USE ATTAINABILITY ANALYSIS

CUCAMONGA CREEK – REACH 1

October 4, 2013

Santa Ana Regional Water Quality Control Board

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UAA ANALYSIS:
CUCAMONGA CREEK - REACH 1

1.0 Executive Summary

Cucamonga Creek Reach 1 is a concrete-lined flood control channel that extends from the base of the Cucamonga Canyon dam, in the City of Upland, to Hellman Avenue near the border between San Bernardino and Riverside counties. This analysis demonstrates that contact and non-contact water recreation uses (REC1 and REC2, respectively) do not exist and are not attainable in Reach 1 of Cucamonga Creek because low flow conditions and flood control modifications preclude attainment of such uses.

During typical dry weather conditions the upper half of Cucamonga Creek, nearest to residential areas, is less than an inch deep. The only significant source of flow in this segment is nuisance urban runoff from nearby landscape irrigation.

The lower half of Cucamonga Creek (south of the Ontario Airport and Highway 60) is dominated by commercial/industrial and agricultural land uses. During dry weather conditions, highly treated municipal effluent provides nearly 90% of the stream flow to this lower segment. However, the stream is typically less than 9 inches deep as the water spreads across the 75-foot wide concrete channel. And, dry weather discharges are slowly declining as the Inland Empire Utilities Agency continues to implement large-scale water conservation and recycled water projects throughout the area.

Public access is prohibited by law and prevented by chain link fencing and locked gates throughout the entire 15-mile length of Cucamonga Creek Reach 1. The vertical or steep trapezoidal concrete walls also preclude easy or safe access to the stream.

Extensive photographic evidence, field surveys and interviews of knowledgeable local authorities indicates that water recreation (REC1 or REC2) is not occurring and has not occurred in the channel. And, there are no city or county plans to construct recreational facilities (e.g. parks or trails) adjacent to the channel.

Analysis of historical water quality monitoring data indicates that the bacterial objectives are not being met. However, recreational uses cannot be attained by imposing more stringent effluent limitations or requiring additional Best Management Practices (BMPs) to control non-point sources because factors other than water quality will continue to preclude such uses. Therefore, the Cucamonga Creek flood control channel (e.g. Reach 1) should not be designated REC1 or REC2 because:

> 1) Natural, ephemeral, intermittent and low flow conditions preclude such uses, and.
>
> 2) Extensive hydrologic flood control modifications preclude such uses and cannot be removed or operated in a manner that would allow for safe water recreation.

2.0 Segment Description

2.1 Channel Location

The Cucamonga Creek Watershed is approximately 92 mi^2 in size. The watershed includes portions of the cities of Chino, Ontario, Rancho Cucamonga, and Upland and sections of unincorporated Riverside and San Bernardino Counties (Figure CC-1). The Basin Plan identifies two reaches of Cucamonga Creek (Basin Plan, Chapter 3, Table 3-1).

Cucamonga Creek Reach 1 is approximately 15 miles long. The Basin Plan defines the downstream boundary of Reach 1 as the confluence with Mill Creek[1] near Hellman Avenue (Figure CC-2). The upstream boundary of Reach 1 is marked by the Cucamonga Canyon Dam located near 23rd Street in the City of Upland. Reach 1 is tributary to the Prado Basin Management Zone and the Middle Santa Ana River.

Lower Deer Creek, West Cucamonga Channel, Upper Deer Canyon Wash, and Demens Creek are the main tributaries to Reach 1 of Cucamonga Creek. There are numerous local storm drain outfalls discharging runoff into the channel and its tributaries. This UAA addresses Reach 1 of Cucamonga Creek. Neither Reach 2 of the Creek nor tributaries to the Creek are addressed in this UAA.

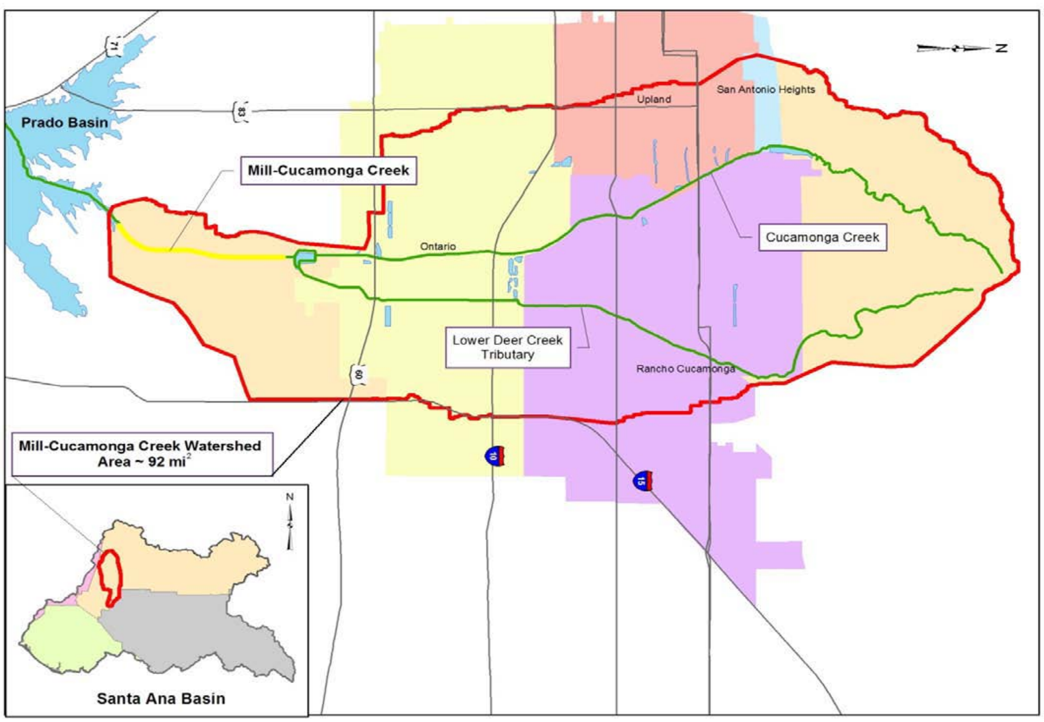

Figure CC-1: Map of Cucamonga Creek Watershed

[1] Mill Creek is identified in the Basin Plan as beginning at the downstream end of Cucamonga Creek, where the concrete trapezoidal channel transitions to a trapezoidal rip rap channel, just downstream of Hellman Avenue, located in unincorporated Riverside County. See Figure CC-2. The area downstream of Hellman Avenue is in the Prado Basin Management Zone.

Figure CC-2: Mill Creek at Hellman Ave. in the Prado Basin Management Zone, looking downstream. Cucamonga Creek becomes known as Mill Creek at this point.

2.2 Proximate Land Uses

The Reach 1 watershed drains 55,456 acres composed of agricultural, residential, urban and industrial land uses.[2] The upper half of Reach 1, in the Cities of Ontario, Rancho Cucamonga, and Upland, is predominantly urban and includes a mix of residential, commercial, transportation, industrial and public service land uses. The lower part of Reach 1 is slowly transitioning to more urban land uses as development encroaches on this largely agricultural area of the watershed (Figure CC-3). Land uses adjacent to Reach 1 are summarized in Table CC-1.

[2] San Bernardino County. CBRP; Dec., 2010; see Table 3-1 on pg. 3-6.

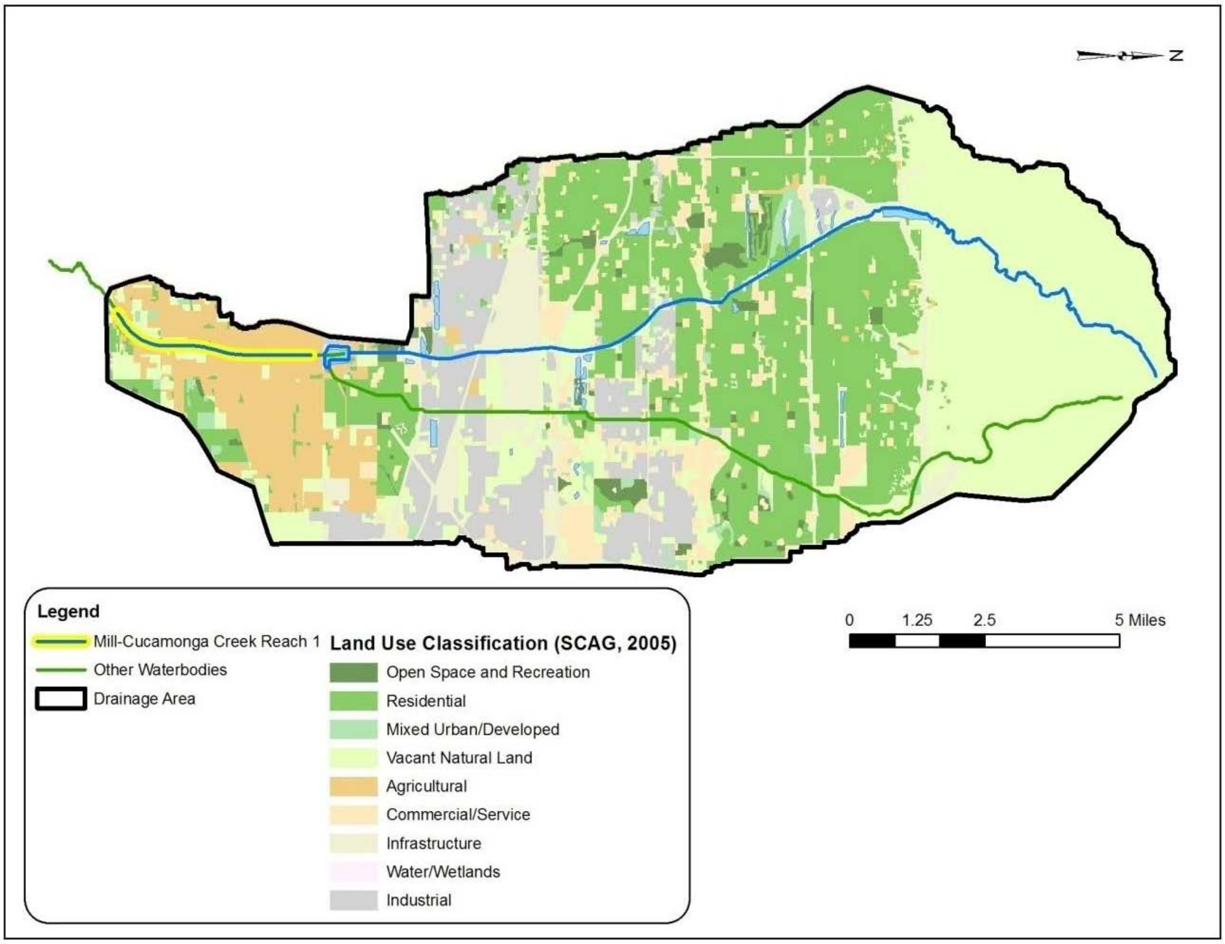

Figure CC-3: Land Use with the Cucamonga Creek Drainage Area

Table CC-1: Summary of Land Uses Adjacent to Cucamonga Creek Reach 1

Land Use	Linear Feet	% of Channel Length
Agriculture	25,157	59%
Commercial, Institutional, Industrial, Mixed	12,666	30%
Residential	4,842	11%
Parks and Recreation	0	0%
TOTAL	**42,665**	**100%**

2.3 Channel Characteristics

Reach 1 of Cucamonga Creek is fully concrete lined throughout its entire 15 mile length. The upper 11 miles of Reach 1 is a box channel with vertical walls ranging from 12-15 feet high (Figure CC-4). A short section (<½-mile) of Reach 1 passes in a tunnel beneath the Ontario Airport. The channel varies from approximately 25 feet wide at the uppermost end of Reach 1 to nearly 75 feet wide south of the Airport and the 60 Freeway (Figure CC-5).

