Trash TMDL for the Los Angeles River Watershed:

DRAFT

I Introduction – Legal Background

The California Regional Water Quality Control Board, Los Angeles Region (hereinafter referred to as the "Regional Board") has developed a draft total maximum daily load (TMDL) designed to attain the water quality standards for trash in the Los Angeles River. The TMDL has been prepared pursuant to state and federal requirements to preserve and enhance water quality in the in the Los Angeles Basin.

The California Water Quality Control Plan, Los Angeles Region, also known as the *Basin Plan*, designates beneficial uses for surface and ground water, sets numeric and narrative objectives necessary to support beneficial uses and the state's antidegradation policy, and describes implementation programs to protect all waters in the region. The Basin Plan is the implementation plan for the Porter-Cologne Water Quality Act (also known as the "California Water Code") and serves as the State Water Quality Control Plan applicable to the Los Angles River, as required pursuant to the federal Clean Water Act (CWA).

Section 303 (d)(1)(A) of the CWA mandates biennal assessment of the nation's water resources, and these water quality assessments are used to identify and list impaired waters. The resulting list is referred to as the 303(d) list. The CWA also requires states to establish a priority ranking for impaired waters and to develop and implement TMDLs. A TMDL specifies the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and allocates pollutant loadings to point and non-point sources. Water quality standards include designated beneficial uses, numeric and narrative water quality objectives, and the state's antidegredation policy as specified in the Basin Plan.

The United States Environmental Protection Agency has oversight authority for the 303 (d) program and must approve or disapprove the state's 303 (d) lists and each specific TMDL. USEPA is ultimately responsible for issuing a TMDL, if the state fails to do so in a timely manner.

As part of California's 1996 and 1998 303(d) list submittals, the Regional Board identified the reaches of the Los Angeles River at the Sepulveda Flood Basin and downstream as being impaired due to trash.

A consent decree between the USEPA, the Santa Monica BayKeeper and Heal the Bay Inc., represented by the Natural Resources Defense Council NRDC, was approved on March 22, 1999. This consent decree requires that all TMDLs for the Los Angeles Region be adopted within 13 years. The consent decree also prescribed schedules for certain TMDLs. According to this schedule, a Trash TMDL for the Los Angeles River is to be adopted by March 2001.

This Trash TMDL is based on existing, readily available information concerning the conditions in the Los Angeles River watershed and other watersheds in Southern California, as well as TMDLs previously developed by the State and USEPA.

II Problem Statement

a) Description of the Watershed

The Los Angeles River flows 51 miles from the western end of the San Fernando Valley to the Queensway Bay and Pacific Ocean at Long Beach. The headwaters drain to the confluence of Arroyo Calabasas and Bell Creek. Arroyo Calabasas drains Woodland Hills, Calabasas, and Hidden Hills in the Santa Monica Mountains. Bell Creek drains the Simi Hills and receives flows from Chatsworth Creek. From the confluence of Arroyo Calabasas and Bell Creek, the Los Angeles River flows east through the southern portion of the San Fernando Valley, bends around the Hollywood Hills before it turns south onto the broad coastal plain of the Los Angeles Basin, eventually discharging into Queensway Bay and thence into San Pedro Bay West of Long Beach Harbor. Together with its several major tributaries, notably the Tujunga

Wash, Burbank Western Channel, Arroyo Seco, Rio Hondo, and Compton Creek, the Los Angeles River drains an area of about 825 square miles.

In the San Fernando Valley, the river flows east for approximately 16 miles along the base of the Santa Monica Mountains. Most of the Los Angeles River channel was lined with concrete between 1935 and 1959 for flood control purposes[1]. This reach is lined in concrete except for a section of the river with a soft bottom at the Sepulveda Flood Control Basin. The Sepulveda Basin is a 2,150-acre open space, located upstream of the Sepulveda Dam. It is designed to collect flood waters during major storms. Because the area is periodically inundated, it remains in natural or semi-natural conditions and supports a variety of low-intensity uses. The US Army Corps of Engineers owns the entire basin and leases most of the area to the City of Los Angeles Department of Recreation and Parks, which has developed a multi-use recreational area that includes a golf course, playing fields, hiking trails, and bicycle paths.

The river is again lined in concrete for most of its course except for a soft bottomed segment of about nine miles long between the confluence of the Burbank/Western Channel near Riverside Drive and north of the Arroyo Seco confluence. Three miles of this segment border Griffith Park (encompassing 4,217 acres, the largest city-owned park in the United States). Four miles downstream, the river flows parallel to Elysian Park (585 acres in size). The original Pueblo de Los Angeles was founded just east of the river "to take advantage of the river's dependable supply of water."[2] From Willow Street all the way to the estuary, the river is soft bottomed with areas of riparian vegetation. This unlined section is about three miles long.

[1] Gumprecht, Blake (1999) *The Los Angeles River: Its Life, Death, And Possible Rebirth*, p. 206.
[2] Los Angeles River Master Plan, June 1996, p. 211.

b) Beneficial Uses of the Watershed[3]

The upper reaches of the Los Angeles River, which includes Sepulveda Basin, is a soft-bottomed area designated as a flood control basin. Beneficial uses designated for this are Municipal and Domestic Supply (MUN), Ground Water Recharge (GWR), Water Contact Recreation (REC1), Non-Contact Water Recreation (REC2), Warm Freshwater Habitat (WARM), Wildlife Habitat (WILD), and Wetland Habitat (WET). The thick growth of riparian plants in this area provides habitat for a variety of wildlife. Native oaks grow along stretches of Valleyheart Drive in Studio City and Sherman Oaks. The river levees along this reach are accessible and neighborhood residents use them for walking and jogging.

Glendale Narrows, from Riverside Drive to Arroyo Seco (Figueroa Street), with the longest soft-bottomed segment (nine miles), supports many beneficial uses and is designated accordingly in the Basin Plan. This portion of the Los Angeles River is designated as open space in the various community plans. Dense riparian vegetation provides habitat for wildlife including birds, ducks, frogs and other less-visible species. The relatively lush environment in this reach attracts people who enjoy many forms of recreation including walking, jogging, horseback riding, bird watching, photography and crayfishing. There are several access points in this reach, including the pedestrian bridge over the Golden State Freeway from Griffith Park near Los Feliz Boulevard. Many people use the maintenance roads along this reach. These roads are officially closed to public use, but cut fences provide easy access for the many people who use this section of the river, including the homeless who have set up camp under some of the bridges within this reach or on the vacant land between Highway 5 and the fence to the river.

[3] Much of this information on beneficial uses is taken from the Los Angeles River Master Plan.

Fig. A: Fletcher Drive: Great Egret, 10/26/99

From Figueroa Street to Washington Boulevard, the river supports several beneficial uses as well, as the Downtown Channel is used by many for recreation and bathing, in particular by homeless people who seek shelter there.

