THE DAYS OF OUR (SEWER) LIVES

The hydrograph above displays flow monitor data from a residential area in San Diego recorded over a four week period during normal dry weather conditions. Note that a repeatable daily or diurnal pattern is observed. A more detailed view is obtained by plotting each day on top of the other in a composite 24-hour hydrograph as shown to the right. The distinctive diurnal patterns of weekday and weekend residential flow are apparent.

This light green curve and the light blue curve on the composite hydrograph are the average daily flow patterns observed on weekdays and weekends, respectively. The dark green curve and the dark blue curves are the individual weekday and weekend traces used to determine each average. These curves provide an indication of the normal variation in flow that can be expected during normal dry weather conditions. Composite hydrographs are used throughout this poster and serve as an important reference in the study of sewer sociology.

WEEKDAYS & WEEKENDS

HOLIDAYS

Holidays are enjoyable diversions from everyday life and provide time to celebrate, relax, or share with family and friends. These diversions are reflected in sewer use patterns, as shown below. Flow monitor data obtained from Chula Vista during several familiar holidays are displayed in comparison with normal weekday and weekend sewer use patterns. To a sewer sociologist, a holiday looks much like a weekend. However, characteristic differences are observed that make each holiday unique. See what differences you can find and how they compare with your holiday traditions.

BLACK FRIDAY

November 2006

Black Friday: the day after Thanksgiving is one of the busiest shopping days of the Christmas holiday season, and many retailers offer special sales and incentives to attract consumers. Flow monitor data obtained from a shopping mall in National City are shown here and depict the increase in sewer flows on this day.

COMIC CON

July 2007

San Diego is the home of Comic Con – the largest pop-culture convention in the world. This event is held each year at the San Diego Convention Center and attracts well over 100,000 people. During Comic Con 2007, a sewer flow monitor quietly observed the event from a location downstream of the convention center. The results are dramatic. The sewer flow monitor reported an additional 285,000 gallons of wastewater on the opening day of the convention.

MADONNA IN CONCERT

November 2008

The concert generated 33,097,515 in gross revenues and contributed over $100,000 to the City’s general fund from stadium rent and concession sales. According to the flow monitor, the concert also contributed 162,000 gallons of wastewater – per capita assured use, this concert created an additional 162,000 gallons of wastewater – per capita use.

LAND USE

Land use within a particular area can impact the shape of the diurnal pattern. The examples below represent diurnal patterns from six different land use areas within the community. The residential pattern is the most common. Combinations and variations of these patterns are often observed in mixed land use areas.

Sewer flow data obtained from Chula Vista during several familiar holidays are displayed in comparison with normal weekday and weekend sewer use patterns. To a sewer sociologist, a holiday looks much like a weekend. However, characteristic differences are observed that make each holiday unique. See what differences you can find and how they compare with your holiday traditions.

WILDFIRE EVACUATIONS

Several devastating wildfires raged through the San Diego County area in October 2007, prompting the evacuation of over 100,000 residents as fire fighters fought to save lives and protect property. The Witch Creek Fire alone burned nearly 200,000 acres and threatened residents in Ramona, Rancho Bernardo, Escondido, and other communities. The data shown here were obtained from a flow monitor located in Rancho Bernardo, where flames reached this first homes, at about 4:07 AM on October 22, 2007. Note the drastic reduction in flow as residents awoke and fled the approaching wildfire – complete evacuation of the area. A total of 365 homes were destroyed within the City of San Diego, and an additional 79 were damaged as a result of the wildfires. However, it is estimated that few fire fighters saved approximately 6,000 homes within the path of the fires.

Most people rarely think about the sewers beneath their feet. However, the flow of wastewater in the sewers below provides a unique perspective into the life of the community above. This poster provides a tour of the City of San Diego and its surrounding metropolitan area through the eyes of a sewer, as revealed in hydrographs of sewer flow data. Differences in land use are apparent, as well as differences between weekdays, weekends, and holidays. Activities and events that distract and disrupt daily life can also be seen as departures from these patterns.

Kevin L. Enfinger, P.E. and Paul S. Mitchell, P.E.