WATERSHED MANAGEMENT STRATEGIES

5. WATERSHED MANAGEMENT STRATEGIES

This chapter discusses strategies to address water quality improvements in the Compton Creek through Watershed Management approaches including BMPs and certain types of projects. Specific actions and quantifiable measures are discussed for trash, metals, and bacteria.

A. WATER QUALITY

1. Introduction

As noted in Chapter 2, Compton Creek is currently included on the 303(d) list of impaired water bodies for copper, lead, coliform, and pH. Although not specifically listed for trash, Compton Creek is a tributary of the Los Angeles River, for which a TMDL for trash was adopted by the state and approved by the EPA in August of 2002. Thus, strategies to improve water quality in the Watershed should focus on reducing the presence of copper, lead, and coliform in Compton Creek; lowering the pH of Compton Creek; and reducing the discharge of trash into the Los Angeles River. The potential sources of these contaminants were also discussed in Chapter 2.

Although a TMDL for trash has been adopted, and a TMDL for metals (including copper and lead) has been proposed for the Los Angeles River, TMDLs for elevated pH and coliform (or bacteria) for Compton Creek (or the Los Angeles River and its tributaries) have not yet

been proposed. However, based on the trash and metals TMDLs for the Los Angeles River, and the dry- and wet-weather bacteria TMDL for Santa Monica Bay beaches, some possible strategies to improve water quality can be suggested.

As noted for the metals TMDL:

> The regulatory mechanisms used to implement the TMDL will include the Los Angeles County Municipal Storm Water NPDES Permit (MS4), the City of Long Beach MS4 [permit], the Caltrans storm water permit, major NPDES permits, minor NPDES permits, general NPDES permits, general industrial storm water NPDES permits, and general construction storm water NPDES permits. Nonpoint sources will be regulated through the authority contained in sections 13263 and 13269 of the Water Code, in conformance with the State Water Resources Control Board's Nonpoint Source Implementation and Enforcement Policy (May 2004). Each NPDES permit assigned a [Waste Load Allocation] shall be reopened or amended at reissuance, in accordance with applicable laws, to incorporate the applicable WLAs as a permit requirement. (LARWQCB 2005)

Thus, it is reasonable to assume that future programs to implement BMPs, actions, and projects will be consistent with, or an extension of existing NPDES programs operated by the County, the cities, and other NDPES permit holders in the Watershed. Per the County's NPDES permit, the County and other co-permittees (e.g., cities in the Watershed) must implement a Stormwater Quality Management Program that includes (1) Industrial/Commercial Facilities Control; (2) Development Planning; (3) Development Construction; (4) Illicit Connections and Illicit Discharges Elimination; (5) Public Agency Activities; (6) Public Information and Participation; and (7) Countywide Monitoring. To identify potential strategies to improve water quality, it is useful to consider to what extent each of these programs have the potential to result in additional reductions in copper, lead, coliform, pH in Compton Creek, or trash in the Los Angeles River. Strategies for these contaminants (with lead and copper combined as metals) are addressed below; however, as it is not currently clear whether the Creek will remain listed for elevated pH , no such strategies are identified herein.

A wide range of BMPs is available, including (1) Storage (multi-use retention basin, cistern, extended detention basin, underground retention/infiltration, and underground detention); (2) Infiltration (porous pavement and dry well); (3) Filtration (wetland systems, bioretention, catch basin inserts and media filtration); (4) Conveyance (vegetated swale or basin); (5) Practices (tree planting, reduce impervious surfaces, mulching, stormwater-supplied irrigation, reduce directly connected impervious surfaces, source control, acquisition or relocation, flood proofing, and policies or ordinances); (6) Outreach (public education); and (7) Proprietary Systems.

The Steering Committee also recommended a number of management measures to reduce the load of pollutants entering the Creek, such as more education and community outreach, increased frequency of street sweeping, and increasing permeable cover in the Watershed overall. Diverting water from the channel for treatment was specifically not favored, as it could affect flow volumes needed to restore and maintain downstream habitat.

The Santa Monica Bay Restoration Commission has initiated a Ballona Creek BMP Project Work Group to develop a plan for installation of a suite of BMPs in an individual subwatershed and monitor the effectiveness of those BMPs in treating and/or reducing 303(d) listed pollutants. Concurrently, a separate project seeks to select and prioritize BMPs that are most appropriate for the Ballona Creek Watershed. At such time as the BMP prioritization project for Ballona Creek is completed, the recommendations from that study should be considered for their applicability in the Compton Creek Watershed, as conditions in both watersheds are similar.

2. Metals

The implementation strategies selected by NDPES permit holders will need to address the different sources of metals loading during dry and wet weather. During dry weather, metals are predominately in the dissolved phase, while during wet weather, metals are predominately bound to the sediment transported by storm runoff. Permit holders may employ a variety of implementation

strategies to meet the required waste load allocations, including the implementation of BMPs and/or diversion and treatment.

Diversion and treatment involves the installation of facilities to capture and store dry and/or wet-weather runoff and treatment in a dedicated runoff treatment facility. Wet-weather flows beyond the storage and treatment capacities of these facilities would have to be bypassed; however, the overflow from these systems could be routed through structural BMPs designed to remove sediment for further reduction of metal loads.

To meet the overall TMDL, each permittee will be required to meet the waste load allocations established in the TMDL, but will not be given individual load allocations. Compliance could focus on those facilities or land uses where the contribution of metals is highest. To provide some guidance on where to target BMPs, the LARWQCB has estimated source loadings from various land uses, as summarized in Table 5-1.

Table 5-1 Estimated Land Use Contributions to Total Metal Loads from Surface Runoff in the Los Angeles River Watershed

land use	*copper*	*lead*
Agriculture	0.5%	0.2%
Commercial	13.4%	18.6%
Industrial	11.2%	9.1%
Mixed Urban	0.7%	0.3%
Residential	71.5%	71.1%
Open Space	2.8%	0.7%
Source: LARWQCB 2005		

However, as noted in Chapter 2, LACDPW stormwater monitoring indicated that light industrial land uses contribute the highest concentrations of lead and the second highest concentrations of copper (after transportation). Further, LACDPW has identified metal fabrication businesses as producing the highest median concentrations for zinc, copper, and suspended solids (LACDPW 2000).

With respect to copper, the LARWQCB has acknowledged the following:

> A known source of copper loading is from brake pads. The permittees could sponsor legislative actions with state and federal agencies to pursue the development of alternative materials for brake pads. The use of alternative materials for brake pads would help to reduce the discharge of copper in all watersheds. Just as the phase out of leaded gasoline resulted in the gradual decline of lead concentrations in the environment, a phase out of copper brake linings would also be expected to reduce the amount of copper in stormwater runoff. (LARWQCB, 2005)

As metal fabrication, auto dismantlers, metal scrap yards, and related industries represent nearly half of the industrial permittees in the Watershed, targeting those businesses for installation of BMPs could result in sizeable reductions of copper and other metals to the Creek. As brake pads are noted as a significant source of copper, targeting runoff from the I-110 and the I-105 freeways and other major roadways could also result in substantial reductions in copper. The results of the Ballona Creek BMP Project Work Group may provide additional recommendations for metals that are applicable to the Compton Creek Watershed.

As individual projects are monitored, their effectiveness at reducing concentrations of lead and copper in runoff can be measured. Metals data collected by the City of Los Angeles can measure changes in concentrations in the Creek over the long term. Additionally, the recommended monitoring program (Chapter 6) will provide data to quantify long-term impacts, total pollutant loads, and water quality changes in the Creek on a subwatershed basis, for both wet and dry weather concentrations.

3. Trash

Similar to metals, compliance with the trash TMDL will require the implementation of BMPs and projects to reduce the discharge of trash to the Los Angeles River. Each city, or group of cities, must develop and

implement strategies that may include a combination of Structural Control Best Management Practices (BMPs) (e.g., continuous deflective separation systems and trash nets), Treatment Control BMPs (e.g., catch-basin inserts, storm drain inserts, floating debris traps, side entry pit traps), and Source Control BMPs (e.g., efficient street cleaning, increased enforcement of existing litter laws). The implementation strategies must also include provisions for long-term operation and maintenance of BMPs.

These strategies may also be broadly classified as either (1) end-of-pipe full capture structural controls; (2) partial capture control systems; or (3) institutional controls. Full capture structural controls may either be in the form of a vortex separation system (often known as a continuous deflection system) or an end-of-pipe net. Both require regular maintenance to remain effective. Catch basin inserts, which capture trash at the entrance to storm drains, have the lowest capital cost, but require frequent maintenance and do not provide complete capture and thus must be combined with other institutional programs.

Institutional controls (e.g., more efficient street cleaning, increased enforcement of existing litter laws) may offer other societal benefits associated with reducing litter in streets, parks, and other public areas. The capital investment required to implement institutional controls is generally less than for full-capture systems. However, long-term labor costs associated with institutional controls may be higher (due to the regular maintenance requirements), and thus institutional controls may be more costly in the long-term.

Specific recommendations from the Steering Committee related to trash control include more Creek cleanup days, increasing trash removal activities prior to forecast large storms, increasing the number of public litter receptacles, and installing a trash net at the upstream end of the earthen-bottom channel. Within the Watershed, the City of Los Angeles is responsible for 4,708 individual catch basins in and adjacent to the City boundaries; 2,179 of these catch basins have been surveyed and given a rating based on the volume of trash that accumulates. LACDPW is responsible for 5,050 catch basins in the Watershed, and has similarly characterized the need for inserts in catch basins in unincorporated County areas. The catch basin surveys have resulted in the first phase of a catch basin insert installation program. The City and County of Los Angeles have installed or are in the process of installing nearly 1,000 catch basin inserts throughout their jurisdictions in the Watershed. The inserts are intended to reduce trash at the middle portion of the treatment train between projects installed to control trash impairments at their source and projects installed at the "end of the pipe."

LACDPW is also planning to install two full capture trash removal devices in the unincorporated neighborhoods of Rancho Dominguez and East Compton. These devices are designed to capture 100% of particles greater than 5 mm in diameter during the first hour of a 1-year storm. One of the devices will be installed immediately adjacent to a storm drain outlet to the earthen-bottom portion of Compton Creek.

