Prairies are complex living systems which play a vital role both biologically and ecologically in the environment and support a large amount of wildlife. Prairie restoration is an ecologically friendly way to restore prairie land that was lost due to various reasons. This study evaluated a native prairie and a restored prairie to assess the influence of prairie restoration on soil hydraulic properties. Samples were collected from two prairie sites, a continuous no-till site, a long-term timothy grass site, and a row-crop field. All sites were located in Missouri and have Mexico silt loam (fine, Smectitic, mesic, Vertic Epiaqualfs) soil series. Samples were analyzed for bulk density, saturated hydraulic conductivity (K_{sat}), soil water retention, pore size distribution and In-situ saturated hydraulic conductivity was measured in the field. Results imply that the prairie restoration does significantly influence some hydraulic properties in claypan soils; however, it is unlikely to achieve the original prairie soil characteristics due to the erosion of the top soil.