

**NCSX Preliminary Design Cost Estimate Summary Form  
(Attachment 1a)**

**SUMMARY DESCRIPTION**

<b>WBS Number: 38</b>	<b>Title: Electron Beam Mapping</b>
<b>Originator: Dave Johnson</b>	
<b><u>Description</u></b>	
<p>This WBS element consists of all EB mapping equipment required to accomplish the NCSX mission as defined in the General Requirements. This equipment will be required in the field-line mapping phase of operations (Phase 2) and thus is included in the Fabrication Project.</p> <p>The field line mapping hardware consists of a probe drive with an electron gun at its tip, which can be accurately positioned along a line through the nominal cross-section. The axis of the gun also needs to be adjustable for alignment with the local field. During field mapping the electron beam from the gun will intercept a phosphor coated mesh. The light from the strike points will be imaged by a high resolution CCD camera. Careful metrology will reference positions to machine coordinates. Strike points will be compared to expectations of a code, which will compute the beam trajectory for given coil currents. Magnetic island structures will be investigated for different vacuum field configurations.</p> <p><u>Description of Existing Equipment/Facilities to be Reused:</u> <b>None.</b></p> <p><u>Description of Major Modifications Required to Existing Equipment/Facilities:</u> <b>None.</b></p>	