The mid-cities reach (11 ½ miles from Washington Boulevard to Atlantic Avenue), has both planned and unplanned beneficial uses. The western levee is available for trail use from Atlantic Boulevard in Vernon to Firestone Boulevard in South Gate. There is a county bike path on the eastern levee (the Lario Trail) and a county equestrian and hiking trail adjacent to the levee. Continuous access to the Lario Trail is provided below each street bridge crossing. Several parks have been developed adjacent to the river on the east side, some of which provide access to the river trail (Cudahy Park). In Vernon, the channel invert is used for lunchtime soccer games, and people walk or jog on the river maintenance roads mostly during the week at lunchtime. The utility easement in Bell is occasionally used for small, informal vegetable gardening.[4] South of the confluence of the Los Angeles River and the Rio Hondo

[4] Los Angeles River Master Plan, p. 99.

Channel in South Gate, increasing numbers of birds can be seen using the channel and adjacent lands.[5]

The nine-mile reach from Atlantic Avenue to the ocean supports some of the most abundant bird life found on the Los Angeles River. Roosting and feeding habitat is provided by the parks, spreading grounds, utility easements and vacant land adjacent to the river. Many species of birds also feed in the concrete channel, where algae grow in the warm, shallow water, and in the estuary South of Willow Street, where the water pools deep and slow enough to support fish. This in turns attracts fish-eaters like waders (herons, egrets, occidental bitterns and rails), terns, osprey (a fish-eating hawk), pelicans and cormorants. California Brown Pelican and California Least Tern are Federally Endangered Species.[6] Fish species south of Willow Street include gobies and tilapia (mostly *Tilapia mozambica*)[7].

Beneficial uses of the Los Angeles River watershed are summarized in the following table, excerpted from the 1994 Basin Plan.

[5] At the confluence there is a ten-acre site (approx.) owned by the City of South Gate which contains an abandoned landfill which is vegetated with grasses, shrubs and trees (Los Angeles River Master Plan).
[6] Dan Cooper, California Audubon Society, December 17, 1999.
[7] Charles Mitchell, MBC Applied Environmental Sciences, December 19, 1999.

Beneficial uses supported by the Los Angeles River and its tributaries are summarized in Table 1.[8]

Table 1. Beneficial Uses of Surface Waters of the Los Angeles River

Surface Waters[a]	**Hydro Unit**	**MUN**	**IND**	**PROC**	**GWR**	**NAV**	**REC1**	**REC2**	**COMM**	**WARM**	**COLD**	**EST**	**MAR**	**WILD**	**RARE**	**MIGR**	**SPWN**	**SHELL**	**WET[b]**
Los Angeles River Estuary	405.12		E			E	E	E	E			E	E	E	E	E	E	P	E
Los Angeles River	405.12	P	P	P	E		E	E		E			E	E	E	P	P	P	
Los Angeles River	405.15	P	P		E		E	E		E				P					
Los Angeles River	405.21	P	P		E		E	E		E			E				E		
Compton Creek	405.15	P			E		E	E		E				E					E
Rio Hondo downstream Spreading Grounds	405.15	P			I		P	E		P				I					
Rio Hondo downstream Spreading Grounds	405.15	P			I		I	E		P				I					
Rio Hondo	405.41	P			I		I	E		P				I	E				E
Alhambra Wash	405.41	P			I		P	I		P				P	E				
Rubio Wash	405.41	P			I		I	I		I				E	P				
Rubio Canyon	405.31	P			E		I	I		I				E	E				E
Eaton Wash	405.41	P			I		I	I		I				E					
Eaton Wash (downstream dam)	405.31	P			I		I	I		I				E					
Eaton Wash (upstream dam)	405.31	P			I		I	I		I				E					
Eaton Dam and Reservoir	405.31	P			I		P	Id		I				E					
Eaton Canyon Creek	405.31	P			E		E	E		E				E	E		E		E
Arcadia Wash (lower)	405.41	P			I		P	I		P				P					
Arcadia Wash (upper)	405.33	P			I		P	I		P				P					
Santa Anita Wash (lower)	405.41	P			I		P	E		P				P	E				
Santa Anita Wash (upper)	405.33	P			E		E	E		E				E	E				

[8] Water Quality Control Plan, Los Angeles Region, California Regional Water Quality Control Board, Los Angeles Region, 1994, p. 2-10.

Little Santa Anita Canyon Creek	405.33	P			I		I	I		I				E					
Big Santa Anita Reservoir	405.33	P			E		P	E		E	E			E					
Santa Anita Canyon Creek	405.33	E			E		E	E		E	E			E	E		E		E
Winter Creek	405.33	P			I		I	E		I				E					E
East Fork Santa Anita Canyon	405.33	P			E		E	E		E	E			E			E		E
Sawpit Wash	405.41	I			I		I	I		I				E					
Sawpit Canyon Creek	405.41	P			I		I	I		I				E	E				
Sawpit Dam and Reservoir	405.41	P			I		P	I		I				E					
Monrovia Canyon Creek	405.41	I			I		I	I		I				E					E
Arroyo Seco downstream Devil's Gate R. (L)	405.15	P					I	I		P			P						
Arroyo Seco downstream Devil's Gate R. (U)	405.31	P					I	I		P			P	E					
Devil's Gate Reservoir (L)	405.31	P			I		I	I		I			E						
Devil's Gate Reservoir (U)	405.32	I			I		I	I		I			E						
Arroyo Seco upstream Devil's Gate R.	405.32	E	E	E	E		E	E		E	E		E				E		
Millard Canyon Creek	405.32	E	E	E	E		E	E		E			E	E			E		
El Prieto Canyon Creek	405.32	I	I	I	I		I	I		I			E						
Little Bear Canyon Creek	405.32	P			I		I	I		I	I		E				E		
Verdugo Wash	405.24	P			I		P	I		P			P						
Halls Canyon Channel	405.24	P	I	I	I		I	I		I			E						
Snover Canyon	405.32	I	I	I	I		I	I		I			E						
Pickens Canyon	405.24	I			I		I	I		I			E						
Shields Canyon	405.24	I	I	I	I		I	I		I			E						
Dunsmore Canyon Creek	405.24	I	I	I	I		I	I		I			E						
Burbank Western Channel	405.21	P					P	I		P			P						
La Tuna Canyon Creek	405.21	P			I		I	I		I			E						
Tujunga Wash	405.21	P			I		P	I		P	P		P						
Hansen Flood Control Basin & Lakes	405.23	P			E		E	E		E	E		E	E					
Lopez Canyon Creek	405.21	P			I		I	I		I			E						
Little Tujunga Canyon Creek	405.23	P			I		I	E		I	I		E	E					

