Appendix A

Planning Documents Reviewed

In preparation for this revision to the 2006 IRWMP, the following regional Los Angeles County planning efforts were examined for references to watershed issues and habitat linkages.

- 16th Street Watershed Runoff Treatment, Reuse & Infiltration Project
- 16th Street Watershed Runoff Use Demonstration Project
- 25-mgd Seawater Desalination Plant in West Basin
- Acquisition Monrovia Hillside Wilderness – Leonard Property
- Alhambra Wash
- Alhambra Wash Naturalization
- Aliso Creek Mainstem Restoration
- Aliso Wash – Limekiln Creek Confluence Restoration Project
- Anaheim Coves/Burris Pit Park Development
- Annandale Golf Course Habitat Restoration and Infiltration
- Aquarium of the Pacific Education Center Expansion
- Aquarium of the Pacific Educational Programs
- Arcadia Wash
- Arcadia Wash Restoration Feasibility Study
- Armstrong Multiuse Grounds Bell Riverfront Greenway
- Arroyo Seco Alternative Stream Extension
- Arroyo Seco North Branch Creek Daylighting
- Arroyo Seco Park
- Arroyo Seco Watershed Feasibility Study
- Assessing Ecosystem Values of Watersheds February 2011
- Atwater Village West River Park
- Azusa Canyon River Park
- Azusa Geology Park Development
- Azusa Open Space and Access Plan
- Azusa River Wilderness Park Acquisition
- Azusa River Wilderness Park Planning and Implementation Prop 40
- Azusa Springs Water System, River Wilderness Park
- Ballona Bluff Vernal Pool Restoration
- Ballona Creek Ecosystem Restoration Project
- Ballona Wetlands Restoration
- Ballona Wetlands Restoration Planning
- Ballona Wetlands Restoration Project
- Bellfower Riverview Park
- Big Canyon Creek Restoration
- Big Tujunga Dam Restoration
- Bikeway Plan – Gateway Cities
- Bluebird Ranch/Ferguson Property
- Bolsa Chica Wetlands Restoration

- Bridge Retrofit Program Stormwater Treatment Implementation Pilot Project
- Brownfield Study – San Gabriel Valley
- Burbank Greenway
- C. Marvin Brewer Desalter Brackish Groundwater Facility Expansion
- Calabasas Dry Cyn Watershed Habitat & Water Quality Enhancement Project
- Calabasas McCoy & Dry Canyon Creek Evaluation and Protection Study
- Canyon Inn/International Theological Seminary property
- Canyon Institute Site Access Planning
- Capital Project Management Services
- Carson Freeway Wetland
- Carson Redevelopment Center Recycled Water Pipeline
- Carson Regional Water Recycling Project
- Catch Basin Cover Phase III
- Central Arroyo Park Habitat Restoration and BMP Implementation
- Central Orange County Integrated Regional & Coastal WMP August 2007
- Chapter 8 Defaulted Tax Property
- Chawot Nature Preserve (Geotechnical Studies)
- Chawot Nature Preserve Appraisal
- Children's Native Plant Garden
- Citrus Grove Heights
- Citrus Spreading Grounds Modification Project
- City of Long Beach Project Management Services
- City of Lynwood Pocket Parks
- Claremont Hills Wilderness Park
- Cold Creek Riparian Acquisitions, Part 2.
- Colorado Lagoon Dredging and Restoration Project
- Colorado Lagoon Restoration
- Colorado Lagoon Restoration (at Alamitos Bay)
- Colorado Lagoon Restoration (Tier 2)
- Colorado Lagoon Water, Sediment, Habitat, Restoration Master Plan
- Commercial Laundromat Incentive Program
- Commercial, Industrial and Institutional Incentive Program (Recirc & Save)
- Common Ground: from the Mountains to the Sea – Watershed & OS Plan October 2001
- Complete Restroom Retrofit Program
- Compton Creek
- Compton Creek Daylight Study
- Compton Creek Regional Garden Park Master Plan
- Compton Creek Watershed Management Plan - June 2005
- Confluence Park
- Conservation Element of the City of Los Angeles General Plan 2001
- Construction of the Las Virgenes Creek Restoration Project
- Conversion of 237th Street Sump Trib. to Machado Lakes for BMPs
- Conversion of Pioneer Storm Drain Sump Tributary to Dominguez Channel into
- Conversion of Walnut Ave. Sumps Tributary to Machado Lake for BMPs
- Cornfields Adjacent River Park

- Coyote and Carbon Creeks Watershed Management Plan
- Coyote Creek – Los Alamitos Improvement Project
- Coyote Creek Bike Trail Connection to Cerritos Regional Park
- Coyote Creek Regional Trail System Improvements
- Coyote Creek Watershed Plan
- Coyote Creek Watershed Plan
- Crescenta Valley Parck
- Culver City BMPs
- DBH Parking Lot 5 Bioretention
- DBH Parking Lot 7 Bioretention
- Decker Canyon Recycled Water Line Extension
- DeForest Wetland Habitat Restoration
- DeForest-Dominguez Wetlands Restoration Preliminary Plan
- Development of Procedures for Project Funding Criteria
- Devil's Dip Creek Restoration and Daylighting
- Discovery Sports Complex (Formerly NASA Project)
- Dockweiler Watershed Runoff Treatment, Reuse, and Infiltration Project - Stage One
- Dominguez Channel Greenway
- Dominguez Gap Wetlands Multi-Use Project
- Dorris Place
- Downey Landing, City of Downey
- Downey Recreation Center
- Downtown River West Wetlands Park
- Dry Canyon Creek – 101 Freeway Restoration Project
- Dry-weather Runoff and Stormwater Capture Study
- Duck Farm
- Duck Farm Geotechnical Studies
- Duck Farm Phase IA Implementation
- Duck Farm Planning
- Duck Farm Traffic Studies
- East Garden Grove Wintersburg Channel Treatment Wetland Feasibility Study
- East Los Angeles Civic Center Improvements
- East Valley Los Angeles River Greenway/Bikeway
- Eastside Soccer Complex
- Eaton Wash Corridor Plan 2011
- Economic Value for Watershed Management Techniques Study
- Edens Lost and Found: Emerald Necklace
- Educational Program on Urban Forestry and Creation of Sustainable Ecosystems
- El Dorado Nature Center Renewal Phases
- El Dorado Park Lakes Water Usage and Wetlands Restoration
- El Dorado Regional Park Wetland Feasibility Study
- El Monte Storm Drain Dayligthting/Green Infrastructure
- El Segundo Blue Butterfly USFWS Recovery Plan
- Emerald Necklace Feasibility Project
- Emerald Necklace San Jose Creek Acquisition

- Emerald Necklace-Alhambra Wash to Eaton Wash
- Emerald Necklace-Eaton Wash to Peck Park
- Emerald Necklace-Peck Park to San Gabriel River
- Emerald Necklace-San Gabriel River to Walnut Creek
- Encanto Nature Walk Bioswale Project
- Encanto Park Bioswale
- Exposition Green Corridor
- Extension of Recycled Water Lateral to Palos Verdes Peninsula
- Ferguson and Wildwood Pre-Acquisition Expenses
- Flint Wash Restoration
- Food Facilities Audit, Incentive and Training Program (Cash for Kitchens)
- Freeway Runoff Infiltration
- Freeway Runoff Infiltration Demonstration Project
- Full Capture Trash Removal Devices
- Galster Park Project
- Ganesha Park
- Gardena Willows Restoration (Remnant Tidal Wetlands Area)
- Gardena Willows Wetlands - Education
- Gardena Willows Wetlands - Erosion
- Gardena Willows Wetlands - Weeds
- General Plan Open Space & Conservation Element July 2011
- Geotechnical Sampling, Woodland Farms
- Gibson Mariposa Park Development Project
- Goldsworthy Desalter
- Goldsworthy Desalter Expansion
- Graham Elementary School Watershed Education Trail Phase I
- Graham Elementary School Watershed Education Trail Phase II
- Grand Boulevard Tree Wells
- Grant Guidelines Development
- Green Solutions
- Green Visions Phase II
- Green Visions Plan - Target Species Habitat Mapping June 2006
- Greenbelt Low-flow Infiltration Project
- Groundwater Recharge Sump for Carson City Hall
- Habitat Authority Community Outreach and Education
- Hahamonga Watershed Park Habitat Restoration and BMP Implementation
- Hansen Dam Recreational Area Parking Lot and Wetlands Restoration Project
- Hansen Spreading Grounds Structural Modifications and Operational Improvements Project
- Hazard Park – North East Trees
- Hazard Park Stream Restoration
- Hazard Park Wetlands Restoration
- Headworks Los Angeles River Wetlands and Water Protection Project Phase I
- Hermosa Strand Low Flow Infiltration Trench
- Historical Ecology of the RMC SGR
- Historical Wetlands of the Southern California Coast - Grossinger et al 2011

- Hotel Restroom Retrofit Program
- Huntington Beach Wetlands - U C. Acquisition
- Huntington Beach Wetlands Restoration Plan
- Huntington Park Trail and Open Space Development
- Imperial Highway Sunken Median
- Imperial Highway Sunken Median
- Integrated Regional Water Management Plan
- Invasive Weed Control in Riparian Habitat
- Invasive Weed Control in Riparian Habitat of San Gabriel Valley
- Irrigation Equipment/Water Budget Program
- IRWMP Multipurpose Plan Development
- Jefferson Park Acquisition and Planning
- JWPCP Marshland Enhancement
- Kahler Russel Park, Streambed Restoration Project
- La Habra Heights Trail Connectors Plan
- La Sierra Riparian Acquisition
- Lafayette Creek Daylighting
- Lafayette Daylighting
- Laguna Canyon Creek Restoration Project
- Laguna Lake Park Master Plan
- Laguna Retention Basin Multiuse Improvements
- Large Landscape Conservation/Runoff Reduction Management and Outreach Program
- Large Landscape Conservation/Runoff Reduction Management Program
- Large Landscape Conservation/Runoff Reduction Mgmt. and Educational Program
- Lario Creek Enhancement Project
- Las Flores Creek Restoration
- Las Virgenes Creek Evaluation and Protection Study
- Las Virgenes Creek Naturalization: Removal of Artificial Structures and Fish Barriers
- Lashbrook Park Legg Lak Fishing Pier
- LCWA Hellman Acquisition Related Expenditures
- LCWA Phases 1 & 2 Restoration and Recreational Access
- Legion Lane Park
- Lemon Creek
- Limekiln Canyon Stream Restoration and Habitat Improvement Project
- Lincoln Heights Freeway Interchange Restoration and BMP
- Lomita Integrated Storm to Vadose to Water Supply - Cypress Hill Reservoir
- Lomita Integrated Storme to Vadose to Water Supply - Oceanview Depression
- Long Beach Aquarium Watershed Exhibit Expansion Project
- Long Canyon, Santa Clara River
- Los Angeles Harbor Bacteria TMDL - Low Flow Diversion
- Los Angeles Harbor Low-Flow Diversion
- Los Angeles River Bikeway Path Enhancement and Rehabilitation
- Los Angeles River Final PEIR/PEIS Vol. I April 2007
- Los Angeles River Final PEIR/PEIS Vol. II April 2007
- Los Angeles River Parkway Access Imporviemtns – Cudahy

- Los Angeles River Phase 1
- Los Angeles River Phase 2
- Los Angeles River Revitalization Master Plan Final April 2007
- Los Angeles River Watershed Monitoring Program Annual Report 2009
- Los Cerritos Wetland Restoration (Bryant and Bixby)
- Los Cerritos Wetlands Complex
- Los Cerritos Wetlands Complex - Acquisition
- Los Cerritos Wetlands Conceptual Restoration Plan
- Los Feliz Equestrian/Pedestrian Bridge
- Lower Arroyo Park Habitat Restoration and BMP Implementation
- Lower Conejo Creek Acquisition
- Lower Franklin Canyon Park
- Lower Los Angeles River Acquisitions
- Lower Los Angeles River Low Flow Diversion Systems
- Lower Tujunga Wash Greenway Bikeway
- Lynwood Meadows
- Lynwood Nature Park (South Gate Riparian)
- Machado Lake Artificial Aeration and Circulation Project
- Machado Lake Ecosystem Rehabilitation Project
- Machado Lake Habitat Restoration Project
- Machado Lake Improvements
- Madrona/Palos Verdes Lateral
- Malibu Civic Center - Chili Cook-Off Land Acquisition
- Malibu Creek Watershed Urban Water Conservation and Runoff Reduction Project
- Malibu Lagoon Habitat Enhancement
- Malibu Lagoon Habitat Enhancement Program
- Manhattan Strand Low Flow Infiltration Trench
- Manhattan Well Field Rehabilitation
- Mapping Support Services
- Marsh Street Park
- Maywood Bikeway Access
- Maywood Riverfront Park
- Memorial & Ozone Parks Runoff Treatment and (Re)Use Project – 1
- Mines Avenue Bike Lane Improvement Project
- Missing Linkages - Restoring Connectivity to CA Landscape November 2000
- Model Equestrian Center
- Monitoring Program for JWPCP Marshland Enhancement Project
- Montecito Heights/Debs Park
- Moorpark Park
- Morris Dam Peninsula Park
- Morris Dam Water Supply Enhancement Project
- Multiuse Wetlands Project at Children's Museum of Los Angeles, Hasen Dam Recreation Park
- Native Habitat Docent Manual
- Native Landscape Workshop
- Native Plant Palettes for the San Gabriel River

- Nicholas Canyon Watershed Acquisition
- Nichols Sediment Placement Site (SPS) Multiuse Improvements
- North Atwater Creek Restoration and Water Quality Enhancement
- North Branch Creek Daylighting in Sycamore Park
- North Santa Monica Watershed Runoff Treatment, Reuse, and Infiltration Project - Stage One
- Oak Canyon Nature Center
- Ocean-Friendly Landscape Program
- Olinda Historic Trail
- Olinda Historic Trail Phase II
- Onsite Wastewater Treatment System Grant Program to Upgrade and Maintain Systems in the Malibu Creek Watershed
- Orange Coast River Park
- Orange County Open Space and Multi-purpose Opportunities
- Organic Community Farm
- Oxford Retention Basin Flood Relief and Multiuse Enhancement Project
- Ozone Park Retrofit Runoff Treatment, Reuse & Infiltration Project
- Pacific Communities Acquisition Project
- Pacoima Wash Greenway Project: 8th Street Park-Resubmit
- Pacoima Wash Greenway Project: Parkside Drive Park
- Padua Avenue Park Development
- Park Bond Project Management Services
- Park Bond Project Management Services II
- Park Master Plan – Baldwin Park
- Paseo del Rio at San Gabriel and Rio Hondo Spreading Grounds
- Peck Park Canyon
- Peck Park Canyon Project
- Peck Park Wetlands and Enhanced Recharge
- Peck Water Conservation Park
- Peck Water Conservation Park
- Pellesier Pocket Park
- Peninsular Village Regional Stormwater Mitigation Program
- Penmar Water Quality Improvement and Runoff Reuse Project
- Phase I Implementation of the Puente Creek Nature Education Center
- Pine Avenue Park
- Pio Pico State Historic Park
- Pio Pico State Historic Park
- Project Management Services
- Puente Creek Nature Education Center
- Ralph C. Dills Park Expansion
- Ralph C. Dills Park Implementation
- Ralph C. Dills Project
- Rancho Los Alamitos Native Garden Restoration
- Rancho Los Cerritos Arroyo Improvements
- Rancho Los Cerritos Landcape Restoration
- Recycled Water Extension to the Dominguez Refineries in the Port of LA

- Reseda Park
- Residential High-Efficiency Clothes Washer Rebate Program
- Residential Indoor Plumbing Retrofit Kits
- Restoration and Education at the Gardena Willows Wetland Preserve
- Restoration of Altamira Canyon at Abalone Cove Ecological Reserve
- Restoration of Southern Steelhead Habitat in Solstice Creek
- Rio Hondo – Roosevelt Avenue River Trail Entry
- Rio Hondo Watershed Plan
- Rio Vista Blufftop Park
- Rio Vista Park Restoration and Conservation Project
- Ripariean and Wetland Mapping
- River Glen Riverfront Walk
- Rivers and Tributary Access Improvements
- Riverview Park, Bellflower Riverview Park
- RMC Grant Guidelines
- RMC Trail & Recreational Opportunities Plan
- Rosecrans Recreation Center Stormwater Enhancement
- Rosemead San Gabriel Pocket Park
- San Gabriel and Rio Hondo Watershed
- San Gabriel and Rio Hondo Watershed Program Implementation
- San Gabriel Canyon Gateway Landscape Improvement Project
- San Gabriel Canyon Spreading Grounds (Concept Design Study)
- San Gabriel River & Floodplain - Historical Ecology & Landscape Change
- San Gabriel River Confluence with Cattle Canyon Improvement Project
- San Gabriel River Discovery Center
- San Gabriel River Discovery Center at Whittier Narrows Regional park (Concept Design Study)
- San Gabriel River Environmental Graphic Design Services Program
- San Gabriel River Spreading Grounds
- San Gabriel River Trail Connector to Pio Pico State Historic Park
- San Gabriel River Trail Enhancement
- San Gabriel River Trail Enhancement Development Project
- San Gabriel River Watershed Habitat Restoration Assessment Project
- San Gabriel River-Regional Spreading Grounds Telemetry Systems
- San Gabriel Watershed & Mountains Draft Special Resources Study and Environmental Assessment
- San Joaquin Marsh Enhancement - Phase II Implementation
- San Jose Creek Bike Trail Planning
- San Jose Creek Greenway Improvements
- San Rafael Creek Restoration
- Santa Fe Dam Recreation Area and Habitat Enhancements
- Santa Fe Springs Park Expansion
- Santa Fe Springs Park Improvements and Development of Nature Sanctuary
- Santa Fe Springs Park Master Plan and Nature Sanctuary Feasibility Study
- Santa Monica Canyon Channel, LFD No. 2, Rubber Dam
- Santa Monica Mountains Comprehensive Plan February 1979
- Santa Monica Mountains National Recreation Area - GMP EIS Vol. 1

- Santa Monica Mountains National Recreation Area - GMP EIS Vol. 2
- Santiago Creek Arundo Control and Habitat Restoration
- Schools & Parks Retrofit in the Disadvantaged Communities
- Seal Beach Open Space Opporunites
- Sepulveda Basin Habitat Enhancement
- Sepulveda Basin Wetlands
- Seventh Avenue Trailhead Improvements
- Sewer and Road Project at Malibu Lake
- Sheldon Pit Stormwater Retention Project
- Silver Lake Reservoir Complex Habitat Improvement Multiuse Project
- Soledad Canyon CAPP Acquisitions
- Solstice Creek Steelhead Access Implementation
- South Compton Creek Greenway and Bike Trail
- South Gate Habitat Acquisitions Grant
- South Gate Los Angeles River Parkway Access Improvements
- South Gate Riparian Habitat Restoration
- South Gate Riparian Restoration Acquisition
- South Los Angeles Wetlands Park
- Southern California Steelhead Draft Recovery Plan July 2009
- Stone Canyon Creek at UCLA
- Stone Canyon Creek Restoration
- Storm Drain Improvements BMP 131st Street, Simms & Chadron Ave.
- Storm Drain Improvements BMP Hawthorne Boulevard between El Segundo Blvd. and Rosencrans Ave.
- Storm Drain Improvements BMP Kornblum Avenue & Cranbrook Avenue
- Storm Drain Improvements BMP Prairie Avenue & El Segundo Boulevard
- Storm Drain Runoff Retrofit & Infiltration Stations
- Stormwater Basin Enhancement Program
- Strathern Pit Multiuse Project
- Sun Valley Powerline Easement Multiuse Enhancements
- Supermarket Retrofits
- Sycamore Canyon Park Trail Development Project-Diamond Bar
- Sycamore Canyon Trail Phase II
- Sycamore Canyon Trail Phase IV
- Taylor Yard
- Temescal Canyon Recreation Center Stormwater Best Management Practices
- Temporary Seawater Demonstration Project
- The Green Garden Program
- The Long Beach River Link
- The Welch Site BMP and Habitat Restoration
- Think River!
- Thompson Creek Feasibility Study and Planning
- Topanga Canyon Boulevard – Plummer Street Restoration Project
- Topanga Creek Resotaration Program
- Topanga Creek Restoration Program

- Trabuco Creek Fish Passage Project
- Traffic Study for Woodland Duck Farm
- Train Deport Staging Area
- Tujunga Wash Restoration Project Phase II
- Turf Buy-Back Program
- Una Lake Wetlands Acquisition and Restoration Phase 1
- Una Lake Wetlands Acquisition and Restoration Phase 2
- Upper Malibu Creek Fasibility Study (Ridge Dam)
- Upper Newport Bay Ecological Restoration Implementation
- Upper Pier Avenue LID Retrofit
- Upper Sulphur Creek Restoration Project
- Urban, Mountains, and River Parkway, Capital Projects
- USDA Land Management Plan Pt. 1 Southern CA National Forests Vision
- USDA Land Management Plan Pt. 2 Angeles National Forest Strategy
- USEPA Multi-level Sampling - Integrated Watershed Assessment
- Valley Steam Plant Multiuse Project
- Vegetation Mapping, Wildlife Use, Recreation Opportunities in San Gabriel River Watershed
- Vincent Lugo Park Implementation Phase 1
- Vincent Lugo Park Renovation
- Walnut Creek Habitat and Open Space Acquisition Project
- Walnut Creek San Dimas Habitat and Open Space
- Walteria Lake Enhancement
- Washington Park Implementation Pasadena
- Water & Energy Efficiency Multi-Family Program
- Water Recycling Facility-Phase V Expansion
- Watershed Assessment and Planning Opportunities
- Watershed Education in Multi-Lingual Communities
- Watershed Education Outreach
- Watershed Improvement Projects – LACC
- Watts Towers Green Streets
- WCA Capital Project Implementation
- Weddington Park Expansion
- West Coast Basin Groundwater Aquifer Protection Project
- West Coast Basin Seawater Barrier Telemetry System
- West San Gabriel River Open Space Project Phase II
- West San Gabriel River Parkway Phase 3 Development
- West Valley Los Angeles River Greenway/Bikeway
- Westchester-LAX Storemwater Best Management Practices
- Westminster Dog Park Stormwater Best Management Practices
- Wetlands of the LA River Watershed Profiles and Restoration Opportunities
- Whittier Greenway Extension
- Whittier Greenway Trail Environmental Project
- Whittier Narrows Dam Recreation Area Development Plan
- Whittier Narrows Equestrian Facility
- Whittier Narrows Nature Center Ecosystem Restoration

- Whittier Narrows Water Reclamation Plant UV Disinfection Facilities
- Wilmington Drain Restoration Multiuse Project
- Wood Canyon Stream Stabilization and Restoration
- Woodland Duck Farm (Concept Design Study)
- Woodland Duck Farm Acquisition
- Wright-Romvary Properties
- Wrigley Greenbelt
- Yukon Well Field Development
- Zero-Runoff Street Median Water Conservation Program

Appendix B

Wetland Habitat Target Methodologies

This appendix provides a more detailed description of how the wetland habitat targets were determined.

To the extent possible, all wetland habitat targets were calculated in a transparent manner using quantitative data sources. Inevitably, there are limitations in the data used to calculate these targets; some of these limitations are described below. Two specific examples where future work could dramatically improve the data sources are (1) the historical extent of wetlands, and (2) the National Wetland Inventory of current wetland extent. As better data become available, the habitat targets could easily be updated to reflect these data by applying the methods described here.

Databases used

Three main databases were used as the foundation for calculating wetland habitat targets. These databases are described in the following sections.

California Protected Area Database

The California Protected Area Database (CPAD) is a mostly parcel-based data set that tracks all known parks and open space lands in the state. Land ownership categories in the CPAD include city, county, state, federal, special district, and non-profit. We used CPAD Release 1.7, from September 2011). More detailed metadata about the CPAD is available at http://www.calands.org/data.php.

CPAD may not accurately reflect private ownership. For example, CPAD does not include the majority of lands owned by agencies such as the Los Angeles County Flood Control District for the primary purpose of flood control. It would be possible to obtain a more accurate estimate of private ownership by searching ownership on a parcel-by-parcel basis; however, an effort such as this was beyond the scope of this project. To the extent that the CPAD database includes public lands, the targets for protection will be too high.

National Wetlands Inventory

Current wetland extent was determined using the National Wetlands Inventory (NWI), September 2011 release, from the USFWS. Metadata for the NWI database are available at http://www.fws.gov/wetlands/Data/metadata.html. The NWI database

reports wetland extent in acres. Although the NWI database represents the best date for wetland extent in the region, it has definite limitations. NWI data are not precise; detailed mapping would require on-the-ground mapping using a Global Positioning System (GPS). Not all wetlands are included in normal NWI mapping. NWI maps include wetlands that can be identified by experienced photointerpreters from aerial photographs, but may not include some ephemeral wetlands or other habitats that are not visually distinct from non-wetland habitats. Some of the areas in the GLAC region have been mapped using an enhanced NWI methodology. Ideally, the enhanced NWI methodology would be applied for all areas in the region, but these data were not available when the present targets were calculated.

NWI categorizes wetlands according to the Cowardin wetlands classification scheme. The classification scheme is shown in Figure 1. Note that NWI uses two high-level classifications that include marine and estuarine habitats: Estuarine and Marine Deepwater, and Estuarine and Marine Wetland. For tidal wetlands, we included all estuarine habitats, both subtidal and intertidal, which cut across both of the high-level classifications. There may be some wetland types included in estuarine habitats that would not typically be considered tidal wetlands, but these would be very minor in this region.

Rairdan (1998)

The calculation of wetland losses requires a data source with consistent data for current and historical wetland extent for the region. There are no available data for the entire region, but Rairdan (1998) presented data for all subregions except North Santa Monica Bay (NSMB). For the other four regions, losses were calculated using data layers provided by Rairdan (U.S. Army Corps of Engineers, Sacramento, CA). The historical extent was based on maps and other sources from circa 1870; current extent was in 1986. To calculate loss, the two layers for each subregion were overlaid to show the difference between the current extent and historical extent. This allowed the identification of areas that historically supported wetlands but no longer do, areas that historically supported wetlands and still do, and areas that did not historically support wetlands but currently do.

Rairdan's riverine data are presented as miles instead of acres. Arguably, miles better represent the extent of linear features such as rivers and streams, especially because the lateral extent of these systems can vary considerably from year to year and can be difficult to discern from maps. However, in order to maintain consistency with NWI data, riverine extent was converted to acres. To make this conversion, the conversion factor was calculated as the number of miles (from Rairdan's data) to acre (from the

NWI data) for the current wetland extent, and averaged across all the subregions (except NSMB, for which Rairdan had no data).

Although Rairdan's data provide a valuable resource for calculating habitat targets, there are limitations in the data. Rairdan could only include data for wetlands that were reliably mapped. Vernal pools, for example, are important in the region but not well mapped. Rairdan (1998) indicated general locations of notable vernal pool complexes but could not provide quantitative estimates of their extent.

Perhaps more importantly, Rairdan completed his analysis nearly 15 years ago and more modern, detailed historical ecology analyses can be completed today. There have been some recent historical ecology studies done in the region (e.g., Stein et al. 2007 for the San Gabriel River watershed; Dark et al. 2011 for the Ballona Creek watershed). Although these provide much more detailed information for their particular study areas, that level of detail is not available for the entire region, or even an entire subregion, and so they cannot be used to establish targets.

There are also more detailed data available for the current extent of wetlands (i.e., the most recent NWI maps). However, the current NWI maps were not used in the estimate of wetland losses because the methods used to generate these maps differed from the methods used by Rairdan. For consistency, we used Rairdan's data for both historical and current (1986) wetland extent.

The use of Rairdan's data for establishing habitat targets needs to be viewed in the context of its use. The calculation of habitat targets does not require detailed information about the extent and location of historical and current wetlands, just a reasonable estimate of the loss of different wetland typess. Rairdan's data provide a reasonable estimate of loss, as well as being the only estimate currently available for most of the region. If future studies provide more detailed estimates of loss for the entire region, the targets can be adjusted appropriately.

Protection

The target for protection of existing wetland habitat was calculated as 20 percent of the privately held wetlands.

The target is based on privately held wetlands because it was assumed that wetlands already in public or non-profit ownership are protected from destruction or degradation. This might not always be the case, but there is no database available to categorize the

level of protection for each wetland in the region. We used the CPAD to determine ownership.

Current wetland extent was determined using the National Wetlands Inventory (NWI).

To calculate the extent of existing wetlands in private ownership, the NWI and CPAD data layers were intersected in each of the five subregions. Any lands not in CPAD (that is, not city, county, state, federal, special district, or non-profit) were assumed to be private. Thus, the basis for the calculation of protection targets is acres of each wetland type in private ownership.

Enhancement

The target for the enhancement of existing wetland habitat was calculated as 25 percent of the existing wetland area.

The enhancement target was based on the current extent of existing wetlands in each region. Current extent, in acres, was provided by the NWI database. For the enhancement targets, we did not consider ownership since enhancement could be appropriate in privately or publicly owned wetlands. In addition, actual enhancement projects would only focus on degraded wetlands, but there is no regional database that characterizes the condition of all the wetlands in the region. It is believed, however, that many wetlands are moderately to severely degraded in the region, so there is no doubt much more than 25 percent of the existing wetlands could benefit from enhancement projects. Because the NWI database includes a large acreage of "lakes," many if not all of which are man-made, we did not include lakes when calculating the enhancement target.

Adjustments to the wetland extent data had to be made for USGRH and ULAR subregions because the NWI mapping did not cover the entire subregions. (Note: these adjustments were not made for the Protection targets because the adjustments were based on Angeles National Forest land, which is publically owned.)

For the USGRH subregion, 172,405 acres (96% of the Angeles National Forest area in the subregion) was mapped and 6,408 acres (4%) was not mapped. All of the subregion that was not mapped was in the mountains of the Angeles National Forest. The extent of wetlands missed in the unmapped area was estimated by calculating the fraction of the mapped area that was covered by wetlands. There were 3,398 acres of freshwater wetlands in the mapped area, indicating approximately 126 acres in the unmapped area. The 126 acres was added to the freshwater wetland extent in the subregion to get an

adjusted total extent of freshwater wetlands. There were 2,940 acres of riverine wetlands in the mapped area, indicating approximately 109 acres in the unmapped area. The 109 acres was added to the riverine wetland extent in the subregion to get an adjusted total extent of freshwater wetlands.

The adjustment for the ULAR subregion followed the same procedure, with the complication that not all of the unmapped area was mountains in the Angeles National Forest. Although we could apply the same procedure for the Angeles National Forest area, there were additional "flatlands" for which wetland extent could not be estimated. Comparing the ULAR and USGRH maps, it is apparent that the vast majority of the wetlands are in the mountainous regions, but there are some wetlands of both types (freshwater and riverine) in the flatlands. In addition, there are some mountainous areas (e.g., the hills north of Burbank and hills around the western and southern borders of the subregion) that are not part of the Angeles National Forest. Thus, our calculation of additional wetlands underestimates the true extent of wetlands in the unmapped area of the subregion. To account for this underestimate, we added 20% to the calculation based on the Angeles National Forest unmapped area. Finally, we applied the fraction of mapped area covered by wetlands from the USGRH subregion because it was based on a much larger mapped area (172,405 acres compared to 8,883 acres). This procedure resulted in estimates of an additional 2,628 acres of freshwater wetland habitat and 2,274 acres of riverine wetland habitat for the ULAR.

Restoration or Creation

The goal of wetland restoration or creation in the region is to increase the extent of functioning wetlands to partially compensate for the losses that have occurred in the past. Thus, the restoration/creation targets are based on the extent of wetland losses. Two kinds of losses are considered: (1) wetlands that were destroyed and replaced by non-wetland habitat, and (2) wetlands that were converted from natural wetland habitat to man-made wetland habitat, such as a flood control basin or a concrete lined channel. The target for the restoration or creation of wetland habitat was calculated as 10 percent of lost wetland habitat plus 10 percent of converted habitats.

The loss of wetlands was calculated using data from Rairdan (1998).

Figures 11 and 12 show the historical and current extent of wetlands for the entire region except NSMB where historical information is not available. Several regional trends are apparent. Figure 13 is reserved for the NSMB subregional map for historical wetland extent, although none is currently available. Figure 14 shows the current extent of wetlands in the NSMB subregion. Some of the greatest losses occurred in the Upper

Los Angeles River and Upper San Gabriel and Rio Hondo Rivers subregions, where extensive dry washes have been eliminated (Figures 15 through 18). There were also substantial losses of tidal wetlands in the Lower San Gabriel and Los Angeles Rivers and the South Santa Monica Bay subregions (Figures 19 through and 22). The South Bay subregion also lost a large area of depressional marsh/ephemeral lake. Note that there is no image for the North Santa Monica Bay subregion as the data for comparing historical to current extent are not available. A discussion on how the analyses and targets were set for this subregion can be found later in this section.

We used Rairdan's data to calculate the extent of natural wetlands converted to man-made wetlands. For tidal marsh, the converted wetland calculation was based on the current extent of harbors and marinas. For freshwater wetlands, the converted wetland calculation was based on the current extent of flood control basins and spreading grounds. Two man-made wetland types, constructed lake/pond and reservoir/recreational lake, were not included in the calculation of converted freshwater wetlands because they likely represent the construction of new wetland types rather than a conversion of natural wetlands. For riverine wetlands, the converted wetland calculation was based on concrete-lined channels and soft-bottom channels.

Although the wetland restoration/creation targets were generally calculated as 10 percent of the lost wetland habitat plus 10 percent of converted habitats, there are a few exceptions. On principle, the acreage was adjusted to include known large restoration projects in the late stages of planning since setting a target below current plans for the subregion did not seem useful. For example, in the South Bay, the calculated tidal marsh target was 389 acres. However, the Ballona Wetlands restoration will be approximately 400 acres (the actual acreage of the project is not yet determined), so the South Bay target was set at 400 acres. The Lower San Gabriel and Los Angeles Rivers tidal wetland target was calculated as 332 acres. A restoration project is being planned for the Los Cerritos wetland, which may match the size of the subregion's restoration target acreage. However, at this time, the project's plans are still in the early stages and there is not enough information available to quantify the project's full extent. Due to this uncertainty, the subregion's target was not adjusted to include the project.

As noted previously, Rairdan's data did not cover the NSMB subregion, so a different approach was used to calculate wetland restoration/creation targets. We describe the approaches below:

- For **tidal marsh,** the target was set at 25 acres based on the planned Malibu Lagoon restoration and other possible lagoon restoration projects, including the tidal wetland at Topanga.

- For **freshwater wetlands**, a quantitative analysis is difficult because there are no data on the loss of freshwater wetlands in the subregion. The NWI data indicate there currently are 1,152 freshwater wetlands in the subregion (excluding lakes). Although there have been no studies of impacts to freshwater wetlands in the region, Lilien (2001) conducted a comprehensive analysis of impacts to riverine wetlands in Malibu Creek watershed. It is reasonable to assume the same proportional loss of riverine and freshwater wetlands since they are mainly impacted by the same types of activities; freshwater wetlands may be slightly more likely to be impacted because they are flat areas and not located in the active stream channel, but they are not channelized, which was the dominant impact to riverine wetlands. If we assume the loss of freshwater wetlands has been equivalent to riverine wetlands, with the riverine losses determined as described below based on Lilien (2001), then we assume a loss of 25% of the original freshwater wetlands. Thus, we estimate there was originally 1,536 acres of freshwater wetlands, with a loss of 384 acres. Therefore, the target was calculated as 10% of 384 acres, or 38 acres. We did not adjust this estimate for converted habitats because Lilien included these conversions in his analysis.

- For **riverine wetlands**, there was little quantitative information on which to base the target, particularly because riverine wetlands are so extensive in the subregion. The most detailed study of impacts to riverine wetlands is the region is Lilien (2001), which provides a comprehensive assessment of impacts to riverine habitats in the Malibu Creek watershed. Lilien documented over 200 projects undertaken in the Malibu Creek watershed that impacted 54 km of riparian habitat, approximately 50% of the total length of the catchment's major tributaries. Many of the documented impacts did not destroy the affected habitat, however, since they included activities such as vegetation clearing. However, 14 channelization projects accounted for over 13 km of impacts. Other substantial impacts were caused by recreation facilities including golf course, lakes, and reservoirs, transportation projects, bank stabilization projects, and residential and commercial development. The substantial impacts documented by Lilien comprised 26.3 km of impacts, or approximately 25% of the major tributaries in the watershed. As Lilien notes, this is likely an underestimate because of limitations in the data he had available for his analysis. According to the NWI database, there are currently 590 acres of riverine habitat in the North Santa Monica Bay subregion. If we assume that habitat impacts for the Malibu Creek watershed are representative of the entire subregion, then the existing riverine habitat is 75% of the original riverine habitat in the subregion. The assumption that 25% of all existing habitat was lost may be high, since there is more development in the Malibu Creek watershed than in most other areas in the

subregion. On the other hand, Lilien identifies a number of reasons why his analysis underestimates impacts, including the fact that early impacts were not documented and he only recorded impacts along the main tributaries, whereas most of the impacts have occurred along the smaller tributaries. The impact to smaller tributaries likely overwhelms the other factors, but we have no quantitative estimate of their extent. Thus, 25% seems like the best estimate we have at the moment. Therefore, we estimate that there were originally 787 acres of riverine habitat, and 197 acres have been lost. The target we set at 10% of 197 acres, or 20 acres. We did not adjust this estimate for converted habitats because Lilien included these conversions in his analysis.

Figure 1. Classification scheme used in the National Wetlands Inventory.

WETLANDS AND DEEPWATER HABITATS CLASSIFICATION

System	Subsystem	Class	Subclass
M - Marine	1 - Subtidal	RB – Rock Bottom	1 Bedrock 2 Rubble
		UB – Unconsolidated Bottom	1 Cobble-Gravel 2 Sand 3 Mud
		AB – Aquatic Bed	1 Algal 3 Rooted Vascular
		RF – Reef	1 Coral 3 Worm
	2 - Intertidal	AB – Aquatic Bed	1 Algal 3 Rooted Vascular
		RF – Reef	1 Coral 3 Worm
		RS – Rocky Shore	1 Bedrock 2 Rubble
		US – Unconsolidated Shore	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic

System	Subsystem	Class	Subclass
E - Estuarine	1 - Subtidal	RB – Rock Bottom	1 Bedrock 2 Rubble
		UB – Unconsolidated Bottom	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
		AB – Aquatic Bed	1 Algal 3 Rooted Vascular 4 Floating Vascular
		RF – Reef	2 Mollusk 3 Worm
	2 - Intertidal	AB – Aquatic Bed	1 Algal 3 Rooted Vascular 4 Floating Vascular
		RF – Reef	2 Mollusk 3 Worm
		SB – Streambed	1 Bedrock 2 Rubble 3 Cobble-Gravel 4 Sand 5 Mud 6 Organic
		RS – Rocky Shore	1 Bedrock 2 Rubble
		US – Unconsolidated Shore	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
		EM – Emergent	1 Persistent 2 Non-persistent 5 *Phragmites australis*
		SS – Scrub-Shrub	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen
		FO – Forested	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen

System	Subsystem	Class	Subclass
R - Riverine	1 - Tidal	RB** – Rock Bottom	1 Bedrock 2 Rubble
		UB – Unconsolidated Bottom	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
		SB** – Streambed	1 Bedrock 2 Rubble 3 Cobble-Gravel 4 Sand 5 Mud 6 Organic 7 Vegetated
		AB – Aquatic Bed	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular
		RS – Rocky Shore	1 Bedrock 2 Rubble
		US – Unconsolidated Shore	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated
		EM – Emergent	2 Nonpersistent
	2 – Lower Perennial		
	3 – Upper Perennial		
	4* - Intermittent		
	5* – Unknown Perennial		

* **Intermittent** is limited to the **Streambed** Class;
Unknown Perennial is limited to **Unconsolidated Bottom** Class code **R5UB** only
** **Rock Bottom** is not permitted for the **Lower Perennial** Subsystem;
Streambed is limited to **Tidal** and **Intermittent** Subsystems

Table 1. Values used for the calculation of wetland habitat targets for the North Santa Monica Bay subregion.

Target for Protection or Preservation:	Current Extent of Privately Held Areas	Calculated Target			Target	Basis
Tidal Wetland (acres)	2	0			0	20% of privately held habitat, NWI and GPAD data
Freshwater Wetland (acres)	840	168			168	20% of privately held habitat
Riverine (acres)	262	52			52	20% of privately held habitat.
Targets for Enhancement	Current Extent	Calculated Target			Target	Basis
Tidal Wetland (acres)	38	9			9	25% of existing habitat, NWI data
Freshwater Wetland (acres)	1152	288			288	25% of existing freshwater wetlands minus lakes, NWI data
Riparian (riverine)(acres)	590	147			147	25% of existing riverine habitat.
Targets for Restoration or Creation	Loss	Calculated Target	Previously Converted Wetland	Calculated Target based on Converted Wetland	Target	Basis
Tidal Wetland (acres)	0	0			25	General target is 10% of lost tidal marsh, but in the absence of this information the target is based on the planned Malibu Lagoon restoration and other possible lagoon restoration projects
Freshwater Wetland (acres)	384	38	0	0	38	General target is 10% of depressional wetland and ephemeral lake and pond (data do not include historical extent of vernal pools), but in the absence of that information, using an estimate of 384 acres of freshwater wetland habitat lost based on Lilien (2001)'s estimate of riverine wetland loss.
Depressional marsh	NA	NA			NA	
Ephemeral lake/pond	NA	NA			NA	
Riparian (riverine)(acres)	197	20	0	0	20	General target is 10% of lost braided, upper and lower riverine and dry wash, but in the absence of that information, using an estimate of 190 acre of riverine habitat lost based on Lilien (2001).
Braided lower riverine (acres)	NA	NA			NA	
Lower riverine (acres)	NA	NA			NA	
Upper riverine (acres)	NA	NA			NA	
Dry wash (acres)	NA	NA			NA	

Table 2. Values used for the calculation of wetland habitat targets for the Upper Los Angeles River subregion.

