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Landing Zone In Yosemite Valley Response to Climbing Accidents

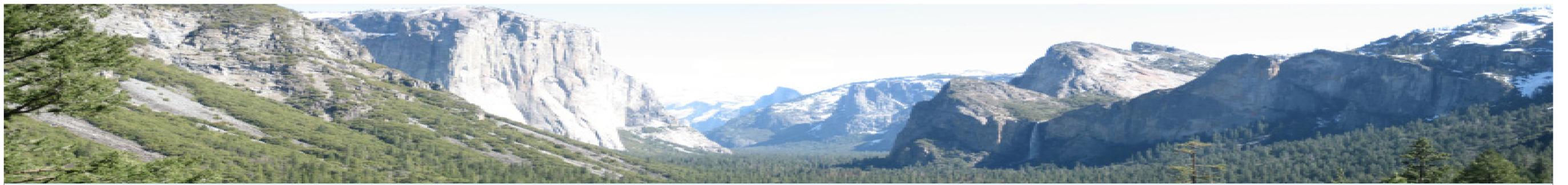
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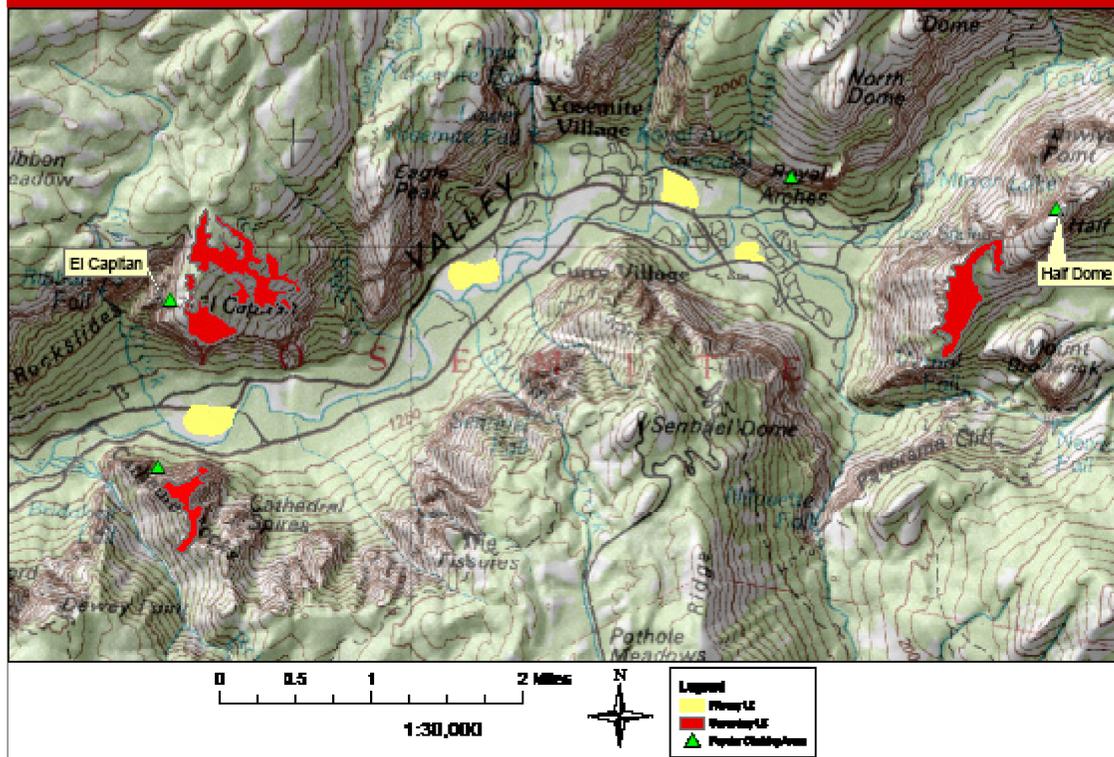
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Abstract: Every year, nearly three and a half million people visit Yosemite National Park to enjoy the great outdoors. However, some may face the problem of being lost and injured in the rugged backcountry. At times like these, the Yosemite Search and Rescue team (YOSAR) is called into action. These rescue missions often require YOSAR to transport patients quickly. One way to extract victims from the backcountry rapidly is by helicopter. When helicopter becomes the primary means of transportation, a safe landing zone is needed. This project maps safe landing zones according to local protocols using GIS. These sites are mapped to popular climbing areas so that YOSAR can use the nearest site during rescues, thereby reducing the time needed to extract injured people from the backcountry.