Kagel Canyon Creek	405.23	P			I	I	I	I		E			
Big Tujunga Canyon Creek	405.23	P			E	E	E	E	E	E	E	E	E
Upper Big Tujunga Canyon Creek	405.23	P			E	E	E	I	P	E			E
Haines Canyon Creek	405.23	P			I	I	I	I		E	E		
Vasquez Creek	405.23	P			E	E	E	P	P	E			E
Clear Creek	405.23	P			E	E	E	E	E	E			E
Big Tujunga Reservoir	405.23	P			E	P	E	E	P	E		E	
Mill Creek	405.23	P			E	E	E	E	E	E			E
Pacoima Wash	405.21	P			E	P	E	E		E	E		
Pacoima Reservoir	405.22	P			E	E	E	E		E			
Pacoima Canyon Creek	405.22	P			E	E	E	E	E	E	E	E	E
Stetson Canyon Creek	405.22	P			I	P	E	P		P			
Wilson Canyon Creek	405.22	P			I	E	E	I		E			
May Canyon Creek	405.22	P			I	I	E	I		E			
Sepulveda Flood Control Basin	405.21	P			E	E	E	E		E			E
Bull Creek	405.21	P			I	I	I	I		E			
Los Angeles Reservoir	405.21	E	E	E	P	P	E	E		E	E		
Lower Van Norman Reservoir	405.21	E	E	E	E	E	E	E		E	E		
Solano Reservoir	405.21	E				P		P		E			
Caballero Creek	405.21	P			I	I	I	I		E			
Aliso Canyon Wash and Creek	405.21	P			I	I	I	I		E			
Limeklin Canyon Wash	405.21	P			I	I	I	I		E			
Browns Canyon Wash and Creek	405.21	P			I	I	I	I		E			
Arroyo Calabasas	405.21	P				P	I	P		P			
McCoy Canyon Creek	405.21	P			I	I	I	I		E			
Dry Canyon Creek	405.21	P			I	I	I	I		E			
Bell Creek	405.21	P			I	I	I	I		E			
Chatsworth Reservoir	405.21	E	E	E		P	E	E		E			
Dayton Canyon Creek	405.21	P			I	I	I	I		E			

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

BENEFICIAL USE CODES (see Basin Plan for more details):

MUN **-** Municipal and Domestic Water Supply

IND **-** Industrial Service Supply

PROC **-** Industrial Process Supply

GWR **-** Ground Water Recharge

REC1 **-** Water Contact Recreation

REC2 **-** Non-Contact Water Recreation

COMM **-** Commercial and Sport Fishing

WARM **-** Warm Freshwater Habitat

COLD **-** Cold Freshwater Habitat

EST **-** Estuarine Habitat

MAR **-** Marine Habitat

WILD **-** Wildlife Habitat

RARE **-** Rare, Threatened or Endangered Species

SPWN **-** Spawning, Reproduction, and/or Early Development

SHELL **-** Shellfish Harvesting

WET **-** Wetland Habitat

c) Water Quality Objectives

Water quality standards consist of a combination of beneficial uses, water quality objectives and the State's Antidegradation Policy. The narrative water quality objectives applicable to this TMDL are for **floating materials**: "*Waters shall not contain floating materials, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses*"[9] and for **solid, suspended, or settleable materials:** "*Waters shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses*."[10] The States' Antidegradation Policy is formerly referred to as the *Statement of Policy with Respect to Maintaining High Quality Waters in California* (State Board Resolution No. 68-16).

d) Impairment of Beneficial Uses

Existing beneficial uses impaired by trash in the Los Angeles River are contact recreation (REC 1) (contact sports: swimmers are spotted regularly in the Los Angeles River at Glendale Narrows and also at Willow Street in Long Beach) and non-contact recreation such as fishing (REC 2); warm fresh water habitat; wildlife habitat; estuarine habitat and marine habitat; rare, threatened or endangered species; migration of aquatic organisms and spawning, reproduction and early development of fish (in the estuary). These beneficial uses in the Los Angeles River are impaired by large accumulations of suspended and settled debris throughout the river system. The problem is even more acute in Long Beach where debris flushed down from the upper reaches of the river collects. Common items that have been observed by Regional Board staff include styrofoam cups, styrofoam food containers, glass and plastic bottles, toys, balls, motor oil containers, antifreeze containers, construction materials, plastic bags, and cans. Heavier debris can be transported during storms as well.

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9 Water Quality Control Plan ("Basin Plan"), p. 3-9.

10 Ibid., p. 3-16.

Impaired reaches are as described in Table 2.

Table 2: Reaches of the Los Angeles River that are Impaired by Trash

Impairments	Applicable Objective/Criteria	303(d) Listed Waters/Reaches
Trash	Basin Plan narrative objective	Tujunga Wash (d/s Hansen Dam to Los Angeles River) Los Angeles River Reach 5 (within Sepulveda Basin) Los Angeles River Reach 4 (Sepulveda Dam to Riverside Dr.) Los Angeles River Reach 3 (Riverside Dr. to Figueroa St.) Los Angeles River Reach 2 (Figueroa St. to u/s Carson St.) Los Angeles River Reach 1(u/s Carson St. to estuary) Burbank Western Channel Verdugo Wash (Reaches 1 & 2) Arroyo Seco Reach 1 (d/s Devil's Gate Dam) & Reach 2 (W. Holly Ave. to Devil's Gate) Rio Hondo Reach 1 (Santa Ana Fwy to Los Angeles River)

Trash in waterways causes significant water quality problems. Small and large floatables can inhibit the growth of aquatic vegetation, decreasing spawning areas and habitats for fish and other living organisms. Wildlife living in rivers and in riparian areas can be killed by ingesting or becoming entangled in floating trash. Except for large items such as shopping carts, settleables are not always obvious to the eye. They include glass, cigarette butts, rubber, construction debris and more. Settleables can be a problem for bottom feeders and can contribute to sediment contamination. Some debris are a source of bacteria and toxic substances. Floating debris that is not trapped and removed will eventually end up on the beaches or in the open ocean, repelling visitors away from our beaches and degrading coastal waters. The major trash problem experienced in the Los Angeles River Watershed contributes to a broader phenomena that affects ocean waters, as small pieces of plastic called “nurdles” (defined as pre-production virgin material from plastic parts manufactures, as well as post-production discards that are occasionally recycled) float at various depths in the ocean and affect organisms at all levels of the food chain. As sunlight and UV radiation render plastic brittle, wave energy pulverizes the brittle material, with a subsequent chain of nefarious effects on the various filter feeding organisms found near the ocean's surface.

The prevention and removal of trash in the Los Angeles River ultimately will lead to improved water quality and protection of aquatic life and habitat, expansion of opportunities for public recreational access, enhancement of public interest in the rivers and public participation in restoration activities, and propagation of the vision of the river as a whole and enhancement of the quality of life of riparian residents.

e) Definition of Trash/Litter

In this document, we are defining "trash" as man-made litter, as defined in California Code Section 68055.1(g):

> "Litter" means all improperly discarded waste material, including, but not limited to, convenience food, beverage, and other product packages or containers constructed of steel, aluminum, glass, paper, plastic, and other natural and synthetic materials, thrown or deposited on the lands and waters of the state [. . .].

