UPPER LOS ANGELES RIVER AND TRIBUTARIES REVITALIZATION PLAN

Volume 2

Chapter E. Literature Review

March 2, 2020

E. Literature Review

Over 114 planning documents were available for this project area based on the LA River Master Plan update; however, only 16 of those plans were the most applicable. A full literature review of these plans is included in this chapter.

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AB-466 – Initial Literature Review

Prepared for

Mountains Recreation and Conservation Authority
Los Angeles River Center and Gardens
570 West Avenue 26, Suite 100
Los Angeles, CA 90065

Prepared by

Geosyntec Consultants, Inc.
448 S. Hill St., Suite 1008
Los Angeles, California 90013

Project Number: LA0469

December 17, 2018

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Assembly Bill No. 466

Assembly Bill No. 466
CHAPTER 341

An act to add Chapter 4 (commencing with Section 33220) to Division 23 of the Public Resources Code, relating to the Los Angeles River and tributaries.

[Approved by Governor September 28, 2017. Filed with Secretary of State September 28, 2017.]

LEGISLATIVE COUNSEL'S DIGEST

Existing law provides for the protection, enhancement, and restoration of rivers in this state. Existing law establishes the Santa Monica Mountains Conservancy and prescribes the membership and functions and duties of the conservancy with regard to the acquisition, preservation, and improvement of real property within the Santa Monica Mountains zone, as defined.

This bill would establish within the conservancy the Upper Los Angeles River and Tributaries Working Group. The bill would require the Secretary of the Natural Resources Agency, in consultation with the conservancy, and, to the extent they wish to consult, the Los Angeles County Board of Supervisors and the City of Los Angeles, to consider requests from specified local agency representatives to participate in the working group and would authorize them to appoint no more than 23 representatives to the working group. The bill would require, by March 1, 2019, the working group to develop, through watershed-based planning methods and community engagement, a revitalization plan for the Upper Los Angeles River, the tributaries of the Pacoima Wash, Tujunga Wash, Arroyo Seco, and Verdugo Wash, and any additional tributary waterway that the working group determines to be necessary. The bill would require the revitalization plan to address the unique and diverse needs of the Upper Los Angeles River, Pacoima Wash, Tujunga Wash, Arroyo Seco, and Verdugo Wash, and the communities through which they pass, and to include watershed education programs. The bill would require the conservancy to provide any necessary staffing to assist the working group. The bill would require the working group to submit the revitalization plan to the conservancy for approval. The bill would require the revitalization plan to be considered an amendment to the watershed and open space plan for the San Gabriel and Los Angeles Rivers upon adoption by the conservancy and, to the extent that the city or county wishes to consider the plan, would require the conservancy to submit the plan to the Los Angeles County Board of Supervisors and the Los Angeles City Council, as prescribed.

Senate Bill No. 1126

Introduced by Senator Portantino

February 13, 2018

Senate Bill No. 1126

An act to amend Section 33220 of the Public Resources Code, relating to the Los Angeles River and tributaries, and declaring the urgency thereof, to take effect immediately.

LEGISLATIVE COUNSEL'S DIGEST

SB 1126, as amended, Portantino. Upper Los Angeles River and Tributaries Working Group.

Existing law provides for the protection, enhancement, and restoration of rivers in this state. Existing law establishes the Santa Monica Mountains Conservancy and prescribes the membership, functions, and duties of the conservancy with regard to the acquisition, preservation, and improvement of real property within the Santa Monica Mountains zone, as defined. Existing law establishes within the conservancy the Upper Los Angeles River and Tributaries Working Group and requires, by March 1, 2019, the working group to develop, through watershed-based planning methods and community engagement, a revitalization plan for the Upper Los Angeles River, the tributaries of the Pacoima Wash, Tujunga Wash, and Verdugo Wash, and any additional tributary waterway that the working group determines to be necessary. Existing law requires the revitalization plan to address the unique and diverse needs of the Upper Los Angeles River, Pacoima Wash, Tujunga Wash, and Verdugo Wash, and the communities through which they pass, and to include watershed education programs.

This bill would specify ~~the Flint Wash and~~ the Arroyo Seco Tributary as ~~waterways~~ *a waterway* for the working group to include in the revitalization plan and watershed education programs. The bill would authorize the working group to include 3 members, one each from the Cities of La Cañada Flintridge, Pasadena, and South Pasadena, unless their inclusion results in a geographical imbalance of representation.

This bill would declare that it is to take effect immediately as an urgency statute.

AB 466 – Upper LA River Plan, Initial Literature Review

In September 2017, California State Assembly passed Assembly Bill 466 (AB 466), establishing the Upper Los Angeles River and Tributaries Working Group within the jurisdiction of the Santa Monica Mountains Conservancy (SMMC). The Working Group is tasked with the development of a 'revitalization plan' for the Upper LA River, as well as the Pacoima Wash, Tujunga Wash, Verdugo Wash, the Arroyo Seco (included through an amendment in February 2018), and any other tributaries the working group determines to be necessary. The development process for the revitalization plan should utilize watershed-based planning methods and education, and community engagement. AB 466 prescribes that the revitalization plan "shall address the unique and diverse needs of the Upper Los Angeles River", as well as a process that includes a "prioritization of disadvantaged communities".

Many studies, plans, and datasets exist for the Los Angeles River and its tributaries. It is important to understand the body of knowledge that currently exists, and the range of topics addressed in the existing documents and datasets to begin to identify consistencies, inconsistencies, and gaps in the body of knowledge. This document details an initial inventory and review of applicable existing planning documents and studies relevant to the Upper Los Angeles River and its tributaries.

This literature reviewed for this initial summary is listed below:

1. *Common Ground - From the Mountains to the Sea, 2001* (California Resources agency, San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy, Santa Monica Mountains Conservancy)
2. *Los Angeles River Master Plan, 1996* (Los Angeles County Department of Public Works, Los Angeles County Department of Parks and Recreation, Los Angeles County Department of Regional Planning, Los Angeles County Department of National Parks Service, Los Angeles River Advisory Committee)

3. *Los Angeles River Revitalization Master Plan, 2007* (City of Los Angeles Department of Public Works, Bureau of Engineering)

4. *Los Angeles River Ecosystem Restoration Integrated Feasibility Report and its Recommended Plan, 2015* (United States Army Corps of Engineers, Los Angeles District)

5. *Pacoima Wash Vision Plan, 2011* (County of Los Angeles Public Health Community Health Services)

6. *Cal Poly Pomona Pacoima Wash Greenway Master Plan, 2004* (City of San Fernando)

7. *Arroyo Seco Watershed Ecosystem Restoration Feasibility Study* (DRAFT - UNDATED) (States Army Corps of Engineers, Los Angeles District, Los Angeles County Department of Public Works)

8. *Enhanced Watershed Management Program for the Upper Los Angeles River Watershed, 2016* (Los Angeles River Watershed Management Group)

9. *The Greater Los Angeles County Region Integrated Regional Water Management Upper Los Angeles River Subregional Report Plan, 2014* (Committee of the Greater Los Angeles County Integrated Regional Water Management Region)

10. *Water Supply and Habitat Resiliency for a Future Los Angeles River: Site-Specific Natural Enhancement Opportunities Informed by River Flow and Watershed-Wide Action Los Feliz to Taylor*, *2016* (The Nature Conservancy)

11. *Los Angeles Sustainable Water Project: Los Angeles River Watershed, 2017* (University of California Los Angeles Institute of the Environment and Sustainability, University of California Los Angeles Sustainable Los Angeles Grand Challenge, Colorado School of Mines)

12. Los Angeles Countywide Comprehensive Parks and Recreation Needs Assessment, 2016 (County of Los Angeles Department of Parks & Recreation)

13. *Tujunga-Pacoima Watershed Plan, 2008* (The River Project)

14. *National Park Service Rim of the Valley Corridor Special Resource Study, 2016* (United States Department of Interior National Park Service)

15. *Arroyo Seco Watershed Restoration Feasibility Study, 2002 (*California Coastal Conservancy)

16. *The Los Angeles River Urban Wildlife Refuge Report, 2005* (Santa Monica Mountains Conservancy, University of California Berkeley)

Summary Review and Conclusions

Following the review of the above documents it is found that all the different planning efforts envision a revitalized Los Angeles River (LAR) and its tributaries that provide multi-benefits (including but not limited to flood risk management, water supply augmentation, water quality improvement, active transportation opportunities, ecosystem and habitat enhancement, open space and recreation opportunities, and disadvantaged communities focus) and balance the needs of both the communities and environment around them. Common themes include flood risk mitigation, improvement in water quality, increase opportunities for active transportation, ecosystem and habitat restoration, increase in open space and recreational opportunities, and focusing attention on disadvantaged communities and underused areas. A few studies addressed all the themes and most of the studies addressed a subset of the different themes as summarized below.

Flood Risk, Water Quality, Active Transportation, Ecosystem and Habitat; Open Space and Recreation; and Disadvantaged Communities (broadly referring to equitable distribution of resources and projects)

The County of Los Angeles' *Los Angeles River Master Plan* provided a plan to enhance the aesthetic, recreational, flood control and environmental values of the LAR by creating a community resource, enriching the quality of life of residents and recognizing the river's primary purpose for flood control. The City of Los Angeles *Los Angeles River Revitalization Plan* was organized around a set of goals to manage flow velocities in the channel to allow for ecological restoration including helping riparian

vegetation become reestablished. Management of flow would also allow for access and facilitation of multi-benefit green spaces within the LAR that can provide both open space and water quality benefits. The *Tujunga-Pacoima Watershed Plan* was organized around guiding principles to revitalize the Tujunga/Pacoima Watershed, balancing water supply, water quality, community open space needs, environmental protection and restoration, and public safety. The *Arroyo Seco Watershed Restoration Feasibility Study* developed an environmentally sensitive and sustainable plan and proposed projects to manage and restore the Arroyo Seco watershed. It integrates issues of flood management, stream naturalization, water resources, habitat rehabilitation, and educational and community recreational opportunities.

Open Space, Ecosystems, Habitat and Recreation

Common Ground from the Mountains to the Sea, proposed a continuous ribbon of open space, trails, recreation, and habitat on the Los Angeles River. The *Los Angeles River Ecosystem Restoration Integrated Feasibility Report and its Recommended Plan* proposed restoration projects to reestablish riparian strand, freshwater marsh, and aquatic habitat communities and reconnect the LAR to major tributaries, its historic floodplain, and the regional habitat zones. The *Pacoima Wash Vision Plan* focused on the creation of new recreational amenities and a multi-use path along the length of the Pacoima Wash through the communities of Sylmar and Pacoima. The *Cal Poly Pomona Pacoima Wash Greenway Master Plan* developed designs, guidelines, and strategies for human recreation, natural systems restoration, and contaminated site remediation in and along the Pacoima Wash.

Water and Ecosystem and Habitat

The *Arroyo Seco Ecosystem Restoration Feasibility Study* employed a watershed approach to address water-related issues in the Arroyo Seco and developed implementation actions that address the problems in a watershed context while also being beneficialto the interested public and institutions. The *Upper Los Angeles River (ULAR) Enhanced Watershed Management Program (EWMP)* provided strategies to meet Total Maximum Daily Loads (TMDLs) and other water quality objectives applicable to the upper Los Angeles River watershed. The *Integrated Regional Water Management Plan for the Upper Los Angeles River* focused on reducing the region's reliance on imported water; complying with water quality regulations for urban runoff, stormwater and wastewater; restoring natural processes and habitats; increasing watershed friendly recreational space; reducing flood risk in flood prone areas; and adapting and mitigating against climate change vulnerabilities. The *Water Supply and Resiliency Plan for a Future Los Angeles River* hopes to bring together the multiple management priorities of agencies and stakeholders that have governance over different aspects of the river and encourage one integrated vision of flow characteristics to align the design of all future habitat projects along the Los Angeles River. The *Los Angeles Sustainable Water Project: Los Angeles River Watershed* study models the impacts of implementing integrated water management practices in the LAR watershed and stresses the importance of fully identifying and analyzing potential beneficial and harmful impacts of integrated water management plans on surface water, groundwater, land uses, or communities. The *Los Angeles River Urban Wildlife Refuge* focused on the concept of

re-envisioning the Los Angeles River watershed as an urban wildlife refuge. The goal is to provide the ecological basis for creating a substantive ribbon of nature through the middle of the city. The Conservancy plans to acquire land parcels of variable size with the larger parcels used to create core habitats and the smaller parcels used to develop nature parks, green schoolyards, and communities with certified wildlife habitat. Together, the land parcels will add up to a functional ecosystem, greatly improved water quality, and hundreds of livable neighborhoods.

Open Space and Recreation

The *Los Angeles Countywide Comprehensive Parks Needs Assessment* serves as a guide for local officials, park agencies, and residents in understating future steps that need to be taken to ensure that all communities have adequate access to thriving parks. The *National Park Service Rim of the Valley Special Resource Study* evaluated several alternatives to determine if any area in the Rim of the Valley Corridor would be eligible to be designated as a national park. The study followed the process established by the National Park System New Area Studies Act, which requires compliance with the National Environmental Policy Act. The passing of the legislation would be the guiding policy for the park unit. NPS would need to complete a management plan to define management priorities, specific actions, and funding needs for the newly added areas.

Major Gaps in the Literature

Gaps in the literature reviewed under this task include specifically addressing: flood risk in the Pacoima and Verdugo Washes; active transportation for the Verdugo

Wash, general analyses along the Arroyo Seco/Flint Wash; open space and recreation for the Verdugo wash; and a general need to better incorporate disadvantaged communities in the LAR mainstem and its tributaries. It is recommended that the Working Group create a plan that integrates all the previous planning efforts, addresses gaps and incorporates new ideas and objectives from all stakeholders and communities that benefit and rely on the LAR and its tributaries.

The study matrix follows that depicts the areas of coverage for the selected plans and studies reviewed, and a graphical representation is presented in Appendix A.

#	Document	Entity/Agency	Issue							Water Body (S=Specific; G=General)					Project List Data
			Flood Risk	Water Supply	Water Quality	Active Transportation	Ecosystem & Habitat	Open Space and Recreation	D.A.C.	LAR Mainstem	Arroyo Seco/Flint Wash	Tujunga Wash	Pacoima Wash	Verdugo Wash	
1	Common Ground - From the Mountains to the Sea, 2001	SMMC and RMC	X	X	X	X	X	X	X	G	G	G	G	G	No. Project review criteria provided in Appendix F.
2	County of Los Angeles LA River Master Plan, 1996	LA County DPW	X		X		X	X		S		S			Yes, Appendix B and D
3	City of Los Angeles LA River Revitalization Master Plan, 2007	City of Los Angeles BOE			X	X	X	X	X	S		G			Yes, Section 6; Pages 10|12 - 10|16
4	Army Corps of Engineers Los Angeles River Ecosystem Restoration Integrated Feasibility Report and its Recommended Plan, 2015	USACE	X				X			S					Yes
5	Pacoima Wash Vision Plan, 2011	County of LA Public Health Community Health Services	X	X	X	X	X	X	X				S		Yes Chapter 5
6	Cal Poly Pomona Pacoima Wash Greenway Master Plan, 2004	City of San Fernando			X	X	X	X	X				S		Yes Chapter 5
7	Arroyo Seco Ecosystem Restoration Feasibility Study (DRAFT - UNDATED)	USACE	X	X	X		X	X	X		S				Yes
8	Enhanced Watershed Management Program for the Upper Los Angeles River Watershed, 2016	City of Los Angeles LASAN		X	X		X			S	S	S	S	S	Yes
9	IRWMP Upper LA River Subregional Report, 2014	GLAC-IRWMP Group	X	X	X		X	X	X	G	G	G	G	G	Yes
10	Water Supply and Habitat Resiliency for a Future Los Angeles River, 2016	The Nature Conservancy	X	X			X			S					Yes Section 5
11	Los Angeles Sustainable Water Project: Los Angeles River Watershed, 2017	UCLA		X	X		X			S	G	G	G	G	No
12	Los Angeles Countywide Comprehensive Parks and Recreation Needs Assessment, 2016	LA County Dept of Parks and Rec					X	X	X	G	G	G	G	G	Yes Appendix C
13	Tujunga-Pacoima Watershed Plan, 2008	The River Project		X	X	X	X	X				S	S		Yes Chapter 4
14	National Park Service Rim of the Valley Special Resource Study, 2016	Congress - Consolidated Natural Resources Act of 2008					X	X	X	G	G	G		G	No
15	Arroyo Seco Watershed Restoration Feasibility Study, 2002	CA Coastal Conservancy	X	X	X		X	X			S				Yes, Table IV-2
16	The Los Angeles River Urban Wildlife Refuge Report, 2005	SMMC	X		X			X		G					Yes, Section Three: Application

Document Review

Below are the 16 documents and the summary review of each. Appended to this report are the full contents of all 16 documents.

Common Ground - From the Mountains to the Sea, 2001

The purpose of this plan was to develop and define a long-term vision for the future of the Los Angeles River and San Gabriel River Watersheds and to describe an approach for subsequent planning efforts. The plan proposes a continuous ribbon of open space, trails, active and passive recreation areas, and wildlife habitat on the LA River, San Gabriel River, and their respective tributaries. The plan aims to restore balance between natural and human systems in the watersheds and is intended to support and inform planning efforts of federal, state, regional, county, city, and local agencies, as well as communities, groups and individuals in the watershed.

Conceptual River Parkways (Source: Common Ground - from the Mountains to the Sea)

Although the plan does not discuss or propose specific projects, it does detail project evaluation criteria based upon resource values, as described in Appendix F.

This plan details strategies and opportunities for creating a new public open space and amenities along the Los Angeles River, the San Gabriel River, the Rio Hondo, and their tributaries. Major plan elements are guided by the following principles:

- Land: Create, expand, and improve public open space throughout the region; improve access to open space and recreation for all communities; improve habitat quality, quantity, and connectivity; connect open space with a network of trails; promote stewardship of the landscape; and encourage sustainable growth to balance environmental, social, and economic benefits.
- Water: maintain and improve flood protection; establish riverfront greenways to cleanse water, hold floodwaters, and extend open space; improve quality of surface water and groundwater; improve flood safety through restoration of river and creek ecosystems; optimize water resources to reduce dependence on imported water
- Planning: Coordinate watershed planning across jurisdictions and boundaries; encourage multi-objective planning and projects; use science as a basis for planning; involve the public through education and outreach programs; utilize the plan in an on-going management process.

Strategies described for implementation include education, partnerships, funding, multi-objective planning, management of public lands, and monitoring and assessment.