Map of Rotor-Wing Air Ambulance Landing Zones



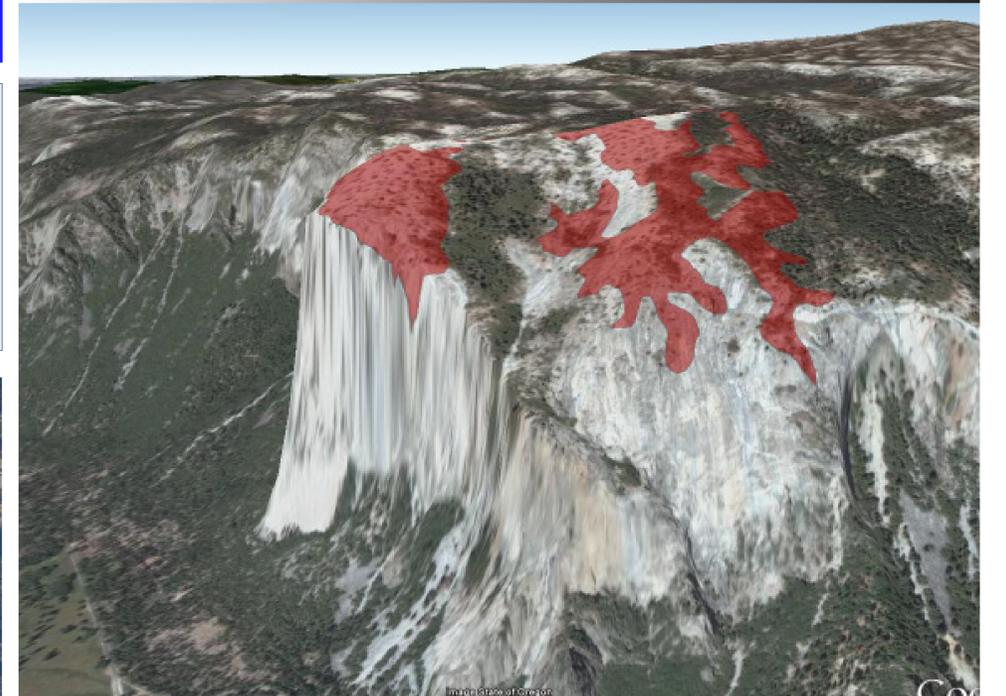
Landing Zone In Yosemite Valley Response to Climbing Accidents

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Mount David Summit 2010

Work Cited:
Data retrieved from:
-The National Map Seamless Server of USGS, 2010.
-GIS data of National Park Service, 2010
-Friends of Yosemite Search and Rescue. N.p., 2010. Web.