This definition excludes sediments, and it also excludes oil and grease, and exotic species, such as giant reed (*arundo donax*) and castor bean (*ricinus communis*). Additional TMDLs for (1) sediments and (2) oil and grease may be required at a later date.

Direct dumping of grass clippings or other yard wastes are included in this TMDL, although organic matter (leaves, branches, etc.) that occurs naturally in the process of riparian habitat regeneration is excluded.

f) Extent of the Trash Problem in the Los Angeles River

Excessive trash is a water quality problem throughout the Los Angeles River. The Regional Board has determined that the level of trash exceeds the existing Water Quality Standards necessary to protect the beneficial uses of the river.

i) *Transport Mechanisms*

Trash enters the river system in three different ways:

(1) Storm drains: trash is deposited throughout the watershed and is carried to the various reaches of the river and its tributaries during and after significant rain storms through storm drains;
(2) Wind action: trash can also blow into the waterways directly;
(3) Direct disposal: direct dumping also occurs.

ii) Current Data

Current data are sporadic and incomplete at best. What is known is that the amount of trash found in the waterways is excessive, and that trash is found in all reaches of the river from Calabasas to Long Beach, and in all tributaries. However, we lack data on the exact quantities. Regional Board staff regularly observe trash in the waterways of this watershed. Non-profits such as Heal the Bay, Friends of the Los Angeles River (FoLAR) and others, organize volunteer clean-ups periodically, and document the amount of trash that was removed on such days, but these data do not indicate how long the trash had been accumulating at that particular site, only the amount that was picked up by the volunteers on a given day.

For example, at Coastal Clean-up Day in 1996, there were 491,000 lbs of trash collected in all of California and 26,300 lbs collected in L.A. County. During the September 18, 1999, California Coastal Clean-up organized by Heal the Bay, a total of 60,711 lbs of trash were collected.[11]

At a clean-up organized during the Sacred Music Festival on Saturday, October 16, 1999, between Los Feliz Boulevard and Fletcher Drive over a distance of slightly under 1.5 miles, eleven shopping carts and six 40-gallon bags of trash were removed. However, this was not the total amount of trash on site, as Regional Board staff noticed more shopping carts and more trash on the same site the very next afternoon.[12]

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[11] Alix Gerosa, Heal the Bay, November 22, 1999.
[12] Trash observed by Regional Board staff on October 17, 1999, included mixed polystyrene waste (cups, plates and others), plastic bags, cement, sound boards, large clutters of cigarette butts, disposable plastic glass lids, aluminum wrappers, balloons, medications, plastic bottles, clothing, books, and aerosol paint cans.

Fig. B: Trash waiting for pick-up at Los Feliz Boulevard after Saturday, October 16, 1999, clean-up.

Several studies which attempted to quantify trash generated from discreet areas have been completed, but they concern relatively small areas, or relatively short periods, or both. The findings of some of these studies are discussed below.

The City of Calabasas cleaned out the Continuous Deflective Separation (CDS) Unit they had installed in December of 1998, on September 28, 1999. This CDS unit, located in Calabasas at the intersection of Las Virgenes Road and Agoura Road, collects trash from the runoff of a small storm drain, as well as part the runoff from Calabasas Park Hills (Santa Monica Mountains), and eventually empties to Las Virgenes Creek. It is assumed that this CDS unit prevented all trash from passing through. The calculated runoff, as provided to the Regional Board by Los Angeles County Department of Public Works staff, amounts to 12.8 square miles. The runoff from urbanized areas was estimated by Regional Board staff to amount to 0.10 square miles. The result of this clean-out, which represents approximately half of the 1998-1999 rainy season, was 2,000 gallons of sludgy water and a 64-gallon bag about two-third full of plastic food wrappers. It is assumed that part of the trash that accumulated in the CDS unit over roughly half of the rainy season had decomposed in the unit, hence the absence of paper products. Given the CDS unit was cleaned out after slightly more than nine months of use, it was assumed that this 0.10 square mile area produced a volume of 64 gallons over one year. This datum will be used as the default value for the implementation plan. Although other studies are informative, they provided less complete data and could not be applied directly to establishing trash generation rates.

The City of Los Angeles conducted an Enhanced Catch Basin Cleaning Pilot Project in compliance with a Consent Decree between the United States Environmental Protection Agency, the State of California, and the City of Los Angeles. The project goals were to determine debris loading rates, characterize the debris, and find an optimal cleaning schedule through enhancing catch basin cleaning. The project evaluated trash loading at two drainage basins:

-The Hollywood Basin (1,366 acres and 793 catch basins) includes much of Hancock Park and is mostly residential with some commercial and open space, and no industrial land;

-The Sawtelle Basin (2,267 acres and 502 catch basins) includes residential areas with some commercial, industrial and transportation-related uses, and some open space.

The catch basins are inlet structures without a sump below the level of the outlet pipe to capture solids and trash washed down by the stormwater.[13] These inlets also collect trash, grass clippings and animal wastes during dry weather. Catch basins were cleaned 3-4 times from March 1992 to December 1994 and yielded approximately 0.79 yd^3 of debris per cleaning (Sawtelle – 1.04 yd^3 and Hollywood – 0.61 yd^3), characterized as paper (26%), plastic wastes (10%), soil (33%), and yard trimmings (31%).

The study also observed that the amount of plastic waste was less in residential areas and greater in non-residential areas, that paper waste was greater in commercial areas, and that soil and yard waste was greater in residential areas and open spaces.[14]

Long Beach collects large amounts of trash at the mouth of the Los Angeles River, as much of the trash carried down the Los Angeles River ends up at the river's

[13] Such structures are usually termed *catchments*, but the term *catch basin* is used throughout California. The absence of flow during dry weather allows trash to collect at the inlet. (Phone conversation with Wing Tam, City of Los Angeles, November 10, 1999.)

[14] This information and all of the above concerning the City of Los Angeles Enhanced Catch Basin Cleaning was found in: City of Los Angeles Department of Public Works, Bureau of Sanitation: Consent Decree Report, Enhanced Catch Basin Cleaning, April 1999. (Unpublished report.)

mouth in Long Beach. Debris tonnage at the mouth of the Los Angeles River was 4,162 tons in 1995-96, and 9,290 tons in 1997-98.

Table 3-A: Storm Debris Summary for Long Beach: Debris Tonnage

	First Quarter (July-Sept.)	Second Quarter (Oct.-Dec.)	Third Quarter (Jan.-March)	Fourth Quarter (April-June)	Total
1995-96	73[15]	344	3,100	645	4,162
1996-97	350	2,361	601	681	3,993
1997-98	647	3,650	4,016	977	9,290
1998-99	565	720	532	1,274	3,091

iii) Costs of Trash Clean-ups

Cleaning up the river, its tributaries and the beaches is a costly endeavor. The Los Angeles County Department of Public Works contracts out the cleaning of over 75,000 catchments (catch basins) for a total cost of slightly over $1 million per year, billed to 42 municipalities. Each catch basin is cleaned once a year before the rainy season, except for 1,700 priority catch basins that fill faster and have to be cleaned out more frequently.

