



Technical Memorandum

To: Stormwater Quality Standards Task Force

From: CDM

Date: July 2, 2009

Subject: Recreational Use Survey Data Report – Cucamonga Creek at RP1

Introduction

To support basin planning efforts in the Santa Ana River watershed, an evaluation of the appropriateness of REC-1 beneficial use designations and associated bacteria water quality objectives in the Santa Ana River Watershed is being performed by the Stormwater Quality Standards Task Force (“Task Force”). The Task Force consists of representatives from a variety of stakeholder interests, including the Santa Ana Watershed Project Authority; the counties of Orange, Riverside, and San Bernardino; special districts; the Santa Ana Regional Water Quality Control Board; EPA Region 9; and local environmental groups. CDM and Risk Sciences, Inc., provide assistance to the Task Force. As part of study efforts, recreational use surveys were performed upon select waterbodies to obtain information regarding current levels of recreational use. This technical memorandum summarizes results from use surveys conducted at Cucamonga Creek at Inland Empire Utilities Agency (IEUA) Regional Water Reclamation Plant 1 (RP1).

Study Location

The location for this study was Cucamonga Creek adjacent to the RP1 grounds just south of the Pomona Freeway in the City of Ontario. Figure 1 presents an aerial photo of the survey location. The predominant land uses immediately surrounding the survey location are industrial/commercial and open space. As shown in Figure 2, Cucamonga Creek is a vertical walled, concrete lined channel in the vicinity of the survey location.

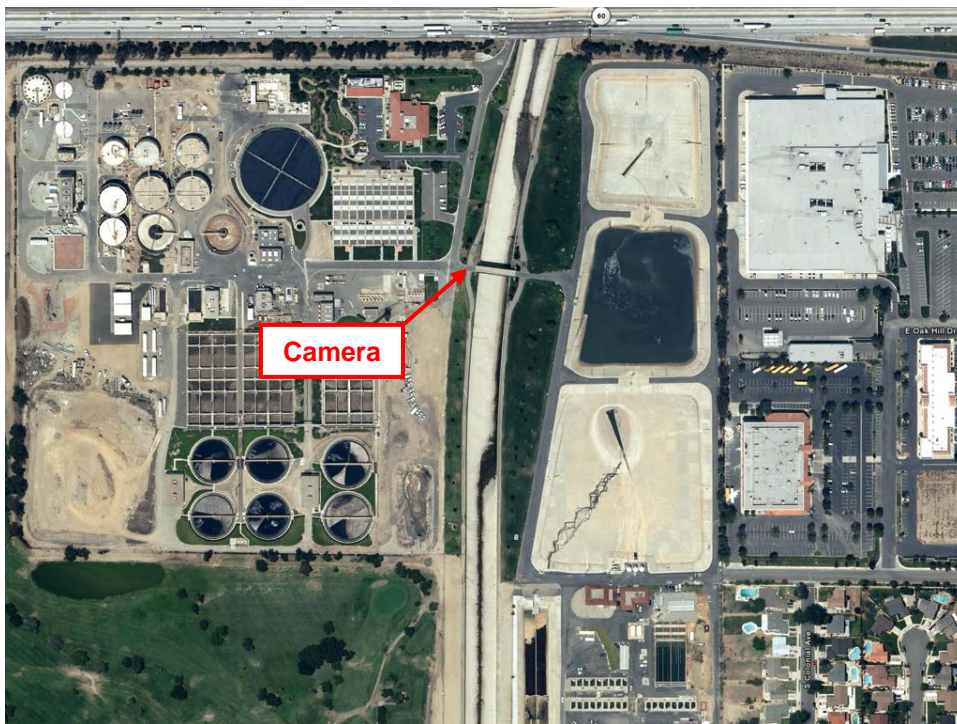


Figure 1
Cucamonga Creek at RP1 Survey Location



Figure 2
Photo of Cucamonga Creek at RP1 Survey Location

Survey Design

Digital field observation cameras and data transfer technology, coupled with weekly on-location physical surveys were used to collect recreational use data. Observer IV™ cameras were equipped with cellular data transmission equipment to collect an image every fifteen minutes, and transfer the image to a secure data storage server via a file transfer protocol (FTP) site. Site visits were conducted to log recreational use observations, and to monitor and maintain the image collection equipment. This survey design was selected to provide unprecedented levels of data to characterize recreational use.

A camera was installed on a light pole at RP1 facing upstream on Cucamonga Creek. Figure 3 shows the camera installation.



Figure 3
Photo of the Recreational Use Survey Camera Installation
for Cucamonga Creek at RP1

Table 1 summarizes the survey duration and number of images collected from Cucamonga Creek at RP1 between October 2, 2007 and October 10, 2008. An image was collected every fifteen minutes throughout the study duration unless signal strength fluctuations or equipment failures precluded collection and transmission. Images were not collected at night due to darkness.

During the first half of the survey period, additional images were occasionally posting to the FTP site in addition to the standard 0-, 15-, 30-, and 45-minute timestamp images. The additional image postings were a result of a technical communication interchange error between the camera and FTP site. The FTP site technical issue was resolved in early April 2008. The percent image capture rate of the camera over the second half of the survey period was approximately 93 percent. The capture rate over the first half of the year was skewed by the additional image posting.

Table 1 Recreational Use Survey Duration			
Survey Location	Start Date	End Date	Number of Images
Cucamonga Creek at RP1	10/2/07	10/10/08	27,122

Due to signal strength fluctuation issues and other equipment functionality issues, periodic, short term gaps in image collection occurred. These gaps ranged from relatively minor single, fifteen-minute interval image gaps, which occurred on numerous days, to gaps in image collection spanning several days. Table 2 summarizes the data gaps of one week or longer. The most significant data gap occurred from January 31 to February 29, 2008. During this period, significant FTP site and camera troubleshooting/repair were necessary.

Table 2 Recreational Use Survey Data Gaps		
Location	Data Gap Period	Cause
Cucamonga Creek at RP1	January 15 – 24, 2008	FTP Site/Camera Issue
	January 31 – February 29, 2008	Camera Issue
	June 26 – July 3, 2008	Battery Failure
	August 16 – 22, 2008	Battery Failure

Images were stored and individually reviewed for recreational activity. A use/activity categorization protocol was established for logging and categorizing observed activity from both image review and physical surveys.

As part of the protocol, information regarding water contact activity (including the type or magnitude of contact) and non-water contact activity was collected and logged in the following categories:

- Date / Time
- Number of People
- Type of Contact
 - Incidental Contact
 - Contact below Ankle
 - Contact between Ankle and Waist
 - Contact between Waist and Neck
 - Contact above Neck
 - Non-Recreation Contact
- Non-Contact Activity

Images containing a person or persons within channel fencing or boundaries were considered “events”. On-site surveys where a person or persons were observed were also considered events.

An event could include one or more persons. For each event, each person’s activity (type), and its duration and magnitude were logged per the established protocol. If an activity was captured within one image, an activity duration was reported as <30 minutes. Similarly, if an activity was observed within two consecutive fifteen-minute interval images, the duration was reported as <45 minutes.

Survey Results

For the Cucamonga Creek survey location, neither water contact activity nor non-water contact activity was observed throughout the survey period.

Summary of Findings

Approximately 27,000 recreational use data points (images) were collected over a one-year period from the Cucamonga Creek at RP1 survey location. Results indicate neither water contact nor non-water contact activity in Cucamonga Creek at RP1 over the survey period.