The City and County of Los Angeles are installing these devices to comply with the trash TMDL. Future compliance will be achieved by expanding the City and County of Los Angeles catch basin surveys and insert installation programs, and by the initiation of such programs in the smaller municipalities in the Watershed. TMDL compliance will be further aided by future installations of additional full capture trash removal and other trash capture devices at various middle and end points in the treatment train and by source control efforts. Sufficient reduction in the amount of trash released to the earthen-bottom portion of Compton Creek will also aid attempts at converting it into a treatment wetland and recreation amenity. Other locations for full trash capture device installation could be at the initial point where the concrete box channel creek daylights into an earthen-bottom channel, and at major tributary storm drain outlets along the concrete and earthen-bottom portions of the creek. The trash mapping surveys recommended in the monitoring program (Chapter 6) will provide a mechanism for measuring the effectiveness of these efforts.

4. Coliform

Although a bacteria TMDL (which would use coliform as an indicator) has not been proposed for the Compton Creek or Los Angeles River watershed, based on the dry- and wet-weather bacteria TMDL for Santa Monica Bay beaches, three potential implementation strategies can be suggested: (1) an integrated resources strategy, (2) a targeted upstream structural and non-structural control strategy, and (3) an interim diversion strategy.

The integrated resources strategy would follow the principles and goals of the City of Los Angeles's Integrated Plan for the Wastewater Program (or Integrated Resources Program). An integrated resources approach takes a holistic view of regional water resources management by integrating planning for future wastewater, stormwater, recycled water, and potable water needs and systems, and focusing on beneficial re-use of stormwater to reduce the need for imported water where feasible.

An upstream structural and non-structural control strategy is based on the premise that specific land uses, critical sources, or periods of a storm event can be targeted to achieve the TMDL waste load allocations. For example, non-structural controls may include better enforcement of pet waste disposal ordinances and food waste disposal ordinances for restaurants and food industries. Structural controls may include placement of stormwater treatment devices specifically designed to reduce bacteria densities at critical upstream points in the stormwater conveyance system.

The interim diversion strategy includes the installation of facilities to provide capture and storage of wet-weather runoff and diversion of the stored runoff to the wastewater collection system for treatment at the Joint Water Pollution Control Plant (JWPCP) in Carson during low flow conditions at the plant (typically during the early morning hours of 12:00 a.m. to 6:00 p.m.). If diversion to the JWPCP is not an option, other strategies such as dedicated runoff treatment plants such as the Santa Monica Urban Runoff Recycling Facility (SMURRF) or alternative BMPs would need to be implemented to meet the TMDL requirements.

Management measures proposed by the Steering Committee to control bacteria include creating an ordinance against pigeon feeding, and reducing runoff from animal holding areas such as horse stables.

As individual projects are monitored, their effectiveness at reducing concentrations of bacteria in runoff can be measured. Data collected by the City of Los Angeles and FoLAR can measure changes in concentrations of bacteria in the Creek over the long term. Additionally, the recommended monitoring program (Chapter 6) will provide data to quantify long-term impacts, total bacteria loads, and water quality changes in the Creek on a subwatershed basis, for both wet and dry weather conditions.

B. GEOGRAPHIC DISTRIBUTION OF BEST MANAGEMENT PRACTICES

Based on the location of major storm drain discharges, the Watershed can be divided into twenty-three sub-watersheds, as shown in Figure 5-1. This figure depicts the geographic area of each sub-watershed, along with the predominant land use, based on an analysis of the land use data provided by the Southern California Association of Governments.

The BMPs identified above can be allocated to various land uses, based on the amount of land required for each BMP (e.g., large areas may be required for detention basins and large areas may be generally unavailable for certain land uses), compatibility with the land uses (e.g., wetland systems may not be compatible with residential or industrial land uses), the practicality of individual BMPs (e.g., the disruption associated with retrofitting existing land uses), required maintenance, and the ability of the BMP to address identified contaminants. Based upon a review of these factors, a table of BMPs has been developed, which suggests which BMPs may be most applicable to land use types. From this, it is possible to infer which BMPs are most appropriate for the individual subwatersheds, based on the predominant land use. This table also indicates the constituents that could be targeted for each BMP. More detail on each BMP, including targeted pollutants and estimated costs, is available inAppendix B.

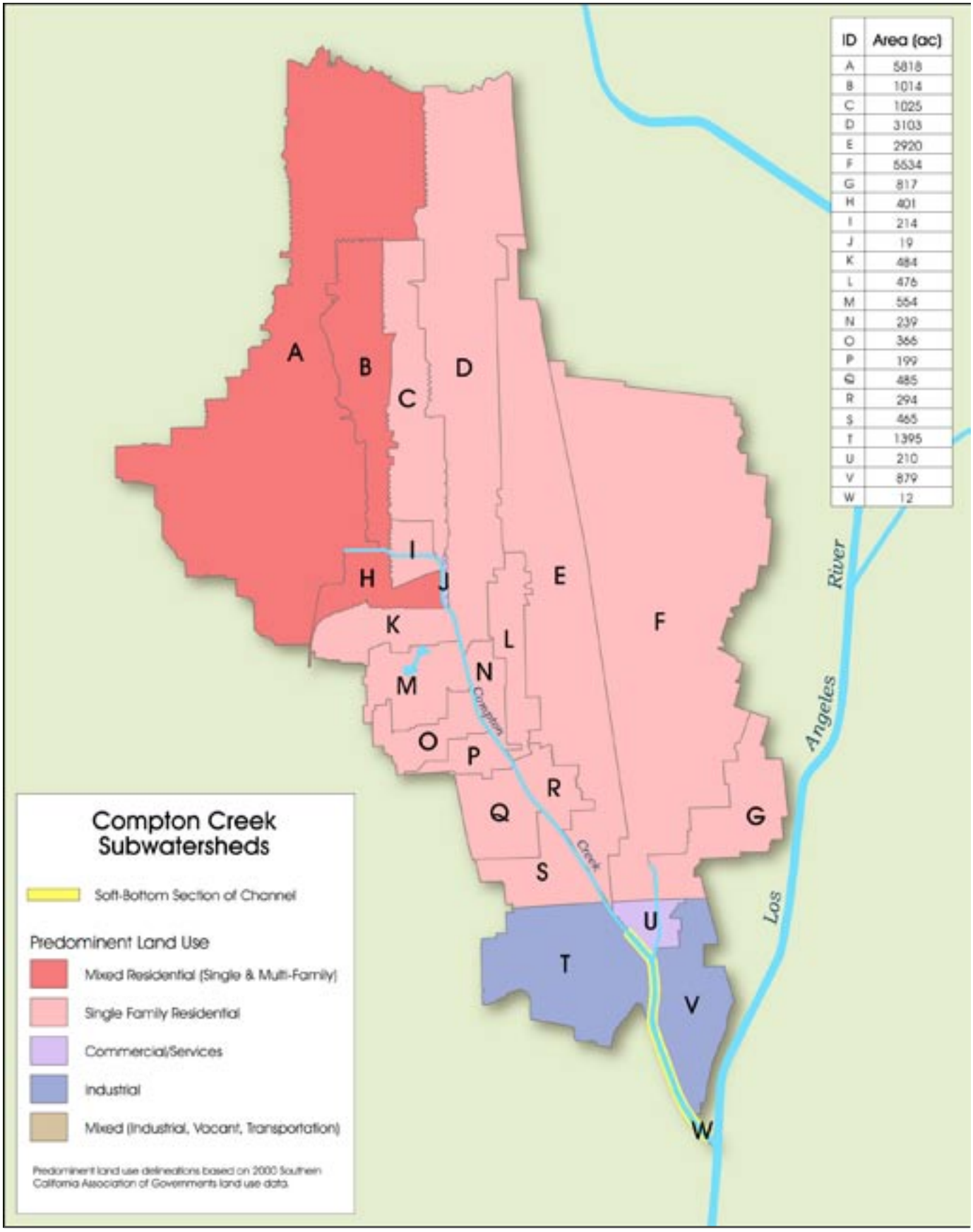

Figure 5-1 Subwatersheds in Compton Creek Watershed
Source Los Angeles & San Gabriel Rivers Watershed Council and LACDPW

Table 5-2: Suggested Applicability of BMPs by Land Use Type

	Constituents Addressed			Land Use Type								
BMP Type	Metals	Bacteria	Trash	Residential	Commercial & Services	Industrial	Communications & Utilities	Transportation	Hydrology	Agriculture	Vacant	Open Space & Parks
1. Storage												
Multi-use retention basin	X		X						●			●
Cistern	X		X	●	●	●	●	●	●	●		●
Extended detention basin	X		X									●
Underground retention	X	X	X					●				●
Underground detention/infiltration	X	X	X					●				●
2. Infiltration												
Porous pavement	X	X	X	●	●		●	●				●
Dry well	X	X	X	●	●	●	●	●				
3. Filtration												
Wetland systems	X		X						●			●
Bioretention	X	X		●	●	●	●	●	●	●	●	●
Catch basin inserts and screens			X	●	●	●	●	●	●	●	●	●
Media filtration	X		X	●	●	●	●	●	●	●	●	●
4. Conveyance												
Vegetated Swale	X	X	X	●	●	●	●	●	●	●	●	●
Vegetated Basin	X	X	X						●			●
5. Practices												
Tree planting				●	●	●	●	●	●	●	●	●
Reduce impervious surfaces	X			●	●	●	●	●	●	●	●	●
Mulching	X	X	X	●	●	●	●	●	●	●	●	●
Stormwater-supplied irrigation				●	●	●	●	●	●	●	●	●
Reduce directly connected impervious surfaces				●	●	●	●	●	●	●	●	●
Source control	X	X	X	●	●	●	●	●	●	●	●	●
Policies or ordinances			X	●	●	●	●	●	●	●	●	●
6. Outreach												
Public education			X	●	●	●	●	●	●	●	●	●

C. WATERSHED PROJECT TYPES

To assist in the identification of new projects and the consideration of future funding opportunities, a general description of projects that can improve water quality is provided below, based on the opportunities identified in the CAT meetings and suggestions from public agencies and community-based organizations.

To assist in the identification of opportunity sites for such projects, various watershed features may be considered, as depicted in Figure 5-2, which shows the location of the Creek, storm drains, power transmission corridors, rail lines, parks, schools, and vacant sites.

The types of projects discussed below have the potential to reduce pollutants of concern, including nutrients, metals, organics, and trash, in stormwater or dry season runoff, primarily by increasing opportunities to filter runoff or increasing permeable surface area for infiltration. These projects could be located on or within a stream channel, tributary, or catch basin, along the edge of impervious surfaces, such as streets and parking lots, or within pervious areas, such as lawns or landscaped areas. In addition to physical projects that incorporate physical BMPs, other techniques include management practices and public outreach and education. For each project type, one or more potential project sites are discussed. Unless otherwise noted, these ideas are just that — they are not, as yet, being planned for implementation. Additionally, any reference to private property use assumes landowner cooperation and, where appropriate, willing sellers.

