

Lesson One: What Does the California Water Project Tell Us About Public Works Infrastructures?

1. UCLA Water Main Break: This lesson is designed to introduce public works infrastructures by examining the California Water project. The lesson begins with a look at the UCLA water main break that occurred in July, 2014. Use the accompanying PowerPoint presentation (three photos and six factual statements) to provide information to the students about this very disruptive public works misfortune. Then have students discuss these questions plus any others the teacher may have:

- What are several probable economic consequences of this water main break?
- Who will likely benefit? Who will likely lose?
- Over all, is this good or bad for the Los Angeles economy? Why?
- Why did this water main break?

Using the following information to help students understand not only why this water main broke, but also why and how these breaks are very expensive and quite commonplace throughout the country.

This water main was over 90 years old. Like most old pipes, it was rusting in many places, and eventually the pipe became so corroded that it broke with explosive power. On average, over 800 water main breaks occur each day in the United States. Most are small, but some are large like the UCLA break.

One might ask why this old pipe wasn't replaced. The main answer is money. There are over 7,200 miles of pipe in the Los Angeles system, and 10% of these pipes are over 90 years old. To replace all of the aging pipes would cost 8 billion dollars, which is the entire LA budget for one year. The city is gradually renovating the old water mains, but at a snail's pace. In the last five years, nine miles of pipes have been replaced. Expect more water main blowouts in the near future.

For more information on the nation's crumbling water mains, see www.watermainbreakclock.com. Be sure to find out who is sponsoring this site and what biases it might lead to.

2. Water Infrastructure Characteristics: Water mains are only one segment of the complex and important infrastructure that is needed to reliably deliver safe water to the many homes and businesses in Southern California. In part two of this introductory lesson, the teacher will first introduce the broad concept of infrastructure and then provide students with eight characteristics of most infrastructures.

Our Definition of Infrastructure: “The organized network needed to provide particular goods and/or services to a large group of people.”

Eight Characteristics of Most Infrastructures:

- Very important
- Government in charge
- Expensive to maintain
- May be deteriorating
- Large and complex
- Expensive to build
- Can be controversial
- May be privately owned or managed

The teacher may want discuss this definition and these characteristics briefly now, and then let students learn them in more depth as they look at the three stages of the California Water Project in the third part of the lesson, which immediately follows.

3. California State Water Project: Part three of this lesson moves the focus of infrastructure from the local level to the state level. Students will work in groups as they examine the flow of the California Water Project from the dams to the aqueduct system to the local municipal water systems. They will determine which of the eight characteristics discussed in part two above apply to each part of the Water Project. Each group will get information from a four-page handout (“The California State Water Project”) that has a photo and a few facts on each of these three stages. Have students look at this information in order to complete the checklist “Water Infrastructure Chart”. In a large class debrief, ask students to share their findings about the eight characteristics and the water project. Ask students if they have questions about the water project.

Discuss implications of this activity, leading to questions like:

- Compare the conditions of the local water infrastructure where the students live with the California Water Project. What are some similarities? Differences? Any problems for the future?
- How high of a priority should improving the local state water infrastructure be?
- What are some other important public works infrastructures? Do these eight characteristics of infrastructures also apply to them? Are any in the news?