the following goals of the current Master Plan update: **reducing flood risk** and improving resiliency; **supporting healthy connected ecosystems; improving local water supply** reliability; promoting **healthy, safe, clean water**; providing **equitable, inclusive, and safe parks, open space, and trails**; and enhancing opportunities for **equitable access to the river corridor. Sepulveda Basin is included as the site** for a regional project in the Plan draft.

- **The project provides a feasibility study that enhances cooperative watershed health protection and restoration important to two or more organizations. (*bold typeface emphasizes nexus with existing plans)**

Many organizations engage in cooperative watershed-based regional planning that involves the Los Angeles River within the general study area. The plans noted above identified important watershed and resource goals agreed to by project partners. Some of the plans are reiterated here with an edited list of agency or organizational planning and/or stakeholder partners to demonstrate the cohort of organizations that in agreeing to these outcomes, can be assumed to also value them.

Urban Waters Federal Partnership

This feasibility study is included in the Urban Waters Federal Partnership Work Plan. The goals of the Partnership include **restoring ecosystem functions, balancing revitalization with flood avoidance to ensure public safety**, maximizing multi-benefit watershed goals, reducing reliance on imported water supplies, fostering sustainable stewardship, and fostering diverse participation and equitable community benefits respectful of the power of place. Completion of the feasibility study and implementation of its proposed project(s) fulfills cooperative watershed health protection and restoration objectives that these groups have identified in these plans.

The two or more organizations include: US Environmental Protection Agency, US Fish and Wildlife Service, US Army Corps of Engineers, US Bureau of Reclamation, as well as other federal agencies active within the watershed; Los Angeles Regional Water Quality Control Board, Santa Monica Mountains Conservancy, State Coastal Conservancy, as well as other state agencies active within the watershed; City of Los Angeles, Los Angeles County Flood Control District, Mountains Recreation and Conservation Authority, as well as other cities, COGS, and school district(s) active in the watershed. Nongovernmental organization participants to this study included Arroyo Seco Foundation, Community Conservation Solutions, Council for Watershed Health, Enterprise Community Partners, Friends of the LA River, Heal the Bay, LA County Bicycle Coalition, LA River Revitalization Corp, National Forest Foundation, Northeast Trees, The River Project, TreePeople, Trust for Public Land, Urban Rivers Institute, and Urban Semillas.

Upper LA River Enhanced Watershed Management Plan (EWMP)

The feasibility study aligns with the EWMP vision to utilize a multi-pollutant approach that maximizes the retention and use of urban runoff as a resource for groundwater recharge and irrigation, while also **creating**

additional benefits for the communities in the ULAR watershed, including **projects to promote gre and increase access to the LA River** and its tributaries, **increase recreational opportunity**, augment local water supply, **improve habitat and climate change resiliency**.

The two or more organizations include: State Water Resources Control Board, City of Los Angeles, County of Los Angeles, Los Angeles County Flood Control District, as well as smaller cities within the watershed.

County LA River Master Plan

The feasibility study will advance the following goals of the current Master Plan update: reducing flood risk and improving resiliency; **supporting healthy connected ecosystems**; improving local water supply reliability; **promoting healthy, safe, clean water; providing equitable, inclusive, and safe parks, open space, and trails; and enhancing opportunities for equitable access to the river corridor**. Sepulveda Basin is included as the site for a regional project in the Plan draft.

The Steering Committee for this Master Plan include the following two or more organizations: City of Los Angeles, Council for Watershed Health, Friends of the Los Angeles River, LA-Mas, Los Angeles Business Council, Los Angeles, Los Angeles County Flood Control District, Los Angeles Department of Water and Power, Santa Monica Mountains Conservancy, Urban Waters Federal Partnership, US Army Corps of Engineers, among other organizations active in the watershed.