1. Compton Creek Improvements

As discussed previously, most of Compton Creek is a concrete channel, except for the earthen-bottom portion at the lower end. Along the entire length, opportunities for improvement include restoration of wetland vegetation within the earthen-bottom portion, planting of riparian vegetation, creation of pocket parks or open space adjacent to the channel to filter runoff, expansion of trails and bike paths, and other creekside projects that provide amenities to residents and connect residents to the Creek, such as creekside cafes and other retail services.

The current bike trails along the Compton Creek run from the Del Amo Boulevard (just north of the confluence with the Los Angeles River) northwards to just south of the 91 freeway, then again from Greenleaf to El Segundo Boulevards. Additional bikeways could be developed within the following areas:

- Between the confluence with the Los Angeles River (and a connection with the LARIO trail) to Del Amo Boulevard (approx. 0.8 mile)
- Between the northern terminus of the LACDPW South Compton Creek Bike Trail south of the 91 Freeway to the southern terminus of the City of Compton Bike Trail at Greenleaf Boulevard (approx. 0.8 mile)
- Between the northern terminus of the City of Compton Bike Trail at El Segundo Boulevard and the point where Compton Creek begins to flow through an open channel at 108th and Main Street in Los Angeles (approx. 2.5 miles)

Completing the bike trails along the remainder of the Creek will help link together Watershed communities and allow people to experience a connection to the Creek and the Watershed. A completed bike trail will also connect Long Beach to South Los Angeles, making the corridor more useful for regional transportation.

A major tributary to the Compton Creek runs through the City of Compton East of Santa Fe Avenue. The tributary (also referred to as the East Branch) surfaces at Alondra Boulevard and joins the Creek south of the 91 Artesia Freeway. The East Branch drains subwatershed "F," which is the second-largest subwatershed in the Compton Creek Watershed and covers most of the land area to the East of the Alameda Corridor.

Along the East Branch lie two outstanding opportunity sites: the City of Compton's South Park, and Compton Community College. South Park is adjacent to the Creek and is linked to its surrounding residential neighborhood from the north and the south. Currently the parking lot for the park is along the Creek, but there is sufficient undeveloped right of way to allow for a trail to pass by the park. A re-orientation of the parking lot could allow

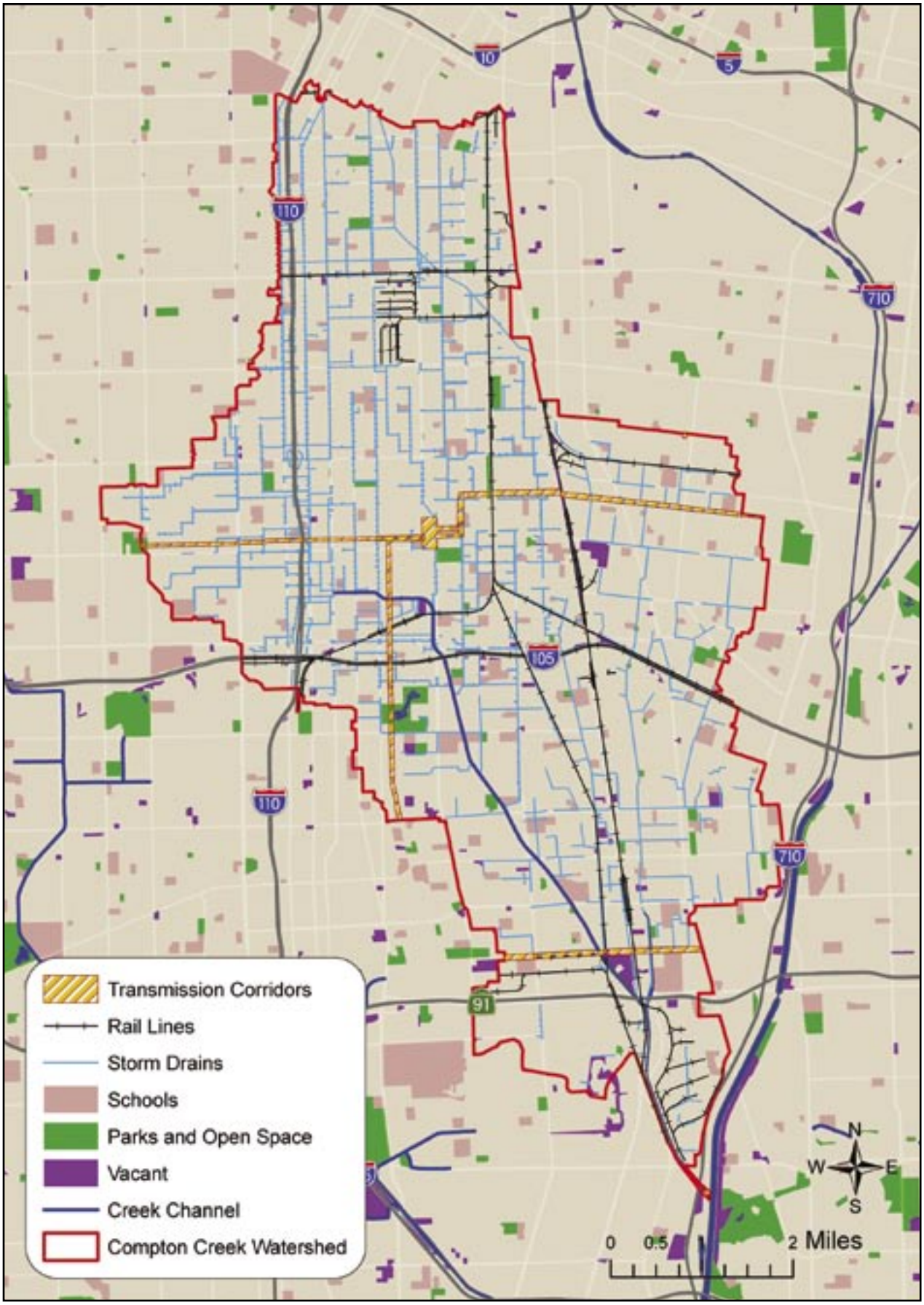

Figure 5-2 Project Opportunities

Source Data: Los Angeles & San Gabriel Rivers Watershed Council, Basemap data from GDT © 2003

for planting of riparian vegetation along the bank of the East Branch, and a bike trail could be constructed reaching northwards towards Santa Fe and Alondra, and southwards towards Compton Community College and the confluence with the Compton Creek (where Phase II of the LACDPW South Compton Creek Bike Trail begins and extends to Del Amo Boulevard).

Compton Community College lies along the East Branch between the City of Compton's South Park and the confluence with Compton Creek. The nearest building at Compton College is located approximately 500 feet from the Creek. The immediately adjacent property contains soccer and baseball playing fields, tennis courts, and a large, paved parking lot that drains directly to the Creek. Though playing fields and parking lots are important facilities for any school, they could accommodate a bikeway along the creek, pocket parks, a linear park, and connections to the school, as well as eliminating the direct connection from the parking area to the East Branch.

2. Urban Stream Restoration

Urban stream restoration refers to the concept of "daylighting" buried streams (bringing them back to the surface), removal of concrete, re-introduction of riparian vegetation along the banks, and restoration of natural hydrologic functions of these stream channels. Because these former stream channels were engineered to protect lives and property from flood damage, any proposal to restore a stream or stream reach must be undertaken only when consistent with the adopted goal to maintain flood protection. Opportunities exist along portions of Compton Creek and former tributaries, adjacent to or within school sites or parks, along streets or medians, and along rail and power line transmission corridors.

Several schools in the Watershed have storm drains running beneath paved school yards, which could be converted to outdoor environmental classrooms around "daylighted" creeks. Among these schools are the LAUSD's Ascot Elementary and the CUSD's Davis Middle School. The storm drains under the paved yard of Ascot Elementary drain a small but significant portion of northeastern subwatershed "D," while all of subwatershed "R" storm drains (294 acres) converge under the playing fields of Davis Middle School before draining to the Compton Creek.

Parks offer other opportunities for daylighting storm drains. Enterprise Park in Compton (subwatershed "M") has a storm drain running through it, as does the couplet of large, pedestrian accessible landscaped traffic circles in Lynwood along State Street. The Lynwood traffic circles (at Flower and Los Flores Streets) each have an approximate area of one acre and the water that flows below them drains most of the city of South Gate.

3. New Parks

Access to parks and open space is limited for most watershed residents. New parks would provide opportunities for active and passive recreation, landscaped spaces that improve the visual character of neighborhoods, improve stormwater quality and groundwater recharge, and provide pockets of native vegetation for wildlife. This could be in the form of new major parks with traditional amenities such as recreational fields, picnic space, and lawn areas for informal recreation, or pocket parks located in residential neighborhoods, possibly on existing vacant lots. Sites for major new parks could include existing industrial sites, public agency storage or maintenance yards, or brownfields, assuming remediation issues can be resolved. Opportunities for pocket parks occur throughout the watershed: on vacant lots, under-utilized parcels, and abandoned rail spurs. All new parks must include BMPs to improve water quality and native vegetation, where consistent with use.

The City of Compton has been working with the MRCA to purchase and develop land for park use. Two potential sites for this park space are at Alondra Boulevard and the Compton Creek, and at the site of the Crystal Park Casino (which is for sale as of the publication of this Plan).

The Jordan Downs Housing Project, Mudtown Flats Community Garden, and Jordan High School are located in a park-poor area according to the Trust for Public Land's Grenprinting park needs analysis. A closed industrial site protrudes into the housing project

separating the northern from the southern portions of the housing project. Purchasing the portion of the industrial site could provide space for a park and connect the two sides of the housing project. Drainage for approximately the upper 50% of subwatershed "E" flows under the housing project, industrial site, and the community garden.

4. Site Retrofit

Traditionally, many development projects were designed to transport runoff from impervious surfaces such as roofs, parking lots, or driveways directly to the storm drain system, often via an underground pipe. Typical landscaping is water intensive. Use of native vegetation in landscaping is often limited, and a range of plant species, some of which require regular irrigation, have been used to create a faux-tropical style of landscaping. Retrofit of any site, including existing parks, schools, and other public facilities, would generally have two main objectives: (1) retain stormwater runoff on site to reduce pollutant loads in the Creek and (2) introduce native vegetation to reduce irrigation needs and provide forage and nesting sites for native wildlife and birds. Retrofits to streets could include directing street runoff into landscaped center medians or parkways, or through sidewalk tree wells. Additionally, wide streets with light traffic and low on-street parking demand could be reengineered, with vegetated swales incorporated along the edges to capture and treat runoff.

