ISSUES AFFECTING THE PLAN

The Los Angeles River, through Studio City near Laurel Canyon Boulevard (2006)
The 32-mile planning area represents a variety of conditions that have shaped the Plan. This chapter discusses variations in channel geometry, flood capacity, hydraulic conditions, water quality, habitat value, non-motorized transportation and recreation potential that have influenced recommendations.

The larger planning context is also important, both from the perspective of the watershed and how to accomplish goals while considering a wide variety of complex issues.

River Channel Reaches

1. Confluence to Sepulveda Basin
2. Sepulveda Basin
3. Sepulveda Basin to Tujunga Wash
4. Tujunga Wash to Barham Blvd.
5. Barham Blvd. to Burbank Western Channel
6. Burbank Western Channel to Taylor Yard
7. Taylor Yard
8. Taylor Yard to 1st Street
9. 1st Street to Washington Blvd.

Base Info Legend
- Existing Open Space
- Limit of Geographical Data Set
- Metro Gold Line
- Metro Gold Line Eastside Extension
- Metro Red Line
- Metro Orange Line
- Metro Blue Line
- Station Symbol
The Plan includes proposed enhancements to the existing River channel, from its origination at the confluence of Bell Creek and Arroyo Calabasas, to Washington Boulevard just south of downtown Los Angeles. There are nine distinct channel reaches that vary in geometry and width:

Reach 1: Arroyo Calabasas-Bell Creek Confluence to Sepulveda Basin
Through this largely-residential segment, the River is a concrete-lined trapezoidal channel, approximately 20 feet deep and with a bottom width of 45 to 115 feet wide. High water velocities in this reach can range from 20 to 29 feet per second, during storm events.

Reach 2: Sepulveda Basin
Sepulveda Basin is one of two segments where the River has a soft bottom and displays a more naturalized character. The River is approximately 60 feet wide and is surrounded by park area and open space. Water flows in this reach can reach approximately 15 feet per second, during storm events.

Reach 3: Sepulveda Dam to Confluence with Tujunga Wash
Downstream of Sepulveda Dam, the River is constrained within a rectangular channel ranging in width from 45 to 60 feet. Surrounding land uses are primarily residential. Valley Heart Drive parallels the River continuously beside most of this reach. Peak water flow velocities in this reach range from 20 to 25 feet per second, during storm events.

Reach 4: Tujunga Wash to Barham Boulevard
The River is a concrete-lined rectangular channel, approximately 15 feet deep and with a bottom width that ranges from 60 to 160 feet. The channel right-of-way is very limited, extending only two to four feet outward from the top of the bank. Peak flow velocities range from 30 to 34 feet per second, during storm events; because of these speeds, this is one of the most challenging sections from the standpoint of restoration.

Reach 5: Barham Boulevard to Burbank Western Channel
From Barham Boulevard to the confluence of the Los Angeles River with the Burbank Western Channel, the River is a concrete-lined rectangular channel approximately 130 feet wide. Flow velocities in this reach also exceed 30 feet per second, during storm events. Riverside Drive parallels the River on the south side, while the north bank borders the City of Burbank.

Reach 6: Burbank Western Channel to Taylor Yard
From the Burbank Western Channel to Taylor Yard, the River again takes on a naturalized character, with a soft bottom. The River is very wide through this area, with flow velocities ranging from 15 to 19 feet per second, during storm events. Willows and other riparian plant species have become well established.

Reach 7: Taylor Yard
At Taylor Yard, the River has a soft bottom, and water flows are in the range of 15 to 20 feet per second, during storm events, making this area a prime candidate for significant ecosystem restoration.

Reach 8: Taylor Yard to 1st Street
The area from Taylor Yard downstream to 1st Street, with flow velocities greater than 30 feet per second, during storm events, is one of the most complex sections from a hydraulic standpoint. The channel geometry changes several times within a very short segment, and this affects the range of improvements that can be accomplished.

Reach 9: 1st Street to Washington Boulevard (Downtown)
In this final reach, the River is constrained by rail lines and freeways. The River channel is at its widest, ranging between 100 and 160 feet, has flow velocities of greater than 30 feet per second during storm events, and continues as a concrete-lined trapezoid. It is highly visible from many historic bridges and overpasses, however, and this makes it a prime location for enhancement.
Flow velocities within the Channel

Flow velocities in the channel range from 20 to 30 feet per second in many locations, limiting the ability to reestablish a riparian corridor within the River.
The Need to Maintain Existing Flood Capacity

Two hydraulic considerations influence modifications to the River. The first and most important is the need to maintain existing flood capacity.

Adding vegetation to create habitat, or providing terraced access to the water, are actions that would reduce flood capacity unless the current channel is widened or deepened to compensate, or unless new underground box culverts are installed to transport flood flows outside of the existing River channel.

Different types of vegetation have different impacts on flood capacity. Grasses, for example, have less impact than woody plants, such as willows, because flood flows are more likely to pass over them, rather than be impeded by them. Less additional capacity is therefore necessary when introducing grasses as opposed to woody plants.

Finally, the amount of vegetation introduced also has an effect on flood capacity. As shown below, restoring the River to a “30-percent green” standard requires less additional capacity than if a “70-percent green” standard were applied. Because of the increased channel capacity that is required due to a higher percentage of vegetation within the channel, additional strategies will likely be necessary in combination with channel widening whenever possible. These can include off-channel storage for volume reduction, implementation of on-site stormwater control measures, and expansion of capacity through deepening the channel and through construction of additional underground box culverts.