Target for Protection or Preservation:	Current Extent of Privately Held Areas	Calculated Target			Target	Basis
Tidal Wetland (acres)	0	0			0	20% of privately held habitat
Freshwater Wetland (acres)	569	114			114	20% of privately held habitat
Riverine (acres)	342	68			68	20% of privately held habitat.
Targets for Enhancement	Current Extent	Calculated Target			Target	Basis
Tidal Wetland (acres)	0	0			0	25% of existing habitat, NWI data
Freshwater Wetland (acres)	3262	816			816	25% of existing freshwater wetlands minus lakes, NWI data adjusted to account for the area not mapped
Riparian (riverine)(acres)	2815	704			704	General target is 25% of existing riverine habitat adjusted to account for the area not mapped
Targets for Restoration or Creation	Loss	Calculated Target	Previously Converted Wetland	Calculated Target based on Converted Wetland	Target	Basis
Tidal Wetland (acres)	0	0	0	0	0	10% of lost tidal marsh
Freshwater Wetland (acres)	15	1	2440	244	245	10% of depressional wetland and ephemeral lake and pond. Note the this does not include historical extent of vernal pools. Plus 10% of previously converted wetland.
Depressional marsh	15	1			1	
Ephemeral lake/pond	0	0			0	
Riparian (riverine)(acres)	7507	751	833	83	834	10% of lost braided, upper and lower riverine and dry wash, plus 10% of previously converted wetland. Used conversion factor to convert from miles to acres for riverine habitats.
Braided lower riverine (acres)	50	5			5	
Lower riverine (acres)	505	50			50	
Upper riverine (acres)	303	30			30	
Dry wash (acres)	6650	665			665	

Table 3. Values used for the calculation of wetland habitat targets for the Upper San Gabriel and Rio Hondo subregion.

Target for Protection or Preservation:	Current Extent of Privately Held Areas	Calculated Target			Target	Basis
Tidal Wetland (acres)	0	0			0	20% of privately held habitat
Freshwater Wetland (acres)	2121	424			424	20% of privately held habitat
Riverine (acres)	1376	275			275	20% of privately held habitat.
Targets for Enhancement	Current Extent	Calculated Target			Target	Basis
Tidal Wetland (acres)	0	0			0	25% of existing habitat, NWI data
Freshwater Wetland (acres)	4981	1245			1245	25% of existing freshwater wetlands minus lakes, NWI data adjusted to account for the Angeles National Forest area not mapped
Riparian (riverine)(acres)	4716	1179			1179	25% of existing riverine habitat, NWI data adjusted to account for the Angeles National Forest area not mapped
Targets for Restoration or Creation	Loss	Calculated Target	Previously Converted Wetland	Calculated Target based on Converted Wetland	Target	Basis
Tidal Wetland (acres)	0	0	0	0	0	10% of lost tidal marsh
Freshwater Wetland (acres)	17	2	2002	200	202	10% of depressional wetland and ephemeral lake and pond. Note the this does not include historical extent of vernal pools. Plus 10% of previously converted wetland.
Depressional marsh	0	0			0	
Ephemeral lake/pond	17	2			2	
Riparian (riverine)(acres)	8080	808	757	76	884	10% of lost braided, upper and lower riverine and dry wash. Plus 10% of previously converted wetland. Used conversion factor to convert from miles to acres.
Braided lower riverine (acres)	3	0			0	
Lower riverine (acres)	414	41			41	
Upper riverine (acres)	139	14			14	
Dry wash (acres)	7525	752			752	

Table 4. Values used for the calculation of wetland habitat targets for the Lower San Gabriel and Los Angeles River subregion.

Target for Protection or Preservation:	Current Extent of Privately Held Areas	Calculated Target			Target	Basis
Tidal Wetland (acres)	557	111			111	20% of privately held habitat, NWI and GPAD data
Freshwater Wetland (acres)	1200	240			240	20% of privately held habitat, NWI and GPAD data
Riverine (acres)	1686	337			337	20% of privately held habitat, NWI and GPAD data
Targets for Enhancement	Current Extent	Calculated Target			Target	Basis
Tidal Wetland (acres)	659	165			165	25% of existing habitat, NWI data
Freshwater Wetland (acres)	1711	428			428	25% of existing freshwater wetlands minus lakes, NWI data
Riparian (riverine)(acres)	1901	475			475	25% of existing riverine habitat, NWI data
Targets for Restoration or Creation	Loss	Calculated Target based on Loss	Previously Converted Wetland	Calculated Target based on Converted Wetland	Target	Basis
Tidal Wetland (acres)	2885	289	439	44	332	10% of lost tidal habitat. Plus 10% of previously converted wetland. (Note: Los Cerritos restoration may be about this area.)
Freshwater Wetland (acres)	357	36	2524	252	288	10% of depressional wetland and ephemeral lake and pond. Note the this does not include historical extent of vernal pools. Plus 10% of previously converted wetland.
Depressional marsh	0	0			0	
Ephemeral lake/pond	357	36			36	
Riparian (riverine)(acres)	2576	258	730	73	331	10% of lost braided, upper and lower riverine and dry wash. Plus 10% of previously converted wetland. Used conversion factor to change miles to acres for riverine habitats.
Braided lower riverine (acres)	156	16			16	
Lower riverine (acres)	638	64			64	
Upper riverine (acres)	80	8			8	
Dry wash (acres)	1703	170			170	

Table 5. Values used for the calculation of wetland habitat targets for the South Santa Monica Bay subregion.

Preservation:	Privately Held Areas	Target			Target	Basis
Tidal Wetland (acres)	491	98			98	20% of privately held habitat
Freshwater Wetland (acres)	309	62			62	20% of privately held habitat
Riverine (acres)	322	64			64	20% of privately held habitat.
Targets for Enhancement	Current Extent	Calculated Target			Target	Basis
Tidal Wetland (acres)	634	158			158	25% of existing habitat, NWI data
Freshwater Wetland (acres)	1057	264			264	25% of existing freshwater wetlands minus lakes, NWI data
Riparian (riverine)(acres)	575	144			144	25% of existing riverine habitat.
Targets for Restoration or Creation	Loss	Calculated Target	Previously Converted Wetland	Calculated Target based on Converted Wetland	Target	Basis
Tidal Wetland (acres)	3285	328	610	61	400	Target based on Ballona Wetlands restoration plan (approximately 400 ac). 10% of depressional wetland and ephemeral lake and pond. Note the this does not include historical extent of vernal pools. Plus 10% of previously converted wetland.
Freshwater Wetland (acres)	2813	281	0	0	281	
Depressional marsh	1243	124			124	
Ephemeral lake/pond	1571	157			157	
Riparian (riverine)(acres)	1175	118	288	29	146	10% of lost braided, upper and lower riverine and dry wash. Plus 10% of previously converted wetland. Used conversion factor to convert from miles to acres for riverine habitats and dry wash.
Braided lower riverine (acres)	0	0			0	
Lower riverine (acres)	448	45			45	
Upper riverine (acres)	409	41			41	
Dry wash (acres)	318	32			32	

Appendix C

Upland Habitat Target Methodology

For purposes of this plan, the targets for upland habitat acquisition and/or restoration were created for the following characteristics:

- *Buffers and Buffer Zones* are 50- to 300-foot wide areas adjoining a wetland, channel, or upland linkage or wildlife corridor that is in a natural or semi-natural state. For wetland and riparian systems, a buffer is to provide a variety of other functions including to maintain or improve water quality by trapping and removing various non-point source pollutants from both overland and shallow subsurface flows, to provide erosion control and water temperature control, to reduce flood peaks, and to serve as groundwater recharge points and habitat. Buffer zones occur in a variety of forms, including herbaceous or grassy areas, grassed waterways, or forested riparian buffer strips. They also may provide for limited passive recreation.
- *Wildlife Corridors or Linkages* are wide areas of native vegetation that connect or have the potential to connect two or more large patches of habitat on a landscape or regional scale through which a species will likely move over time. The move may be multi-generational; therefore, a linkage should provide both wildlife connectivity and biological diversity. A Wildlife Linkage should be a minimum of 1,000 feet in width, be vegetated with native vegetation, and have little or no human intrusion. The goal is to ensure north-south and east-west linkages to mitigate for climate change.

Appendix D

Recreation Target Methodology

Park and Recreation Areas / Greenways: The methodological basis for recreation targets focuses on defining and identifying underserved communities where the supply of recreation opportunities does not meet demand based on community standards.

Los Angeles County and each of the 90 cities within the GLAC Region is required to have a General Plan. Recreation services may be addressed in the mandatory Conservation and Open Space element of a General Plan, in a discretionary Parks and Recreation element of a General Plan, or through a Parks Master Plan that may be referenced in the General Plan or as a stand-alone policy. On average, most municipalities within the entire GLAC Region use a standard of 4 acres of parkland per 1,000 population for providing neighborhood and community parks that offer both active and passive recreation opportunities. The Los Angeles County General Plan reflects this goal. These standards accommodate the needs of a local population and therefore can be considered on a subregional basis. Often these standards are complemented with a proximity goal of a park being within a ¼ to ½ mile radius of all residents. Not meeting one or both of these standards is often the definition of "underserved communities" from a parkland provision perspective.

There are no specific park standards related to Greenways, as these are generally opportunistic based on a linear landscape setting typically along creeks, major transportation corridors, or utility corridors. Greenways, while they can provide habitat linkages, also can provide for active and passive recreation serving may of the the same functions as neighborhood and community parks.

Open Space Areas: Most cities do not have standards for open space lands that afford passive recreation opportunities. The Los Angeles County General Plan cites a standard ratio of 6 acres per 1,000 people for regional parks and open space lands that would principally offer passive outdoor recreation and environmental education opportunities. These standards accommodate the needs of a regional population and therefore should only be evaluated on a regional basis not limited by subregional boundaries. Distance and time to get to these recreation resources is used as a determinant of need. These open space lands could be portions of the regional park system, open space preserves, state parks, or U.S. Forest Service lands and could include lands surrounding planned County trail routes..

One key to the usability of open space for outdoor recreation is accessibility. Studies of use in open space areas[1] have shown that approximately 90% of visitors arrive by automobile while approximately 10% come by alternative transport modes (walking, bicycling, jogging or on horseback).

Accessibility, in terms of distance and time it takes to access a regional open space area directly relates to its level of use. Living closer to an open space recreation opportunity means that opportunity to enjoy its benefits is more likely to be used. Proximity to an open space area starting at about 1 mile up to a distance of about 10 miles is fairly proportional to a decrease in visitor frequency. Visitation reaches its lowest levels at approximately 22 miles where travel becomes problematic for most recreationists. This limiting distance pattern is reflected in Los Angeles County's service areas for Community Regional Parks (20 miles) and Regional Parks (25 miles).

[1] USC Sustainable Cities Program and the National Park Service. Santa Monica Mountains National Recreation Area Recreational Trail Use Survey. March, 2003.

Appendix E

Existing Park, Recreation, and Open Space Areas

The following tables indicate how all public park and open space lands within the GLAC region may be divided into the following categories:

- **Developed Urban Park and Recreation Areas – including public lands**
- **Open Space:** Generally any parcel that is essentially unimproved and devoted to an open space use for the purposes of the preservation of natural resources and provides passive outdoor recreation opportunities. These parcels may include developed parking/staging areas and include trail systems and minor visitor amenity features within them. There are two types of open space areas identified as there is a relationship between these and IRWMP targets for habitat.
  - **Beach / Estuary:** Low lying habitat areas of the GLAC region
  - **Riparian/Upland /Wetland:** All other open space areas including riparian and upland habitats.
- **Other – Miscellaneous:** A variety of other public lands such as museums, cemeteries, historic sites, demonstration gardens, and amphitheaters, that while they are important cultural facilities do not necessarily contribute to the park and open space lands that provide for traditional outdoor recreation and open space needs identified through community standards.
- **Other – US Forest Service:** Lands owned by the United States that provide open space and passive recreation opportunities, among other functions.
- **Greenway:** Linear open spaces established along a corridor, such as a river, and that provide habitat, recreation, or alternative transportation benefits.

The purpose of these tables is to determine an overall projection of lands within each category available to public use for active and passive recreation purposes.

In reviewing the tables, it should be noted that the data base uses Assessor Parcel information. Therefore, there may be more than one data entry for an individual park or open space area.

Generally if the name of the unit included the term “Open Space” or “Resource Parkland” it was categorized as open space. Many regional parks were evaluated using internet based photo and map imagery to estimate a percentage of “developed urban” vs. “open space lands” contained within that unit. That unit was then prorated appropriately.

Information on the parcels identified was obtained from the California Protected Area Database (GreenInfo Network) also known as CPAD. Detailed information about the data set can be found at:

http://www.calands.org/

The data set is created at the parcel level (whenever possible), meaning many parks are represented my many polygons. Parks that cross major jurisdictional lines are also split into multiple pieces. The data set is highly accurate, but is ever-evolving as more review and comment are provided. Additions, corrections and edits are welcome and can be submitted in a variety of formats, see the frequently asked questions section. All edits may not be responded to immediately, as they depending on available funding.

CPAD data is used at a number of web sites. Most of the lands identified in the tables that follow, and their boundaries, may be seen by entering the park name at the following web page.

http://www.parkinfo.org/

Greater Los Angeles County IRWMP
Habitat, Open Space & Recreation Plan
South Bay Watersheds: Park, Recreation and Open Space Areas

CPAD ID	NAME	ACRES	ACRES					
			Developed Park and Recreation	Open Space Resource Area		Greenway	Oher	
				Riparian/Uplan	Beach /		MISC	USFS
5865	Robert E. Ryan Community Park	10.13	10.13					
5866	Los Verdes Golf Course	162.79	162.79					
5867	Shoreline Park	52.17						
5868	Frank A. Vanderlip Sr. Park	4.75	4.75					
5869	Abalone Cove Shoreline Park	77.58						
5870	Abalone Cove Shoreline Archery Range	44.91					44.91	
5873	Forrestal Nature Preserve	157.92		157.92				
5874	Ladera Linda Park and Community Center	30.73	30.73					
5875	Portuguese Bend Nature Preserve	399.60		399.60				
5876	Del Cerro Park	21.40	21.40					
5877	Barkentine Canyon Preserve	98.33		98.33				
5878	George F Canyon Nature Park and Preserve	33.30		33.30				
5879	South Coast Botanic Garden	81.75					81.75	
5880	Grandview Park	17.27	17.27					
5881	Leland Park	5.14	5.14					
5882	Bandini Canyon Park	3.94	3.94					
5885	Peck Park and Community Center	75.04	75.04					
5886	Leland Park	9.04	9.04					
5887	Rena Park	1.27	1.27					
5888	Harbor Highlands Park	3.16	3.16					
5889	John S. Gibson Jr. Park	3.31	3.31					
5890	San Pedro Plaza Park	1.71	1.71					
5891	Daniels Field Sports Center	3.62	3.62					
5892	Alma Park	2.26	2.26					
5893	Averill Park	10.75	10.75					
5894	Anderson Playground and Senior Citizen Center	1.62	1.62					
5897	San Pedro Plaza Park	1.40	1.40					
5898	Oceanfront Estates Open Space	66.94						
5899	Point Vicente Park and Civic Center	99.06	99.06					
5900	Point Vicente Lighthouse	20.51		20.51				
5901	Point Vicente Fishing Access	10.02		10.02				
5902	Ladera Linda Park and Community Center	5.26	5.26					
5903	Switchbacks Open Space	94.44		94.44				
5904	Miraleste Open Space	42.91		42.91				
5905	Palos Verdes Reservoir	62.65		62.65				
5906	George F Canyon Nature Park and Preserve	0.34		0.34				
5911	Dapplegray Park	1.47	1.47					
5912	Linden H. Chandler Preserve	19.64		19.64				
5913	Linden H. Chandler Preserve - RHE	6.96	6.96					
5914	Unknown - Westfield Recreation and Park District	0.65	0.65					
5915	Unknown - Westfield Recreation and Park District	0.46	0.46					
5916	Ernie Howlett Park	34.41		34.41				
5917	South Coast Park/Peter Weber Equestrian Center	141.26						
5918	South Coast Park/former Palos Verdes Landfill site	30.44						
5919	Chandler Park and City Hall	5.82	5.82					
5920	Rockbluff Park	1.70	1.70					
5923	Silver Spur Park	0.40	0.40					
5924	Highridge Park	10.67	10.67					
5925	Palos Verdes Estates City Hall and Parkland	1.72	1.72					
5926	Ridgecrest Ranchos Open Space	1.21	1.21					
5927	Wallace Ranch Park	0.69	0.69					
5928	McKay Property Open Space - RPV	2.03	2.03					
5929	McKay Property Open Space - RHE	1.12	1.12					
5934	Palos Verdes Golf Club and City Parkland	211.29	211.29					
5935	Palos Verdes Estates Stable and City Parkland	20.81	20.81					
5936	Rolling Hills City Parkland	8.20	8.20					
5937	Martingale Trailhead Park	0.97	0.97					

Greater Los Angeles County IRWMP
Habitat, Open Space & Recreation Plan
South Bay Watersheds: Park, Recreation and Open Space Areas

CPAD ID	NAME	ACRES	ACRES					
			Developed Park and Recreation	Open Space Resource Area		Greenway	Oher	
				Riparian/Uplan	Beach /		MISC	USFS
78	El Marino Park	1.65	1.65					
617	Fox Hills Park	10.00	10.00					
625	Fox Hills Parkette	0.13	0.13					
788	Baldwin Hills Recreation Center	6.87	6.87					
908	Genesee Avenue Park	5.85	5.85					
1230	Greystone Park	18.85	18.85					
1365	Hancock Park	23.11	23.11					
1424	Harold A. Henry Park	2.08	2.08					
1485	Harvard Recreation Center	12.85	12.85					
1713	Barnsdall Park	14.29	14.29					
1857	Barrington Recreation Center	4.97	4.97					
1893	Hollywood Franklin Park	1.44	1.44					
1902	Hollywood Recreation Center	1.29	1.29					
1906	Holmby Park	8.52	8.52					
1924	Hoover Recreation Center	2.48	2.48					
1976	Hotchkiss Park	2.08	2.08					
2316	Irving Schachter Park	1.80	1.80					
2357	Ivy Substation and Media Park	1.71	1.71					
2576	Joslyn Park	2.30	2.30					
2850	Ocean View Park	5.77	5.77					
3031	La Ballona Playground	3.24	3.24					
3065	La Cienega Park	19.04	19.04					
3260	Lafayette Park	9.08	9.08					
3422	Lake Hollywood	0.16	0.16					
3659	Las Casas - Grenola	0.19	0.19					
3898	Leimert Park	1.26	1.26					
3924	Lemon Grove Recreation Center	3.53	3.53					
3982	Bellevue Park	9.11	9.11					
4016	Leslie N. Shaw Park	0.75	0.75					
4206	Lindberg Park	4.17	4.17					
4230	Linwood E. Howe Playground	2.34	2.34					
4585	Beverly Gardens Park	50.41	50.41					
4699	Loren Miller Park	2.49	2.49					
4709	Los Amigos Park	2.42	2.42					
4724	Los Angeles High Memorial Park	2.83	2.83					
4928	MacArthur Park	31.72	31.72					
5098	Mar Vista Gardens	3.13	3.13					
5100	Mar Vista Recreation Center	19.06	19.06					
5125	Marine Park	6.91	6.91					
5154	Martin Luther King Jr Park	2.40	2.40					
5165	Maxella Parkette	0.05	0.05					
5384	Blanco Park	2.75	2.75					
5468	King Harbor Open Space	3.80	3.80					
5469	Will Rogers State Beach	84.47			84.47			
5525	Mount Carmel Park	0.98	0.98					
5598	National Mini Park	0.10	0.10					
5717	Memorial Park	10.31	10.31					
5746	Palms Park	2.70	2.70					
5819	Veterans Park	11.23	11.23					
5829	Westside Neighborhood Park	4.64	4.64					
5833	Normandie Playground	3.27	3.27					
5857	Cherry Hill Lots	3.17	3.17					
5858	Palos Verdes Estates City Parkland	413.11		413.11				
5861	Palos Verdes Shoreline Preserve	87.56		87.56				
5862	Agua Armaga Canyon Open Space	40.29		40.29				
5863	Fred Hesse Jr. Community Park	28.72	28.72					
5864	Lunada Canyon Preserve	20.72		20.72				

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CPAD ID	NAME	ACRES	ACRES					
			Developed Park and Recreation	Open Space Resource Area		Greenway	Oher	
				Riparian/Uplan	Beach /		MISC	USFS
10534	Roxbury Park	11.90	11.90					
10696	Saint James Park	0.90	0.90					
11894	Schwartz Property	0.26	0.26					
12149	Benny H. Potter West Adams Avenues Memorial Park	2.26	2.26					
12443	Shatto Recreation Center	5.45	5.45					
12455	Los Angeles DWP	165.39		165.39				
12456	Los Angeles DWP	0.28		0.28				
12457	Los Angeles DWP	7.28		7.28				
12459	Los Angeles DWP	3.83		3.83				
12460	Los Angeles DWP	15.78		15.78				
12461	Los Angeles DWP	0.24		0.24				
12462	Los Angeles DWP	0.78		0.78				
12463	Los Angeles DWP	0.41		0.41				
12465	Los Angeles DWP	0.26		0.26				
12466	Los Angeles DWP	0.13		0.13				
12500	Mountains Restoration Trust Parkland	18.07		18.07				
12578	Redondo Beach Open Space	1.33		1.33				
12659	Silver Lake Recreation Center	0.88	0.88					
12660	Silver Lake Reservoir	126.57	126.57					
12701	Los Angeles City Water Resource Parkland	3.17	3.17					
12704	Sepulveda Canyon MWD site	19.59		19.59				
12806	Los Angeles City Water Resource Parkland	0.10	0.10					
12807	Los Angeles City Water Resource Parkland	0.74	0.74					
12808	Los Angeles City Water Resource Parkland	0.61	0.61					
12809	Los Angeles City Water Resource Parkland	0.16	0.16					
12810	Los Angeles City Water Resource Parkland	0.34	0.34					
12811	Los Angeles City Water Resource Parkland	1.17	1.17					
12814	Los Angeles City Water Resource Parkland	0.38	0.38					
12815	Los Angeles City Water Resource Parkland	4.40	4.40					
12820	Los Angeles City Water Resource Parkland	0.76	0.76					
12821	Los Angeles City Water Resource Parkland	0.00	0.00					
13038	Santa Monica State Beach	20.21			20.21			
14109	38th & Normandie Park	0.22	0.22					
14169	Carl E. Nielson Youth Park	9.91	9.91					
14280	Carlson Park	2.44	2.44					
14508	Stoner Recreation Center	8.66	8.66					
14626	Syd Kronenthal Park	6.11	6.11					
14689	Tellefson Park	1.30	1.30					
14713	Terrace Park	0.91	0.91					
14768	Toberman Playground	2.74	2.74					
14790	Topanga County Beach	3.54			3.54			
14833	Trinity Recreation Center	2.23	2.23					
14970	Van Ness Recreation Center	5.28	5.28					
15009	Vermont Square	3.66	3.66					
15079	Vineyard Recreation Center	1.06	1.06					
15098	Virginia Avenue Park	5.56	5.56					
15153	Central Recreation Center	1.65	1.65					
15253	West Hollywood Park	4.76	4.76					
15279	Westchester Golf Course	90.22	90.22					
15287	Westchester Recreation Center	27.51	27.51					
15323	Westwood Park	26.70	26.70					
15378	Will Rogers Memorial Park	3.95	3.95					
15454	Woodbine Park	1.16	1.16					
15687	Chesterfield Square	1.89	1.89					
15706	Cheviot Hills Park and Recreation Center	51.88	51.88					
16763	Almar Plaza	0.19	0.19					
17486	48th Street & 8th Avenue Park	0.19	0.19					

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			Developed Park and Recreation	Open Space Resource Area		Greenway	Oher	
				Riparian/Uplan	Beach /		MISC	USFS
6909	Runyon Canyon Park	133.10		133.10				
6912	Wattles Garden Park	47.58	47.58					
6913	Griffith Park	1,411.29		1,411.29				
7127	Beverly Glen East Open Space	0.06		0.06				
7128	Beverly Glen East Open Space	0.06		0.06				
7129	Beverly Glen East Open Space	0.12		0.12				
7130	Beverly Glen East Open Space	0.12		0.12				
7131	Beverly Glen East Open Space	0.11		0.11				
7132	Beverly Hills City Parkland	2.67		2.67				
7157	Los Angeles City Water Resource Parkland	42.13		42.13				
7160	Los Angeles City Water Resource Parkland	1.32		1.32				
7161	Los Angeles City Water Resource Parkland	3.38		3.38				
7162	Sepulveda Pass Open Space	2.12		2.12				
7167	City of Torrance Open Space	4.28		4.28				
7168	City of Torrance Open Space	2.93		2.93				
7169	City of Torrance Open Space	2.02		2.02				
7170	City of Torrance Open Space	1.14		1.14				
7171	City of Torrance Open Space	6.30		6.30				
7174	City of Torrance Open Space	6.86		6.86				
7175	City of Torrance Open Space	0.42		0.42				
7176	City of Torrance Open Space	11.20		11.20				
7177	City of Torrance Open Space	10.93		10.93				
7178	City of Torrance Open Space	1.09		1.09				
7179	City of Torrance Open Space	0.33		0.33				
7180	City of Torrance Open Space	0.19		0.19				
7181	City of Torrance Open Space	0.56		0.56				
7182	City of Torrance Open Space	0.06		0.06				
7183	City of Torrance Open Space	0.74		0.74				
7186	City of Torrance Open Space	2.91		2.91				
7187	City of Torrance Open Space	0.30		0.30				
7188	City of Torrance Open Space	0.22		0.22				
7189	City of Torrance Open Space	1.82		1.82				
7190	City of Torrance Open Space	1.88		1.88				
7192	City of Torrance Open Space	0.54		0.54				
7193	City of Torrance Open Space	0.59		0.59				
7194	City of Torrance Open Space	1.66		1.66				
7195	City of Torrance Open Space	1.56		1.56				
7198	City of Torrance Open Space	0.72		0.72				
7199	City of Torrance Open Space	11.80		11.80				
7397	Ozone Park	0.90	0.90					
7440	Paddle Tennis Park	1.56	1.56					
7461	Palisades Park	43.18	43.18					
7622	Pan Pacific Park	26.19	26.19					
7705	76th Street Circle Park 1	0.22	0.22					
7716	76th Street Circle Park 2	0.22	0.22					
7743	Degnan Triangle Park	0.34	0.34					
7771	Saint Charles Place Park	1.59	1.59					
7814	Stocker Plaza Park	0.50	0.50					
8469	Pico Union Park	0.38	0.38					
8660	Plummer Park	7.16	7.16					
8705	Poinsettia Recreation Center	6.29	6.29					
9240	Queen Anne Recreation Center	5.64	5.64					
9393	Rancho Cienega Sports Center Park	20.67	20.67					
9710	Reed Park	4.41	4.41					
9855	Reynier Park	1.48	1.48					
10171	Robert L. Burns Park	1.68	1.68					
10207	Robertson Recreation Center	1.24	1.24					

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			Developed Park and Recreation	Open Space Resource Area		Greenway	Oher	
				Riparian/Uplan	Beach /		MISC	USFS
6363	L.A. County Sanitation District Open Space	1,887.60		1,887.60				
6365	San Vicente Mountain Park	6.00		6.00				
6368	Mission Canyon Open Space	479.93		479.93				
6369	Getty View Park & Trailhead	180.06		180.06				
6370	Sepulveda Pass Open Space	152.92		152.92				
6371	Westridge-Canyonback Wilderness Park of LA	20.37		20.37				
6375	Mandeville East Open Space	4.14		4.14				
6376	Mandeville Open Space	134.85		134.85				
6377	Hilton Open Space	105.17		105.17				
6378	Sullivan Canyon Creek & Dam	10.69		10.69				
6379	Kenter Canyon - Getty Open Space	26.13		26.13				
6380	Hilton Open Space	30.83		30.83				
6381	Kenter Canyon Open Space of LA	0.38		0.38				
6383	Mandeville Canyon Open Space	0.92		0.92				
6384	Crestwood Hills Park	15.95		15.95				
6390	Beverly Glen East Open Space	0.11		0.11				
6391	Benedict Canyon - James Open Space	0.06		0.06				
6392	Stone Canyon Reservoir & Watershed	764.18		764.18				
6393	Hilton Open Space	67.60		67.60				
6394	Beverly Glen Park	86.79		86.79				
6397	Benedict Canyon Open Space	1.07		1.07				
6398	Benedict Canyon - James Open Space	10.03		10.03				
6399	Sheila Agnes Nature Preserve	37.07						
6402	Briarwood Park	10.72	10.72					
6416	Topanga State Park	6,913.00		6,913.00				
6631	Admiral Kidd Park	8.70	8.70					
6632	Hudson Park	9.94	9.94					
6675	Culver Boulevard Median Bicycle Path	3.07				3.07		
6688	Culver Boulevard Median Bicycle Path	11.01				11.01		
6860	Fryman Canyon Park	1.68		1.68				
6862	Coldwater Canyon Park	0.64		0.64				
6863	Franklin Canyon Park	23.90		23.90				
6865	Beverly Park Estates Open Space	0.07		0.07				
6877	Franklin Canyon Park	448.67		448.67				
6878	Franklin Canyon Park	121.35		121.35				
6880	Hargrave Drive MRCA Open Space	0.22		0.22				
6881	Griffith Park MRCA Open Space	2.69		2.69				
6882	Lake Hollywood MRCA Open Space	0.33		0.33				
6883	Trebek Donation MRCA Open Space	81.98		81.98				
6884	Briar Summit Open Space Preserve	52.55		52.55				
6885	Oakden - Laurel Canyon MRCA Open Space	0.04		0.04				
6888	Elrita Bowl MRCA Open Space	4.29		4.29				
6889	Tenet MRCA Open Space	0.12		0.12				
6890	Woodstock Donation MRCA Open Space	0.19		0.19				
6893	Castilian MRCA Open Space	0.27		0.27				
6894	Hillpark MRCA Open Space	20.83		20.83				
6896	Runyon Canyon Park	1.11		1.11				
6897	Thrasher Avenue MRCA Open Space	10.32		10.32				
6900	Lakeridge Place Open Space	0.46		0.46				
6901	Mulholland Adjacent Open Space	0.28		0.28				
6902	Elrita Bowl Adjacent Open Space	0.26		0.26				
6903	Elrita Bowl Adjacent 2 Open Space	0.17		0.17				
6904	Cahuenga Pass - Reeds/Farris Open Space	0.45		0.45				
6905	Laurel Canyon Park	23.44		23.44				
6906	John Anson Ford Amphitheatre and County Parkland	31.59		31.59				
6907	Hollywood Bowl and County Parkland	72.14					72.14	
6908	Lake Hollywood Reservoir	223.43		223.43				

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CPAD ID	NAME	ACRES	ACRES					
			Developed Park and Recreation	Open Space Resource Area		Greenway	Oher	
				Riparian/Uplan	Beach /		MISC	USFS
6289	North Park	2.31	2.31					
6290	Rogers Park	12.79	12.79					
6291	Ashwood Park	1.66	1.66					
6292	Queen Park	1.18	1.18					
6293	Siminski Park	1.96	1.96					
6296	Ladera Park	14.40	14.40					
6297	Kenneth Hahn State Recreation Area	306.73		306.73				
6298	Kenneth Hahn State Recreation Area	21.72	21.72					
6299	Kenneth Hahn State Recreation Area	30.86	30.86					
6300	Ruben Ingold Park	2.37	2.37					
6301	Norman O. Houston Park	9.52	9.52					
6302	Jim Gilliam Recreation Center	17.62	17.62					
6303	Culver City Park	38.58	38.58					
6304	Kenneth Hahn State Recreation Area	20.82	20.82					
6305	Blair Hills Park	1.80	1.80					
6308	Kenneth Hahn State Recreation Area	102.86		102.86				
6311	Los Angeles/El Segundo Dunes ESHA	253.23						
6312	Vista Del Mar Park	0.84	0.84					
6313	park name unknown	0.15	0.15					
6314	Del Rey Lagoon Park	10.99	10.99					
6315	Ballona Wetlands Ecological Reserve	567.70		567.70				
6316	Ballona Creek & Bike Path	11.16				11.16		
6317	Titmouse Park	0.29	0.29					
6319	Ballona Lagoon Marine Preserve	12.36			12.36			
6320	Marina Beach	9.68			9.68			
6321	Marina del Rey pocket park	0.29	0.29					
6323	Aubrey E. Austin Jr. Park and North Jetty	0.97	0.97					
6324	Venice City Beach	122.46			122.46			
6325	Dockweiler State Beach	4.73	4.73					
6326	Westminster Dog Park	2.25	2.25					
6327	Canal Park	0.13	0.13					
6328	Admiralty Park	9.41	9.41					
6331	Burton W. Chace Park	7.37	7.37					
6332	Oakwood Recreation Center	3.59	3.59					
6333	Glen Alla Park	4.82	4.82					
6334	Penmar Golf Course	45.27	45.27					
6335	Penmar Recreation Center	12.21	12.21					
6336	Triangle Park	0.06	0.06					
6337	Santa Monica State Beach	5.97			5.97			
6338	Santa Monica State Beach	2.35			2.35			
6339	Palisades Park	34.83	34.83					
6342	Asilomar Park	1.43	1.43					
6343	Temescal Canyon Park	37.57		37.57				
6344	Aiglon Plaza	0.12	0.12					
6347	Rustic Canyon Recreation Center	8.96	8.96					
6348	Rustic Canyon Park	44.67		44.67				
6349	Sullivan Canyon Park	21.88		21.88				
6350	Rivas Canyon Park	85.49		85.49				
6351	Will Rogers State Historic Park	187.83		187.83				
6353	Chautauqua Blvd Access to Will RogersState Historic P	0.05		0.05				
6354	Temescal Gateway Park	63.58		63.58				
6355	Temescal Gateway Park	101.42		101.42				
6356	Topanga State Park	0.21		0.21				
6357	Santa Ynez Canyon Park	338.40		338.40				
6358	Santa Ynez Reservoir	58.13		58.13				
6359	Festa Donation	0.29						
6360	Westridge-Canyonback Wilderness Park	1,589.14		1,589.14				

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CPAD ID	NAME	ACRES	ACRES					
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				Riparian/Uplan	Beach /		MISC	USFS
6177	Jim Thorpe Park	8.71	8.71					
6178	Zela Davis Park	0.74	0.74					
6179	Hawthorne Memorial Park	13.49	13.49					
6180	BiCentennial Park	0.91	0.91					
6181	Ramona Park	1.69	1.69					
6182	Eucalyptus Park	4.13	4.13					
6183	Lennox Park	5.64	5.64					
6186	Del Aire Park	6.61	6.61					
6187	Canada de Palos Verdes Creek	18.84	18.84					
6188	Wilmington Athletic Complex	18.87	18.87					
6189	Wilmington Recreation Center	7.32	7.32					
6190	Wilmington Town Square	0.48	0.48					
6191	Drum Barracks	0.43	0.43					
6192	Drum Barracks Civil War Museum	0.09	0.09					
6193	Harbor City Recreation Center	10.09	10.09					
6194	East Wilmington Vest Pocket Park	0.13	0.13					
6195	Wilmington Cemetery	8.47	8.47					
6198	Banning Park and Museum	21.07	21.07					
6199	East Wilmington Greenbelt Park	4.15	4.15					
6200	Normandale Recreation Center	7.96	7.96					
6201	Roosevelt Memorial Park	36.86	36.86					
6202	Rosecrans Recreation Center	10.53	10.53					
6203	Vermont Parkway	9.78	9.78					
6204	Vermont Parkway	2.08	2.08					
6205	Helen Keller Park	6.99	6.99					
6206	Athens Park	18.72	18.72					
6207	Chester L Washington Golf Course	125.66	125.66					
6209	Jesse Owens Community Regional Park	14.20	14.20					
6211	Maggie Hathaway Golf Course	16.33	16.33					
6212	Saint Andrews Recreation Center	8.52	8.52					
6234	Roy Campanella Park	8.90	8.90					
6235	Stevenson Park	11.83	11.83					
6236	Vernon M. Hemingway Memorial Park	11.91	11.91					
6237	Walnut Street Park	0.69	0.69					
6238	James Anderson, Jr. Memorial Park	8.44	8.44					
6239	Dr. Thomas G. Mills Memorial Park	4.98	4.98					
6240	Del Amo Park	8.63	8.63					
6243	Victoria Golf Course	178.47	178.47					
6244	Victoria Community Regional Park	24.96	24.96					
6245	Dolphin Park	12.65	12.65					
6246	Dominguez Park	7.54	7.54					
6247	Friendship Mini Park	0.28	0.28					
6248	John D. Calas, Sr. Park	4.65	4.65					
6249	Veterans Park and Sports Complex	12.31	12.31					
6250	Carson Park	10.83	10.83					
6251	Scott Park	11.28	11.28					
6252	Carriage Crest Park	4.85	4.85					
6261	Burrell-MacDonald Park	5.05	5.05					
6273	Zela Davis Park	2.69	2.69					
6278	Tragniew Park	4.26	4.26					
6279	Grevillea Park	1.07	1.07					
6280	Circle Park	1.31	1.31					
6281	Darby Park	13.90	13.90					
6284	Centinela Adobe Park	1.08	1.08					
6286	Center Park	1.25	1.25					
6287	Lockhaven Center Playground	0.24	0.24					
6288	Vincent Park	50.69	50.69					

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				Riparian/Uplan	Beach /		MISC	USFS
6084	Sneary Parkette	0.10	0.10					
6085	Ensenada Parkette	0.18	0.18					
6086		5.93	5.93					
6089	Aviation Park	2.79	2.79					
6091	Redondo Beach Open Space	0.12		0.12				
6092	Ford Parkette	0.11	0.11					
6095	Moonstone Park	1.45	1.45					
6096	Hermosa City Beach	52.87			52.87			
6097	Hermosa Valley Greenbelt Park	19.89				19.89		
6098	South Park	4.46	4.46					
6101	Edith Rodaway Friendship Park	0.81	0.81					
6102	Fort Lots-o-Fun Park	0.41	0.41					
6103	Moondust Park	0.08	0.08					
6104	Hermosa Beach Open Space	0.05	0.05					
6105	Cypress Park and Clark Stadium Recreation Center	6.63	6.63					
6106	Community Center/Civic Center	4.81	4.81					
6107	Greenwood Park	0.48	0.48					
6109	Ingleside Park	0.07	0.07					
6110	Valley Park	5.63	5.63					
6113	Noble Park	0.85	0.85					
6114	Veterans Parkway	21.64				21.64		
6115	Manhattan County Beach	75.68			75.68			
6116	Manhattan State Beach	2.69			2.69			
6117	Sand Dune Park	5.17	5.17					
6118	Bruce's Beach	0.47	0.47					
6119	Bruce's Beach	1.17	1.17					
6120	Live Oak Park	9.10	9.10					
6121	Larsson Street Parkette	0.23	0.23					
6124	Manhattan Village Field	2.78	2.78					
6125	Marriott Municipal Golf Course	20.49	20.49					
6126	Marine Avenue Park	7.70	7.70					
6127	Marine Sports Park	7.11	7.11					
6128	Polliwog Park	0.26	0.26					
6129	Manhattan Heights Park	3.16	3.16					
6131	8th Street Parkette	0.34	0.34					
6135	El Segundo Beach	22.01			22.01			
6136	Dockweiler State Beach	284.19			284.19			
6137	Dockweiler State Beach	3.37			3.37			
6138	The Lakes at El Segundo Municipal Golf Course	26.36	26.36					
6143	Candy Cane Park	0.13	0.13					
6151	Sycamore Park	0.77	0.77					
6152	Acacia Park	0.54	0.54					
6153	Kansas Park	0.43	0.43					
6154	Washington Park	0.65	0.65					
6155	Library Park	3.35	3.35					
6156	Recreation Park	21.50	21.50					
6157	Hilltop Park	4.88	4.88					
6158	Camp Eucalyptus	0.38	0.38					
6159	Imperial Strip Park	6.98	6.98					
6162	Holly Valley Park	0.17	0.17					
6163	El Segundo Dog Park	3.70	3.70					
6164	Clutter's Park	5.67	5.67					
6168	Frank Hogan Tot Lot	0.48	0.48					
6170	Holly Park	10.59	10.59					
6171	Glasgow Park	3.87	3.87					
6175	Holly Glen Park	0.46	0.46					
6176	Glasgow Park	0.78	0.78					

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CPAD ID	NAME	ACRES	ACRES					
			Developed Park and Recreation	Open Space Resource Area		Greenway	Oher	
				Riparian/Uplan	Beach /		MISC	USFS
6007	Victor Park	6.60	6.60					
6008	La Romeria Park	5.59	5.59					
6009	Entradero Park	25.62	25.62					
6010	Sunnyglen Park	5.50	5.50					
6011	Delthorne Park	9.57	9.57					
6014	Greenwood Park	3.44	3.44					
6015	Charles H. Wilson Park	44.17	44.17					
6016	Torrance Park	8.20	8.20					
6017	Unknown Park/Ballfields	4.52	4.52					
6018	Sur La Brea Park	7.40	7.40					
6019	El Prado Park	3.36	3.36					
6020	Pueblo Recreation Center	0.24	0.24					
6021	Guenser Park	7.94	7.94					
6022	Columbia Park	44.80	44.80					
6023	La Carretera Park	2.71	2.71					
6031	Descanso Park	2.85	2.85					
6032	McMaster Park	6.47	6.47					
6033	Osage Park	0.16	0.16					
6034	Pequeno Park	0.66	0.66					
6035	El Nido Park	12.30	12.30					
6039	South Gardena Park	18.74	18.74					
6040	Mas Fukai Park	4.55	4.55					
6043	Harvard Parkette	0.17	0.17					
6044	Bell Park	1.86	1.86					
6045	Thornburg Park	2.39	2.39					
6046	Freeman Park	2.71	2.71					
6047	Rowley Park	18.13	18.13					
6048	Hathaway Park	0.95	0.95					
6049	Veterans Park	0.21	0.21					
6050	Lomita Park	9.39	9.39					
6051	pocket park	0.17	0.17					
6052	Alta Vista Park	8.53	8.53					
6056	Hopkins Wilderness Park	8.64	8.64					
6057	Redondo County Beach	13.38			13.38			
6058	Veterans Park	7.83	7.83					
6059	Redondo Beach Pier	10.33					10.33	
6060	Czuleger Park	3.66	3.66					
6061	Vincent Park	0.93	0.93					
6062	Dominguez Park	12.71	12.71					
6063	Dominguez Park	3.18	3.18					
6066	Redondo Beach Open Space	1.47		1.47				
6067	Redondo Beach Open Space	1.20		1.20				
6068	General Eaton #1 Parkette	0.17	0.17					
6069	General Eaton #2 Parkette	0.35	0.35					
6070	Andrews Park	1.18	1.18					
6071	Redondo Beach Open Space	0.33		0.33				
6072	La Paz Parkette	0.18	0.18					
6073	Fulton Playfield	1.21	1.21					
6074	Gregg Parkette	0.35	0.35					
6075	Lilienthal Park	2.14	2.14					
6077	Townsend Parkette	0.17	0.17					
6078	Perry Park	4.13	4.13					
6079	Perry Allison Playfield	0.59	0.59					
6080	McNeill Parkette	0.11	0.11					
6081	Beverly Parkette	0.17	0.17					
6082	Mathews Parkette	0.18	0.18					
6083	Huntington Parkette	0.17	0.17					

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CPAD ID	NAME	ACRES	ACRES					
			Developed Park and Recreation	Open Space Resource Area		Greenway	Oher	
				Riparian/Uplan	Beach /		MISC	USFS
17918	Coldwater Canyon Park	5.91	5.91					
17978	48th Street Park	0.96	0.96					
18129	Coombs Parkette	0.46	0.46					
18149	Ardmore Palyground Park	3.07	3.07					
18262	Crescent Bay Park	2.06	2.06					
18315	Culver Slauson Park	3.01	3.01					
18319	Culver West Park	3.12	3.12					
18404	De Longpre Park	1.37	1.37					
18414	De Neve Square	1.05	1.05					
18556	Denker Recreation Center	1.76	1.76					
18759	Douglas Park	4.18	4.18					
18875	East Gramercy Park	0.19	0.19					
20623	Seaview Park	1.27	1.27					
20624	Richmond Street Field	2.38	2.38					
20625	Jim Thorpe Park	7.89	7.89					
20663	Rexford Drive Mini Park	0.23	0.23					
20664	Maltz Park	1.22	1.22					
20665	Kings Road Park	0.59	0.59					
20666	William S Hart Park	0.86	0.86					
20667	Park Drive Park	0.30	0.30					
20668	Schrader Park	0.18	0.18					
20669	Euclid Park	0.32	0.32					
20671	Clover Park	18.70	18.70					
20672	Airport Park	7.20	7.20					
20673	Ashland Park	0.36	0.36					
20674	Pacific Street Park	0.41	0.41					
20675	Barnard Way Linear Park	0.31	0.31					
21983	Dockweiler State Beach	14.71			14.71			
21984	Dockweiler State Beach	6.39			6.39			
21985	Kenneth Hahn State Recreation Area	57.10		57.10				
21986	Kenneth Hahn State Recreation Area	32.86		32.86				
21987	Parma Open Space	26.85		26.85				
22159	Stewart Street Park	3.03	3.03					
24506	Freedom Park	3.03	3.03					
24512	Irene Lewis Park	0.93	0.93					
24516	Mascot Park	0.17	0.17					
24518	Washington Irvin Pocket Park	0.13	0.13					
24529	Goose Egg Park	0.69	0.69					
24532	Bodger Park	20.16	20.16					
25041	Monteith Park	0.64	0.64					
25079	Candy Cane Park	1.69	1.69					
25083	Malloy Park	1.02	1.02					
25788	Nansen Field	8.64	8.64					
25933	Hope and Peace Park	0.57	0.57					
25934	Seily Rodriguez Park	0.34	0.34					
25935	Potrero Canyon Park	47.23		47.23				
28109	Bluff Cove	26.84		26.84				
28110	Lunada Bay	9.97		9.97				
28111	RAT Beach / Malaga Cove	10.34			10.34			
28354	Dale Page Park	1.16	1.16					
29309	Mount Olivet Reservoir	2.99	2.99					
29311	Woodlawn Cemetery	25.58					25.58	
29398	Santa Monica State Beach	189.27			189.27			
34921	Pocket Park	0.36	0.36					
35005	Exposition Park Rose Garden	10.39	10.39					
		TOTAL	3,854	19,407	1,067	67	235	0

NOTE: parcels shown with acreages split between classifications are estimates.