Figure CC-4: The upstream boundary of Reach 1, near Cucamonga Canyon Dam.

Figure CC-5: Mid-point of Cucamonga Creek, Reach 1. Treated effluent is contained by a berm to the right side of channel while dry weather runoff from the surrounding areas flows on the left side of the channel.

The lower 4 miles of Reach 1 is a trapezoidal channel with a 2:1 side-slope. The bottom width ranges between 70-80 feet in this section of Reach 1 (Figure CC-6). The channel characteristics of Reach 1 are summarized in Table CC-2.

Figure CC-6: Cucamonga Creek - Reach 1 at Hellman Avenue. This trapezoidal walled section of the channel stretches from this location to the confluence with Deer Creek four miles upstream.

Table CC-2: Channel Characteristics of Cucamonga Creek - Reach 1

Segment	Description
UPPER: Cucamonga Canon Dam to a point approximately 750 ft. downstream of confluence with Deer Creek Channel (approx.. 11 miles)	Vertical walls (approximately 12-15 ft. in height), fully concrete-lined; bottom width of 25-75 ft. with low flow channel in some sections.
LOWER: Confluence with Deer Creek to confluence with Mill Creek near Hellman Ave. (approx.. 4 miles)	Trapezoidal, fully concrete-lined; side slope (2:1); bottom width of 70 to 78 ft. with low flow channel

The Riverside County Flood Control and Water Conservation District and the San Bernardino County Flood Control District, which own and manage the channel in Reach 1, prohibit public access into the channel. As a result, the entire length of Reach 1 is fenced with locked gates and posted to keep individuals out of the channel (see Figure CC-7).

Figure CC-7: Cucamonga Creek-Reach 1 near Baseline St. in City of Rancho Cucamonga

2.4 Regulatory Status

2.4.1 Beneficial Use Designations

Table 3-1 of the Basin Plan[3] identifies the following designated beneficial uses for Reach 1 of Cucamonga Creek:

- **WILD** (Wildlife Habitat): waters support wildlife habitats that may include, but are not limited to, preservation and enhancement of aquatic habitats, vegetation, fish and wildlife, including invertebrates.

- **LWRM** (Limited Warm Freshwater Habitat): waters support freshwater ecosystems which are severely limited in diversity and abundance as a result of concrete-lined watercourses and low, shallow dry weather flows which result in extreme temperature, pH and/or dissolved oxygen conditions. Naturally reproducing finfish populations are not expected to occur in LWRM waters.

- **GWR** (Groundwater Recharge): waters are used for natural or artificial recharge of groundwater for purposes that may include, but are not limited to, future extraction, maintaining water quality or halting saltwater intrusion into freshwater aquifers.

- **MUN+** (Municipal and Domestic Supply): MUN is **not** an existing use and cannot be feasibly attained. An exception from the MUN designation is appropriate pursuant to the Sources of Drinking Water Policy. The channel has been heavily modified to convey storm water runoff from the urbanized watershed and dry weather flows are dominated by wastewater effluent. Therefore, in accordance with the statewide Sources of Drinking Water Policy, the Regional Board removed the MUN designation from Reach 1 in 1989.

- **REC-1** (Water Contact Recreation)**:** waters are used for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses may include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing and use of natural hot springs.

- **REC-2** (Non-Contact Recreation): waters are used for recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water would be reasonably possible. These uses may include, but are not limited to: picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing and aesthetic enjoyment in conjunctions with the above activities.

The purpose of this Use Attainability Analysis (UAA) is to determine whether or not the REC1 and/or REC2 uses are, in fact, achievable in Reach 1 of Cucamonga Creek.

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[3] Water Quality Control Plan - Santa Ana River Basin (8). Updated Feb., 2008 @ pg. 3-30.

2.4.2 303(d) Listings and Total Maximum Daily Loads (TMDLs)

Reach 1 of Cucamonga Creek is presently on California's 303(d) list of impaired waters due to elevated fecal coliform levels. The Santa Ana Regional Water Quality Control Board adopted Total Maximum Daily Loads (TMDLs) for the Middle Santa Ana River (MSAR) Watershed, including Cucamonga Creek, for both fecal coliform and *E. coli* bacteria in 2005.[4] Applicable wasteload and load allocations are shown in Table CC-3.

Table CC-3: TMDL, Wasteload Allocations and Load Allocations for Pathogen Indicator Bacteria in Cucamonga Creek during Dry and Wet Conditions.[5]

Indicator	Total Maximum Daily Loads for Bacterial Indicators	Waste Load Allocation for Bacterial Indicators in Urban Runoff including stormwater discharges	Waste Load Allocation for Bacterial Indicators in Confined Animal Feeding Operations discharges	Load Allocation for Bacterial Indicators in Agricultural runoff discharges	Load Allocation for Bacterial Indicators from Natural Sources
Dry Summer Conditions: April 1 through October 31, as soon as possible, but no later than December 31, 2015					
Fecal coliform	5–sample/30–day Logarithmic Mean less than 180 organisms/100mL, and not more than 10% of the samples exceed 360 organisms/100mL for any 30–day period.	5–sample/30–day Logarithmic Mean less than 180 organisms/100mL, and not more than 10% of the samples exceed 360 organisms/100mL for any 30–day period.	5–sample/30–day Logarithmic Mean less than 180 organisms/100mL, and not more than 10% of the samples exceed 360 organisms/100mL for any 30–day period.	5–sample/30–day Logarithmic Mean less than 180 organisms/100mL, and not more than 10% of the samples exceed 360 organisms/100mL for any 30–day period.	5–sample/30–day Logarithmic Mean less than 180 organisms/100mL, and not more than 10% of the samples exceed 360 organisms/100mL for any 30–day period.
E. coli	5–sample/30–day Logarithmic Mean less than 113 organisms/ 100mL, and not more than 10% of the samples exceed 212 organisms/100mL for any 30–day period.	5–sample/30–day Logarithmic Mean less than 113 organisms/ 100mL, and not more than 10% of the samples exceed 212 organisms/100mL for any 30–day period.	5–sample/30–day Logarithmic Mean less than 113 organisms/ 100mL, and not more than 10% of the samples exceed 212 organisms/100mL for any 30–day period.	5–sample/30–day Logarithmic Mean less than 113 organisms/ 100mL, and not more than 10% of the samples exceed 212 organisms/100mL for any 30–day period.	5–sample/30–day Logarithmic Mean less than 113 organisms/ 100mL, and not more than 10% of the samples exceed 212 organisms/100mL for any 30–day period.
Wet Winter Conditions: November 1 through March 31, as soon as possible, but no later than December 31, 2025					
Fecal coliform	5–sample/30–day Logarithmic Mean less than 180 organisms/100ml, and not more than 10% of the samples exceed 360 organisms/100ml for any 30–day period.	5–sample/30–day Logarithmic Mean less than 180 organisms/100ml, and not more than 10% of the samples exceed 360 organisms/100ml for any 30–day period.	5–sample/30–day Logarithmic Mean less than 180 organisms/100ml, and not more than 10% of the samples exceed 360 organisms/100ml for any 30–day period.	5–sample/30–day Logarithmic Mean less than 180 organisms/100ml, and not more than 10% of the samples exceed 360 organisms/100ml for any 30–day period.	5–sample/30–day Logarithmic Mean less than 180 organisms/100ml, and not more than 10% of the samples exceed 360 organisms/100ml for any 30–day period.
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[a] To be achieved as soon as possible, but no later than dates specified.
[b] TMDLs, WLAs and LAs, include a 10% Margin of Safety
[c] The fecal coliform TMDLs, WLAs and LAs become ineffective upon the replacement of the REC1 fecal coliform objectives in the Basin Plan by approved REC1 objectives based on *E. coli*.

The Regional Board regulates bacteria discharges to Cucamonga Creek through several different NPDES permits. A summary of significant regulatory actions is provided in Table CC-4.

Municipal effluent discharged to Reach 1 by Inland Empire Utilities Agency (IEUA) is governed by effluent limits requiring filtration and disinfection in accordance with Title-22.[6] As such, the total coliform concentration in this recycled water discharge is consistently less than 2 cfu per 100 mL and is not a significant source of bacteria loads to Cucamonga Creek.

[4] Resolution No. R8-2005-0001. Middle Santa Ana River Watershed Bacteria Indicator TMDLs.
[5] Reprinted from Table 5-9x on pg. 4 of 15 in Attachment to Resolution No. R8-2005-0001.
[6] NPDES No. CA8000409 (R8-2009-0021)

Pathogen indicator bacteria from local dairies is governed by effluent limits in the Concentrated Animal Feeding Operation (CAFO) permit.[7] This permit prohibits the dairies from discharging to Cucamonga Creek during all dry weather and most wet weather conditions (up to and including a 25-year, 24-hour precipitation event). In addition, any discharge that does occur must comply with the previously adopted wasteload allocation for pathogen indicator bacteria. See Table CC-3.

The discharge of pathogen indicator bacteria in urban runoff to Cucamonga Creek is governed by effluent limits in the Area-wide Municipal Separate Stormwater System (MS4) permits.[8] The permits require MS4 agencies to develop and implement Best Management Practices (BMPs) designed to achieve compliance with the adopted wasteload allocations by December, 2015 for dry weather conditions and by December, 2025 for wet weather conditions. In response to these requirements, both counties developed an Urban Source Evaluation Monitoring Plan (USEP) and Comprehensive Bacteria Reduction Plans (CBRP). The Regional Board approved the USEP in 2007[9] , and the CBRPs in early 2012.[10] The MS4 permittees are actively implementing these plans. A more detailed discussion of these efforts will be provided in Section 5 of this report.

