

OUTCOMES_ California Scenario

Once students have chosen a location, given their reason for choosing each site and their prediction for how their community will fare in the future – the following information can be shared with the teams. *(NOTE: The community usage figures were merely lifted from the activity as written in the guide. While the figures have been adjusted to reflect community size and locations, they should not be considered valid for a California community without further research.)*

If you chose Location 1, the end result is a large community, including three factories and more than two dozen farms. The farms in Location 1 need less fertilizer and have easy access to irrigation water. During winter, the community needs about 60 million gallons (227 million liters) per day. In summer, because of agriculture and additional water requirements in energy production, water needs increase to nearly 500 million gallons (1.9 billion liters) per day.

If you chose Location 2, the end result is a large community, including three factories and a dozen larger farms. The farms in Location 2 use some fertilizer and need more irrigation water due to drier soil conditions. During winter, the community needs about 60 million gallons (227 million liters) per day. In summer, because of agriculture and additional water requirements in energy production, water needs increase to nearly 550 million gallons (2.08 billion liters) per day.

If you chose Location 3, the end result is a medium-sized community, including one small factory, a number of small businesses and several farms. During winter, the community needs approximately 50 million gallons (190 million liters) of water per day. In summer, water needs increase to nearly 450 million gallons (1.70 billion liters) per day because of drier conditions agriculture and additional water requirements in energy production.

Community growth has been larger than projected for some locations. 3.974 billion gallons of water must go to older water right holders downstream before any of the new town sites can take water. (1 cfs = 0.646 million gallons per day => $3,974 \times 0.646 = 6,149$ cfs of flow) – Students need to calculate the cfs flow required to meet the needs of their town location, then add it to the water already claimed by older water right holders – This will be the minimum flow needed for the town – anything below this minimum river flow is now a critical water shortage.

Once students have these results, they will need to graph and analyze the next 10 years of streamflow data and determine how their communities have fared. Based on the results, are there any changes they would suggest for their town?