Opportunities detailed in the plan include the potential for land acquisition, enhancing and increasing public access, development of improved water resource

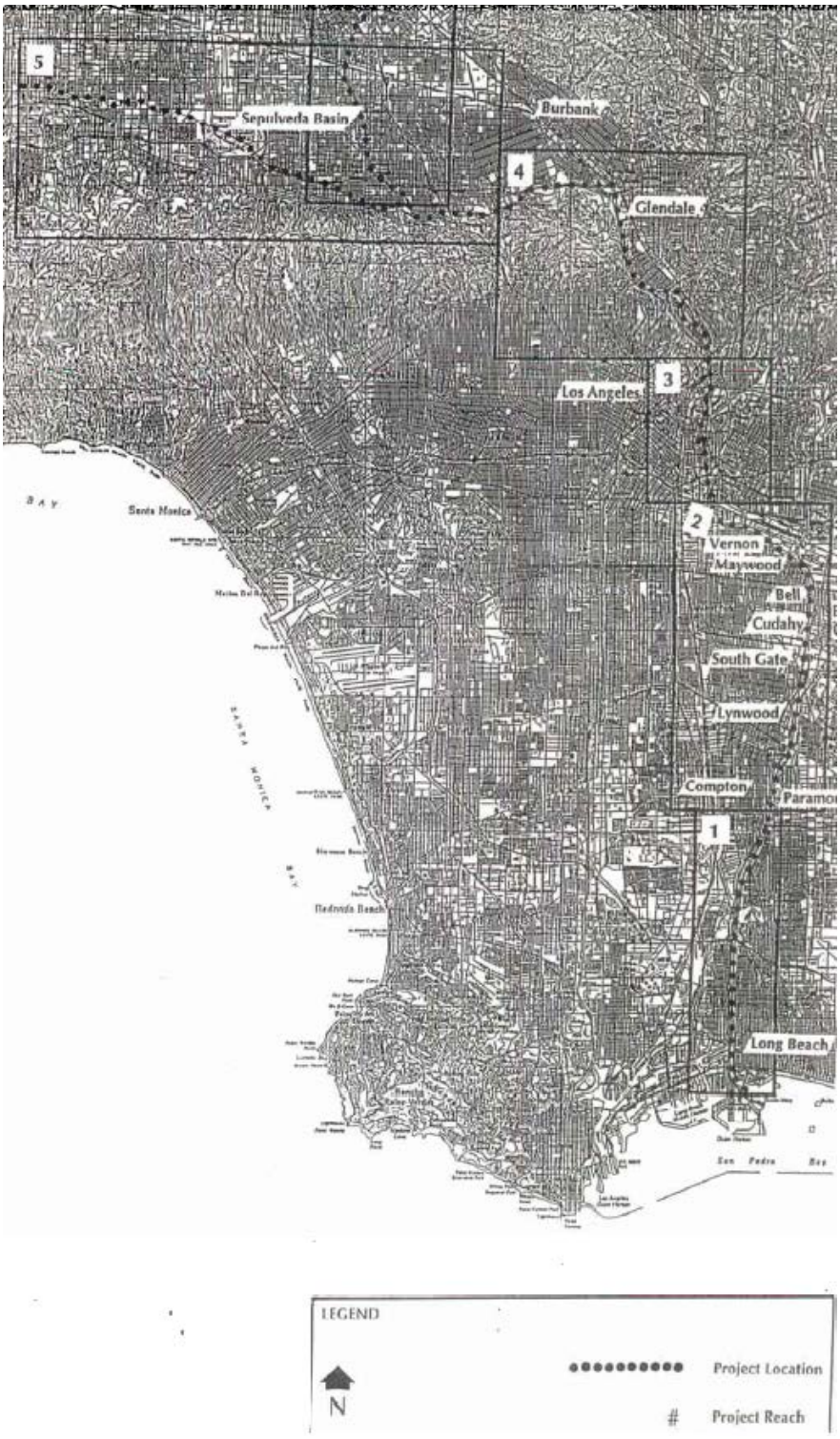
management, and protecting, preserving, and expanding habitat for native plants and wildlife.

County of Los Angeles Los Angeles River Master Plan, 1996

In the mid-1980s, LA mayor Tom Bradley established a task force to investigate opportunities for enhancing the Los Angeles River's environment and developing public recreation sites with the City of LA's reach of the river. In July 1991, the Los Angeles County Board of Supervisors directed the Departments of Public Works, Parks and Recreation and Regional Planning to undertake effort and to coordinate all interested public and private parties in the planning, financing, and implementation efforts of a Master Plan for the Los Angeles River. The National Park Services Rivers, Trails and Conservation Assistance Program provided technical assistance and group and community facilitation in this Planning Team effort.

In 1992, the LAR Advisory Committee was formed, comprised of cities, agencies and citizen group representatives, with the role of incorporating into the Master Plan the needs and ideas of the diverse communities, groups and individuals with an interest of the river. The Advisory committee identified issues critical to the enhancement of the river, developed a community involvement program including public meetings, made project recommendations based on Master Plan findings, and developed an implementation plan for the projects identified in the Master Plan.

The intent of the master plan was to identify ways to revitalize the publicly-owned rights-of-way along the Los Angeles River and Tujunga Wash, recognizing that the primary purpose of the river rights of way is to provide flood control. The seven key topics it addresses are: 1) aesthetics; 2) economic development; 3): environmental quality; 4) flood management and water conservation; 5) stormwater management alternatives; 6) Jurisdiction and public involvement; and 7) Recreation.



Project Reaches (Source: County of Los Angeles - Los Angeles River Master Plan)

Demonstration projects were selected with the goal of:

- Taking a first step toward improving the river environment and showing that it is possible
- Revealing potential problems and opportunities to develop solutions
- Reinforcing the contributions of those who have spent time developing the project ideas and the Master Plan and encouraging them to implement additional projects

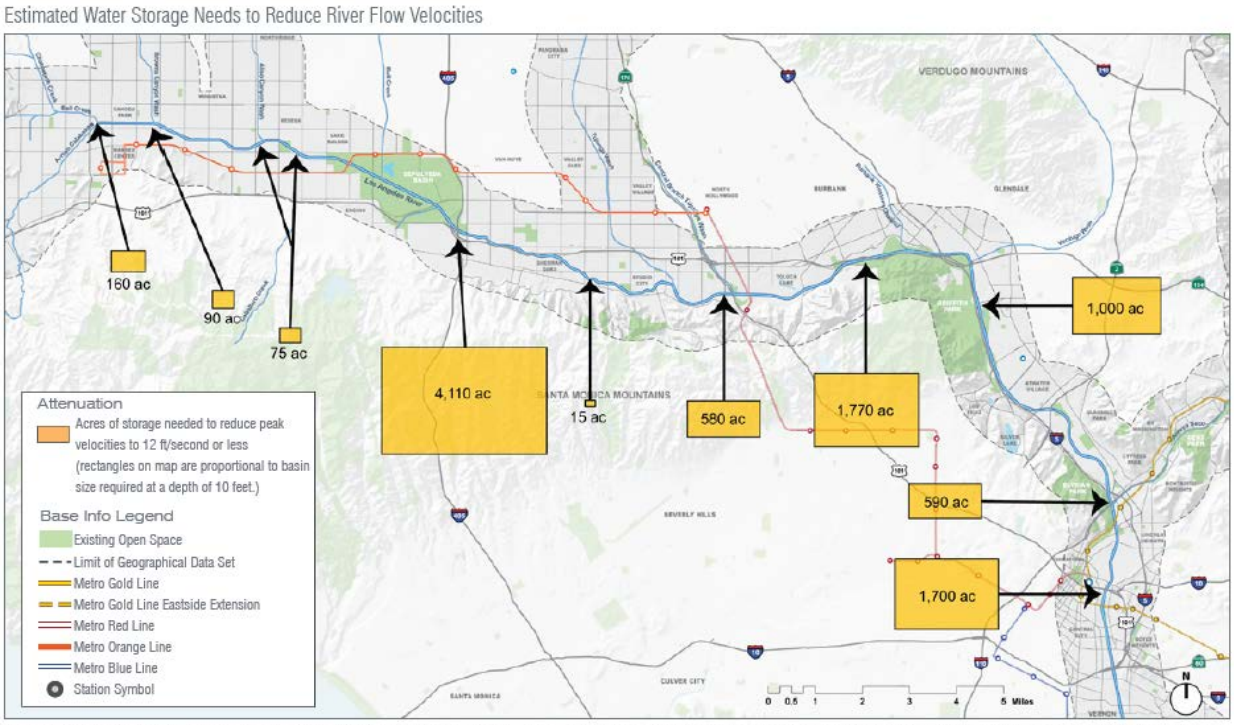
The mission statement of the LARMP is to provide for the optimization and enhancement of aesthetic, recreational, flood control and environmental values by creating a community resource, enriching the quality of life of residents and recognizing the river's primary purpose for flood control.

Specific goals of the Los Angeles River Master Plan were developed and approved by the Advisory Committee:

- Ensure flood control and public safety needs are met
- Improve the appearance of the river and pride of local communities in it
- Promote the river as an economic asset to surrounding communities
- Preserve, enhance, and restore environmental resources in and along the river
- Consider stormwater management alternatives
- Ensure public involvement and coordinate Master Plan development and implementation among jurisdictions
- Provide a safe environment and a variety of recreational opportunities along the river
- Ensure safe access to, and compatibility between, the river and other activity centers

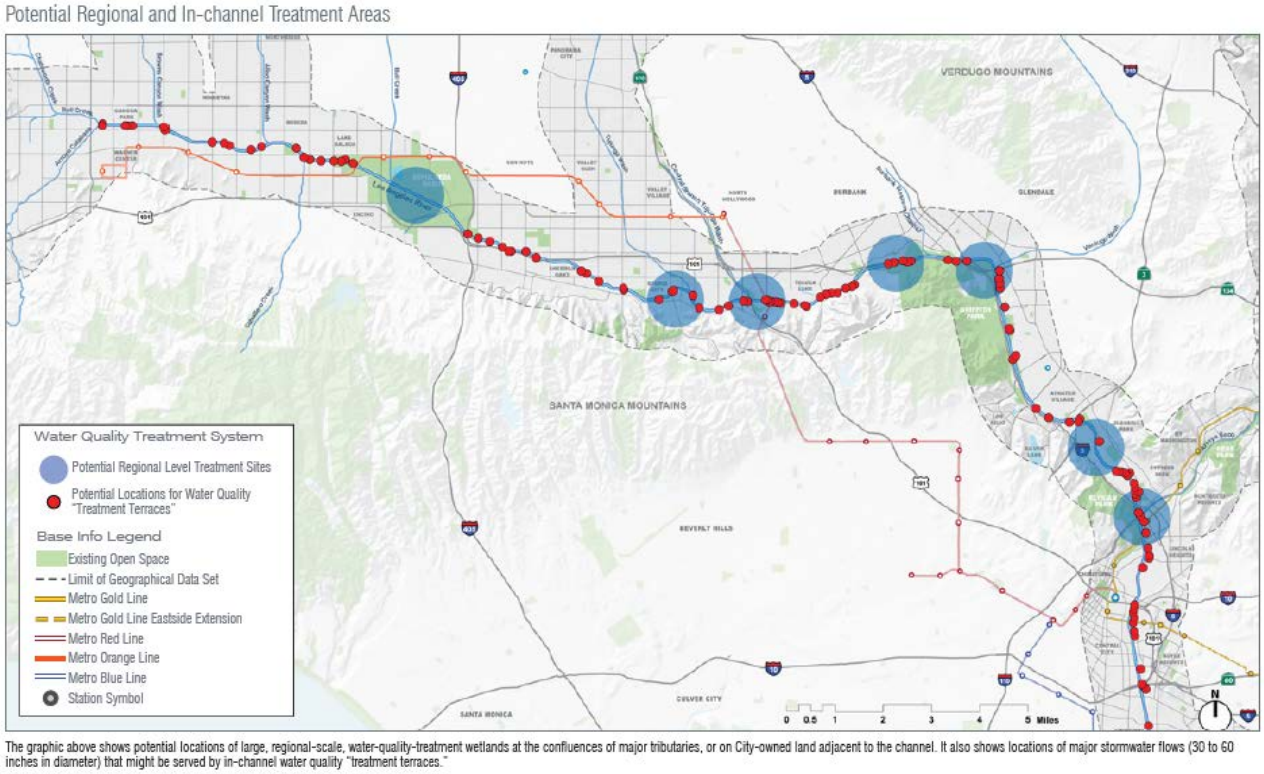
City of Los Angeles Los Angeles River Revitalization Master Plan, 2007

The Los Angeles River Revitalization Master Plan (hereafter the Plan) provides both a river corridor long-term vision and implementation guidance for revitalization projects along the river. It is intended as a framework, establishing the vision and guidelines for implementation, yet allowing substantial latitude for the details of specific projects to be crafted through community and neighborhood planning processes. The Plan's goals are to manage flow velocities to 12 feet per second in the channel to allow for ecological restoration including helping riparian vegetation become reestablished. Management of flow velocities also allow access and facilitation of multi-benefit green spaces within the river that can provide both open space and water quality benefits.

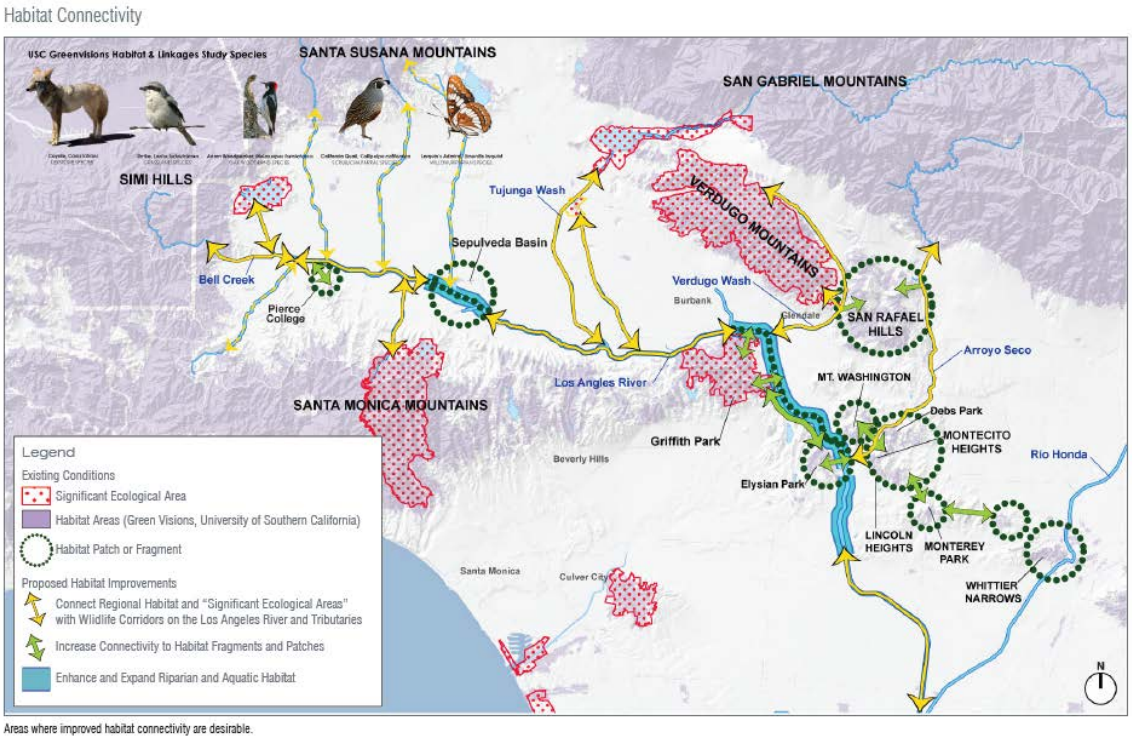


Estimated Water Storage Needs to Reduce River Flow Velocities. Recommendations #4.1 and #4.2 (Source: City of Los Angeles – Los Angeles River Revitalization Master Plan)

The Plan provides recommendations for physical improvements to the river corridor, and to the green space network in adjacent neighborhoods; recommendations at a policy level for managing public access and ensuring public health and safety; recommendations for a river governance and management structure; and recommendations for short- and long-term priority projects and potential funding strategies.



Potential Regional and In-channel Treatment Areas. Recommendations #4.3, #4.4, #4.5, #4.6, #4.7 (Source: City of Los Angeles – Los Angeles River Revitalization Master Plan)



Areas where Improved Habitat Connectivity are Desirable. Recommendations #4.3, #4.4, #4.5, #4.6, #4.7 (Source: City of Los Angeles – Los Angeles River Revitalization Master Plan)

The Plan was developed around the organizing principles listed below:

- Revitalize the river
  - o Enhance Flood Storage
  - o Enhance Water Quality
  - o Enable Safe Public Access
  - o Restore a Functional Ecosystem
- Green the Neighborhoods
  - o Create a Continuous river Greenway
  - o Connect Neighborhoods to the river
  - o Extend Open Space, Recreation, and Water Quality Features into Neighborhoods

  - Enhance river Identity
  - Incorporate Public Art Along the river

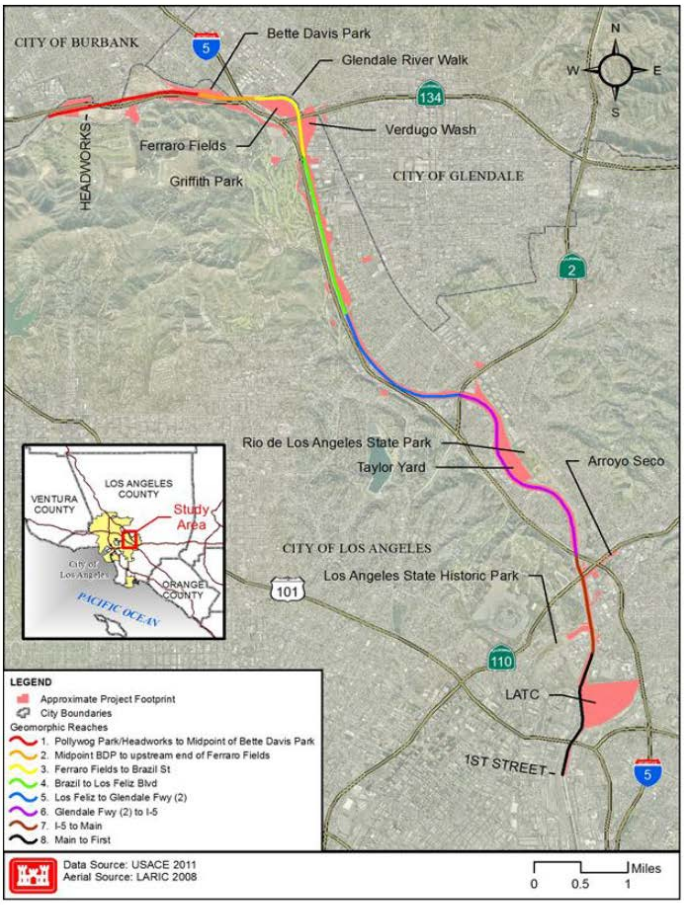
- Capture Community Opportunities
  - Make the river the Focus of Activity
  - Foster Civic Pride
  - Engage Residents in the Community Planning Process and Consensus Building
  - Provide Opportunities for Educational and Public Facilities
  - Celebrate the Cultural Heritage of the river
- Create Value
  - Improve the Quality of Life
  - Increase Employment, Housing, and Retail Space Opportunities
  - Create Environmentally-Sensitive Urban Design and Land Use Opportunities and Guidelines
  - Focus Attention on Underused Areas and Disadvantaged Communities

This map shows the potential restoration opportunities within the River Channel. The numbers on this map correspond to the potential River project matrix and maps at the end of this document.
Note: Locations of habitat opportunities can be found more precisely in detailed reach maps presented in Chapter 10.

