It has been a decade, researchers have been conducting research on the topics concerning vehicle behavior. Suspension system, driving maneuver and road profile are particular parameters in order to achieve the aim in vehicle behavior understanding. This paper combined these three criteria by means of using a passenger car equipped with MacPherson strut front suspension undergoes different driving behavior. The objective of this paper is to study the effect of passenger car equipped with MacPherson strut front suspension system vehicle behavior based on different driving maneuvers. For this study, Proton Persona Sedan 1.6 Manual Transmission Base Line was used to investigate the MacPherson strut suspension system. Data were collected using DEWESoft Software. As the velocity and direction varies with time, the vehicle response subjected to stationary excitation, while it varies with different velocity and different type of road. Acceleration, deceleration and bumpy test the suspension mechanism support the weight of the vehicle yet to cushion bumps and holes in the road. It can be concluded that the MacPherson strut suspension system has an effect on not only vehicle behavior but also comfort ride. These findings provide the following insights for future research in suspension vibration in order to optimize the performance of the MacPherson strut suspension system.