Over 4,000 tons of trash are collected from Los Angeles County beaches annually, at a cost of $3.6 million to Santa Monica Bay communities in fiscal year 1988-89 alone. In 1994 the annual cost to clean the 31 miles of beaches (19 beaches) along Los Angeles County was $4,157,388.

Long Beach bears a large part of the financial burden for cleaning up trash from the Los Angeles River watershed. The cost of gathering and disposing of trash at the mouth of the Los Angeles River during the rainy season was $525,577 during the 1995-96 season, and $879,534 during the 1997-98 El Niño season.

[15] 9/95 only

Table 3-B: Storm Debris Summary for Long Beach: Billings

	First Quarter (July-Sept.)	Second Quarter (Oct.-Dec.)	Third Quarter (Jan.-March)	Fourth Quarter (April-June)	Total
1995-96	$44,152[16]	$130,986	$224,023	$126,416	$525,577
1996-97	$102,055	$187,344	$88,180	$122,416	$500,577
1997-98	$158,612	$268,594	$282,988	$169,340	$879,534
1998-99	$247,986	$198,147	$185,179	$246,950	$878,262

There is an unquantified economic loss to the region form reductions in tourism because of dirty beaches.

III Numeric Target

The numeric target is 0 (zero) trash in the river. A numeric target of zero means that ultimately, at the end of the implementation period, there must be no trash in the river. The goal has been set at zero because no amount of trash can be deemed as acceptable in the river, and there is no justification for anything larger that zero.

The implementation will be phased: load allocations will be decreased gradually over 10 years. As the quantity of trash deposited into the river nears zero, the relationship between the amount of trash deposited and the amount of time elapsed becomes asymptotic and a zero goal becomes more difficult to reach.

The Regional Board is open to reviewing the implementation plan starting the year 2007 (i.e., after the 2006-2007 storm season). A possible review of the numeric target would have to be based on the findings of future studies on appropriate threshold levels for protecting beneficial uses. However, significant trash reductions must be achieved before the numeric target may be reconsidered.

[16] 9/95 only

IV Source Analysis

Trash generation rates are dependent on land uses. For purposes of this TMDL, load allocations will be based on the average amount of trash generated by specific land uses to the extent that supporting data are available. We have divided the urban portion of the Los Angeles River watershed into seven types of land uses for every city and unincorporated area in the watershed: (1) residential, (2) commercial, (3) industrial, (4) transportation and utilities, (5) mixed urban, (6) open space and recreation, and (7) agriculture.[17] In the absence of such data, a default value of 64 gallons per 0.10 square miles will be assigned. Appendix I contains a table which shows the square mileage for each land use for each city and unincorporated areas in the watershed, and a list of maps showing land uses for each city. For cities which are only partially located on the watershed, the square mileage indicated is for the part of this city which is in the watershed only.

Unincorporated areas include areas such as Altadena, East Compton, East Los Angeles, East Pasadena, East San Gabriel, Florence, La Crescenta, Mayflower Village, North El Monte, South San Gabriel, Walnut Park, Westmount and Willowbrook.

We have estimated average trash generation for each land use to allocate a maximum quantity to each city. The load allocations/reductions are based on the amount of trash estimated to be produced by each type of land use, and the amount will be the sum of the products of given land uses in each city by the allocation for this land use.

$$LA = \sum for\ each\ city \left(area\ by\ land\ uses \otimes\ allocations\ for\ this\ land\ use \right)$$

Using currently available data, if we assume that a typical 0.10 square mile area generates 64 gallons of trash in one year, generation of trash for a typical year for all cities in the watershed would be as shown in Table 1 of Appendix II.

[17] The land use classification that Southern California Association of Governments (SCAG) uses, which was developed by Aerial Information Systems as a modified Anderson Land Use Classification, includes 104 categories. The land use coverages were donated by SCAG to Teale Data Center for GIS library use, and show land use for 1990 and for 1993.

V Load Allocations

For each type of land use and each city, we assume that the amount of trash currently generated is as shown in Appendix II. Cities and unincorporated areas will be given 90% of this baseline for the first year of implementation, and the allocation will be reduced from the baseline by approximately 10% through every year of implementation. Cities will be deemed in compliance with their allocation loads for the years 2000--2001 and 2001--2002, provided that they remove and properly dispose of the trash collected pursuant to the baseline monitoring program. (See Table 4 and Section VI. a. herein.)

Allocations as specified in this plan are in uncompressed volume. In addition, we are assigning the same generation factor to every land use because we had no data to characterize different land uses. However, allocations may be assigned in dry weight and a different load factor may be assigned to the various land uses if we obtain enough data to do so. Thus, the current allocation is a default allocation. The default allocation is based upon data provided by the cities and Los Angeles County during the drafting of this TMDL.

These current default allocations may be revised if reliable data are provided to the Regional Board by the end of the baseline monitoring season, which will close so as to include data from the 2001-2002 storm season.

Watershed wide default allocations over the ten-year implementation period are presented in Table 4. The volumes shown, in cubic feet, are uncompressed volumes. This means that no mechanical devices should be used to compress volumes inventoried for purposes of monitoring the amount produced at select locations.

Table 4: Load Allocations as a Percentage of the Baseline	
Year of Implementation	Load Allocation Watershed wide (urbanized areas only) in cubic feet
Monitoring and Disposal of Trash Collected (October 2000-October 2001)	No allocation specified. Trash will be reduced by levels collected during the baseline monitoring program.
Monitoring and Disposal of Trash Collected (October 2001-October 2002)	No allocation specified. Trash will be reduced by levels collected during the baseline monitoring program.
Total allocation first year (October 2002-September 2003)	44,647 or 90% of the baseline load as determined from the baseline monitoring program
Total allocation second year (October 2003-September 2004)	37,206 or 75% of the baseline load as determined from the baseline monitoring program
Total allocation third year (October 2004-September 2005)	29,765 or 60% of the baseline load as determined from the baseline monitoring program
Total allocation year 4 (October 2005-September 2006)	24,804 or 50% of the baseline load as determined from the baseline monitoring program
Total allocation year 5 (October 2006-September 2007)	19,843 or 40% of the baseline load as determined from the baseline monitoring program
Total allocation year 6 (October 2007-September 2008)	14,882 or 30% of the baseline load as determined from the baseline monitoring program
Total allocation year 7 (October 2008-September 2009)	9,922 or 20% of the baseline load as determined from the baseline monitoring program
Total allocation year 8 (October 2009-September 2010)	4,961 or 10% of the baseline load as determined from baseline the monitoring program
Total allocation year 9 (October 2010-September 2011)	2,480 or 5% of the baseline load as determined from baseline the monitoring program
Total allocation year 10 (October 2011-September 2012)	0

Table 2 of Appendix II indicates load allocations in cubic feet for every year of implementation for all cities and areas of the watershed.