Every future construction project within the watershed can include better stormwater management principles. The next step in making such projects happen is to monitor the development process so that site planning can include on-site stormwater retention techniques before designs are too far along The Project Inventory (Table 5-x) includes eleven planned LAUSD school additions and expansions that should have a water quality retrofit incorporated into construction.

5. Vacant Sites

The productive use of vacant sites, including vacant lots or lots with abandoned structures, creates opportunities for economic development, expanded housing supply, and new open space, pocket parks, or community gardens. As discussed above, various incentives for adaptive reuse of existing structures and creation of new open spaces could be implemented. The adaptive reuse of such sites, particularly the creation of pocket parks or community gardens could reduce stormwater runoff, increase green space, and provide passive recreation opportunities.

The County of Los Angeles retains records on all vacant sites and can generate a listing of such sites either by request or by visiting the County Assessor's website. The Rails to Trails Conservancy maintains an early warning database intended to notify rails to trails advocates when a rail corridor in their area is being sold.

While not all of the following sites are currently vacant, they may offer opportunities in the future and should be watched closely:

- Rail spurs in industrial areas
- Large unused parcels in the Goodyear Tract
- Industrial parcels along the Creek
- The large brickyard at the northwest corner of Rosecrans Avenue and Central Boulevard

6. Community Gardens

Community gardens provide opportunities for passive recreation and attraction of wildlife (such as birds and butterflies), provide opportunities to grow vegetables and fruits, demonstrate the value of using open space to retain runoff, provide educational opportunities for residents to learn how composting can reduce green waste and how to incorporate native plants in urban landscapes, and introduce natural spaces into the urban landscape.

Community Gardens located on areas that were already permeable may not provide an additional water quality benefit. Users of Community Gardens should be encouraged to minimize the use of pesticides and fertilizers to reduce potential impacts to water quality.

7. Power Line Transmission Corridors

Three main power line transmission corridors are located within the Watershed and provide opportunities to create linear greenbelts with new park space, community gardens, open space areas to cleanse stormwater and

enhance groundwater recharge, daylighted streams, and trails and bike paths. Landscaped with native plant species, these greenbelts could provide visual relief from urbanized neighborhoods and create places to attract native wildlife and birds.

The Southern Avenue Transmission Line Corridor in South Gate has an existing bike trail running down its right of way and is currently planted with turf grass. A storm drain runs underneath this corridor, and could be daylighted to provide a water source for native riparian vegetation. The bike trail could be retained along this site as well. This corridor could provide park space to South Gate, which the TPL Greenprinting Analysis reveals is a park-poor area.

South of Sam Littleton Street and North of Rosecrans Avenue, the Avalon Boulevard transmission corridor runs though the middle of Stanford Avenue. In this location, the transmission corridor right of way is paved over; removing the pavement in this location would reduce stormwater runoff from subwatershed "O."

8. Rail Corridors

Several rail lines used exclusively for freight transport cross the watershed and may be opportunities to create linear greenbelts with new park space, community gardens, open space areas to cleanse stormwater and enhance groundwater recharge, daylighted streams, and trails and bike paths. The Lanzit Avenue Rail corridor cuts diagonally through the southwestern portion of the Watershed and crosses Compton Creek. Although this corridor is still frequently used by freight trains, there may be sufficient right of way for swales to capture runoff. A more seldom used rail corridor is the Slauson Boulevard corridor which runs across the top portion of the Watershed. This corridor traverses storm drains within subwatersheds "A" and "D," and forms the southern border of Augustus Hawkins Natural Park. The Slauson corridor provides opportunities to link to Augustus Hawkins Park, the Blue Line, and points along Slauson Boulevard outside of the Watershed. Finally, the entrenchment of the Alameda corridor has alleviated traffic conditions somewhat, but it is still a formidable barrier between the east and west sides of the Watershed. Open space amenities that bridge the corridor for pedestrians should be considered at points that would facilitate linkages.

In addition, numerous rail spurs are located along these rail corridors, many of which are no longer used. These unused rail spurs create opportunities for land acquisition to create pocket parks or vegetated drainage swales to improve water quality. The industrial development in Rancho Santa Dominquez and the Goodyear Tract have almost no permeable space except for rail spurs. The lack of underground drainage systems marked on county maps within these sites may indicate a mostly surface drainage system, which would be compatible with the conversion of unused rail spurs into drainage swales.

Also, although the Alameda Corridor and Metro Blue line corridors include landscaping at various locations, additional landscaping could be provided, particularly along the Metro Blue Line, to provide native habitat and enhance the visual appearance of these linear corridors. Pedestrian pathways could link the stops along the Blue Line to provide a healthy alternative to bus connections between the nine stops in the 12-mile corridor within the Watershed.

9. Habitat & Native Vegetation Restoration

Because habitat and native vegetation is very limited in the watershed, habitat improvements and the introduction of native vegetation should be a component of projects whenever feasible. Habitat types that once were found in the Watershed included native grasslands, coastal sage scrub, chaparral, freshwater marsh, and riparian woodlands. Today, only small remnants of those habitat types remain. Restoration of habitat could include removal of nonnative species, and replanting or reintroduction of native species. The earthen portion of Compton Creek, which is primarily vegetated with invasive nonnative species, would particularly benefit from such restoration efforts.

Because 97 percent of the Watershed has been urbanized, the potential to expand use of native vegetation in landscaping at parks, schools, and in commercial and residential parcels is enormous. Grass parkways in public areas, such as around Compton City Hall and other

administrative buildings, would be prime candidates for conversion to native gardens as these grass spaces are rarely used. By increasing the use of native vegetation, native birds and other wildlife could benefit. Because most native vegetation is drought-tolerant, expanded use of native plants would also reduce water demand related to landscape irrigation.

10. Transportation & Trails

Automobile use in the watershed is a source of considerable pollution, both in the form of substances that are deposited onto streets and highways and then flushed into the Creek by runoff, and from tailpipe emissions that include substances that fall to the earth via aerial deposition and are later washed off into the storm drain system. Reducing the use and dependence of the automobile thus has the potential to reduce the pollution that enters our waters. Projects, methods, and mechanisms that increase the use of public transportation, encourage bicycle commuting, or encourage pedestrian trips all have the potential to reduce vehicular trips, and thus contribute to the health of the watershed. In addition, when these alternate transportation mechanisms are implemented in conjunction with a linear water feature, educational benefits such as awareness of the Watershed concept and connection to the Creek and ocean can be better realized. These types of projects include trails, bike paths, public transportation improvements, and projects that enhance pedestrian and bicycle safety.

Between Century Boulevard and 108th Street, Central Avenue connects Ted Watkins County Park to the Maxine Waters Employment Center, which has Creek frontage and undeveloped land. This extent of the Central Avenue roadway already has a bike lane, which could be used in the future to connect Ted Watkins County Park to the Compton Creek. Additionally, the drainage for subwatershed "C" (1025 ac) lies beneath this corridor; this allows for a potential stream daylighting project linking the two sites. The existing bike lane could be improved into a path along a daylighted storm drain, providing an eight-block green corridor between the park and the employment center. The corridor would also link to a future extension of the Compton Creek Bike Trail from its current terminus at El Segundo Boulevard to the employment center, and then westward to the origin of the creek at Main and 108th Streets.

There are also opportunities for enhanced bike trails along the southern portions of Vermont and Broadway within the Watershed. Both of these streets have excessively wide medians and six lanes of traffic. If a traffic study determined that the high capacity of these boulevards was not needed, the streets could be redesigned to accommodate spacious bikeways and linear parks. Both streets also have significant storm drain networks beneath them.

D. INVENTORY OF PLANNED PROJECTS

Based on input from the Steering Committee and the Community Action Team, a Compton Creek Watershed Planned Projects Inventory (Table 5-3) was developed. This project inventory is not an exhaustive list of all recent, current, or proposed projects, as the inventory only reflects input from stakeholders that participated in Steering Committee and CAT meetings and therefore may not reflect the plans and proposals of all agencies, cities, and community-based organizations in the Watershed. It is included as a starting point and as "food for thought" to illustrate the types of projects that are planned, and can be implemented to potentially improve water quality and provide additional open space for recreation and/or habitat. As this Plan is updated in the future and new projects are identified, the inventory will grow and change. The most current list will be available from the Compton Creek WMP webpage: http://www.lasgrwc.org/ComptonCreekWMP.htm.

The projects listed fall mainly into a few general project types: new parks, site retrofits, bike/pedestrian trails, and Creek improvements. Appropriate BMPs that could be incorporated for water quality improvements are discussed below for each of these project types.

Table 5-3 Compton Creek Watershed Inventory of Planned Projects

Map #	Project Name	Location	Sponsor	Status	Property Owners	Project Cost Funding Source	Project Components and Objectives
9	52nd St. Park	5207 Broadway Los Angeles, CA 90037	Beyond Shelter Housing Development Corporation/Trust for Public Land	Submitted competitive grant application	private individual — to be BSHDC if funded	$778,850 (estimated) Prop 40	Pocket park and active recreation area
1	68th Street ES Addition	Compton Creek Watershed	LAUSD	Planned Phase 1			New School or School Retrofit
10	78th St. Park	7727/7719 S Broadway Los Angeles, CA 90003	Beyond Shelter Housing Development Corporation/Trust for Public Land	Submitted competitive grant application	private individual - to be BSHDC if funded	$990,800 (estimated) Prop 40	Pocket park and active recreation area.
2	Accelerated Charter School	Compton Creek Watershed	LAUSD	Completed Phase 1			New School or School Retrofit
3	Alondra Park	Alondra Blvd @ at Creek	MRCA	In planning/ Funded	Private	est. $200,000	
4	Ascot ES Addition	Compton Creek Watershed	LAUSD	Planned Phase 1			New School or School Retrofit
5	Augustus F. Hawkins Natural Park Tree Planting	Augustus F. Hawkins Natural Park	MRCA	Nearing Completion	MRCA transferring to City of LA	$100,000 MRCA	Planting of native trees for shade, educational park, and wildlife habitat at Augustus F. Hawkins Natural Park
6	Augustus F. Hawkins Natural Park: Wetlands Retrofit	N.E. Corner of Compton Ave and Slauson Bl	City of Los Angeles (CD 9)	Funded	City of LA Department of Rec and Parks		Wetlands and stormwater retention
	Catch Basin Insert Installation	Throughout the Compton Creek Watershed	City of Los Angeles Watershed Protection Division	In Process	City of LA Bureau of Engineering		Installation of Catch Basin Inserts to capture trash in stormwater
	Catch Basin Insert Installation	Throughout the Compton Creek Watershed	LACDPW	In Process	LACDPW		Installation of Catch Basin Inserts to capture trash in storm water

