BERKELEY HILLS TRAFFIC SIMULATION

The Berkeley Hills area remains a critical focus due to its heightened vulnerability to wildfires. In developing the analysis, it was necessary to extend the road network to understand better how evacuation traffic would flow through the rest of the city. The area of study includes both the Berkeley Hills and the Kensington areas, as they are closely connected, along with the Lawrence Berkeley National Laboratory (LBNL). The LBNL presents specific challenges during an evacuation, given the number of daily visitors and staff. Collaboration with the City of Berkeley and LBNL staff has provided new data to enhance the accuracy and detail of the models.

Significant improvements have been made with the integration of LBNL's internal traffic, modeled using SUMO microsimulation. This microsimulation allows for precise synchronization between vehicles departing from LBNL's detailed internal network and the broader Berkeley evacuation model. Each vehicle's entry time into the Berkeley network is now accurately tracked, reflecting realistic interactions between the two systems. Various evacuation plans proposed by LBNL have been tested, enhancing the evacuation strategies.

For the Berkeley network, ongoing tests focus on different contraflow strategies to optimize traffic flow and evacuation times.

Looking ahead, future developments will include modeling wildfire spread and linking it to evacuation zones. This enhancement aims to move beyond the current broad evacuation model, which covers the entire Berkeley Hills area. The new approach will incorporate real-time fire progression data to refine evacuation plans, ensuring they adapt dynamically to the evolving fire situation and provide a more responsive and effective evacuation strategy.

Fig 1. LBNL internal division

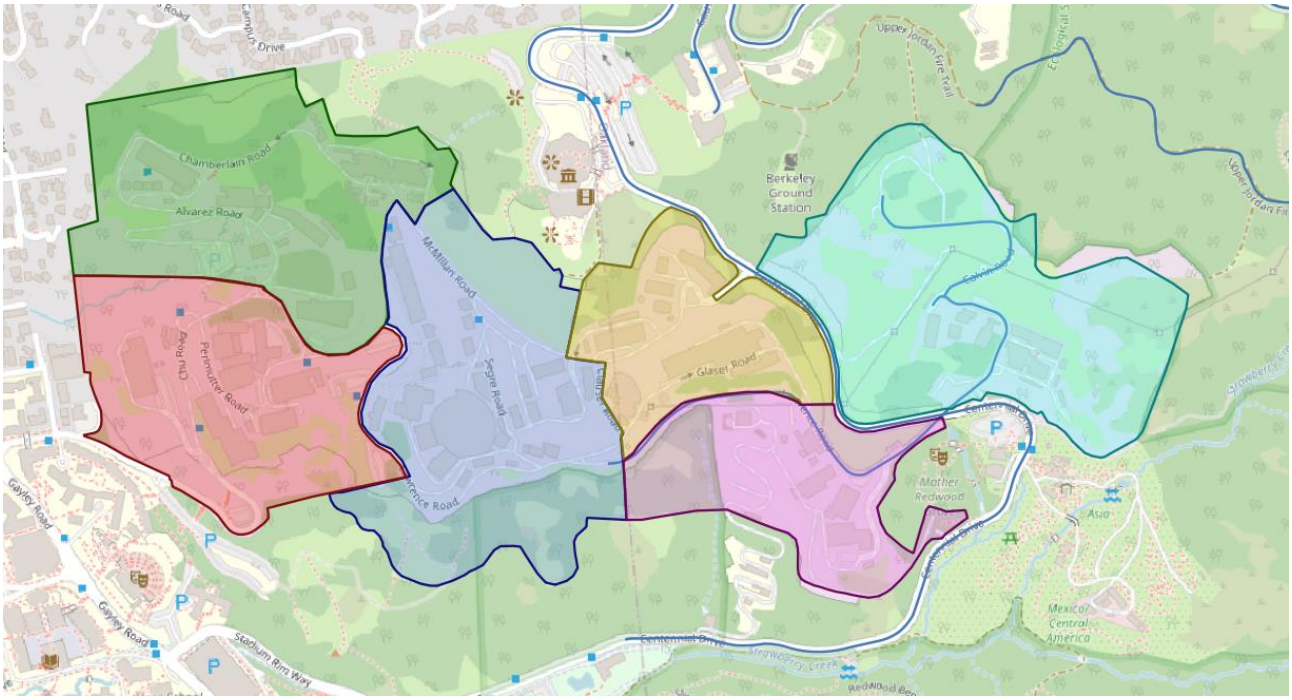

Fig 2. Evacuation by zones scenarios - Two zones at a time every 20 minutes