The Need to Slow Flow Velocities

A second consideration is the relative speed or velocity of water flows in the River. Within the River’s soft-bottomed sections, flow velocities allow the existing vegetation to grow. At higher speeds, vegetation is difficult to sustain because flood flows wash it out. The issue is not simply one of maintenance – having to replace plantings on a routine basis -- it also concerns the structural integrity of the channel itself, since flood flows can also wash out portions of the concrete or other armoring systems.

As shown in the graphic on the facing page, most of the concrete-lined segments of the River have flow velocities that can range from 20 to 30 feet per second. Slowing these high velocities to less than 12 feet per second will be critical to reestablishing a riparian corridor within the River, and to providing additional greenway improvements. This would require one or a combination of the following measures: 1) storage of flood flows in basins outside the main channel; 2) provision of additional underground box culverts to transport flows; or 3) land acquisition allowing channel widening. Opportunities exist throughout the River corridor to implement these, or a combination of measures to help naturalize the River and encourage stable habitat establishment.
Storm Drain Outfalls

Existing Storm Drain Outfalls
- Existing Storm Drain Outfalls 30-60" in Diameter

Base Info Legend
- Existing Open Space
- Limit of Geographical Data Set
- Metro Gold Line
- Metro Gold Line Eastside Extension
- Metro Red Line
- Metro Orange Line
- Metro Blue Line
- Station Symbol
With the increasing urbanization of Los Angeles, the quality of the water in the River has declined significantly. Most of this is due to untreated stormwater runoff that enters the River through one of approximately 2,200 storm drain outlets. Agricultural, industrial, and residential development over the past century, coupled with the use of pesticides, fertilizers, and household chemicals, have resulted in degradation of both surface and groundwater within the region.

As mandated by Section 303(d) of the Federal Clean Water Act, water bodies are deemed “impaired” if they exceed state and federal water quality standards, and limits are placed on the amount of pollutants -- designated as Total Maximum Daily Loads, or TMDL’s -- that can be present without impairing designated beneficial uses. These ratings indicate whether a water body can be used for fishing, swimming, or other non-contact activities such as boating. The Los Angeles River maintains its original “Rec 1” beneficial use designation, which means that TMDL’s have been set to someday allow the River to return to a prior state as a fishable and swimmable River.

Just how bad is the River’s water quality? TMDL’s have been established for trash, nutrients, and most recently, for metals; a bacteria TMDL is presently under development. The figures below illustrate the impaired reaches of the River with respect to each type of pollutant. While some reaches are slightly more affected than others, the overall magnitude of pollutants exceeding TMDL standards within each reach is so significant that geographic distinctions are not particularly meaningful. Water quality improvements for the entire River remain a critical priority for the Plan.

**CURRENT MITIGATION MEASURES**

Trash, debris, and other floatables in the River result from careless disposal of packaging, street litter, and plant debris. In addition to negative aesthetic impacts, trash may harbor bacteria and inhibit dissolved oxygen levels, affecting aquatic life. A TMDL for trash was the first to be imposed, in 2002, and requires a 10 percent reduction per year in the discharge of trash into the River, with the first 20 percent reduction accomplished by September 2006 and a 100 percent reduction required by 2012.

**WHAT ARE “TOTAL MAXIMUM DAILY LOADS” AND WHEN ARE THEY IMPOSED?**

According to Section 303(d) of the Federal Clean Water Act, water bodies are deemed “impaired” if they exceed state and federal water quality standards. Limits are placed on the amount of pollutants -- designated as Total Maximum Daily Loads, or TMDL’s -- that can be present without impairing designated beneficial uses.

**WHAT ARE “BEST MANAGEMENT PRACTICES” AND WHERE ARE THEY USED?**

“Best management practices” are methods of managing and treating urban stormwater runoff. Recommendations are provided for reducing the volume of storm runoff by encouraging storm flows to soak into the soil and to facilitate removal of pollutants using landscape-based and mechanical-filtration techniques.
To meet these goals, the City of Los Angeles has evaluated the effectiveness of different trash control Best Management Practices (BMPs), and has analyzed the geographic distribution of trash generation in order to target areas with the highest trash generation, where they will achieve the most immediate and long-term impacts. In addition to these actions, the City is planning to retrofit approximately 10,000 catch basins, located within high-trash-generation areas, with devices that will prevent trash from entering the storm drain system.

Bacteria and viruses are often found in urban runoff and have been linked to the presence of trash. Sources include sanitary sewer leaks and spills, malfunctioning septic systems, and, most commonly, fecal matter from humans, pets, and wildlife. Results of monitoring undertaken in 2003-2004 for three organisms at monitoring stations along the River, indicate that established standards were exceeded in between 44 and 100-percent of the test results. In many cases, these exceeded standards were as much as 25 times the allowable limit set by the Department of Health Services. (IRWMP, 2006) A bacteria TMDL has not yet been imposed, but is under development.

Nutrients, particularly nitrogen and phosphorus, are commonly found in lawn fertilizers, human and animal waste, and effluent from wastewater treatment facilities. In large concentrations, nutrients can cause algae and reduce dissolved oxygen, which are harmful to aquatic life and the River’s environment.

