Bridge approach slabs (BAS) are transition slabs used to connect the roadway with the bridge. Among the various problems bridge approach slabs experience, differential settlement is the major cause leading to approach slab distress. The two suggested alternatives are also effective for rapid replacement/repair operations on bridge approach slabs. A life cycle analysis (LCCA) was completed to study comparative costs for urban and rural traffic patterns and to investigate the economic effectiveness of the precast prestressed slab designs. The MoDOT BAS design along with another design alternative called BAS incorporating elastic support (BAS-ES) were included in the LCCA procedure to study the effectiveness of the precast prestressed alternatives. When present value of total costs are considered, the Fully Precast Prestressed - BAS design is the most cost-effective when AADT counts are high, such as with urban traffic demands.