Potential Restoration Opportunities. Recommendations # 4.13, #4.14, #4.15, #4.16 (Source: City of Los Angeles – Los Angeles River Revitalization Master Plan)

Army Corps of Engineers Los Angeles River Ecosystem Restoration Integrated Feasibility Report and its Recommended Plan, 2015

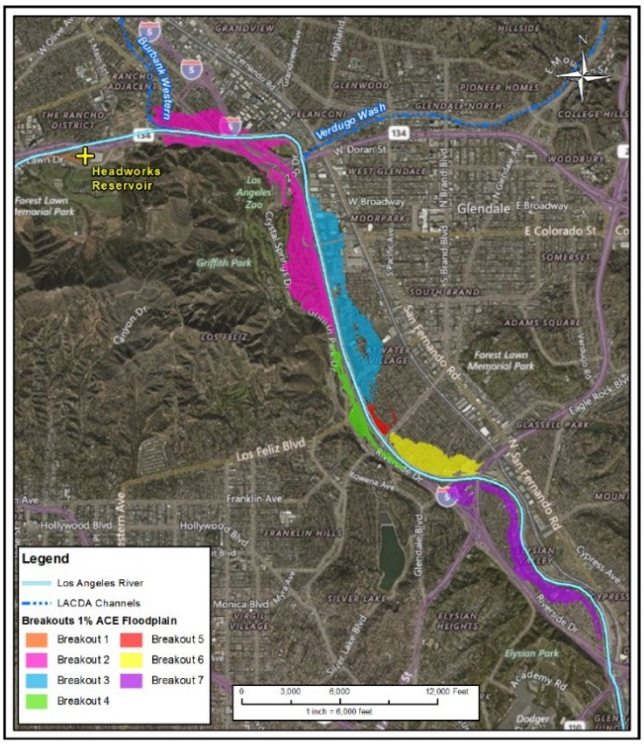
The primary purpose of the alternatives and proposed project considered in this Study is to restore approximately 11 miles of the Los Angeles River from Griffith Park to Downtown Los Angeles. The first objective is to reestablish riparian strand, freshwater marsh, and aquatic habitat communities and reconnect the river to major tributaries, its historic floodplain, and the regional habitat zones of the Santa Monica, San Gabriel, and Verdugo mountain ranges while maintaining existing levels of flood risk management. A secondary objective is to provide recreational opportunities consistent with the restored ecosystem.



Study Area, the ARBOR Reach (Source: Figure ES-3, Los Angeles River Ecosystem Restoration Integrated Feasibility Report)

The iterative study process resulted in a narrowing of the Study's geographic focus from the entire 32 miles to the 11 miles that includes the soft-bottomed Glendale Narrows stretch because that area shows the most promise for ecosystem restoration.

For this study, benefits (or outputs) were quantified using a habitat model called the Combined Habitat Assessment Protocols (CHAP) approach, which looks at species and their function within the habitat.



Los Angeles River 1% ACE (100-year) Flood (Source: Figure 8, Los Angeles River Ecosystem Restoration Integrated Feasibility Report)

The alternatives requiring the most extensive and expensive engineering interventions, such as the creation of underground detention/retention basins or very large bypass culverts or tunnels, were determined to be infeasible because of their cost and because they only exacerbated or moved the problems with the current channelized system and deferred important decisions about what needs to occur regarding peak flow reduction in the river's watershed.

In total, 19 alternatives were evaluated and five were selected for further analysis: Alternative 10-ART (Area with Restoration Benefits and Opportunities for Revitalization (ARBOR) Riparian Transitions), Alternative 13-ACE (ARBOR Corridor Transitions), Alternative 13v, Alternative 16, and Alternative 20-RIVER (Riparian Integration via Varied Ecological Restoration). The recommended plan for restoration of the Los Angeles River in the (ARBOR) reach is Alternative 20-RIVER, which is the locally preferred plan (LPP). The LPP includes additional restoration benefits above

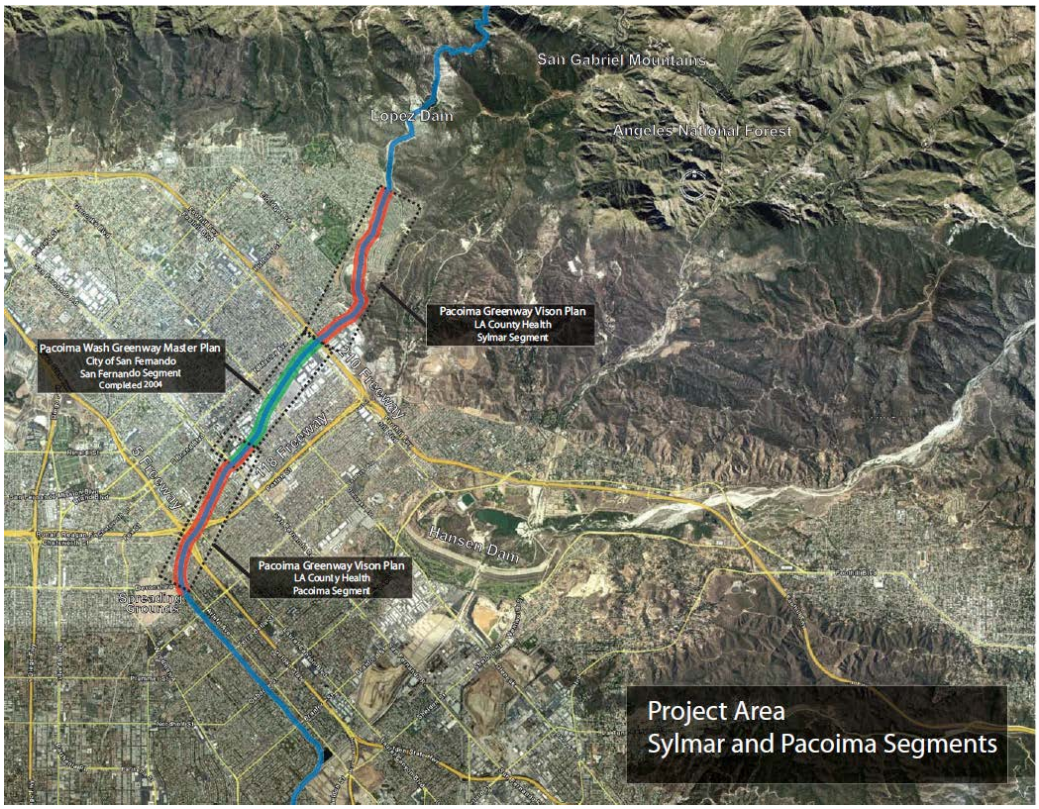
those identified for the National Ecosystem Restoration (NER) plan. These additional benefits include restoration of the Verdugo Wash confluence in Reach 3, widening of the river's natural bed in Reaches 2 and 5, and restoring channel bottom and a direct connection of the river into the LATC site in Reach 8. These additional restoration benefits include direct restoration of an additional 121 acres, nearly twice the acreage of local and increased hydrologic connectivity (298 acres total), and provision of a direct connection to the significant habitat areas of the Verdugo Mountains. It also includes all elements of the NER plan with the exception of the number of daylighted streams. The LPP has 13 daylighted streams. Daylighting in this instance is defined as opening underground pipes and storm drains near their confluence with the river to restore them to a natural stream channel.

By letter dated April 10, 2014, the City of Los Angeles requested that Alternative 20 be the plan recommended to Congress.

This Integrated Feasibility Report (IFR) presents the potential alternatives for environmental restoration of the Los Angeles River, analyzes the environmental impacts of implementing those alternatives, reviews the process for selecting the best alternative, and concludes with recommendations for project implementation.

Pacoima Wash Vision Plan, 2011

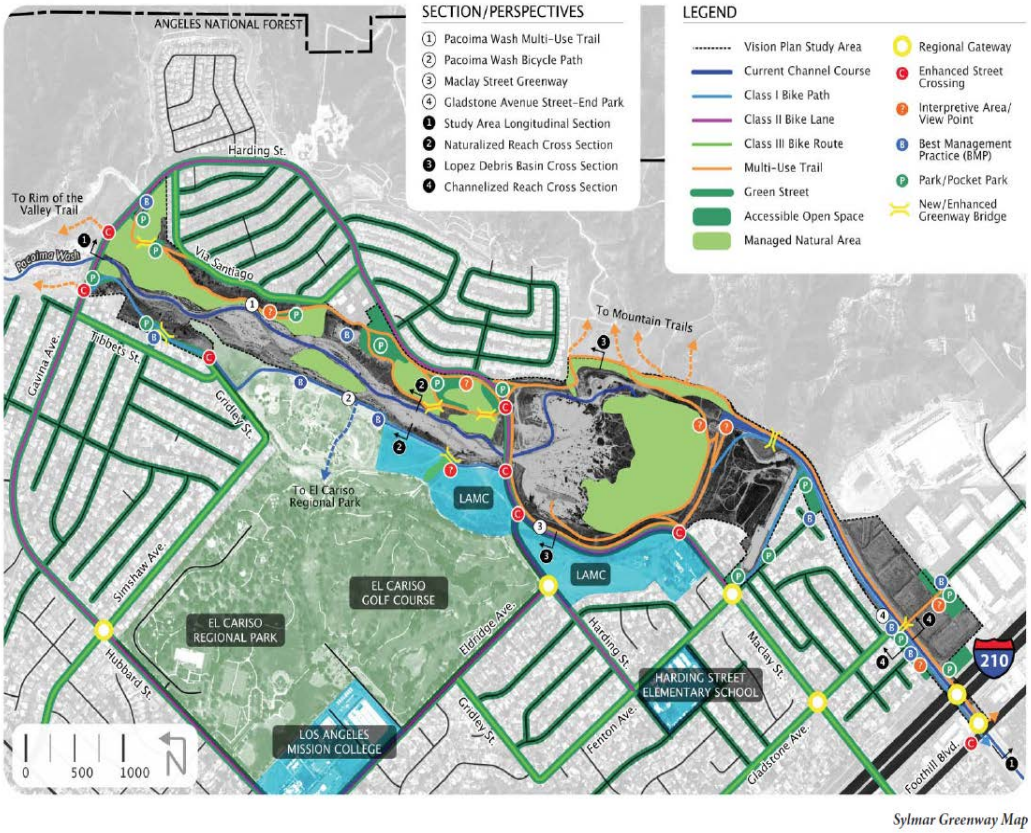
This report was prepared to generate ideas and community-based action toward the creation of new recreational amenities and a multi-use path along the length of the Pacoima Wash through the communities of Sylmar and Pacoima. It was guided by the goals and objectives for promoting community health by creating connections that provide active living opportunities; develop multi-purpose greenway and expand park space; protect, enhance, and restore Pacoima Wash as a natural area; improve water quality; and maintain or improve existing levels of protection. This plan provides an analysis of other documents relating to the Pacoima Wash, which are the Los Angeles Recreation and Parks Department Community-Wide Needs Assessment and the City of Los Angeles Bike Plan.



Description of Project Area (Source: Pacoima Wash Vision Plan)

The project area is in the upper area of the Sylmar Section of the Pacoima Wash, which acts as a transitional zone between the rugged slopes of the San Gabriel Mountains and the urban environment of the City of Los Angeles and the City of San Fernando. The lower portion of the Wash assumes a highly developed, engineered form, in contrast to the upper portion. The Pacoima Segment of the Pacoima Wash is generally more confined and urban when compared to the Sylmar segment.

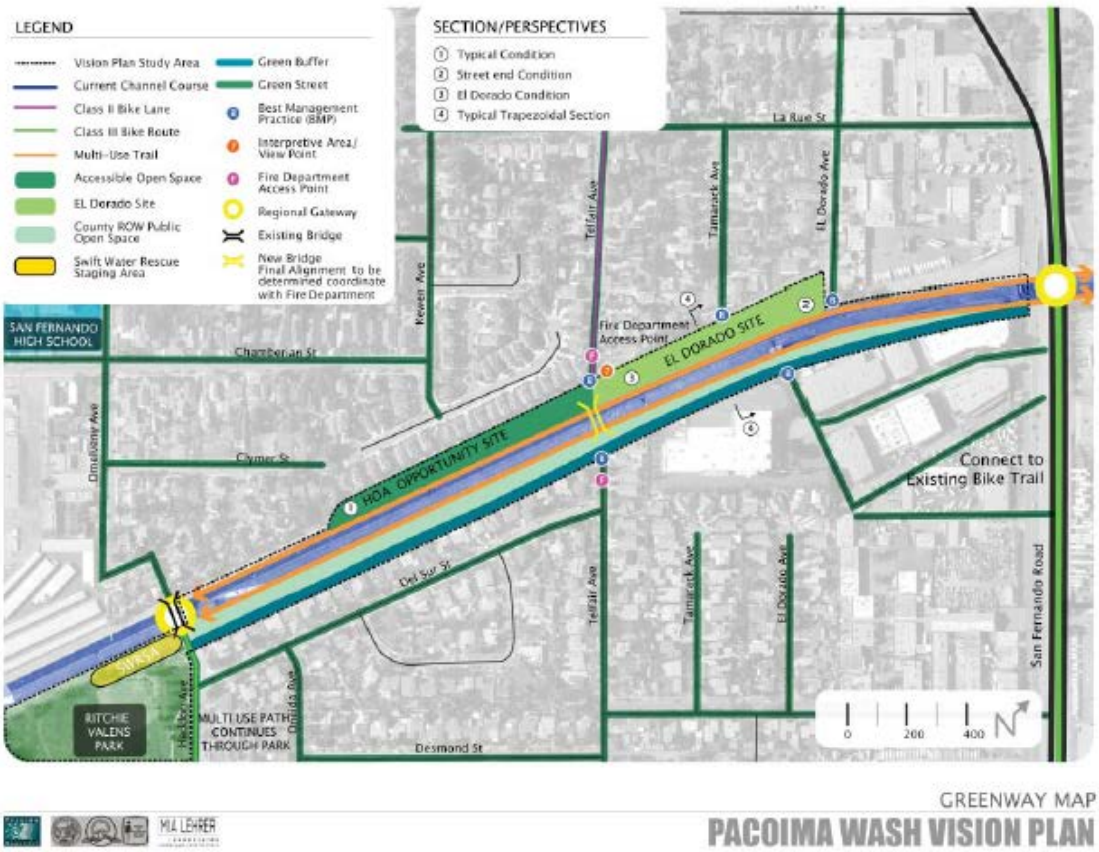
There are serious public health conditions in local residential communities, in part due to lack of physical activity and these include obesity, diabetes, and heart disease. The obesity epidemic varies amongst communities and a correlation exists between a community's access or lack of access to physical activity and health. , Rates of fitness



Selection/Perspectives (Source: Pacoima Wash Vision Plan)

testing indicate that 47% of children are overweight or obese in Sylmar public schools and 41% of children are overweight or obese in Pacoima. Obesity poses a serious health threat, as it puts people at risk for Type 2 Diabetes, heart disease, stroke, and some forms of cancer.

An extensive, multi-faceted outreach effort sought input from the diverse groups of Northeast San Fernando Valley residents that live or work near the Pacoima Wash. The initiative focuses on a four-mile stretch of the Pacoima Wash running through the Sylmar and Pacoima neighborhoods of the City of Los Angeles. The possible design elements demonstrated in the Pacoima Wash Vision Plan stem from the initiative's goals and objectives and were developed through the public outreach process. The outreach process resulted in the development of general design elements; Sylmar design elements; Pacoima design elements; and identification of gaps and items that remain to be addressed.

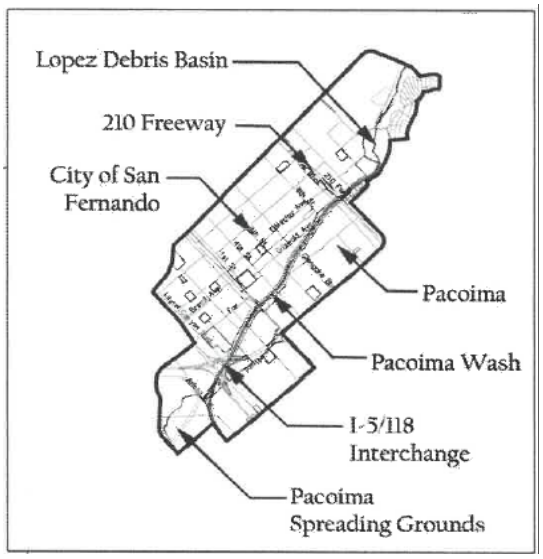


Greenway Map (Source: Pacoima Wash Vision Plan)

Cal Poly Pomona Pacoima Wash Greenway Master Plan, 2004

The purpose of the Pacoima Wash Greenway Master Plan is to develop designs, guidelines, and strategies for human recreation, natural systems restoration, and contaminated site remediation in and along the Pacoima Wash. This report focuses on the concrete section of the Pacoima Wash that runs between the Lopez Debris Basin and the Pacoima Spreading Grounds, dividing the neighborhoods along the path. Within this context, the plan addresses the following overarching goals:

- To improve the environmental functioning of the Pacoima Wash, Lopez Debris Basin, Pacoima Spreading Grounds, and surrounding communities.
- To increase recreational opportunities along the Pacoima Wash with the provision of bicycle and walking lanes, new park space, and connection to larger amenities such as the upper Pacoima Wash and Angeles National Forest.
- To promote the redevelopment of the wash into a unifying element for surrounding communities while addressing social needs and safety concerns.



Location Map of Community Boundary (Source; Cal Poly Pomona Pacoima Wash Greenway Master Plan)

The Pacoima Wash Greenway Master Plan was developed over a six-month period through a community-driven process supported by extensive site research and analysis. The plan describes the existing natural systems in terms of geomorphology, climate, hydrology (historical functioning, present day hydrology, groundwater basin, and City of San Fernando water use), vegetation, and wildlife, as well as the cultural and community history and demographics at the time the plan was created. It covers existing and planned recreation; transportation, and schools in the area on the regional and community scales and presents several site-scale concept designs including schools, parks, and gardens.

Elements considered in the site scale designs include the soft-bottom flood control channel, stormwater controls, greenway vegetation, wayfinding, and bicycle and pedestrian design considerations. Community scale conceptual design is provided for the Lopez Debris Basin, the Pacoima Spreading Grounds, and community recreation and transportation. Regional Scale proposal alternatives are provided for Pacoima Dam, Regional Recreation & Transportation, Hansen Dam, and the Regional Bike Plan.