The principal source of nitrogen compounds in the Los Angeles River is from water treatment plants. Discharges from the Donald C. Tillman Water Reclamation Plant (WRP), the Los Angeles-Glendale WRP and the Burbank WRP are contributors to the Los Angeles River. During dry weather periods, these treatment plants contribute 84 percent of the total dry weather nitrogen load. Urban runoff, stormwater, and groundwater discharge may also contribute to the nitrogen loadings. These sources correlate with the River reaches that are designated as impaired, all of which are downstream of the Tillman plant; the reach upstream of the plant is not considered impaired. On March 23, 2004, the Nitrogen TMDL became effective, and numeric targets for nitrogen compounds in the Los Angeles River were established.
Metals of concern include lead, zinc, cadmium, copper, chromium and nickel. They can be toxic to all forms of wildlife if allowed to build up to significant levels. Organic compounds, including pesticides, can have similar effects. A metals TMDL was imposed in 2005. Because of the number and types of metals identified, impairment tends to vary by reach. In general, the reaches upstream of Sepulveda Basin and between Verdugo Wash and Taylor Yard are not listed as impaired, while other reaches have been listed for one or more metals.

A variety of actions have been proposed through previous planning efforts to address water quality concerns. The City’s Bureau of Sanitation and the Los Angeles Department of Water and Power have developed the Integrated Resources Plan (IRP) which addresses long-term water resource issues including wastewater collection and treatment, as well as potential water recycling and reuse. The County of Los Angeles, through its Flood Control District and Watershed Management Division, has developed the Integrated Regional Water Management Plan (IRWMP), which includes specific IRWMP’s for the Upper and Lower Los Angeles River.

Among the recommendations that have been made are:

- Reduce and reuse stormwater runoff from developed areas. Both the Integrated Resources Plan (IRP) and the IRWMP call for a reduction and reuse of stormwater runoff volumes through onsite measures, such as reducing impervious surfaces, or using BMPs to capture, treat, and infiltrate storm runoff. Performance targets vary, from a goal of reducing runoff by 50 percent (IRP) to reducing and reusing up to 90 percent of storm runoff from developed areas (IRWMP).
- Capture and treat remaining stormwater runoff from developed areas. While the first set of actions focuses on reducing the amount of runoff, the second acknowledges that remaining runoff should be treated and, where feasible, allowed to infiltrate. Emphasis is placed on using multi-purpose solutions that support functional habitat, provide for recreation, and support groundwater recharge where appropriate.
- Adopt a systematic approach to enhancing water quality throughout the watershed. This would entail treating runoff on-site on both public and private sites, and using public properties including parks, schools, and civic sites as treatment facilities. An example of such a systematic approach that has been partially implemented in the Sun Valley Watershed Management Plan.


A level spreader is incorporated into a hiking trail, allowing for diffusion of storm runoff while providing recreational benefits in Horseshoe Park, Aurora, Colorado. (2002)

Bimini Slough Ecological Park by North East Trees, in East Hollywood, daylights an existing storm drain and provides on-site stormwater management. (North East Trees, 2006)

Bimini Slough Ecological Park by North East Trees, in East Hollywood, daylights an existing storm drain and provides on-site stormwater management. (North East Trees, 2006)

Porous pavement parking surfaces at the Río de Los Angeles State Park, provide detention and water quality treatment. (2006)
Bird species of special concern found along the River Corridor include: American White Pelican, Double Crested Cormorant, Osprey, Northern Harrier, Sharp-shinned Hawk, Coopers Hawk, Merlin, California Gull, Vaux’s Swift, Loggerhead Shrike, Yellow Warbler, Yellow-breasted Chat, and Tri-colored Blackbird. (California Department of Fish and Game, Habitat Conservation Planning Branch, 2007, web site). More rarely seen species include: Least Bittern, White-faced Ibis, Golden Eagle, Prairie Falcon, Long-billed Curlew, Burrowing Owl, Vermillion Flycatcher, California Horned Lark, and Summer Tanager. (San Fernando Valley Audubon Society, pers. comm., 2007).
Los Angeles River Revitalization Master Plan

Issues Affecting the Plan

Extent and Quality of Existing Riparian Habitat

According to the California Coastal Conservancy, close to 100 percent of the original wetlands and 90 to 95 percent of in-stream riparian habitat within the Los Angeles River watershed have been lost, a consequence of urbanization and the channelization of rivers and creeks. Within the 32-mile Los Angeles River project area, the only areas that presently support riparian habitat are Sepulveda Basin and the Glendale Narrows. These areas are increasingly stressed by exotic species, hydrologic modifications, dumping of trash and debris, and encroaching development.

The 225-acre Sepulveda Basin Wildlife Preserve is the only officially designated wildlife area along the River, within the City. The soft-bottom portions of the River here and at the Glendale Narrows provide valuable resting and feeding zones for migratory birds, yet these areas are seasonally inundated with high flows, which preclude nesting. Key indicator species found within these areas include a variety of mammals and birds, such as coyote, shrike, acorn woodpeckers, and California quail. As mentioned previously, urban runoff and sewage treatment plants provide a majority of the water flowing in the channel; and this nutrient rich water supports unique riparian ecologies along the River.

Riparian habitat is also often impaired by degraded water quality (for example, increases in water temperature, the quantities of sediment and nutrients, and pesticides and heavy metals), and elimination or reduction of adjacent “buffer habitat.” Because functional riparian habitat and wetlands can improve water quality by removing or sequestering many contaminants, the loss of this habitat has implications for the ecological functioning of the River, as well as for wildlife uses.

