We present a pde approach to the study of averaging principles for small stochastic perturbations of Hamiltonian flows in 2D, which is based on a recent joint work with P. E. Souganidis of the University of Chicago. Freidlin and Wentzel initiated the study of such problems and there have been an extensive study in this field in the last several years. Asymptotically the slow (averaged) motion has 1D character and takes place on a graph, and the question is to identify the limit motion in terms of pde problems. Our approach is based on pde techniques and applies to general degenerate elliptic operators while previous work has relied on the probabilistic techniques.