

Chapter 1 INTRODUCTION

1.1 Context

Anything else you're interested in is not going to happen if you can't breathe the air and drink the water. Don't sit this one out. Do something. You are by accident of fate alive at an absolutely critical moment in the history of our planet.

—Carl Sagan

Most people still believe the myth that Los Angeles is a desert. In fact the availability of local water supply and the uncommon beauty of our local waterways was the reason Los Angeles was founded where it was. But Los Angeles—once considered an Eden—has changed considerably over the past 100 years. Ask a random group of Angelenos today where their water comes from or where the closest creek or river is and odds are good you'll get blank stares or furrowed brows in response. It is apparent that we have room for improvement in how we consider, appreciate and manage this most fundamental asset.

Today, nearly 20 percent of the state's electrical energy and 33 percent of its natural gas energy costs go to moving water around the state and treating it, and a significant percentage of that energy goes to import and treat water for Southern California. Climate change and numerous recent court decisions will force us to find ways to do a much better job of conserving and utilizing our own local supplies. We currently spend \$1 billion a year to import 85 percent of our water supply from other regions whose ecosystems are seriously threatened by that loss. During the storms of 2004/05, years' worth of water supply was sent speeding out to the ocean rather than being captured for future use. Meanwhile, the aquifer beneath the San Fernando Valley that could be supplying much of our water needs is dangerously depleted. Most of our waterways have been encased in concrete and much of our land has been covered in asphalt. We have fewer parks and less open space than any other major city in the country. Ninety-eight percent of our riverside habitat and 75 percent of our overall habitat has been lost. The water quality in our waterways and beaches is so poor that we're under Federal court order to find ways to improve it. Water supply, water quality, land use, and habitat are all related, but we're unaccustomed to looking at them that way. To move to a more sustainable model in this century, we need to begin to embrace a more integrated perspective.

Everything is connected to everything else. Everything must go somewhere. Nature knows best. There is no such thing as a free lunch. If you don't put something in the ecology, it's not there.

—Barry Commoner's Five Laws of Ecology

This Watershed Management Plan recognizes these innate connections and shows us how to do things differently. Changing our approach to land use—throughout the watershed—is one of the most critical changes we need to make if we want healthy communities, revitalized rivers, and a sustainable economic, social, and environmental future. With land and housing costs on the increase, single-family homes being replaced with larger ones, low-rise apartments being replaced with multi-story condominiums, and commercial corridors being rebuilt over time, much of the San Fernando Valley faces the potential of widespread redevelopment. Finally, as distant water supplies become more and more scarce, now is the time to explore a more creative, holistic approach to managing land use and our limited resources.

The world that we have made as a result of the level of thinking that we have done so far has created problems we cannot solve at the level of thinking at which we created them ... We shall require a substantially new manner of thinking if humankind is to survive.

—Albert Einstein

Watersheds are a common sense, natural framework for better understanding, managing and protecting the value inherent in our natural resources. Native Hawaiian cultures divided and managed land by watershed,

which they referred to as an Ahupua'a. Each Ahupua'a supported all of the resources necessary to support life. All over the world, people are beginning to take a more integrated approach to managing watersheds. To do this successfully in Los Angeles will require a major shift in thinking. We have reached a watershed moment.

1.2 Watersheds 101

A watershed is that area of land, a bounded hydrologic system, within which all living things are inextricably linked by their common water course and where, as humans settled, simple logic demanded that they become part of a community.

—John Wesley Powell

A watershed is an area of land where all the water that flows across it drains to a common end point. Watershed boundaries are determined by topography and influenced by gravity. In order to begin to re-design our urban communities to be in balance with the watershed ecosystem, we first need to understand how a watershed works. When rain falls to the land, some water either: soaks into the soil and percolates back into the groundwater; gets absorbed by vegetation; evaporates into the atmosphere, or collects and runs off towards the nearest body of water. The physical force of the water flowing down hill picks up and carries with it particles of soil, leaves, and other debris. The faster this water moves, the more sediment and debris it carries away downstream. Sediment and other materials will end up getting deposited wherever the water slows down enough to give gravity a chance to pull these particles back down to the ground. The erosion of sediment from one place and deposition in another place shapes our land and water systems over time. Land use—particularly the percentage of impervious land cover—is one of the biggest factors influencing watershed health.