Table CC4: Summary of Significant Regulatory Actions Related to Controlling Pathogen Indicator Bacteria Discharges in Cucamonga Creek.

Date	Regulatory Action
1998	Cucamonga Creek added to the 303(d) list for pathogen impairment.
July, 2002	Regional Board prioritizes need to update Recreational Standards as part of the Triennial Review Process
Aug., 2003	Regional Board authorizes staff to participate in the Storm Water Quality Standards Task Force.
Dec., 2004	Regional Board approves MSAR TMDL for pathogen indicator bacteria.
May, 2005	State Board approves MSAR TMDL for pathogen indicator bacteria.
Sept., 2005	U.S. EPA approves MSAR TMDL for pathogen indicator bacteria.
June, 2007	Regional Board approves Urban Source Evaluation Plan (USEP)
Jan., 2010	Regional Board adopts new MS4 permits requiring compliance with the WLA for pathogen indicator bacteria
Feb., 2012	Regional Board approves the Comprehensive Bacteria Reduction Plans (CBRP) submitted by the MS4 permittees.
June, 2012	Regional Board amends Basin Plan to establish *E. coli* objectives, enact a high flow suspension, and reclassify Cucamonga Creek *(pending final State and EPA approval)*.
June, 2013	Regional Board adopts new CAFO permit prohibiting dry weather discharge and requiring compliance with WLA for pathogen indicator bacteria during wet weather.

[7] NPDES No. CAG018001 (R8-2013-0001) replaced R8-2007-0001 on June 7, 2013.
[8] NPDES No. CAS618036 in San Bernardino County and NPDES No. CAS618033 in Riverside County.
[9] R8-2007-0046
[10] R8-2012-0015

3.0 Use Attainability Analysis - Factors Analysis

3.1 Federal Regulatory Requirements - UAAs

Section 101(a)(2) of the CWA states that "it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983". The CWA and implementing federal regulations provide special protection for these "fishable/swimmable" uses by establishing a rebuttable presumption that all surface waters should support these uses and must be so designated.

A state may elect not to designate certain waterbodies to protect water contact recreation only after conducting a Use Attainability Analysis (UAA)[11] and demonstrating that attaining the use is not feasible based on one or more of the following six factors:[12]

1. Naturally occurring pollutant concentrations prevent the attainment of the use; or
2. Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met; or
3. Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or
4. Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modifications in a way that would result in the attainment of the use; or
5. Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses: or
6. Controls more stringent than those required by sections 301 (b) (Effluent Limitations) and 306 (National Standards of Performance) of the Act would result in substantial and widespread economic and social impact.

Federal regulations[13] prohibit States from removing designated uses if:

1. They are existing uses, as defined in 40 CFR 131.3, unless a use requiring more stringent criteria is added; or

[11] 40 CFR 131.10(j)
[12] 40 CFR 131.10(g)
[13] 40 CFR 131.10(h)

2. Such uses will be attained by implementing effluent limits required under sections 301 (b) and 306 of the Act and by implementing cost-effective and reasonable best management practices for nonpoint source control.

"Existing uses" are those uses actually attained in the water body on or after November 28, 1975 (the date of USEPA's initial water quality standards regulation became effective), whether or not they are included in the water quality standards.[14] Guidance provided by USEPA in 1985 indicates that an "existing" primary contact recreational use[15] can be established by demonstrating that swimming has actually occurred since November 28, 1975, or that the water quality is suitable to allow such uses to occur, unless there are physical problems that prevent the use regardless of water quality.[16]

Suitable water quality is demonstrated by consistent, not merely sporadic, attainment of applicable water quality objectives. More recent USEPA guidance states that EPA considers an "existing" use to mean the use <u>and</u> water quality necessary to support the use that have been achieved in the waterbody on or after November 28, 1975.[17] USEPA states that: "It is appropriate to describe the existing uses of a waterbody in terms of both actual use and water quality because doing so provides the most comprehensive means of describing the baseline conditions that must be protected."

USEPA has indicated that where there is very limited actual primary contact use and the physical and/or water quality characteristics of the water body do not and are not likely to support that use, then it would be appropriate to conclude the primary contact recreation is not an "existing" use.[18] In making such determinations, federal guidance recommends that states should consider a **suite of factors** such as the actual use (present and historic), existing water quality, potential water quality conditions, access, recreational facilities, location (e.g., proximity to suitable recreational alternatives), safety considerations, as well as the physical conditions of the water body.[19] However, states are not required to evaluate all six factors identified in 40 CFR 131.10(g) as part of every UAA.

Reach 1 of Cucamonga Creek is incapable of supporting water contact recreation because:

> Natural, ephemeral intermittent or low flow conditions or water levels prevent the attainment of the use (see Section 3.2), and...
>
> Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modifications in a way that would result in the attainment of the use (see Section 3.3).

[14] 40 CFR 131.3
[15] "Primary contact" recreation is equivalent to California's REC1 (water contact recreation) beneficial use
[16] USEPA. Questions & Answers on Antidegradation, August 1985.
[17] USEPA, Letter w/attachment from Denise Keehner (Director, Standards and Health Protection Division) to Derek Smithee, State of Oklahoma, September 5, 2008.
[18] USEPA. 63 FR 36752 (July 7, 1998)
[19] USEPA. 63 FR 36756 (July 7, 1998)

3.2 Natural, Ephemeral, Intermittent and Low Flows Preclude Recreational Uses

As with the other waters in the Santa Ana Region for which UAA results are being considered, dry weather flow is the predominant flow condition in Cucamonga Creek. The dry weather flows in Reach 1 are a combination of nuisance flows from the urban and agricultural land uses tributary to the Creek and treated effluent discharged to Reach 1 by the IEUA's two regional wastewater treatment facilities (RP-1 and RP-4).

Precipitation-derived runoff typically occurs for only relatively short episodic periods during and immediately after rainfall events in the watershed. As is typical of this area, rainfall events almost always occur in the wet season (mid-October through Mid-April) and generally effect stream flows on fewer than 14 days/year.

Depending on the magnitude of nuisance runoff and effluent discharges, dry weather flows in the channel may be limited to part of the width of the channel (see Figure CC-8) or extend across its entire width (see Figure CC-9).

Figure CC-8: Cucamonga Creek upstream of Hellman Ave. during typical dry weather conditions (Feb. 10, 2011)

Figure CC-9: Cucamonga Creek at Hellman Avenue Looking Upstream.

3.2.1 Methods and Fieldwork

Two methods were used to evaluate flow depths in Cucamonga Creek: engineering estimates based on gauge data and direct stream measurements collected during the UAA technical investigation.

There is a USGS flow gauge located in Cucamonga Creek at Merrill Avenue. This gauge is just downstream of the confluence with the Lower Deer Creek Channel and measures flows from 95% of the entire drainage area to of Reach 1 of Cucamonga Creek. CDM developed a rating curve to translate continuous flow data from the USGS gauge into an engineering estimate of stream depth.

Direct depth measurements were obtained by CDM staff and Regional Board staff during separate field surveys. The engineering estimates and field measurements were further corroborated by subjective depth assessments reported each time CDM staff visited the site to perform maintenance on the video cameras that had been installed to capture any potential recreational activity in the concrete channel.

3.2.2 Findings and Conclusions

The average dry weather flow in Cucamonga Creek is approximately 31 cfs at the USGS gauging location. And, 87% of this baseflow (27 cfs) is comprised of high quality recycled water discharged by IEUA's treatment plants a few miles upstream.[20] Figure CC-10 presents a hydrograph of mean daily flow data from 1988-2008.

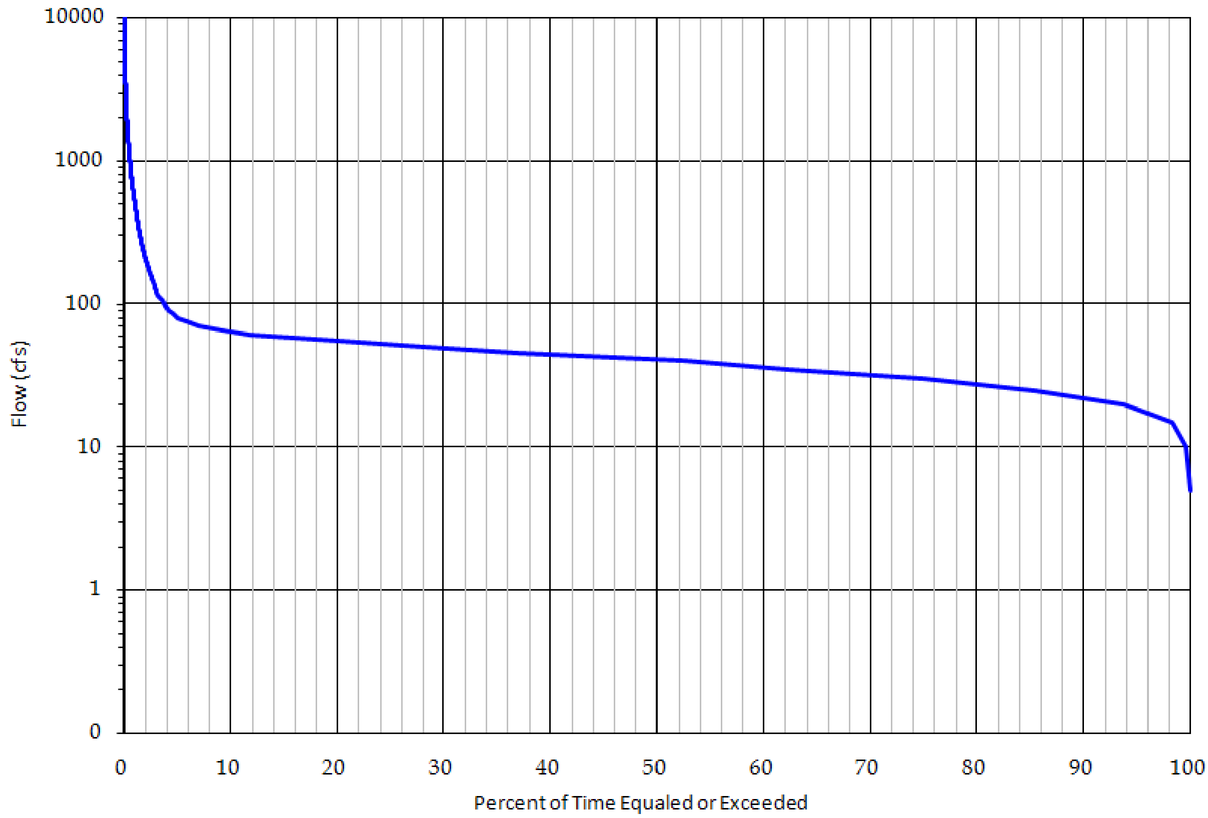

Figure CC-10: Flow Duration Curve for the Cucamonga Channel (1988-2008)

Based on the historical flow gauge data (1998-2008), the stream was less than 1 foot deep, at its deepest point, more than 98% of time (see Figure CC-11).