- **The River Project has 19 years experience maintaining and operating projects of similar size and scope (exceeds the stated 1+ year threshold).**

The River Project was founded in 2001 and has undertaken numerous projects and studies since then. As examples of comparable projects, TRP produced the *Hydrodynamic Study for Restoration Feasibility of the Tujunga Wash*; led the community-based design for the Valleyheart Greenway; and developed the *Tujunga-Pacoima Watershed Plan* which continues to be a success, with 24 of 37 preferred projects already implemented or in development as of January 2020.

- **The project implements a major component of an existing relevant plan related to a major recreational public use facility or watershed ecosystem restoration plan. (*bold typeface emphasizes nexus with existing plans)**

This feasibility study will propose implementation projects to expand recreational access, water-based recreation, wildlife viewing, and ecosystem restoration. These actions are consistent with the goals and objectives of the following plans:

Common Ground Plan

This feasibility study is consistent with the Guiding Principles, Strategies, and Opportunities identified in *Common Ground*. The study directly aims to advance the vision to restore balance between natural and human systems in watersheds. **Specific to improving and increasing connection to a key river parkway within the highly urbanized San Fernando Valley and City of Los Angeles**, the study will identify land opportunities associated with open space and recreation improvements; water opportunities through restoration of river functionality including flood management via floodplain reconnection, water quality and supply through retention and infiltration; habitat opportunities through restoration of riparian corridor and upland habitat to enhance ecosystem function; and planning opportunities by addressing multiple local, regional, state and federal objectives and being comprehensive and inclusive of relevant government and local partners for greatest near- and long-term benefits.

US Bureau of Reclamation and County Flood Control District Los Angeles Basin Study

River restoration strategies are among the highest ranked actions that can be taken for impact cost-effectiveness within the City of Los Angeles, as well as increased stormwater management, more reliable water supplies, and improved climate resilience. Creating additional detention capacity within Sepulveda Basin was a leading Regional strategy in the plan, with an estimated 4,263 AFY of

groundwater recharge available for local water supplies under an increased recharge regime. The feasibility study advances these strategies.

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California Healthy Soils Initiative

Healthy soils are the foundation of a healthy ecosystem. Stream restoration projects in urban semi-arid regions are important for carbon sequestration and habitat renewal. **Removal of impermeable concrete blankets in the river and its tributaries will substantially increase the area of healthy, functional soils within the river corridor** at a scale not easily found in highly urbanized setting such as the City of Los Angeles. Notably, urban biofiltration areas in semi-arid regions can be important for both carbon sequestration and habitat, with organic mulch increasing soil organic matter (carbon sequestration) and organisms in soil more than inorganic mulch.¹² **Floodplain and wetland creation will further increase the GHG storage capability of the Sepulveda Basin.** Healthy soils are vital components necessary to address regional challenges related to healthy ecosystems, healthy citizens and watershed protection for aquatic and terrestrial species; and are a driving foundation for nature-based solutions

State Wildlife Action Plan

Vegetation species will be selected to maximize habitat priorities appropriate for the climate and locations, **increasing benefits of site and surrounding landscape cover and wildlife benefits.**

Upper LA River Enhanced Watershed Management Plan (EWMP)

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County LA River Master Plan

The feasibility study will advance the following goals of the current Master Plan update: reducing flood risk and improving resiliency; **supporting healthy connected ecosystems**; improving local water supply reliability; promoting healthy, safe, clean water; **providing equitable, inclusive, and safe parks, open space, and trails; and enhancing opportunities for equitable access to the river corridor.** Sepulveda Basin is included as the site for a regional project in the Plan draft.

This feasibility study offers opportunities for aquatic recreation, including expanded boating facilities, put-ins and take-outs, trails, wildlife viewing.

County Bike Master Plan

The feasibility study will include planning for trails and routes identified in the Master Plan. TRP sees this as an opportunity to enhance existing bikeways through the Sepulveda Basin with improved views and spur trails to safely explore the river corridor.

