

## BERKELEY HILLS TRAFFIC SIMULATION

The Berkeley Hills area demands careful attention to evacuation due to its vulnerability to wildfires. Moving forward with the analysis, it has become necessary to extend the road network to better capture how the evacuation would spread to the rest of the city and what the differences would be. Additionally, not only Berkeley Hills but also the Kensington area was included in the simulation as it is closely connected, along with the Lawrence Berkeley National Laboratory (LBNL) because the number of people present in the facility each day would present additional challenges and unexpected situations for the City of Berkeley in case of evacuation. Thanks to the collaboration between the City of Berkeley and LBNL staff, new data and information were gathered to increase the detail and validity of the simulated model.

Three scenarios were considered in this case: two during the day and one at night. The two daytime scenarios include a weekday and a weekend day. The main difference lies in the number of people evacuating from the lab on a weekday (almost 2,000) and how they are distributed in the evacuation scenario. On the weekend, the number of people in the lab is about 300, mainly visitors. The nighttime scenario includes one vehicle for each residential tax parcel present in the area about to be evacuated (Figure 1).

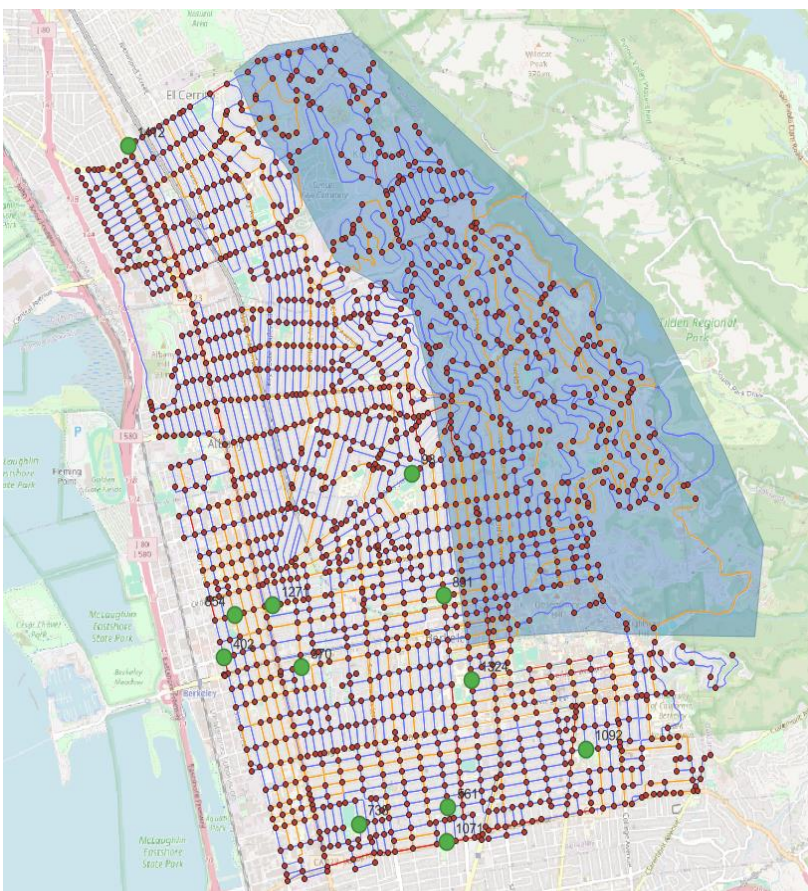


Figure 1. New road network and evacuation area involved

In these scenarios, various strategies (planning, rerouting, contraflow) were tested to understand the contribution of each to the total evacuation time. Shelters were also introduced within the city of Berkeley to verify if the most effective strategy was to direct people towards the highway and out of the city or simply distribute them within shelters.

The simulations are continuously improved thanks to comparisons made with representatives from the city of Berkeley. Future work includes adjusting road capacity based on data provided by the city, modeling traffic within the internal network of LBNL, and including background traffic in the non-evacuation areas of the city to understand how the number of vehicles integrates into the normal flow of traffic circulation.

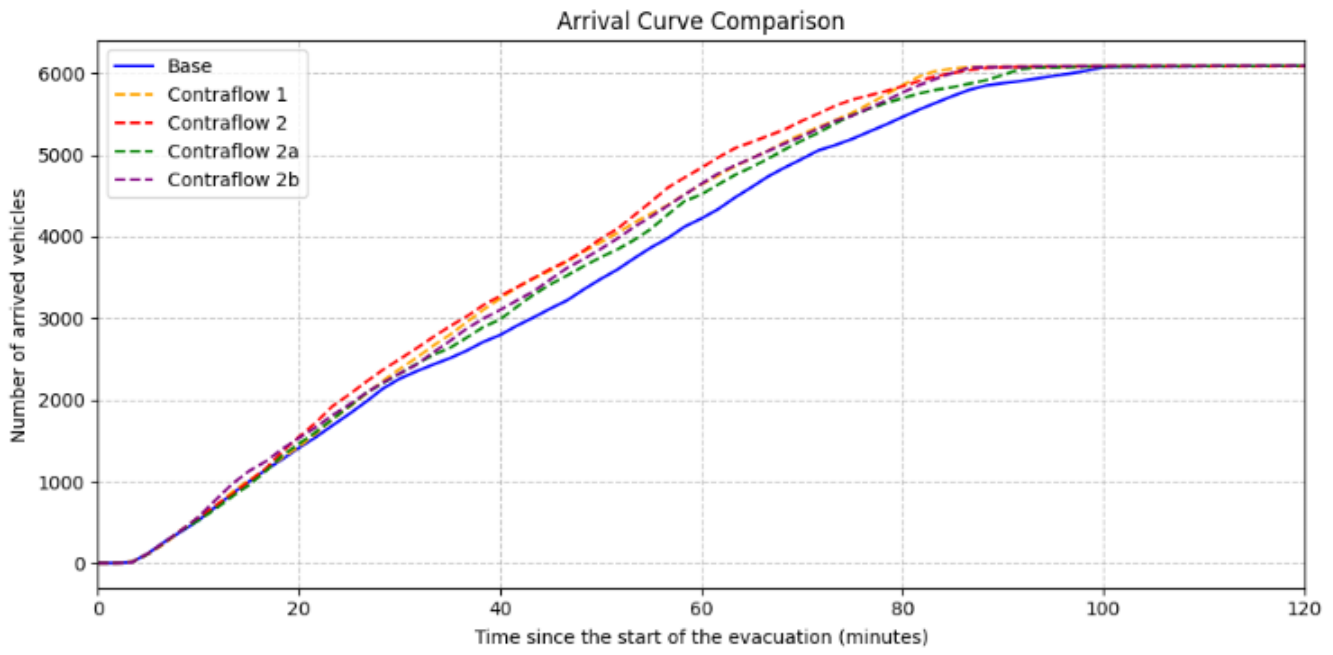


Figure 2. Evacuation simulation results with different contraflow strategies