The plan embodies the vision of the community, addresses critical environmental issues, and provide for the mental and physical health of future generations. The master plan aims to go beyond the physical confines of the project site to examine the community's social and environmental issues. It will seek opportunities to heal social scars created by the concrete flood control channel, which has separated communities already dividied by freeways and concrete walls, with shared recreation spaces and

increased care in the environment. To accomplish this, the master plan addresses three scales of concern: the regional, community, and site scales. The specific goals and objectives are organized by environment, community, and recreation and transportation as follows:

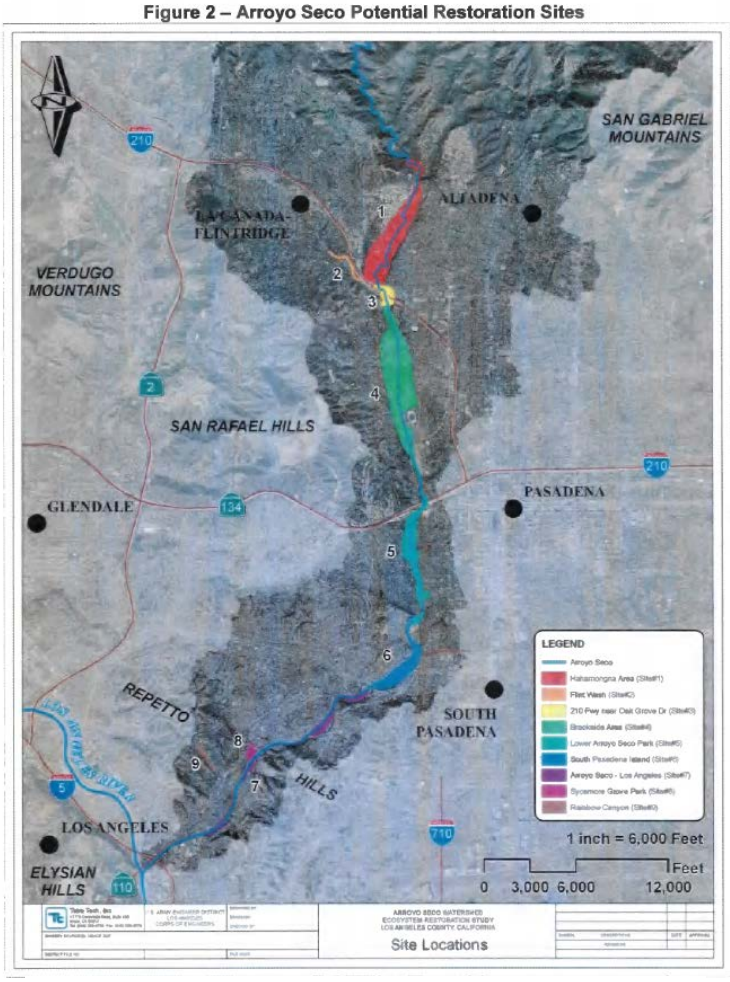
- Environment
    - Restore the processes of hydrologic regeneration within the Pacoima Wash watershed.
    - Improve environmental quality for residents of San Fernando and the surrounding community.
    - Restore native biological resources in the watershed.
- Community
    - Create a community vision for the Pacoima Wash.
    - Address safety concerns raised by the residents of San Fernando and surrounding communities.
    - Provide opportunities for environmental education.
- Recreation and Transportation
    - Increase recreation opportunities within San Fernando and surrounding communities.
    - Improve the connection between current and proposed park spaces and the surrounding community.
    - Increase alternative transportation options at all scales.

Arroyo Seco Ecosystem Restoration Feasibility Study, Undated Draft

Summary

This study was prepared by the US Army Corps of Engineers Los Angeles District South Pacific Division in partnership with the Los Angeles County Department of Public Works. The purpose of this study is to evaluate opportunities for restoring ecosystem function along the 11-mile reach of the Arroyo Seco, which extends from the Angeles National Forest border to approximately 0.5 miles from its confluence with the LAR.

Figure 2 – Arroyo Seco Potential Restoration Sites



Arroyo Seco Potential Restoration Sites (Source: Arroyo Seco Ecosystem Restoration Feasibility Study)

Project selection has been narrowed down to nine alternatives focused on combinations of invasive plant removal, floodplain benching, and constructing low-flow channels. The Reaches of the Arroyo Seco affected by the alternatives are:

- Reach 1 – Hahamongna Basin
- Reach 2 – Flint Canyon Wash
- Reach 3 – I-210 Near Oak Grove
- Reach 4A – Brookside – N
- Reach 4B – Brookside – S
- Reach 5A – Lower Arroyo Park – N
- Reach 5B – Lower Arroyo Park – S
- Reach 6 – South Pasadena
- Reach 7A – Arroyo Seco – N
- Reach 7B – Arroyo Seco – S
- Reach 8 – Sycamore Grove Park

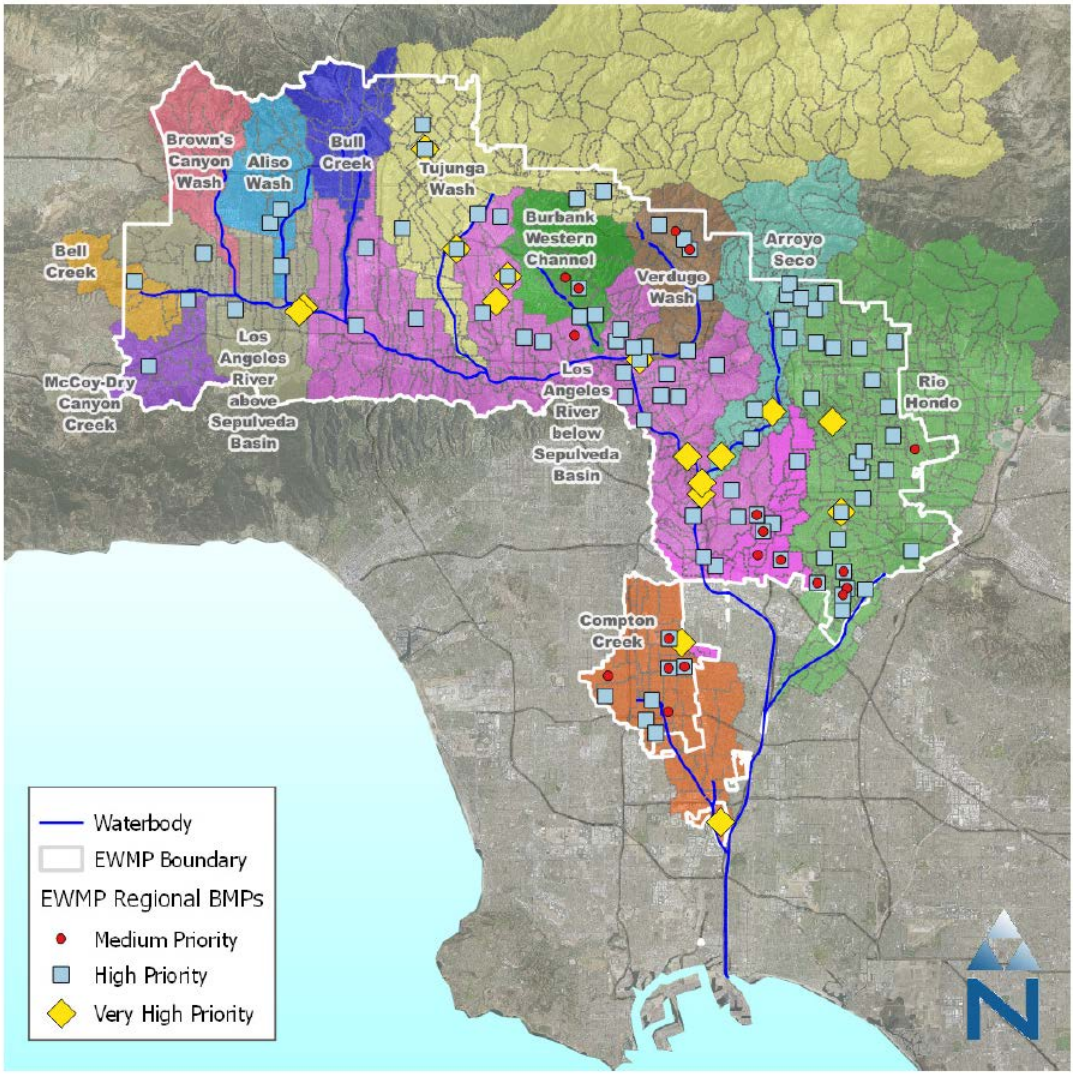
The study is organized around the goal of employing a watershed approach to address water-related issues in the Arroyo Seco and developing implementation actions that address the problems in a watershed context while also being beneficial to the interested public and institutions. Additional goals are to contribute to national objectives, which include National Economic Development (NED) and National Ecosystem Restoration (NER).

Enhanced Watershed Management Program for the Upper Los Angeles River Watershed, 2016

The Upper Los Angeles River (ULAR) Enhanced Watershed Management Program (EWMP) describes the Upper Los Angeles River Watershed Management Group's[1] plan for meeting various water quality objects in the Los Angeles Watershed. The EWMP provides a comprehensive overview of the watershed characteristics, including regulatory background, water quality characterization, water quality priority identification, and pollutant source assessment, and summarizes existing structural and non-structural stormwater control best management practices (BMPs) implemented in the watershed management area. As shown in the figure below, the watershed management area includes drainage areas to portions of the Los Angeles River north of Carson Street, and drainage areas to all tributary rivers to the that portion of the Los Angeles River but within the jurisdictions of all watershed management group members.

[1] Consists of the following cities and public agencies: , the Cities of Los Angeles, Alhambra, Burbank, Calabasas, Glendale, Hidden Hills, La Canada Flintridge, Montebello, Monterey Park, Pasadena, Rosemead, San Fernando, San Gabriel, San Marino, South El Monte, South Pasadena, and Temple City and the County of Los Angeles and the Los Angeles County Flood Control District

The EWMP includes details of the implementation strategy of proposed structural and non-structural stormwater control BMPs to meet the watershed management group's near-term and long-term needs of stormwater management. Key elements of the implementation strategy include regional structural Best Management Program (BMP), Low Impact Development (LID) streets, and non-structural minimal control measures (MCMs). Many proposed projects are multi-benefits projects that include habitat enhancements and ecosystem restoration benefits



Regional Projects Included in the ULAR EWMP Implementation Strategy (Source: Figure 4-2 Enhanced Watershed Management Program for the Upper Los Angeles River Watershed)

The EWMP was developed to fulfill the 2012 Los Angeles County MS4 Permitting and Long Beach MS4 Permit requirements. Hence, it provided strategies to provide water quality benefits in terms of meeting Total Maximum Daily Loads (TMDLs) and other water quality objectives applicable to the upper Los Angeles River watershed. Although ecosystem and habitat are not primary drivers considered, the EWMP implementation strategy includes multi-benefit projects that create or restore ecosystem and habitat.

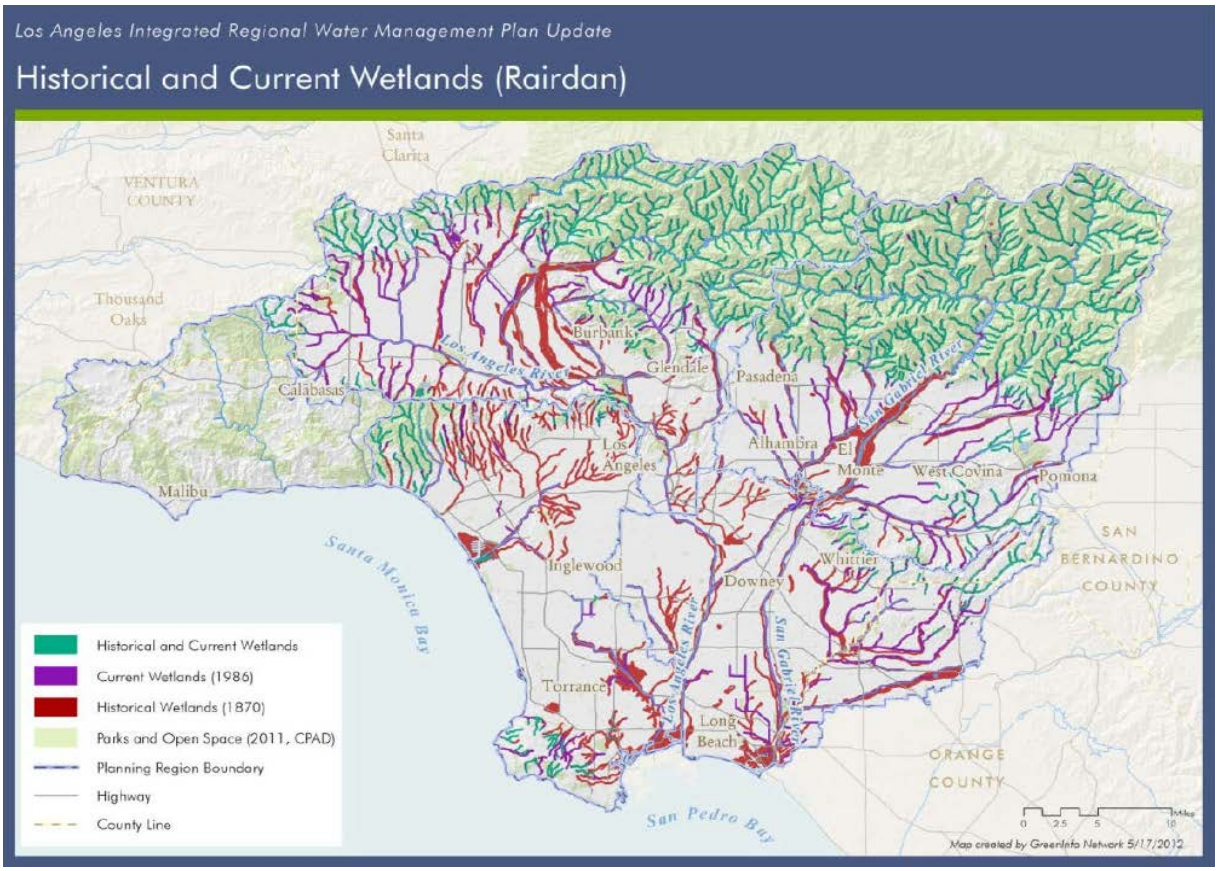
Integrated Regional Water Management Plan (IRWMP) Upper Los Angeles River Subregional Report, 2013

The Greater Los Angeles County (GLAC) Integrated Regional Water Management Plan (IRWMP) of 2013 (an update to the 2006 Plan of the same name) provides the vision and direction for sustainable management of water resources in the greater Los Angeles County Region. The objective of the IRWMP is to reduce the Region's reliance on imported water; comply with water quality regulations for urban runoff, stormwater and wastewater; restore natural processes and habitats; increase watershed friendly recreational space; reduce flood risk in flood prone areas; adapt and mitigate against climate change vulnerabilities. The IRWMP itself operates to align goals from multiple agencies and regions and to avoid conflicts that could arise from mismatched regional planning efforts.

Planning efforts within the IRWMP focus on five (5) regional watersheds: Upper Los Angeles River; Upper San Gabriel River and Rio Hondo; Lower San Gabriel and Lower Los Angeles Rivers. Projects and planning focus on anything from flood control to water quality to restoration and more. The relevant subregion for this review is the Upper Los Angeles River.

The intent of the Upper Los Angeles River Subregional Plan is to establish objectives and five quantified planning targets for the 2035 planning horizon: Water Supply; Water Quality; Habitat; Open Space and Recreation; Flood Management. The emphasis for water supply is to reduce reliance on imported water and improve reliability on local water supplies. The Subregional Plan aims to yield an additional 97,000 acre-ft per year of local supply for direct use from indirect potable reuse and

non-potable reuse of recycled water; increasing infiltration, capture, and use of stormwater; conserving water; and additional ability to pump groundwater. It will also yield 67,000 acre-feet per year for groundwater recharge. The Subregional Plan also details 14,800 acre-feet of stormwater capture capacity to improve water quality. To meet flood management needs, the Subregional Plan seeks to reduce 1,970 acres of local unmet drainage needs and remove 27.6 million cubic yards of sediment from debris basins and reservoirs. Habitat, Open Space, and Recreation do not have individual targets but instead fall under regional targets listed in the *Open Space, Habitat and Recreation Technical Memorandum*. Planning targets for recreation in the region focus on urban parks, passive recreation and greenways. Open space and ecosystems are targeted to improve fresh water, water quality, biodiversity, and aesthetic and cultural values. The plan analyzes historical and existing wetlands, habitat linkages, and numerous areas for outdoor opportunities.



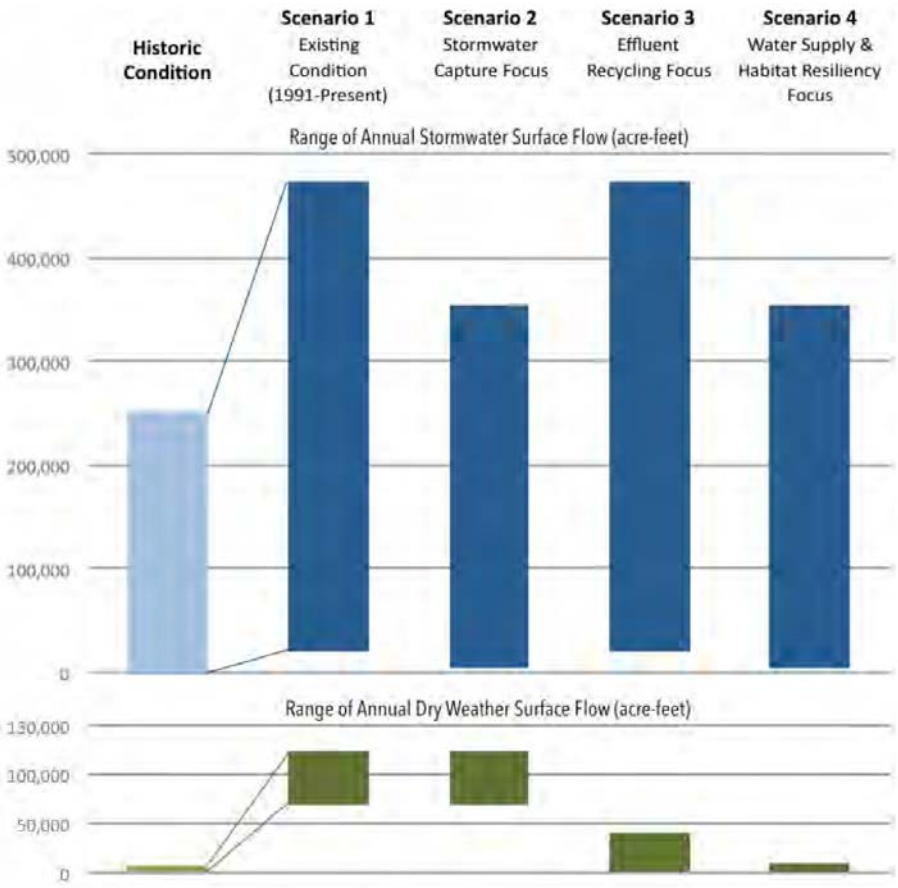
Historical and Current Wetlands (Rairdan) (GLAC Region, except NSMB Subregion) (Source: Figure 6 Integrated Regional Water Management Plan (IRWMP) Upper Los Angeles River

The IRWMP is organized around the goals of developing a clear plan between regions for projects influencing available water resources in the greater Los Angeles County Region and streamline public outreach.