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CPAD ID	NAME	ACRES	ACRES					
			Developed Park and Recreation	Open Space Resource Area		Greenway	Oher	
				Riparian/Uplan	Beach /		MISC	USFS
5938	Rolling Hills City Parkland	3.32	3.32					
5939	Rolling Hills City Parkland	15.48	15.48					
5940	Clovercliff Park	0.18	0.18					
5941	Deane Dana Friendship Park	129.47		129.47				
5942	Martin J. Bogdanovich Recreation Center and Park	14.32	14.32					
5945	White Point County Beach	30.67			30.67			
5946	Royal Palms County Beach	19.37			19.37			
5947	White Point Nature Preserve	94.96		94.96				
5948	Lookout Point Park	1.38		1.38				
5949	Angels Gate Park	70.46	70.46					
5950	Point Fermin Lighthouse	2.92		2.92				
5951	Point Fermin Park	33.50		33.50				
5952	Wilder's Addition (Point Fermin Park)	1.70		1.70				
5953	Cabrillo Beach & Marine Aquarium	42.75			42.75			
5954	Cabrillo Beach Marina and Recreation Complex	42.76	42.76					
5957	22nd Street Landing	30.55	30.55					
5958	Harbor View Memorial Park	2.36						
5959	Bloch Field	10.67						
5960	John S. Gibson Jr. Park	0.23	0.23					
5961	Cruiseship Promenade	3.92	3.92					
5962	Gateway Plaza	3.55	3.55					
5963	Harbor Boulevard Parkway	4.21	4.21					
5964	John S. Gibson Jr. Park/Los Angeles Maritime Museum	5.07	5.07					
5965	Paseo at Ports O' Call	0.31	0.31					
5966	13th Street Harbor	0.33	0.33					
5969	Fisherman's Park	1.27	1.27					
5970	Knoll Hill / San Pedro Dog Park	15.27	15.27					
5971	Leland Park	1.07	1.07					
5972	Field of Dreams	35.26	35.26					
5973	Eastview Park	9.83	9.83					
5974	City of Los Angeles Flood Control	2.23	2.23					
5975	Defense Fuel Supply Point (DFSP) - Hab. Restoration	368.19						
5976	Ken Malloy Harbor Regional Park	291.67						
5977	Alta Loma Park	5.64	5.64					
5978	Rancho Palos Verdes City Parkland	13.52	13.52					
5981	Rolling Hills Estates City Parkland	7.20	7.20					
5982	RAT Beach / Malaga Cove	0.08	0.08					
5983	Torrance County Beach	16.37			16.37			
5984	Miramar Park	0.09	0.09					
5985	Miramar Park	1.05	1.05					
5986	Torrance County Beach	0.43			0.43			
5987	City of Torrance Open Space	0.11	0.11					
5988	Riviera Park	0.37	0.37					
5989	El Retiro Park	4.80	4.80					
5990	Redondo County Beach	21.08			21.08			
5993	Massena Parkette	0.14	0.14					
5994	Los Arboles Park	6.30	6.30					
5995	Lago Seco Park	14.70	14.70					
5997	Walteria Park	4.40	4.40					
5998	Las Canchas Raquet Club and Torrance City Reservoir	13.76	13.76					
5999	De Portola Park	12.56	12.56					
6000	Hickory Park	5.82	5.82					
6001	Sea-Aire Golf Course	5.14	5.14					
6003	Paradise Park	4.68	4.68					
6004	Discovery Park	0.39	0.39					
6005	Madrona Marsh Nature Center and Preserve	44.30		44.30				
6006	La Paloma Park	0.41	0.41					

Appendix F

Existing and Proposed Greenways, Parkways, and Bikeways

	Linear Urban Greenways / Parkways / Bikeways	Projects (existing or proposed)	Source
1	**Los Angeles River**	partially existing	Los Angeles County Departments of Public Works, Parks and Recreation, and Regional Planning, Los Angeles River Master Plan. 1996. http://www.traillink.com/trailsearch.aspx?tn=&st=CA&ct=Los+Angeles&sp=N
2	**Arroyo Seco**	existing	
3	**Bell Creek Greenway**	proposed	**http://acmela.org/images/Bell_Creek_Greenway_Project_Trust_for_Public_Land_Presentation_Sept_22_of_2009.pdf**
4	**Tujunga Wash**	proposed	**http://www.lamountains.com/parks.asp?parkid=671** **http://ladpw.org/apps/news/pdf/2380_2618.pdf**
6	**Burbank Western Channel**	proposed	**http://www.ci.burbank.ca.us/index.aspx?page=900**
8	**San Gabriel River**	partially existing	Moore Iacofano Goltsman, Inc. for the County of Los Angeles Department of Public Works. *A Common Thread Rediscovered- San Gabriel River Corridor Master Plan.* June, 2006. http://www.traillink.com/trailsearch.aspx?tn=&st=CA&ct=Los+Angeles&sp=N
9	**Compton Creek Regional Garden Park**	partially existing	Freedman, Zack D. for the Santa Monica Mountains Conservancy. *Grounds for Renewal: The Revitalization of Compton Creek.* 2003
10	**Rio Hondo (Emerald Necklace)**	partially existing	Amigo de los Rios. Moore Iacofano Goltsman, Inc. for the County of Los Angeles Department of Public Works. *A Common Thread Rediscovered- San Gabriel River Corridor Master Plan.* June, 2006.
11	**Santa Anita Wash**	proposed	Amigos de los Rios. Emerald Necklace Green Infrastructure - Los Angeles County. 2005
12	**Eaton Wash**	proposed	Amigos de los Rios. Emerald Necklace Green Infrastructure - Los Angeles County. 2005
13	**Rubio Wash**	proposed	Amigos de los Rios. Emerald Necklace Green Infrastructure - Los Angeles County. 2005
14	**Alhambra Wash**	proposed	Amigos de los Rios. Emerald Necklace Green Infrastructure - Los Angeles County. 2005
15	**Coyote Creek**	partially existing	Trails4All. *Coyote Creek Trail Master Plan.* April. 2008 . Moore Iacofano Goltsman, Inc. for the County of Los Angeles Department of Public Works. *A Common Thread Rediscovered- San Gabriel River Corridor Master Plan.* June, 2006. http://www.traillink.com/trailsearch.aspx?tn=&st=CA&ct=Los+Angeles&sp=N
16	**Carbon Creek**	existing	Trails4All. *Coyote Creek Trail Master Plan.* April 2008
17	**Brae Creek**	existing	Trails4All. *Coyote Creek Trail Master Plan.* April 2008
19	**La Canada Verde Creek**	existing	Trails4All. *Coyote Creek Trail Master Plan.* April 2008
20	**Fullerton Creek**	existing	Trails4All. *Coyote Creek Trail Master Plan.* April. 2008 .
21	**Whittier Greenway Trail**	existing	http://www.traillink.com/trailsearch.aspx?tn=&st=CA&ct=Los+Angeles&sp=N

	Linear Urban Greenways / Parkways / Bikeways	Projects (existing or proposed)	Source
22	**Walnut Creek**	proposed	Amigos de los Rios. Emerald Necklace Green Infrastructure - Los Angeles County. 2005
23	**San Jose Wash**	proposed	Amigos de los Rios. Emerald Necklace Green Infrastructure - Los Angeles County. 2005Moore Iacofano Goltsman, Inc. for the County of Los Angeles Department of Public Works. *A Common Thread Rediscovered- San Gabriel River Corridor Master Plan*. June, 2006. http://www.ice.ucdavis.edu/nrpi/project.asp?ProjectPK=08915
25	**Ballona Creek**	partially existing	Restoration Design Group for the Bay Restoration Foundation and the California Coastal Conservancy. *Ballona Creek Greenway Projects*. January, 2011 http://www.traillink.com/trailsearch.aspx?tn=&st=CA&ct=Los+Angeles&sp=N
26	**Sepulveda Channel**	proposed	Restoration Design Group for the Bay Restoration Foundation and the California Coastal Conservancy. *Ballona Creek Greenway Projects*. January, 2011
27	**Arroyo la Cienaga**	proposed	Restoration Design Group for the Bay Restoration Foundation and the California Coastal Conservancy. *Ballona Creek Greenway Projects*. January, 2011
28	**Dominguez Channel**	proposed	County of Los Angeles Department of Public Works. *Dominguez Watershed Management Master Plan*. April, 2004.
29	**Long Beach Greenbelt**	existing	http://www.traillink.com/trailsearch.aspx?tn=&st=CA&ct=Los+Angeles&sp=N
30	**Santa Monica Beach and South Bay Bike Path**	existing	http://www.traillink.com/trailsearch.aspx?tn=&st=CA&ct=Los+Angeles&sp=N
31	**Shoreline Pedestrian Bikeway**	existing	http://www.traillink.com/trailsearch.aspx?tn=&st=CA&ct=Los+Angeles&sp=N
32	**Duarte Bike Trail**	existing	http://www.traillink.com/trailsearch.aspx?tn=&st=CA&ct=Los+Angeles&sp=N
33	**Metro Orange Line Bike Path**	existing	http://www.traillink.com/trailsearch.aspx?tn=&st=CA&ct=Los+Angeles&sp=N
34	**Chandler Bikeway**	existing	http://www.traillink.com/trailsearch.aspx?tn=&st=CA&ct=Los+Angeles&sp=N
35	**Mission City Bike Trail**	existing	http://www.traillink.com/trailsearch.aspx?tn=&st=CA&ct=Los+Angeles&sp=N

Appendix G

Subregional Figures: North Santa Monica Bay

Figure 1. Historical and Current Wetlands (Rairdan)

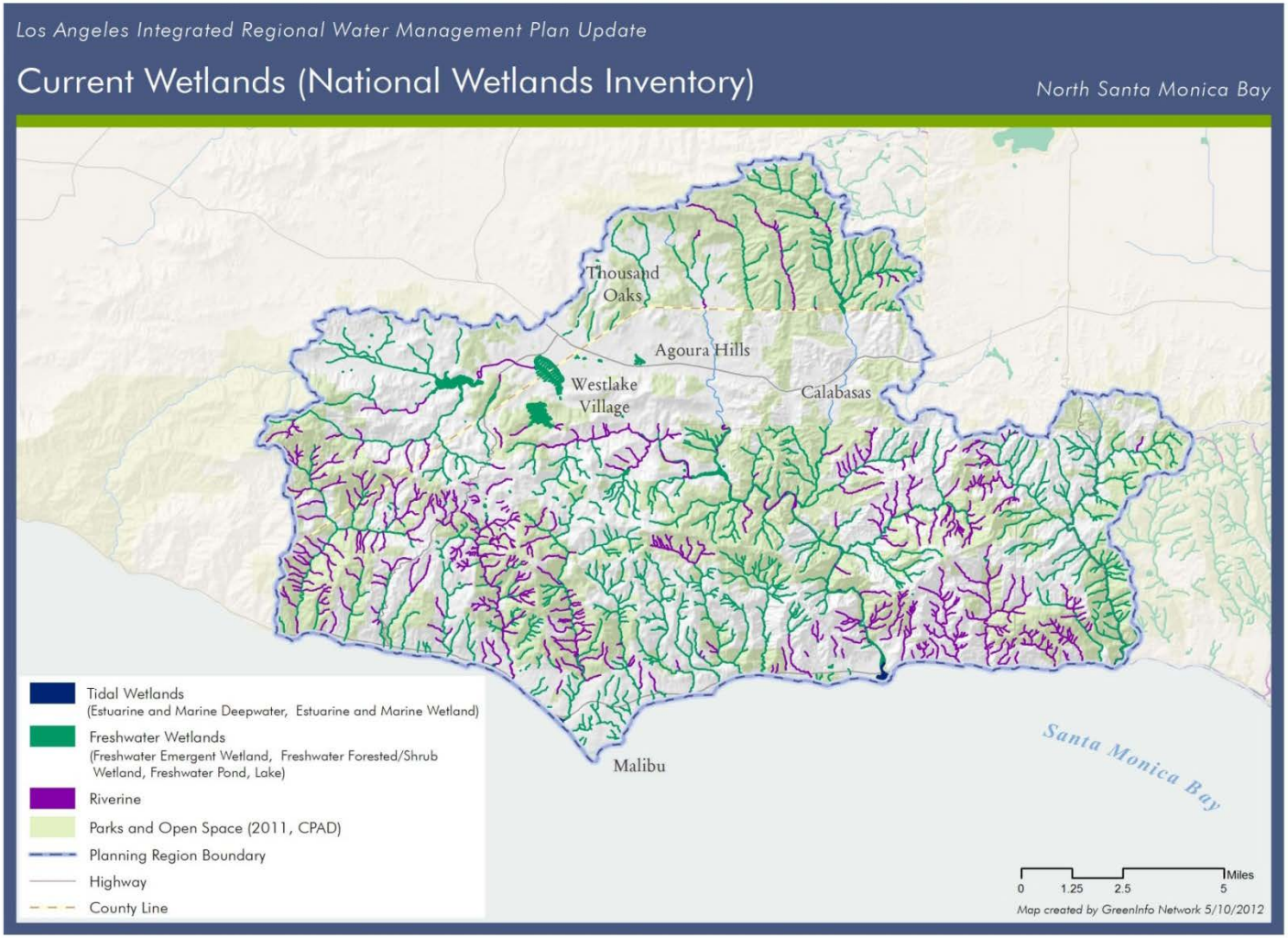

Figure 2. Current Wetlands (NWI)

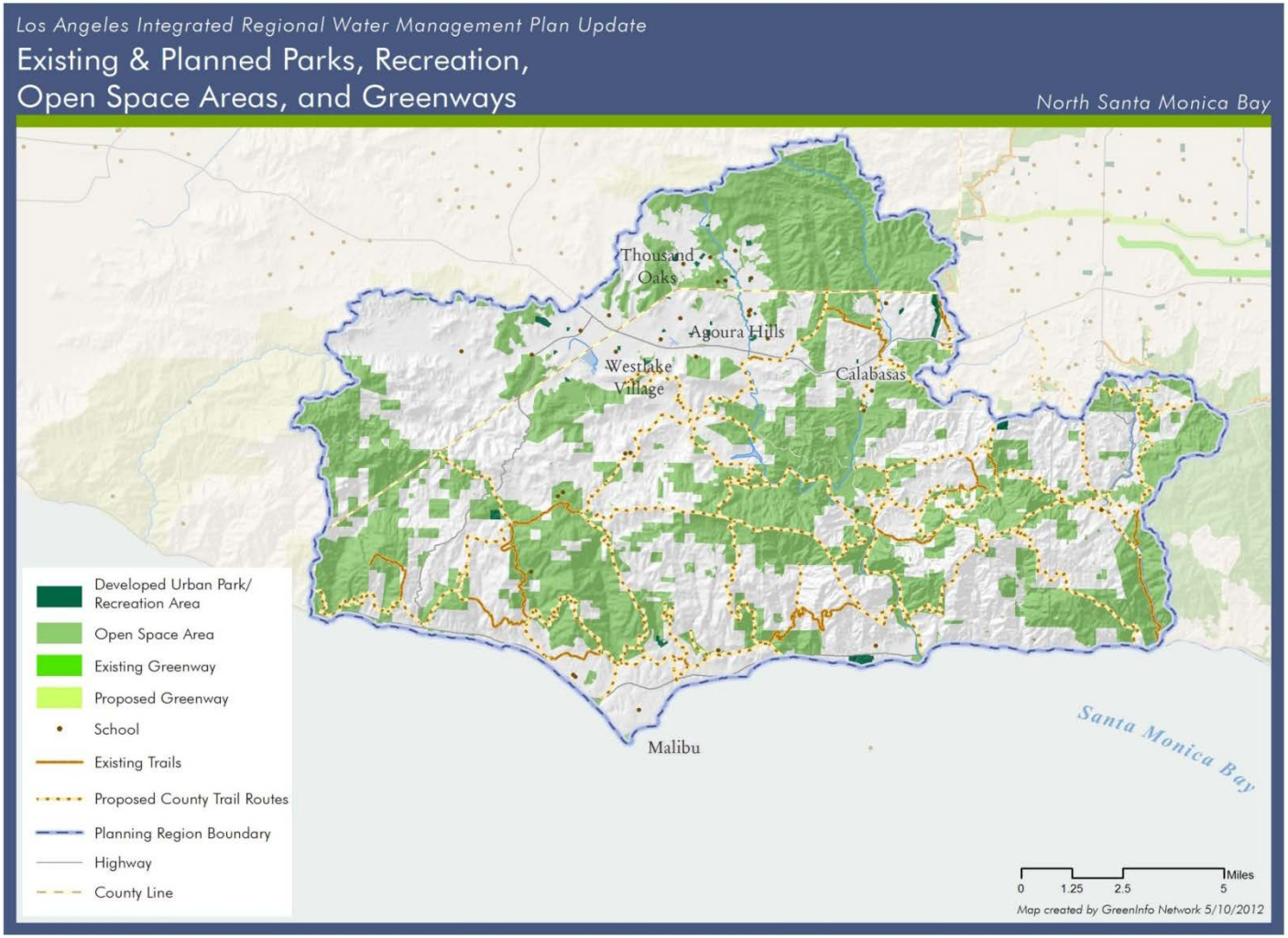

Figure 3. Existing and Planned Parks, Recreation, Open Space Areas, and Greenways