Table 5-3 Compton Creek Watershed Inventory of Planned Projects (continued)

Map #	Project Name	Location	Sponsor	Status	Property Owners	Project Cost Funding Source	Project Components and Objectives
7	Central LA Area New MS #4	Compton Creek Watershed	LAUSD	Planned Phase 1			New School or School Retrofit
8	Central Region ES #16	Compton Creek Watershed	LAUSD	Planned Phase 2			New School or School Retrofit
	Community Water Use Efficiency, Education, and Training Project	Throughout the Compton Creek Watershed	ExPERT, Inc.	Operating	N/A	$754,600 Prop 13	Household water conservation BMP installation project with PR and educational outreach components to affect lasting change in residential water usage habits
	Compton Creek and L.A. Riverway/ Lynwood River Enhancement	Along Compton Creek	MRCA	Amount Committed /Paid: $ 2,719,000 /$ 0.00			Continuing public access, habitat improvements, and interpretive areas along Compton Creek and LA River in Lynwood.
46	Compton Creek Bikeway/Horse Trail	Along Compton Creek within the City of Compton	LACC	Nearing Completion	US Army Corps of Engineers		Bike Trail, horse trail, and landscaping
47	South Compton Creek Bike Trail Phase I	Along Compton Creek from Del Amo to Confluence with LA River	LACDPW	Unfunded	LACDPW / Caltrans		Bike Trail and landscaping
48	South Compton Creek Bike Trail Phase II	Along Compton Creek from East Compton Creek Channel to Del Amo	LACDPW	Completed	LACDPW		Bike Trail and landscaping
49	South Compton Creek Bike Trail Phase III	Along Compton Creek From Greenleaf to and over East Compton Creek Channel	LACDPW	Unfunded	LACDPW		Bike Trail and landscaping e trail and greenway/New park

Table 5-3 Compton Creek Watershed Inventory of Planned Projects (continued)

Map #	Project Name	Location	Sponsor	Status	Property Owners	Project Cost Funding Source	Project Components and Objectives
50	Compton Creek Enhancement Project	Along Compton Creek	MRCA	Amount Committed/ Paid: $ 281,000 /$ 70,250			Enhancement of a portion of Compton Creek with development of riverfront nature park, river nature trail and observation area, riparian plantings and interpretive panels with an outdoor classroom element
	Compton Creek Watershed Management Plan Implementation	Throughout the Compton Creek Watershed	LACDPW	Unfunded			
11	Florence ES Playground Expansion	Compton Creek Watershed	LAUSD	Planned Phase 1			New school or school retrofit
51	Florence/Firestone Community Enhancement Team	Florence/Firestone, Graham	Various Los Angeles County agencies	Implementation	NA	$500,000 County (General Fund) /CDBG	Focuses on evaluating existing levels of county service, and through community input, improvements are made
12	Fremont New PC #2	Compton Creek Watershed	LAUSD	Planned Phase 1			New school or school retrofit
54	Full Capture Trash Removal Device Installation	Compton Creek Watershed	LA County Flood Control District	Tier 1 Implementation	LA County Flood Control District	$3.6 Million Prop 50	To remove all trash from the flow of two tributary storm drains before the trash reaches the creek
13	Gage Pocket Park and trail	Unincorporated Los Angeles County near Florence Ave	LACDPW/NET	Development		$2.3 million Prop 40	Pocket park and pedestrian path
14	Graham Elementary Trail	Florence Firestone	RMC, LADP&R	Pre-planning	LACDPW	$75,000 RMC/ Prop 40	Pre-planning for Graham Elementary Trail

Table 5-3 Compton Creek Watershed Inventory of Planned Projects (continued)

Map #	Project Name	Location	Sponsor	Status	Property Owners	Project Cost Funding Source	Project Components and Objectives
14	Graham Elementary Trail Phase 2	County Supervisors Florence SD2	LADP&R RMC	Design	LACDPW		
15	Hooper New PC	Compton Creek Watershed	LAUSD	Planned Phase 1			New school or school retrofit
17	Jefferson New ES #1	Compton Creek Watershed	LAUSD	Planned Phase 1			New school or school retrofit
18	Jefferson New ES #2	Compton Creek Watershed	LAUSD	Completed Phase 1			New school or school retrofit
16	Jefferson New ES #7	Compton Creek Watershed	LAUSD	Planned Phase 1			New school or school retrofit
19	Jefferson New PC #6	Compton Creek Watershed	LAUSD	Completed Phase 1			New school or school retrofit
20	Johnson Opp. HS—Addition	Compton Creek Watershed	LAUSD	Planned Phase 1			New school or school retrofit
52	Large landscape conservation/ runoff reduction management and educational program	Cities of South Gate and Lynwood	Central Basin Municipal Water District	Proposed, funding needed	various	$1,240,500 Prop 50, Chapter 8 (proposed)	(1) Install weather-based irrigation controllers on large landscape sites of 1 acre or more. (2)Offer rebates to residential customers for them to purchase and install weather-based irrigation controllers. (3) Develop demonstration gardens (4) Landscape workshops that educate public on water efficient gardening and irrigation methods as well as water supply reliability and watershed protection.
	Lynwood Meadows	Lynwood	City of Lynwood	Pre-planning	City of Lynwood	$713,765	Community Park

Table 5-3 Compton Creek Watershed Inventory of Planned Projects (continued)

Map #	Project Name	Location	Sponsor	Status	Property Owners	Project Cost Funding Source	Project Components and Objectives
21	Lynwood Water Quality Improvement Project	Long Beach Blvd in Lynwood	City of Lynwood	Proposed	City of Lynwood	$100,000 Federal	Part of larger street improvement project proposed for funding by Congresswoman Sanchez: Bio-retention tree wells and catch basin inserts for stormwater cleansing
22	Miramonte ES Addition	Compton Creek Watershed	LAUSD	Planned Phase 1			New school or school retrofit
53	Monitor/ Willowbrook Triangle Park	Watts: near Willowbrook and Blue Line	LANLT	Unfunded			Build a park on a vacant lot
23	Mudtown Farm Community Garden	2051 East 103rd St. Los Angeles, CA 90002	Watts Labor Community Action Committee/Trust for Public Land	In escrow	private foundation — to be Watts Labor Community Action Committee	$3,371,375 (estimated) TBD, private funds most likely	Urban Agricultural Center & Community Garden —Provide community and youth programs
24	Nadeau Demonstration Project	Nadeau Street at Roosevelt Park	County of LA/MRCA	Unfunded			Park improvement using rail rights of way
25	Nevin ES— Addition	Compton Creek Watershed	LAUSD	Planned Phase 1			New school or school retrofit
26	Pacific Railroad Corridors at Randolph Street		LASCRWA	Unfunded			
27	Park on old MTA Bus Yard	Avalon Bl and 54th St	City of Los Angeles (CD 9)	Funded, land not secured	MTA		Vehicle storage conversion to park space
28	San Gabriel ES Addition	Compton Creek Watershed	LAUSD	Planned Phase 1			New school or school retrofit
29	San Miguel ES Addition	Compton Creek Watershed	LAUSD	Planned Phase 1			New school or school retrofit

Table 5-3 Compton Creek Watershed Inventory of Planned Projects (continued)

Map #	Project Name	Location	Sponsor	Status	Property Owners	Project Cost Funding Source	Project Components and Objectives
30	San Miguel ES Playground Expansion	Compton Creek Watershed	LAUSD	Planned Phase 1			New school or school retrofit
	South Gate Nature Park	City of South Gate	RMC City of South Gate Cal Trans	Design and Development Pre-Planning	City of South Gate	$500,000/ $1.5 million Prop 40/ County Prop A	Design and development of nature park
31	South Gate New ES #6	Compton Creek Watershed	LAUSD	Planned Phase 1			New school or school retrofit
32	South Region ES #1	Compton Creek Watershed	LAUSD	Planned Phase 2			New school or school retrofit
33	South Region ES #2	Compton Creek Watershed	LAUSD	Planned Phase 2			New school or school retrofit
34	South Region ES #4	Compton Creek Watershed	LAUSD	Planned Phase 2			New school or school retrofit
35	South Region HS #2	Compton Creek Watershed	LAUSD	Planned Phase 2			New school or school retrofit
36	South Region HS #2 Addition	Compton Creek Watershed	LAUSD	Planned Phase 2			New school or school retrofit
37	South Region HS #6	Compton Creek Watershed	LAUSD	Planned Phase 2			New school or school retrofit
38	South Region Washington HS Addition	Compton Creek Watershed	LAUSD	Planned Phase 2			New school or school retrofit
39	Southeast Area New HS #2	Compton Creek Watershed	LAUSD	Planned Phase 1			New school or school retrofit
40	Southeast Area New MS #3	Compton Creek Watershed	LAUSD	Completed Phase 1			New school or school retrofit

Table 5-3 Compton Creek Watershed Inventory of Planned Projects (continued)

Map #	Project Name	Location	Sponsor	Status	Property Owners	Project Cost Funding Source	Project Components and Objectives
41	Southeast New Cont HS #1	Compton Creek Watershed	LAUSD	Planned Phase 1			New school or school retrofit
42	Stanford New PC	Compton Creek Watershed	LAUSD	Completed Phase 1			New school or school retrofit
43	Washington New PC #1	Compton Creek Watershed	LAUSD	Planned Phase 1			New school or school retrofit
44	Washington Park	Firestone Bl and Compton Ave	County of Los Angeles	Unfunded			Picnic structure
45	Watts Cultural Crescent Park/ Cultural Crescent East	Watts	City of Los Angeles/ LANLT	Unfunded			Park improvement with cultural features

1. Compton Creek Improvements

Several proposed projects incorporate multiple improvements along the Creek such as increased public access, habitat restoration, tree planting, and interpretative areas. These activities can address many of the BMPs listed as Practices—particularly tree planting, mulching, and potentially reducing impervious surfaces—as well as Public Education. Projects involving vegetation planting should be consistent with the County of Los Angeles's Landscaping Guidelines. The greatest improvements to water quality can be realized through the reduction of impervious area and increase in native vegetation. Additionally, as these projects will connect the community more with the Creek they will also begin to foster a greater sense of stewardship. This can result in more incentive to clean up areas adjacent to the Creek thus reducing some pollution sources.

2. New Parks

Nearly all of the BMPs listed in Table 5-2 could be appropriately incorporated into the design of new parks, depending on the park size. Most commonly, the dual use of turf or play areas for storm detention basins and the use of permeable material for walkways and parking lots can both reduce runoff volumes and provide infiltration areas to filter pollutants. In areas where hardscape is required, surfaces should be graded to drain into landscaped areas to provide additional infiltration and treatment. Runoff from building roofs can be directed into landscaping or captured in cisterns for later irrigation use. Use of native plant materials and mulching both attracts wildlife and conserves water.