- **The project provides a high quality access point for open space, parkland, multi-modal trails, and water-based recreation.**

¹² Pavao-Zuckerman, MA and C. Sookhdeo. 2017. Nematode Community Response to Green Infrastructure Design in a Semiarid City. *Journal of Environmental Quality* 46(3). Accessed from: <https://www.ncbi.nlm.nih.gov/pubmed/28724103>

The Sepulveda Basin is a significant recreational destination for residents and visitors to Los Angeles. to the numerous sports fields and the recreation lake, the Los Angeles River through the Basin is one of two River Recreation Zones managed by the Mountains Recreation & Conservation Authority. Restoration concepts will propose improvements that increase recreational accessibility, enhance aesthetic values with a uniquely Southern Californian sense of place, and introduce expanded riparian recreation opportunities to the Basin.

- **The River Project has conducted outreach to affected communities and commits to additional stakeholder engagement.**

Over the organization's 19 years, TRP has engaged with residents of the San Fernando Valley through specific design projects, watershed plans, and participation in planning efforts led by others. Through these myriad forms of engagement, TRP understands the concerns and priorities of community members. Specific to the Sepulveda Basin, TRP has repeatedly engaged the Sepulveda Basin Wildlife Areas Steering Committee (SBWASC) over the opportunities to restore the Los Angeles River. The project also proposes stakeholder outreach as a part of this feasibility study.

- **The project includes interpretive programming or personal interpretation and a plan to reach community audiences with meaningful information about a watershed resource.**

As a feasibility study, the project will be engaging community members both to inform stakeholders about the issues and opportunities explored by the study, and to seek input on those issues and opportunities. While the question here seems more specific to interpretive interactions (social experiences such as guided tours, etc) of a completed project, this stakeholder communication will be a critical element of the feasibility study process; as feasibility is not only technical but also political (tied to public will).

The feasibility study, in its inclusion of recreational opportunities, will identify potential interpretive programming and outreach projects, such as expanded kayak tours, that communicate the value of the Los Angeles River as a watershed resource.

- **The project adds visitor-serving amenities, accessibility, and public safety improvements to public parkland with multiple ecosystem benefits.**

The feasibility study will include elements that enhance recreational access and amenities. In addition to identifying new access points, expanded trails, and wildlife view points, the proposed restoration actions remove physical barriers to safe boating and other aquatic recreation. The proposed restoration project would result in the removal of concrete blankets and drop structures that currently require portaging. The resulting river channel will provide a longer boatable area with reduced or eliminated portages. Additionally, by using a combination of geomorphic and engineering design strategies, a significantly eroded embankment will be restored and protected, ensuring a safer recreational environment while also preserving ecosystem values.

- **The project provides non-personal interpretive elements that will significantly enhance appreciation and enjoyment of a watershed resource.**

This question is interpreted as relating to fixed interpretive features in the landscape (e.g. sculpture, murals, signage). Outreach activities/products in the workplan focus on engaging community members both to inform stakeholders about the issues and opportunities explored by the study, and to seek input on those issues and opportunities. However, the feasibility study, in its inclusion of recreational opportunities, will explore interpretive programming and outreach projects that communicate the value of the Los Angeles River as a watershed and cultural resource, including "non-personal" elements such as art, branding of wayfinding and other signage standards, and educational/cultural experiences.

- **The project creates a venue for education and/or interpretation activities that promote water conservation and stewardship, or enhances an existing venue.**

The river, despite its significant presence during floods, is largely invisible to the thousands of visitors of the Basin due to its current design. The feasibility study would propose a river/park interface that makes the river's presence more tangible to park users, inviting exploration with educational and stewardship messaging interwoven into that interface and experience. For example, a trail design may unfold a narrative demonstrating

through the environmental interface the significance of water conservation, stewardship, or environmental health. Observation points may provide cues for visitors to recognize environmental changes over time.