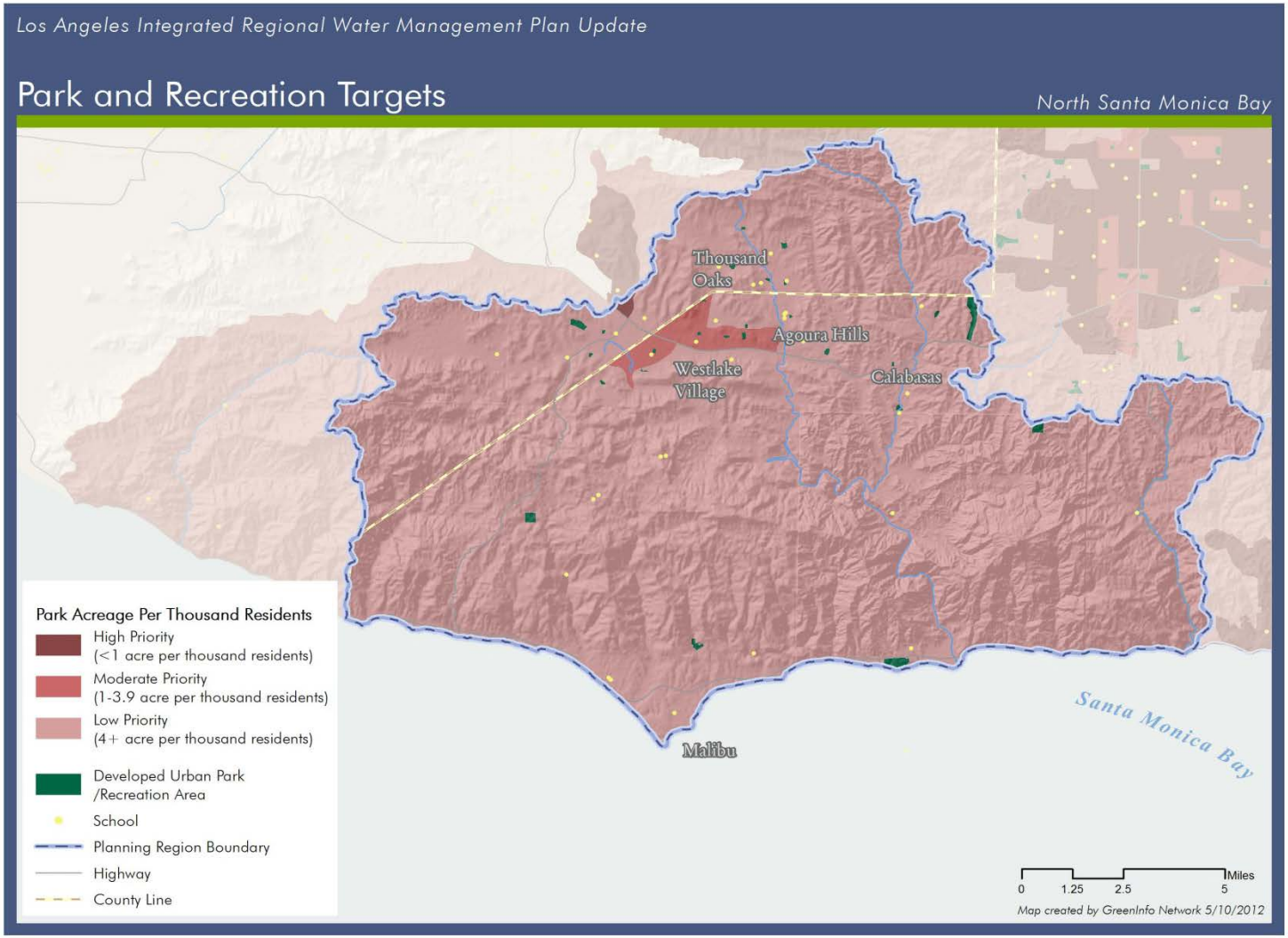

Figure 4. Park and Recreation Targets

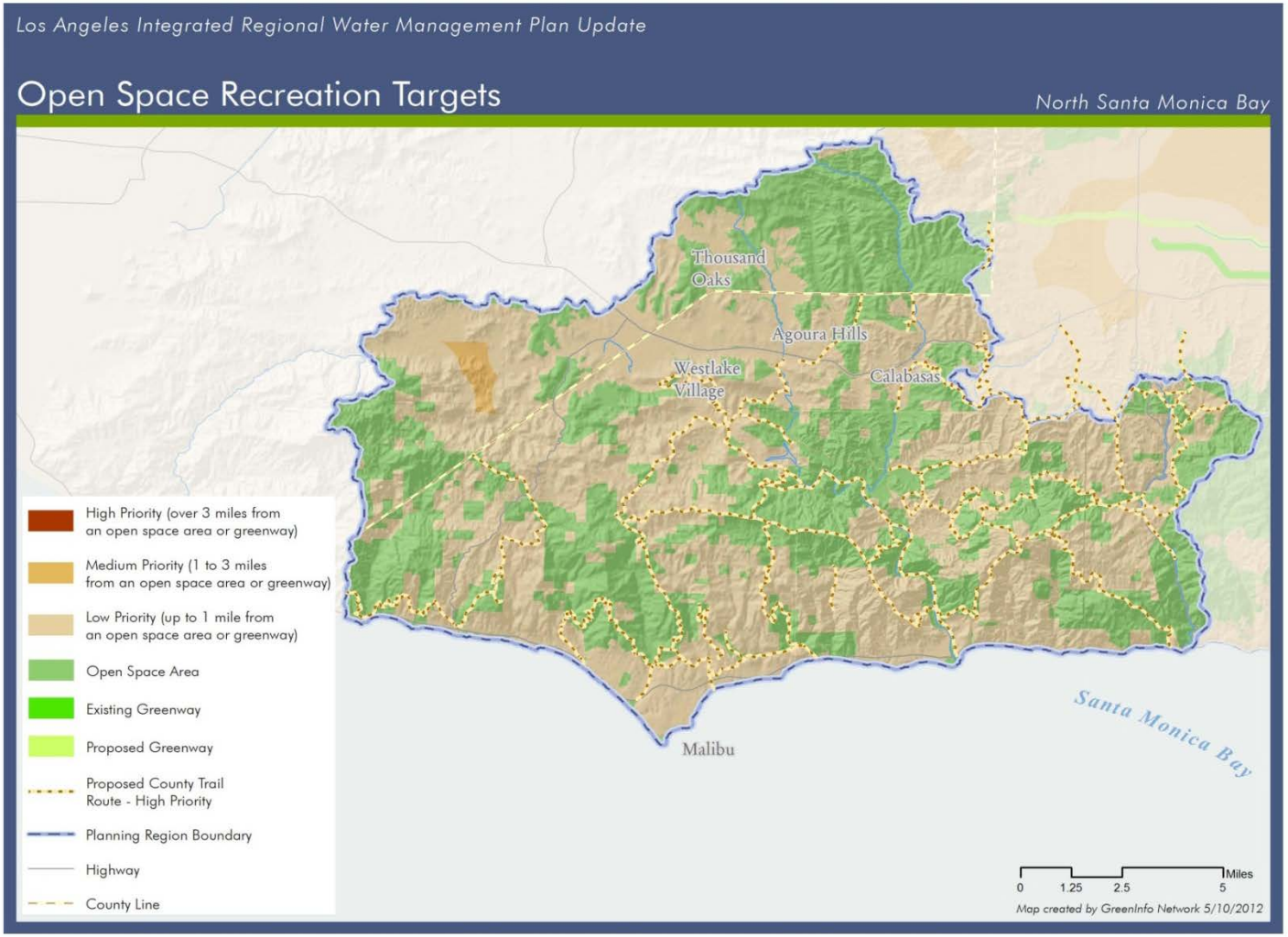

Figure 5. Open Space Recreation Targets

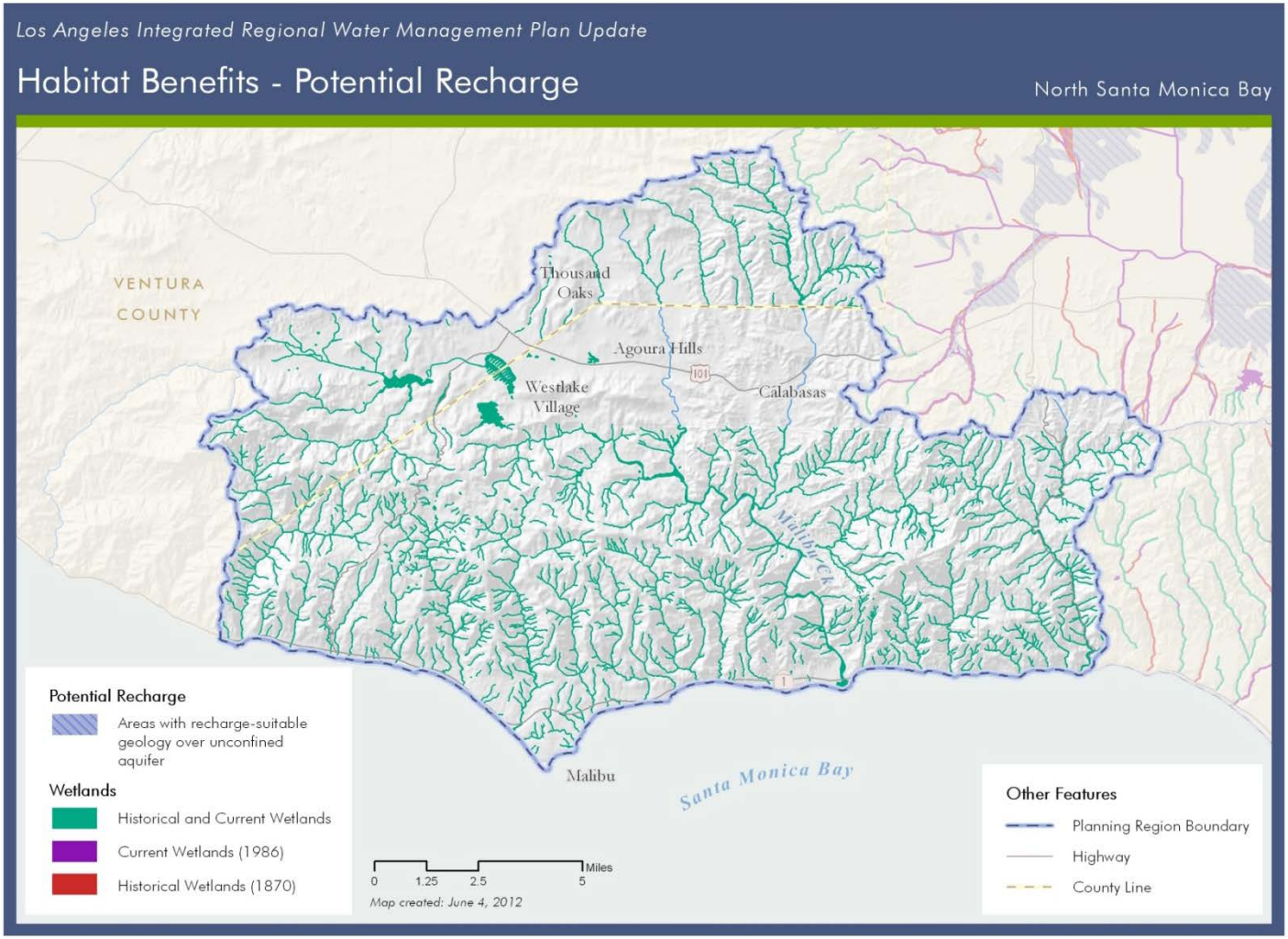

Figure 6. Habitat Targets and Potential Recharge Benefits

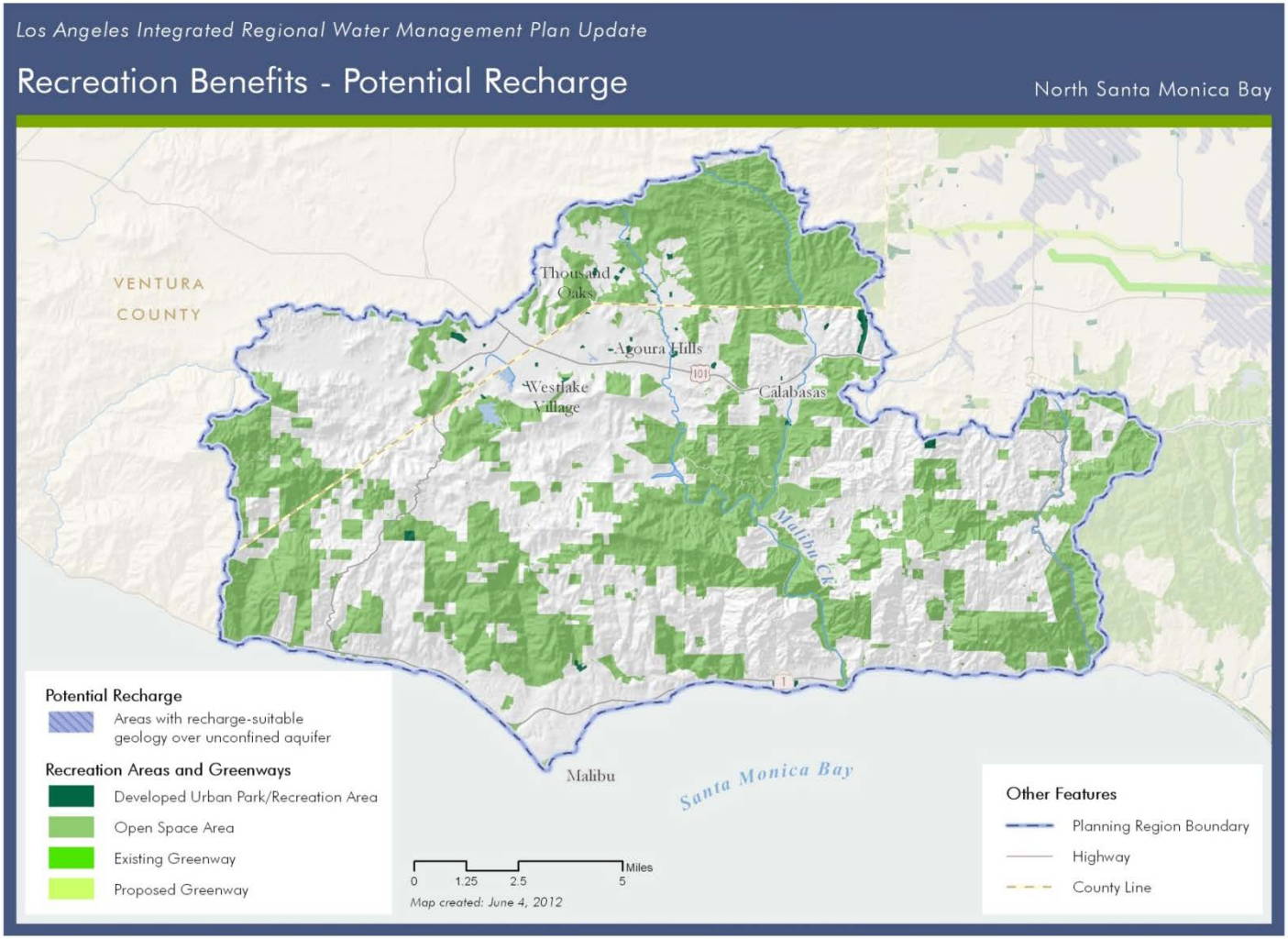

Figure 7. Recreation Targets and Potential Recharge Benefits

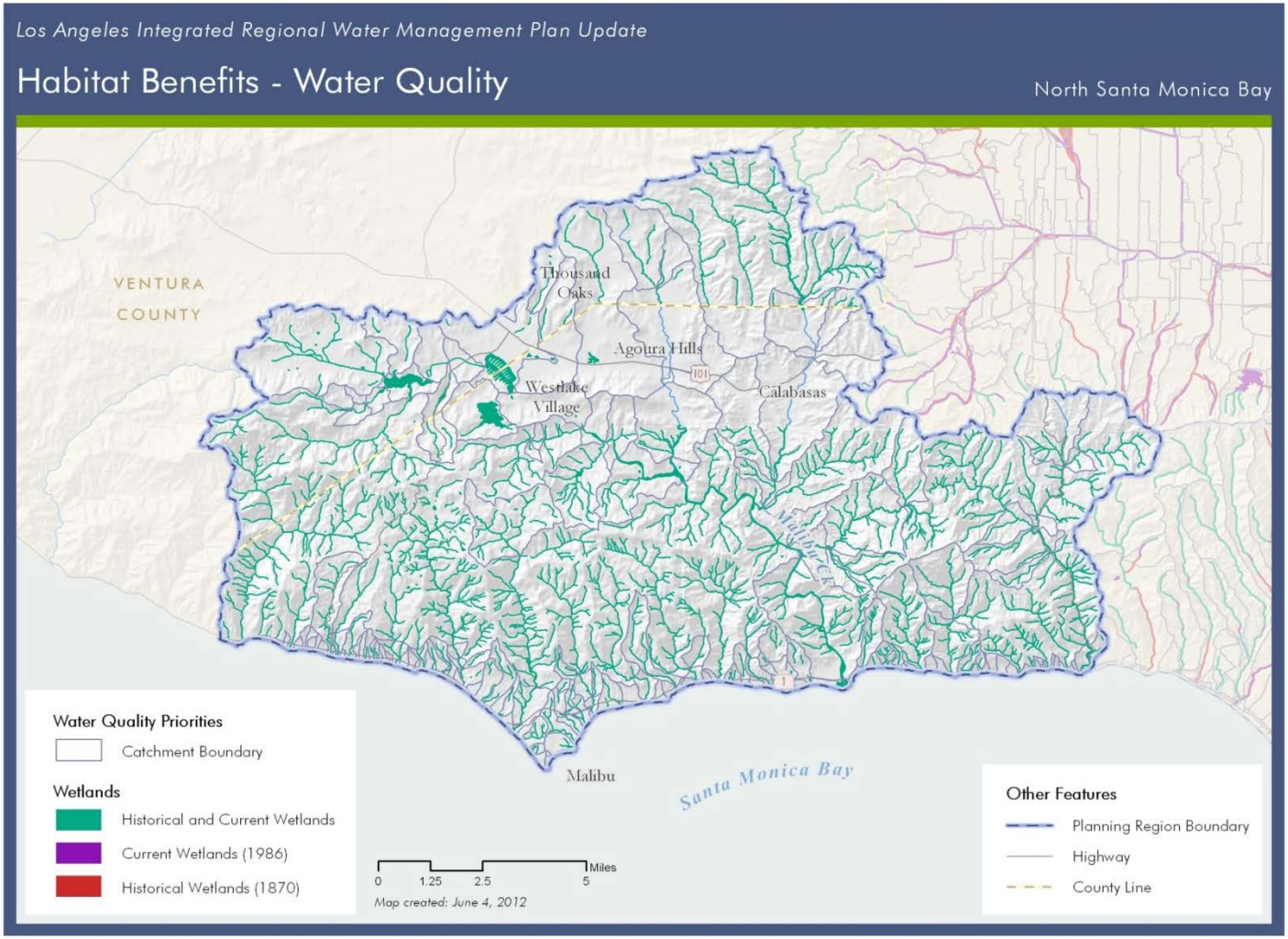

Figure 8. Habitat Targets and Potential Stormwater Quality Benefits

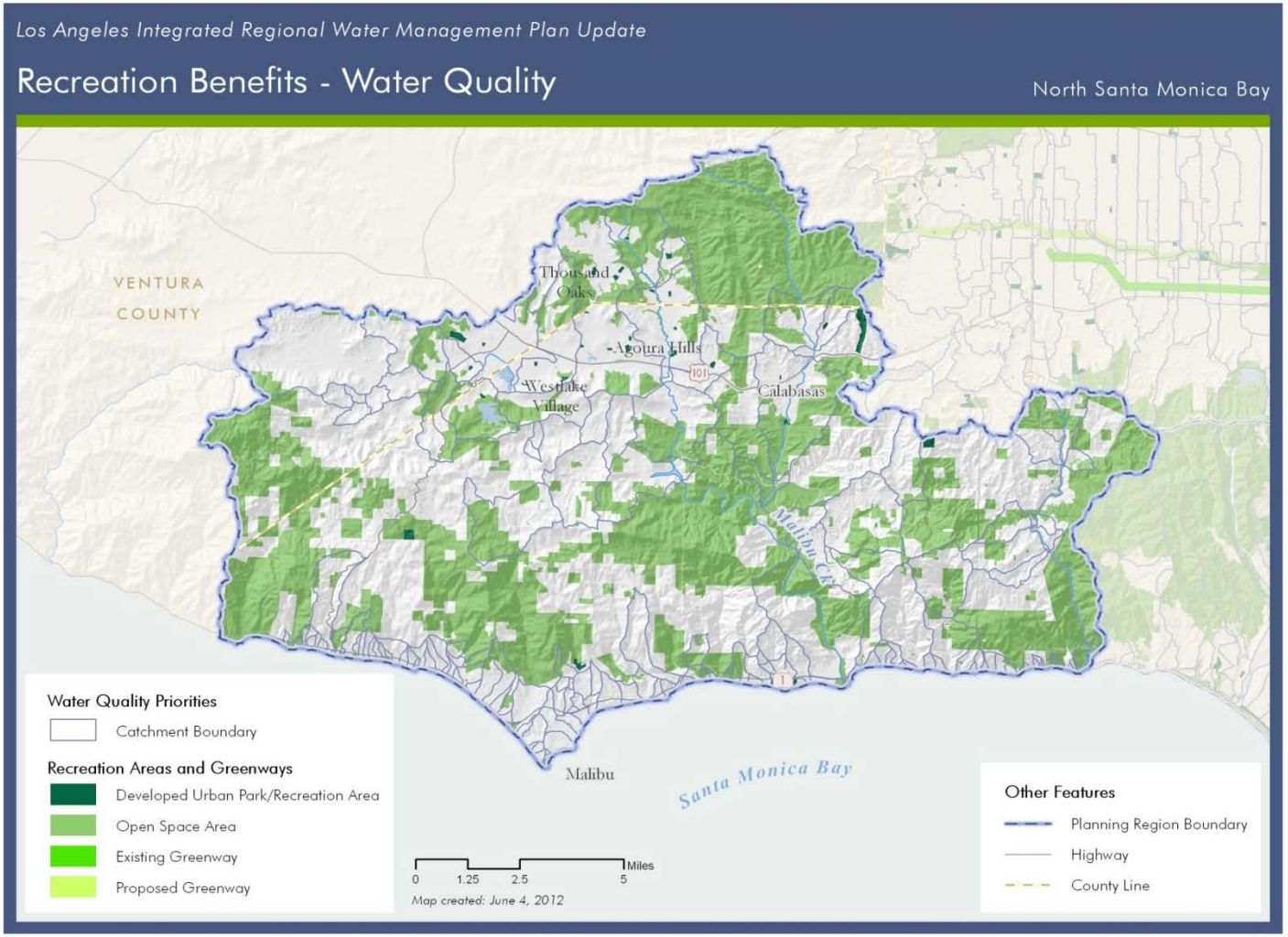

Figure 9. Recreation Targets and Potential Stormwater Quality Benefits

Appendix H

Subregional Figures: Upper Los Angeles River

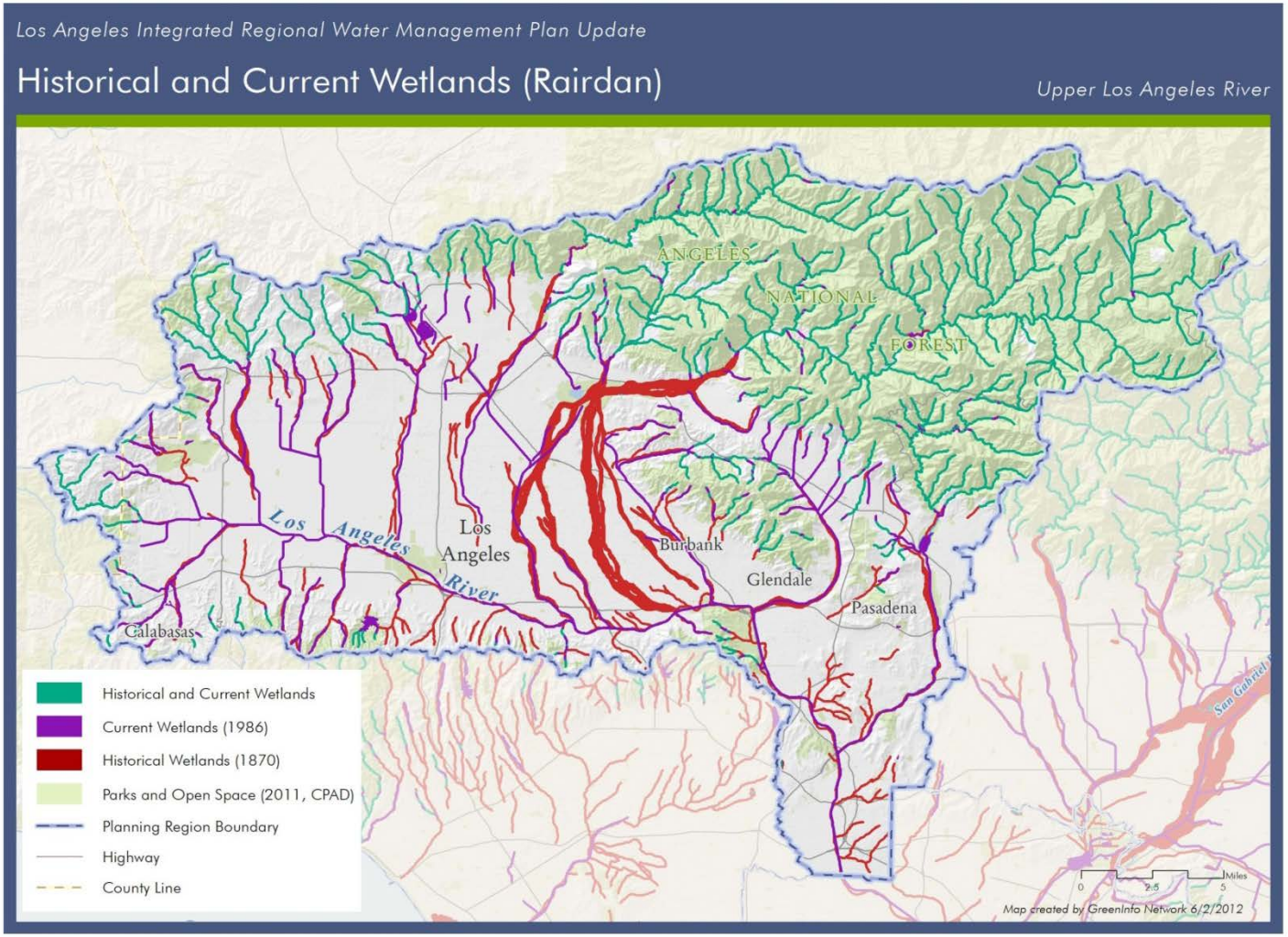

Figure 1. Historical and Current Wetlands (Rairdan)

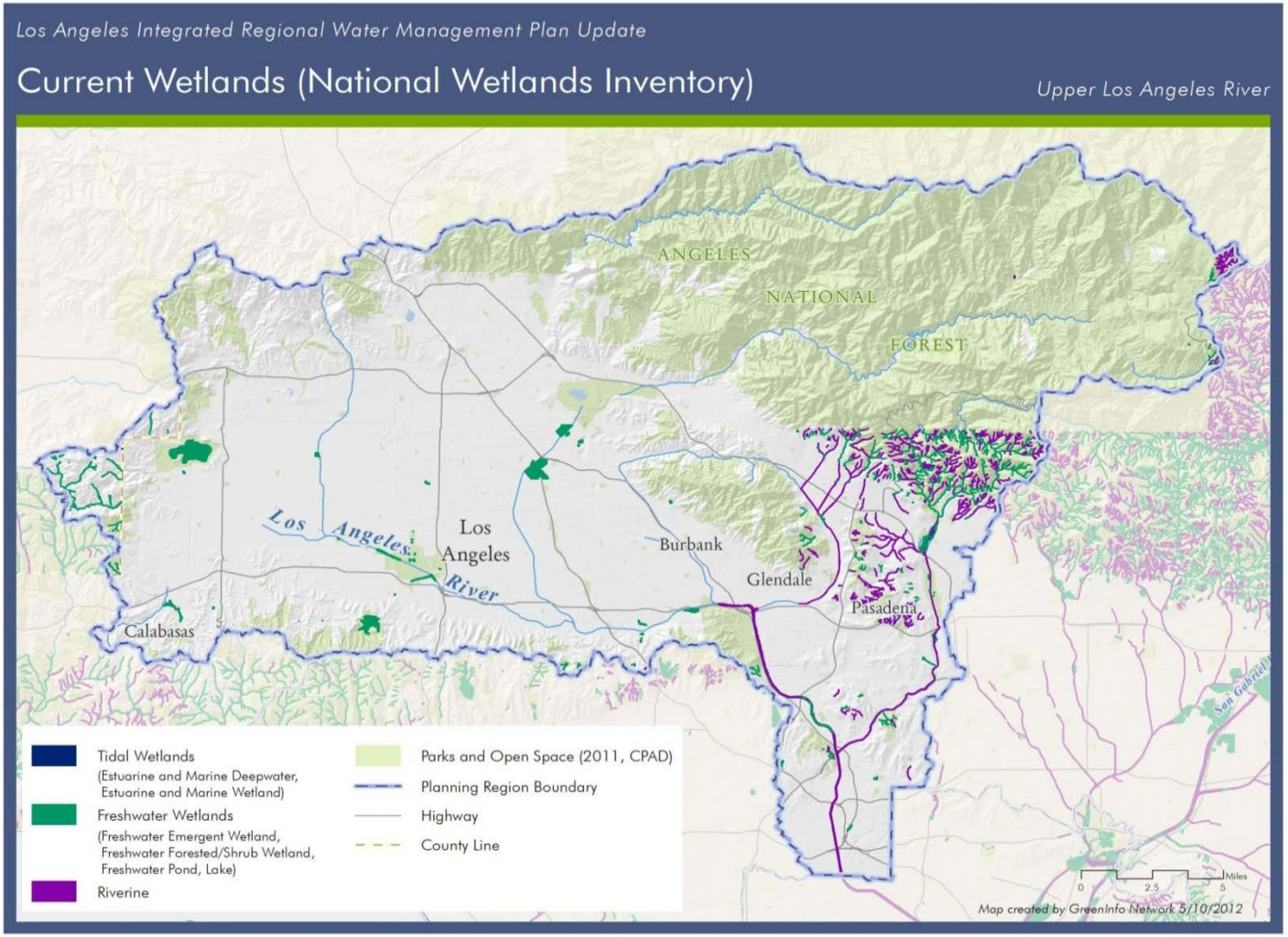

Figure 2. Current Wetlands (NWI)

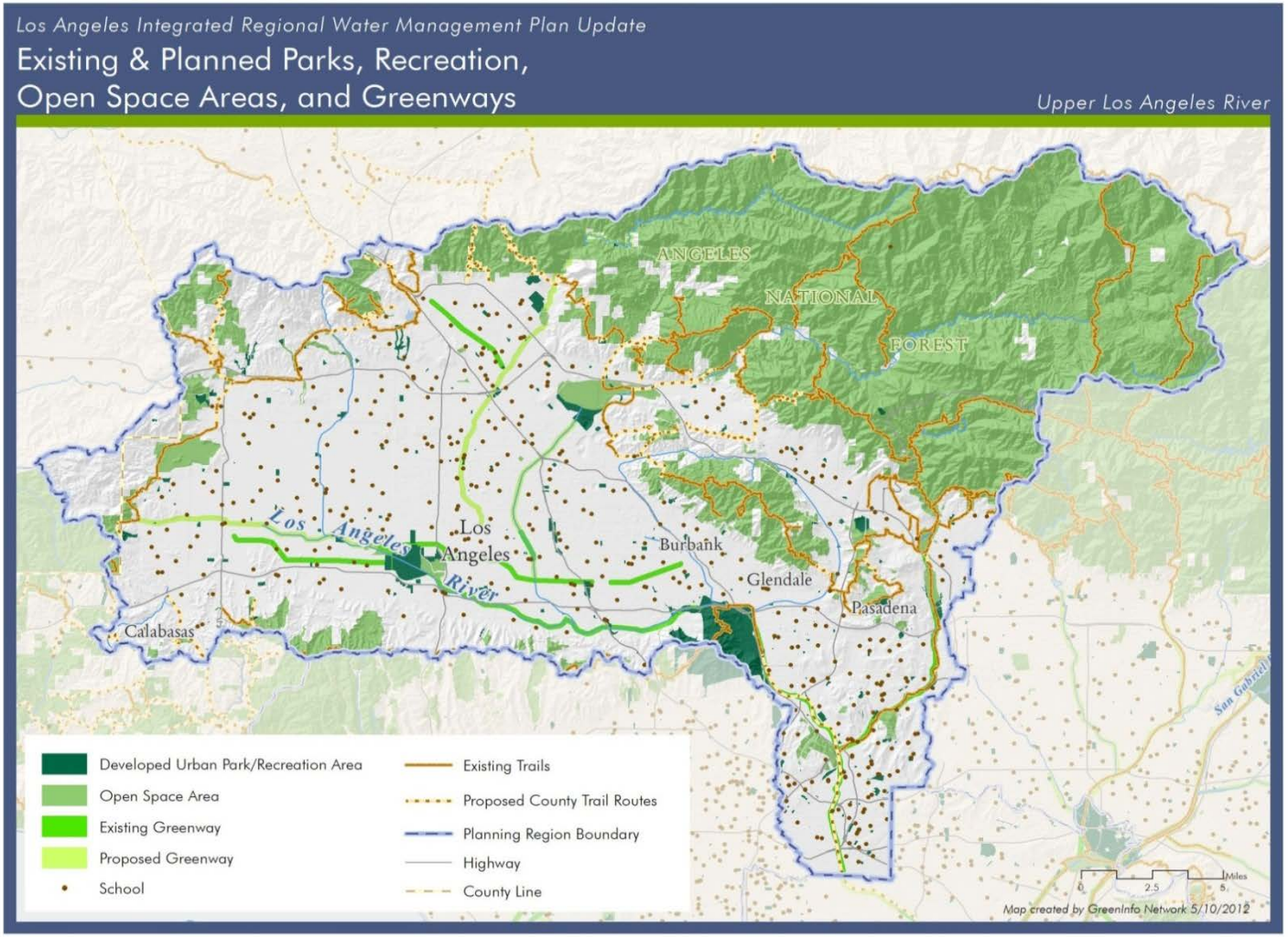

Figure 3. Existing and Planned Parks, Recreation, Open Space Areas, and Greenways

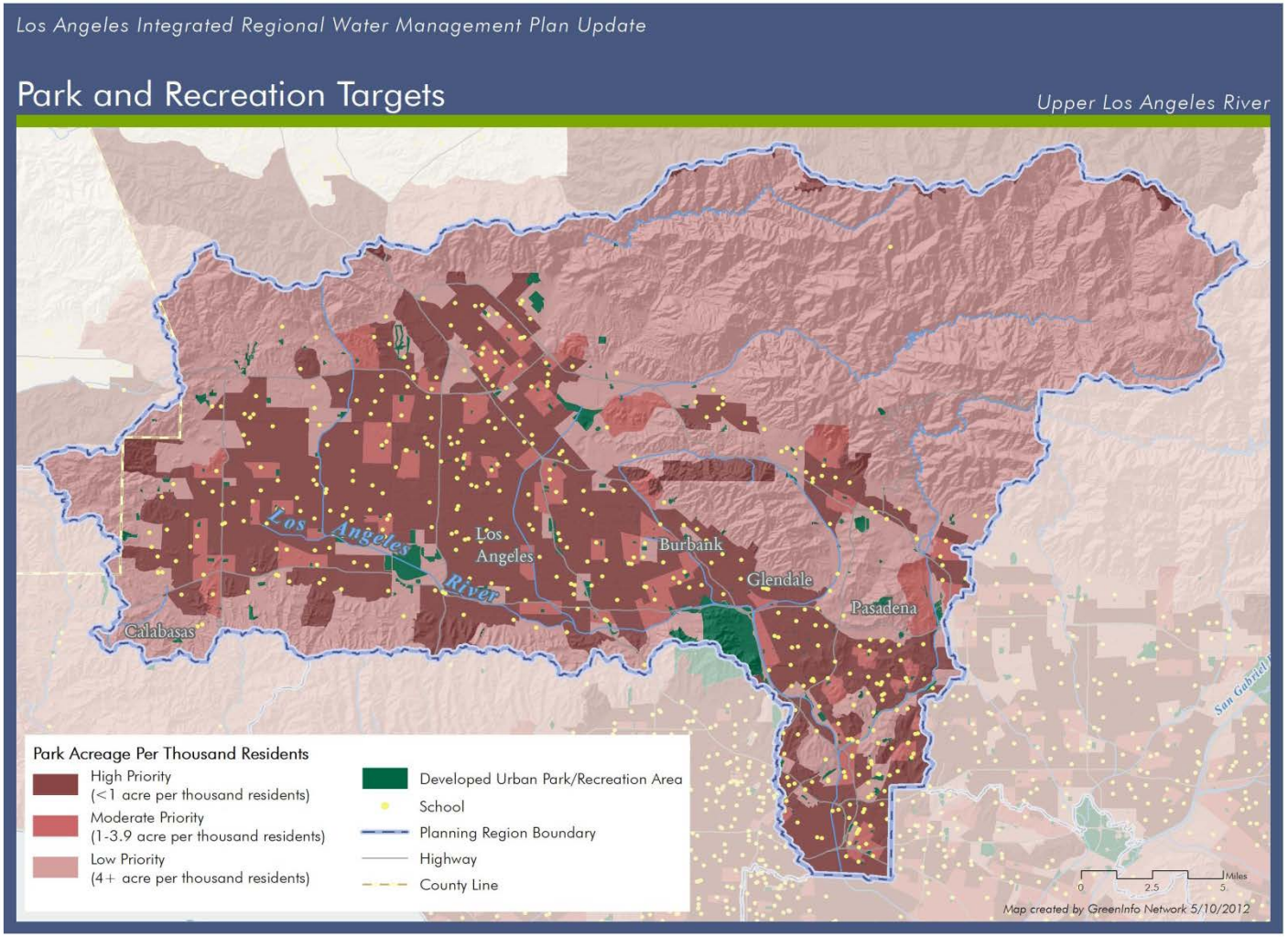

Figure 4. Park and Recreation Targets

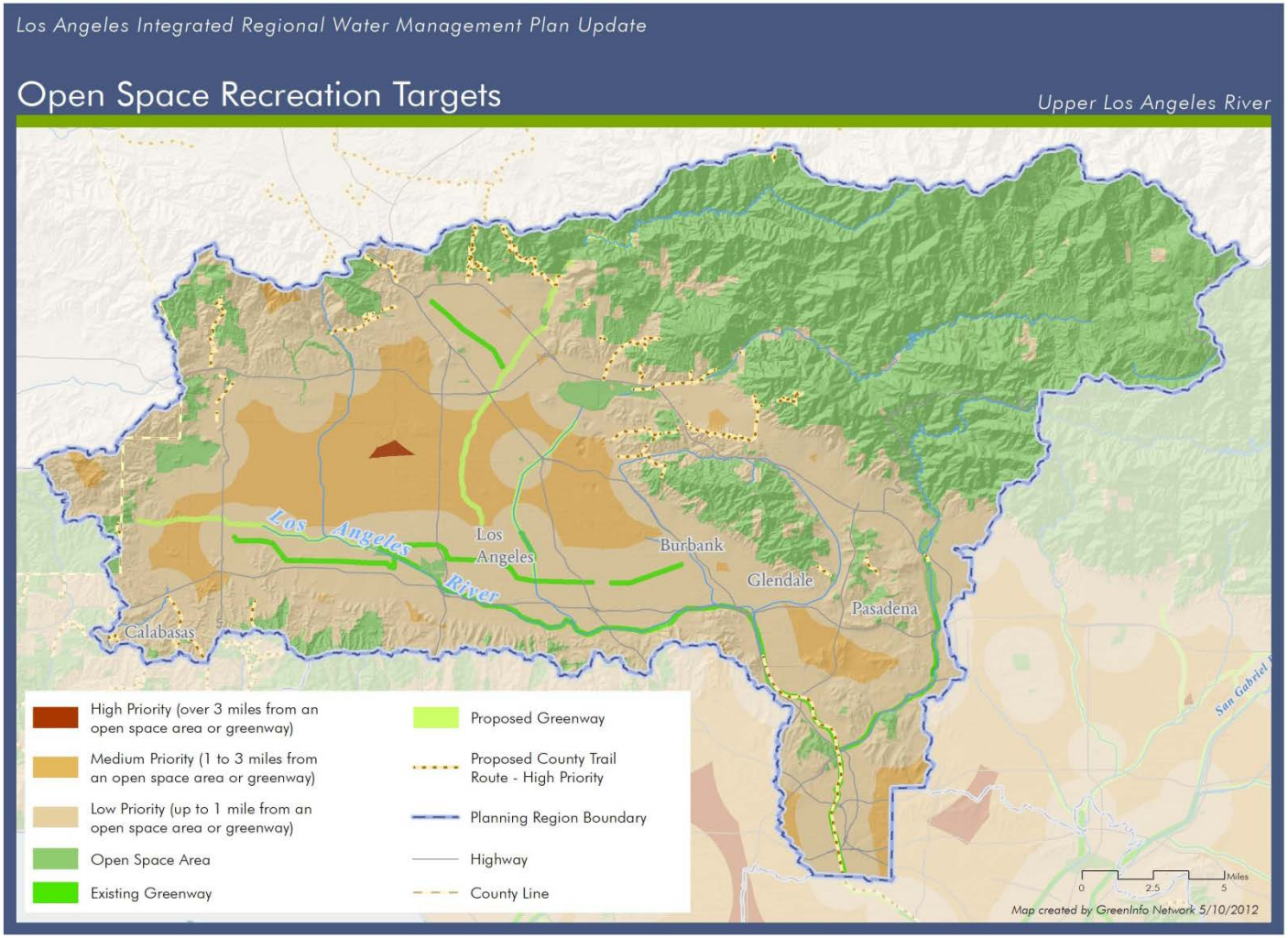

Figure 5. Open Space Recreation Targets

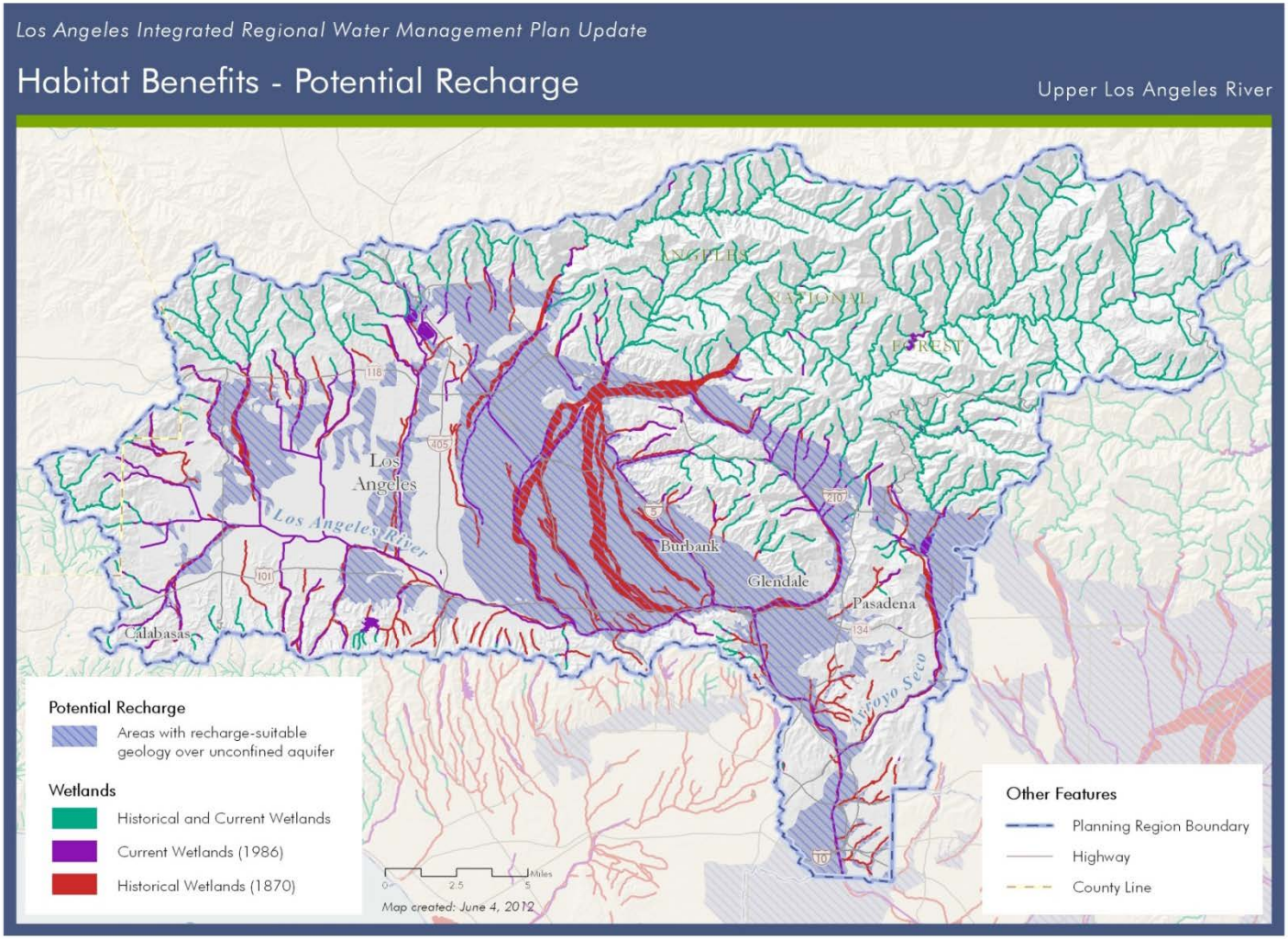

Figure 6. Habitat Targets and Potential Recharge Benefits

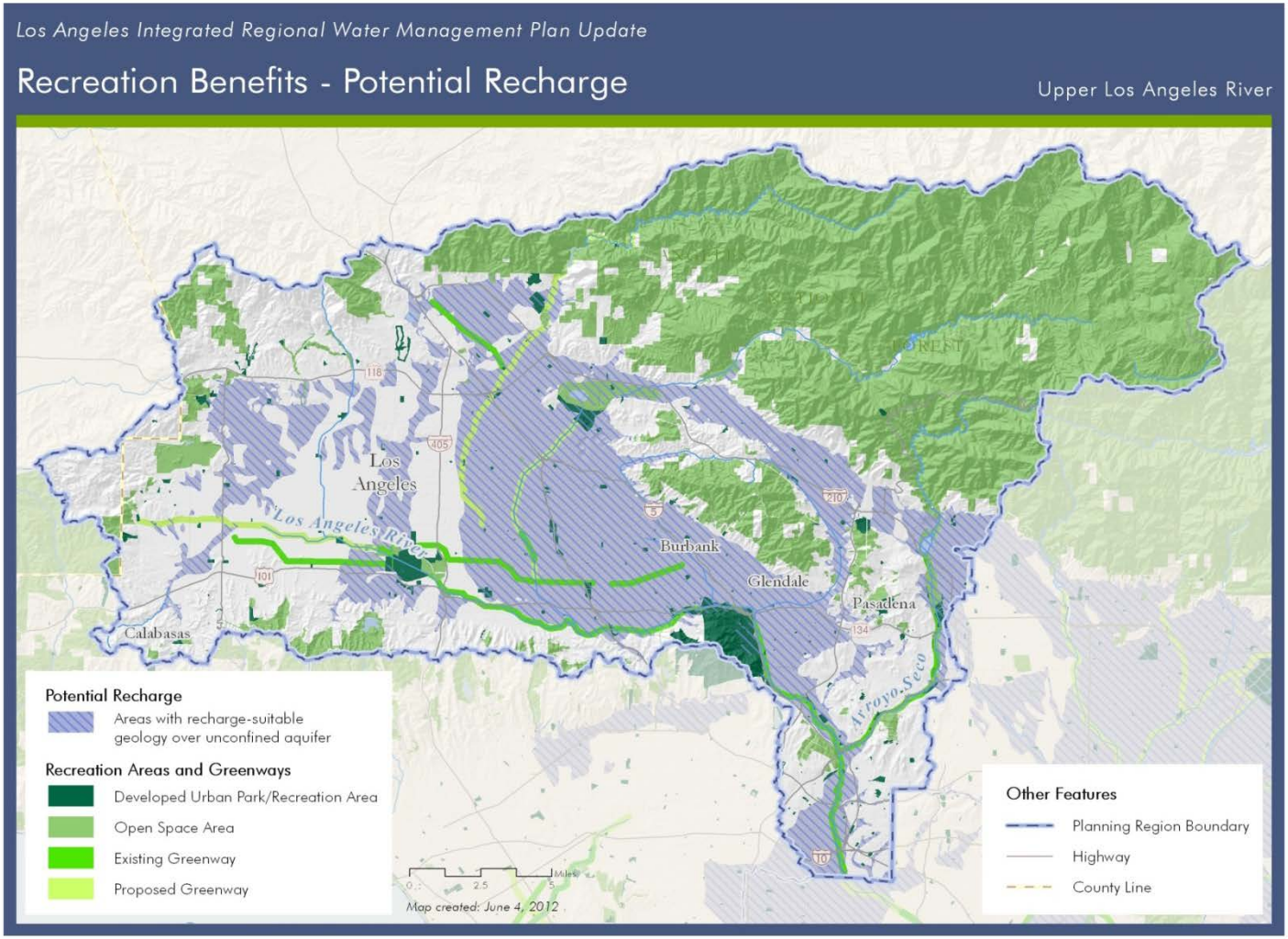

Figure 7. Recreation Targets and Potential Recharge Benefits

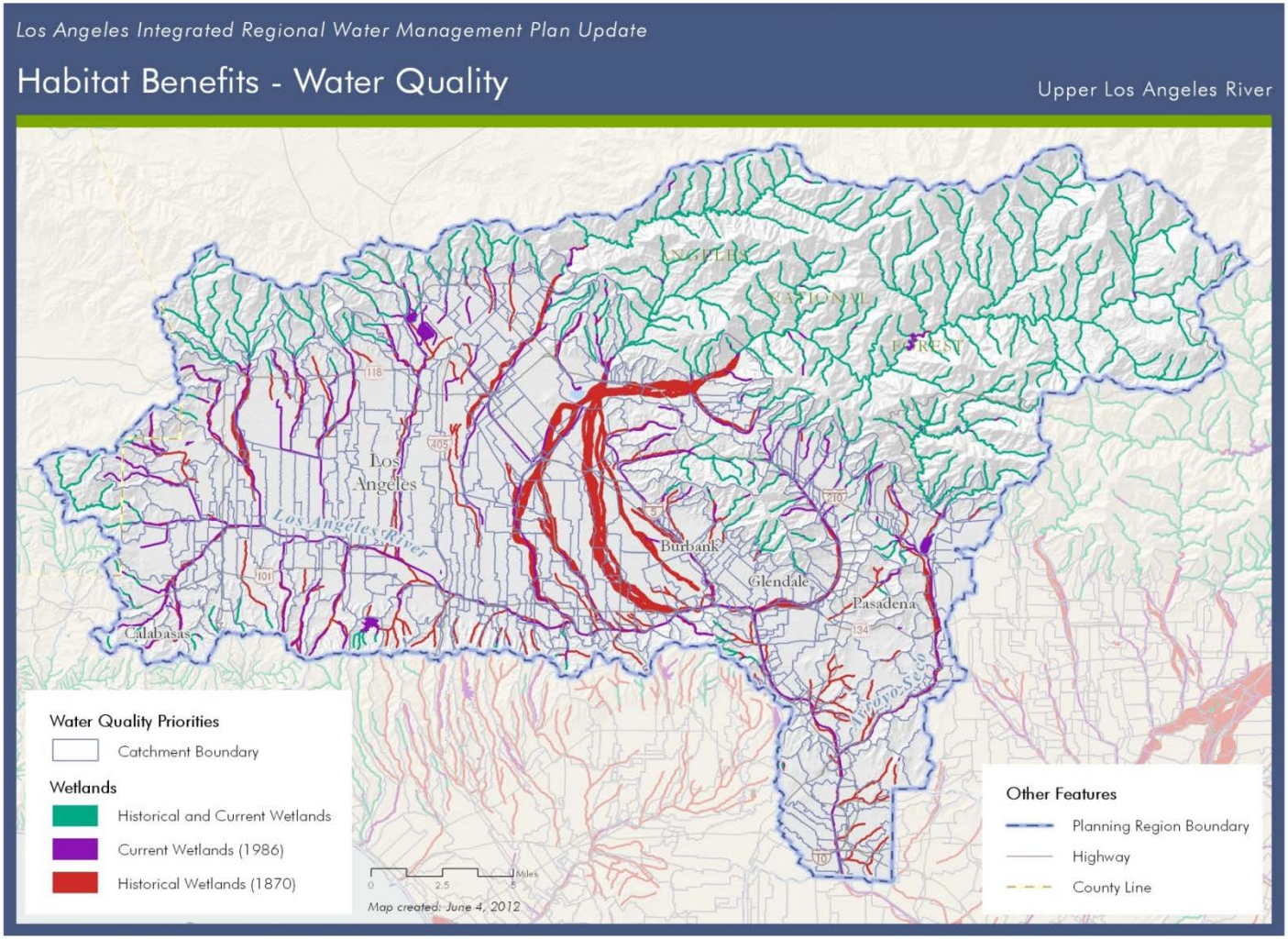

Figure 8. Habitat Targets and Potential Stormwater Quality Benefits

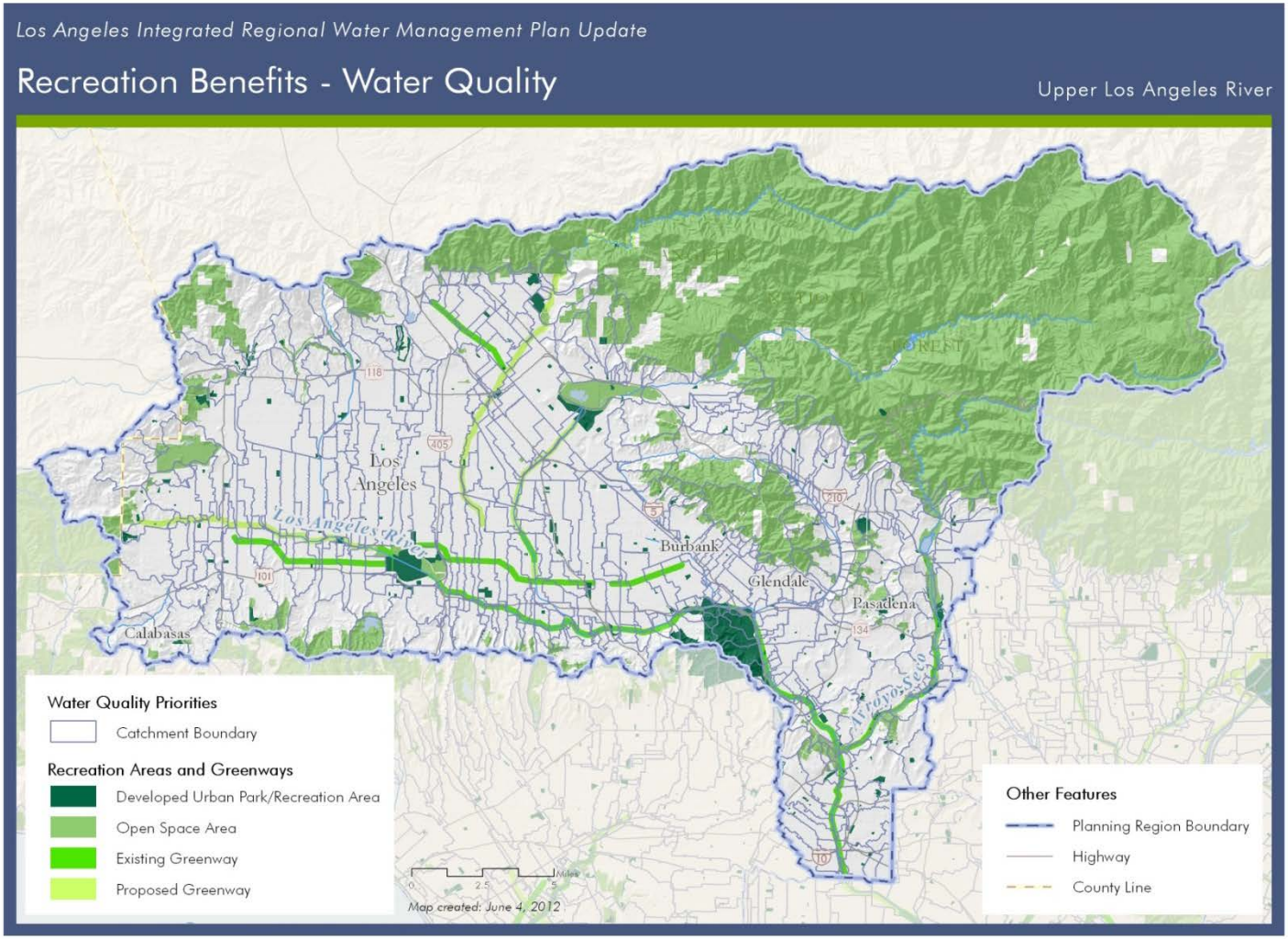

Figure 9. Recreation Targets and Potential Stormwater Quality Benefits

Appendix I

Subregional Figures: Upper San Gabriel and Rio Hondo

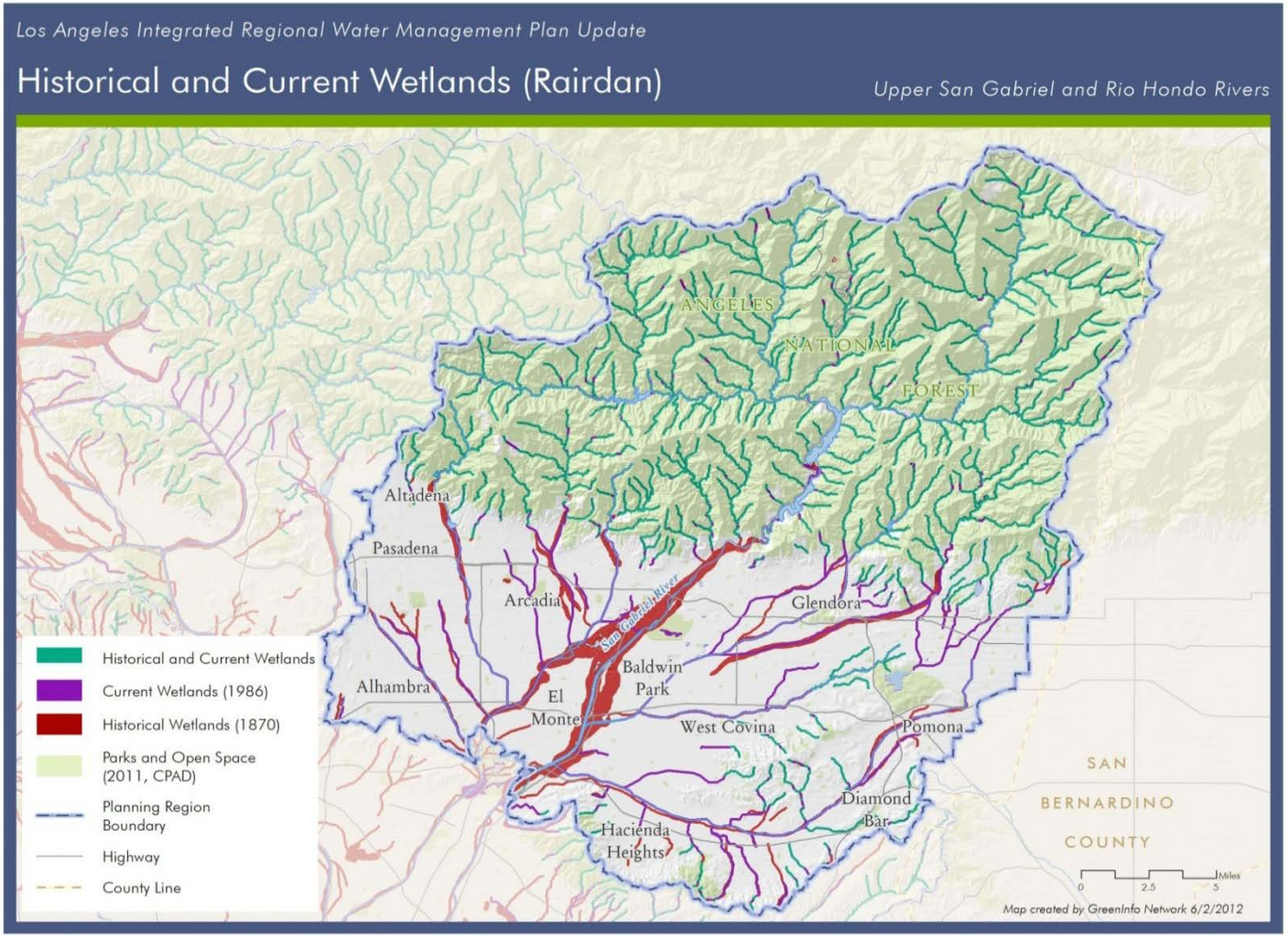

Figure 1. Historical and Current Wetlands (Rairdan)