3. Site Retrofit

Many of the planned projects are for park improvements or school additions/retrofits. All of the strategies discussed under "new parks" would also be appropriate for these redesigned sites. The most important design features for water quality improvement would be to minimize the amount of impermeable surface area, and where impermeable surfaces are necessary to capture the runoff from those sites. Two schools in the LAUSD provide examples. Broadous Elementary School in Pacoima was

Table 5-4 Compton Creek Watershed New Project Opportunities

Map #	Site Description	Potential Stakeholders	Sub-watershed	Compton Creek Improvement	Urban Stream Restoration	New Park	Site Retrofit	Vacant Site	Community Garden	Power Line Transmission Corridor	Rail Corridor	Habitat and Native Vegetation Restoration	Transportation and Trails
1	107th St ES: This school has large paved areas. A storm drain runs under the campus and adjacent to the East side of the school.	LAUSD	A				●						
2	61st Street ES: This school has large paved areas. Storm drains run under the school draining upper subwatershed “A” and the Harbor Freeway.	LAUSD	A		●		●						
3	96th Street ES and adjoining transmission corridors: Storm drains draining more than half of subwatershed “D” pass through this area (Success Avenue Corridor).	LADWP, LAUSD	D				●			●			●
4	Ascot ES: A storm drain runs under campus.	LAUSD	D		●		●					●	
5	Augustus Hawkins Natural Park: A Storm drain runs under the South Side of the park. Also, the Slauson Boulevard rail corridor (see also #4) is adjacent to the South side of the Park.	LA Rec and Parks	D		●								
6	Bunche MS, King ES, Mona County Park: Storm drain draining most of subwatershed “E” travels under Mona Bl between these sites.	CUSD, LA County Parks	E		●		●						
7	Charles W. Barrett ES: This school has large paved areas. A storm drain runs under the campus. Other drains run adjacent to the North & South boundaries of the site. A transmission corridor runs past the South Boundary of site.	LAUSD	A		●		●			●			●

Table 5-4 Compton Creek Watershed New Project Opportunities (continued)

Map #	Site Description	Potential Stakeholders	Sub-watershed	Compton Creek Improvement	Urban Stream Restoration	New Park	Site Retrofit	Vacant Site	Community Garden	Power Line Transmission Corridor	Rail Corridor	Habitat and Native Vegetation Restoration	Transportation and Trails
8	City of Lynwood: Drainage for much of Lynwood and South Gate runs underneath Los Flores and Flower Street traffic circles and the wide State Street Median running from Martin Luther King Jr. Boulevard to Long Beach Boulevard.	City of Lynwood	F		●								●
9	Compton City College: East Branch of Compton Creek runs along the western border of campus--currently playing fields and open space. A parking lot on the northwest corner of campus drains directly to the East Branch of the Creek.	Compton City College	U				●			●		●	●
10	Cressy Street and Washington ES: This is the point where all of subwatershed "L" drains into the creek. Potential linkages across Compton Creek to Gonzalez Park. There is an existing linkage to the City of Compton bike trail.	CUSD, City of Compton	L	●	●		●	●					●
11	Davis Middle School: storm drains draining subwatershed "R" converge under the playing field.	CUSD	R		●		●						
12	Detention Basin: A triangular detention basin lies within a railroad wye on the other side of the levy along the East bank of the earthen-bottomed portion of Compton Creek.	LACDPW	V			●						●	
13	Earthen Bottom Portion of Compton Creek	LACDPW, USACE	V	●		●						●	
14	Earthen-bottomed portion of Compton Creek: potentials for wetland creation.	LACDPW, USACE	T	●		●						●	

Table 5-4 Compton Creek Watershed New Project Opportunities (continued)

Map #	Site Description	Potential Stakeholders	Sub-watershed	Compton Creek Improvement	Urban Stream Restoration	New Park	Site Retrofit	Vacant Site	Community Garden	Power Line Transmission Corridor	Rail Corridor	Habitat and Native Vegetation Restoration	Transportation and Trails
15	Enterprise Park: A storm drain runs through Enterprise Park. Subwatershed "M" is small and contains a high percentage of park space because it includes Earvin Magic Johnson Park as well.	Compton Parks Department	M		●		●			●		●	
16	Gompers MS: Storm drain runs below Imperial Highway and adjacent to playing fields and paved areas.	LAUSD	H				●					●	
17	Gonzaque/Carver: A string of opportunity sites are situated along the downstream portion of the main storm drain for subwatershed "D." From North to South, the sites include the Gonzaque Village Housing Project, 109th &114th Street parks, Nickerson Gardens Housing Project, Carver ES, and Carver County Park (Success Avenue Corridor).	LAUSD, LA Housing Authority, LA County Parks	D		●		●						
18	Goodyear Tract (see also #38): This 208 Acre Industrial site is completely industrial and has few underground storm drains. There are many dumping and security problems on site.	Various business owners	C			●	●	●			●		
19	Holmes ES and Pueblo Del Rio Housing Project: drainage for northern portion of subwatershed "D" and Alameda Corridor is adjacent.	LAUSD and LA Housing Authority	D		●	●	●				●	●	
20	Independence Avenue Rail Corridor: from South Santa Fe BL/Alameda Corridor to Otis street in the City of South Gate. Storm drains run below this corridor between Long beach Boulevard and Chestnut and between Virginia and San Juan.	Union Pacific	F				●				●		●

Table 5-4 Compton Creek Watershed New Project Opportunities (continued)

Map #	Site Description	Potential Stakeholders	Sub-watershed	Compton Creek Improvement	Urban Stream Restoration	New Park	Site Retrofit	Vacant Site	Community Garden	Power Line Transmission Corridor	Rail Corridor	Habitat and Native Vegetation Restoration	Transportation and Trails
21	Jordan SH, 102nd Street ES, Jordan Downs Housing Projects, and Mudtown Community Garden: the storm drain under this site drains the upper 50% of subwatershed "E."	LAUSD, LA Housing Authority	E		●	●	●		●				
22	King Drew Medical Center: Storm drain runs beneath the Medical Center parking lot.	King Drew Medical Center	L		●		●						
23	LADWP Electrical yard and transmission corridor, 99th St ES: Together, these spaces could provide new park or habitat space.	LADWP, LAUSD	C		●		●			●		●	●
24	LAUSD, Locke HS: Storm drain runs under campus	LAUSD	H				●					●	
25	Local Railroad Spurs: these corridors provide the only permeable space in this subwatershed other than creek areas.	Unclear	V								●		●
26	Maxine Waters Employment Center to Ted Watkins County Park: A bike lane runs along Central Ave between the park and the employment center. Drainage for all of subwatershed "C" runs under this corridor. There is also a Watts Labor Community Action Committee (WLCAC) project nearby.	LA County Parks and Recreation, LA City Department of Transportation, WLCAC	C	●	●	●							●
27	McNair ES and Sibri (or El Segundo) Park. The school and park are adjacent to a storm drain running down Compton Avenue.	CUSD, Compton Parks Department	N				●						●

Table 5-4 Compton Creek Watershed New Project Opportunities (continued)

Map #	Site Description	Potential Stakeholders	Sub-watershed	Compton Creek Improvement	Urban Stream Restoration	New Park	Site Retrofit	Vacant Site	Community Garden	Power Line Transmission Corridor	Rail Corridor	Habitat and Native Vegetation Restoration	Transportation and Trails
28	Powerline transmission corridor over front yards of homes on West side of Virginia Avenue North of Southern Avenue within the City of South Gate.	Unclear: Property owners, Power Company, or both	F		●					●			●
29	Russell ES Magnet: Russell ES is a magnet school for gifted children. A storm drain runs under the campus. Most of stormwater from approximately the top 50% of subwatershed "D" flows under Russell.	LAUSD	D		●		●						
30	Slauson Boulevard Railroad right of way: This seldom used rail corridor could potentially be converted to a landscaped bikeway (see also #10).	BNSF	A								●		●
31	South Broadway Median	City of Los Angeles	A		●	●	●					●	●
32	South East Area New MS, SH, and Continuation SH: Adjacent to drain coming from firestone plant and scrap yards in northern portion of subwatershed "F."	LAUSD	F										
33	South park (City of Compton): parking lot is adjacent to east branch of Compton Creek within "F", park is in "G." most storm water from F flows through channel here.	Compton Parks Department, LACDPW, USACE	F	●	●		●					●	●
34	South Park (City of LA): Storm drains run under and alongside this park.	LA Rec and Parks	A		●		●						
35	Southern Avenue Transmission Line Corridor: A storm drain runs underneath the corridor from Long Beach Bl to San Miguel.	Southern California Edison	F		●		●			●		●	●

Table 5-4 Compton Creek Watershed New Project Opportunities (continued)

Map #	Site Description	Potential Stakeholders	Sub-watershed	Compton Creek Improvement	Urban Stream Restoration	New Park	Site Retrofit	Vacant Site	Community Garden	Power Line Transmission Corridor	Rail Corridor	Habitat and Native Vegetation Restoration	Transportation and Trails
36	St. Aloysius ES: near storm drain that appears to drain Auto Wrecking Yard at Alameda, Lou Dillon, and Nadeau Streets.	St Aloysius Gonzaga Roman Catholic Church	E										
37	Transmission Corridor: Stanford avenue between 135th and 139th has a paved transmission corridor right of way.	Southern California Edison	O				●			●			
38	USPS warehouse and parking lot (see also #18): This is a large site within the Goodyear tract that is totally impermeable.	USPS	D				●						
39	Vermont Avenue Corridor: this street has a wide right of way within the Watershed. Storm drains cross the street at many points. Storm drains run down Vermont from 79th to 93rd streets, and from 97th to 106th streets.	LA City Department of Transportation	A		●		●						●
40	Very large brick making facility: A very large parcel of land on the corner of Rosecrans and Central. The parcel contains a deep pit where bricks are currently stored.	Business Owner(s)	O					●					

redesigned to capture runoff from the entire 5-acre site, and convey it to an underground treatment system and infiltration field. Additionally, trees were planted and much of the asphalt surface was replaced with turf play areas and swales. Open Charter School in Los Angeles was similarly redesigned on the surface but incorporates storage of runoff for irrigation use.