Aquatic habitat has also been severely degraded as the River has evolved from a natural system to a paved flood-conveyance channel. Species affected have included the red-legged frog and, most visibly, the steelhead trout. Viewed as one of the top five sport fish in the U.S. because of its tenacity, the last known steelhead in the Los Angeles River was reportedly caught in 1940.

The steelhead trout is a hardy fish with powerful survival mechanisms; the main barrier to the steelhead trout’s “recolonization” of the River is not temperature or water quality – though these remain factors – but an unimpeded path from the ocean to the headwaters, along with areas in which to rest and spawn. Such an unimpeded pathway would require removing enough of the concrete within the channel to allow a fish to journey from the ocean to the headwaters, via a system of pools, riffles, runs, and gravel. Significant riparian cover or other mechanisms would provide shade, and a natural flow regime of high and low-flows would be necessary.

A Fragmented System That Could Be Reconnected

The figure to the left summarizes results of several studies that have considered aquatic, riparian, and upland habitat. The Los Angeles River watershed includes three regionally significant ecological areas (SEA’s) that are disconnected from the River corridor, these are: the Santa Monica Mountains, Verdugo Mountains, and Griffith Park. As noted in the Los Angeles County’s 1996 Los Angeles River Master Plan, migratory and resident birds move along the major flyways between the River, the SEA’s and other sites with surface water such as Hansen Dam, and the Sepulveda Basin. Open freshwater reservoirs such as the Los Angeles, Pacoima, Encino, and the Tujunga also offer feeding and nesting grounds. According to research by the University of Southern California’s GreenVisions program (2006), the channel and rights-of-way currently function as movement corridors for mammals.

What is evident from this diagram is the lack of connectivity in habitat types. In addition to the largely disconnected riparian habitat along the River corridor, upland and riparian connections to mountain areas are largely absent, except along Verdugo Wash. Restoring and reconnecting both riparian and upland habitat, and recreating wetland areas where feasible, would contribute a great deal to the restoration of a functional ecosystem along the River. Some potential wildlife connections at critical conservation areas such as from the Arroyo Seco to Elysian Park and Griffith Park to Verdugo Wash would also enhance connectivity.

Extended and Quality of Existing Riparian Habitat

Biological indicator species are unique environmental indicators because they offer a signal of the biological condition in a watershed. Using bio-indicators as an early warning of pollution or degradation in an ecosystem can help sustain critical resources.

Steelhead Trout Historically lived and spawned in the Los Angeles River. (Trout Unlimited, 2006)

Example resources for implementing these kinds of connectivity projects include: “Critter Crossings - Linking Habitats and Reducing Roadkill”, and “Keeping It Simple - Easy Ways to Help Wildlife Along Roads”.

WHAT ARE “INDICATOR SPECIES” AND WHY ARE THEY IMPORTANT?

Biological indicator species are unique environmental indicators because they offer a signal of the biological condition in a watershed. Using bio-indicators as an early warning of pollution or degradation in an ecosystem can help sustain critical resources.
NEED FOR ADDITIONAL PARKLAND AND PLAYING FIELDS

In 2004, the Trust for Public Land (TPL) surveyed the 50 largest cities in the U.S., including Los Angeles, focusing on equity and access to parks. Compared to other cities with similar density and population, Los Angeles offers less in the way of recreational amenities, according to TPL:

TOTAL LAND AREA DEVOTED TO PARK LAND:
- Los Angeles ranks 11th of 12 major cities with 7.8% of total land area in parks, compared to San Diego with 22%, San Francisco with 19.3%, and New York with 19.1%.

TOTAL ACRES OF PARK LAND PER 1,000 PEOPLE:
- Los Angeles has 6.1 acres of park land per 1,000 people compared to San Diego with 36.1 acres, San Francisco with 7.8 acres, and New York with 4.6 acres.

RECREATIONAL FACILITIES PER 10,000 PEOPLE:
- Los Angeles ranks 10th in the number of ball fields, 10th in the number of soccer fields and 46th in the number of playgrounds per 10,000 people. For example, Minneapolis has 1.5 soccer fields per 10,000 people, Los Angeles has 0.1 soccer fields per 10,000 people.

TOTAL PARK-RELATED SPENDING PER RESIDENT:
- Los Angeles spends $38 annually per resident compared to San Francisco at $276.
River into park and recreational facilities, "especially in high-need areas." The 1996 County Master Plan encourages development of vacant land adjacent to the quality treatment within City parkways, and new pilot projects within street-end parks. Applying systematic approaches to stormwater management, which includes water and functions to detain stormwater in rain events. At present, North East Trees is examples of multi-benefit open spaces.

For example, Marsh Park, in Elysian Valley, serves as both a "street-end" pocket park and functions to detain stormwater in rain events. At present, North East Trees is applying systematic approaches to stormwater management, which includes water quality treatment within City parkways, and new pilot projects within street-end parks. The 1996 County Master Plan encourages development of vacant land adjacent to the River into park and recreational facilities, "especially in high-need areas."

The County Master Plan also recommends establishment of a regional greenway and a "continuous trail" that would connect the San Gabriel Mountains north of Hansen Dam along the Los Angeles River to the Pacific Ocean at Long Beach. Of the 32 miles within the Revitalization Master Plan’s study area, presently 4.86 miles of bikeway have been completed. The West Valley Greenway project, currently under development, will result in an additional 1.75 miles. The City of Glendale is planning a riverwalk on the north side of the River near the Verdugo Wash (Phase I), and a pedestrian bridge across the River, connecting to Ferraro Fields (Phase II).