Habitat Linkages (Source: Figure 8 Integrated Regional Water Management Plan (IRWMP) Upper Los Angeles River Subregional Report)

TNC Water Supply and Habitat Resiliency for a Future Los Angeles River, 2016

The purpose of the study was to provide research on the existing and historic condition of the Los Angeles River within the Elysian Valley. The intent was to provide insight on potential projects (which may inevitably be used as pilot projects) that may enhance the ecological value of the Los Angeles River. New datasets were developed for the study relating to biodiversity, ecology including invasive plant species, as well as hydraulics for the historic and existing condition. The study also provides identification of habitat enhancement opportunities, and four alternatives for watershed hydrology scenarios.



Range of Typical Annual surface Flow for Stormwater and Dry Weather in the Elysian Valley for the Historic Condition and Four Watershed Hydrology Scenarios (Source: Figure ES-1 TNC Water Supply & Habitat Resiliency for a future Los Angeles River)

By providing alternatives for watershed hydrology scenarios, the plan hopes to bring together the multiple management priorities of agencies and stakeholders that have governance over different aspects of the river and encourage one integrated vision of flow characteristics to align the design of all future habitat projects along the Los Angeles River. The existing altered hydrologic system favors non-native plants and the proposed flow characteristics will ultimately determine biological and ecological characteristics and are therefore, important to align across all future projects involving the river. The study stresses that habitat enhancement will likely require consensus on one hydrologic scenario, and this will require dialog and decision-making among local stakeholders and agencies. Report data including hydraulic/hydrologic analyses, and biodiversity and ecology datasets may be beneficial to planning-phase development of future LAR projects.

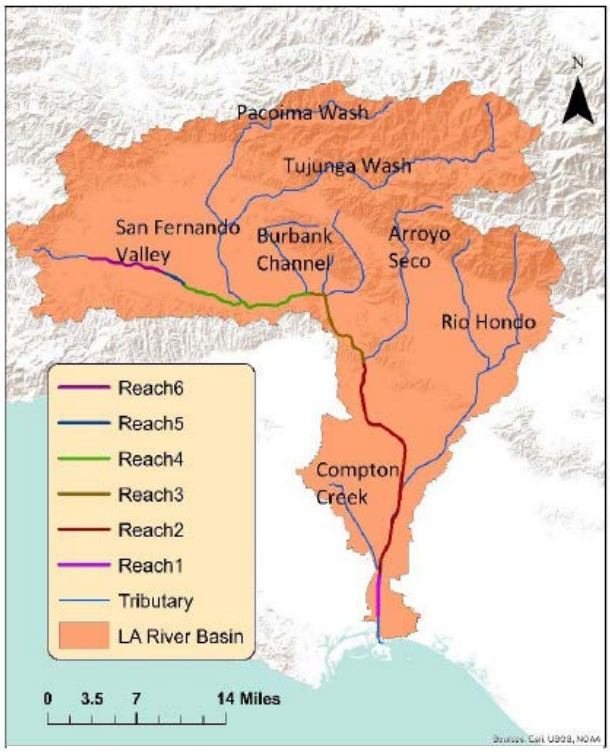
Invasive Plant Cover of the Los Angeles River in the Elysian Valley (Year 2015). (Source: Figure 4-9 TNC Water Supply & Habitat Resiliency for a future Los Angeles River)

The Nature Conservancy developed the plan in light of the Sustainable City pLAn (2015) with the following goals:

- Protect and Support Biodiversity: Develop a city biodiversity strategy by 2017.
- Water Conservation: Reduce imported water purchases by 50% by 2025 and provide 50% of the water supply from local sources by 2035.
- Los Angeles River Revitalization: Complete 32 miles of public river access within the City by 2025; and complete or initiate restoration work on 8 “reaches” identified in the ARBOR Study by 2035.

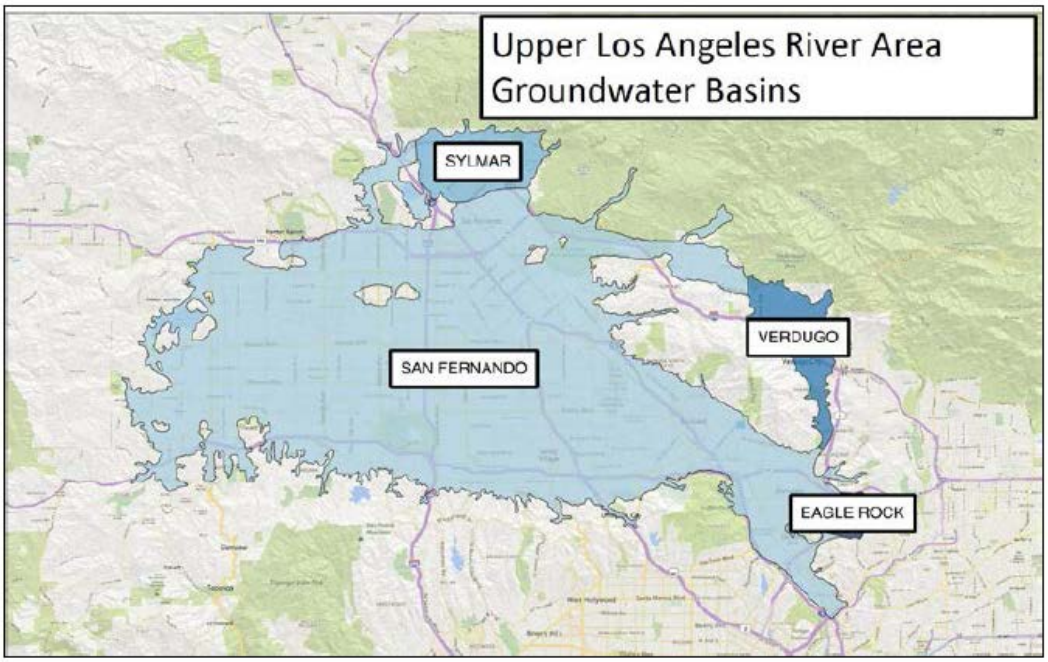
Los Angeles Sustainable Water Project: Los Angeles River Watershed, 2017

The report is part of a series of research initiatives intended to quantitatively assess the feasibility and effectiveness of implementing integrated water management programs across the City of Los Angeles (City). In the last 50 years, imperviousness in the LAR watershed has increased, as well as wet weather and dry weather flows in the LAR. Recent stormwater regulations require the river and its tributaries to meet their targets and Total Maximum Daily Loads (TMDLs) to support aquatic life and recreation. There is also a focus on local, sustainable water supplies from wastewater treatment (water reclamation) plants (WRPs): Donald C Tillman Water Reclamation Plant (DCTWRP), Los Angeles Glendale Water Reclamation Plant (LAGWRP), and Burbank Water Reclamation Plant (BWRP); remediated groundwater basins; and captured stormwater for recharging the Upper Los Angeles River Area (ULARA) groundwater basins that could greatly impact the hydrology of the LAR. Efforts to increase local water supply as well as to increase conservation will reduce dry season flows in the LAR, which can impact other benefits provided by the river such as habitat and recreation.



Overview Map of LAR Watershed and its Tributaries and Reach Delineations (Source: Figure 1.1, Los Angeles Sustainable Water Project – Los Angeles River Watershed)

This report specifically investigated the impacts of implementing integrated water management practices in the Los Angeles River (LAR) watershed, which address water quality and supply. A modified version of US EPA's System for Urban Stormwater Treatment and Analysis (SUSTAIN) model was used to model six scenarios that included combinations of treat and release BMPs and/or infiltration BMPs (installed on public land uses), which were designed to capture the 85th percentile storm. None of the modeled scenarios capturing the 85th percentile storm resulted in the elimination of load-based metals exceedances, however, the number of exceedances was greatly reduced and potential to augment water supply was increased. Additionally, the

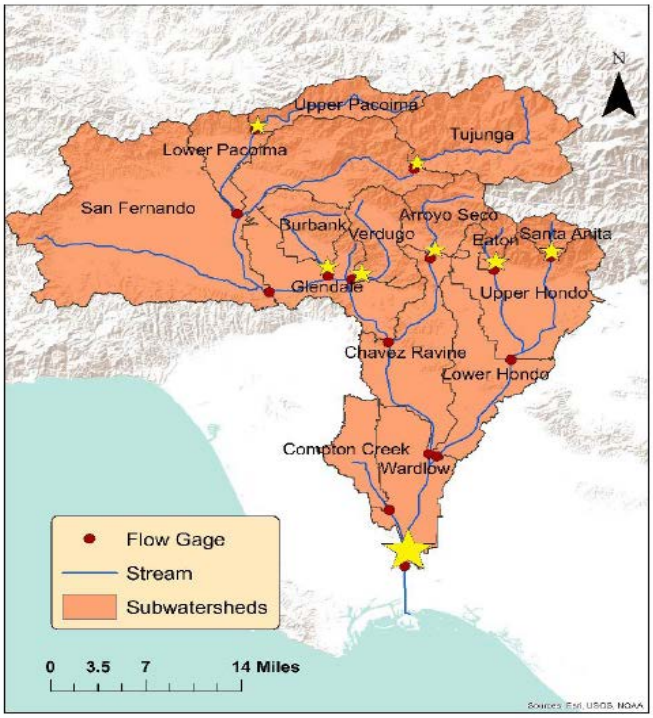


ULARA Groundwater Basins (Source: Figure 4.1, Los Angeles Sustainable Water Project – Los Angeles River Watershed)

quantitative modeling only considered implementation of watershed-scale BMPs and additional measures such as management control measures, source control, or BMP implementation on private land can further reduce the number of exceedances.

The study also investigated the historical hydrology of the LAR and the impact of BMPs on the runoff ratios (defined as ratio of total depth of surface runoff to depth of precipitation). Current low flows (between 0-50 percentiles) at the Wardlow Gage near the LAR's outlet are higher than they have been for much of the LAR's recent history, due in large part to the discharge of treated effluent from DCTWRP, BWRP, and LAGWRP.

Finally, the study assessed the potential combined impacts of both watershed-scale BMP implementation and increased reuse of the treated effluent discharged into the LAR on annual minimum flows. It was found that annual minimum flows could drastically drop after BMP implementation and with 100% reuse of discharged effluent, which can have a direct impact on habitat and recreation. The results demonstrated that different watershed management approaches result in different flows available to support the various needs and uses of the LAR and that it is important to define the minimum flow requirements in the LAR. The report recommends examining the entire 51-mile length of



Flow and Calibration Gages (Starred) in LAR Subwatersheds. Yellow Stars Represent the Eight Locations Where Available Discharge Data Was Used to Calibrate the SUSTAIN Model. (Source: Figure 2.2, Los Angeles Sustainable Water Project – Los Angeles River Watershed)

the LAR and its watershed in planning decisions and identifying all potential benefits and harms on surface water, groundwater, land uses, or communities.

The water quality analysis focused on the LAR and its tributaries and showed that none of the modeled scenarios capturing the 85th percentile storm resulted in the elimination of load-based metals exceedances, although the number of exceedances was greatly reduced.

The research demonstrates the complex interrelationships of projects designed to achieve different objectives. For instance, projects focused on improving stormwater runoff quality can also increase local water supply potential. The research stresses the importance of fully identifying and analyzing potential beneficial and harmful impacts of integrated water management plans on surface water, groundwater, land uses, or communities. It recommends rigorous ecological studies to define a healthy habitat and biodiversity in an urbanized and managed riparian environment and the minimum flow regime required to support them for each reach and tributary of the river. The report references the Olmstead brothers' vision for re-imaging the river that began in the 1930s, which outlines a future vision of the LAR that includes all of the factors described above.

Los Angeles Countywide Comprehensive Parks and Recreation Needs Assessment, 2016

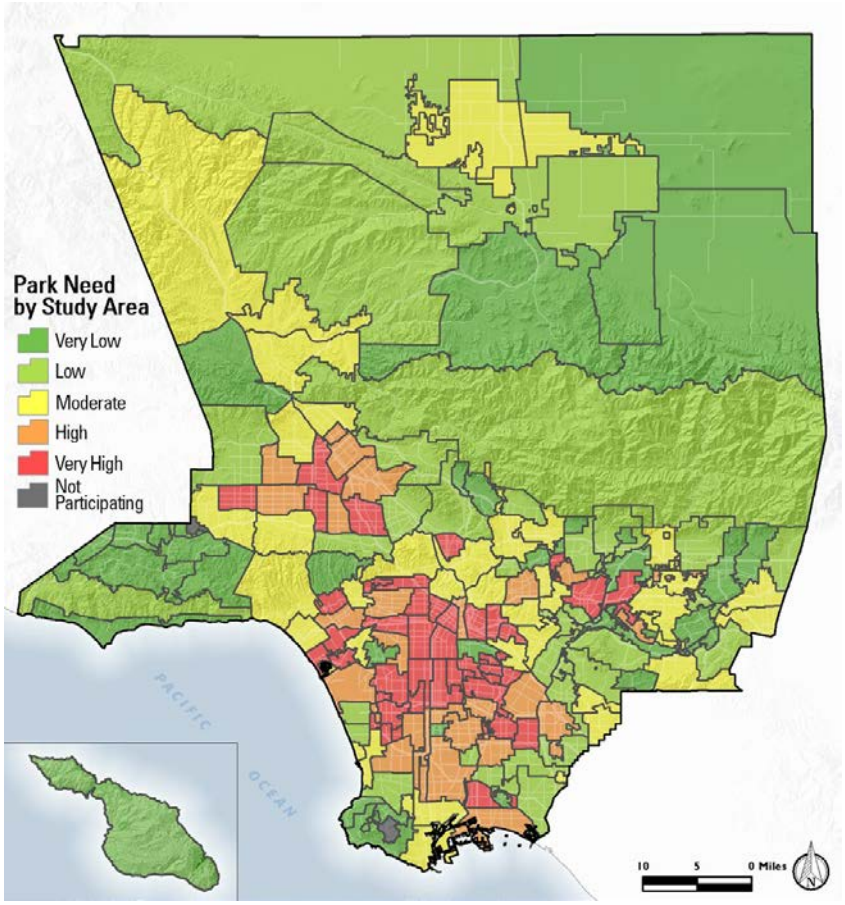
The Countywide Comprehensive Parks and Needs Assessment inventories existing and analyzed needed parks and recreation facilities in cities and unincorporated communities in Los Angeles County. Some cities and unincorporated areas are located along the LAR, thus, results of this study provide relevant information for planning along the LAR. It serves as a guide for local officials, park agencies, and residents in understating future steps that need to be taken to ensure that all communities have adequate access to thriving parks. With the current primary funding source for parks, the Safe Neighborhoods Park Tax set to expire in 2019, the assessment serves as an important document in informing planning and decision-making regarding future funding.

The Parks Needs Assessment considers parks as key infrastructure needed to maintain and improve the quality of life, uses a new set of metrics, which consisted of park land, park access, park pressure, park amenities, and park condition, to determine park needs, supports a need-based allocation of funding and emphasizes community priorities and deferred maintenance projects.

Importance of Parks as Essential Infrastructure in the County (Source: Los Angeles Countywide Comprehensive Parks & Recreation Needs

The County Board of Supervisors initiated the Parks Needs Assessment recognizing the importance of parks in contributing to public health and well-being, creating a sense of place, increasing community cohesion, improving the environment, and boosting the economy. The approved motion included the following components:

- Establishment of 188 Study Areas within the County
- An inventory of existing park and recreation assets in the County, in all unincorporated and incorporated communities
- GIS-based spatial analysis of existing park and recreation assets
- Community-led outreach process of sharing inventory and analysis results to help identify and prioritize needed improvements
- Cost estimates for priority park projects developed in community workshops



Park Need by Study Area (Source: Los Angeles Countywide Comprehensive Parks & Recreation Needs Assessment)

Tujunga-Pacoima Watershed Plan, 2008

This report outlines actions, programs and projects to improve the healthy functioning of the Tujunga/Pacoima watershed, and provide a set of principles to guide future project and management efforts. The report summarizes a Watershed Assessment developed to define the current condition of the watershed and establishes Goals and Objectives.

The River Project (TRP) organized a public education series called Watershed-U Tujunga and included discussions on funding mechanisms. It was a crash course of the watershed that took place one evening a week for six weeks that got over 100 local community leaders involved and inspired.

A Technical Advisory Committee worked with stakeholders to develop a Decision Support System (DSS) to help rank and prioritize over 200 potential projects. Using this information, stakeholders selected twenty-four neighborhood-scale and thirteen watershed-scale projects that represent the Project Scenario presented in this Plan. Summary descriptions of the projects, including maps indicating their location; BMP illustrations; and images of similar project types; are provided. The back of each page lists the complete information provided by project proponents as it appears in the project database.

