The performance of a neural network is dependent on several factors including its underlying architecture. The field of neural architecture search (NAS) is an important part of automated machine learning (AutoML) as it focuses on automatization of a previously manually performed search process for the best performing architecture for a given task. Estimation of performances of architectures is an inseparable part of NAS. As the standard full training and consequent evaluation of architectures is computationally infeasible a lot of research is focused on creating less computationally demanding ways for performance estimation. In this work we will explore the behaviour and implications of utilizing two types of lower fidelity proxies in conjunction with model based performance predictor. The first type of lower fidelity proxies being zero cost (ZC) proxies used as additional input features for the model besides of standard architecture's encoding. The second type being learning curve extrapolation used for generating labels of the model based predictor's training dataset hence compensating for its otherwise very long initialization time.