The Los Angeles Department of Transportation (LADOT) staff has been designing and constructing two mile segments of the bike path as funding is available. The Phase I project, in four segments, is nearly complete. Phase II will be completed with the reconstruction of the Riverside Drive Bridge by the Department of Public Works and will terminate on the east side of the River. Phase III is planned as on-street bike lanes to connect Downtown via Spring Street. DOT is also working with the Metropolitan Transit Authority (Metro) on a bicycle/pedestrian bridge to connect the Phase I segment with the planned Taylor yard bikeways. Some River maintenance right-of-ways in Studio City have been developed into linear River parks, in accordance with the County’s Los Angeles River Master Plan guidelines. Many of these greenways will have to be modified to allow future grade-separated crossings.

Eighty bridges cross the River in the City of Los Angeles; the City owns 60 of these bridges. The remaining 20 are either freeway or railroad crossings. Ten have bike access on the south/west side of the River, and another seven are currently funded for bikeway under-crossing improvements. According to the Los Angeles River and Bridge Access Report (2003), 11 of the bridges require minor improvements, four require at-grade crossings, 44 require underpasses, two require overcrossings, and nine require detour routing. Twenty-five bridges have recently been finished or are undergoing necessary bridge improvements. Only a handful of these bridges are incorporating under-crossings or other bikeway improvements. This Plan offers significant support for safe, grade-separated crossings at many of these critical intersections.
RAIL ALIGNMENTS FOLLOW THE RIVER

As noted in Chapter One, the River has served—and continues to serve—as one of Los Angeles’ principal rail transportation corridors. As described below, heavy rail lines providing long distance freight and passenger service tend to parallel the River from the City of Glendale through Downtown. Rail has been a significant physical barrier in the past, preventing public access to the River or, at the very least, making it a challenge. While consolidation of these tracks could allow more space for River enhancements and economic development, these rail lines play an essential role in the local economy and in the movement of goods, services, and passengers through the region. River redevelopment plans need to integrate the demand for continued rail service with the goal of minimizing barriers to River access.

Light rail lines providing passenger service, by contrast, can be viewed as both a barrier and an opportunity. As with heavy rail, the barriers are physical, making access to the River a challenge. On the other hand, the proximity of light rail stops to the River can be an opportunity to begin to develop a connected, multi-modal system that can bring people closer to the River.

Existing rail alignments are summarized on the map on the facing page.

HEAVY FREIGHT AND PASSENGER RAIL LINES WILL REQUIRE MORE CAPACITY

Interviews with rail operators indicate that both freight and passenger rail operations are facing a crippling level of congestion within just a few years time. Given the projected growth in freight and passenger railroad traffic, the region faces a serious shortfall in mainline track and intermodal railyard capacity. According to the Southern California Association of Governments’ (SCAG) forecasts, both Burlington Northern Santa Fe Railway (BNSF) and Union Pacific (UP)—the two major carriers that pass through Los Angeles—will have track capacity shortfalls on certain line segments by 2010, barring major improvements.

Union Pacific (UP) operates both freight and passenger lines. Union Pacific trains carry extensive varieties of import-export traffic through its Intermodal Container Transfer Facility (ICTF) near the Los Angeles-Long Beach harbors and in Colton. In 2006, UP operated 110 trains per day in its “LA Service Unit,” which includes routes between Los Angeles and Arizona, between Los Angeles and Nevada, and between Los Angeles and Northern California. The 110 trains include Amtrak and Metrolink commuter service over UP lines.

Union Pacific primarily operates on the east side of the River through downtown Los Angeles. At Mission Road Yard, the lines split in three directions: northward, eastward towards the Inland Empire, and westward across the River to Union Station.

Fiber optic and Pacific Pipeline facilities are also located within the rail right-of-way. Proposals that would involve altering the locations of the UP rail lines would need to address both utilities.

Burlington Northern Santa Fe Railway also operates both freight and passenger rail lines. BNSF trains carry intermodal containers, trailers, vehicles, coal, agriculture and forest products, machinery, metal, minerals, chemicals, and other freight traffic. In 2000, BNSF’s east-west corridor operated 57 freight trains and 46 passenger trains per day.
BNSF enters Los Angeles County from the north, stopping at Union Station, en route to destinations at the Port of Los Angeles and the Port of Long Beach. In the downtown Los Angeles vicinity, tracks from the south and east merge near Washington Boulevard and run along the west side of the River to Union Station. From 1st Street to 8th Street BNSF maintains four storage tracks on the west side of the River; these tracks might be moved if BNSF could be assured that their capacity would not be affected. North of 1st Street, BNSF sold their lines to Amtrak and Metrolink, but retain rights.

Metrolink (Southern California Regional Rail Authority), a regional commuter operation, operates six commuter rail lines originating from Union Station. Recent statistics indicate that Metrolink operates 54 stations, 141 weekday trains, and serves over 41,000 weekday riders. In the downtown Los Angeles area south of the I-10, Metrolink operates on the east side of the River. Between the I-10 and the I-110, Metrolink operates on both sides of the River, on UP and BNSF rail lines. The central Metrolink maintenance facility is located on the east side of the River at Taylor Yard.

