This paper is about an extended approach calculating continuous trajectory controller commands up to second order time derivatives required by a nonlinear dynamic inversion based 3D trajectory controller. The continuous commands are calculated based on a predefined continuous, at least three-times differentiable geometric trajectory as well as velocity and acceleration measurements. For doing so, also an expression for the desired position on the trajectory in terms of a differential equation for the trajectory parameter is derived. In order to avoid the desired position drifting away an additional proportional error feedback controller is introduced. The proposed method is intended for the use as a modular part of an integrated auto flight system.