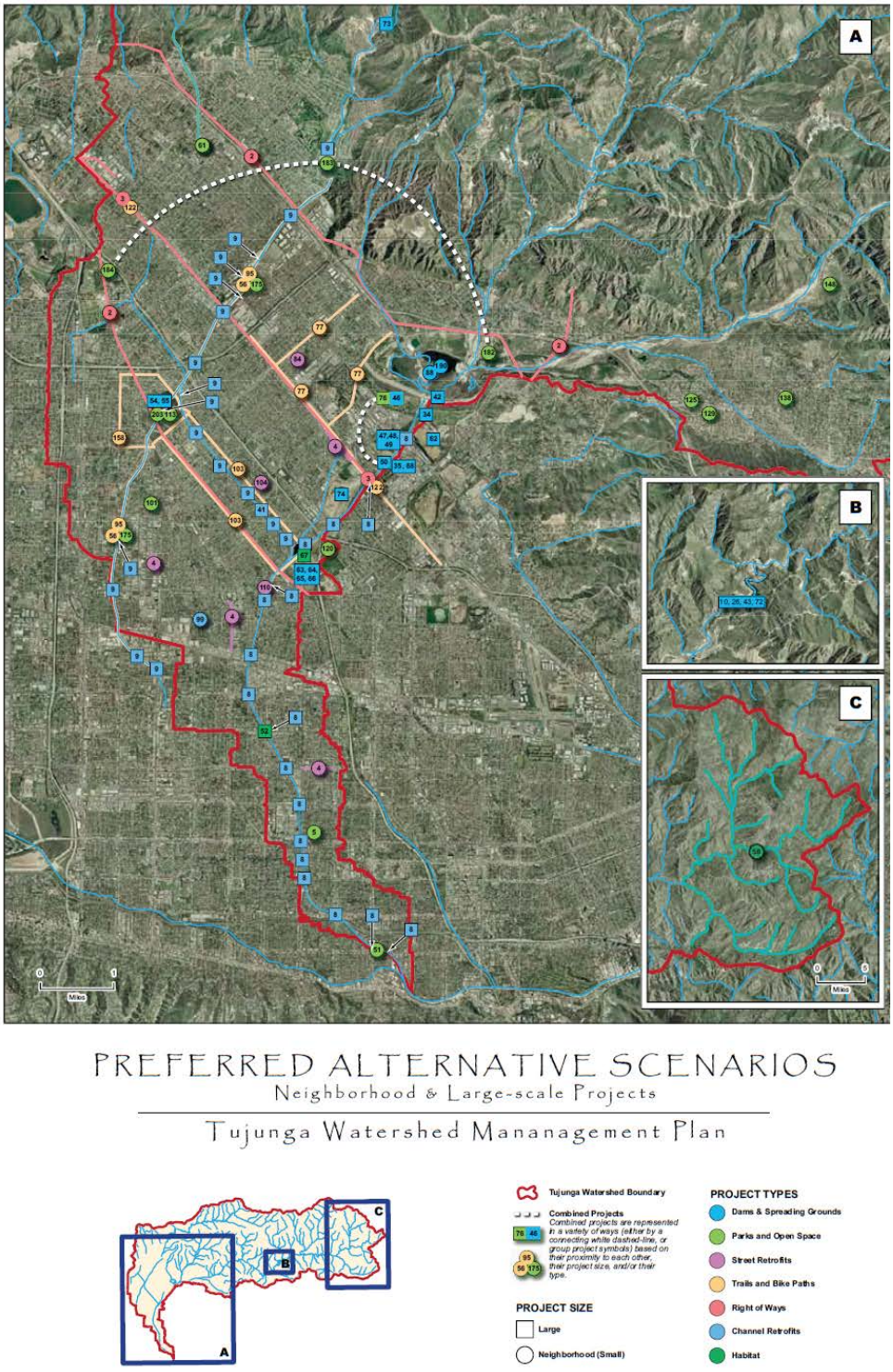


Figure 4-1 Preferred Scenario Map
Source: The River Project 2007

Preferred Scenario Map (Source: Figure 4-1, Tujunga-Pacoima Watershed Plan)

The Project Team used the watershed model, LSPC, to simulate rainfall and evapotranspiration to determine runoff, infiltration, and water quality parameters and the U.S. Army Corps of Engineers' HEC-RAS hydrodynamic model to simulate volumes, velocities, and sediment transport in stream channels and, modeling to quantify the estimated cumulative water supply benefits of implementing the Project Scenario. Although stakeholders provided information sufficient to establish a relative comparison of projects based on their potential benefits, getting data specific enough to satisfy modeling requirements proved difficult. The modeling did not produce the anticipated results, this effort demonstrates that an improvement in collaboration and information sharing would benefit the region.

Stakeholders proposed a range of studies that could be undertaken to develop a stronger knowledge base about watershed issues, and numerous programs designed to benefit watershed health.

Specific policy recommendations that foster enlightened planning, robust resource conservation, regular infrastructure maintenance, improved agency coordination, and expanded funding opportunities for these topics were provided:

- Land Use
- Water Supply
- Stormwater Quality
- Public Safety
- Parks and Open Space
- Habitat and Native Vegetation
- Coordination & Planning

- Funding

Specific guidance on how best to implement the Plan's recommendations and achieve the plan's goals and objectives for the various audiences was developed:

- Watershed Residents
- Los Angeles City Neighborhood Councils
- City of Los Angeles
- City of San Fernando
- County of Los Angeles
- Los Angeles Unified School District
- Southern California Association of Governments
- State of California
- Federal Government

The following goals and objectives were generated through a collaborative stakeholder process. Each goal includes subgoals and related objectives. Collectively, they reflect a single over-arching goal:

To revitalize the Tujunga/Pacoima Watershed, balancing water supply, water quality, community open space needs, environmental protection and restoration, and public safety.

- Optimize Local Water Resources to Reduce Dependence on Imported Water
- Improve Surface Water & Groundwater Quality
- Restore Hydrologic Function to the Watershed while Maintaining Public Safety
- Enhance Quality, Quantity and Connectivity of Native Terrestrial and Riparian Habitats

- Improve and Increase a Network of Public Open Space
- Create Green Transit Linkages and Recreational Access
- Promote Watershed Awareness & Increase Stewardship through Public Outreach and Education
- Implement Watershed-based Planning and Projects
- Improve Collaboration among all Agencies, Organizations & Communities in the Watershed

Three basic premises underlie these desired outcomes:

- Water is a valuable asset.
- The watershed must be the primary basis for urban planning and design.
- Green infrastructure is cost efficient, multipurpose, and fosters community identity.

National Park Service Rim of the Valley Special Resource Study, 2016

In response to the Consolidated Natural Resources Act of 2008, the National Park Service evaluated several alternatives to determine if any area in the Rim of the Valley Corridor would be eligible to be designated as a national park. The study area covers 650,000 acres in the southern California region and includes 153,000 acres in the the Santa Monica Mountains National Recreation Area (SMMNRA) and 180,000 acres of lands managed by the United States Forest Service including the Angeles National Forest and the San Gabriel Mountains National Monument. Numerous agencies and conservation organizations manage lands within the study area. The evaluation followed the process established by the National Park System New Area Studies Act, which requires compliance with the National Environmental Policy Act. The selected alternative proposes a boundary adjustment to the SMMNRA, to include 170,000 acres of the Los Angeles River and Arroyo Seco corridors, the Verdugo Mountains-San Rafael Hills, the San Gabriel Mountains foothills, the Simi Hills, the Santa Susana Mountains, and the Conejo Mountain area. The areas in the selected alternatives are some of the highest in concentration of natural and cultural resources and public enjoyment opportunities. Implementation of the study's selected alternative would require Congress to successfully pass legislation in the future. The study was sent to Congress on February 16, 2016.

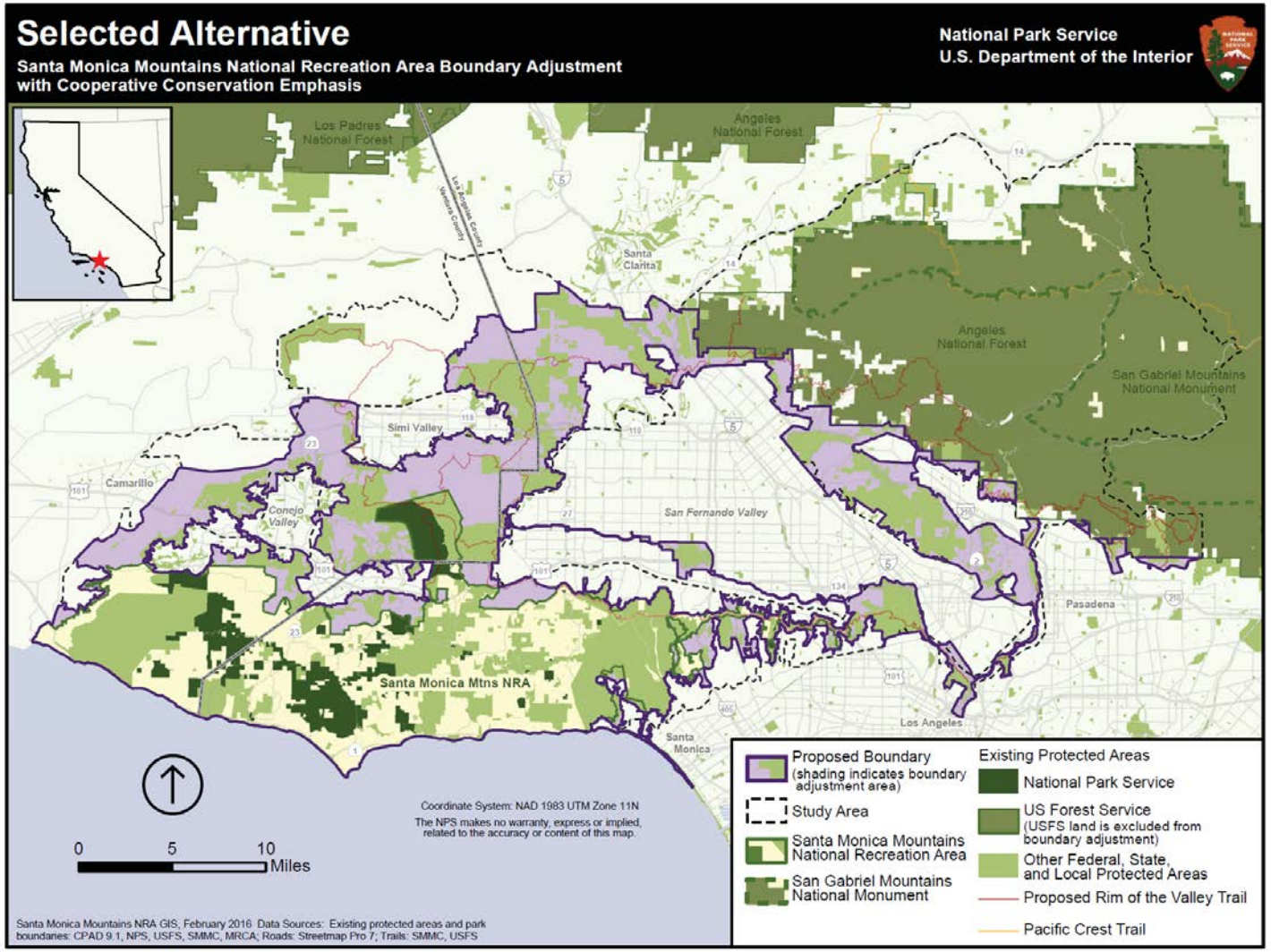
The passing of the legislation would be the guiding policy for the park unit. NPS would need to complete a management plan to define management priorities, specific actions, and funding needs for the newly added areas. It would need to leverage existing funds for annual operating costs and planning and explore new opportunities to

leverage funding for land acquisition, specific resource management objectives, and construction of new facilities. l. Through legislation, Congress could authorize the NPS to manage the new additions and explore partnerships and management frameworks with existing land management agencies, private landowners and organizations. Recognizing that the proposed boundary adjustment would include areas outside of the Santa Monica Mountains, Congress may consider revising the name. Locations eligible for these new facilities would include areas along the LAR and Arroyo Seco corridors, the Verdugo Mountains-San Rafael Hills, the San Gabriel Mountains foothills, the Simi Hills, the Santa Susana Mountains, and the Conejo Mountain area to SMMNRA. Existing parks such as Griffith Park, Hansen Dam Recreation Area, Sepulveda Basin (recreation areas and wildlife reserve), Los Encinos State Historic Park, Debs Park, El Pueblo de Los Angeles Historical Monument, and Los Angeles State Historic Park would serve as major portals into the Rim of the Valley Corridor area.

The NPS would develop partnerships with existing nature centers, recreational facilities, and other agencies to identify common priorities for a number of issues including land conservation, protecting and enhancing habitat linkages and connectivity, restoration efforts that enhance biodiversity and resiliency, cultural resources and education, public health benefits of outdoor recreation, and sharing of operations and maintenance activities Inclusion of LAR areas into the SMMNRA would catalyze opportunities for urban areas to be connected to open space, outdoor recreation, and nature, and would provide additional funds for LAR restoration projects.

The goals of the study are to 1) determine the suitability of designating a portion of, or all of the Rim of the Valley Corridor as a National Park. 2) means and methods to protect the Rim of the Valley Corridor.

Four Alternatives were developed and distributed for public review. Following public engagement feedback, a combination of two alternatives was submitted to congress as the final recommendation to achieve both goals. 1) Boundary adjustment to SMMNRA to include new lands, and 2) NPS to have authority, and provide technical assistance, so that local communities, agencies, and private land owners (if requested) can provide for new trails and parks to protect resources and foster connectivity.



Selected Alternative (Source: Rim of the Valley Corridor Special Resource Study Area)

Arroyo Seco Watershed Restoration Feasibility Study, 2002

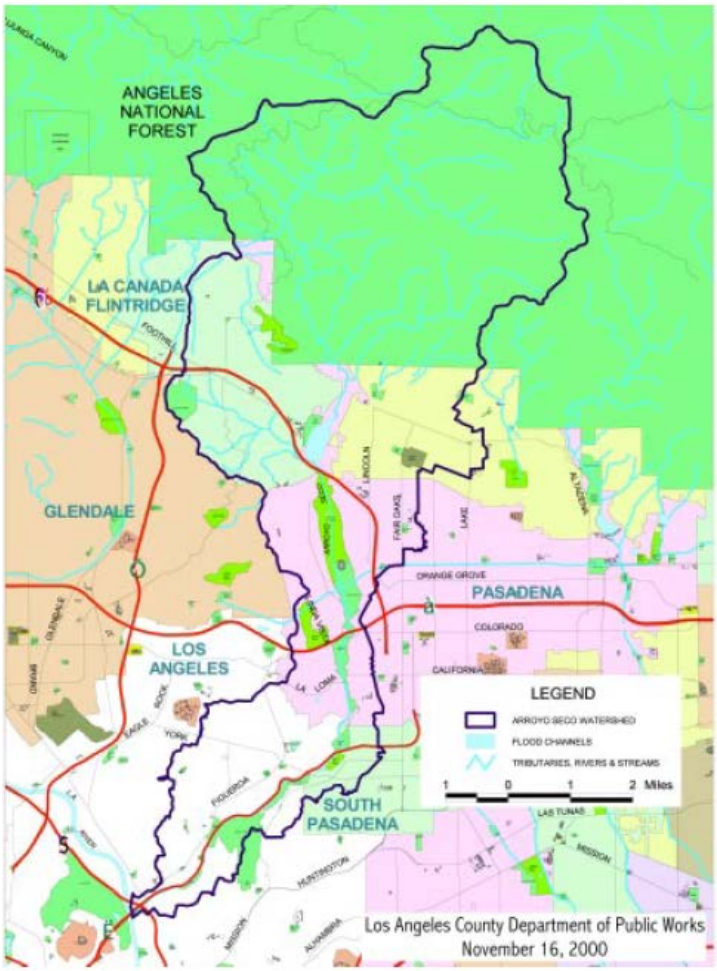
This feasibility study was a collaborative effort of the North East Trees and the Arroyo Seco Foundation to develop an environmentally sensitive and sustainable plan to manage and restore the Arroyo Seco watershed. The study is intended to integrate issues of flood management, stream naturalization, water resources, habitat rehabilitation, and educational and community recreational opportunities. The result of this study is a list of recommended projects and programs for implementation. To support future efforts, North East Trees has applied for and received two grants from Proposition 13 and CALFED Bay-Delta Watershed Program Funding. In addition, North East Trees and the Arroyo Seco Foundation are encouraging agencies to pursue grant funding to begin implementation of restoration projects.

The Arroyo Seco watershed is 46.6 square miles and is a tributary to the Los Angeles River. Any projects performed in the watershed will have a direct impact on the LAR. The watershed spans five jurisdictions, including, the Angeles National Forest, the unincorporated community of Altadena, the City of La Cañada Flintridge, the City of Pasadena, the City of South Pasadena, and the City of Los Angeles.

A combination of factors makes the Arroyo Seco a strong potential stream restoration project in southern California.

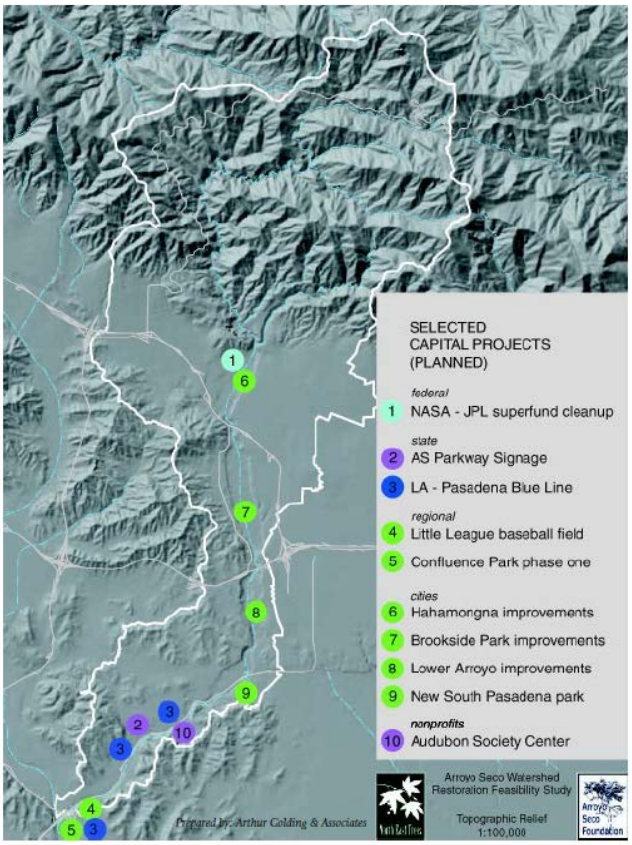
1. The spectacular natural character of the Arroyo Seco with parks and open space along most of its course
2. Public ownership of adjacent land
3. Successful demonstration projects

4. The potential for southern steelhead/rainbow trout and arroyo southwestern toad habitat
5. Substantial community and political support to naturalize the Arroyo Seco
6. US Army Corps of Engineers Preparation of a Reconnaissance Study for the watershed
7. The evolving attitude about flood and watershed management among the public agencies responsible for managing the area
8. The presence of historic structures and strong cultural institutions along the Arroyo



Arroyo Seco Watershed (Source: Figure 1-2. Arroyo Seco Watershed Restoration Feasibility Study)

A key takeaway of this study calls for agency coordination across the federal, state, regional, and city levels to realize the implementation of recommended projects and programs. An Agency Technical Review Committee (ATRC) composed of senior staff from agencies having a direct managerial responsibility in the Arroyo Seco watershed was established for this study. Some representative agencies include: US Army Corps of Engineers, Los Angeles Department of Public Works, Bureau of Sanitation, Mountains Recreation & Conservation Authority, Los Angeles Department of Recreation and Parks, and many others.



Capital Projects (Source: Figure 1-7. Arroyo Seco Watershed Restoration Feasibility Study)

Over 78 potential projects, programs, and BMPs are presented in this study. Of the 78 potential projects, 24 high priority projects are identified which fulfill at least one of the four goals (stream/flood management, habitat restoration, water supply, water quality, recreation/open space). Some high priority projects include trail system improvement, stream restoration, and removal of exotic plants and animals along multiple reaches of the Arroyo Seco.