Amtrak operates the following long-distance trains, which pass through Los Angeles Union Station: the Coast Starlight (daily Los Angeles to Oakland to Seattle), Southwest Chief (daily Los Angeles to Albuquerque to Chicago), and Sunset Limited (three times a week Los Angeles to New Orleans to Orlando). Amtrak also partners with the State of California to operate the Pacific Surfliner, which runs from San Diego to Los Angeles to Santa Barbara to San Luis Obispo with several daily round trips. In fiscal year 2006, Amtrak served 1,414,164 passengers in Los Angeles.∗

Two related projects have also been considered in development of this Plan. The Los Angeles Union Station Run-Through Track project was proposed by the Caltrans Division of Rail Plans to improve the efficiency of Union Station. The proposed project would extend two of the tracks southward from Union Station and provide a new connection into the BNSF main line on the west side of the River.

The five County Transportation Commissions in the SCAG region (Los Angeles, Orange, Riverside, San Bernardino, and Ventura) are working with SCAG and the four Caltrans districts (7, 8, 11, and 12) on a 2-year project to develop an implementation plan for the Southern California goods movement system. The mission of this Multi-County Goods Movement Action Plan effort, which is administratively led by Los Angeles County Metropolitan Transit Authority (Metro), is to partner with the private sector in the development of a strategy and implementation plan for an improved regional goods movement system.

HIGH SPEED AND LIGHT RAIL LINES COULD BE OPPORTUNITIES TO CONNECT TO THE RIVER

While heavy rail poses the challenges noted previously, existing and proposed future light rail lines could be opportunities to connect a multi-modal system with the River.

Metro serves as the transportation planner and coordinator, designer, builder and operator for Los Angeles County. Light rail lines include the Metro Green, Blue, Red and Gold lines, with the last three traveling through or near the project area. The Metro Red Line subway meets the Blue Line in Los Angeles and provides service through Downtown, the Mid-Wilshire area, Hollywood and the San Fernando Valley, where it meets the Metro Orange Line transitway. The Metro Gold Line connects with the Red Line at Union Station, and runs northeast to Pasadena. Heading north from Union Station, the Gold line crosses the Los Angeles River east of Dodger Stadium. Metro operates 62 stations and over 73 miles of track. During the heavy peak travel times, there are as many as 250 trains operating throughout the system. (See transportation map page 3-14). The Orange Line Bus Rapid Transit travels though the project area and adds a key non-motorized transportation link with its fully developed bicycle and pedestrian paths that intersect the Los Angeles River in the Sepulveda Basin.
Construction has recently begun on the $898 million Metro Gold Line Eastside Extension project. The forecasted opening is in late 2009. Metro Gold Line Eastside Extension will be six miles long, with eight new stations, and will directly connect to the existing Metro Gold Line to Pasadena. Twin tunnels under Boyle Heights will be 1.8 miles long and the system will be powered electrically with overhead catenaries wires. Transit stops are planned at Little Tokyo/Arts District, Pico/Aliso, Mariachi Plaza, Soto, Indiana, Maravilla, East LA Civic Center, and Atlantic Station. These stops could be connected to the River, and to a proposed River Greenway system that could provide access to parks, open space, and other destinations.

The proposed California High-Speed Rail system would travel from San Francisco, Oakland and Sacramento in the north to Los Angeles and San Diego in the south, and would connect California’s major metropolitan areas. The proposed corridor alignment has been loosely identified in the Los Angeles area, and it traverses a portion of the project area. The preferred alignment is along both sides of the Los Angeles River: one proposed track crosses the River from Mission Yard towards Union Station and continues south while the other passes through Union Station and splits to cross the River south of US-101 and south of 1st Street. Should the rail system be implemented as studied, it offers the potential to bring visitors from outside the region to the City. A revitalized River could provide an important regional recreational destination, as well as an amenity that could draw more visitors to the City.

NON-MOTORIZED TRANSPORTATION

Pedestrian and bicyclists look to the Los Angeles River as a key non-motorized transportation link. In the lower 20 miles of the River outside the City of Los Angeles, where the path is fully developed and separated from at-grade roadway crossings, non-motorized travelers regularly utilize the River as a pleasant respite from travelling on the roadways to their destinations. Corridors such as the Los Angeles River and its tributaries, the Beach Bike Path, and the San Fernando Road Metro rail right-of-way are spines of the non-motorized network being developed by the Department of Transportation for bicyclists and pedestrians in Los Angeles.
Los Angeles River and Surrounding Watershed

32-mile reach of the Los Angeles River within the City of Los Angeles
THE LARGER WATERSHED CONTEXT

IMPLICATIONS OF GROWTH AND DEVELOPMENT WITHIN THE WATERSHED

Los Angeles has changed significantly in the past century. Between 1900 and 2000, its population grew from 50,000 persons to 3.6 million, and the City evolved from a patchwork of agricultural lands in the San Fernando Valley and industrial areas near Downtown, to a nearly fully built-out metropolis with an estimated 60 to 70 percent impervious, or hard-surface area.

This rapid urbanization is not just within the City. Perhaps the most significant changes have involved development within the watershed that contains the City and portions of Los Angeles County. A watershed may be defined as the area within which natural drainage patterns convey surface water flows to a specific low point destination — in this case, the Los Angeles River. The graphic on the opposite page illustrates the Los Angeles River’s watershed which encompasses 871 square miles -- an area roughly twice the size of the state of Delaware. Within this land area, the population currently approaches 5 million people, and in the lower Los Angeles watershed, only 13 percent of the land area remains as open space.

The growth within the Los Angeles River watershed has had dramatic implications for the way the River functions from an ecological, flood control, and stormwater management perspective. During the pre-channelization period of more limited development, the River’s generous natural floodplain served as an effective flood-control mechanism and buffer for watershed-scale development. Those who built within the floodplain did so at the risk of loss of life and property, as the floods of 1914 and 1938 illustrated.