CDM's engineering estimates are consistent with the actual depth measurements collected by Regional Board staff. For example, on February 10, 2011, during a typical dry weather period, stream flow in lower Cucamonga Creek was approximately 5 cfs and extended across ¾ of the channel bottom. At this time, the Regional Board staff measured the stream and found it to be 5 inches deep at mid-channel (see Figure CC-12). The most upstream sections of Cucamonga Creek (above the wastewater outfalls) were observed to be dry.

[20] County of San Bernardino. CBRP; Dec., 2010; see Table 6-2 on page 6-6.

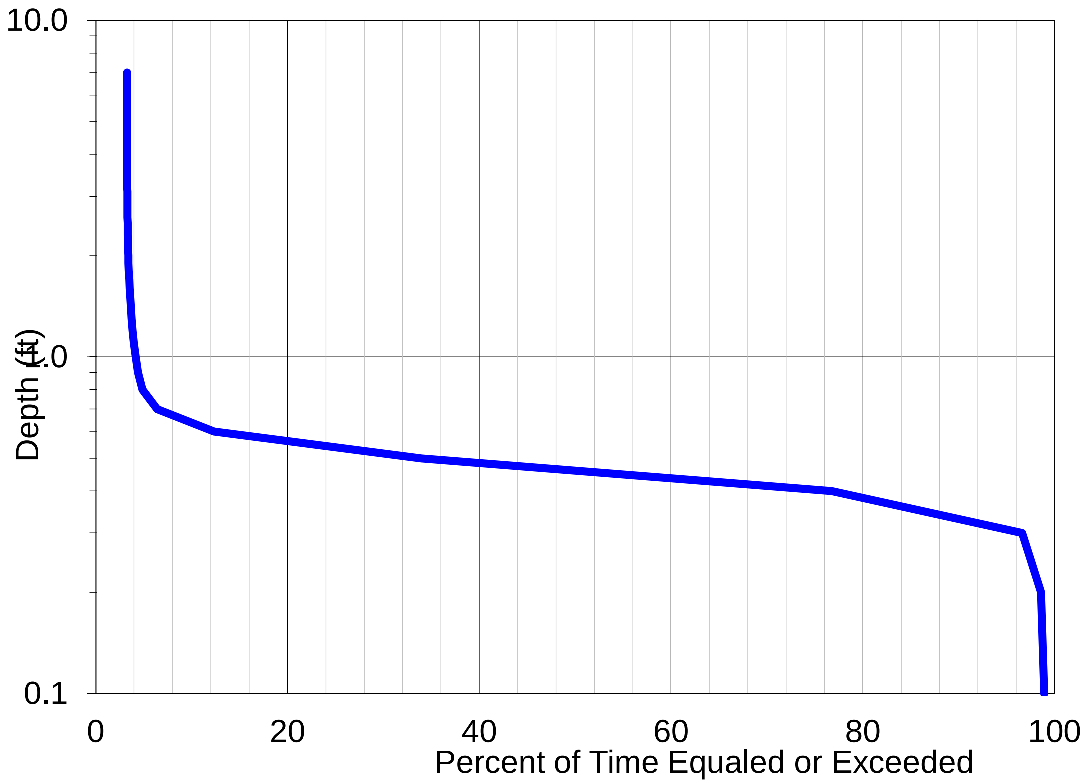

Figure CC-11: Channel Depth Curve for the Cucamonga Creek (1988-2008)

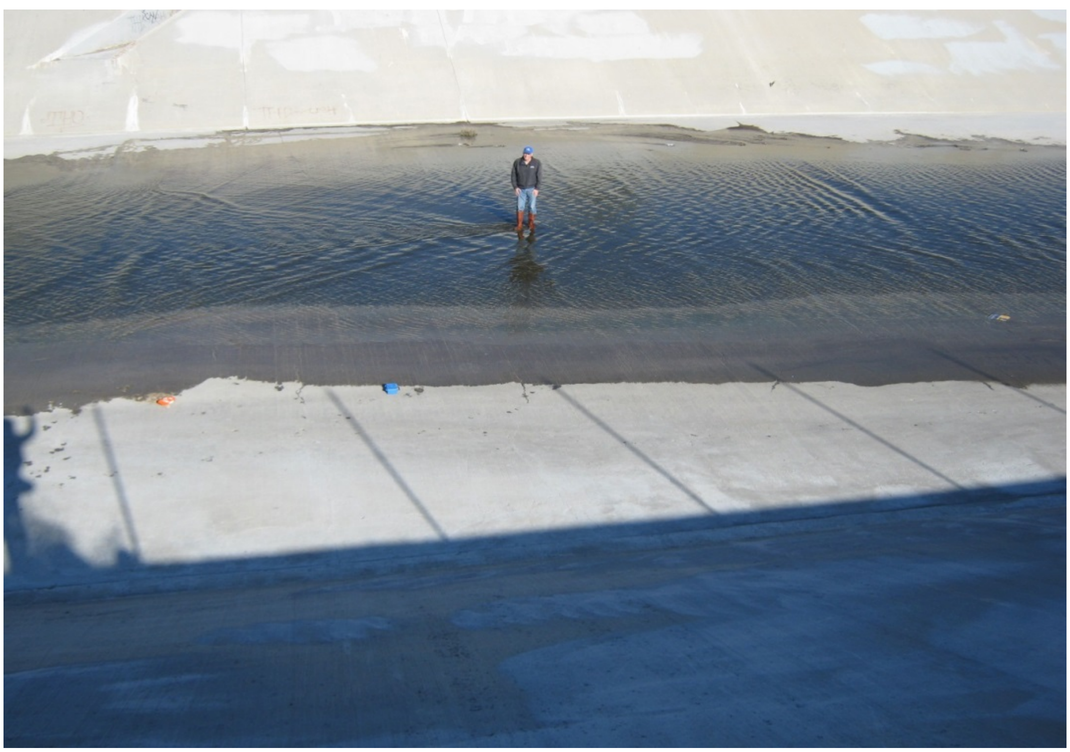

Fig. CC-12: Cucamonga Creek at Hellman Ave. Field Survey Showing Flow Depth <6"

The stream depths calculated by CDM and measured by Regional Board staff were consistent with those observed during prior site visits. In July and August of 2006, during a routine site-visit by members of the Storm Water Quality Standards Task Force, stream flow in Cucamonga Creek was estimated to range between "ankle-deep" and "mid-calf deep" at Hellman Ave.

Similarly, in the 15-month period between July of 2005 and October of 2006, CDM staff made 56 visual observations of stream flow in Cucamonga Creek at Hellman Ave. The vast majority of these assessments ranged between 6" and 12" deep. A few estimates, particularly during the wet winter of 2006, fell between 1' and 2' deep.[21]

Cucamonga Creek is a naturally ephemeral stream. During dry weather conditions, it would normally dry up completely were it not for the discharge of treated wastewater. The upper half of Cucamonga Creek rarely has more than an inch or two of sheet flow present in the channel. The lower half of Cucamonga Creek is usually less than12" deep even with the discharge of large volumes of recycled water. Therefore, Reach 1 of Cucamonga Creek is too shallow to support swimming or other forms of primary contact recreation in the stream.[22]

There are no sources of additional effluent discharges that could be used to augment the flows in Reach 1 and thereby enable the REC1 use to be met. As noted, some highly treated effluent is already discharged to Reach 1; other effluent produced at the IEUA Regional Plants is used for water recycling. The long-term trend is toward less discharge of reclaimed water as IEUA implements programs designed to conform with the State Board's "Policy for Water Quality Control for Recycled Water."

Based on the preceding stream depth data, Regional Board staff has concluded that the natural, ephemeral, intermittent and low flow conditions preclude attainment of water contact recreation in Reach 1 of Cucamonga Creek. Therefore, this stream segment should not be designated for REC1 in Table 3-1 of the Santa Ana Basin Plan.

3.3 Dams, Diversions and Hydrologic Modifications Preclude Recreational Uses

Wet weather flows can be quite large and destructive in Cucamonga Creek. Historical flood accounts indicate that Cucamonga Creek has changed its course, causing significant damage to commercial, residential and agricultural areas, as well as to transportation (road and railroads) and utility facilities. The largest flood on record occurred in March of 1938. During that flood, the estimated peak discharge for Cucamonga creek was 10,300 cfs. Consequently, Reach 1 of Cucamonga Creek has been heavily modified to provide greater flood protection.

[21] CDM. Stormwater Quality Standards Study - Recreational Use Survey Weekly Data Collection Forms. Cucamonga @ Hellman Upstream for the period from July 16, 2005 - Nov. 4, 2006.
[22] Federal Cooperative Instream Flow Service Group (members include: U.S. Fish & Wildlife Service, U.S. EPA, U.S. Heritage Conservation and Recreation Service, & U.S. Bureau of Reclamation). Methods of Assessing Instream Flows for Recreation. FWS/OBS-78/34 (June, 1978) pg. A-7.

3.3.1 Methods and Fieldwork

The hydrological modifications made to Reach 1 of Cucamonga Creek were evaluated using both field surveys and aerial imagery. Regional Board staff has visited a number of sites throughout Cucamonga Creek to confirm the findings and conclusions presented below.

3.3.2 Findings and Conclusions

Cucamonga Creek is a concrete-lined and fenced channel throughout the entire 15 mile length of Reach 1 (see Figure CC-13 and Figure CC-14). Access is further restricted by locked gates at all of the entry points used for flood control maintenance.

Figure CC-13: Chainlink Fences and Locked Gates Prevent Access to Cucamonga Creek

For the first 11 miles, the channel is confined by vertical concrete walls that are 12-15 feet high (see Figure CC-15). In the final 4 miles, the channel walls are trapezoidal with a steep, 2:1 side-slope (see Figure CC-16).