The “Vision” of this study is: *To develop a Watershed Plan for the Arroyo Seco that integrates issues of flood management, stream naturalization, water resources, habitat rehabilitation, and educational and community recreational opportunities.*

The following are established goals and guidelines for watershed restoration used in this study.

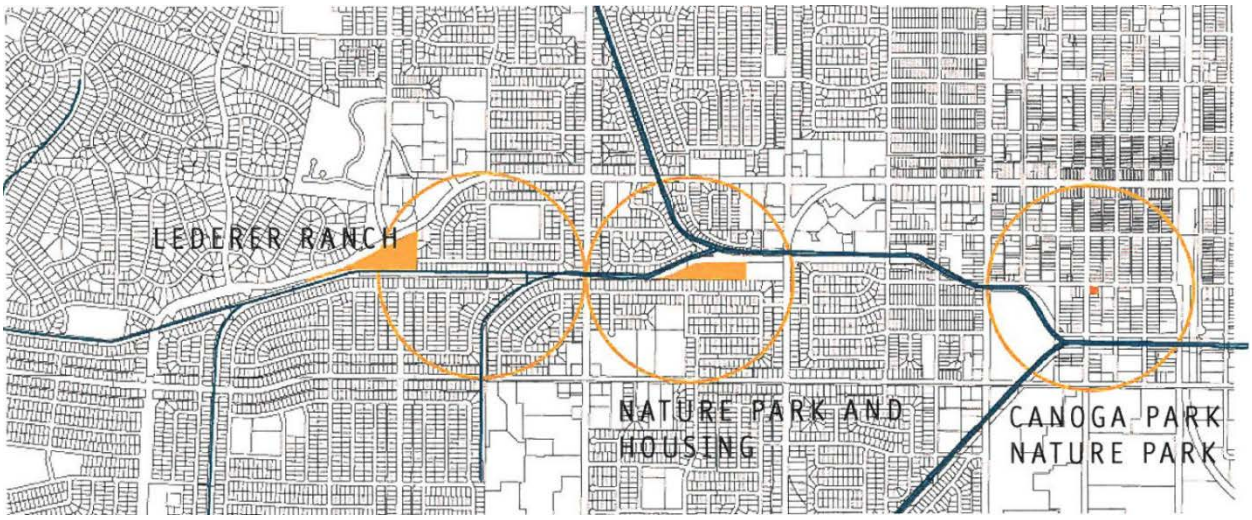
1. Restore the natural hydrological functioning of the watershed
2. Better manage, optimize, and conserve water resources while improving water quality
3. Restore, protect and augment habitat quality, quantity and connectivity
4. Improve recreational opportunities and enhance open space

The Los Angeles River Urban Wildlife Refuge, 2005

This document was prepared by the Santa Monica Mountains Conservancy and is focused on the concept of re-envisioning the LAR watershed as an urban wildlife refuge. The goal is to provide the ecological basis for creating a substantive ribbon of nature through the middle of the city. This can be achieved by connecting habitat needs of birds to stormwater management, creation of open space networks, and river revitalization using landscape ecology, watershed management, and neighborhood planning. To realize these goals, the Conservancy aims to forge alliances with the scientific community, elected officials, and the public and address the river with scientific rigor and public passion. The Conservancy plans to acquire land parcels of variable size with the larger parcels used to create core habitats and the smaller parcels used to develop nature parks, green schoolyards, and communities with certified wildlife habitat. Together, the land parcels will add up to a functional ecosystem, greatly improved water quality, and hundreds of livable neighborhoods.

The Conservancy believes birds are a viable option to champion the river. They are extraordinarily adaptable in fulfilling habitat needs. Because birds travel by air they have an advantage over other types of wildlife by being able to create their own connectivity between patches and niches provided they are close enough together. Three locations have been identified in this study as options for wildlife refuge: Lederer Ranch, Nature Park and Housing, and Canoga Park Nature Park.

Recognizing that stormwater runoff is the largest contributor to poor water quality in the LAR, the Conservancy suggests using a combined approach using stormwater infrastructure to improve water quality and create wildlife refuge.



Study Areas Identified as Options for Wildlife Refuge (Source: The Los Angeles River Urban Wildlife Refuge)

The Conservancy plans to take the next steps to advance the wildlife refuge project:

1. Reach out to US Fish and Wildlife Service to propose the wildlife refuge as a project site
2. Engage with the scientific community to understand how to effectively integrate ecological needs, monitoring protocols, and planning needs for the LAR and the wildlife refuge.
3. Establish partnerships with multiple state and local agencies
4. Propose rivershed policy zone
5. Develop a certification process to train residents, schools, businesses, and activists to inventory the neighborhood landscape for its habitat, park, and stormwater management enhancement.

6. Create bird networks by acquiring large parcels of land
7. Update the existing MRCA work plan to add short term and long-term focus on the river for acquiring properties.

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3. City of Los Angeles Department of Public Works, Bureau of Engineering (2007). *Los Angeles River Revitalization Master Plan*

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6. City of San Fernando (2004). *Cal Poly Pomona Pacoima Wash Greenway Master Plan*

7. United States Army Corps of Engineers, Los Angeles District, Los Angeles County Department of Public Works (Undated). *Arroyo Seco Watershed Ecosystem Restoration Feasibility Study*

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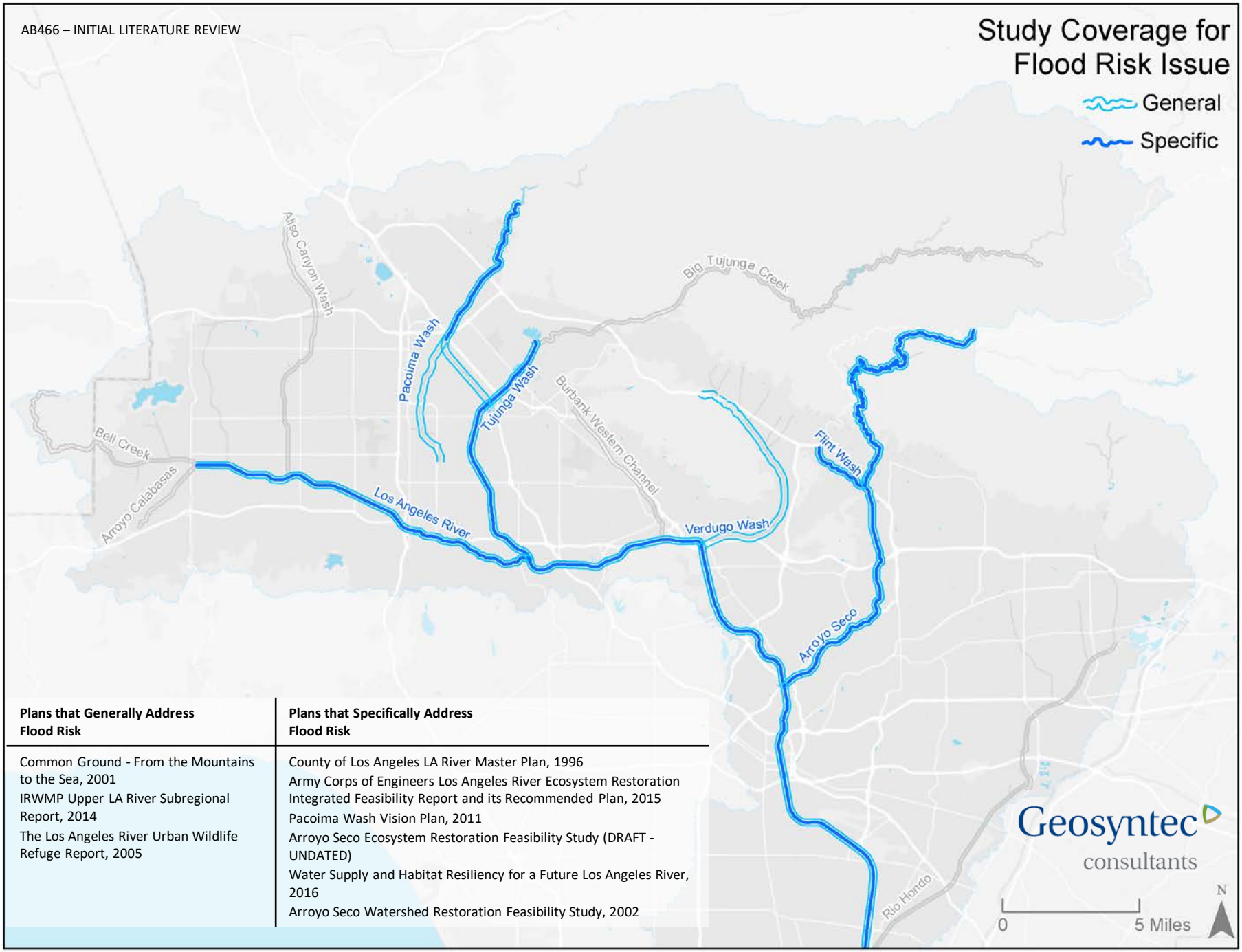
13. The River Project (2008). *Tujunga-Pacoima Watershed Plan*

14. United States Department of Interior National Park Service (2016). *Rim of the Valley Corridor Special Resource Study*

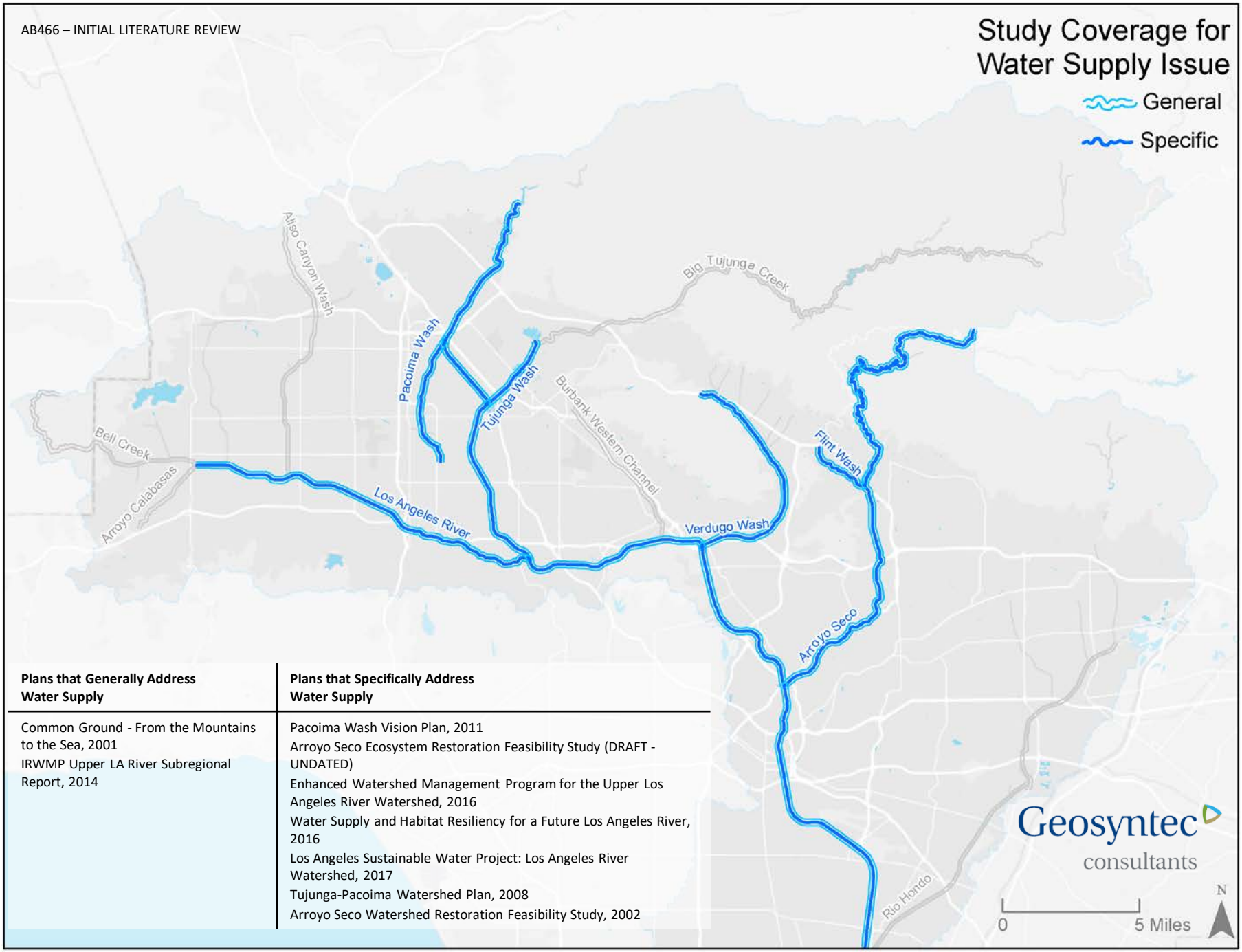
15. California Coastal Conservancy (2002). *Arroyo Seco Watershed Restoration Feasibility Study*

16. Santa Monica Mountains Conservancy, University of California Berkeley (2005). *The Los Angeles River Urban Wildlife Refuge*

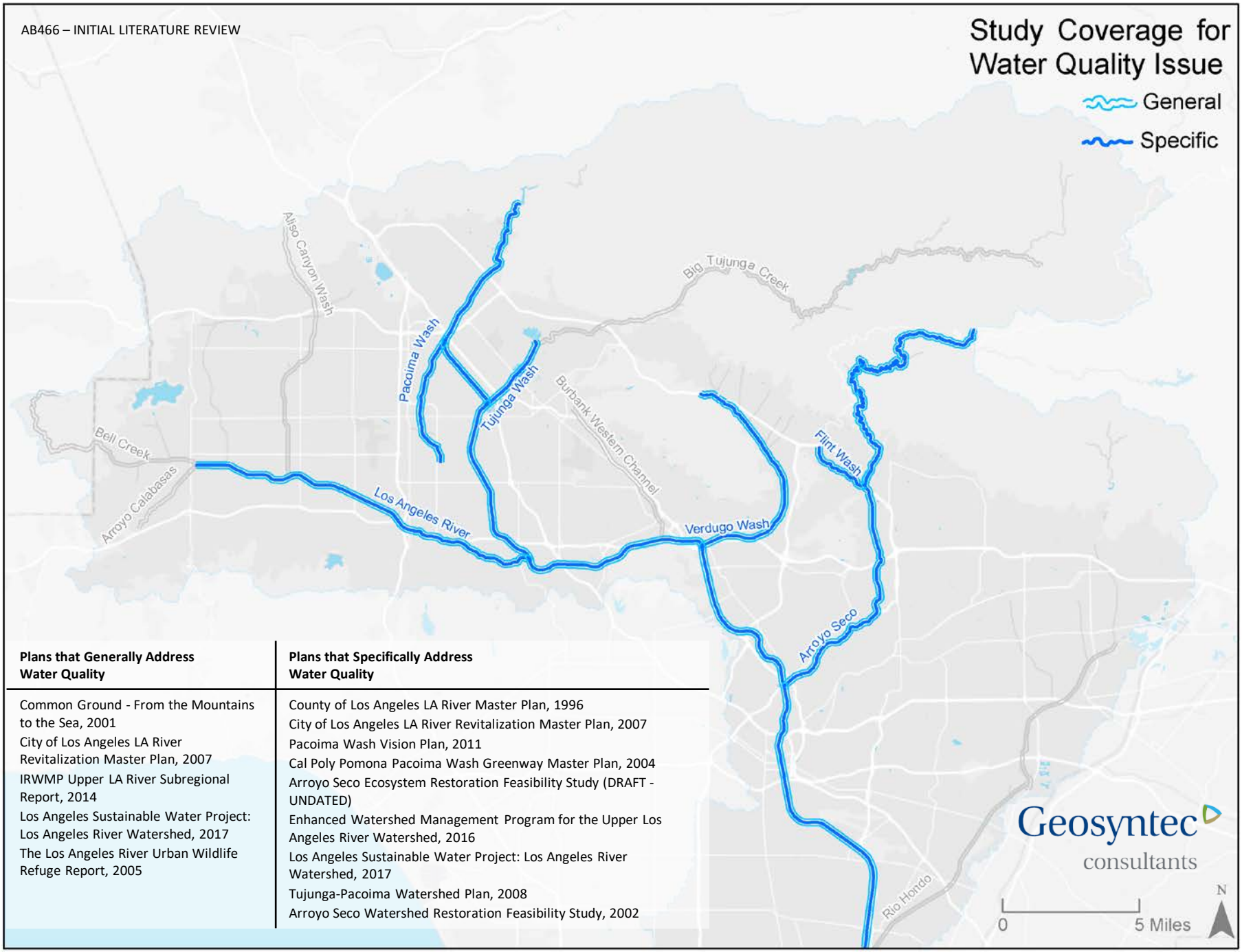
Appendix A: GIS Maps



Plans that Generally Address Flood Risk	Plans that Specifically Address Flood Risk
Common Ground - From the Mountains to the Sea, 2001 IRWMP Upper LA River Subregional Report, 2014 The Los Angeles River Urban Wildlife Refuge Report, 2005	County of Los Angeles LA River Master Plan, 1996 Army Corps of Engineers Los Angeles River Ecosystem Restoration Integrated Feasibility Report and its Recommended Plan, 2015 Pacoima Wash Vision Plan, 2011 Arroyo Seco Ecosystem Restoration Feasibility Study (DRAFT - UNDATED) Water Supply and Habitat Resiliency for a Future Los Angeles River, 2016 Arroyo Seco Watershed Restoration Feasibility Study, 2002