When the City was less developed with less hard surface area, stormwater could more readily infiltrate and recharge groundwater where it fell -- meaning that the River had less work to do as a flood conveyance feature. Increasingly more development within the watershed, combined with channelization of the River flows, has meant that all of the additional runoff is now directed and concentrated in the River, which, while an engineering feat, was not designed to handle the water volumes typical today.

The perspective taken by this Plan is that the River cannot -- and should not -- be expected to be the sole means for addressing flood damage reduction and water quality challenges in the larger watershed. While the River can make a significant contribution to address these issues, the Plan reinforces and relies upon other City and County watershed planning initiatives in emphasizing that challenges generated within the watershed should be, to the maximum degree possible, addressed within the watershed.

A WATERSHED PLANNING PERSPECTIVE

Many watershed-scale planning efforts have been undertaken or are currently underway. This Plan seeks to strengthen and provide practical ways to implement core recommendations set out in these plans.

The core recommendations contained within most of these plans include an emphasis on the following:

- Adopt a watershed-based approach to flood damage reduction. Most plans call for implementation of a more integrated flood management system that makes reduction and treatment of urban runoff a primary goal.
- Adopt a systemic, watershed-wide approach to water quality treatment that emphasizes treatment “at the source”, and incorporates permeable surfaces.
- Emphasize “multiple benefit” approaches that simultaneously incorporate flood storage, water quality treatment, habitat improvement, increasing native vegetation biodiversity, and recreation.
- Leverage public properties, including parks, golf courses, schools, and other civic spaces, to address both flood storage and water quality treatment.
- Focus on restoring ecological function watershed-wide, emphasizing connectivity of systems and natural processes.

WHAT IS A WATERSHED?

A watershed may be defined as the area within which natural drainage patterns convey surface water flows to a specific low-point destination.

The Los Angeles River’s watershed encompasses 871 square miles -- an area roughly twice the size of the state of Delaware.

WATERSHED COMMITMENT STATEMENT: A WATERSHED IS WATER, SHARED

Because the Los Angeles River is situated within an almost-900 square mile, highly urbanized watershed, the success of any and all changes to the River channel—including greening, habitat enhancements, water quality treatments, and restoration activities—are impacted by both upstream and downstream activity in the watershed.

Because of its function in draining the watershed, the Los Angeles River bears a disproportionate share of the responsibility for addressing region-wide problems, such as flood control, trash and debris collection, and absorption of the effects of contaminated urban runoff.

Given these challenges, and the intent of the Plan to revitalize the Los Angeles River, the Plan will be implemented in coordination with existing and future watershed plans—to successfully improve and protect water quality and restore aquatic resources throughout the Los Angeles River Watershed.
The City of Los Angeles is facing a number of large policy issues that will, to some extent, provide conditions for the Plan. These issues extend far beyond the planning area and will require concerted and broad-based attention from the City. They are mentioned here because this Plan will take them into account as part of revitalization efforts.

HOMELESSNESS
Many homeless encampments exist along the River, which can make visitors using bicycle paths and pedestrian trails uncomfortable. These encampments are removed periodically through police action, including a due process that involves posting signs for a week in advance prior to evicting homeless encampments within the channel right-of-way. The opportunity exists for this revitalization Plan to address homelessness by creating more jobs within River-adjacent neighborhoods and increasing the amount of affordable housing provided throughout the region. With increased lighting and public usage of River facilities, more recreational use is also expected to occur, providing “eyes on the greenway” to further discourage illicit behavior.

GENTRIFICATION
The process of gentrification occurs when low-cost, aging neighborhoods are renovated and subsequently experience gains in property values that can result in displacement of the neighborhood’s original residents. Urban core redevelopment and gentrification are already taking place throughout Los Angeles, and are evident in neighborhoods such as Downtown, Los Feliz, Silver Lake, Eagle Rock, and Highland Park. The opportunity exists to limit the displacement impacts as neighborhoods begin to change, by using community feedback, engagement, and interaction during each phase of the revitalization process.

Gentrification is a controversial process that disproportionally affects lower-income residents and their jobs. As new investments are made in a neighborhood, rents begin to rise on both residential and commercial properties. Over a period of time, renters, whether individuals or businesses, either simply cannot pay the increased costs or decide not to pay higher rates for budget reasons. These people and jobs must then find new places to relocate that are within their budgets. For owners of residential or commercial property it may be possible to remain in place longer than for renters, but at some point people “cash in,” selling their properties to high-paying buyers who typically also renovate, enlarge, or otherwise invest at high levels in the property, further increasing the inflationary pressure on neighborhood rents and values. As a result of this process, people and communities become displaced and dispersed, affecting social, cultural, and family ties.

Many cities are working hard to find ways to address this set of problems. Some cities have adopted inclusionary housing ordinances that require new development to provide a minimum required percentage of “affordable” units according to prescribed goals. Others have set up agencies and other support systems (such as nonprofit housing trusts) to develop support programs that assist families and business in using all possible local, state, and national programs to support the financing of real estate purchases, capacity building within local affordable financing entities, gap financing for residents and businesses, and similar programs of support.