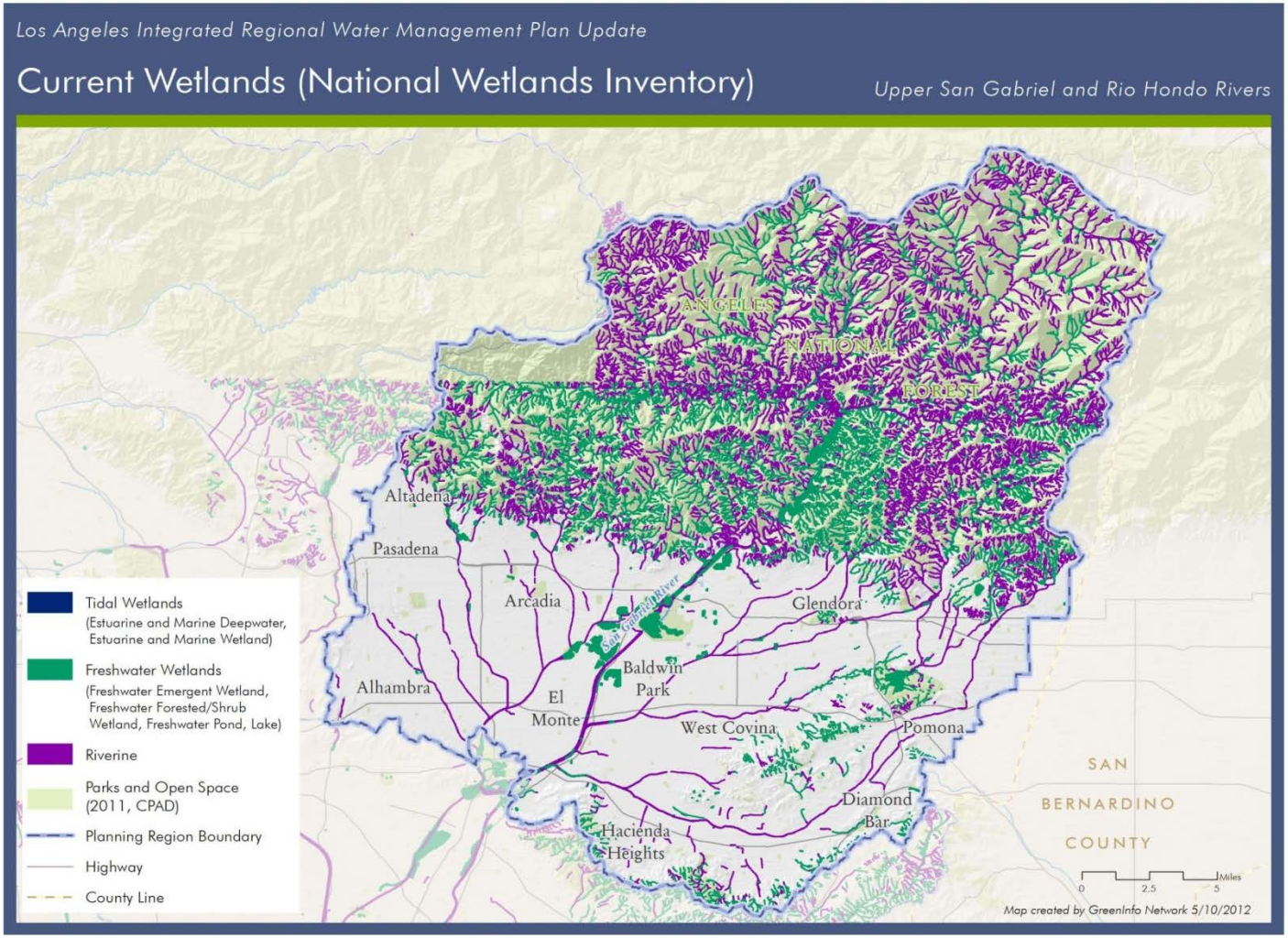

Figure 2. Current Wetlands (NWI)

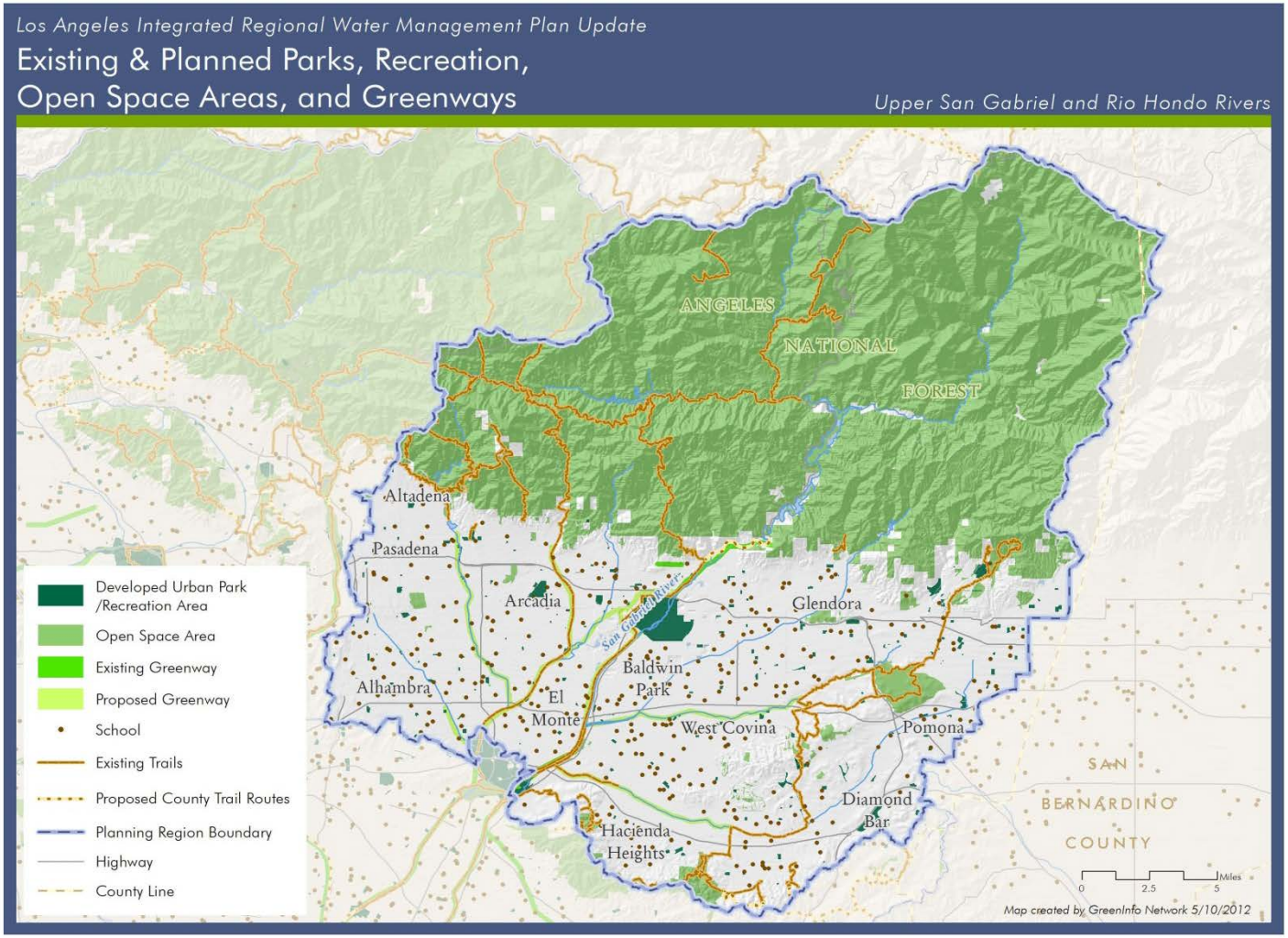

Figure 3. Existing and Planned Parks, Recreation, Open Space Areas, and Greenways

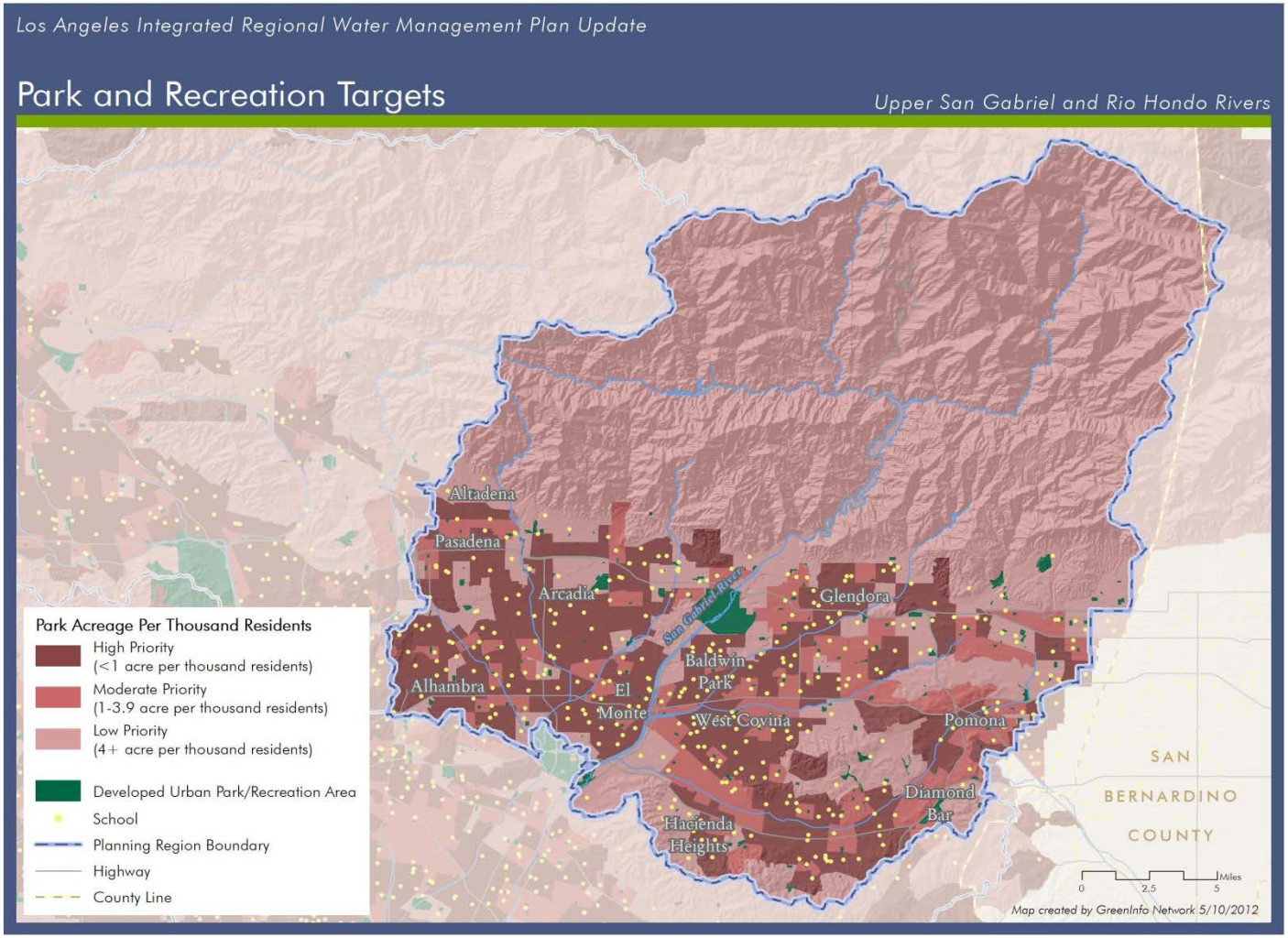

Figure 4. Park and Recreation Targets

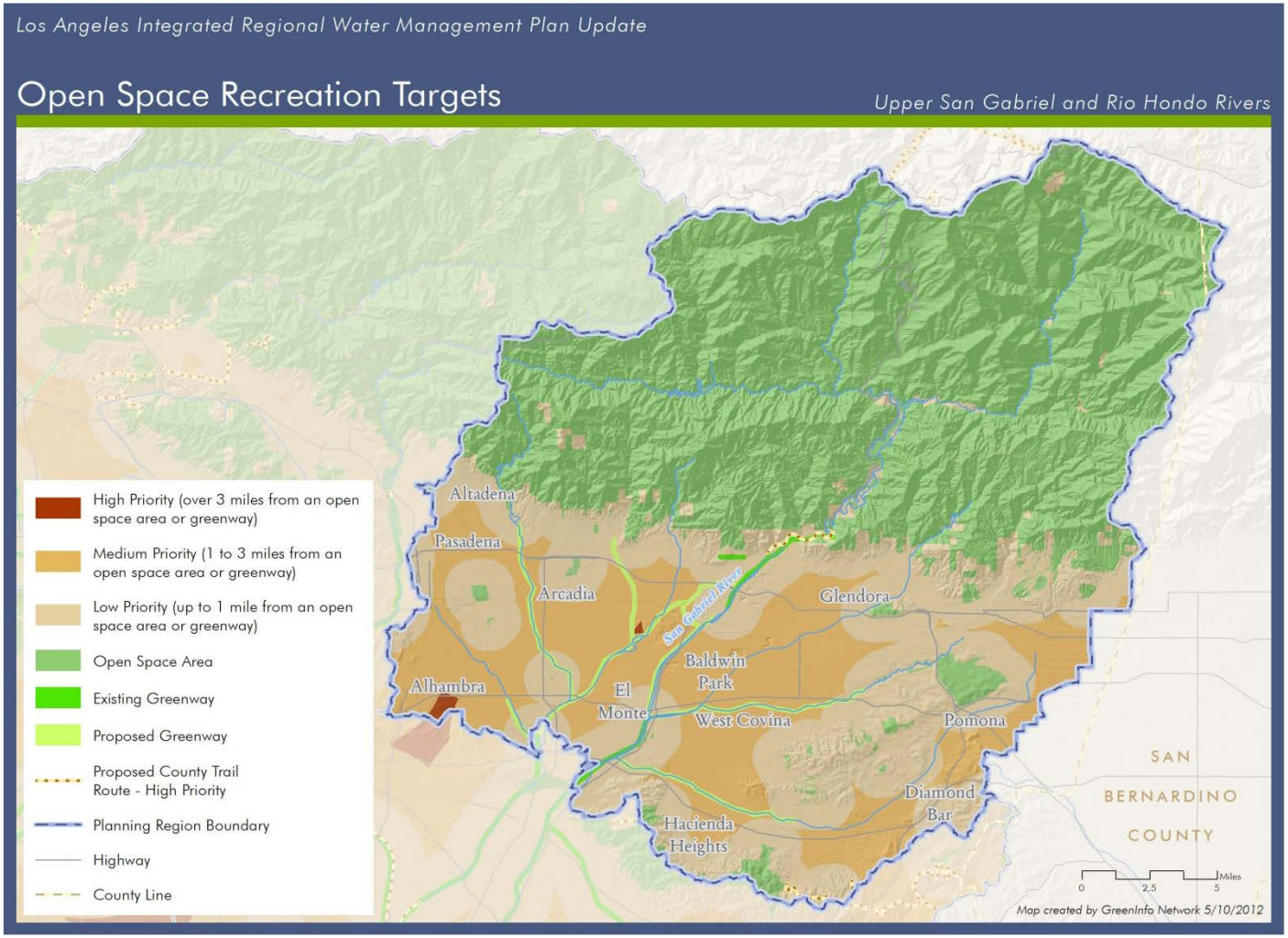

Figure 5. Open Space Recreation Targets

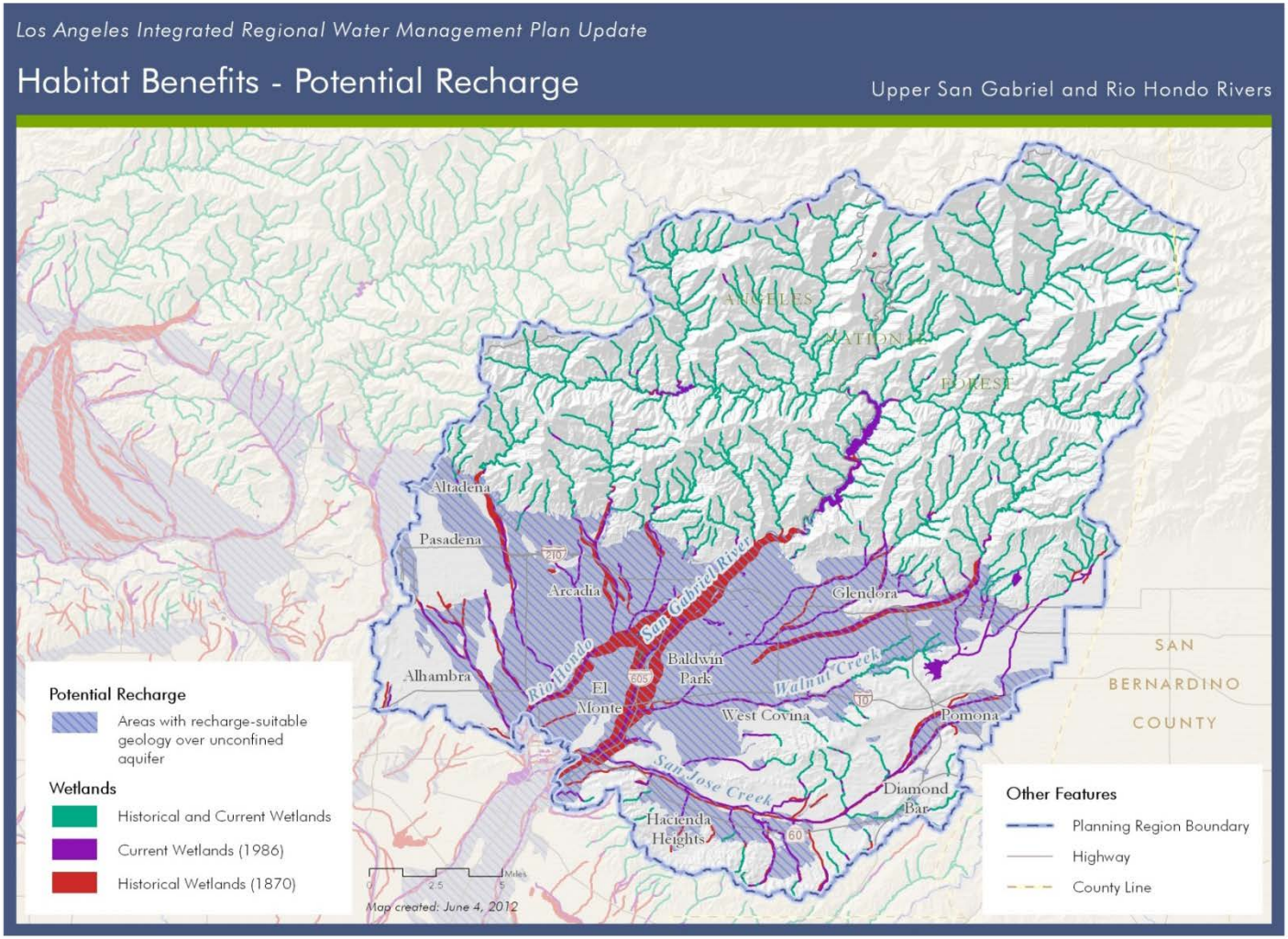

Figure 6. Habitat Targets and Potential Recharge Benefits

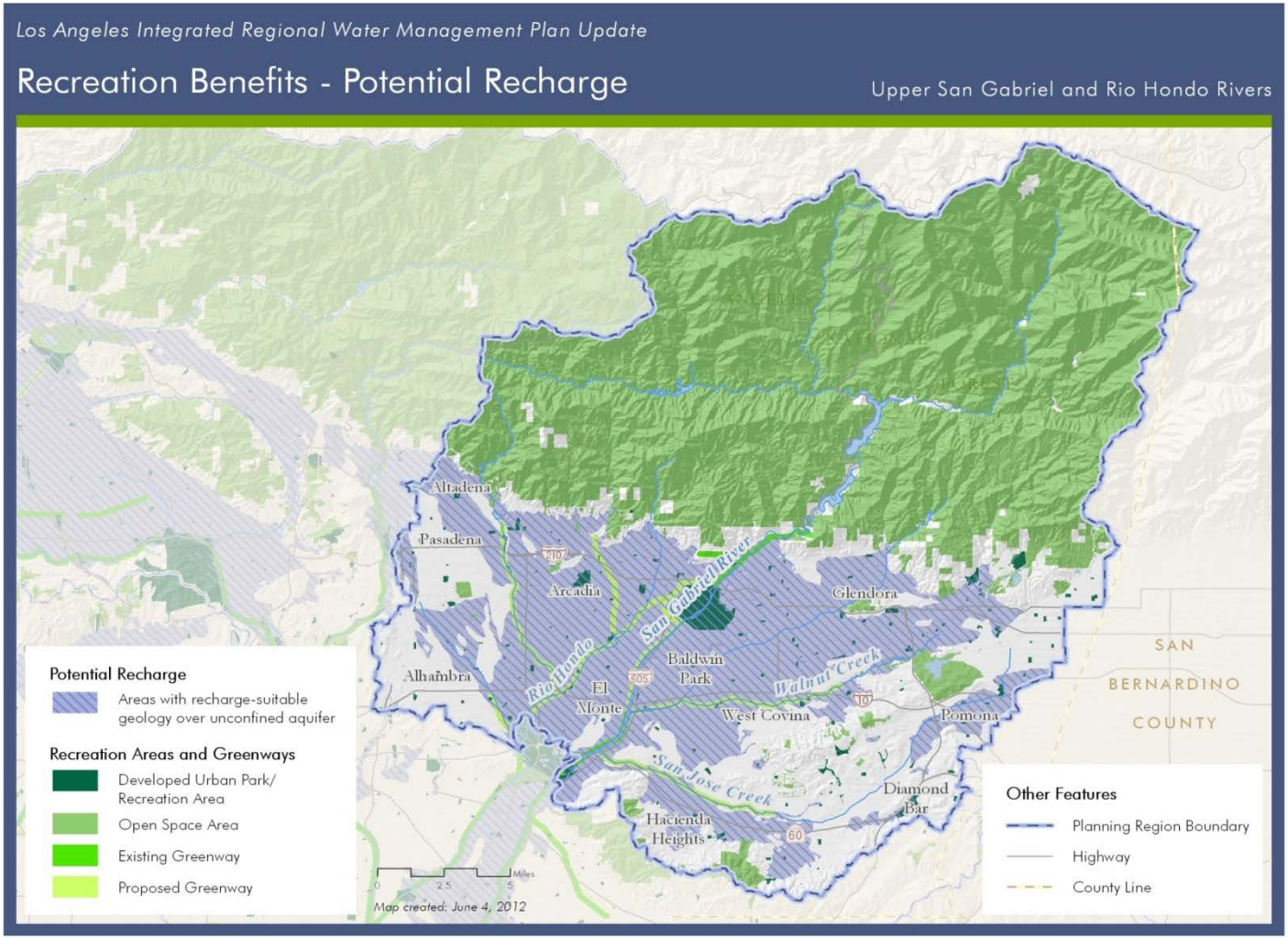

Figure 7. Recreation Targets and Potential Recharge Benefits

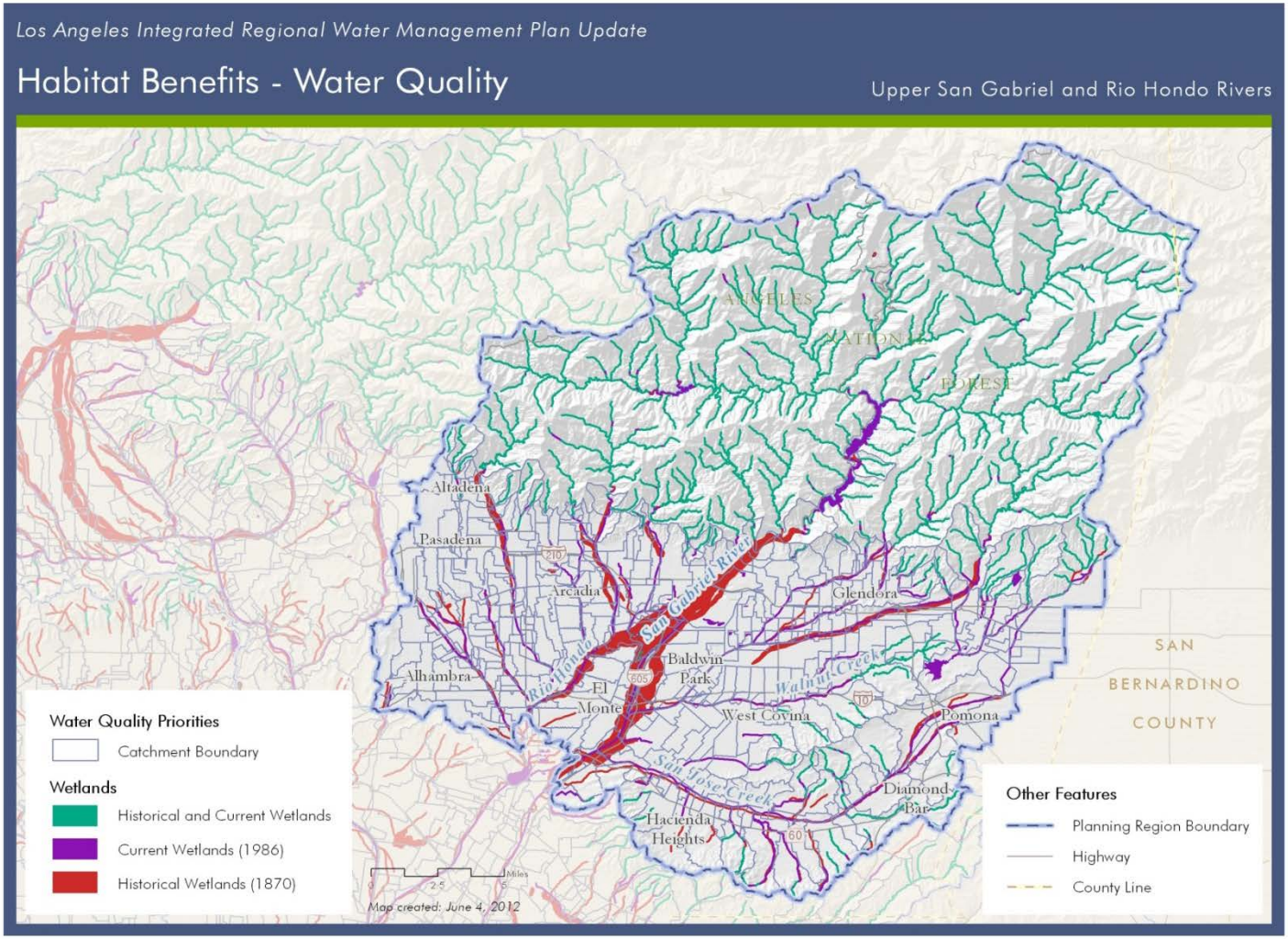

Figure 8. Habitat Targets and Potential Stormwater Quality Benefits

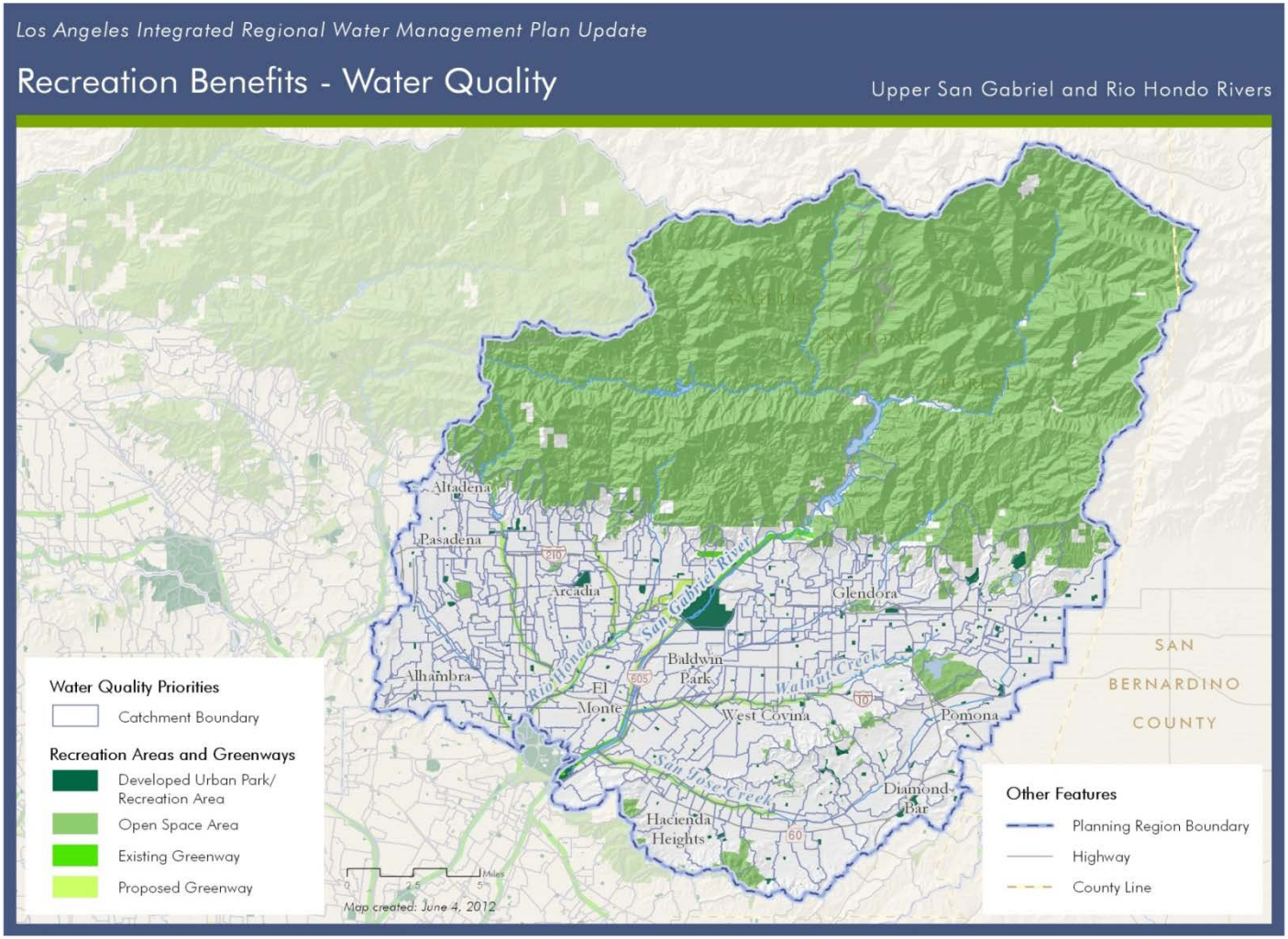

Figure 9. Recreation Targets and Potential Stormwater Quality Benefits

Appendix J

Subregional Figures: Lower San Gabriel and Los Angeles Rivers

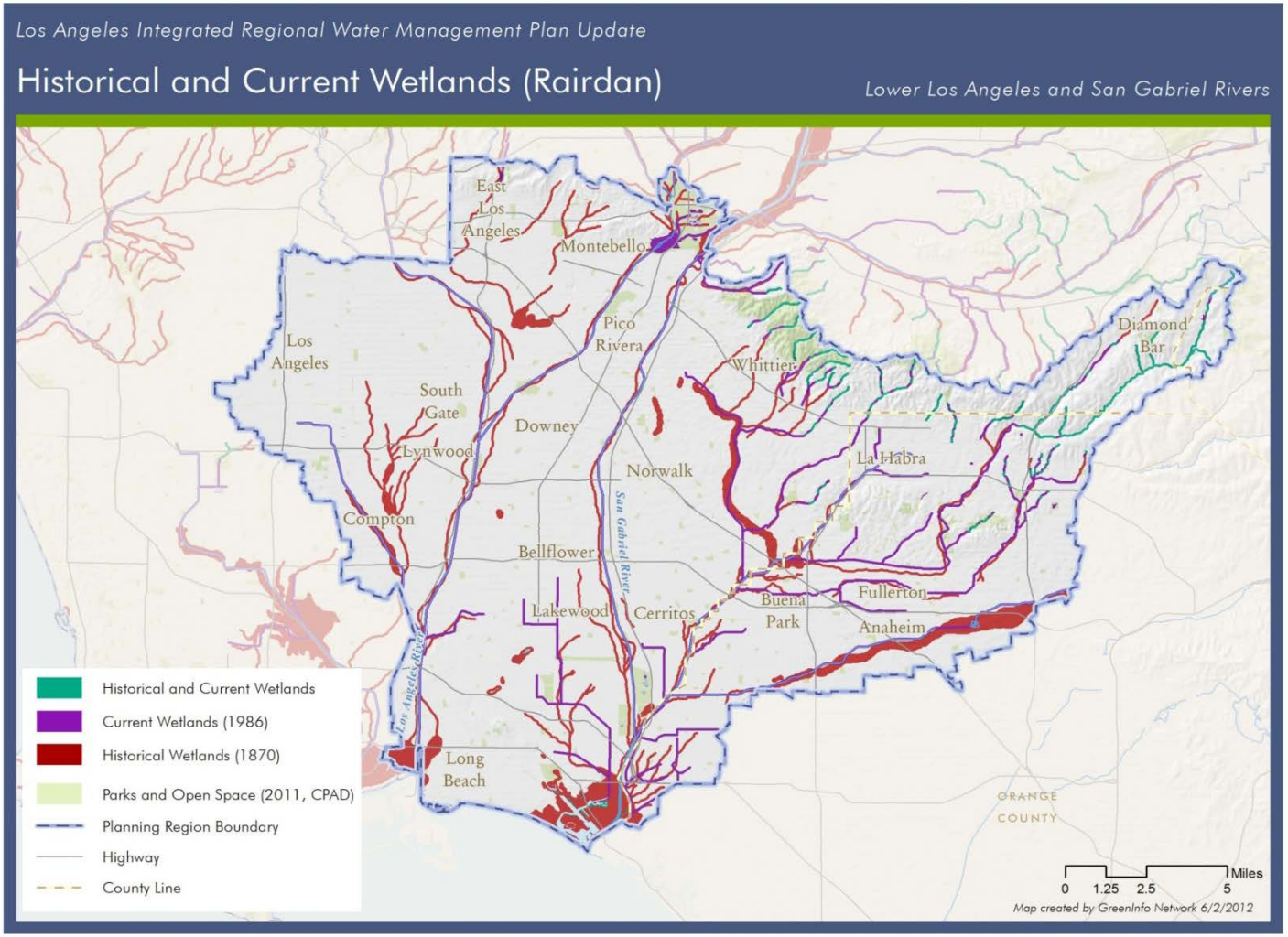

Figure 1. Historical and Current Wetlands (Rairdan)

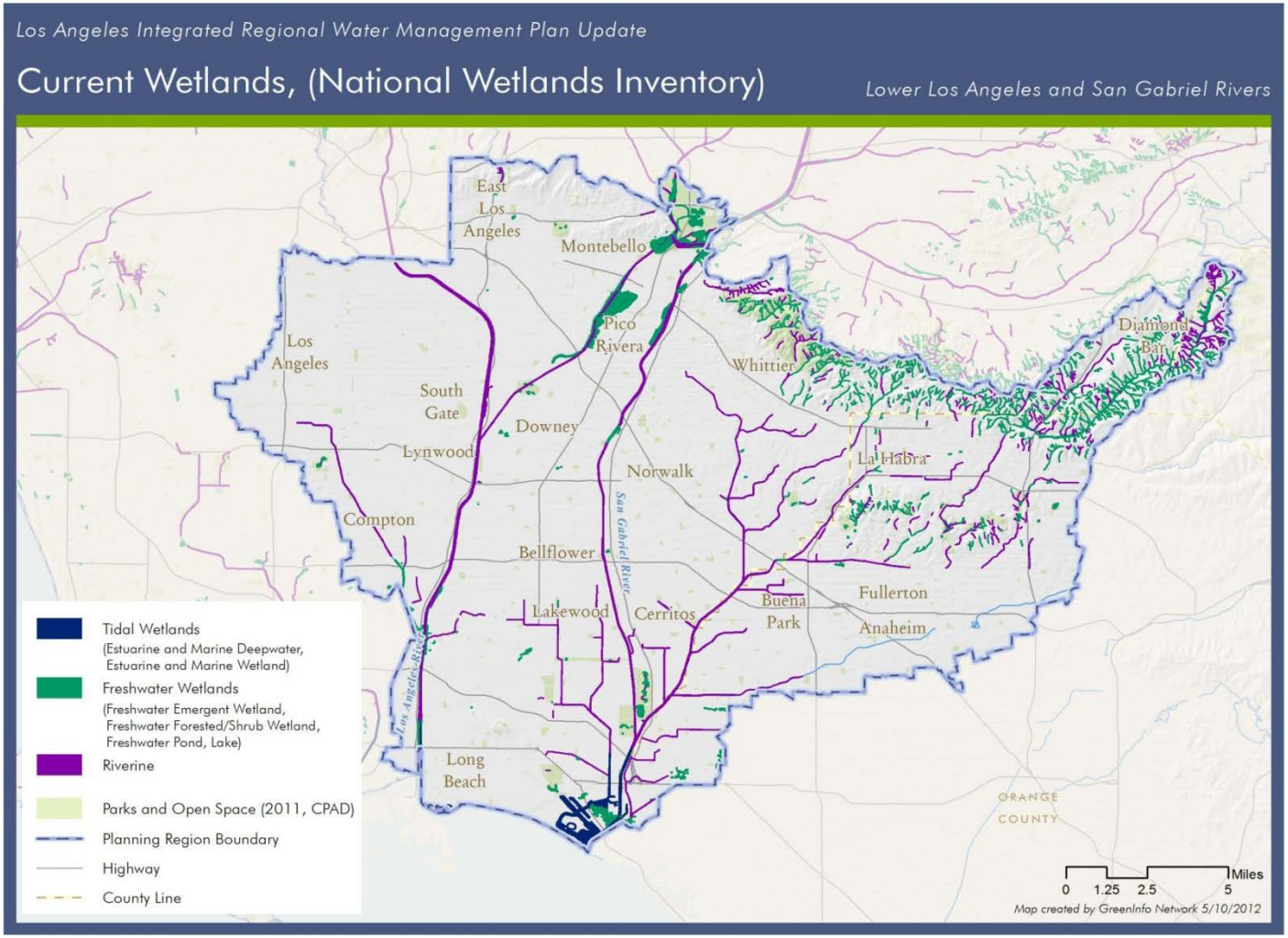

Figure 2. Current Wetlands (NWI)