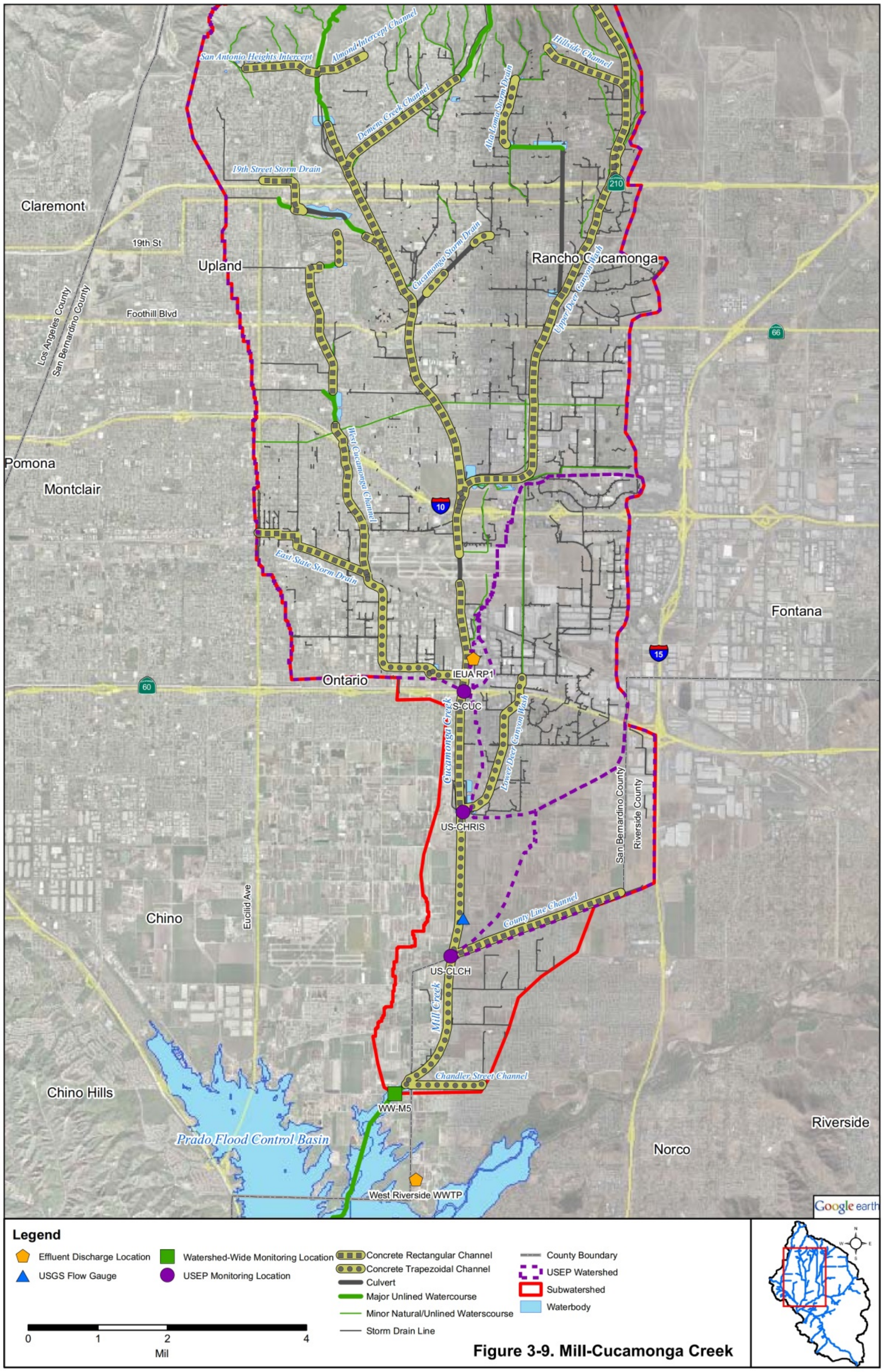

Figure CC-14: Hydrological Modifications in Cucamonga Creek - Reach 1

Figure CC-15: Cucamonga Creek South of Highway 60 and the Ontario Airport

Figure CC-16: Cucamonga Creek Near Confluence with Deer Creek (June, 2009)

Several large percolation ponds have been built along Cucamonga Creek (see Figure CC-17 and Figure CC-18). These basins are used to improve groundwater storage by intercepting and recharging urban runoff during both wet and dry weather conditions. The dams and diversion structures prevent pollutants from reaching the creek but also reduce stream flows below levels normally considered conducive to water contact recreation.

Figure CC-17: Percolation Ponds at the Upstream Boundary of Cucamonga Creek Reach 1

Figure. CC-18: Groundwater Recharge Basins North of Ontario Airport

Gaining access to Cucamonga Creek is extremely difficult in the upper section of Reach-1 because one must scale the fence and rappel down the vertical walls before being able to make any water contact. Further, at these locations, the stream flow is usually only an inch or two deep. Access is not much easier in the trapezoidal section. Those intent on water recreation are far more likely to choose the nearby Santa Ana River with its attractive natural stream banks and absence of restrictive fencing (see Figure CC-19).

Figure CC-19: Recreation in Reach 3 of Santa Ana River
(Location is approximately 3 miles from Cucamonga Creek)

Given the existing level of development in the vicinity of the channel and rapid urbanization, there is an ongoing and increasing need to provide flood protection. Therefore, it is not feasible to restore the channel to its original condition or to operate the channel so as to attain the REC 1 use.

Regional Board staff has concluded that the dams, diversions and other hydrologic modifications installed to provide flood control protection and/or enhance groundwater recharge, coupled with the predominant, low flow conditions preclude attainment of water contact recreation in Reach 1 of Cucamonga Creek. Therefore, this stream segment should not be designated for REC1 in Table 3-1 of the Santa Ana Basin Plan.

3.4 REC-2 Designation

The CWA and federal regulations establish a legal presumption that all surface waters of the U.S. are capable of supporting recreation "in or on the water" unless a UAA demonstrates otherwise. In California, such water contact recreation is considered a "REC-1" beneficial use. Non-Contact Recreation, which occurs near but not in or on the water, is categorized as a "REC-2" use. A UAA is not required to remove a REC-2 use. Nevertheless, many of the same factors that preclude primary contact recreation also inhibit non-contact recreation in Cucamonga Creek.

REC-2 use designations are intended to protect activities such as: beachcombing, tidepool watching, picnicking, wildlife viewing and similar recreational pursuits that benefit from being in close proximity to water. Reach-1 of Cucamonga Creek is a concrete-lined flood control channel that is protected by chain-link throughout its entire length. As such, it offers little aesthetic appeal or recreational opportunity.

In addition, during the dry weather conditions where people are most likely to engage in outdoor recreation, there is very little natural flow in Cucamonga Creek. This is particularly true in the upper half of Reach-1 above the IEUA outfall where highly treated municipal effluent enters the channel. The lack of reliable perennial flow severely restricts the availability of suitable habitat to support fish and wildlife. Consequently, Cucamonga Creek offers no real opportunity to participate in the sort of activities envisioned under the REC-2 designation. The bicycle trail that parallels the uppermost four miles of Reach-1 is rarely used and has fallen into disrepair.

Further downstream, the concrete-lining precludes the development of suitable habitat conditions despite the presence of perennial flows provided by high quality recycled water discharged by IEUA (see Figure CC-20). There is not much to see or do along this downstream segment of Reach-1 and the County has abandoned its prior (1975) plans to extend the bicycle path along the entire length of Cucamonga Creek.

Figure CC-20: Cucamonga Creek downstream of RP1 Near Confluence with Deer Creek.

Unlike Temescal Creek - Reach 1a and Santa Ana Delhi - Reach 2, the video surveillance program (described below) revealed no evidence of any non-contact recreation (jogging, biking, dog-walking, etc.) in or near the Cucamonga Creek. In fact, the only people that were ever observed in the channel were staff from the flood control district engaged in routine maintenance activities (see Figure CC-21). Therefore, Board staff recommends that the REC2 designation be deleted from the Basin Plan for Reach 1 of Cucamonga Creek.

4.0 Existing Use Analysis

As noted in Section 3.1, states may not remove the recreational use designation if it is an "existing use." Nor can recreational uses be de-designated if such uses will be attained by implementing effluent limits required under sections 301(b) and 306 of the Clean Water Act and by implementing cost-effective and reasonable Best Management Practices for non-point source control.[23] A formal analysis was conducted to evaluate both these conditions.

This section provides information on current, historical, and probable future recreational activity in Reach 1 of Cucamonga Creek. This analysis consisted of numerous site visits by Regional Board and CDM staff, extensive digital photo REC surveys, on-site field surveys, interviews of San Bernardino County Flood Control District staff, Park Rangers and an analysis of all representative and reliable water quality data.

4.1 Evaluation of Actual Recreational Activities

4.1.1 Photo Reconnaissance Survey

Recreational use surveys were performed by CDM at three locations on Reach 1 of Cucamonga Creek. Two sites were surveyed from July 2005 through November 2006. The third site was surveyed from October 2007 through October 2008. The three sites are:

- Cucamonga Creek facing upstream at Hellman Avenue (2005-2006)
- Cucamonga Creek facing downstream at Hellman Avenue (2005-2006)
- Cucamonga Creek at Regional Plant #1 facing upstream (2007-2008)

It should be noted that the reach of Cucamonga Creek downstream of Hellman Avenue is <u>not</u> included in recommendations for changes to water quality standards based on this UAA analysis. The survey at this location (facing downstream at Hellman Avenue) was conducted to provide basic information regarding recreational activity, if any, in the area and to assess whether any such activity might affect recreational use upstream in Reach 1 in the vicinity of Hellman Avenue.

[23] 40 CFR 131.10(h)

Digital field observation cameras and data transfer technology, coupled with weekly on-location physical surveys to check the camera equipment were used to collect the data. A representative photo depicting the upstream camera view at Hellman Ave. is provided in Figure CC-9 (above). A representative photo depicting the camera view at Regional Plant #1 (RP1) is provided in Figure CC-15 (above). A representative photo depicting the downstream camera view at Hellman Ave. is provided in Figure CC-21 (below). Survey results for all three locations are summarized in Table CC-5.

Figure CC-21: Cucamonga Creek at Hellman Avenue Looking Downstream

Table CC-5: Summary of Photo Surveys in Cucamonga Creek

Camera Location	Survey Dates	Total # of Images	Images w/ Water Contact
Hellman - Upstream	11/1/2005 - 11/1/2006	2,546	1
Hellman - Downstream*	7/26/2005 - 11/1/2006	17,678	35
Regional Plant #1	10/2/2007 - 10/10/2008	27,122	0

* Note: locations downstream of Hellman Ave. are not part of Reach-1 and will continue to be designated REC-1 in the Basin Plan.