- **The project results in new public access to a watershed resource with high interpretive and/or educational value, or enhances existing access.**

Thousands of visitors attend sporting events at the Basin, but may be unaware of the Los Angeles River’s presence. The Balboa Bike Path skirts along a small portion of the River, but does not otherwise engage it with it. Top of channel walking paths with minimal wayfinding cues flank the channel but do not readily invite users closer to the water. The leftbank trail is also impacted by significant erosion. A reenvisioned river/park interface that is the result of the feasibility study would include new and enhanced access points that better relate to existing park uses, facilitating engagement of the river and setting the stage for meaningful interpretive and educational spaces.

- **Project will benefit specially protected species pursuant to the California Wildlife Protection Act of 1990.**

The California Wildlife Protection Act of 1990 Section 2797 states that “the people find it necessary to acquire, restore, and improve the rapidly disappearing wildlife habitat of southern California in the quickest and most efficient manner possible...” With over 90% of historical riparian and wetland habitat of Southern California lost to development, reestablishment of riparian habitat within existing open space areas is one of the most efficient and rapid means to move towards recovery. Where the political will exists to facilitate naturalization, removal of concrete within historical rivers and streams will also result in rapid recovery of fluvial processes and habitat.

The ability to effect these changes at this project site has significant implications for wildlife habitat. Concrete blanket removal in the mainstem and tributaries; enhanced riparian corridor and upland habitats; and reconnected floodplain, wetland, and tributary functionality will substantially improve the Sepulveda Basin ecosystem for fish, invertebrates, amphibians, birds, and other terrestrial wildlife.

Sepulveda Basin provides critical stopover habitat for numerous migratory bird species. Over 200 species of birds have been sighted in the Basin, including the Federally Endangered least Bell’s vireo. According to the State Department of Fish and Game, bird species of special concern found along the River in Sepulveda Basin include: American White Pelican; California Gull; Coopers Hawk; Double Crested Cormorant; Loggerhead Shrike; Merlin; Northern Harrier; Osprey; Sharp-shinned Hawk; Tri-colored Blackbird; Vaux’s Swift; Yellow Warbler; and Yellow-breasted Chat. More rarely-seen species include: Burrowing Owl; California Horned Lark; Golden Eagle; Least Bittern; Long-billed Curlew; Prairie Falcon; Summer Tanager Vermillion Flycatcher; White-faced Ibis. These species will benefit from the greater diversity of habitats sustained by restoration of the river corridor.

Although the basin is isolated upstream and downstream, the river and its tributaries within basin itself provide a fairly extensive ecosystem that may be capable of sustaining a larger more diverse population of fish. Existing concrete blankets and weir grade controls likely prevent fish from utilizing the entire basin stream network, including tributary channels. Removal of concrete, expansion of tributary access, and use of boulder steps as grade controls will facilitate fish passage in the upstream and downstream directions and into the tributaries. Including tributaries, more easily accessible channel could be greater than 3 miles in length. The restored reach may again become suitable habitat for Arroyo chub, threespine stickleback, and Santa Ana dace as well as amphibians such as Pacific chorus frogs, Arroyo toad, California toad, California red-legged frog and Western spadefoot, and reptiles such as the southwester pond turtle.

While more substantial restoration of the Los Angeles River would be required for successful reestablishment of anadromous Southern Steelhead Trout and Pacific lamprey, the project may help to reprioritize the return of these species in conjunction with other efforts outside of the project area in the future.

Extra Consideration Points

Quantifiable Carbon Reduction Points.

As noted in Question 7 of Part I: The feasibility study will advance potentially feasible conceptual designs that have not yet been developed—as such, total potential GHG reduction volumes are not available. However, reducing impermeable materials, revegetation of wetland and floodplain lands, and maximizing healthy soils are anticipated to be leading strategies. The world’s soils hold more than three times the carbon in the atmosphere,^{13,14} and together with layers of vegetation that have been demonstrated to remove up to 40% of greenhouse gasses such as nitrous oxide along urban streets¹⁵, significant progress can be made with ecosystem restoration projects such as within the Sepulveda Basin. Based on afforestation in the US, as much as 0.35 tons carbon per hectare per year can be captured in restored areas, including absorption into soils and deciduous trees;^{16,17} this number could be converted to an approximated .01-pound of carbon per square foot per year for urban restoration projects. Aquifer recharge promoted by this and similar projects may also offset water imports over time, and the associated carbon footprint of those imports.