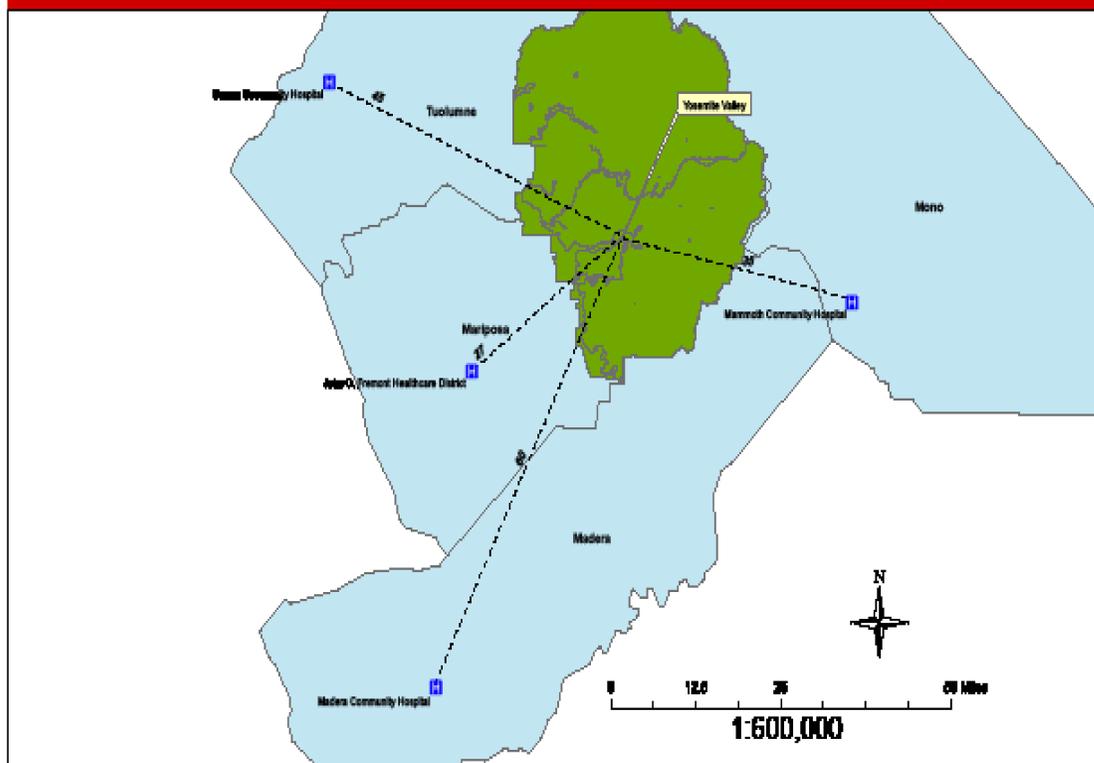


Aerial View of Secondary Landing Zones

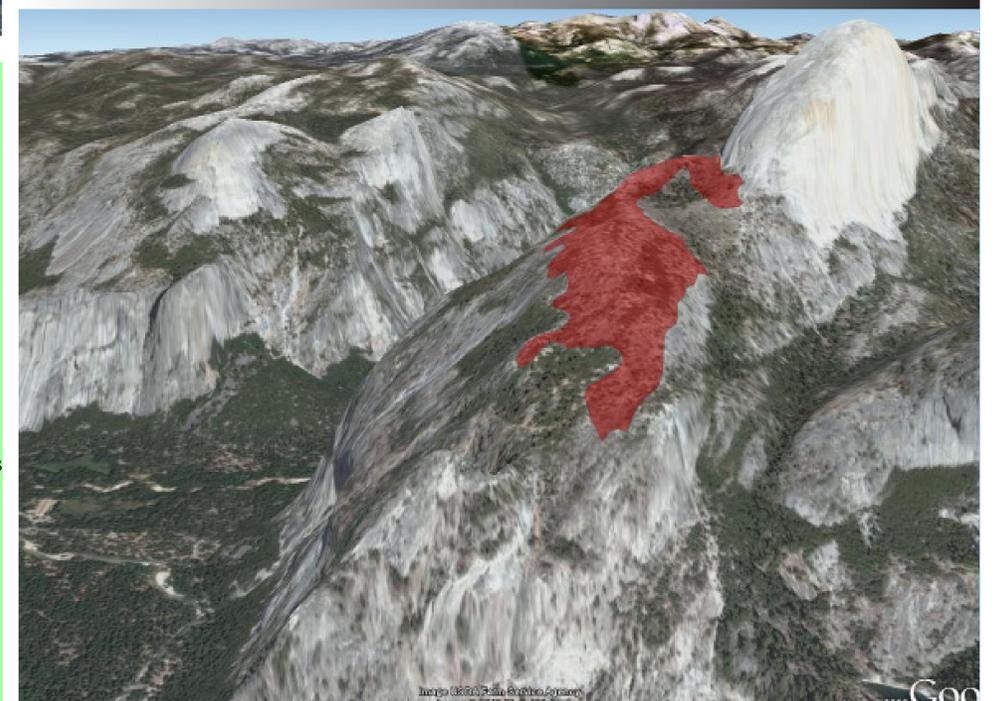


LZ at El Capitan

Map of Transport Destination in Surrounding Counties with Distance in Miles



Nearly every day, the Yosemite Search and Rescue Team (YOSAR) is on call for varied types of rescues. Last year alone, YOSAR responded to 244 calls, of which about 15% contributes climbing incidents. This map focuses on popular climbing areas in the valley including El Capitan, Half Dome, Royal Arches, and Cathedral Rock. Due to the rugged terrain, chopper rescue is often implemented to assure patient's immediate care. The landing zones in Yosemite Valley (top left) are mapped out by matching the criteria needed for a safe landing. In order to land a rotor-wing air ambulance, the area of interest needs to have at least a clearing of 60 square feet or an optimal clearance of 100 square feet. The slope of landings cannot be steeper than 20 degrees. Furthermore, the landing zone requires a vegetation density of 2% or less while ground material should not contain flying sand debris that can impair pilot's vision. The landing zones are divided into two categories – primary and secondary. Primary LZs are more secured. If patients are able to transport to the primary LZs in time then they should be used. However, secondary LZs are mapped out for patients who require immediate transport. Then a map of the estimated flight distance (in miles) is made (bottom left). The hospitals are mapped, from closest to farthest, include the John C. Fremont Healthcare District of Mariposa, Mammoth Community Hospital of Mono, Sonora Community Hospital of Tuolumne, and Madera Community Hospital of Madera.



LZ at Half Dome