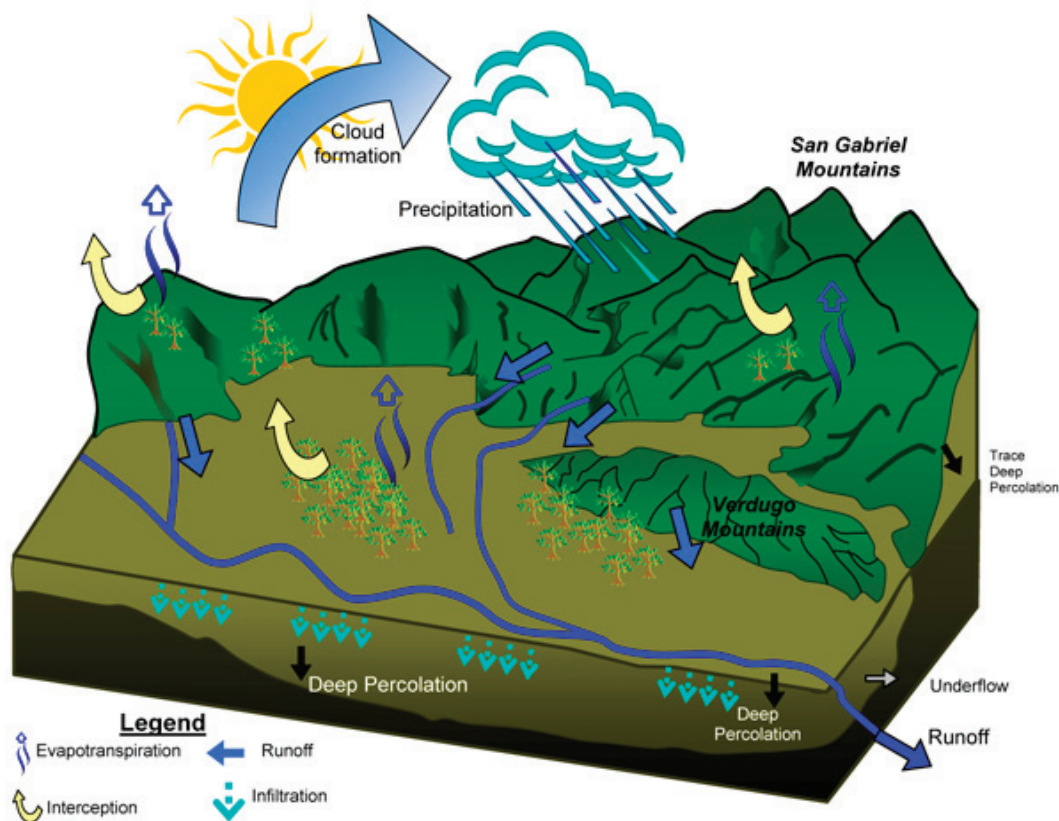


Figure 1-1 Watershed Processes
Source: Everest International Consultants 2006

As water moves along its path, it interacts with everything it touches. It may exchange molecules with soil, vegetation, paved surfaces or trash affecting the suitability of the aquatic environment for plants, fish, birds, animals and other organisms. Because the native species within this system are specifically adapted to their natural environment and to each other, too much of an introduced substance or species can throw the whole system off track and may determine whether native species can thrive or even survive in their habitat. Aquatic life is an important component of the world's web of genetic diversity. Each species exists because they serve some necessary function in the larger inter-related system we are all a part of. Their health is an indicator of the availability and cleanliness of the water supplies we all need for our own survival.

1.3 The Tujunga/Pacoima Watershed

For many of us, water simply flows from a faucet, and we think little about it beyond this point of contact. We have lost a sense of respect for the wild river, for the complex workings of a wetland, for the intricate web of life that water supports.