VI Monitoring

This section will address two types of monitoring: (a) baseline monitoring and (b) compliance monitoring to be conducted throughout the implementation period.

a) Baseline Monitoring

This refers to collection of baseline data on the sites that are representative of each land use. Collection of baseline data is compulsory and will be used as appropriate to refine the default allocations per land use as proposed in “Load Allocations” described previously, and cities are strongly encouraged to team up and work collectively. Baseline data will be collected over two storm seasons, 2000-2001 and 2001-2002, and an attempt will be made to represent all land uses that drain to the Los Angeles River. Although the amount of trash deposited into the waterways through conveyance of a storm drain is dependent on rainfall patterns, and larger amounts of trash are typically deposited into the channels as a result of the first storm of the season, monitoring will include dates in both the rainy season and the dry season. The rainy season is defined by the Los Angeles County Department of Public Works to take place from October 15 to March 15.

During the first year of baseline monitoring, a city or group of cities is required to capture and quantify trash from an area of not less than 10% of the total land area that drains to the Los Angeles River. The surface areas chosen by the cities or groups of cities must represent their land uses equitatively. Trash captured during the monitoring program must be disposed of in accordance with all applicable laws and regulations.

A list consisting of a minimum of three monitoring locations for each land use per city, or group of cities and/or unincorporated areas, must be proposed to the Regional Board by August 1, 2000. The list shall include, for each proposed monitoring location, a map showing the drainage to a Los Angeles River or tributary outlet, or to a location which will eventually drain to the river or one of its tributaries. The monitoring sites will be structured for full capture of trash and the sampling devices will be emptied and analyzed after every precipitation event of 0.10 inch or more or after two months of no rain and every two months in the absence of precipitation. Data will be reported in uncompressed volumes, wet weight and dry weight.

b) Monitoring Throughout the Implementation Period

On-going monitoring will be conducted to assess the effectiveness of this TMDL. Monitoring will include dates in both the rainy season and the dry season.

Each city within the Los Angeles River watershed, and Los Angeles County for unincorporated areas, shall propose a minimum of one monitoring location for each land use type, or monitoring locations that convey drainage from an area of not less than 10% of the total area that drains to the Los Angeles River and its tributaries, choosing the option which will monitor the most extensive drainage area, within three months of adoption of this TMDL. When cities submit locations draining at least 10% of their area on the Los Angeles River watershed, the Regional Board will accept a representation which does not necessarily reflect every land use, but the total load allocation per city will nevertheless be based on their respective land uses.

The monitoring sites will be structured for full capture of trash and the sampling devices will be emptied and analyzed within 48 hours of every precipitation event of 0.10 inch or more or after two months of no rain, and then every two months in the absence of precipitation. Data will be reported in uncompressed volumes, wet weight and dry weight.

The Regional Board staff will decide which sites will be monitored each season among the proposed sites, and will have authority to change the sites among the sites originally proposed. In addition, the Regional Board will have the authority to require changes in the original locations during any given year as needed to accurately represent a watershedwide load reduction.

VII Implementation

As required by the Clean Water Act, discharges of pollutants to the river from storm water are prohibited, unless the discharges are in compliance with a National Pollutant Discharge Elimination System (NPDES) Permit. In June 1990, the first Municipal NPDES Storm Water Permit was issued jointly to Los Angeles County and 87 cities as co-permittees. Storm water municipal permits will be one of the implementation tools of this Trash TMDL. Because trash is considered a storm water contaminant, allocations will be incorporated as effluent limits in future storm water permits, which will be modified in order to address monitoring and implementation of this TMDL.

The pollutant load allocated to a given city will depend on its land use distribution and total area within the watershed, and the estimate of the trash it generates according to monitoring results.

Permittees are strongly encouraged to pool efforts in order to meet the challenges posed by this Los Angeles River Trash TMDL by developing cooperative monitoring programs that cross jurisdictional boundaries.

Each permittee or group of permittees will decide on which land uses to concentrate efforts. This means that cities, or groups of cities/permittees, will be required to meet the total allocation for their jurisdiction, not necessarily their allocation for each land use. They will be allowed flexibility in how to reduce their trash generation rates as long as they achieve the required reductions. For example, one city or group of cities may find that a reduction of the amount of trash generated by residential areas can be achieved more quickly than that produced by commercial areas. In this example the city or group of cities may choose to reduce the commercial load by less than would be required on a per land use reduction, still achieving the overall reduction that is mandated.

It is up to the cities to decide the exact set of strategies to be used to reduce the amount of trash discharged to the Los Angeles River. Ordinances which prohibit litter are already in place in most cities. For example, the Los Angeles City Code of

Regulations recognizes that trash becomes a pollutant in the storm drain system when exposed to storm water or any runoff and prohibits the disposal of trash on public land:

> No person shall throw, deposit, leave, cause or permit to be thrown, deposited, placed, or left, any refuse, rubbish, garbage, or other discarded or abandoned objects, articles, and accumulations, in or upon any street, gutter, alley, sidewalk, storm drain, inlet, catch basin, conduit or other drainage structures, business place, or upon any public or private lot of land in the City so that such materials, when exposed to stormwater or any runoff, become a pollutant in the storm drain system. (City Code of Regulations, §64.70.02.C.1(a).)

Each city, or group of cities, must develop and implement strategies which 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 include provisions for long-term operation and maintenance of BMPs.

While each city, and Los Angeles County for non-incorporated areas, will receive an allocation based on the trash generation factors for its land uses, the areas not regulated under industrial stormwater permits will be permitted separately. Each city must provide the Regional Board with a list of entities located within their municipal boundaries which are outside of their jurisdiction including as State or federal lands and facilities, within 120 days of the effective date of this amendment. The Regional Board will review the lists of State and federal entities and issue permits as warranted.

Table 5: Dates, Deadlines and Requirements for the Los Angeles River Trash TMDL:

A Brief Summary

September 2000-April 2002	Collection of Baseline Data
August 1, 2000	List of baseline monitoring locations due to the Regional Board.
120 days after the adoption of this TMDL	Submission by each city of a list of facilities that are within their municipal boundaries but under State or federal jurisdiction.
Wet weather: After every rain event over 0.10 inch	Collection and analysis of trash at monitoring locations
Dry weather: Every two months from the last rain event	Collection and analysis of trash at monitoring locations

Appendix I

This table shows the square mileage for “residential”, “commercial”, “industrial”, “transportation and utilities”, “mixed urban”, “open space and recreation”, and “agriculture” land uses for every city and incorporated areas in the watershed. Another significant land use is “water”. This category is purposefully omitted since it does not in itself produce trash. For cities that are only partially located on the watershed, the square mileage indicated is for the portion located in the watershed.

Table 1:
Square mileage estimated for each land use for cities in the watershed, and for unincorporated areas.