- **The project develops or maintains multi-use trails that connect communities, provides access to public resources and reduces vehicle miles traveled.** The project will result in additional access points, and foot and water trails. The project’s proximity to the Orange Line also facilitates the use of public transit to access the recreational area, which can also reduce vehicle miles traveled.
- **The project engages local communities through outreach, education, and interpretation regarding long-term stewardship and climate change awareness.** The project’s stakeholder outreach, while focused on the naturalization and integration of the river within the setting of existing facilities and recreational amenities, must examine these opportunities within the context of climate change impacts and resiliency. The stakeholder group’s input into stewardship and climate resiliency will be sought as a part of the planning process. Additionally, the project will identify how the implementation projects can also create education and interpretation opportunities for stewardship and climate change. These may range from volunteer crews to exhibits, artwork, and signage.

Additional Criteria

- **Completion of the project would assist in fulfilling a Federal water resources protection or ecosystem restoration plan.**

At least two studies with significant federal involvement addressed water resources or ecosystem restoration with goals that this project would advance:

US Bureau of Reclamation and County Flood Control District Los Angeles Basin Study

River restoration strategies are among the highest ranked actions that can be taken for impact cost-effectiveness within the City of Los Angeles, as well as increased stormwater management, more reliable water supplies, and improved climate resilience. **Creating additional detention capacity within Sepulveda Basin was a leading Regional strategy in the plan**, with an estimated 4,263 AFY of groundwater recharge available for local water supplies under an increased recharge regime. This feasibility study advances these strategies.

¹³ Rattan, L.. 2007. Carbon Sequestration. *Philosophical Transactions of the Royal Society B Biological Sciences*. The Royal Society. Accessed from: <http://rstb.royalsocietypublishing.org/content/363/1492/815>

¹⁴ Batjes, N.. 1996. Total Carbon and Nitrogen in the Soils of the World. *European Journal of Soil Science*, 1996 vol. 47 (2). British Society of Soil Science and the National Societies of Soil Science in Europe. Accessed from: <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2389.1996.tb01386.x>

¹⁵ Pugh, T., A. MacKenzie, J. Whyatt, and C. Hewitt. 2012. Effectiveness of Green Infrastructure for Improvement of Air Quality in Urban Street Canyons. *Environmental Science and Technology* 2012, 46 (14). Washington, DC: American Chemical Society. Accessed from: <https://pubs.acs.org/doi/abs/10.1021/es300826w>

¹⁶ Minasny et. al. 2017. Soil Carbon 4 per Mille. *Geoderma*, vol. 292. Elsevier. Accessed from: <https://www.sciencedirect.com/science/article/pii/S0016706117300095>

¹⁷ Morris, S., S. Bohm, S. Haile-Mariam, and E. Paul. 2017. Evaluation of Carbon Accrual in Afforested Agricultural Soils. *Global Change Biology*, vol. 13 (6). Accessed from: <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2486.2007.01359.x>

Urban Waters Federal Partnership

This feasibility study is included in the Urban Waters Federal Partnership Work Plan. The goals of the Partnership include **restoring ecosystem functions**, balancing revitalization with flood avoidance to ensure public safety, maximizing multi-benefit watershed goals, **reducing reliance on imported water supplies, fostering sustainable stewardship**, and fostering diverse participation and equitable community benefits respectful of the power of place.

- **Project does not utilize a local job training entity for a portion of the feasibility study work.**

The feasibility study developed for this project is intended to inform and advance project implementation, which in future phases, beyond the scope of this project component, may include work relevant for local and state conservation corps.