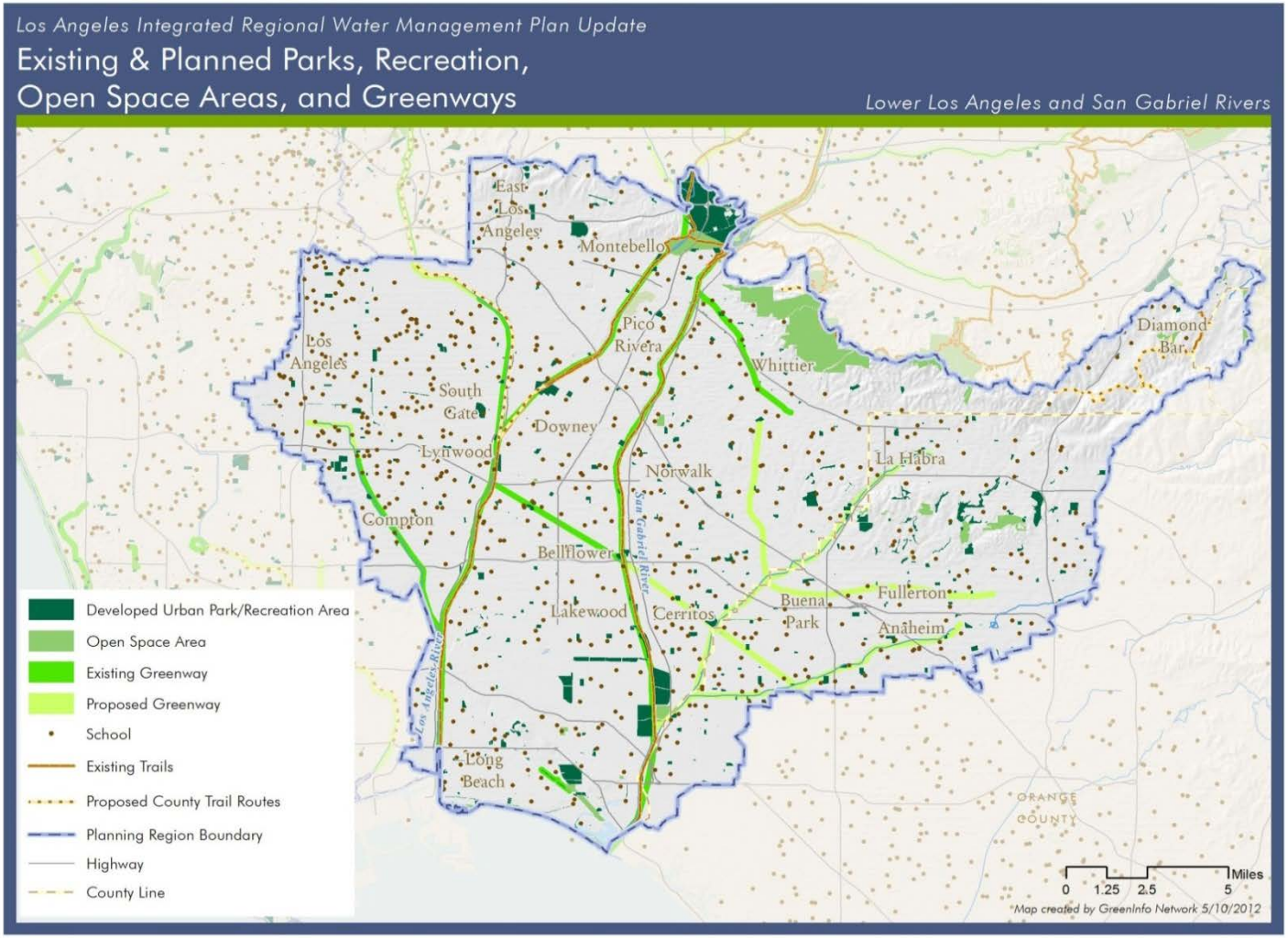

Figure 3. Existing and Planned Parks, Recreation, Open Space Areas, and Greenways

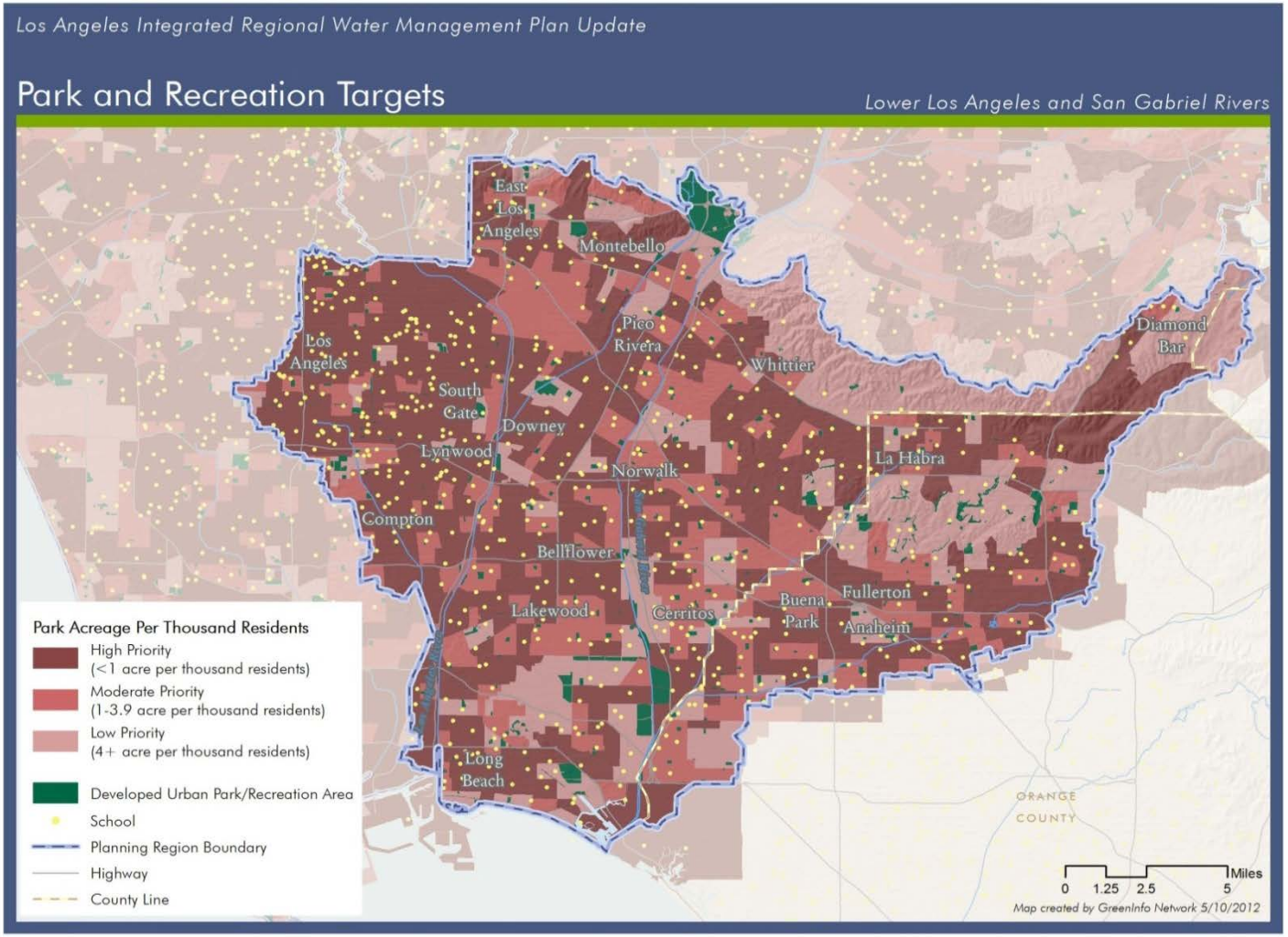

Figure 4. Park and Recreation Targets

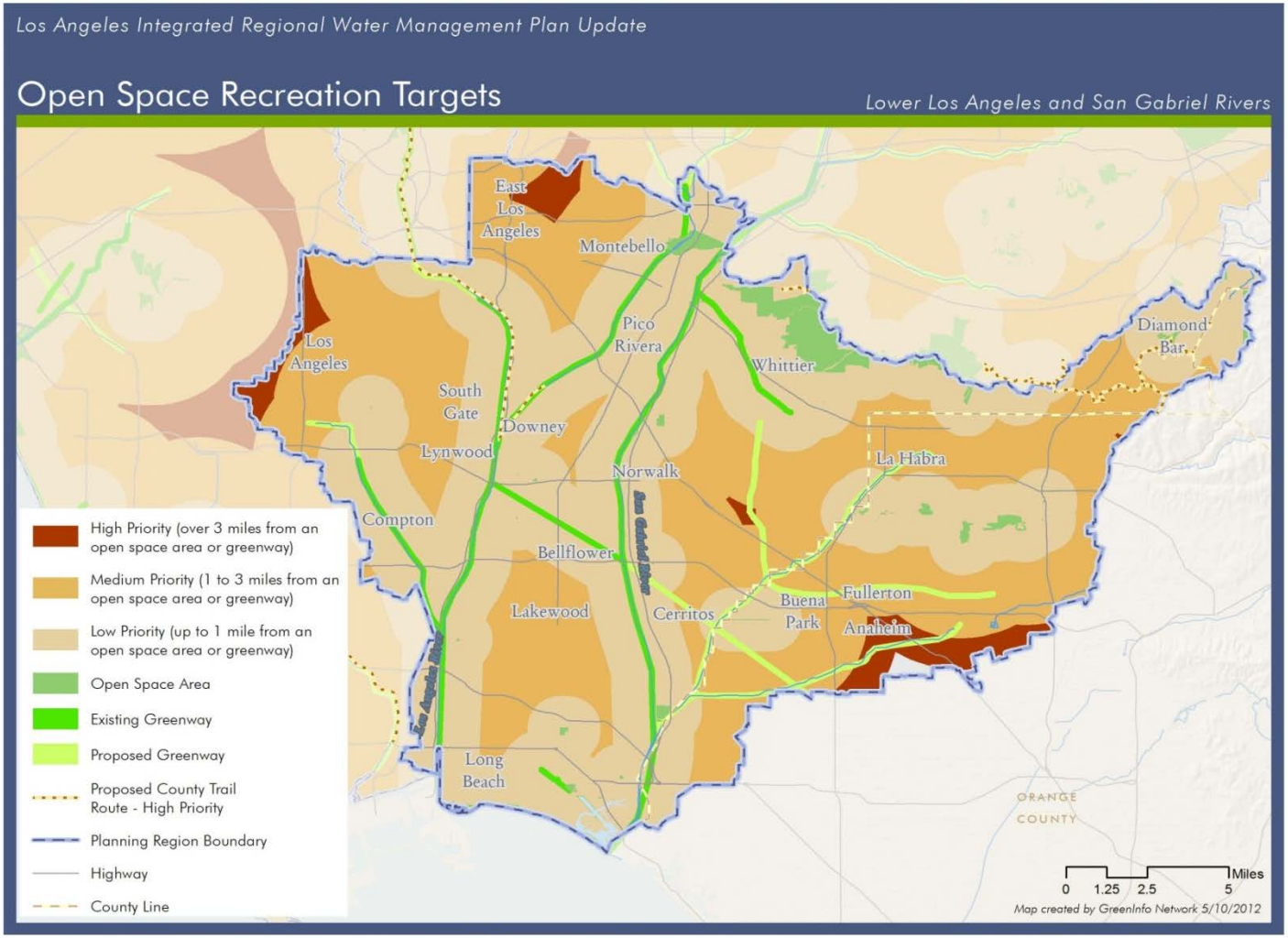

Figure 5. Open Space Recreation Targets

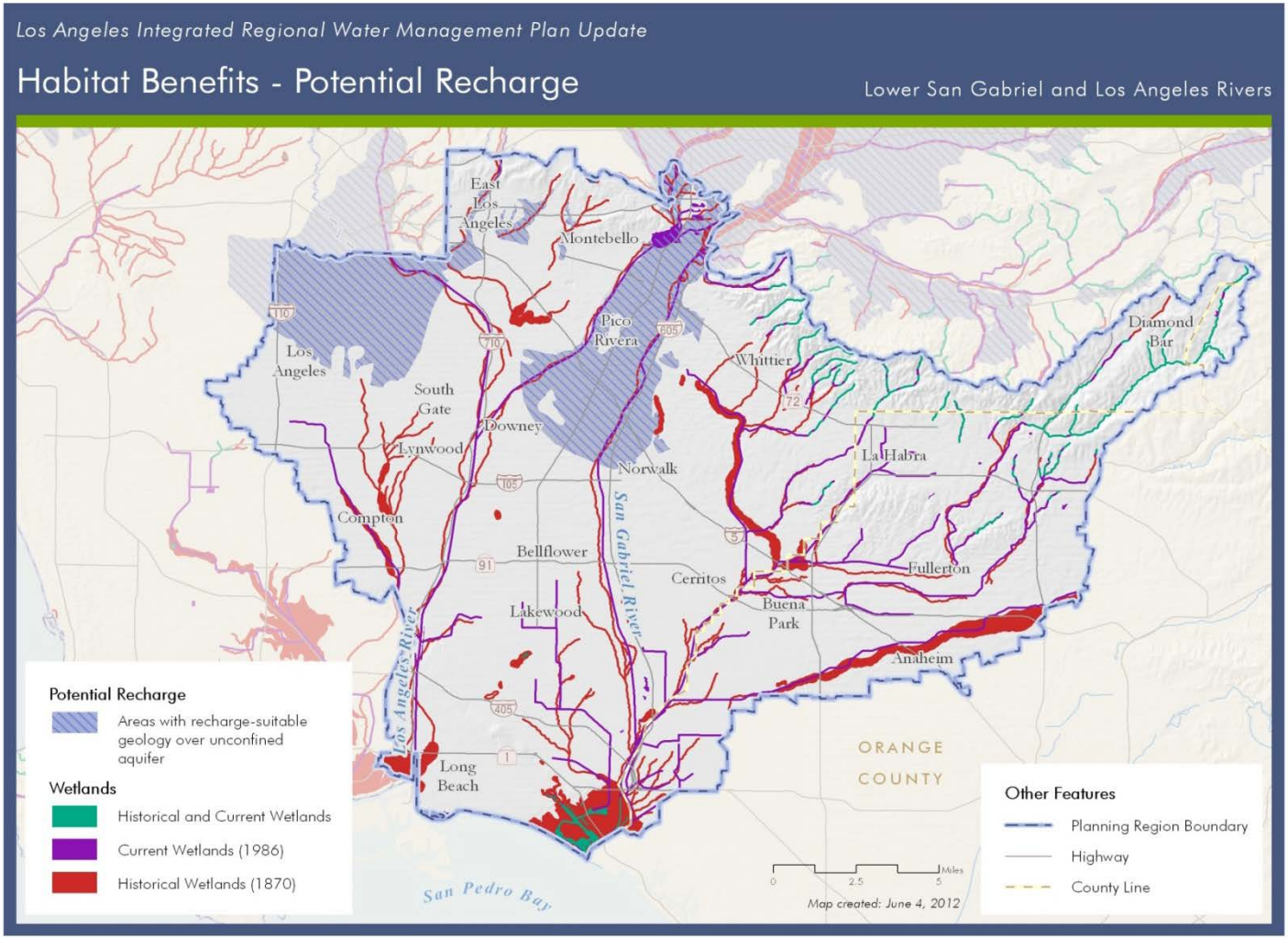

Figure 6. Habitat Targets and Potential Recharge Benefits

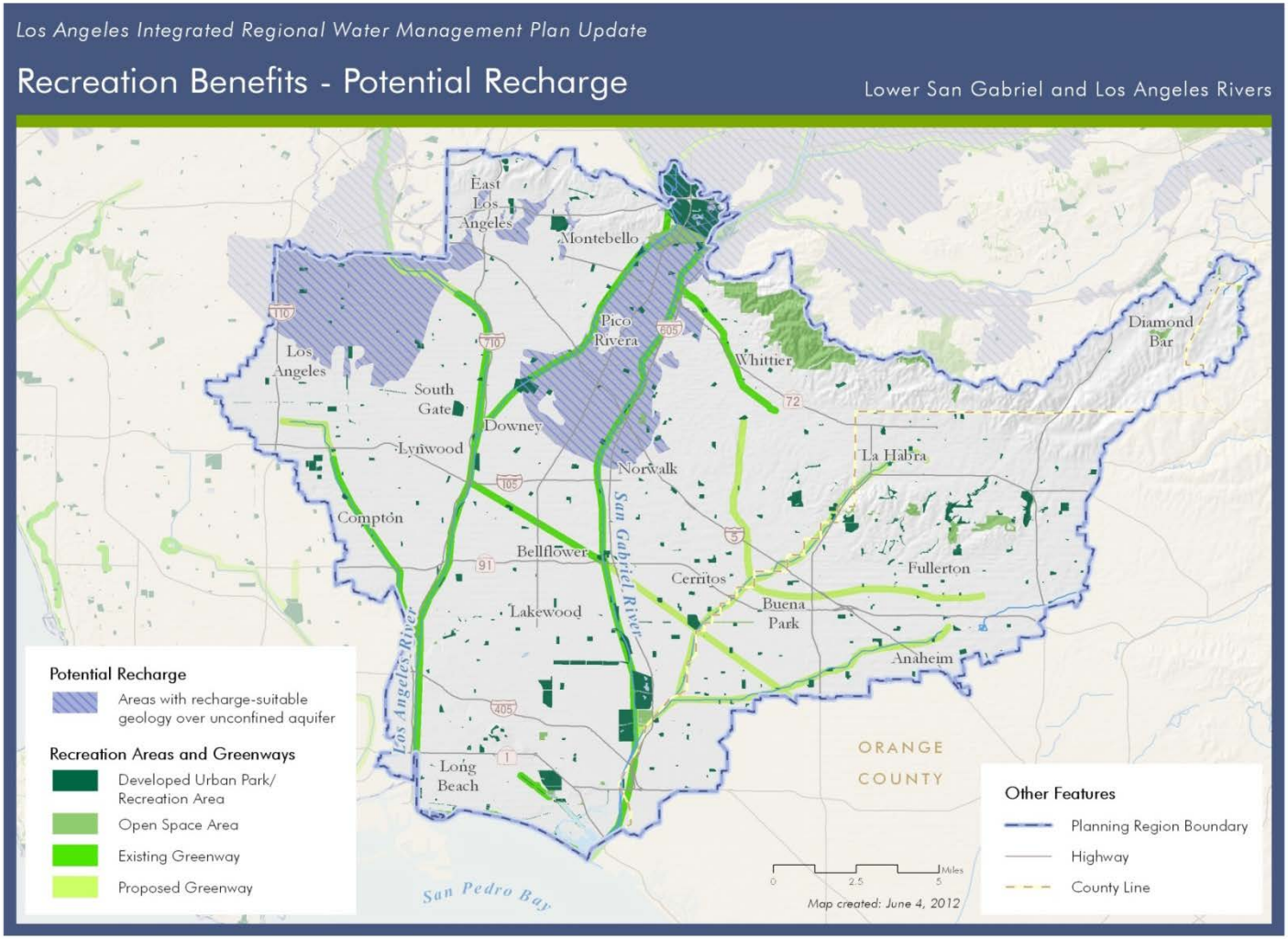

Figure 7. Recreation Targets and Potential Recharge Benefits

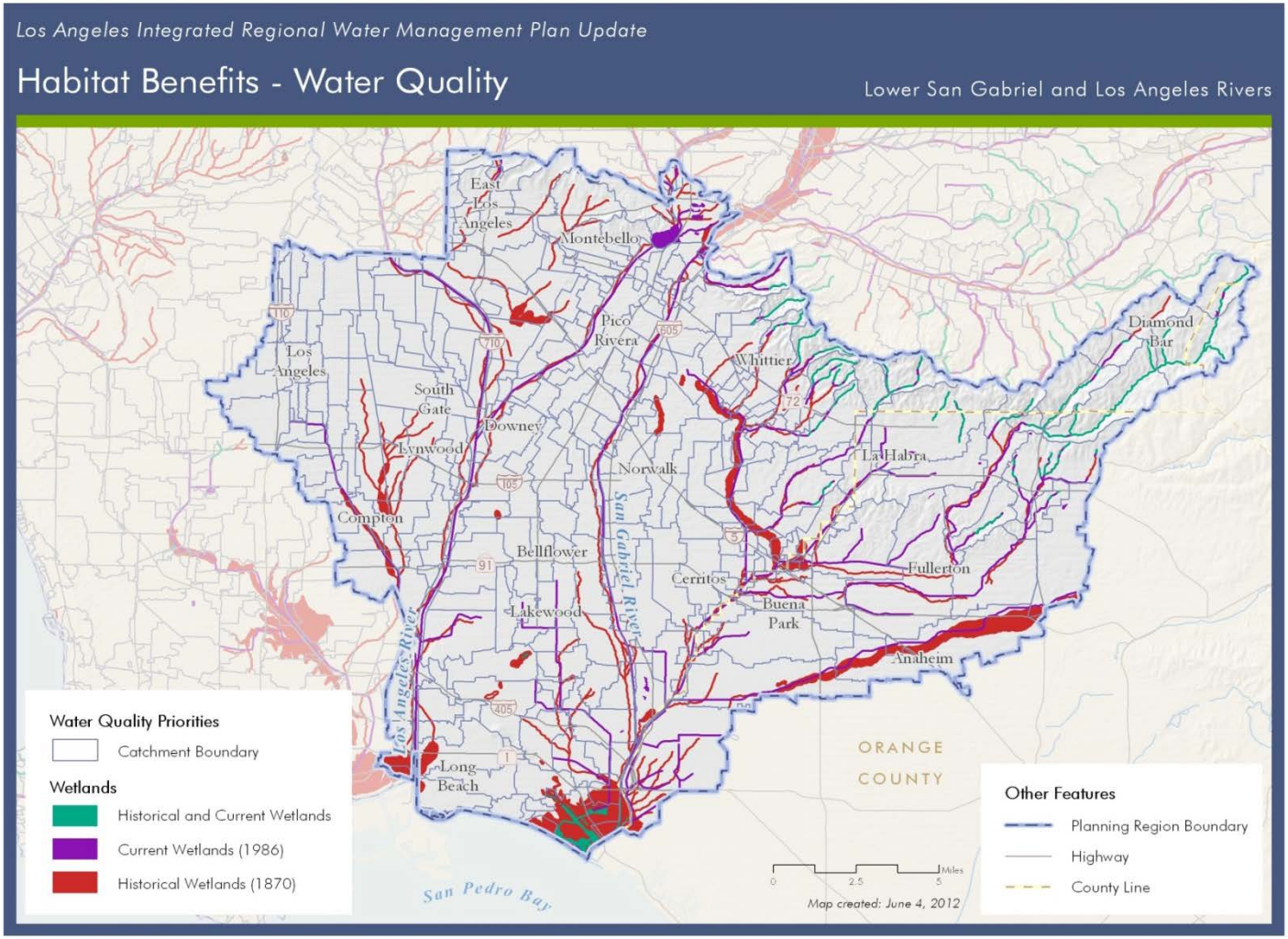

Figure 8. Habitat Targets and Potential Stormwater Quality Benefits

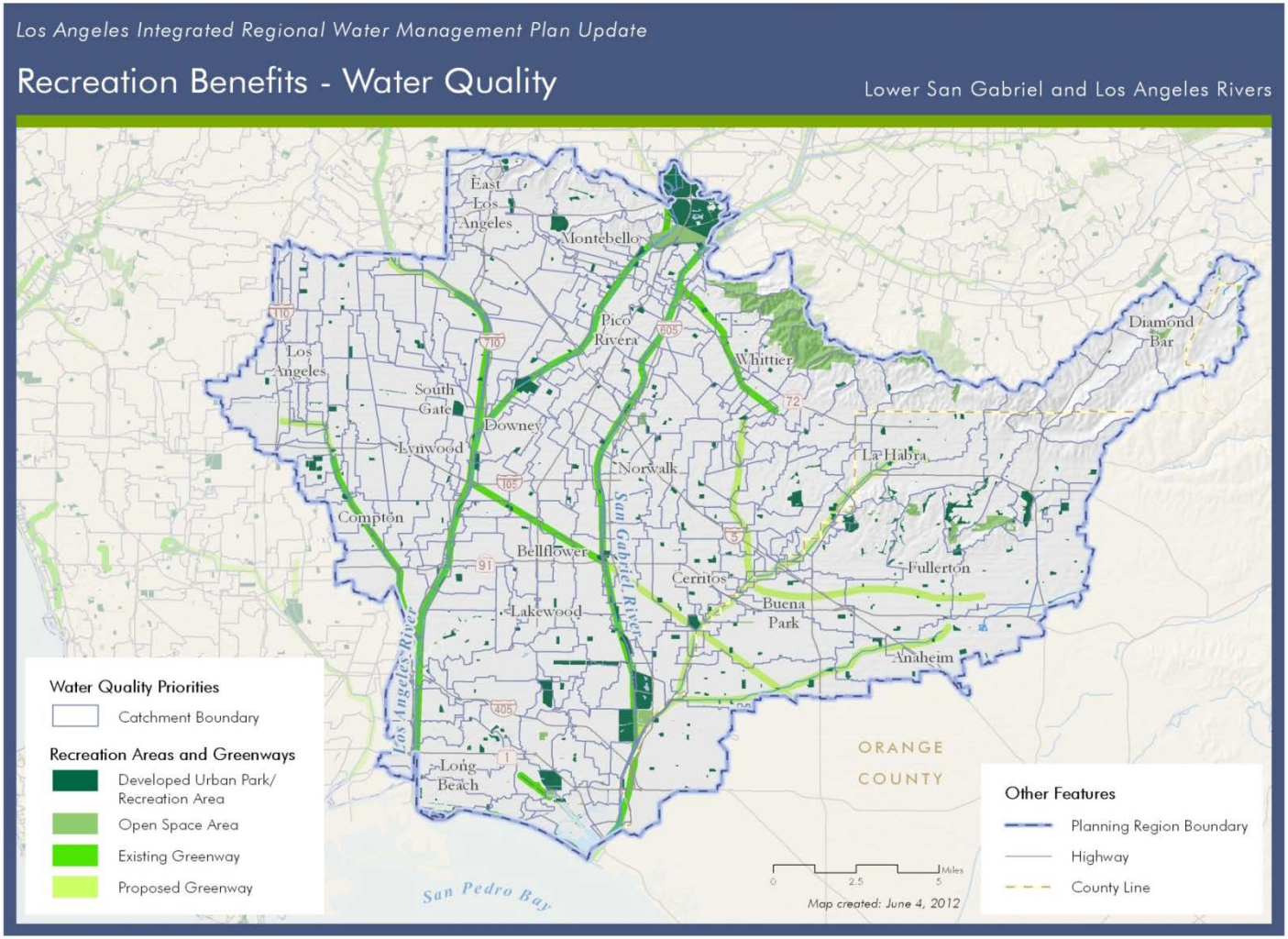

Figure 9. Recreation Targets and Potential Stormwater Quality Benefits

Appendix K

Subregional Figures: South Santa Monica Bay

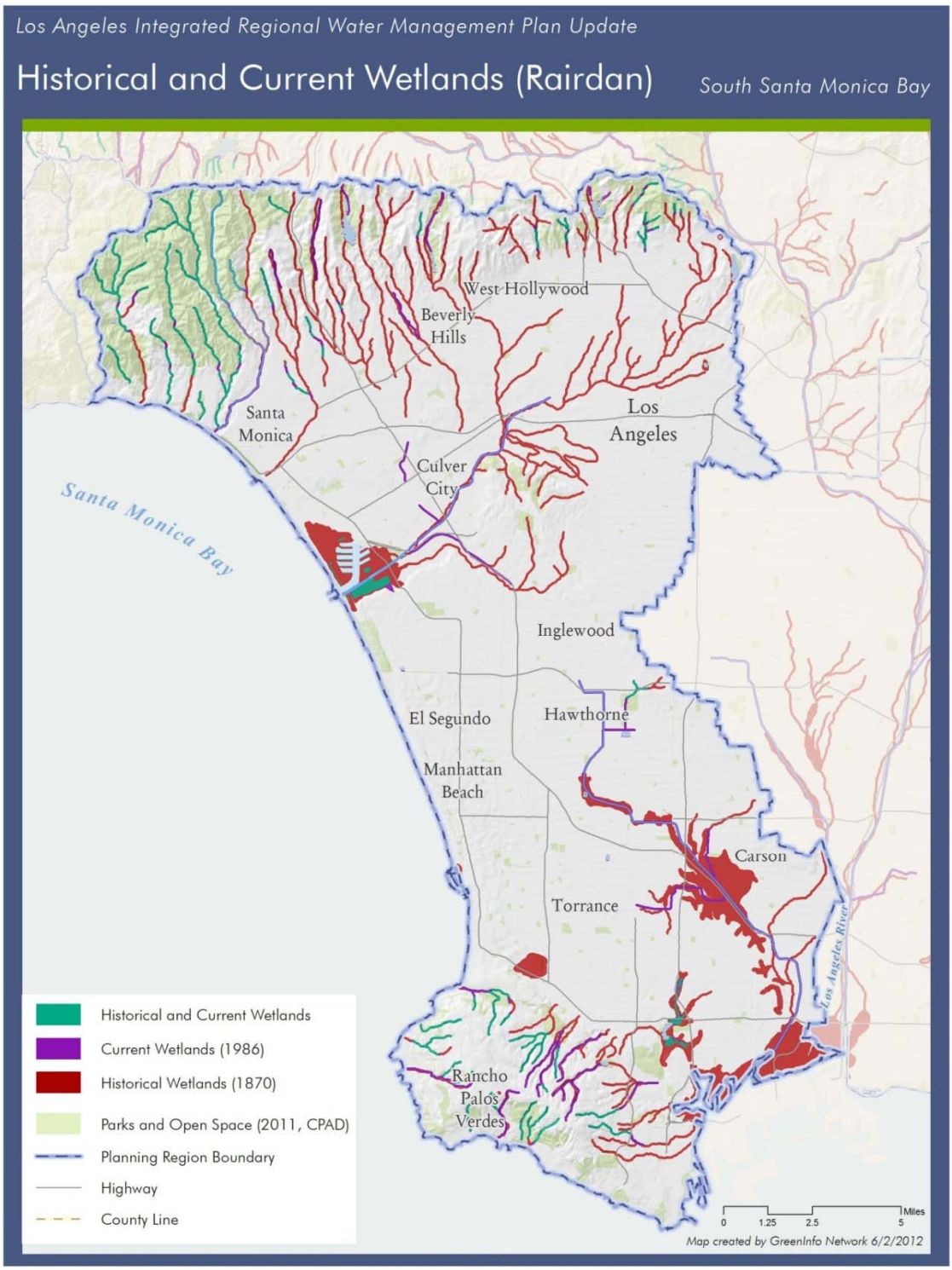

Figure 1. Historical and Current Wetlands (Rairdan)

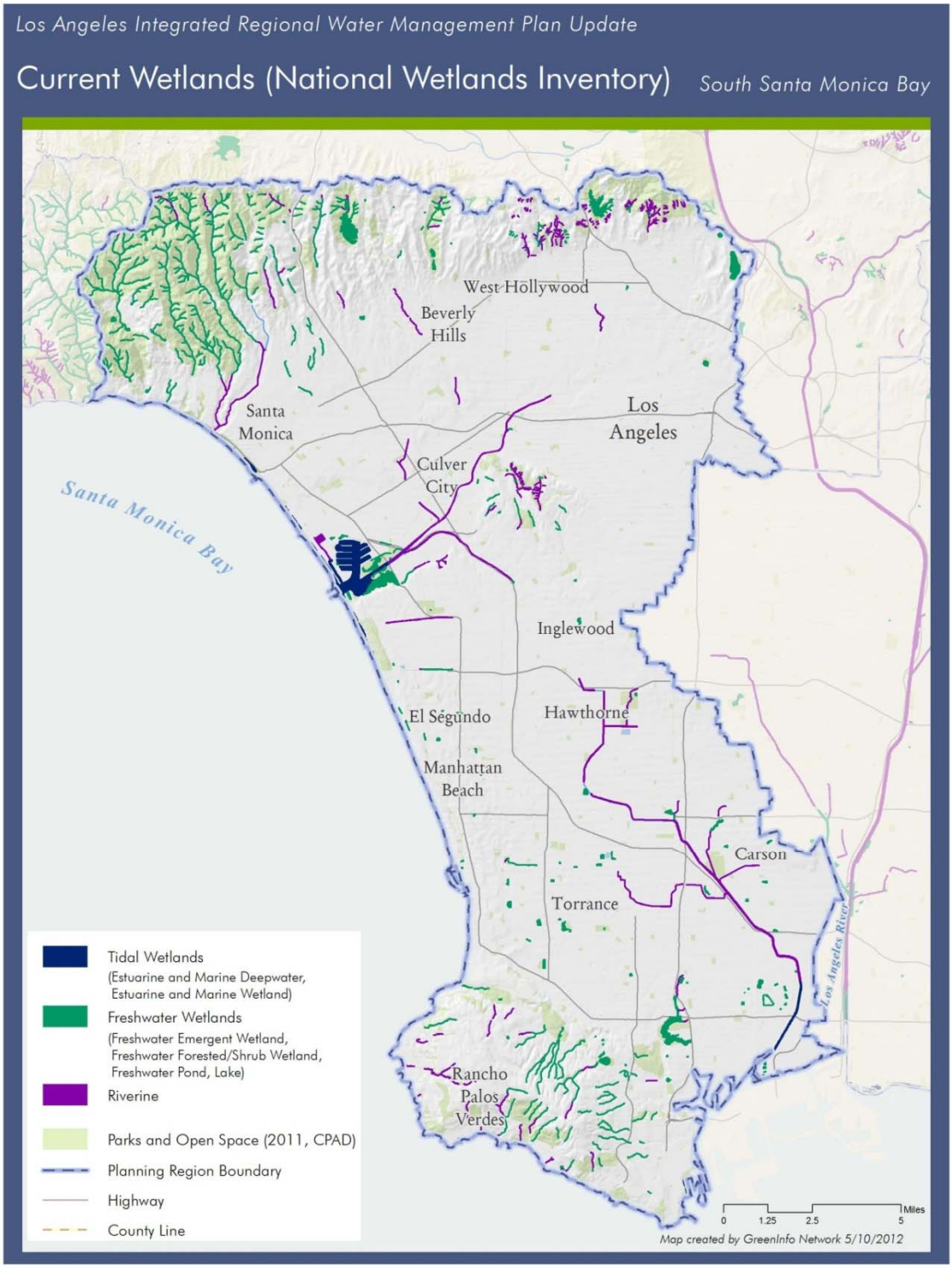

Figure 2. Current Wetlands (NWI)

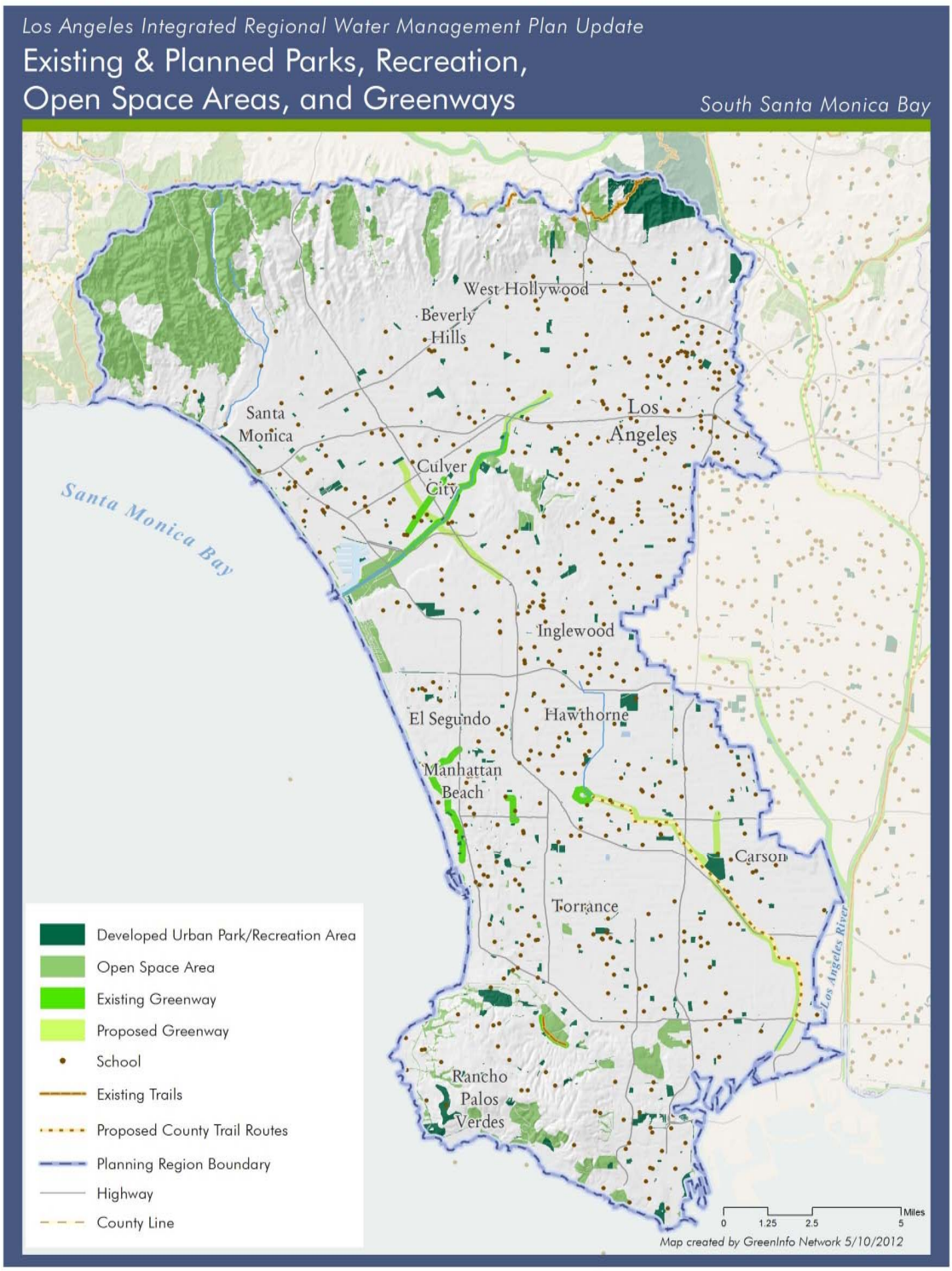

Figure 3. Existing and Planned Parks, Recreation, Open Space Areas, and Greenways