City	Residential	Commercial	Industrial	Transportation and Utilities	Mixed Urban	Open Space and Recreation	Agriculture	Total for all classes
Alhambra	5.15	1.30	0.33	0.46	0.04	0.35	0.00	7.63
Arcadia	7.55	1.59	0.20	0.31	0.11	1.00	0.00	10.77
Bell	1.21	0.46	0.44	0.58	0.05	0.01	0.00	2.75
Bell Gardens	1.42	0.51	0.26	0.06	0.04	0.11	0.10	2.49
Bradbury	0.32	0.00	0.00	0.00	0.05	0.27	0.17	0.82
Burbank	11.68	1.81	1.59	1.43	0.25	0.58	0.01	17.34
Calabasas	Data	will	be	added	as	it	becomes	available
Carson	0.00	0.00	0.25	0.02	0.00	0.00	0.02	0.30
Commerce	0.64	0.66	3.83	1.00	0.15	0.11	0.12	6.52
Compton	5.35	1.74	1.99	0.72	0.16	0.14	0.08	10.18
Cudahy	0.90	0.14	0.02	0.02	0.00	0.02	0.00	1.10
Downey	4.12	1.18	0.07	0.24	0.05	0.42	0.00	6.07
El Monte	4.30	1.53	0.97	0.60	0.09	0.06	0.00	7.55
Glendale	19.52	2.51	0.85	1.43	0.22	6.05	0.03	30.61
Hidden Hills	1.17	0.01	0.01	0.03	0.25	0.01	1.47	2.94
Huntington Park	1.62	0.68	0.53	0.13	0.02	0.07	0.00	3.05
Irwindale	0.03	0.03	0.73	0.66	0.06	0.05	0.00	1.55
La Canada	5.06	0.42	0.15	0.43	0.02	2.54	0.05	8.66
Lakewood	0.15	0.00	0.00	0.00	0.00	0.01	0.00	0.16
Long Beach	12.00	3.42	1.46	2.01	0.43	1.01	0.27	20.60
Los Angeles	149.61	29.40	19.23	20.23	4.30	66.40	3.06	292.22
Lynwood	3.00	0.80	0.44	0.48	0.06	0.07	0.00	4.86
Maywood	0.85	0.19	0.10	0.01	0.01	0.01	0.00	1.17
Monrovia	3.54	0.73	0.58	0.22	0.10	7.26	0.04	12.47
Montebello	3.89	1.16	1.64	0.72	0.18	0.62	0.15	8.35
Paramount	1.30	0.31	0.94	0.41	0.08	0.07	0.15	3.25
Pasadena	13.19	3.74	0.52	1.48	0.10	4.02	0.12	23.18

Pico Rivera	1.03	0.26	0.51	0.93	0.03	0.10	0.01	2.87
Rosemead	3.32	1.09	0.13	0.20	0.08	0.15	0.15	5.12
San Fernando	1.42	0.57	0.27	0.08	0.01	0.04	0.00	2.39
San Gabriel	3.01	0.72	0.10	0.06	0.03	0.23	0.09	4.24
San Marino	3.09	0.25	0.00	0.11	0.00	0.32	0.00	3.76
Signal Hill	0.31	0.10	0.63	0.05	0.00	0.00	0.00	1.10
Sierra Madre	1.76	0.16	0.01	0.06	0.02	0.98	0.01	3.01
South El Monte	0.91	0.29	1.23	0.07	0.02	0.03	0.07	2.62
South Gate	4.07	0.95	1.09	0.72	0.25	0.23	0.15	7.46
South Pasadena	2.49	0.35	0.00	0.14	0.04	0.39	0.01	3.43
Temple City	3.44	0.46	0.07	0.01	0.00	0.03	0.01	4.01
Vernon	0.00	0.02	4.04	0.96	0.08	0.00	0.00	5.10
Unincorporated areas	24.12	3.63	2.60	2.34	0.23	6.24	0.44	39.60

(from: TMDL worksheets/ square mileage)

Appendix II

The following table (Table 1) shows current estimated generation of trash for a typical year for all cities in the watershed. A typical 0.10 square mile area is assumed to generate 64 gallons of trash in one year. Generation rates are currently assumed to be the same for every land use. These figures represent uncompressed trash, in cubic feet.

Table 1: Estimated current generation of trash per land use per year, in cubic feet.

City	Residential	Commercial	Industrial	Transportation and Utilities	Mixed Urban	Open Space and Recreation	Agriculture	total cubic feet of trash
Alhambra	442.78	112.25	28.39	39.79	3.24	29.96	0.00	656.39
Arcadia	649.28	137.03	16.77	27.01	9.75	86.35	0.00	926.19
Bell	103.95	39.77	37.87	49.78	4.12	1.19	0.00	236.68
Bell Gardens	122.13	43.64	22.22	4.88	3.15	9.67	8.63	214.31
Bradbury	27.52	0.00	0.00	0.43	4.56	23.34	14.50	70.34
Burbank	1,004.55	155.53	136.71	123.18	21.91	49.47	0.64	1,491.99
Calabasas	Data	will	be	added	as	it	becomes	available
Carson	0.00	0.41	21.86	2.10	0.00	0.00	1.42	25.78
Commerce	55.29	57.12	329.61	86.11	12.75	9.60	10.14	560.62
Compton	460.32	150.02	171.33	62.00	13.92	11.71	6.60	875.90
Cudahy	77.14	11.86	1.57	1.84	0.32	2.00	0.00	94.73
Downey	354.19	101.82	6.06	20.69	3.89	35.80	0.00	522.45
El Monte	370.10	131.30	83.81	51.85	7.53	4.93	0.00	649.51
Glendale	1,679.28	215.87	73.01	123.15	18.78	520.04	2.78	2,632.92
Hidden Hills	100.73	0.49	0.62	2.20	21.78	0.54	126.36	252.73
Huntington Park	139.68	58.29	45.63	11.05	1.75	5.71	0.00	262.10
Irwindale	2.29	2.20	62.81	56.53	5.06	4.23	0.00	133.13
La Canada	435.14	35.96	12.78	36.66	1.85	218.60	4.25	745.23
Lakewood	13.03	0.24	0.07	0.16	0.00	0.61	0.00	14.11
Long Beach	1,032.34	293.89	125.91	173.03	37.04	86.78	22.91	1,771.90
Los Angeles	12,869.82	2,529.20	1,653.90	1,740.29	369.78	5,711.45	262.95	25,137.39
Lynwood	257.88	68.71	38.00	41.68	5.46	6.07	0.00	417.79
Maywood	73.08	16.31	8.34	0.88	0.53	1.13	0.00	100.27
Monrovia	304.49	63.03	49.85	18.85	8.34	624.74	3.32	1,072.63
Montebello	334.30	99.88	140.91	61.61	15.61	53.30	13.07	718.69
Monterey Park	395.27	86.04	23.92	47.07	4.91	82.11	20.10	659.42
Paramount	0.00	0.00	0.00	0.00	0.00	0.00	13.01	13.01