- **While the Project has not secured matching funds of at least 25 percent of the total project costs, some in-kind may be available.**

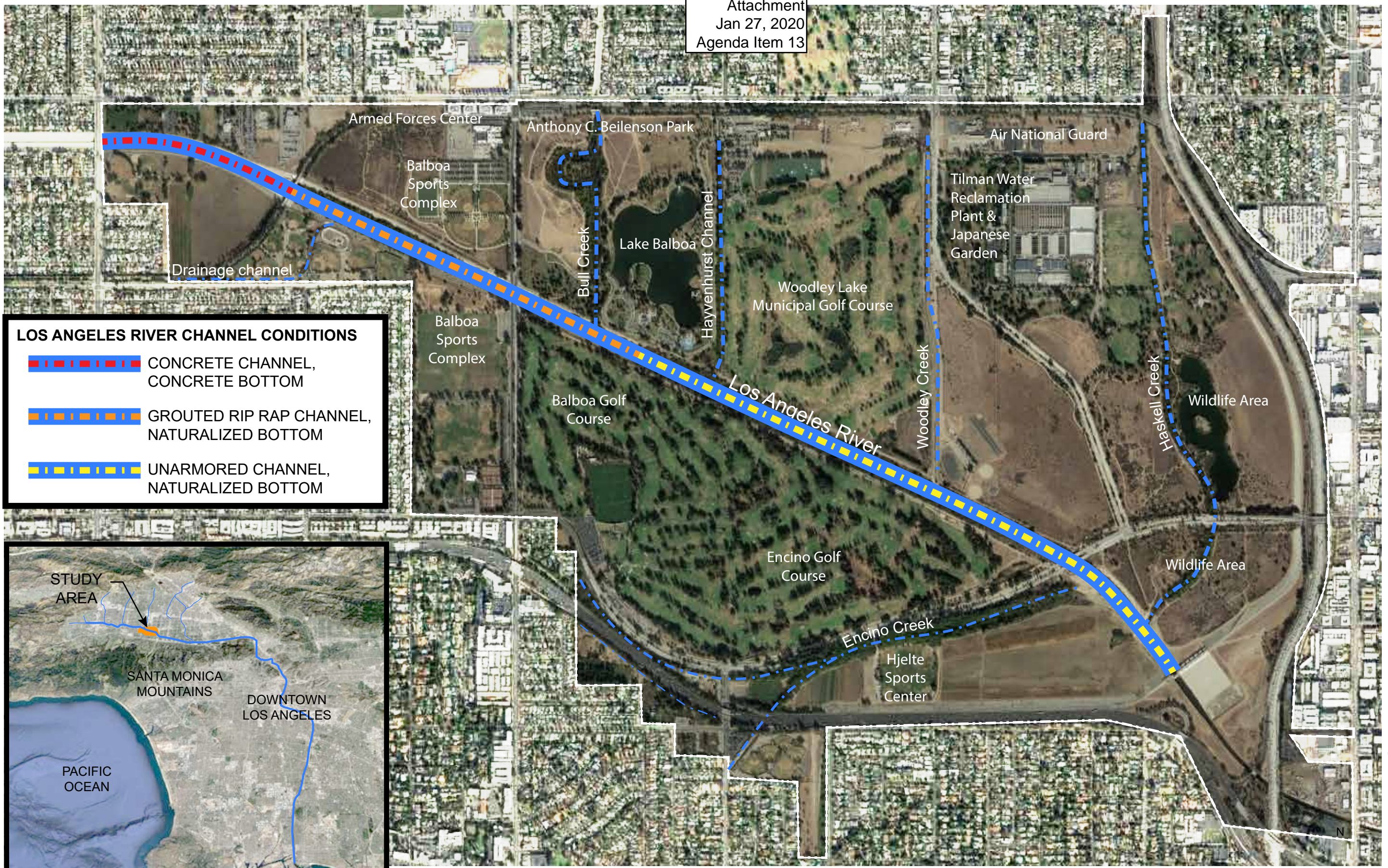
There is not a formal fund match for this project feasibility phase. Other potential contributions may include but are not limited to the time of local government, organizations, and stakeholders, as well as meeting space. It is likely that substantial support from local, state and federal sources will be made toward fully realizing project concepts in future phases.