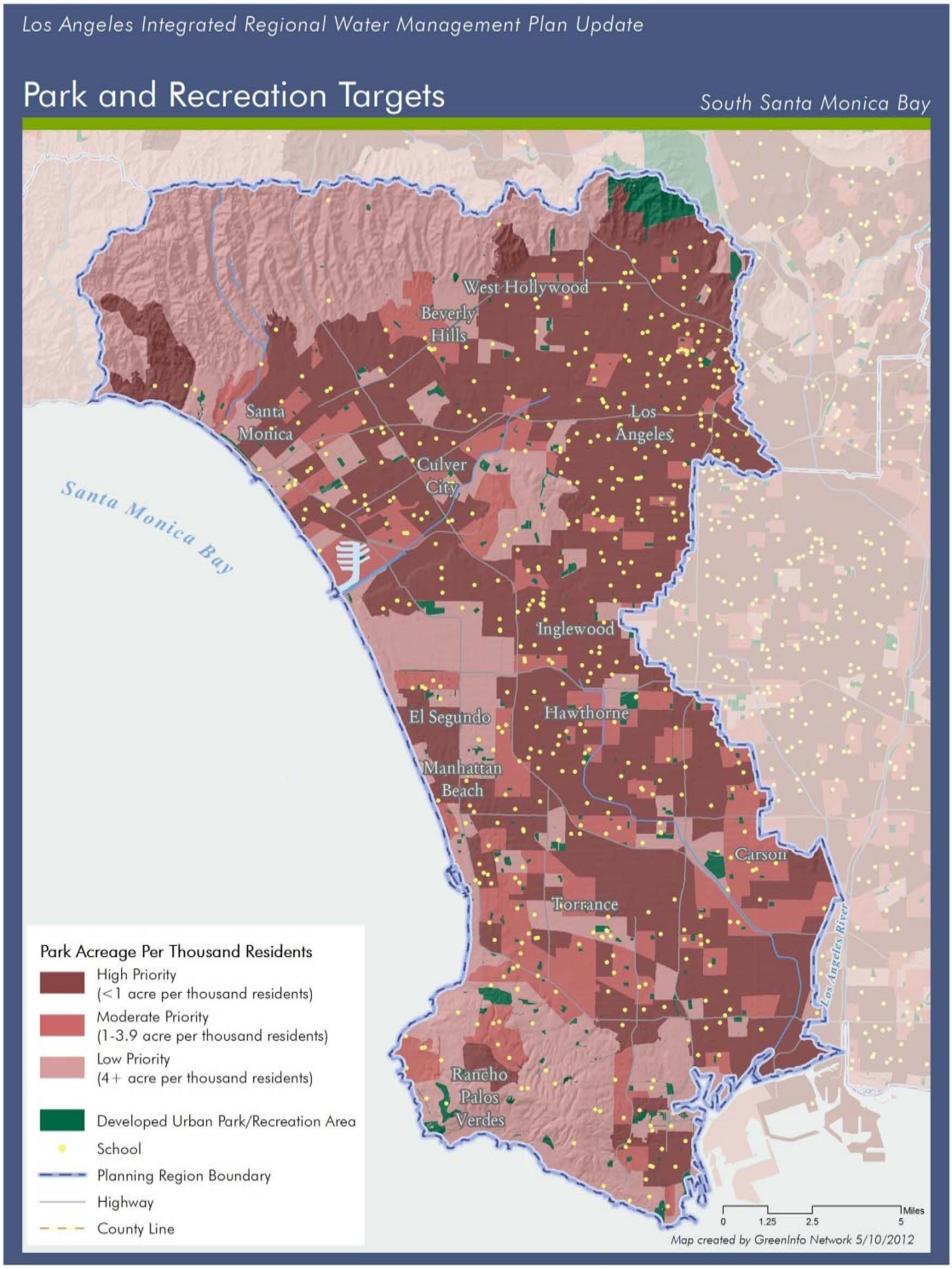

Figure 4. Park and Recreation Targets

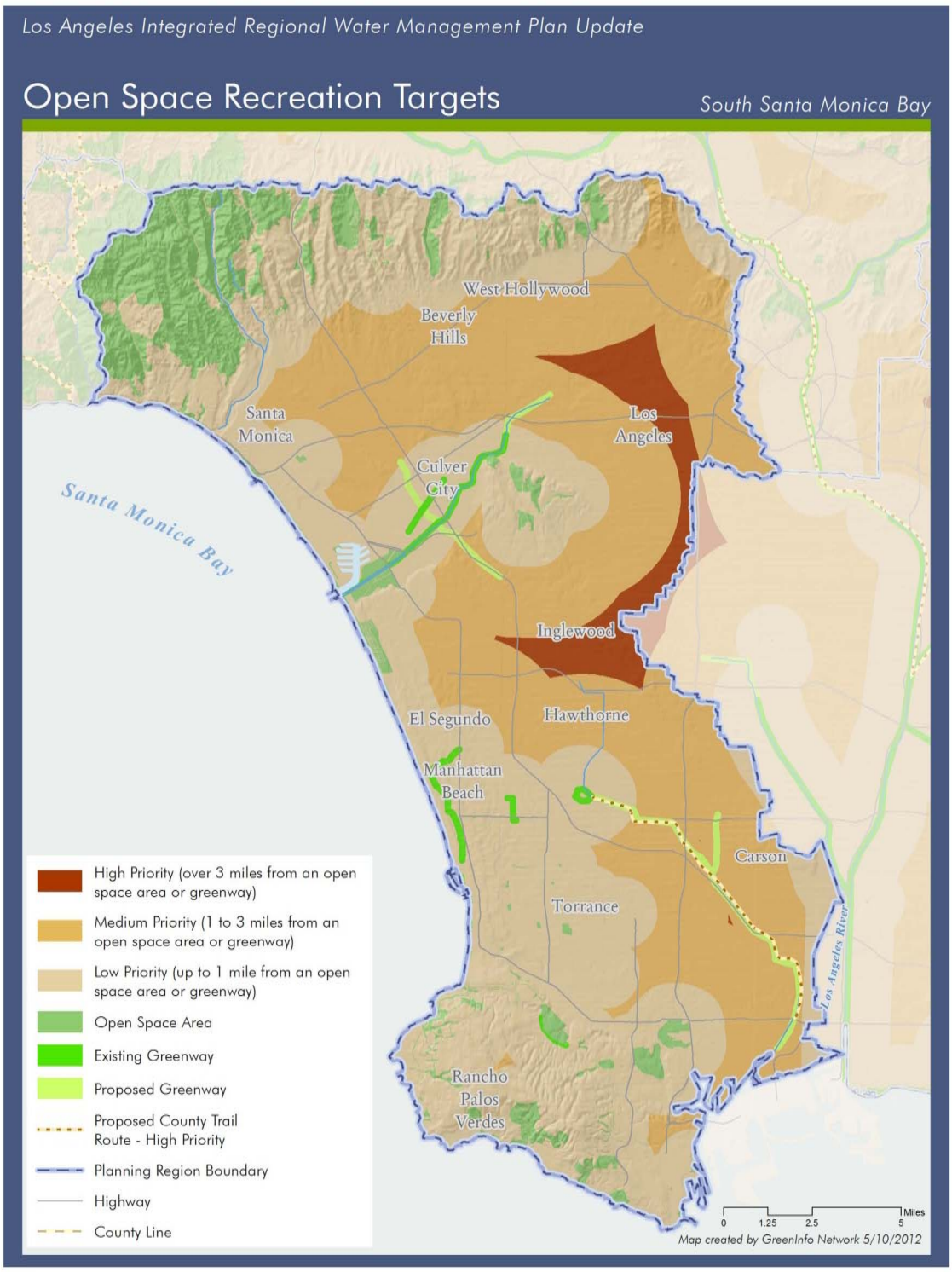

Figure 5. Open Space Recreation Targets

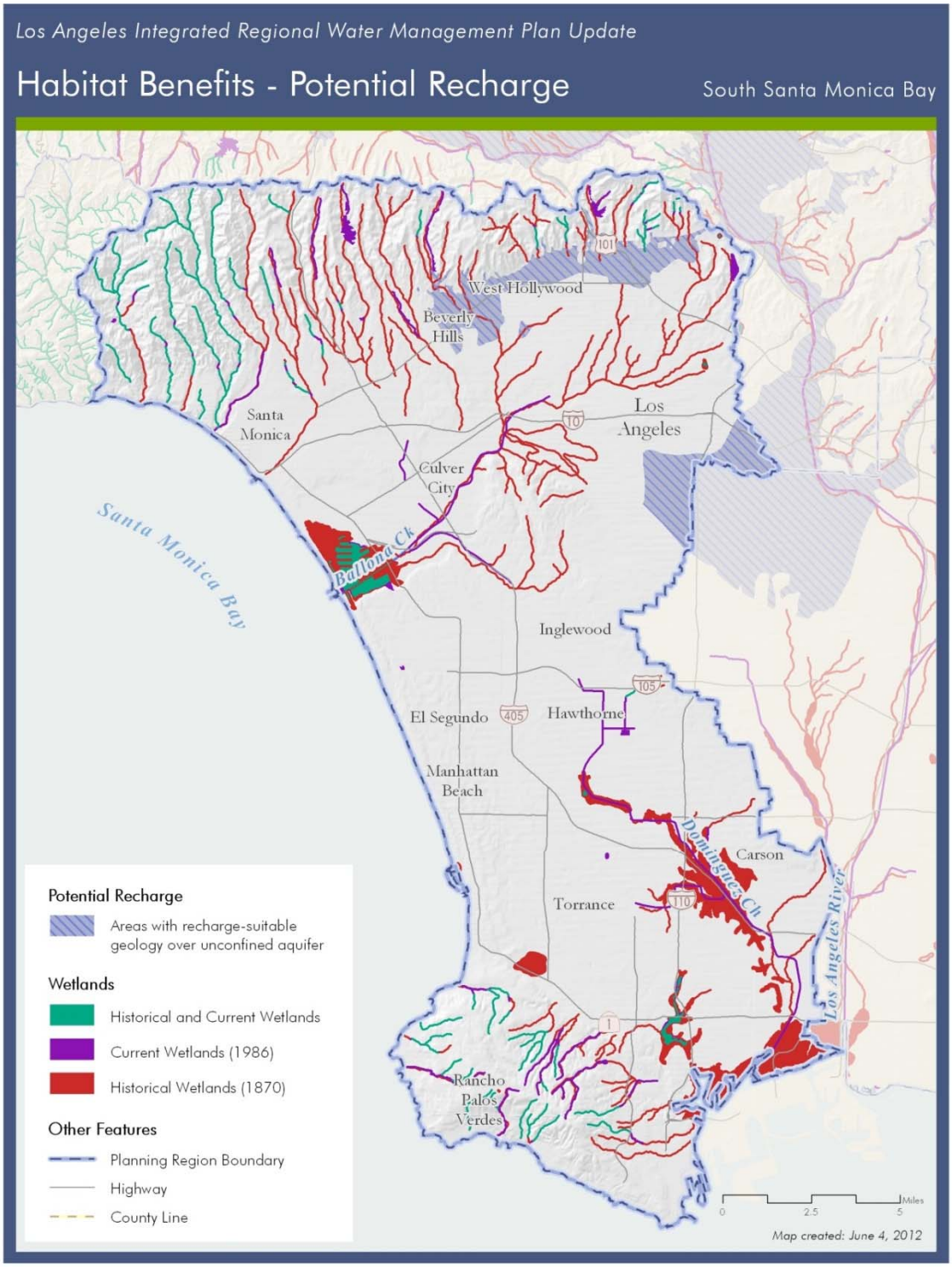

Figure 6. Habitat Targets and Potential Recharge Benefits

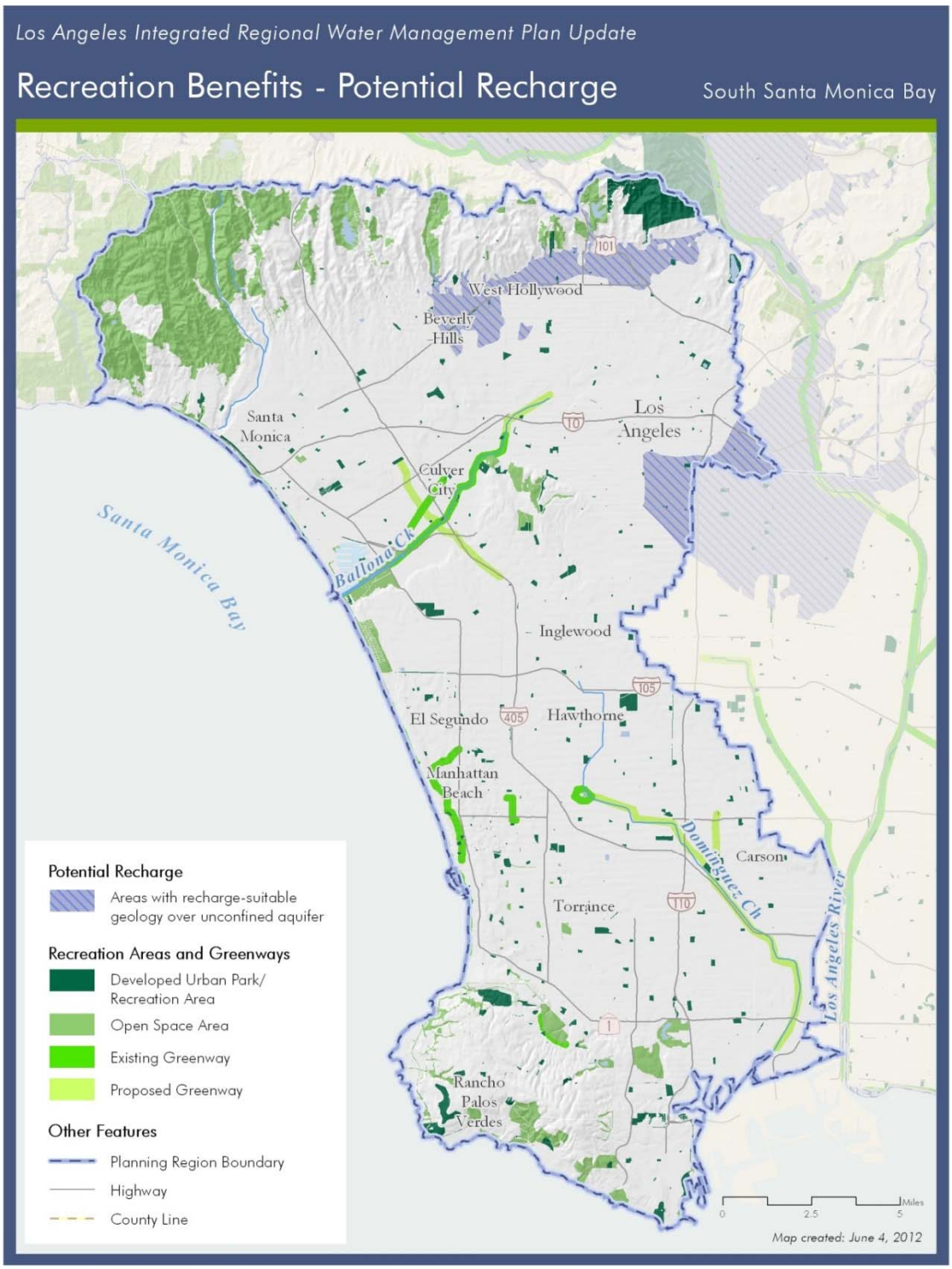

Figure 7. Recreation Targets and Potential Recharge Benefits

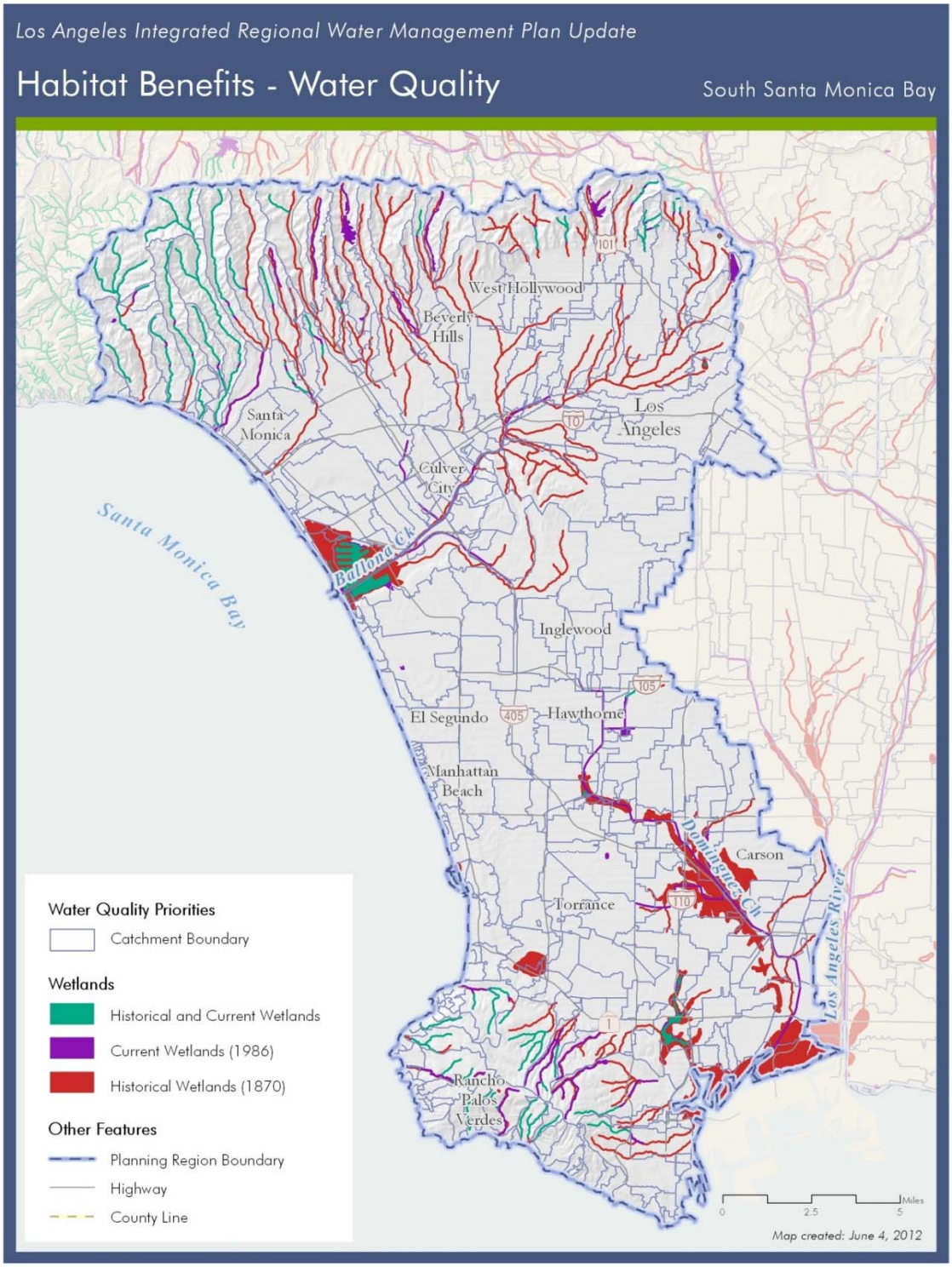

Figure 8. Habitat Targets and Potential Stormwater Quality Benefits

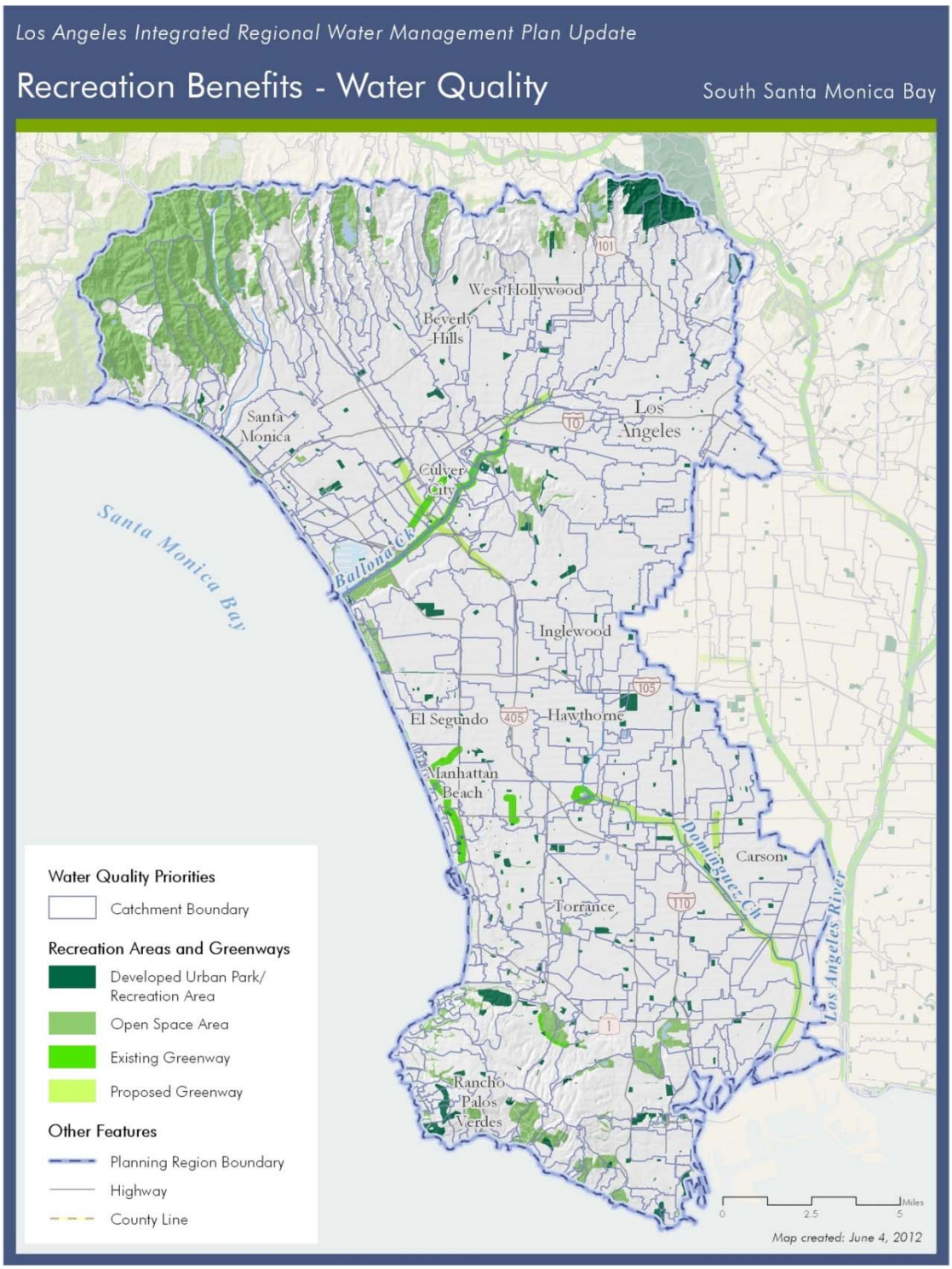

Figure 9. Recreation Targets and Potential Stormwater Quality Benefits

Appendix L

Benefits Evaluation Tool

This section presents a methodology for evaluating a BMP project on the basis of its ability to contribute to water quality and groundwater recharge targets. This methodology was incorporated into an easy to use spreadsheet tool which will be made available on the IRWMP website.

Water Quality

Because the water quality targets are presented as capacity of BMPs the water quality benefit is simply the volume of the proposed BMP (footprint multiplied by depth). However, because these targets are based on BMPs designed to treat the ¾-inch storm, only volumes less than or equal to the volume that would be produced by a ¾-inch storm can be counted towards meeting water quality targets. This volume is a function of the area draining to the BMP and its tendency to shed water. For preliminary design purposes, the tendency to shed water can be determined from the percent impervious cover of the area tributary to the BMP.

If the proposed BMP site can support a larger volume, this will have additional water quality benefits, but these benefits cannot count toward the proposed targets. There is the potential however for these additional water quality benefits to be used to garner additional funds for the proposed project. Additionally, this extra volume could contribute to water supply targets.

Groundwater Recharge

Water supply benefits are usually estimated using complex hydraulic time step models, which require technical expertise, time, and resources to develop and evaluate. To create a tool that could be used by planners to screen projects, a spreadsheet was developed that uses SWWM model runs for a generic watershed and local precipitation data that allows the user to input basic information regarding the proposed project to get a reasonable estimate of average annual volume infiltrated.

Without supporting evidence to the contrary, only BMPs in “High Recharge Potential Areas” as defined in Appendix I of the OSHARP should be considered as having the potential to augment groundwater supplies. While projects in areas with low recharge potential may not help meet water supply targets, the percent of annual runoff captured has implications for water quality improvement, even if the infiltrated or treated water does not reach groundwater aquifers.

Evaluation Tool Technical Background

Stormwater BMPs can be conceptualized as having a storage volume and a treatment rate, in various proportions. Both are important in the long-term performance of the BMP under a range of actual storm patterns, depths, and inter-event times. Long-term performance is measured by the operation of a BMP over the course of multiple years, and provides a more complete metric than the performance of a BMP during a single event, which does not take into account antecedent conditions, including multiple storms arriving in short timeframes. A BMP that draws down (infiltrates) more quickly would be expected to capture a greater fraction of overall runoff (i.e. long-term runoff) than an identically sized BMP that draws down more slowly. This is because storage is made available more quickly, so subsequent storms are more likely to be captured by the BMP. In contrast a BMP with a longer drawdown time (infiltrates slowly) would stay mostly full, after initial filling, throughout periods of sequential storms. The volume in the BMP that draws down more quickly is more "valuable" in terms of long term performance than the volume in the one that draws down more slowly.

An evaluation of the relationships between BMP design parameters and expected long term capture efficiency has been conducted to assist in planning and assessment of various alternative projects. Relationships have been developed through a simplified continuous simulation analysis of precipitation, runoff, and routing, that relate BMP design volume and storage recovery rate (i.e., drawdown time) to an estimated long term level of performance.

Modeling Methodology

The USEPA Stormwater Management Model Version 5.0 (SWMM5.0) was used to simulate the long term average capture efficiency for a range of general BMP design configurations over several decades. SWMM was selected for this analysis as it is a relatively simple, open source, continuous simulation model that has well-demonstrated capability for simulation of rainfall-runoff processes in urban environments and simulating transient storage mechanisms in BMPs. A relatively simple representation of BMPs was used to develop the general relationships that conceptualized all BMPs as having a storage volume and a treatment or drawdown rate. While this representation does not account for the nuances of BMP designs, it is appropriate for planning level assessment. Assumed SWMM input parameters are provided in Table 1. Sensitivity analyses demonstrated that the only inputs with significant sensitivity within typical input ranges were the precipitation and ET inputs and the BMP configurations. These were selected to be representative of several locations in Los Angeles County. Results are interpreted to allow scaling across the various rainfall regimes of the County.

SWMM Parameters	Units	Values
Period of Simulation	years	10/01/1948 to 10/01/2008 (except Lechuza Patrol Station, through 1997)
Wet time step	seconds	900
Wet/dry time step	seconds	900
Dry time step	seconds	14,400
Precipitation	inches	Hourly precipitation data from: COOP 045114 – Los Angeles Airport COOP 044867 – Lechuza Patrol Station COOP 047762 – San Fernando 3 COOP 041194 – Burbank Airport See Table 2 for statistics
Impervious Manning's n		0.012
Hypothetical drainage area	acres	50 (not significantly sensitive to results)
Shape		Rectangular, 500 ft flow path length; representing typical overland flow to reach a channelized or piped conveyance (not significantly sensitive parameter).
Impervious fraction modeled		100%
Slope	ft/ft	0.05
Evaporation	inches	Monthly Normal ET from CIMIS ET Zones Map × 60% Crop Coefficient LAX and Lechuza: Zone 4 Burbank Airport: Zone 6 San Fernando 3: Zone 9 See Table 3 for monthly normal ETo
Depression storage, impervious	inches	0.05, based on Table 5-14 in SWMM manual (James and James, 2000)
Runoff coefficient used to convert precipitation depth to design volume	unitless	0.95 (approximately consistent with modeled runoff in SWMM)
Design capture storm depth (85th percentile, 24-hour depth) calculated from Irvine Gage	inches	Varied over continuous range from 0.025 to 5 inches
BMP Storage Volume	cu-ft	Calculated based on design storm and tributary area. V = depth × runoff coeff × area × conversion factors Example: V (cu-ft) = 1.0 inches × 0.95 × 50 ac × 43,560 sq-ft × (1 ft/12 inches) = 172,400 cu-ft

SWMM Parameters	Units	Values
Drawdown Time	hours	Varied over continuous range from 0.1 hour to 2,400 hours
BMP Discharge	cfs	Calculated based on design volume and drawdown time. Q (cfs) = V(cu-ft) / Drawdown time (s) Example: 172,400 cu-ft / (48 hr × 3600 s/hr) = 0.997 cfs
Period of Simulation	years	10/01/1948 to 10/01/2008 (except Lechuza Patrol Station, through 1997)
Wet time step	seconds	900
Wet/dry time step	seconds	900
Dry time step	seconds	14,400
Precipitation	inches	Hourly precipitation data from: COOP 045114 – Los Angeles Airport COOP 044867 – Lechuza Patrol Station COOP 047762 – San Fernando 3 COOP 041194 – Burbank Airport See Table 2 for statistics
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SWMM Parameters	Units	Values
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Rainfall Statistics, Modeled Gages							
Station ID	Name	Data Temporal Resolution	Data Depth Resolution (in.)	Modeled POR	Missing & Accumulated Fraction of Record (not simulated)	Calculated Avg. Annual Rainfall (in.)	Calculated 85th, 24-hr (Events > 0.1", MIT 6 hrs)
41194	BURBANK WB AP	Hourly	0.01	WY 1949-2008	6%	13.67	1.35
44867	LECHUZA PTRL ST FC352B	Hourly	0.01	WY 1949-1997	5%	19.17	1.70
45114	LOS ANGELES WSO AP	Hourly	0.01	WY 1949-2008	1%	12.16	1.02
47762	SAN FERNANDO PH 3	Hourly	0.01	WY 1949-2008	8%	16.70	1.43

Monthly Normal ETo													
CIMIS ET Zone	Reference ET												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Normal
Zone 4	1.86	2.24	3.41	4.50	5.27	5.7	5.89	5.58	4.50	3.41	2.40	1.86	46.6
Zone 6	1.86	2.24	3.41	4.80	5.58	6.3	6.51	6.2	4.80	3.72	2.40	1.86	49.7
Zone 9	2.17	2.80	4.03	5.10	5.89	6.6	7.44	6.82	5.70	4.03	2.70	1.86	55.1

Appendix M

Estimating Regional Water Supply and Water Quality Benefits Methodology

The following two sections present the methodology employed to estimate the water supply and water quality benefits that could be achieved through meeting the habitat and recreation targets presented in the main section of this report. The assumption is that with a multi-benefit approach, creation or enhancement of habitat and recreation areas would incorporate stormwater best management practices (BMPs) which have the potential to both recharge aquifers and improvement stormwater quality.

While it is straightforward to estimate infiltration or pollution removal potential for a given BMP in a particular site, determining this capacity over a region with no specific BMPs planned requires a taking a generalized approach based on the overarching characteristics of the region, BMP performance data studies, and best professional judgment.

The benefits for water supply and water quality are calculated in similar, but distinct methods, because water supply targets are rate based (acre-ft per year), and water quality targets are volume based (acre-ft). Therefore water supply benefits are estimated by determining the annual average stormwater volume entering the BMP multiplied by an efficiency factor, while water quality benefits are estimated by multiplying a design storm over the contributing area. It should be noted that many projects will have both water supply and water quality benefits.

Water Supply

Only open space areas with high potential for aquifer recharge were considered to contribute to aquifer recharge. For an area to be considered a high recharge potential area, two general qualities must be met:

1. The open space locations are situated above unconfined aquifers (Figures 9, 36-47). Though groundwater recharge may also serve to support plant life and river flow, this analysis specifically looks at benefits of groundwater recharge to water supply;

2. The open space areas are situated above geologic sedimentary deposits most conducive to percolating infiltrated water to the aquifer. Recent studies, such as the one being undertaken by the Water Replenishment District of Southern California (in progress) indicate that these include the following:

- Younger Quaternary from the Holocene age made up of medium grained material (sand),
- Younger Quaternary from the Holocene age made up of coarse grained material (gravel),

- Younger Quaternary from the Holocene age made up of very coarse grained material (boulders),
- Older Quaternary from the Pleistocene age made up of course grained material (gravel), or
- Older Quaternary from the Pleistocene age made up of very course grained material (boulders).

The areas where these two criteria are met are considered "Areas of High Recharge Potential".

Habitat

The estimation of potential benefits of habitat projects is applied to the creation and enhancement targets for freshwater wetlands and riverine wetlands (HCTfw, HETfw, HCTrw, and HETrw) which occur within the Areas of High Recharge Potential. The entirety of these areas will not be suitable for infiltration BMPs. Therefore, the target habitat area is multiplied by the estimated percent of the area that will be suitable for an infiltration BMP (SAh) (Green Solutions, 2008). This returns a reduced area where infiltration and potential recharge may occur.

$$Total\ Treatment\ Area = (HCTfw + HETft + HCTrw + HETrw) * SAh$$

Treatment BMPs have capacities to treat certain tributary areas that are a function of their size the character of their tributary areas. One study evaluated BMPs in recreation and habitat areas and presented generalized ratios for tributary area to treatment area for BMPs in these settings. The ratio for habitat areas (TARh) can be applied to the total treatment area, to give an estimate of contributing area (Green Solutions, 2008). The tributary area is capped at either the total treatment area multiplied by the TARh, or the tributary area to the site, whichever is less.

The total annual average volume of water the tributary area contributes is calculated multiplying the tributary area by the average annual precipitation in the subregion (Pavg) where the project is located.

Finally, two factors are applied to this value. The first factor is the guideline for the percent capture (C) of the annual average precipitation for *flow based* stormwater best BMPs (which is consistent with the current Los Angeles County MS4 permit, Orange County Technical Guidance, the CASQA BMP Handbook, and even the Newhall Ranch Specific Plan, among many other MS4 permits across the state) and the second is an expected efficiency for these systems in habitat areas (Eh). When the average precipitation is input in feet per year, the output from this method is in acre feet per year.

Recreation

The method for estimating potential recharge from recreation lands is similar when applied to recreation and greenway creation and enhancement targets (RCTrg, RETrg). Different factors are used for recreation lands as opposed to habitat lands for the estimated percent recreation area that will be suitable for an infiltration BMP (SAr) and the estimated treatment area ratio for recreation (TARr), and the expected efficiency of these systems in recreation areas (Er).

The factors used and their sources are as follows:

Variables Used For Estimation of Stormwater Infiltration and Potential Recharge				
	Item	**Habitat**	**Recreation**	**Source**
HCTfw, HCTrw, HETfw, HCTrw	Habitat Creation and Enhancement Targets for Freshwater Wetlands and Riverine Wetlands	various	N/A	Draft OSHARP
RCTrg, RETrg	Recreation Creation and Enhancement Targets for Recreation and Greenways	N/A	various	Draft OSHARP
C	Percent Capture of Annual Average Precipitation for flow-based stormwater BMPs	75%		Stormwater Guidelines
Eh, Erg	Expected Capture Efficiencies for flow-based stormwater BMPs	0.25	0.25	Estimates
SAh, SAr	Estimated % Suitable Area for Habitat and Recreation	45%	50%	Green Solutions
TARh, TARr	Estimated Treatment Area Ratio for Habitat and Recreation	45	30	Green Solutions
Pavg	Annual Average Precipitation (in feet)	Subregionally specific		N/A

Stormwater Quality

The benefits of open space projects to stormwater quality can be estimated in a manner similar to estimating water supply benefits, using generalized factors for the region.

Habitat

The estimation of potential benefits of habitat projects is applied to the creation and enhancement targets for freshwater wetlands and riverine wetlands (HCTfw, HETfw, HCTrw, and HETrw). While water supply benefits were attributed only to open space projects within High Recharge Potential Areas, water quality benefits are counted for all open space areas.

The entirety of these areas will not be suitable for water quality BMPs. Therefore, the target habitat area is multiplied by the estimated percent of the area that will be suitable for a BMP (SAh) (Green Solutions, 2008). This returns a reduced area where water quality capacity may exist.

$$Total\ Treatment\ Area = (HCTfw + HETft + HCTrw + HETrw) * SAh$$

As described in the methodology for calculating infiltration benefits, a tributary area to treatment area ratio for habitat areas (TARh) is applied to determine the area that can be treated by the total treatment area (Green Solutions, 2008). This tributary area is capped at either the total treatment area multiplied by the TARh, or the actual tributary area to the site, whichever is less.

The total capacity is calculated multiplying the tributary area by the selected design storm event (D). When the design storm event is input in feet, the output from this method is in acre feet.

Recreation

The method for estimating water quality capacity from recreation lands is similar when applied to recreation and greenway creation and enhancement targets (RCTrg, RETrg). Different factors are used for recreation lands as opposed to habitat lands for the estimated percent recreation area that will be suitable for an infiltration BMP (SAr) and the estimated treatment area ratio for recreation (TARr).

The values used in the above equations are as follows:

Variables Used For Estimation of Stormwater Quality Capture Volumes				
	Item	**Habitat**	**Recreation**	**Source**
HCTfw, HCTrw, HETfw, HCTrw	Habitat Creation and Enhancement Targets for Freshwater Wetlands and Riverine Wetlands	various	N/A	Draft OSHARP
RCTrg, RETrg	Recreation Creation and Enhancement Targets for Recreation and Greenways	N/A	various	Draft OSHARP
D	Design Storm for Volume Based BMPs (in feet)	0.0625 ft (0.75“)		LID Manuals, MS4
SAh, SAr	Estimated % Suitable Area for Habitat and Recreation	45%	50%	Green Solutions
TARh, TARr	Estimated Treatment Area Ratio for Habitat and Recreation	45	30	Green Solutions

Appendix N

IRWMP Project Evaluation Criteria for Habitat

IRWMP HABITAT PROJECT SCORE SHEET For all proposed projects, please answer items 1 through 3. For projects that propose land acquisition; habitat creation, enhancement, or restoration components; or the development of a habitat management plan, please complete the appropriate HABITAT DESIGN EVALUATION CRITERIA WORKSHEET(S) (4). Projects are scored by the total points calculated from Items 1 through 4.		
1. CONSISTENCY WITH AGENCY PLANS		
The proposed project is consistent with adopted agency plans (such as: the Los Angeles County Significant Ecological Area (SEA) Program, regional watershed master plans, management and basin plans, IRWMP subregional goals and objectives, etc.).	Yes	10
	No	0
2. RESOURCE EXPANSION		
The proposed project would expand an existing wildlife linkage, buffer zone, riparian/riverine habitat, freshwater wetland habitat, tidal wetlands, and/or upland habitat block.	Yes	10
	No	0
3. RESOURCE CONSERVATION		
The proposed project has a direct relationship in regional resource conservation measures including protection of scenic resources and areas with rich biological habitat. Site characteristics to be considered include: listed species protection; landscape connectivity; natural communities representation; watershed protection.	Yes	10
	No	0
Sub-Total 1-3		
4. HABITAT DESIGN EVALUATION CRITERIA WORKSHEET		
Habitat Design Evaluation Criteria Worksheets are attached for the following habitat creation, restoration, or enhancement project categories: Uplands • Wildlife Linkage • Buffer Zone • Upland Habitat Block Wetlands • Riparian/Riverine Wetland Habitat • Freshwater Wetland Habitat • Tidal Wetland Each worksheet provides an evaluation of the potential value of the habitat enhancement, restoration, and/or creation plan based on the proposed project design. A proposed project may be designed to include more than one category. Applicant should fill out and include all worksheets appropriate to project design, not all worksheets are applicable/necessary for all projects. NOTE: FOR HABITAT PROJECT SCORE SHEET TO BE CONSIDERED COMPLETE, WORKSHEETS MUST BE ATTACHED.		
HABITAT DESIGN EVALUATION WORKSHEET SOCRE(S)	Points.	Score

			Possible	
Wildlife Linkage	☐ Completed	☐ Attached		
Buffer Zone	☐ Completed	☐ Attached		
Upland Habitat Block	☐ Completed	☐ Attached		
Riparian/Riverine Wetland Habitat	☐ Completed	☐ Attached		
Freshwater Wetland Habitat	☐ Completed	☐ Attached		
Tidal Wetlands	☐ Completed	☐ Attached		
		Sub-Total 4		
		TOTAL		

WILDLIFE LINKAGES WORKSHEET A wide area of native vegetation that connects or has the potential to connect two or more large patches of habitat on a landscape or regional scale through which a species will likely move over time. The move may be multi-generational, therefore, a linkage should provide both wildlife connectivity and biological diversity.		
PROJECT IMPACT EVALUATION	Points. Possible	Score
Project provides both wildlife connectivity and biological diversity.	10	
Proposed project will not provide any habitat benefits.	0	
The project permanently converts a wetland or riparian area to uplands without providing offsetting mitigation and/or converts or prevents the establishment an upland linkage, habitat corridor, or buffer zone.	-50	
ACQUISITION		
Proposed project includes land acquisition.	10	
If yes, answer the following:		
The site has the potential to provide a significant contribution to accomplish a subregional target due to its size (i.e., greater than 10 percent of the target).	10	
The site has the potential to provide a moderate contribution to accomplish a subregional target due to its size (between 5 to 10 percent).	5	
The site has the potential to provide a minor component to accomplish a subregional target due to its size (less than 5 percent).	3	
LAND PROTECTION		
Land is protected by a conservation easement or other land use restrictions.	10	
Restoration or management activities are being proposed to ensure maintenance of functions.	10	
Land is not being protected by a conservation easement or other land use restrictions, but the implementation of restoration or management activities are incorporated to ensure maintenance of functions.	5	
Land is not protected by a conservation easement or other land use restrictions or no restoration or management activities are being proposed to ensure maintenance of functions.	-10	
WIDTH		
Linkage would be on average greater than 1,000 feet wide. Measured width can include wetland/stream.	10	
Linkage would be on average between 750 and 1,000 feet wide. Measured width can include wetland/stream.	5	
Linkage would be on the average less than 750 feet wide, but aids in providing a continuous linkage.	3	
VEGETATION		
The site would be planted with appropriate native vegetation that provides for overlapping structural diversity as well as for food and cover.	10	

The site would be planted with appropriate native vegetation, but does not provide for overlapping structural diversity, food, and/or cover.	3	
The site would be planted with a mix of native and non-native vegetation that provides for overlapping structural diversity and cover.	5	
Design description includes performance standards for plant growth.	5	
Plan includes a maintenance (removal of non-native or invasive species) and long-term management plan.	5	
LIGHTING		
No adjacent lighting would be present.	10	
Adjacent lighting is or would be directed downward or away from the corridor.	5	
Adjacent lighting would be not direct downward or away from the corridor or lighting in corridor/linkage.	0	
CROSSINGS		
No crossings are needed.	10	
All crossings are bridged.	8	
If bridged crossings not possible, culverts are installed with the following design elements: • 12-foot by 12-foot box culvert or bigger; • set as close as possible to channel bottom; • natural materials included as part of culvert bottom; • an adjacent small 1-foot diameter tube parallel to large box (note: upstream end of small tube should be a few inches higher than bottom of upstream end of the box culvert); • vegetation maintained at culvert entrances, but without blocking (visually or physically) the entrances; and • appropriate fencing installed to funnel animals towards the culverts.	5	
The installed culverts would be less than 12-foot by 12-foot and the smaller culvert system is not provided. Other elements may or may not be present.	2	
HUMAN ACTIVITIES		
Human activities in linkage would be absent or limited.	10	
Human activities would be present in linkage. These activities are generally considered to be passive and largely limited to the outside perimeter.	5	
Human activities would be present in linkage. These activities are generally considered to be intrusive and severe and/or be located throughout the linkage area.	0	
TOTAL		

BUFFER ZONE WORKSHEET

A buffer zone is an area adjoining a wetland, channel, or upland linkage or wildlife corridor that is in a natural or semi-natural state and not dedicated to anthropogenic uses that would severely detract from its ability to contain contaminants, discourage visitation into the habitat area by people and non-native predators, and/or protect the habitat area from stress and disturbance. For wetland and riparian systems, a buffer is primarily intended to maintain or improve water quality by trapping and removing various non-point source pollutants from both overland and shallow subsurface flows. In addition, buffers may provide a variety of other functions, including, but not limited to, providing erosion control, providing water temperature control, reducing flood peaks, serving as groundwater recharge points, etc. Buffer zones occur in a variety of forms, including herbaceous or grassy buffers, grassed waterways, or forested riparian buffer strips.