4. Trails

Water quality issues with paved bike or pedestrian trails along the Creek derive primarily from the impermeability of the surface and the potential for increased trash deposition. Permeable paving for trails is encouraged, for example permeable concrete for bike trails, and decomposed granite for walking trails. If these materials are not feasible, then narrow swales along the trail edge would provide opportunities for infiltration rather than direct discharge into the Creek. The County of Los Angeles's Landscaping Guidelines can provide ideas for suitable landscaping along these trails. Additional trash receptacles should also be provided, preferably incorporated into rest stops along the trail and not at street ends where they might encourage illegal dumping.

Horse trails along Compton Creek prevent a somewhat unique problem of potentially increasing pollutants to the Creek if the drainage is not directed elsewhere. Potential solutions include grading the trail so that it drains away from the Creek and into a vegetated swale. Bacteria and nutrients present in animal droppings would be effectively addressed through bioremediation. If the appropriate grading is not feasible, then a slight berm or narrow swale on the Creek-side edge of the trail would perform a similar function. Adopt-a-trail programs should be encouraged to promote trash cleanup, and in equestrian areas for cleaning the trail of animal waste.

E. NEW PROJECT OPPORTUNITIES

In addition to issues and concerns, Community Action Team meeting participants were asked to identify geographic locations where water quality issues occur, and where there might be opportunities for projects to create new parks, improve existing parks, create or restore wetlands habitat, and to establish open space connections to Compton Creek. These comments and opportunities are depicted on Figure 5-3.

Additionally, based on the input received at the CAT meetings, discussions with public agencies and community groups, and various site visits, Watershed Council staff developed a list of potential new project opportunities, as shown in Table 5-4. These are project ideas that could be undertaken by various entities in the Watershed. At this point, none of these suggested projects are in the planning stages, nor have landowners been contacted about developing these projects.

The location of the projects on the Inventory of Planned Projects and the New Project Opportunities developed for this Plan are depicted on Figure 5-4.

F. RECOMMENDED PRIORITY ACTIONS

Since watershed work is somewhat in its infancy in the Compton Creek Watershed, neither the community input process or the Steering Committee discussions resulted in clear priorities for specific projects in the Watershed. Based on our assessment of the needs in the Watershed, we have made recommendations for the following four priority actions that should form the next steps in implementation of the Watershed Management Plan. These actions will result in visible results in the Watershed and can serve as a model for how the goals of the Plan can be attained.

1. Trash Capture

Though the Compton Creek is not currently listed as impaired for trash, it is clear that trash is a major problem and that the Creek is a major contributor of trash to the Los Angeles River (which is listed for trash). To alleviate the trash problem in the earthen-bottom portion of the Creek, where it is most difficult to remove, we recommend installation of a trash net or trash sock at the end of the concrete-lined portion of the Creek. Because the trash TMDL for the LA River requires incremental reductions in trash each year, the installation of a trash capture device in the channel would be effective in reducing the amount of trash flowing to the Los Angeles River immediately, while the source control efforts highlighted in this plan are implemented.

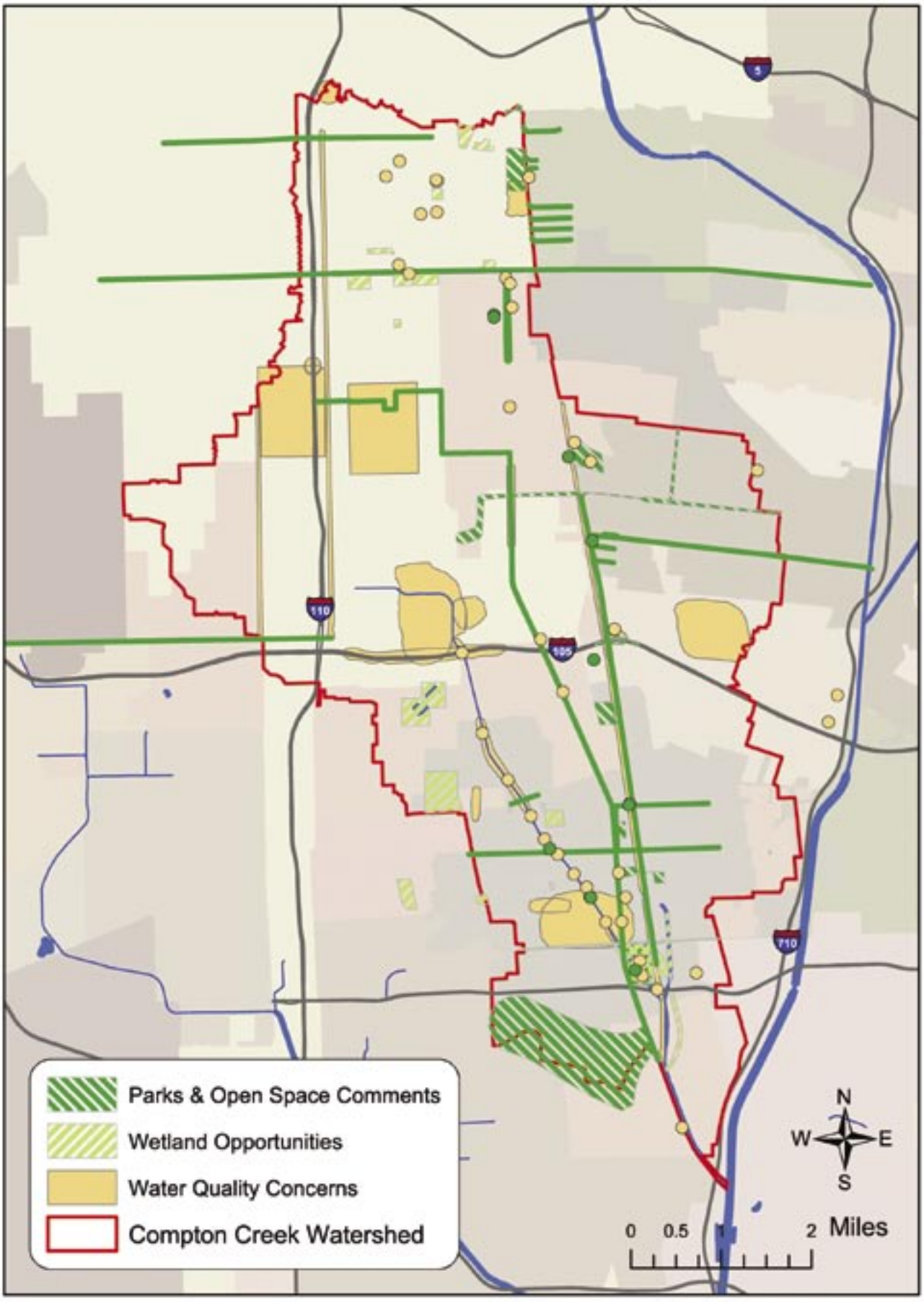

Figure 5-3 Input from CAT Meetings

Source Data: Los Angeles & San Gabriel Rivers Watershed Council, Basemap data from GDT © 2003

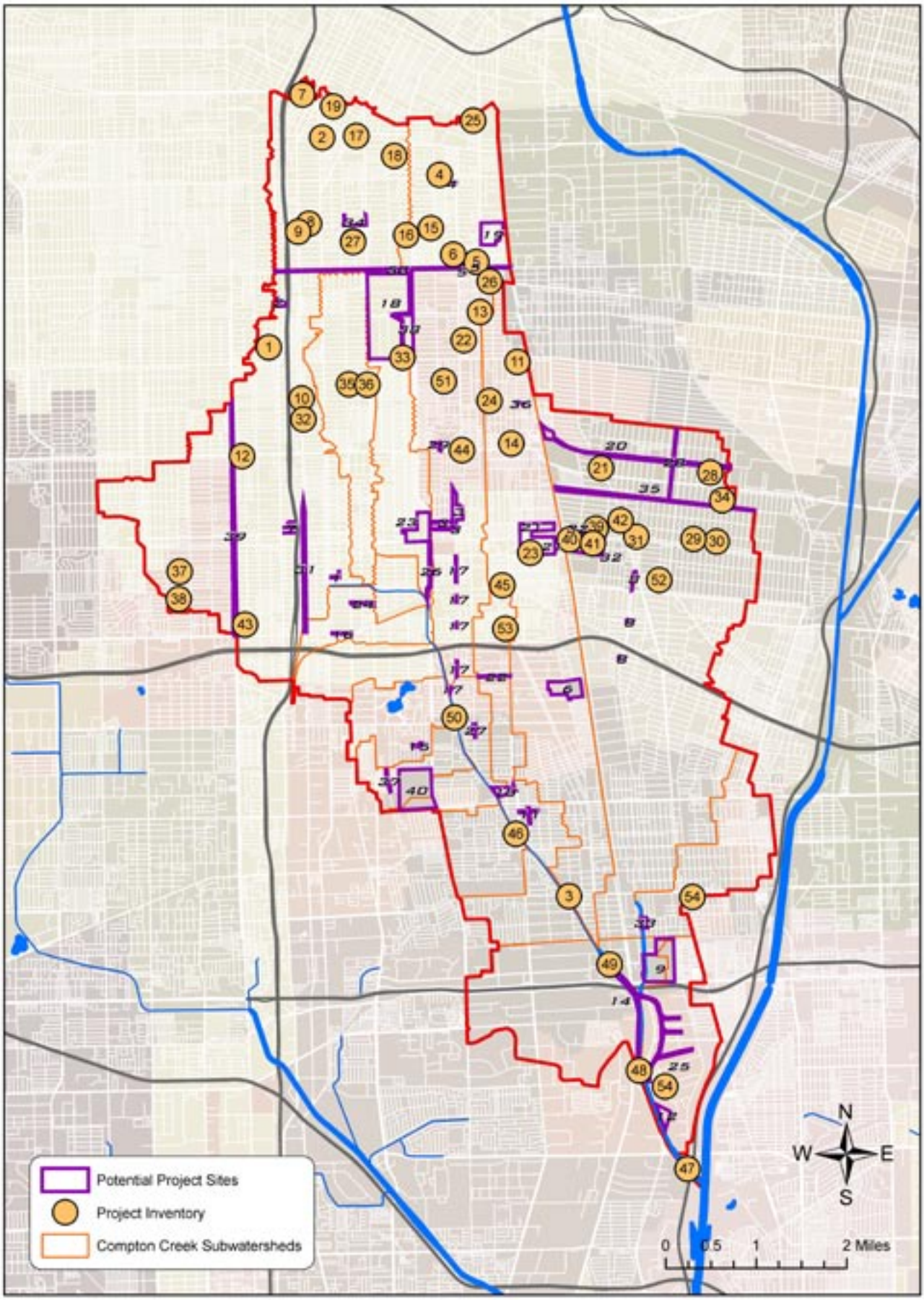

Figure 5-4 Project Locations

Source Data: Los Angeles & San Gabriel Rivers Watershed Council, Basemap data from GDT © 2003

We recommend that the trash capture device be installed at the end of the cement-box channel, north of the 91 Freeway at the Crystal Park Casino within the City of Compton. This location offers two benefits:

- Trash will be caught before it reaches the earthen bottom portion of the Creek, preserving the earthen bottomed portion from further degradation
- The point where the earthen bottom channel begins is bridged by a parking deck that can hold large vehicles, which would make the installation and maintenance of a trash capture device more convenient

While the installation of a trash capture device is an important near-term priority, longer-term priorities are listed below to address the source of the trash in a more sustainable way. Implementation of these strategies should begin immediately, as it will take some time to see their effects:

- Install trash screens or inserts on every catch basin within the Watershed (City and County of Los Angeles are already implementing this in their jurisdictions)
- Improve public outreach and education about littering and dumping
- Step up enforcement of littering and dumping codes
- Organize communities to clean up and beautify their neighborhoods

2. Open Space Linkages

The near-term priority for open space linkages is to complete the Compton Creek Bike Trail from the Creek's daylighting point at Main and 108th Streets to its confluence with the Los Angeles River South of Del Amo Boulevard. The specific components are discussed in more detail in the description of Project Types above (Compton Creek Improvements).

