5. Wildfire Behavior Model

In the development of the FSF-WFM, we employed the open-source wildfire behavior model, ELMFIRE, which is a highly parallelized model that was used to both simulate fire spread and quantify the wildland fire hazard via Monte Carlo simulations. ELMFIRE is a Rothermal-based, level set model used to track boundaries across the landscape based on the numerical solutions of [42] and is fully described in Lautenberger [43].

The overall fire hazard and probability modeling methodology, as shown graphically in Figure 8 and described in this section, is based on the work of Finney et al. [

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], best

practices described by Scott et al. [

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], and a relatively recent review of simulation-based

burn probability modeling [