PROJECT IMPACT EVALUATION	Points. Possible	Score
Proposed project is in natural or semi-natural state and functions to protect the habitat from stress or disturbance.	10	
Proposed project will not provide any habitat benefits.	0	
The project permanently converts a wetland or riparian area to uplands without providing offsetting mitigation and/or converts or prevents the establishment an upland linkage, habitat corridor, or buffer zone.	-50	
ACQUISITION		
Proposed project includes land acquisition.	10	
If yes, answer the following:		
The site has the potential to provide a significant contribution to accomplish a subregional target due to its size (i.e., greater than 10 percent of the target).	10	
The site has the potential to provide a moderate contribution to accomplish a subregional target due to its size (between 5 to 10 percent).	5	
The site has the potential to provide a minor component to accomplish a subregional target due to its size (less than 5 percent).	3	
LAND PROTECTION		
Land is protected by a conservation easement or other land use restrictions.	10	
Restoration or management activities are being proposed to ensure maintenance of functions.	10	
Land is not being protected by a conservation easement or other land use restrictions, but the implementation of restoration or management activities are incorporated to ensure maintenance of functions.	5	
Land is not protected by a conservation easement or other land use restrictions or no restoration or management activities are being proposed to ensure maintenance of functions.	-10	
TYPE OF VEGETATION		
The site is to be planted with appropriate native vegetation that provides for structural complexity.	10	
The site is to be planted largely with native vegetation; either structural complexity is lacking or	5	

some non-native vegetation is included in planting mix.		
Planting of the site provides for structural complexity to be present, but plans provide area to be planted with a substantial amount of non-native vegetation.	3	
Area to be retained as barren ground.	2	
HUMAN ACTIVITIES		
Human activities in buffer would be absent or limited.	10	
Human activities would be present in the buffer. These activities are generally considered to be passive and largely limited to the outside perimeter.	7	
Human activities would be present in the buffer. These activities are generally considered to be intrusive and severe and/or be located throughout the buffer zone.	2	
OTHER		
Design description includes performance standards for plant growth.	5	
Plan includes a maintenance (removal of non-native or invasive species) and long-term management plan.	5	
TOTAL		

HABITAT BLOCK WORKSHEET A habitat block is a self-sustainable area that provides habitat for a state or federal listed species or other special status species, has been designated as critical habitat for a listed species, or is considered important to the maintenance or protection of sensitive biological resources. A habitat block may be composed of one or more of the native plant communities within the project area.		
PROJECT IMPACT EVALUATION	Points. Possible	Score
Proposed project provides landscape level habitat block.	10	
Proposed project will not provide any habitat benefits.	0	
The proposed project permanently converts a wetland or riparian area to uplands without providing offsetting mitigation and/or converts or prevents the establishment an upland linkage, habitat corridor, or buffer zone.	-50	
ACQUISITION		
Proposed project includes land acquisition.	10	
If yes, answer the following:		
The site has the potential to provide a significant contribution to accomplish a subregional target due to its size (i.e., greater than 10 percent of the target).	10	
The site has the potential to provide a moderate contribution to accomplish a subregional target due to its size (between 5 to 10 percent).	5	
The site has the potential to provide a minor component to accomplish a subregional target due to its size (less than 5 percent).	3	
LAND PROTECTION		
Land is protected by a conservation easement or other land use restrictions.	10	
Restoration or management activities are being proposed to ensure maintenance of functions.	10	
Land is not being protected by a conservation easement or other land use restrictions, but the implementation of restoration or management activities are incorporated to ensure maintenance of functions.	5	
Land is not protected by a conservation easement or other land use restrictions or no restoration or management activities are being proposed to ensure maintenance of functions.	-10	
SITE POTENTIAL		
The site contains substantial potential (e.g., size, non-disturbed soils, presence of some native vegetation, enlargement of an existing protected habitat block, etc.) for as a habitat.	10	
The site contains limited potential (small size, disturbed/compacted soils, bare ground or presence of only exotics, human intrusions, etc.) for use as a habitat block, but initiates the protection of a habitat block.	5	
VEGETATION		
Site is pristine or close to pristine. May require few, if any, management activities. Management plan proposed as part of the project.	10	

The site will or could be planted with appropriate native vegetation that provides for overlapping structural diversity as well as for food and cover.	9	
The site will or could be planted with appropriate native vegetation, but does not provide for overlapping structural diversity, food, and/or cover.	6	
The site will or could be planted with a mix of native and non-native vegetation that provides for overlapping structural diversity and cover.	2	
LIGHTING		
No adjacent lighting would be present.	10	
Adjacent lighting and lighting in corridor is or would be directed downward or away from the corridor.	5	
Adjacent lighting and/or lighting in corridor is or would be not direct downward or away from the corridor.	0	
HUMAN ACTIVITIES		
Human activities would be absent or limited.	10	
Human activities would be passive and largely limited to the outside perimeter.	5	
Human activities would be present and considered to be intrusive and severe and/or be located throughout the linkage area.	0	
OTHER		
Design description includes performance standards for plant growth.	5	
Plan includes a maintenance (removal of non-native or invasive species) and long-term management plan.	5	
TOTAL		

RIPARIAN/RIVERINE WETLAND SYSTEMS WORKSHEET This system includes all waters, wetlands, and other plant communities living within a river or stream, including the adjacent wetland and riparian areas along their banks. This classification includes not only the Riverine and adjacent Palustrine Systems as described by the National Wetlands Inventory (Cowardin et al, 1979) but also the transitional areas between these wetlands and the adjacent terrestrial systems.		
PROJECT IMPACT EVALUATION	Points. Possible	Score
Proposed project does not impact any type of wetland system.	10	
Proposed project will not provide any habitat benefits.	0	
The proposed project permanently converts a wetland or riparian area to uplands without providing offsetting mitigation and/or converts or prevents the establishment an upland linkage, habitat corridor, or buffer zone.	-50	
ACQUISITION		
Proposed project includes land acquisition.	10	
If yes, answer the following:		
The site has the potential to provide a significant contribution to accomplish a subregional target due to its size (i.e., greater than 10 percent of the target).	10	
The site has the potential to provide a moderate contribution to accomplish a subregional target due to its size (between 5 to 10 percent).	5	
The site has the potential to provide a minor component to accomplish a subregional target due to its size (less than 5 percent).	3	
LAND PROTECTION		
Land is protected by a conservation easement or other land use restrictions.	10	
Restoration or management activities are being proposed to ensure maintenance of functions.	10	
Land is not being protected by a conservation easement or other land use restrictions, but the implementation of restoration or management activities are incorporated to ensure maintenance of functions.	5	
Land is not protected by a conservation easement or other land use restrictions or no restoration or management activities are being proposed to ensure maintenance of functions.	-10	
LOCATION/PROJECT FEASIBILITY		
The site is a wetland/riparian area or in an active floodplain of a riverine system.	10	
The site is an historic wetland/riparian area or in a historic floodplain of riverine system, but either no longer provides habitat or its habitat values have been impacted.	8	
The site is an upland, but is adjacent to a riverine system.	4	
The site is an upland and is not adjacent to a riverine system.	1	
WATER SOURCE/SUPPLY AND HYDROPERIOD Wetlands depend on constant or recurrent, shallow inundation, or saturation at or near the surface of the substrate.		

Consistent, natural inflows of water to a wetland are important to their ability to perform and maintain most of their intrinsic ecological, hydrological, and societal functions and services. Natural sources of water are mainly direct rainfall, groundwater discharge, runoff, and riverine flows. (CRAM)		
The site is within or adjacent to a stream, river, or other concentrated flow conduit, which provides the primary source of water to the site and that water provided by that is consistent with the natural hydroperiod for the site's location in the watershed and adequate to support the proposed revegetation plan.	10	
The site is sustained by consistent source of water, but the source is not associated with a stream, river, or other concentrated flow conduit (e.g., the site is sustained by groundwater or urban runoff). Water provided by that source is consistent with the natural hydroperiod for the site's location in the watershed and adequate to support the proposed revegetation plan.	8	
The site is either within or adjacent to the flow conduit or sustained by a consistent source of water. However, the water source would have to be supplemented to support the proposed revegetation plan. (Note: Irrigation that is supplied during the plant establishment period should not be considered in this criterion if the community developed would continue to be present after the irrigation is removed.)	3	
The water supply to the site would be solely from artificial irrigation to support the proposed revegetation plan.	0	
HYDROLOGIC CONNECTIVITY The ability of water to flow into or out of the wetland, or to accommodate rising floodwaters without persistent changes in water level that can result in stress to wetland plants and animals. (CRAM)		
The design provides that rising water would have unrestricted access to adjacent areas, without levees or other obstructions to the later movement of floodwaters.	10	
The design includes unnatural features (i.e, such as being deeply incised, having steep banks (slopes steeper than 3:1), or the presence of levees, or road grades) that limit the amount of later movement of floodwaters along less than 50 percent of the wetlands/streams boundary.	6	
The design includes unnatural features such as levees or road grades that limit the amount of later movement of floodwaters along between 50 and 90 percent of the of the wetlands/streams boundary.	2	
PHYSICAL STRUCTURE The spatial organization of living and non-living surfaces that provide habitat for biota. (CRAM) *Note: Cobbles are approximately between 6 to 25 centimeters and boulders are greater than 25 centimeters.*		
The design, in cross section, provides for at least two benches or breaks in the slope, including a riparian area above the channel bottom. A mixture of cobbles and boulders would be placed on each bench.	10	
The design, in cross section, provides for at least two benches or breaks in the slope, including a riparian area above the channel bottom. A mixture of cobbles and boulders would not be placed on each bench.	6	
The design, in cross section, provides for a single bench, with or without the placement of the cobble/boulder mix on the bench.	3	
WILDLIFE RESOURCE VALUE		

The site when preserved, enhanced, restored could be used by a threatened or endangered animal or bird species.	10	
The site directly abuts and increases the effective size of a protected habitat area.	8	
The site when enhanced, restored, or created has the potential to be used by a wide variety of animals.	5	
The site would provide habitat for only the most human-tolerant native species.	0	
FLORISTIC RESOURCE VALUE The functions of whole-wetland systems are optimized when a rich native flora dominates the plant community, and when the botanical structure of the wetland is complex in 3-dimensional space, due to species diversity and recruitment, and resulting in suitable habitat for multiple animal species. Layers are characterized as: aquatic (in water or at water surface), short (less than 20 inches), medium (less than 30 inches), tall (less than 60 inches), very tall (taller than 60 inches). The aquatic layer may not be present in riverine systems that are not perennial. (CRAM)		
The revegetation plan provides that all layers would be present and that more than 50 percent of the site would exhibit overlapping of the plant layers when mature. At least seven native plant species would to be planted in each layer and each layer would represent at least five percent of the total area. Presence of invasive species to be less than ten percent.	10	
The revegetation plan provides that all layers would be present and that less than 50 percent of the site would exhibit overlapping of the plant layers. Less than seven native plant species are to be planted in each layer and one or more layers would represent less than five percent of the total area. Presence of invasive species would be less than ten percent.	6	
The revegetation plan does not provide that all layers would be present and less than 25 percent of the site would exhibit overlapping of the plant layers. Five or less native plant species are to be planted in each layer and one or more layers would represent less than five percent of the total area. Presence of invasive species would be less than ten percent.	2	
HUMAN ACTIVITIES		
Human activities in wetland/riparian area would be absent or limited.	10	
Human activities would be present in the wetland/riparian area. These activities are generally considered to be passive and largely limited to the outside perimeter.	6	
Human activities would be present in wetland/riparian area. These activities are generally considered to be intrusive and severe and/or be located throughout the site.	0	
OTHER		
Design description includes performance standards for plant growth.	5	
Plan includes maintenance (e.g., removal of non-native or invasive species) and a long-term management plan.	5	
TOTAL		

FRESHWATER WETLAND WORKSHEET This system includes seasonal and perennial waters and/or wetlands situated in a topographic depression or a dammed river channel such as ponds, lakes, reservoirs, etc. The system includes all waters, wetlands, and other plant communities living within the depression, including the adjacent wetland and riparian areas along their banks. This classification includes the Lacustrine System and adjacent Palustrine Systems as described by the National Wetlands Inventory (Cowardin et al, 1979).		
PROJECT IMPACT EVALUATION	Points. Possible	Score
Proposed project does not impact any type of wetland system.	10	
Proposed project will not provide any habitat benefits.	0	
The project permanently converts a wetland or riparian area to uplands without providing offsetting mitigation and/or converts or prevents the establishment an upland linkage, habitat corridor, or buffer zone.	-50	
ACQUISITION		
Proposed project includes land acquisition.	10	
If yes, answer the following:		
The site has the potential to provide a significant contribution to accomplish a subregional target due to its size (i.e., greater than 10 percent of the target).	10	
The site has the potential to provide a moderate contribution to accomplish a subregional target due to its size (between 5 to 10 percent).	5	
The site has the potential to provide a minor component to accomplish a subregional target due to its size (less than 5 percent).	3	
LAND PROTECTION		
Land is protected by a conservation easement or other land use restrictions.	10	
Restoration or management activities are being proposed to ensure maintenance of functions.	10	
Land is not being protected by a conservation easement or other land use restrictions, but the implementation of restoration or management activities are incorporated to ensure maintenance of functions.	5	
Land is not protected by a conservation easement or other land use restrictions or no restoration or management activities are being proposed to ensure maintenance of functions.	-10	
LOCATION/PROJECT FEASIBILITY		
The site is a wetland/riparian area or in an active floodplain of a riverine system.	10	
The site is an historic wetland/riparian area, but either no longer provides habitat or its habitat values have been impacted.	7	
The site is an upland.	3	
WATER SOURCE/SUPPLY & HYDROPERIOD		
The freshwater sources would be precipitation, groundwater, and/or natural runoff, or natural flow from an adjacent freshwater body. The hydroperiod would be characterized by natural	10	

patterns of filling or inundation and drying or drawdown. The depressional area may lack water during the dry season.		
The freshwater sources would be precipitation, groundwater, and/or natural runoff, or natural flow from an adjacent freshwater body. The hydroperiod would be characterized by patterns of filling that are of greater magnitude or duration than natural inundation, but subject to natural drying or drawdown. The depressional area may lack water during the dry season. There is an indication that there may be water source that is artificial. This artificial source may modify the site hydrology either occasionally or have only a small effect and do not control the overall hydrology of the site.	8	
While the freshwater sources would include are precipitation, groundwater, and/or natural runoff, or natural flow from an adjacent freshwater body, an artificial source modifies the site's hydrology and controls the overall hydrology of the site. The hydroperiod would be characterized by filling patterns that are natural or of greater magnitude or duration than natural inundation, but the site would be subject to more rapid or extreme drying or drawdown. The depressional area may lack water during the dry season.	3	
The water supply to the site would be solely from artificial irrigation to support the proposed revegetation plan and deviates from natural conditions.	0	
HYDROLOGIC CONNECTIVITY The ability of water to flow into or out of the wetland, or to accommodate rising floodwaters without persistent changes in water level that can result in stress to wetland plants and animals. (CRAM)		
The design provides that rising water has unrestricted access to adjacent areas, without levees or other obstructions to the movement of floodwaters.	10	
The design provides for features such as levees or road grades that limit the amount of movement of floodwaters along less than 50 percent of the of the wetlands/streams boundary.	6	
The design provides for features such as levees or road grades that limit the amount of later movement of floodwaters along between 50 and 90 percent of the wetlands/streams boundary.	2	
PHYSICAL STRUCTURE The spatial organization of living and non-living surfaces that provide habitat for biota. (CRAM)		
The design, in cross section, provides for at least two benches or breaks in the slope, including a riparian area above the channel bottom.	10	
The design, in cross section, provides for at least two benches or breaks in the slope, including a riparian area above the channel bottom.	6	
The design, in cross section, provides for a single bench.	3	
The design, in cross section, provides for little or no micro-topographic complexity.	1	
WILDLIFE RESOURCE VALUE		
The site when preserved, enhanced, restored could be used by a threatened or endangered animal or bird species.	10	
The site directly abuts and increases the effective size of a protected habitat area.	8	
The site when enhanced, restored, or created has the potential to be used by a wide variety of animals.	5	

The site would only supply habitat for only the most human-tolerant native species.	0	
FLORISTIC RESOURCE VALUE The functions of whole-wetland systems are optimized when a rich native flora dominates the plant community, and when the botanical structure of the wetland is complex in 3-dimensional space, due to species diversity and recruitment, and resulting in suitable habitat for multiple animal species. Layers are characterized as: aquatic (in water or at water surface), short (less than 20 inches), medium (less than 30 inches), tall (less than 60 inches), very tall (taller than 60 inches). The aquatic layer may not be present in freshwater systems that are not perennial.		
The revegetation plan provides that all layers would be present and that more 50 percent of the site to exhibit overlapping of the plant layers when mature. At least seven native plant species are to be planted in each layer and each layer would represent at least five percent of the total area. Presence of invasive species to be less than ten percent.	10	
The revegetation plan provides that all layers would be present and that less than 50 percent of the site would exhibit overlapping of the plant layers when mature. Less than seven native plant species are to be planted in each layer and one or more layers would represent less than five percent of the total area. Presence of invasive species would be less than ten percent.	6	
The revegetation plan does not provide that all layers would be present and less than 25 percent of the site would exhibit overlapping of the plant layers when mature. Five or less native plant species are to be planted in each layer and one or more layers would represent less than five percent of the total area. Presence of invasive species would be less than ten percent.	2	
HUMAN ACTIVITIES		
Human activities in the freshwater wetland would be absent or limited.	10	
Human activities would be present in the freshwater wetland. These activities are generally considered to be passive and largely limited to the outside perimeter.	6	
Human activities would be present in the freshwater wetland. These activities are generally considered to be intrusive and severe and/or be located throughout the linkage area.	0	
WILDLIFE RESOURCE VALUE		
Design description includes performance standards for plant growth.	5	
Plan includes maintenance (removal of non-native or invasive species) and a long-term management plan.	5	
TOTAL		

TIDAL WETLANDS WORKSHEET Tidal wetlands consists of deepwater tidal habitats and adjacent tidal wetlands that are usually semienclosed by land, but have an open, partly obstructed, or sporadic access to the open ocean, partly obstructed, or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. This classification is the Estuarine System as described by the National Wetlands Inventory (Cowardin et al, 1979) as well as brackish water marshes and transition areas adjacent to tidal wetlands.		
PROJECT IMPACT EVALUATION	Points. Possible	Score
Proposed project does not impact any type of wetland system.	10	
Proposed project will not provide any habitat benefits.	0	
The project permanently converts a wetland or riparian area to uplands without providing offsetting mitigation and/or converts or prevents the establishment an upland linkage, habitat corridor, or buffer zone.	-50	
ACQUISITION		
Proposed project includes land acquisition.	10	
If yes, answer the following:		
The site has the potential to provide a significant contribution to accomplish a subregional target due to its size (i.e., greater than 10 percent of the target).	10	
The site has the potential to provide a moderate contribution to accomplish a subregional target due to its size (between 5 to 10 percent).	5	
The site has the potential to provide a minor component to accomplish a subregional target due to its size (less than 5 percent).	3	
LAND PROTECTION		
Land is protected by a conservation easement or other land use restrictions.	10	
Restoration or management activities are being proposed to ensure maintenance of functions.	10	
Land is not being protected by a conservation easement or other land use restrictions, but the implementation of restoration or management activities are incorporated to ensure maintenance of functions.	5	
Land is not protected by a conservation easement or other land use restrictions or no restoration or management activities are being proposed to ensure maintenance of functions.	-10	
LOCATION/PROJECT FEASIBILITY		
The site is a salt marsh.	10	
The site is salt marsh, but has been degraded.	8	
The site was historically a salt marsh, but either no longer provides habitat or its habitat values have been impacted.	4	
The site is an upland, but is adjacent to an existing salt marsh.	1	
WATER SOURCE/SUPPLY & HYDROPERIOD Wetlands depend on constant or recurrent, shallow inundation, or saturation at of near the surface of the substrate.		

Consistent, natural inflows of water to a wetland are important to their ability to perform and maintain most of their intrinsic ecological, hydrological, and societal functions and services. Natural sources of water are mainly direct rainfall, groundwater discharge, runoff, and riverine flows. (CRAM)		
The design provides that the wetland would be subject to natural freshwater inflows and natural full tidal prism, with two daily tidal minima and maxima. The site may naturally be closed seasonally.	10	
The design provides that the wetland would be subject to either modified (i.e., absent or unseasonal) freshwater inflows and/or reduced or a muted tidal prism, although two daily tidal minima and maxima would be observed. The site may naturally be closed seasonally.	8	
The design provides that the wetland would be subject to either modified (i.e., absent or unseasonal) freshwater inflows and/or reduced or a muted tidal prism in relation to the extreme daily highs or spring tides. The site may naturally be closed seasonally.	5	
The design provides that the wetland would be subject to either modified (i.e., absent or unseasonal) freshwater inflows and/or reduced or a muted tidal prism and inadequate drainage, such that the marsh plain would tend to remain flooded during low tide. The site may naturally be closed seasonally.	3	
HYDROLOGIC CONNECTIVITY The ability of water to flow into or out of the wetland, or to accommodate rising floodwaters without persistent changes in water level that can result in stress to wetland plants and animals. (CRAM)		
The design provides tidal waters have unrestricted access over 90 percent or more of the marsh plain.	10	
The design provides tidal waters have unrestricted access between 50 to 89 percent of the marsh plain.	6	
The design provides tidal waters have unrestricted access less than 50 percent or more of the marsh plain.	2	
PHYSICAL STRUCTURE The spatial organization of living and non-living surfaces that provide habitat for biota. (CRAM)		
The design, in cross section, provides for a vegetated plain that has an abundant variety of microtopographic features, including but not limited to, tidal channels, natural-looking levee systems, potholes, pannes, etc.	10	
The design, in cross section, provides for a vegetated plain that has microtopographic features, such as, tidal channels, natural-looking levee systems, potholes, pannes, etc., but the variety is not abundant.	6	
The design, in cross section, does not provide for a variety of microtopographic features.	0	
The design, in cross section, provides for little or no micro-topographic complexity.	1	
WILDLIFE RESOURCE VALUE		
The site when preserved, enhanced, restored could be used by a threatened or endangered animal or bird species.	10	
The site directly abuts and increases the effective size of a protected habitat area.	8	

The site when enhanced, restored, or created has the potential to be used by a wide variety of animals.	5	
The site would only supply habitat for only the most human-tolerant native species.	0	
FLORISTIC RESOURCE VALUE The functions of whole-wetland systems are optimized when a rich native flora dominates the plant community, and when the botanical structure of the wetland is complex in 3-dimensional space, due to species diversity and recruitment, and resulting in suitable habitat for multiple animal species. Zones include high, middle, and high saltmarsh as well as those brackish water wetlands and transitional areas immediately adjacent (i.e., within 100 feet) of the wetland.		
The revegetation plan provides that most of the marsh plain would be vegetated and all vegetation zones would be present when mature. At least one native plant species to be planted in the lower saltmarsh zone and more than five native plant species would be planted in the middle and high saltmarsh zones. Each zone would represent at least five percent of the total area.	10	
The revegetation plan provides that most of the marsh plain would be vegetated and all vegetation zones would be present when mature. At least one native plant species to be planted in the lower saltmarsh zone and five native plant species or less would be planted in the middle and high saltmarsh zones. Each zone would represent at least five percent of the total area.	6	
Not all zones would be present when mature. One to three native plant species are to be planted in each zone and one or more zones s would represent less than five percent of the total area.	2	
HUMAN ACTIVITIES		
Human activities in wetlands would be absent or limited.	10	
Human activities would be present in wetlands. These activities are generally considered to be passive and largely limited to the outside perimeter.	5	
Human activities would be present in wetlands. These activities are generally considered to be intrusive and severe and/or be located throughout the linkage area.	0	
OTHER		
Design description includes performance standards for plant growth.	5	
Plan includes a maintenance (removal of non-native or invasive species) and long-term management plan.	5	
TOTAL		

Appendix O

IRWMP Project Evaluation Criteria for Recreation

RECREATION ACQUISITION		
Based on existing standards there is a need for approximately 16,500 acres of additional urban parkland (neighborhood and community parks) within the region. In addition, there is a need for approximately 30,000 to 45,000 acres of additional regional park and open space lands available for recreation. Based on current population projections for the region, this need will rise by the year 2035 to approximately 22,000 acres of urban parkland and between 38,000 and 53,000 acres of regional park and open space lands.		
Consistency with Agency Plans		
The property use as a park, recreation area, or trail would be consistent with adopted agency plans (General Plans, master plans, greenway plans etc.).	Yes	10
	No	0
Expansion		
The property would expand an existing park, open space area, greenway, or county trail route such as an in-holding, contiguous property, or extend a logical boundary.	Adds between 50% and 100% to an existing area	10
	Adds up to 49% to an existing area	5
	None	0
Regional Use		
The property would accommodate the outdoor recreation needs of multiple cities that individually would not be able to secure the land.	Yes	10
	No	0

Size		
The property is large enough to accommodate multiple uses in an open space setting. Size of area will be determined by general park classifications including:		
Open Space Resource Area: Size is typically greater than 500 acres in the aggregate.		10
Regional Park or Recreation Area: Size is typically between 100 and 500 acres.		8
Urban Recreation Area: Size is typically smaller than 100 acres.		6
Threat of Development		
The property has outdoor recreation value and is the subject of a development application or the property is likely to be sold to another for development as indicated by written plans or options.	Yes	10
	No	0
Resource Conservation		
The property has a direct relationship to attaining the resource conservation priorities of the County including the protection of scenic resources and areas with rich biological habitat that provide opportunities for appropriate passive recreation experiences of regional significance. Site characteristics to be considered include: listed species protection; landscape connectivity; natural communities representation; watershed protection.	Yes	10
	No	0
TOTAL POINTS		

Appendix P

Glossary

401 Certification: Requirement of Section 401 of the federal Clean Water Act (CWA) that provides States must certify that any activity subject to a permit issued by a federal agency meets all state water quality standards.

404 Permit: Requirement of Section 404 of the CWA requires the US Army Corps of Engineers to have issued a permit before dredged or fill material are discharged into waters of the United States, including adjacent wetlands.

Adaptive Management: The development of a management strategy that anticipates likely challenges associated with mitigation projects and provides for the implementation of actions to address those challenges, as well as unforeseen changes to those projects. It requires consideration of the risk, uncertainty, and dynamic nature of mitigation projects and guides modification of those projects to optimize performance.

Biodiversity: The number and variety of different organisms in the ecological complex in which they naturally occur (i.e., within a given species, ecosystem, biome, or the planet). It is a measure of the health of an ecosystem

Biodiversity Hotspot: A biogeographic region with a significant reservoir of biodiversity that is under threat from humans.

Biotic Structure: Describes the way organisms interact within an ecosystem.

Buffer Zones: An area adjoining a wetland, channel, or upland linkage or wildlife corridor that is in a natural or semi-natural state and not dedicated to anthropogenic uses that would severely detract from its ability to contain contaminants, discourage visitation into the habitat area by people and non-native predators, and/or protect the habitat area from stress and disturbance. For wetland and riparian systems, a buffer is to maintain or improve water quality by trapping and removing various non-point source pollutants from both overland and shallow subsurface flows, provide erosion control, provide water temperature control, reduce flood peaks, serve as groundwater recharge points, etc. Buffer zones occur in a variety of forms, including herbaceous or grassy buffers, grassed waterways, or forested riparian buffer strips.

California Floristic Province: A floristic province with a Mediterranean climate located on the Pacific Coast of North America with a distinctive flora that bears similarities to floras found in other regions experiencing hot, dry summers and cool, wet winters. One of the biodiversity hotspots in the world as defined by Conservation International due to an unusually high

concentration of endemic plants (approximately 3,400 of the 8,000 species found in the province) and to having lost over 70 percent of its native vegetation.

Climate Change: Climate change refers to the buildup of man-made gases in the atmosphere that trap the sun's heat, causing changes in weather patterns on a global scale. The effects include changes in rainfall patterns, sea level rise, potential droughts, habitat loss, and heat stress.

Channel or Drainage: An open conduit either naturally or artificially created which periodically or continuously contains moving water or which forms a connecting link between two bodies of standing water.

Community Park: Land with full public access intended to provide recreation opportunities beyond those supplied by neighborhood parks. Community parks are larger in scale than neighborhood parks but smaller than regional parks.

Condition: The relative ability of a resource to support and maintain a community of organisms having a species composition, diversity, and functional organization comparable to those in the region.

Connectivity: The state of being functionally linked by movement of organisms (i.e., to feed, move, reproduce, rest, winter, etc.), materials, or energy.

Conservation: The use, protection, and improvement of natural resources according to principles that will ensure their highest economic or social benefits.

Conservation Easement: An easement restricting a landowner to land uses that are compatible with long-term conservation and environmental values.

Critical Habitat: A specific geographic area(s) designated by the US Fish and Wildlife Service that contains features essential for the conservation of a threatened or endangered species and may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery

Dredge & Fill Material: "Dredge" is material that is excavated or dredged from waters of the United States. "Fill material" means any material used for the primary purpose of replacing an aquatic area with dry land or changing the bottom elevation of a water body. The term "fill material" does not include any pollutant discharged into the water primarily to dispose of waste, as that activity is regulated under section 402 of the CWA.

Ecological: Relating to the interrelationships of organisms and their environment.

Ecosystem: The interacting synergism of all living organisms in a particular environment; every plant, insect, aquatic animal, bird, or land species that forms a complex web of interdependency.

Ecosystem Services: Ecosystem services provide one approach for framing the values and benefits of open space. The Millennium Ecosystems Assessment (2005) has presented a scheme for classifying ecosystem services using four general categories: provisioning services such as food, water, timber, and fiber; regulating services that affect climate, floods, disease, wastes, and water quality; cultural services that provide recreational, aesthetic, and spiritual benefits; and supporting services such as soil formation, photosynthesis, and nutrient cycling.

Environmental Education: Focuses on environmental "literacy" and on using the environment to engage students in their education through "real-world" learning experiences, with the goals of helping them achieve an understanding of and appreciation for the environment, caring for the total environment, understanding how humans interact with and are dependent on natural ecosystems, and developing critical-thinking skills to resolve environmental issues.

Ephemeral Stream: An ephemeral stream has flowing water only during and for a short duration after precipitation events in a typical year. Ephemeral streambeds are located above the water table year-round. Groundwater is not a source of water for the stream; runoff from rainfall is the primary source of water for stream flow.

Establishment: The manipulation of the physical, chemical, or biological characteristics present to develop an resource that did not previously exist at a site. Establishment results in a gain in resource area and functions.

Estuarine: Tidal habitats and adjacent tidal wetlands that are usually semi-enclosed by land but have open, partly obstructed, or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land.

Floristic Resource Value: An assessment of the richness or diversity of native plant community, a measure of habitat integrity.

Freshwater Wetlands: Non-saline lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. NWI categories considered freshwater wetlands include freshwater emergent wetland, freshwater forested/shrub wetland, freshwater pond and lake.

Functional capacity: The degree to which a resource area performs a specific function.

Functions: The physical, chemical, and biological processes that occur in ecosystems.

Impact: Adverse effect.

Geomorphic Provinces: Naturally defined geologic regions that display a distinct landscape or landform.

Greenway: A linear area maintained as open space in order to conserve natural and cultural resources and to provide recreational opportunities, aesthetic and design benefits, and linkages. More specifically, a coordinated system of open space that links existing facilities using streets, railroad rights-of-way, utility easements, and natural features such as stream corridors and drainage channels.

Ground Water Management: The planned and coordinated management of a groundwater basin or portion of a groundwater basin with a goal of long-term sustainability of the resource.

Groundwater: Water that occurs beneath the land surface and fills the pore spaces of the alluvium, soil, or rock formation in which it is situated.

Habitat Connectivity: The degree to which the landscape facilitates animal movement and other ecological flows.

Habitat Conservation: A land management practice that seeks to conserve, protect and restore habitat areas for native plants and animals, especially conservation reliant species, and prevent their extinction, fragmentation of their habitat, or reduction in range.

Habitat Conservation (Plans): A plan prepared under Section 10(a)(1)(B) of the federal Endangered Species Act to provide for the lawful take of a listed wildlife species by conserving the ecosystems upon which the listed species depend, ultimately contributing to their recovery.

Habitat Enhancement: The manipulation of the physical, chemical, or biological characteristics of a community or ecosystem to heighten, intensify, or improve a specific resource function(s). Enhancement results in the gain of the selected resource function(s), but may also lead to a decline in others.

Headwater: The upper watershed area where streams generally begin; typically consists of 1st- and 2nd-order streams.

Hydrological: The distribution and cycle of surface and underground water.

Hydrology: A science related to the occurrence and distribution of natural water on the earth including the annual volume and the monthly timing of runoff.

Intermittent Stream: A stream that has flowing water only during certain times of the year, when groundwater provides water for stream flow. During dry periods, flowing water may not be present. Runoff from rainfall is a supplemental source of water for stream flow.

Lacustrine System: Wetlands and deepwater habitats that are situated in a topographic depression or a dammed river channel.

Landscape Linkage: Large, regional connections between habitat blocks ("core areas") meant to facilitate animal movement and other essential flows between different sections of a landscape (taken from Soulé and Terborgh 1999). These linkages are not necessarily constricted, but are essential to maintain connectivity function in the ecoregion.

Mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of natural resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization measures for a project has been achieved.

Mitigation Banking: Created when a government agency, corporation, nonprofit organization, or other entity undertakes providing mitigation for itself or others under a formal agreement with a resource or regulatory agency. Mitigation banks are a form of "third-party" compensatory mitigation, in which the responsibility for compensatory mitigation implementation and success is assumed by the bank operator rather than by the project developer. The bank operator is responsible for the design, construction, monitoring, ecological success, and long-term protection of the bank site.

Multiple Use Area: A land management area where several environmental, recreational, economic, historical, cultural and/or social values are located in the same geographic area in a compatible and sustainable manner.

Multiple-Use (Multi-Use) Trail: A trail that permits more than one user group at a time (e.g., horse, hiker, mountain bicyclist, etc.).

National Trails System: A network of trails (National Scenic, Historic, or Recreation) throughout the country authorized by the National Trails System Act (16 U.S.C. 1241-51).

Neighborhood Park: City- or County-owned land intended to serve the recreation needs of people living or working within one-half mile radius of the park.

Open Space: Any parcel or area of land or water that is essentially unimproved and devoted to an open space use for the purposes of (1) the preservation of natural resources, (2) the managed production of resources, (3) outdoor recreation, or (4) public health and safety.

Outdoor Recreation: Leisure activities involving the enjoyment and use of natural resources primarily outside of structures.

Palustrine System: A nontidal wetland dominated by trees, shrubs, persistent emergents, emergent mosses or lichens.

Park: Any area that is predominately open space with natural vegetation and landscaping used principally for active or passive recreation.

Perennial Stream/Pond/Lake: A river, stream or lake that has continuous surface flows in parts of its bed all year round during years of normal rainfall.

Perennial Yield: The maximum quantity of water that can be annually withdrawn from a groundwater basin over a long period of time (during which water supply conditions approximate average conditions) without developing an overdraft condition.

Point-Source Discharge: Any discernible, confined and discrete conveyance, such as a pipe, ditch, channel, tunnel, conduit, discrete fissure, or container

Pollution (of water): The alteration of the physical, chemical, or biological properties of water by the introduction of any substance into water that adversely affects any beneficial use of water.

Preservation: The removal of a threat to, or preventing the decline of, a resource by an action in or near those resources. The term includes activities commonly associated with the protection and maintenance of resources through the implementation of appropriate legal and physical mechanisms such as acquisition, placement of a deed restriction or conservation easement, etc. Preservation does not result in a gain of resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to the former resource or community. Re-establishment results in rebuilding a former resource and results in a gain in that type of resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded natural resource. Rehabilitation results in a gain in resource function, but does not result in a gain in area.

Recreation: The refreshment of body and mind through forms of play, amusement, or relaxation; usually considered any type of conscious enjoyment that occurs during leisure time.

Recreation, Active: A type of recreation or activity that requires the use of organized play areas including, but not limited to, softball, baseball, football and soccer fields, tennis and basketball courts, and various forms of children's play equipment.

Recreation, Passive: Type of recreation or activity that does not require the use of organized play areas.

Regional Park: A park typically 150 to 500 acres in size focusing on activities and natural features not included in most other types of parks and often based on a specific scenic or recreational opportunity.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded resource. Restoration is divided into two categories: re-establishment and rehabilitation.

Riparian: Lands adjacent to streams, rivers, lakes, and estuarine-marine shorelines. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality.

Riparian (Riverine) Wetlands: The wetlands associated with rivers and streams, including upper and lower riverine habitats and dry washes.

Riverine Systems: All waters, wetlands, and other plant communities living within a river or stream, including the adjacent wetland and riparian areas along their banks. Man-made habitats considered part of a riverine system include concrete-lined channels and soft-bottomed channels.

Riverine Wetland: Riverine wetlands include wetlands and deepwater habitats contained within a channel, except those areas dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens.

School District Lands: Properties owned by public school districts and used for environmental, recreational, and administrative purposes.

Stakeholder: Individuals or groups who can affect or be affected by an organization's activities; or individuals or groups with an interest or "stake" in what happens as a result of any decision or action. Stakeholders do not necessarily use the products or receive the services of a program.

Storm Water Quantity: Storm water (runoff) – Water which is originated during a precipitation event which may collect and concentrate diffused pollutants and carry them to water courses causing degradation. Runoff in the urban environment, both storm-generated and dry weather flows, has been shown to be a significant source of pollutants to the surface waters of the nation. In California, the authority to regulate urban and storm water runoff under the NPDES system has been delegated by EPA to the State Water Resources Control Board and the nine Regional Water Quality Control Boards. See Volume 2, Chapter 19 Urban Runoff Management RMS.

Streambed Alteration Agreement - Section 1600: Regulates activities that would alter the flow, bed, banks, channel, or associated riparian areas of a river, stream, or lake. The law

requires any person, state, local governmental agency or public utility to notify CDFG before beginning an activity that will substantially modify a river, stream, or lake. These activities also must be consistent with any other applicable environmental laws such as Section 404 and 401 of the Clean Water Act and CEQA.

Surface Water: As defined under the California Surface Water Treatment Rule, CCR, Title 22, Section 64651.83, means “all water open to the atmosphere and subject to surface runoff..." and hence would include all lakes, rivers, streams and other water bodies. Surface water thus includes all groundwater sources that are deemed to be under the influence of surface water (i.e., springs, shallow wells, wells close to rivers), which must comply with the same level of treatment as surface water.

Tidal Wetlands: Wetland habitats that are inundated by tides, either seasonally or year-round. Marine harbors, a man-made habitat, are also considered tidal wetlands. In the National Wetland Inventory (NWI) mapping system, the three categories included in tidal wetlands are estuarine and marine deepwater, estuarine and marine wetland, and tidal wetlands.

Transverse Ranges: An east-west trending series of steep mountain ranges and valleys. The east west structure of the Transverse Ranges is oblique to the normal northwest trend of coastal California, hence the name "Transverse." The province extends offshore to include San Miguel, Santa Rosa, and Santa Cruz islands. Its eastern extension, the San Bernardino Mountains, has been displaced to the south along the San Andreas Fault.

Uplands: An area of the terrestrial environment that does not have direct interaction with surface waters.

Water Quality: Description of the chemical, physical, and biological characteristics of water, usually in regard to its suitability for a particular purpose or use.

Water Quality Standards: A law or regulation that consists of the beneficial designated use or uses of a water body or a segment of a water body and the water quality criteria that is necessary to protect the use or uses of that particular water body. Water quality standards also contain an anti-degradation policy. The water quality standard serves a twofold purpose: (a) it establishes the water quality goals for a specific water body and (b) it is the basis for establishing water quality-based treatment controls and strategies beyond the technology-based levels of treatment required by sections 301(b) and 306 of the Clean Water Act, as amended by the Water Quality Act of 1987.

Watershed: A land area that drains to a common waterway, such as a stream, lake, estuary, wetland, or ultimately the ocean.

Watershed Approach: An analytical process for making compensatory mitigation decisions that support the sustainability or improvement of aquatic resources in a watershed. It involves consideration of watershed needs, and how locations and types of compensatory mitigation projects address those needs.

Wetlands: Lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.

Wildlife Linkages: A wide area of native vegetation that connects or has the potential to connect two or more large patches of habitat on a landscape or regional scale through which a species will likely move over time. The move may be multi-generational; therefore, a linkage should provide both wildlife connectivity and biological diversity. A Wildlife Linkage should be a minimum of 1,000 feet in width, be vegetated with native vegetation, and have little or no human intrusion.