3. Earthen-Bottom Wetlands Enhancement

The earthen-bottom southern end of the Creek offers great potential for restoring riparian habitat and creating freshwater wetlands. This would bring the benefits of water quality treatment, recreation, and habitat to the Creek. Riparian vegetation and wetlands provide food and shelter for a variety of birds and other species. Restoration activities would provide educational opportunities for Watershed residents and passive recreation through creekside trails and wildlife viewing stations. In addition, wetlands provide water quality benefits for reducing suspended and dissolved metals and some nutrients, through settling and plant uptake. The capacity of a treatment wetland to remove pollutants will vary based on its intrinsic properties, such as its design, size, hydrologic and biotic characteristics, as well as external factors such as pollutant loading rate and the storm flow characteristics (Sutula 2003).

Vegetation surveys conducted previously, as discussed in Chapter 2, indicate very little native vegetation currently exists in the Creek, yet it still provides some habitat for certain bird species. Before a restoration project can begin, a targeted evaluation of the site needs to be conducted. Studies needed include evaluation of potential sediment pollution and water toxicity that could impact habitat success, flow studies to determine pollutant loading and the potential effectiveness of wetlands at treating pollutants, and hydraulic studies.

Long-term, regular maintenance of treatment wetlands is critical both to maintain treatment capacity and optimize the habitat value provided. All maintenance work must be scheduled to avoid critical breeding and nesting periods for wetlands species. Management practices for channel maintenance will need to be modified and agreements made by both the LACDPW and the USACE, so that the appropriate level of flood management can be maintained without damaging the restored habitat. The least invasive methods of minimizing resistance created by plant growth in the channel should be used: for example, if plant growth is impairing the channel's level of service, it should be tamped down instead of bulldozed.

With an area of approximately 58 acres, there is potential to include both a treatment wetland and restored riparian habitat. The Southern California Coastal Water Research Project (SCCWRP) and the Coastal Conservancy previously examined the habitat value of natural and constructed wetlands (Sutula 2003), and are currently engaged in a study to evaluate the treatment value of constructed wetlands (due end of 2005). These studies will provide guidelines for deign and location of wetlands within the channel.

4. Stream Naturalization

The naturalization of stream corridors is an important step in improving the quality of stormwater and dry weather flow before it reaches the main Creek channel. Naturalizing stream corridors can provide the additional benefits of increasing local watershed stewardship, reducing the risk of localized flooding, and creating new habitat and open space. Opportunities for stream naturalization can include both restoration of open channels and daylighting (bringing to the surface) underground storm drains, which sometimes follow old stream courses.

Storm drains that run under or through large open sites owned by governmental or quasi-governmental entities should be considered over those that would require property acquisition. If the chosen storm drain cannot be daylighted all at once, the process could begin with a few key sites, and expanded as opportunities become available and the public becomes familiar with the multiple benefits of such projects.

Two sites that appear to have good potential for the first steps in naturalizing stream corridors are described below. Engineering and hydraulic studies must be completed before the design and implementation of either of these projects. In cases where realignment is proposed, costs and technical feasibility would also need to be considered.

Success Avenue Corridor: this string of opportunity sites is situated along the downstream portion of the main storm drain for subwatershed "D." The eight sites along this corridor have the potential to filter runoff from approximately 11.5% of the Watershed. From north to south, the potential daylighting sites include the 96th Street Elementary School, Gonzaque Village Housing Project, 109th &114th Street parks, Nickerson Gardens Housing Project, Carver Elementary school, and Carver County Park (See #3 and #17 in Figure 5-4).

- (approx 0.5 mile) 96th Street Elementary School is adjacent to a DWP-owned power transmission corridor that is currently used for a nursery. The schoolyard is paved and is adjacent to Success Avenue. A portion of Success Avenue is currently designated as a bike route in this area. The street could be realigned or converted to a walking street with an enhanced connection between the school and the transmission corridor. If the nursery were given the option to expand their operation, perhaps the students could follow an environmental curriculum and help to incorporate sustainable nursery practices. Storm drain water could potentially be used for some of the irrigation in the project.
- (approx 0.3 mile) Gonzaque Village Housing Project has a grass covered back area under which the storm drain runs. This could be made into a walkway for residents around a small, linear treatment wetland.
- 109th Street Recreation Center is a place where the creek could resurface again for a few hundred feet if the storm drain, which currently flows under the Recreation Center Building were diverted along the walkway between the building and the baseball field.
- William Nickerson Gardens and Recreation Center lie directly over the storm drain. If the baseball fields and the storm drain were realigned, the storm drain could resurface here for another few hundred feet.
- (approx 0.17 mile) Both Carver Elementary School and Carver County Park lie adjacent to the underground storm drain. The drain could be diverted into open areas on the east sides of these properties.
- Finally, the storm drain runs under a single-family residential neighborhood to an outlet into Compton Creek just south of 120th street. At this point the outlet exhibits

considerable dry weather flow (as observed on several occasions in June and July of 2004). Though the homes directly above the outlet to the storm drain are private property, there may be the potential to purchase an easement to enable creation of a confluence pocket park, which links the neighborhood to the restored creek and to the Compton Creek.

State Street Corridor: Lynwood is known for its verdant plantings, and State Street is one of the most scenic streets in town. State Street, which turns into Santa Fe Avenue in Compton, is the backbone of subwatershed "F," the second largest subwatershed in the Compton Creek Watershed. Within the City of Lynwood, there are three daylighting opportunity sites that have the potential to treat a moderate amount of water, and to begin make a connection between Lynwood residents and the Watershed. The storm drain that flows through this area eventually becomes the East Branch of the Compton Creek which has a year round dry-weather flow.

State Street is a lightly traveled street separated by a wide median between Long Beach Boulevard and Martin Luther King Jr. Boulevard (MLK). Between MLK and Los Flores Boulevard, State Street is more heavily traveled and has a smaller median. At Los Flores Boulevard is the first of two traffic circles measuring approximately 1.3 acres, under which the storm drain runs. After passing the Plaza Mexico development and crossing under the 105 Century Freeway, State Street intersects with Flower Street at the second traffic circle. The storm drain runs directly under this traffic circle as well.

The portion of State Street between Long Beach Boulevard and Flower street could be realigned to make better use of the areas that have wide medians and traffic circle, and the storm drain underneath could be daylighted into a flowing stream.

This string of three initial daylighting projects could eventually be expanded to include other potential projects in subwatershed "F" such as the Southern Avenue Transmission Corridor and Independence Avenue Rail corridor in South Gate, and the South Park Retrofit and Compton Community College linkages in Compton.

G. QUANTIFIABLE MEASURES

Measurable characteristics for water quality improvements are the applicable water quality standards established for Compton Creek. In order to achieve these goals, quantifiable interim targets must be set and progress must be measured incrementally. This chapter has discussed specific BMPs and projects that will improve water quality, as well as ways to measure progress. While the success of these actions in achieving interim targets can be measured, it is difficult to predict in advance the actual effects because sufficient data to quantify effectiveness of BMPs do not exist, and effectiveness can vary based on design decisions and pollutant loads. Thus it is not possible to know how many BMPs of what type are needed to achieve water quality objectives. As individual projects are monitored, we can begin to assess their effectiveness and estimate their impact on water quality. Additionally, the recommended monitoring program (Chapter 6) will provide data to quantify long-term impacts, total pollutant loads, and water quality changes in the Creek on a subwatershed basis, for both wet-and dry-weather concentrations. Adaptive management measures may be required to adjust strategies and actions once these data are available. Continued maintenance of projects will also be important to maintain their effectiveness in the long term.

Specific milestones for improving water quality are summarized below.

▣ 20% Reduction in Trash by September of 2006

The trash TMDL calls for a 10% reduction per year of trash discharge, with a zero discharge limit by the year 2015. The first compliance milestone is a 20% reduction in trash by September of 2006. While the exact number of catch basins in the Watershed is not currently known, there will be nearly 1,000 catch basin inserts installed by the City and County of Los Angeles in an area representing over 62% of the Watershed. These installations were prioritized by need, and thus should meet this target milestone.

▣ 50% of Watershed should meet dry-weather standards for copper and lead by 2012

The metals TMDL for the Los Angeles River and tributaries was adopted by the Regional Board in June 2005, but has not yet been approved by EPA. The proposed schedule would require total compliance within 22 years following adoption of the TMDL and provides interim targets, including 50% compliance for dry-weather standards and 25% for wet-weather standard within 6 years. Assuming adoption within the next year, then the target date for 50% compliance for the dry-weather standard would be 2012. Based on the dry weather data reviewed and discussed in Chapter 2, the water quality target proposed in the draft Basin Plan amendment for copper may already be attained. The implementation of projects and strategies discussed previously will ensure that water quality is improved further in the long term.

▣ Bacteria Source Assessment by 2010

While the bacteria TMDL has not yet been proposed, a significant milestone will be to assess specific sources of bacteria and identify "hot spots" so that implementation planning can be appropriately targeted to known problem areas. Based on the current schedule for adoption of the Los Angeles River bacteria TMDL by 2008, the specifics of the wet-weather bacteria TMDL for Santa Monica Bay and the assumption that the Los Angeles River bacteria TMDL will be consistent, it can be assumed that a source assessment for bacteria will be required. The monitoring program discussed in Chapter 6 will provide data on a subwatershed basis that will provide a starting point for this assessment.