—*Sandra Postel*

The Tujunga/Pacoima Watershed drains to the Los Angeles River and is the largest subwatershed of the Los Angeles River Watershed, which drains to the Pacific Ocean in Long Beach. This 225-square-mile subwatershed comprises both remote open space of the Angeles National Forest, and the highly urbanized lands of the cities of Los Angeles and San Fernando. The watershed has a very steep slope—the high elevations of the San Gabriel Mountains in the upper watershed drop rapidly to the valley floor at an average rate of 41 feet/mile. Dozens of streams feed the three main tributaries—the Big Tujunga, Little Tujunga, and Pacoima Washes.

The watershed has a population of approximately 525,000, is roughly 61 percent Latino with 32 percent of the population under the age of 17 and 19 percent living in poverty. While the upper watershed includes more than 165 square miles of the Angeles National Forest and a large regional recreation area behind Hansen Dam, the lower watershed is extremely park-poor.

Our watershed's Mediterranean ecosystem, the California Floristic Province, is one of the world's top ten "hotspots" of biodiversity and is considered more threatened than the rainforest. Our region was once alive with native plants and animals that evolved and adapted over millions of years to be perfectly adapted to our cycles of drought and inundation. Of the 4,426 vascular plants found here, 48 percent are found nowhere else in the world. There are more plant species native to this ecosystem than in the whole central and northeastern United States combined. More bird species breed in our region than anywhere else in the country.

Although Los Angeles averages only 15 inches of annual rainfall, the higher elevations of this watershed receive some of the most concentrated rainfall in the United States. Historically, the Tujunga/Pacoima Watershed was a major contributor of groundwater supply. It sits atop the San Fernando Groundwater Basin—a natural underground reservoir that has become depleted over the years as most of the valley floor became impervious. Most of the rain that used to soak into the ground now runs off of concrete and asphalt and directly into the stormdrains, channelized washes, and the Los Angeles River. Prior to the channelization of our river systems and the subsequent intense development, it was estimated by Los Angeles County flood control engineers that 80 percent of stormwater percolated to groundwater. Current estimates are that around 8 percent of rainfall in urbanized areas percolates, the rest being lost to the ocean via the channelized system, carrying contaminants from urbanized land uses.

The San Fernando Groundwater Basin currently provides nearly 15 percent of Los Angeles's drinking water but has the potential to provide much more.

Although watersheds share similar form and functions, each has unique characteristics that reflect the geography, geology, and topography of each. The essential characteristics of Tujunga/Pacoima Watershed—

high biodiversity, concentrated rainfall, steep slopes, pervious soils, and a capacious underground reservoir—offer our strongest regional opportunity to secure a sustainable local water supply. Enabling these attributes to work in concert again is the central objective of watershed management.

1.4 Moving from Twentieth- to Twenty-first-Century Planning

Growth for the sake of growth is the ideology of the cancer cell.

—*Edward Abbey*

In the twentieth century, city planners did not worry as much about integrating with either the aesthetic or functional aspects of the watershed because of our newfound ability to quickly engineer our way around what were considered the natural “limitations” of these systems. Local engineers suggested zoning regulations to prohibit construction in floodplains in 1927 and in 1934. Their recommendations were never codified because political leadership prioritized economic growth, allowing development to progress at an extremely fast rate and depriving us of the benefits of nature’s services to cleanse and infiltrate rainwater runoff and secure local water supplies. As our built environments have become further and further removed from their natural context, the utility of twentieth century urban design has reached an end. New Orleans showed us that as a city stops working within its natural and functional parameters, its future becomes less secure: nature always bats last. There is no longer a quick fix for urban watersheds. They must now be redesigned to function as part of an integrated system.

Water links us to our neighbor in a way more profound and complex than any other.