- **Project is within 1 mile of public transportation.**




There are three (3) Metro Orange Line stops (Sepulveda Orange Line, Woodley Station, Balboa Station) and five (5) bus stops (Victory/Gloria, Victory/Hayvenhurst, Balboa Soccer Fields, Burbank/Balboa, Burbank/Hayvenhurst) serving other bus lines within one mile of the project area.

- **Project results in additional uses for users of a wide range of ability levels.**

Accessibility is critical for an equitable society, and users of a landscape may range in ability and agility levels. The Sepulveda Basin, with its existing diverse recreational activities, is well suited to be adapted for expanded accessible nature experiences through its trails, viewing stations, and managed water recreation experiences. While technical feasibility of restoration and naturalization is the focus of the proposed study, how to incorporate accessibility will be featured in stakeholder outreach and development of the recreational interface.



LOS ANGELES RIVER CHANNEL CONDITIONS

-  CONCRETE CHANNEL, CONCRETE BOTTOM
-  GROUTED RIP RAP CHANNEL, NATURALIZED BOTTOM
-  UNARMORED CHANNEL, NATURALIZED BOTTOM



STUDY AREA: SEPULVEDA BASIN RECREATION AREA





DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
P.O. Box 532711
LOS ANGELES, CALIFORNIA 90053-2325

SMMC
Attachment
Jan 27, 2020
Agenda Item 13

January 21, 2005

REPLY TO
ATTENTION OF:

Office of the Chief
Operations Branch

Ms. Melanie Winter
The River Project
11950 Ventura Blvd. Suite 9
Studio City, California 91604

Dear Ms. Winter:

This is in regards to the River Project grant proposal to the State Department of Water Resources. This proposal concerns the Los Angeles River (LAR) which flows within the Sepulveda Flood Control Basin (FCB), owned and maintained by the U.S. Army Corps of Engineers. Your project would initiate engineering and ecological site analysis and potentially be followed by stream bank modifications on LAR within Sepulveda FCB, totaling approximately 2500 linear feet on both stream banks.

Operations Branch operates and manages the Corps' local flood control basins. All proposed projects are reviewed and approved by the Corps Engineering, Real Estate, and Environmental sections before final approval is granted. After discussions, you have provided a conceptual proposal for Corps review and further iterations would be expected in future project scoping, before any final construction project approval.


You have proposed an engineering and biological resources feasibility study of a project to re-arm the sideslopes using woody vegetation, within a 2500-ft. soft-bottomed segment of the LAR within Sepulveda FCB. At this time, the existing armor is sufficient to provide integral flood protection needed within the FCB. However, your proposal suggests that erosion and sediment deposition dynamics, habitat value, public environmental education and other community involvement could be benefited by this study and/or project. Assuming that equal or greater flood damage reduction can be shown and be quantified by the proposed study, the Corps sees merit in your proposal. The study would develop a structured approach to the potential re-armoring project itself and would deal with engineering, environmental, flood control, maintenance, and real estate issues.

- 2 -

We support the continued development of the concept, particularly at the feasibility study level. Please continue to provide the Corps with additional information including plans and specifications for review.

If you have any questions, please call Ms. Katie Parks, Operations Branch Project Manager for Sepulveda FCB, at (213) 452-3399. Regarding questions concerning a potential for future Corps funding, please contact Mr. Dan Sulzer (Planning Division, Deputy Chief) at 213 452-3784.

Sincerely,



George L. Beams, P.E.
Chief, Construction-
Operations Division