4.2.1.1 Fire Likelihood Fire likelihood, or burn probability (BP), is the Fsim-modeled annual likelihood that a wildfire will burn a given point or location. It is calculated as the number of times a given pixel burns during a simulation divided by the total number of iterations and represents a true annual burn probability that considers all possible weather scenarios. This methodology provides a long-term perspective on the relative likelihood of fire for any location in the county in any given year. To produce a map of relative wildfire likelihood for Gallatin County, the average BP for each catchment was calculated, and those averages were classified those into four classes of low, moderate, high and very high (Figure 4-1). The classes are relative to the distribution of catchment averages only within Gallatin County and are based on quartiles. Therefore, the high and very high classes represent all catchments with an average BP value above the county median. The average BP for catchments ranges from 0 to 0.0098, with a mean of 0.0021. Thus, a given catchment has about a 1 in 476 chance of burning in any given year. In general, wildfire likelihood is highest on forested, middle- to upper-elevation sites including: 1) the east flank of the Bridger Mountains across Bridger Canyon to the east and into the Bangtail Mountains; 2) the Gallatin Front along the south end of the Gallatin Valley; and 3) the southern portion of the county, including the Gallatin and Madison ranges and areas around Big Sky, extending south to Hebgen Basin and the area southwest of West Yellowstone. Areas with low burn probability include: 1) irrigated agricultural lands within the Gallatin Valley, predominantly south of I-90; 2) small areas above treeline in the Hyalite Mountains and Spanish Peaks; and 3) part of Hebgen Basin, particularly the northeast side of Hebgen Lake.

Gilbertson-Day, J., Scott, J.H., Vogler, K.C., and Brough, A. 2017. Northern Region Wildfire Risk Assessment: methods and results. Internal report to USFS Region 1; unpublished.