The emergence of the COVID-19 pandemic has generated a great deal of scientific interest in strategies to effectively respond to epidemics. Compartmental models, such as the Susceptible-Exposed-Infected-Removed (SEIR) model, are popular tools that allow us to study the behaviour of various epidemics. However, the model assumes that the population is well-mixed and does not take into account public health policies such as social distance and bubble strategies. Here, a Bubble SEIR model is constructed based on the stochastic continuous-time Markov chain SEIR model. The Bubble SEIR model divides the population into subpopulations called bubbles. The model assumes that each subpopulation is well-mixed and also allows the possibility of movements between bubbles. Simulations using the developed model were conducted to investigate the effect of the bubble strategies on the spread of infectious diseases. In the simulation study, we will discuss the effects of parameters of the model including rate of movement between bubbles, basic reproduction number, latency period, population size and initial number of infecteds, on the final size and the duration of the epidemic. The simulation experiments show that the bubble strategies are effective in controlling the spread of infectious diseases. When implementing the bubble strategies, achieving zero contact between bubbles can be challenging. However, curbing the rate at which individuals move between bubbles can have a positive impact. Furthermore, while changes in infection and removed rates affect the final size of the epidemic, changes in the basic reproduction number have a much larger impact. While the latency period varies depending on the nature of the virus, it is worth noting that the bubble strategies tend to be more effective in controlling the spread of epidemics characterized by shorter latency period. More bubbles proved to be more effective in controlling epidemics when the population size increased, and also demonstrated that bubble strategies should be implemented early.