An emerging area of opportunity may be the development of ordinances that require some amount of the property value increase that occurs because of rezoning to be applied to support the inclusion of existing residents and businesses in redevelopment. In Los Angeles, a rezoning from industrial to residential or mixed use can create increases of 200-to-300-percent in land value. Some resort communities have developed ordinances that either require a recapture of these increased values for affordable housing, or have established tight controls on the pace of development. Such “growth management” ordinances have been controversial, but as the pace of gentrification increases, it may be possible to learn from these examples to develop zoning mechanisms that can be effective in Los Angeles.
SINGLE-FAMILY RESIDENTIAL AREAS

Many reaches of the River pass through single-family residential areas. While this Plan encourages retaining and strengthening stable residential areas, it also acknowledges the opportunity of a long-term program to acquire private, single-family, residential properties for flood protection and River modifications.

JOB IMPACTS

River revitalization may result in employment and wage impacts, especially in industrial areas that experience changes in the composition of employment. The opportunity exists to maintain industrial land uses and still increase the workforce and wage-rate by encouraging higher-technology industries.

LAND USE CONVERSION

In industrial areas in the Elysian Valley and Downtown, the River is lined with truck parking, loading docks, material storage, trains, and industrial buildings. In some of these areas, these uses are not necessarily stable.

Redevelopment is happening; already, in areas where older industrial buildings have architectural character, they have been converted to residential units, live/work uses, artist lofts, and smaller businesses. In other areas where buildings are low quality or obsolete, smaller industrial sites have been aggregated and replaced with large warehouse or distribution buildings.

Both of these pressures tend to reduce existing jobs and increase property values. These conversions are an opportunity for neighborhoods to become more mixed in use, and therefore more related to River revitalization. At the same time, there are important concerns about protecting jobs, industries, and diversified economic activities within these areas. Revitalization of the River is likely to increase property values, thus increasing these conversion pressures.

The City is studying the loss of industrial activity due to economic pressures. These pressures are not addressed by existing Community Plans and zoning. This Plan recommends that Community Plans be updated to incorporate opportunities for River revitalization while addressing objectives for land use in these areas.
ENGAGING THE COMMUNITY IN THE PLANNING PROCESS

A TRANSPARENT PLANNING EFFORT THAT GALVANIZES PUBLIC SUPPORT

Community input and public support are vital to the success of any Los Angeles River revitalization effort. This Plan cannot be implemented successfully if surrounding communities do not embrace the various revitalization projects and understand that their participation in long-term stewardship is critical to making the River a safe and desirable place for everyone to experience. The planning effort has been organized to be transparent and to ensure that participants can see that their ideas have been incorporated into recommendations.

A FRAMEWORK FOR INVOLVING STAKEHOLDERS AND THE PUBLIC

The planning process has engaged the community at multiple levels. The structure for involving stakeholders and community residents included the following:

- A City Department Task Force of 50 members, met monthly during the 18-month planning period.
- An Advisory Committee of 40 members with representatives from neighborhood and homeowners’ associations, business groups, and other community leaders.
- A Stakeholder Committee of more than 50 representatives of advocacy organizations, such as environmental groups, organizations that focus on environmental justice, and River advocacy.
- A Peer Review Committee comprised of six leading experts in urban river revitalization and restoration.
- A total of 20 community meetings/public workshops, held in various neighborhoods along the River. All of the workshops included an initial presentation on the latest planning concepts and potential project features, followed by an interactive exercise in which the participants could write their opinions and ideas on maps, comment forms, and project boards. Participants worked through all of the planning stages, from visions and dreams, through neighborhood design elements, River channel modifications, and the identification and development of Opportunity Area proposals.
- Community events, such as neighborhood council meetings, an urban watershed forum, and meetings on a wide variety of River projects.
- A youth summit conference was held with over 500 participants.

Through September 2006, a total of 788 comments were received; the largest percentage of comments focusing on public enjoyment/recreation (23 percent) and environment and natural system restoration (18 percent).
PROVIDING FEEDBACK: COMMUNICATING PROGRESS OF THE PLANNING EFFORT

Methods used to communicate the planning efforts to the public included:

- Press conferences and coverage in the local, national, and global media;
- Newsletters and other community notifications; and distributed on a regular basis
- An interactive web site available through the Ad Hoc Committee on the Los Angeles River’s web site at www.lariver.org.

The outreach effort has garnered an enthusiastic and wide range of responses, from the general to the specific. A consistent pattern of interest emerged regarding primary concern for how the surrounding communities and the general public would safely use the River for recreation and enjoyment. Most feedback concerned improving public access, creating more open/green space, dedicating space for athletics, beautifying the River with landscaping, restoring it to a more natural condition, preserving existing neighborhoods, finding socially-conscious solutions to homelessness, and keeping the River and its environment clean and safe. Other areas of interest focused on public art, community education, water quality, flood control, wildlife habitat, land use changes, and River management.

In addition to the public outreach conducted as part of this Plan, outreach was conducted by the Alianza de los Pueblos del Rio, a collaborative organization funded by the Packard Foundation to concentrate outreach efforts in the Latino community. The Alianza hosted three public workshops in August 2006, and involved organizations such as the Mujeres de la Tierra, the William C. Velasquez Institute, the Anahuak Youth Soccer Association, and the Center for Law in the Public Interest.
Some of the ideas shared by members of the public:

- Chinampa Park (Joe Ibarra)
- Heritage Parkscape (The City Project/Alianza de los Pueblos del Rio)
- Spirit Walk (Mark Smith)
- The Los Angeles River Lakes Sanctuaries Recreational and Cultural Centers (Marco-Antonio Luna Mancera)