I.   An earthquake scenario is a planning tool to understand earthquakes and plan for the future. Scenarios help to visualize specific impacts that are based on currently accepted scientific and engineering knowledge. They provide opportunities to incorporate emergency preparedness measures to save and protect lives.

II.   The earthquake planning scenarios used in this plan are based on Hazus 3.0 Loss Estimation. Hazus is a regional earthquake loss estimation model that was developed by the Federal Emergency Management Agency and the National Institute of Building Sciences. The primary purpose of Hazus is to provide a methodology and software application to develop earthquake losses at a regional scale. These loss estimates are used primarily by local, state, and regional officials to plan and stimulate efforts to reduce risks from earthquakes and to prepare for emergency response and recovery.

III.   Due to uncertainties inherent in any loss estimation technique, there may be differences between the modeled results and the actual social and economic losses following an earthquake.

IV.   A specific limitation to Hazus is the tourist population, which is not clearly accounted for in the loss estimates. If a strong earthquake were to occur in a period of high tourist population, the losses could be significantly higher.

V.   Included in this attachment are the Earthquake Planning Scenarios Global Summary Reports produced by Hazus. The earthquake planning scenarios were developed assuming that a particular fault ruptures over a certain length, producing a certain magnitude earthquake and the potential consequences of such earthquakes. The earthquake planning scenarios are:

- Aiken Region M6.0 consisting of Aiken, Barnwell, Edgefield, Lexington, Orangeburg, and Saluda counties

- Bishopville Region M5.5 consisting of Chesterfield, Darlington, Dillon, Florence, Kershaw, Lancaster, Lee, Marion, and Marlboro counties

- Union Region M5.5 consisting of Cherokee, Chester, Greenville, Laurens, Pickens, Spartanburg, Union, and York counties

- Summerville M6.0 consisting of Berkeley, Charleston, Clarendon, Colleton, Dorchester, Georgetown, Orangeburg, and Williamsburg counties

- Summerville M 7.3 consisting of all 46 counties

VI.   The Summerville/Charleston M7.3 earthquake planning scenario is worst case. A magnitude 7.3 earthquake occurring at the epicenter of the Charleston 1886 earthquake would affect the entire state with most of the destruction and damage occurring within a 100+ mile radius from the epicenter. Most buildings, including schools, hospitals and fire stations would suffer significant damage.

VII.   Potential loss estimates from this scenario are:

- A daytime event at 2PM will cause the highest number of casualties.

  - Injuries not requiring hospitalization: 31,250

  - Non-life-threatening injuries requiring hospitalization: 9,537

  - Life threatening injuries requiring hospitalization: 1,553

  - Deaths: 2,877

- More than 200 schools (K-12) will experience at least moderate damage and require inspection before entering the facility.

- Approximately 54 fire stations will experience at least moderate damage.

- Of the 108 hospitals statewide, 14 will experience at least moderate damage with greater than 50% damage to the hospitals in the low-country.

- Electric power facilities will suffer damage and approximately 213,000 households will be without power the day following the earthquake.

- On the day following the event, approximately 166,000 households will be without water. It could take weeks, possibly months, to fully restore the water systems.

- A strong earthquake will generate approximately 17 million tons of debris

- Nearly 94,000 households would be displaced. Of these, approximately 62,500 people will seek temporary public shelter. These numbers could rise in the weeks following the earthquake as weakened structures continue to fail.