The purpose of this report is to document the locations of principal faults in the Houston metropolitan area. Numerous subsurface faults have been documented beneath the Houston metropolitan area. These faults are identified as points on the ground or as areas that have been offset or scarped. In this report, the faults are mapped digitally on a high-resolution Digital Elevation Model (DEM) generated from Light Detection and Ranging (Lidar) technology. The Lidar technology provides a map of the terrain, including areas that are not visible from the surface. The faults mapped in this report are those that are visible on the surface or can be inferred from the DEM.

The Houston metropolitan area is divided into three main regions: the Houston, Sugar Land, and Galveston counties. The principal faults in the Houston metropolitan area are shown in Figure 1. The faults are color-coded to indicate their depth and orientation. The figure also includes a legend that describes the symbols used to represent the faults.

In the Houston metropolitan area, the principal faults are associated with the sedimentary layers that make up the subsurface. These faults are formed by the movement of the sedimentary layers, which can be caused by tectonic activity or by the weight of the overlying sediments. The faults are often associated with folds in the sedimentary layers, which can be seen on the surface as fault scarps.

The fault scarps are used to identify the location of the faults on the surface. The scarps are formed by the movement of the sedimentary layers, which results in a change in the elevation of the surface. The scarps can be seen on the Lidar-derived DEM as areas that are higher or lower than the surrounding terrain.

The principal faults in the Houston metropolitan area are important for land-use planning and construction. The faults can cause damage to structures and infrastructure, and they can also be used to identify the location of mineral deposits.

The references for this report are cited in the references section of the report. The principal references include O’Neill and Van Siclen (1984), Verbeek and others (1979), and McClelland Engineers (1966).

The Lidar technology used in this study is supported by the World Wide Web: http://www.csr.utexas.edu/rs/research/lidar.html.