

## WEST MARIN EVACUATION SIMULATIONS

Recently, we conducted evacuation simulations in Inverness which has a specific road pattern: “One way in, one way out.” When residents who live in such areas begin evacuating at the same time, they are very likely to block the main roads, or even lead to deadlock of all areas. This study applies agent-based, car-following traffic models to simulate potential wildfire evacuation in Inverness with limited ingress and egress under three different strategies: simultaneous evacuation, phased evacuation, and road priority scheme.

As shown in the figure, there is one main road, Sir Francis Drake Boulevard (pink line in the figure), that runs the length of the town and connects with State Highway 1, the scenic highway that hugs the Pacific Ocean and spans the length of the state. Most of the homes in Inverness are located on smaller, winding roadways that end in the forest, but connect to Sir Francis Drake Blvd as the one route out of town.

Simulation results show that, for this case study: (1) phased evacuation strategy results in less agent waiting time compared to simultaneous evacuation on the road assigned with either same or different priority schemes; (2) on roads assigned the same priority, phased evacuation allows vehicles to leave according to their risk exposure, but takes a longer time compared to time required in a different priority setting; and (3) a combination of different road priority schemes and phased evacuation strategy illustrates the safety of agents exposed to the most dangerous risk and lessens the waiting time for the whole system.

By communicating with local people and group members, we will extract information from our previous interviews and work to solve unexpected emergent cases that concern them most with phased evacuation in this special “One way in, one way out” road pattern.

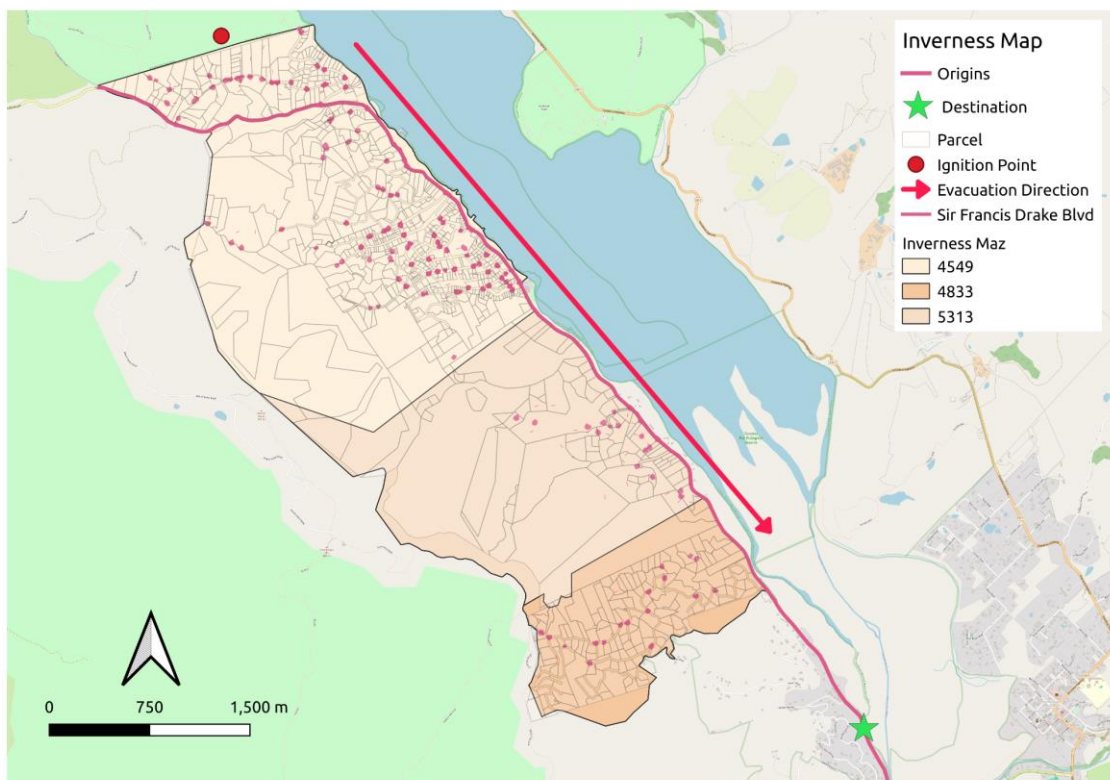


Fig 1. Evacuation routes in simulation along Sir Francis Drake Blvd in Inverness