The cameras were programmed to collect one picture every 15 minutes during daylight hours. Signal fluctuations and equipment failures sometimes limited the actual number of photos collected. However, the cameras generated a minimum of at least 200 images per month and this was deemed to be sufficient to provide a representative survey sample for potential water contact recreation in Cucamonga Creek.

Any image containing a person or persons with channel fencing or boundaries was considered a "potential" recreation event and evaluated more closely. In most cases, subsequent investigation confirmed that the persons seen in the pictures were performing routine maintenance for the flood control district. This was true for the one picture from the Hellman-Upstream camera showing water contact (see Figure CC-22).

Fig. CC-22: Maintenance Workers in Cucamonga Creek, Upstream of Hellman Ave.

Many of the pictures showing water contact downstream of Hellman Avenue were also determined to be county personnel collecting water quality samples (see Figure CC-23). However, there were also some photos of actual recreation at this location (see Figure CC-24). Overall, the photographic survey indicated that no water contact recreation activity of any kind was occurring in Reach 1 of Cucamonga Creek. This is the concrete-lined segment above Hellman Ave. There is evidence of water contact recreation in the more natural section of Cucamonga Creek below Hellman Ave (and outside of Reach 1). Consequently, this segment should continue to be designated REC-1 in the Basin Plan.

Fig. CC-23: Water Quality Sampling in Cucamonga Creek, Downstream of Hellman Ave.

Fig. CC-24: Horseback Riding in Cucamonga Creek, Downstream of Hellman Ave.

4.1.2 Field Surveys

Between July of 2005 and November of 2006, CDM staff made a total of 62 site visits to install, service or remove the surveillance cameras located at Hellman Ave. These visits took place at various times during the day and CDM staff kept a written log of each visit. They noted that no water contact recreation of any kind was observed above or below Hellman Avenue during any of the site visits. They also estimated water depth, which ranged between six inches and18 inches feet deep.

In addition to the weekly physical surveys associated with maintenance of the digital cameras, Task Force members visited Cucamonga Creek at Hellman Avenue on six weekends in July and August 2006. Task Force members were asked to stay at the location for half an hour and record what recreational activities they observed. No people were observed in the channel during the time Task Force members visited the site. The Task Force members described the water depth as ankle deep or less. Regional Board staff taking part in the survey noted that the extreme heat, lack of shade, shallow flows over a concrete bottom and swarms of flies all contributed to poor conditions for water contact or non-contact recreation.

In the summer and early fall of 2011 Task Force members again visited Cucamonga Creek Reach 1 on four weekends to assess whether conditions had changed at the site and whether there was new evidence of recreational activity. This time Task Force members were encouraged to visit several locations in Reach 1. It was noted that the upper section of the channel was either completely dry or had only trickle flows while the lower sections of the channel carried treated effluent, resulting in shallow, ankle-deep flows. There was no evidence of either REC1 or REC2 activity. The channel remains entirely fenced, and access gates were locked. A bicycle trail follows the channel in the most upstream four mile section of Reach 1, but the trail appears lightly used and in disrepair.

4.1.3 Other Evidence of Historical Recreational Use in Reach 1

To collect information regarding historical recreational use, inquiries to local jurisdictional agencies, online searches of California newspaper archives, databases (engineering and environmental trade journals), and search engines such as Google News archive and Lexis-Nexis were conducted to identify any accounts or reference to recreational activities in the creek. No historical use information was identified from these searches.

SBCFCD staff who conduct maintenance activities in the channel have reported to Regional Board staff that they have seen no one in any segment of Reach 1. In addition, the City of Ontario Fire Department has reported to Regional Board staff that the swift water rescue devices in the channel have not been used for a rescue in at least ten years.

4.1.4 Probable Future Use

Information regarding potential future recreational uses for Reach 1 of Cucamonga Creek was obtained through discussions with local agencies and review of relevant master plans. SBCFCD provided the *Recreation Master Plan for Cucamonga Creek and Tributaries, Feature Design Memorandum No. 3.*[24] This document describes concept plans for bicycle, equestrian, and hiking trails along the creek. Bicycle trails were planned for the eastern side of the creek; equestrian/hiking trails were planned for the western side of the creek. The design memorandum indicated that if funding were available in fiscal year 1975, construction of equestrian, hiking, and bicycle trails would occur adjacent to Cucamonga Creek from the Lower Deer Creek confluence to Hellman Avenue. This plan was never implemented. Based on discussions with City of Ontario and San Bernardino County Regional Parks Department, there are no current plans for development of future recreational uses for this reach of Cucamonga Creek.[25]

In 2011, Task Force members had further discussions with City of Ontario, Rancho Cucamonga, and County staff concerning recreational plans for Cucamonga Creek. The city of Ontario and county staff indicated that there were still no plans for development of recreational facilities for Reach 1 of Cucamonga Creek. City of Rancho Cucamonga staff indicated that there were no plans to extend the existing bicycle trail located alongside the most upstream section of the channel beyond its current four mile length.

In addition to inquiries with local jurisdictional agencies, online searches of California newspaper archives, databases (engineering and environmental trade journals), and search engines such as Google News archive and Lexis-Nexis were conducted to identify any accounts or reference to future recreational activities in the channel. No potential probable future recreational uses were identified from this search.

4.1.5 Summary – Evidence of Past, Present or Probable Future Recreational Use

In summary, neither the intensive photographic surveys nor the field surveys showed any evidence of current REC1 use in Reach 1 of Cucamonga Creek. Further, there is no evidence of historic or reasonably probable future REC1 use in Reach 1 of the creek.

The lack of REC1 use is a reflection of the various characteristics of Reach 1, including: vertical or trapezoidal walls, concrete-lining, and chain-link fencing along the entire length and both sides of the channel. These channel characteristics make access difficult and dangerous. In addition, the low flow conditions that predominate on most days make water contact recreation highly unlikely in Cucamonga Creek.

[24] U.S. Army Engineer District, Los Angeles, Corps of Engineers. Recreation Master Plan for Cucamonga Creek and Tributaries, Feature Design memorandum No. 3, March 1974.

[25] Communication with Steve Wilson, NPDES Coordinator, Water/Wastewater Engineer, City of Ontario, August 12, 2009; and Jim Canaday, Planner III, San Bernardino County Regional Parks Department, September 17, 2009

Much of the channel is adjacent to agricultural and commercial/industrial land uses. These land uses are not conducive to recreational activity in or near the channel. Residential land use is more common in the upper areas adjacent to Reach 1; however, there is virtually no dry weather flow in this segment because recycled water is discharged much further downstream from these residential neighborhoods.

The REC-1 use cannot be attained by imposing more stringent permit limitations on municipal effluent. POTW discharges to Cucamonga Creek already receive full tertiary treatment and are required to meet effluent limitations (e.g. total coliform <2.2 MPN/100mL) that are significantly more stringent than the fecal coliform objectives established in the Basin Plan to protect REC1 uses. Primary contact recreation is, and will continue to be, precluded by two factors unrelated to instream water quality in Reach 1 of Cucamonga Creek:

- Natural, ephemeral intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met. (131.10(g)(2))

- Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modifications in a way that would result in the attainment of the use. (131.10(g)(4))

4.2 Evaluation of Ambient Water Quality

4.2.1 Assessment Methods

Regional Board staff performed bacteria quality monitoring approximately weekly at Mill Creek at Chino Corona Road (about 0.3 mile downstream of the lower terminus of Reach 1)) and at Cucamonga Creek at Merrill Avenue, from 2002 to 2004. The Regional Board's water quality data are summarized in Appendix A.

San Bernardino County Flood Control District (SBCFCD) performed bacteria quality monitoring approximately monthly at Cucamonga Creek at Hellman Avenue, from 2001 to 2009. From 2007-2012 SBCFCD also conducted bacteria quality monitoring approximately weekly at Chino Corona Road (a location 500m downstream of Hellman Ave with easier and safer access to Cucamonga Creek). Figure CC-14 (above) shows the sampling locations. SBCFD continues to collect pathogen data, during both dry weather and wet weather conditions, as part of the larger and on-going water quality monitoring program developed to implement the bacterial TMDL for the Middle Santa Ana River. All samples were collected and analyzed in accordance with an approved Quality Assurance Project Plan (QAPP).

4.2.2 Results and Findings

For fecal coliform, when 5 or more samples were collected in a 30 day period (calendar month, not rolling 30 day periods), a geometric mean (geomean) was calculated and compared to the existing REC1 fecal coliform objective (200 organisms/100mL based on five or more samples/30day period). When insufficient data were available to calculate geomeans, the fecal coliform data were compared generally to that part of the existing REC1 fecal coliform objective that specifies that no more than 10% of the samples exceed 400 organisms/100mL for any 30-day period. Similarly, geomeans were calculated for *E. coli* provided that five or more samples/30 day period had been collected. The *E. coli* geomeans were compared to the recommended *E. coli* geomean objective (126/100mL).

The routine water quality sampling data shows that the existing REC1 pathogen indicator objectives not consistently attained in Reach 1 of Cucamonga Creek. Figure CC-25 summarizes the monitoring data for fecal coliform during the last 5 years. Figure CC-26 does the same for the *E. coli* data. Data collected prior to 2007 are summarized in Appendix A of this UAA report.

