



Technical Memorandum

To: Stormwater Quality Standards Task Force

From: CDM

Date: April 16, 2010

Subject: Recreational Use Survey Data Report – Anza Channel

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 survey conducted at Anza Channel.

Study Location

The location for this study was Anza Channel located near John Bryant Park in the City of Riverside. Figure 1 presents an aerial photo of the survey location. The predominant land use immediately surrounding the survey location is residential and open space. As shown in Figure 2, Anza Channel is a rectangular, concrete-lined channel.



Figure 1
Anza Channel Survey Location



Figure 2
Photo of Anza Channel 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 with a solar panel was installed on the underside of the pedestrian foot bridge overcrossing Anza Channel, located east of Wohlstetter Street and Gramercy Place. Figure 3 shows the camera installation.



Figure 3
Photo of the Recreational Use Survey Camera Installation for Anza Channel

Table 1 summarizes the survey duration and number of images collected from Anza Channel. 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.

Table 1 Recreational Use Survey Duration			
Survey Location	Start Date	End Date	Number of Images
Anza Channel	6/6/08	9/29/09	20,386

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.

Table 2 Recreational Use Survey Data Gaps		
Location	Data Gap Period	Cause
Anza Channel	June 9 – June 20, 2008	Battery Issue
	June 23 – July 2, 2008	Battery Issue
	September 9 – September 17, 2008	Camera Issue
	December 3 – December 12, 2008	Camera Issue
	April 30 – May 20, 2009	Camera Issue

Images were stored and individually reviewed for 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

At the Anza Channel survey location, water contact activity was observed over the course of the 16-month survey period. Table 3 summaries all contact recreational events (individuals) recorded and provides the date, potential duration, and magnitude of contact.

Table 3 Water Contact Recreation Events Recorded for the Anza Channel				
Date	Time	Duration (min)	Magnitude of Contact	Image ID
06/25/2009	11:15	< 30	Below Ankle	Anza_Drain_1-09-06-25-11-15.jpg
09/16/2009	12:00	< 30	Below Ankle	Anza_Drain_1-09-09-16-12-00.jpg

Summary of Findings

Approximately 24,000 recreational use data points (images) were collected over a 16-month period from the Anza Channel survey location. Results indicate evidence of water contact activity over the survey period. Two events were observed from the 23,913 survey images collected that could potentially be water contact activity. Each of the two events had potential durations of less than 30 minutes. The images indicate the potential magnitude of water contact as low (below ankle contact), with no data points indicating full body contact or immersion. Non- water contact activity was not observed throughout the survey period.

Appendix A of this report contains representative images of the water contact activities.

Appendix A
Select Images from Anza Channel Survey Location



Water Contact Activity: 06/25/2009 11:15



Water Contact Activity: 09/16/2009 12:00