Pasadena	1,134.71	322.07	44.56	127.60	8.73	346.00	10.22	1,993.89
Pico Rivera	88.42	22.78	43.90	80.39	2.26	8.23	0.90	246.89
Rosemead	285.28	93.99	11.29	17.29	7.02	12.70	13.09	440.66
San Fernando	121.83	48.68	23.61	6.83	0.85	3.61	0.00	205.40
San Gabriel	258.94	62.32	8.37	4.74	2.15	19.83	7.95	364.30
San Marino	265.52	21.86	0.00	9.25	0.00	27.22	0.00	323.85
Signal Hill	27.02	8.69	54.12	4.34	0.31	0.36	0.00	94.84
Sierra Madre	151.78	13.72	1.01	5.57	2.00	83.98	0.82	258.88
South El Monte	78.04	25.24	105.46	6.26	1.62	2.89	5.82	225.31
South Pasadena	214.40	29.76	0.43	12.01	3.63	33.86	0.91	295.00
South Gate	349.83	82.03	93.91	61.91	21.32	19.45	13.21	641.67
Temple City	295.55	39.30	6.22	0.67	0.00	2.46	0.62	344.82
Vernon	0.01	1.71	347.43	82.96	6.52	0.00	0.00	438.64
Unincorporated areas	2,074.79	312.32	223.87	201.05	19.50	536.82	37.84	3,406.20

(from:TMDL worksheets/new allocations in cubic feet.)

The following table (Table 2) indicates load allocations in cubic feet for every year of implementation for all cities and areas of the watershed.

Table 2: Load Allocations, in cubic feet per year, as anticipated throughout the ten-year implementation period.

City	total cubic feet of trash generated	total allocation first year	total allocation second year	total allocation third year	total allocation year 4	total allocation year 5	total allocation year 6	total allocation year 7	total allocation year 8	total allocation year 9	total allocation year 10
Alhambra	656.39	590.8	492.3	393.8	328.2	262.6	196.9	131.3	65.6	32.8	0.0
Arcadia	926.19	833.6	694.6	555.7	463.1	370.5	277.9	185.2	92.6	46.3	0.0
Bell	236.68	213.0	177.5	142.0	118.3	94.7	71.0	47.3	23.7	11.8	0.0
Bell Gardens	214.31	192.9	160.7	128.6	107.2	85.7	64.3	42.9	21.4	10.7	0.0
Bradbury	70.34	63.3	52.8	42.2	35.2	28.1	21.1	14.1	7.0	3.5	0.0
Burbank	1,491.99	1,342.8	1,119.0	895.2	746.0	596.8	447.6	298.4	149.2	74.6	0.0
Calabasas	Data	will	be	added	as	it	becomes	available			
Carson	25.78	19.3	15.5	12.9	10.3	7.7	5.2	2.6	1.3	2.6	0.0
Commerce	560.62	420.5	336.4	280.3	224.2	168.2	112.1	56.1	28.0	56.1	0.0
Compton	875.90	656.9	525.5	438.0	350.4	262.8	175.2	87.6	43.8	87.6	0.0

Cudahy	94.73	71.0	56.8	47.4	37.9	28.4	18.9	9.5	4.7	9.5	0.0
Downey	522.45	391.8	313.5	261.2	209.0	156.7	104.5	52.2	26.1	52.2	0.0
El Monte	649.51	487.1	389.7	324.8	259.8	194.9	129.9	65.0	32.5	65.0	0.0
Glendale	2,632.92	1,974.7	1,579.8	1,316.5	1,053.2	789.9	526.6	263.3	131.6	263.3	0.0
Hidden Hills	252.73	189.5	151.6	126.4	101.1	75.8	50.5	25.3	12.6	25.3	0.0
Huntington Park	262.10	196.6	157.3	131.0	104.8	78.6	52.4	26.2	13.1	26.2	0.0
Irwindale	133.13	99.8	79.9	66.6	53.3	39.9	26.6	13.3	6.7	13.3	0.0
La Canada	745.23	558.9	447.1	372.6	298.1	223.6	149.0	74.5	37.3	74.5	0.0
Lakewood	14.11	10.6	8.5	7.1	5.6	4.2	2.8	1.4	0.7	1.4	0.0
Long Beach	1,771.90	1,328.9	1,063.1	885.9	708.8	531.6	354.4	177.2	88.6	177.2	0.0
Los Angeles	25,137.39	18,853.0	15,082.4	12,568.7	10,055.0	7,541.2	5,027.5	2,513.7	1,256.9	2,513.7	0.0
Lynwood	417.79	313.3	250.7	208.9	167.1	125.3	83.6	41.8	20.9	41.8	0.0
Maywood	100.27	75.2	60.2	50.1	40.1	30.1	20.1	10.0	5.0	10.0	0.0
Monrovia	1,072.63	804.5	643.6	536.3	429.1	321.8	214.5	107.3	53.6	107.3	0.0
Montebello	718.69	539.0	431.2	359.3	287.5	215.6	143.7	71.9	35.9	71.9	0.0
Monterey Park	659.42	494.6	395.6	329.7	263.8	197.8	131.9	65.9	33.0	65.9	0.0
Paramount	13.01	9.8	7.8	6.5	5.2	3.9	2.6	1.3	0.7	1.3	0.0
Pasadena	1,993.89	1,495.4	1,196.3	996.9	797.6	598.2	398.8	199.4	99.7	199.4	0.0
Pico Rivera	246.89	185.2	148.1	123.4	98.8	74.1	49.4	24.7	12.3	24.7	0.0
Rosemead	440.66	330.5	264.4	220.3	176.3	132.2	88.1	44.1	22.0	44.1	0.0
San Fernando	205.40	154.0	123.2	102.7	82.2	61.6	41.1	20.5	10.3	20.5	0.0
San Gabriel	364.30	273.2	218.6	182.2	145.7	109.3	72.9	36.4	18.2	36.4	0.0
San Marino	323.85	242.9	194.3	161.9	129.5	97.2	64.8	32.4	16.2	32.4	0.0
Signal Hill	94.84	71.1	56.9	47.4	37.9	28.5	19.0	9.5	4.7	9.5	0.0
Sierra Madre	258.88	194.2	155.3	129.4	103.6	77.7	51.8	25.9	12.9	25.9	0.0
South El Monte	225.31	169.0	135.2	112.7	90.1	67.6	45.1	22.5	11.3	22.5	0.0
South Gate	641.67	577.5	481.3	385.0	320.8	256.7	192.5	128.3	64.2	32.1	0.0
South Pasadena	295.00	265.5	221.2	177.0	147.5	118.0	88.5	59.0	29.5	14.7	0.0
Temple City	344.82	310.3	258.6	206.9	172.4	137.9	103.4	69.0	34.5	17.2	0.0

Vernon	438.64	394.8	329.0	263.2	219.3	175.5	131.6	87.7	43.9	21.9	0.0
Unincorporated Areas	3,406.20	3,065.6	2,554.6	2,043.7	1,703.1	1,362.5	1,021.9	681.2	340.6	170.3	0.0

(from:TMDL worksheets/new allocations in cubic feet.)