—*John Thorson*

With such a disconnect from our natural context, it is no surprise that so many city dwellers lack a coherent and meaningful sense of belonging, a sense of place. Cities like Manchester or Detroit illustrate that at a certain point this disconnect leads to social decline, urban unrest, disinvestment and long-term blight. Even though they were the center of progress in their day, these cities did not thrive because they came to be valued chiefly for their industries, which came and went. They ignored one of the most important elements of the human condition: relationship to the natural world and its rhythms. The great cities of the world have not only used their water resources for functional and economic benefit, but they have also embraced both the functionality and the natural beauty of these resources in their urban design, and formed richer places because of it. In order to regain our sense of connection, both the form and function of our watershed ecosystems must be pieced back together and integrated into the urban fabric.

In the 19th Century, we devoted our best minds to exploring nature. In the 20th Century, we devoted ourselves to controlling and harnessing it. In the 21st Century, the best minds are working on how to restore nature.

—*Stephen Ambrose*

In the Tujunga/Pacoima Watershed, healthy rivers and streams, sufficient parks and open spaces, protected hillsides and floodplains are not secondary amenities: they are integral to our future social and economic health. Water supply is a fundamental need. Adapting our land use template to one that takes advantage better of nature’s services is the most cost-effective way of ensuring that we have sufficient clean water, vibrant habitats, cleaner air and healthy neighborhoods. The template used to build the San Fernando Valley fostered a car-dependant culture and deprived us of our most precious natural resource. But that template is not immutable.

Since most of the watershed was developed quickly, cheaply and around the same time, much of our built environment is aging at the same rate. Areas considered ripe for redevelopment can be designed differently so that over time, the template shifts. The recent trend towards densification could provide an opportunity to transform the template to a more sustainable one if we simultaneously ‘undevelop’ those areas of land that can best serve our water supply and public health needs.

Thinking about “highest and best use” and “overriding considerations” in a watershed context can re-define the language of land use planning and facilitate a transition to greener infrastructure and a more sustainable future. Making that transition successfully involves a set of fundamental paradigm shifts that require collective cooperation and effort.

The first step in developing a viable plan for change is finding common ground: bringing diverse people together to collaborate and create a consensus vision, a mutually supportive set of goals, and a holistic, proactive approach.

1.5 How This Plan Was Developed

Men and nature must work hand in hand. The throwing out of balance of the resources of nature throws out of balance also the lives of men.

—*Franklin Delano Roosevelt*

In 2004, The River Project (TRP) received a grant from the state’s CalFed Bay-Delta Program to develop a Watershed Management Plan for the Tujunga/Pacoima Watershed. TRP assembled a Project Team of specialists in the various watershed disciplines and brought together representatives from federal, state, and local government agencies committed to working cooperatively to guide the Plan development. A public outreach effort was launched to engage participation from local elected officials, neighborhood councils, community groups, and interested residents.

This diverse group of stakeholders from the public, private and non-profit sectors began meeting in April of 2005 to collaboratively develop a socially, environmentally, and economically sustainable plan of action for managing water resources that is both integrated with urban development and based on the watershed ecosystem. A Stakeholder Steering Committee and Technical Advisory Committee were established to inform and guide the Plan development. Their mission was to achieve consensus on outlining actions, programs and projects to improve the healthy functioning of the watershed, and provide a set of principles to guide future project and management efforts.

Through this consensus process, a diverse range of Goals and Objectives were identified (and are included in Chapter 3). 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.

Ongoing outreach and education, special workshops, and development of a k–12 curriculum supported continued community involvement throughout the process. Input and feedback were collected at Stakeholder meetings, which were usually held once a month.

The Project Team produced a demographics report of the watershed, worked with stakeholders to gather and review the available data on the physical, biological, social and economic variables that characterize the watershed, and compiled the data in a geographic information systems (GIS) format Inventory. Project Team engineers worked with the Technical Advisory Committee to select a suite of appropriate numeric models that could be used to analyze current conditions as well as past and potential future conditions.

Using the data and models, a Watershed Assessment (summarized in Chapter 2) was developed to define the current condition of the watershed. This was then compared to the desired condition as described by the Goals & Objectives in order to determine relative health. The 217-page report identified specific system stressors, described various opportunities and constraints, and made recommendations for management actions and policies to improve ecosystem function (see Appendix 8).