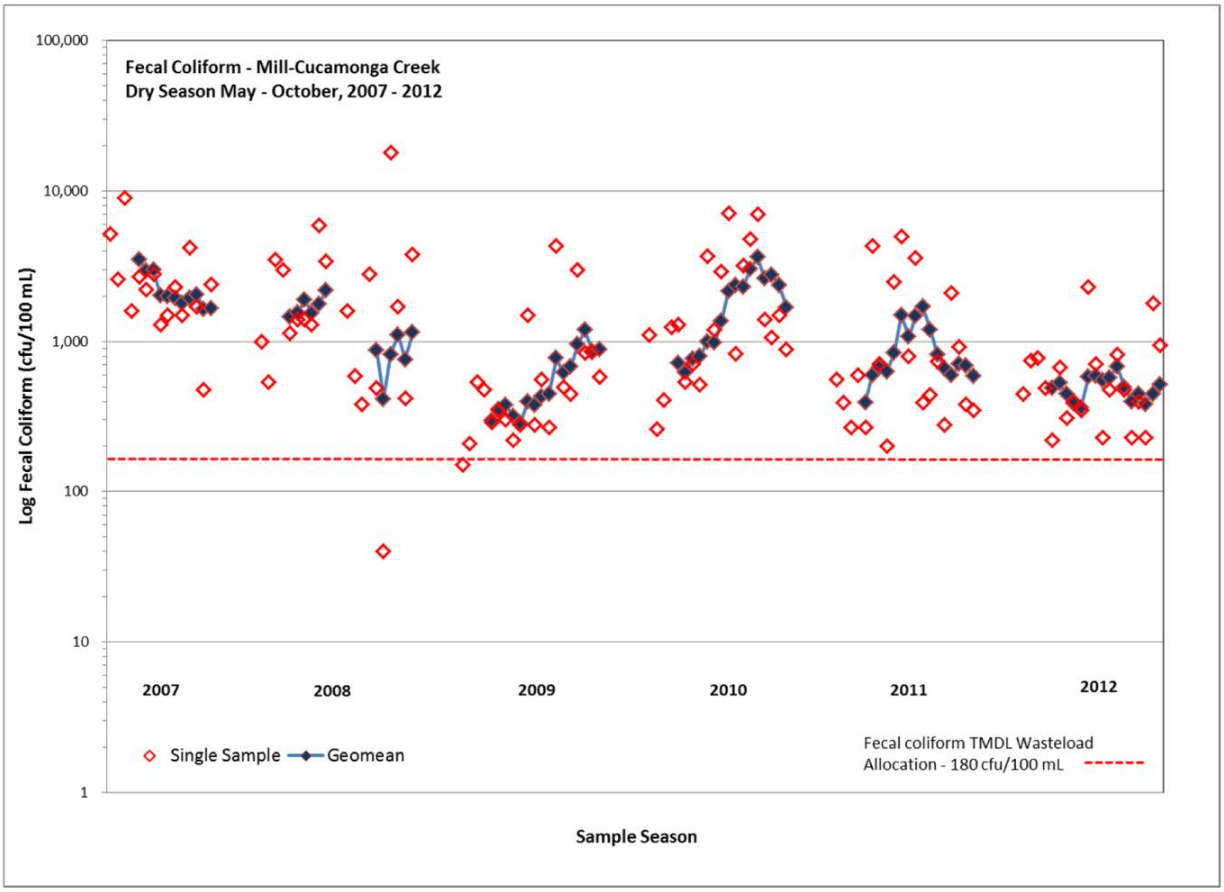

Figure CC-25: Fecal Coliform Concentrations in Cucamonga Creek (2007-2012) [26]

[26] CDM-Smith. Middle Santa Ana River Bacterial Indicator TMDL 2012 Dry Season Report. Dec., 2012 (see Fig. 4-4 on pg. 4-9).

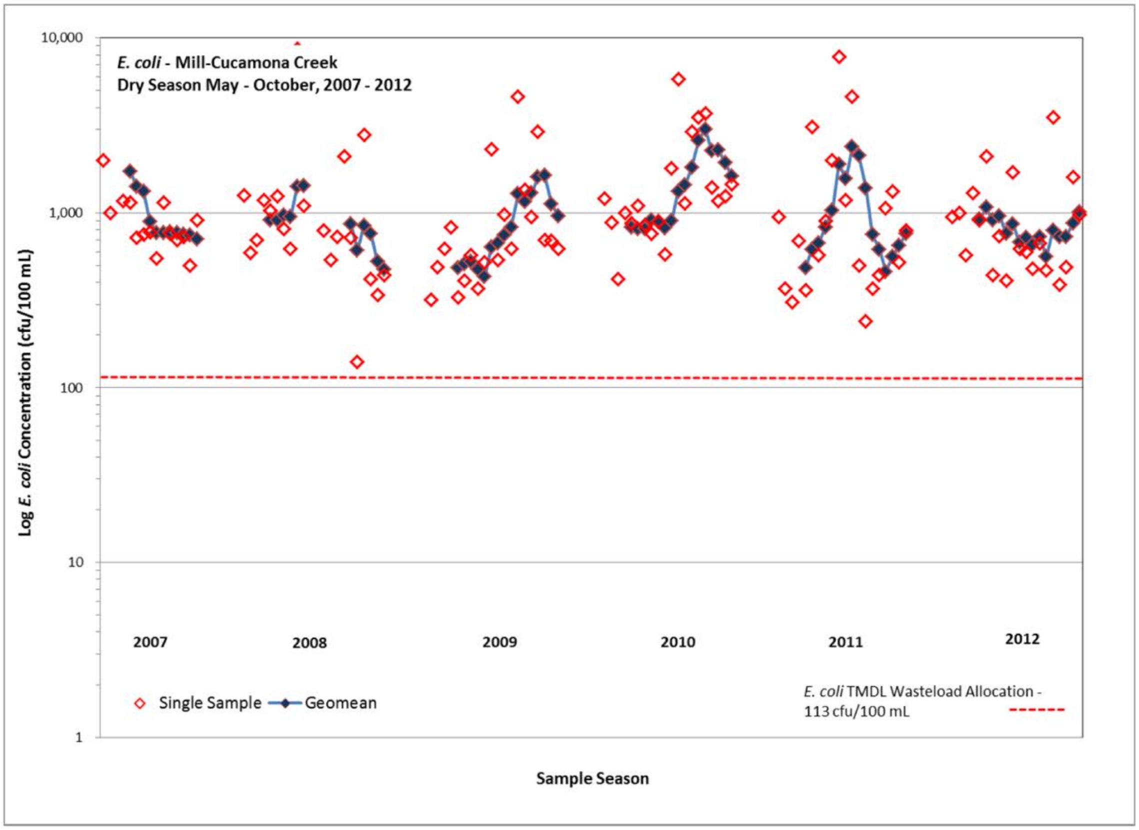

Figure CC-26: *E. coli* Concentrations in Cucamonga Creek (2007-2012)[27]

Recent monitoring data clearly indicate that water quality in Cucamonga Creek is not meeting the Basin Plan objective for pathogen indicator bacteria. 100% of the geomeans calculated for the period from 2007 to 2012 exceeded EPA's recommended water quality criteria for *E. coli*.[28] Consequently, based on the available water quality data, REC1 is neither attained nor an existing use in Reach 1 of Cucamonga Creek.

A detailed source investigation, conducted as part of the larger and on-going TMDL Implementation Program, shows that less than 10% of the bacterial load occurring in Cucamonga Creek during dry weather conditions is attributable to permitted point sources (e.g. POTW effluent or MS4 discharges).[29] It appears that much of the remaining bacteria load is growing within the confines of the channel itself. Similar conclusions have been documented in other urban watersheds in Southern California.[30,31]

[27] CDM-Smith. Middle Santa Ana River Bacterial Indicator TMDL 2012 Dry Season Report. Dec., 2012 (see Fig. 4-9 on pg. 4-14).
[28] CDM-Smith. Middle Santa Ana River Bacterial Indicator TMDL Implementation Report. Feb., 2013 (see Fig. 2-20 on pg. 2-29 and Fig. 2-22 on pg. 2-30
[29] County of Riverside. Comprehensive Bacteria Reduction Plan (CBRP). Dec. 10, 2010. (see Fig. 6-2, see also Tables 6-2 and 6-3.)
[30] Dustin G. Bambic. The Los Angeles River Bacteria Source Identification Study. Aug. 23, 2008.
[31] Litton, R.M et al. Evaluation of Chemical, Molecular and Traditional Markers of Fecal Contamination in an Effluent Dominated Urban Stream. Environ. Sci. Technol. 2010, 44, 7369-7375. See also: Rachel M. Litton. Fecal Bacteria Source Tracking in the Middle Santa Ana River. NWRI.. Apr. 5, 2008.

4.2.3 Probable Future Water Quality

As noted above, most of the dry weather flow in Cucamonga Creek is provided by discharged of high quality recycled water from IEUA's Regional Plant #1.[32] However, all of recycled water must meet Title-22 disinfection requirements prior to discharge. As such, the average concentration of Total Coliform in the municipal effluent is less than 2 mpn per 100 mL (approximately two orders of magnitude lower than the current fecal coliform objective). It is estimated that recycled water contributes less than 1% of all bacterial mass that occurs in Cucamonga Creek.

Discharges from urban storm drains contribute approximately 10% of the total flow and 10% of the bacterial mass in Cucamonga Creek. Imposing more stringent effluent limitations, including prohibiting the MS4 discharges altogether, would do little to ensure attainment of the pathogen indictor objectives. Nevertheless, the MS4 agencies are required to minimize their bacterial discharges to the Maximum Extent Practicable (MEP).

The Regional Board adopted Bacteria Indicator Total Maximum Daily Loads (TMDLs) for Reach 3 of the Santa Ana River and its major tributaries, including Cucamonga Creek, in 2005. USEPA approved the TMDLs in 2007. The Middle Santa Ana River (MSAR) Task Force (stakeholders representing urban stormwater dischargers, agricultural operators, POTWs, and the Regional Board) was established to facilitate and coordinate TMDL implementation efforts. The TMDLs required urban stormwater dischargers in the MSAR watershed to (1) implement a watershed-wide compliance monitoring program; and (2) develop an Urban Source Evaluation Plan (USEP) for the purpose of identifying specific activities, operations, and processes in urban areas that contribute bacteria to the impaired waterbodies.

San Bernardino and Riverside County stormwater programs developed and implemented a wide range of Best Management Practices (BMPs) focused on source control of pathogens and other pollutants. BMP implementation in the Cucamonga Creek watershed is guided largely by the Middle Santa Ana River Watershed Bacteria Indicator TMDLs and the Comprehensive Bacteria Reduction Plans approved by the Regional Board.[33]

While implementation of the CBRPs is intended to achieve the numeric wasteload allocations, it will require an iterative and adaptive process, given inherent uncertainties regarding the efficacy of BMPs to control bacteria. Moreover, the source investigation data demonstrate that merely meeting the urban WLA will not necessarily ensure attainment of the applicable bacterial objectives in Cucamonga Creek. Therefore, given the absence of any primary or secondary contact recreation in Reach 1, the focus should be on protecting downstream waterbodies which continue to support REC1 uses (see Section 5).

[32] Average dry weather flow in Cucamonga Creek (at Hellman Ave.) is 31 cfs. Discharges from IEUA-RP1 account for 87% of this flow (27 cfs) during dry weather conditions.
[33] R8-2012-0015 (Approved: Feb. 10, 2012)

5.0 Protection of Downstream Uses

5.1 Regulatory Requirements

In designating the uses of a water body, and in considering changes to those designations, states must take into consideration the water quality standards of downstream waters and ensure that water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters.[34] Cucamonga Creek is tributary to Reach 3 of the Santa Ana River which is designated (and will remain designated) for REC1 and REC2. These downstream waters must continue to meet water quality objectives intended to protect primary contact recreation. This obligation continues to apply, and must be enforced, regardless of whether the REC1 designation is removed from Reach 1 of Cucamonga Creek.