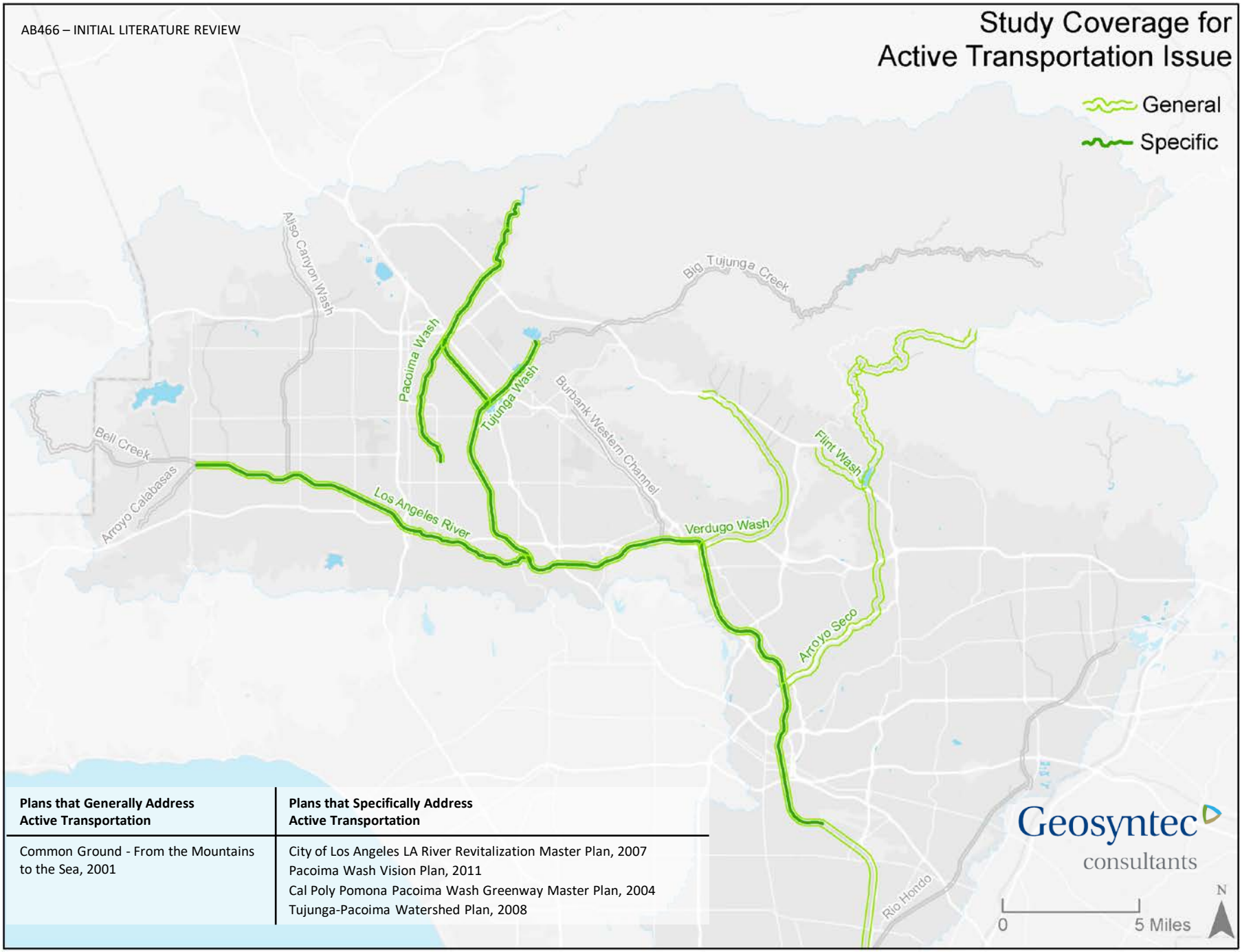


Plans that Generally Address Water Supply	Plans that Specifically Address Water Supply
Common Ground - From the Mountains to the Sea, 2001 IRWMP Upper LA River Subregional Report, 2014	Pacoima Wash Vision Plan, 2011 Arroyo Seco Ecosystem Restoration Feasibility Study (DRAFT - UNDATED) Enhanced Watershed Management Program for the Upper Los Angeles River Watershed, 2016 Water Supply and Habitat Resiliency for a Future Los Angeles River, 2016 Los Angeles Sustainable Water Project: Los Angeles River Watershed, 2017 Tujunga-Pacoima Watershed Plan, 2008 Arroyo Seco Watershed Restoration Feasibility Study, 2002



Plans that Generally Address Water Quality	Plans that Specifically Address Water Quality
Common Ground - From the Mountains to the Sea, 2001	County of Los Angeles LA River Master Plan, 1996
City of Los Angeles LA River Revitalization Master Plan, 2007	City of Los Angeles LA River Revitalization Master Plan, 2007
IRWMP Upper LA River Subregional Report, 2014	Pacoima Wash Vision Plan, 2011
Los Angeles Sustainable Water Project: Los Angeles River Watershed, 2017	Cal Poly Pomona Pacoima Wash Greenway Master Plan, 2004
The Los Angeles River Urban Wildlife Refuge Report, 2005	Arroyo Seco Ecosystem Restoration Feasibility Study (DRAFT - UNDATED)
	Enhanced Watershed Management Program for the Upper Los Angeles River Watershed, 2016
	Los Angeles Sustainable Water Project: Los Angeles River Watershed, 2017
	Tujunga-Pacoima Watershed Plan, 2008
	Arroyo Seco Watershed Restoration Feasibility Study, 2002

Study Coverage for Active Transportation Issue



Plans that Generally Address Active Transportation	Plans that Specifically Address Active Transportation
Common Ground - From the Mountains to the Sea, 2001	City of Los Angeles LA River Revitalization Master Plan, 2007 Pacoima Wash Vision Plan, 2011 Cal Poly Pomona Pacoima Wash Greenway Master Plan, 2004 Tujunga-Pacoima Watershed Plan, 2008

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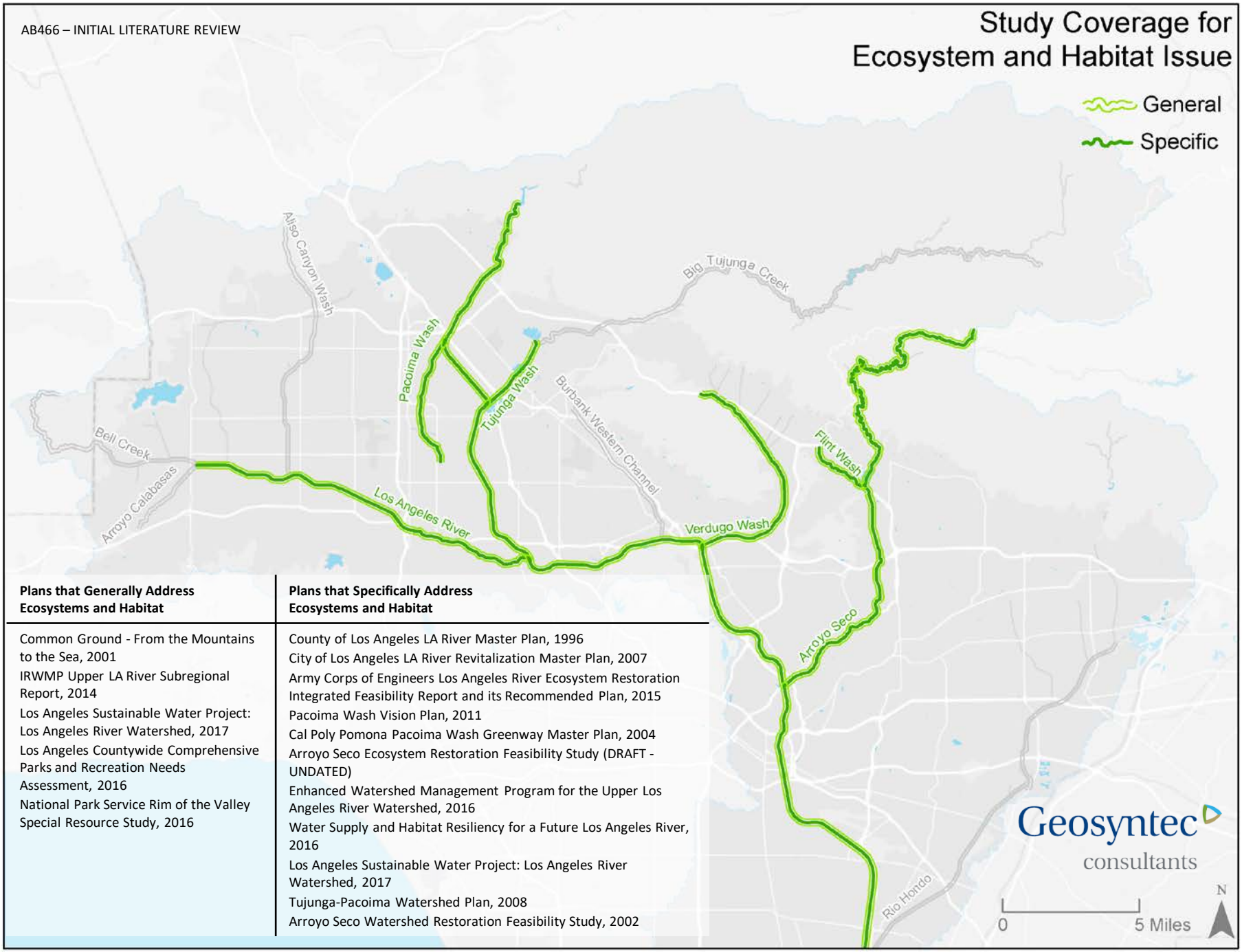
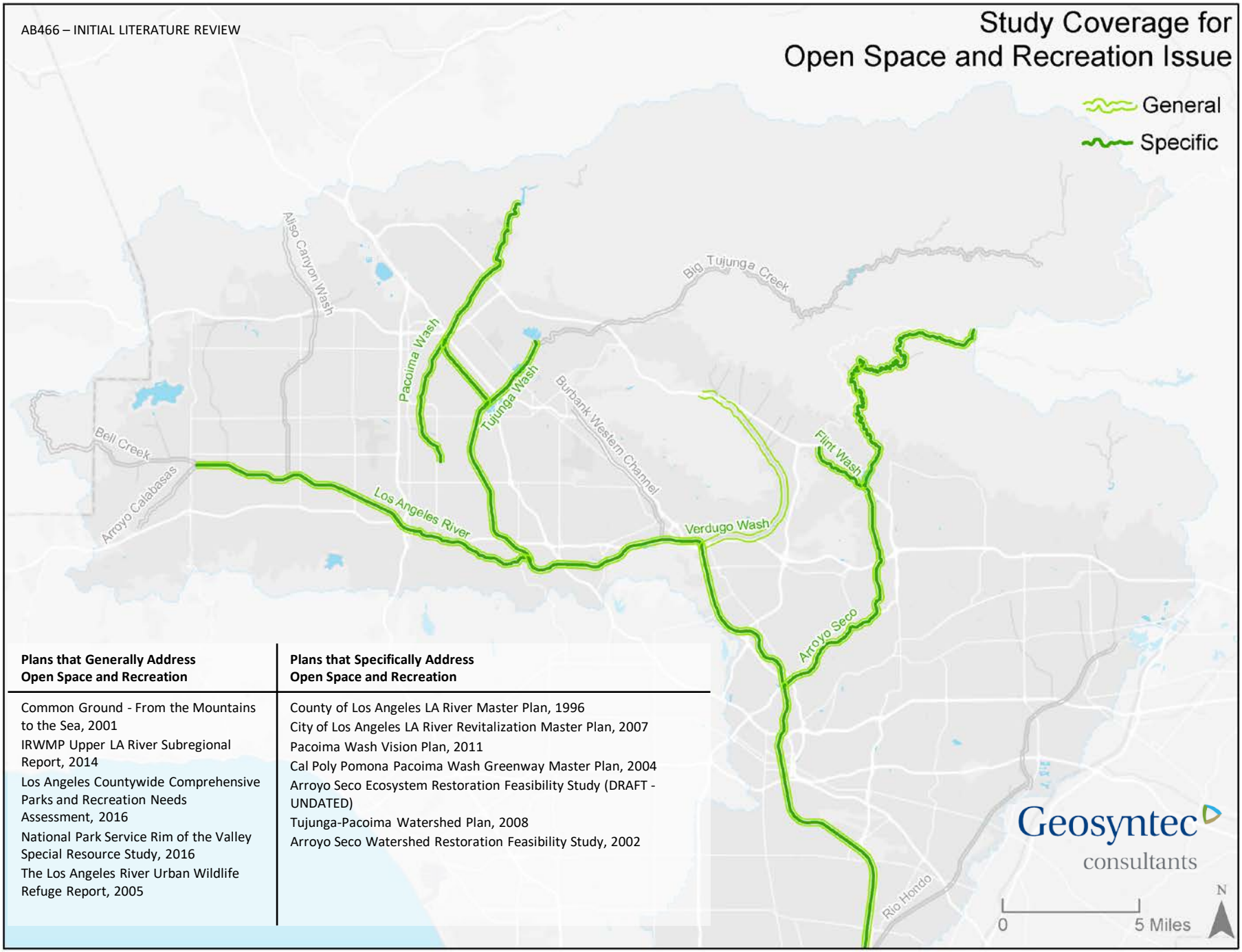
Study Coverage for Ecosystem and Habitat Issue



Plans that Generally Address Ecosystems and Habitat	Plans that Specifically Address Ecosystems and Habitat
Common Ground - From the Mountains to the Sea, 2001	County of Los Angeles LA River Master Plan, 1996
IRWMP Upper LA River Subregional Report, 2014	City of Los Angeles LA River Revitalization Master Plan, 2007
Los Angeles Sustainable Water Project: Los Angeles River Watershed, 2017	Army Corps of Engineers Los Angeles River Ecosystem Restoration Integrated Feasibility Report and its Recommended Plan, 2015
Los Angeles Countywide Comprehensive Parks and Recreation Needs Assessment, 2016	Pacoima Wash Vision Plan, 2011
National Park Service Rim of the Valley Special Resource Study, 2016	Cal Poly Pomona Pacoima Wash Greenway Master Plan, 2004
	Arroyo Seco Ecosystem Restoration Feasibility Study (DRAFT - UNDATED)
	Enhanced Watershed Management Program for the Upper Los Angeles River Watershed, 2016
	Water Supply and Habitat Resiliency for a Future Los Angeles River, 2016
	Los Angeles Sustainable Water Project: Los Angeles River Watershed, 2017
	Tujunga-Pacoima Watershed Plan, 2008
	Arroyo Seco Watershed Restoration Feasibility Study, 2002

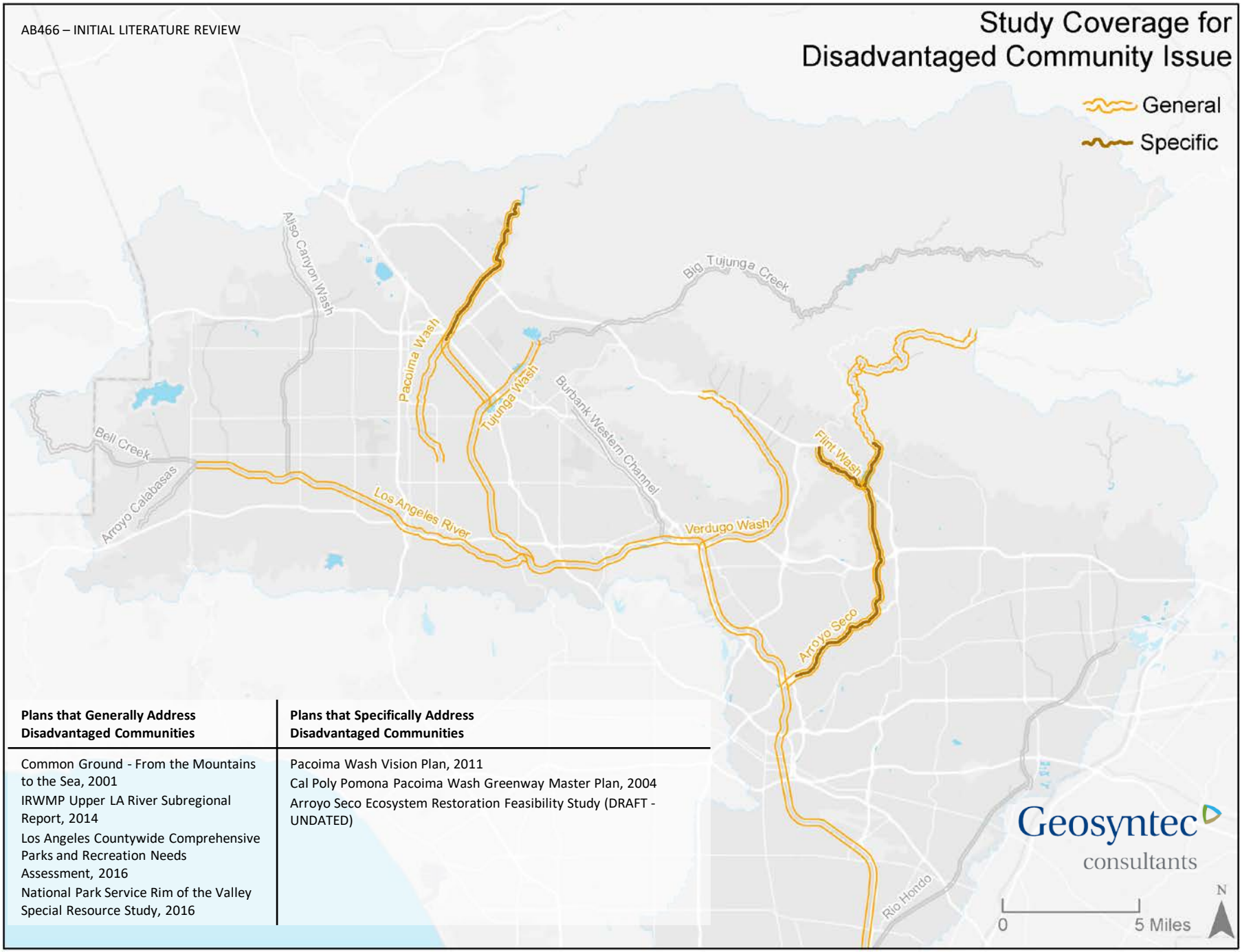
Geosyntec consultants

Study Coverage for Open Space and Recreation Issue



Plans that Generally Address Open Space and Recreation	Plans that Specifically Address Open Space and Recreation
Common Ground - From the Mountains to the Sea, 2001	County of Los Angeles LA River Master Plan, 1996
IRWMP Upper LA River Subregional Report, 2014	City of Los Angeles LA River Revitalization Master Plan, 2007
Los Angeles Countywide Comprehensive Parks and Recreation Needs Assessment, 2016	Pacoima Wash Vision Plan, 2011
National Park Service Rim of the Valley Special Resource Study, 2016	Cal Poly Pomona Pacoima Wash Greenway Master Plan, 2004
The Los Angeles River Urban Wildlife Refuge Report, 2005	Arroyo Seco Ecosystem Restoration Feasibility Study (DRAFT - UNDATED)
	Tujunga-Pacoima Watershed Plan, 2008
	Arroyo Seco Watershed Restoration Feasibility Study, 2002

Study Coverage for Disadvantaged Community Issue



Plans that Generally Address Disadvantaged Communities	Plans that Specifically Address Disadvantaged Communities
Common Ground - From the Mountains to the Sea, 2001 IRWMP Upper LA River Subregional Report, 2014 Los Angeles Countywide Comprehensive Parks and Recreation Needs Assessment, 2016 National Park Service Rim of the Valley Special Resource Study, 2016	Pacoima Wash Vision Plan, 2011 Cal Poly Pomona Pacoima Wash Greenway Master Plan, 2004 Arroyo Seco Ecosystem Restoration Feasibility Study (DRAFT - UNDATED)

Geosyntec consultants