TRP then organized a public education series called Watershed-U Tujunga. It was a crash course on our watershed that took place one evening a week for six weeks that got over 100 local community leaders involved and inspired. A k–12 curricula was created to support student learning of the Tujunga/Pacoima Watershed using the watershed as a context for project-based, hands-on learning. In the elementary level, each grade has a specific “theme” so that as students move up through each grade level they build on their knowledge of their watershed. Each grade level theme is designed to teach specific California State content standards. The secondary level includes a set of activities and worksheets designed specifically for groups of youth. As a part of the program they explore their part of the watershed; work as a team to observe and map their community; and use their own ideas and voice to carry out a project while finding others in the community to help (refer to Appendix 13)

The Project Team spent several months meeting with stakeholders at all levels to identify over 200 potential projects that could move us toward a healthier balance. Agencies, Non-Governmental Organizations (NGOs) and residents all contributed project ideas. The Land Use committees of the Neighborhood Councils were particularly engaged in the process (refer to Appendix 10).

The Technical Advisory Committee worked with stakeholders to develop a Decision Support System (DSS) to help rank and prioritize the projects. A Geographic Information System analyzed criteria such as infiltration potential; park needs; distance from nearest park, trail or storm drain; habitat connectivity; and special districts. These tools helped stakeholders to quantify potential project benefits and identify their capacity to serve as green infrastructure for water supply recharge, water quality improvement, and flood management.

Using this information, stakeholders selected twenty-four neighborhood-scale and thirteen watershed-scale projects that represent the Project Scenario presented in Chapter 4 this Plan. Collectively, this holistic scenario represents many of the best opportunities to improve watershed health and create a more sustainable future. The Project Team used modeling to quantify the estimated cumulative water supply benefits of implementing the Project Scenario (Chapter 5). 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 (Chapter 6). Stakeholders also made specific policy recommendations on issues that need to be addressed in order to facilitate watershed management (Chapter 7), and outlined a range of actions that individuals and entities can take to cooperatively facilitate Plan implementation (Chapter 8).

1.6 What This Plan is For

We can require ourselves to be accountable to our grandchildren and to their great-grandchildren. By making the right choices now, we can promise them bright streams and lasting forests and rewarding employment and welcoming communities.

—Charles Wilkinson

This Plan is intended to facilitate positive change. As we undertake to redevelop our region and adapt to change, it can help us shift our planning framework to a more holistic perspective, one that uses the watershed as a basis for decision making.

Shifting existing patterns of development and employing an integrated management context can help us to: increase local water supplies; improve water quality; restore habitat; better manage open-space; make more parks; create new recreational opportunities; and design viable multi-modal transit.

Shifting from the current “silo system” of management to a more cooperative “systems approach” can help us to: partner more effectively; identify necessary funding sources; increase our quality of life; and develop a monitoring plan that will alert us to things that need our attention and tell us what strategies work.

In short, this Plan can show us how to rebuild and sustain a great place.

This plan is intended as a resource for anyone interested in working towards a sustainable future in this region. It aims to educate and inspire and to provide local advocates, urban planners, agencies, elected officials, policy-makers, individual property owners, residents, and youth a road map and a toolkit to do the following:

- Develop a more holistic understanding of the our local environment
- Facilitate widespread watershed awareness and education
- Empower the community to be directly engaged in the decision making process
- Catalyze actions to sustain support and implementation of the Plan over the long term
- Improve coordination and integration among agencies
- Enhance communication and collaboration between agencies and other stakeholders
- Bring together key agencies with other stakeholders to plan the financing and implementation of large-scale watershed retrofitting

This is intended to be a LIVING Plan that will adapt over time through continued participation from and collaboration between all stakeholders. It provides a sound foundation to support consensus decisions and actions now and in the future.

There can be no purpose more inspiring than to begin the age of restoration, reweaving the wondrous diversity of life that still surrounds us.

—*E.O. Wilson*