5.2 Compliance Strategies

All POTWs in the Santa Ana Region are required to disinfect municipal wastewater prior to discharge to comply with total coliform limitations that are more stringent than the Basin Plan fecal coliform objective for REC1 waters. All such discharges have consistently met with this requirement for nearly 20 years. This recycled water poses no health threat to those engaged in primary contact recreation. Therefore, the Regional Board will continue to require all POTWs to comply with total coliform limitations based on the disinfection requirements specified in Title-22.

The MS4 permits issued by the Santa Ana Regional Board require the cities and counties to eliminate dry weather nuisance discharges from their facilities. The permittees have an active program to reduce such discharges.

In addition, the MS4 agencies have initiated a large-scale source investigation program to identify and eradicate significant sources of bacterial contamination throughout the Middle Santa Ana River watershed. This program was initiated in response to the MSAR TMDL adopted by the Regional Board in 2006 and approved by EPA in 2007.

As noted above, results from the source identification program have demonstrated that more than 90% of the bacteria load occurring in Cucamonga Creek is arising within the creek itself. Eliminating upstream urban sources is expected to have very little effect on these instream pathogen loads. Therefore, the TMDL implementation effort has shifted to protecting the downstream uses by intercepting and diverting the dry weather flows from Cucamonga Creek before these flows converge with Reach 3 of the Santa Ana River.

Working with IEUA, the City of Ontario has constructed a series of off-channel artificial wetlands ponds near the end of Cucamonga Creek - Reach 1 (see Figure CC-27). As of the fall of 2013, approximately half of the dry weather flow (≈15 of 35 cfs) is already being diverted out of Cucamonga Creek just downstream of Hellman Ave. More will be diverted when the project is completed in the spring of 2014.

[34] 40 CFR 131.10(b)

Figure CC-27: Artificial Wetlands Treatment Ponds on Cucamonga Creek

These constructed wetlands are expected to significantly reduce the concentration and mass of pathogens entering the Santa Ana River from Cucamonga Creek. This is important because, while there is no known REC1 or REC2 activity occurring in Cucamonga Creek, there is considerable water contact recreation occurring downstream in Reach 3 of the Santa Ana River. Therefore, this project is expected to provide significant improvements in downstream water quality.

However, the viability of this and similar projects planned for other flood control channels in the region depends on regulatory approval for this compliance strategy. In order for such projects to move forward, the Regional Board must be able to de-designate flood control channels where water contact recreation is unlikely to occur so that diversion and treatment structures can be constructed at the end of such conveyances.[35]

Without such regulatory relief, there is no feasible or practicable means to achieve compliance with the REC1 objectives throughout the entire length of the concrete-lined flood control channels. Available resources would be directed toward eliminating dry weather discharges from the storm drains in order to demonstrate technical compliance with the TMDL. However, such an approach would provide far less public health protection for the REC1 activities that are actually occurring in downstream waterbodies.

[35] 40 CFR 131.10(a) prohibits states from adopting waste transport or waste assimilation as a designated use and that is not what is being proposed for Cucamonga Creek. Rather, the Regional Board is merely recognizing that water contact recreation is not an existing or probable future use in Reach 1 and that bacterial standards should not apply in Reach 1 but must be attained before Reach 1 converges with the mainstem of the Santa Ana River in order to protect downstream uses.

6.0 Triennial Review Requirements

6.1 Regulatory Requirements

Section 101(a)(2) of the Clean Water Act states: "it is the national goal that wherever attainable, an interim goal of water quality which provides for … recreation in and on the water be achieved…" Federal regulations [40 CFR 131.6(a)] requires states to enact water quality standards and "use designations consistent with the provisions of section 101(a)(2)."

A Use Attainability Analysis (UAA) must be conducted when "the State designates or has designated uses that do not include the uses specified in section 101(a)(2) of the Act" [40 CFR 131.10(j)]. In addition, in accordance with 40 CFR 131.20(a)(1): "Any water body segment with water quality standards that do not include the uses specified in section 101(a)(2) of the Act shall be re-examined every three years to determine if any new information has become available. If such new information indicates that the uses specified in section 101(a)(2) of the Act are attainable, the State shall revise its standards accordingly."

6.2 Reassessment Procedures

If Reach 1 of Cucamonga Creek is not designated REC1 or REC2, the Regional Board will re-examine this decision every three years as part of the regular Triennial Review process. The focus of this review will be to determine whether there has been any substantial change to the factors supporting the original determination. However, it is not necessary to conduct an entirely new UAA as part of this review.

In preparation for the Triennial Review, Regional Board staff will visit Reach 1 of Cucamonga Creek to confirm that the existing hydromodifications and access restrictions remain in place and unaltered. In addition, staff will request the San Bernardino Flood Control District to provide data summarizing the flow diversions from Cucamonga Creek to the artificial wetlands ponds. Finally, the Regional Board will solicit any new information concerning actual or potential recreational use of Cucamonga Creek when public notice is given for the Triennial Review.

If new evidence indicates that recreation in or on the water may be attainable because one or both factors previously precluding the use have changed, the Regional Board may elect to: 1) designate Reach 1 of Cucamonga Creek for REC1 and/or REC2; or 2) require that a new UAA be conducted in order to determine whether Cucamonga Creek should continue to be de-designated for REC1 and/ or REC2.

The Regional Board retains the authority and discretion to re-examine the issue of appropriate use designations for Cucamonga Creek more frequently than once every three years when warranted.

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Appendix 1 Table 3-3
Summary of Monthly *E. coli* and Fecal Coliform at Mill-Cucamonga Creek (2001-2009)

Month and Year	Fecal Coliform					*E. Coli*			
	Number of Samples Collected	Minimum Value (MPN /100ml)	Maximum Value (MPN /100ml)	Geometric Mean[1] (MPN/100mL)		Number of Samples Collected	Minimum Value (MPN /100mL)	Maximu m Value (MPN /100mL)	Geometric Mean[1] (MPN /100mL)
Mill Creek at Chino Corona Road									
Feb-02	7	120	1,240	350		7	60	680	170
Mar-02	4	110	2,100			4	50	100	
Apr-02	1	170	170			1	80	80	
Jul-02	4	800	2,000			4	250	910	
Aug-02	1	1,000	1,000			1	500	500	
Sep-02	3	1,000	1,800			3	400	640	
Oct-02	2	700	2,000			2	210	410	
Jan-03	4	400	570			4	190	530	
Feb-03	1	240	240			1	260	260	
Mar-03	3	30	9,000			3	10	510	
Apr-03	2	400	16,000			2	70	210	
Jan-04	4	100	5,700			4	40	2,600	
Feb-04	4	160	360			4	40	210	
Mar-04	5	9	450	103		5	9	440	67
Apr-04	2	300	340			2	60	110	
Jul-07	3	2,600	9,000			3	1,000	5,700	
Aug-07	4	1,600	2,800			4	720	1,170	
Sep-07	5	1,300	4,200	1,951		5	550	1,150	765
Oct-07	3	480	2,400			3	500	910	
Dec-07	6	170	22,000	647		6	120	5,000	457
Jan-08	4	180	480			4	100	360	
Feb-08	4	70	7,700			4	50	5,200	

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May-08	3	540	3,500			3	590	1,260	
Jun-08	4	1,140	3,000			4	810	1,240	
Jul-08	3	1,300	5,900			3	620	8,700	
Sep-08	4	380	2,800			4	540	2,100	
Oct-08	4	40	18,000			4	140	2,800	
Nov-08	2	420	3,800			2	340	440	
Dec-08	6	140	5,900	1,033		6	210	7,200	1,311
Jan-09	5	180	850	411		5	270	660	444
Feb-09	3	280	450			3	380	580	
Cucamonga Creek at Hellman									
Jan-01	1	1,300	1,300			1	340	340	
Feb-01	1	2,300	2,300			1	2300	2,300	
Apr-01	1	24,000	24,000			1	24000	24,000	
Nov-01	2	22,000	23,000			2	17000	23,000	
Jan-02	1	1,100	1,100			1	1100	1,100	
Mar-02	1	3,000	3,000			1	5000	5,000	
Nov-02	1	5,000	5,000			1	5000	5,000	
Feb-03	1	5,000	5,000			1	5000	5,000	
Mar-03	1	24,000	24,000			1	24,000	24,000	
Feb-04	2	9,000	14,000			2	5,000	160,000	
Oct-04	1	16,000	16,000			1	16,000	16,000	
Dec-04	1	8,000	8,000			1	8,000	8,000	
Feb-05	1	8,000	8,000			1	8,000	8,000	

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	Number of Samples Collected	Minimum Value (MPN /100ml)	Maximum Value (MPN /100ml)	Geometric Mean[1] (MPN/100mL)		Number of Samples Collected	Minimum Value (MPN /100mL)	Maximu m Value (MPN /100mL)	Geometric Mean[1] (MPN /100mL)
Mar-05	1	3,000	3,000			1	1,700	1,700	
Mar-06	1	8,000	8,000			1	5000	5,000	
Apr-06	1	30,000	30,000			1	30,000	30,000	
Dec-06	1	800	800			1	800	800	
Jan-07	1	400	400			1	400	400	
Feb-07	2	700	1,700			2	1,700	1,700	
Nov-07						1	13,000	13,000	
Jan-08	1	1,400	1,400			1	400	400	
Feb-08	1	8,000	8,000			1	5,000	5,000	
Nov-08	1	50,000	50,000			1	13,000	13,000	
Feb-09	1	1,700	1,700			1	1,700	1,700	
Cucamonga Creek Above RP-1									
Feb-02	5	1,300	7,100	3,662		5	2,500	5,600	3,836
Mar-02	4	2,400	3,900			4	880	4,800	
Apr-02	1	6,000	6,000			1	4,300	4,300	
Jul-02	4	4,500	50,000			4	570	23,000	
Aug-02	1	30,000	30,000			1	8,700	8,700	
Sep-02	3	4,800	13,000			3	600	1,970	
Oct-02	2	9,000	11,000			2	2,700	4,000	
Jan-03	4	2,200	20,000			4	700	11,000	
Feb-03	1	1,200	1,200			1	1,000	1,000	
Mar-03	3	10	700			3	10	260	
Apr-03	2	70	380			2	50	320	

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Month and Year	Fecal Coliform					*E. Coli*			
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Jan-04	4	470	9,300			4	200	3,100	
Feb-04	4	410	2,800			4	300	1,840	
Mar-04	5	9	700	169		5	9	410	150
Apr-04	2	310	400			2	9	180	

[1]Geometric mean calculated if at least five samples were collected during the calendar month.